JANUARY 20, 2026 REGULAR MEETING

PLEASE DOWNLOAD THE AGENDA DOCUMENT FOR INSTRUCTIONS ON HOW TO PARTICIPATE IN THE MEETING.

1. Meeting Agenda

   Documents:

   PC260120_AGENDA.PDF

2. Item 3B1

   De Minimis Waiver No. 24-007 / 30051 Andromeda Lane

   Documents:

   PC260120_ITEM 3B1.PDF

3. Item 4A

   View Preservation Permit No. 24-001 / Claimant 4727 Avenida Del Mar / Foliage Owner 4732 Avenida Del Mar

   Documents:

   PC260120_ITEM 4A.PDF

4. Item 4B

   Coastal Development Permit No. 19-012 / 25200 Pacific Coast Highway

   Documents:

   PC260120_ITEM 4B.PDF

5. Item 5A

   Coastal Development Permit No. 25-032 / 30215 Morning View Drive (Malibu Middle and High School Phase II)

   Documents:

   PC260120_ITEM 5A.PDF

6. Item 5B

   Zoning Text Amendment No. 25-003 / Citywide / Update to Title 17 (Zoning) related to Accessory Dwelling Units (ADUs) and Junior ADUs

Documents:

PC260120_ITEM 5B.PDF

HOW TO VIEW THE MEETING: The meeting will be live streamed at www.malibucity.org/video and via Zoom Webinar.

HOW TO PARTICIPATE BEFORE THE MEETING: Members of the public are encouraged to submit email correspondence to planningcommission@malibucity.org at least three days prior to the meeting to provide adequate time for Commissioner consideration. Correspondence will continue to be processed until thirty minutes prior to the start of the meeting or as practical.

HOW TO PARTICIPATE IN-PERSON DURING THE MEETING: In order to participate in-person, each speaker must complete and submit to the Recording Secretary a Request to Speak form and be present in the Council Chambers when the item is called by the Chair. In-person participants may also surrender their opportunity to speak on a particular item to donate one minute to another in-person speaker, not to exceed a total of eight minutes.

HOW TO PARTICIPATE REMOTELY DURING THE MEETING: The City has been experiencing extreme technical issues with its broadcast and Zoom capabilities. It is strongly recommended that those who wish to participate do so in person as Zoom participation is not guaranteed. While the City intends to allow Zoom participation if possible, the meeting will not be cancelled or continued if technical difficulties impact the ability to accept public participation over Zoom. In such case only in-person participation will be allowed. In order to participate remotely, you must be present in the Zoom meeting and use the Raise Hand feature to request to speak when the Chair calls the item. When you join the Zoom meeting you may see a pop-up asking you to enter an email address, but a valid email address is not required.

Please visit https://malibucity.org/VirtualMeeting and follow the directions to stream the live meeting or learn how to use the Zoom application.

Malibu Planning Commission
Regular Meeting Agenda

Tuesday, January 20, 2026

6:30 P.M. – REGULAR PLANNING COMMISSION MEETING

City Hall – Council Chambers
23825 Stuart Ranch Road

Zoom Meeting Link:
https://us02web.zoom.us/j/84438477395

Call to Order - Chair

Roll Call - Recording Secretary

Pledge of Allegiance

Approval of Agenda

Report on Posting of Agenda – January 9, 2026

1. **Ceremonial/Presentations**

None.

2. **Written and Oral Communications from the Public**

A. Communications from the public concerning matters which are not on the agenda but for which the Planning Commission has subject matter jurisdiction. The Commission may not act on these matters except to refer the matters to staff or schedule the matters for a future agenda. Subject to the rules of the Brown Act and the Planning Commission's Rules of Procedure and Decorum, the time allotted per Planning Commissioner to respond to public comment and ask staff to follow-up is three (3) minutes.

B. Community Development Director Report

3. **Consent Calendar**

A. Previously Discussed Items

None.

B. New Items

1. De Minimis Waiver No. 24-007 – An application for a new onsite wastewater treatment system for a parcel affected by the Woolsey Fire

Location: 30051 Andromeda Lane, not within the appealable coastal zone
APN: 4469-004-017
Owner: Worth Capital Holdings 24 LLC
Case Planner: Contract Planer Shah, 456-2489, ext. 385

Recommended Action: Receive and file the Community Development Director's report on the issuance of De Minimis Waiver No. 24-007 for a new onsite wastewater treatment system for a parcel affected by the Woolsey Fire.

4. **Continued Public Hearings**

A. View Preservation Permit No. 24-001 – An application requesting corrective action to restore the views recorded at 4727 Avenida Del Mar under Primary View Determination No. 12-267 with regard to the foliage located at 4732 Avenida Del Mar (Continued from December 1, 2025)

Claimant Name: Paul Rothbard
Claimant Address: 4727 Avenida Del Mar
Claimant APN: 4473-010-034
Foliage Owner Name: Avenida Del Mar Holding Trust
Foliage Owner Address: 4732 Avenida Del Mar
Foliage Owner APN: 4473-010-021
Case Planner: Assistant Planner Turner, MUP, 456-2489, ext. 295

Recommended Action: Either 1) adopt Planning Commission Resolution No. 26-01 determining the action is categorically exempt from the California Environmental Quality Act, and approving View Preservation Permit No. 24-001 to require alteration and

maintenance of foliage on 4732 Avenida Del Mar at the height of the horizon, as shown in Primary View Determination (PVD) No. 12-267, in order to restore the primary view documented in PVD No. 12-267 or 2) direct staff to return with a resolution consistent with the Planning Commission's decision.

B. Coastal Development Permit No. 19-012, Lot Merger No. 24-002, and Certificate of Compliance No. 19-009 – An application for a new one-story single-family residence and associated development; including a conditional certificate of compliance to recognize an illegally created lot consisting of two parcels and a lot merger to consolidate two parcels into one (Continued from December 16, 2025)

Location: 25200 Pacific Coast Highway, within the appealable coastal zone
APNs: 4459-013-021 and 4459-014-018
Owner: PAR PCH, LLC
Case Planner: Contract Planner Cook, AICP, 805-415-1991

Recommended Action: Either 1) adopt Planning Commission Resolution No. 26-05, determining the project is categorically exempt from the California Environmental Quality Act, and approving Coastal Development Permit No. 19-012 to construct a new 9,219 square-foot, one-story, single-family residence, including a 1,000 square-foot subterranean two-car garage, 1,523 square-foot basement, 676 square-foot gym, detached 465 square-foot guest house, swimming pools, spa, driveways, decks, landscape, water features, hardscape, grading, retaining walls, and onsite wastewater treatment system, including Certificate of Compliance No. 21-004 to recognize an illegally created lot consisting of two Assessor Parcel Numbers (4459-013-021 and 4459-014-018), and Lot Merger No. 24-002 to consolidate two existing parcels into one, located in the Rural Residential, Two-Acre zoning district at 25200 Pacific Coast Highway (PAR PCH, LLC) or 2) direct staff to return with a resolution consistent with the Planning Commission's decision.

5. **New Public Hearings**

A. Coastal Development Permit No. 25-032, Site Plan Review No. 25-039, and Demolition Permit No. 25-027 – An application to implement the Malibu Middle and High School (MMHS) Campus Specific Plan (Phases 2, 3a, and 4a) with the construction of a new two-story 18,911 square-foot middle school gym (Building D) and outdoor sports courts, one-story 9,243 square-foot middle school student activity, food service, and special education building with canopy (Building D/I), one-story 333 square foot broadcasting/media arts building (Building D), middle school quad and walkways, site improvements, landscaping, on-grade solar installation, grading, and underground utility work, including a site plan review for a height increase over 18 feet, not to exceed 36 feet as allowed in the MMHS Specific Plan and a demolition permit for the demolition of existing classroom Buildings K and I, seven portable classroom buildings, and one portable restroom building

Location: 30215 Morning View Drive, within the non-appealable coastal zone
APN: 4469-017-901
Owner: Santa Monica-Malibu Unified School District
Case Planner: Contract Planner Greenbauer, 949 489-1442 ext. 132

Recommended Action: Either: Adopt Planning Commission Resolution No. 26-04 certifying that the project is consistent with the Final Environmental Impact Report (State Clearinghouse No. 202008350), the Mitigation Monitoring and Reporting Program, and the Statement of Overriding Considerations adopted by the Santa Monica-Malibu Unified School District (SMMUSD) Board of Education on January 26, 2022 and certified by the

City Council on July 11, 2022 in Resolution No. 22-32, and approving Coastal Development Permit No. 25-032, Site Plan Review No. 25-039, and Demolition Permit No. 25-027 to implement the MMHS Campus Specific Plan (Specific Plan) (Phases 2, 3a, and 4a) with the construction of a new two-story 18,911 square-foot (sf) middle school gym (Building D) and outdoor sports courts, one-story 9,243 sf middle school student activity, food service, and special education building with canopy (Building D/I), one-story 333 sf broadcasting/media arts building (Building D), middle school quad and walkways, site improvements, landscaping, on-grade solar installation, grading, and underground utility work, including a site plan review for a height increase over 18 feet, not to exceed 36 feet as allowed in the Specific Plan and a demolition permit for the demolition of existing classroom Buildings K and I, seven portable classroom buildings, and one portable restroom building located in the Institutional Zone and MMHS Campus Specific Plan Overlay District at 30215 Morning View Drive (APN 4469-017-901) (SMMUSD).

B. Zoning Text Amendment No. 25-003 – A revised amendment incorporating new state law and clarifications to Title 17 (Zoning) of the Malibu Municipal Code to update regulations related to Accessory Dwelling Units

Applicant: City of Malibu
Location: Citywide
Case Planner: Senior Planner Achis, AICP, 456-2489 ext. 247

Recommended Action: Adopt Planning Commission Resolution No. 26-03 recommending that the City Council approve revised Zoning Text Amendment No. 25-003, an amendment to Title 17 (Zoning) of the Malibu Municipal Code to update regulations related to Accessory Dwelling Units (ADU) and Junior ADUs.

6. **Old Business**

None.

7. **New Business**

None.

8. **Planning Commission Items**

A. Planning Commission and staff comments and inquiries

Adjournment

Future Meetings

Monday, February 2, 2026	6:30 p.m. Regular Planning Commission Meeting City Hall Council Chambers
Tuesday, February 17, 2026	6:30 p.m. Regular Planning Commission Meeting City Hall Council Chambers
Monday, March 2, 2026	6:30 p.m. Regular Planning Commission Meeting City Hall Council Chambers

Guide to the Planning Commission Proceedings

The Oral Communication portion of the agenda is for members of the public to present items which are not listed on the agenda but are under the subject matter jurisdiction of the Planning Commission. No action may be taken under, except to direct staff, unless the Commission, by a two-thirds vote, determines that there is a need to take immediate action and that need came to the attention of the City after the posting of the agenda. Although no action may be taken, the Commission and staff will follow up, at an appropriate time, on those

items needing response. Each speaker is limited to three minutes. Members of the public may speak during the meeting in-person or through the Zoom application, although it is strongly recommended that those who wish to participate do so in person. While the City intends to allow zoom participation, the meeting will not be cancelled or continued if technical difficulties impact the ability to accept public comment over Zoom. In order to participate remotely, you must be present in the Zoom meeting and use the Raise Hand feature to request to speak when the Chair calls the item. In order to participate in-person, each speaker must complete and submit to the Recording Secretary a Request to Speak form prior to the beginning of the item being announced by the Chair. In person participants may surrender their time by donating one minute to another speaker, not to exceed a total of eight minutes. The speaker wishing to donate time must be present when the item is heard and their form must be submitted with the speaker form for the individual they are donating time to. Speakers are taken in the order slips are submitted. In-person speakers will be called prior to Zoom speakers.

Items in Consent Calendar Section A have already been considered by the Commission at a previous meeting where the public was invited to comment, after which a decision was made. These items are not subject to public discussion at this meeting because the vote taken at the previous meeting was final. Resolutions concerning decisions made at previous meetings are for the purpose of memorializing the decision to assure the accuracy of the findings, the prior vote, and any conditions imposed.

Items in Consent Calendar Section B have not been discussed previously by the Commission. If discussion is desired, an item may be removed from the Consent Calendar for individual consideration. Commissioners may indicate a negative or abstaining vote on any individual item by so declaring prior to the vote on the motion to adopt the entire Consent Calendar. Items excluded from the Consent Calendar will be taken up by the Commission following the action on the Consent Calendar. The Commission first will take up the items for which public speaker requests have been submitted.

For Public Hearings involving zoning matters the appellant and applicant will be given 15 minutes each to present their position to the Planning Commission, including rebuttal time. All other testimony shall follow the rules as set forth under Oral Communication.

Old Business items have appeared on previous agendas but have either been continued or tabled to this meeting with no final action having been taken. Public comment shall follow the rules as set forth under Oral Communication.

Items in New Business are items which are appearing for the first time for formal action. Public comment shall follow the rules as set forth under Oral Communication.

Planning Commission Items are items which individual members of the Planning Commission may bring up for action, to propose future agenda items or to suggest future staff assignments. No new items will be taken-up after 10:30 p.m. without a majority vote of the Planning Commission.

Planning Commission meetings are aired live and replayed on City of Malibu Government Access Channel 3 and are available on demand on the City's website at www.malibucity.org/video. Copies of the staff reports or other written documentation relating to each item of business described above are available upon request by emailing planningcommission@malibucity.org.

The City Hall phone number is (310) 456-2489. To contact City Hall using a telecommunication device for the deaf (TDD), please call (800) 735-2929 and a California Relay Service operator will assist you. In compliance with the Americans with Disabilities Act, if you need special assistance to participate in this meeting, please contact Community Development Director Yolanda Bundy, (310) 456-2489, ext. 229. Notification 48 hours prior to the meeting will enable the City to make reasonable arrangements to ensure accessibility to this meeting. [28 CFR 35.102-35.104 ADD Title II].

*Requests to show an audio or video presentation during a Commission meeting should be directed to the Media Team at media@malibucity.org. **Material must be submitted by 12:00 p.m. on the meeting day**.*

I hereby certify under penalty of perjury, under the laws of the State of California that the foregoing agenda was posted in accordance with the applicable legal requirements. Regular and Adjourned Regular meeting agendas may be amended up to 72 hours in advance of the meeting. Dated this 9th day of January 2026 at 2:30 p.m.



Rebecca Evans, Senior Management Analyst

Commission Agenda Report

Planning Commission Meeting
01-20-26
Item 3.B.1.

To: Chair Riddick and Members of the Planning Commission

Prepared by: Aakash Shah, Contract Planner

Reviewed by: Tyler Eaton, Assistant Community Development Director

Approved by: Yolanda Bundy, MS, PE, CBO, CFCO, Community Development Director and Tyler Eaton, Assistant Community Development Director

Date prepared: January 8, 2026 Meeting date: January 20, 2026

Subject: De Minimis Waiver No. 24-007 – An application for a new onsite wastewater treatment system for a parcel affected by the Woolsey Fire

Location: 30051 Andromeda Lane, not within the appealable coastal zone
APN: 4469-004-017
Owner: Worth Capital Holdings 24 LLC

RECOMMENDED ACTION: Receive and file the Community Development Director's report on the issuance of De Minimis Waiver (DMW) No. 24-007 for a new onsite wastewater treatment system (OWTS) for a parcel affected by the Woolsey Fire.

DISCUSSION: This agenda item is for informational and reporting purposes only. Pursuant to Local Coastal Program Local (LCP) Implementation Plan (LIP) Section 13.4.11, the requirement for a Coastal Development Permit may be waived through a DMW issued by the Community Development Director for the items described in "General Requirements for De Minimis Waiver," below that are not located within the Appealable Jurisdiction of the California Coastal Commission, as depicted on the City's Post-LCP Certification Permit and Appeal Jurisdiction Map.

The Community Development Director issued a DMW for the aforementioned address. Pursuant to LIP Section 13.4.11(A), the Director's decision on whether to issue a DMW is not locally appealable.

LIP Section 13.4.11(C) further states that the Community Development Director shall report in writing to the Planning Commission any DMW that has been issued by the City.

If, after consideration of the DMW and any public objections to it, the Planning Commission requests that the waiver not be effective, then the applicant shall be advised that a CDP is required, if the applicant wishes to pursue the application.

LIP Sections 13.4.11(A) (General Requirements for De Minimis Waiver)

Where the improvements are not otherwise exempt pursuant to LIP Section 13.4, and the required findings of LIP Section 13.4.11(B) are met, the Community Development Director may issue a DMW for any of the following: 1) Improvements to an OWTS serving a structure that was damaged or destroyed as a result of a natural disaster where the improvements involve installing a new system or upgrading an existing system to an advanced system on the same lot; 2) Minor improvements to existing driveways or access roads that are required by the Los Angeles County Fire Department after a natural disaster, such as minor changes to the width or grade of driveways or access roads; 3) Replacement seawalls that exceed 10% in height; 4) Increases in the previous finished floor elevation for structures that replace one that was damaged or destroyed as result of a natural disaster, where the previous finished floor elevation must be raised to a higher elevation to meet Federal Emergency Management Agency (FEMA) flood zone requirements as determined by the City's floodplain administrator; 5) Replacement structures that would otherwise be exempt from a Coastal Development Permit may be relocated from their original site if the new location is substantially superior, with primary consideration given to safety and secondary consideration to ESHA and visual impacts; and 6) Water tanks and other water storage devices necessary to construct, install, or use a replacement structure that was damaged or destroyed by a natural disaster.

The project and required findings are more specifically described in the Community Development Director’s decision attached hereto.

PUBLIC NOTICE: A Notice of DMW Application was posted on the subject property.

ATTACHMENT: DMW No. 24-007

City of Malibu

23825 Stuart Ranch Road • Malibu, California • 90265
Phone (310) 456-2489 • Fax (310) 456-3356 • www.malibucity.org

De Minimis Waiver

Based on the project plans and information provided in the permit application for the onsite wastewater treatment system (OWTS) described below, the Community Development Director hereby waives the requirement for a coastal development permit pursuant to Local Coastal Program (LCP) Local Implementation Plan (LIP) Section 13.4.11.

De Minimis Waiver (DMW) No. 24-007	Other Applications: PVWF No. 22-017[1], APRWF No. 23-014[2]
Location: 30051 Andromeda Lane	APN: 4469-004-017
CEQA Exemption Section: 15303(d)	Property Posting: November 20, 2025
CCC Appealable Jurisdiction: ☐Yes ☒No ☐Partial	The proposed system is located outside the CCC's Appealable Jurisdiction.

Pursuant to LIP Section 13.4.11(A), the following project may be waived through a DMW:

☒ Improvements to an OWTS serving a structure that was damaged or destroyed as a result of a natural disaster, where the improvements involve installing a new system or upgrading an existing system to an advanced system on the same lot; or

☐ Minor improvements to existing driveways or access roads that are required by the Fire Department after a natural disaster, such as minor changes to the width or grade of driveways or access roads; or

☐ Replacement seawalls that exceed 10% in height; or

☐ Increases in the previous finished floor elevation for structures that replace one that was damaged or destroyed as result of a natural disaster, where the previous finished floor elevation must be raised to a higher elevation to meet Federal Emergency Management Agency (FEMA) flood zone requirements as determined by the City's floodplain administrator; or

☐ Replacement structures that would otherwise be exempt from a Coastal Development Permit proposed to be relocated from their original site if the new location is substantially superior, with primary consideration given to safety and secondary consideration to ESHA and visual impacts; or

[1] On January 27, 2024, the Planning Division approved Planning Verification – Woolsey Fire (PVWF) No. 22-017 for the in-kind rebuild of the single-family residence with detached garage, plus a 10 percent increase in square footage.
[2] Administrative Plan Review – Woolsey Fire (APRWF) No. 23-014 was opened for a new 1,725 square-foot addition to the single-family residence with detached garage, and other site improvements. The total size of the replacement residence with detached garage is 5,492 square feet. The addition is less than 50 percent of the pre-fire square footage.

☐ Water tanks and other water storage devices necessary to construct, install, or use a replacement structure that was damaged or destroyed by a natural disaster.

Project Description

Natural Disaster: ☒ Woolsey Fire or ☐ Other

Purpose: ☐New (non-existent OWTS), ☒ Replace Existing and Abandon Existing, or ☐ Repair Existing

Dispersal Type: ☐ Leachfield or ☒ Seepage Pit(s)

New OWTS Tank Size: 2000-gallon

De Minimis Waiver Findings

Based on the foregoing evidence contained within the record, the Community Development Director hereby makes the following findings of fact: The proposed project will upgrade and improve treatment effectiveness compared to the existing OWTS. The proposed OWTS is located near the existing OWTS and clustered with existing development on the property. The applicant is required to record a covenant requiring the proper operation and maintenance of the OWTS. In addition, conditions of approval have been included to require continued operation, maintenance, and monitoring of the subject system. The conditions and requirements will ensure that the new OWTS does not have the potential for adverse effects, either individually or cumulatively, on coastal resources. The project as conditioned has been found to meet the requirements of the Malibu Municipal Code (MMC) and LCP. Furthermore, the project is consistent with the certified LCP, including the resource protection policies, in that no native trees, environmentally sensitive habitat area (ESHA), public scenic views or cultural resources will be affected by the project. The proposed OWTS is located outside the 100-foot ESHA buffer. In addition, all OWTS components will be located in an adequate area that has been previously disturbed and would not result in any new or more significant impacts to natural or cultural resources, and which has the necessary percolation conditions. The OWTS is not located on a beachfront parcel and does not require protection by a shoreline protection device.

Conditions of Approval

Standard Conditions

1. The property owners, and their successors in interest, shall indemnify and defend the City of Malibu and its officers, employees, and agents from and against all liability and costs relating to the City's actions concerning this project, including (without limitation) any award of litigation expenses in favor of any person or entity who seeks to challenge the validity of any of the City's actions or decisions in connection with this project. The City shall have the sole right to choose its counsel and property owners shall reimburse the City’s expenses incurred in its defense of any lawsuit challenging the City’s actions concerning this project.

2. This approval is for the OWTS described under the Project Description section of this DMW.

3. Subsequent submittals for this project shall be in substantial compliance with plans as approved by Environmental Health dated **October 21, 2025.** In the event the project plans conflict with any condition of approval, the condition shall take precedence.

4. Pursuant to LIP Section 13.18.2, this permit and rights conferred in this approval shall not be effective until the property owner signs, notarizes, and returns the **Acceptance of Conditions Affidavit** accepting the conditions set forth herein. The applicant shall file this form with the Planning Division within 10 working days of this decision and/or prior to issuance of any development permit.

5. The applicant shall email the final set of plans to the Planning Division for consistency review and approval prior to the issuance of an OWTS permit.

6. This decision signed Affidavit of Acceptance of Conditions, and all attached Department Review Sheets shall be copied in their entirety and placed directly onto a separate plan sheet behind the cover sheet of the development plans submitted to the Building Safety Division for plan check.

7. A DMW shall expire and be of no further force and effect if the authorized OWTS has not commenced pursuant to a valid grading and/or building permit, as applicable, within five years of the effective date of the waiver. If expired, a coastal development permit or another waiver shall be required.

8. Any questions of intent or interpretation of any condition of approval will be resolved by the Community Development Director upon written request of such interpretation.

9. All development shall conform to requirements of the Community Development Department, City coastal engineer consultant reviewers, City geotechnical consultant reviewers, City Environmental Health Administrator, City Biologist, City Public Works Department, Los Angeles County Waterworks District No. 29, and the Los Angeles County Fire Department, as applicable. Notwithstanding this review, all required permits shall be secured.

10. Minor changes to the approved plans or the conditions of approval may be approved by the Community Development Director, provided such changes achieve substantially the same results and the project is still in compliance with the MMC and the LCP. An application with all required materials and fees may be required.

11. Pursuant to LIP Section 13.4.11, this permit shall not become effective until the project is reported to the Planning Commission and the Planning Commission does not request that the project be processed as a coastal development permit.

12. The property owner must submit payment for all outstanding fees payable to the City prior to issuance of any building permit, including grading or demolition.

Cultural Resources

13. In the event that potentially important cultural resources are found in the course of geologic testing or during construction, work shall immediately cease until a qualified archaeologist can provide an evaluation of the nature and significance of the resources and until the Community Development Director can review this information. Thereafter, the procedures contained in LIP Chapter 11 and those in MMC Section 17.54.040(D)(4)(b) shall be followed.

14. If human bone is discovered during geologic testing or during construction, work shall immediately cease, and the procedures described in Section 7050.5 of the California Health and Safety Code shall be followed. Section 7050.5 requires notification of the coroner. If the coroner determines that the remains are those of a Native American, the applicant shall notify the Native American Heritage Commission by phone within 24 hours. Following notification of the Native American

Heritage Commission, the procedures described in Section 5097.94 and Section 5097.98 of the California Public Resources Code shall be followed.

Biology

15. No new landscaping is proposed with this project. Therefore, none is approved. A detailed landscaping plan must be submitted to the Planning Division for review by the City Biologist and approval by the Planning Division prior to any planting. Should the applicant intend to plant any new or altered vegetation with a potential to grow over six feet in height at full maturity for an area of 500 square feet or more of landscaping for a new residence, or 2,500 square feet or more of landscaping for an existing residence, a detailed Landscape Documentation Package is required.

16. Any site preparation activities, including removal of vegetation, between February 1 and September 15 will require nesting bird surveys by a qualified biologist at least five days prior to initiation of site preparation activities. Should active nests be identified, a buffer area no less than 150 feet (300 feet for raptors) shall be fenced off until it is determined by a qualified biologist that the nest is no longer active. A report discussing the results of nesting bird surveys shall be submitted to the City within two business days of completing the surveys.

17. All new development including structures, septic systems, or landscaping, shall be set back no less than (100) feet from the ESHA and stream. Absolutely no grading is allowed within 100-feet of the stream and/or ESHA.

18. Night lighting from exterior and interior sources shall be minimized. All exterior lighting shall be low intensity and shielded so it is directed downward and inward so that there is no offsite glare or lighting of natural habitat areas. Up-lighting is prohibited.

19. Except as permitted pursuant to the provisions in LUP policies 3.18 and 3.20, throughout the City of Malibu, development that involves the use of pesticides, including insecticides, herbicides, rodenticides or any other similar toxic chemical substances, shall be prohibited in cases where the application of such substances would have the potential to significantly degrade ESHA or coastal water quality or harm wildlife. Herbicides may be used for the eradication of invasive plant species or habitat restoration, but only if the use of non-chemical methods for prevention and management such as physical, mechanical, cultural, and biological controls are infeasible. Herbicides shall be restricted to the least toxic product and method, and to the maximum extent feasible, shall be biodegradable, derived from natural sources, and used for a limited time.

20. The use of wood chips and shredded rubber is prohibited anywhere on the site. Flammable mulch material, including shredded bark, pine needles, and artificial turf, are prohibited between zero and five feet of a structure. Non-continuous use of flammable mulch (excluding wood chips and shredded rubber) is allowed between 5 and 30 feet from the eave/overhang of a structure with limited application areas. Any mulch materials (excluding wood chips and shredded rubber) are allowed 30 feet or more from a structure with no limitation on application area.

Environmental Health

21. The final project plans under APRWF No. 23-014 and PVWF No. 22-017 must show the proposed OWTS, including the treatment tank, present/future seepage pits(s), and all lines of connection to the residence. Also show the existing OWTS components labeled “to be abandoned”.

22. Final OWTS Plot Plan: Prior to final Environmental Health approval, a final OWTS plot plan prepared by a City Registered OWTS Designer shall be submitted showing an OWTS design

meeting the minimum requirements of the MMC and the LCP, including necessary construction details, the proposed drainage plan for the developed property and the proposed landscape plan for the developed property. The OWTS plot plan shall show essential features of the OWTS and must fit onto an 11-inch by 17-inch sheet leaving a five-inch margin clear to provide space for a City applied legend. If the scale of the plans is such that more space is needed to clearly show construction details and/or all necessary setbacks, larger sheets may also be provided (up to a maximum size of 18 inches by 22 inches).

The final OWTS plan must include a note/label stating that the existing seepage pits will be abandoned.

23. Final OWTS Design Report, Plans, and System Specifications: If the OWTS design and/or bedroom/drainage fixture unit counts are modified in any way subsequent to the Planning-stage review, then a final OWTS design report and large set of construction drawings with system specifications (four sets) shall be submitted to describe the OWTS design basis and all components (i.e., alarm system, pumps, timers, flow equalization devices, backflow devices, etc.) proposed for use in the construction of the proposed OWTS. For all OWTS, final reports must be signed by a City registered OWTS Designer, and the plans stamped by a California Geologist. The final OWTS design report and construction drawings shall be submitted to the City Environmental Health Administrator with the designer's wet signature, professional registration number and stamp (if applicable).

24. The final design report shall contain the following information (in addition to the items listed above).
    a. Required treatment capacity for wastewater treatment and disinfection systems. The treatment capacity shall be specified in terms of flow rate, gallons per day, and shall be supported by calculations relating the treatment capacity to the number of bedroom equivalents, plumbing drainage fixture equivalents, and the subsurface effluent dispersal system acceptance rate. The drainage fixture unit count must be clearly identified in association with the design treatment capacity, even if the design is based on the number of bedrooms. Average and peak rates of hydraulic loading to the treatment system shall be specified in the final design;
    b. Sewage and effluent pump design calculations (as applicable).
    c. Description of proposed wastewater treatment and/or disinfection system equipment. State the proposed type of treatment system(s) (e.g., aerobic treatment, textile filter ultraviolet disinfection, etc.); major components, manufacturers, and model numbers for "package" systems; and conceptual design for custom engineered systems;
    d. Specifications, supporting geology information, and percolation test results for the subsurface effluent dispersal portion of the onsite wastewater disposal system. This must include the proposed type of effluent dispersal system (drainfield, trench, seepage pit subsurface drip, etc.) as well as the system's geometric dimensions and basic construction features. Supporting calculations shall be presented that relate the results of soils analysis or percolation/infiltration tests to the projected subsurface effluent acceptance rate, including any unit conversions or safety factors. Average and peak rates of hydraulic loading to the effluent dispersal system shall be specified in the final design. The projected subsurface effluent acceptance rate shall be reported in units of total gallons per day and gallons per square foot per day. Specifications for the subsurface effluent dispersal system shall be shown to accommodate the design hydraulic loading rate (i.e., average and peak OWTS effluent flow, reported in units of gallons per day). The subsurface effluent dispersal system design must take into account the number of bedrooms, fixture units and building occupancy characteristics; and

e. All final design drawings shall be submitted with the wet signature and typed name of the OWTS designer. If the scale of the plan is such that more space is needed to clearly show construction details, larger sheets may also be provided (up to a maximum size of 18 inch by 22 inch, for review by Environmental Health). Note: For OWTS final designs, full-size plans are required for review by the Building Safety Division and/or the Planning Division.

25. Existing OWTS to be Abandoned: Final plans shall clearly show the locations of all existing OWTS components (serving pre-existing development) to be abandoned and provide procedures for the OWTS' proper abandonment in conformance with the MMC.

26. Worker Safety Note and Abandonment of Existing OWTS: The following note shall be added to the plan drawings included with the OWTS final design: "Prior to commencing work to abandon, remove, or replace the existing OWTS components, an 'OWTS Abandonment Permit' shall be obtained from the City of Malibu. All work performed in the OWTS abandonment, removal or replacement area shall be performed in strict accordance with all applicable federal, state, and local environmental and occupational safety and health regulatory requirements. The obtainment of any such required permits or approvals for this scope of work shall be the responsibility of the applicant and their agents."

27. Traffic-Rated Tank Details and Plan(s): Pre-cast traffic rated tank details and plans regarding each OWTS component located in a vehicular traffic area (including the E-Z treatment pod) shall be incorporated into the final OWTS plan set.

28. Proof of Ownership: Proof of ownership of the subject property shall be submitted to the City Environmental Health Administrator.

29. Operations and Maintenance Manual: An operations and maintenance manual specified by the OWTS designer shall be submitted to the property owner and maintenance provider of the proposed OWTS.

30. Maintenance Contract: A maintenance contract executed between the owner of the subject property and an entity qualified in the opinion of the City of Malibu to maintain the proposed onsite wastewater disposal system after construction shall be submitted. Note only original "wet signature" documents are acceptable.

31. Advanced OWTS Covenant: Prior to final Environmental Health approval, a covenant running with the land shall be executed between the City of Malibu and the holder of the fee simple absolute as to subject real property and recorded with the Office of the Los Angeles County Recorder. Said covenant shall serve as constructive notice to any future purchaser for value that the OWTS serving subject property is an advanced method of sewage disposal pursuant to the City of MMC. Said covenant shall be provided by the City of Malibu Environmental Health Administrator.

32. Project Geologist/Geotechnical Consultant Approval: Project Geologist/Geotechnical Consultant final approval of the OWTS plan shall be submitted to the Environmental Health Administrator.

33. City of Malibu Geologist/Geotechnical Approval: City of Malibu geotechnical staff final approval of the OWTS plan shall be submitted to the Environmental Health Administrator.

34. City of Malibu Public Works Approval: City of Malibu Public Works final approval of the OWTS plan shall be submitted to the Environmental Health Administrator.

35. City of Malibu Planning Approval: City of Malibu Planning Division final approval of the OWTS plan shall be obtained.

36. Environmental Health Final Review Fee: A final fee in accordance with the adopted fee schedule at the time of final approval shall be paid to the City of Malibu for Environmental Health review of the OWTS design and system specifications.

37. Operating Permit Application and Fee: In accordance with MMC, an application shall be made to the Environmental Health office for an OWTS operating permit. An operating permit fee in accordance with the adopted fee schedule at the time of final approval shall be submitted with the application.

Construction

38. Construction hours shall be limited to Monday through Friday from 7:00 a.m. to 7:00 p.m. and Saturdays from 8:00 a.m. to 5:00 p.m. No construction activities shall be permitted on Sundays or City-designated holidays.

39. Construction management techniques, including minimizing the amount of equipment used simultaneously and increasing the distance between emission sources, shall be employed as feasible and appropriate. All trucks leaving the construction site shall adhere to the California Vehicle Code. In addition, construction vehicles shall be covered when necessary; and their tires rinsed prior to leaving the property.

Prior to Final Inspection

40. Prior to a final Building inspection, the applicant shall provide a Recycling Summary Report (Summary Report) and obtain the approval from the Environmental Sustainability Division. Applicant must provide haul tickets and diversion information. The final Summary Report shall designate the specific materials that were land filled or recycled, and state the facilities where all materials were taken.

41. The applicant shall request a final Planning Division inspection prior to final inspection by the Building Safety Division.

Deed Restrictions

42. The property owner is required to execute and record a deed restriction which shall indemnify and hold harmless the City, its officers, agents, and employees against any and all claims, demands, damages, costs and expenses of liability arising out of the acquisition, design, construction, operation, maintenance, existence or failure of the permitted project in an area where an extraordinary potential for damage or destruction from wildfire exists as an inherent risk to life and property. The property owner shall provide a copy of the recorded document to the Planning Division prior to final planning approval.

Fixed Conditions

43. This DMW runs with the land and binds all future owners of the property.

44. Violation of any of the conditions of this approval may be cause for revocation of this permit and termination of all rights granted thereunder.

Appeals and Reporting

APPEALS – The Community Development Director's decision on whether to issue a DMW is not locally appealable. If, after consideration of the waiver and any public objections to it, the Planning Commission requests that the waiver not be effective, then the applicant shall be advised that a coastal development permit is required for the OWTS. Otherwise, the waiver is effective immediately after the Planning Commission meeting where the matter is heard. The project is not located in the Coastal Commission's Appealable Jurisdiction.

REPORTING – Pursuant to LIP Section 13.4.11, this permit shall be reported to the Planning Commission and is scheduled to be reported at the **January 20, 2026** Planning Commission meeting. This permit will not become effective until completion of the Planning Commission review of the permit pursuant to 14 California Code of Regulations Section 13153.

Notice of Determination: January 8, 2026

Prepared by:

Aakash Shah
Contract Planner

Issued by:

Tyler Eaton for
Yolanda Bundy, MS, PE, CBO, CFCO
Community Development Director

Attachment: Department Review Sheets including OWTS Plot Plan

ACCEPTANCE OF CONDITIONS AFFIDAVIT

The undersigned property owner(s) acknowledges receipt of the City of Malibu's decision of approval and agrees to abide by all terms and conditions for **De Minimis Waiver No. 24-007**, dated **January 8, 2026**, for the project located at **30051 Andromeda Lane, Malibu, CA 90265**. The permit and rights conferred in this approval shall not be effective until all property owner(s) signs and returns this notarized affidavit to the City of Malibu Planning Division within ten (10) working days of the decision and/or prior to issuance of any development permit.

_____ _____
Date Signature of Property Owner

_____
Print Property Owner Name

_____ _____
Date Signature of Property Owner

_____
Print Property Owner Name

ALL-PURPOSE ACKNOWLEDGMENT

A notary public or other officer completing this certificate verifies only the identity of the individual who signed the document to which this certificate is attached, and not the truthfulness, accuracy, or validity of that document.

STATE OF CALIFORNIA
County of Los Angeles } SS

On _____, before me, Notary Public, personally appeared _____, who proved
(date) (name)

to me on the basis of satisfactory evidence to be the person whose name is subscribed to the within instrument and acknowledged to me that he executed the same in his authorized capacity, and that by his signature on the instrument the person, or the entity upon behalf of which the person acted, executed the instrument.

I certify under penalty of perjury under the laws of the State of California that the foregoing paragraph is true and correct.

WITNESS my hand and official seal.

_____
(Notary Public's signature in and for said County and State) (seal)

City of Malibu

23825 Stuart Ranch Rd., Malibu, California CA 90265-4861
(310) 456-2489 website: www.malibucity.org

ENVIRONMENTAL HEALTH REVIEW
REFERRAL SHEET

TO: City of Malibu Environmental Health Staff

FROM: City of Malibu Planning Staff **REVISED DATE** 09/19/2025

PROJECT NUMBER: DMW 24-007

JOB ADDRESS: 30051 ANDROMEDA LN

APPLICANT / CONTACT: Daniel Donovan

APPLICANT EMAIL: daniel.patrick.donovan@gmail.com

PROJECT DESCRIPTION: NOWTS

REVISION:

TO: Malibu Planning Department and/or Applicant

FROM: Malibu Environmental Health Staff

✓ **Conformance Review Complete** for project submittals reviewed with respect to the City of Malibu Local Coastal Plan/Local Implementation Plan (LCP/LIP) and Malibu Municipal Code (MMC). The Conditions of Planning conformance review and plan check review comments listed on the attached review sheet(s) (or else handwritten below) shall be addressed prior to plan check approval.

Building Plan Check (BPC) Required ☑ Yes ☐ No BPC Fees Req'd $_____

___ **Conformance Review Incomplete** for the City of Malibu LCP/LIP and MMC. The Planning stage review comments listed on the City of Malibu Environmental Health review sheet(s) shall be addressed prior to conformance review completion.

OWTS Plot Plan: ☐ **NOT REQUIRED**

☑ **REQUIRED (attached hereto)** ☐ **REQUIRED (not attached)**

Signature: [signature] Date: 10/21/2025

The applicant must submit to City of Malibu Environmental Health Staff to determine whether or not an onsite wastewater treatment system (OWTS) Plot Plan approval is required.

Public Counter hours for Environmental Health staff are Tuesdays and Thursdays, 8:00 AM – 12:00 PM.

City of Malibu

Environmental Health ● Environmental Sustainability Department
23825 Stuart Ranch Road · Malibu, California · 90265-4861
Phone (310) 456-2489 · Fax (310) 456-7650 · www.malibucity.org

ENVIRONMENTAL HEALTH REVIEW SHEET

PROJECT INFORMATION

Applicant: (name and email address)	Daniel Donovan daniel.patrick.donovan@gmail.com		
Project Address:	**30051 Andromeda Lane** Malibu, California 90265		
Planning Case No.:	DMW 24-007		
Project Description:	NOWTS		
Date of Review:	October 21, 2025		
Reviewer:	Matt Janousek	Signature:	
Contact Information:	Phone: (310) 456-2489	Email:	mjanousek@malibucity.org

SUBMITTAL INFORMATION

Architectural Plans:	Jennifer Marmon: Plans dated 4-15-2024
Grading Plans:	Pacific Coast Civil: Plans dated 2-2-2024
OWTS Plan:	NexGen: Plan submitted 5-20-2024 (undated), 7-8-2025
OWTS Report:	NexGen: OWTS Design Reports dated 2-13-2024, 3-6-2025, 7-21-2025
Supporting Geology:	LK Geotechnical: Report dated 2-1-2025
Miscellaneous:	Summit Geoscience, Inc.: Engineering Geologic Investigation dated 8-14-2023
Previous Reviews:	6-4-2024, 4-17-2025, 6-3-2025

REVIEW FINDINGS

Planning Stage:	☒	**CONFORMANCE REVIEW COMPLETE** for the City of Malibu Local Coastal Program (LCP)/Local Implementation Plan (LIP) and Malibu Municipal Code (MMC). The listed conditions of Planning stage conformance review and plan check review comments shall be addressed prior to plan check approval.
	☐	**CONFORMANCE REVIEW INCOMPLETE** for the City of Malibu LCP/LIP and MMC. The listed Planning stage review comments shall be addressed prior to conformance review completion.
OWTS Plot Plan:	☐	**NOT REQUIRED**
	☒	**REQUIRED (attached hereto)** ☐ **REQUIRED (not attached)**

Based upon the project description and submittal information noted above, a **conformance review** was completed for a new advanced onsite wastewater treatment system (OWTS) proposed to serve the onsite wastewater treatment and disposal needs of the subject property. The proposed advanced OWTS meets the minimum requirements of the Malibu Municipal Code (MMC) and the City of Malibu Local Coastal Program (LCP)/Local Implementation Plan (LIP). Please distribute this review sheet to all of the project consultants and, prior to final approval, provide a coordinated submittal addressing all conditions for final approval and plan check items.

The conditional conformance findings hereby transmitted complete the Planning stage Environmental Health review of the subject development project. In order to obtain Environmental Health final approval of the project OWTS Plot Plan and associated construction drawings (during Building Safety plan check), all conditions and plan check items listed below must be addressed through submittals to the Environmental Health office.

Conditions of Planning Conformance Review for Building Plan Check Approval:

1) ***Itemized Response to Conditions:*** *Please provide a written response to this review letter that addresses each of the numbered conditions presented below. Each response should clearly explain how the condition has been addressed, including reference to any revised report or plans, or other supporting response materials. This review letter may be annotated directly with responses, provided the response remains clear, complete, and appropriately referenced*.

2) **OWTS on Project Plans:** The final project plans under the City of Malibu Planning Case #s (APRWF 23-014 and PVWF 22-017 must show the proposed onsite wastewater treatment system (OWTS), including the treatment tank, present/future seepage pits(s), and all lines of connection to the residence. Please also show the existing OWTS components labeled "to be abandoned".

3) **Final Onsite Wastewater Treatment System (OWTS) Plot Plan:** A final plot plan prepared by a City Registered OWTS Designer shall be submitted showing an OWTS design meeting the minimum requirements of the Malibu Municipal Code (MMC) and the Local Coastal Program (LCP)/Local Implementation Plan (LIP). The plans must include all necessary construction details, the proposed drainage plan for the developed property, and the proposed landscape plan for the developed property. The OWTS Plot Plan shall show essential features of the OWTS, existing improvements, and proposed/new improvements. The plot plan must fit on an 11" x 17" sheet leaving a 5" left margin clear to provide space for a City-applied legend.

    - The final OWTS plan must include a note/label stating that the existing seepage pits will be abandoned.

4) **Final OWTS Design Report, Plans, and System Specifications:** A final OWTS design report and large set of construction drawings with system specifications (four sets) shall be submitted to describe the OWTS design basis and all components proposed for use in the construction of the OWTS. All plans and reports must be signed by a City Registered OWTS Designer, and the plans stamped by the project Geologist, Coastal Engineer, and Structural Engineer as applicable. The final OWTS design report and construction drawings shall be submitted with the designer's signature, professional registration number, and stamp (if applicable).

    The final OWTS design submittal shall contain the following information (in addition to the items listed above).

    a. Required treatment capacity for wastewater treatment and disinfection systems. The treatment capacity shall be specified in terms of flow rate, gallons per day (gpd), and shall be supported by calculations relating the treatment capacity to the number of bedroom equivalents, plumbing drainage fixture units, and the subsurface effluent dispersal system acceptance rate. The drainage fixture unit count must be clearly identified in association with the design treatment capacity, even if the design is based on the number of bedrooms. Average and peak rates of hydraulic loading to the treatment system shall be specified in the final design.

    b. Sewage and effluent pump design calculations (as applicable).

    c. Description of proposed wastewater treatment and/or disinfection system equipment. State the proposed type of treatment system(s) (e.g., aerobic treatment, textile filter, ultraviolet disinfection, etc.); major components, manufacturers, and model numbers for "package" systems; and the design basis for engineered systems.

d. Specifications, supporting geology information, and percolation test results for the subsurface effluent dispersal portion of the onsite wastewater disposal system. This must include the proposed type of effluent dispersal system (drainfield, trench, seepage pit, subsurface drip, etc.) as well as the system's geometric dimensions and basic construction features. Supporting calculations shall be presented that relate the results of soils analysis or percolation/infiltration tests to the projected subsurface effluent acceptance rate, including any unit conversions or safety factors. Average and peak rates of hydraulic loading to the effluent dispersal system shall be specified in the final design. The projected subsurface effluent acceptance rate shall be reported in units of total gallons per day (gpd) and gallons per square foot per day (gpsf). Specifications for the subsurface effluent dispersal system shall be shown to accommodate the design hydraulic loading rate (i.e., average and peak OWTS effluent flow, reported in units of gpd). The subsurface effluent dispersal system design must take into account the number of bedrooms, fixture units, and building occupancy characteristics.

e. All OWTS design drawings shall be submitted with the wet signature and typed name of the OWTS designer. If the plan scale is such that more space than is available on the 11" x 17" plot plan is needed to clearly show construction details, larger sheets may also be provided (up to a maximum size of 18" x 22" for review by Environmental Health). [Note: For OWTS final designs, full-size plans for are also required for review by Building & Safety and Planning.]

f. All proposed OWTS components must be designed by the OWTS designer and shown as such on the final OWTS plan set as applicable.

5) **Traffic-Rated Tank Details and Plan(s):** Pre-cast traffic rated tank details and plans regarding each OWTS component located in a vehicular traffic area (including the E-Z treatment pod) shall be incorporated into the final OWTS plan set.

6) **Existing OWTS to be Abandoned:** All final plans shall clearly show the locations of all existing OWTS components (serving pre-existing development) to be abandoned and provide procedures for the OWTS' proper abandonment in conformance with the Malibu Municipal Code.

7) **Worker Safety Note and Abandonment of Existing OWTS:** The following note shall be added to the plan drawings included with the OWTS final design: "*Prior to commencing work to abandon, remove, or replace existing Onsite Wastewater Treatment System (OWTS) components an "OWTS Abandonment Permit" shall be obtained from the City of Malibu. All work performed in the OWTS abandonment, removal, or replacement area shall be performed in strict accordance with all applicable federal, state, and local environmental and occupational safety and health regulatory requirements. The obtainment of any such required permits or approvals for this scope of work shall be the responsibility of the applicant and their agents.*"

8) **Proof of Ownership:** Proof of ownership of subject property shall be submitted.

9) **Operations & Maintenance Manual:** An operations and maintenance manual specified by the OWTS designer shall be submitted to the property owner and maintenance provider of the proposed advanced OWTS.

10) **Maintenance Contract:** A maintenance contract executed between the owner of subject property and an entity qualified in the opinion of the City of Malibu to maintain the proposed advanced onsite wastewater treatment system shall be submitted prior to Environmental Health approval. ***Please note only original "wet* signature" documents are acceptable**.

11) **Advanced Onsite Wastewater Treatment System (OWTS) Covenant:** A covenant running with the land shall be executed between the City of Malibu and the holder of the fee simple absolute as to subject real property and recorded with the City of Malibu Recorder's Office. Said covenant shall serve as constructive notice to any future purchaser for value that the OWTS serving subject property is an advanced method of sewage disposal pursuant to the City of Malibu Municipal Code. Said covenant shall be provided by the City of Malibu Environmental Health Administrator. ***Please submit a certified* copy issued by the City of Malibu Recorder**.

12) **Project Geologist/Geotechnical Consultant Approval:** Project Geologist/Geotechnical Consultant final approval of the OWTS plan shall be submitted to the Environmental Health Administrator.

13) **City of Malibu Geologist/Geotechnical Approval:** City of Malibu geotechnical staff final approval of the OWTS plan shall be submitted to the Environmental Health Administrator.

14) **Waterworks District 29 Approval:** Waterworks District 29 final approval of the OWTS plot plan shall be submitted to the Environmental Health Administrator.

15) **City of Malibu Planning Approval:** City of Malibu Planning Department final approval of the OWTS plan shall be obtained.

16) **Environmental Health Final Review Fee:** A final fee in accordance with the adopted fee schedule at the time of final submittal shall be paid to the City of Malibu for Environmental Health review of the OWTS design and system specifications.

17) **Operating Permit Application and Fee:** In accordance with Malibu Municipal Code, an application shall be made to the Environmental Health office for an Onsite Wastewater Treatment System operating permit. An operating permit fee in accordance with the adopted fee schedule at the time of final submittal shall be submitted with the application.

-o0o-

If you have any questions regarding the above requirements, please contact the Environmental Health office at your earliest convenience.

cc: Environmental Health file
Planning Department

30051 ANDROMEDA LANE
MALIBU, CA 90265

(FIRE REBUILD)
(DMW 24-007)

S.F.D.:	4 Bedroom/39 Fixture Units (N) UNDER SEPARATE PERMIT
PRIMARY TANK:	Existing 1,000 Gallon Septic Tank to be replaced with 2,000 Gallon (N)
PROCESSING TANK:	1,000 Gallon Jensen Precast Processing Tank (N)
TREATMENT POD:	750 GPD Reactor Unit E-Z Treat 750 POD (N)
DISINFECTION UNIT:	Polylok (PL-UV1) UV Disinfection Unit (N)
ACTIVE:	1 – 6′ x 23′ BI w/10′ Cap (N) (projected; B-4)
FUTURE:	1 – 6′ x 21.5′ BI w/18′ Cap (F) (projected; B-3)
	1 – 6′ x 24′ BI w/10′ Cap (F) (projected; B-7)
PERC RATE:	3,309 gpd/7.98 gpsf (proj; B3)
	12,417 gpd/28.05 gpsf (proj; B4)
	7,296 gpd/15.81 gpsf (proj; B7)
DESIGNER:	Ian Cole: C 66602
REFERENCE:	NexGen: OWTS design reports dated 3-6-2025, 7-21-2025
	LK Geotechnical: OWTS supporting geology report dated: 2-1-2025

NOTES:

1. This conformance review is for a new advanced onsite wastewater treatment system (OWTS) to serve a fire rebuild of a single-family dwelling. The new advanced OWTS conforms to the requirements of the Malibu Municipal Code (MMC) and the Local Coastal Program (LCP).

2. The fire rebuild of the single-family dwelling will be approved under separate permit.

3. This review relates only to the minimum requirements of the MMC, and the LCP, and does not include an evaluation of any geological or other potential problems, which may require an alternative method of review treatment.

4. This review is valid for one year or until MMC, and/or LCP, and/or Administrative Policy changes render it noncomplying.



LEGEND

XXX	ELEVATION
	EXISTING PROPERTY LINE
B-2	TEST PIT LOCATIONS
	PROPOSED SEWER LINE

CITY OF MALIBU
ENVIRONMENTAL SUSTAINABILITY DEPT.
ENVIRONMENTAL HEALTH

CONFORMANCE REVIEW

SIGNATURE: DATE: 10/21/2025

THIS IS NOT AN APPROVAL. FINAL APPROVAL IS REQUIRED PRIOR TO THE ISSUANCE OF ANY CONSTRUCTION PERMITS

REGISTERED PROFESSIONAL ENGINEER
IAN MATTHEW COLE
NO. C 66602
EXP. 06/30/26
CIVIL
STATE OF CALIFORNIA

N

20' 0' 20' 40'
GRAPHIC SCALE
1 INCH = 40 FT

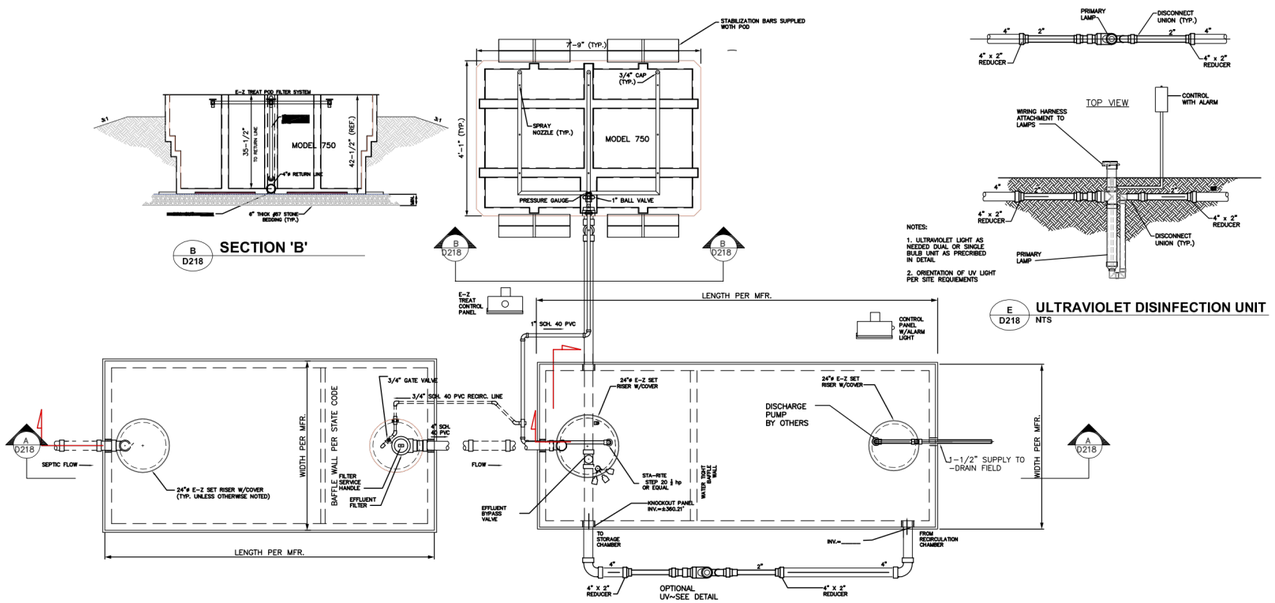
CITY OF MALIBU, COUNTY OF LOS ANGELES, STATE OF CALIFORNIA

ON-SITE SEWAGE DISPOSAL SYSTEM
APN 4469-004-017
30051 ANDROMEDA LANE

NEXGEN
1043 NICHOLS DR SUITE 200 · ROCKLIN, CA 95765 · 916.345.3454

PROJECT NO:
DATE: 07–08–25
SHEET 1 OF 2

Drawing Name: G:\Shared drives\NexGen\Engineering\Resources & Mapping\AutoCAD\Drafting Tools\BordersBDR-IMP-11x17L.dwg
Last Opened: Aug 19, 2025 – 11:03am by $(GETVAR,??)



NOTIFY UNDERGROUND UTILITIES LOCATOR PRIOR TO ANY EXCAVATION. CONTRACTOR IS RESPONSIBLE FOR COORDINATION OF ALL TRADES AND SUBCONTRACTORS. CONTRACTOR IS RESPONSIBLE FOR FIELD VERIFYING ALL DIMENSIONS, ELEVATIONS, AND LOCATION OF ALL EXISTING CONDITIONS AND UTILITIES.

GENERAL NOTES:

1. ALL PIPING SHALL BE SCH 40 PVC UNLESS OTHERWISE NOTED ON PLANS. ALL PVC PIPES SHALL BE BURIED A MINIMUM OF 18" UNLESS SHOWN OTHERWISE.
2. CONTRACTOR SHALL COMPLY WITH ALL APPLICABLE SOIL EROSION AND SEDIMENTATION CONTROL REQUIREMENTS.
3. CONTRACTOR SHALL COMPLY WITH ALL APPLICABLE OSHA, AND OTHER RELATED SAFETY REQUIREMENTS.
4. CONTRACTOR SHALL COMPLY WITH ALL APPLICABLE FEDERAL, STATE, COUNTY, AND LOCAL REGULATIONS. IN EVENT OF DISCREPANCY CONSULT MANUFACTURER AND ENGINEER OF RECORD. FAILURE TO DO DO VOIDS LIABILITY OF EZ-TREAT INC. AND ENGINEER OF RECORD.
5. SYSTEM DESIGN SHALL BE PERMITTED BY APPICABLE AUTHORITIES PRIOR TO INSTALLATION.
6. CONTRACTOR SHALL BE RESPONSIBLE FOR REPAIRING ALL CONSTRUCTION DAMAGE EXPEDITIOUSLY AND AT NO ADDITIONAL COST TO THE OWNER.
7. ALL TANKS SHALL HAVE A MINIMUM 28-DAY CONCRETE STRENGTH OF 4500 PSI.
8. TANKS SHALL MEET REINFORCING REQUIREMENTS TO ACCOMMODATE 300 POUNDS PER SQUARE FOOT. EITHER STEEL REINFORCING WIRE, REBAR OR APPROVED FIBER MAY BE USED.
9. ALL TANKS AND EFFLUENT FILTERS SHALL BE APPROVED BY E-Z TREAT AND ON-SITE WASTEWATER. EFFLUENT FILTERS SHALL BE SIZED FOR DESIGN FLOW AND EXTEND DOWN TO 50-PERCENT OF LIQUID LEVEL.
10. ALL JOINTS (MID-SEAM, TOP-SEAM) SHALL BE SEALED USING CONCRETE SEALANTS BUTYL SEALANT # CS-118 OR EQUAL
11. TANKS SHALL BE LEAK-TESTED PRIOR TO SYSTEM START UP IN ACCORDANCE WITH ASTM STANDARDS AND AS REQUIRED BY LOCAL REGULATORY AUTHORITY
12. ALL PIPE PENETRATIONS THROUGH PRECAST CONCRETE TANKS SHALL BE PRESS-SEAL CAST-A-SEAL 402 RUBBER BOOTS OR EQUAL.
13. THE FILTER POD INVERT OUT SHALL BE 1/4-INCH PER FOOT SLOPE MINIMUM
14. ALL TANKS MUST MEET STATE OR LOCAL CODES.
15. U.V. SHALL BE INSTALLED AS REQUIRED BY LOCAL AND STATE CODE

PROJECT

CITY

COUNTY

ADDRESS

P.O. BOX 176
HAYMARKET, VA 20168
PH. 703.763.4770
web: eztreat.net

DESIGN		
DRAWN		
APPROVED		

SYSTEM CONFIGURATION

E-Z TREAT SYSTEM SINGLE MODEL 750 POD, TWO TANK SIMPLEX DESIGN SEP. RECIRC. AND DOSE TANKS PLAN AND SECTIONS

SHEET 1 OF 1

DWG NO. D218

ENGINEER

PROJECT INFORMATION

PROJECT:
PROPOSED 4 BEDROOM HOUSE
DESIGN FLOW RATE:
750 GPD
SEPTIC TANK:
2,000 GALLON PRE-CAST (39 DFU)
ADVANCED TREATMENT:
1 E-Z TREAT 750 POD REACTOR UNIT *750 GALLONS PER DAY TOTAL TREATMENT CAPACITY*
DISPERSION:
1-6' DIA. X 33' (W/10' CAP) SEEPAGE PIT (B-4)

RESERVES INFORMATION

PROJECT:
PROPOSED 4 BEDROOM HOUSE
DESIGN FLOW RATE:
750 GPD
ADVANCED TREATMENT:
1 E-Z TREAT 750 POD REACTOR UNIT *750 GALLONS PER DAY TOTAL TREATMENT CAPACITY*
DISPERSION:
1-6' DIA. X 39.5' (W/18' CAP) SEEPAGE PIT (B-3) *1-6' DIA. X 34' (W/10' CAP) SEEPAGE PIT (B-7)*



CITY OF MALIBU, COUNTY OF LOS ANGELES, STATE OF CALIFORNIA

ON-SITE SEWAGE DISPOSAL SYSTEM
APN 4469-004-017
30051 ANDROMEDA LANE

NEXGEN
1043 NICHOLS DR SUITE 200 · ROCKLIN, CA 95765 · 916.345.3454

PROJECT NO:

DATE: 07-08-25

SHEET 2 OF 2

Drawing Name: G:\Shared drives\NexGen\Engineering\Resources & Mapping\AutoCAD\Drafting Tools\BordersBDR-IMP-11x17L.dwg
Last Opened: Aug 18, 2025 - 3:03pm by $(GETVAR,?)

City of Malibu

23825 Stuart Ranch Rd., Malibu, California CA 90265-4804
(310) 456-2489 FAX (310) 456-7650

BIOLOGY REVIEW REFERRAL SHEET

TO: City of Malibu Biologist

FROM: City of Malibu Planning Department **DATE:** 05/20/2024

PROJECT NUMBER: DMW 24-007

JOB ADDRESS: 30051 ANDROMEDA LN

APPLICANT / CONTACT: Daniel Donovan

APPLICANT ADDRESS: 5763 Busch Dr
Malibu, CA 90265

APPLICANT PHONE #: (701) 870-0989

APPLICANT FAX #:

APPLICANT EMAIL: daniel.patrick.donovan@gmail.com

PLANNER: To Be Assigned

PROJECT DESCRIPTION: NOWTS

TO: Malibu Planning Department and/or Applicant

FROM: City Biologist, Courtney McCammon

_____ **The project review package is INCOMPLETE and; CANNOT proceed through Final Planning Review until corrections and conditions from Biological Review are incorporated into the proposed project design** (See Attached).

X **The project is APPROVED, consistent with City Goals & Policies associated with the protection of biological resources and CAN proceed through the Planning process.**

_____ **The project may have the potential to significantly impact the following resources, either individually or cumulatively: Sensitive Species or Habitat, Watersheds, and/or Shoreline Resources and therefore Requires Review by the Environmental Review Board (ERB).**

Courtney McCammon 5/28/24

Signature Date

Additional requirements/conditions may be imposed upon review of plan revision

Contact Information:
Courtney McCammon, City Biologist, biology@malibucity.org, (310) 456-2489, extension 277

City of Malibu

Biology • Planning Department
23825 Stuart Ranch Road · Malibu, California · 90265-4861
Phone (310) 456-2489 · Fax (310) 456-3356 · www.malibucity.org

BIOLOGY REVIEW SHEET

PROJECT INFORMATION

Applicant: (name and email)	Daniel Donovan daniel.patrick.donovan@gmail.com		
Project Address:	**30051 ANDROMEDA LN** Malibu, CA 90265		
Planning Case No.:	DMW 24-007		
Project Description:	NOWTS		
Date of Review:	May 28, 2024		
Reviewer:	Courtney McCammon	Signature:	Courtney McCammon
Contact Information:	Phone: (310) 456-2489 ext 277	Email:	biology@malibucity.org

SUBMITTAL INFORMATION

Site Plan:	5/20/24
Site Survey:	5/20/24
Landscape Plan:	
Hydrozone Plan:	
Irrigation Plan:	
Fuel Modification Plan:	
Grading Plan:	
OWTS Plan:	5/20/24
Bio Assessment:	1/4/24 (Axon Biological)
Bio Inventory:	
Native Tree Survey:	
Native Tree Protection Plan:	
Miscellaneous:	
Previous Reviews:	

REVIEW FINDINGS

Review Status:	☐	**INCOMPLETE**: Additional information and/or a response to the listed review comments is required.
	☒	**APPROVED**: The project has been approved with regards to biological impacts.
	☐	**CANNNOT APPROVE AS SUBMITTED**: The proposed project does not conform to the requirements of the MMC and/or LCP.
	☐	**ERB**: This project has the potential to impact ESHA and may require review by the Environmental Review Board pursuant to LIP Section 4.4.4

Recycled Paper

DISCUSSION:

1. The Biological Assessment that was completed for the same property, but project APRWF 23-014 shows the mapped ESHA at 112-feet away from the residence. The proposed OWTS is further south/southeast of the residence and, therefore, is further away from ESHA. The proposed OWTS is outside of the 100-foot ESHA buffer and in conformance with Malibu LIP Chapter 4.

RECOMMENDATIONS:

1. The project is recommended for **APPROVAL** with the following conditions:

   A. No new landscaping is proposed with this project. Therefore, none is approved. Should the applicant intend to plant any new vegetation with a potential to exceed six feet in height, or change 500/2,500 square feet or more (new residence/existing residence) of the existing landscaping area, a detailed landscape plan shall be submitted for review and approval prior to any planting.

   B. Grading/excavation/vegetation removal scheduled between February 1 - September 15 will require nesting bird surveys by a qualified biologist prior to initiation of such activities. Surveys shall be completed no more than five days from proposed initiation of site preparation activities. Should active nests be identified, a buffer area no less than 150 feet (300 feet for raptors) shall be fenced off until it is determined by a qualified biologist that the nest is no longer active. A report discussing the results of the surveys shall be turned in to the City within two business days of completion of surveys.

   C. All new development including structures, septic systems, or landscaping, shall be set back no less than (*100*) feet from the (*ESHA*).

   D. No new lighting is being proposed; therefore, none is approved. Night lighting from exterior and interior sources shall be minimized. All exterior lighting shall be low intensity and shielded so it is directed downward and inward so that there is no offsite glare or lighting of natural habitat areas. Up-lighting is prohibited.

-o0o-

If you have any questions regarding the above requirements, please contact the City Biologist office at your earliest convenience.

cc: Planning Project file
Planning Department

City of Malibu

23825 Stuart Ranch Road • Malibu, California 90265-4861
(310) 456-2489 • Fax (310) 456-3356 • www.malibucity.org

GEOTECHNICAL REVIEW SHEET

Project Information

Date:	October 22, 2025	**Review Log #:**	**694**
Site Address:	30051 Andromeda Lane		
Lot/Tract/PM #:		**Planning #:**	**DMW 24-007 P3**
Applicant/Contact:	Daniel Donovan, Daniel.patrick.donovan@gmail.com	**BPC/GPC #:**	
Contact Phone #:	701-870-0989 **Fax #:**	**Planner:**	**Aakash Shah**
Project Type:	New Onsite Wastewater Treatment System (OWTS)		

Submittal Information

Consultant(s) / Report Date(s): *(Current submittal(s) in **Bold**.)*	LK Geotechnical (Kruger, CEG 2345; Lin, GE 2921): **7-24-2025**, 2-1-2025; Ref: 4-24-2024 NexGen Engineering & Consulting, Inc. (Cole, RCE 66602): **3-6-2025 (revised 7-21-2025)**, 3-6-2025, 2-13-2024 Ref: Summit Geoscience, Inc.: 8-14-2023, 6-20-2023 **2nd Planning Submittal** Architectural Plans prepared by PAR dated April 15, 2024. Civil plans prepared by Pacific Coast Civil, Inc. e-signed on February 2, 2024. **OWTS plan prepared by NexGen Engineering & Consulting, Inc. dated July 8, 2025.** County of Los Angeles Department of Health Services Approval dated May 23, 1975.
Previous Reviews:	6-10-2025, 6-4-2024, Environmental Health Review Sheet dated 6-3-2025; Ref: 10-1-2024, 10-5-2023, Environmental Health Review Sheet dated 7-19-2023 (for APRWF 23-014 and PVWF 22-017)

Review Findings

Planning Review

☒ The OWTS project is **ACCEPTABLE** from a geotechnical perspective, with the following comments to be addressed prior to building plan check stage completion.

☐ The OWTS project is **NOT ACCEPTABLE** from a geotechnical perspective. The listed 'Review Comments' shall be addressed prior to acceptance.

OWTS Plan-Check Stage Review

☒ Awaiting Building plan check submittal.

☐ The OWTS plans are **COMPLETE** from a geotechnical perspective. Please review the attached 'Geotechnical Notes for Building Plan Check' and incorporate into Building Plan-Check submittals.

☐ The OWTS plans are **COMPLETE** from a geotechnical perspective. The listed 'Building Plan-Check Stage Review Comments' shall be addressed prior to Building Plan-Check Stage completion.

Project submittals were reviewed from a geotechnical perspective for conformance with applicable codes, guidelines, and standards of practice, including the following current City adopted standards:

- City of Malibu Local Coastal Program – Land Use Plan and Local Implementation Plan (LCP-LUP and LCP-LIP)
- Malibu Municipal Code – Title 15, Buildings and Construction
- City of Malibu Guidelines for the Preparation of Geotechnical Reports and Procedures for Report Submittal (November 2013) referred to herein as Geotechnical Report Guidelines

In the case of conflicting requirements between the Geotechnical Guidelines and any other referenced standards, the latest standard will apply. The Applicant is responsible for complying with the submittal requirements for all Planning variances, as appropriate; any questions regarding variances should be directed to the case Planner.

Remarks:

The referenced response supporting geotechnical report, revised OWTS design and percolation report, and OWTS plan were reviewed by the City's consultants from a geotechnical perspective. Based on the submitted information, the project consists of installing a new 2,000-gallon pre-cast Jenson septic tank, a 1,000-gallon Jensen pre-cast processing tank with a 750 GPD reactor unit (E-Z treat 750 POD), a Polylok UV Disinfectant Unit, one 6' diameter x 33' BI seepage pit with a 10' cap (B-4), and two future seepage pits (B-3 and B-7). The new advanced OWTS will serve the fire rebuild of the single-family residence and detached garage destroyed in the Woolsey Fire. The existing 1,000-gallon septic tank and two seepage pits will be properly abandoned/ removed.

Conditions of OWTS Plan-Check:

1. Submit a fee of $528.00 to the City's geotechnical reviewers for final OWTS plan check review.
2. One set of final electronic OWTS plans incorporating the Project Geotechnical and Environmental Health Specialists' recommendations and items in this review sheet must be **reviewed and wet stamped and manually signed by the Project Engineering Geologist**. City geotechnical staff will review the plans for conformance with the Project Geotechnical Consultants' recommendations and items in this review sheet over the counter at City Hall.

Please direct questions regarding this review sheet to City's Geotechnical consultants listed below.

Engineering Geology Review by: 10-22-2025

Christopher Dean, C.E.G. #1751, Exp. 9-30-26 Date
Engineering Geology Reviewer (408-656-3210)
Email: cdean@malibucity.org

Geotechnical Engineering Review by: 10-22-2025

Matthew Janousek, G.E. #3005, Exp. 12-31-26 Date
Geotechnical Engineering Reviewer (805-370-8710)
Email: mjanousek@malibucity.org

This review sheet was prepared by representatives of Cotton, Shires and Associates, Inc., contracted as an agent of the City of Malibu.

COTTON, SHIRES AND ASSOCIATES, INC.
CONSULTING ENGINEERS AND GEOLOGISTS

Commission Agenda Report

Planning Commission Meeting
01-20-26
Item 4.A.

To: Chair Riddick and Members of the Planning Commission

Prepared by: Coli Turner, MUP, Assistant Planner

Approved by: Yolanda Bundy, MS, PE, CBO, CFCO, Community Development Director and Tyler Eaton, Assistant Community Development Director

Date prepared: January 8, 2026 Meeting date: January 20, 2026

Subject: View Preservation Permit No. 24-001 – An application requesting corrective action to restore the views recorded at 4727 Avenida Del Mar under Primary View Determination No. 12-267 with regard to the foliage located at 4732 Avenida Del Mar (Continued from December 1, 2025)

Claimant Name:	Paul Rothbard
Claimant Address:	4727 Avenida Del Mar
Claimant APN:	4473-010-034
Foliage Owner Name:	Avenida Del Mar Holding Trust
Foliage Owner Address:	4732 Avenida Del Mar
Foliage Owner APN:	4473-010-021

RECOMMENDED ACTION: Either 1) adopt Planning Commission Resolution No. 26-01 determining the action is categorically exempt from the California Environmental Quality Act, and approving View Preservation Permit No. 24-001 to require alteration and maintenance of foliage on 4732 Avenida Del Mar at the height of the horizon, as shown in Primary View Determination (PVD) No. 12-267, in order to restore the primary view documented in PVD No. 12-267 or 2) direct staff to return with a resolution consistent with the Planning Commission's decision.

DISCUSSION: This agenda report is an addendum to the agenda report published on December 1, 2025. The attached draft resolution number has been updated to Planning Commission Resolution No. 26-01 and the recitals have been changed

to reflect the continuance from the December 1, 2025 Planning Commission meeting. No other changes have been made to the draft resolution. No public correspondence has been received since the publication of the December 1, 2025 agenda report.

EXHIBITS:

A. Planning Commission Resolution No. 26-01
B. December 1, 2025 Planning Commission Agenda Report

CITY OF MALIBU PLANNING COMMISSION
RESOLUTION NO. 26-01

A RESOLUTION OF THE PLANNING COMMISSION OF THE CITY OF MALIBU, DETERMINING THE ACTION IS CATEGORICALLY EXEMPT FROM THE CALIFORNIA ENVIRONMENTAL QUALITY ACT, AND APPROVING VIEW PRESERVATION PERMIT NO. 24-001 TO REQUIRE ALTERATION AND MAINTENANCE OF FOLIAGE ON 4732 AVENIDA DEL MAR AT THE HEIGHT OF THE HORIZON, AS SHOWN IN PRIMARY VIEW DETERMINATION NO. 12-267, IN ORDER TO RESTORE THE PRIMARY VIEW DOCUMENTED IN PRIMARY VIEW DETERMINATION NO. 12-267

The Planning Commission of the City of Malibu does hereby find, order and resolve as follows:

SECTION 1. Recitals.

A. On March 28, 2013, staff conducted Primary View Determination (PVD) No. 12-267 at 4727 Avienda del Mar.

B. On July 20, 2023, a letter requesting informal discussions between the claimant and owner of the property located at 4732 Avenida del Mar (foliage owner) was sent by the property owner of 4727 Avenida del Mar via certified mail.

C. On September 26, 2023, a letter requesting mediation between the claimant and the foliage owner was sent by representatives of claimant to the foliage owner via registered mail.

D. On December 6, 2023, a letter requesting binding arbitration between the claimant and the foliage owner was sent by representatives of claimant to the foliage owner via registered mail.

E. On February 20, 2024, the claimant submitted an application for View Preservation Permit (VPP) No. 24-001.

F. On April 16, 2024, staff conducted a site visit to document the existing view conditions from the primary view location at 4727 Avenida del Mar.

G. On April 18, 2024, staff called and sent an email to the foliage owner explaining the public hearing to be held on November 18, 2024, and attempted to reach another agreement before the hearing.

H. On May 22, 2024, staff sent a letter to the foliage owner notifying them of the application and requesting a site visit via standard mail.

I. On December 23, 2024, a Notice of Planning Commission Public Hearing was mailed to all interested parties, the claimant, the foliage owner, and the recorded owners and occupants of all properties on which the foliage at issue in the VPP application is located.

J. On December 26, 2024, a Notice of Planning Commission Public Hearing was published in a newspaper of general circulation within the City of Malibu.

K. On January 16, 2025, the Planning Commission hearing scheduled for January 23, 2025 was adjourned and continued to February 3, 2025 due to the Palisades Fire.

EXHIBIT A

L. On February 3, 2025, the Planning Commission continued the item to the February 18, 2025 Planning Commission meeting at the applicant's request to allow additional time to attempt to resolve the conflict with the foliage owner.

M. On February 18, 2025, the Planning Commission continued the item to the March 3, 2025 Planning Commission meeting at the applicant's request to allow additional time to attempt to resolve the conflict with the foliage owner.

N. On February 20, 2025, the applicant withdrew the application after reaching an agreement with the foliage owner and the item was removed from the March 3, 2025 Planning Commission agenda.

O. On September 3, 2025, the applicant informed staff that an agreement could not be finalized and requested reinstatement of the VPP application and scheduling of a public hearing.

P. On November 20, 2025, a Notice of Planning Commission Public Hearing was published in a newspaper of general circulation within the City of Malibu and mailed to all interested parties, the claimant, the foliage owner, and the recorded owners and occupants of all properties on which the foliage at issue in the VPP application is located.

Q. On December 1, 2025, the Planning Commission continued the item to the January 20, 2026 Regular Planning Commission meeting prior to opening the public hearing at the applicant's request.

R. On January 20, 2026, the Planning Commission held a duly noticed public hearing on the subject application, reviewed and considered the staff report, reviewed and considered written reports, public testimony, and other information in the record.

SECTION 2. Environmental Review.

Pursuant to the authority and criteria contained in the California Environmental Quality Act (CEQA), the Planning Commission has analyzed the proposed project. The Planning Commission found that this project is listed among the classes of projects that have been determined not to have a significant adverse effect on the environment. Therefore, the project is categorically exempt from the provisions of CEQA pursuant to CEQA Guidelines section 15301(h) - Existing Facilities - Maintenance of Existing Landscaping. The Planning Commission has further determined that none of the six exceptions to the use of a categorical exemption apply to this project (CEQA Guidelines section 15300.2).

SECTION 3. View Preservation Permit Findings.

Based on all the evidence contained within the record and testimony and deliberations at the January 20, 2026 Regular Planning Commission meeting, and pursuant to Malibu Municipal Code (MMC), including MMC Chapters 17.45, the Planning Commission adopts the findings of fact below, and approves VPP No. 24-001 to require alteration and maintenance of foliage on 4732 Avenida del Mar at the height of the foliage in order to restore the documented primary view documented in PVD No. 12-267.

1. The claimant has provided evidence of attempt at informal discussion, mediation and binding arbitration. They waited 60 days between the mediation and binding arbitration letters and another 60 days with no agreement with the foliage owner as required by MMC Section 17.45.060.

2. The foliage under dispute does not qualify as exempt per MMC Chapter 17.45.140. Foliage growth obstructs views of the Pacific Ocean which were documented in PVD No. 12-267. The location of these obstruction(s) is within the center-left (southeast) of the view looking towards the Pacific Ocean, which is documented in the Primary View Determination. The foliage owner has removed several trees from the property; however, one remaining tree continues to obstruct the documented primary view.

3. PVD No. 12-267 can be restored if the remaining vegetation is trimmed and maintained to be below the horizon line as depicted in PVD No. 12-267. Palm trees are currently a prohibited species pursuant to MMC Section 17.53.090 C(1)(a). The foliage owner has removed several trees from the property, and only one palm tree remains in view. Removal of the tree(s) would bring the site closer to compliance with the MMC, but removal is not required.

4. The requested restorative action does not include removal.

5. The recommended restorative action includes trimming the foliage to be below the horizon line, which is the minimum necessary to restore the claimant's primary view, as documented in PVD No. 12-267.

SECTION 4. Planning Commission Action.

Based on the foregoing findings and evidence contained within the record, the Planning Commission hereby issues VPP No. 24-001, subject to the following conditions.

SECTION 5. Conditions of Approval.

1. The claimant, and their successors in interest, shall indemnify and defend the City of Malibu and its officers, employees and agents from and against all liability and costs relating to the City's actions concerning this project, including (without limitation) any award of litigation expenses in favor of any person or entity who seeks to challenge the validity of any of the City's actions or decisions in connection with this project. The City shall have the sole right to choose its counsel and property owners shall reimburse the City's expenses incurred in its defense of any lawsuit challenging the City's actions concerning this project.

2. The foliage located at 4732 Avenida del Mar that blocks ocean views documented in PVD No. 12-267 must be trimmed and maintained to be no taller than the horizon line, as shown in PVD No. 12-267, separating 4727 and 4732 Avenida del Mar.

3. The claimant shall be responsible for paying the cost of the restorative action required to return the view conditions to those documented by PVD No. 12-267, and the foliage owner shall be responsible for paying the costs of any subsequent maintenance of the subject foliage unless otherwise agreed to by the parties or required pursuant to any final arbitration decision or court order.

4. A 20-day grace period, after the 10-day appeal period, shall be allowed for the claimant and foliage owner to agree in good faith to dates to cut the subject vegetation before citations can be issued.

5. The claimant and foliage owner must sign and notarize an affidavit of acceptance of conditions of approval prior to commencement of any restorative actions.

6. The Planning Commission's decisions regarding view preservation shall be binding on all current and future owners of the claimant's property and foliage owner's property, and such decisions must be disclosed by each owner to subsequent owners of the property.

7. Any decision of the Planning Commission made pursuant to MMC Chapter 17.45.060 takes effect ten (10) calendar days from the date of adoption of a resolution unless an appeal is filed. If appealed, the effective date is the date on which final action is taken by the city council.

8. The City shall not be liable for any damages, injuries, costs or expenses which are the result of a decision issued by a city employee or official or any agreements or determinations resulting from mediation, arbitration or litigation concerning view restoration claims or claimant's assertions pertaining to views granted or conferred herein. Nor shall the City have any liability because a particular neighborhood or overlay district is granted or denied an exemption pursuant to MMC Chapter 17.45.140.

9. Under no circumstances shall the City have any responsibility or liability to enforce or seek any legal redress, civil or criminal, for any decision that any other person or entity makes concerning a VPP.

10. Nothing in this Resolution shall be construed as preventing a claimant or foliage owner from bringing a civil action to enforce the terms of a VPP.

11. Failure to abide by the terms and conditions of this VPP shall constitute a violation punishable in accordance with MMC Section 1.16.010.

12. In addition to all penalties authorized by MMC Section 1.16.010 or any other provision of law, violations of this VPP are subject to the administrative penalty provisions of MMC Chapter 1.10. Each day that a violation continues shall constitute a separate offense.

13. To the extent any foliage is in violation of the terms of this VPP, it shall constitute a public nuisance.

SECTION 6. The Planning Commission shall certify the adoption of this resolution.

PASSED, APPROVED AND ADOPTED this 20th day of January 2026.

ELIZABETH RIDDICK, Planning Commission Chair

ATTEST:

REBECCA EVANS, Recording Secretary

LOCAL APPEAL - Pursuant to Malibu Municipal Code Chapter 17.45.060(E)(7) a decision made by the Planning Commission may be appealed to the City Council by an aggrieved person by written statement setting forth the grounds for appeal. An appeal shall be filed with the City Clerk within 10 days of the planning commission's adoption of its resolution regarding the view preservation permit and shall be accompanied by an appeal form and filing fee, as specified by the City Council. Appeal forms may be found online at www.malibucity.org, in person at City Hall, or by calling (310) 456-2489, ext. 246.

Any action challenging the final decision of the City made as a result of the public hearing on this application must be filed within the time limits set forth in Section 1.12.010 of the MMC and Code of Civil Procedure. Any person wishing to challenge the above action in Superior Court may be limited to raising only those issues they or someone else raised at the public hearing, or in written correspondence delivered to the City of Malibu at or prior to the public hearing.

I CERTIFY THAT THE FOREGOING RESOLUTION NO. 26-01 was passed and adopted by the Planning Commission of the City of Malibu at the Regular meeting held on the 20th day of January 2026 by the following vote:

AYES:
NOES:
ABSTAIN:
ABSENT:

REBECCA EVANS, Recording Secretary

Commission Agenda Report

Planning Commission Meeting
12-1-25
Item 5.E.

To: Chair Riddick and Members of the Planning Commission

Prepared by: Coli Turner, MUP, Planning Technician

Reviewed by: Didier Murillo, Senior Planner

Approved by: Yolanda Bundy, MS, PE, CBO, CFCO, Community Development Director and Tyler Eaton, Assistant Community Development Director

Date prepared: November 20, 2025 Meeting Date: December 1, 2025

Subject: View Preservation Permit No. 24-001 – An application requesting corrective action to restore the views recorded at 4727 Avenida Del Ma under Primary View Determination No. 12-267 with regard to the foliage located at 4732 Avenida Del Mar

Claimant Name:	Paul Rothbard
Claimant Address:	4727 Avenida Del Mar
Claimant APN:	4473-010-034
Foliage Owner Name:	Avenida Del Mar Holding Trust
Foliage Owner Address:	4732 Avenida Del Mar
Foliage Owner APN:	4473-010-021

RECOMMENDED ACTION: Consider Planning Commission Resolution No. 25-07 (Attachment 1) determining the action is categorically exempt from the California Environmental Quality Act (CEQA), and approving View Preservation Permit (VPP) No. 24-001 to require alteration and maintenance of foliage on 4732 Avenida Del Mar at the height of the horizon, as shown in Primary View Determination (PVD) No. 12-267, in order to restore the primary view documented in PVD No. 12-267 and 1) adopt Resolution No. 25-07 or 2) direct staff to return with a resolution matching the Planning Commission's decision.

DISCUSSION: This agenda report provides an analysis of the action's consistency with applicable provisions of the Malibu Municipal Code (MMC), and the environmental review pursuant to CEQA.

EXHIBIT B

Background

In 2012, the City Council adopted Ordinance No. 361, which established MMC Chapter 17.45 (Citywide View Restoration Ordinance). In 2014, the ordinance was amended and the title of MMC Chapter 17.45 was changed to the Citywide View Preservation and Restoration Ordinance. MMC Chapter 17.45 allows a residence's private view within 1,000 feet to be preserved based on a PVD established on or after February 13, 2012. If the preserved view is then obstructed by new foliage or growth from existing foliage, the PVD holder, otherwise known as the claimant, can take the necessary steps to restore their view. In order to restore a view documented in a PVD, the claimant must do the following as required by MMC Section 17.45.060:

- Request informal discussion between the claimant and foliage owner with a registered or certified letter with return receipt requested;
- If informal discussion is unsuccessful, then the claimant is to request from the foliage owner mediation by a registered or certified letter with return receipt; and
- If mediation is then declined or unsuccessful after 60 days, the claimant is to request binding arbitration by a registered or certified letter with return receipt to settle the dispute.

If informal discussion, mediation, or binding arbitration settle the dispute, the agreement can be documented in a VPP approved by the Community Development Director. If the issue is not settled after 60 days of the binding arbitration attempt, the claimant can apply for a VPP to be determined by the Planning Commission. As will be described below, the claimant has attempted all the negotiation requirements of the VPP process unsuccessfully and is requesting the Planning Commission render a decision on the matter.

Claimant's View Restoration Process and Setting

On March 28, 2013, staff conducted a PVD for 4727 Avenida Del Mar (Attachment 2 - PVD No. 12-267). Staff documented the primary view standing in the backyard on an outdoor deck located within ten feet of the living room, a location chosen by the property owner who is also the claimant of the subject VPP. As required by MMC Section 17.45.060, the claimant tried to negotiate with their neighbor at 4732 Avenida Del Mar (foliage owner) to no avail (Attachment 4). The following was conducted by the claimant:

- On July 25, 2023, the claimant requested, through certified mail, that the foliage owner maintain their trees to restore the view depicted in PVD No. 12-267. The letter also included the claimant's agreement with the previous homeowner of 4732 Avenida Del Mar. The previous foliage owner signed the agreement on July 4, 2022, giving the claimant permission to cut four palm trees, trim the tops of two palm trees,

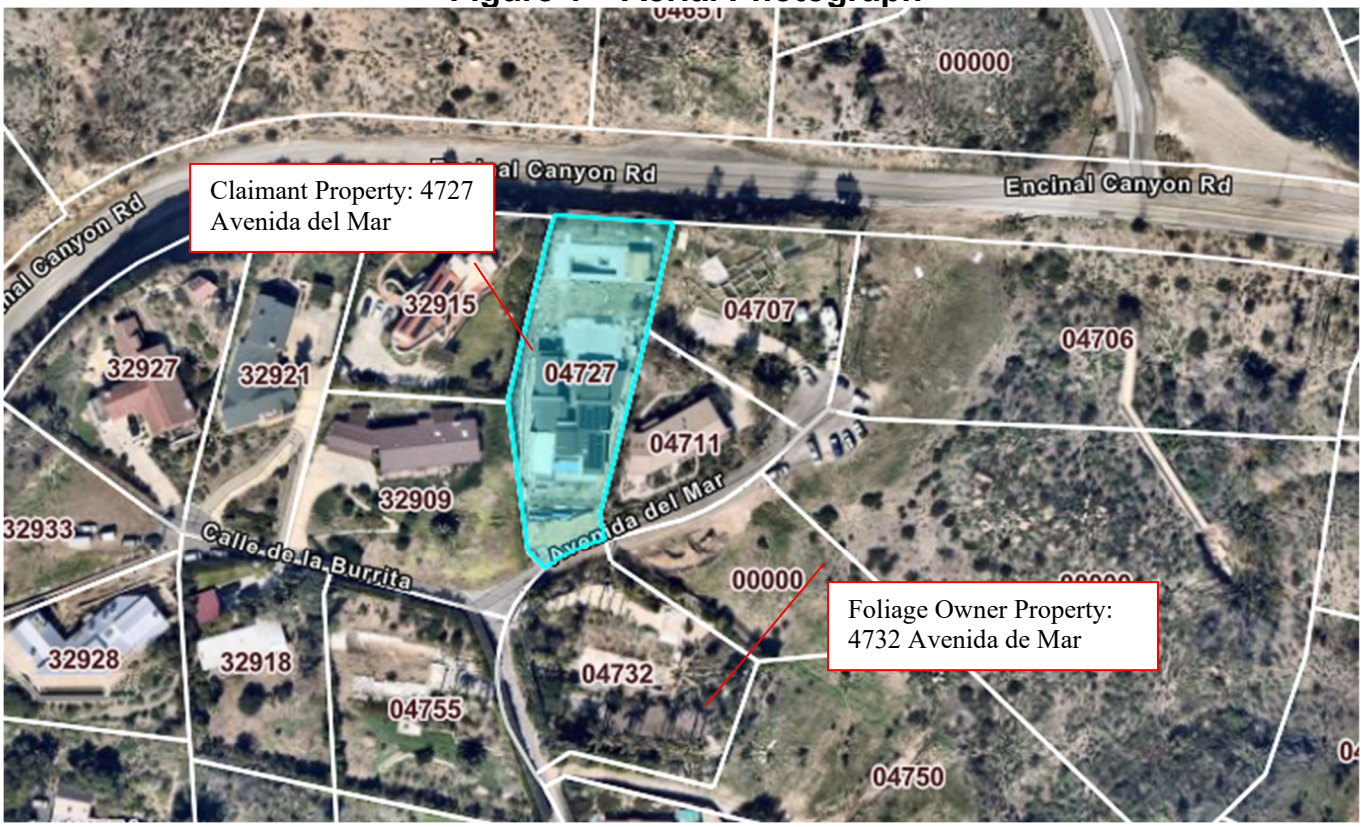
and remove brown palm fronds. This agreement states that it must remain in effect until the trees grow into the protected view.

- On September 18, 2023, the claimant requested, through certified mail, mediation between both parties. Mediation was never agreed to.
- On December 6, 2023, the claimant requested, through certified mail, binding arbitration between both parties. Binding arbitration was never agreed to.

On February 20, 2024, the claimant submitted an application for a VPP to request the foliage owner to trim or remove foliage in order to restore the view conditions documented by PVD No. 12-267.

Both the claimant's and the current foliage owner's properties are located on the landside of Pacific Coast Highway, in the Encinal Canyon area. As seen in Figure 1 below, the claimant is located upslope, and across the street from the foliage owner's property. The foliage owner's property lies directly between the claimant's primary view location and the Pacific Ocean. For reference, the location of the ocean has been indicated in Figure 2 to assist with orientation.

Figure 1 – Aerial Photograph



Source: Malibu City GIS, 2025

Figure 2 – Aerial Photograph of Pacific Ocean



Source: Malibu City GIS, 2025

Discussion

On April 16, 2024, staff conducted a site visit to the claimant's property and re-took the photos from PVD No. 12-267, as required by MMC Section 17.45.060(E)(2). Photographs from this site visit are included in Attachment 3. All subject foliage appeared to be present and the trees in question appear to be non-deciduous palm trees.

Comparing the photographs available in PVD No. 12-267 and the staff photos taken in April of 2024, staff determined that two main areas of concern foliage may qualify as an obstruction. Shown within the red circles in Figures 3(a) and 3(b) below; both areas demonstrate what is documented in PVD No. 12-267 and what is the current view conditions.

Figure 3(a): View from Primary View Looking Southeast (2013 VS 2024)



Source: PVD No. 12-267, March 2013



Source: VPP 24-001, Staff Site Visit, April 2024

Figure 3(b): View from Primary View Looking Southeast (2024 VS 2025)



Source: VPP 24-001, Staff Site Visit, April 2024



Source: VPP 24-001, Staff Site Visit September 2025

As shown in the photos above, foliage belonging to the foliage owner has grown, though it is hard to determine if the foliage within the view under PVD No. 12-267 has grown to the extent that it blocks the view greater than what had existed when the PVD was first documented. The main reason is the deck that is shown in the 2012 PVD and today has been lowered when it was rebuilt following destruction in the 2018 Woolsey Fire (more details below). The previous deck was elevated above grade and blocked a larger portion of the view of the ocean. If the Planning Commission determines there is a view impact, the primary view can be restored if the vegetation in question is trimmed or removed to a height consistent with the guidelines in PVD No. 12-267, as shown in PVD No. 12-267.

Woolsey Fire Impacts

Both properties were affected by the 2018 Woolsey Fire. The claimant's property at 4727 Avenida del Mar obtained a Planning Verification – Woolsey Fire (PVWF) No. 19-143 on July 11, 2019, and the application was finalized on April 28, 2022. The claimant has received a certificate of occupancy from the city to reside in their home. The original above-

grade deck shown in Figures 3a and 3b was removed and redesigned less than a foot above grade allowing the homeowner additional blue water views, which has opened up more visibility of the palm trees in question.

The above-ground deck is shown in the 2013 PVD photos. However, staff photographs from April 2024 show that the lowered deck exposed more of the palm trees then could be seen in the 2012 PVD. This change can be attributed to the new deck now constructed near grade, which opened up more blue water views and visibility of the palm trees in the foliage owner's possession. The same palm trees are visible in the 2013 PVD, located behind the previous deck and trellis.

As of September 2025, the foliage owner has removed several trees from the property, located at 4732 Avenida del Mar, as shown in updated photographs. One remaining tree continues to obstruct the documented primary view according to the claimant, as shown in Figure 3b. The foliage owner's property, located at 4732 Avenida del Mar has been permitted for a rebuild with an additional 10 percent of square footage beyond the previous home.

Summary of Resolution Attempts

Staff made several attempts to contact the foliage owner to assist in resolving the disputed view obstruction. On August 8, 2024, a letter from staff was mailed and emailed to the foliage owner explaining that, after completing the View Preservation process and being unable to reach an agreement, the applicant wished to proceed with a public hearing so the Planning Commission could make a determination on the matter. (Attachment 5).

On January 16, 2025, a public hearing was initially scheduled for January 23, 2025. However, the meeting was adjourned and continued to February 3, 2025, due to the Palisades Fire. The February 3rd hearing was then continued to February 18, 2025 to allow additional time for the parties to reach a private resolution. On February 6, 2025 the applicant requested that the February 18th hearing be continued to the March 3, 2025 meeting to allow for a final attempt to resolve the issue with the foliage owner.

On February 20, 2025, the applicant withdrew the application after initially reaching an agreement with the foliage owner. However, on September 3, 2025, the applicant informed staff that the agreement could not be finalized and requested reinstatement of the VPP application to proceed with the public hearing process. On September 25, 2025, staff conducted a site visit to document the current foliage conditions. Most of the trees shown in Figure 3a have since been removed, with the exception of the palm trees shown in Figure 3b located at the southeast corner of the property.

VPP Findings

Pursuant to MMC Chapter 17.45.060(E)(4), the Planning Commission may issue a VPP to require removal or alteration and maintenance of foliage at the designated maximum height, including trimming, thinning, or reducing the height or width of foliage, on a foliage owner's property if it makes all five of the required findings. Staff has prepared draft findings for approval in the claimant's favor if the Planning Commission determines there is a view blockage.

CONCLUSION: The Planning Commission may impose such restrictions or conditions, including restorative action, as deemed necessary or proper to restore a primary view; protect the foliage owner's privacy; protect the public health, safety or welfare; or any combination thereof.

If approval of this VPP is granted, the claimant shall be responsible for paying the cost of the restorative action required to return the view conditions to those documented by PVD No. 12-267, and the foliage owner shall be responsible for paying the costs of any subsequent maintenance of the subject foliage, unless otherwise agreed to by the parties or required pursuant to any final arbitration decision or court order.

The Planning Commission's decision regarding view preservation shall be binding on all current and future owners of the claimant's property and foliage owner's property, and such decisions must be disclosed by each owner to subsequent owners of the property.

Failure to abide by the adopted terms and conditions of Planning Commission Resolution No. 25-07 shall constitute a violation punishable in accordance with MMC Chapter 1.16.010. In addition to all penalties authorized by Chapter 1.16.010 or any other provision of law, violations of the VPP are subject to the administrative penalty provisions of MMC Chapter 1.10. Each day that a violation continues shall constitute a separate offense. To the extent any foliage is in violation of the terms of the VPP, it shall constitute a public nuisance. Staff recommends that a 30-day grace period (10-day appeal period plus an additional 20 days) be allowed for the claimant and foliage owner to work out dates to cut the subject vegetation before citations can be issued.

Based on the analysis contained in this report and the accompanying resolution, staff makes no recommendation of this project because it is not clear if there is a true violation but if the Planning Commission finds that there is one after reviewing all the available evidence they may approve the VPP subject to the conditions of approval contained in Section 5 of Planning Commission Resolution No. 25-07.

ENVIRONMENTAL REVIEW: Pursuant to the authority and criteria contained in CEQA, the Community Development Director has analyzed the proposed project, which includes the trimming of the foliage at 4732 Avenida del Mar. The Community Development Director found that this project is listed among the classes of projects that have been determined not to have a significant adverse effect on the environment. Therefore, the proposed project is categorically exempt from the provisions of CEQA pursuant to CEQA Guidelines section 15301(h) – Maintenance of Existing Landscaping. The Community Development Director has further determined that none of the six exceptions to the use of a categorical exemption apply to this project (CEQA Guidelines section15300.2).

CORRESPONDENCE: To date, staff has not received correspondence regarding this application other than the documentation attached to this report.

PUBLIC NOTICE: On November 20, 2025 staff published a Notice of Public Hearing in a newspaper of general circulation within the City of Malibu and mailed the notice to all interested parties, the claimant, the foliage owner, and the record owners and occupants of all properties on which the foliage at issue in the view preservation permit application is located (Attachment 7).

ATTACHMENTS:

1. Planning Commission Resolution No. 25-07
2. Claimant Primary View Determination No. 12-267
3. Staff Photographs Recreating Primary View in April 2024
4. Letters Requesting Discussion, Mediation, and Arbitration and Receipts of Delivery
5. Staff Correspondence
6. View Preservation Process Flow Chart
7. Public Hearing Notice

All referenced City Council and Planning Commission records are available for review at http://www.malibucity.org/onbase.

CITY OF MALIBU PLANNING COMMISSION
RESOLUTION NO. 25-07

A RESOLUTION OF THE PLANNING COMMISSION OF THE CITY OF MALIBU, DETERMINING THE ACTION IS CATEGORICALLY EXEMPT FROM THE CALIFORNIA ENVIRONMENTAL QUALITY ACT, AND APPROVING VIEW PRESERVATION PERMIT NO. 24-001 TO REQUIRE ALTERATION AND MAINTENANCE OF FOLIAGE ON 4732 AVENIDA DEL MAR AT THE HEIGHT OF THE HORIZON, AS SHOWN IN PRIMARY VIEW DETERMINATION NO. 12-267, IN ORDER TO RESTORE THE PRIMARY VIEW DOCUMENTED IN PRIMARY VIEW DETERMINATION NO. 12-267

The Planning Commission of the City of Malibu does hereby find, order and resolve as follows:

SECTION 1. Recitals.

A. On March 28, 2013, staff conducted a Primary View Determination (PVD) No. 12-267 at 4727 Avienda del Mar.

B. On July 20, 2023, a letter requesting informal discussions between the claimant and owner of the property located at 4732 Avenida del Mar (foliage owner) was sent by the property owner of 4727 Avenida del Mar via certified mail.

C. On September 26, 2023, a letter requesting mediation between the claimant and the foliage owner was sent by representatives of claimant to the foliage owner via registered mail.

D. On December 6, 2023, a letter requesting binding arbitration between the claimant and the foliage owner was sent by representatives of claimant to the foliage owner via registered mail.

E. On February 20, 2024, the claimant submitted an application for View Preservation Permit (VPP) No. 24-001.

F. On April 16, 2024, staff conducted a site visit to document the existing view conditions from the primary view location at 4727 Avenida del Mar.

G. On April 18, 2024, staff called and sent an email to the foliage owner explaining the public hearing to be held on November 18, 2024, and also to try to reach another agreement before the hearing.

H. On May 22, 2024, staff sent a letter to the foliage owner notifying them of the application and requesting a site visit via standard mail.

I. On December 23, 2024 a Notice of Planning Commission Public Hearing was mailed to all interested parties, the claimant, the foliage owner, and the record owners and occupants of all properties on which the foliage at issue in the VPP application is located.

J. On December 26, 2024, a Notice of Planning Commission Public Hearing was published in a newspaper of general circulation within the City of Malibu.

K. On January 16, 2025 the Planning Commission hearing scheduled for January 23, 2025, was adjourned and continued to February 3, 2025, due to the Palisades Fire.

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L. On February 3, 2025 the Planning Commission continued the item to the February 18, 2025 Planning Commission meeting at the applicants request to allow additional time to attempt to resolve the conflict with the foliage owner.

M. On February 18, 2025, the Planning Commission continued the item to the March 3, 2025 Planning Commission meeting at the applicants request to allow additional time to attempt to resolve the conflict with the foliage owner.

N. On February 20, 2025, the applicant withdrew the application after reaching an agreement with the foliage owner and the item was removed from the March 3, 2025 Planning Commission agenda.

O. On September 3, 2025, the applicant informed staff that an agreement could not be finalized and requested to reinstate the VPP application and proceed with the public hearing.

P. On November 20, 2025, a Notice of Planning Commission Public Hearing was published in a newspaper of general circulation within the City of Malibu and mailed to all interested parties, the claimant, the foliage owner, and the record owners and occupants of all properties on which the foliage at issue in the VPP application is located.

Q. On December 1, 2025, the Planning Commission held a duly noticed public hearing on the subject application, reviewed and considered the staff report, reviewed and considered written reports, public testimony, and other information in the record.

SECTION 2. Environmental Review.

Pursuant to the authority and criteria contained in the California Environmental Quality Act (CEQA), the Planning Commission has analyzed the proposed project. The Planning Commission found that this project is listed among the classes of projects that have been determined not to have a significant adverse effect on the environment. Therefore, the project is categorically exempt from the provisions of CEQA pursuant to CEQA Guidelines section 15301(h) - Existing Facilities - Maintenance of Existing Landscaping. The Planning Commission has further determined that none of the six exceptions to the use of a categorical exemption apply to this project (CEQA Guidelines section 15300.2).

SECTION 3. View Preservation Permit Findings.

Based on all the evidence contained within the record and testimony and deliberations at the December 1, 2025, Planning Commission meeting, and pursuant to Malibu Municipal Code (MMC), including MMC Chapters 17.45, the Planning Commission adopts the findings of fact below, and approves VPP No. 24-001 to require alteration and maintenance of foliage on 4732 Avenida del Mar at the height of the foliage in order to restore the documented primary view documented in PVD No. 12-267.

1. The claimant has provided evidence of attempt at informal discussion, mediation and binding arbitration. They waited 60 days between the mediation and binding arbitration letters and another 60 days with no agreement with the foliage owner as required by MMC Section 17.45.060.

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2. The foliage under dispute does not qualify as exempt per MMC Chapter 17.45.140. Foliage growth obstructs views of the Pacific Ocean which were documented in PVD No. 12-267. The location of these obstruction(s) is within the center-left (southeast) of the view looking towards the Pacific Ocean, which is documented in the Primary View Determination. The foliage owner has removed several trees from the property; however, one remaining tree continues to obstruct the documented primary view.

3. PVD No. 12-267 can be restored if the remaining vegetation is trimmed and maintained to be below the horizon line as depicted in PVD No. 12-267. Palm trees are currently a prohibited species pursuant to MMC Section 17.53.090 C(1)(a). The foliage owner has removed several trees from the property, and only one palm tree remains in view. Removal of the tree(s) would bring the site closer to compliance with the MMC, but removal is not required.

4. The requested restorative action does not include removal.

5. The recommended restorative action includes trimming the foliage to line, which is the minimum necessary to restore the claimant's primary view, as documented in PVD No. 12-267.

SECTION 4. Planning Commission Action.

Based on the foregoing findings and evidence contained within the record, the Planning Commission hereby issues VPP No. 24-001, subject to the following conditions.

SECTION 5. Conditions of Approval.

1. The claimant, and their successors in interest, shall indemnify and defend the City of Malibu and its officers, employees and agents from and against all liability and costs relating to the City's actions concerning this project, including (without limitation) any award of litigation expenses in favor of any person or entity who seeks to challenge the validity of any of the City's actions or decisions in connection with this project. The City shall have the sole right to choose its counsel and property owners shall reimburse the City's expenses incurred in its defense of any lawsuit challenging the City's actions concerning this project.

2. The foliage located at 4732 Avenida del Mar that blocks ocean views documented in PVD No. 12-267 must be trimmed and maintained to be no taller than the horizon line, as shown in PVD No. 12-267, separating 4727 and 4732 Avenida del Mar.

3. The claimant shall be responsible for paying the cost of the restorative action required to return the view conditions to those documented by PVD No. 12-267, and the foliage owner shall be responsible for paying the costs of any subsequent maintenance of the subject foliage unless otherwise agreed to by the parties or required pursuant to any final arbitration decision or court order.

4. A 20-day grace period, after the 10-day appeal period, shall be allowed for the claimant and foliage owner to agree in good faith to dates to cut the subject vegetation before the citations can be issued.

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5. The claimant and foliage owner must sign and notarize an affidavit of acceptance of conditions of approval prior to commencement of any restorative actions.

6. The Planning Commission's decisions regarding view preservation shall be binding on all current and future owners of the claimant's property and foliage owner's property, and such decisions must be disclosed by each owner to subsequent owners of the property.

7. Any decision of the Planning Commission made pursuant to MMC Chapter 17.45.060 takes effect ten (10) calendar days from the date of adoption of a resolution unless an appeal is filed. If appealed, the effective date is the date on which final action is taken by the city council.

8. The City shall not be liable for any damages, injuries, costs or expenses which are the result of a decision issued by a city employee or official or any agreements or determinations resulting from mediation, arbitration or litigation concerning view restoration claims or claimant's assertions pertaining to views granted or conferred herein. Nor shall the City have any liability because a particular neighborhood or overlay district is granted or denied an exemption pursuant to MMC Chapter 17.45.140.

9. Under no circumstances shall the City have any responsibility or liability to enforce or seek any legal redress, civil or criminal, for any decision that any other person or entity makes concerning a VPP.

10. Nothing in this Resolution shall be construed as preventing a claimant or foliage owner from bringing a civil action to enforce the terms of a VPP.

11. Failure to abide by the terms and conditions of this VPP shall constitute a violation punishable in accordance with MMC Section 1.16.010.

12. In addition to all penalties authorized by MMC Section 1.16.010 or any other provision of law, violations of this VPP are subject to the administrative penalty provisions of MMC Chapter 1.10. Each day that a violation continues shall constitute a separate offense.

13. To the extent any foliage is in violation of the terms of this VPP, it shall constitute a public nuisance.

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SECTION 6. The Planning Commission shall certify the adoption of this resolution.

PASSED, APPROVED AND ADOPTED this 1st day of December 2025.

ELIZABETH RIDDICK, Planning Commission Chair

ATTEST:

REBECCA EVANS, Recording Secretary

LOCAL APPEAL - Pursuant to Malibu Municipal Code Chapter 17.45.060(E)(7) a decision made by the Planning Commission may be appealed to the City Council by an aggrieved person by written statement setting forth the grounds for appeal. An appeal shall be filed with the City Clerk within 10 days of the planning commission's adoption of its resolution regarding the view preservation permit and shall be accompanied by an appeal form and filing fee, as specified by the City Council. Appeal forms may be found online at www.malibucity.org, in person at City Hall, or by calling (310) 456-2489, ext. 246.

Any action challenging the final decision of the City made as a result of the public hearing on this application must be filed within the time limits set forth in Section 1.12.010 of the MMC and Code of Civil Procedure. Any person wishing to challenge the above action in Superior Court may be limited to raising only those issues they or someone else raised at the public hearing, or in written correspondence delivered to the City of Malibu at or prior to the public hearing.

I CERTIFY THAT THE FOREGOING RESOLUTION NO. 25-07 was passed and adopted by the Planning Commission of the City of Malibu at the Regular meeting held on the 1st day of December 2025 by the following vote:

AYES:
NOES:
ABSTAIN:
ABSENT:

REBECCA EVANS, Recording Secretary

DRAFT

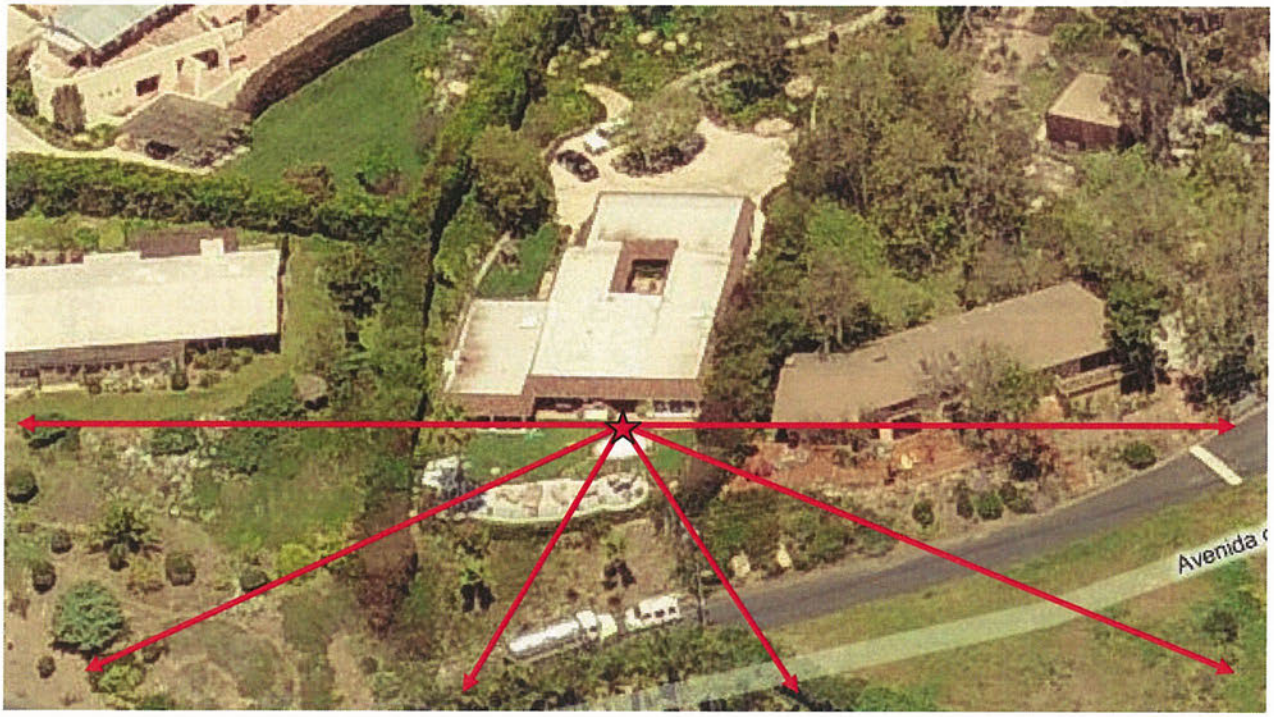
City of Malibu

23825 Stuart Ranch Rd, Malibu, California 90265-4861
(310) 456-2489 FAX (310) 456-7650 www.malibucity.org

PLANNING DEPARTMENT
PRIMARY VIEW DETERMINATION

Primary View Determination: 4727 Avenida del Mar – Andrea Ringe

On March 28, 2013, staff conducted a primary view determination at 4727 Avenida del Mar. Staff documented the primary view standing on an outdoor deck, located within ten feet of the exterior wall of the living room, a location chosen by the property owner. The location of the primary view determination photographs were taken from is denoted by a red star in the aerial below.



On March 28, 2013, the view from this location on the property is as follows, from east to west:

ATTACHMENT 2


03/28/2013


03/28/2013


03/28/2013


03/28/2013

- Red arrow denotes horizon






03/28/2013

ATTACHMENT 3























ATTACHMEN

ATTACHMENT 2

Text here











July 4, 2022

Mr. Maksym Gorodnly & Mrs. Liudmyla Gorodnia
[redacted]
Westlake Village, CA 91361

Regarding: View Preservation for 4727 Avenida Del Mar, Malibu per Primary View Determination

Dear Max:

Thank you for meeting on site to discuss the trees referenced in the June 8th letter. As we agreed, you authorized me to have 4 palm trees removed, and to trim the tops of two palm trees and to remove all brown, palm fronds from other palm trees. We completed this work yesterday. Please see four photos I took on Friday, July 1st, 2022 from the same spot as that used for the Primary View Determination 12-267 dated March 28, 2013. As you can see, the view has now been preserved and should be this way until such time as trees grow once again into the protected view.

This letter shall serve as confirmation that you have fulfilled the requirements to preserve our view, as I outlined in that June 8th, 2022 letter.

The Primary View Determination for our property remains valid and shall be maintained if new trees are planted or any of the current remaining ones (palms primarily) grow once again into the Primary View.

Per your request, I will send a copy of this letter to your selling agent and also ask that a copy be forwarded to any escrow you enter into to sell the property such that any prospective Buyer is also aware of this.

Please feel free to call me to discuss this further or reply via email or mail. My contact information is:

Paul Rothbard
c/o ISHC Lompoc, LLC
[redacted]
Malibu, CA 90265
Email: [redacted]
Phone: [redacted]

Thanks, Paul Rothbard

ATTACHMENT 4

July 20, 2023

Raviv Netzah
c/o NETZAH & SHEM TOV INC, ; 4732 AVENIDA DEL MAR HOLDING TRUST,
[redacted]

Re: View Preservation for 4727 Avenida Del Mar, Malibu per Primary View Determination

Dear Raviv Netzah, et al:

I do hope this letter finds you well. I'd like to extend a warm welcome to our neighborhood. We look forward to meeting you in person and are excited you have purchased the property with the plans to rebuild. In fact, we've seen work starting on the property – Exciting times!!

As you may know, I have had previous communications with Max Govidny (prior owner of 4743 Avenida Del Mar) regarding our View Preservation. I am attaching the previous letters for your reference.

I am writing now to formally inform you that your foliage, primarily several (2) of your palm trees, are now once again infringing on our protected Primary View Determination. I have attached the following items for your review:

1) The View Preservation Process (as outlined by the City of Malibu Planning Department).
2) Our Primary View Determination 12-267 dated March 28, 2013.
3) Current photos taken on May 1, 2023 from the same spot as those shown in the Primary View Determination. I've indicated in the photos which palm trees are now infringing on our Primary View.
4) The previous communications with Max Govidny.

As you can see in the current photos, two of the palms that were trimmed previously have grown considerably and are now within the protected view corridor for our property. The tops of these trees were trimmed as part of the agreement with Mr. Govidny. I simply ask that these trees be substantially trimmed down (or removed) as soon as possible such that your property is in compliance with our PVD 12-267.

I am happy to meet onsite so we can discuss in person. Please let me know if you'd like to do that. Please feel free to call me to discuss this further or reply via email or mail. My contact information is:

Paul Rothbard c/o ISHC Lompoc, LLC
[redacted]
Malibu, CA 90265
Email: [redacted] Phone: [redacted]

Thanks, Paul Rothbard

FedEx.

September 01, 2023

Dear Customer,

The following is the proof-of-delivery for tracking number: 781603244128

Delivery Information:

Status:	Delivered	**Delivered To:**	Receptionist/Front Desk
Signed for by:	M.MONICA	**Delivery Location:**	
Service type:	FedEx Express Saver		
Special Handling:	Deliver Weekday; Residential Delivery		SHERMAN OAKS, CA,
		Delivery date:	Jul 26, 2023 15:36

Shipping Information:

Tracking number:	781603244128	**Ship Date:**	Jul 25, 2023
		Weight:	0.5 LB/0.23 KG

Recipient:	**Shipper:**
SHERMAN OAKS, CA, US,	BIG SKY, MT, US,

Reference	Paul Rothbard
Invoice	PKG ID: 173093

Signature image is available. In order to view image and detailed information, the shipper or payor account number of the shipment must be provided.

Thank you for choosing FedEx

FedEx.

September 01, 2023

Dear Customer,

The following is the proof-of-delivery for tracking number: 781603244128

Delivery Information:

Status:	Delivered	**Delivered To:**	Receptionist/Front Desk
Signed for by:	M.MONICA	**Delivery Location:**	
Service type:	FedEx Express Saver		
Special Handling:	Deliver Weekday; Residential Delivery		SHERMAN OAKS, CA,
		Delivery date:	Jul 26, 2023 15:36

Shipping Information:

Tracking number:	781603244128	**Ship Date:**	Jul 25, 2023
		Weight:	0.5 LB/0.23 KG

Recipient:	**Shipper:**
SHERMAN OAKS, CA, US,	BIG SKY, MT, US,

Reference	Paul Rothbard
Invoice	PKG ID: 173093

Signature image is available. In order to view image and detailed information, the shipper or payor account number of the shipment must be provided.

Thank you for choosing FedEx

SENDER: *COMPLETE THIS SECTION*

- Complete items 1, 2, and 3.
- Print your name and address on the reverse so that we can return the card to you.
- Attach this card to the back of the mailpiece, or on the front if space permits.

1. Article Addressed to:

NETZAH & SHEM TOV INC

[redacted]

9590 9402 7575 2098 9564 87

2. Article Number *(Transfer from service label)*

9414 7112 0620 9512 6294 36

COMPLETE THIS SECTION ON DELIVERY

A. Signature

X

☑ Agent
☐ Addressee

B. Received by *(Printed Name)*

C. Date of Delivery 9.28

D. Is delivery address different from item 1? ☐ Yes
If YES, enter delivery address below: ☐ No

3. Service Type

- ☐ Adult Signature
- ☐ Adult Signature Restricted Delivery
- ☑ Certified Mail®
- ☐ Certified Mail Restricted Delivery
- ☐ Collect on Delivery
- ☐ Collect on Delivery Restricted Delivery
- ☐ Insured Mail
- ☐ Insured Mail Restricted Delivery (over $500)
- ☐ Priority Mail Express®
- ☐ Registered Mail™
- ☐ Registered Mail Restricted Delivery
- ☐ Signature Confirmation™
- ☐ Signature Confirmation Restricted Delivery

PS Form 3811, July 2020 PSN 7530-02-000-9053 Domestic Return Receipt

USPS TRACKING #



9590 9402 7575 2098 9564 87

First-Class Mail
Postage & Fees Paid
USPS
Permit No. G-10

United States Postal Service

• Sender: Please print your name, address, and ZIP+4® in this box•

PAUL ROTHBARD
[redacted]

September 26, 2023

Raviv Netzah
c/o NETZAH & SHEM TOV INC, ; 4732 AVENIDA DEL MAR HOLDING TRUST,
[redacted]

Re: View Preservation for 4727 Avenida Del Mar, Malibu per Primary View Determination

Dear Raviv Netzah, et al:

I'm following up on our call several weeks ago. As I mentioned, I am the neighbor above the house being built at 4732 Avenida Del Mar in Malibu. As you also know, I sent a letter dated July 20, 2023 to the address on record. A person named Monica signed for it. I'm attaching a copy of the letter as well as the proof of delivery to your office.

I would like to resolve this matter related to your palm trees growing significantly into our legal Preserved View. I am attaching that again although you should have everything from the July 20th, 2023 mailing. I can meet on site anytime in the next 60 days. We are neighbors and I'd like to build a good neighborly relationship with you. However, I have not heard back from you.

I would like to offer that we agree to Mediation and move forward in selecting a mediator to resolve this if we are unable to do so in person on site.

To reiterate, I am writing now to formally request Mediation and to once again inform you that your foliage, primarily several (3) of your palm trees, are now once again infringing on our protected Primary View Determination. I have attached the following items for your review:

1) A copy of the July 20, 2023 letter.
2) A copy of the proof of delivery notice.
3) The View Preservation Process (as outlined by the City of Malibu Planning Department).
4) Our Primary View Determination 12-267 dated March 28, 2013.

Please feel free to call me to discuss this further or reply via email or mail. My contact information is:

Paul Rothbard c/o ISHC Lompoc, LLC
[redacted]
Malibu, CA 90265
Email: [redacted] Phone: [redacted]

Thanks, Paul Rothbard

December 6, 2023

Raviv Netzah & Shem Tov
c/o NETZAH & SHEM TOV INC, ; 4732 AVENIDA DEL MAR HOLDING TRUST,
[redacted]

Re: 3rd Letter: View Preservation for 4727 Avenida Del Mar, Malibu per Primary View Determination

Dear Raviv Netzah, and Shem Tov, et al:

I'm following up on my call several weeks ago with Shem Tov. As I mentioned, I am the neighbor above the house being built at 4732 Avenida Del Mar in Malibu. As you also know, I sent a letter dated July 20, 2023 to the address on record. I sent a 2nd letter on September 26, 2023, also to the address of record. I have proof that both letters were received at your office.

I would like to resolve this matter related to your palm trees growing significantly into our legal Preserved View. The trees have now grown an additional 1 – 2' into our view. They are significantly violating the recorded Preserved View for our house located at 4727 Avenida Del Mar. A trim is likely not going to resolve this given they are palm trees and the infraction starts at the trunk, well below the actual palm fronds. More than likely, the trees will need to be removed entirely. I can meet on site anytime in the next 2 – 3 weeks. We are neighbors and I'd like to build a good neighborly relationship with you. However, I have not heard back from you.

I would like to offer that we agree to Binding Arbitration and move forward in selecting an Arbitrator to resolve this if we are unable to do so in person on site.

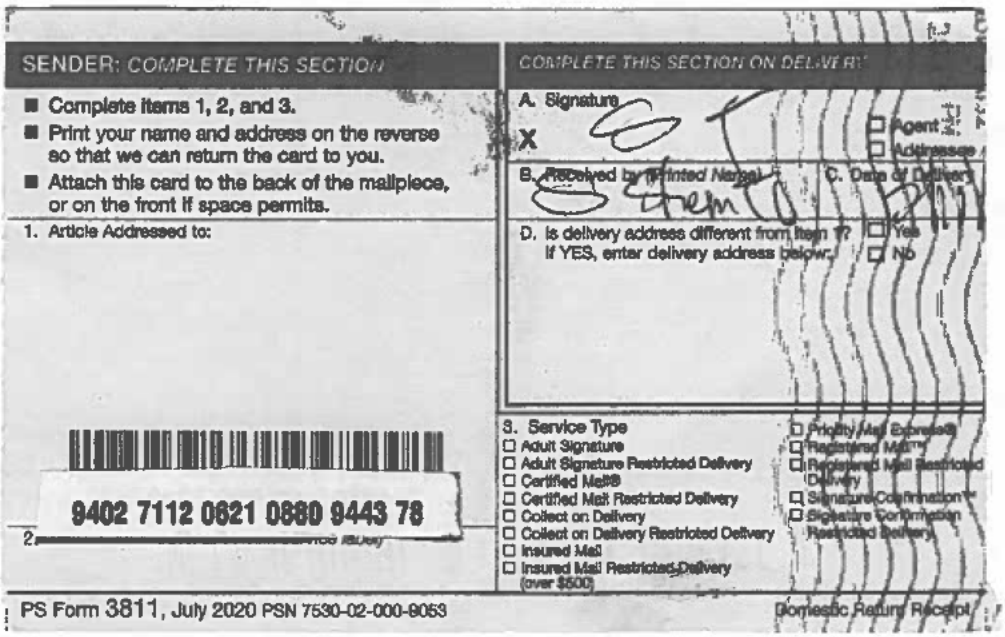
To reiterate, I am writing now to formally request Binding Arbitration and to once again inform you that your foliage, primarily several (3) of your palm trees, are now once again infringing on our protected Primary View Determination. I have attached the following items for your review:

1) A copy of the July 20, 2023 letter.
2) A copy of the September 26, 2023 letter.
3) The View Preservation Process (as outlined by the City of Malibu Planning Department).

Please feel free to call me to discuss this further or reply via email or mail. My contact information is:

Paul Rothbard c/o ISHC Lompoc, LLC
[redacted]
Malibu, CA 90265
Email: [redacted] Phone: [redacted]

Thanks, Paul Rothbard



SENDER: COMPLETE THIS SECTION

- Complete items 1, 2, and 3.
- Print your name and address on the reverse so that we can return the card to you.
- Attach this card to the back of the mailpiece, or on the front if space permits.

1. Article Addressed to:

9402 7112 0621 0880 9443 78

2.

COMPLETE THIS SECTION ON DELIVERY

A. Signature

X

☐ Agent
☐ Addressee

B. Received by (Printed Name)

C. Date of Delivery

D. Is delivery address different from item 1? ☐ Yes
If YES, enter delivery address below: ☐ No

3. Service Type

- ☐ Adult Signature
- ☐ Adult Signature Restricted Delivery
- ☐ Certified Mail®
- ☐ Certified Mail Restricted Delivery
- ☐ Collect on Delivery
- ☐ Collect on Delivery Restricted Delivery
- ☐ Insured Mail
- ☐ Insured Mail Restricted Delivery (over $500)
- ☐ Priority Mail Express®
- ☐ Registered Mail™
- ☐ Registered Mail Restricted Delivery
- ☐ Signature Confirmation™
- ☐ Signature Confirmation Restricted Delivery

PS Form 3811, July 2020 PSN 7530-02-000-9053

Domestic Return Receipt

City of Malibu

23825 Stuart Ranch Road · Malibu, California · 90265-4861
Phone (310) 456-2489 · Fax (310) 456-7650 · www.malibucity.org

April 18, 2024

Raviv Netzah and Shem Tov
c/o Netzah and Shem Tov Inc.
[redacted]

Malibu, CA 90265

Re: View Preservation Permit No. 24-001

To Raviv Netzah and Shem Tov (via standard mail):

On February 20, 2024, a View Preservation Permit application was submitted by Paul Rothbard of 4727 Avenida del Mar to the City of Malibu Planning Department for review.

A View Preservation Permit is considered by the Planning Commission after a claimant (the property owner mentioned above) goes through a 5-step process (attached) in which they attempt to work with foliage owner (you and any other legal property owner of 4732 Avenida del Mar) in order to preserve their documented primary view corridor that is obstructed by foliage located within 1,000 feet of the point of the main viewing area. The attached Primary View Determination conducted in 2013 shows the extent of the view that is documented with the City.

The View Preservation Permit and conditions outlining the restorative actions proposed to preserve the primary view of the claimant will be discussed and possibly issued by the Planning Commission at a scheduled Planning Commission public hearing.

For more information on this type of permit please visit the City's website here: https://www.malibucity.org/775/View-Preservation-Permit-Planning-Commis and see Chapter 17.45 of the Malibu Municipal Code.

Please email me with any questions or concerns at cturner@malibucity.org . **If you are available for and amendable to a site visit, please let me know dates and times that work best for you.**

Best Regards,

Coli Turner
Planning Technician

ATTACHMENT 5

Attachments:

1. View Preservation Permit Process Flowchart
2. Primary View Determination No. 12-267

Recycled Paper

View Restoration Process

Step 1 – Informal Discussion

- The view owner sends a letter to the foliage owner, asking to meet and work to restore the view.
- The letter should include pictures of the view and what the view owner would like to be done.
- Letter should be sent by registered or certified mail, with a return receipt, to the address registered with the LA County Assessor's Office.
- If no response to the letter has been received within 60 days of mailing or informal discussion does not resolve the matter, go to step 2.

Step 2 - Mediation

- The view owner sends a second letter to the foliage owner with an invitation to participate in mediation.
- Letter should be sent by registered or certified mail, with a return receipt.
- The parties must agree on which mediator to use, with the view owner paying for any associated costs, unless the parties agree otherwise.
- If there is no response within 60 days of mailing the letter or mediation does not resolve the matter, go to step 3.

Step 3 – Binding Arbitration

- The view owner sends a third letter to the foliage owner with a request to participate in binding arbitration.
- Letter should be sent by registered or certified mail, with a return receipt.
- The parties must agree on which arbitrator to use, with any associated costs paid by the view owner, unless the parties agree otherwise.
- If there is no response within 60 days of sending the letter, or the parties can't agree on an arbitrator, go to either step 4 or 5.

View Preservation Permit from the Planning Director

- If during this process the parties agree to a resolution, a View Preservation Permit can be obtained from the Planning Director.
- This permit will acknowledge and memorialize the private agreement between the parties.
- Approval of the permit by the Director will be based upon finding that the agreement is in compliance with the Ordinance.

Step 4 – Written Advisory Opinion

- A view owner can request that the Planning Director assess the situation and issue an advisory opinion on the view dispute.
- The Planning Director can decline this request. The view owner will be notified within 7 days if the request has been accepted or declined.

Step 5 – Court Action

After steps 1 through 4 have been exhausted, with documentation of all efforts, the view owner may initiate a civil action in a court of competent jurisdiction.

For more information on any of the steps above, visit www.malibucity.org/view.

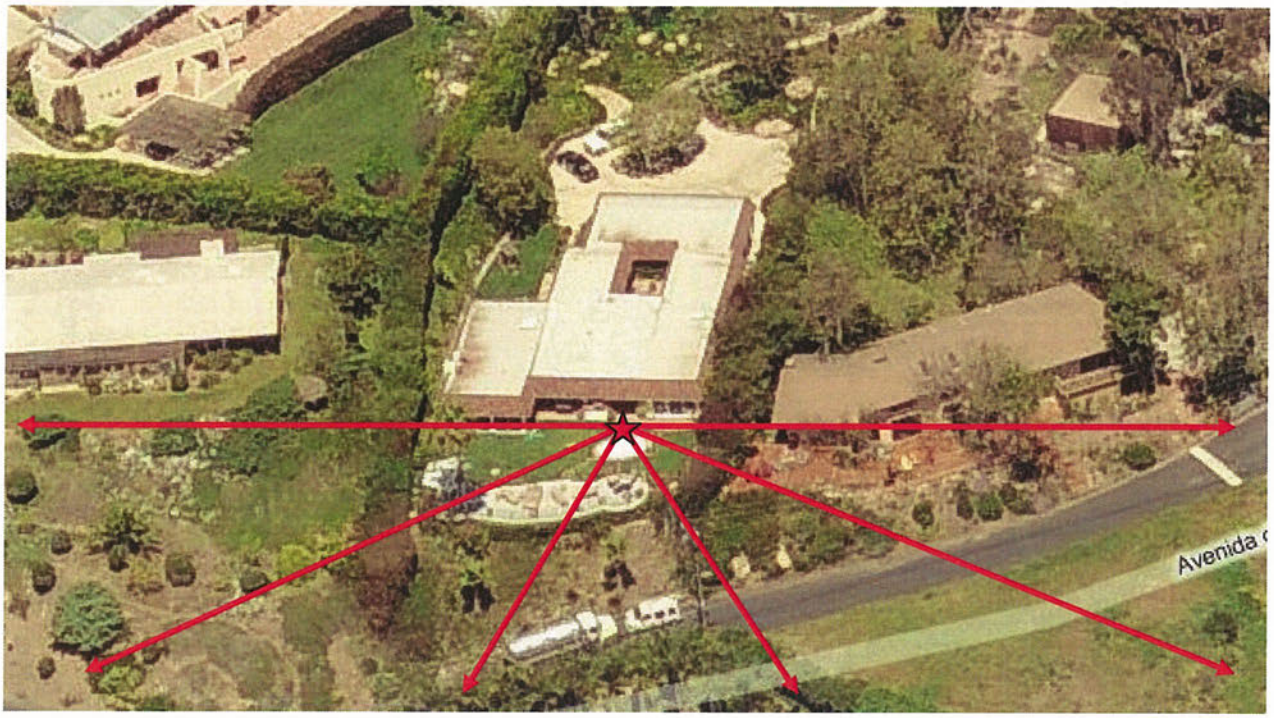
City of Malibu

23825 Stuart Ranch Rd, Malibu, California 90265-4861
(310) 456-2489 FAX (310) 456-7650 www.malibucity.org

PLANNING DEPARTMENT
PRIMARY VIEW DETERMINATION

Primary View Determination: 4727 Avenida del Mar – Andrea Ringe

On March 28, 2013, staff conducted a primary view determination at 4727 Avenida del Mar. Staff documented the primary view standing on an outdoor deck, located within ten feet of the exterior wall of the living room, a location chosen by the property owner. The location of the primary view determination photographs were taken from is denoted by a red star in the aerial below.



On March 28, 2013, the view from this location on the property is as follows, from east to west:


03/28/2013


03/28/2013


03/28/2013


03/28/2013

- Red arrow denotes horizon






03/28/2013

City of Malibu

23825 Stuart Ranch Road · Malibu, California · 90265-4861
Phone (310) 456-2489 · Fax (310) 456-7650 · www.malibucity.org

May 22, 2024

Raviv Netzah and Shem Tov
c/o Netzah and Shem Tov Inc. Trust
[redacted]
Malibu, CA 90265

Re: View Preservation Permit No. 24-001 (Second Attempt)

To Raviv Netzah and Shem Tov (via standard mail):

On February 20, 2024, a View Preservation Permit application was submitted by Paul Rothbard of 4727 Avenida del Mar to the City of Malibu Planning Department for review. On April 18, 2024, staff sent a letter to the address listed by the applicant, 4732 Avenida de Mar, of violation of Primary View Determination PVD 12-267.

A View Preservation Permit is considered by the Planning Commission after a claimant (the property owner mentioned above) goes through a 5-step process (attached) in which they attempt to work with foliage owner (you and any other legal property owner of 4732 Avenida del Mar) in order to preserve their documented primary view corridor that is obstructed by foliage located within 1,000 feet of the point of the main viewing area. The attached Primary View Determination conducted in 2013 shows the extent of the view that is documented with the City.

The View Preservation Permit and conditions outlining the restorative actions proposed to preserve the primary view of the claimant will be discussed and possibly issued by the Planning Commission at a scheduled Planning Commission public hearing. A view preservation permit issued by the Planning Commission may include restrictions or conditions and require restorative action by the foliage owner.

For more information on this type of permit please visit the City's website here: https://www.malibucity.org/775/View-Preservation-Permit-Planning-Commis and see Chapter 17.45 of the Malibu Municipal Code.

Please email me with any questions or concerns at cturner@malibucity.org . **If you are available for and amendable to a site visit, please let me know dates and times that work best for you.**

Best Regards,

Coli Turner
Planning Technician

Attachments:

1. View Preservation Permit Process Flowchart
2. Primary View Determination No. 12-267

City of Malibu

23825 Stuart Ranch Road · Malibu, California · 90265-4861
Phone (310) 456-2489 · Fax (310) 456-7650 · www.malibucity.org

August 8, 2024

Raviv Netzah and Shem Tov
c/o Netzah and Shem Tov Inc. Trust
[redacted]
Malibu, CA 90265

Re: View Preservation Permit No. 24-001 (Third Attempt)

To Raviv Netzah and Shem Tov (via standard mail):

On February 20, 2024, a View Preservation Permit application was submitted by Paul Rothbard of 4727 Avenida del Mar to the City of Malibu Planning Department for review. On April 18, 2024, and May 22, 2024, staff sent a letter to the address listed by the applicant, 4732 Avenida de Mar, of violation of Primary View Determination PVD 12-267.

We spoke over the phone on July 30,2024. You mentioned that you spoke with the applicant on or around February 2024. You stated that you and the applicant made a verbal agreement that you will make arrangements with the new property owner to remove/trim the trees once the property is sold. The applicant does not agree that you had this conversation and would like to move forward with a public hearing with the Planning Commission.

A View Preservation Permit is considered by the Planning Commission after a claimant (the property owner mentioned above) goes through a 5-step process (attached) in which they attempt to work with foliage owner (you and any other legal property owner of 4732 Avenida del Mar) in order to preserve their documented primary view corridor that is obstructed by foliage located within 1,000 feet of the point of the main viewing area. The attached Primary View Determination conducted in 2013 shows the extent of the view that is documented with the City.

The View Preservation Permit and conditions outlining the restorative actions proposed to preserve the primary view of the claimant will be discussed and possibly issued by the Planning Commission at a scheduled Planning Commission public hearing. A view preservation permit issued by the Planning Commission may include restrictions or conditions and require restorative action by the foliage owner.

For more information on this type of permit please visit the City's website here: https://www.malibucity.org/775/View-Preservation-Permit-Planning-Commis and see Chapter 17.45 of the Malibu Municipal Code.

Please email me with any questions or concerns at cturner@malibucity.org . **If you are available for and amendable to a site visit, please let me know dates and times that work best for you.**

Best Regards,

Coli Turner
Planning Technician

Coli Turner

Attachments:

1. View Preservation Permit Process Flowchart
2. Primary View Determination No. 12-267

View Preservation Process

Step 1 – Primary View Determination

- The view owner can request a Primary View Determination from the City, which documents the primary view corridor from one main residence or building, per the Ordinance.
- This documented view will be the basis for all future view preservation issues.

Step 2 – Informal Discussion

- The view owner sends a letter to the foliage owner, asking to meet and work to restore the view.
- The letter should include a copy of the Primary View Determination and what the view owner would like to be done.
- Letter should be sent by registered or certified mail, with a return receipt, to the address registered with the LA County Assessor's Office.
- If no response to the letter has been received within 60 days of mailing or informal discussion does not resolve the matter, go to Step 3.

Step 3 - Mediation

- The view owner sends a second letter to the foliage owner with an invitation to participate in mediation.
- Letter should be sent by registered or certified mail, with a return receipt.
- The parties must agree on which mediator to use, with the view owner paying for any associated costs, unless the parties agree otherwise.
- If there is no response within 60 days of mailing the letter, or mediation does not resolve the matter, go to Step 4.

Step 4 – Binding Arbitration

- The view owner sends a third letter to the foliage owner with a request to participate in binding arbitration.
- Letter should be sent by registered or certified mail, with a return receipt.
- The parties must agree on which arbitrator to use, with any associated costs paid by the view owner, unless the parties agree otherwise.
- If there is no response within 60 days of sending the letter, or the parties can't agree on an arbitrator, go to Step 5.

View Preservation Permit from the Planning Director

- If during this process the parties agree to a resolution, a View Preservation Permit can be obtained from the Planning Director.
- This permit will acknowledge and memorialize the private agreement between the parties.
- Approval of the permit by the Director will be based upon finding that the agreement is in compliance with the Ordinance.

Step 5 - View Preservation Permit from the Planning Commission

- A view owner can submit an application for a View Preservation Permit (for preservation of a primary view corridor) to the Planning Commission.
- At a public hearing, the request for preservation of the documented view will be presented to the Planning Commission, who will issue a decision on the matter. A view preservation permit issued by the Planning Commission may include restrictions or conditions and require restorative action by the foliage owner.

For more information on any of the steps above, visit www.malibucity.org/view.

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COMMUNITY DEVELOPMENT DEPARTMENT

NOTICE OF PUBLIC HEARING

NOTICE OF PUBLIC HEARING

The Malibu Planning Commission will hold a public hearing on **Monday, December 1, 2025, at 6:30 p.m**. in the Council Chambers, Malibu City Hall, 23825 Stuart Ranch Road, Malibu, CA for the project identified below. Public comment can be submitted ahead of the public hearing to planningcommission@malibucity.org for inclusion in the public record. To participate during the public hearing, please review the meeting agenda posted at MalibuCity.org/AgendaCenter and follow the directions for public participation.

VIEW PRESERVATION PERMIT NO. 24-001 - An application requesting corrective action to restore the views recorded at 4727 Avenida Del Mar under Primary View Determination No. 12-264 with regard to foliage located at 4732 Avenida Del Mar

CLAIMANT LOCATION:	4727 Avenida Del Mar
CLAIMANT APN:	4473-010-034
CLAIMANT NAME:	Paul Rothbard
FOLIAGE LOCATION:	4732 Avenida Del Mar
FOLIAGE APN:	4473-010-021
FOLIAGE OWNER:	Avenida Del Mar Holding Trust
ZONING:	Rural Residential-Two Acre (RR-2)
APPEALABLE TO:	City Council
ENVIRONMENTAL REVIEW:	Categorical Exemption CEQA Guidelines Section 15301(h)
APPLICATION FILED:	February 20, 2024
CASE PLANNER:	Coli Turner, Planning Technician, cturner@malibucity.org (310) 456-2489, ext. 295

A written staff report will be available at or before the hearing for the projects. All persons wishing to address the Commission regarding these matters will be afforded an opportunity in accordance with the Commission's procedures. Copies of all related documents can be reviewed by any interested person at City Hall during regular business hours. Oral and written comments may be presented to the Planning Commission on, or before, the date of the meeting.

LOCAL APPEAL - A decision of the Planning Commission may be appealed to the City Council by an aggrieved person by written statement setting forth the grounds for appeal. An appeal shall be filed with the City Clerk within ten days following the date of action which the appeal is made and shall be accompanied by an appeal form and filing fee, as specified by the City Council. Appeal forms may be found online at www.malibucity.org/planningforms or in person at City Hall, or by calling (310) 456-2489, extension 246.

IF YOU CHALLENGE THE CITY'S ACTION IN COURT, YOU MAY BE LIMITED TO RAISING ONLY THOSE ISSUES YOU OR SOMEONE ELSE RAISED AT THE PUBLIC HEARING DESCRIBED IN THIS NOTICE, OR IN WRITTEN CORRESPONDENCE DELIVERED TO THE CITY, AT OR PRIOR TO THE PUBLIC HEARING.

YOLANDA BUNDY, Community Development Director

Date: November 20, 2025

ATTACHMENT 7

Commission Agenda Report

Planning Commission Meeting
01-20-26
Item 4.B.

To: Chair Riddick and Members of the Planning Commission

Prepared by: Allison Cook, AICP, Contract Planner

Reviewed by: Joseph Smith, AICP, Contract Principal Planner

Approved by: Yolanda Bundy, PE, MS, CBO, CBFO, Community Development Director and Tyler Eaton, Assistant Community Development Director

Date prepared: January 8, 2026 Meeting date: January 20, 2026

Subject: Coastal Development Permit No. 19-012, Lot Merger No. 24-002, and Certificate of Compliance No. 19-009 – An application for a new one-story single-family residence and associated development; including a conditional certificate of compliance to recognize an illegally created lot consisting of two parcels and a lot merger to consolidate two parcels into one (Continued from December 16, 2025)

Location: 25200 Pacific Coast Highway, within the appealable coastal zone
APNs: 4459-013-021 and 4459-014-018
Owner: PAR PCH, LLC

RECOMMENDED ACTION: Either 1) adopt Planning Commission Resolution No. 26-05 (Exhibit 1) determining the project is categorically exempt from the California Environmental Quality Act, and approving Coastal Development Permit No. 19-012 to construct a new 9,219 square-foot, one-story, single-family residence, including a 1,000 square-foot subterranean two-car garage, 1,523 square-foot basement, 676 square-foot gym, detached 465 square-foot guest house, swimming pools, spa, driveways, decks, landscape, water features, hardscape, grading, retaining walls, and onsite wastewater treatment system, including Certificate of Compliance No. 21-004 to recognize an illegally created lot consisting of two Assessor Parcel Numbers (4459-013-021 and 4459-014-018), and Lot Merger No. 24-002 to consolidate two existing parcels into one, located in the Rural Residential, Two-Acre (RR-2) Zoning District at 25200 Pacific Coast Highway (PCH); or 2) direct staff to return with a resolution consistent with the Planning Commission's decision (PAR PCH, LLC).

DISCUSSION: The subject item was scheduled for the July 21, 2025, Planning Commission meeting. Due to a lack of quorum, the meeting was cancelled, and the subject item was continued to the August 18, 2025, regular Planning Commission meeting. An addendum to the July 21, 2025, agenda report was prepared for the August 18, 2025, Planning Commission meeting. On August 18, 2025, the Planning Commission continued the item to a date uncertain at the request of staff to allow additional time to address public correspondence related to geologic issues. An addendum to the August 18, 2025, report was prepared for the December 16, 2025, Planning Commission meeting. On December 16, 2025, the Planning Commission continued the item to the January 20, 2026, Planning Commission meeting. This agenda report provides an addendum to the December 16, 2025, Planning Commission agenda report and the December 16, 2025, agenda report has been provided as Exhibit 2. Public correspondence received after the December 16, 2025, agenda report was published is provided as Exhibit 3.

Should the Planning Commission choose to approve the project, draft Resolution No. 26-05 (Exhibit 1) has been revised to reflect the continuance of the item to the January 20, 2026, regular Planning Commission meeting and to add condition of approval #36 that ensures that the proposed view corridor on the subject property contains no view obstruction from the existing earthen berms in the PCH right-of-way. The condition reads as follows:

> *36. Prior to final Planning approval, the applicant shall submit an application to the California Department of Transportation (Caltrans), and any other agency as applicable, for removal of any portion of the existing dirt berm adjacent to PCH located in the required public view corridor and impeding public views of the Pacific Ocean from PCH. All required permits shall be obtained and the portion of the berm impeding views shall be removed prior to the issuance of building permits by the City. The required view corridor, including the berm removal in it, shall be produced prior to commencement of property development to the satisfaction of the Community Development Director.*

The applicant is proposing a project that meets the objective design requirements of the Local Coastal Program (LCP) Local Implementation Plan (LIP). However, the Planning Commission will have to consider if the project, as proposed, meets the required findings of the LIP and the policies of the LCP's Land Use Plan. Due to site topography, the project will impact an existing scenic corridor of Dan Blocker Beach and a vista of Point Dume from travelers on westbound PCH looking over the vacant property. PCH is an LCP-designated scenic road and LIP Chapter 6 (Scenic Resources) provides criteria for new development impeding public views. As part of the alternatives analysis for the project, other locations for development were considered but not selected. For example, siting the development further to the east would open up the scenic corridor but would have implications on Environmentally Sensitive Habitat Area (ESHA) located on the east side

of the property. The detailed findings that need to be made by the Planning Commission are laid out in the original staff report (Exhibit 2), including findings for conformance with LIP Chapters 4 (ESHA) and 6 (Scenic Resources). If the Commission chooses to approve the project as proposed, draft findings are available for review in the attached draft resolution (Exhibit 1).

EXHIBITS:

1. Planning Commission Resolution No. 26-05
2. December 16, 2025, Planning Commission Agenda Report
3. Public Correspondence received after publication of the December 16, 2025 Planning Commission Agenda Report

CITY OF MALIBU PLANNING COMMISSION
RESOLUTION NO. 26-05

A RESOLUTION OF THE PLANNING COMMISSION OF THE CITY OF MALIBU DETERMINING THE PROJECT IS CATEGORICALLY EXEMPT FROM THE CALIFORNIA ENVIRONMENTAL QUALITY ACT, AND APPROVING COASTAL DEVELOPMENT PERMIT NO. 19-012 TO CONSTRUCT A NEW 9,219 SQUARE FOOT, ONE-STORY, SINGLE-FAMILY RESIDENCE, INCLUDING A 1,000 SQUARE-FOOT SUBTERRANEAN TWO-CAR GARAGE, 1,523 SQUARE FOOT BASEMENT, 676 SQUARE FOOT GYM, DETACHED 465 SQUARE FOOT GUEST HOUSE, SWIMMING POOLS, SPA, DRIVEWAYS, DECKS, LANDSCAPE, WATER FEATURES, HARDSCAPE, GRADING, RETAINING WALLS, AND ONSITE WASTEWATER TREATMENT SYSTEM, INCLUDING CERTIFICATE OF COMPLIANCE NO. 19-009 TO RECOGNIZE AN ILLEGALLY CREATED LOT CONSISTING OF TWO ASSESSOR'S PARCEL NUMBERS (4459-013-021 AND 4459-014-018), AND LOT MERGER NO. 24-002 TO CONSOLIDATE TWO EXISTING PARCELS INTO ONE PARCEL, LOCATED IN THE RURAL RESIDENTIAL, TWO-ACRE ZONING DISTRICT AT 25200 PACIFIC COAST HIGHWAY (PAR PCH LLC)

The Planning Commission of the City of Malibu does hereby find, order and resolve as follows:

SECTION 1. Recitals.

A. On March 7, 2019, an application for a Coastal Development Permit (CDP) No. 19-012 to allow for a new single-family residence and associated development was submitted to the Planning Division by PAR PCH LLC. For development on property identified as APNs 4459-013-021 and 4459-014-018. The application was routed to the City Biologist, City Environmental Health Administrator, City geotechnical consultant reviewers, City Public Works Department, Los Angeles County Waterworks District No. 29 (WD29), and Los Angeles County Fire Department (LACFD) for review.

B. On September 25, 2023, a Notice of Coastal Development Permit Application was posted on the subject property.

C. On December 11, 2023, the application was deemed complete.

D. On April 18, 2024, the Planning Division visited the site and documented the story pole installation.

E. On April 25, 2024, a Notice of Planning Commission Public Hearing was published in a newspaper of general circulation within the City of Malibu and was mailed to all property owners and occupants within a 500-foot radius of the subject property.

F. In April 2024, Planning Division staff received concerns from several community members related to impacts to bluewater views and potential outdoor lighting

G. On May 20, 2024, the Planning Commission continued the item to a date uncertain.

H. On May 23, 2025, Planning Division staff visited the site and documented installation of the updated story poles.

I. On July 10, 2025, a Notice of Planning Commission Public Hearing was published in a newspaper of general circulation within the City of Malibu and was mailed to all property owners and occupants within a 500-foot radius of the subject property.

J. On July 21, 2025, the Planning Commission meeting was cancelled due to a lack of quorum, and a Notice of Cancellation and Notice of Continuance was issued, with the project continued to the August 18, 2025 Regular Planning Commission meeting.

K. On August 18, 2025, the Planning Commission continued the item to a date uncertain at the request of staff.

L. On November 20, 2025, a Notice of Planning Commission Public Hearing was published in a newspaper of general circulation within the City of Malibu and was mailed to all property owners and occupants within a 500-foot radius of the subject property.

M. On December 16, 2025, the Commission continued the item to the January 20, 2026 Regular Planning Commission meeting prior to opening the public hearing.

N. On January 20, 2026, the Planning Commission held a duly noticed public hearing on the subject application, reviewed and considered the staff report, and reviewed and considered written reports, public testimony, and other information in the record.

SECTION 2. Environmental Review.

Pursuant to the authority and criteria contained in the California Environmental Quality Act (CEQA), the Planning Commission has analyzed the proposed project. The Planning Commission found that this project is listed among the classes of projects that have been determined not to have a significant adverse effect on the environment. Therefore, the project is categorically exempt from the provisions of CEQA pursuant to Section 15303(a) – New Construction or Conversion of Small Structures. The Planning Commission has further determined that none of the six exceptions to the use of a categorical exemption apply to this project (CEQA Guidelines Section 15300.2). PCH is not an officially designated state scenic highway. This project, along with any other project in the City, is required to implement the criteria in LIP Section 6.5(E)(2) to protect scenic and visual resources. There are no impacts to biological resources because the limits of project development, including required fuel modification activities and grading, do not encroach into identified environmentally sensitive habitat area in compliance with LIP Section 4.6.1. The project will not have any significant adverse impacts on the site stability or structural integrity from geologic,

flood, or fire hazards because the project is required to comply with the certified engineering geologist and/or geotechnical engineer's recommendations and the City and County regulations, including compliance with development standards listed in LIP Section 9.4. The property is not included on any list compiled pursuant to Government Code Section 65962.5 and no historical resources are located on or adjacent to the property.

SECTION 3. Coastal Development Permit Findings.

Based on evidence contained within the record, including the agenda report for the project and the public hearing on January 20, 2026, and pursuant to the Local Coastal Program (LCP) Local Implementation Plan (LIP), including Sections 13.7(B) and 13.9, and Title 17 (Zoning) of the Malibu Municipal Code (MMC), the Planning Commission adopts the findings of fact, and approves CDP No. 19-012 for construction of a 9,219 square-foot single-family residence, 1,000 square-foot subterranean garage, 1,523 square-foot basement, 676 square-foot gym, detached 465 square-foot guest house, swimming pools and spa, driveways, decks, landscape, water features, hardscape, grading, retaining walls, and an onsite wastewater treatment system located in the Rural Residential, Two-Acre (RR-2) zoning district at 25200 Pacific Coast Highway.

The project, as conditioned, is consistent with the LCP's zoning, grading, cultural resources, water quality, and wastewater treatment system standards requirements. With the inclusion of the proposed certificate of compliance (COC) and Lot Merger (LM), the project has been determined to be consistent with all applicable LCP codes, standards, goals, and policies. The required findings are made herein.

A. General Coastal Development Permit (LIP Chapter 13)

1. The project is located in the RR-2 residential zoning district, an area designated for residential uses and typically developed with single-family residences. The project has been reviewed for conformance with the LCP by the Planning Division, City Biologist, City Environmental Health Administrator, City Public Works Department, City geotechnical consultant reviewers, Waterworks District 29 (WD29), and the Los Angeles County Fire Department (LACFD). As discussed herein, based on submitted reports, project plans, visual analysis, and site investigation by the Planning Division, the proposed project, as conditioned, conforms to the LCP in that it meets all applicable residential development standards, inclusive of the requested COC and LM.

2. Based on the analysis in the record, as designed and conditioned, the project will not result in biological impacts and has been designed to minimize grading. There is no evidence that an alternative project would substantially lessen any potential significant adverse impacts of the development on the environment beyond that of the proposed project. The project, including required fuel modification area and grading, is located approximately 300 feet from Environmentally Sensitive Habitat Area (ESHA) in compliance with LIP Section 4.6.1.

3. The following alternatives to the project were considered to determine the least environmentally damaging feasible alternative.

The project was originally contemplated as a two-story residence. However, due to the visual impacts of impeding upon bluewater views from PCH, the applicant revised the plan to lower the main residence building height from 18 feet to a maximum of 17 feet, seven inches and one story, and the guest house height from 15 feet and eight inches to 10 feet. The proposed location of development was sited on the flattest area of the subject property where slopes range from 4 to 1 or flatter. Other areas of the property where development could occur, but was avoided, contain slopes that are 3 to 1 or steeper. Proposed building pad elevations would be set further below current grade on the property to further minimize impeded bluewater views from PCH, and to allow the building pads to be gradually stepped into the western slope of the project site to reduce their visual profile. To eliminate all impedance to bluewater views from PCH, all proposed buildings would need to be a height that is at or below that of the adjacent PCH roadway grade and the California Department of Transportation (Caltrans) berms along the roadway. To meet this, the buildings would need to be below three to seven feet in height in most areas, with the exception of the tallest building portion at the east end of the main residence. This portion of the main residence is proposed at a height of 17 feet, seven inches, and there is a 21-foot difference between the development surface and the roadway/berm grade such that the building height would not be visible from PCH. In lieu and in accordance with LIP Section 6.5(E)(2), the project would implement a public view corridor from PCH to existing bluewater views for a distance of 31 percent (542 feet, 7 inches) of the property width (east to west) on the eastern portion of the property, consistent with LIP Section 6.5(E)(2).

Substantial earthwork would need to occur to lower the current grade several more feet to set all buildings below the PCH grade and the Caltrans berms. The resulting amount of grading could exceed the maximum allowed 1,000 cubic yards for non-exempt grading and require more retaining walls, which could exceed the six-foot high maximum allowed and require a variance. As designed, the project does not include any discretionary requests for relief from development standards. To lower the project site with shorter retaining walls, or without walls, would require an increase in development at the edges of the lowered building pad to transition to the existing grade elevations over a long distance. This alternate concept would require grading on steep slopes that would also exceed the maximum allowed non-exempt grading of 1,000 cubic yards and require a variance. It would also be inconsistent with the required COC findings for avoidance of steep slopes and may not be accomplished entirely within the property boundaries. This alternate concept would also likely be considered inconsistent with the LIP (LIP Section 8.3) and MMC standards and policies for minimizing the alteration of landforms. LIP Section 8.3(E) states that grading shall be designed to minimize the alteration of landforms by ensuring that graded slopes blend with the existing terrain of the site and surrounding area and conform to natural topography.

The applicant considered clustering all buildings in the eastern portion of the subject property, where the PCH grade and/or Caltrans berms provide the most screening to the development. However, the subject property is narrow and locating all development in this area is considered infeasible due to developable areas on the west portion of the property that would reduce environmental effects. This is because developing the eastern portion of the property would result in encroachment into ESHA, ESHA buffer, and a drainage, as well as require grading of steep slopes and shifting fuel modification zones offsite. Variances would be required for development in this alternate location.

Consideration for reducing the proposed Total Development Square Footage (TDSF) in the project was made but was found that a reduction in TDSF would not necessarily result in a project that further decreased impedances to bluewater views from PCH. This is because the building heights could continue to be up to 18 feet in height, consistent with LIP allowances. All sensitive biological resources (EHSA and drainage) and steep slopes at the eastern end of the subject property would not be encroached upon by the proposed project, as designed and conditioned, including required fuel modification.

A considerable portion of the proposed development consists of outdoor recreation and gathering spaces, such as an outdoor kitchen, garden rooms, pools and other water features. Due to the narrow shape of the property with a long roadway frontage and the need for vehicle fire access driveways around the development that reduce available area for buildings, the development cannot feasibly be set back further from PCH to further minimize privacy and noise concerns within these outdoor spaces. Other considerations were made by the applicant to increase privacy and reduce roadway noise, such as a wall with some transparent features, a transparent fence, or vegetation screening options. Two solid freestanding walls along the northern part of the project site were originally proposed at a height of 12 feet each and subsequently revised such that the upper four feet of the 12-foot-wall included glass to allow public bluewater views. Wall heights have since been revised to reduce the overall height to six feet to protect bluewater views from PCH (with no glass portions) and to be consistent with the maximum allowed height for solid walls in the LIP and MMC.

As designed and conditioned, the proposed development is considered to be the least environmentally damaging feasible alternative.

4. The property is within a designated ESHA and ESHA buffer as shown on the LCP ESHA and Marine Resources Map. However, the project, including required fuel modification activities and grading, is over 300 feet west of the ESHA boundary. Because the project avoids any work within the ESHA and 100-foot ESHA buffer areas, no Environmental Review Board review is required.

B. Scenic, Visual and Hillside Resource Protection (LIP Chapter 6)

1. While the project site is below the grade of the adjacent PCH roadway and the building and driveway pads average approximately one foot below grade to further minimize views to the development, the upper portions of some buildings will be visible from public views from PCH and impede upon bluewater views for those areas of the subject property. As described above in Finding A.3, it is infeasible to further lower the project site and structures to be fully below the PCH grade. The applicant is not requesting a discretionary request to increase height above 18 feet. Also as described in Finding A.3, there are no other feasible alternatives to development and no other feasible locations on the property to accommodate the proposed development that would avoid scenic and visual impacts including bluewater views. At most, the upper eight feet, five inches of the main residence will be visible from public views along PCH. Consistent with LIP Section 6.5(E)(2), an onsite view corridor described in Finding A.3 will be

implemented as part of the project. This LIP section requires that where topography of the project site does not permit the siting or design of a structure that is located below road grade, new development shall provide an ocean view corridor on the project site. Project materials and colors will be required to be compatible with the natural environment, therefore, will be compatible with the character of the surrounding neighborhood. Although retaining walls included in the project are not expected to be visible from PCH, conditions of approval would still apply to the project to ensure the retaining walls blend with the surrounding natural area and would prohibit the use of vegetation that will exceed the height of the existing PCH grade Caltrans berms to protect bluewater views from PCH. Therefore, the project will not result in significant adverse impacts to scenic and visual resources from PCH, including bluewater views.

2. As described in Finding A.3 above, the project is the least damaging environmentally feasible alternative. The drainage area, areas of steep slopes, and ESHA and ESHA buffer areas onsite will be protected.

3. The project site will not result in adverse impacts from public viewing areas in the hillside above the subject property. The project site may be visible from Corral Canyon Park (1,500 feet northwest of the site), Corral Canyon Trail/Corral Canyon Loop Trail (400 feet northwest of the site), and Cameron Nature Preserve at Puerco Canyon (500 feet northeast of the site). These locations, which are upslope from the project site in the hillside above PCH, would be considered public viewing areas pursuant to LIP Chapter 6. The project consists of a one-story single-family residence and associated development with flat roofs, not to exceed a height of 17 feet and seven inches, consistent with the LIP requirements. The buildings, walls, and driveways will be required to use earthtone colors and contain materials to blend with the natural environment. Landscaping is proposed throughout the development, and is conditioned to prohibit the use of vegetation that will exceed the height of the existing PCH grade/Caltrans berms to protect bluewater views from PCH.

Current views from the public viewing areas in the hillside above the project site include a large expanse of coastline, PCH, and structures, including residences in the vicinity of the project site. Development of the project site, as proposed and conditioned, is not expected to result in significant adverse impacts to views from these public viewing areas, as it is adjacent to existing residential development and proposes a low-profile design. The conditions noted above regarding colors and materials allow the development to be visually compatible with the surrounding natural environment when viewed from above. The development is not expected to have a significant impact on ocean views from the public viewing areas, given the height of the locations in the hillsides above the project site, and that the applicant has designed the project as a series of low-profile buildings ranging from 12 feet to a maximum of 17 feet and seven inches in height.

The development is proposed on the flattest area of the property, away from steep slopes, a jurisdictional drainage, and riparian ESHA. Moreover, the project provides a public view corridor on the eastern part of the property that is 31 percent of the lineal frontage of the project site. There are no feasible alternatives for development that would avoid or substantially lessen views from these public viewing areas. The applicant considered clustering all buildings in the eastern portion of the building pad, in lieu of the western portion, where the PCH grade Caltrans berms provide

the most screening to the development from PCH. However, because the subject property is narrow, locating all development in the eastern portion of the property is considered infeasible as it would result in direct impacts to ESHA and ESHA buffer.

4. No outdoor lighting is proposed or approved as part of this project. Conditions of approval require compliance with the City's Dark Sky Ordinance and any other applicable regulations.

5. The Landscape Plan includes trees, shrubs, groundcover, and other plants. Native species are proposed along the edges of the development, adjacent to existing natural vegetation. The project is not expected to have adverse visual impacts due to landscaping, as conditioned. Vegetation, including trees, are required to not extend above the PCH grade/Caltrans berms.

C. Hazards (LIP Chapter 9)

1. Based on review of the project plans and associated project geotechnical and other reports by the City geotechnical consultant reviewers, LACFD, City Environmental Health Administrator, and Public Works Department, these specialists determined that adverse impacts to the project site related to the proposed development are not expected. The project, including the OWTS, will neither be subject to nor increase the instability of the site from geologic, flood, or fire hazards. The proposed development is suitable for the intended use provided that the certified engineering geologist and/or geotechnical engineer's recommendations and governing agency's building codes are followed. Conditions of approval require that all recommendations contained in the above cited geotechnical reports and conditions required by the City geotechnical review consultants, City Public Works Department, and the LACFD, are incorporated into the project. The conditions include onsite drainage measures, as well as implementing improvements offsite in the public right-of-way to the existing dewatering system and making other drainage system improvements in the public right-of-way, to ensure slope stability.

2. As described in Finding C.1 above, the proposed project, as designed, conditioned and approved by the applicable departments and agencies, will not have any significant adverse impacts on the site stability or structural integrity from geologic or flood hazards due to project design, location, modifications, landscaping, and other conditions. Moreover, there are no preferable feasible project alternatives to improve site stability or structural integrity beyond that of the proposed project. The development will be located on the flattest portion of the subject property, outside of steep slopes, and is not within a flood hazard area. Retaining walls are consistent with the maximum six-foot-high requirement.

3. As with all properties in the City, the subject property is currently subject to wildfire hazards and development of a residence and associated development on the subject property will not increase the project site's susceptibility to wildfire. The project is not expected to have an impact on wildfire hazards. The proposed development may actually decrease the project site's susceptibility to wildfire through compliance with fuel modification requirements and the use of appropriate required building materials and measures. All required fuel modification activities will occur onsite.

4. The City is served by the LACFD, as well as the California Department of Forestry, if needed. In the event of major fires, the County has "mutual aid agreements" with cities and counties throughout the State so that additional personnel and firefighting equipment can augment the LACFD. Conditions of approval require the project to comply with all LACFD development standards and with the approved LACFD fuel modification plan for the site. As such, the project, as designed, constructed, and conditioned, will not be subject to nor increase the instability of the site or structural integrity pertaining to wildfire hazards.

5. As described in Finding A.3 above, the project, as designed and conditioned, is the least environmentally damaging alternative and no adverse impacts to geologic, flood, or fire hazards are anticipated. There are no feasible project alternatives that are more environmentally preferable than the proposed project, including compliance with LIP requirements related to ESHA, scenic and visual resources, and hazards. The drainage area, areas of steep slopes, and the ESHA and ESHA buffer areas onsite will be protected as part of the project.

6. The proposed development has been analyzed for the hazards listed in LIP Chapter 9 by the City Building Official, City Environmental Health Administrator, and the City geotechnical consultant reviewers. These specialists determined that the proposed project does not impact site stability or structural integrity. Since there are no significant impacts expected, there are no feasible alternatives to reduce significant impacts. Conditions of approval will ensure project compliance with all required standards and measures to minimize hazards.

7. There is no evidence in the record that the proposed project, as designed and conditioned, will have adverse impacts to sensitive resources, particularly in consideration of hazards. The onsite drainage area, areas of steep slope, and areas of ESHA and the ESHA buffer will be protected, and development, including grading and fuel modification activities, will be over 300 feet away from ESHA.

D. Land Division (LIP Chapter 15)

1. The certificate of compliance (COC) complies with all policies and standards of the LCP, including the requirements of LIP Section 15.2. The project site provides for development that avoids any work within slopes over 30 percent (3:3 to 1). The project site can accommodate adequate roads for fire access and, as conditioned, development is safe from flooding, erosion, geologic, and extreme fire hazards. The project site is served by adequate public services and can accommodate an OWTS. The subject property can accommodate development, including fuel modification, outside of the ESHA and ESHA buffer. Development of the subject property can occur in a manner that minimizes grading and alteration of natural landforms, and that will be landscaped with native species to minimize erosion. Clustering of development can be accommodated on the west side of the property to minimize site disturbance and maximize open space on the east side of the property, in ESHA, a drainage, and in steep slopes.

2. No coastal resources or ridgelines are located on the property or would be affected by the development. The project site enables impacts to visual resources, including bluewater

views, to be minimized to the extent feasible. As described in Findings A.1 and B.1 above, the project implements a public view corridor through the property for a minimum 31 percent of the property width, consistent with the LIP requirements. The site allows for development consistent with the maximum density permitted in the LCP and would not be smaller than the average size of surrounding parcels.

3. The two parcels subject to the LM are under common ownership and the applicant proposes a voluntary merger that has been initiated by the property owner. The LM is consistent with all policies and standards of the LCP that protect ESHA or visual resources of the coastal zone, as habitat in the ESHA will be protected and no structures in the onsite view corridor are permitted.

SECTION 4. Planning Commission Action.

Based on the foregoing findings and evidence contained within the record, the Planning Commission hereby approves CDP No. 19-012, LM 24-002, and COC No. 19-009, subject to the following conditions.

SECTION 5. Conditions of Approval.

Standard Conditions

1. The property owners, and their successors in interest, shall indemnify and defend the City of Malibu and its officers, employees and agents from and against all liability and costs relating to the City's actions concerning this project, including (without limitation) any award of litigation expenses in favor of any person or entity who seeks to challenge the validity of any of the City's actions or decisions in connection with this project. The City shall have the sole right to choose its counsel and property owners shall reimburse the City's expenses incurred in its defense of any lawsuit challenging the City's actions concerning this project.

2. Approval of this application is to allow for the project described herein. The scope of work approved includes:

    a. 9,219 square-foot, one-story, single-family residence, and a 1,000 square-foot subterranean two-car garage and 1,523 square-foot basement;
    b. Detached 676 square-foot gym;
    c. Detached 465 square-foot guest house;
    d. Swimming pools and spa;
    e. OWTS, including a 1,500-gallon septic tank;
    f. New landscaping and hardscape, including permeable driveways;
    g. Perimeter fencing not to exceed 42 inches in height along the north property line and an entry gate;
    h. Retaining walls up to six feet in height; and
    i. Solid freestanding walls up to six feet in height.

3. Except as specifically changed by conditions of approval, the proposed development shall be constructed in substantial conformance with the approved scope of work, as described in Condition 2 and depicted on plans on file with the Planning Division date stamped (Architectural dated April 16, 2025, Civil dated October 17, 2025, and Landscape dated August 11, 2021). The proposed development shall further comply with all conditions of approval stipulated in this resolution and Department Review Sheets attached hereto. In the event project plans conflict with any condition of approval, the condition shall take precedence.

4. Pursuant to LIP Section 13.18.2, this CDP), Lot Merger, and Certificate of Compliance shall not be effective until the property owner signs, notarizes and returns the Acceptance of Conditions Affidavit accepting the conditions set forth herein. The applicant shall file this form with the Community Development Department prior to issuance of any development permits.

5. This CDP shall not be effective until all appeals are exhausted and the property owner, applicant, and the business operator execute the Affidavit of the Acceptance of Conditions. Said documents shall be recorded with the Office of the Los Angeles County Recorder and a certified copy of said recordation shall be filed with the Planning Department within 10 days of the effective date of the approval.

6. The applicant shall digitally submit a complete set of plans to the Planning Division for consistency review and approval prior to plan check and again prior to the issuance of any building or development permits.

7. The CDP shall expire if the project has not commenced within three (3) years after issuance of the permit unless a time extension has been granted. Extension of the permit may be granted by the approving authority for due cause. Extensions shall be requested in writing by the applicant or authorized agent prior to expiration of the three-year period and shall set forth the reasons for the request. In the event of an appeal, the CDP shall expire if the project has not commenced within three years from the date the appeal is decided by the decision-making body or withdrawn by the appellant.

8. Any questions of intent or interpretation of any condition of approval will be resolved by the Community Development Director upon written request of such interpretation.

9. All development shall conform to requirements of the City Community Development Department, City Biologist, City Environmental Health Administrator, City geotechnical consultant reviewers, City Public Works Department, Los Angeles County Waterworks District No. 29 and LACFD, as applicable. Notwithstanding this review, all required permits shall be secured.

10. Minor changes to the approved plans or the conditions of approval may be approved by the Community Development Director, provided such changes achieve substantially the same

results and the project is still in compliance with the Malibu Municipal Code and the Local Coastal Program. Revised plans reflecting the minor changes and additional fees shall be required.

11. Pursuant to LIP Section 13.20, development pursuant to an approved CDP shall not commence until the CDP is effective. The CDP is not effective until all appeals, including those to the California Coastal Commission (CCC), have been exhausted. In the event that the CCC denies the permit or issues the permit on appeal, the coastal development permit approved by the City is void.

12. The applicant must submit payment for any outstanding fees payable to the City prior to issuance of any building permit, including grading or demolition.

Cultural Resources

13. In the event that potentially important cultural resources are found in the course of geologic testing or during construction, work shall immediately cease until a qualified archaeologist can provide an evaluation of the nature and significance of the resources and until the Community Development Director can review this information. Thereafter, the procedures contained in LIP Chapter 11 and those in MMC Section 17.54.040(D)(4)(b) shall be followed.

14. If human bone is discovered during geologic testing or during construction, work shall immediately cease and the procedures described in Section 7050.5 of the California Health and Safety Code shall be followed. Section 7050.5 requires notification of the coroner. If the coroner determines that the remains are those of a Native American, the applicant shall notify the Native American Heritage Commission by phone within 24 hours. Following notification of the Native American Heritage Commission, the procedures described in Section 5097.94 and Section 5097.98 of the California Public Resources Code shall be followed.

Outdoor Lighting

15. Exterior lighting must comply with the Dark Sky Ordinance and shall be minimized, shielded, or concealed and restricted to low intensity features, so that no light source is directly visible from public view. Permitted lighting shall conform to the following standards:

    a. Lighting for walkways shall be limited to fixtures that do not exceed two feet in height and are directed downward, and limited to 850 lumens (equivalent to a 60 watt incandescent bulb);
    b. Security lighting controlled by motion detectors may be attached to the residence provided it is directed downward and is limited to 850 lumens;
    c. Driveway lighting shall be limited to the minimum lighting necessary for safe vehicular use. The lighting shall be limited to 850 lumens;

d. Lights at entrances as required by the Building Code shall be permitted provided that such lighting does not exceed 850 lumens;
e. Site perimeter lighting shall be prohibited; and
f. Outdoor decorative lighting for aesthetic purposes is prohibited.

16. Night lighting for sports courts or other private recreational facilities shall be prohibited.

17. No permanently installed lighting shall blink, flash, or be of unusually high intensity or brightness. Lighting levels on any nearby property from artificial light sources on the subject property(ies) shall not produce an illumination level greater than one foot-candle.

18. Night lighting from exterior and interior sources shall be minimized. All exterior lighting shall be low intensity and shielded directed downward and inward so there is no offsite glare or lighting of natural habitat areas. High intensity lighting of the shore is prohibited.

19. String lights are allowed in occupied dining and entertainment areas only and must not exceed 3,000 Kelvin.

20. Motion sensor lights shall be programmed to extinguish ten minutes after activation.

21. No lighting can exceed 18 feet in height except as required by the California Building Code.

22. Three violations of the conditions by the same property owner will result in a requirement to permanently remove the outdoor light fixture(s) from the site.

Fencing and Walls

23. The applicant shall include an elevation of the proposed driveway gate on the architectural plans that are submitted for Building Safety plan check. The gate and all fencing along the front property line shall comply with the regulations set forth in LIP Section 3.5.

24. The height of fences and walls shall comply with LIP Sections 3.5.3(A) and 6.5(E)(1)(c). No retaining wall shall exceed six feet in height or 12 feet in height for a combination of two or more walls.

25. Necessary boundary fencing shall be of an open rail-type design with a wooden rail at the top (instead of wire), be less than 40-inches high, and have a space greater than 14-inches between the ground and the bottom post or wire. A split rail design that blends with the natural environment is preferred.

26. Fencing or walls shall be prohibited within ESHA, except where necessary for public safety or habitat protection or restoration. Fencing or walls that do not permit the free passage of wildlife shall be prohibited in any wildlife corridor.

27. Development adjacent to, but not within ESHA, may include fencing, if necessary for security, that is limited to the area around the clustered development area.

Site Specific Conditions

28. The applicant shall submit to the City a recorded instrument evidencing the Lot Merger prior to issuance of a grading permit. The instrument must be reviewed and approved by the City prior to recording. A copy of the recorded instrument shall be provided to the Los Angeles County Assessor's Office.

29. This project and CDP approval is not valid unless a Certificate of Compliance and Lot Merger have been approved by the City, filed with the City Clerk, and recorded with the County of Los Angeles.

30. The project shall comply with all requirements and conditions of the County of Los Angeles Fire Department.

31. To minimize bluewater view obstruction from PCH, on-site vegetation, including trees, shall be selected and located to have a maximum growth height at maturity that will not extend above the PCH grade or Caltrans berms, whichever is higher, and be maintained at this height in perpetuity so as to provide bluewater views from PCH. The Final Landscape Plan submitted for Building Safety plan check approval shall reflect this requirement.

32. The non-exempt grading for the project shall not exceed a total of 1,000 cubic yards, cut and fill.

Certificate of Compliance/Lot Merger

33. The applicant/property owner shall submit all items required to complete the Certificate of Compliance to the satisfaction of the Public Works Department prior to issuance of any grading or building permit, and prior to approval of a Lot Merger.

34. All items required to complete a Lot Merger of the two parcels that are a part of this application shall be submitted to the satisfaction of the Public Works Department. The proposed Lot Merger must be approved by the City, recorded with the Office of the Los Angeles County Recorder, and filed with the City Clerk's office prior to the approval of a grading permit. A copy of the recorded instrument, which shall contain a legal description of the contiguous parcels prior to the merger and the new parcel that results after the merger, shall be provided to the Los Angeles County Assessor's Office.

View Corridor

35. Pursuant to LIP Section 6.5(E)(2) and in order to ensure the protection of scenic and visual resources from public viewing areas across the property, the property owner is required to maintain:

a. An onsite view corridor perpendicular to PCH to the ocean, beginning at the eastern limit of the property line and extending west a minimum width of 542 feet and 7 inches (represents 31 percent of the width of the property).
b. No portion of any structure, temporary or permanent, shall extend into the view corridor above the elevation of the adjacent street.
c. Any fencing across the view corridor shall be permanently maintained as visually permeable. Tinted or frosted glass, and louvered or slatted screen fences are not permitted.
d. Any landscaping in this area shall include only low-growing species that will not obscure or block bluewater views. All landscaping within the view corridor shall be maintained in perpetuity so as to provide bluewater views from PCH through the view corridor at all times.
e. If at any time the property owner allows the view corridor to become impaired or blocked, it would constitute a violation of the coastal development permit and the Coastal Act and be subject to all civil and criminal remedies.

36. Prior to final Planning approval, the applicant shall submit an application Caltrans, and any other agency as applicable, for removal of any portion of the existing dirt berm adjacent to PCH located in the required public view corridor and impeding public views of the Pacific Ocean from PCH. All required permits shall be obtained and the portion of the berm impeding views shall be removed prior to the issuance of building permits by the City. The required view corridor, including the berm removal in it, shall be produced prior to commencement of property development to the satisfaction of the Community Development Director.

Construction/Framing

37. The applicant shall submit a copy of a Construction Management Plan to the Planning Division. The Construction Management Plan shall include a dedicated parking location for construction workers and storage of construction material. Prior to permit issuance, the Construction Management Plan must be acceptable to the Community Development Director and, if applicable, to the Building Official and Public Works Director.

38. A construction staging plan shall be reviewed and approved by the Building Official prior to plan check submittal.

39. Construction hours shall be limited to Monday through Friday from 7:00 a.m. to 7:00 p.m. and Saturdays from 8:00 a.m. to 5:00 p.m. No construction activities shall be permitted on Sundays or City-designated holidays.

40. Construction management techniques, including minimizing the amount of equipment used simultaneously and increasing the distance between emission sources, shall be employed as feasible and appropriate. All trucks leaving the construction site shall adhere to the

California Vehicle Code. In addition, construction vehicles shall be covered when necessary; and their tires rinsed prior to leaving the property.

41. All new development, including construction, grading, and landscaping shall be designed to incorporate drainage and erosion control measures prepared by a licensed engineer that incorporate structural and non-structural Best Management Practices (BMPs) to control the volume, velocity and pollutant load of storm water runoff in compliance with all requirements contained in LIP Chapter 17, including:

    a. Construction shall be phased to the extent feasible and practical to limit the amount of disturbed areas present at a given time.
    b. Grading activities shall be planned during the southern California dry season (April through October).
    c. During construction, contractors shall be required to utilize sandbags and berms to control runoff during on-site watering and periods of rain in order to minimize surface water contamination.
    d. Filter fences designed to intercept and detain sediment while decreasing the velocity of runoff shall be employed within the project site.

42. When framing is complete, a site survey shall be prepared by a licensed civil engineer or architect that states the finished ground level elevation and the highest roof member elevation. Prior to the commencement of further construction activities, said document shall be submitted to the assigned Building Inspector and Planning Division for review and sign off on framing.

43. For the transportation of heavy construction equipment and/or material, which requires the use of oversized-transport vehicles on State highways, the applicant / property owner is required to obtain a transportation permit from the California Department of Transportation.

Colors and Materials

44. The project is visible from a scenic road (PCH), therefore, shall incorporate colors and exterior materials that are compatible with the surrounding landscape.

    a. Acceptable colors shall be limited to colors compatible with the surrounding environment (earth tones) including shades of green, brown and gray, with no white or light shades and no bright tones. Colors shall be reviewed and approved by the Community Development Director and clearly indicated on the building plans.
    b. The use of highly reflective materials shall be prohibited except for solar energy panels or cells, which shall be placed to minimize significant adverse impacts to public views to the maximum extent feasible.
    c. All windows shall be comprised of non-glare glass.

45. All driveways shall be a neutral color that blends with the surrounding landforms and vegetation. Retaining walls shall incorporate veneers, texturing and/or colors that blend with the surrounding earth materials or landscape. The color of driveways and retaining walls shall be reviewed and approved by the Community Development Director and clearly indicated on all grading, improvement and/or building plans.

Biology/Landscaping

46. Except as permitted pursuant to the provisions in LUP policies 3.18 and 3.20, throughout the City of Malibu, development that involves the use of pesticides, including insecticides, herbicides, rodenticides or any other similar toxic chemical substances, shall be prohibited in cases where the application of such substances would have the potential to significantly degrade Environmentally Sensitive Habitat Areas or coastal water quality or harm wildlife. Herbicides may be used for the eradication of invasive plant species or habitat restoration, but only if the use of non-chemical methods for prevention and management such as physical, mechanical, cultural, and biological controls are infeasible. Herbicides shall be restricted to the least toxic product and method, and to the maximum extent feasible, shall be biodegradable, derived from natural sources, and used for a limited time.

47. Prior to final Planning Division inspection, the applicant shall submit to the Community Development Director for review and approval a certificate of completion in accordance with MMC Chapter 17.53. The certificate shall include the property owner's signed acceptance of responsibility for maintaining the landscaping and irrigation in accordance with the approved plans and MMC Chapter 17.53.

48. Invasive plant species, as determined by the City of Malibu, are prohibited.

49. No non-native plant species shall be approved greater than 50 feet from the residential structure.

50. Vegetation shall be situated on the property so as not to significantly obstruct the primary view from private property at any given time (given consideration of its future growth).

51. Vegetation forming a view impermeable condition (hedge), serving the same function as a fence or wall, occurring within the side or rear yard setback shall be maintained at or below six feet in height. View impermeable hedges occurring within the front yard setback serving the same function as a fence or wall shall be maintained at or below 42 inches in height.

52. The landscape plan shall prohibit the use of building materials treated with toxic compounds such as creosote or copper arsenate.

53. Construction fencing shall be placed and indicated on the site plan. Construction fencing shall be installed prior to the beginning of any construction and shall be maintained throughout the construction period to protect the site's sensitive habitat areas – primarily

the drainage feature at the eastern portion of the site as identified by the biological assessment (Chambers).

54. All new development, including structures, OWTS and landscaping, shall be set back no less than 100 feet from the jurisdictional drainage.

55. The landscape and fuel modification plan shall protect natural resources in accordance with the Malibu General Plan. All areas shall be planted and maintained as described in the landscape and fuel modification plan, except as indicated elsewhere in these conditions. Failure to comply with the landscape conditions is a violation of the conditions of approval for this project.

56. Night lighting from exterior and interior sources shall be minimized. All exterior lighting shall be low intensity and shielded so it is directed downward and inward so that there is no offsite glare or lighting of natural habitat areas. Up-lighting is prohibited.

57. Necessary boundary fencing of any single area exceeding ó acre shall be of an open rail-type design with a wooden rail at the top (instead of wire), be less than 40 inches high, and have a space greater than 14 inches between the ground and the bottom post or wire. A split rail design that blends with the natural environment is preferred.

58. All open areas not used for buildings, driveways, parking areas, or walkways shall be attractively landscaped and maintained in accordance with a landscape plan, with native plant species, to the satisfaction of the Community Development Director.

59. Native species of the Santa Monica Mountains, characteristic of the local habitat, shall be used on graded slopes or where slope plantings are required for slope stabilization, erosion control, and watershed protection. Plants should be selected to have a variety of rooting depths. A spacing of 15 feet between large woody (≥10-foot canopy) shrubs is recommended by the LACFD. Lawns are prohibited on slopes > 5 percent.

60. Slope planting measures such as contour planting and terracing or other techniques shall be incorporated on slopes to interrupt the flow and rate of surface runoff in order to prevent surface soil erosion.

61. Prior to installation of any landscaping, the applicant shall obtain a plumbing permit for the proposed irrigation system from the Building Safety Division.

62. Prior to or at the time of Planning Division final inspection, the property owner/applicant shall submit to the case planer a copy of the plumbing permit for the irrigation system installation that has been signed off by the Building Safety Division.

63. Prior to a final Building Safety plan check approval, the property owner /applicant must provide a landscape water use approval from the Los Angeles County Waterworks District No. 29.

64. Prior to issuance of a certificate of occupancy, the City Biologist shall inspect the project site and determine that all conditions to protect natural resources are in compliance with the approved plans.

65. Plantings required for fuel modification, except for within irrigated Zone A nearest to approved residential structures, must be native, drought-tolerant species and shall blend with the existing natural vegetation and natural habitats on the site.

66. Any site preparation activities, including grading, excavation and removal of vegetation, between February 1 and September 15 will require nesting bird surveys by a qualified biologist at least five days prior to initiation of site preparation activities. Should active nests be identified, a buffer area no less than 150 feet (300 feet for raptors) shall be fenced off until it is determined by a qualified biologist that the nest is no longer active. A report discussing the results of nesting bird surveys shall be submitted to the City within two business days of completing the surveys.

67. Grading/earthmoving shall be scheduled only during the dry season from April 1 through October 31. If it becomes necessary to conduct earthmoving activities from November 1 through March 31, a comprehensive erosion control plan shall be submitted to the City Biologist for approval prior to the issuance of a grading permit and implemented prior to initiation of vegetation removal and/or earthmoving activities.

68. The use of wood chips and shredded rubber is prohibited anywhere on the site. Flammable mulch material, including shredded bark, pine needles, and artificial turf, are prohibited between zero and five feet of a structure. Non-continuous use of flammable mulch (excluding wood chips and shredded rubber) is allowed between 5 and 30 feet from the eave/overhang of a structure with limited application areas. Any mulch materials (excluding wood chips and shredded rubber) are allowed 30 feet or more from a structure with no limitation on application area.

Fuel Modification

69. Prior to the issuance of final building permits, the project shall receive LACFD approval of a Final Fuel Modification Plan.

Street Improvements (Public Works)

70. The applicant shall obtain encroachment permits from the Public Works Department prior to the commencement of any work within the public right-of-way.

71. This project proposes to construct a new driveway within Caltrans' right-of-way. Prior to the Public Works Department approval of the grading or building permit, the applicant shall obtain encroachment permits from Caltrans for the proposed driveway.

72. The applicant shall update and install a new curb and gutter on Pacific Coast Highway to accommodate the proposed drainage design. Prior to the Public Works Department approval of the grading or building permit, the applicant shall provide Caltrans approval for Pacific Coast Highway improvements and drainage design.

73. This project proposes to discharge to Pacific Coast Highway. Prior to the Public Works Department approval of the grading or building permit, the applicant shall provide Caltrans approval to discharge onto Pacific Coast Highway.

74. The applicant shall submit an updated geotechnical report prepared by a geotechnical engineer/engineering geologist. The updated report shall include detailed investigation and analyses of the portions of the earthen berms on the project site along the northerly property line. The applicant shall address and mitigate any geotechnical issues related to the berms on the project site identified in the updated report and incorporate them into the final plans. Final plans shall be reviewed and approved by the City geotechnical review consultants and Public Works Department prior to the issuance of a grading permit.

75. Prior to the approval of the drainage plan, the applicant shall remove the existing CMP pipe onsite and install a new pipe to redirect water currently draining to the lot. The new pipe shall be designed in accordance with Caltrans and LA County Flood Standards. A video recording and images of the completed pipe shall be submitted to the City of Malibu Public Works Department. Applicant shall coordinate any easements required for the maintenance of the pipe with the appropriate agencies.

Grading/Drainage (Public Works)

76. The applicant shall construct the following improvements to the existing dewatering system to reduce groundwater pressure and increase the slope stability within the Malibu Road Assessment District 98-3, within which the property is located. The work shall be coordinated with the Public Works Department of the City of Malibu and its landslide district dewatering system operation and maintenance contractor.

    a. Construct a new 100-foot deep 6-inch diameter PVC casing installed within a 12.5-inch diameter dewatering well along Bayshore Drive near the easterly property line of APN 4459-013-001. The PVC shall be screened by 0.04-inch machined slots between 10 and 85 feet. Casing backfill and well sealing shall meet requirements of the Los Angeles County well permit. Install a 1/3 HP Grundfos submersible pump at 80 feet deep and a 1-inch ID PVC sounding tube to the drop pipe for the pump to obtain water level measurements. Finish the surface with a flush mount Christy 1830 traffic rated well vault.
    b. Replace the existing SI-3 inclinometer on Malibu Road by over-drilling the existing sheared inclinometer to original depth of 50 feet below ground surface to bottom of casing. Install a 2.75-inch 50-foot-long inclinometer casing with both a vibrating wire piezometer and time domain radar (TDR) cable attached to the casing to the full depth. Temie grout medium strength bentonite grout within the annual space

between the borehole and outside of casing. Finish at surface with a 24-inch by 24-inch traffic rated vault.

77. Clearing and grading during the rainy season (extending from November 1 to March 31) shall be prohibited for development that, pursuant to LIP Section 17.3.1:

a. Is located within or adjacent to ESHA, or
b. Includes grading on slopes greater than 4 to 1.
c. Approved grading for development that is located within or adjacent to ESHA or on slopes greater than 4 to 1 shall not be undertaken unless there is sufficient time to complete grading operations before the rainy season. If grading operations are not completed before the rainy season begins, grading shall be halted and temporary erosion control measures shall be put into place to minimize erosion until grading resumes after March 31, unless the City determines that completion of grading would be more protective of resources.

78. Grading operations involving the hauling of dirt shall be controlled and reasonable efforts to avoid the spillage of dirt onto the public streets shall be enforced. The grading contractor shall maintain onsite at all times a means of preventing dust blowing within the project site and onto adjacent sites.

79. Exported soil from a site shall be taken to the County Landfill or to a site with an active grading permit and the ability to accept the material in compliance with the City's LIP Section 8.3. A note shall be placed on the project plans that addresses this condition.

80. A grading and drainage plan containing the following information shall be approved and submitted to the Public Works Department prior to the issuance of grading permits for the project.

a. Public Works Department General Notes.
b. The existing and proposed square footage of impervious coverage on the property shall be shown on the grading plan (including separate areas for buildings, driveways, walkways, parking, and pool decks).
c. The limits of land to be disturbed during project development shall be delineated and a total area of disturbance should be shown on this plan. Areas disturbed by grading equipment, areas disturbed for the installation of the septic system, and areas disturbed for the installation of the detention system beyond the limits of grading shall be included within the area delineated.
d. The grading limits shall include the temporary cuts made for retaining walls, buttresses, and over excavations for fill slopes.
e. If the property contains trees that are to be protected, they shall be highlighted on the grading plan.
f. If the property contains rare, endangered, or special status species as identified in the Biological Assessment, this plan shall contain a prominent note identifying the

areas to be protected (to be left undisturbed). Fencing of these areas shall be delineated on the grading plan if required by the City Biologist.

g. Private storm drain systems shall be shown on this plan. Systems greater than 12-inch diameter shall also have a plan and profile for the system included with the grading plan.
h. Public storm drain modifications shown on the grading plan shall be approved by the Public Works Department prior to the issuance of the grading permit.

81. A digital drawing (AutoCAD) of the project's private storm drain system, public storm drain system within 250 feet of the property limits, and post-construction BMP's shall be submitted to the Public Works Department prior to the issuance of grading or building permits. The digital drawing shall adequately show all storm drain lines, inlets, outlet, postconstruction BMP's and other applicable facilities. The digital drawing shall also show the subject property, public or private street, and any drainage easements.

82. The applicant shall label all City/County storm drain inlets within 250 feet from each property line per the City's standard label template. A note shall be placed on the project plans that addresses this condition.

83. Prior to the approval of the drainage plan, the applicant shall remove the existing CMP (Corrugated Metal Pipe) onsite and install a new pipe to redirect water currently draining to the lot. The new pipe shall be designed in accordance with Caltrans and LA County Flood Standards. A video recording and images of the completed pipe shall be submitted to the City of Malibu Public Works Department. Applicant shall coordinate any easements required for the maintenance of the pipe with the appropriate agencies.

84. The installation of the new CMP shall also include necessary improvements to the catch basin on Bayshore Dr, the downstream pipe, and the outfall. The applicant shall obtain the necessary easements required for such drainage purposes. The design will need to address how impacts on the landslide maintenance district will be mitigated.

Stormwater (Public Works)

85. The ocean between Latigo Point and the West City limits has been established by the State Water Resources Control Board as an Area of Special Biological Significance (ASBS) as part of the California Ocean Plan. This designation allows discharge of storm water only where it is essential for flood control or slope stability, including roof, landscape, road and parking lot drainage, to prevent soil erosion, only occurs during wet weather, and is composed of only storm water runoff. The applicant shall provide a drainage system that accomplishes the following:

a. Installation of BMPs that are designed to treat the potential pollutants in the storm water runoff so that it does not alter the natural ocean water quality. These pollutants include trash, oil and grease, metals, bacteria, nutrients, pesticides, herbicides and sediment.

b. Prohibits the discharge of trash.
c. Only discharges from existing storm drain outfalls are allowed. No new outfalls will be allowed. Any proposed or new storm water discharged shall be routed to existing storm drain outfalls and shall not result in any new contribution of waste to the ASBS (i.e. no additional pollutant loading).
d. Elimination of non-storm water discharges.

86. A Storm Water Pollution Prevention Plan shall be provided prior to the issuance of the Grading/Building permits for the project. This plan shall include and Erosion and Sediment Control Plan (ESCP) that includes, but is not limited to:

Erosion Controls Scheduling	Erosion Controls Scheduling
	Preservation of Existing Vegetation
Sediment Controls	Silt Fence
	Sand Bag Barrier
	Stabilized Construction Entrance
Non-Storm Water Management	Water Conservation Practices
	Dewatering Operations
Waste Management	Material Delivery and Storage
	Stockpile Management
	Spill Prevention and Control
	Solid Waste Management
	Concrete Waste Management
	Sanitary/Septic Waste Management

All Best Management Practices (BMP) shall be in accordance to the latest version of the California Stormwater Quality Association (CASQA) BMP Handbook. Designated areas for the storage of construction materials, solid waste management, and portable toilets must not disrupt drainage patterns or subject the material to erosion by site runoff.

87. Prior to the approval of any permits and prior to the applicant submitting the required Construction General Permit documents to the State Water Quality Control Board, the applicant shall submit to the Public Works Department for review and approval an Erosion and Sediment Control Plan (ESCP). The ESCP shall contain appropriate site-specific construction site BMPs and developed and certified by a Qualified SWPPP Developer (QWD). All structural BMPs must be designed by a licensed California Engineer. The ESCP must address the following elements:

a. Methods to minimize the footprint of the disturbed area and to prevent soil compaction outside the disturbed area.
b. Methods used to protect native vegetation and trees.
c. Sediment/Erosion Control.
d. Controls to prevent tracking on and off the site.
e. Non-storm water controls.

f. Material management (delivery and storage)
g. Spill prevention and control.
h. Waste management
i. Identification of site Risk Level as identified per the requirements in Appendix 1 of the Construction General Permit.
j. Landowner must sign the following statement on the ESCP:

> "I certify that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to ensure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system or those persons directly responsible for gathering the information, to the best of my knowledge and belief, the information submitted is true, accurate and complete. I am aware that submitting false and/or inaccurate information, failing to update the ESCP to reflect current conditions, or failing to properly and/or adequately implement the ESCP may result in revocation of grading and/or other permits or other sanctions provided by law."

88. A State Construction activity permit is required for this project due to the disturbance of more than one acre of land for development. Provide a copy of the letter from the State Water Quality Control Board containing the WDID number prior to the issuance of grading and building permits.

89. A Storm Water Management Plan (SWMP) is required for this project. Storm drainage improvements are required to mitigate increased runoff generated by property development. The applicant shall have the choice of one method specified within the City's Local Implementation Plan Section 17.3.2.B.2. The SWMP shall be supported by a hydrology and hydraulic study that identifies all areas contributory to the property and an analysis of the pre-development and post-development drainage of the site. The SWMP shall identify the site design and source control Best Management Practices (BMPs) that have been implemented in the design of the project (See LIP Chapter 17 Appendix A). The SWMP shall be reviewed and approved by the Public Works Department prior to the issuance of the grading or building permit for this project.

90. A Water Quality Mitigation Plan (WQMP) is required for this project. The WQMP shall be supported by a hydrology and hydraulic study that identifies all areas contributory to the property and an analysis of the predevelopment and post development drainage on the site. The WQMP shall meet all the requirements of the City's current Municipal Separate Stormwater Sewer System (MS4) permit. The following elements shall be included within the WQMP:

a. Site Design Best Management Practices (BMPs).
b. Source Control BMPs.

c. Treatment Control BMPs that retain on-site Stormwater Quality Design Volume (SWQDv). Or where it is technically infeasible to retain on-site, the project must biofitrate 1.5 times the SWQDv that is not retained on-site.
d. Drainage improvements.
e. A plan for the maintenance and monitoring of the proposed treatment BMPs for the expected life of the structure.
f. A copy of the WQMP shall be filed against the property to provide constructive notice to future property owners of their obligation to maintain the water quality measure installed during construction prior to the issuance of grading or building permits.
g. The WQMP shall be submitted to the Public Works Department and the fee applicable at the time of submittal for review of the WQMP shall be paid prior to the start of the technical review. The WQMP shall be approved prior the Public Works Department's approval of the grading and drainage plan and/or building plans. The Public Works Department will tentatively approve the plan and will keep a copy until the completion of the project. Once the project is completed, the applicant shall verify the installation of the BMP's, make any revisions to the WQMP, and resubmit to the Public Works Department for approval. The original signed and notarized document shall be recorded with the Los Angeles County Recorder. A certified copy of the WQMP shall be submitted to the Public Works Department prior to the issuance of the certificate of occupancy.

91. Hydromodification: Alteration or disturbance of streams or natural drainage courses or human-made or altered drainage courses that have replaced natural streams or drainages and serve the same function, shall be prohibited.

a. Necessary water supply projects where no feasible alternative exists.
b. Flood protection for existing development where there is no other feasible alternative.
c. The improvement of fish and wildlife habitat.

92. The total grading yardage verification certificate shall be copied onto the cover sheet of the Grading Plan. No alternative formats or substitutes will be accepted.

93. The Building Official may approve grading during the rainy season to remediate hazardous geologic conditions that endanger public health and safety.

Other Public Works

94. All cut and fill slopes shall be stabilized with landscaping at the completion of final grading.

95. The developer's consulting engineer shall sign the final plans prior to the issuance of permits.

96. The applicant shall prepare a Traffic Impact Analysis (TIA) per the City of Malibu TIA Guidelines. The TIA shall be reviewed and approved by the Public Works Department prior to the issuance of the grading and or building permits. The applicant shall also be required to construct the applicable mitigation measures recommended in the TIA. The traffic mitigation measures shall be constructed prior to occupancy of the first building.

97. Prior to the commencement of work, the applicant shall submit a copy of a Construction Management Plan. The Construction Management Plan shall include a dedicated parking location for construction workers, not within the public right of way.

98. Prior to the approval of any grading and drainage permit, the applicant shall submit a PDF of the final plans. If there are further modifications to the plans, the applicant shall provide the City with an updated PDF.

99. Lot Line Adjustment/Lot Merger (with development):

    a. The proposed lot line adjustment/lot merger must be approved by the City and filed with the City Clerk's office prior to the approval of this grading permit.
    b. Upon review of the documents provided, the City may require submittal of additional documents or maps, depending upon the completeness of the initial submittal

Geology

100. All recommendations of the consulting certified engineering geologist or geotechnical engineer and/or the City geotechnical consultant reviewers shall be incorporated into all final design and construction including foundations, grading, sewage disposal, and drainage. Final plans shall be reviewed and approved by the City geotechnical consultant reviewers prior to the issuance of a grading permit.

101. Final plans approved by the City geotechnical consultant reviewers shall be in substantial conformance with the approved CDP relative to construction, grading, sewage disposal and drainage. Any substantial changes may require a CDP amendment or a new CDP.

Swimming Pool/Spa/Water Features

102. Onsite noise, including that which emanates from swimming pool and air conditioning equipment, shall be limited as described in MMC Chapter 8.24 (Noise).

103. Pool and air conditioning equipment that will be installed shall be screened from view by a solid wall or fence on all four sides. The fence or walls shall comply with LIP Section 3.5.3(A).

104. All swimming pools shall contain double walled construction with drains and leak detection systems capable of sensing a leak of the inner wall.

105. The discharge of swimming pool, spa and decorative fountain water and filter backwash, including water containing bacteria, detergents, wastes, algaecides or other chemicals is prohibited. Swimming pool, spa, and decorative fountain water may be used as landscape irrigation only if the following items are met:

    a. The discharge water is dechlorinated, debrominated or if the water is disinfected using ozonation.
    b. There are sufficient BMPs in place to prevent soil erosion.
    c. The discharge does not reach into the MS4 or to the ASBS (including tributaries)

106. Discharges not meeting the above-mentioned methods must be trucked to a Publicly Owned Wastewater Treatment Works.

    The applicant shall also provide a construction note on the plans that directs the contractor to install a new sign stating, "It is illegal to discharge pool, spa or water feature waters to a street, drainage course or storm drain per MMC 13.04.060(D)(5)." The new sign shall be posted in the filtration and/or pumping equipment area for the property. Prior to the issuance of any permits, the applicant shall indicate the method of disinfection and the method of discharging.

107. Pursuant to MMC Section 9.20.040(B), all ponds, decorative fountains shall require a water recirculating/recycling system.

Onsite Wastewater Treatment System (OWTS)

108. Prior to the issuance of a building permit the applicant shall demonstrate, to the satisfaction of the Building Official, compliance with the City of Malibu's onsite wastewater treatment regulations including provisions of MMC Chapters 15.40, 15.42, 15.44, and LIP Chapter 18 related to continued operation, maintenance and monitoring of the OWTS.

109. Final OWTS Plot Plan: Prior to final Environmental Health approval, a final OWTS plot plan prepared by a City Registered OWTS Designer shall be submitted showing an OWTS design meeting the minimum requirements of the MMC and the LCP/LIP, including necessary construction details, the proposed drainage plan for the developed property and the proposed landscape plan for the developed property. The OWTS plot plan shall show essential features of the OWTS and must fit onto an 11-inch by 17-inch sheet leaving a fiveinch margin clear to provide space for a City applied legend. If the scale of the plans is such that more space is needed to clearly show construction details and/or all necessary setbacks, larger sheets may also be provided (up to a maximum size of 18 inches by 22 inches).

110. Final OWTS Design Report, Plans, and System Specifications: If the OWTS design and/or bedroom/drainage fixture unit counts are modified in any way subsequent to the Planning-stage review, then a final OWTS design report and large set of construction drawings with

system specifications (four sets) shall be submitted to describe the OWTS design basis and all components (i.e., alarm system, pumps, timers, flow equalization devices, backflow devices, etc.) proposed for use in the construction of the proposed OWTS. For all OWTS, final reports must be signed by a City-registered OWTS Designer, and the plans stamped by a California Geologist. The final OWTS design report and construction drawings shall be submitted to the City Environmental Health Administrator with the designer's wet signature, professional registration number and stamp (if applicable).

111. The final design report shall contain the following information (in addition to the items listed above):

a. Required treatment capacity for wastewater treatment and disinfection systems. The treatment capacity shall be specified in terms of flow rate, gallons per day, and shall be supported by calculations relating the treatment capacity to the number of bedroom equivalents, plumbing drainage fixture equivalents, and the subsurface effluent dispersal system acceptance rate. The drainage fixture unit count must be clearly identified in association with the design treatment capacity, even if the design is based on the number of bedrooms. Average and peak rates of hydraulic loading to the treatment system shall be specified in the final design.
b. Sewage and effluent pump design calculations (as applicable).
c. Description of proposed wastewater treatment and/or disinfection system equipment. State the proposed type of treatment system(s) (e.g., aerobic treatment, textile filter ultraviolet disinfection, etc.); major components, manufacturers, and model numbers for "package" systems; and conceptual design for custom engineered systems.
d. Specifications, supporting geology information, and percolation test results for the subsurface effluent dispersal portion of the onsite wastewater disposal system. This must include the proposed type of effluent dispersal system (drainfield, trench, seepage pit subsurface drip, etc.) as well as the system's geometric dimensions and basic construction features. Supporting calculations shall be presented that relate the results of soils analysis or percolation/infiltration tests to the projected subsurface effluent acceptance rate, including any unit conversions or safety factors. Average and peak rates of hydraulic loading to the effluent dispersal system shall be specified in the final design. The projected subsurface effluent acceptance rate shall be reported in units of total gallons per day and gallons per square foot per day. Specifications for the subsurface effluent dispersal system shall be shown to accommodate the design hydraulic loading rate (i.e., average and peak OWTS effluent flow, reported in units of gallons per day). The subsurface effluent dispersal system design must take into account the number of bedrooms, fixture units and building occupancy characteristics.
e. All final design drawings shall be submitted with the wet signature and typed name of the OWTS designer. If the scale of the plan is such that more space is needed to clearly show construction details, larger sheets may also be provided (up to a maximum size of 18 inch by 22 inch, for review by Environmental Health). Note:

For OWTS final designs, full-size plans are required for review by the Building Safety Division and/or the Planning Division.

112. Building Plans: All project architectural plans and grading/drainage plans shall be submitted for Environmental Health review and approval. These plans must be approved by the Building Safety Division prior to receiving Environmental Health final approval.

113. Traffic-rated Slab Plans: All project traffic rated slab plans shall be submitted for Environmental Health review and approval. These plans must be approved by the Building Safety Division prior to receiving Environmental Health final approval.

114. Notice of Decision: The final OWTS plans shall include the condition of approvals sections of the Notice of Decision (NOD) from the Planning Division.

115. Architect/Engineer Certification for Reduction in Setbacks to Buildings and Structures: All proposed reductions in setbacks from the onsite wastewater treatment system to structures or other features less than those shown in Malibu Municipal Code (MMC) Section 15.42 must be supported by letters from the project consultants. The wastewater plans and the construction plans must be specifically referenced in all certification letters. The construction plans for all structures and/or buildings with reduced setback must be approved by City of Malibu Building Safety prior to Environmental Health final approval. The architectural and/or structural plans submitted for Building Safety plan check must detail methods of construction that will compensate for the reduction in setback (e.g., waterproofing, concrete additives). For complex waterproofing installations, submittal of a separate waterproofing plan may be required. All plans must show the location of onsite wastewater treatment system components in relation to those structures from which the setback is reduced, and the plans must be signed and stamped by the architect, structural engineer, and geotechnical consultants (as applicable).

    a. Structures – All proposed reductions in setback from the onsite wastewater treatment system to structures (i.e., setbacks less than those shown in MMC Section 15.42) must be supported by a letter from the project Structural Engineer and a letter from the project Soils Engineer (i.e., a Geotechnical Engineer or Civil Engineer practicing in the area of soils engineering). Both engineers must certify unequivocally that the proposed reduction in setbacks from the treatment tank and effluent dispersal area will not adversely affect the structural integrity of the onsite wastewater treatment system and will not adversely affect the structural integrity of the structures for which the setback is reduced.
    b. Buildings – All proposed reductions in setback from the onsite wastewater treatment system to buildings (i.e., setbacks less than those shown in MMC Section 15.42) also must be supported by City of Malibu Environmental Health Review Sheet a letter from the project Architect, who must certify unequivocally that the proposed reduction in setbacks will not produce a moisture intrusion problem for the proposed building(s). If the building designer is not a California licensed architect, then the required Architect's certification may be supplied by an Engineer

who is responsible for the building design with respect to mitigation of potential moisture intrusion from reduced setback to the wastewater system; in this case the Engineer must include in the letter an explicit statement of responsibility for mitigation of potential moisture intrusion. If any specific construction features are proposed as part of a moisture intrusion mitigation system in connection with the reduced setback(s), then the Architect (or Engineer) must provide associated construction documents for review and approval during Building Plan Check.

116. Proof of Ownership: Proof of ownership of subject property shall be submitted to the City Environmental Health Administrator.

117. Operations and Maintenance Manual: An operations and maintenance manual specified by the OWTS designer shall be submitted to the property owner and maintenance provider of the proposed OWTS.

118. Maintenance Contract: A maintenance contract executed between the owner of the subject property and an entity qualified in the opinion of the City of Malibu to maintain the proposed onsite wastewater disposal system after construction shall be submitted. Note only original "wet signature" documents are acceptable.

119. Advanced Onsite Wastewater Treatment System Covenant: Prior to final Environmental Health approval, a covenant running with the land shall be executed between the City of Malibu and the holder of the fee simple absolute as to subject real property and recorded with the Office of the Los Angeles County Recorder. Said covenant shall serve as constructive notice to any future purchaser for value that the onsite wastewater treatment system serving subject property is an advanced method of sewage disposal pursuant to the City of MMC. Said covenant shall be provided by the City of Malibu Environmental Health Administrator.

120. Covenant to Forfeit 100% Expansion Effluent Disposal Area: A covenant running with the land shall be executed by the property owner and recorded with the Office of the Los Angeles County Recorder . Said covenant shall serve as constructive notice to any successors in interest that 1) the private sewage disposal system serving the development on the property does not have a 100 percent expansion effluent dispersal area (i.e., replacement disposal field(s) or seepage pit(s)) and 2) if the primary effluent dispersal area fails to drain adequately, the City of Malibu may require remedial measures including, but not limited to, limitations on water use enforced through an operating permit and/or repairs, upgrades or modifications to the private sewage disposal system. The recorded covenant shall state and acknowledge that future maintenance and/or repair of the private sewage disposal system may necessitate interruption in use of the private sewage disposal system and, therefore, any building(s) served by the private sewage disposal system may become non-habitable during any required future maintenance and/or repair. Said covenant shall be in a form acceptable to the City Attorney and approved by the Environmental Sustainability Department.

121. Project Geologist/Geotechnical Consultant final approval of the OWTS plan shall be submitted to the Environmental Health Administrator.

122. The City Biologist's final approval shall be submitted to the City Environmental Health Administrator. The City Biologist shall review the OWTS design to determine any impact on Environmentally Sensitive Habitat Area.

123. City of Malibu Public Works final approval of the OWTS plan shall be submitted to the Environmental Health Administrator.

124. The City geotechnical consultant reviewers' final approval of the OWTS shall be submitted to the City Environmental Health Administrator.

125. City of Malibu Planning Division final approval of the OWTS plan shall be obtained.

126. Environmental Health Final Review Fee: A final fee in accordance with the adopted fee schedule at the time of the final approval shall be paid to the City of Malibu for Environmental Health review of the OWTS design and system specification.

127. Operating Permit Application and Fee: In accordance with the MMC, prior to Environmental Health approval, an application shall be made to the Environmental Health Office for an OWTS operating permit. An operating permit fee in accordance with the adopted fee schedule at the time of final approval shall be submitted with the application.

128. Prior to final Environmental Health approval, the construction plans for all structures and/or buildings with reduced setbacks must be approved by the City Building Safety Division. The architectural and/or structural plans submitted to Building and Safety plan check must detail methods of construction that will compensate for the reduction in setback (e.g., waterproofing, concrete additives, etc.). For complex waterproofing installations, submittal of a separate waterproofing plan may be required. The architectural/structural/ waterproofing plans must show the location of OWTS components in relation to those structures from which the setback is reduced, and the plans must be signed and stamped by the architect, structural engineer, and geotechnical consultants (as applicable).

129. Prior to final Environmental Health approval, the applicant shall provide engineer's certification for reduction in setbacks to buildings or structures: All proposed reductions in setback from the OWTS to structures (i.e., setbacks less than those shown in MMC Table 15.42.030(E)) must be supported by a letter from the project structural engineer and a letter from the project soils engineer (i.e., a geotechnical engineer or civil engineer practicing in the area of soils engineering). Both engineers must certify unequivocally that the proposed reduction in setbacks from the treatment tank and effluent dispersal area will not adversely affect the structural integrity of the OWTS and will not adversely affect the structural integrity of the structures for which the Table 15.42.030(E) setback is reduced. Construction drawings submitted for plan check must show OWTS components in relation to those structures from which the setback is reduced. All proposed reductions in setback

from the OWTS to buildings (i.e., setbacks less than those shown in Table 15.42.030(E)) also must be supported by a letter from the project architect, who must certify unequivocally that the proposed reduction in setbacks will not produce a moisture intrusion problem for the proposed building(s). If the building designer is not a California-licensed architect, then the required architect's certification may be supplied by an engineer who is responsible for the building design with respect to mitigation of potential moisture intrusion from reduced setbacks to the wastewater system. In this case, the engineer must include in his/her letter an explicit statement of responsibility for mitigation of potential moisture intrusion. If any specific construction features are proposed as part of a moisture intrusion mitigation system in connection with the reduced setback, then the architect or engineer must provide associated construction documents for review and approval during Building Safety Division plan check. The wastewater plans and the construction plans must be specifically referenced in all certification letters.

130. Reference Plans: Reference architectural and grading/drainage plans shall be submitted to Environmental Health during building plan check review of the proposed OWTS. The approved plans are for 121 fixture units, 6 bedrooms and one master bedroom, and a design flow of 1,050 GPD.

131. Any above-ground equipment associated with the installation of the OWTS shall be screened from view by a solid wall or fence on all four sides. The fence or walls shall not be higher than 42-inches tall.

Water Quality/Water Service

132. A State Construction Activity Permit is required for this project due to the disturbance of more than one acre of land for development. Provide a copy of the letter from the State Water Quality Control Board containing the Waste Discharge Identification (WDID) number prior to the issuance of grading or building permits.

133. Prior to the issuance of a building permit, the applicant shall submit an updated Will Serve Letter from Los Angeles County Waterworks District No. 29 to the Planning Division indicating the ability of the property to receive adequate water service.

134. Prior to final inspection (or project sign off, as applicable) by the Planning Division, the applicant shall demonstrate that all requirements of Los Angeles County Waterworks District No. 29 have been met, including installation of a meter, if applicable.

135. For projects including installation of a private water well, prior to final inspection (or project sign, as applicable) by the Building Safety Division, the applicant shall demonstrate that all requirements of Los Angeles County Waterworks District No. 29 have been met, including installation of a backflow prevention device.

Prior to Occupancy

136. Prior to, or at the time of a Planning Division final inspection, the property owner/applicant shall submit to Planning the plumbing permit for the OWTS signed off by the Building Safety Division.

137. Prior to the issuance of a Certificate of Occupancy, the City Biologist shall inspect the project site and determine that all Planning conditions to protect natural resources are in compliance with the approved plans.

138. Prior to a final Building inspection, the applicant shall provide a Recycling Summary Report (Summary Report) and obtain the approval from the Environmental Sustainability Department. Applicant must provide haul tickets and diversion information. The final Summary Report shall designate the specific materials that were land filled or recycled, and state the facilities where all materials were taken.

139. The applicant shall request a final Planning Division inspection prior to final inspection by the City of Malibu Building Safety Division. A Certificate of Occupancy shall not be issued until the Planning Division has determined that the project complies with this coastal development permit. A temporary Certificate of Occupancy may be granted at the discretion of the Community Development Director, provided adequate security has been deposited with the City to ensure compliance should the final work not be completed in accordance with this permit.

140. Any construction trailer, storage equipment or similar temporary equipment not permitted as part of the approved scope of work shall be removed prior to final inspection and approval, and if applicable, the issuance of the certificate of occupancy.

Fixed Conditions

141. This coastal development permit shall run with the land and bind all future owners of the property.

142. Violation of any of the conditions of this approval may be cause for revocation of this permit and termination of all rights granted there under.

Deed Restrictions

143. The property owner is required to execute and record a deed restriction which shall indemnify and hold harmless the City, its officers, agents, and employees against any and all claims, demands, damages, costs and expenses of liability arising out of the acquisition, design, construction, operation, maintenance, existence or failure of the permitted project in an area where an extraordinary potential for damage or destruction from wildfire exists as an inherent risk to life and property. The property owner shall provide a copy of the recorded document to Planning staff prior to final planning approval.

144. Prior to final Planning Division approval, the applicant shall be required to execute and record a deed restriction reflecting lighting requirements set forth in Condition Nos. 15-22. The property owner shall provide a copy of the recorded document to the Planning Division prior to final Planning Division approval.

145. The property owner is required to acknowledge, by recordation of a deed restriction, that as part of the project no more than one secondary residential unit is permitted to exist on the subject property. Said document shall include the definitions of a second unit and guest house as defined by the LIP Section 2.1 and shall be recorded with the Office of the Los Angeles County Recorder. The applicant shall submit a copy of the recorded document to the Planning Division.

146. The garage area shall be limited to accessory use as defined by the City of Malibu Local Coastal Plan (LCP). The garage area cannot be converted into habitable space at any time in the future. Prior to issuance of building permits, the applicant is required to execute and record a deed restriction to this effect.

147. The property owner is required to execute and record a deed restriction stating that as part of the project, a view corridor of 31 percent (542 feet, 7 inches) of property width shall be established and maintained, as stipulated in Condition No. 35 shall be specifically identified in the deed restriction, including an exhibit that represents the area of the view corridor on the property. The property owner shall provide a copy of the recorded document to Planning Division staff prior to final Planning Division approval.

SECTION 6. The Planning Commission shall certify the adoption of this resolution.

PASSED, APPROVED AND ADOPTED this 20th day of January 2026.

ELIZABETH RIDDICK, Planning Commission Chair

ATTEST:

REBECCA EVANS, Recording Secretary

LOCAL APPEAL - Pursuant to Local Coastal Program Local Implementation Plan (LIP) Section 13.20.1 (Local Appeals) a decision made by the Planning Commission may be appealed to the City Council by an aggrieved person by written statement setting forth the grounds for appeal. An appeal shall be filed with the City Clerk within 10 days and shall be accompanied by an appeal form and filing fee, as specified by the City Council. Appeal forms may be found online at www.malibucity.org, in person at City Hall, or by calling (310) 456-2489, ext. 246.

COASTAL COMMISSION APPEAL – An aggrieved person may appeal the Planning Commission's approval to the Coastal Commission within 10 working days of the issuance of the City's Notice of Final Action. Appeal forms may be found online at www.coastal.ca.gov or by calling (805) 585-1800. Such an appeal must be filed with the Coastal Commission, not the City.

Any action challenging the final decision of the City made as a result of the public hearing on this application must be filed within the time limits set forth in Section 1.12.010 of the MMC and Code of Civil Procedure. Any person wishing to challenge the above action in Superior Court may be limited to raising only those issues they or someone else raised at the public hearing, or in written correspondence delivered to the City of Malibu at or prior to the public hearing.

I CERTIFY THAT THE FOREGOING RESOLUTION NO. 26-05 was passed and adopted by the Planning Commission of the City of Malibu at the Regular meeting held on the 20th day of January 2026 by the following vote:

AYES:
NOES:
ABSTAIN:
ABSENT:

REBECCA EVANS, Recording Secretary

Commission Agenda Report

Planning Commission Meeting
12-16-25
Item 5.C.

To: Chair Riddick and Members of the Planning Commission

Prepared by: Allison Cook, AICP, Contract Planner

Reviewed by: Joseph Smith, AICP, Contract Principal Planner

Approved by: Yolanda Bundy, PE, MS, CBO, CBFO, Community Development Director and Tyler Eaton, Assistant Community Development Director

Date prepared: December 4, 2025 Meeting date: December 16, 2025

Subject: Coastal Development Permit No. 19-012, Lot Merger No. 24-002, and Certificate of Compliance No. 19-009 – An application for a new one-story single-family residence and associated development; including a conditional certificate of compliance to recognize an illegally created lot consisting of two parcels and a lot merger to consolidate two parcels into one

Location: 25200 Pacific Coast Highway, within the appealable coastal zone
APNs: 4459-013-021 and 4459-014-018
Owner: PAR PCH, LLC

RECOMMENDED ACTION: Either 1) adopt Planning Commission Resolution No. 25-05, (Attachment A) determining the project is categorically exempt from the California Environmental Quality Act (CEQA), and approving Coastal Development Permit (CDP) No. 19-012 to construct a new 9,219 square-foot, one-story, single-family residence, including a 1,000 square-foot subterranean two-car garage, 1,523 square-foot basement, 676 square-foot gym, detached 465 square-foot guest house, swimming pools, spa, driveways, decks, landscape, water features, hardscape, grading, retaining walls, and onsite wastewater treatment system (OWTS), including Certificate of Compliance (COC) No. 21-004 to recognize an illegally created lot consisting of two Assessor Parcel Numbers (APNs) (4459-013-021 and 4459-014-018), and Lot Merger (LM) No. 24-002 to consolidate two existing parcels into one, located in the Rural Residential, Two-Acre (RR-2) zoning district at 25200 Pacific Coast Highway or 2) direct staff to return with a resolution consistent with the Planning Commission's decision (PCH) (PAR PCH, LLC).

EXHIBIT 2

DISCUSSION: The subject item was scheduled for the July 21, 2025, Planning Commission meeting. Due to a lack of quorum, the meeting was cancelled, and the subject item was continued to the August 18, 2025, Regular Planning Commission meeting. An addendum to the July 21, 2025, agenda report was prepared for the August 18, 2025 Regular Planning Commission meeting. On August 18, 2025, the Planning Commission continued the item to a date uncertain at the request of staff to allow additional time to address public correspondence related to geologic issues. This agenda report provides an addendum to the August 18, 2025 agenda report. The July 21, 2025 and the August 18, 2025 agenda reports are provided as Attachment D. Public correspondence received after the August 18, 2025 agenda report was published is provided within Attachment D.

Public Correspondence

One of the comments is a formal objection to the proposed development, which was based on a peer review by Pacific Coast Land Consulting dated August 15, 2025, of the project geotechnical report by Feffer Geological Consulting. Pacific Coast Land Consulting expressed concerns about the geotechnical analysis prepared for the project and the City geotechnical consultant reviewers' conceptual approval. The public comment and Pacific Coast Land Consulting report are included as Item 3 of Attachment D. The project geotechnical consultant provided detailed responses to the issues raised by Pacific Coast Land Consulting, included as Attachment E, which states that the points brought up in the Pacific Coast Land Consulting letter have already been thoroughly analyzed and explained over the past five years in coordination with the City's geotechnical consultant reviewers.

Another public comment stated that the project has not complied with Local Coastal Program (LCP) Local Implementation Plan (LIP) Section 9.4(D), which states that a new development proposed on landslides, steep slopes, unstable or weak soils, or any other identified geologic hazard area is permitted only where a factor of safety of 1.5 (static) and a factor of 1.1 (pseudostatic) can be provided. According to the City's geotechnical consultant reviewers, the City updated its methodology of computing the seismic factor of safety in 2013, and set the factor of safety at 1.0, not 1.1 as listed in the LIP. The newer method is Malibu-specific and based on likely ground acceleration that covers most of the anticipated design-level earthquake events in Malibu. The applicant's geotechnical consultant, Feffer Geological Consulting, had originally provided the factor of safety analysis based on the 2013 method, which showed the project meeting the safety factor of 1.0. In response to the public comment, the City's geotechnical consultant reviewers have advised that the applicant provide the analysis with both methodologies. Feffer Geological Consulting has since provided a supplement to the analysis demonstrating a safety factor of 1.1 in accordance with the LIP, which is included as Attachment F (Letter on Site Stability, August 13, 2025).

Public Works Department

The August 18, 2025 agenda report and resolution identified Public Works Department Condition Nos. 33 and 34 related to site grading and drainage. Upon discussion with Public Works Department staff, the applicant has changed the proposed drainage system onsite from a sump pump to a gravity-fed system to address these conditions. The applicant has since revised the drainage plan, which has been accepted by the Public Works Department. The revised drainage system incorporates two capture and reuse/detention basins on the west side of the project site instead of the sump pump that was previously shown in this location. The revised drainage plan is incorporated into the project civil plan set as Sheet 3 of 8 (Attachment B). The Public Works Department has since issued a revised memorandum/review sheet dated October 28, 2025, with updated conditions of approval (Attachment C). The updated conditions in the memorandum replace those formerly numbered 33 and 34, which have been removed from the resolution.

Should the Planning Commission choose to approve the project, draft Planning Commission Resolution No. 25-05 (Attachment A) has been revised to augment findings and conditions to remove the two previously noted conditions of approval.

Planning Commission Consideration

The applicant is proposing a project that meets the objective design requirements of the LIP. However, the Planning Commission will have to consider if the project, as proposed, meets the required findings of the LIP and the policies of the LCP's Land Use Plan. The project will impact a scenic corridor of Dan Blocker Beach and a vista of Point Dume from travelers on PCH, a scenic public road. On the contrary, pushing the development further to the east, away from the scenic corridor will have implications on Environmentally Sensitive Habitat Area. The detailed findings that need to be made by the Planning Commission are laid out in the original staff report (Attachment D). If the Commission chooses to approve the project as proposed, draft findings are available for review in the attached draft resolution (Attachment A).

ATTACHMENTS:

A. Planning Commission Resolution No. 25-05
B. Revised Project Plans
C. Revised Public Works Department Memorandum/Review Sheet dated 10-28-25
D. August 18, 2025, Planning Commission Agenda Report
    1. Planning Commission Resolution No. 25-05
    2. July 21, 2025, Planning Commission Agenda Report
        a. Resolution No. 25-05
        b. Project Plans
        c. Story Pole Photos
        d. Department Review Sheets
        e. Public Correspondence
        f. Public Hearing Notice
    3. Public Comments
    4. Photos of Caltrans Berms
E. Response to Ralph Jeffrey Letter, Feffer Geological Consulting, August 20, 2025
F. Letter on Site Stability, Feffer Geological Consulting, August 13, 2025
G. Public Hearing Notice

CITY OF MALIBU PLANNING COMMISSION
RESOLUTION NO. 25-05

A RESOLUTION OF THE PLANNING COMMISSION OF THE CITY OF MALIBU DETERMINING THE PROJECT IS CATEGORICALLY EXEMPT FROM THE CALIFORNIA ENVIRONMENTAL QUALITY ACT, AND APPROVING COASTAL DEVELOPMENT PERMIT NO. 19-012 TO CONSTRUCT A NEW 9,219 SQUARE FOOT, ONE-STORY, SINGLE-FAMILY RESIDENCE, INCLUDING A 1,000 SQUARE-FOOT SUBTERRANEAN TWO-CAR GARAGE, 1,523 SQUARE FOOT BASEMENT, 676 SQUARE FOOT GYM, DETACHED 465 SQUARE FOOT GUEST HOUSE, SWIMMING POOLS, SPA, DRIVEWAYS, DECKS, LANDSCAPE, WATER FEATURES, HARDSCAPE, GRADING, RETAINING WALLS, AND ONSITE WASTEWATER TREATMENT SYSTEM, INCLUDING CERTIFICATE OF COMPLIANCE NO. 19-009 TO RECOGNIZE AN ILLEGALLY CREATED LOT CONSISTING OF TWO ASSESSOR'S PARCEL NUMBERS (4459-013-021 AND 4459-014-018), AND LOT MERGER NO. 24-002 TO CONSOLIDATE TWO EXISTING PARCELS INTO ONE PARCEL, LOCATED IN THE RURAL RESIDENTIAL-TWO ACRE ZONING DISTRICT AT 25200 PACIFIC COAST HIGHWAY (PAR PCH LLC)

The Planning Commission of the City of Malibu does hereby find, order and resolve as follows:

SECTION 1. Recitals.

A. On March 7, 2019, an application for a Coastal Development Permit (CDP) No. 19-012 to allow for a new single-family residence and associated development was submitted to the Planning Division by PAR PCH LLC. For development on property identified as APNs 4459-013-021 and 4459-014-018. The application was routed to the City Biologist, City Environmental Health Administrator, City geotechnical consultant reviewers, City Public Works Department, Los Angeles County Waterworks District No. 29 (WD29), and Los Angeles County Fire Department (LACFD) for review.

B. On September 25, 2023, a Notice of Coastal Development Permit Application was posted on the subject property.

C. On December 11, 2023, the application was deemed complete.

D. On April 18, 2024, the Planning Division visited the site and documented the story pole installation.

E. On April 25, 2024, a Notice of Planning Commission Public Hearing was published in a newspaper of general circulation within the City of Malibu and was mailed to all property owners and occupants within a 500-foot radius of the subject property.

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F. In April 2024, Planning Division staff received concerns from several community members related to impacts to bluewater views and potential outdoor lighting

G. On May 20, 2024, the Planning Commission continued the item to a date uncertain.

H. On May 23, 2025, Planning Division staff visited the site and documented installation of the updated story poles.

I. On July 10, 2025, a Notice of Planning Commission Public Hearing was published in a newspaper of general circulation within the City of Malibu and was mailed to all property owners and occupants within a 500-foot radius of the subject property.

J. On July 21, 2025, the Planning Commission meeting was cancelled due to a lack of quorum, and a Notice of Cancellation and Notice of Continuance was issued, with the project continued to the August 18, 2025 Regular Planning Commission meeting.

K. On August 18, 2025, the Planning Commission continued the item to a date uncertain at the request of staff.

L. On November 20, 2025, a Notice of Planning Commission Public Hearing was published in a newspaper of general circulation within the City of Malibu and was mailed to all property owners and occupants within a 500-foot radius of the subject property.

M. On December 16, 2025, the Planning Commission held a duly noticed public hearing on the subject application, reviewed and considered the staff report, and reviewed and considered written reports, public testimony, and other information in the record.

SECTION 2. Environmental Review.

Pursuant to the authority and criteria contained in the California Environmental Quality Act (CEQA), the Planning Commission has analyzed the proposed project. The Planning Commission found that this project is listed among the classes of projects that have been determined not to have a significant adverse effect on the environment. Therefore, the project is categorically exempt from the provisions of CEQA pursuant to Section 15303(a) – New Construction or Conversion of Small Structures. The Planning Commission has further determined that none of the six exceptions to the use of a categorical exemption apply to this project (CEQA Guidelines Section 15300.2). PCH is not an officially designated state scenic highway. This project, along with any other project in the City, is required to implement the criteria in LIP Section 6.5(E)(2) to protect scenic and visual resources. There are no impacts to biological resources because the limits of project development, including required fuel modification activities and grading, do not encroach into identified environmentally sensitive habitat area in compliance with LIP Section 4.6.1. The project will not have any significant adverse impacts on the site stability or structural integrity from geologic, flood, or fire hazards because the project is required to comply with the certified engineering geologist and/or geotechnical engineer's recommendations and the City and County regulations, including compliance with development standards listed in LIP Section 9.4. The property is not

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included on any list compiled pursuant to Government Code Section 65962.5 and no historical resources are located on or adjacent to the property.

SECTION 3. Coastal Development Permit Findings.

Based on evidence contained within the record, including the agenda reports for the project dated July 21, 2025, August 18, 2025, and December 16, 2025, and the hearing on December 16, 2025, and pursuant to the Local Coastal Program (LCP) Local Implementation Plan (LIP), including Sections 13.7(B) and 13.9, and Title 17 (Zoning) of the Malibu Municipal Code (MMC), the Planning Commission adopts the findings of fact, and approves CDP No. 19-012 for construction of a 9,219 square-foot single-family residence, 1,000 square-foot subterranean garage, 1,523 square-foot basement, 676 square-foot gym, detached 465 square-foot guest house, swimming pools and spa, driveways, decks, landscape, water features, hardscape, grading, retaining walls, and an onsite wastewater treatment system located in the Rural Residential, Two-Acre (RR-2) zoning district at 25200 Pacific Coast Highway.

The project, as conditioned, is consistent with the LCP's zoning, grading, cultural resources, water quality, and wastewater treatment system standards requirements. With the inclusion of the proposed certificate of compliance (COC) and Lot Merger (LM), the project has been determined to be consistent with all applicable LCP codes, standards, goals, and policies. The required findings are made herein.

A. General Coastal Development Permit (LIP Chapter 13)

1. The project is located in the RR-2 residential zoning district, an area designated for residential uses and typically developed with single-family residences. The project has been reviewed for conformance with the LCP by the Planning Division, City Biologist, City Environmental Health Administrator, City Public Works Department, City geotechnical consultant reviewers, Waterworks District 29 (WD29), and the Los Angeles County Fire Department (LACFD). As discussed herein, based on submitted reports, project plans, visual analysis, and site investigation by the Planning Division, the proposed project, as conditioned, conforms to the LCP in that it meets all applicable residential development standards, inclusive of the requested COC and LM.

2. Based on the analysis in the record, as designed and conditioned, the project will not result in biological impacts and has been designed to minimize grading. There is no evidence that an alternative project would substantially lessen any potential significant adverse impacts of the development on the environment beyond that of the proposed project. The project, including required fuel modification area and grading, is located approximately 300 feet from Environmentally Sensitive Habitat Area (ESHA) in compliance with LIP Section 4.6.1.

3. The following alternatives to the project were considered to determine the least environmentally damaging feasible alternative.

The project was originally contemplated as a two-story residence. However, due to the visual impacts of impeding upon bluewater views from PCH, the applicant revised the plan to lower the

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main residence building height from 18 feet to a maximum of 17 feet, seven inches and one story, and the guest house height from 15 feet and eight inches to 10 feet. The proposed location of development was sited on the flattest area of the subject property where slopes range from 4 to 1 or flatter. Other areas of the property where development could occur, but was avoided, contain slopes that are 3 to 1 or steeper. Proposed building pad elevations would be set further below current grade on the property to further minimize impeded bluewater views from PCH, and to allow the building pads to be gradually stepped into the western slope of the project site to reduce their visual profile. To eliminate all impedance to bluewater views from PCH, all proposed buildings would need to be a height that is at or below that of the adjacent PCH roadway grade and Caltrans berms along the roadway. To meet this, the buildings would need to be below three to seven feet in height in most areas, with the exception of the tallest building portion at the east end of the main residence. This portion of the main residence is proposed at a height of 17 feet, seven inches, and there is a 21-foot difference between the development surface and the roadway/berm grade such that the building height would not be visible from PCH. In lieu and in accordance with LIP Section 6.5(E)(2), the project would implement a public view corridor from PCH to existing bluewater views for a distance of 31 percent (542 feet, 7 inches) of the property width (east to west) on the eastern portion of the property, consistent with LIP Section 6.5(E)(2).

Substantial earthwork would need to occur to lower the current grade several more feet to set all buildings below the PCH grade and the Caltrans berms. The resulting amount of grading could exceed the maximum allowed 1,000 cubic yards for non-exempt grading and require more retaining walls, which could exceed the six-foot high maximum allowed and require a variance. As designed, the project does not include any discretionary requests for relief from development standards. To lower the project site with shorter retaining walls, or without walls, would require an increase in development at the edges of the lowered building pad to transition to the existing grade elevations over a long distance. This alternate concept would require grading on steep slopes that would also exceed the maximum allowed non-exempt grading of 1,000 cubic yards and require a variance. It would also be inconsistent with the required COC findings for avoidance of steep slopes and may not be accomplished entirely within the property boundaries. This alternate concept would also likely be considered inconsistent with the LIP (LIP Section 8.3) and MMC standards and policies for minimizing the alteration of landforms. LIP Section 8.3(E) states that grading shall be designed to minimize the alteration of landforms by ensuring that graded slopes blend with the existing terrain of the site and surrounding area and conform to natural topography.

The applicant considered clustering all buildings in the eastern portion of the subject property, where the PCH grade and/or Caltrans berms provide the most screening to the development. However, the subject property is narrow and locating all development in this area is considered infeasible due to developable areas on the west portion of the property that would reduce environmental effects. This is because developing the eastern portion of the property would result in encroachment into ESHA, ESHA buffer, and a drainage, as well as require grading of steep slopes and shifting fuel modification zones offsite. Variances would be required for development in this alternate location.

Consideration for reducing the proposed Total Development Square Footage (TDSF) in the project was made but was found that a reduction in TDSF would not necessarily result in a project that

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further decreased impedances to bluewater views from PCH. This is because the building heights could continue to be up to 18 feet in height, consistent with LIP allowances. All sensitive biological resources (EHSA and drainage) and steep slopes at the eastern end of the subject property would not be encroached upon by the proposed project, as designed and conditioned, including required fuel modification.

A considerable portion of the proposed development consists of outdoor recreation and gathering spaces, such as an outdoor kitchen, garden rooms, pools and other water features. Due to the narrow shape of the property with a long roadway frontage and the need for vehicle fire access driveways around the development that reduce available area for buildings, the development cannot feasibly be set back further from PCH to further minimize privacy and noise concerns within these outdoor spaces. Other considerations were made by the applicant to increase privacy and reduce roadway noise, such as a wall with some transparent features, a transparent fence, or vegetation screening options. Two solid freestanding walls along the northern part of the project site were originally proposed at a height of 12 feet each and subsequently revised such that the upper four feet of the 12-foot-wall included glass to allow public bluewater views. Wall heights have since been revised to reduce the overall height to six feet to protect bluewater views from PCH (with no glass portions) and to be consistent with the maximum allowed height for solid walls in the LIP and MMC.

As designed and conditioned, the proposed development is considered to be the least environmentally damaging feasible alternative.

4. The property is within a designated ESHA and ESHA buffer as shown on the LCP ESHA and Marine Resources Map. However, the project, including required fuel modification activities and grading, is over 300 feet west of the ESHA boundary. Because the project avoids any work within the ESHA and 100-foot ESHA buffer areas, no Environmental Review Board review is required.

B. Scenic, Visual and Hillside Resource Protection (LIP Chapter 6)

1. While the project site is below the grade of the adjacent PCH roadway and the building and driveway pads average approximately one foot below grade to further minimize views to the development, the upper portions of some buildings will be visible from public views from PCH and impede upon bluewater views for those areas of the subject property. As described above in Finding A.3, it is infeasible to further lower the project site and structures to be fully below the PCH grade. The applicant is not requesting a discretionary request to increase height above 18 feet. Also as described in Finding A.3, there are no other feasible alternatives to development and no other feasible locations on the property to accommodate the proposed development that would avoid scenic and visual impacts including bluewater views. At most, the upper eight feet, five inches of the main residence will be visible from public views along PCH. Consistent with LIP Section 6.5(E)(2), an onsite view corridor described in Finding A.3 will be implemented as part of the project (Condition No. 37). This LIP section requires that where topography of the project site does not permit the siting or design of a structure that is located below road grade, new development shall provide an ocean view corridor on the project site.

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Project materials and colors will be required to be compatible with the natural environment, therefore, will be compatible with the character of the surrounding neighborhood (Condition Nos 45 and 46). Although retaining walls included in the project are not expected to be visible from PCH, Condition No. 46 would still apply to the project to ensure the retaining walls blend with the surrounding natural area. Condition No. 32 prohibits the use of vegetation that will exceed the height of the existing PCH gradeCaltrans berms to protect bluewater views from PCH. Therefore, the project will not result in significant adverse impacts to scenic and visual resources from PCH, including bluewater views.

2. As described in Finding A.3 above, the project is the least damaging environmentally feasible alternative. The drainage area, areas of steep slopes, and ESHA and ESHA buffer areas onsite will be protected.

3. The project site will not result in adverse impacts from public viewing areas in the hillside above the subject property. The project site may be visible from Corral Canyon Park (1,500 feet northwest of the site), Corral Canyon Trail/Corral Canyon Loop Trail (400 feet northwest of the site), and Cameron Nature Preserve at Puerco Canyon (500 feet northeast of the site). These locations, which are upslope from the project site in the hillside above PCH, would be considered public viewing areas pursuant to LIP Chapter 6. The project consists of a one-story single-family residence and associated development with flat roofs, not to exceed a height of 17 feet and seven inches, consistent with the LIP requirements. The buildings, walls, and driveways will be required to use earthtone colors and contain materials to blend with the natural environment (Condition Nos. 45 and 46). Landscaping is proposed throughout the development, and Condition No. 32 prohibits the use of vegetation that will exceed the height of the existing PCH grade/Caltrans berms to protect bluewater views from PCH.

Current views from the public viewing areas in the hillside above the project site include a large expanse of coastline, PCH, and structures, including residences in the vicinity of the project site. Development of the project site, as proposed and conditioned, is not expected to result in significant adverse impacts to views from these public viewing areas, as it is adjacent to existing residential development and proposes a low-profile design. The conditions noted above regarding colors and materials allow the development to be visually compatible with the surrounding natural environment when viewed from above. The development is not expected to have a significant impact on ocean views from the public viewing areas, given the height of the locations in the hillsides above the project site, and that the applicant has designed the project as a series of low-profile buildings ranging from 12 feet to a maximum of 17 feet and seven inches in height.

The development is proposed on the flattest area of the property, away from steep slopes, a jurisdictional drainage, and riparian ESHA. Moreover, the project provides a public view corridor on the eastern part of the property that is 31 percent of the lineal frontage of the project site. There are no feasible alternatives for development that would avoid or substantially lessen views from these public viewing areas. The applicant considered clustering all buildings in the eastern portion of the building pad, in lieu of the western portion, where the PCH grade Caltrans berms provide the most screening to the development from PCH. However, because the subject property is narrow, locating all development in the eastern portion of the property is considered infeasible as

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it would result in direct impacts to ESHA and ESHA buffer.

4. No outdoor lighting is proposed or approved as part of this project. A condition of approval (Condition No. 15) is included requiring a lighting plan to be submitted to the Planning Division for compliance with the City's Dark Sky Ordinance and any other applicable regulations. The plan shall be submitted and approved prior to submittal of the project for Building Safety plan check. If determined by the Community Development Director that the proposed lighting requires review by the Planning Commission, an amendment to this CDP shall be requested and approved, including any subsequent appeal period for said amendment, prior to Building Safety plan check submittal.

5. The Landscape Plan includes trees, shrubs, groundcover, and other plants. Native species are proposed along the edges of the development, adjacent to existing natural vegetation. The project is not expected to have adverse visual impacts due to landscaping, as conditioned. Vegetation, including trees, are required to not extend above the PCH grade/Caltrans berms (Condition No. 32).

C. Hazards (LIP Chapter 9)

1. Based on review of the project plans and associated project geotechnical and other reports by the City geotechnical consultant reviewers, LACFD, City Environmental Health Administrator, and Public Works Department, these specialists determined that adverse impacts to the project site related to the proposed development are not expected. The project, including the OWTS, will neither be subject to nor increase the instability of the site from geologic, flood, or fire hazards. The proposed development is suitable for the intended use provided that the certified engineering geologist and/or geotechnical engineer's recommendations and governing agency's building codes are followed. Condition Nos. 31, 71-102, and 108-130 require that all recommendations contained in the above cited geotechnical reports and conditions required by the City geotechnical review consultants, City Public Works Department, and the LACFD, are incorporated into the project. The conditions include onsite drainage measures, as well as implementing improvements offsite in the public right-of-way to the existing dewatering system and making other drainage system improvements in the public right-of-way, to ensure slope stability (Condition Nos. 77 and 84).

2. As described in Finding C.1 above, the proposed project, as designed, conditioned and approved by the applicable departments and agencies, will not have any significant adverse impacts on the site stability or structural integrity from geologic or flood hazards due to project design, location, modifications, landscaping, and other conditions (Condition Nos. 31, 71-102 and 108-130). Moreover, there are no preferable feasible project alternatives to improve site stability or structural integrity beyond that of the proposed project. The development will be located on the flattest portion of the subject property, outside of steep slopes, and is not within a flood hazard area. Retaining walls are consistent with the maximum six-foot-high requirement.

3. As with all properties in the City, the subject property is currently subject to wildfire hazards and development of a residence and associated development on the subject property will

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not increase the project site's susceptibility to wildfire. The project is not expected to have an impact on wildfire hazards. The proposed development may actually decrease the project site's susceptibility to wildfire through compliance with fuel modification requirements and the use of appropriate required building materials and measures. All required fuel modification activities will occur onsite.

4. The City is served by the LACFD, as well as the California Department of Forestry, if needed. In the event of major fires, the County has "mutual aid agreements" with cities and counties throughout the State so that additional personnel and firefighting equipment can augment the LACFD. Condition No. 31 requires the project to comply with all LACFD development standards, and Condition No. 70 requires the project to comply with the approved LACFD fuel modification plan for the site. As such, the project, as designed, constructed, and conditioned, will not be subject to nor increase the instability of the site or structural integrity pertaining to wildfire hazards.

5. As described in Finding A.3 above, the project, as designed and conditioned, is the least environmentally damaging alternative and no adverse impacts to geologic, flood, or fire hazards are anticipated. There are no feasible project alternatives that are more environmentally preferable than the proposed project, including compliance with LIP requirements related to ESHA, scenic and visual resources, and hazards. The drainage area, areas of steep slopes, and the ESHA and ESHA buffer areas onsite will be protected as part of the project.

6. The proposed development has been analyzed for the hazards listed in LIP Chapter 9 by the City Building Official, City Environmental Health Administrator, and the City geotechnical consultant reviewers. These specialists determined that the proposed project does not impact site stability or structural integrity. Since there are no significant impacts expected, there are no feasible alternatives to reduce significant impacts. Condition Nos. 31, 71-102 and 108-130 will ensure project compliance with all required standards and measures to minimize hazards.

7. There is no evidence in the record that the proposed project, as designed and conditioned, will have adverse impacts to sensitive resources, particularly in consideration of hazards. The onsite drainage area, areas of steep slope, and areas of ESHA and the ESHA buffer will be protected, and development, including grading and fuel modification activities, will be over 300 feet away from ESHA.

D. Land Division (LIP Chapter 15)

1. The certificate of compliance (COC) complies with all policies and standards of the LCP, including the requirements of LIP Section 15.2. The project site provides for development that avoids any work within slopes over 30 percent (3:3 to 1). The project site can accommodate adequate roads for fire access and, as conditioned, development is safe from flooding, erosion, geologic, and extreme fire hazards. The project site is served by adequate public services and can accommodate an OWTS. The subject property can accommodate development, including fuel modification, outside of the ESHA and ESHA buffer. Development of the subject property can occur in a manner that minimizes grading and alteration of natural landforms, and that will be

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landscaped with native species to minimize erosion. Clustering of development can be accommodated on the west side of the property to minimize site disturbance and maximize open space on the east side of the property, in ESHA, a drainage, and in steep slopes.

2. No coastal resources or ridgelines are located on the property or would be affected by the development. The project site enables impacts to visual resources, including bluewater views, to be minimized to the extent feasible. As described in Findings A.1 and B.1 above, the project implements a public view corridor through the property for a minimum 31 percent of the property width, consistent with the LIP requirements. The site allows for development consistent with the maximum density permitted in the LCP and would not be smaller than the average size of surrounding parcels.

3. The two parcels subject to the LM are under common ownership and the applicant proposes a voluntary merger that has been initiated by the property owner. The LM is consistent with all policies and standards of the LCP that protect ESHA or visual resources of the coastal zone, as habitat in the ESHA will be protected and no structures in the onsite view corridor are permitted.

SECTION 4. Planning Commission Action.

Based on the foregoing findings and evidence contained within the record, the Planning Commission hereby approves CDP No. 19-012, LM 24-002, and COC No. 19-009, subject to the following conditions.

SECTION 5. Conditions of Approval.

Standard Conditions

1. The property owners, and their successors in interest, shall indemnify and defend the City of Malibu and its officers, employees and agents from and against all liability and costs relating to the City's actions concerning this project, including (without limitation) any award of litigation expenses in favor of any person or entity who seeks to challenge the validity of any of the City's actions or decisions in connection with this project. The City shall have the sole right to choose its counsel and property owners shall reimburse the City's expenses incurred in its defense of any lawsuit challenging the City's actions concerning this project.

2. Approval of this application is to allow for the project described herein. The scope of work approved includes:

    a. 9,219 square-foot, one-story, single-family residence, and a 1,000 square-foot subterranean two-car garage and 1,523 square-foot basement;
    b. Detached 676 square-foot gym;
    c. Detached 465 square-foot guest house;
    d. Swimming pools and spa;

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e. OWTS, including a 1,500-gallon septic tank;
f. New landscaping and hardscape, including permeable driveways;
g. Perimeter fencing not to exceed 42 inches in height along the north property line and an entry gate;
h. Retaining walls up to six feet in height; and
i. Solid freestanding walls up to six feet in height.

3. Except as specifically changed by conditions of approval, the proposed development shall be constructed in substantial conformance with the approved scope of work, as described in Condition 2 and depicted on plans on file with the Planning Division date stamped (Architectural dated April 16, 2025, Civil dated October 17, 2025, and Landscape dated August 11, 2021). The proposed development shall further comply with all conditions of approval stipulated in this resolution and Department Review Sheets attached hereto. In the event project plans conflict with any condition of approval, the condition shall take precedence.

4. Pursuant to LIP Section 13.18.2, this Coastal Development Permit (CDP), Lot Merger, and Certificate of Compliance shall not be effective until the property owner signs, notarizes and returns the Acceptance of Conditions Affidavit accepting the conditions set forth herein. The applicant shall file this form with the Community Development Department prior to issuance of any development permits.

5. This CDP shall not be effective until all appeals are exhausted and the property owner, applicant, and the business operator execute the Affidavit of the Acceptance of Conditions. Said documents shall be recorded with the Los Angeles County Recorder and a certified copy of said recordation shall be filed with the Planning Department within 10 days of the effective date of the approval.

6. The applicant shall digitally submit a complete set of plans to the Planning Division for consistency review and approval prior to plan check and again prior to the issuance of any building or development permits.

7. The CDP shall expire if the project has not commenced within three (3) years after issuance of the permit unless a time extension has been granted. Extension of the permit may be granted by the approving authority for due cause. Extensions shall be requested in writing by the applicant or authorized agent prior to expiration of the three-year period and shall set forth the reasons for the request. In the event of an appeal, the CDP shall expire if the project has not commenced within three years from the date the appeal is decided by the decision-making body or withdrawn by the appellant.

8. Any questions of intent or interpretation of any condition of approval will be resolved by the Community Development Director upon written request of such interpretation.

9. All development shall conform to requirements of the City Community Development Department, City Biologist, City Environmental Health Administrator, City geotechnical

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consultant reviewers, City Public Works Department, Los Angeles County Waterworks District No. 29 and LACFD, as applicable. Notwithstanding this review, all required permits shall be secured.

10. Minor changes to the approved plans or the conditions of approval may be approved by the Community Development Director, provided such changes achieve substantially the same results and the project is still in compliance with the Malibu Municipal Code and the Local Coastal Program. Revised plans reflecting the minor changes and additional fees shall be required.

11. Pursuant to LIP Section 13.20, development pursuant to an approved CDP shall not commence until the CDP is effective. The CDP is not effective until all appeals, including those to the California Coastal Commission (CCC), have been exhausted. In the event that the CCC denies the permit or issues the permit on appeal, the coastal development permit approved by the City is void.

12. The applicant must submit payment for any outstanding fees payable to the City prior to issuance of any building permit, including grading or demolition.

Cultural Resources

13. In the event that potentially important cultural resources are found in the course of geologic testing or during construction, work shall immediately cease until a qualified archaeologist can provide an evaluation of the nature and significance of the resources and until the Community Development Director can review this information. Thereafter, the procedures contained in LIP Chapter 11 and those in MMC Section 17.54.040(D)(4)(b) shall be followed.

14. If human bone is discovered during geologic testing or during construction, work shall immediately cease and the procedures described in Section 7050.5 of the California Health and Safety Code shall be followed. Section 7050.5 requires notification of the coroner. If the coroner determines that the remains are those of a Native American, the applicant shall notify the Native American Heritage Commission by phone within 24 hours. Following notification of the Native American Heritage Commission, the procedures described in Section 5097.94 and Section 5097.98 of the California Public Resources Code shall be followed.

Outdoor Lighting

15. Exterior lighting must comply with the Dark Sky Ordinance and shall be minimized, shielded, or concealed and restricted to low intensity features, so that no light source is directly visible from public view. Permitted lighting shall conform to the following standards:

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a. Lighting for walkways shall be limited to fixtures that do not exceed two feet in height and are directed downward, and limited to 850 lumens (equivalent to a 60 watt incandescent bulb);
b. Security lighting controlled by motion detectors may be attached to the residence provided it is directed downward and is limited to 850 lumens;
c. Driveway lighting shall be limited to the minimum lighting necessary for safe vehicular use. The lighting shall be limited to 850 lumens;
d. Lights at entrances as required by the Building Code shall be permitted provided that such lighting does not exceed 850 lumens;
e. Site perimeter lighting shall be prohibited; and
f. Outdoor decorative lighting for aesthetic purposes is prohibited.

16. Night lighting for sports courts or other private recreational facilities shall be prohibited.

17. No permanently installed lighting shall blink, flash, or be of unusually high intensity or brightness. Lighting levels on any nearby property from artificial light sources on the subject property(ies) shall not produce an illumination level greater than one foot-candle.

18. Night lighting from exterior and interior sources shall be minimized. All exterior lighting shall be low intensity and shielded directed downward and inward so there is no offsite glare or lighting of natural habitat areas. High intensity lighting of the shore is prohibited.

19. String lights are allowed in occupied dining and entertainment areas only and must not exceed 3,000 Kelvin.

20. Motion sensor lights shall be programmed to extinguish ten minutes after activation.

21. No lighting can exceed 18 feet in height except as required by the California Building Code.

22. Three violations of the conditions by the same property owner will result in a requirement to permanently remove the outdoor light fixture(s) from the site.

Fencing and Walls

23. The applicant shall include an elevation of the proposed driveway gate on the architectural plans that are submitted for Building Safety plan check. The gate and all fencing along the front property line shall comply with the regulations set forth in LIP Section 3.5.

24. The height of fences and walls shall comply with LIP Sections 3.5.3(A) and 6.5(E)(1)(c). No retaining wall shall exceed six feet in height or 12 feet in height for a combination of two or more walls.

25. Necessary boundary fencing shall be of an open rail-type design with a wooden rail at the top (instead of wire), be less than 40-inches high, and have a space greater than 14-inches

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between the ground and the bottom post or wire. A split rail design that blends with the natural environment is preferred.

26. Fencing or walls shall be prohibited within ESHA, except where necessary for public safety or habitat protection or restoration. Fencing or walls that do not permit the free passage of wildlife shall be prohibited in any wildlife corridor.

27. Development adjacent to, but not within ESHA, may include fencing, if necessary for security, that is limited to the area around the clustered development area.

Site Specific Conditions

28. The applicant shall submit to the City a recorded instrument evidencing the Lot Merger prior to issuance of a grading permit. The instrument must be reviewed and approved by the City prior to recording. A copy of the recorded instrument shall be provided to the Los Angeles County Assessor's Office.

29. This project and CDP approval is not valid unless a Certificate of Compliance and Lot Merger have been approved by the City, filed with the City Clerk, and recorded with the County of Los Angeles.

30. The project shall comply with all requirements and conditions of the County of Los Angeles Fire Department.

31. To minimize bluewater view obstruction from PCH, on-site vegetation, including trees, shall be selected and located to have a maximum growth height at maturity that will not extend above the PCH grade or Caltrans berms, whichever is higher, and be maintained at this height in perpetuity so as to provide bluewater views from PCH. The Final Landscape Plan submitted for Building Safety plan check approval shall reflect this requirement.

32. The non-exempt grading for the project shall not exceed a total of 1,000 cubic yards, cut and fill.

Certificate of Compliance/Lot Merger

33. The applicant shall submit to the City a recorded instrument evidencing the Lot Merger prior to issuance of a grading permit. The instrument must be reviewed and approved by the City prior to recording. A copy of the recorded instrument shall be provided to the Los Angeles County Assessor's Office.

34. The applicant/property owner shall submit all items required to complete the Certificate of Compliance to the satisfaction of the Public Works Department prior to issuance of any grading or building permit, and prior to approval of a Lot Merger.

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35. All items required to complete a Lot Merger of the two parcels that are a part of this application shall be submitted to the satisfaction of the Public Works Department. The proposed Lot Merger must be approved by the City, recorded with the Los Angeles County Recorder's Office, and filed with the City Clerk's office prior to the approval of a grading permit. A copy of the recorded instrument, which shall contain a legal description of the contiguous parcels prior to the merger and the new parcel that results after the merger, shall be provided to the Los Angeles County Assessor's Office.

View Corridor

36. Pursuant to LIP Section 6.5(E)(2) and in order to ensure the protection of scenic and visual resources from public viewing areas across the property, the property owner is required to maintain:

    a. An onsite view corridor perpendicular to PCH to the ocean, beginning at the eastern limit of the property line and extending west a minimum width of 542 feet and 7 inches (represents 31 percent of the width of the property).
    b. No portion of any structure, temporary or permanent, shall extend into the view corridor above the elevation of the adjacent street.
    c. Any fencing across the view corridor shall be permanently maintained as visually permeable. Tinted or frosted glass, and louvered or slatted screen fences are not permitted.
    d. Any landscaping in this area shall include only low-growing species that will not obscure or block bluewater views. All landscaping within the view corridor shall be maintained in perpetuity so as to provide bluewater views from PCH through the view corridor at all times.
    e. If at any time the property owner allows the view corridor to become impaired or blocked, it would constitute a violation of the coastal development permit and the Coastal Act and be subject to all civil and criminal remedies.

Construction/Framing

37. The applicant shall submit a copy of a Construction Management Plan to the Planning Division. The Construction Management Plan shall include a dedicated parking location for construction workers and storage of construction material. Prior to permit issuance, the Construction Management Plan must be acceptable to the Community Development Director and, if applicable, to the Building Official and Public Works Director.

38. A construction staging plan shall be reviewed and approved by the Building Official prior to plan check submittal.

39. Construction hours shall be limited to Monday through Friday from 7:00 a.m. to 7:00 p.m. and Saturdays from 8:00 a.m. to 5:00 p.m. No construction activities shall be permitted on Sundays or City-designated holidays.

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40. Construction management techniques, including minimizing the amount of equipment used simultaneously and increasing the distance between emission sources, shall be employed as feasible and appropriate. All trucks leaving the construction site shall adhere to the California Vehicle Code. In addition, construction vehicles shall be covered when necessary; and their tires rinsed prior to leaving the property.

41. All new development, including construction, grading, and landscaping shall be designed to incorporate drainage and erosion control measures prepared by a licensed engineer that incorporate structural and non-structural Best Management Practices (BMPs) to control the volume, velocity and pollutant load of storm water runoff in compliance with all requirements contained in LIP Chapter 17, including:

    a. Construction shall be phased to the extent feasible and practical to limit the amount of disturbed areas present at a given time.
    b. Grading activities shall be planned during the southern California dry season (April through October).
    c. During construction, contractors shall be required to utilize sandbags and berms to control runoff during on-site watering and periods of rain in order to minimize surface water contamination.
    d. Filter fences designed to intercept and detain sediment while decreasing the velocity of runoff shall be employed within the project site.

42. When framing is complete, a site survey shall be prepared by a licensed civil engineer or architect that states the finished ground level elevation and the highest roof member elevation. Prior to the commencement of further construction activities, said document shall be submitted to the assigned Building Inspector and Planning Division for review and sign off on framing.

43. For the transportation of heavy construction equipment and/or material, which requires the use of oversized-transport vehicles on State highways, the applicant / property owner is required to obtain a transportation permit from the California Department of Transportation.

Colors and Materials

44. The project is visible from a scenic road (PCH), therefore, shall incorporate colors and exterior materials that are compatible with the surrounding landscape.

    a. Acceptable colors shall be limited to colors compatible with the surrounding environment (earth tones) including shades of green, brown and gray, with no white or light shades and no bright tones. Colors shall be reviewed and approved by the Community Development Director and clearly indicated on the building plans.
    b. The use of highly reflective materials shall be prohibited except for solar energy panels or cells, which shall be placed to minimize significant adverse impacts to public views to the maximum extent feasible.

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c. All windows shall be comprised of non-glare glass.

45. All driveways shall be a neutral color that blends with the surrounding landforms and vegetation. Retaining walls shall incorporate veneers, texturing and/or colors that blend with the surrounding earth materials or landscape. The color of driveways and retaining walls shall be reviewed and approved by the Community Development Director and clearly indicated on all grading, improvement and/or building plans.

Biology/Landscaping

46. Except as permitted pursuant to the provisions in LUP policies 3.18 and 3.20, throughout the City of Malibu, development that involves the use of pesticides, including insecticides, herbicides, rodenticides or any other similar toxic chemical substances, shall be prohibited in cases where the application of such substances would have the potential to significantly degrade Environmentally Sensitive Habitat Areas or coastal water quality or harm wildlife. Herbicides may be used for the eradication of invasive plant species or habitat restoration, but only if the use of non-chemical methods for prevention and management such as physical, mechanical, cultural, and biological controls are infeasible. Herbicides shall be restricted to the least toxic product and method, and to the maximum extent feasible, shall be biodegradable, derived from natural sources, and used for a limited time.

47. Prior to final Planning Division inspection, the applicant shall submit to the Community Development Director for review and approval a certificate of completion in accordance with MMC Chapter 17.53/MMC Chapter 9.22. The certificate shall include the property owner's signed acceptance of responsibility for maintaining the landscaping and irrigation in accordance with the approved plans and MMC Chapter 17.53/Chapter 9.22.

48. Invasive plant species, as determined by the City of Malibu, are prohibited.

49. No non-native plant species shall be approved greater than 50 feet from the residential structure.

50. Vegetation shall be situated on the property so as not to significantly obstruct the primary view from private property at any given time (given consideration of its future growth).

52. Vegetation forming a view impermeable condition (hedge), serving the same function as a fence or wall, occurring within the side or rear yard setback shall be maintained at or below six feet in height. View impermeable hedges occurring within the front yard setback serving the same function as a fence or wall shall be maintained at or below 42 inches in height.

53. The landscape plan shall prohibit the use of building materials treated with toxic compounds such as creosote or copper arsenate.

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54. Construction fencing shall be placed and indicated on the site plan. Construction fencing shall be installed prior to the beginning of any construction and shall be maintained throughout the construction period to protect the site's sensitive habitat areas – primarily the drainage feature at the eastern portion of the site as identified by the biological assessment (Chambers).

55. All new development, including structures, OWTS and landscaping, shall be set back no less than 100 feet from the jurisdictional drainage.

56. The landscape and fuel modification plan shall protect natural resources in accordance with the Malibu General Plan. All areas shall be planted and maintained as described in the landscape and fuel modification plan, except as indicated elsewhere in these conditions. Failure to comply with the landscape conditions is a violation of the conditions of approval for this project.

57. Night lighting from exterior and interior sources shall be minimized. All exterior lighting shall be low intensity and shielded so it is directed downward and inward so that there is no offsite glare or lighting of natural habitat areas. Up-lighting is prohibited.

58. Necessary boundary fencing of any single area exceeding ó acre shall be of an open rail-type design with a wooden rail at the top (instead of wire), be less than 40 inches high, and have a space greater than 14 inches between the ground and the bottom post or wire. A split rail design that blends with the natural environment is preferred.

59. All open areas not used for buildings, driveways, parking areas, or walkways shall be attractively landscaped and maintained in accordance with a landscape plan, with native plant species, to the satisfaction of the Community Development Director.

60. Native species of the Santa Monica Mountains, characteristic of the local habitat, shall be used on graded slopes or where slope plantings are required for slope stabilization, erosion control, and watershed protection. Plants should be selected to have a variety of rooting depths. A spacing of 15 feet between large woody (≥10-foot canopy) shrubs is recommended by the LACFD. Lawns are prohibited on slopes > 5 percent.

61. Slope planting measures such as contour planting and terracing or other techniques shall be incorporated on slopes to interrupt the flow and rate of surface runoff in order to prevent surface soil erosion.

62. Prior to installation of any landscaping, the applicant shall obtain a plumbing permit for the proposed irrigation system from the Building Safety Division.

63. Prior to or at the time of Planning Division final inspection, the property owner/applicant shall submit to the case planer a copy of the plumbing permit for the irrigation system installation that has been signed off by the Building Safety Division.

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64. Prior to a final Building Safety plan check approval, the property owner /applicant must provide a landscape water use approval from the Los Angeles County Waterworks District No. 29.

65. Prior to issuance of a certificate of occupancy, the City Biologist shall inspect the project site and determine that all conditions to protect natural resources are in compliance with the approved plans.

66. Plantings required for fuel modification, except for within irrigated Zone A nearest to approved residential structures, must be native, drought-tolerant species and shall blend with the existing natural vegetation and natural habitats on the site.

67. Any site preparation activities, including grading, excavation and removal of vegetation, between February 1 and September 15 will require nesting bird surveys by a qualified biologist at least five days prior to initiation of site preparation activities. Should active nests be identified, a buffer area no less than 150 feet (300 feet for raptors) shall be fenced off until it is determined by a qualified biologist that the nest is no longer active. A report discussing the results of nesting bird surveys shall be submitted to the City within two business days of completing the surveys.

68. Grading/earthmoving shall be scheduled only during the dry season from April 1 through October 31. If it becomes necessary to conduct earthmoving activities from November 1 through March 31, a comprehensive erosion control plan shall be submitted to the City Biologist for approval prior to the issuance of a grading permit and implemented prior to initiation of vegetation removal and/or earthmoving activities.

69. The use of wood chips and shredded rubber is prohibited anywhere on the site. Flammable mulch material, including shredded bark, pine needles, and artificial turf, are prohibited between zero and five feet of a structure. Non-continuous use of flammable mulch (excluding wood chips and shredded rubber) is allowed between 5 and 30 feet from the eave/overhang of a structure with limited application areas. Any mulch materials (excluding wood chips and shredded rubber) are allowed 30 feet or more from a structure with no limitation on application area.

Fuel Modification

70. Prior to the issuance of final building permits, the project shall receive LACFD approval of a Final Fuel Modification Plan.

Street Improvements (Public Works)

71. The applicant shall obtain encroachment permits from the Public Works Department prior to the commencement of any work within the public right-of-way.

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72. This project proposes to construct a new driveway within Caltrans' right-of-way. Prior to the Public Works Department approval of the grading or building permit, the applicant shall obtain encroachment permits from Caltrans for the proposed driveway.

73. The applicant shall update and install a new curb and gutter on Pacific Coast Highway to accommodate the proposed drainage design. Prior to the Public Works Department approval of the grading or building permit, the applicant shall provide Caltrans approval for Pacific Coast Highway improvements and drainage design.

74. This project proposes to discharge to Pacific Coast Highway. Prior to the Public Works Department approval of the grading or building permit, the applicant shall provide Caltrans approval to discharge onto Pacific Coast Highway.

75. The applicant shall submit an updated geotechnical report prepared by a geotechnical engineer/engineering geologist. The updated report shall include detailed investigation and analyses of the portions of the earthen berms on the project site along the northerly property line. The applicant shall address and mitigate any geotechnical issues related to the berms on the project site identified in the updated report and incorporate them into the final plans. Final plans shall be reviewed and approved by the City geotechnical review consultants and Public Works Department prior to the issuance of a grading permit.

76. Prior to the approval of the drainage plan, the applicant shall remove the existing CMP pipe onsite and install a new pipe to redirect water currently draining to the lot. The new pipe shall be designed in accordance with Caltrans and LA County Flood Standards. A video recording and images of the completed pipe shall be submitted to the City of Malibu Public Works Department. Applicant shall coordinate any easements required for the maintenance of the pipe with the appropriate agencies.

Grading/Drainage (Public Works)

77. The applicant shall construct the following improvements to the existing dewatering system to reduce groundwater pressure and increase the slope stability within the Malibu Road Assessment District 98-3, within which the property is located. The work shall be coordinated with the Public Works Department of the City of Malibu and its landslide district dewatering system operation and maintenance contractor.

    a. Construct a new 100-foot deep 6-inch diameter PVC casing installed within a 12.5-inch diameter dewatering well along Bayshore Drive near the easterly property line of APN 4459-013-001. The PVC shall be screened by 0.04-inch machined slots between 10 and 85 feet. Casing backfill and well sealing shall meet requirements of the Los Angeles County well permit. Install a 1/3 HP Grundfos submersible pump at 80 feet deep and a 1-inch ID PVC sounding tube to the drop pipe for the pump to obtain water level measurements. Finish the surface with a flush mount Christy 1830 traffic rated well vault.

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b. Replace the existing SI-3 inclinometer on Malibu Road by over-drilling the existing sheared inclinometer to original depth of 50 feet below ground surface to bottom of casing. Install a 2.75-inch 50-foot-long inclinometer casing with both a vibrating wire piezometer and time domain radar (TDR) cable attached to the casing to the full depth. Temie grout medium strength bentonite grout within the annual space between the borehole and outside of casing. Finish at surface with a 24-inch by 24-inch traffic rated vault.

78. Clearing and grading during the rainy season (extending from November 1 to March 31) shall be prohibited for development that, pursuant to LIP Section 17.3.1:

a. Is located within or adjacent to ESHA, or
b. Includes grading on slopes greater than 4 to 1.
c. Approved grading for development that is located within or adjacent to ESHA or on slopes greater than 4 to 1 shall not be undertaken unless there is sufficient time to complete grading operations before the rainy season. If grading operations are not completed before the rainy season begins, grading shall be halted and temporary erosion control measures shall be put into place to minimize erosion until grading resumes after March 31, unless the City determines that completion of grading would be more protective of resources.

79. Grading operations involving the hauling of dirt shall be controlled and reasonable efforts to avoid the spillage of dirt onto the public streets shall be enforced. The grading contractor shall maintain onsite at all times a means of preventing dust blowing within the project site and onto adjacent sites.

80. Exported soil from a site shall be taken to the County Landfill or to a site with an active grading permit and the ability to accept the material in compliance with the City's LIP Section 8.3. A note shall be placed on the project plans that addresses this condition.

81. A grading and drainage plan containing the following information shall be approved and submitted to the Public Works Department prior to the issuance of grading permits for the project.

a. Public Works Department General Notes.
b. The existing and proposed square footage of impervious coverage on the property shall be shown on the grading plan (including separate areas for buildings, driveways, walkways, parking, and pool decks).
c. The limits of land to be disturbed during project development shall be delineated and a total area of disturbance should be shown on this plan. Areas disturbed by grading equipment, areas disturbed for the installation of the septic system, and areas disturbed for the installation of the detention system beyond the limits of grading shall be included within the area delineated.
d. The grading limits shall include the temporary cuts made for retaining walls, buttresses, and over excavations for fill slopes.

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e. If the property contains trees that are to be protected, they shall be highlighted on the grading plan.
f. If the property contains rare, endangered, or special status species as identified in the Biological Assessment, this plan shall contain a prominent note identifying the areas to be protected (to be left undisturbed). Fencing of these areas shall be delineated on the grading plan if required by the City Biologist.
g. Private storm drain systems shall be shown on this plan. Systems greater than 12-inch diameter shall also have a plan and profile for the system included with the grading plan.
h. Public storm drain modifications shown on the grading plan shall be approved by the Public Works Department prior to the issuance of the grading permit.

82. A digital drawing (AutoCAD) of the project's private storm drain system, public storm drain system within 250 feet of the property limits, and post-construction BMP's shall be submitted to the Public Works Department prior to the issuance of grading or building permits. The digital drawing shall adequately show all storm drain lines, inlets, outlet, postconstruction BMP's and other applicable facilities. The digital drawing shall also show the subject property, public or private street, and any drainage easements.

83. The applicant shall label all City/County storm drain inlets within 250 feet from each property line per the City's standard label template. A note shall be placed on the project plans that addresses this condition.

84. Prior to the approval of the drainage plan, the applicant shall remove the existing CMP (Corrugated Metal Pipe) onsite and install a new pipe to redirect water currently draining to the lot. The new pipe shall be designed in accordance with Caltrans and LA County Flood Standards. A video recording and images of the completed pipe shall be submitted to the City of Malibu Public Works Department. Applicant shall coordinate any easements required for the maintenance of the pipe with the appropriate agencies.

85. The installation of the new CMP shall also include necessary improvements to the catch basin on Bayshore Dr, the downstream pipe, and the outfall. The applicant shall obtain the necessary easements required for such drainage purposes. The design will need to address how impacts on the landslide maintenance district will be mitigated.

Stormwater (Public Works)

86 The ocean between Latigo Point and the West City limits has been established by the State Water Resources Control Board as an Area of Special Biological Significance (ASBS) as part of the California Ocean Plan. This designation allows discharge of storm water only where it is essential for flood control or slope stability, including roof, landscape, road and parking lot drainage, to prevent soil erosion, only occurs during wet weather, and is composed of only storm water runoff. The applicant shall provide a drainage system that accomplishes the following:

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a. Installation of BMPs that are designed to treat the potential pollutants in the storm water runoff so that it does not alter the natural ocean water quality. These pollutants include trash, oil and grease, metals, bacteria, nutrients, pesticides, herbicides and sediment.
b. Prohibits the discharge of trash.
c. Only discharges from existing storm drain outfalls are allowed. No new outfalls will be allowed. Any proposed or new storm water discharged shall be routed to existing storm drain outfalls and shall not result in any new contribution of waste to the ASBS (i.e. no additional pollutant loading).
d. Elimination of non-storm water discharges.

87. A Storm Water Pollution Prevention Plan shall be provided prior to the issuance of the Grading/Building permits for the project. This plan shall include and Erosion and Sediment Control Plan (ESCP) that includes, but is not limited to:

Erosion Controls Scheduling	Erosion Controls Scheduling
	Preservation of Existing Vegetation
Sediment Controls	Silt Fence
	Sand Bag Barrier
	Stabilized Construction Entrance
Non-Storm Water Management	Water Conservation Practices
	Dewatering Operations
Waste Management	Material Delivery and Storage
	Stockpile Management
	Spill Prevention and Control
	Solid Waste Management
	Concrete Waste Management
	Sanitary/Septic Waste Management

All Best Management Practices (BMP) shall be in accordance to the latest version of the California Stormwater Quality Association (CASQA) BMP Handbook. Designated areas for the storage of construction materials, solid waste management, and portable toilets must not disrupt drainage patterns or subject the material to erosion by site runoff.

88. Prior to the approval of any permits and prior to the applicant submitting the required Construction General Permit documents to the State Water Quality Control Board, the applicant shall submit to the Public Works Department for review and approval an Erosion and Sediment Control Plan (ESCP). The ESCP shall contain appropriate site-specific construction site BMPs and developed and certified by a Qualified SWPPP Developer (QWD). All structural BMPs must be designed by a licensed California Engineer. The ESCP must address the following elements:

a. Methods to minimize the footprint of the disturbed area and to prevent soil compaction outside the disturbed area.

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b. Methods used to protect native vegetation and trees.
c. Sediment/Erosion Control.
d. Controls to prevent tracking on and off the site.
e. Non-storm water controls.
f. Material management (delivery and storage)
g. Spill prevention and control.
h. Waste management
i. Identification of site Risk Level as identified per the requirements in Appendix 1 of the Construction General Permit.
j. Landowner must sign the following statement on the ESCP:

> "I certify that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to ensure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system or those persons directly responsible for gathering the information, to the best of my knowledge and belief, the information submitted is true, accurate and complete. I am aware that submitting false and/or inaccurate information, failing to update the ESCP to reflect current conditions, or failing to properly and/or adequately implement the ESCP may result in revocation of grading and/or other permits or other sanctions provided by law."

89. A State Construction activity permit is required for this project due to the disturbance of more than one acre of land for development. Provide a copy of the letter from the State Water Quality Control Board containing the WDID number prior to the issuance of grading and building permits.

90. A Storm Water Management Plan (SWMP) is required for this project. Storm drainage improvements are required to mitigate increased runoff generated by property development. The applicant shall have the choice of one method specified within the City's Local Implementation Plan Section 17.3.2.B.2. The SWMP shall be supported by a hydrology and hydraulic study that identifies all areas contributory to the property and an analysis of the pre-development and post-development drainage of the site. The SWMP shall identify the site design and source control Best Management Practices (BMPs) that have been implemented in the design of the project (See LIP Chapter 17 Appendix A). The SWMP shall be reviewed and approved by the Public Works Department prior to the issuance of the grading or building permit for this project.

91. A Water Quality Mitigation Plan (WQMP) is required for this project. The WQMP shall be supported by a hydrology and hydraulic study that identifies all areas contributory to the property and an analysis of the predevelopment and post development drainage on the site. The WQMP shall meet all the requirements of the City's current Municipal Separate Stormwater Sewer System (MS4) permit. The following elements shall be included within the WQMP:

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a. Site Design Best Management Practices (BMPs).
b. Source Control BMPs.
c. Treatment Control BMPs that retain on-site Stormwater Quality Design Volume (SWQDv). Or where it is technically infeasible to retain on-site, the project must biofitrate 1.5 times the SWQDv that is not retained on-site.
d. Drainage improvements.
e. A plan for the maintenance and monitoring of the proposed treatment BMPs for the expected life of the structure.
f. A copy of the WQMP shall be filed against the property to provide constructive notice to future property owners of their obligation to maintain the water quality measure installed during construction prior to the issuance of grading or building permits.
g. The WQMP shall be submitted to the Public Works Department and the fee applicable at the time of submittal for review of the WQMP shall be paid prior to the start of the technical review. The WQMP shall be approved prior the Public Works Department's approval of the grading and drainage plan and/or building plans. The Public Works Department will tentatively approve the plan and will keep a copy until the completion of the project. Once the project is completed, the applicant shall verify the installation of the BMP's, make any revisions to the WQMP, and resubmit to the Public Works Department for approval. The original signed and notarized document shall be recorded with the Los Angeles County Recorder. A certified copy of the WQMP shall be submitted to the Public Works Department prior to the issuance of the certificate of occupancy.

92. Hydromodification: Alteration or disturbance of streams or natural drainage courses or human-made or altered drainage courses that have replaced natural streams or drainages and serve the same function, shall be prohibited.

a. Necessary water supply projects where no feasible alternative exists.
b. Flood protection for existing development where there is no other feasible alternative.
c. The improvement of fish and wildlife habitat.

93. The total grading yardage verification certificate shall be copied onto the cover sheet of the Grading Plan. No alternative formats or substitutes will be accepted.

94. The Building Official may approve grading during the rainy season to remediate hazardous geologic conditions that endanger public health and safety.

Other Public Works

95. All cut and fill slopes shall be stabilized with landscaping at the completion of final grading.

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96. The developer's consulting engineer shall sign the final plans prior to the issuance of permits.

97. The applicant shall prepare a Traffic Impact Analysis (TIA) per the City of Malibu TIA Guidelines. The TIA shall be reviewed and approved by the Public Works Department prior to the issuance of the grading and or building permits. The applicant shall also be required to construct the applicable mitigation measures recommended in the TIA. The traffic mitigation measures shall be constructed prior to occupancy of the first building.

98. Prior to the commencement of work, the applicant shall submit a copy of a Construction Management Plan. The Construction Management Plan shall include a dedicated parking location for construction workers, not within the public right of way.

99. Prior to the approval of any grading and drainage permit, the applicant shall submit a PDF of the final plans. If there are further modifications to the plans, the applicant shall provide the City with an updated PDF.

100. Lot Line Adjustment/Lot Merger (with development):

a. The proposed lot line adjustment/lot merger must be approved by the City and filed with the City Clerk's office prior to the approval of this grading permit.
b. Upon review of the documents provided, the City may require submittal of additional documents or maps, depending upon the completeness of the initial submittal

Geology

101. All recommendations of the consulting certified engineering geologist or geotechnical engineer and/or the City geotechnical consultant reviewers shall be incorporated into all final design and construction including foundations, grading, sewage disposal, and drainage. Final plans shall be reviewed and approved by the City geotechnical consultant reviewers prior to the issuance of a grading permit.

102. Final plans approved by the City geotechnical consultant reviewers shall be in substantial conformance with the approved CDP relative to construction, grading, sewage disposal and drainage. Any substantial changes may require a CDP amendment or a new CDP.

Swimming Pool/Spa/Water Features

103. Onsite noise, including that which emanates from swimming pool and air conditioning equipment, shall be limited as described in MMC Chapter 8.24 (Noise).

104. Pool and air conditioning equipment that will be installed shall be screened from view by a solid wall or fence on all four sides. The fence or walls shall comply with LIP Section 3.5.3(A).

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105. All swimming pools shall contain double walled construction with drains and leak detection systems capable of sensing a leak of the inner wall.

106. The discharge of swimming pool, spa and decorative fountain water and filter backwash, including water containing bacteria, detergents, wastes, algaecides or other chemicals is prohibited. Swimming pool, spa, and decorative fountain water may be used as landscape irrigation only if the following items are met:

    a. The discharge water is dechlorinated, debrominated or if the water is disinfected using ozonation.
    b. There are sufficient BMPs in place to prevent soil erosion.
    c. The discharge does not reach into the MS4 or to the ASBS (including tributaries)

    Discharges not meeting the above-mentioned methods must be trucked to a Publicly Owned Wastewater Treatment Works.

    The applicant shall also provide a construction note on the plans that directs the contractor to install a new sign stating, "It is illegal to discharge pool, spa or water feature waters to a street, drainage course or storm drain per MMC 13.04.060(D)(5)." The new sign shall be posted in the filtration and/or pumping equipment area for the property. Prior to the issuance of any permits, the applicant shall indicate the method of disinfection and the method of discharging.

107. Pursuant to MMC Section 9.20.040(B), all ponds, decorative fountains shall require a water recirculating/recycling system.

Onsite Wastewater Treatment System (OWTS)

108. Prior to the issuance of a building permit the applicant shall demonstrate, to the satisfaction of the Building Official, compliance with the City of Malibu's onsite wastewater treatment regulations including provisions of MMC Chapters 15.40, 15.42, 15.44, and LIP Chapter 18 related to continued operation, maintenance and monitoring of the OWTS.

109. Final OWTS Plot Plan: Prior to final Environmental Health approval, a final OWTS plot plan prepared by a City Registered OWTS Designer shall be submitted showing an OWTS design meeting the minimum requirements of the MMC and the LCP/LIP, including necessary construction details, the proposed drainage plan for the developed property and the proposed landscape plan for the developed property. The OWTS plot plan shall show essential features of the OWTS and must fit onto an 11-inch by 17-inch sheet leaving a fiveinch margin clear to provide space for a City applied legend. If the scale of the plans is such that more space is needed to clearly show construction details and/or all necessary setbacks, larger sheets may also be provided (up to a maximum size of 18 inches by 22 inches).

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110. Final OWTS Design Report, Plans, and System Specifications: If the OWTS design and/or bedroom/drainage fixture unit counts are modified in any way subsequent to the Planning-stage review, then a final OWTS design report and large set of construction drawings with system specifications (four sets) shall be submitted to describe the OWTS design basis and all components (i.e., alarm system, pumps, timers, flow equalization devices, backflow devices, etc.) proposed for use in the construction of the proposed OWTS. For all OWTS, final reports must be signed by a City-registered OWTS Designer, and the plans stamped by a California Geologist. The final OWTS design report and construction drawings shall be submitted to the City Environmental Health Administrator with the designer's wet signature, professional registration number and stamp (if applicable).

111. The final design report shall contain the following information (in addition to the items listed above):

a. Required treatment capacity for wastewater treatment and disinfection systems. The treatment capacity shall be specified in terms of flow rate, gallons per day, and shall be supported by calculations relating the treatment capacity to the number of bedroom equivalents, plumbing drainage fixture equivalents, and the subsurface effluent dispersal system acceptance rate. The drainage fixture unit count must be clearly identified in association with the design treatment capacity, even if the design is based on the number of bedrooms. Average and peak rates of hydraulic loading to the treatment system shall be specified in the final design.
b. Sewage and effluent pump design calculations (as applicable).
c. Description of proposed wastewater treatment and/or disinfection system equipment. State the proposed type of treatment system(s) (e.g., aerobic treatment, textile filter ultraviolet disinfection, etc.); major components, manufacturers, and model numbers for "package" systems; and conceptual design for custom engineered systems.
d. Specifications, supporting geology information, and percolation test results for the subsurface effluent dispersal portion of the onsite wastewater disposal system. This must include the proposed type of effluent dispersal system (drainfield, trench, seepage pit subsurface drip, etc.) as well as the system's geometric dimensions and basic construction features. Supporting calculations shall be presented that relate the results of soils analysis or percolation/infiltration tests to the projected subsurface effluent acceptance rate, including any unit conversions or safety factors. Average and peak rates of hydraulic loading to the effluent dispersal system shall be specified in the final design. The projected subsurface effluent acceptance rate shall be reported in units of total gallons per day and gallons per square foot per day. Specifications for the subsurface effluent dispersal system shall be shown to accommodate the design hydraulic loading rate (i.e., average and peak OWTS effluent flow, reported in units of gallons per day). The subsurface effluent dispersal system design must take into account the number of bedrooms, fixture units and building occupancy characteristics.
e. All final design drawings shall be submitted with the wet signature and typed name of the OWTS designer. If the scale of the plan is such that more space is needed to

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clearly show construction details, larger sheets may also be provided (up to a maximum size of 18 inch by 22 inch, for review by Environmental Health). Note: For OWTS final designs, full-size plans are required for review by the Building Safety Division and/or the Planning Division.

112. Building Plans: All project architectural plans and grading/drainage plans shall be submitted for Environmental Health review and approval. These plans must be approved by the Building Safety Division prior to receiving Environmental Health final approval.

113. Traffic-rated Slab Plans: All project traffic rated slab plans shall be submitted for Environmental Health review and approval. These plans must be approved by the Building Safety Division prior to receiving Environmental Health final approval.

114. Notice of Decision: The final OWTS plans shall include the condition of approvals sections of the Notice of Decision (NOD) from the Planning Division.

115. Architect/Engineer Certification for Reduction in Setbacks to Buildings and Structures: All proposed reductions in setbacks from the onsite wastewater treatment system to structures or other features less than those shown in Malibu Municipal Code (MMC) Section 15.42 must be supported by letters from the project consultants. The wastewater plans and the construction plans must be specifically referenced in all certification letters. The construction plans for all structures and/or buildings with reduced setback must be approved by City of Malibu Building Safety prior to Environmental Health final approval. The architectural and/or structural plans submitted for Building Safety plan check must detail methods of construction that will compensate for the reduction in setback (e.g., waterproofing, concrete additives). For complex waterproofing installations, submittal of a separate waterproofing plan may be required. All plans must show the location of onsite wastewater treatment system components in relation to those structures from which the setback is reduced, and the plans must be signed and stamped by the architect, structural engineer, and geotechnical consultants (as applicable).

a. Structures – All proposed reductions in setback from the onsite wastewater treatment system to structures (i.e., setbacks less than those shown in MMC Section 15.42) must be supported by a letter from the project Structural Engineer and a letter from the project Soils Engineer (i.e., a Geotechnical Engineer or Civil Engineer practicing in the area of soils engineering). Both engineers must certify unequivocally that the proposed reduction in setbacks from the treatment tank and effluent dispersal area will not adversely affect the structural integrity of the onsite wastewater treatment system and will not adversely affect the structural integrity of the structures for which the setback is reduced.
b. Buildings – All proposed reductions in setback from the onsite wastewater treatment system to buildings (i.e., setbacks less than those shown in MMC Section 15.42) also must be supported by City of Malibu Environmental Health Review Sheet a letter from the project Architect, who must certify unequivocally that the proposed reduction in setbacks will not produce a moisture intrusion problem for

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the proposed building(s). If the building designer is not a California licensed architect, then the required Architect's certification may be supplied by an Engineer who is responsible for the building design with respect to mitigation of potential moisture intrusion from reduced setback to the wastewater system; in this case the Engineer must include in the letter an explicit statement of responsibility for mitigation of potential moisture intrusion. If any specific construction features are proposed as part of a moisture intrusion mitigation system in connection with the reduced setback(s), then the Architect (or Engineer) must provide associated construction documents for review and approval during Building Plan Check.

116. Proof of Ownership: Proof of ownership of subject property shall be submitted to the City Environmental Health Administrator.

117. Operations and Maintenance Manual: An operations and maintenance manual specified by the OWTS designer shall be submitted to the property owner and maintenance provider of the proposed OWTS.

118. Maintenance Contract: A maintenance contract executed between the owner of the subject property and an entity qualified in the opinion of the City of Malibu to maintain the proposed onsite wastewater disposal system after construction shall be submitted. Note only original "wet signature" documents are acceptable.

119. Advanced Onsite Wastewater Treatment System Covenant: Prior to final Environmental Health approval, a covenant running with the land shall be executed between the City of Malibu and the holder of the fee simple absolute as to subject real property and recorded with the City of Malibu Recorder's Office and Office of the Los Angeles County Recorder. Said covenant shall serve as constructive notice to any future purchaser for value that the onsite wastewater treatment system serving subject property is an advanced method of sewage disposal pursuant to the City of MMC. Said covenant shall be provided by the City of Malibu Environmental Health Administrator.

120. Covenant to Forfeit 100% Expansion Effluent Disposal Area: A covenant running with the land shall be executed by the property owner and recorded with the City of Malibu Recorder's Office. Said covenant shall serve as constructive notice to any successors in interest that (1) the private sewage disposal system serving the development on the property does not have a 100% expansion effluent dispersal area (i.e., replacement disposal field(s) or seepage pit(s)) and (2) if the primary effluent dispersal area fails to drain adequately, the City of Malibu may require remedial measures including, but not limited to, limitations on water use enforced through an operating permit and/or repairs, upgrades or modifications to the private sewage disposal system. The recorded covenant shall state and acknowledge that future maintenance and/or repair of the private sewage disposal system may necessitate interruption in use of the private sewage disposal system and, therefore, any building(s) served by the private sewage disposal system may become non-habitable during any required future maintenance and/or repair. Said covenant shall be in a form acceptable to

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the City Attorney and approved by the Environmental Sustainability Department. Please submit a certified copy issued by the City of Malibu Recorder.

121. Project Geologist/Geotechnical Consultant final approval of the OWTS plan shall be submitted to the Environmental Health Administrator.

122. The City Biologist's final approval shall be submitted to the City Environmental Health Administrator. The City Biologist shall review the OWTS design to determine any impact on Environmentally Sensitive Habitat Area.

123. City of Malibu Public Works final approval of the OWTS plan shall be submitted to the Environmental Health Administrator.

124. The City geotechnical consultant reviewers' final approval of the OWTS shall be submitted to the City Environmental Health Administrator.

125. City of Malibu Planning Division final approval of the OWTS plan shall be obtained.

126. Environmental Health Final Review Fee: A final fee in accordance with the adopted fee schedule at the time of the final approval shall be paid to the City of Malibu for Environmental Health review of the OWTS design and system specification.

127. Operating Permit Application and Fee: In accordance with the MMC, prior to Environmental Health approval, an application shall be made to the Environmental Health Office for an OWTS operating permit. An operating permit fee in accordance with the adopted fee schedule at the time of final approval shall be submitted with the application.

128. Prior to final Environmental Health approval, the construction plans for all structures and/or buildings with reduced setbacks must be approved by the City Building Safety Division. The architectural and/or structural plans submitted to Building and Safety plan check must detail methods of construction that will compensate for the reduction in setback (e.g., waterproofing, concrete additives, etc.). For complex waterproofing installations, submittal of a separate waterproofing plan may be required. The architectural/structural/ waterproofing plans must show the location of OWTS components in relation to those structures from which the setback is reduced, and the plans must be signed and stamped by the architect, structural engineer, and geotechnical consultants (as applicable).

129. Prior to final Environmental Health approval, the applicant shall provide engineer's certification for reduction in setbacks to buildings or structures: All proposed reductions in setback from the OWTS to structures (i.e., setbacks less than those shown in MMC Table 15.42.030(E)) must be supported by a letter from the project structural engineer and a letter from the project soils engineer (i.e., a geotechnical engineer or civil engineer practicing in the area of soils engineering). Both engineers must certify unequivocally that the proposed reduction in setbacks from the treatment tank and effluent dispersal area will not adversely affect the structural integrity of the OWTS and will not adversely affect the structural

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integrity of the structures for which the Table 15.42.030(E) setback is reduced. Construction drawings submitted for plan check must show OWTS components in relation to those structures from which the setback is reduced. All proposed reductions in setback from the OWTS to buildings (i.e., setbacks less than those shown in Table 15.42.030(E)) also must be supported by a letter from the project architect, who must certify unequivocally that the proposed reduction in setbacks will not produce a moisture intrusion problem for the proposed building(s). If the building designer is not a California-licensed architect, then the required architect's certification may be supplied by an engineer who is responsible for the building design with respect to mitigation of potential moisture intrusion from reduced setbacks to the wastewater system. In this case, the engineer must include in his/her letter an explicit statement of responsibility for mitigation of potential moisture intrusion. If any specific construction features are proposed as part of a moisture intrusion mitigation system in connection with the reduced setback, then the architect or engineer must provide associated construction documents for review and approval during Building Safety Division plan check. The wastewater plans and the construction plans must be specifically referenced in all certification letters.

130. Reference Plans: Reference architectural and grading/drainage plans shall be submitted to Environmental Health during building plan check review of the proposed OWTS. The approved plans are for 121 fixture units, 6 bedrooms and one master bedroom, and a design flow of 1,050 GPD.

131. Any above-ground equipment associated with the installation of the OWTS shall be screened from view by a solid wall or fence on all four sides. The fence or walls shall not be higher than 42-inches tall.

Water Quality/Water Service

132. A State Construction Activity Permit is required for this project due to the disturbance of more than one acre of land for development. Provide a copy of the letter from the State Water Quality Control Board containing the Waste Discharge Identification (WDID) number prior to the issuance of grading or building permits.

133. Prior to the issuance of a building permit, the applicant shall submit an updated Will Serve Letter from Los Angeles County Waterworks District No. 29 to the Planning Division indicating the ability of the property to receive adequate water service.

134. Prior to final inspection (or project sign off, as applicable) by the Planning Division, the applicant shall demonstrate that all requirements of Los Angeles County Waterworks District No. 29 have been met, including installation of a meter, if applicable.

135. For projects including installation of a private water well, prior to final inspection (or project sign, as applicable) by the Building Safety Division, the applicant shall demonstrate that all requirements of Los Angeles County Waterworks District No. 29 have been met, including installation of a backflow prevention device.

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Prior to Occupancy

136. Prior to, or at the time of a Planning Division final inspection, the property owner/applicant shall submit to Planning the plumbing permit for the OWTS signed off by the Building Safety Division.

137. Prior to the issuance of a Certificate of Occupancy, the City Biologist shall inspect the project site and determine that all Planning conditions to protect natural resources are in compliance with the approved plans.

138. Prior to a final Building inspection, the applicant shall provide a Recycling Summary Report (Summary Report) and obtain the approval from the Environmental Sustainability Department. Applicant must provide haul tickets and diversion information. The final Summary Report shall designate the specific materials that were land filled or recycled, and state the facilities where all materials were taken.

139. The applicant shall request a final Planning Division inspection prior to final inspection by the City of Malibu Building Safety Division. A Certificate of Occupancy shall not be issued until the Planning Division has determined that the project complies with this coastal development permit. A temporary Certificate of Occupancy may be granted at the discretion of the Community Development Director, provided adequate security has been deposited with the City to ensure compliance should the final work not be completed in accordance with this permit.

140. Any construction trailer, storage equipment or similar temporary equipment not permitted as part of the approved scope of work shall be removed prior to final inspection and approval, and if applicable, the issuance of the certificate of occupancy.

Fixed Conditions

141. This coastal development permit shall run with the land and bind all future owners of the property.

142. Violation of any of the conditions of this approval may be cause for revocation of this permit and termination of all rights granted there under.

Deed Restrictions

143. The property owner is required to execute and record a deed restriction which shall indemnify and hold harmless the City, its officers, agents, and employees against any and all claims, demands, damages, costs and expenses of liability arising out of the acquisition, design, construction, operation, maintenance, existence or failure of the permitted project in an area where an extraordinary potential for damage or destruction from wildfire exists

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as an inherent risk to life and property. The property owner shall provide a copy of the recorded document to Planning staff prior to final planning approval.

144. Prior to final Planning Division approval, the applicant shall be required to execute and record a deed restriction reflecting lighting requirements set forth in Condition Nos. 15-22. The property owner shall provide a copy of the recorded document to the Planning Division prior to final Planning Division approval.

145. The property owner is required to acknowledge, by recordation of a deed restriction, that as part of the project no more than one secondary residential unit is permitted to exist on the subject property. Said document shall include the definitions of a second unit and guest house as defined by the LIP Section 2.1 and shall be recorded with the Office of the Los Angeles County Recorder. The applicant shall submit a copy of the recorded document to the Planning Division.

146. The garage area shall be limited to accessory use as defined by the City of Malibu Local Coastal Plan (LCP). The garage area cannot be converted into habitable space at any time in the future. Prior to issuance of building permits, the applicant is required to execute and record a deed restriction to this effect.

147. The property owner is required to execute and record a deed restriction stating that as part of the project, a view corridor of 31 percent (542 feet, 7 inches) of property width shall be established and maintained, as stipulated in Condition No. 37 shall be specifically identified in the deed restriction, including an exhibit that represents the area of the view corridor on the property. The property owner shall provide a copy of the recorded document to Planning Division staff prior to final Planning Division approval.

SECTION 6. The Planning Commission shall certify the adoption of this resolution.

PASSED, APPROVED AND ADOPTED this 16th day of December 2025.

_____
ELIZABETH RIDDICK, Planning Commission Chair

ATTEST:

_____
REBECCA EVANS, Recording Secretary

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LOCAL APPEAL - Pursuant to Local Coastal Program Local Implementation Plan (LIP) Section 13.20.1 (Local Appeals) a decision made by the Planning Commission may be appealed to the City Council by an aggrieved person by written statement setting forth the grounds for appeal. An appeal shall be filed with the City Clerk within 10 days and shall be accompanied by an appeal form and filing fee, as specified by the City Council. Appeal forms may be found online at www.malibucity.org, in person at City Hall, or by calling (310) 456-2489, ext. 246.

COASTAL COMMISSION APPEAL – An aggrieved person may appeal the Planning Commission's approval to the Coastal Commission within 10 working days of the issuance of the City's Notice of Final Action. Appeal forms may be found online at www.coastal.ca.gov or by calling (805) 585-1800. Such an appeal must be filed with the Coastal Commission, not the City.

Any action challenging the final decision of the City made as a result of the public hearing on this application must be filed within the time limits set forth in Section 1.12.010 of the MMC and Code of Civil Procedure. Any person wishing to challenge the above action in Superior Court may be limited to raising only those issues they or someone else raised at the public hearing, or in written correspondence delivered to the City of Malibu at or prior to the public hearing.

I CERTIFY THAT THE FOREGOING RESOLUTION NO. 25-05 was passed and adopted by the Planning Commission of the City of Malibu at the Regular meeting held on the 16th day of December 2025 by the following vote:

AYES:
NOES:
ABSTAIN:
ABSENT:

_____
REBECCA EVANS, Recording Secretary

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VILLA COLEAVA

PLANNING SUBMITTAL SET

4/16/25

OPPENHEIM ARCHITECTURE

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Civil Engineers
LC Engineering Group
889 Pierce Ct., Ste. 101
Thousand Oaks, CA 91360
P 805-497-1244
P 818-991-7148
W lcegroupinc.com

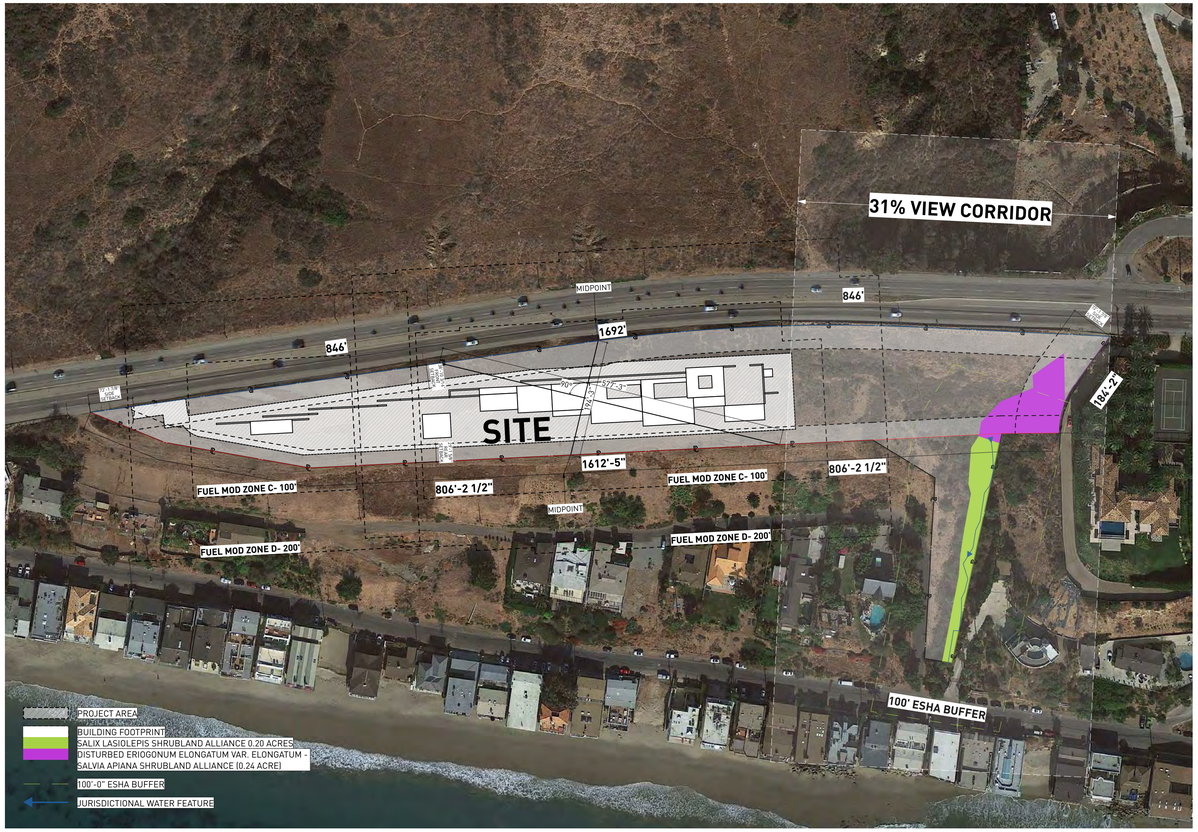
Landscape Architect
[place]
3617 exposition boulevard
Los Angeles, CA 90016
P 310-450-8100
F 323-737-3290
W plac-e.com

Design Architect
Oppenheim Architecture
245 NE 37 Street
Miami FL 33137
P 305 576 8404
F 305 576 8433
W oppenoffice.com

Project Address
VILLA COLEAVA
25200 Pacific Coast Hwy.
Malibu, California, USA

Property Owner
PAR PCH, LLC
PO Box 6528
Malibu, CA 90265

ATTACHMENT B



ZONING INFORMATION

ZONE: RR-2
ADDRESS: 25200 PACIFIC COAST HIGHWAY, MALIBU, CALIFORNIA, 90265.
TYPE OF CONSTRUCTION: TYPE VB
OCCUPANCY CLASSIFICATION: R-3,U
STORIES: ONE STORY + BASEMENT
SPRINKLERED STRUCTURE
ASSESOR PARCEL #: 4459-013-021, 4459-014-018
PROJECT DESCRIPTION:THE PROJECT SEEKS TO PRESERVE AND ACCENTUATE THE VIEWS OF MALIBU BEACH. THE ARCHITECTURE IS REDUCED TO CASCADING HORIZONTAL PLANES THAT ARE CAREFULLY PLACED ON THE SITE'S TOPOGRAPHY, WHICH SERVE TO FRAME THE VIEWS TOWARD MALIBU BEACH. THE PROGRAMMATIC VOLUMES ARE DISCRETELY PLACED UNDER THESE CASCADING HORIZONTAL PLANES AND ARE COMPOSED OF ORGANIC AND LOCALLY SOURCED WOOD, STONE, AND GLASS, WHICH ALLOW THE ARCHITECTURE TO DISAPPEAR AND BLEND IN TO ITS ENVIRONMENT. THE ELEGANT SIMPLICITY OF THE PROJECT'S ELEMENTS AND MATERIALITY ALLOWS FOR THE OPTIMAL INTEGRATION INTO THE SITE.
PACIFIC COAST HIGHWAY LOT FRONTAGE: 1692'
LOT VIEW CORRIDOR: 525'-2"= 31% OF PACIFIC COAST HIGHWAY LOT FRONTAGE (VIEW DOES NOT REQUIRE THE REMOVAL OR TRIMMING OF VEGETATION)
LOT DEPTH: 194'-3"
LOT WIDTH: 577'-3"
REQUIRED FRONT YARD (20% OF LOT DEPTH): 38'-10 3/16"
REQUIRED REAR YARD (15% OF LOT DEPTH): 29'-1 5/8"
CUMULATIVE REQUIRED SIDE YARD (25% OF LOT DEPTH)**:** 144'-3 3/4"
REQUIRED SIDE YARD: 72'-1 7/8"
GROSS LOT AREA: 277,313 SQ.FT.
ROAD EASEMENT AREA: 8,420 SQ.FT.
1:1 AND STEEPER SLOPE AREA: 2,856 SQ.FT.
NET LOT AREA: 266,037 SQ.FT.
PROPOSED TDSF: 11,120.98 SQ.FT.
ALLOWABLE TDSF: 11,172 SQ.FT.
LOT COVERAGE PROPOSED: 21,279.28 SQ.FT.
LOT COVERAGE ALLOWED: 25,000 SQ.FT.

FIRE SAFETY CALCULATIONS

TYPE OF CONSTRUCTION: TYPE VB
VHFHSZ: YES
SIZE OF LOT: 6.36 ACRES
FIRE FLOW BASED ON THE FIRE-FLOW CANCLUATION AREA: 2750 GPM
REDUCTION FOR FIRE SPRINKLERS (MAXIMUM 50%): 1375 GPM
TOTAL FIRE FLOW REQUIRED: 1375 GPM

[OAD] Program Area

STORY	PROGRAM	MEASURED AREA	CALCULATED AREA
GUEST HOUSE			
	GUEST BATH	209.00	209.00
	GUEST BEDROOM	256.00	256.00
		BASEMENT SUBTOTAL	**465.00 sq ft**
BASEMENT			
	GARAGE	1,000.00	0.00
	LAUNDRY	172.07 /2 =	86.25
	LIGHTWELL	204.00 /2 =	102.00
	MUD ROOM	126.50 /2 =	63.25
	S. BATH	75.00 /2 =	37.50
	S. BATH	75.00 /2 =	37.50
	SERVICE BR.	197.25 /2 =	98.63
	SERVICE BR.	196.25 /2 =	98.13
	SERVICE HALLWAY	304.00 /2 =	152.00
	SERVICE PR	75.00 /2 =	37.50
	WINE STO.	97.75 /2 =	48.88
		BASEMENT SUBTOTAL	**761.65 sq ft**
GYM			
	GYM	410.33	410.33
	GYM PR	118.00	118.00
	SAUNA	65.00	65.00
	STEAM RM.	82.50	82.50
		GYM SUBTOTAL	**675.83 sq ft**
GROUND LEVEL			
	BEDROOM 1	569.75	569.75
	BEDROOM 2	559.00	559.00
	BEDROOM 3	569.75	569.75
	DINING ROOM	960.00	960.00
	FAMILY ROOM	734.00	734.00
	GALLERY	778.00	778.00
	KITCHEN	649.50	649.50
	LIVING ROOM	1,027.00	1,027.00
	MASTER BATHROOM	919.00	919.00
	MASTER BEDROOM	1,004.00	1,004.00
	OFFICE	511.00	511.00
	OUTDOOR KITCHEN	108.00	108.00
	PANTRY	117.00	117.00
	POOL PR	193.50	193.50
	PR	131.50	131.50
	SERVICE KITCHEN	267.50	267.50
	STAIR TO BASEMENT	120.00	120.00
		GROUND LEVEL SUBTOTAL	**9,218.50 sq ft**
		PROPOSED	**11,120.98 sq ft**
		ALLOWED	**11,172.00 sq ft**

LOT COVERAGE

STORY	PROGRAM	MEASURED AREA
GROUND LEVEL		
	BASEMENT BELOW	960.75
	FIREPIT	190.00
	GYM PR	110.49
	GYM/SPA + TERRACE	669.33
	IMPERMEABLE DECK	1,450.49
	MEP EQUIPMENT	271.28
	OUTDOOR MASSAGE RM.	231.00
	OUTDOOR SHOWER	99.75
	SAUNA	61.75
	SOLID ROOF	14,570.27
	STEAM RM.	71.50
	WALLS	2,592.67
	PROPOSED	**21,279.28 ft²**
	ALLOWED	**25,000.00 sq ft**

Issued

COVER & GEN SHEETS

0000	COVER	☐
0001	PROJECT INFORMATION AND LOCATION MAP	☐
0002	SURVEY	☐

PLANS

A100	SITE PLAN	☐
A101	ENLARGED SITE PLAN A	☐
A102	ENLARGED SITE PLAN B	☐
A103	ENLARGED SITE PLAN C	☐
A104	GUEST HOUSE LEVEL	☐
A105	GYM + BASEMENT LEVEL	☐
A106	GROUND LEVEL B	☐
A107	GROUND LEVEL C	☐
A108	ROOF LEVEL A	☐
A109	ROOF LEVEL B	☐
A110	ROOF LEVEL C	☐
A111	SEPTIC LAYOUT	☐

ELEVATIONS

A200	OVERALL ELEVATIONS	☐
A201	OVERALL ELEVATIONS	☐
A202	OVERALL ELEVATIONS	☐
A203	ENLARGED GUEST HOUSE ELEVATIONS	☐
A204	ENLARGED GYM ELEVATIONS	☐
A205	ENLARGED MAIN HOUSE ELEVATIONS	☐
A206	ENLARGED MAIN HOUSE ELEVATIONS	☐
A207	ENLARGED MAIN HOUSE ELEVATIONS	☐

SECTIONS

A300	CROSS SECTIONS	☐
A301	CROSS SECTIONS	☐
A302	CROSS SECTIONS	☐
A303	LONGITUDINAL SECTION	☐

ENLARGED DRAWINGS

A400	MAIN GATE/ENTRANCE	☐
A401	GUEST HOUSE LEVEL	☐
A402	GYM LEVEL	☐
A403	BASEMENT LEVEL	☐
A404	GROUND LEVEL-1	☐
A405	GROUND LEVEL-2	☐
A406	GROUND LEVEL-3	☐
A407	ROOF LEVEL-1	☐
A408	ROOF LEVEL-2	☐
A409	ROOF LEVEL-3	☐
A410	ROOF LEVEL-4	☐

FIRE SAFETY

FS100	FIRE ACCESS ROAD A	☐
FS101	FIRE ACCESS ROAD B	☐
FS102	FIRE ACCESS ROAD C	☐
FS103	FIRE ACCESS WALKWAY A	☐
FS104	FIRE ACCESS WALKWAY B	☐
FS105	FIRE ACCESS WALKWAY C	☐
FS107	FIRE HYDRANT LOCATIONS	☐

ZONING DIAGRAMS

Z100	VIEW CORRIDOR DIAGRAM	☐
Z101	LOT DEPTH AND WIDTH CALCULATION	☐
Z102	FUEL MOD DIAGRAM	☐
Z103	AREA CALCULATION A	☐
Z104	AREA CALCULATION B	☐
Z105	AREA CALCULATION C	☐
Z106	WALL AND FENCE PLAN A	☐
Z107	WALL AND FENCE PLAN B	☐
Z108	WALL AND FENCE PLAN C	☐
Z109	LOT COVERAGE A	☐
Z110	LOT COVERAGE B	☐
Z111	LOT COVERAGE C	☐
Z112	PROTRUSION ABOVE PCH HIGHWAY	☐
Z113	PROTRUSION ABOVE PCH HIGHWAY	☐
Z114	RENDERING	☐
Z115	RENDERING	☐
Z116	RENDERING	☐
Z117	RENDERING	☐

Project No
1813

Project Name
VILLA COLEAVA

Project Address
25200 Pacific Coast Hwy.
Malibu, California, USA

Property Owner
PAR PCH, LLC
PO Box 6528
Malibu, CA 90265

Design Architect
Oppenheim Architecture
245 NE 37 Street
Miami FL 33137
P 305 576 8404
F 305 576 8433
W oppenoffice.com

Landscape Architect
[place]
3617 exposition boulevard
Los Angeles, CA 90016
P 310-450-8100
F 323-737-3290
W plac-e.com

Civil Engineers
LC Engineering Group
889 Pierce Ct., Ste. 101
Thousand Oaks, CA 91360
P 805-497-1244
P 818-991-7148
W lcegroupinc.com

Revisions

Mark	Date	Description

Title
PROJECT INFORMATION AND LOCATION MAP

NOT FOR CONSTRUCTION

Design Development

1813
VILLA COLEAVA

Drawing Issued on 4/16/25

0001

LEGAL DESCRIPTION

PARCEL 1 (FEE):

THAT PORTION OF THE RANCHO TOPANGA MALIBU SEQUIT AS CONFIRMED TO MATTHEW KELLER, BY PATENT RECORDED IN BOOK 1 PAGE 407, ET SEQ. OF PATENTS, IN THE OFFICE OF THE COUNTY RECORDER OF SAID COUNTY, DESCRIBED AS FOLLOWS:

BEGINNING AT A POINT IN THE NORTHERLY LINE OF MALIBU ROAD, FORMERLY STATE HIGHWAY, NOW 60 FEET IN WIDTH, AS RELINQUISHED TO THE COUNTY OF LOS ANGELES, BY RESOLUTION OF THE CALIFORNIA STATE HIGHWAY COMMISSION, RECORDED MARCH 16, 1949 AS INSTRUMENT NO. 1521 IN BOOK 29600 PAGE 181, OFFICIAL RECORDS OF SAID COUNTY, DISTANT NORTH 81°30'15" WEST 361.86 FEET FROM THE MOST WESTERLY CORNER OF TRACT 18868, AS PER MAP RECORDED IN BOOK 551 PAGES 12 AND 13 OF MAPS, RECORDS OF SAID COUNTY; THENCE NORTH 81°30'15" WEST ALONG SAID NORTHERLY LINE, 45.83 FEET; THENCE LEAVING SAID NORTHERLY LINE NORTH 2°46'20" EAST 298.59 FEET; THENCE NORTH 59°14'25" WEST 120.39; THENCE SOUTH 86°36'52" WEST 929.66 FEET; THENCE NORTH 80°33'30" WEST 242.75 FEET; THENCE NORTH 68°47'10" WEST 132.79 FEET TO A POINT IN THE SOUTHERLY LINE OF PACIFIC COAST HIGHWAY, 100 FEET IN WIDTH, AS DESCRIBED IN PARCEL 1 IN DEED TO THE STATE OF CALIFORNIA, RECORDED MARCH 22, 1944 AS INSTRUMENT NO. 1279, IN BOOK 20743 PAGE 271, OFFICIAL RECORDS, SAID POINT BEING DISTANT SOUTH 81°23'21" WEST 823.85 FEET AND SOUTH 8°36'39" EAST 50.00 FEET FROM A BRASS CAP MONUMENT SET BY THE LOS ANGELES COUNTY SURVEYOR ON THE CENTER LINE OF SAID PACIFIC COAST HIGHWAY AT THE EASTERLY EXTREMITY OF THAT CERTAIN COURSE SHOWN AS "NORTH 81°20'29" EAST 1403.08 FEET" IN COUNTY SURVEYORS MAP NO. B-1698 SHEET 3; THENCE ALONG SAID SOUTHERLY LINE, NORTH 81°23'21" EAST 822.02 FEET TO THE BEGINNING OF A TANGENT CURVE CONCAVE TO THE SOUTH HAVING A RADIUS OF 2950 FEET; THENCE EASTERLY ALONG THE ARC OF SAID CURVE THROUGH A CENTRAL ANGLE OF 10°51'24", A DISTANCE OF 558.98 FEET TO END OF SAME; THENCE TANGENT SOUTH 87°45'15" EAST 311.34 FEET TO AN INTERSECTION WITH THE WESTERLY LINE OF PUERCO CANYON ROAD, 60 FEET IN WIDTH; THENCE ALONG SAID PUERTO CANYON ROAD, SOUTH 35°26'25" WEST 101.45 FEET TO A POINT OF THE BEGINNING OF A TANGENT CURVE CONCAVE TO THE EAST HAVING A RADIUS OF 130 FEET, SAID POINT BEING DISTANT NORTH 54°33' 35" WEST 30.00 FEET FROM A POINT AT THE SOUTHERLY EXTREMITY OF THAT CERTAIN CENTER LINE COURSE SHOWN AS "NORTH 35°33'00" EAST 139.12 FEET" IN COUNTY SURVEYORS MAP NO.8839, SHEET 1. THENCE SOUTHERLY ALONG THE ARC OF SAID CURVE THROUGH A CENTRAL ANGLE OF 36°26'10", A DISTANCE OF 82.67 FEET TO END OF CURVE; THENCE ALONG THE PROLONGATION OF A RADIAL LINE TO THE END OF SAID CURVE, SOUTH 89°00'15" WEST 94.52 FEET TO AN INTERSECTION WITH THE WESTERLY LINE OF PARCEL 2, AS DESCRIBED IN DOCUMENT RECORDED IN BOOK 42828 PAGE 46, OFFICIAL RECORDS OF SAID COUNTY; THENCE ALONG SAID WESTERLY LINE OF PARCEL 2, SOUTH 11°37'51" WEST 387.44 FEET, MORE OR LESS, TO THE POINT OF BEGINNING.

EXCEPT THEREFROM ALL MINERALS, OIL, PETROLEUM, ASPHALTUM, GAS, COAL AND OTHER HYDROCARBON SUBSTANCES IN, ON, WITHIN AND UNDER SAID LANDS AND EVERY PART THEREOF, BUT WITHOUT RIGHT OF ENTRY, AS RESERVED BY MARBLEHEAD LAND COMPANY, A DELAWARE CORPORATION, IN DEED RECORDED APRIL 7, 1952 IN BOOK 38646 PAGE 104, OFFICIAL RECORDS.

PARCEL 2 (EASEMENT):

AN EASEMENT FOR PEDESTRIAN TRAVEL, BATHING AND RECREATIONAL PURPOSES ONLY AND NOT FOR CAMPING, ERECTING TENTS OR BUILDINGS, MAINTAINING CONCESSIONS, LIGHTING FIRES OR CONSTRUCTING AND MAINTAINING PIERS, DOCKS, WHARVES, GROINS OR ANY STRUCTURES INTERFERING OR TENDING TO INTERFERE WITH SAID TRAVEL IN OCEAN WATER OVER LOT 64 OF TRACT 13157, AS PER MAP RECORDED IN BOOK 272 PAGES 18 AND 19 OF MAPS, IN THE OFFICE OF THE COUNTY RECORDER OF SAID COUNTY; AND OVER THAT PORTION OF THE RANCHO TOPANGA MALIBU SEQUIT, AS CONFIRMED TO MATTHEW KELLER BY PATENT RECORDED IN BOOK 1 PAGE 407, ET SEQ., OF PATENTS, IN THE OFFICE OF THE COUNTY RECORDER OF SAID COUNTY, BOUNDED ON THE NORTH BY THE 60 FOOT STRIP OF LAND RELINQUISHED TO THE COUNTY OF LOS ANGELES BY RESOLUTION OF THE CALIFORNIA STATE HIGHWAY COMMISSION,, RECORDED MARCH 16, 1949 IN BOOK 29600 PAGE 281, OFFICIAL RECORDS, IN THE OFFICE OF THE COUNTY RECORDER OF SAID COUNTY; BOUNDED ON THE SOUTH BY THE NORTHERLY LINE OF LOT 64 OF TRACT 13157, AS PER MAP RECORDED IN BOOK 272 PAGES 18 AND 19 OF MAPS, IN THE OFFICE OF THE COUNTY RECORDER OF SAID COUNTY; BOUNDED ON THE EAST BY THE NORTHERLY PROLONGATION OF THE EASTERLY LINE OF SAID LOT 64; AND BOUNDED ON THE WEST BY THE NORTHERLY PROLONGATION OF THE WESTERLY LINE OF SAID LOT 64.

NOTE: PARCEL 2 IS NOT CONTIGUOUS TO PARCEL 1 AND IS NOT SHOWN HEREON.

50' 25' 0' 50' 100'
GRAPHIC SCALE
SCALE: 1" = 50'

COMMENTS:

BOUNDARY LINES . . . . . . SHOWN PER RECORD OF SURVEY RECORDED IN BOOK 134, PAGE 11 OF RECORDS OF SURVEYS, COUNTY OF LOS ANGELES.

LEGAL DESCRIPTION . . . . FROM INFORMATION SUPPLIED BY CLIENT. USUALLY A TITLE POLICY OR TITLE REPORT.

EASEMENTS . . . . .PLOTTABLE EASEMENTS ARE SHOWN FROM AN OWNER SUPPLIED TITLE REPORT. NON-PLOTTABLE ONES ARE NOTED ON THE SURVEY AS HAVING "EFFECT OF". BECAUSE OUR SERVICE IS LIMITED TO REPORTING ON EASEMENT LOCATIONS WE STRONGLY RECOMMEND LEGAL COUNSEL BE RETAINED TO REPORT ON TITLE PAPERS IN THEIR ENTIRETY.

TITLE REPORT . . . . FIRST AMERICAN TITLE INSURANCE COMPANY COMMITMENT NO. NCS-373593-LA2, DATED MAY 13, 2010.

– INDICATES TITLE REPORT EXCEPTION NO.

HORIZONTAL DATUM . . . . STATE PLANE COORDINATES, CALIFORNIA COORDINATE SYSTEM ZONE 5 BASED ON NAD83 (NSRS2007). POSITIONAL VALUES SHOWN HEREON ARE BASED UPON LOCAL CONTROL POINTS AND DERIVED FROM THE GPS STATIC OBSERVATIONS UTILIZING DATA FROM SOUTHERN CALIFORNIA INTEGRATED GPS NETWORK (SCIGN) CONTINUOUSLY OPERATING SYSTEM (CORS).

CBHS (NGS PID NO. AJ1846) LAT: 34°08'18.80640" LONG: 118°37'47.24823"
TOST (NGS PID NO. AJ1931) LAT: 34°14'42.62683" LONG: 118°50'11.94154"
SPK1 (NGS PID NO. AI4474) LAT: 34°03'33.61984" LONG: 118°38'46.12944"

DISTANCES SHOWN HEREON ARE GRID. TO GET GROUND DISTANCES DIVIDE BY COMBINATION FACTOR OF 0.99999317

VERTICAL DATUM . . . . . . VERTICAL VALUES SHOWN HEREON ARE BASED UPON NORTH AMERICAN VERTICAL DATUM OF 1988 (NAVD88) UTILIZING US NATIONAL GEODETIC SURVEY (NGS) BENCHMARK LISTED BELOW.

TOST (NGS PID NO. DH8045)

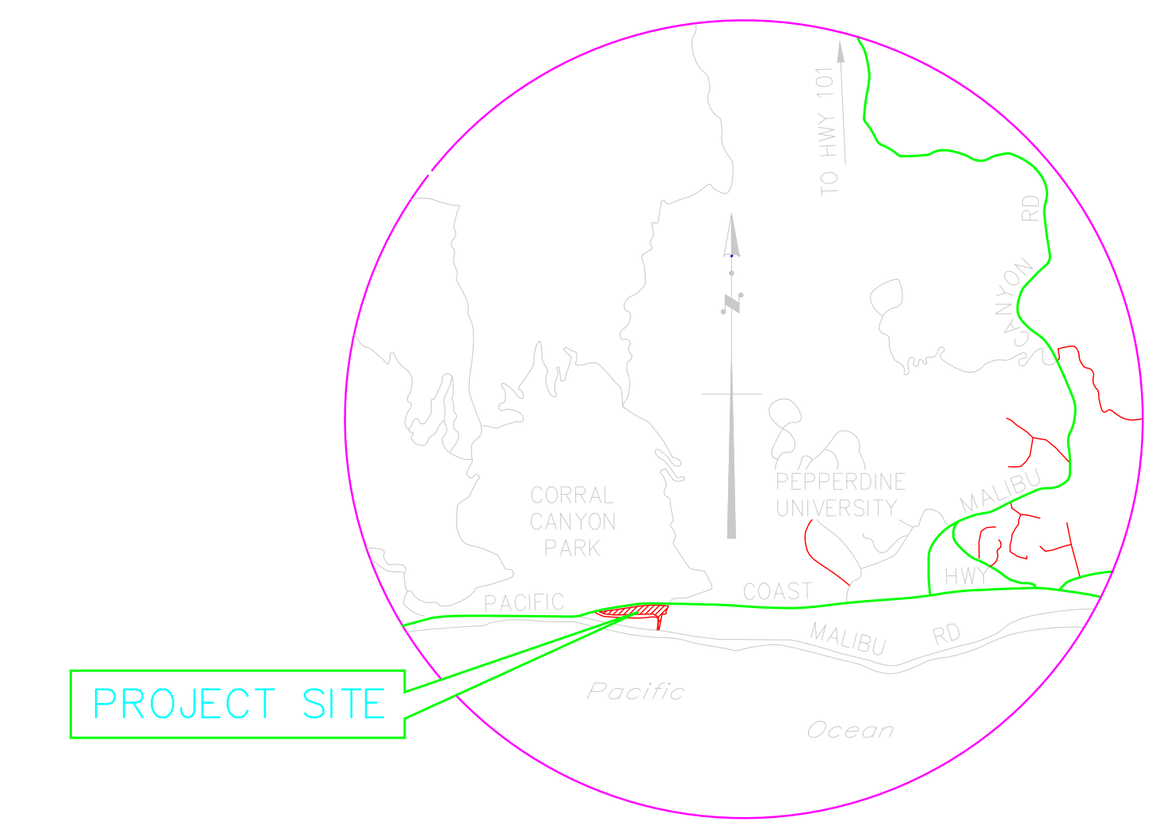
TOST IS A CONTINUOUS GPS (CGPS) SITE LOCATED AT THE THOUSAND OAKS SHERIFF STATION, VENTURA COUNTY, CA. IT IS A SOUTHERN CALIFORNIA INTEGRATED GPS NETWORK (SCIGN) CONTINUOUS GPS (CGPS) MONUMENT. IT IS A WYATT-AGNEW DRILLED BRACED MONUMENT. MOUNTED ON THIS MONUMENT IS A SCIGN ANTENNA ADAPTOR (DETAILED SPECIFICATIONS OF THE CONSTRUCTION OF THE MONUMENT AND THE MACHINED SPECIFICATIONS OF THE ADAPTOR ARE AVAILABLE ON THE SCIGN/USGS WEB SITES) . THE BPA IS THE BOTTOM OF THE ANTENNA WHICH IS ADJACENT TO THE TOP OF THE ANTENNA ADAPTOR. DAILY GPS DATA AND MORE INFORMATION ON THIS SITE IS AVAILABLE AT CSRC.UCSD.EDU.

VERT ORDER – SECOND, CLASS II, ELEV 1017.14 FEET (ADJUSTED IN 2007)

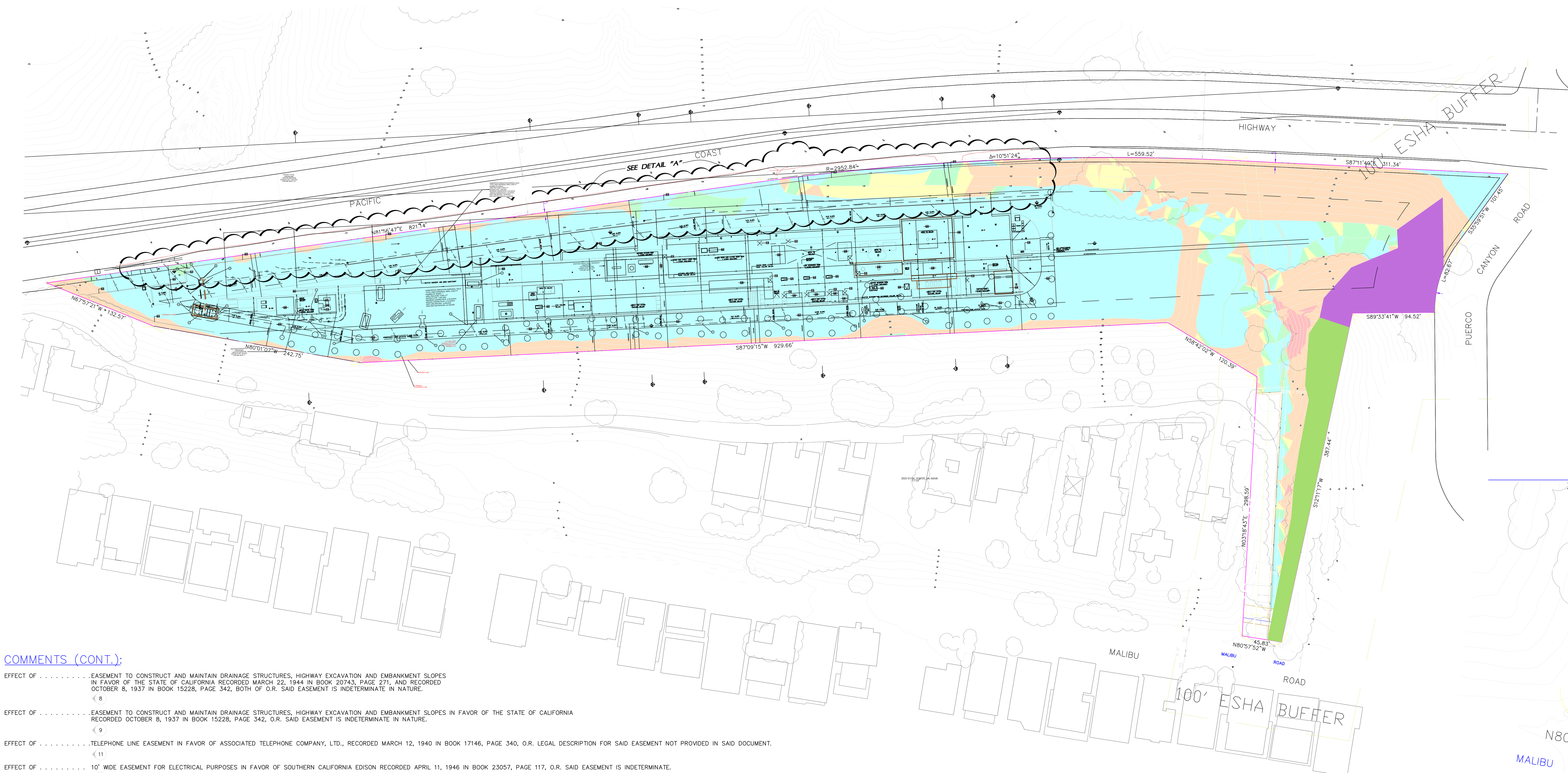
AERIAL SURVEY . . . . THIS SURVEY WAS PREPARED BY PHOTOGRAMMETRIC PROCESSES, UTILIZING AERIAL PHOTOGRAPHY DATED OCTOBER 28, 2010 AND COMPILED AT A SCALE OF 1"=40' WITH A CONTOUR INTERVAL OF 1 FOOT. THE OUTLINE OF BUILDINGS AND OTHER ROOFED IMPROVEMENTS, MAY INCLUDE EAVES, CANOPIES AND BALCONIES, SINCE BUILDINGS BELOW THESE ITEMS ARE NOT VISIBLE TO THE CAMERA.

TOPOGRAPHY . . . . BY PHOTOGRAMMETRIC PROCESSES FROM AERIAL PHOTOGRAPHY DATED OCTOBER 28, 2010, AND COMPLIES WITH NATIONAL MAP ACCURACY STANDARDS.

CONTOUR INTERVAL . . . . .1 FOOT.

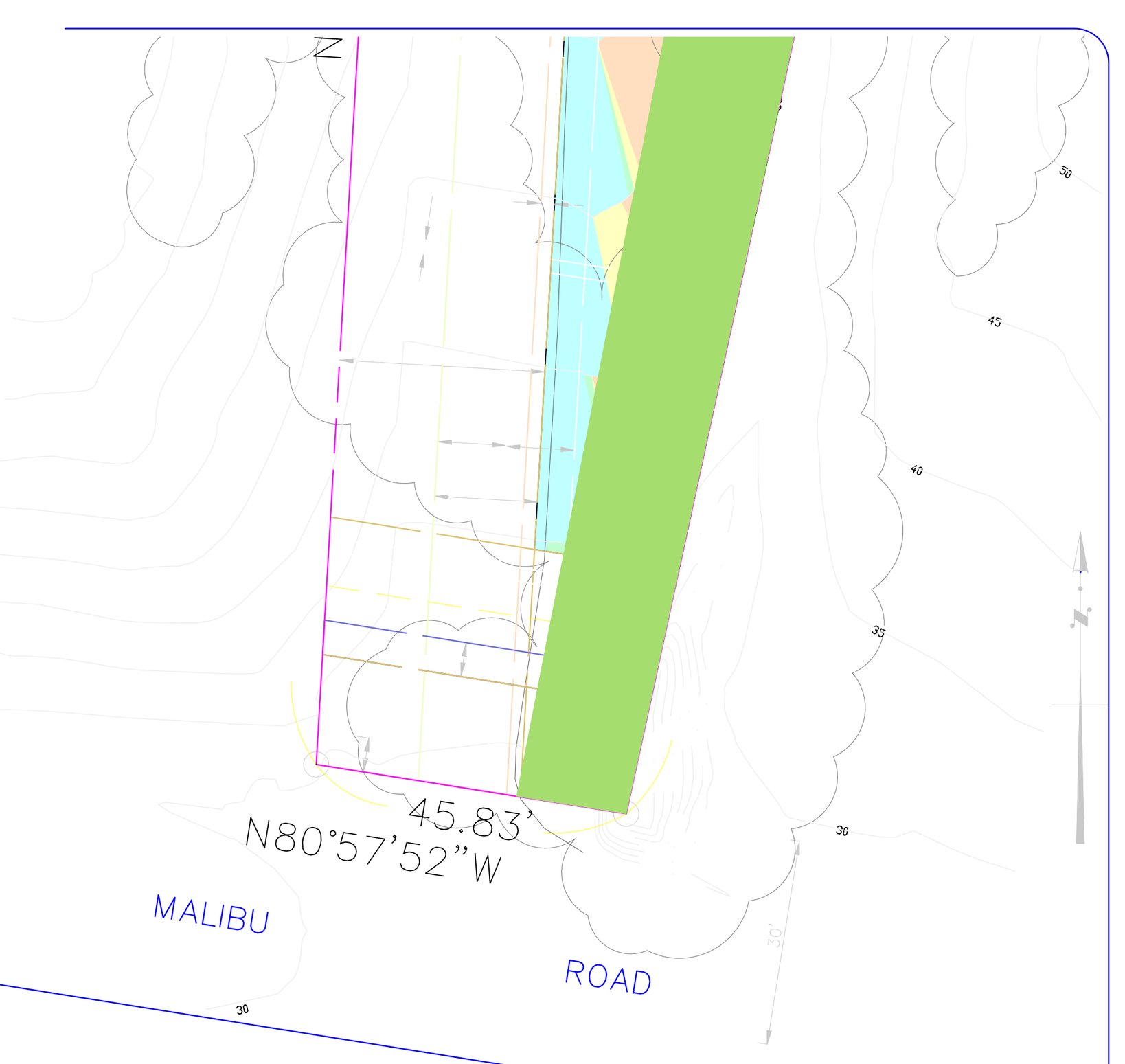


VICINITY MAP
NOT TO SCALE



LEGEND

- PROPERTY/BOUNDARY LINE
- STREET R/W LINE
- CURB LINE
- CENTER LINE
- FLOW LINE
- LOT LINE/PARCEL LINE
- EASEMENT LINE (W=WIDTH)
- CONTOUR LINE
- BUILDING FOOT PRINT LINE
- OVERHANG LINE
- CHAIN LINK FENCE LINE
- WROUGHT IRON FENCE LINE
- GUARD RAIL
- WALL
- EDGE OF ASPHALT PAVING
- CB . . . . . CATCH BASIN W/ACCESS HOLE
- MH . . . . . MANHOLE
- PP/TP . . . . . POWER POLE (PP)/TELE POLE (TP)
- SIGN (ALL KINDS)
- STREET LIGHT
- TRAFFIC SIGNAL
- TRAFFIC SIGNAL W/STREET LIGHT
- YARD LIGHT
- FIRE DEPARTMENT CONNECTION
- FIRE HYDRANT
- DS . . . . . DOWNSPOUT
- FDC . . . . . FIRE DEPARTMENT CONNECTION
- PIV . . . . . POST INDICATOR VALVE
- DIRECTION OF WATER DRAINAGE FLOW
- PM . . . . . PARKING METER
- GM/WM . . . . . GAS/WATER METER
- GV/WV . . . . . GAS/WATER VALVE
- EPB/SLPB/ TSPB/UPB . . . . . ELEC./STREET LIGHT/ TRAFFIC/UNKNOWN PULL BOX
- TREE IN WELL W/TRUNK DIAMETER
- PL . . . . . PLANTER
- GP . . . . . GUARD POST
- APPR. . . . . . APPROACH (DRIVEWAY)
- BFP . . . . . BACKFLOW PREVENTER
- CO . . . . . CLEAN OUT
- CHLK . . . . . CHAINLINK (FENCE/GATE)
- WI . . . . . WROUGHT IRON (FENCE/GATE)
- BENCHMARK
- 123.4 . . . . . TOPOGRAPHIC SPOT ELEVATION
- RIM . . . . . MANHOLE RIM ELEVATION
- INV . . . . . MANHOLE INVERT ELEVATION
- ER . . . . . ELEC RISER
- EVT . . . . . ELEC VAULT
- CD . . . . . CURB DRAIN
- DI . . . . . DRAIN INLET
- HB . . . . . HOSE BIB
- WR . . . . . WATER RISER
- GB . . . . . GRADE BREAK
- ② . . . . . RECORD LOT/PARCEL NUMBER



EASEMENT DETAIL
SCALE 1" = 20'

COMMENTS (CONT.):

EFFECT OF . . . . .EASEMENT TO CONSTRUCT AND MAINTAIN DRAINAGE STRUCTURES, HIGHWAY EXCAVATION AND EMBANKMENT SLOPES IN FAVOR OF THE STATE OF CALIFORNIA RECORDED MARCH 22, 1944 IN BOOK 20743, PAGE 271, AND RECORDED OCTOBER 8, 1937 IN BOOK 15228, PAGE 342, BOTH OF O.R. SAID EASEMENT IS INDETERMINATE IN NATURE. (8)

EFFECT OF . . . . .EASEMENT TO CONSTRUCT AND MAINTAIN DRAINAGE STRUCTURES, HIGHWAY EXCAVATION AND EMBANKMENT SLOPES IN FAVOR OF THE STATE OF CALIFORNIA RECORDED OCTOBER 8, 1937 IN BOOK 15228, PAGE 342, O.R. SAID EASEMENT IS INDETERMINATE IN NATURE. (9)

EFFECT OF . . . . .TELEPHONE LINE EASEMENT IN FAVOR OF ASSOCIATED TELEPHONE COMPANY, LTD., RECORDED MARCH 12, 1940 IN BOOK 17146, PAGE 340, O.R. LEGAL DESCRIPTION FOR SAID EASEMENT NOT PROVIDED IN SAID DOCUMENT. (11)

EFFECT OF . . . . 10' WIDE EASEMENT FOR ELECTRICAL PURPOSES IN FAVOR OF SOUTHERN CALIFORNIA EDISON RECORDED APRIL 11, 1946 IN BOOK 23057, PAGE 117, O.R. SAID EASEMENT IS INDETERMINATE. (15)

EFFECT OF . . . . CONDITIONS, COVENANTS, RESERVATIONS AND RESTRICTIONS CONTAINED IN "CORPORATION GRANT DEED" RECORDED APRIL 7, 1952 IN BOOK 38646, PAGE 104, O.R. (16)

EFFECT OF . . . . 2' WIDE EASEMENT FOR GUY WIRE AND ANCHORS IN FAVOR OF SOUTHERN CALIFORNIA EDISON RECORDED JULY 19, 1958 AS INSTRUMENT NO. 3203 IN BOOK D131, PAGE 527, O.R. LEGAL DESCRIPTION PROVIDED IN SAID DOCUMENT IS INSUFFICIENT TO PLOT PORTIONS OF SAID EASEMENT. (18)

EFFECT OF . . . . 2' WIDE EASEMENT FOR POLES AND TELECOMMUNICATIONS PURPOSES IN FAVOR OF GENERAL TELEPHONE COMPANY OF CALIFORNIA RECORDED APRIL 1, 1959 AS INSTRUMENT NO. 3229 IN BOOK D418, PAGE 637, O.R. LEGAL DESCRIPTION PROVIDED IN SAID DOCUMENT IS INSUFFICIENT TO PLOT PORTIONS OF SAID EASEMENT. (19)

EFFECT OF . . . . RESTRICTIONS PROHIBITING THE USE OF SAID LAND FOR INDUSTRIAL, MANUFACTURING, COMMERCIAL OR BUSINESS PURPOSES PER DEED RECORDED JUNE 8, 1944 AS INSTRUMENT NO. 46 IN BOOK 20892, PAGE 395, O.R. SAID RESTRICTIONS EXPIRED AT THE CLOSE OF THE YEAR 1970. (20)

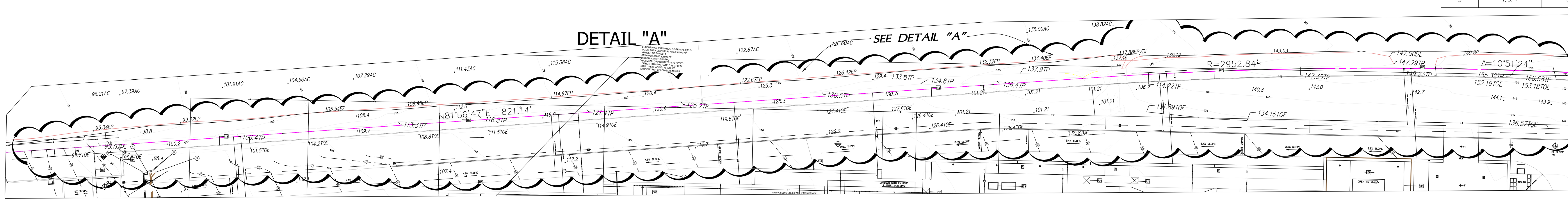
NOTE:

1. THIS IS NOT A MAP OF A BOUNDARY SURVEY. NO PROPERTY CORNERS HAVE BEEN SET AS A PART OF THIS WORK.
2. RELATION OF TOPOGRAPHIC FEATURES (FENCES, WALLS, TREES, UTILITY POLES, ETC.) TO PROPERTY LINES AS SHOWN HEREON IS SUBJECT TO THE ADJUSTMENT THAT A BOUNDARY SURVEY MAY REQUIRE.
3. SITE TOPOGRAPHY, BOUNDARY AND EASEMENTS WERE NOT PREPARED BY CHRIS NELSON AND ASSOCIATES. BUT WERE PROVIDED BY CLIENT FOR THE PURPOSES OF A SLOPE ANALYSIS. CHRIS NELSON AND ASSOCIATES MAKES NO CLAIM TO THE ACCURACY OF NEITHER THE TOPOGRAPHY OR BOUNDARY, EXCEPT WITHIN IN THE AREA CLOUDED WHERE CHRIS NELSON AND ASSOCIATES INC. HAS UPDATED TOPOGRAPHIC INFORMATION TO THE SURVEY ON 08/05/2022 BASED ON BOUNDARY SURVEY CONTROL FROM THE PREVIOUS SURVEY.

SLOPE TABLE

NUMBER	MINIMUM SLOPE	MAXIMUM SLOPE	COLOR	SLOPE AREA	PERCENT
1	Horizontal	4.0:1		186441 SQ. FT.	67%
2	4.0:1	3.0:1		9301 SQ. FT.	3%
3	3.0:1	2.5:1		7782 SQ. FT.	3%
4	2.5:1	1.0:1		71383 SQ. FT.	26%
5	1.0:1	0.0:1		2403 SQ. FT.	1%
				TOTAL=277,313 SQ. FT.	

DETAIL "A"



PROFESSIONAL LAND SURVEYOR CHRIS D. NELSON No. 6385 STATE OF CALIFORNIA

DATED: 11/1/2022

CHRIS NELSON & ASSOCIATES, INC.
SURVEYORS AND ENGINEERS
28118 Agoura Rd., Suite 100, Agoura Hills, CA. 91301
P: 818.991.1040 F: 818.991.0614
www.chrisnelsonassociates.com

PREPARED FOR:
PARPCH LLC
ATTN: JAKE JESSON
P.O. BOX 6528
MALIBU, CA 90265

SLOPE ANALYSIS SURVEY

A.P.N. 4459-013-021

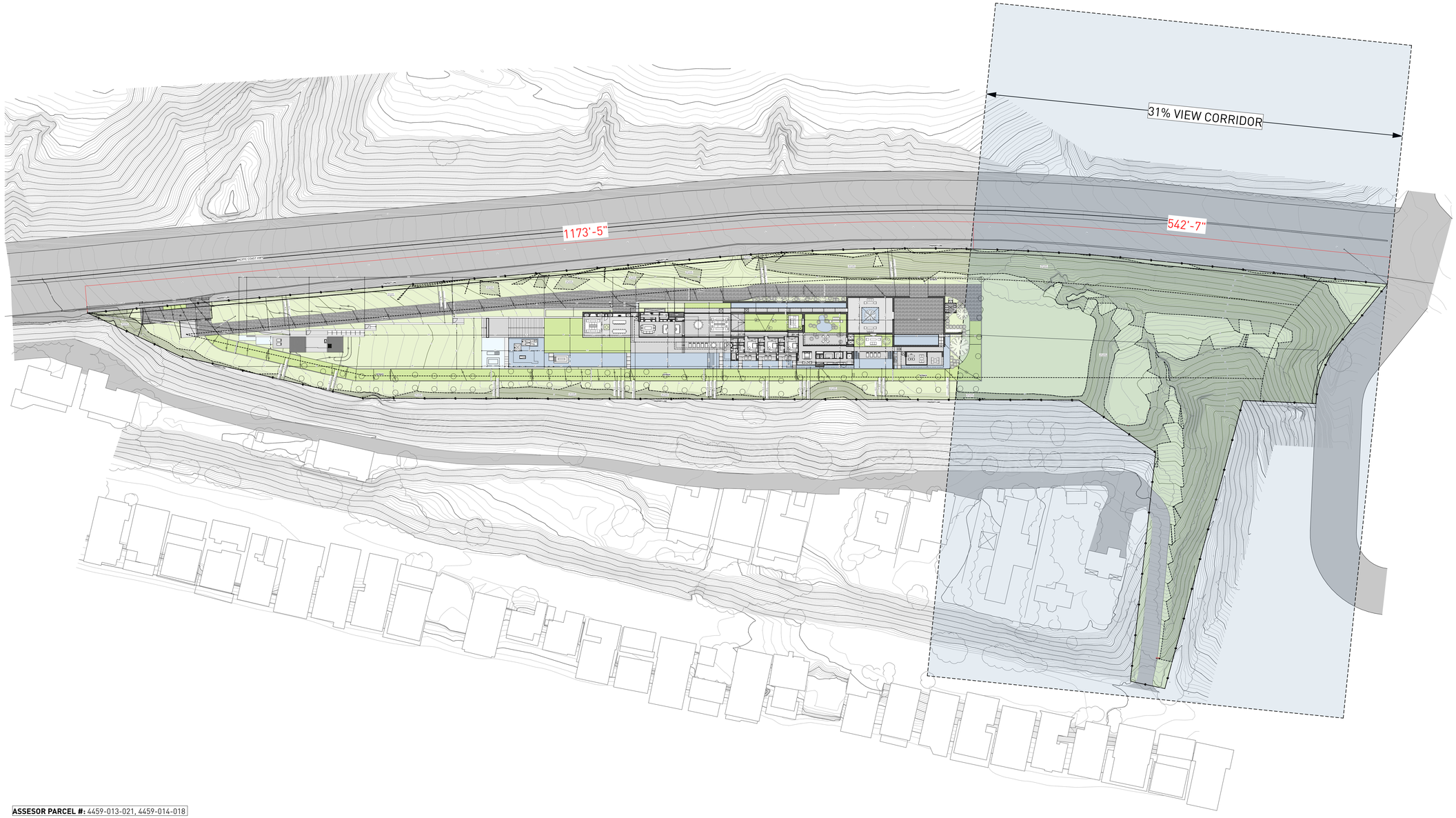
25200 PACIFIC COAST HIGHWAY
MALIBU, CA. 90265

REVISION NOTES

DATE	DESCRIPTION	BY
1/4/22	UPDATED BACKGROUND	CH

JOB NO. 19-4925
SCALE: 1" = 50'
DATE: NOV, 2022
DRAFTED: CH

SHEET NO.
1'=1/64" 1
OF 1 SHEET



ASSESOR PARCEL #: 4459-013-021, 4459-014-018

KEY NOTES:

SITE

001 MAINTAIN ALL WATER RUNOFF WITHIN PROPERTY. SLOPE AWAY FROM P.L. AT A MIN. SLOPE OF ¼" /FT., REFER TO CIVIL DWGS.
002 TREES/LANDSCAPING PLANTING/GROUND COVER/LAWN, REFER TO LANDSCAPE DWGS.
003 HEDGE. REFER TO LANDSCAPE DWGS.
004 HARDSCAPE. REFER TO LANDSCAPE DWGS.
005 DRIVEWAY. GRAVEL ON GRADE. REFER TO CIVIL & LANDSCAPE DWGS.
006 WOOD DECK. SIZE OF PLANKS T.B.D. FINISH T.B.D.
007 UNDERGROUND DRAINAGE SYSTEM. REFER TO CIVIL DWGS.
008 INFINITY POOL EDGE.
009 OPEN PARKING, REFER TO CIVIL FOR DETAILS
010 6'-0" SITE RETAINING WALL. REFER TO STRUCTURAL AND LANDSCAPE DWGS.
011 PEDESTRIAN GATE DOOR. PROVIDE SHOP DWGS. FOR ARCHITECT REVIEW.
012 42" MOTORIZED VEHICULAR SLIDING ENTRY GATE. STEEL FRAME. 90% VISUALLY PERMEABLE.
013 42" PERIMETER FENCE. 90% VISUALLY PERMEABLE.
014 CALL BOX
015 TRASH ENCLOSURE AREA
016 STRUCTURAL GRASS DRIVEWAY. GRASSCRETE OR SIMILAR. REFER TO CIVIL & LANDSCAPE DWGS.
017 GENERATOR ON EXISTING CONCRETE PLINTH, BOTTOM OF GENERATOR TO BE ABOVE BFE +1', REFER TO ELECTRICAL DWGS.
018 A/C CONDENSER UNITS BEHIND LANDSCAPE, BOTTOM OF UNITS TO BE ABOVE BFE +1', REFER TO MECHANICAL DWGS.
019 NATURAL LAWN AREA. REFER TO LANDSCAPE DWGS.

MATERIALS

100 ARCHITECTURAL EXPOSED CONCRETE, COLOR T.B.D. REFER TO STRUCTURAL DRAWINGS AND ARCHITECTURAL DETAILS.
101 CUSTOM WOOD DOOR. REFER TO DOOR SCHEDULE.
102 IMPACT RESISTANT SLIDING ALUMINUM WINDOWS / DOORS SYSTEM, LOW-E COATING. REFER TO WINDOW SCHEDULE.
103 PRE-FABRICATED SKYLIGHT ON CONCRETE CURB. REFER TO WINDOW SCHEDULE. SEE SECTION AND DETAILS.
104 GARAGE STEEL DOOR CLADDED WITH CUSTOM CONCRETE PANELS. REFER TO DOOR SCHEDULE.
105 GRAVEL.
106 5/8" G.W.B., FINISH T.B.D.; REFER TO I.D. DWGS.
107 3/8" THERMOCROMEX LIMESTONE PLASTER, SAND FINISH, COLOR T.B.D. 3/8" TYPICAL.
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109 REFER TO INTERIOR DESIGN DRAWINGS AND FINISH SCHEDULE.
110 RAMMED EARTH CONSTRUCTION.
111 STONE BENCH.

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201 COMPACTED EARTH. REFER TO STRCUT. DWGS.
202 RETAINING WALL. REFER TO STRUCT. DWGS.
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205 CONCRETE BEAM. REFER TO STRUCT. DWGS.
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302 ROOF DRAIN, REFER TO PLUMBING DWGS. /SEE DETAIL.
303 FLOOR DRAIN, REFER TO PLUMBING DWGS./ SEE DETAIL.
304 DRAIN PIPE TO FIT IN CEILING SPACE, REFER TO PLUMBING DWGS. COORDINATE EXACT LOCATION AND SPECS.
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311 MINIMUM R:30 BATT INSULATION OR RIGID INSULATION. REFER TO ENERGY CALCULATIONS.
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502 VENT.
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604 LANDSCAPE LIGHTING. REFER TO LIGHTING DWGS.

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701 AN APPROVED KEY BOX, LISTED IN ACCORDANCE WITH UL 1037 SHALL BE PROVIDED AS REQUIRED BY FIRE CODE 506. THE LOCATION OF EACH KEY BOX SHALL BE DETERMINED BY THE FIRE INSPECTOR.
702 ALL REQUIRED PUBLIC FIRE HYDRANTS SHALL BE INSTALLED, TESTED AND ACCEPTED PRIOR TO BEGINNING CONSTRUCTION. FIRE CODE 501.4
703 PROVIDE AN APPROVED AUTOMATIC FIRE SPRINKLER SYSTEM AS SET FORTH BY BUILDING CODE 903 AND FIRE CODE 9003. PLANS SHALL BE SUBMITTED TO THE SPRINKLER PLAN CHECK UNIT FOR REVIEW AND APPROVAL PRIOR TO INSTALLATION.
704 SMOKE ALARMS SHALL RECEIVE THEIR PRIMARY POWER FROM THE BUILDING WIRING PROVIDED THAT SUCH WIRING IS SERVED FROM A COMMERCIAL SOURCE AND SHALL BE EQUIPPED WITH A BATTERY BACKUP. RESIDENTIAL CODE R314.4
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713 ALL FIRE HYDRANTS SHALL MEASURE 6"" X 4"" X 2-1/2"", BRASS OR BRONZE, CONFORMING TO AMERICAN WATER WORKS ASSOCIATION STANDARD C503, OR APPROVED EQUAL.
714 ALL ON-SITE FIRE HYDRANTS SHALL BE INSTALLED, TESTED AND APPROVED PRIOR TO BUILDING OCCUPANCY. FIRE CODE 901.5.1
715 ROOF LADDER ACCESS

Project No

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Project Name
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Project Address
25200 Pacific Coast Hwy.
Malibu, California, USA

Property Owner
PAR PCH, LLC
PO Box 6528
Malibu, CA 90265

Design Architect
Oppenheim Architecture
245 NE 37 Street
Miami FL 33137
P 305 576 8404
F 305 576 8433
W oppenoffice.com

Landscape Architect
[place]
3617 exposition boulevard
Los Angeles, CA 90016
P 310-450-8100
F 323-737-3290
W plac-e.com

Civil Engineers
LC Engineering Group
889 Pierce Ct., Ste. 101
Thousand Oaks, CA 91360
P 805-497-1244
P 818-991-7148
W lcegroupinc.com

Revisions

Mark	Date	Description

Title
VIEW CORRIDOR DIAGRAM

1/64" = 1'-0"

N

NOT FOR CONSTRUCTION

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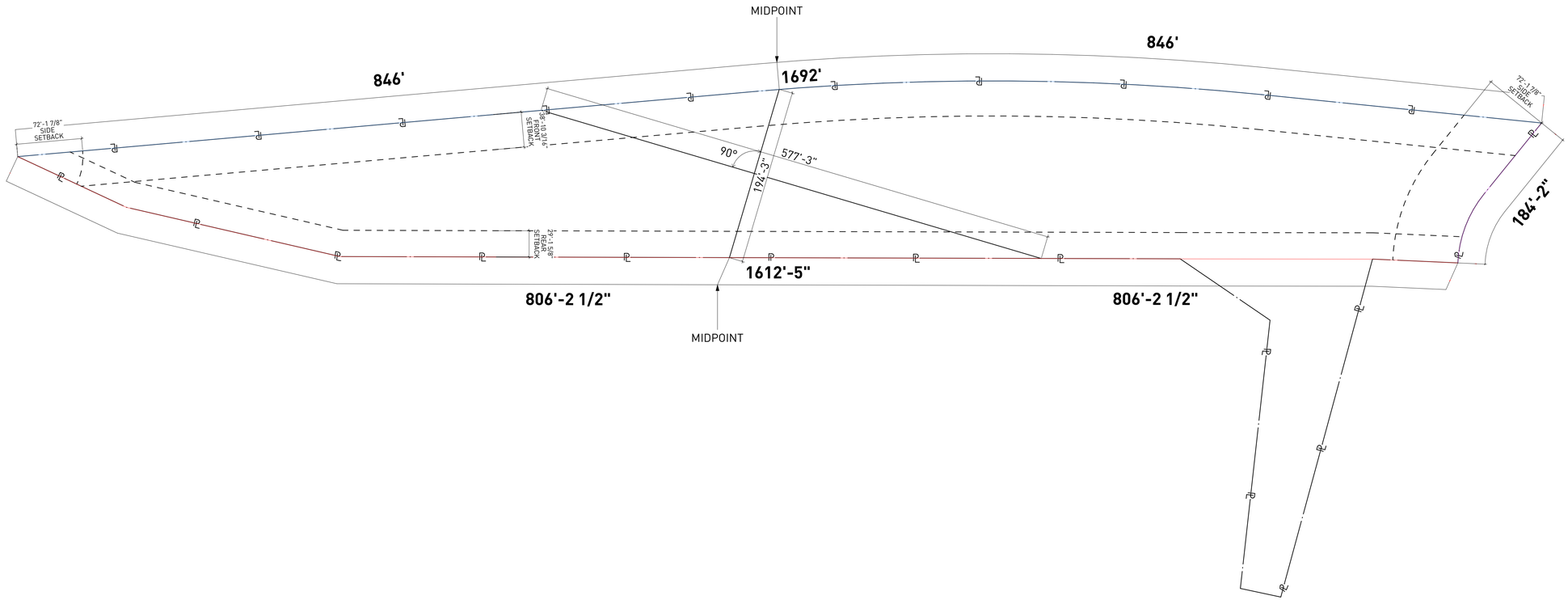
1813
VILLA COLEAVA

Drawing Issued on 4/16/25

Z100



ASSESOR PARCEL #: 4459-013-021, 4459-014-018

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Project Address
25200 Pacific Coast Hwy.
Malibu, California, USA

Property Owner
PAR PCH, LLC
PO Box 6528
Malibu, CA 90265

Design Architect
Oppenheim Architecture
245 NE 37 Street
Miami FL 33137
P 305 576 8404
F 305 576 8433
W oppenoffice.com

Landscape Architect
[place]
3617 exposition boulevard
Los Angeles, CA 90016
P 310-450-8100
F 323-737-3290
W plac-e.com

Civil Engineers
LC Engineering Group
889 Pierce Ct., Ste. 101
Thousand Oaks, CA 91360
P 805-497-1244
P 818-991-7148
W lcegroupinc.com

Revisions

Mark	Date	Description

Title
LOT DEPTH AND WIDTH CALCULATION
1/64" = 1'-0"

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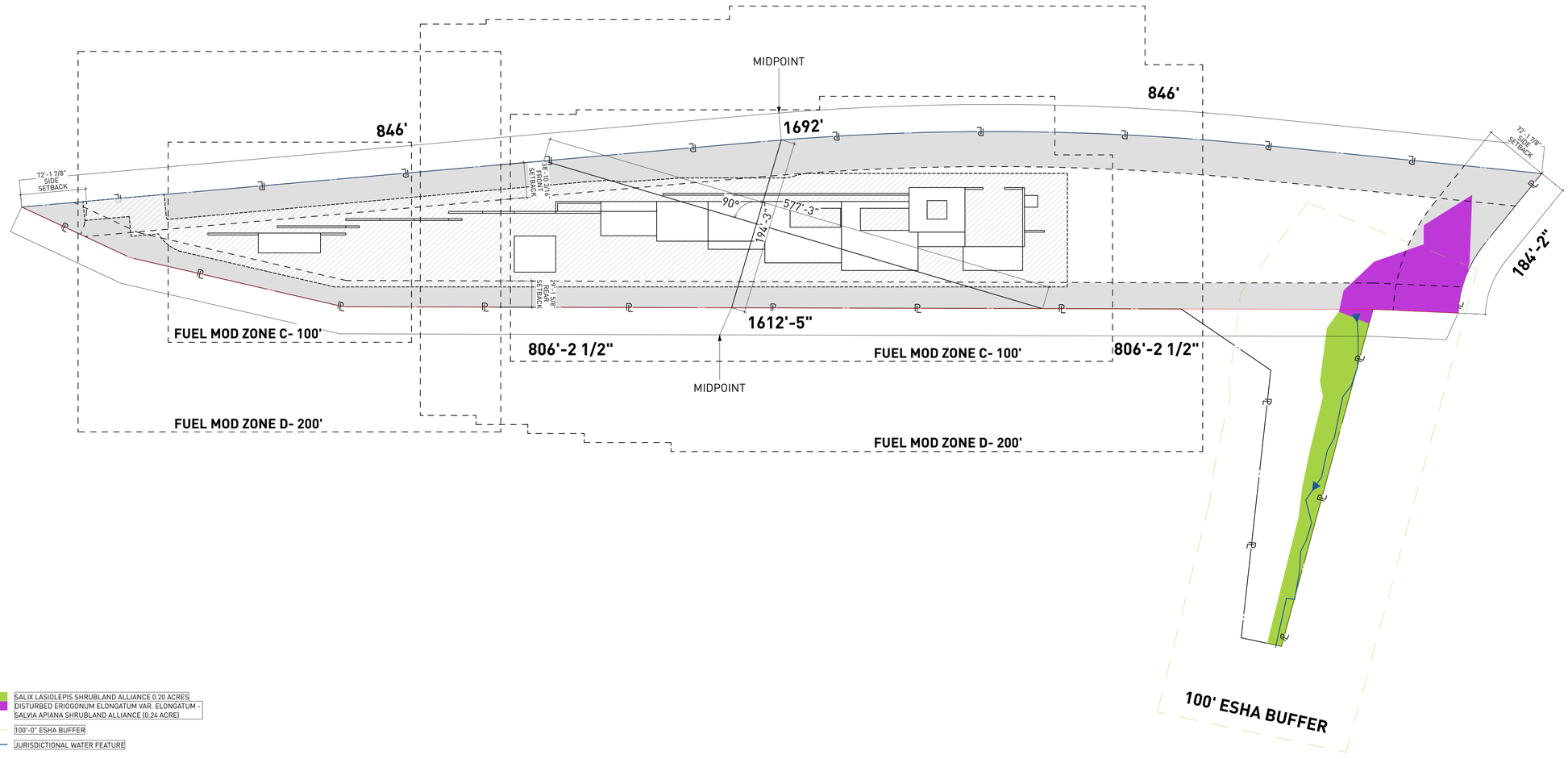
Drawing Issued on 4/16/25

Z101



SALIX LASIOLEPIS SHRUBLAND ALLIANCE 0.20 ACRES
DISTURBED ERIOGONUM ELONGATUM VAR. ELONGATUM - SALVIA APIANA SHRUBLAND ALLIANCE (0.24 ACRE)
100'-0" ESHA BUFFER
JURISDICTIONAL WATER FEATURE

ASSESOR PARCEL #: 4459-013-021, 4459-014-018

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313 MISTING SYSTEM. REFER TO PLUMBING DWGS.
314 SPRINKLER SYSTEM. REFER TO PLUMBING DWGS.
315 HOSE BIB. REFER TO PLUMBING AND LANDSCAPE DWGS.
316 ELECTRICITY, GAS AND WATER. REFER TO MEP DRAWINGS.
317 MOTORIZED VEHICULAR GATE. REFER TO ELECT. DWGS.
318 ALL TOILETS TO BE WALL HUNG. REFER TO MECH. DWGS.
319 LINEAR DRAIN
320 OVERFLOW SCUPPER.

WATERPROOFING

400 CONTINUOUS VAPOR BARRIER. REFER TO ARCH AND STRUCTURAL DWGS.
401 WATERPROOFING MEMBRANE. REFER TO ARCH AND STRUCTURAL DWGS.
402 POOL FINISH/ COLOR TBD.

MISC. ARCHITECTURAL DETAILS

500 CURTAIN CEILING COVE. REFER TO ARCH. DETAIL.
501 CONTINUOUS 1/2" TOOLED WATER DRIP. SEE ARCH. DETAIL.
502 VENT.
503 KITCHEN, BUILT-IN FURNITURE, CABINETRY BY OTHERS. REFER TO KITCHEN SHOP DWGS.
504 5/8" GWB DROPPED CEILING ON 3/4" FURRING STRIPS. PAINTED GWB. COLOR TBD.
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506 CUSTOM WOOD MILLWORK, REFER TO I.D. DRAWINGS
507 SOLAR PANELS (T.B.D.)
509 CONCEALED LED SCREEN.
510 LADDER ACCESS.

LIGHTING

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Project No

1813

Project Name
VILLA COLEAVA

Project Address
25200 Pacific Coast Hwy.
Malibu, California, USA

Property Owner
PAR PCH, LLC
PO Box 6528
Malibu, CA 90265

Design Architect
Oppenheim Architecture
245 NE 37 Street
Miami FL 33137
P 305 576 8404
F 305 576 8433
W oppenoffice.com

Landscape Architect
[place]
3617 exposition boulevard
Los Angeles, CA 90016
P 310-450-8100
F 323-737-3290
W plac-e.com

Civil Engineers
LC Engineering Group
889 Pierce Ct., Ste. 101
Thousand Oaks, CA 91360
P 805-497-1244
P 818-991-7148
W lcegroupinc.com

Revisions

Mark	Date	Description

Title
FUEL MOD DIAGRAM

1/64" = 1'-0"

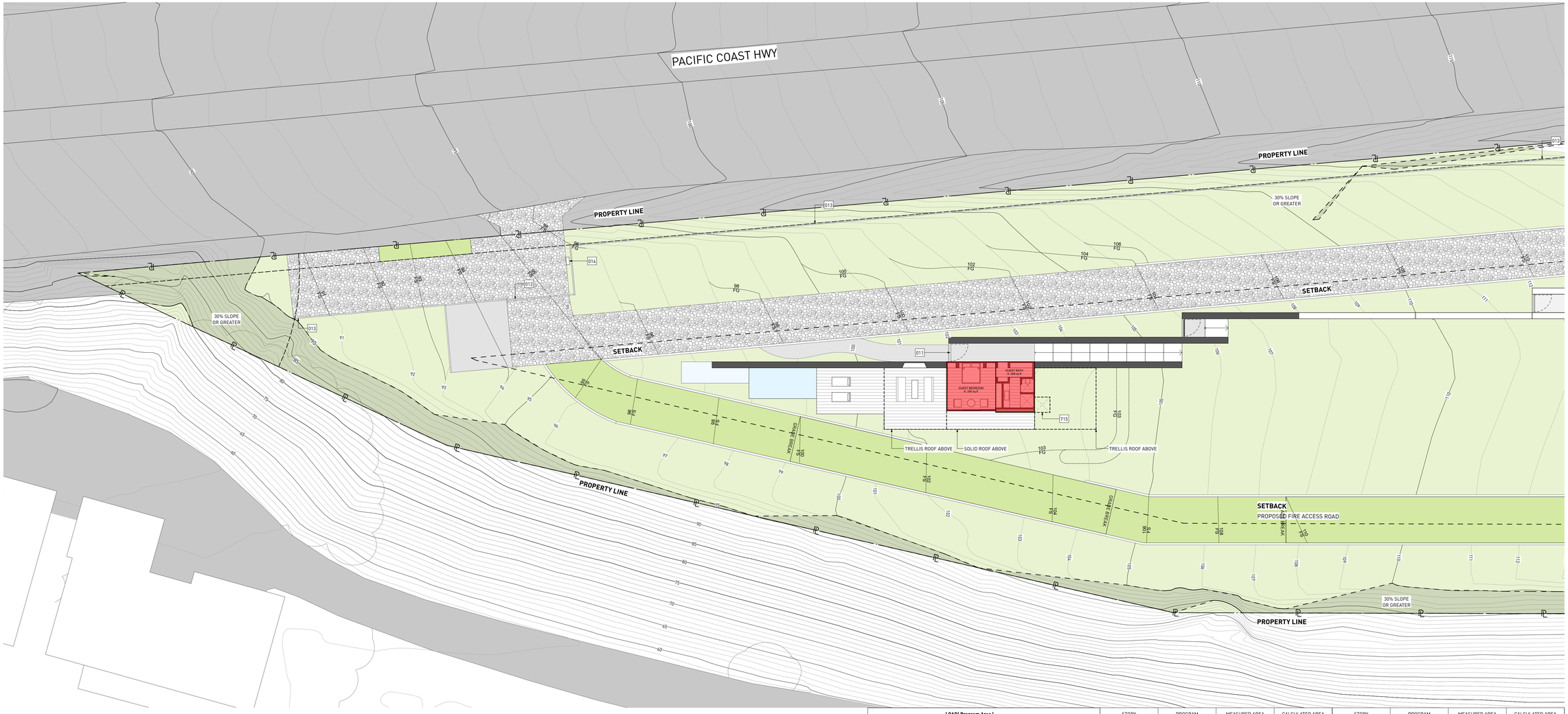
NOT FOR CONSTRUCTION

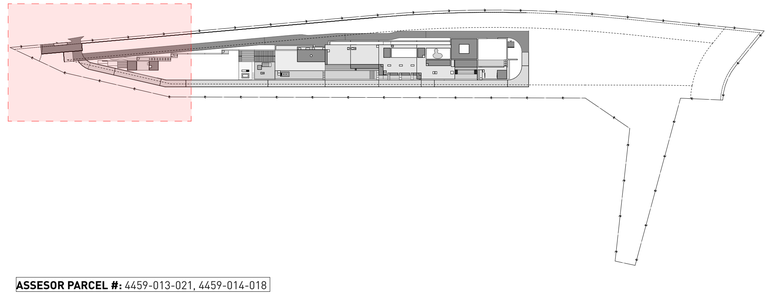
Design Development

1813
VILLA COLEAVA

Drawing Issued on 4/16/25

Z102





ASSESOR PARCEL #: 4459-013-021, 4459-014-018

OADI Program Area											
STORY	PROGRAM	MEASURED AREA	CALCULATED AREA	STORY	PROGRAM	MEASURED AREA	CALCULATED AREA	STORY	PROGRAM	MEASURED AREA	CALCULATED AREA
GUEST HOUSE				**BASEMENT CONTINUED**				**GROUND LEVEL CONTINUED**			
					WINE STO.	97.75 /2 =	48.88		KITCHEN	649.50	649.50
	GUEST BATH	209.00	209.00			**BASEMENT LEVEL SUBTOTAL**	**761.65 sq ft**		LIVING ROOM	1,027.00	1,027.00
	GUEST BEDROOM	256.00	256.00	**GYM**					MASTER BATHROOM	919.00	919.00
		GUEST HOUSE LEVEL SUBTOTAL	**465.00 sq ft**		GYM	410.33	410.33		MASTER BEDROOM	1,004.00	1,004.00
BASEMENT					GYM PR	118.00	118.00		OFFICE	511.00	511.00
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	MUD ROOM	126.50 /2 =	63.25	**GROUND LEVEL**					PR	131.50	131.50
	S. BATH	75.00 /2 =	37.50		BEDROOM 1	569.75	569.75		SERVICE KITCHEN	267.50	267.50
	S. BATH	75.00 /2 =	37.50		BEDROOM 2	559.00	559.00		STAIR TO BASEMENT	120.00	120.00
	SERVICE BR.	197.25 /2 =	98.63		BEDROOM 3	569.75	569.75			**GROUND LEVEL SUBTOTAL**	**9,218.50 sq ft**
	SERVICE BR.	196.25 /2 =	98.13		DINING ROOM	960.00	960.00			**TOTAL AREA**	**11,120.98 sq ft**
	SERVICE HALLWAY	304.00 /2 =	152.00		FAMILY ROOM	734.00	734.00			**ALLOWABLE AREA**	**11,172.00 sq ft**
	SERVICE PR	75.00 /2 =	37.50		GALLERY	778.00	778.00				

KEY NOTES:

SITE

001 MAINTAIN ALL WATER RUNOFF WITHIN PROPERTY. SLOPE AWAY FROM P.L. AT A MIN. SLOPE OF ¼" /FT., REFER TO CIVIL DWGS.
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015 TRASH ENCLOSURE AREA
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017 GENERATOR ON EXISTING CONCRETE PLINTH, BOTTOM OF GENERATOR TO BE ABOVE BFE +1', REFER TO ELECTRICAL DWGS.
018 A/C CONDENSER UNITS BEHIND LANDSCAPE, BOTTOM OF UNITS TO BE ABOVE BFE +1', REFER TO MECHANICAL DWGS.
019 NATURAL LAWN AREA. REFER TO LANDSCAPE DWGS.

MATERIALS

100 ARCHITECTURAL EXPOSED CONCRETE, COLOR T.B.D. REFER TO STRUCTURAL DRAWINGS AND ARCHITECTURAL DETAILS.
101 CUSTOM WOOD DOOR. REFER TO DOOR SCHEDULE.
102 IMPACT RESISTANT SLIDING ALUMINUM WINDOWS / DOORS SYSTEM, LOW-E COATING. REFER TO WINDOW SCHEDULE.
103 PRE-FABRICATED SKYLIGHT ON CONCRETE CURB. REFER TO WINDOW SCHEDULE. SEE SECTION AND DETAILS.
104 GARAGE STEEL DOOR CLADDED WITH CUSTOM CONCRETE PANELS. REFER TO DOOR SCHEDULE.
105 GRAVEL.
106 5/8" G.W.B., FINISH T.B.D.; REFER TO I.D. DWGS.
107 3/8" THERMOCROMEX LIMESTONE PLASTER, SAND FINISH, COLOR T.B.D. 3/8" TYPICAL.
108 TRELLIS. 50 PERCENT OPEN TO THE SKY. DEPTH OF SLOTS TO BE EQUAL TO OR LESS THAN THE WIDTH OF EACH SLOT. PROVIDE SHOP DWGS.
109 REFER TO INTERIOR DESIGN DRAWINGS AND FINISH SCHEDULE.
110 RAMMED EARTH CONSTRUCTION.
111 STONE BENCH.

STRUCTURAL

200 FOUNDATION AND PILES. REFER TO STRUCT. DWGS.
201 COMPACTED EARTH. REFER TO STRCUT. DWGS.
202 RETAINING WALL. REFER TO STRUCT. DWGS.
203 CONCRETE SLAB. REFER TO STRUCT. DWGS.
204 CONCRETE COLUMN. REFER TO STRUCT. DWGS.
205 CONCRETE BEAM. REFER TO STRUCT. DWGS.
206 STEEL COLUMN. REFER TO STRUCT. DWGS.
207 CONCRETE STAIRS. REFER TO STRUCT. DWGS.
208 CONCRETE SHELL FOR POOL. REFER TO STRUCT. DWGS.
209 8" CMU REINFORCED WALL. REFER TO WALL TYPES AND STRUCT. DWGS
210 PROVIDE 2" RECESS ON SLABS ON ALL SHOWERS.
211 OPENING ON CONCRETE SLAB. REFER TO STRUCT. DWGS.

MEP

300 LIGHT FIXTURE/ SEE ARCH. RCP, ELECTRICAL DWGS. AND LIGHTING SPECIFICATIONS.
301 A/C PLENUM SPACE, REFER TO MECHANICAL DWGS. AND RCP. NO COMBUSTIBLES ALLOWED.
302 ROOF DRAIN, REFER TO PLUMBING DWGS. /SEE DETAIL.
303 FLOOR DRAIN, REFER TO PLUMBING DWGS./ SEE DETAIL.
304 DRAIN PIPE TO FIT IN CEILING SPACE, REFER TO PLUMBING DWGS. COORDINATE EXACT LOCATION AND SPECS.
305 KITCHEN HOOD, REFER TO MECH DWGS.
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307 DESIGNATED POOL EQUIPMENT AREA.
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Project No

1813

Project Name
VILLA COLEAVA

Project Address
25200 Pacific Coast Hwy.
Malibu, California, USA

Property Owner
PAR PCH, LLC
PO Box 6528
Malibu, CA 90265

Design Architect
Oppenheim Architecture
245 NE 37 Street
Miami FL 33137
P 305 576 8404
F 305 576 8433
W oppenoffice.com

Landscape Architect
[place]
3617 exposition boulevard
Los Angeles, CA 90016
P 310-450-8100
F 323-737-3290
W plac-e.com

Civil Engineers
LC Engineering Group
889 Pierce Ct., Ste. 101
Thousand Oaks, CA 91360
P 805-497-1244
P 818-991-7148
W lcegroupinc.com

Revisions

Mark	Date	Description

Title
AREA CALCULATION A

1/16" = 1'-0"

N

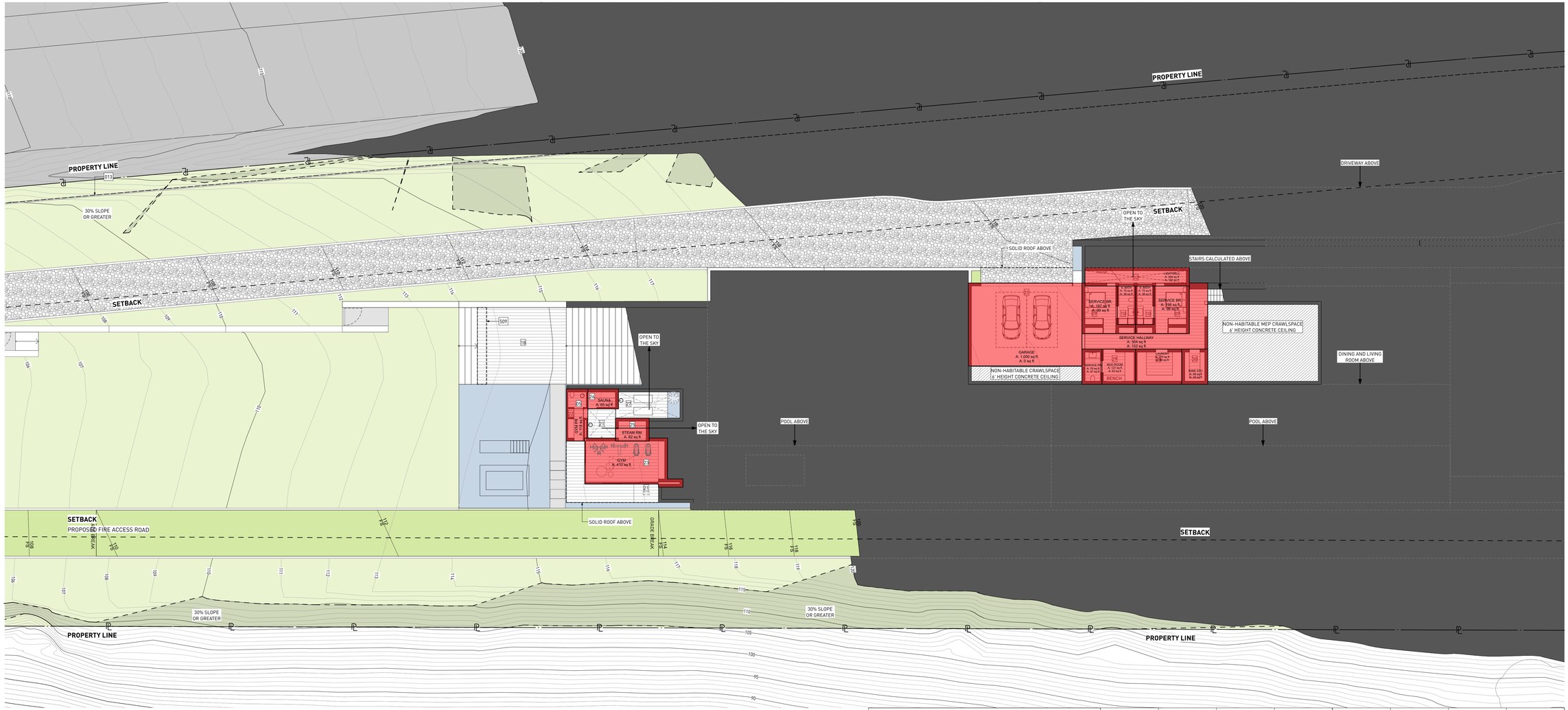
NOT FOR CONSTRUCTION

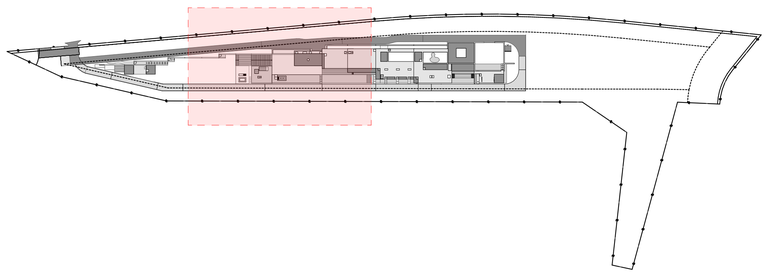
Design Development

1813
VILLA COLEAVA

Drawing Issued on 4/16/25

Z103





I OAD	Program Area I			STORY	PROGRAM	MEASURED AREA	CALCULATED AREA	STORY	PROGRAM	MEASURED AREA	CALCULATED AREA
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ASSESOR PARCEL #: 4459-013-021, 4459-014-018

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018 A/C CONDENSER UNITS BEHIND LANDSCAPE, BOTTOM OF UNITS TO BE ABOVE BFE +1', REFER TO MECHANICAL DWGS.
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102 IMPACT RESISTANT SLIDING ALUMINUM WINDOWS / DOORS SYSTEM, LOW-E COATING. REFER TO WINDOW SCHEDULE.
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109 REFER TO INTERIOR DESIGN DRAWINGS AND FINISH SCHEDULE.
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111 STONE BENCH.

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Project No

1813

Project Name
VILLA COLEAVA

Project Address
25200 Pacific Coast Hwy.
Malibu, California, USA

Property Owner
PAR PCH, LLC
PO Box 6528
Malibu, CA 90265

Design Architect
Oppenheim Architecture
245 NE 37 Street
Miami FL 33137
P 305 576 8404
F 305 576 8433
W oppenoffice.com

Landscape Architect
[place]
3617 exposition boulevard
Los Angeles, CA 90016
P 310-450-8100
F 323-737-3290
W plac-e.com

Civil Engineers
LC Engineering Group
889 Pierce Ct., Ste. 101
Thousand Oaks, CA 91360
P 805-497-1244
P 818-991-7148
W lcegroupinc.com

Revisions

Mark	Date	Description

Title
AREA CALCULATION B

1/16" = 1'-0"

N

NOT FOR CONSTRUCTION

Design Development

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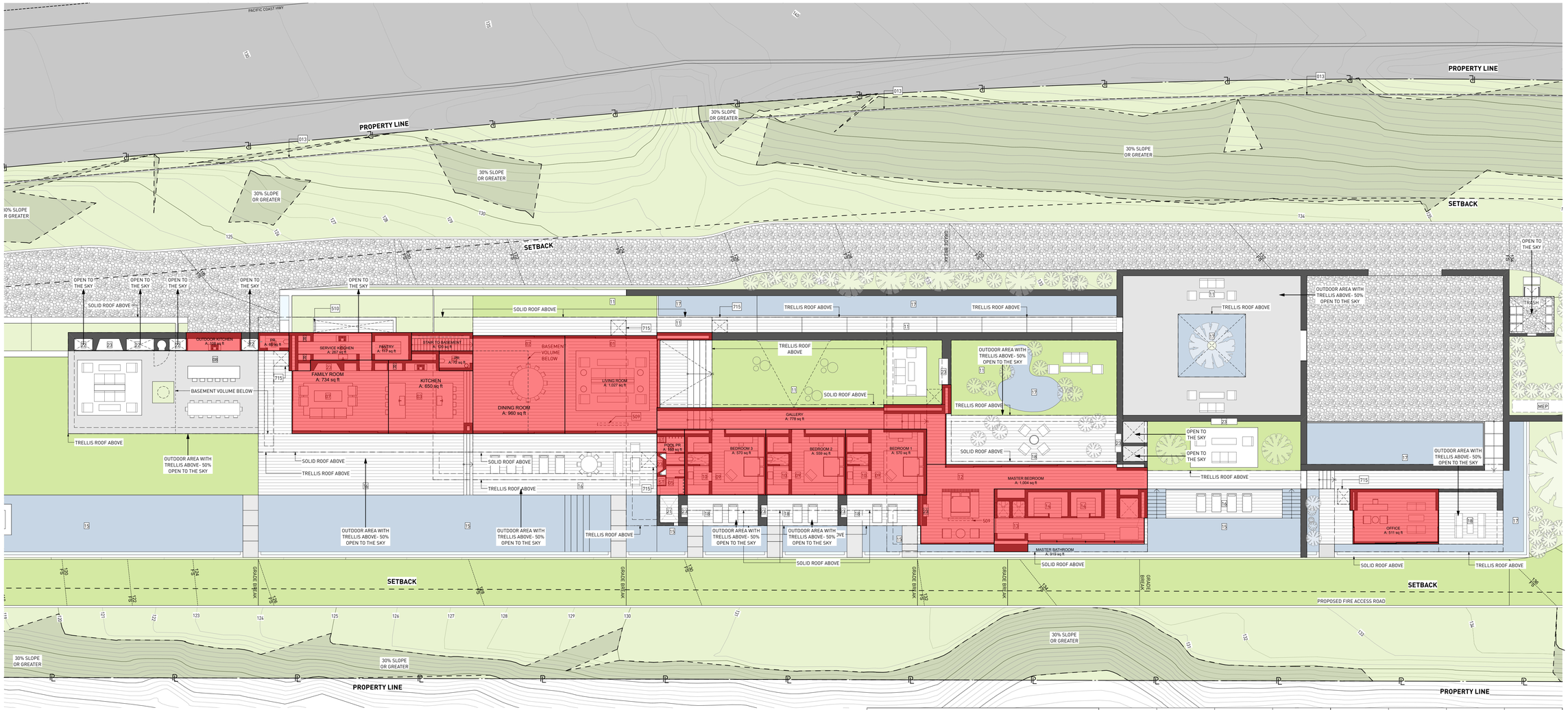
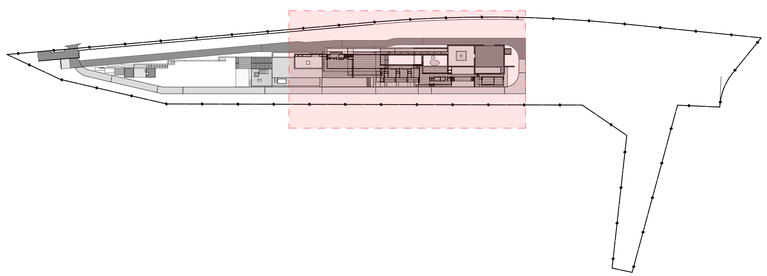
VILLA COLEAVA

Drawing Issued on 4/16/25

Z104





I OADI Program Area I											
STORY	PROGRAM	MEASURED AREA	CALCULATED AREA	STORY	PROGRAM	MEASURED AREA	CALCULATED AREA	STORY	PROGRAM	MEASURED AREA	CALCULATED AREA
GUEST HOUSE				**BASEMENT CONTINUED**				**GROUND LEVEL CONTINUED**			
					WINE STO.	97.75 /2 =	48.88		KITCHEN	649.50	649.50
	GUEST BATH	209.00	209.00			**BASEMENT LEVEL SUBTOTAL**	**761.65 sq ft**		LIVING ROOM	1,027.00	1,027.00
	GUEST BEDROOM	256.00	256.00	**GYM**					MASTER BATHROOM	919.00	919.00
		GUEST HOUSE LEVEL SUBTOTAL	**465.00 sq ft**		GYM	410.33	410.33		MASTER BEDROOM	1,004.00	1,004.00
BASEMENT					GYM PR	118.00	118.00		OFFICE	511.00	511.00
	GARAGE	1,000.00	0.00		SAUNA	65.00	65.00		OUTDOOR KITCHEN	108.00	108.00
	LAUNDRY	172.50 /2 =	86.25		STEAM RM.	82.50	82.50		PANTRY	117.00	117.00
	LIGHTWELL	204.00 /2 =	102.00			**GYM LEVEL SUBTOTAL**	**675.83 sq ft**		POOL PR	193.50	193.50
	MUD ROOM	126.50 /2 =	63.25	**GROUND LEVEL**					PR	131.50	131.50
	S. BATH	75.00 /2 =	37.50		BEDROOM 1	569.75	569.75		SERVICE KITCHEN	267.50	267.50
	S. BATH	75.00 /2 =	37.50		BEDROOM 2	559.00	559.00		STAIR TO BASEMENT	120.00	120.00
	SERVICE BR.	197.25 /2 =	98.63		BEDROOM 3	569.75	569.75			**GROUND LEVEL SUBTOTAL**	**9,218.50 sq ft**
	SERVICE BR.	196.25 /2 =	98.13		DINING ROOM	960.00	960.00			**TOTAL AREA**	**11,120.98 sq ft**
	SERVICE HALLWAY	304.00 /2 =	152.00		FAMILY ROOM	734.00	734.00			**ALLOWABLE AREA**	**11,172.00 sq ft**
	SERVICE PR	75.00 /2 =	37.50		GALLERY	778.00	778.00				

ASSESOR PARCEL #: 4459-013-021, 4459-014-018

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015 TRASH ENCLOSURE AREA
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Project No

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VILLA COLEAVA

Project Address
25200 Pacific Coast Hwy.
Malibu, California, USA

Property Owner
PAR PCH, LLC
PO Box 6528
Malibu, CA 90265

Design Architect
Oppenheim Architecture
245 NE 37 Street
Miami FL 33137
P 305 576 8404
F 305 576 8433
W oppenoffice.com

Landscape Architect
[place]
3617 exposition boulevard
Los Angeles, CA 90016
P 310-450-8100
F 323-737-3290
W plac-e.com

Civil Engineers
LC Engineering Group
889 Pierce Ct., Ste. 101
Thousand Oaks, CA 91360
P 805-497-1244
P 818-991-7148
W lcegroupinc.com

Revisions

Mark	Date	Description

Title
AREA CALCULATION C

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Design Development

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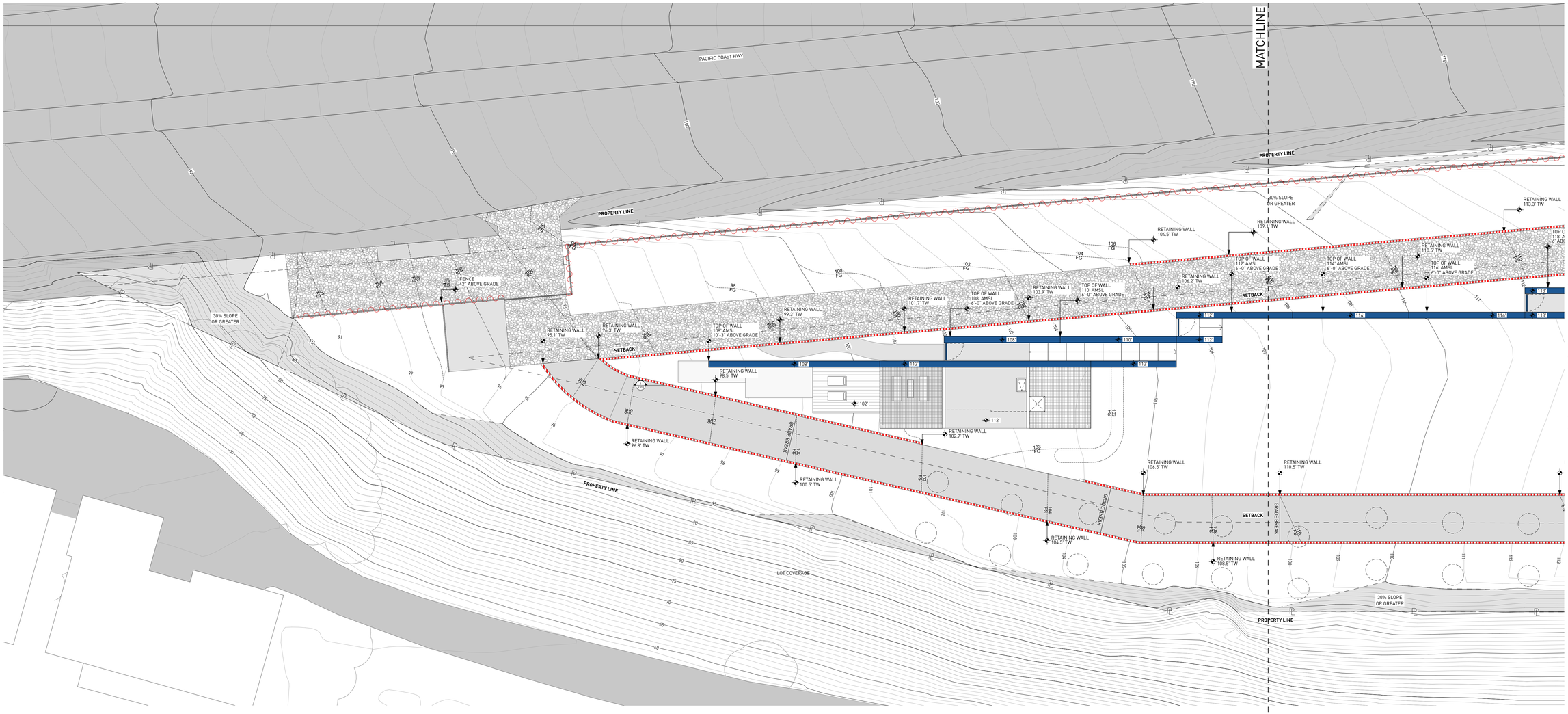
Drawing Issued on 4/16/25

Z105



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Project No

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Project Name
VILLA COLEAVA

Project Address
25200 Pacific Coast Hwy.
Malibu, California, USA

Property Owner
PAR PCH, LLC
PO Box 6528
Malibu, CA 90265

Design Architect
Oppenheim Architecture
245 NE 37 Street
Miami FL 33137
P 305 576 8404
F 305 576 8433
W oppenoffice.com

Landscape Architect
[place]
3617 exposition boulevard
Los Angeles, CA 90016
P 310-450-8100
F 323-737-3290
W plac-e.com

Civil Engineers
LC Engineering Group
889 Pierce Ct., Ste. 101
Thousand Oaks, CA 91360
P 805-497-1244
P 818-991-7148
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Mark	Date	Description

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WALL AND FENCE PLAN A

1/16" = 1'-0"

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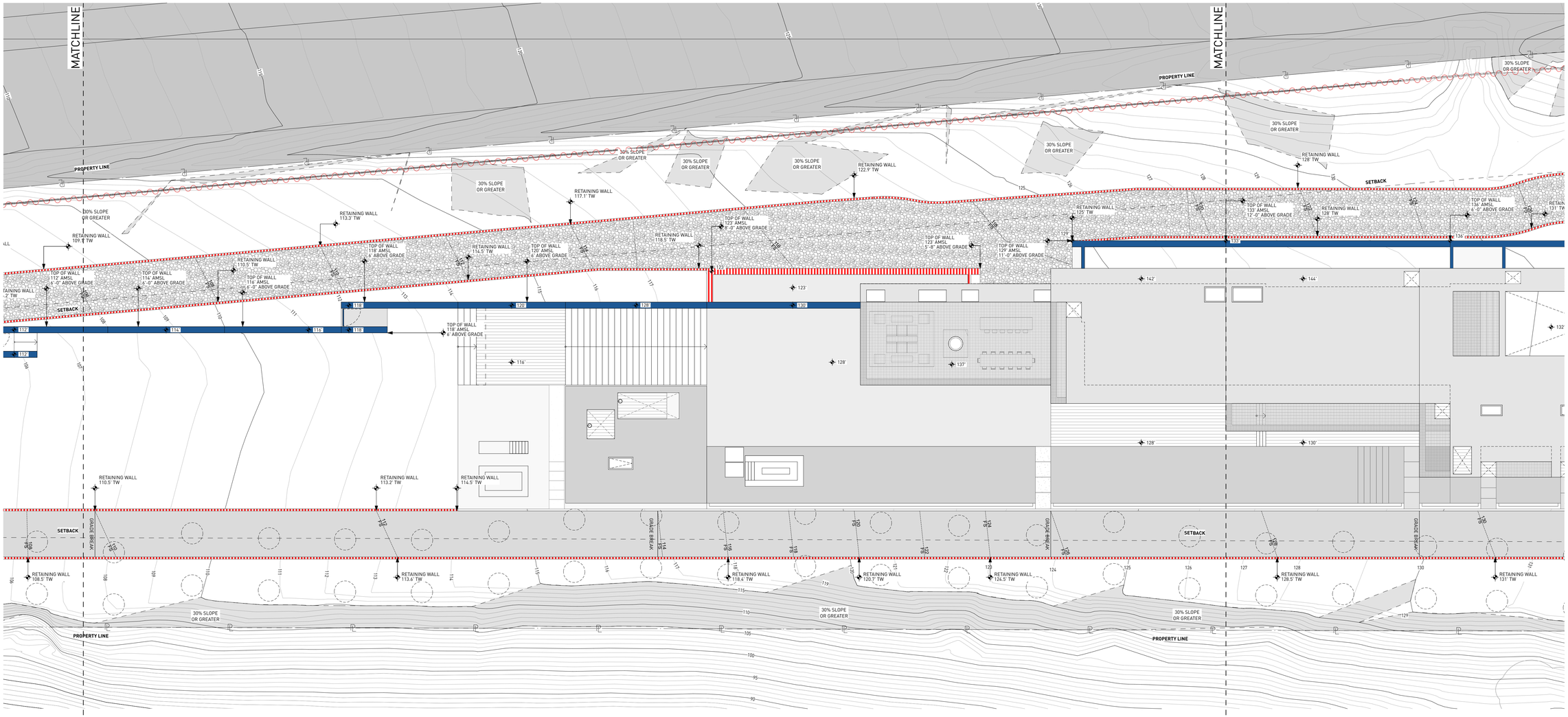

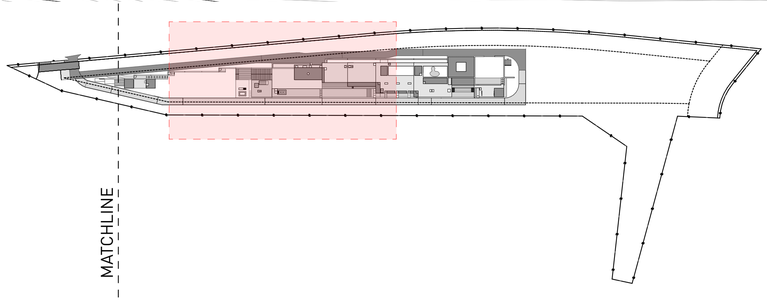

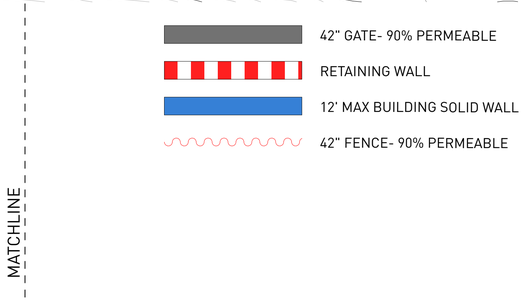

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Project Address
25200 Pacific Coast Hwy.
Malibu, California, USA

Property Owner
PAR PCH, LLC
PO Box 6528
Malibu, CA 90265

Design Architect
Oppenheim Architecture
245 NE 37 Street
Miami FL 33137
P 305 576 8404
F 305 576 8433
W oppenoffice.com

Landscape Architect
[place]
3617 exposition boulevard
Los Angeles, CA 90016
P 310-450-8100
F 323-737-3290
W plac-e.com

Civil Engineers
LC Engineering Group
889 Pierce Ct., Ste. 101
Thousand Oaks, CA 91360
P 805-497-1244
P 818-991-7148
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Revisions

Mark	Date	Description

Title
WALL AND FENCE PLAN B

1/16" = 1'-0"

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Drawing Issued on 4/16/25

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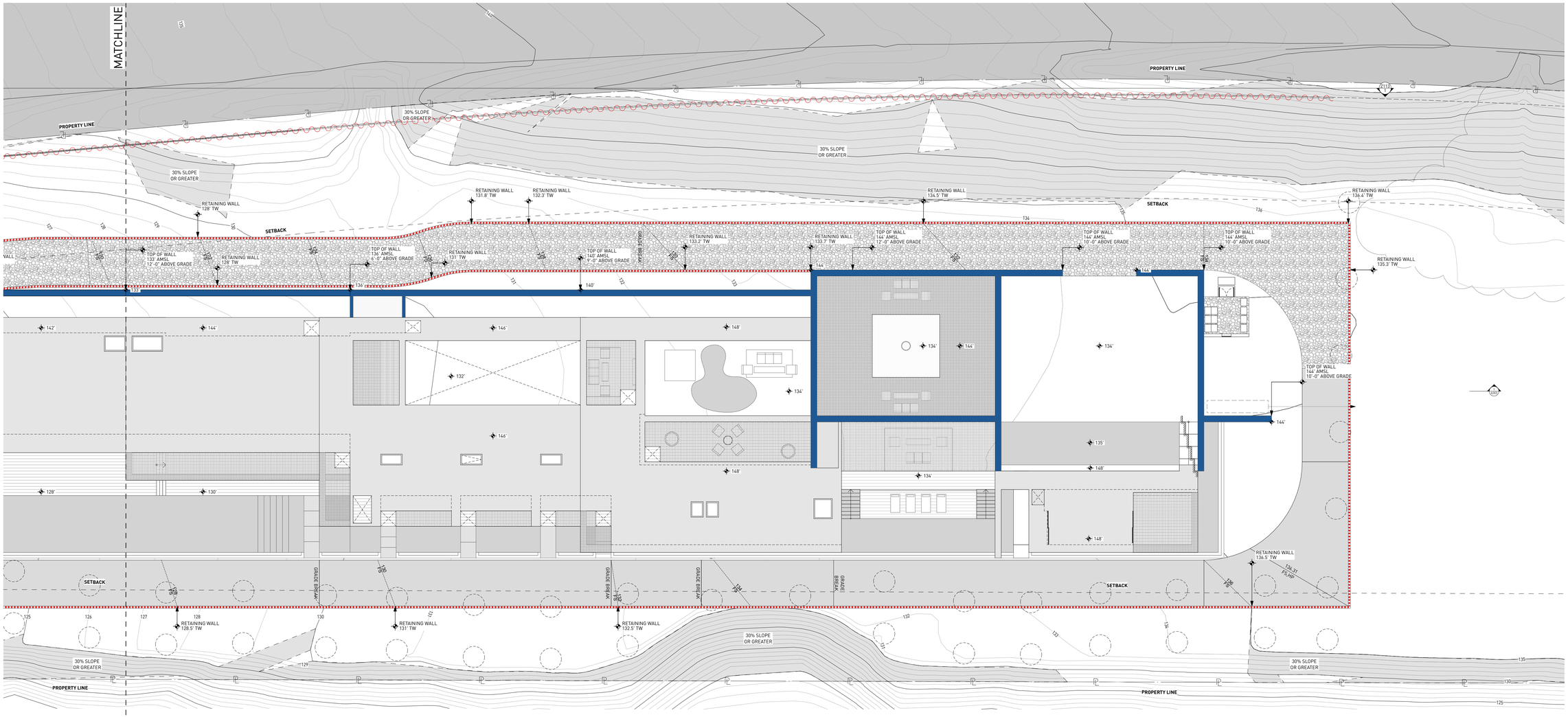

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109 REFER TO INTERIOR DESIGN DRAWINGS AND FINISH SCHEDULE.
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Project No

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VILLA COLEAVA

Project Address
25200 Pacific Coast Hwy.
Malibu, California, USA

Property Owner
PAR PCH, LLC
PO Box 6528
Malibu, CA 90265

Design Architect
Oppenheim Architecture
245 NE 37 Street
Miami FL 33137
P 305 576 8404
F 305 576 8433
W oppenoffice.com

Landscape Architect
[place]
3617 exposition boulevard
Los Angeles, CA 90016
P 310-450-8100
F 323-737-3290
W plac-e.com

Civil Engineers
LC Engineering Group
889 Pierce Ct., Ste. 101
Thousand Oaks, CA 91360
P 805-497-1244
P 818-991-7148
W lcegroupinc.com

Revisions

Mark	Date	Description

Title
WALL AND FENCE PLAN C

1/16" = 1'-0"

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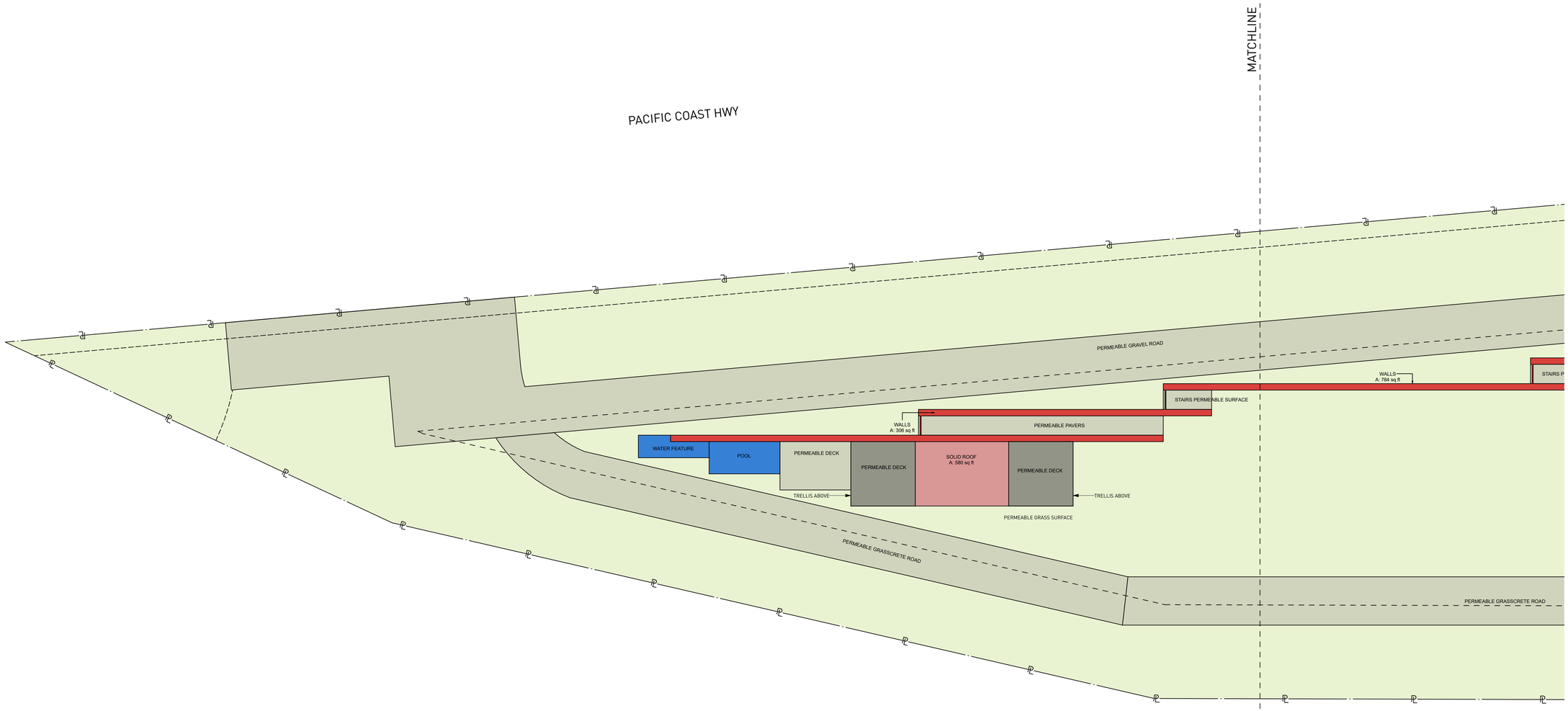

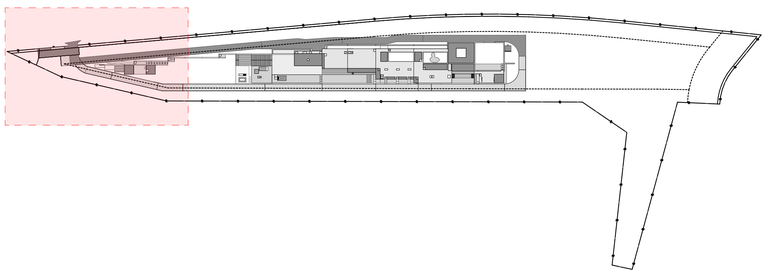

LOT COVERAGE			
STORY	PROGRAM	MEASURED AREA	
	BASEMENT BELOW	960.75	
	FIREPIT	190.00	
	GYM PR	110.49	
	GYM/SPA + TERRACE	669.33	
	IMPERMEABLE DECK	1,450.49	
	MEP EQUIPMENT	271.28	
	OUTDOOR MASSAGE RM.	231.00	
	OUTDOOR SHOWER	99.75	
	SAUNA	61.75	
	SOLID ROOF	14,570.27	
	STEAM RM.	71.50	
	WALLS	2,592.67	
	TOTAL LOT COVERAGE	**21,279.28 ft²**	
	ALLOWED LOT COVERAGE	**25,000.00 sq ft**	
	PERMEABLE SURFACE		
	PERMEABLE WATER FEATURE		

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Malibu, California, USA

Property Owner
PAR PCH, LLC
PO Box 6528
Malibu, CA 90265

Design Architect
Oppenheim Architecture
245 NE 37 Street
Miami FL 33137
P 305 576 8404
F 305 576 8433
W oppenoffice.com

Landscape Architect
[place]
3617 exposition boulevard
Los Angeles, CA 90016
P 310-450-8100
F 323-737-3290
W plac-e.com

Civil Engineers
LC Engineering Group
889 Pierce Ct., Ste. 101
Thousand Oaks, CA 91360
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Mark	Date	Description

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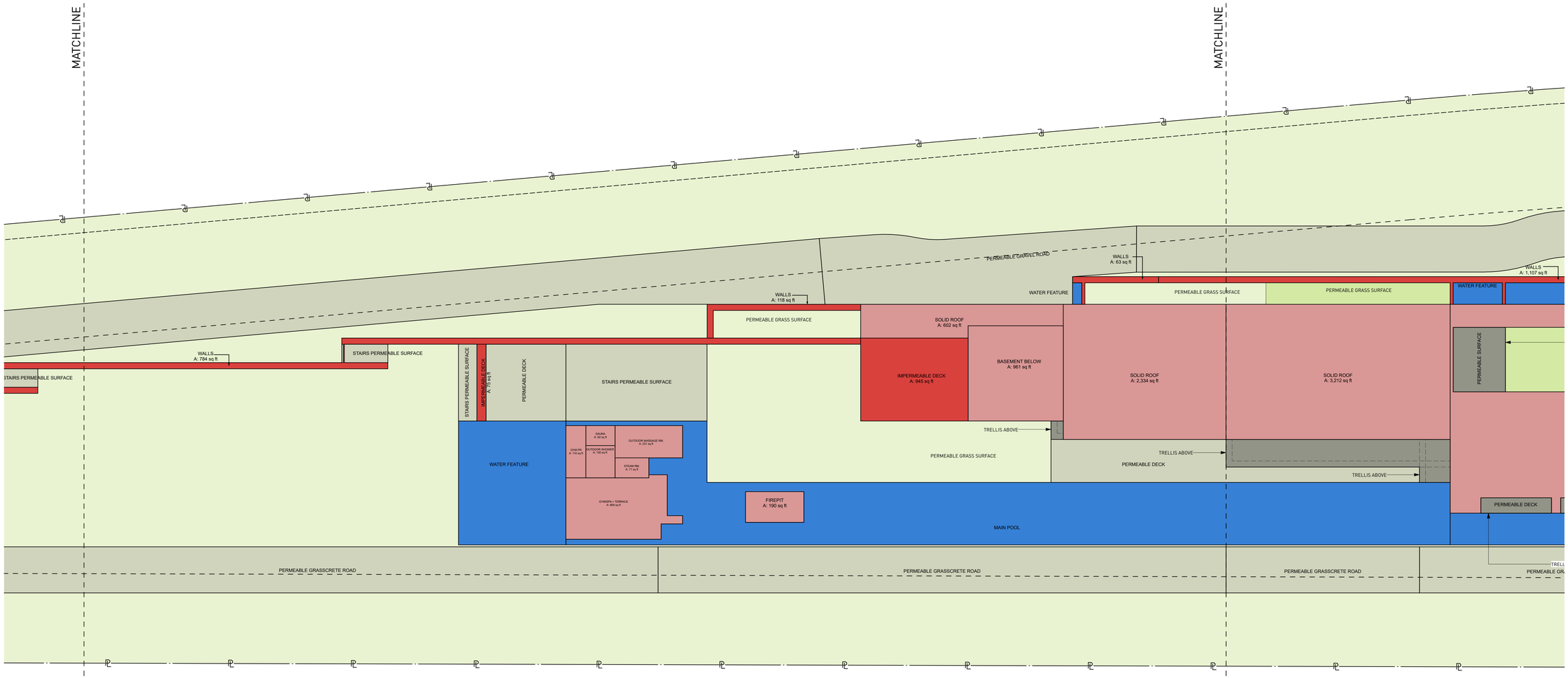

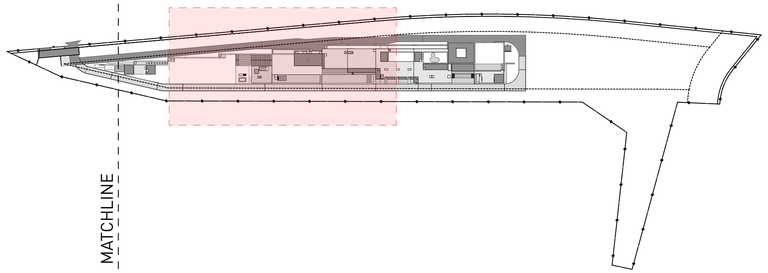

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317 MOTORIZED VEHICULAR GATE. REFER TO ELECT. DWGS.
318 ALL TOILETS TO BE WALL HUNG. REFER TO MECH. DWGS.
319 LINEAR DRAIN
320 OVERFLOW SCUPPER.

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400 CONTINUOUS VAPOR BARRIER. REFER TO ARCH AND STRUCTURAL DWGS.
401 WATERPROOFING MEMBRANE. REFER TO ARCH AND STRUCTURAL DWGS.
402 POOL FINISH/ COLOR TBD.

MISC. ARCHITECTURAL DETAILS

500 CURTAIN CEILING COVE. REFER TO ARCH. DETAIL.
501 CONTINUOUS 1/2" TOOLED WATER DRIP. SEE ARCH. DETAIL.
502 VENT.
503 KITCHEN, BUILT-IN FURNITURE, CABINETRY BY OTHERS. REFER TO KITCHEN SHOP DWGS.
504 5/8" GWB DROPPED CEILING ON 3/4" FURRING STRIPS. PAINTED GWB. COLOR TBD.
505 STAINLESS STEEL SCUPPER IN CONCRETE STRUCTURE. 3" X 3" MIN.OPENING. REFER TO ELEVATION AND PLAN FOR LOCATION.
506 CUSTOM WOOD MILLWORK, REFER TO I.D. DRAWINGS
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LOT COVERAGE

STORY	PROGRAM	MEASURED AREA	
	BASEMENT BELOW	960.75	
	FIREPIT	190.00	
	GYM PR	110.49	
	GYM/SPA + TERRACE	669.33	
	IMPERMEABLE DECK	1,450.49	
	MEP EQUIPMENT	271.28	
	OUTDOOR MASSAGE RM.	231.00	
	OUTDOOR SHOWER	99.75	
	SAUNA	61.75	
	SOLID ROOF	14,570.27	
	STEAM RM.	71.50	
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	TOTAL LOT COVERAGE	**21,279.28 ft²**	
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Project No

1813

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VILLA COLEAVA

Project Address
25200 Pacific Coast Hwy.
Malibu, California, USA

Property Owner
PAR PCH, LLC
PO Box 6528
Malibu, CA 90265

Design Architect
Oppenheim Architecture
245 NE 37 Street
Miami FL 33137
P 305 576 8404
F 305 576 8433
W oppenoffice.com

Landscape Architect
[place]
3617 exposition boulevard
Los Angeles, CA 90016
P 310-450-8100
F 323-737-3290
W plac-e.com

Civil Engineers
LC Engineering Group
889 Pierce Ct., Ste. 101
Thousand Oaks, CA 91360
P 805-497-1244
P 818-991-7148
W lcegroupinc.com

Revisions

Mark	Date	Description

Title
LOT COVERAGE B

1/16" = 1'-0"

N

NOT FOR CONSTRUCTION

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Drawing Issued on 4/16/25

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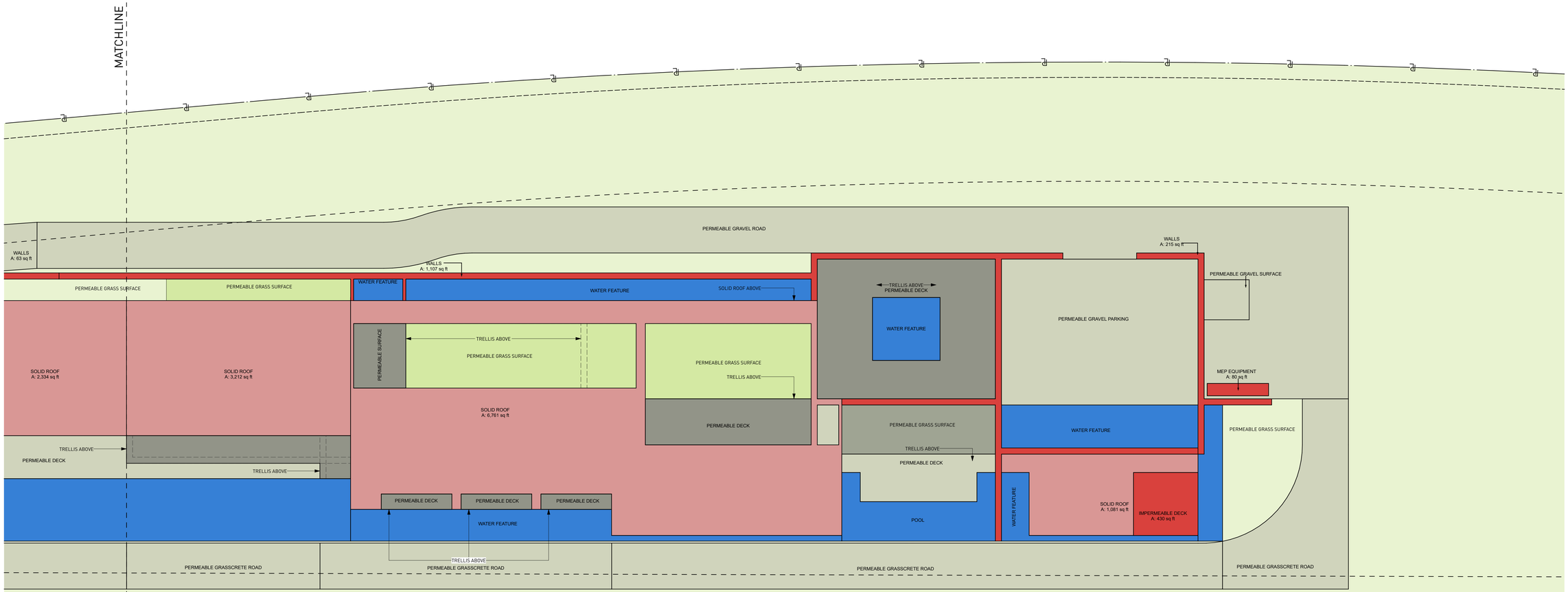

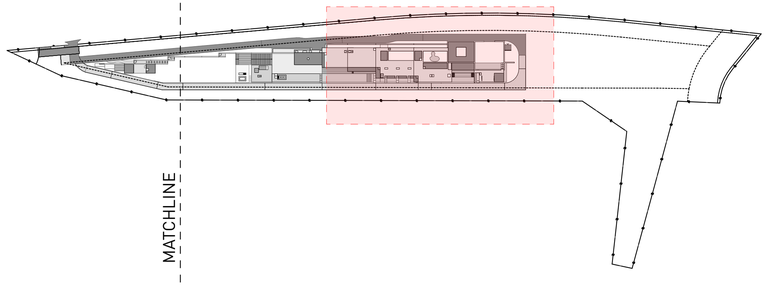

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STORY	PROGRAM	MEASURED AREA	
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	FIREPIT	190.00	
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	SAUNA	61.75	
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Project Address
25200 Pacific Coast Hwy.
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Property Owner
PAR PCH, LLC
PO Box 6528
Malibu, CA 90265

Design Architect
Oppenheim Architecture
245 NE 37 Street
Miami FL 33137
P 305 576 8404
F 305 576 8433
W oppenoffice.com

Landscape Architect
[place]
3617 exposition boulevard
Los Angeles, CA 90016
P 310-450-8100
F 323-737-3290
W plac-e.com

Civil Engineers
LC Engineering Group
889 Pierce Ct., Ste. 101
Thousand Oaks, CA 91360
P 805-497-1244
P 818-991-7148
W lcegroupinc.com

Revisions

Mark	Date	Description

Title
LOT COVERAGE C

1/16" = 1'-0"

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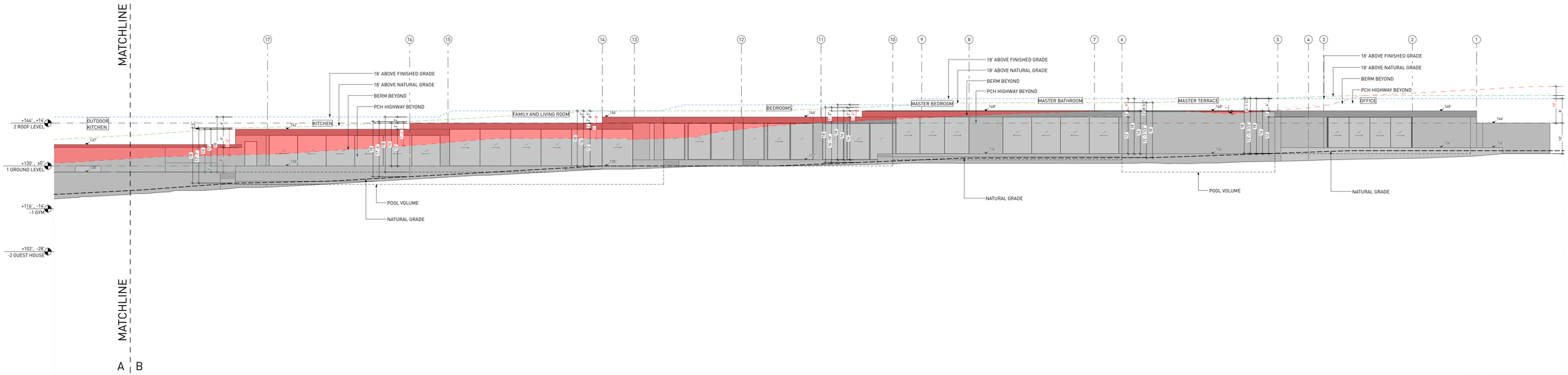
NOT FOR CONSTRUCTION

Design Development

1813
VILLA COLEAVA

Drawing Issued on 4/16/25

Z111



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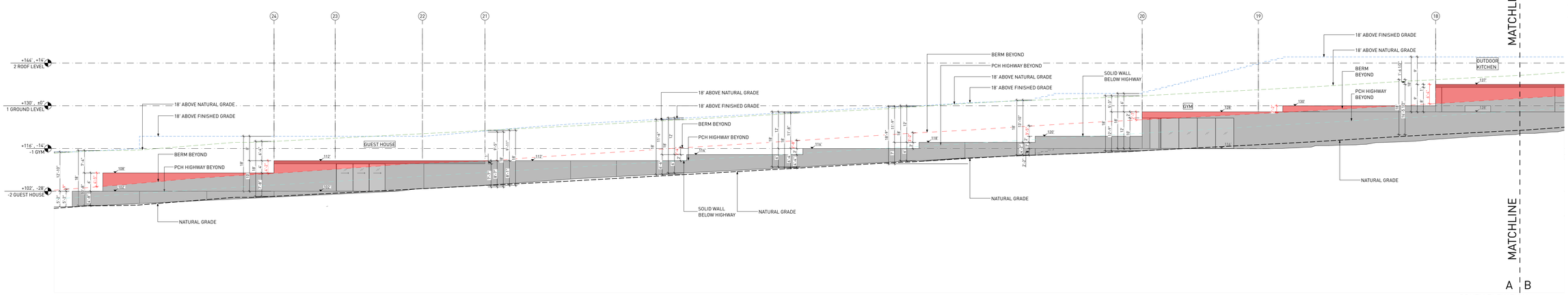

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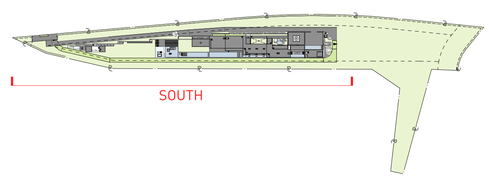
BELOW PACIFIC COAST HIGHWAY PROTRUSION ABOVE BERM



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1/16" = 1'-0"

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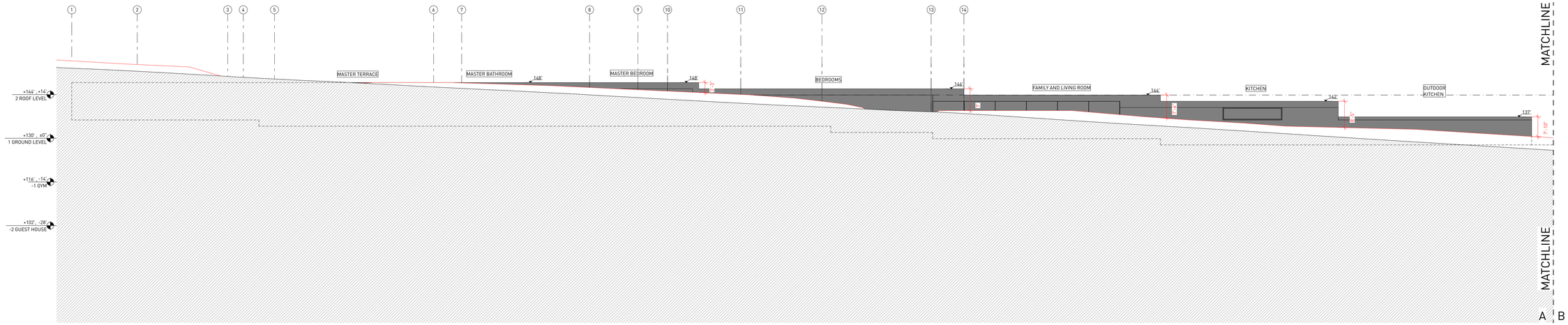
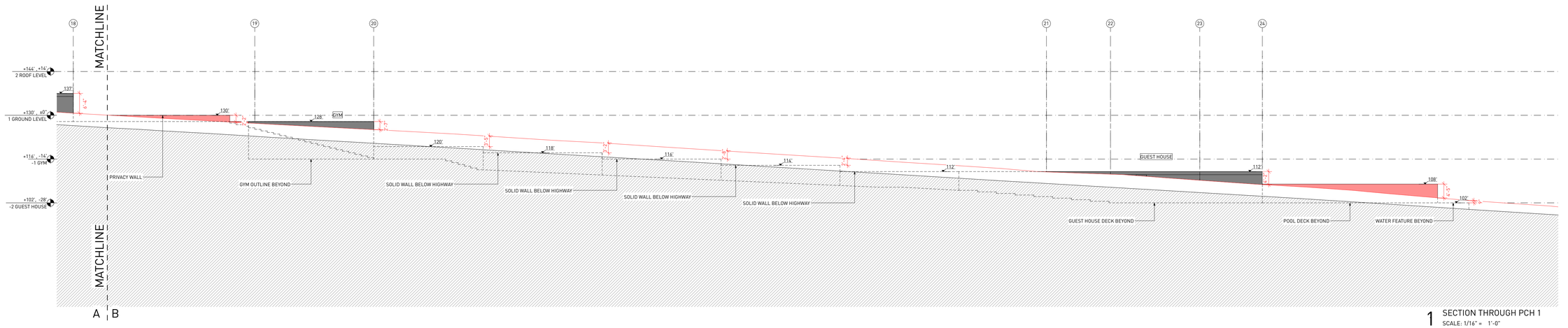


2 12 SECTION THROUGH PCH 2
SCALE: 1/16" = 1'-0"



1 SECTION THROUGH PCH 1
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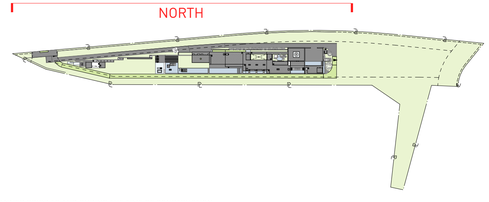
BERM

ROOF STRUCTURES ABOVE BERM

WALL PROTRUSION ABOVE BERM



KEY NOTES:

SITE

001 MAINTAIN ALL WATER RUNOFF WITHIN PROPERTY. SLOPE AWAY FROM P.L. AT A MIN. SLOPE OF ¼" /FT., REFER TO CIVIL DWGS.
002 TREES/LANDSCAPING PLANTING/GROUND COVER/LAWN, REFER TO LANDSCAPE DWGS.
003 HEDGE. REFER TO LANDSCAPE DWGS.
004 HARDSCAPE. REFER TO LANDSCAPE DWGS.
005 DRIVEWAY. GRAVEL ON GRADE. REFER TO CIVIL & LANDSCAPE DWGS.
006 WOOD DECK. SIZE OF PLANKS T.B.D. FINISH T.B.D.
007 UNDERGROUND DRAINAGE SYSTEM. REFER TO CIVIL DWGS.
008 INFINITY POOL EDGE
009 OPEN PARKING, REFER TO CIVIL FOR DETAILS
010 6'-0" SITE RETAINING WALL. REFER TO STRUCTURAL AND LANDSCAPE DWGS.
011 PEDESTRIAN GATE DOOR. PROVIDE SHOP DWGS. FOR ARCHITECT REVIEW.
012 42" MOTORIZED VEHICULAR SLIDING ENTRY GATE. STEEL FRAME. 90% VISUALLY PERMEABLE.
013 42" PERIMETER FENCE. 90% VISUALLY PERMEABLE.
014 CALL BOX
015 TRASH ENCLOSURE AREA
016 STRUCTURAL GRASS DRIVEWAY. GRASSCRETE OR SIMILAR. REFER TO CIVIL & LANDSCAPE DWGS.
017 GENERATOR ON EXISTING CONCRETE PLINTH, BOTTOM OF GENERATOR TO BE ABOVE BFE +1', REFER TO ELECTRICAL DWGS.
018 A/C CONDENSER UNITS BEHIND LANDSCAPE, BOTTOM OF UNITS TO BE ABOVE BFE +1', REFER TO MECHANICAL DWGS.
019 NATURAL LAWN AREA. REFER TO LANDSCAPE DWGS.

MATERIALS

100 ARCHITECTURAL EXPOSED CONCRETE, COLOR T.B.D. REFER TO STRUCTURAL DRAWINGS AND ARCHITECTURAL DETAILS.
101 CUSTOM WOOD DOOR. REFER TO DOOR SCHEDULE.
102 IMPACT RESISTANT SLIDING ALUMINUM WINDOWS / DOORS SYSTEM, LOW-E COATING. REFER TO WINDOW SCHEDULE.
103 PRE-FABRICATED SKYLIGHT ON CONCRETE CURB. REFER TO WINDOW SCHEDULE. SEE SECTION AND DETAILS.
104 GARAGE STEEL DOOR CLADDED WITH CUSTOM CONCRETE PANELS. REFER TO DOOR SCHEDULE.
105 GRAVEL.
106 5/8" G.W.B., FINISH T.B.D.; REFER TO I.D. DWGS.
107 3/8" THERMOCROMEX LIMESTONE PLASTER, SAND FINISH, COLOR T.B.D. 3/8" TYPICAL.
108 TRELLIS. 50 PERCENT OPEN TO THE SKY. DEPTH OF SLOTS TO BE EQUAL TO OR LESS THAN THE WIDTH OF EACH SLOT. PROVIDE SHOP DWGS.
109 REFER TO INTERIOR DESIGN DRAWINGS AND FINISH SCHEDULE.
110 RAMMED EARTH CONSTRUCTION.
111 STONE BENCH.

STRUCTURAL

200 FOUNDATION AND PILES. REFER TO STRUCT. DWGS.
201 COMPACTED EARTH. REFER TO STRCUT. DWGS.
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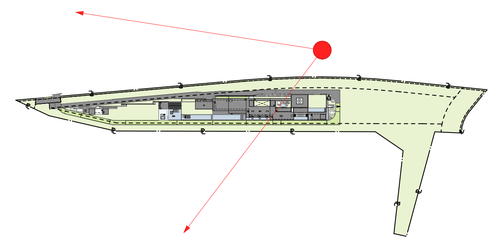

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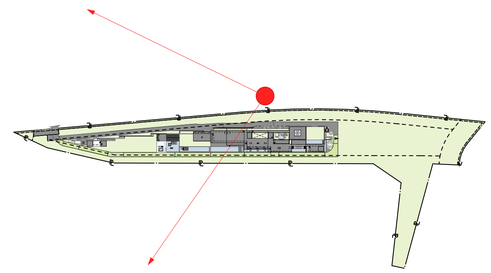

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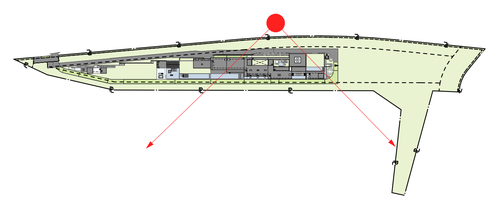

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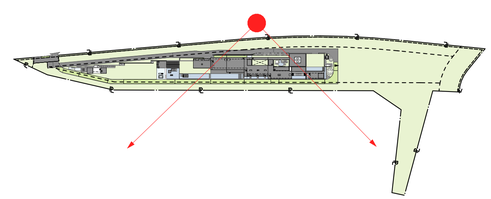

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Revisions

Mark	Date	Description

Title
RENDERING

NOT FOR CONSTRUCTION

Design Development

1813
VILLA COLEAVA

Drawing Issued on 4/16/25

Z117

LEGAL DESCRIPTION

PARCEL 1 (FEE):

THAT PORTION OF THE RANCHO TOPANGA MALIBU SEQUIT AS CONFIRMED TO MATTHEW KELLER, BY PATENT RECORDED IN BOOK 1 PAGE 407, ET SEQ. OF PATENTS, IN THE OFFICE OF THE COUNTY RECORDER OF SAID COUNTY, DESCRIBED AS FOLLOWS:

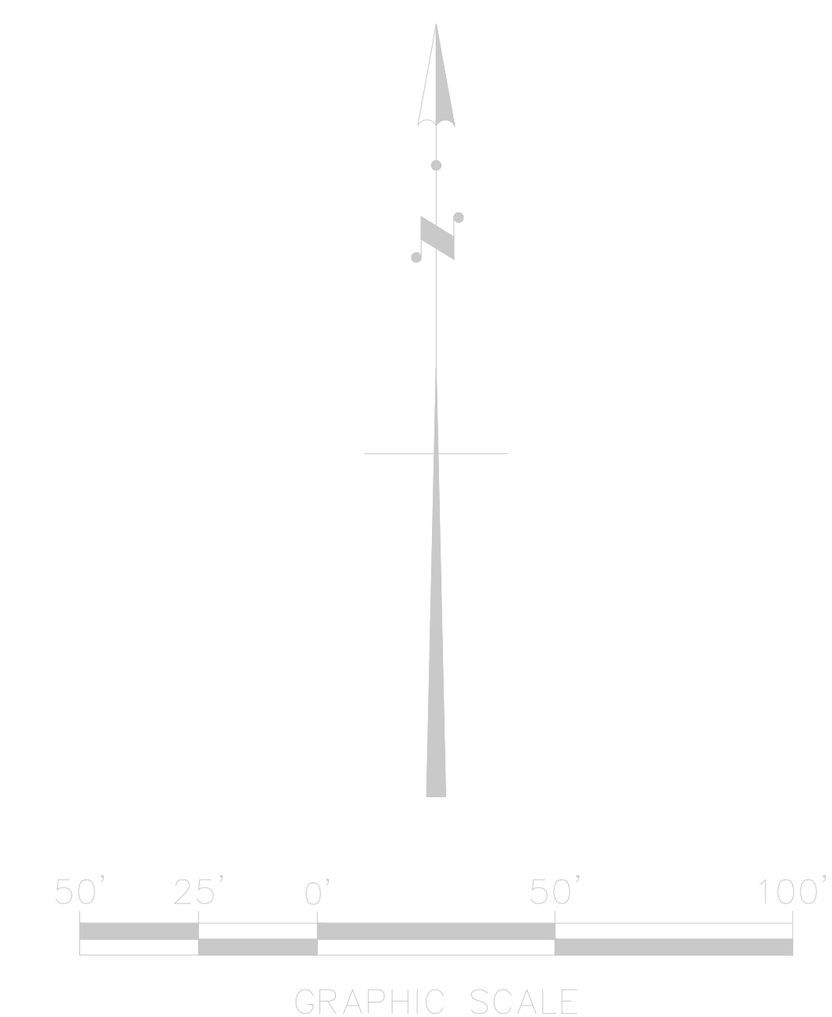
BEGINNING AT A POINT IN THE NORTHERLY LINE OF MALIBU ROAD, FORMERLY STATE HIGHWAY, NOW 60 FEET IN WIDTH, AS RELINQUISHED TO THE COUNTY OF LOS ANGELES, BY RESOLUTION OF THE CALIFORNIA STATE HIGHWAY COMMISSION, RECORDED MARCH 16, 1949 AS INSTRUMENT NO. 1521 IN BOOK 29600 PAGE 181, OFFICIAL RECORDS OF SAID COUNTY, DISTANT NORTH 81°30'15" WEST 361.86 FEET FROM THE MOST WESTERLY CORNER OF TRACT 18868, AS PER MAP RECORDED IN BOOK 551 PAGES 12 AND 13 OF MAPS, RECORDS OF SAID COUNTY; THENCE NORTH 81°30'15" WEST ALONG SAID NORTHERLY LINE, 45.83 FEET; THENCE LEAVING SAID NORTHERLY LINE NORTH 2°46'20" EAST 298.59 FEET; THENCE NORTH 59°14'25" WEST 120.39; THENCE SOUTH 86°36'52" WEST 929.66 FEET; THENCE NORTH 80°33'30" WEST 242.75 FEET; THENCE NORTH 68°47'10" WEST 132.79 FEET TO A POINT IN THE SOUTHERLY LINE OF PACIFIC COAST HIGHWAY, 100 FEET IN WIDTH, AS DESCRIBED IN PARCEL 1 IN DEED TO THE STATE OF CALIFORNIA, RECORDED MARCH 22, 1944 AS INSTRUMENT NO. 1279, IN BOOK 20743 PAGE 271, OFFICIAL RECORDS, SAID POINT BEING DISTANT SOUTH 81°23'21" WEST 823.85 FEET AND SOUTH 8°36'39" EAST 50.00 FEET FROM A BRASS CAP MONUMENT SET BY THE LOS ANGELES COUNTY SURVEYOR ON THE CENTER LINE OF SAID PACIFIC COAST HIGHWAY AT THE EASTERLY EXTREMITY OF THAT CERTAIN COURSE SHOWN AS "NORTH 81°20'29" EAST 1403.08 FEET" IN COUNTY SURVEYORS MAP NO. B-1698 SHEET 3; THENCE ALONG SAID SOUTHERLY LINE, NORTH 81°23'21" EAST 822.02 FEET TO THE BEGINNING OF A TANGENT CURVE CONCAVE TO THE SOUTH HAVING A RADIUS OF 2950 FEET; THENCE EASTERLY ALONG THE ARC OF SAID CURVE THROUGH A CENTRAL ANGLE OF 10°51'24", A DISTANCE OF 558.98 FEET TO END OF SAME; THENCE TANGENT SOUTH 87°45'15" EAST 311.34 FEET TO AN INTERSECTION WITH THE WESTERLY LINE OF PUERCO CANYON ROAD, 60 FEET IN WIDTH; THENCE ALONG SAID PUERTO CANYON ROAD, SOUTH 35°26'25" WEST 101.45 FEET TO A POINT OF THE BEGINNING OF A TANGENT CURVE CONCAVE TO THE EAST HAVING A RADIUS OF 130 FEET, SAID POINT BEING DISTANT NORTH 54°33' 35" WEST 30.00 FEET FROM A POINT AT THE SOUTHERLY EXTREMITY OF THAT CERTAIN CENTER LINE COURSE SHOWN AS "NORTH 35°33'00" EAST 139.12 FEET" IN COUNTY SURVEYORS MAP NO.8839, SHEET 1. THENCE SOUTHERLY ALONG THE ARC OF SAID CURVE THROUGH A CENTRAL ANGLE OF 36°26'10", A DISTANCE OF 82.67 FEET TO END OF CURVE; THENCE ALONG THE PROLONGATION OF A RADIAL LINE TO THE END OF SAID CURVE, SOUTH 89°00'15" WEST 94.52 FEET TO AN INTERSECTION WITH THE WESTERLY LINE OF PARCEL 2, AS DESCRIBED IN DOCUMENT RECORDED IN BOOK 42828 PAGE 46, OFFICIAL RECORDS OF SAID COUNTY; THENCE ALONG SAID WESTERLY LINE OF PARCEL 2, SOUTH 11°37'51" WEST 387.44 FEET, MORE OR LESS, TO THE POINT OF BEGINNING.

EXCEPT THEREFROM ALL MINERALS, OIL, PETROLEUM, ASPHALTUM, GAS, COAL AND OTHER HYDROCARBON SUBSTANCES IN, ON, WITHIN AND UNDER SAID LANDS AND EVERY PART THEREOF, BUT WITHOUT RIGHT OF ENTRY, AS RESERVED BY MARBLEHEAD LAND COMPANY, A DELAWARE CORPORATION, IN DEED RECORDED APRIL 7, 1952 IN BOOK 38646 PAGE 104, OFFICIAL RECORDS.

PARCEL 2 (EASEMENT):

AN EASEMENT FOR PEDESTRIAN TRAVEL, BATHING AND RECREATIONAL PURPOSES ONLY AND NOT FOR CAMPING, ERECTING TENTS OR BUILDINGS, MAINTAINING CONCESSIONS, LIGHTING FIRES OR CONSTRUCTING AND MAINTAINING PIERS, DOCKS, WHARVES, GROINS OR ANY STRUCTURES INTERFERING OR TENDING TO INTERFERE WITH SAID TRAVEL IN OCEAN WATER OVER LOT 64 OF TRACT 13157, AS PER MAP RECORDED IN BOOK 272 PAGES 18 AND 19 OF MAPS, IN THE OFFICE OF THE COUNTY RECORDER OF SAID COUNTY; AND OVER THAT PORTION OF THE RANCHO TOPANGA MALIBU SEQUIT, AS CONFIRMED TO MATTHEW KELLER BY PATENT RECORDED IN BOOK 1 PAGE 407, ET SEQ., OF PATENTS, IN THE OFFICE OF THE COUNTY RECORDER OF SAID COUNTY, BOUNDED ON THE NORTH BY THE 60 FOOT STRIP OF LAND RELINQUISHED TO THE COUNTY OF LOS ANGELES BY RESOLUTION OF THE CALIFORNIA STATE HIGHWAY COMMISSION,, RECORDED MARCH 16, 1949 IN BOOK 29600 PAGE 281, OFFICIAL RECORDS, IN THE OFFICE OF THE COUNTY RECORDER OF SAID COUNTY; BOUNDED ON THE SOUTH BY THE NORTHERLY LINE OF LOT 64 OF TRACT 13157, AS PER MAP RECORDED IN BOOK 272 PAGES 18 AND 19 OF MAPS, IN THE OFFICE OF THE COUNTY RECORDER OF SAID COUNTY; BOUNDED ON THE EAST BY THE NORTHERLY PROLONGATION OF THE EASTERLY LINE OF SAID LOT 64; AND BOUNDED ON THE WEST BY THE NORTHERLY PROLONGATION OF THE WESTERLY LINE OF SAID LOT 64.

NOTE: PARCEL 2 IS NOT CONTIGUOUS TO PARCEL 1 AND IS NOT SHOWN HEREON.



COMMENTS:

BOUNDARY LINES . . . . . . SHOWN PER RECORD OF SURVEY RECORDED IN BOOK 134, PAGE 11 OF RECORDS OF SURVEYS, COUNTY OF LOS ANGELES.

LEGAL DESCRIPTION . . . . FROM INFORMATION SUPPLIED BY CLIENT. USUALLY A TITLE POLICY OR TITLE REPORT.

EASEMENTS . . . . .PLOTTABLE EASEMENTS ARE SHOWN FROM AN OWNER SUPPLIED TITLE REPORT. NON-PLOTTABLE ONES ARE NOTED ON THE SURVEY AS HAVING "EFFECT OF". BECAUSE OUR SERVICE IS LIMITED TO REPORTING ON EASEMENT LOCATIONS WE STRONGLY RECOMMEND LEGAL COUNSEL BE RETAINED TO REPORT ON TITLE PAPERS IN THEIR ENTIRETY.

TITLE REPORT . . . . FIRST AMERICAN TITLE INSURANCE COMPANY COMMITMENT NO. NCS-373593-LA2, DATED MAY 13, 2010.

– INDICATES TITLE REPORT EXCEPTION NO.

HORIZONTAL DATUM . . . . STATE PLANE COORDINATES, CALIFORNIA COORDINATE SYSTEM ZONE 5 BASED ON NAD83 (NSRS2007). POSITIONAL VALUES SHOWN HEREON ARE BASED UPON LOCAL CONTROL POINTS AND DERIVED FROM THE GPS STATIC OBSERVATIONS UTILIZING DATA FROM SOUTHERN CALIFORNIA INTEGRATED GPS NETWORK (SCIGN) CONTINUOUSLY OPERATING SYSTEM (CORS).

CBHS (NGS PID NO. AJ1846) LAT: 34°08'18.80640" LONG: 118°37'47.24823"
TOST (NGS PID NO. AJ1931) LAT: 34°14'42.62683" LONG: 118°50'11.94154"
SPK1 (NGS PID NO. AI4474) LAT: 34°03'33.61984" LONG: 118°38'46.12944"

DISTANCES SHOWN HEREON ARE GRID. TO GET GROUND DISTANCES DIVIDE BY COMBINATION FACTOR OF 0.99999317

VERTICAL DATUM . . . . . . VERTICAL VALUES SHOWN HEREON ARE BASED UPON NORTH AMERICAN VERTICAL DATUM OF 1988 (NAVD88) UTILIZING US NATIONAL GEODETIC SURVEY (NGS) BENCHMARK LISTED BELOW.

TOST (NGS PID NO. DH8045)

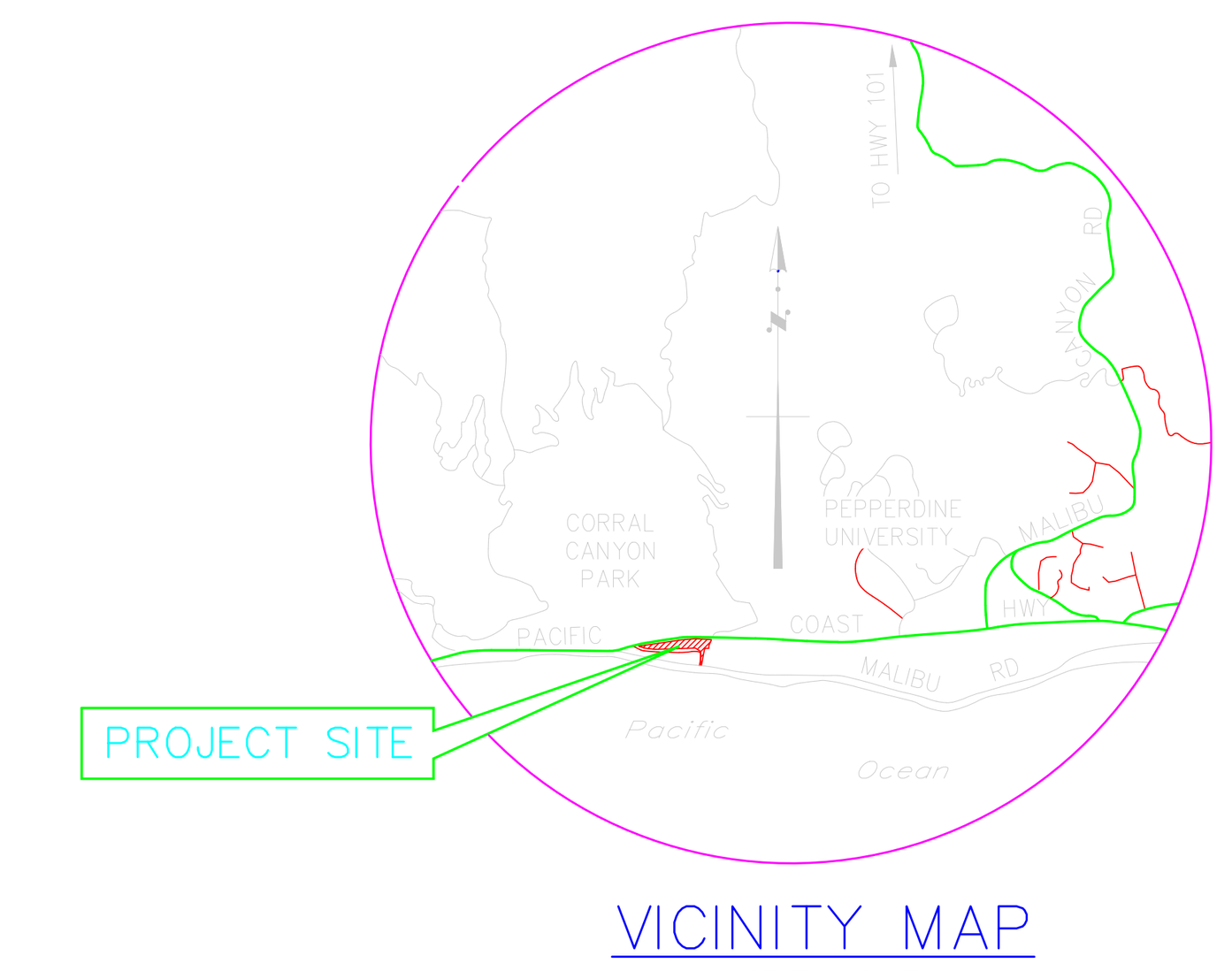
TOST IS A CONTINUOUS GPS (CGPS) SITE LOCATED AT THE THOUSAND OAKS SHERIFF STATION, VENTURA COUNTY, CA. IT IS A SOUTHERN CALIFORNIA INTEGRATED GPS NETWORK (SCIGN) CONTINUOUS GPS (CGPS) MONUMENT. IT IS A WYATT-AGNEW DRILLED BRACED MONUMENT. MOUNTED ON THIS MONUMENT IS A SCIGN ANTENNA ADAPTOR (DETAILED SPECIFICATIONS OF THE CONSTRUCTION OF THE MONUMENT AND THE MACHINED SPECIFICATIONS OF THE ADAPTOR ARE AVAILABLE ON THE SCIGN/USGS WEB SITES) . THE BPA IS THE BOTTOM OF THE ANTENNA WHICH IS ADJACENT TO THE TOP OF THE ANTENNA ADAPTOR. DAILY GPS DATA AND MORE INFORMATION ON THIS SITE IS AVAILABLE AT CSRC.UCSD.EDU.

VERT ORDER – SECOND, CLASS II, ELEV 1017.14 FEET (ADJUSTED IN 2007)

AERIAL SURVEY . . . . THIS SURVEY WAS PREPARED BY PHOTOGRAMMETRIC PROCESSES, UTILIZING AERIAL PHOTOGRAPHY DATED OCTOBER 28, 2010 AND COMPILED AT A SCALE OF 1"=40' WITH A CONTOUR INTERVAL OF 1 FOOT. THE OUTLINE OF BUILDINGS AND OTHER ROOFED IMPROVEMENTS, MAY INCLUDE EAVES, CANOPIES AND BALCONIES, SINCE BUILDINGS BELOW THESE ITEMS ARE NOT VISIBLE TO THE CAMERA.

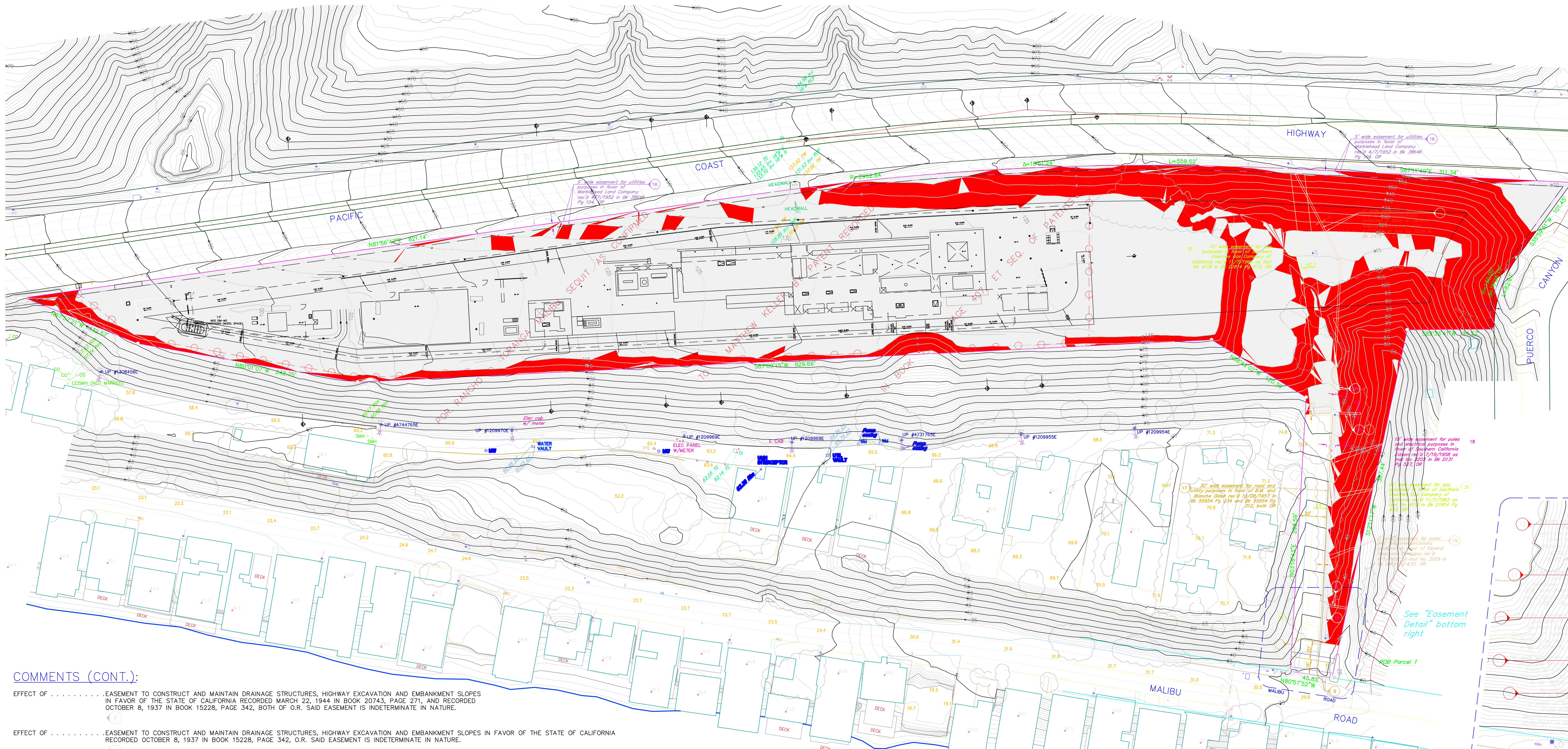
TOPOGRAPHY . . . . BY PHOTOGRAMMETRIC PROCESSES FROM AERIAL PHOTOGRAPHY DATED OCTOBER 28, 2010, AND COMPLIES WITH NATIONAL MAP ACCURACY STANDARDS.

CONTOUR INTERVAL . . . . .1 FOOT.

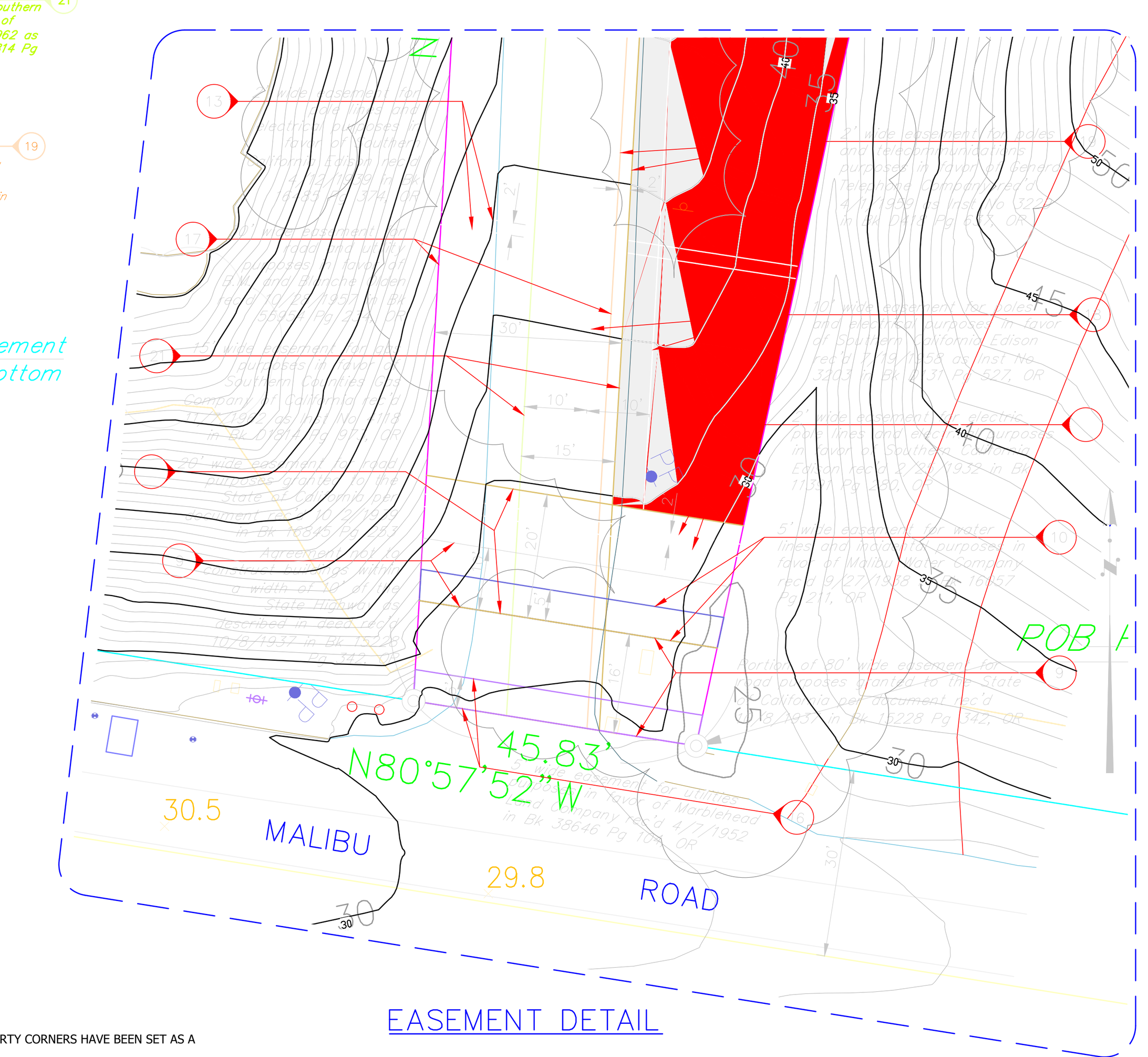


VICINITY MAP

NOT TO SCALE



LEGEND



EASEMENT DETAIL

COMMENTS (CONT.):

EFFECT OF . . . . .EASEMENT TO CONSTRUCT AND MAINTAIN DRAINAGE STRUCTURES, HIGHWAY EXCAVATION AND EMBANKMENT SLOPES IN FAVOR OF THE STATE OF CALIFORNIA RECORDED MARCH 22, 1944 IN BOOK 20743, PAGE 271, AND RECORDED OCTOBER 8, 1937 IN BOOK 15228, PAGE 342, BOTH OF O.R. SAID EASEMENT IS INDETERMINATE IN NATURE. (8)

EFFECT OF . . . . .EASEMENT TO CONSTRUCT AND MAINTAIN DRAINAGE STRUCTURES, HIGHWAY EXCAVATION AND EMBANKMENT SLOPES IN FAVOR OF THE STATE OF CALIFORNIA RECORDED OCTOBER 8, 1937 IN BOOK 15228, PAGE 342, O.R. SAID EASEMENT IS INDETERMINATE IN NATURE. (9)

EFFECT OF . . . . .TELEPHONE LINE EASEMENT IN FAVOR OF ASSOCIATED TELEPHONE COMPANY, LTD., RECORDED MARCH 12, 1940 IN BOOK 17146, PAGE 340, O.R. LEGAL DESCRIPTION FOR SAID EASEMENT NOT PROVIDED IN SAID DOCUMENT. (11)

EFFECT OF . . . . 10' WIDE EASEMENT FOR ELECTRICAL PURPOSES IN FAVOR OF SOUTHERN CALIFORNIA EDISON RECORDED APRIL 11, 1946 IN BOOK 23057, PAGE 117, O.R. SAID EASEMENT IS INDETERMINATE. (15)

EFFECT OF . . . . CONDITIONS, COVENANTS, RESERVATIONS AND RESTRICTIONS CONTAINED IN "CORPORATION GRANT DEED" RECORDED APRIL 7, 1952 IN BOOK 38646, PAGE 104, O.R. (16)

EFFECT OF . . . . 2' WIDE EASEMENT FOR GUY WIRE AND ANCHORS IN FAVOR OF SOUTHERN CALIFORNIA EDISON RECORDED JULY 19, 1958 AS INSTRUMENT NO. 3203 IN BOOK D131, PAGE 527, O.R. LEGAL DESCRIPTION PROVIDED IN SAID DOCUMENT IS INSUFFICIENT TO PLOT PORTIONS OF SAID EASEMENT. (18)

EFFECT OF . . . . 2' WIDE EASEMENT FOR POLES AND TELECOMMUNICATIONS PURPOSES IN FAVOR OF GENERAL TELEPHONE COMPANY OF CALIFORNIA RECORDED APRIL 1, 1959 AS INSTRUMENT NO. 3229 IN BOOK D418, PAGE 637, O.R. LEGAL DESCRIPTION PROVIDED IN SAID DOCUMENT IS INSUFFICIENT TO PLOT PORTIONS OF SAID EASEMENT. (19)

EFFECT OF . . . . RESTRICTIONS PROHIBITING THE USE OF SAID LAND FOR INDUSTRIAL, MANUFACTURING, COMMERCIAL OR BUSINESS PURPOSES PER DEED RECORDED JUNE 8, 1944 AS INSTRUMENT NO. 46 IN BOOK 20892, PAGE 395, O.R. SAID RESTRICTIONS EXPIRED AT THE CLOSE OF THE YEAR 1970. (20)

NOTE:

1. THIS IS NOT A MAP OF A BOUNDARY SURVEY. NO PROPERTY CORNERS HAVE BEEN SET AS A PART OF THIS WORK.
2. RELATION OF TOPOGRAPHIC FEATURES (FENCES, WALLS, TREES, UTILITY POLES, ETC.) TO PROPERTY LINES AS SHOWN HEREON IS SUBJECT TO THE ADJUSTMENT THAT A BOUNDARY SURVEY MAY REQUIRE.
3. SITE TOPOGRAPHY, BOUNDARY AND EASEMENTS WERE NOT PREPARED BY CHRIS NELSON AND ASSOCIATES. BUT WERE PROVIDED BY CLIENT FOR THE PURPOSES OF A SLOPE ANALYSIS. CHRIS NELSON AND ASSOCIATES MAKES NO CLAIM TO THE ACCURACY OF NEITHER THE TOPOGRAPHY OR BOUNDARY.

SLOPE TABLE					
NUMBER	MINIMUM SLOPE	MAXIMUM SLOPE	COLOR	SLOPE AREA	PERCENT
1	0%	30%	(grey)	192,289 SQ. FT.	69.3%
2	30%	VERTICAL	(red)	85,003 SQ. FT.	30.7%
			TOTAL	277,313 SQ. FT.	

Project No

1813

Project Name
VILLA COLEAVA

Project Address
25200 Pacific Coast Hwy.
Malibu, California, USA

Property Owner
PAR PCH, LLC
PO Box 6528
Malibu, CA 90265

Design Architect
Oppenheim Architecture
245 NE 37 Street
Miami FL 33137
P 305 576 8404
F 305 576 8433
W oppenoffice.com

Landscape Architect
[place]
3617 exposition boulevard
Los Angeles, CA 90016
P 310-450-8100
F 323-737-3290
W plac-e.com

Civil Engineers
LC Engineering Group
889 Pierce Ct., Ste. 101
Thousand Oaks, CA 91360
P 805-497-1244
P 818-991-7148
W lcegroupinc.com

Revisions

Mark	Date	Description

Title
COLOR CODED SLOPE ANALYSIS

N

NOT FOR CONSTRUCTION

Design Development

1813
VILLA COLEAVA

Drawing Issued on 4/16/25

Z118



FIRE SAFETY CALCULATIONS

TYPE OF CONSTRUCTION: TYPE VB
VHFHSZ: YES
SIZE OF LOT: 6.36 ACRES
FIRE FLOW BASED ON THE FIRE-FLOW CANCLUATION AREA: 2750 GPM
REDUCTION FOR FIRE SPRINKLERS (MAXIMUM 50%): 1375 GPM
TOTAL FIRE FLOW REQUIRED: 1375 GPM

KEY NOTES:

SITE

001 MAINTAIN ALL WATER RUNOFF WITHIN PROPERTY. SLOPE AWAY FROM P.L. AT A MIN. SLOPE OF ¼" /FT., REFER TO CIVIL DWGS.
002 TREES/LANDSCAPING PLANTING/GROUND COVER/LAWN, REFER TO LANDSCAPE DWGS.
003 HEDGE. REFER TO LANDSCAPE DWGS.
004 HARDSCAPE. REFER TO LANDSCAPE DWGS.
005 DRIVEWAY. GRAVEL ON GRADE. REFER TO CIVIL & LANDSCAPE DWGS.
006 WOOD DECK. SIZE OF PLANKS T.B.D. FINISH T.B.D.
007 UNDERGROUND DRAINAGE SYSTEM. REFER TO CIVIL DWGS.
008 INFINITY POOL EDGE.
009 OPEN PARKING, REFER TO CIVIL FOR DETAILS
010 6'-0" SITE RETAINING WALL. REFER TO STRUCTURAL AND LANDSCAPE DWGS.
011 PEDESTRIAN GATE DOOR. PROVIDE SHOP DWGS. FOR ARCHITECT REVIEW.
012 42" MOTORIZED VEHICULAR SLIDING ENTRY GATE. STEEL FRAME. 90% VISUALLY PERMEABLE.
013 42" PERIMETER FENCE. 90% VISUALLY PERMEABLE.
014 CALL BOX
015 TRASH ENCLOSURE AREA
016 STRUCTURAL GRASS DRIVEWAY. GRASSCRETE OR SIMILAR. REFER TO CIVIL & LANDSCAPE DWGS.
017 GENERATOR ON EXISTING CONCRETE PLINTH, BOTTOM OF GENERATOR TO BE ABOVE BFE +1', REFER TO ELECTRICAL DWGS.
018 A/C CONDENSER UNITS BEHIND LANDSCAPE, BOTTOM OF UNITS TO BE ABOVE BFE +1', REFER TO MECHANICAL DWGS.
019 NATURAL LAWN AREA. REFER TO LANDSCAPE DWGS.

MATERIALS

100 ARCHITECTURAL EXPOSED CONCRETE, COLOR T.B.D. REFER TO STRUCTURAL DRAWINGS AND ARCHITECTURAL DETAILS.
101 CUSTOM WOOD DOOR. REFER TO DOOR SCHEDULE.
102 IMPACT RESISTANT SLIDING ALUMINUM WINDOWS / DOORS SYSTEM, LOW-E COATING. REFER TO WINDOW SCHEDULE.
103 PRE-FABRICATED SKYLIGHT ON CONCRETE CURB. REFER TO WINDOW SCHEDULE. SEE SECTION AND DETAILS.
104 GARAGE STEEL DOOR CLADDED WITH CUSTOM CONCRETE PANELS. REFER TO DOOR SCHEDULE.
105 GRAVEL.
106 5/8" G.W.B., FINISH T.B.D.; REFER TO I.D. DWGS.
107 3/8" THERMOCROMEX LIMESTONE PLASTER, SAND FINISH, COLOR T.B.D. 3/8" TYPICAL.
108 TRELLIS. 50 PERCENT OPEN TO THE SKY. DEPTH OF SLOTS TO BE EQUAL TO OR LESS THAN THE WIDTH OF EACH SLOT. PROVIDE SHOP DWGS.
109 REFER TO INTERIOR DESIGN DRAWINGS AND FINISH SCHEDULE.
110 RAMMED EARTH CONSTRUCTION.
111 STONE BENCH.

STRUCTURAL

200 FOUNDATION AND PILES. REFER TO STRUCT. DWGS.
201 COMPACTED EARTH. REFER TO STRCUT. DWGS.
202 RETAINING WALL. REFER TO STRUCT. DWGS.
203 CONCRETE SLAB. REFER TO STRUCT. DWGS.
204 CONCRETE COLUMN. REFER TO STRUCT. DWGS.
205 CONCRETE BEAM. REFER TO STRUCT. DWGS.
206 STEEL COLUMN. REFER TO STRUCT. DWGS.
207 CONCRETE STAIRS. REFER TO STRUCT. DWGS.
208 CONCRETE SHELL FOR POOL. REFER TO STRUCT. DWGS.
209 8" CMU REINFORCED WALL. REFER TO WALL TYPES AND STRUCT. DWGS
210 PROVIDE 2" RECESS ON SLABS ON ALL SHOWERS.
211 OPENING ON CONCRETE SLAB. REFER TO STRUCT. DWGS.

MEP

300 LIGHT FIXTURE/ SEE ARCH. RCP, ELECTRICAL DWGS. AND LIGHTING SPECIFICATIONS.
301 A/C PLENUM SPACE, REFER TO MECHANICAL DWGS. AND RCP. NO COMBUSTIBLES ALLOWED.
302 ROOF DRAIN, REFER TO PLUMBING DWGS. /SEE DETAIL.
303 FLOOR DRAIN, REFER TO PLUMBING DWGS./ SEE DETAIL.
304 DRAIN PIPE TO FIT IN CEILING SPACE, REFER TO PLUMBING DWGS. COORDINATE EXACT LOCATION AND SPECS.
305 KITCHEN HOOD, REFER TO MECH DWGS.
306 KITCHEN HOOD EXHAUST PIPE TO FIT IN CEILING SPACE, REFER TO MECH DWGS. COORDINATE EXACT LOCATION AND SPECS.
307 DESIGNATED POOL EQUIPMENT AREA.
308 GAS WATER HEATER. REFER TO PLUMBING DWGS.
309 ELECTRICAL PANELS. REFER TO ELECTRICAL DWGS.
310 CONDENSER UNITS ON STANDS. REFER TO MECH. DWGS.
311 MINIMUM R:30 BATT INSULATION OR RIGID INSULATION. REFER TO ENERGY CALCULATIONS.
312 ACOUSTICAL INSULATION.
313 MISTING SYSTEM. REFER TO PLUMBING DWGS.
314 SPRINKLER SYSTEM. REFER TO PLUMBING DWGS.
315 HOSE BIB. REFER TO PLUMBING AND LANDSCAPE DWGS.
316 ELECTRICITY, GAS AND WATER. REFER TO MEP DRAWINGS.
317 MOTORIZED VEHICULAR GATE. REFER TO ELECT. DWGS.
318 ALL TOILETS TO BE WALL HUNG. REFER TO MECH. DWGS.
319 LINEAR DRAIN
320 OVERFLOW SCUPPER.

WATERPROOFING

400 CONTINUOUS VAPOR BARRIER. REFER TO ARCH AND STRUCTURAL DWGS.
401 WATERPROOFING MEMBRANE. REFER TO ARCH AND STRUCTURAL DWGS.
402 POOL FINISH/ COLOR TBD.

MISC. ARCHITECTURAL DETAILS

500 CURTAIN CEILING COVE. REFER TO ARCH. DETAIL.
501 CONTINUOUS 1/2" TOOLED WATER DRIP. SEE ARCH. DETAIL.
502 VENT.
503 KITCHEN, BUILT-IN FURNITURE, CABINETRY BY OTHERS. REFER TO KITCHEN SHOP DWGS.
504 5/8" GWB DROPPED CEILING ON 3/4" FURRING STRIPS, PAINTED GWB. COLOR TBD.
505 STAINLESS STEEL SCUPPER IN CONCRETE STRUCTURE. 3" X 3" MIN.OPENING. REFER TO ELEVATION AND PLAN FOR LOCATION.
506 CUSTOM WOOD MILLWORK, REFER TO I.D. DRAWINGS
507 SOLAR PANELS (T.B.D.)
509 CONCEALED LED SCREEN.
510 LADDER ACCESS.

LIGHTING

600 PENDANT LIGHT. REFER TO LIGHTING DWGS.
601 RECESSED DOWN LIGHT. REFER TO LIGHTING DWGS.
602 CONCEALED LINEAR LIGHT. REFER TO LIGHTING DWGS.
603 POOL LINEAR RECESSED LIGHT. REFER TO LIGHTING DWGS.
604 LANDSCAPE LIGHTING. REFER TO LIGHTING DWGS.

FIRE SAFETY

700 FIRE DEPARTMENT VEHICULAR ACCESS ROADS MUST BE INSTALLED AND MAINTAINED IN A SERVICEABLE MANNER PRIOR TO AND DURING THE TIME OF CONSTRUCTION. FIRE CODE 5001.4
701 AN APPROVED KEY BOX, LISTED IN ACCORDANCE WITH UL 1037 SHALL BE PROVIDED AS REQUIRED BY FIRE CODE 506. THE LOCATION OF EACH KEY BOX SHALL BE DETERMINED BY THE FIRE INSPECTOR.
702 ALL REQUIRED PUBLIC FIRE HYDRANTS SHALL BE INSTALLED, TESTED AND ACCEPTED PRIOR TO BEGINNING CONSTRUCTION. FIRE CODE 501.4
703 PROVIDE AN APPROVED AUTOMATIC FIRE SPRINKLER SYSTEM AS SET FORTH BY BUILDING CODE 903 AND FIRE CODE 9003. PLANS SHALL BE SUBMITTED TO THE SPRINKLER PLAN CHECK UNIT FOR REVIEW AND APPROVAL PRIOR TO INSTALLATION.
704 SMOKE ALARMS SHALL RECEIVE THEIR PRIMARY POWER FROM THE BUILDING WIRING PROVIDED THAT SUCH WIRING IS SERVED FROM A COMMERCIAL SOURCE AND SHALL BE EQUIPPED WITH A BATTERY BACKUP. RESIDENTIAL CODE R314.4
705 WHERE MORE THAN ONE SMOKE ALARM IS REQUIRED TO BE INSTALLED WITHIN AN INDIVIDUAL DWELLING OR SLEEPING UNIT, THE SMOKE ALARMS SHALL BE INTERCONNECTED SIN USCH A MANNER THAT THE ACTIVATION OF ONE ALARM WILL ACTIVATE ALL OF THE ALARMS IN THE INDIVIDUAL UNIT. RESIDENTIAL CODE R314.5
706 APPROVED BUILDING ADDRESS NUMBERS, BUILDING NUMBERS OR APPROVED BUILDING IDENTIFICATION SHALL BE PROVIDED AND MAINTAINED SO AS TO BE PLAINLY VISIBLE AND LEGIBLE FROM THE STREET FRONTING THE PROPERTY. THE MINIMUM OF 4 INCHES HIGH WITH A MINIMM STROKE WIDTH OF 0.5 INCH. FIRE CODE 505.1
707 ALL ROOF COVERINGS SHALL BE CLASS "A" AS SPECIFIED IN BUILDING CODE 1505.1.1 (RESIDENTIAL CODE R327.5.2 & R902)
708 ROOF VALLEY FLASHINGS SHALL BE NOT LESS THAN 0.019 INCH (NO.26 GALVANIZED SHEET GAGE) CORROSION-RESISTANT METAL INSTALLED OVER A MINIMUM 36-INCH WIDE UNDERLAYMENT CONSISTING OF ONE LAYER OF NO. 72 ASTM CAP SHEET MEETING RUNNING THE FULL LEGHTH OF THE VALLEY (RESIDENTIAL CODE R327.5.3 AND BUILDING CODE 705A.3
709 ROOF GUTTERS SHALL BE PROVIDED WITH A MEANS OTO PREVENT THE ACCUMULATION OF LEAVES AND DEBRIS IN THE GUTTER. (RESIDENTIAL CODE R327.5.3A AND BUILDING GCODE 705A.4)
710 VENTS SHALL RESIST THE INTRUSION OF FLAME AND EMBERS AND FLAME THROUGH THE VENTILATION OPENINGS. VENT OPENINGS SHALL BE PROTECTED BY CORROSION- RESISTANT, NONCOMBUSTIBLE WIRE MESH WITH A MINIMUM 1/16TH INCH OPENINGS AND SHALL NOT EXCEED 1/8TH INCH. VENTS SHALL NOT BE INSTALLED IN EAVES OR CORNICES. (RESIDENTIAL CODE R327.6.1 AND BUILDING CODE 706A.1)
711 CLEARANCE OF BRUSH AND VEGETATIVE GROWTH SHALL BE MAINTAINED PER FIRE CODE 325.
712 PROVIDE APPROVED SIGNS OR OTHER APPROVED NOTICES OR MARKINGS THAT INCLUDE THE WORDS NO PARKING - FIRE LANE. SIGNS SHALL HAVE A MINIMUM DIMENSION OF 12 INCHES WIDE BY 18 INCHES HIGH AND HAVE RED LETTERS ON A WHITE REFLECTIVE BACKGROUND. SIGNS SHALL BE PROVIDED FOR FIRE APPARATUS ACCESS ROADS, TO CLEARLY INDICATE THE ENTRANCE TO SUCH ROAD, OR PROHIBIT THE OBSTRUCTION THEREOF AND AT INTERVALS, AS REQUIRED BY THE FIRE INSPECTOR. FIRE CODE 503.3.
713 ALL FIRE HYDRANTS SHALL MEASURE 6"" X 4"" X 2-1/2"", BRASS OR BRONZE, CONFORMING TO AMERICAN WATER WORKS ASSOCIATION STANDARD C503, OR APPROVED EQUAL.
714 ALL ON-SITE FIRE HYDRANTS SHALL BE INSTALLED, TESTED AND APPROVED PRIOR TO BUILDING OCCUPANCY. FIRE CODE 901.5.1
715 ROOF LADDER ACCESS

ROOM NAMES

01 LIVING ROOM
02 DINING ROOM
03 KITCHEN
04 SERVICE KITCHEN
05 POWDER ROOM
06 PANTRY
07 FAMILY ROOM
08 OUTDOOR KITCHEN
09 BEDROOM
10 BATHROOM
11 COURTYARD
12 MASTER BEDROOM
13 MASTER BATHROOM
14 MASTER CLOSET
15 POOL
16 POOL DECK
17 WATER FEATURE
18 TERRACE
19 FIRE PIT
20 OFFICE
21 OUTDOOR SHOWER
22 STORAGE
23 FIREPLACE
24 GYM
25 STEAM ROOM
26 SAUNA
27 MASSAGE ROOM
28 LAUNDRY
29 MUD ROOM
30 WINE STORAGE
31 GARAGE
32 LIGHTWELL
33 OUTDOOR BATHROOM
34 SUNKEN TUB
35 MINI BAR
36 COLD PLUNGE POOL
37 HOT TUB

Project No

1813

Project Name
VILLA COLEAVA

Project Address
25200 Pacific Coast Hwy.
Malibu, California, USA

Property Owner
PAR PCH, LLC
PO Box 6528
Malibu, CA 90265

Design Architect
Oppenheim Architecture
245 NE 37 Street
Miami FL 33137
P 305 576 8404
F 305 576 8433
W oppenoffice.com

Landscape Architect
[place]
3617 exposition boulevard
Los Angeles, CA 90016
P 310-450-8100
F 323-737-3290
W plac--e.com

Civil Engineers
LC Engineering Group
889 Pierce Ct., Ste. 101
Thousand Oaks, CA 91360
P 805-497-1244
P 818-991-7148
W lcegroupinc.com

Revisions

Mark	Date	Description

Title
FIRE ACCESS ROAD A

1/16" = 1'-0"

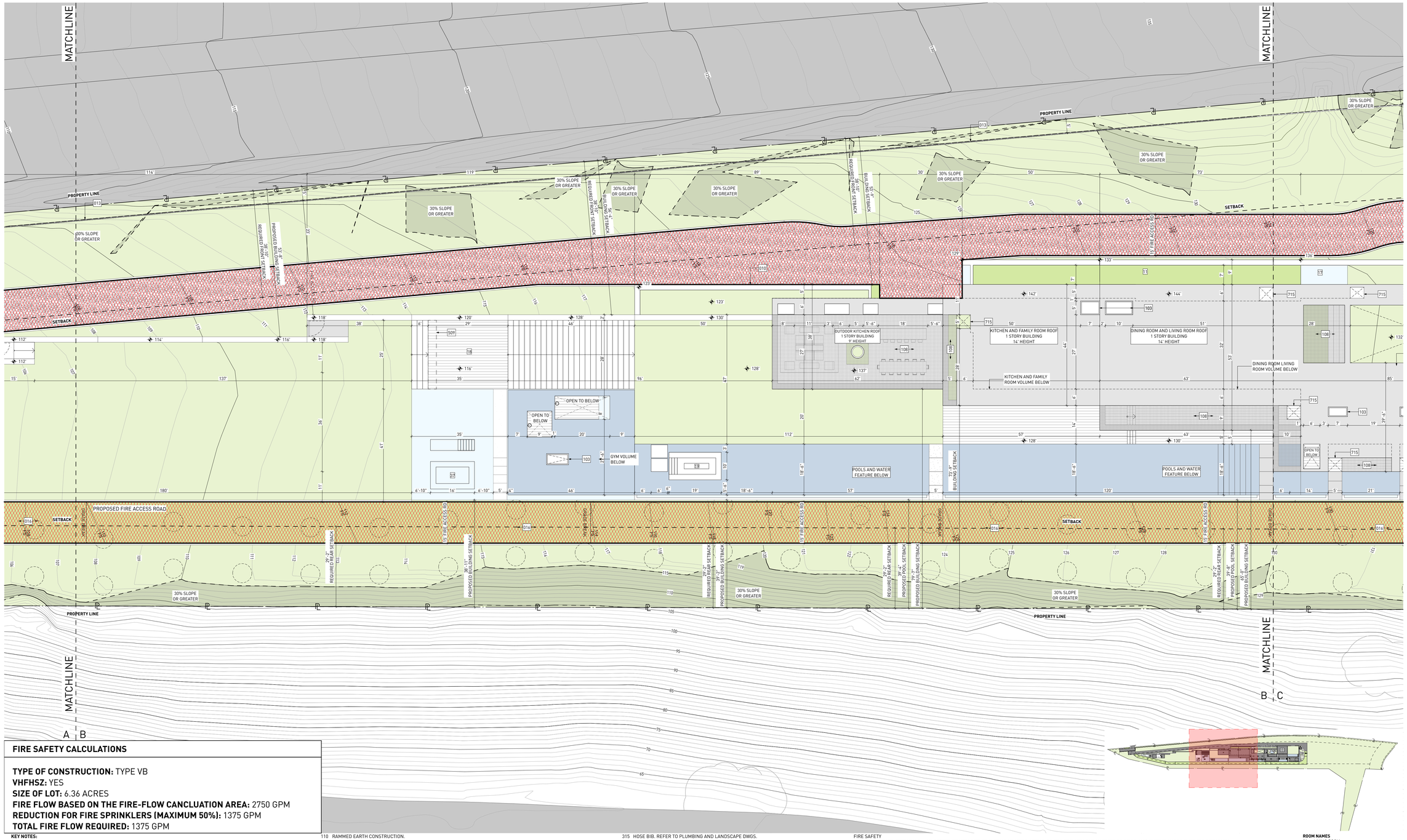
NOT FOR CONSTRUCTION

Design Development

1813
VILLA COLEAVA

Drawing Issued on 4/16/25

FS100



FIRE SAFETY CALCULATIONS

TYPE OF CONSTRUCTION: TYPE VB
VHFHSZ: YES
SIZE OF LOT: 6.36 ACRES
FIRE FLOW BASED ON THE FIRE-FLOW CANCLUATION AREA: 2750 GPM
REDUCTION FOR FIRE SPRINKLERS (MAXIMUM 50%): 1375 GPM
TOTAL FIRE FLOW REQUIRED: 1375 GPM

KEY NOTES:

SITE
001 MAINTAIN ALL WATER RUNOFF WITHIN PROPERTY. SLOPE AWAY FROM P.L. AT A MIN. SLOPE OF ¼" /FT., REFER TO CIVIL DWGS.
002 TREES/LANDSCAPING PLANTING/GROUND COVER/LAWN, REFER TO LANDSCAPE DWGS.
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007 UNDERGROUND DRAINAGE SYSTEM. REFER TO CIVIL DWGS.
008 INFINITY POOL EDGE.
009 OPEN PARKING, REFER TO CIVIL FOR DETAILS
010 6'-0" SITE RETAINING WALL. REFER TO STRUCTURAL AND LANDSCAPE DWGS.
011 PEDESTRIAN GATE DOOR. PROVIDE SHOP DWGS. FOR ARCHITECT REVIEW.
012 42" MOTORIZED VEHICULAR SLIDING ENTRY GATE. STEEL FRAME. 90% VISUALLY PERMEABLE.
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109 REFER TO INTERIOR DESIGN DRAWINGS AND FINISH SCHEDULE.
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111 STONE BENCH.

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705 WHERE MORE THAN ONE SMOKE ALARM IS REQUIRED TO BE INSTALLED WITHIN AN INDIVIDUAL DWELLING OR SLEEPING UNIT, THE SMOKE ALARMS SHALL BE INTERCONNECTED SIN USCH A MANNER THAT THE ACTIVATION OF ONE ALARM WILL ACTIVATE ALL OF THE ALARMS IN THE INDIVIDUAL UNIT. RESIDENTIAL CODE R314.5
706 APPROVED BUILDING ADDRESS NUMBERS, BUILDING NUMBERS OR APPROVED BUILDING IDENTIFICATION SHALL BE PROVIDED AND MAINTAINED SO AS TO BE PLAINLY VISIBLE AND LEGIBLE FROM THE STREET FRONTING THE PROPERTY. THE MINIMUM OF 4 INCHES HIGH WITH A MINIMUM STROKE WIDTH OF 0.5 INCH. FIRE CODE 505.1
707 ALL ROOF COVERINGS SHALL BE CLASS "A" AS SPECIFIED IN BUILDING CODE 1505.1.1 (RESIDENTIAL CODE R327.5.2 & R902)
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10 BATHROOM
11 COURTYARD
12 MASTER BEDROOM
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14 MASTER CLOSET
15 POOL
16 POOL DECK
17 WATER FEATURE
18 TERRACE
19 FIRE PIT
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21 OUTDOOR SHOWER
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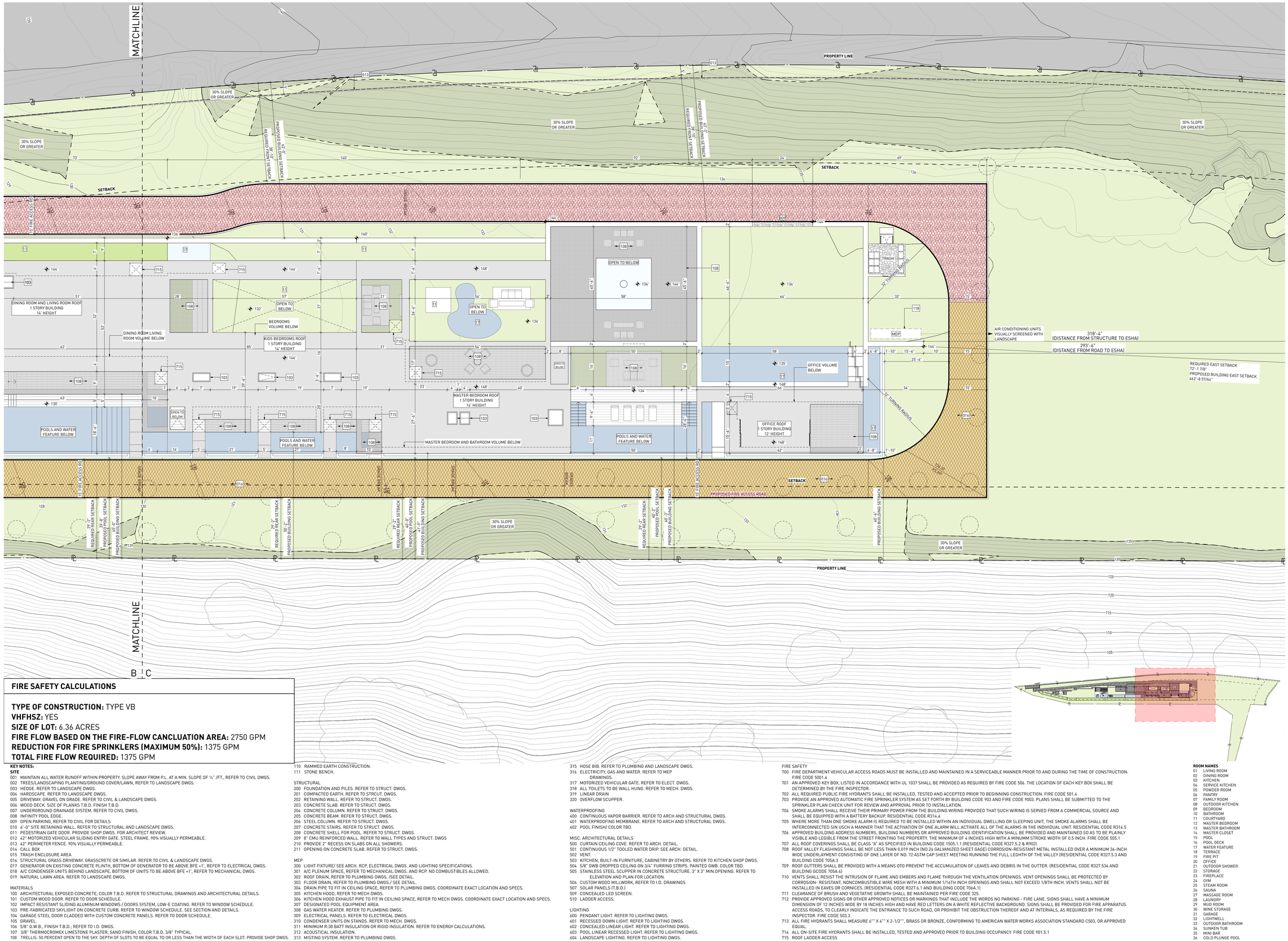

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16 POOL DECK
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18 TERRACE
19 FIRE PIT
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25 STEAM ROOM
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[place]
3617 exposition boulevard
Los Angeles, CA 90016
P 310-450-8100
F 323-737-3290
W plac-e.com

Civil Engineers
LC Engineering Group
889 Pierce Ct., Ste. 101
Thousand Oaks, CA 91360
P 805-497-1244
P 818-991-7148
W lcegroupinc.com

Revisions

Mark	Date	Description

Title
FIRE ACCESS ROAD C

1/16" = 1'-0"

N

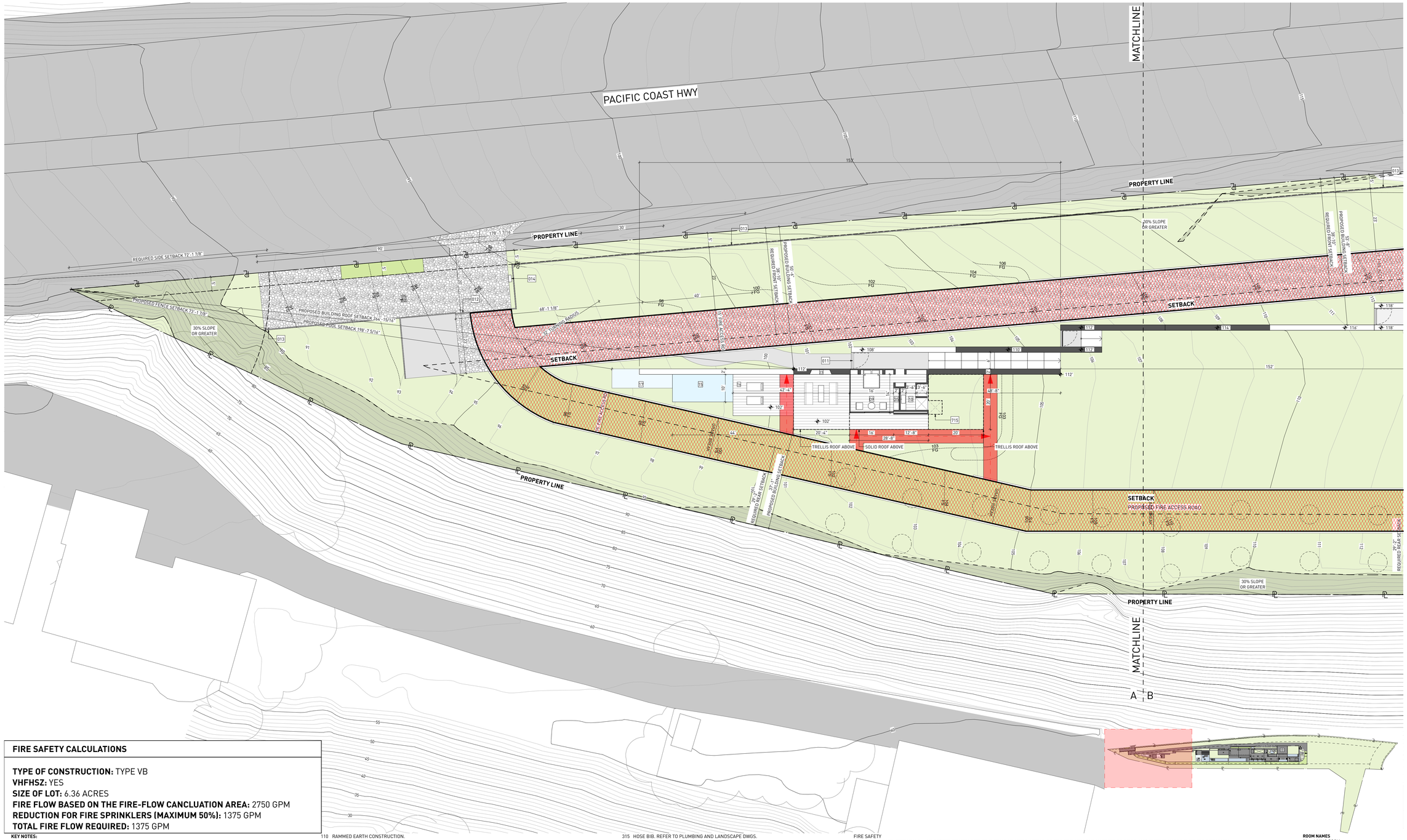
NOT FOR CONSTRUCTION

Design Development

1813
VILLA COLEAVA

Drawing Issued on 4/16/25

FS102



FIRE SAFETY CALCULATIONS

TYPE OF CONSTRUCTION: TYPE VB
VHFHSZ: YES
SIZE OF LOT: 6.36 ACRES
FIRE FLOW BASED ON THE FIRE-FLOW CANCLUATION AREA: 2750 GPM
REDUCTION FOR FIRE SPRINKLERS (MAXIMUM 50%): 1375 GPM
TOTAL FIRE FLOW REQUIRED: 1375 GPM

KEY NOTES:

SITE
001 MAINTAIN ALL WATER RUNOFF WITHIN PROPERTY. SLOPE AWAY FROM P.L. AT A MIN. SLOPE OF ¼" /FT., REFER TO CIVIL DWGS.
002 TREES/LANDSCAPING PLANTING/GROUND COVER/LAWN, REFER TO LANDSCAPE DWGS.
003 HEDGE. REFER TO LANDSCAPE DWGS.
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005 DRIVEWAY. GRAVEL ON GRADE. REFER TO CIVIL & LANDSCAPE DWGS.
006 WOOD DECK, SIZE OF PLANKS T.B.D. FINISH T.B.D.
007 UNDERGROUND DRAINAGE SYSTEM. REFER TO CIVIL DWGS.
008 INFINITY POOL EDGE.
009 OPEN PARKING, REFER TO CIVIL FOR DETAILS
010 6'-0" SITE RETAINING WALL. REFER TO STRUCTURAL AND LANDSCAPE DWGS.
011 PEDESTRIAN GATE DOOR. PROVIDE SHOP DWGS. FOR ARCHITECT REVIEW.
012 42" MOTORIZED VEHICULAR SLIDING ENTRY GATE. STEEL FRAME. 90% VISUALLY PERMEABLE.
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018 A/C CONDENSER UNITS BEHIND LANDSCAPE, BOTTOM OF UNITS TO BE ABOVE BFE +1', REFER TO MECHANICAL DWGS.
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109 REFER TO INTERIOR DESIGN DRAWINGS AND FINISH SCHEDULE.
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705 WHERE MORE THAN ONE SMOKE ALARM IS REQUIRED TO BE INSTALLED WITHIN AN INDIVIDUAL DWELLING OR SLEEPING UNIT, THE SMOKE ALARMS SHALL BE INTERCONNECTED SIN USCH A MANNER THAT THE ACTIVATION OF ONE ALARM WILL ACTIVATE ALL OF THE ALARMS IN THE INDIVIDUAL UNIT. RESIDENTIAL CODE R314.5
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34 SUNKEN TUB
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36 COLD PLUNGE POOL
37 HOT TUB

Project No
1813

Project Name
VILLA COLEAVA

Project Address
25200 Pacific Coast Hwy.
Malibu, California, USA

Property Owner
PAR PCH, LLC
PO Box 6528
Malibu, CA 90265

Design Architect
Oppenheim Architecture
245 NE 37 Street
Miami FL 33137
P 305 576 8404
F 305 576 8433
W oppenoffice.com

Landscape Architect
[place]
3617 exposition boulevard
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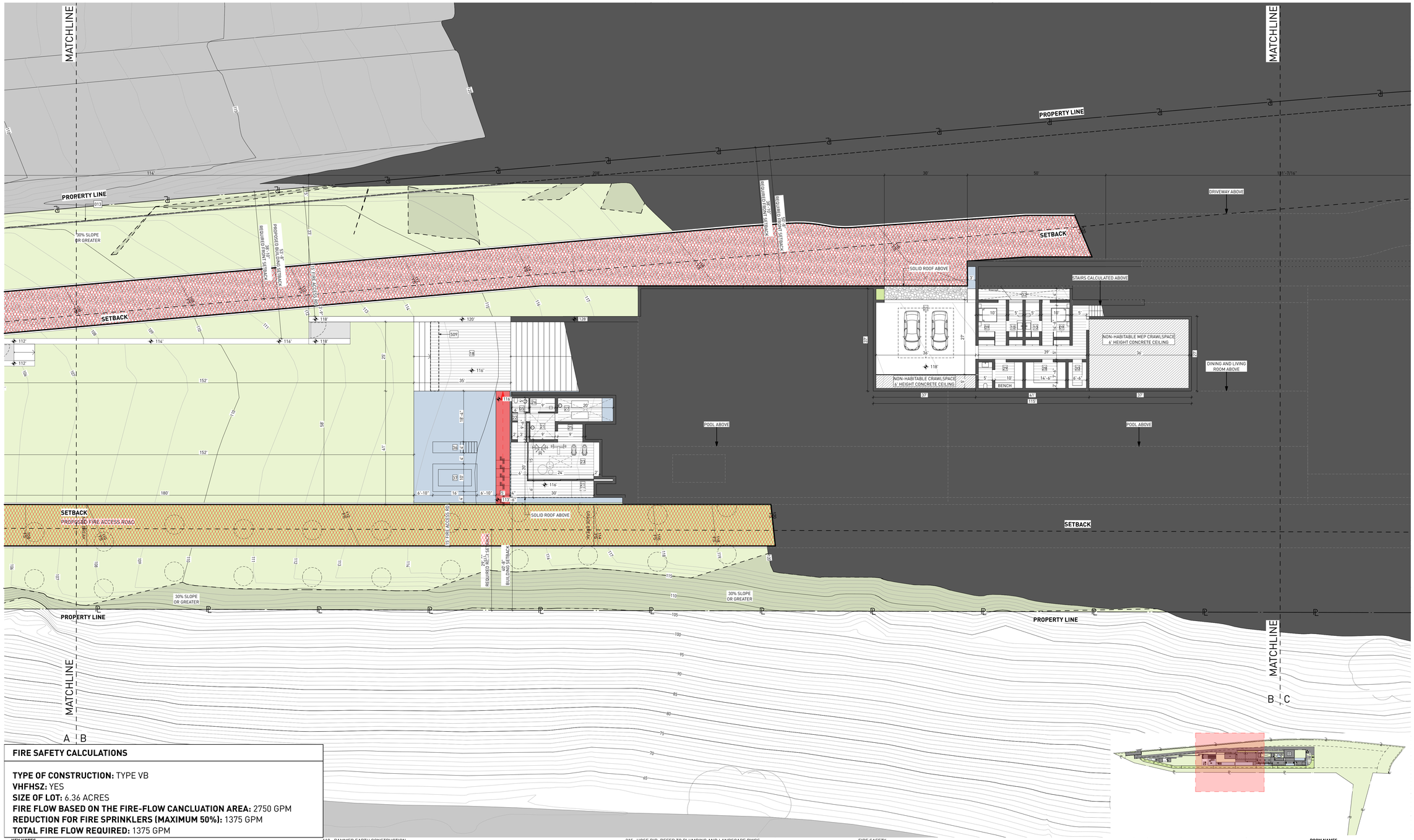

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VILLA COLEAVA

Project Address
25200 Pacific Coast Hwy.
Malibu, California, USA

Property Owner
PAR PCH, LLC
PO Box 6528
Malibu, CA 90265

Design Architect
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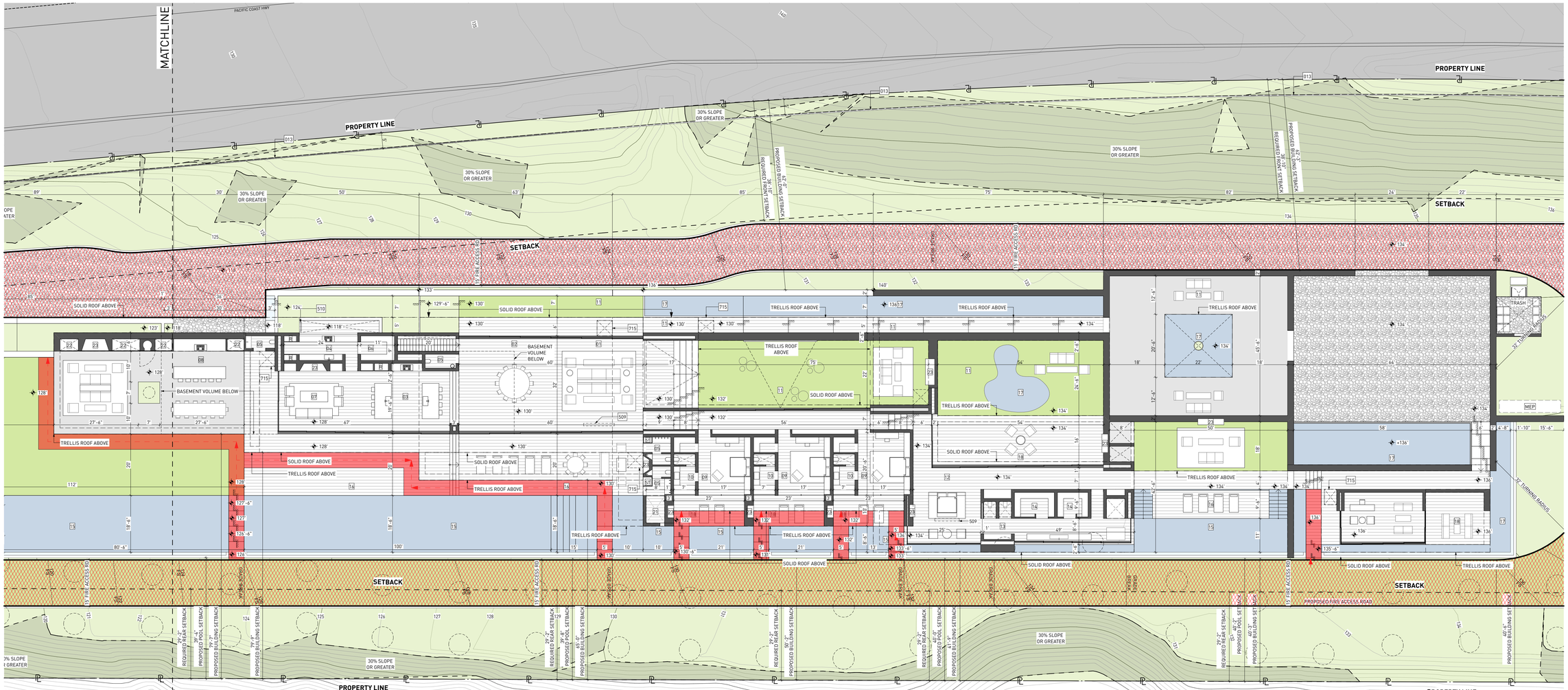
Design Development

1813
VILLA COLEAVA

Drawing Issued on 4/16/25

FS104





FIRE SAFETY CALCULATIONS

TYPE OF CONSTRUCTION: TYPE VB
VHFHSZ: YES
SIZE OF LOT: 6.36 ACRES
FIRE FLOW BASED ON THE FIRE-FLOW CANCLUATION AREA: 2750 GPM
REDUCTION FOR FIRE SPRINKLERS (MAXIMUM 50%): 1375 GPM
TOTAL FIRE FLOW REQUIRED: 1375 GPM

KEY NOTES:

SITE

001 MAINTAIN ALL WATER RUNOFF WITHIN PROPERTY. SLOPE AWAY FROM P.L. AT A MIN. SLOPE OF ¼" /FT., REFER TO CIVIL DWGS.
002 TREES/LANDSCAPING PLANTING/GROUND COVER/LAWN, REFER TO LANDSCAPE DWGS.
003 HEDGE. REFER TO LANDSCAPE DWGS.
004 HARDSCAPE. REFER TO LANDSCAPE DWGS.
005 DRIVEWAY. GRAVEL ON GRADE. REFER TO CIVIL & LANDSCAPE DWGS.
006 WOOD DECK. SIZE OF PLANKS T.B.D. FINISH T.B.D.
007 UNDERGROUND DRAINAGE SYSTEM. REFER TO CIVIL DWGS.
008 INFINITY POOL EDGE.
009 OPEN PARKING, REFER TO CIVIL FOR DETAILS
010 4'-0" SITE RETAINING WALL. REFER TO STRUCTURAL AND LANDSCAPE DWGS.
011 PEDESTRIAN GATE DOOR. PROVIDE SHOP DWGS. FOR ARCHITECT REVIEW.
012 42" MOTORIZED VEHICULAR SLIDING ENTRY GATE. STEEL FRAME. 90% VISUALLY PERMEABLE.
013 42" PERIMETER FENCE. 90% VISUALLY PERMEABLE.
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017 GENERATOR ON EXISTING CONCRETE PLINTH, BOTTOM OF GENERATOR TO BE ABOVE BFE +1', REFER TO ELECTRICAL DWGS.
018 A/C CONDENSER UNITS BEHIND LANDSCAPE, BOTTOM OF UNITS TO BE ABOVE BFE +1', REFER TO MECHANICAL DWGS.
019 NATURAL LAWN AREA. REFER TO LANDSCAPE DWGS.

MATERIALS

100 ARCHITECTURAL EXPOSED CONCRETE, COLOR T.B.D. REFER TO STRUCTURAL DRAWINGS AND ARCHITECTURAL DETAILS.
101 CUSTOM WOOD DOOR. REFER TO DOOR SCHEDULE
102 IMPACT RESISTANT SLIDING ALUMINUM WINDOWS / DOORS SYSTEM, LOW-E COATING. REFER TO WINDOW SCHEDULE.
103 PRE-FABRICATED SKYLIGHT ON CONCRETE CURB. REFER TO WINDOW SCHEDULE. SEE SECTION AND DETAILS.
104 GARAGE STEEL DOOR CLADDED WITH CUSTOM CONCRETE PANELS. REFER TO DOOR SCHEDULE.
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108 TRELLIS. 50 PERCENT OPEN TO THE SKY. DEPTH OF SLOTS TO BE EQUAL TO OR LESS THAN THE WIDTH OF EACH SLOT. PROVIDE SHOP DWGS.
109 REFER TO INTERIOR DESIGN DRAWINGS AND FINISH SCHEDULE.
110 RAMMED EARTH CONSTRUCTION.
111 STONE BENCH.

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210 PROVIDE 2" RECESS ON SLABS ON ALL SHOWERS.
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402 POOL FINISH/ COLOR TBD.

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509 CONCEALED LED SCREEN.
510 LADDER ACCESS.

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703 PROVIDE AN APPROVED AUTOMATIC FIRE SPRINKLER SYSTEM AS SET FORTH BY BUILDING CODE 903 AND FIRE CODE 9003. PLANS SHALL BE SUBMITTED TO THE SPRINKLER PLAN CHECK UNIT FOR REVIEW AND APPROVAL PRIOR TO INSTALLATION.
704 SMOKE ALARMS SHALL RECEIVE THEIR PRIMARY POWER FROM THE BUILDING WIRING PROVIDED THAT SUCH WIRING IS SERVED FROM A COMMERCIAL SOURCE AND SHALL BE EQUIPPED WITH A BATTERY BACKUP. RESIDENTIAL CODE R314.4
705 WHERE MORE THAN ONE SMOKE ALARM IS REQUIRED TO BE INSTALLED WITHIN AN INDIVIDUAL DWELLING OR SLEEPING UNIT, THE SMOKE ALARMS SHALL BE INTERCONNECTED SIN USCH A MANNER THAT THE ACTIVATION OF ONE ALARM WILL ACTIVATE ALL OF THE ALARMS IN THE INDIVIDUAL UNIT. RESIDENTIAL CODE R314.5
706 APPROVED BUILDING ADDRESS NUMBERS, BUILDING NUMBERS OR APPROVED BUILDING IDENTIFICATION SHALL BE PROVIDED AND MAINTAINED SO AS TO BE PLAINLY VISIBLE AND LEGIBLE FROM THE STREET FRONTING THE PROPERTY. THE MINIMUM OF 4 INCHES HIGH WITH A MINUMM STROKE WIDTH OF 0.5 INCH. FIRE CODE 505.1
707 ALL ROOF COVERINGS SHALL BE CLASS "A" AS SPECIFIED IN BUILDING CODE 1505.1.1 (RESIDENTIAL CODE R327.5.2 & R902)
708 ROOF VALLEY FLASHINGS SHALL BE NOT LESS THAN 0.019 INCH (NO.26 GALVANIZED SHEET GAGE) CORROSION-RESISTANT METAL INSTALLED OVER A MINIMUM 36-INCH WIDE UNDERLAYMENT CONSISTING OF ONE LAYER OF NO. 72 ASTM CAP SHEET MEETING RUNNING THE FULL LEGHTH OF THE VALLEY (RESIDENTIAL CODE R327.5.3 AND BUILDING CODE 705A.3
709 ROOF GUTTERS SHALL BE PROVIDED WITH A MEANS OTO PREVENT THE ACCUMULATION OF LEAVES AND DEBRIS IN THE GUTTER. (RESIDENTIAL CODE R327.534 AND BUILDING GCODE 705A.4)
710 VENTS SHALL RESIST THE INTRUSION OF FLAME AND EMBERS AND FLAME THROUGH THE VENTILATION OPENINGS. VENT OPENINGS SHALL BE PROTECTED BY CORROSION- RESISTANT, NONCOMBUSTIBLE WIRE MESH WITH A MINIMUM 1/14TH INCH OPENINGS AND SHALL NOT EXCEED 1/8TH INCH. VENTS SHALL NOT BE INSTALLED IN EAVES OR CORNICES. (RESIDENTIAL CODE R327.6.1 AND BUILDING CODE 706A.1)
711 CLEARANCE OF BRUSH AND VEGETATIVE GROWTH SHALL BE MAINTAINED PER FIRE CODE 325.
712 PROVIDE APPROVED SIGNS OR OTHER APPROVED NOTICES OR MARKINGS THAT INCLUDE THE WORDS NO PARKING - FIRE LANE. SIGNS SHALL HAVE A MINIMUM DIMENSION OF 12 INCHES WIDE BY 18 INCHES HIGH AND HAVE RED LETTERS ON A WHITE REFLECTIVE BACKGROUND. SIGNS SHALL BE PROVIDED FOR FIRE APPARATUS ACCESS ROADS, TO CLEARLY INDICATE THE ENTRANCE TO SUCH ROAD, OR PROHIBIT THE OBSTRUCTION THEREOF AND AT INTERVALS, AS REQUIRED BY THE FIRE INSPECTOR. FIRE CODE 503.3.
713 ALL FIRE HYDRANTS SHALL MEASURE 6"" X 4"" X 2-1/2"", BRASS OR BRONZE, CONFORMING TO AMERICAN WATER WORKS ASSOCIATION STANDARD C503, OR APPROVED EQUAL.
714 ALL ON-SITE FIRE HYDRANTS SHALL BE INSTALLED, TESTED AND APPROVED PRIOR TO BUILDING OCCUPANCY. FIRE CODE 901.5.1
715 ROOF LADDER ACCESS

ROOM NAMES

01 LIVING ROOM
02 DINING ROOM
03 KITCHEN
04 SERVICE KITCHEN
05 POWDER ROOM
06 PANTRY
07 FAMILY ROOM
08 OUTDOOR KITCHEN
09 BEDROOM
10 BATHROOM
11 COURTYARD
12 MASTER BEDROOM
13 MASTER BATHROOM
14 MASTER CLOSET
15 POOL
16 POOL DECK
17 WATER FEATURE
18 TERRACE
19 FIRE PIT
20 OFFICE
21 OUTDOOR SHOWER
22 STORAGE
23 FIREPLACE
24 GYM
25 STEAM ROOM
26 SAUNA
27 MASSAGE ROOM
28 LAUNDRY
29 MUD ROOM
30 WINE STORAGE
31 GARAGE
32 LIGHTWELL
33 OUTDOOR BATHROOM
34 SUNKEN TUB
35 MINI BAR
36 COLD PLUNGE POOL
37 HOT TUB

Project No

1813

Project Name
VILLA COLEAVA

Project Address
25200 Pacific Coast Hwy.
Malibu, California, USA

Property Owner
PAR PCH, LLC
PO Box 6528
Malibu, CA 90265

Design Architect
Oppenheim Architecture
245 NE 37 Street
Miami FL 33137
P 305 576 8404
F 305 576 8433
W oppenoffice.com

Landscape Architect
[place]
3617 exposition boulevard
Los Angeles, CA 90016
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F 323-737-3290
W plac-e.com

Civil Engineers
LC Engineering Group
889 Pierce Ct., Ste. 101
Thousand Oaks, CA 91360
P 805-497-1244
P 818-991-7148
W lcegroupinc.com

Revisions

Mark	Date	Description

Title
FIRE ACCESS WALKWAY C

1/16" = 1'-0"

N

NOT FOR CONSTRUCTION

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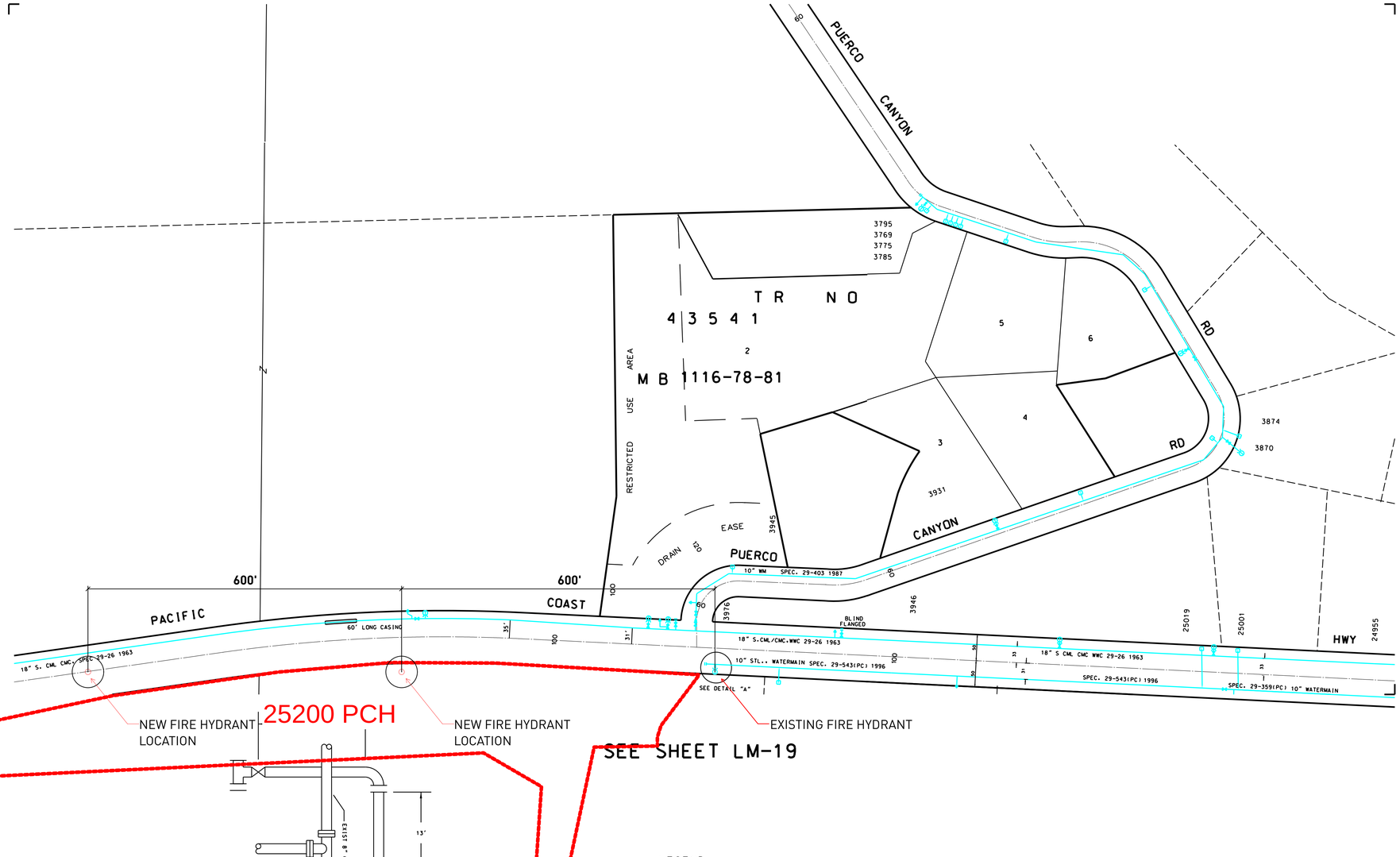
FS105

SEE SHEET JM-19

SEE SHEET KM-20

SEE SHEET KM-18



DETAIL "A"
N.T.S.

THIS MAP IS INTENDED FOR USE ONLY AS A WATER OPERATIONS MAP BY THE LOS ANGELES COUNTY WATERWORKS DISTRICTS AND IS BASED UPON INFORMATION AVAILABLE FROM PUBLIC RECORDS. THE LOS ANGELES COUNTY WATERWORKS DISTRICTS EXPRESSLY DISCLAIM ANY LIABILITY FOR ANY INACCURACIES WHICH MAY BE PRESENT IN THIS MAP.

LEGEND

WATERMAINS
GATE VALVES
SERVICES
SERVICES & METERS
REDUCER
ABANDONED WATERMAINS
AIR & VACUUM
RELEASE VALVE
4 X 2 1/2 FLUSHOUT

FIRE HYDRANTS
4 X 2 1/2
6 X 2 1/2
6 X 4 X 2 1/2
REFERENCE NO. TO INTERSECTION DETAILS 358

DATE	DRAWN	CHECKED	REVISIONS
01/04	PS		ATTACHED ZONE 5 MAP BASE.

LOS ANGELES COUNTY DEPARTMENT OF PUBLIC WORKS
WATERWORKS AND SEWER MAINTENANCE DIVISION
LOS ANGELES COUNTY WATERWORKS DISTRICT NO.29, MALIBU
DATE:
DRAWN BY
CHECKED BY
MALIBU ZONE
WATER DISTRIBUTION SYSTEM
KM-19

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FIRE HYDRANT LOCATIONS

1:1.10

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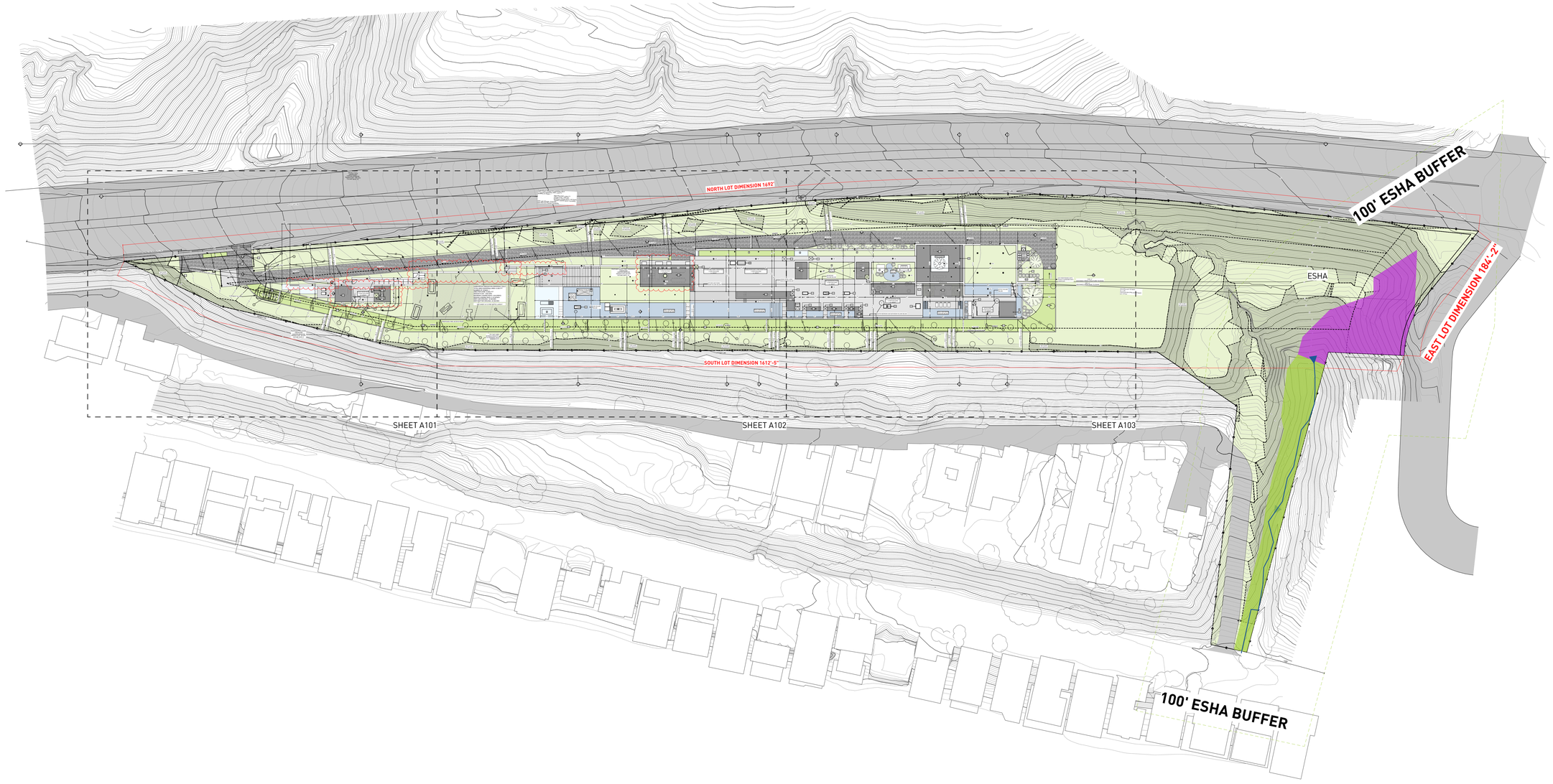

SALIX LASIOLEPIS SHRUBLAND ALLIANCE 0.20 ACRES
DISTURBED ERIOGONUM ELONGATUM VAR. ELONGATUM - SALVIA APIANA SHRUBLAND ALLIANCE (0.24 ACRE)

100'-0" ESHA BUFFER

JURISDICTIONAL WATER FEATURE

ASSESOR PARCEL #: 4459-013-021, 4459-014-018

KEY NOTES:

SITE

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714 ALL ON-SITE FIRE HYDRANTS SHALL BE INSTALLED, TESTED AND APPROVED PRIOR TO BUILDING OCCUPANCY. FIRE CODE 901.5.1
715 ROOF LADDER ACCESS

Project No

1813

Project Name
VILLA COLEAVA

Project Address
25200 Pacific Coast Hwy.
Malibu, California, USA

Property Owner
PAR PCH, LLC
PO Box 6528
Malibu, CA 90265

Design Architect
Oppenheim Architecture
245 NE 37 Street
Miami FL 33137
P 305 576 8404
F 305 576 8433
W oppenoffice.com

Landscape Architect
[place]
3617 exposition boulevard
Los Angeles, CA 90016
P 310-450-8100
F 323-737-3290
W plac-e.com

Civil Engineers
LC Engineering Group
889 Pierce Ct., Ste. 101
Thousand Oaks, CA 91360
P 805-497-1244
P 818-991-7148
W lcegroupinc.com

Revisions

Mark	Date	Description

Title
SITE PLAN

1/64" = 1'-0"

N

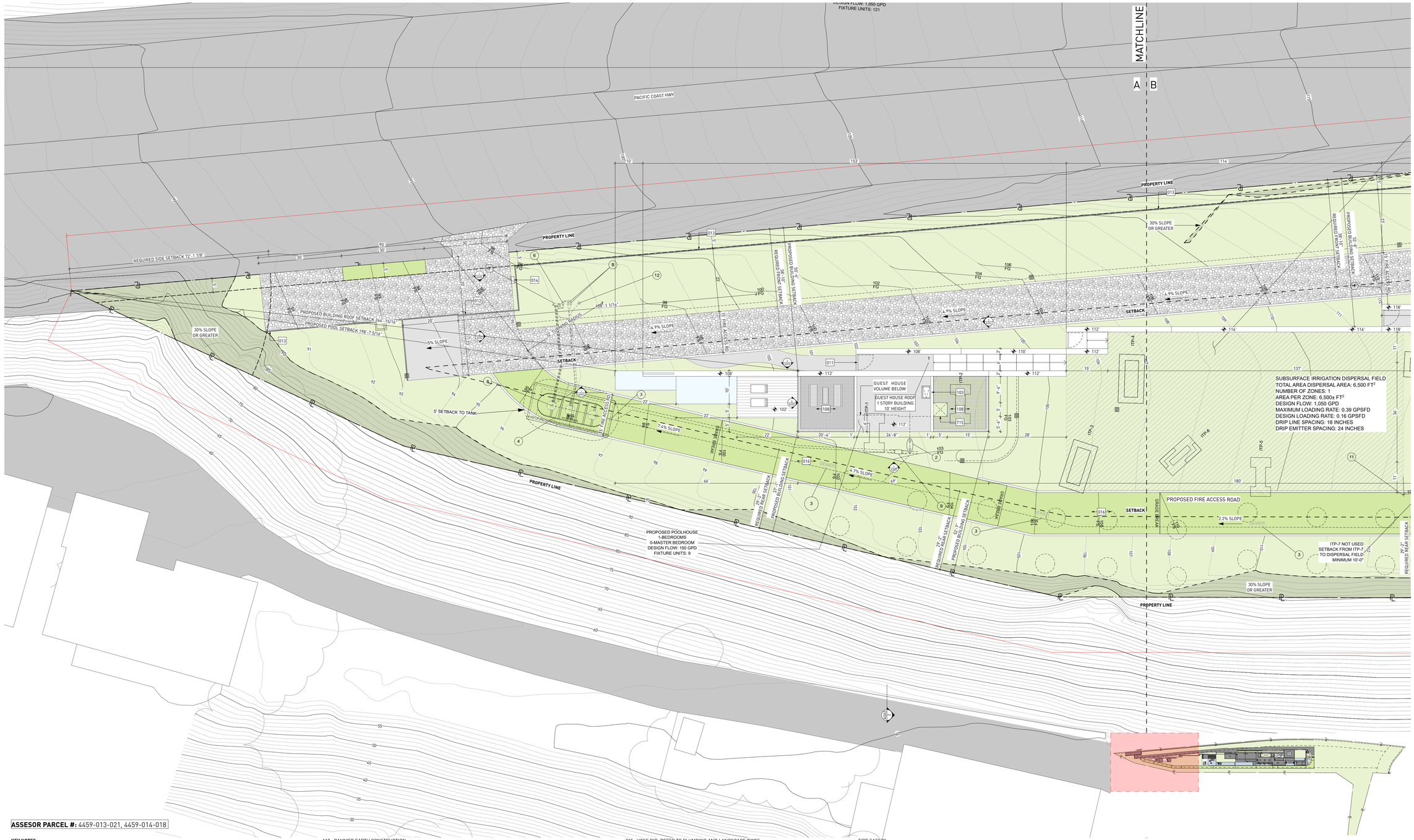
NOT FOR CONSTRUCTION

Design Development

1813
VILLA COLEAVA

Drawing Issued on 4/16/25

A100



ASSESOR PARCEL #: 4459-013-021, 4459-014-018

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009 OPEN PARKING, REFER TO CIVIL FOR DETAILS
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MATERIALS

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Property Owner
PAR PCH, LLC
PO Box 6528
Malibu, CA 90265

Design Architect
Oppenheim Architecture
245 NE 37 Street
Miami FL 33137
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Landscape Architect
[place]
3617 exposition boulevard
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W plac--e.com

Civil Engineers
LC Engineering Group
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Revisions

Mark	Date	Description

Title
ENLARGED SITE PLAN A

1/16" = 1'-0"

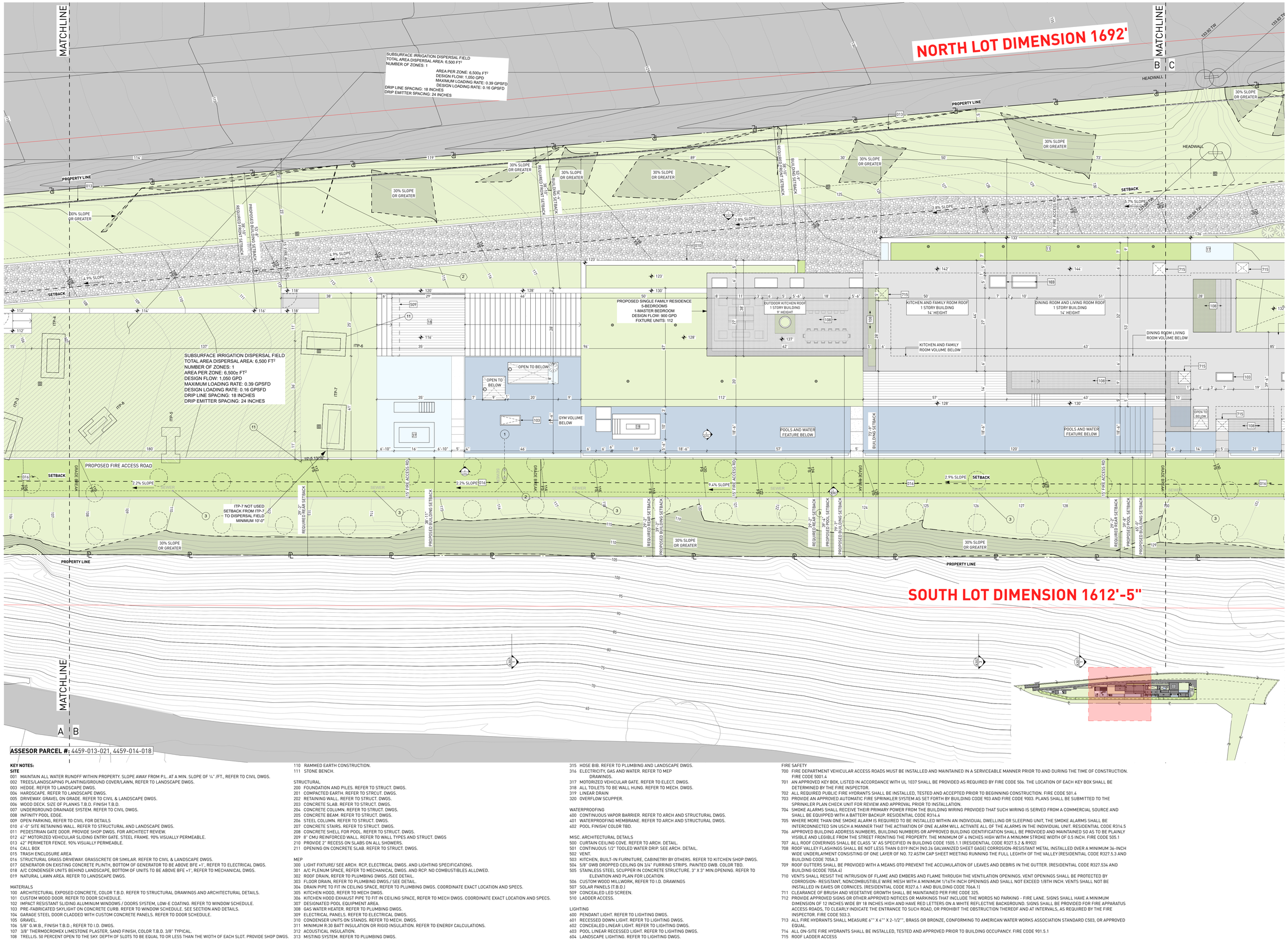
NOT FOR CONSTRUCTION

Design Development

1813
VILLA COLEAVA

Drawing Issued on 4/16/25

A101


NORTH LOT DIMENSION 1692'
SOUTH LOT DIMENSION 1612'-5"
MATCHLINE
MATCHLINE
SUBSURFACE IRRIGATION DISPERSAL FIELD
TOTAL AREA DISPERSAL AREA: 6,500 FT²
NUMBER OF ZONES: 1
AREA PER ZONE: 6,500± FT²
DESIGN FLOW: 1,050 GPD
MAXIMUM LOADING RATE: 0.39 GPSFD
DESIGN LOADING RATE: 0.16 GPSFD
DRIP LINE SPACING: 18 INCHES
DRIP EMITTER SPACING: 24 INCHES
PROPOSED SINGLE FAMILY RESIDENCE
5-BEDROOMS
1-MASTER BEDROOM
DESIGN FLOW: 900 GPD
FIXTURE UNITS: 112
PROPERTY LINE
SETBACK
PROPOSED FIRE ACCESS ROAD
15' FIRE ACCESS RD
30% SLOPE OR GREATER
4.9% SLOPE
2.8% SLOPE
2.2% SLOPE
9.4% SLOPE
2.7% SLOPE
REQUIRED FRONT SETBACK
PROPOSED BUILDING SETBACK
REQUIRED REAR SETBACK
REQUIRED POOL SETBACK
OUTDOOR KITCHEN ROOF
1 STORY BUILDING
9' HEIGHT
KITCHEN AND FAMILY ROOM ROOF
1 STORY BUILDING
14' HEIGHT
DINING ROOM AND LIVING ROOM ROOF
1 STORY BUILDING
14' HEIGHT
KITCHEN AND FAMILY ROOM VOLUME BELOW
DINING ROOM LIVING ROOM VOLUME BELOW
OPEN TO BELOW
GYM VOLUME BELOW
POOLS AND WATER FEATURE BELOW
72'-9" BUILDING SETBACK
HEADWALL
ITP-4
ITP-5
ITP-6
ITP-7
ITP-8
ITP-9
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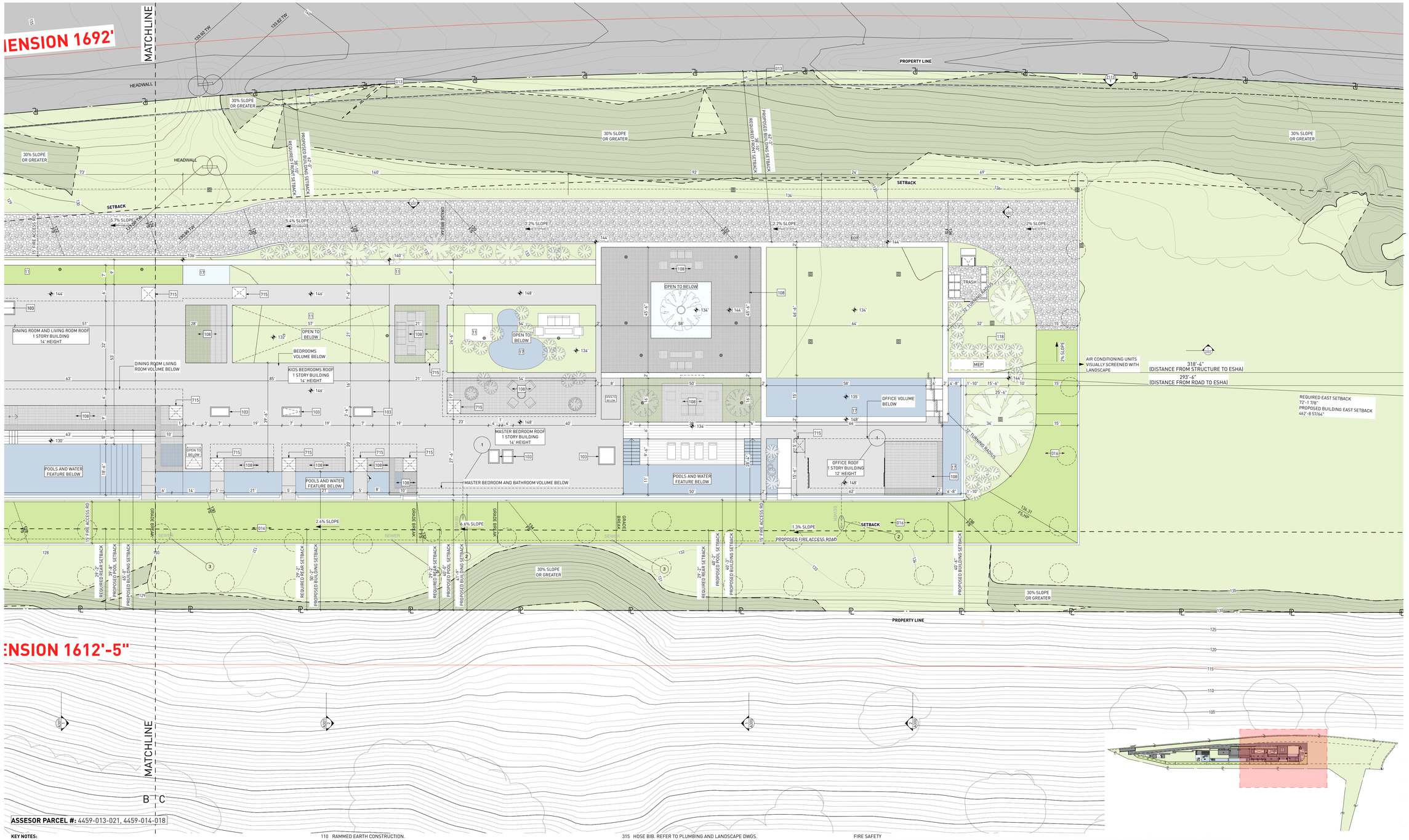

ASSESOR PARCEL #: 4459-013-021, 4459-014-018

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Project No

1813

Project Name
VILLA COLEAVA

Project Address
25200 Pacific Coast Hwy.
Malibu, California, USA

Property Owner
PAR PCH, LLC
PO Box 6528
Malibu, CA 90265

Design Architect
Oppenheim Architecture
245 NE 37 Street
Miami FL 33137
P 305 576 8404
F 305 576 8433
W oppenoffice.com

Landscape Architect
[place]
3617 exposition boulevard
Los Angeles, CA 90016
P 310-450-8100
F 323-737-3290
W plac-e.com

Civil Engineers
LC Engineering Group
889 Pierce Ct., Ste. 101
Thousand Oaks, CA 91360
P 805-497-1244
P 818-991-7148
W lcegroupinc.com

Revisions

Mark	Date	Description

Title
ENLARGED SITE PLAN C

1/16" = 1'-0"

N

NOT FOR CONSTRUCTION

Design Development

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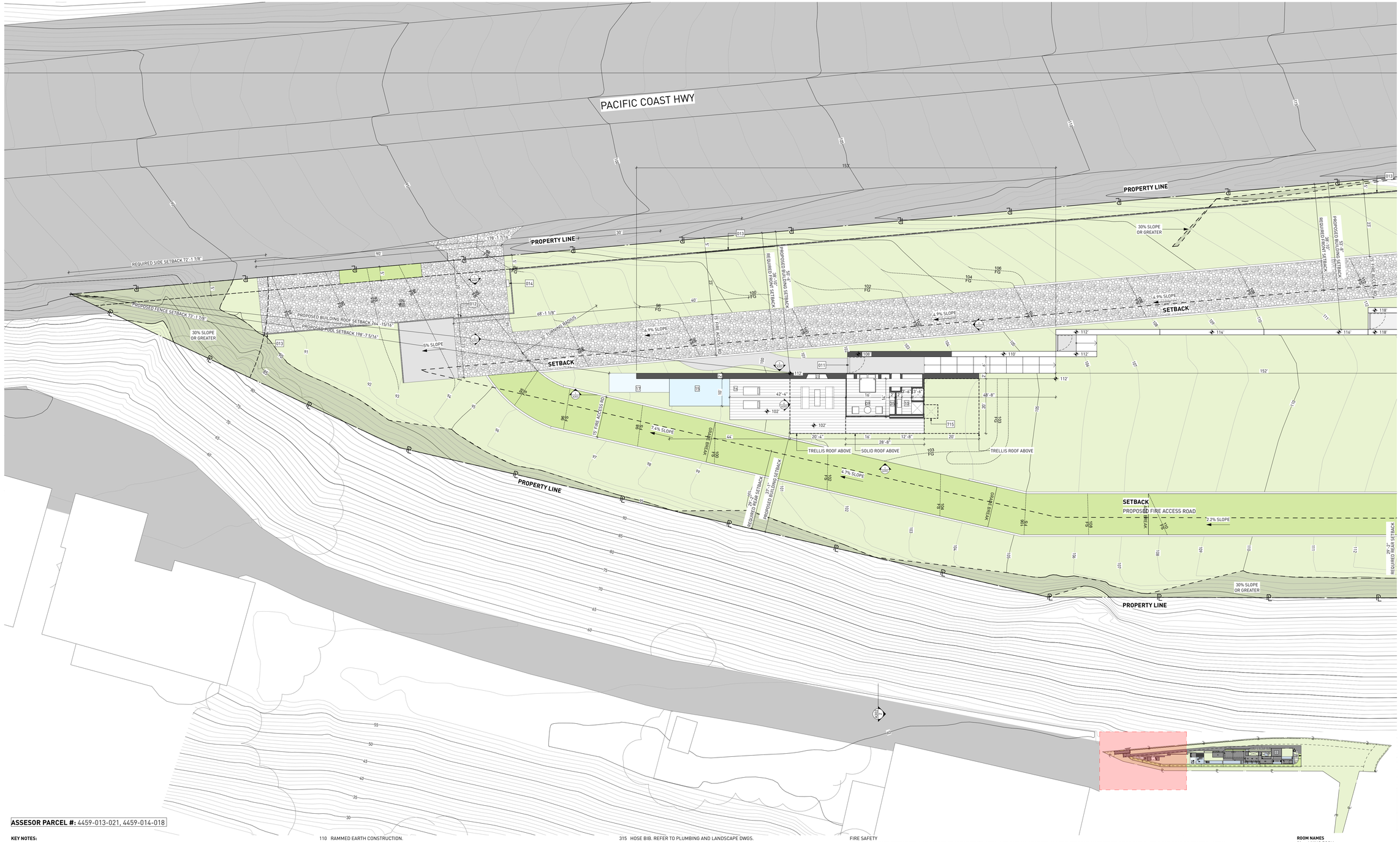
Drawing Issued on 4/16/25

A103



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23 FIREPLACE
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27 MASSAGE ROOM
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36 COLD PLUNGE POOL
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Oppenheim Architecture
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Landscape Architect
[place]
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Civil Engineers
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Revisions

Mark	Date	Description

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GUEST HOUSE LEVEL

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NOT FOR CONSTRUCTION

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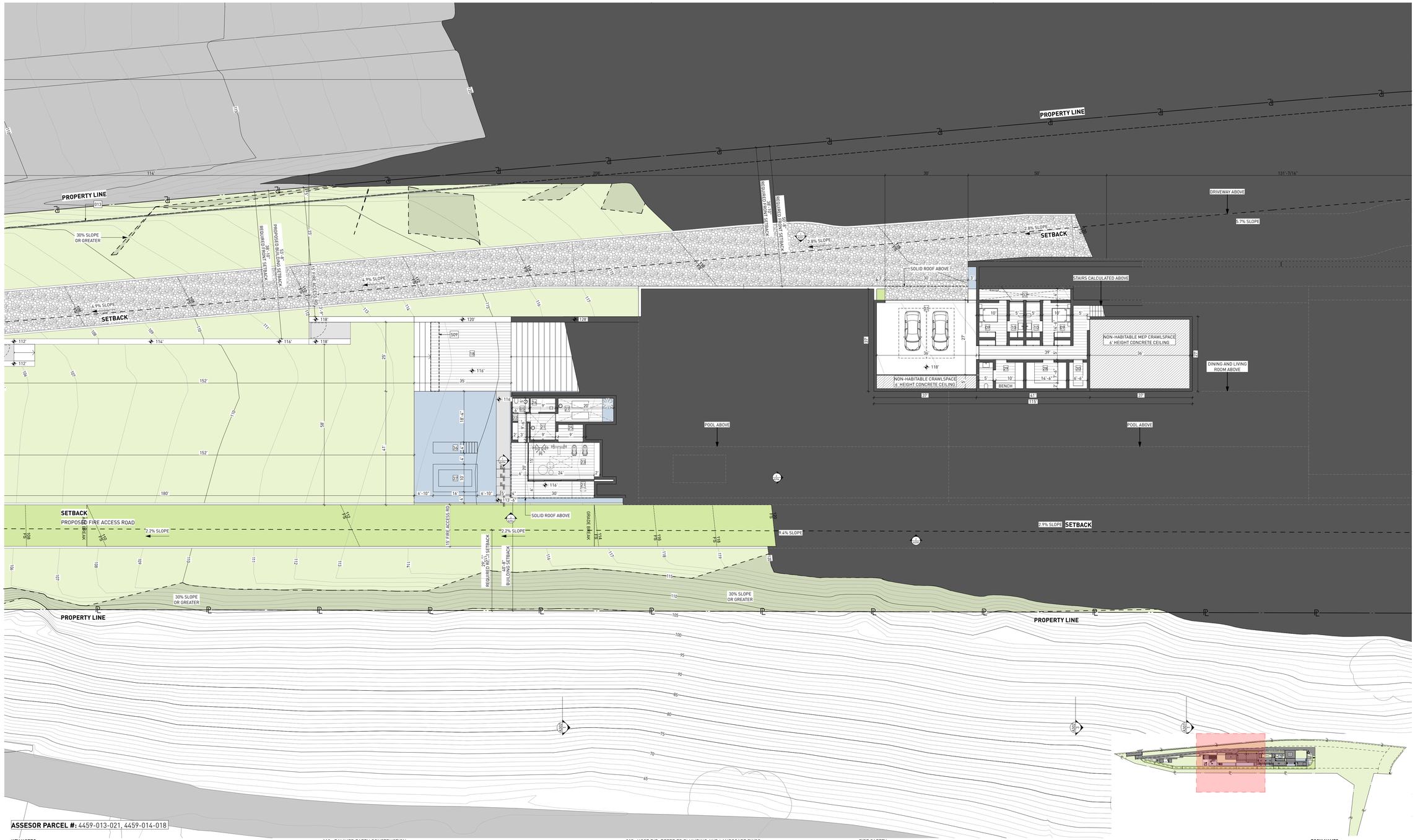
VILLA COLEAVA

Drawing Issued on 4/16/25

A104



ASSESSOR PARCEL #: 4459-013-021, 4459-014-018

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16 POOL DECK
17 WATER FEATURE
18 TERRACE
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32 LIGHTWELL
33 OUTDOOR BATHROOM
34 SUNKEN TUB
35 MINI BAR
36 COLD PLUNGE POOL
37 HOT TUB

Project No

1813

Project Name
VILLA COLEAVA

Project Address
25200 Pacific Coast Hwy.
Malibu, California, USA

Property Owner
PAR PCH, LLC
PO Box 6528
Malibu, CA 90265

Design Architect
Oppenheim Architecture
245 NE 37 Street
Miami FL 33137
P 305 576 8404
F 305 576 8433
W oppenoffice.com

Landscape Architect
[place]
3617 exposition boulevard
Los Angeles, CA 90016
P 310-450-8100
F 323-737-3290
W plac-e.com

Civil Engineers
LC Engineering Group
889 Pierce Ct., Ste. 101
Thousand Oaks, CA 91360
P 805-497-1244
P 818-991-7148
W lcegroupinc.com

Revisions

Mark	Date	Description

Title
GYM + BASEMENT LEVEL

1/16" = 1'-0"

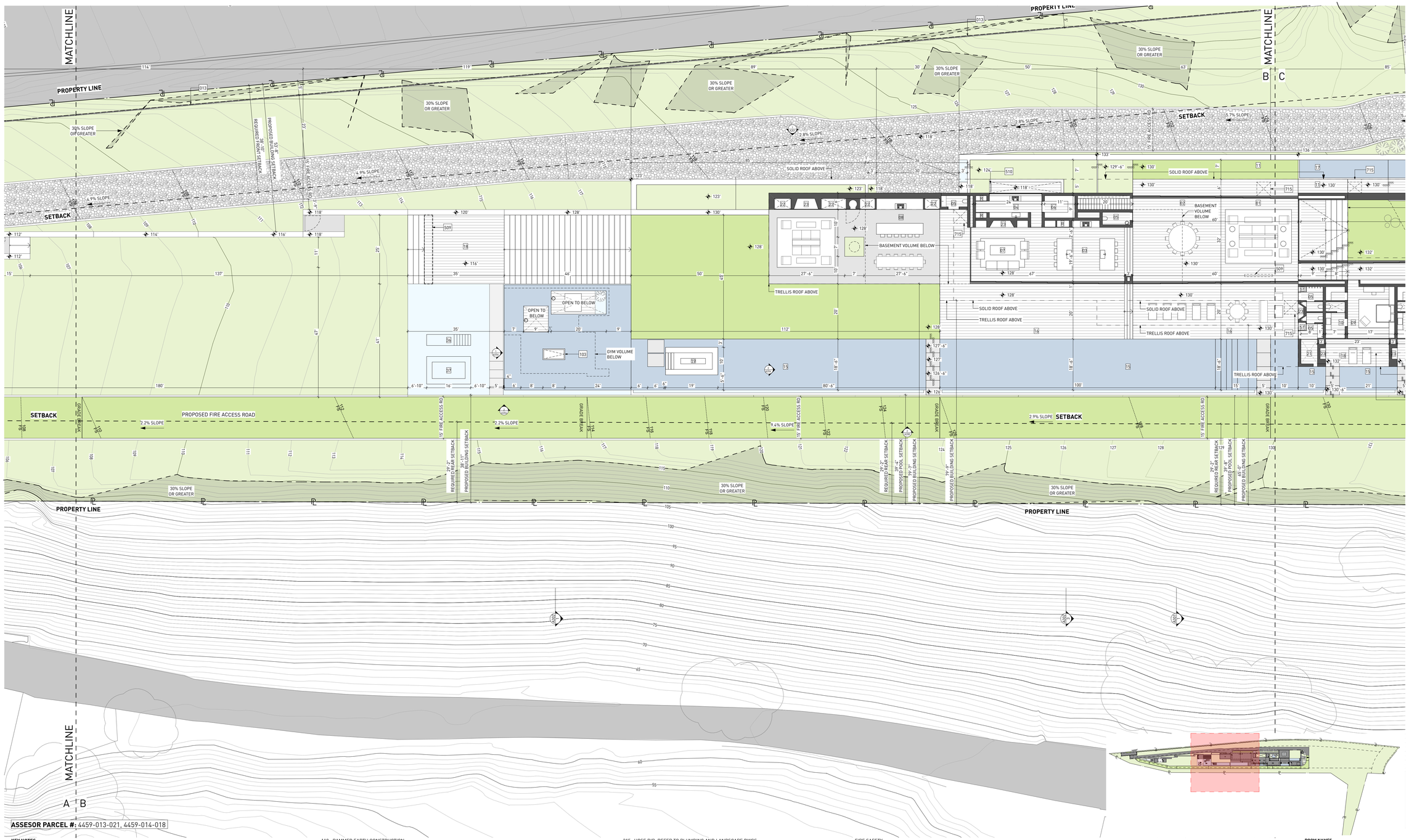
NOT FOR CONSTRUCTION

Design Development

1813
VILLA COLEAVA

Drawing Issued on 4/16/25

A105



ASSESOR PARCEL #: 4459-013-021, 4459-014-018

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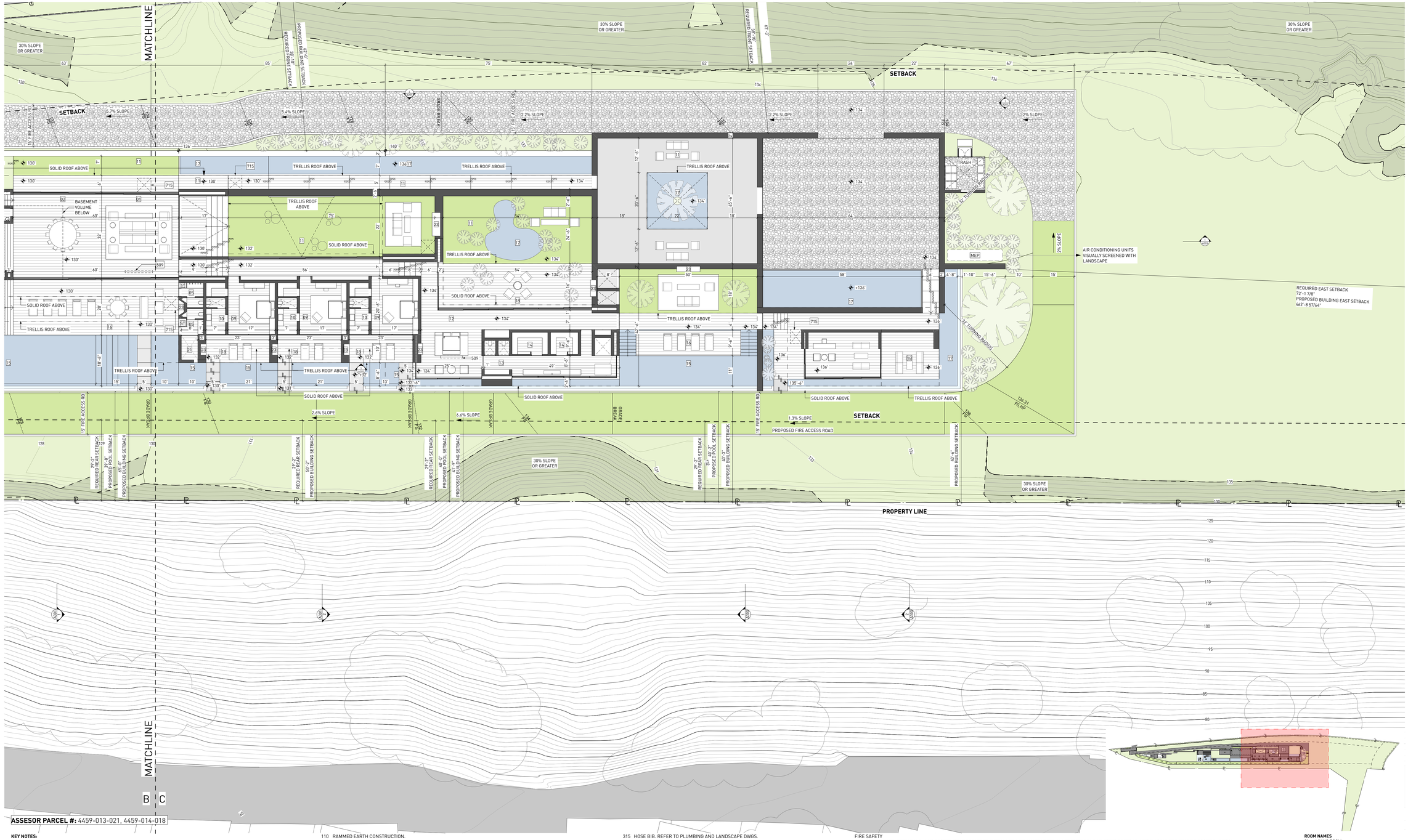

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P 310-450-8100
F 323-737-3290
W plac-e.com

Civil Engineers
LC Engineering Group
889 Pierce Ct., Ste. 101
Thousand Oaks, CA 91360
P 805-497-1244
P 818-991-7148
W lcgroupinc.com

Revisions

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Title
GROUND LEVEL C

1/16" = 1'-0"

N

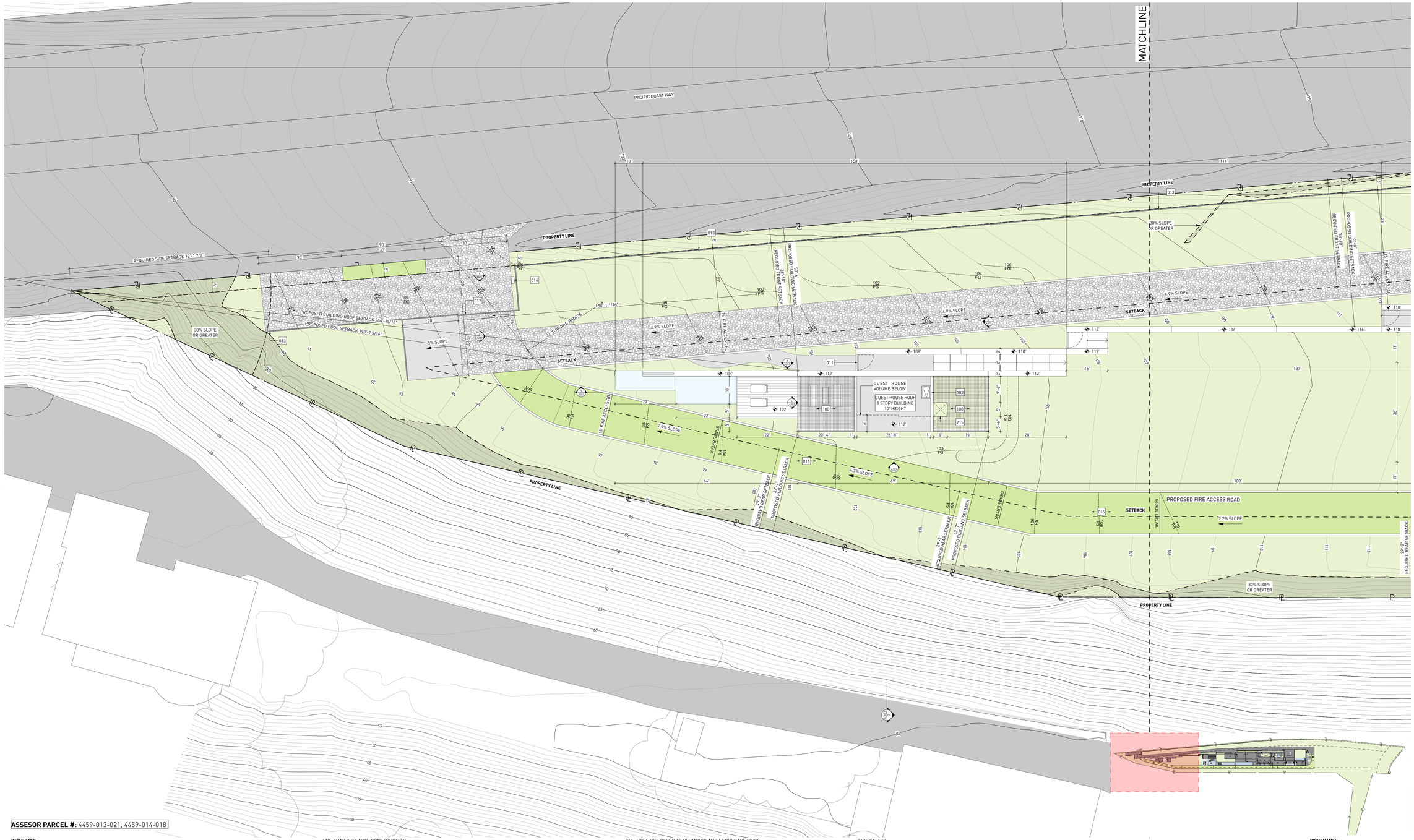
NOT FOR CONSTRUCTION

Design Development

1813
VILLA COLEAVA

Drawing Issued on 4/16/25

A107



ASSESOR PARCEL #: 4459-013-021, 4459-014-018

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Project No

1813

Project Name
VILLA COLEAVA

Project Address
25200 Pacific Coast Hwy.
Malibu, California, USA

Property Owner
PAR PCH, LLC
PO Box 6528
Malibu, CA 90265

Design Architect
Oppenheim Architecture
245 NE 37 Street
Miami FL 33137
P 305 576 8404
F 305 576 8433
W oppenoffice.com

Landscape Architect
[place]
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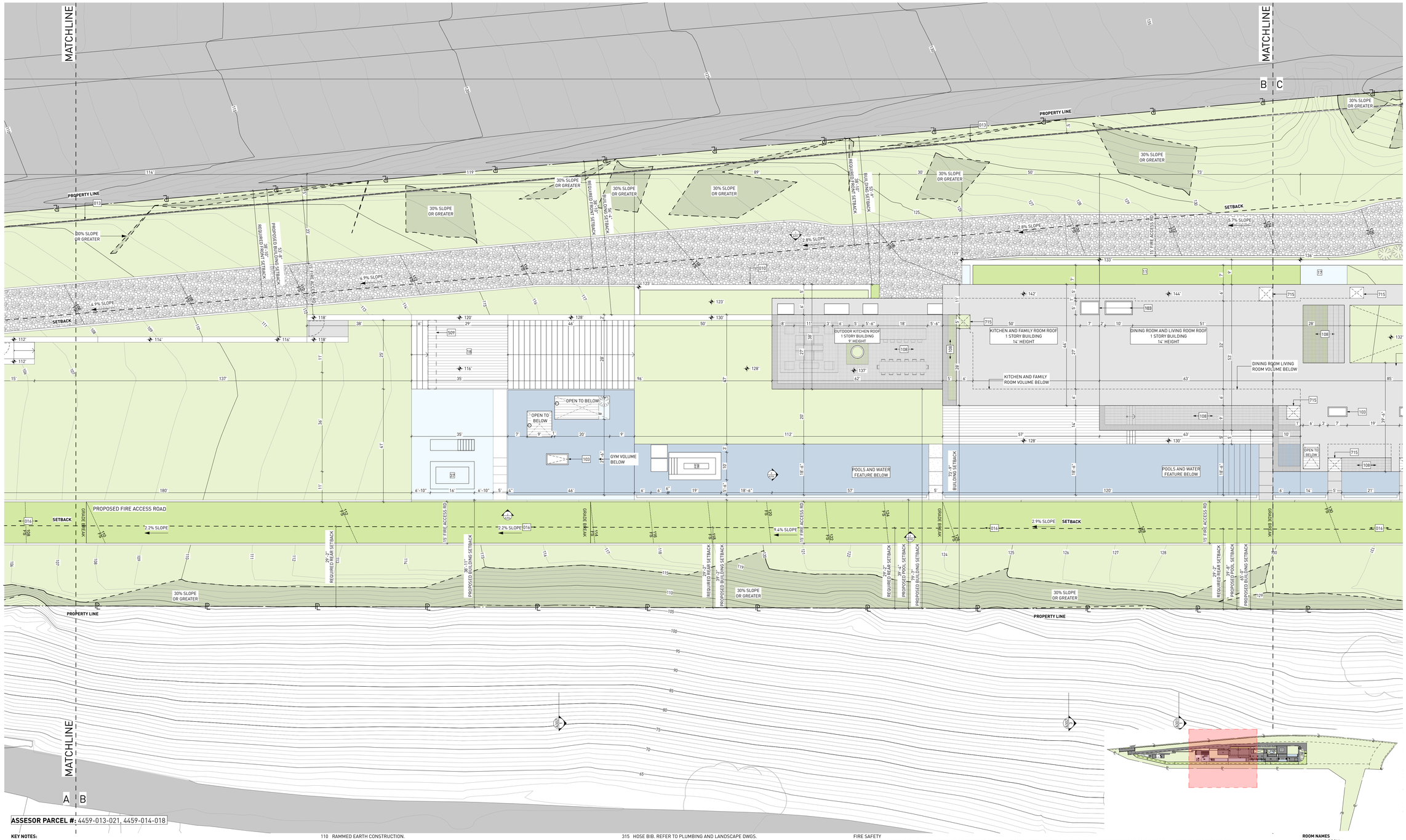

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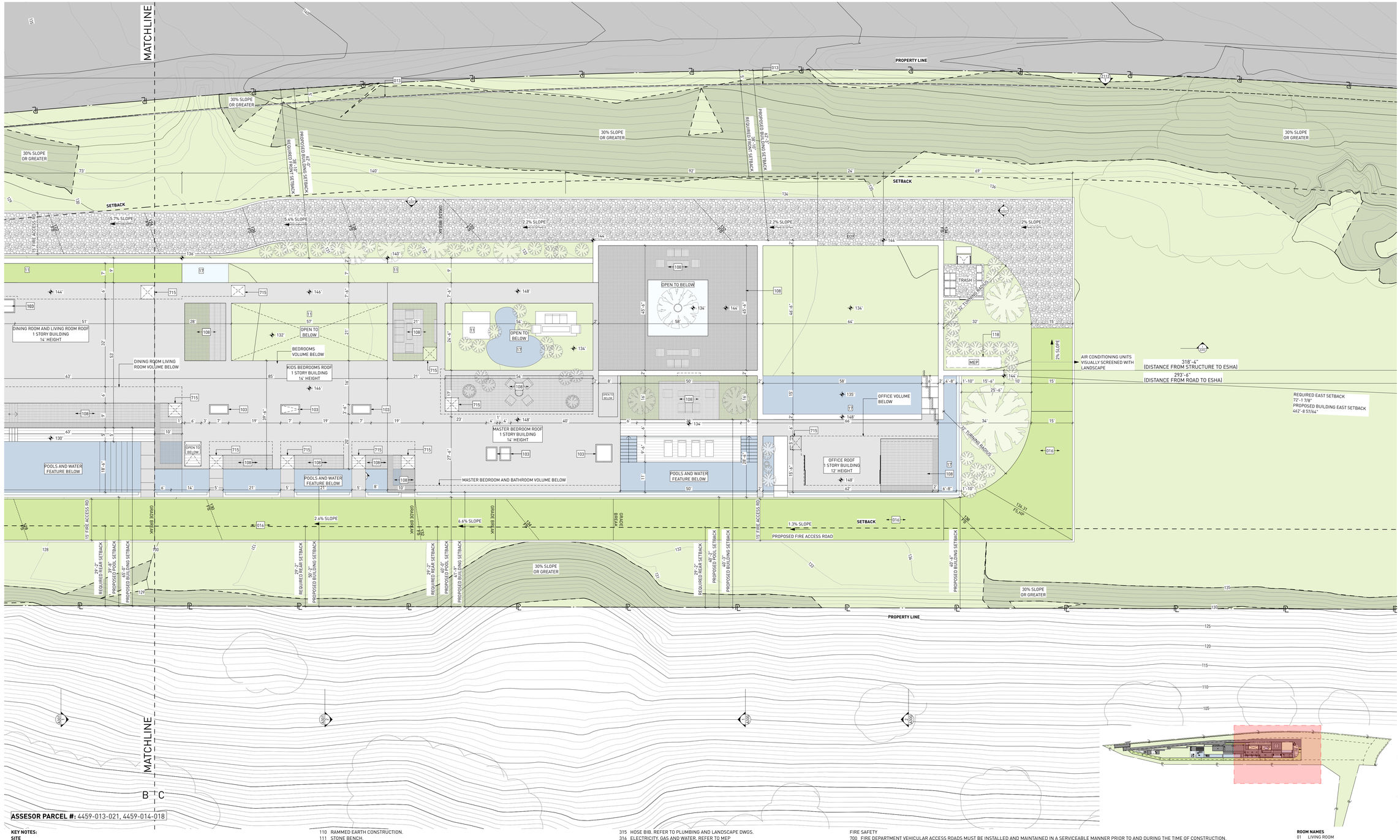
A109



ASSESOR PARCEL #: 4459-013-021, 4459-014-018

KEY NOTES:

SITE

001 MAINTAIN ALL WATER RUNOFF WITHIN PROPERTY. SLOPE AWAY FROM P.L. AT A MIN. SLOPE OF ¼" /FT., REFER TO CIVIL DWGS.
002 TREES/LANDSCAPING PLANTING/GROUND COVER/LAWN, REFER TO LANDSCAPE DWGS.
003 HEDGE. REFER TO LANDSCAPE DWGS.
004 HARDSCAPE. REFER TO LANDSCAPE DWGS.
005 DRIVEWAY. GRAVEL ON GRADE. REFER TO CIVIL & LANDSCAPE DWGS.
006 WOOD DECK. SIZE OF PLANKS T.B.D. FINISH T.B.D.
007 UNDERGROUND DRAINAGE SYSTEM. REFER TO CIVIL DWGS.
008 INFINITY POOL EDGE.
009 OPEN PARKING, REFER TO CIVIL FOR DETAILS
010 6'-0" SITE RETAINING WALL. REFER TO STRUCTURAL AND LANDSCAPE DWGS.
011 PEDESTRIAN GATE DOOR. PROVIDE SHOP DWGS. FOR ARCHITECT REVIEW.
012 42" MOTORIZED VEHICULAR SLIDING ENTRY GATE. STEEL FRAME. 90% VISUALLY PERMEABLE.
013 42" PERIMETER FENCE. 90% VISUALLY PERMEABLE.
014 CALL BOX
015 TRASH ENCLOSURE AREA
016 STRUCTURAL GRASS DRIVEWAY. GRASSCRETE OR SIMILAR. REFER TO CIVIL & LANDSCAPE DWGS.
017 GENERATOR ON EXISTING CONCRETE PLINTH, BOTTOM OF GENERATOR TO BE ABOVE BFE +1', REFER TO ELECTRICAL DWGS.
018 A/C CONDENSER UNITS BEHIND LANDSCAPE, BOTTOM OF UNITS TO BE ABOVE BFE +1', REFER TO MECHANICAL DWGS.
019 NATURAL LAWN AREA. REFER TO LANDSCAPE DWGS.

MATERIALS

100 ARCHITECTURAL EXPOSED CONCRETE, COLOR T.B.D. REFER TO STRUCTURAL DRAWINGS AND ARCHITECTURAL DETAILS.
101 CUSTOM WOOD DOOR. REFER TO DOOR SCHEDULE.
102 IMPACT RESISTANT SLIDING ALUMINUM WINDOWS / DOORS SYSTEM, LOW-E COATING. REFER TO WINDOW SCHEDULE.
103 PRE-FABRICATED SKYLIGHT ON CONCRETE CURB. REFER TO WINDOW SCHEDULE. SEE SECTION AND DETAILS.
104 GARAGE STEEL DOOR CLADDED WITH CUSTOM CONCRETE PANELS. REFER TO DOOR SCHEDULE.
105 GRAVEL.
106 5/8" G.W.B., FINISH T.B.D.; REFER TO I.D. DWGS.
107 3/8" THERMOCROMEX LIMESTONE PLASTER, SAND FINISH, COLOR T.B.D. 3/8" TYPICAL.
108 TRELLIS. 50 PERCENT OPEN TO THE SKY. DEPTH OF SLOTS TO BE EQUAL TO OR LESS THAN THE WIDTH OF EACH SLOT. PROVIDE SHOP DWGS.
109 REFER TO INTERIOR DESIGN DRAWINGS AND FINISH SCHEDULE.
110 RAMMED EARTH CONSTRUCTION.
111 STONE BENCH.

STRUCTURAL

200 FOUNDATION AND PILES. REFER TO STRUCT. DWGS.
201 COMPACTED EARTH. REFER TO STRCUT. DWGS.
202 RETAINING WALL. REFER TO STRUCT. DWGS.
203 CONCRETE SLAB. REFER TO STRUCT. DWGS.
204 CONCRETE COLUMN. REFER TO STRUCT. DWGS.
205 CONCRETE BEAM. REFER TO STRUCT. DWGS.
206 STEEL COLUMN. REFER TO STRUCT. DWGS.
207 CONCRETE STAIRS. REFER TO STRUCT. DWGS.
208 CONCRETE SHELL FOR POOL. REFER TO STRUCT. DWGS.
209 8" CMU REINFORCED WALL. REFER TO WALL TYPES AND STRUCT. DWGS
210 PROVIDE 2" RECESS ON SLABS ON ALL SHOWERS.
211 OPENING ON CONCRETE SLAB. REFER TO STRUCT. DWGS.

MEP

300 LIGHT FIXTURE/ SEE ARCH. RCP, ELECTRICAL DWGS. AND LIGHTING SPECIFICATIONS.
301 A/C PLENUM SPACE, REFER TO MECHANICAL DWGS. AND RCP. NO COMBUSTIBLES ALLOWED.
302 ROOF DRAIN, REFER TO PLUMBING DWGS. /SEE DETAIL.
303 FLOOR DRAIN, REFER TO PLUMBING DWGS./ SEE DETAIL.
304 DRAIN PIPE TO FIT IN CEILING SPACE, REFER TO PLUMBING DWGS. COORDINATE EXACT LOCATION AND SPECS.
305 KITCHEN HOOD, REFER TO MECH DWGS.
306 KITCHEN HOOD EXHAUST PIPE TO FIT IN CEILING SPACE, REFER TO MECH DWGS. COORDINATE EXACT LOCATION AND SPECS.
307 DESIGNATED POOL EQUIPMENT AREA.
308 GAS WATER HEATER. REFER TO PLUMBING DWGS.
309 ELECTRICAL PANELS. REFER TO ELECTRICAL DWGS.
310 CONDENSER UNITS ON STANDS. REFER TO MECH. DWGS.
311 MINIMUM R-30 BATT INSULATION OR RIGID INSULATION. REFER TO ENERGY CALCULATIONS.
312 ACOUSTICAL INSULATION.
313 MISTING SYSTEM. REFER TO PLUMBING DWGS.
314 SPRINKLER SYSTEM. REFER TO PLUMBING DWGS.
315 HOSE BIB. REFER TO PLUMBING AND LANDSCAPE DWGS.
316 ELECTRICITY, GAS AND WATER. REFER TO MEP DRAWINGS.
317 MOTORIZED VEHICULAR GATE. REFER TO ELECT. DWGS.
318 ALL TOILETS TO BE WALL HUNG. REFER TO MECH. DWGS.
319 LINEAR DRAIN
320 OVERFLOW SCUPPER.

WATERPROOFING

400 CONTINUOUS VAPOR BARRIER. REFER TO ARCH AND STRUCTURAL DWGS.
401 WATERPROOFING MEMBRANE. REFER TO ARCH AND STRUCTURAL DWGS.
402 POOL FINISH/ COLOR TBD.

MISC. ARCHITECTURAL DETAILS

500 CURTAIN CEILING COVE. REFER TO ARCH. DETAIL.
501 CONTINUOUS 1/2" TOOLED WATER DRIP. SEE ARCH. DETAIL.
502 VENT.
503 KITCHEN, BUILT-IN FURNITURE, CABINETRY BY OTHERS. REFER TO KITCHEN SHOP DWGS.
504 5/8" GWB DROPPED CEILING ON 3/4" FURRING STRIPS. PAINTED GWB. COLOR TBD.
505 STAINLESS STEEL SCUPPER IN CONCRETE STRUCTURE. 3" X 3" MIN.OPENING. REFER TO ELEVATION AND PLAN FOR LOCATION.
506 CUSTOM WOOD MILLWORK, REFER TO I.D. DRAWINGS
507 SOLAR PANELS (T.B.D.)
509 CONCEALED LED SCREEN.
510 LADDER ACCESS.

LIGHTING

600 PENDANT LIGHT. REFER TO LIGHTING DWGS.
601 RECESSED DOWN LIGHT. REFER TO LIGHTING DWGS.
602 CONCEALED LINEAR LIGHT. REFER TO LIGHTING DWGS.
603 POOL LINEAR RECESSED LIGHT. REFER TO LIGHTING DWGS.
604 LANDSCAPE LIGHTING. REFER TO LIGHTING DWGS.

FIRE SAFETY

700 FIRE DEPARTMENT VEHICULAR ACCESS ROADS MUST BE INSTALLED AND MAINTAINED IN A SERVICEABLE MANNER PRIOR TO AND DURING THE TIME OF CONSTRUCTION. FIRE CODE 501.4
701 AN APPROVED KEY BOX, LISTED IN ACCORDANCE WITH UL 1037 SHALL BE PROVIDED AS REQUIRED BY FIRE CODE 506. THE LOCATION OF EACH KEY BOX SHALL BE DETERMINED BY THE FIRE INSPECTOR.
702 ALL REQUIRED PUBLIC FIRE HYDRANTS SHALL BE INSTALLED, TESTED AND ACCEPTED PRIOR TO BEGINNING CONSTRUCTION. FIRE CODE 501.4
703 PROVIDE AN APPROVED AUTOMATIC FIRE SPRINKLER SYSTEM AS SET FORTH BY BUILDING CODE 903 AND FIRE CODE 9003. PLANS SHALL BE SUBMITTED TO THE SPRINKLER PLAN CHECK UNIT FOR REVIEW AND APPROVAL PRIOR TO INSTALLATION.
704 SMOKE ALARMS SHALL RECEIVE THEIR PRIMARY POWER FROM THE BUILDING WIRING PROVIDED THAT SUCH WIRING IS SERVED FROM A COMMERCIAL SOURCE AND SHALL BE EQUIPPED WITH A BATTERY BACKUP. RESIDENTIAL CODE R314.4
705 WHERE MORE THAN ONE SMOKE ALARM IS REQUIRED TO BE INSTALLED WITHIN AN INDIVIDUAL DWELLING OR SLEEPING UNIT, THE SMOKE ALARMS SHALL BE INTERCONNECTED SIN USCH A MANNER THAT THE ACTIVATION OF ONE ALARM WILL ACTIVATE ALL OF THE ALARMS IN THE INDIVIDUAL UNIT. RESIDENTIAL CODE R314.5
706 APPROVED BUILDING ADDRESS NUMBERS, BUILDING NUMBERS OR APPROVED BUILDING IDENTIFICATION SHALL BE PROVIDED AND MAINTAINED SO AS TO BE PLAINLY VISIBLE AND LEGIBLE FROM THE STREET FRONTING THE PROPERTY. THE MINIMUM OF 4 INCHES HIGH WITH A MINIMUM STROKE WIDTH OF 0.5 INCH. FIRE CODE 505.1
707 ALL ROOF COVERINGS SHALL BE CLASS "A" AS SPECIFIED IN BUILDING CODE 1505.1.1 (RESIDENTIAL CODE R327.5.2 & R902)
708 ROOF VALLEY FLASHINGS SHALL BE NOT LESS THAN 0.019 INCH (NO.26 GALVANIZED SHEET GAGE) CORROSION-RESISTANT METAL INSTALLED OVER A MINIMUM 36-INCH WIDE UNDERLAYMENT CONSISTING OF ONE LAYER OF NO. 72 ASTM CAP SHEET MEETING RUNNING THE FULL LEGHTH OF THE VALLEY (RESIDENTIAL CODE R327.5.3 AND BUILDING CODE 705A.3
709 ROOF GUTTERS SHALL BE PROVIDED WITH A MEANS OTO PREVENT THE ACCUMULATION OF LEAVES AND DEBRIS IN THE GUTTER. (RESIDENTIAL CODE R327.534 AND BUILDING GCODE 705A.4)
710 VENTS SHALL RESIST THE INTRUSION OF FLAME AND EMBERS AND FLAME THROUGH THE VENTILATION OPENINGS. VENT OPENINGS SHALL BE PROTECTED BY CORROSION- RESISTANT, NONCOMBUSTIBLE WIRE MESH WITH A MINIMUM 1/16TH INCH OPENINGS AND SHALL NOT EXCEED 1/8TH INCH. VENTS SHALL NOT BE INSTALLED IN EAVES OR CORNICES. (RESIDENTIAL CODE R327.6.1 AND BUILDING CODE 706A.1)
711 CLEARANCE OF BRUSH AND VEGETATIVE GROWTH SHALL BE MAINTAINED PER FIRE CODE 325.
712 PROVIDE APPROVED SIGNS OR OTHER APPROVED NOTICES OR MARKINGS THAT INCLUDE THE WORDS NO PARKING - FIRE LANE. SIGNS SHALL HAVE A MINIMUM DIMENSION OF 12 INCHES WIDE BY 18 INCHES HIGH AND HAVE RED LETTERS ON A WHITE REFLECTIVE BACKGROUND. SIGNS SHALL BE PROVIDED FOR FIRE APPARATUS ACCESS ROADS, TO CLEARLY INDICATE THE ENTRANCE TO SUCH ROAD, OR PROHIBIT THE OBSTRUCTION THEREOF AND AT INTERVALS, AS REQUIRED BY THE FIRE INSPECTOR. FIRE CODE 503.3.
713 ALL FIRE HYDRANTS SHALL MEASURE 6"" X 4"" X 2-1/2"", BRASS OR BRONZE, CONFORMING TO AMERICAN WATER WORKS ASSOCIATION STANDARD C503, OR APPROVED EQUAL.
714 ALL ON-SITE FIRE HYDRANTS SHALL BE INSTALLED, TESTED AND APPROVED PRIOR TO BUILDING OCCUPANCY. FIRE CODE 901.5.1
715 ROOF LADDER ACCESS

ROOM NAMES

01 LIVING ROOM
02 DINING ROOM
03 KITCHEN
04 SERVICE KITCHEN
05 POWDER ROOM
06 PANTRY
07 FAMILY ROOM
08 OUTDOOR KITCHEN
09 BEDROOM
10 BATHROOM
11 COURTYARD
12 MASTER BEDROOM
13 MASTER BATHROOM
14 MASTER CLOSET
15 POOL
16 POOL DECK
17 WATER FEATURE
18 TERRACE
19 FIRE PIT
20 OFFICE
21 OUTDOOR SHOWER
22 STORAGE
23 FIREPLACE
24 GYM
25 STEAM ROOM
26 SAUNA
27 MASSAGE ROOM
28 LAUNDRY
29 MUD ROOM
30 WINE STORAGE
31 GARAGE
32 LIGHTWELL
33 OUTDOOR BATHROOM
34 SUNKEN TUB
35 MINI BAR
36 COLD PLUNGE POOL
37 HOT TUB

Project No

1813

Project Name
VILLA COLEAVA

Project Address
25200 Pacific Coast Hwy.
Malibu, California, USA

Property Owner
PAR PCH, LLC
PO Box 6528
Malibu, CA 90265

Design Architect
Oppenheim Architecture
245 NE 37 Street
Miami FL 33137
P 305 576 8404
F 305 576 8433
W oppenoffice.com

Landscape Architect
[place]
3617 exposition boulevard
Los Angeles, CA 90016
P 310-450-8100
F 323-737-3290
W plac-e.com

Civil Engineers
LC Engineering Group
889 Pierce Ct., Ste. 101
Thousand Oaks, CA 91360
P 805-497-1244
P 818-991-7148
W lcegroupinc.com

Revisions

Mark	Date	Description

Title
ROOF LEVEL C

1/16" = 1'-0"

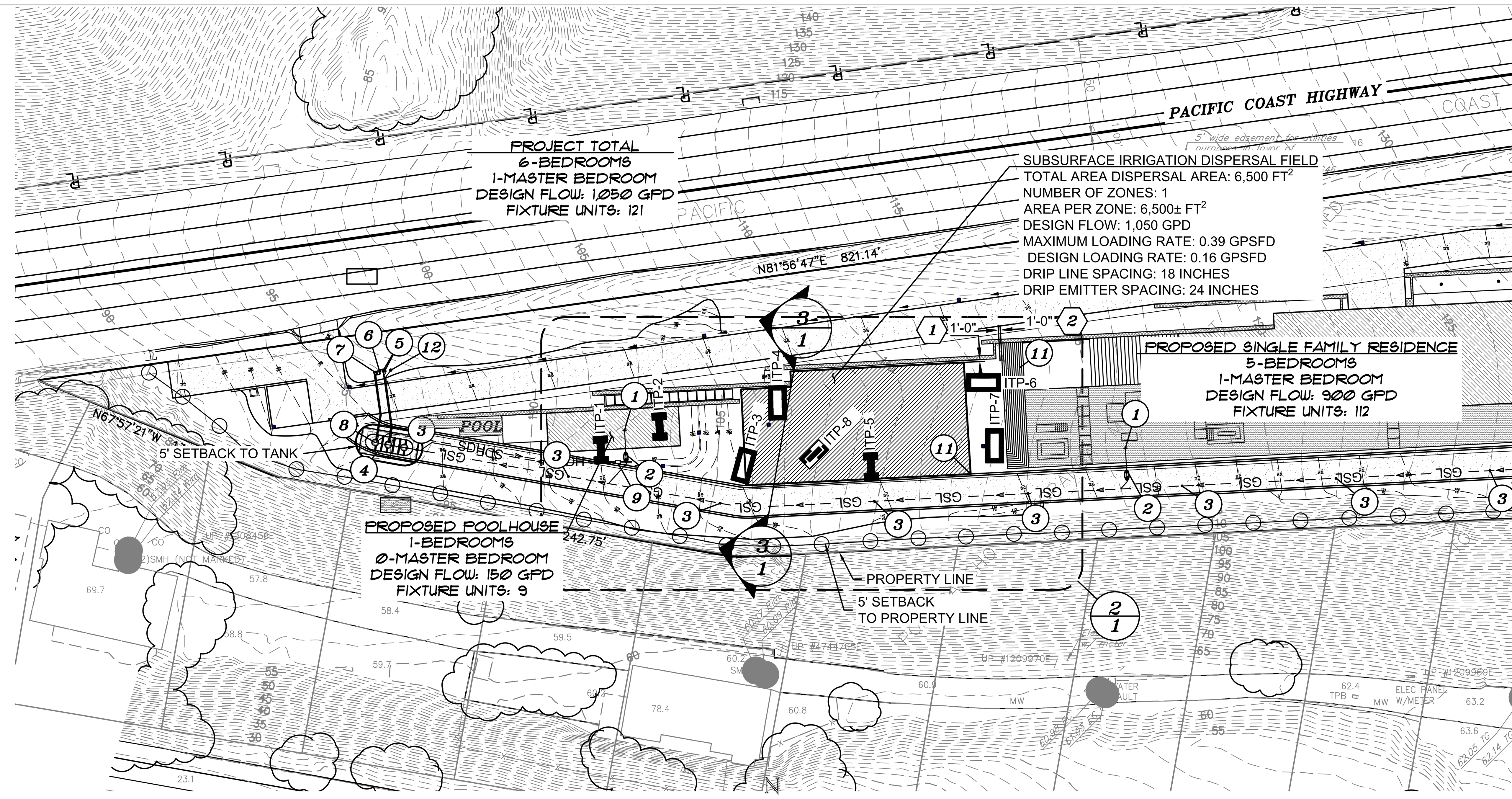
NOT FOR CONSTRUCTION

Design Development

1813
VILLA COLEAVA

Drawing Issued on 4/16/25

A110



1/1 *OVERALL SITE PLAN*

0 100' 200'

OWTS Capacity (Design and Maximum)				
Component	Description	Size/Capacity	Design Capacity	Max Capacity
Treatment Volume (Fixture Unit Capacity)	1-MicroSepTec ES25	7,540 gallons	121 fixture units	261 fixture units
Treatment (Organic Capacity)	1-MicroSepTec ES25	4.17 lb BOD5/day	1050 gpd at 220mg/L BOD5	2500 gpd at 220mg/L BOD5
Disinfection	1-MicroSepTec ES25	2,500 gpd	1,050 gpd	2,500 gpd
Subsurface Irrigation Dispersal	Subsurface Irrigation	5100 square feet at 0.206 gallons per square foot per day	1,050 gpd	1,989 gpd

Leaching Field Calculations		
Max Subsurface Irrigation Loading Rate, L_M	0.390	gpsfd
Preferred Subsurface Irrigation Loading Rate Safety factor 10, L_P	0.39	gpsfd
Minimum Square Feet of Leaching Area Required, A_M	2693	ft²
Preferred Square Feet of Leaching Area Required, A_P	2693	ft²
Design Square Feet of leaching Area, A_F	5100	ft²
Is Design Area Adequate (Is $A_F > A_P$)	Yes	
Actual Loading Rate, L_A	0.206	gpsfd

Fixture Units Summary		
Total Proposed Fixture Units	121	
Total Fixture Units	121	
Dwelling Units Summary		
Total Proposed Dwelling Units	1	
Proposed Bedroom Summary		
Total Proposed Bedrooms	6	bedrooms
Number of Proposed Master Bedrooms	1	bedrooms
Number of Proposed Standard	5	bedrooms
Flow Calculations (Q)		
Peak Flow per Master Bedroom	300	gpd
Peak Flow per Standard Bedroom	150	gpd
Average Flow per Master Bedroom	200	gpd
Average Flow per Standard Bedroom	100	gpd
Flow Calculations Proposed (Q)		
Peak Flow, Q_P	1050	gpd
Average Flow, Q_A	700	gpd
Leaching Field Design Flow, Q_P	1050	gpd
Influent Characteristics		
BOD5 (mg/l)	220	
TSS (mg/l)	220	
TN (mg/l)	35	
Effluent Characteristics		
BOD5 (mg/l)	20	
TSS (mg/l)	20	
TN (mg/l)	17.5	

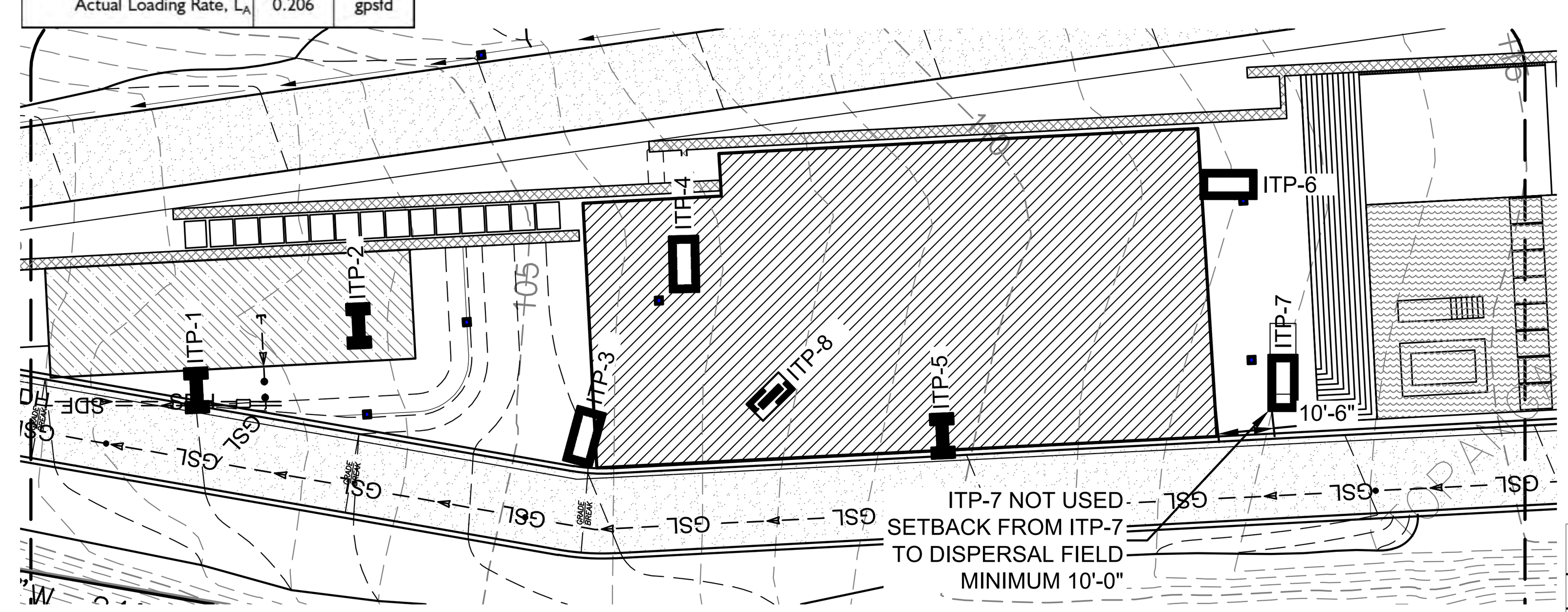
Septic Tank (ST) Calculations		
Total Existing Fixture Units		
Total Proposed Fixture Units	121	
Total Fixture Units	121	
Minimum Septic Tank Size based on Fixtures	4025	gal
Number of Dwelling Units	1	
Number of Bedrooms	6	bedrooms
Minimum Septic Tank Size based on Bedrooms	1500	gal
Design Septic Tank Size	7540	gal

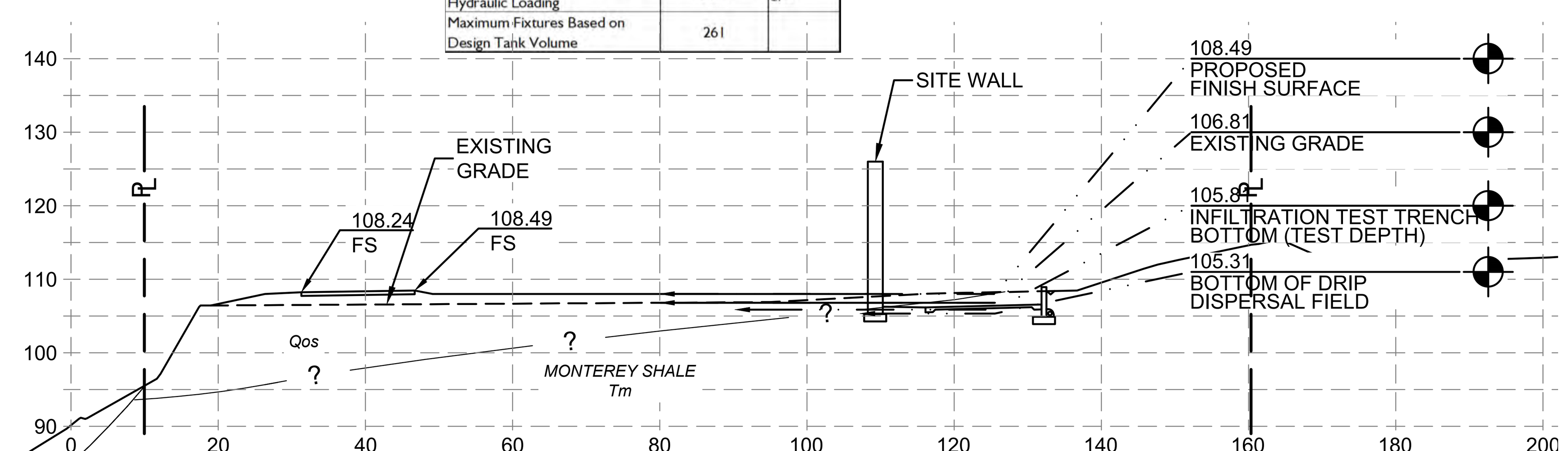
Test Pit Number	Depth ft	Soil Type at Test Depth	Passing Loading Rate gpsfd
ITP-1	1	Loam	5.2
ITP-2	1	Sandy Loam	5.1
ITP-3	1		5.2
ITP-4	1		4.3
ITP-5	1	Loam	3.9
ITP-6	1		5
ITP-7	1	NOT USED 0.9 gpsfd	
ITP-8	6	Clay Loam	Ryon's Test for deep infiltration
Average Passing Rate			4.79
Minimum Passign Rate			3.9
Design Safety Factor			10
Design Application Rate			0.39
Design Safety Factor			10.00

MicroSepTec Design		
Design Flow	1,050	gpd
Design Influent BOD	220	mg/L
Design Effluent BOD	20	mg/L
Design Organic Loading BOD	1.75	lb BOD_5
MicroSepTec Model Specified	ES25	
MicroSepTec Tank Volume	7540	gal
MicroSepTec ES25 Base Organic Removal (1)	4.17	lb BOD_5
Minimum Number of MicroSepTec ES25 Required	1	units
Design Organic Removal	4.17	lb BOD_5
Design Tank Volume	7540	gal
Maximum Effluent Flow Based on Organic loading	2500	gpd
Maximum Effluent Flow Based on Hydraulic Loading	2500	gpd
Maximum Fixtures Based on Design Tank Volume	261	

PIPING SCHEDULE			
	TAG	DESCRIPTION	SPECIFICATION
— GSL —	GSL	PROPOSED GRAVITY SEWER LINE	4" SCH40 PVC
— PAL —	PAL	PROPOSED AIR COMPRESSOR LINE	1" SCH80 PVC
— PVL —	PVL	PROPOSED AIR VENT LINE	4" SCH40 PVC
— RCRC —	RCRC	RECIRCULATION RETURN LINE	1½" SCH80 PVC
— SDH —	SDH	SUBSURFACE DISPERSAL HEADER	1½" SCH80 PVC
— SDF —	SDF	SUBSURFACE DISPERSAL FLUSH	1½" SCH80 PVC

SETBACK REDUCTIONS				
	COMPONENT	SITE ELEMENT	CODE REQUIREMENT	ACTUAL
1	DISPERSAL FIELD	SITE WALL	8'	1'-0"
2	DISPERSAL FIELD	DECK	8'	1'-0"





3/1 *SECTION THROUGH DRIP DISPERSAL*

GENERAL NOTES:

1. EXISTING OWTS COMPONENTS LOCATION AND ABANDONMENT:
   1.1. CONTRACTOR IS RESPONSIBLE FOR LOCATING ALL EXISTING ONSITE WASTEWATER TREATMENT SYSTEM (OWTS) COMPONENTS. THE LOCATIONS ON THE ENGINEERING PLANS ARE INFORMATIONAL AND MAY NOT INCLUDE ALL COMPONENTS OF THE OWTS. MANY ITEMS, SUCH AS TANKS, PIPING, DISTRIBUTION DEVICES, SEEPAGE PITS, DISPERSAL FIELDS, AND OTHER APPURTENANCES ARE BURIED AND NOT LOCATABLE BY THE SURVEYOR OR UTILITIES LOCATOR .
   1.2. PRIOR TO COMMENCING WORK TO ABANDON, REMOVE, OR REPLACE EXISTING ONSITE WASTEWATER TREATMENT SYSTEM (OWTS) COMPONENTS AN "OWTS ABANDONMENT PERMIT" SHALL BE OBTAINED FROM THE CITY OF MALIBU. ALL WORK PERFORMED IN THE OWTS ABANDONMENT, REMOVAL, OR REPLACEMENT AREA SHALL BE PERFORMED IN STRICT ACCORDANCE WITH ALL APPLICABLE FEDERAL, STATE, AND LOCAL ENVIRONMENTAL AND OCCUPATIONAL SAFETY AND HEALTH REGULATORY REQUIREMENTS. THE OBTAINMENT OF ANY SUCH REQUIRED PERMITS OR APPROVALS FOR THIS SCOPE OF WORK SHALL BE THE RESPONSIBILITY OF THE APPLICANT AND THEIR AGENTS.
   1.3. THE EXISTING OWTS COMPONENTS INCLUDING; SEPTIC TANK(S), PIPING, CLEANOUT(S) SEEPAGE PIT(S), DISPERSAL FIELD(S), AND ALL OTHER APPURTENANCES SHALL BE PROPERLY ABANDONED PURSUANT TO CITY OF MALIBU ORDINANCE 435, SECTION 15.40.170 C, AND SECTION 15.40.170 D, TITLE 28 OF THE LOS ANGELES COUNTY CODE, INCORPORATING THE MOST CURRENT CALIFORNIA PLUMBING CODE, LOCAL PLUMBING CODE, AND POLICIES. METHOD OF ABANDONMENT SHALL BE DETERMINED BY THE ENGINEER AND/OR THE OWNER'S REPRESENTATIVE
2. SEWER PIPE SHALL BE BEDDED IN ACCORDANCE WITH SPECIFICATIONS AND TITLE 28 OF THE LOS ANGELES COUNTY CODE, INCORPORATING THE MOST CURRENT CALIFORNIA PLUMBING CODE, LOCAL PLUMBING CODE, AND ORDINANCES.
3. SYSTEM COMPONENTS AND APPURTENANCES (INCLUDING CLEAN-OUTS, VENTS, BACKWATER VALVES, ETC.) SHALL BE INSTALLED IN ACCORDANCE WITH TITLE 28 OF THE LOS ANGELES COUNTY CODE, INCORPORATING THE MOST CURRENT CALIFORNIA PLUMBING CODE, LOCAL PLUMBING CODE, AND POLICIES.
4. ELECTRICAL COMPONENTS AND APPURTENANCES SHALL BE INSTALLED IN ACCORDANCE WITH TITLE 27 OF THE LOS ANGELES COUNTY CODE, INCORPORATING THE MOST CURRENT CALIFORNIA ELECTRICAL CODE, LOCAL ELECTRICAL CODE, AND ORDINANCES.
5. A REGISTERED GEOTECHNICAL ENGINEER, UNDER THE DIRECTION OF THE OWNER, SHALL DETERMINE IF THE WASTEWATER LOADING RATE WILL CAUSE THE EXISTING SLOPE TO BECOME UNSTABLE. ENSITU ENGINEERING INC., IS NOT A GEOTECHNICAL ENGINEERING FIRM, THEREFORE, WE CAN NOT PREDICT AND/OR DETERMINE THE STABILITY OF THE EXISTING SLOPE.
6. THE PROJECT ENGINEERING GEOLOGIST SHALL OBSERVE THE INSTALLATION OF THE TANK AND DISPERSAL SYSTEM COMPONENTS OF THE AOWTS (INCLUDING BUT NOT LIMITED TO; (A) TANK EXCAVATION, BEDDING, AND BACKFILL (B) SEEPAGE PITS EXCAVATION, CONSTRUCTION, AND BACKFILL (C) SUBSURFACE DISPERSAL SYSTEM BEDDING, FILL MATERIAL, CONSTRUCTION, AND BACKFILL) AND PROVIDE THE CITY INSPECTOR WITH A FIELD MEMORANDUM(S) DOCUMENTING AND VERIFYING THAT THE TANK AND DISPERSAL SYSTEM COMPONENTS WERE INSTALLED PER APPROVED AOWTS PLANS.
7. LEACH FIELDS AND DISPERSAL SYSTEMS DESIGNATED AS SAND CATEGORY: ANY REMAINING FILL MATERIAL AND ANY BEACH SAND SEDIMENT THAT MIGHT HAVE REDUCED PERMEABILITY FROM EXISTING LEACH FIELD OPERATIONS ENCOUNTERED BELOW THE BOTTOM OF THE PROPOSED LEACH FIELD OR ANY MATERIAL ENCOUNTERED IN THE CONSTRUCTION OF THE LEACH FIELD THAT IS NOT CATEGORIZED AS BEACH SAND DEPOSITS SHALL BE EXCAVATED TO THE LEVEL OF THE NATIVE BEACH SAND DEPOSITS AND REPLACED WITH DOUBLE- WASHED SAND. THE PROJECT ENGINEERING GEOLOGIST SHALL OBSERVE THE EXCAVATION OF THE LEACH FIELD AND CONFIRM IN WRITING THAT ALL THE DELETERIOUS FILL AND NON-BEACH SAND MATERIALS BELOW THE LEACH FIELD HAVE BEEN REMOVED AND REPLACED WITH CLEAN SAND AND THE LEACH FIELD WAS CONSTRUCTED IN ACCORDANCE WITH THE APPROVED OWTS PLANS.
8. SUBSURFACE DRIP LINE SHALL BE PLACED IN UNCOMPACTED NATIVE SOILS RIPPED AND TILLED A MINIMUM OF 18 INCHES. SOIL SHALL BE AMENDED TO BE 30% SAND, 30% MULCH, 40% NATIVE OR LANDSCAPE DESIGNER SHALL BE CONTACTED TO ADVISE CONTRACTOR ON TYPE OF TOPSOIL TO IMPORT FOR MINIMUM BURIAL DEPTH. DISPERSAL FIELD SHALL BE PLANTED AND ESTABLISHED PRIOR TO OCCUPANCY (ENGINEER TO VERIFY)
9. ALL DIMENSIONS AND GRADES SHALL BE VERIFIED BY CONTRACTOR PRIOR TO SYSTEM INSTALLATION, BUILDING SEWER DEPTH OR CONNECTION POINT WAS NOT PROVIDED AND SHALL BE DETERMINED BY CONTRACTOR PRIOR TO CONSTRUCTION
10. CONTRACTOR TO VERIFY DEPTH AND LOCATION OF BUILDING SEWER CONNECTION, MINIMUM 2% SLOPE FROM STRUCTURE TO CONNECTION POINT.
11. ONSITE WASTEWATER TREATMENT SYSTEM SHALL BE VENTED IN ACCORDANCE WITH TITLE 28 OF THE LOS ANGELES COUNTY CODE, INCORPORATING THE MOST CURRENT CALIFORNIA PLUMBING CODE, LOCAL PLUMBING CODE, AND POLICIES.

LEGEND	
ITP-X	INFILTRATION TEST LOCATION AND SOIL CLASSIFICATION
ITP-X	INFILTRATION TEST LOCATION (WITHOUT SOIL CLASSIFICATION)
ITP-8	DEEP TEST, RYON'S METHOD AND SOIL CLASSIFICATION
	PROPOSED DISPERSAL FIELD
	BUILDINGS AND STRUCTURES
	SITE WALL
	DRIVEWAY
	POOL

EQUIPMENT SCHEDULE			
ITEM	QTY	DESCRIPTION	MFG/PART NUMBER
1	4	CONNECTION TO BUILDING SEWER[1]	
2	4	GRAVITY CLEAN-OUT AND BACKWATER VALVE[1]	INDUSTRIAL BACKWATER VALVE (SPEARS MODEL S475P FOR 4") 8" I.D. VALVE BOX (CHRISTY MODEL F08)
3	11	GRAVITY CLEAN-OUT[1]	
4	1	TREATMENT TANK[1][2]	
5	2	AIR COMPRESSOR[1][2]	MICROSEPTEC
6	1	REMOTE TELEMETRY CONTROL UNIT DEDICATED COMMUNICATION AND POWER AS OUTLINED IN MANUFACTURER INSTALLATION GUIDELINES.[1][2]	MICROSEPTEC
7	1	CONTROL UNIT DEDICATED COMMUNICATION AND POWER AS OUTLINED IN MANUFACTURER INSTALLATION GUIDELINES.[1][2]	GEOFLOW
8	1	DUPLEX PUMP SYSTEM[1][2]	GEOFLOW
9	1	DISPERSAL FIELD HEADWORKS[1][2]	GEOFLOW
10	1	DISPERSAL FIELD ISOLATION CHECK VALVE ASSEMBLY[1][2]	SPEARS MODEL 2229 OR 2222
11	2	AIR VENT/VACUUM RELIEF ASSEMBLY[1]	GEOFLOW PART NUMBER APVBK
12	1	VENT ASSEMBLY[1][2]	ORENCO
[1]		ALL PLUMBING APPURTENANCES AND WORK SHALL COMPLY WITH CURRENT LOCAL, COUNTY, AND STATE PLUMBING CODES. APPURTENANCES AND WORK INCLUDE, BUT ARE NOT LIMITED TO; CONNECTION TO BUILDING PLUMBING, VENTILATION, ISOLATION, BACKWATER VALVES, CLEANOUTS, AND FITTINGS.	
[2]		ALL ELECTRICAL APPURTENANCES INCLUDING BUT NOT LIMITED TO; CONDUIT, CONDUCTOR, CONTROL PANELS, CONTACTORS, FLOATS, PUMPS, DISCONNECTS, AND COMMUNICATION DEVICES SHALL COMPLY WITH CURRENT LOCAL, COUNTY, AND STATE ELECTRICAL CODE AND CURRENT NATIONAL ELECTRIC CODE. CONDUIT AND CONDUCTOR RUNS AND SIZING SHOWN ON PLAN ARE FOR ALIGNMENT AND COST ESTIMATION. ELECTRICAL CONTRACTOR SHALL SPECIFY ALL ELECTRICAL APPURTENANCES. CONTROL AND POWER CONDUCTORS SHALL BE PLACED IN SEPARATE CONDUIT	

FINAL FOR APPROVAL
ISSUED
04/01/2021

JOHN N. YAROSLASKI
PRINCIPAL ENGINEER

Project Engineer: John N Yaroslaski PE # 60149
DWG NAME: D:\Ensitu Engineering Inc\EEI - P\444-05 25200 Pacific Coast Highway PWCR\444-05.010 25200 Pacific Coast Highway PWCR\Engineering\Cad Design\444-05.010 25200 Pacific Coast Highway PWCR-06.dwg
CREATION TIME: Monday, April 5, 2021 07:27:32
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PLOT TIME: Thursday, April 8, 2021 08:33:54

REVISIONS		
NO.	DATE	BY

ENSITU
ENSITU ENGINEERING, INC.
"Dedicated to achieving higher standards in onsite and decentralized wastewater systems."
7475 CARMELITA AVE.
ATASCADERO, CA 93422
Tel: 805.772.0150
Fax: 805.772.0813
ENSITU@ensitu.com

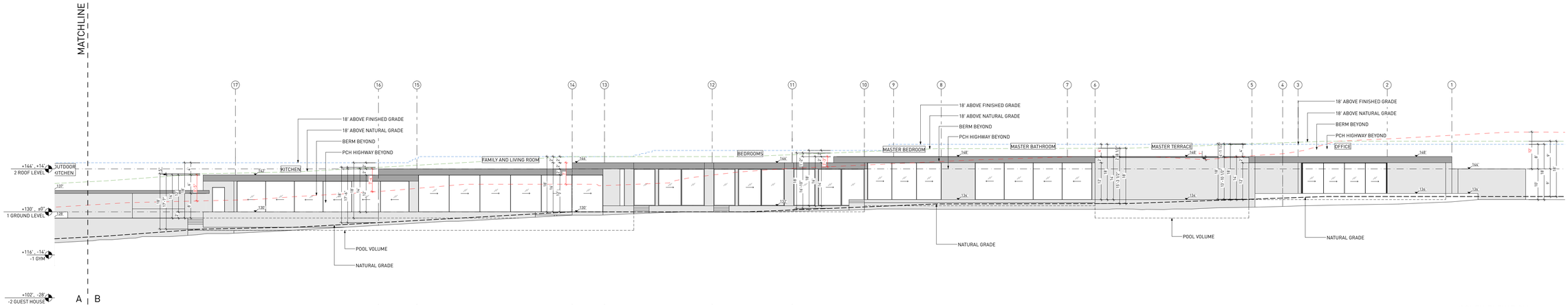
444-05 25200 PACIFIC COAST HIGHWAY: AOWTS CONFORMANCE REVIEW
CR-SITE PLANS AND TABLES 11x17
MALIBU, CALIFORNIA

REGISTERED PROFESSIONAL ENGINEER
JOHN N. YAROSLASKI
60149
EXP 06-2022
CIVIL
STATE OF CALIFORNIA

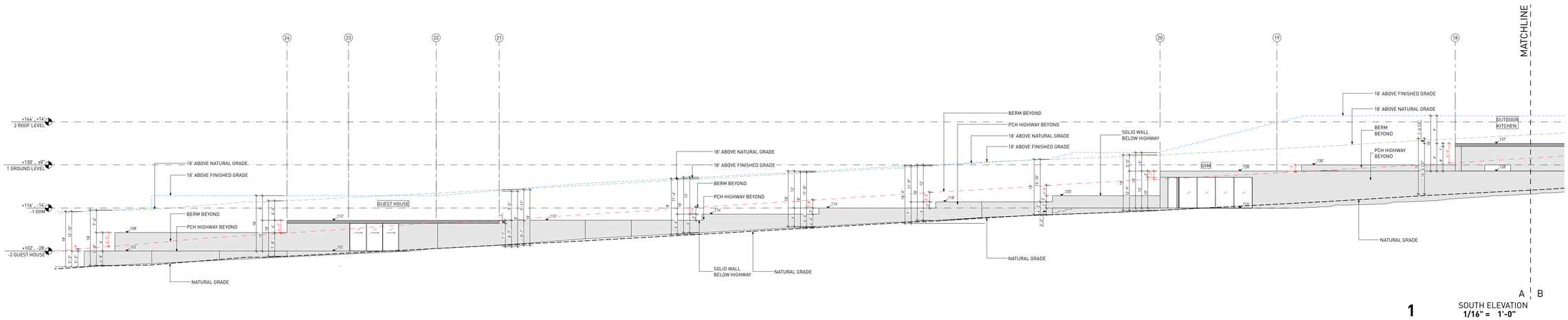
DATE: 04/01/2021
DESIGNED BY: JNY
DRAWN BY: JNY
CHECKED BY: JNY

JOB NO. 444-05

SHEET 1 OF 1



2 SOUTH ELEVATION
1/16" = 1'-0"



1 SOUTH ELEVATION
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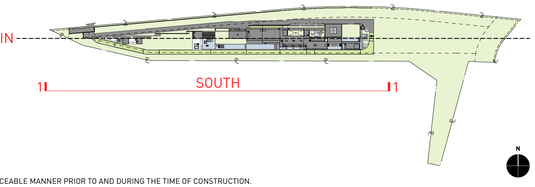
18' ABOVE PROPOSED GRADE
18' ABOVE NATURAL GRADE
EXISTING BERM
WALLS
ROOF

SECTION LINE THROUGH TERRAIN



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704 SMOKE ALARMS SHALL RECEIVE THEIR PRIMARY POWER FROM THE BUILDING WIRING PROVIDED THAT SUCH WIRING IS SERVED FROM A COMMERCIAL SOURCE AND SHALL BE EQUIPPED WITH A BATTERY BACKUP. RESIDENTIAL CODE R314.4
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Project No

1813

Project Name
VILLA COLEAVA

Project Address
25200 Pacific Coast Hwy.
Malibu, California, USA

Property Owner
PAR PCH, LLC
PO Box 6528
Malibu, CA 90265

Design Architect
Oppenheim Architecture
245 NE 37 Street
Miami FL 33137
P 305 576 8404
F 305 576 8433
W oppenoffice.com

Landscape Architect
[place]
3617 exposition boulevard
Los Angeles, CA 90016
P 310-450-8100
F 323-737-3290
W plac-e.com

Civil Engineers
LC Engineering Group
889 Pierce Ct., Ste. 101
Thousand Oaks, CA 91360
P 805-497-1244
P 818-991-7148
W lcegroupinc.com

Revisions

Mark	Date	Description

Title
OVERALL ELEVATIONS

1/16" = 1'-0"

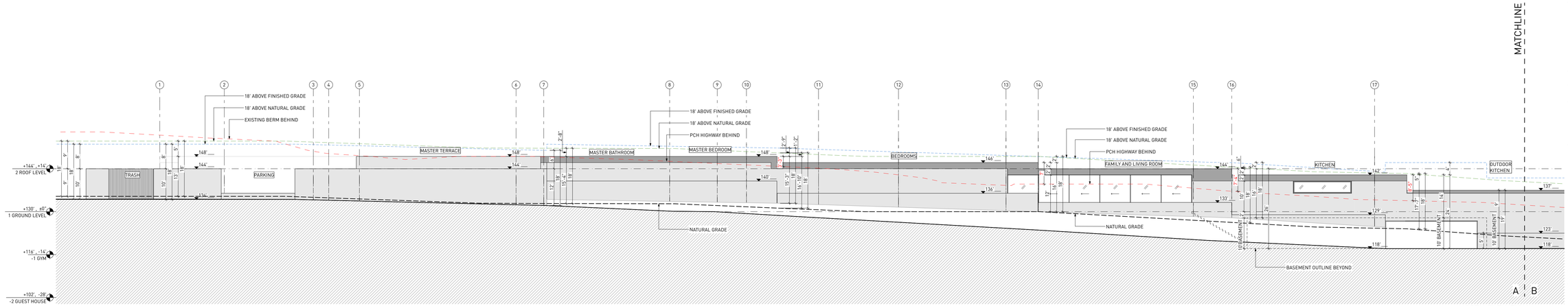
NOT FOR CONSTRUCTION

Design Development

1813
VILLA COLEAVA

Drawing Issued on 03/01/19

A200



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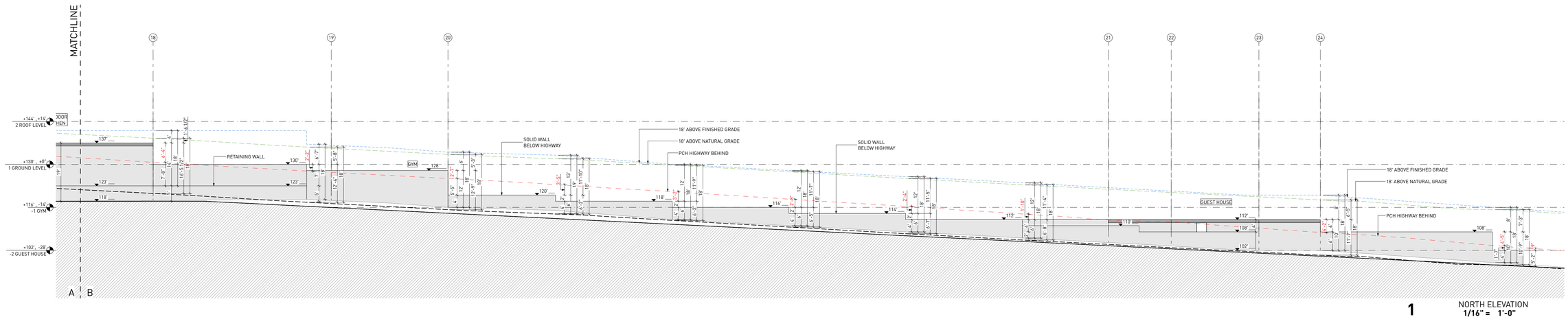

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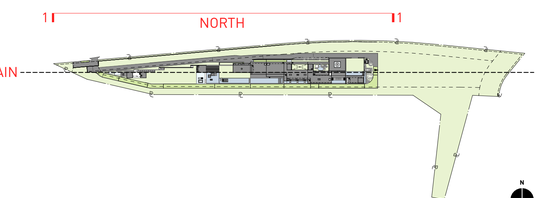

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Project No

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Project Name
VILLA COLEAVA

Project Address
25200 Pacific Coast Hwy.
Malibu, California, USA

Property Owner
PAR PCH, LLC
PO Box 6528
Malibu, CA 90265

Design Architect
Oppenheim Architecture
245 NE 37 Street
Miami FL 33137
P 305 576 8404
F 305 576 8433
W oppenoffice.com

Landscape Architect
[place]
3617 exposition boulevard
Los Angeles, CA 90016
P 310-450-8100
F 323-737-3290
W plac-e.com

Civil Engineers
LC Engineering Group
889 Pierce Ct., Ste. 101
Thousand Oaks, CA 91360
P 805-497-1244
P 818-991-7148
W lcegroupinc.com

Revisions

Mark	Date	Description

Title
OVERALL ELEVATIONS

1/16" = 1'-0"

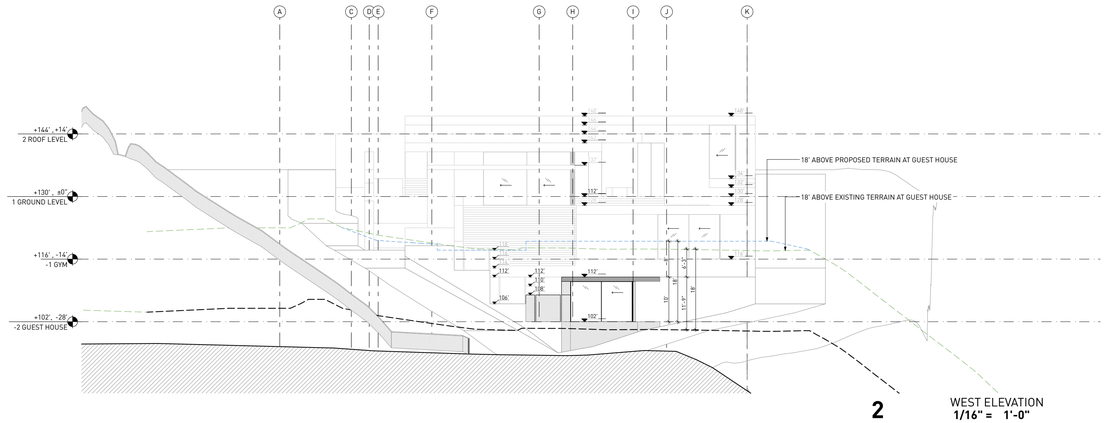
NOT FOR CONSTRUCTION

Design Development

1813
VILLA COLEAVA

Drawing Issued on 03/01/19

A201



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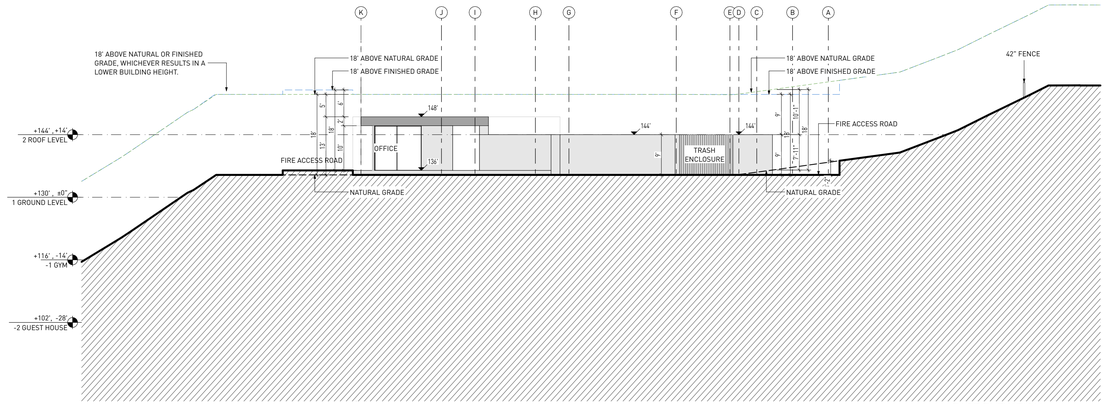


1 EAST ELEVATION
1/16" = 1'-0"

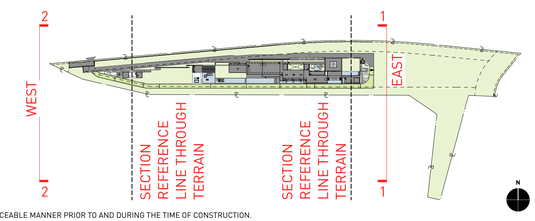
18' ABOVE PROPOSED GRADE

18' ABOVE NATURAL GRADE

EXISTING BERM

WALLS

ROOF



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SITE

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009 OPEN PARKING, REFER TO CIVIL FOR DETAILS
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705 WHERE MORE THAN ONE SMOKE ALARM IS REQUIRED TO BE INSTALLED WITHIN AN INDIVIDUAL DWELLING OR SLEEPING UNIT, THE SMOKE ALARMS SHALL BE INTERCONNECTED SIN USCH A MANNER THAT THE ACTIVATION OF ONE ALARM WILL ACTIVATE ALL OF THE ALARMS IN THE INDIVIDUAL UNIT. RESIDENTIAL CODE R314.5
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713 ALL FIRE HYDRANTS SHALL MEASURE 6"" X 4"" X 2-1/2"", BRASS OR BRONZE, CONFORMING TO AMERICAN WATER WORKS ASSOCIATION STANDARD C503, OR APPROVED EQUAL.
714 ALL ON-SITE FIRE HYDRANTS SHALL BE INSTALLED, TESTED AND APPROVED PRIOR TO BUILDING OCCUPANCY. FIRE CODE 901.5.1
715 ROOF LADDER ACCESS

Project No

1813

Project Name
VILLA COLEAVA

Project Address
25200 Pacific Coast Hwy.
Malibu, California, USA

Property Owner
PAR PCH, LLC
PO Box 6528
Malibu, CA 90265

Design Architect
Oppenheim Architecture
245 NE 37 Street
Miami FL 33137
P 305 576 8404
F 305 576 8433
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Landscape Architect
[place]
3617 exposition boulevard
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P 310-450-8100
F 323-737-3290
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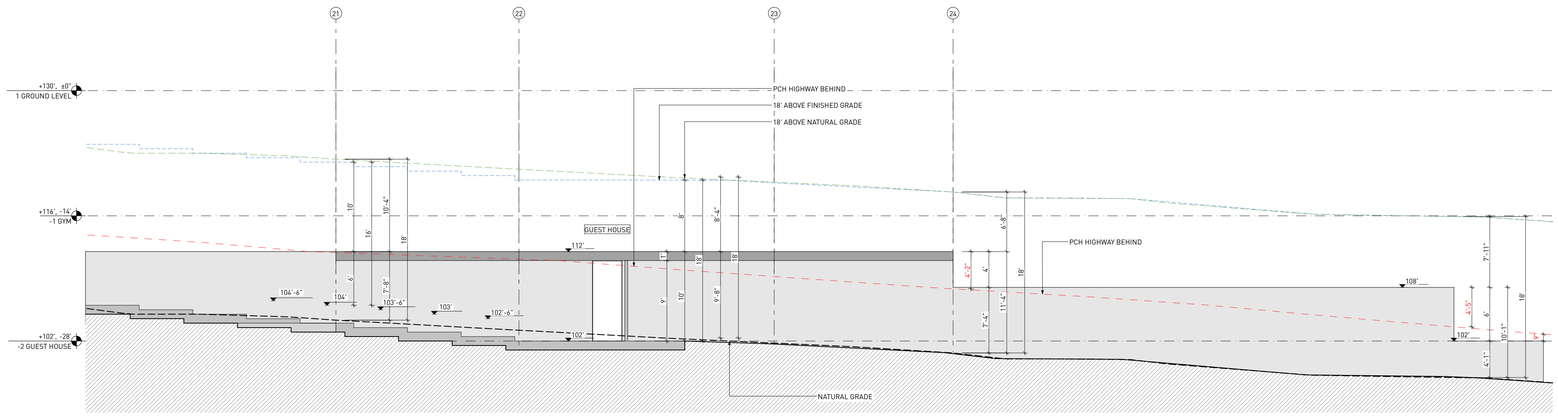
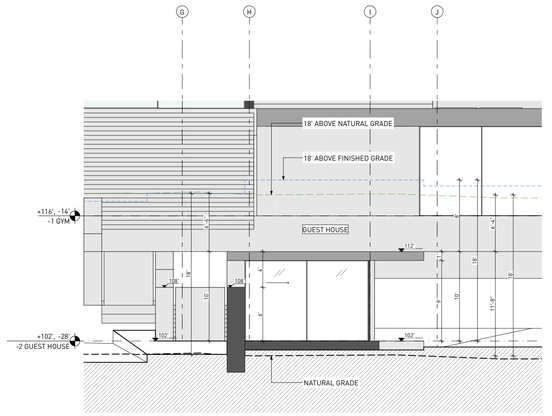
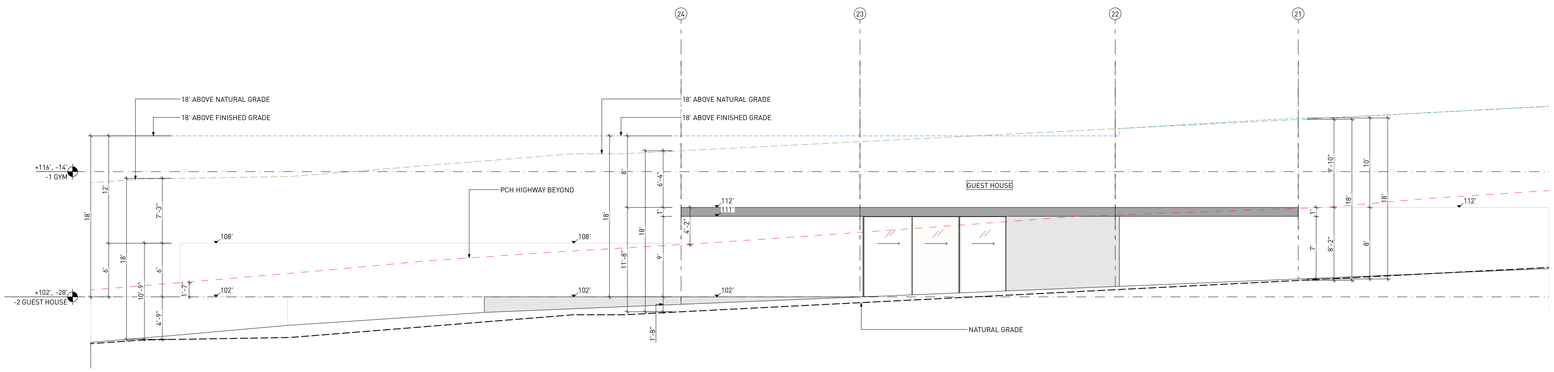


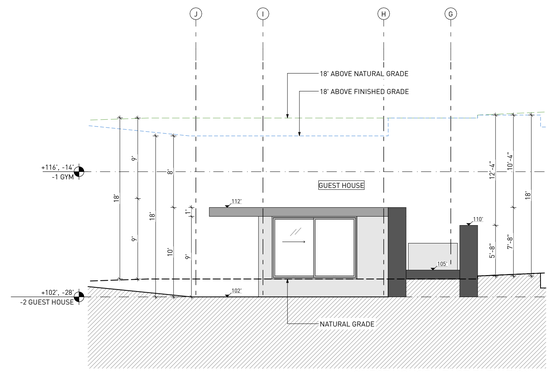
3 GUEST HOUSE - NORTH ELEVATION
1/8" = 1'-0"



4 GUEST HOUSE - WEST ELEVATION
1/8" = 1'-0"

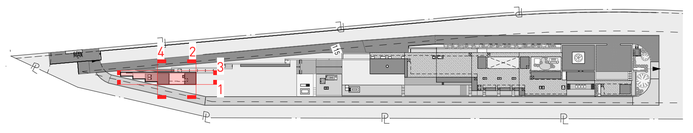


1 GUEST HOUSE - SOUTH ELEVATION
1/8" = 1'-0"



2 GUEST HOUSE - EAST ELEVATION
1/8" = 1'-0"

18' ABOVE PROPOSED GRADE
18' ABOVE NATURAL GRADE
EXISTING BERM
WALLS
ROOF



GUEST HOUSE

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715 ROOF LADDER ACCESS

Project No
1813

Project Name
VILLA COLEAVA

Project Address
25200 Pacific Coast Hwy.
Malibu, California, USA

Property Owner
PAR PCH, LLC
PO Box 6528
Malibu, CA 90265

Design Architect
Oppenheim Architecture
245 NE 37 Street
Miami FL 33137
P 305 576 8404
F 305 576 8433
W oppenoffice.com

Landscape Architect
[place]
3617 exposition boulevard
Los Angeles, CA 90016
P 310-450-8100
F 323-737-3290
W plac-e.com

Civil Engineers
LC Engineering Group
889 Pierce Ct., Ste. 101
Thousand Oaks, CA 91360
P 805-497-1244
P 818-991-7148
W lcegroupinc.com

Revisions

Mark	Date	Description

Title
ENLARGED GUEST HOUSE ELEVATIONS
1/8" = 1'-0"

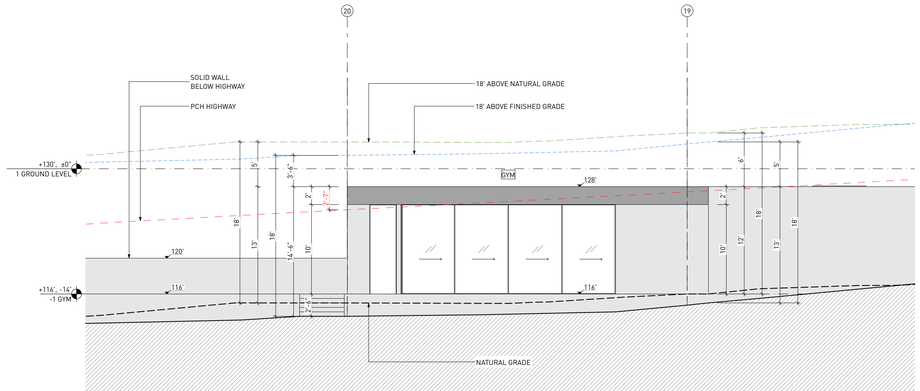
NOT FOR CONSTRUCTION

Design Development

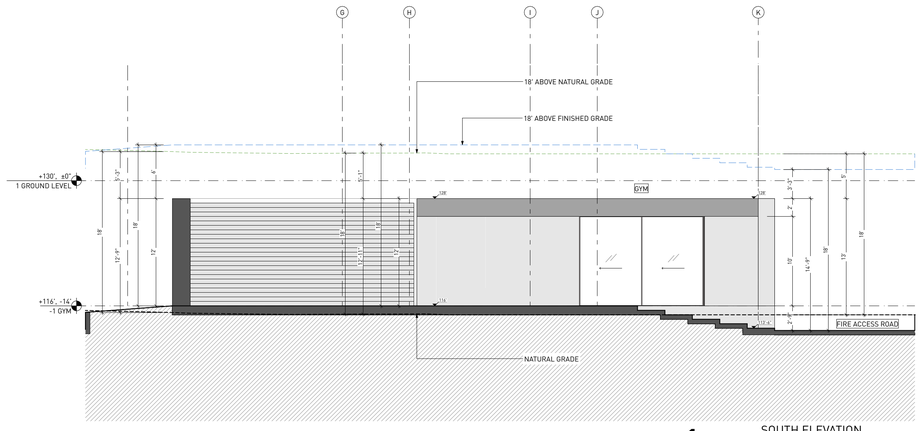
1813
VILLA COLEAVA

Drawing Issued on 03/01/19

A203



2 SOUTH ELEVATION
1/8" = 1'-0"



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012 42" MOTORIZED VEHICULAR SLIDING ENTRY GATE. STEEL FRAME. 90% VISUALLY PERMEABLE.
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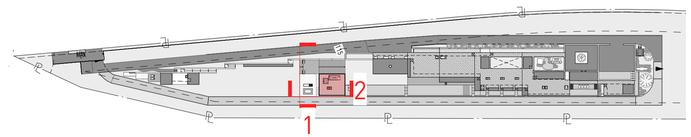
18' ABOVE PROPOSED GRADE
18' ABOVE NATURAL GRADE
EXISTING BERM
WALLS
ROOF



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Revisions

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Title
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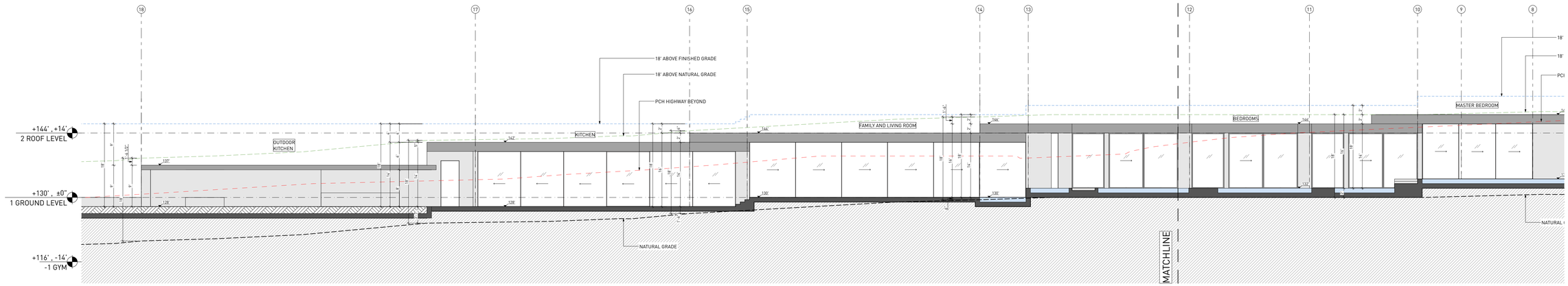
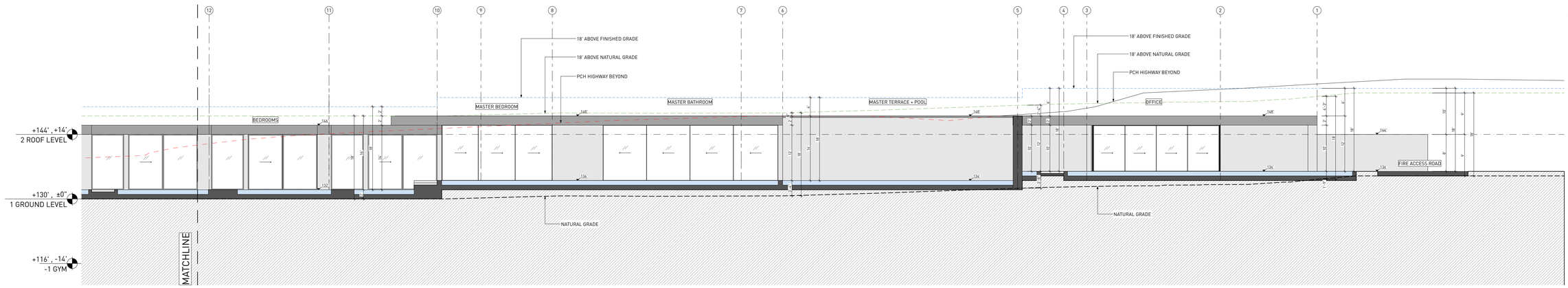
Drawing Issued on 03/01/19

A204

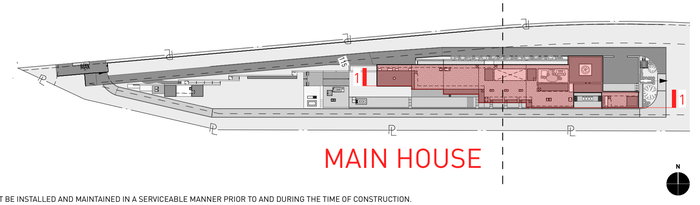


2 MAIN HOUSE - SOUTH ELEVATION
3/32" = 1'-0"



1 MAIN HOUSE - SOUTH ELEVATION
3/32" = 1'-0"

18' ABOVE PROPOSED GRADE
18' ABOVE NATURAL GRADE
EXISTING BERM
WALLS
ROOF



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715 ROOF LADDER ACCESS

Project No

1813

Project Name
VILLA COLEAVA

Project Address
25200 Pacific Coast Hwy.
Malibu, California, USA

Property Owner
PAR PCH, LLC
PO Box 6528
Malibu, CA 90265

Design Architect
Oppenheim Architecture
245 NE 37 Street
Miami FL 33137
P 305 576 8404
F 305 576 8433
W oppenoffice.com

Landscape Architect
[place]
3617 exposition boulevard
Los Angeles, CA 90016
P 310-450-8100
F 323-737-3290
W plac-e.com

Civil Engineers
LC Engineering Group
889 Pierce Ct., Ste. 101
Thousand Oaks, CA 91360
P 805-497-1244
P 818-991-7148
W lcegroupinc.com

Revisions

Mark	Date	Description

Title
ENLARGED MAIN HOUSE ELEVATIONS
3/32" = 1'-0"

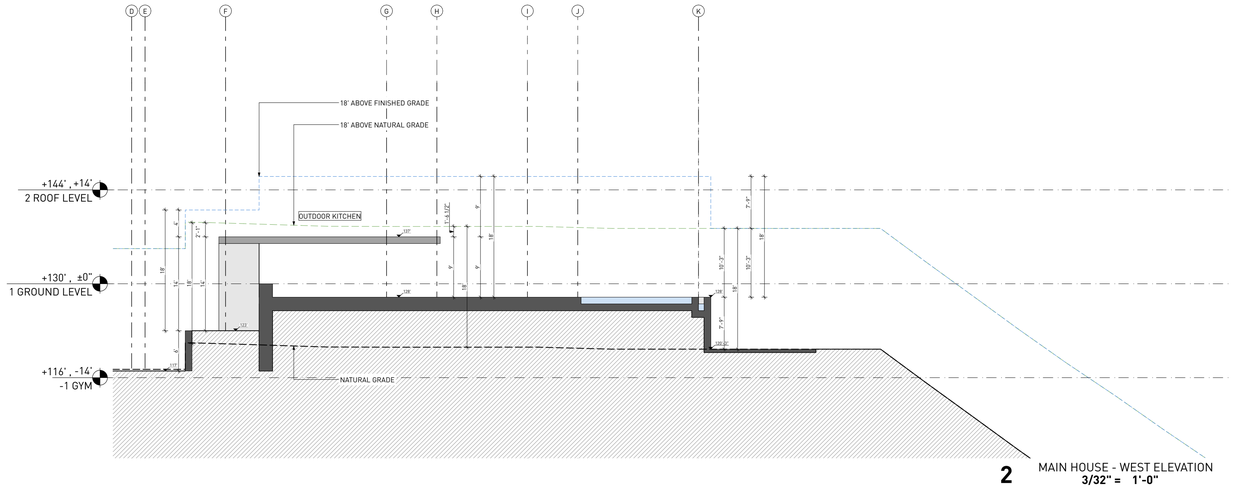
NOT FOR CONSTRUCTION

Design Development

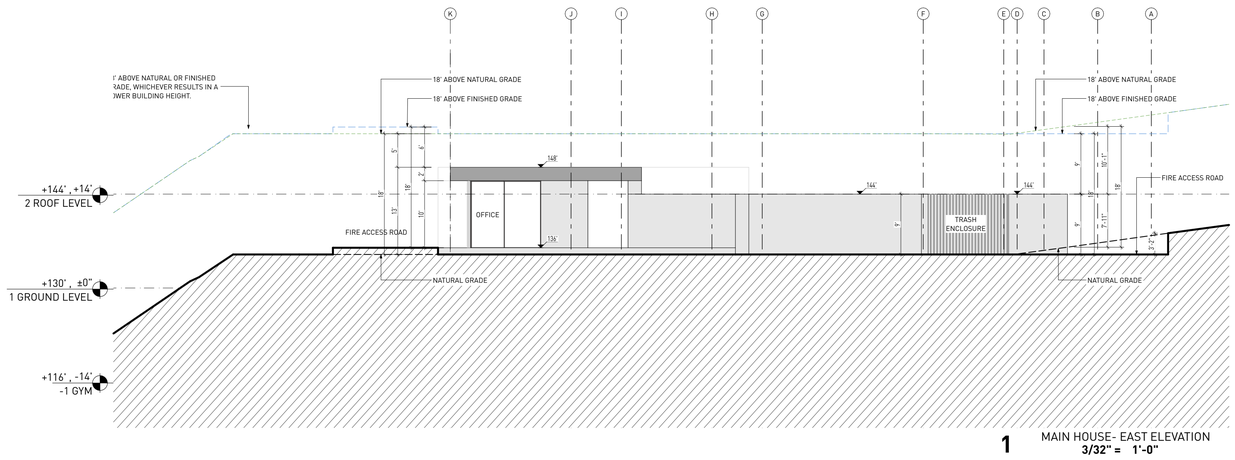
1813
VILLA COLEAVA

Drawing Issued on 03/01/19

A205

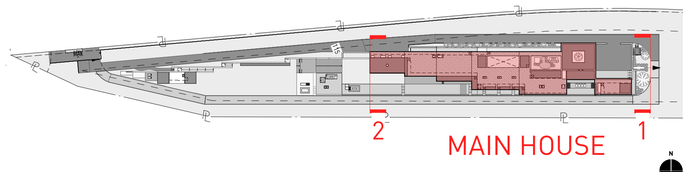


2 MAIN HOUSE - WEST ELEVATION
3/32" = 1'-0"



1 MAIN HOUSE- EAST ELEVATION
3/32" = 1'-0"

18' ABOVE PROPOSED GRADE
18' ABOVE NATURAL GRADE
EXISTING BERM
WALLS
ROOF



KEY NOTES:

SITE

001 MAINTAIN ALL WATER RUNOFF WITHIN PROPERTY. SLOPE AWAY FROM P.L. AT A MIN. SLOPE OF ¼" /FT., REFER TO CIVIL DWGS.
002 TREES/LANDSCAPING PLANTING/GROUND COVER/LAWN, REFER TO LANDSCAPE DWGS.
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004 HARDSCAPE. REFER TO LANDSCAPE DWGS.
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006 WOOD DECK. SIZE OF PLANKS T.B.D. FINISH T.B.D.
007 UNDERGROUND DRAINAGE SYSTEM. REFER TO CIVIL DWGS.
008 INFINITY POOL EDGE.
009 OPEN PARKING, REFER TO CIVIL FOR DETAILS
010 6'-0" SITE RETAINING WALL. REFER TO STRUCTURAL AND LANDSCAPE DWGS.
011 PEDESTRIAN GATE DOOR. PROVIDE SHOP DWGS. FOR ARCHITECT REVIEW.
012 42" MOTORIZED VEHICULAR SLIDING ENTRY GATE. STEEL FRAME. 90% VISUALLY PERMEABLE.
013 42" PERIMETER FENCE. 90% VISUALLY PERMEABLE.
014 CALL BOX
015 TRASH ENCLOSURE AREA
016 STRUCTURAL GRASS DRIVEWAY. GRASSCRETE OR SIMILAR. REFER TO CIVIL & LANDSCAPE DWGS.
017 GENERATOR ON EXISTING CONCRETE PLINTH, BOTTOM OF GENERATOR TO BE ABOVE BFE +1', REFER TO ELECTRICAL DWGS.
018 A/C CONDENSER UNITS BEHIND LANDSCAPE, BOTTOM OF UNITS TO BE ABOVE BFE +1', REFER TO MECHANICAL DWGS.
019 NATURAL LAWN AREA. REFER TO LANDSCAPE DWGS.

MATERIALS

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101 CUSTOM WOOD DOOR. REFER TO DOOR SCHEDULE.
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108 TRELLIS. 50 PERCENT OPEN TO THE SKY. DEPTH OF SLOTS TO BE EQUAL TO OR LESS THAN THE WIDTH OF EACH SLOT. PROVIDE SHOP DWGS.
109 REFER TO INTERIOR DESIGN DRAWINGS AND FINISH SCHEDULE.
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317 MOTORIZED VEHICULAR GATE. REFER TO ELECT. DWGS.
318 ALL TOILETS TO BE WALL HUNG. REFER TO MECH. DWGS.
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503 KITCHEN, BUILT-IN FURNITURE, CABINETRY BY OTHERS. REFER TO KITCHEN SHOP DWGS.
504 5/8" GWB DROPPED CEILING ON 3/4" FURRING STRIPS. PAINTED GWB. COLOR TBD.
505 STAINLESS STEEL SCUPPER IN CONCRETE STRUCTURE. 3" X 3" MIN.OPENING. REFER TO ELEVATION AND PLAN FOR LOCATION.
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507 SOLAR PANELS (T.B.D.)
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702 ALL REQUIRED PUBLIC FIRE HYDRANTS SHALL BE INSTALLED, TESTED AND ACCEPTED PRIOR TO BEGINNING CONSTRUCTION. FIRE CODE 501.4
703 PROVIDE AN APPROVED AUTOMATIC FIRE SPRINKLER SYSTEM AS SET FORTH BY BUILDING CODE 903 AND FIRE CODE 9003. PLANS SHALL BE SUBMITTED TO THE SPRINKLER PLAN CHECK UNIT FOR REVIEW AND APPROVAL PRIOR TO INSTALLATION.
704 SMOKE ALARMS SHALL RECEIVE THEIR PRIMARY POWER FROM THE BUILDING WIRING PROVIDED THAT SUCH WIRING IS SERVED FROM A COMMERCIAL SOURCE AND SHALL BE EQUIPPED WITH A BATTERY BACKUP. RESIDENTIAL CODE R314.4
705 WHERE MORE THAN ONE SMOKE ALARM IS REQUIRED TO BE INSTALLED WITHIN AN INDIVIDUAL DWELLING OR SLEEPING UNIT, THE SMOKE ALARMS SHALL BE INTERCONNECTED SIN USCH A MANNER THAT THE ACTIVATION OF ONE ALARM WILL ACTIVATE ALL OF THE ALARMS IN THE INDIVIDUAL UNIT. RESIDENTIAL CODE R314.5
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707 ALL ROOF COVERINGS SHALL BE CLASS "A" AS SPECIFIED IN BUILDING CODE 1505.1.1 (RESIDENTIAL CODE R327.5.2 & R902)
708 ROOF VALLEY FLASHINGS SHALL BE NOT LESS THAN 0.019 INCH (NO.26 GALVANIZED SHEET GAGE) CORROSION-RESISTANT METAL INSTALLED OVER A MINIMUM 36-INCH WIDE UNDERLAYMENT CONSISTING OF ONE LAYER OF NO. 72 ASTM CAP SHEET MEETING RUNNING THE FULL LEGHTH OF THE VALLEY (RESIDENTIAL CODE R327.5.3 AND BUILDING CODE 705A.3
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Revisions

Mark	Date	Description

Title
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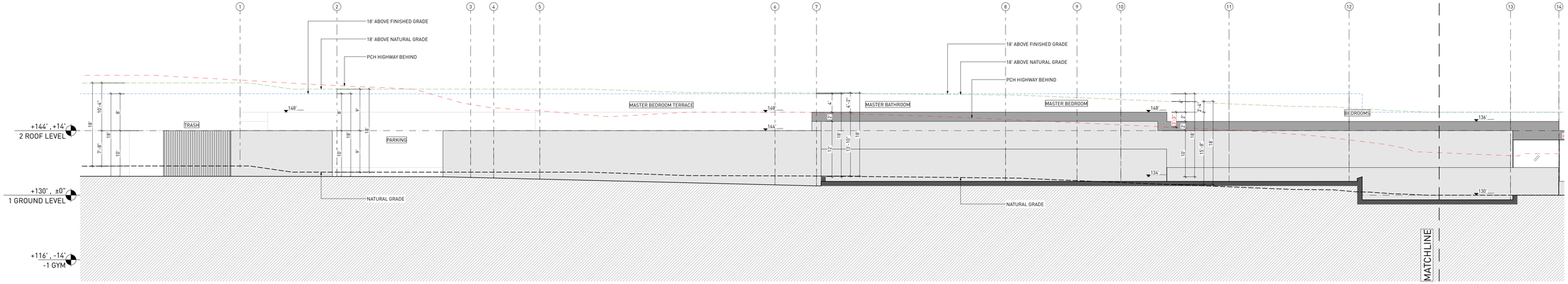
NOT FOR CONSTRUCTION

Design Development

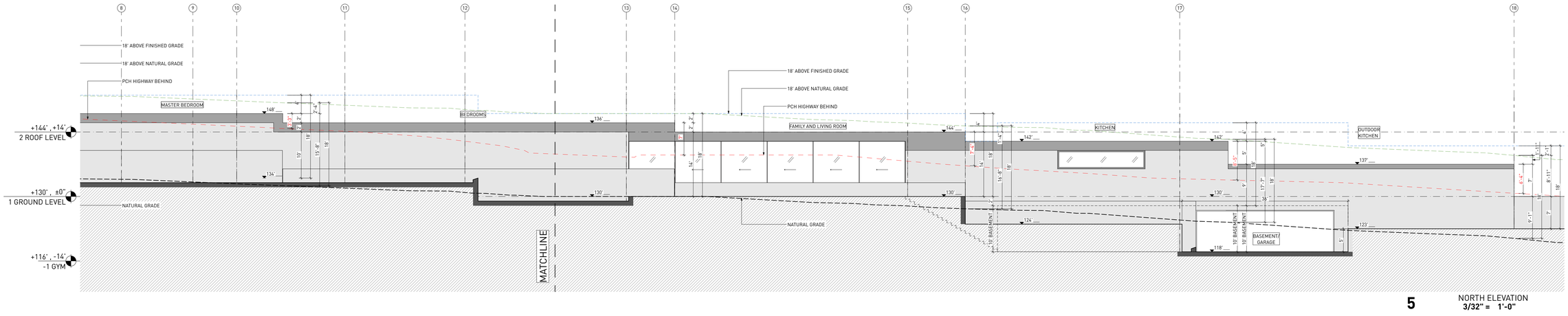
1813
VILLA COLEAVA

Drawing Issued on 03/01/19

A206



4 NORTH ELEVATION
3/32" = 1'-0"



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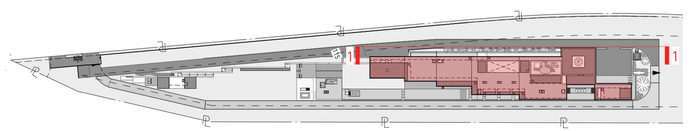
3/32" = 1'-0"

18' ABOVE PROPOSED GRADE
18' ABOVE NATURAL GRADE
EXISTING BERM
WALLS
ROOF



MAIN HOUSE

N

KEY NOTES:

SITE

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Project No

1813

Project Name
VILLA COLEAVA

Project Address
25200 Pacific Coast Hwy.
Malibu, California, USA

Property Owner
PAR PCH, LLC
PO Box 6528
Malibu, CA 90265

Design Architect
Oppenheim Architecture
245 NE 37 Street
Miami FL 33137
P 305 576 8404
F 305 576 8433
W oppenoffice.com

Landscape Architect
[place]
3617 exposition boulevard
Los Angeles, CA 90016
P 310-450-8100
F 323-737-3290
W plac-e.com

Civil Engineers
LC Engineering Group
889 Pierce Ct., Ste. 101
Thousand Oaks, CA 91360
P 805-497-1244
P 818-991-7148
W lcegroupinc.com

Revisions

Mark	Date	Description

Title
ENLARGED MAIN HOUSE ELEVATIONS
3/32" = 1'-0"

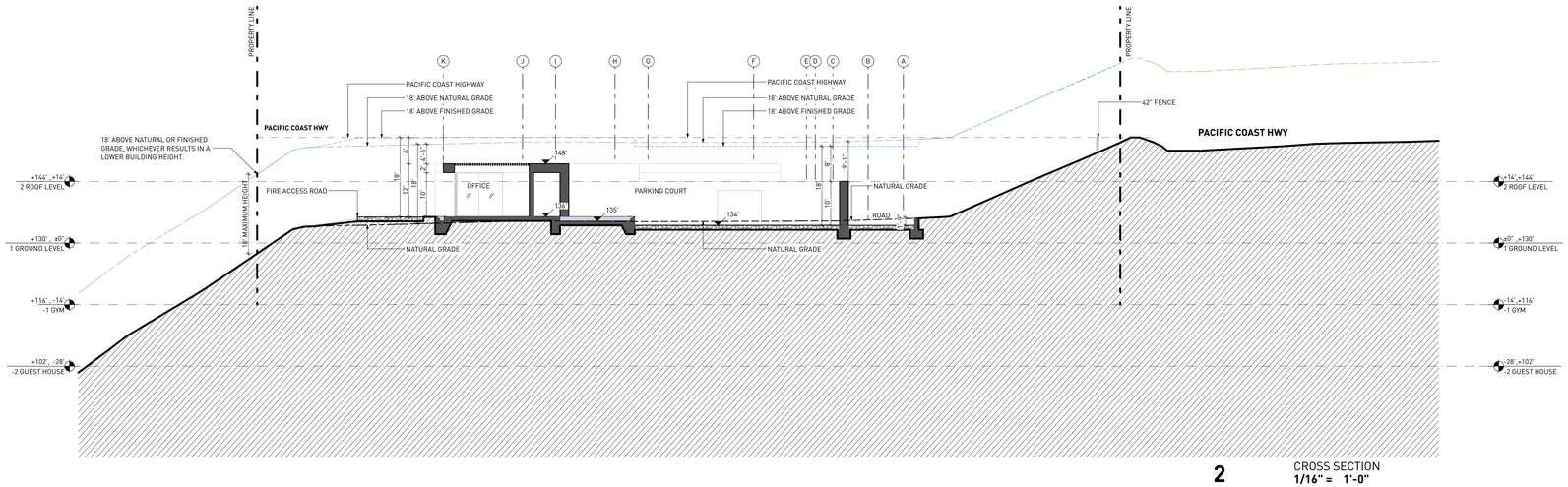
NOT FOR CONSTRUCTION

Design Development

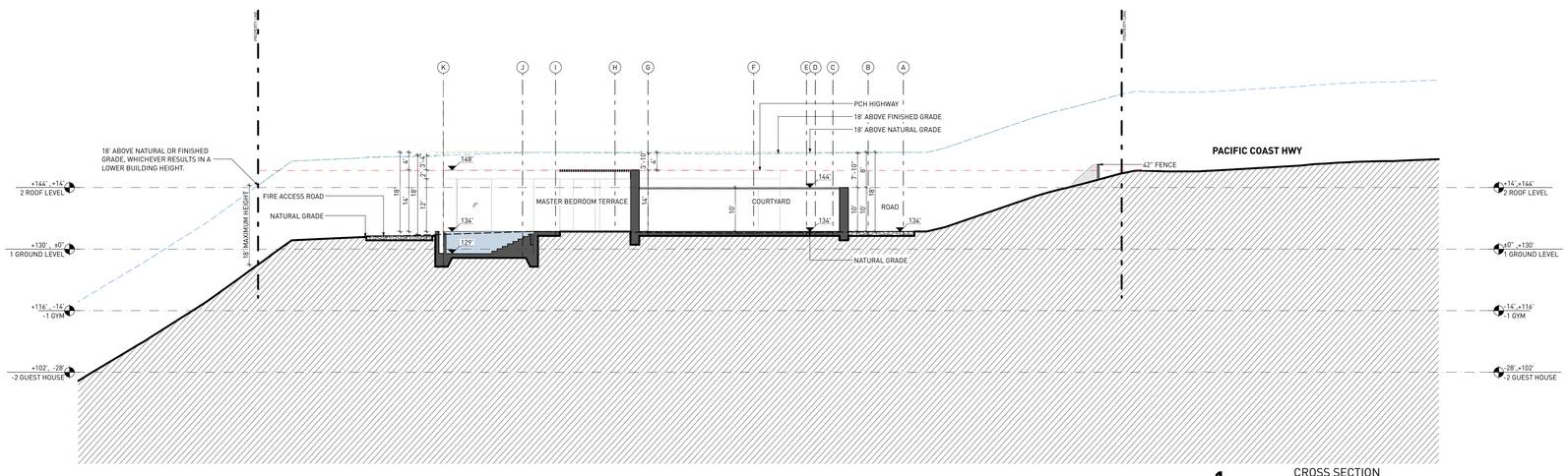
1813
VILLA COLEAVA

Drawing Issued on 03/01/19

A207



2 CROSS SECTION
1/16" = 1'-0"



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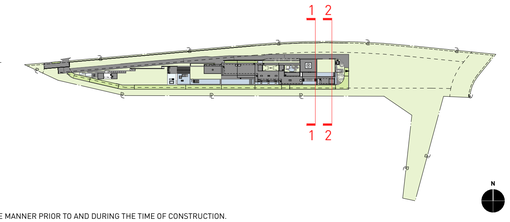
18' ABOVE PROPOSED GRADE
18' ABOVE NATURAL GRADE
EXISTING BERM



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704 SMOKE ALARMS SHALL RECEIVE THEIR PRIMARY POWER FROM THE BUILDING WIRING PROVIDED THAT SUCH WIRING IS SERVED FROM A COMMERCIAL SOURCE AND SHALL BE EQUIPPED WITH A BATTERY BACKUP. RESIDENTIAL CODE R314.4
705 WHERE MORE THAN ONE SMOKE ALARM IS REQUIRED TO BE INSTALLED WITHIN AN INDIVIDUAL DWELLING OR SLEEPING UNIT, THE SMOKE ALARMS SHALL BE INTERCONNECTED SIN USCH A MANNER THAT THE ACTIVATION OF ONE ALARM WILL ACTIVATE ALL OF THE ALARMS IN THE INDIVIDUAL UNIT. RESIDENTIAL CODE R314.5
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[place]
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Revisions

Mark	Date	Description

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Design Development

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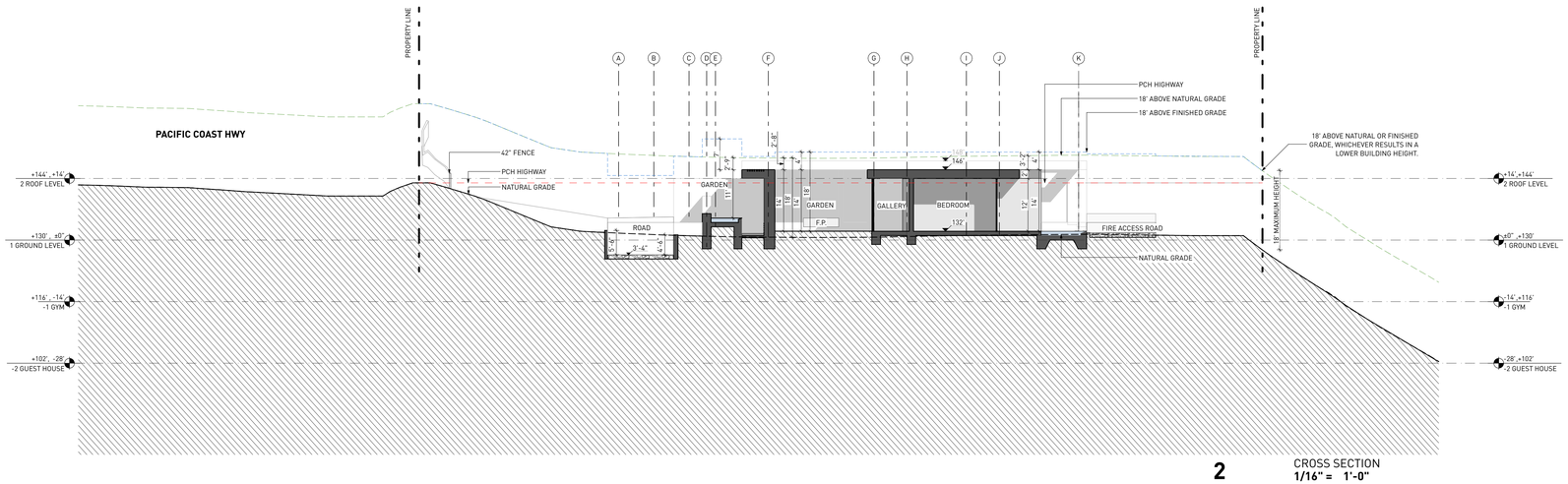
Drawing Issued on 03/01/19

A300



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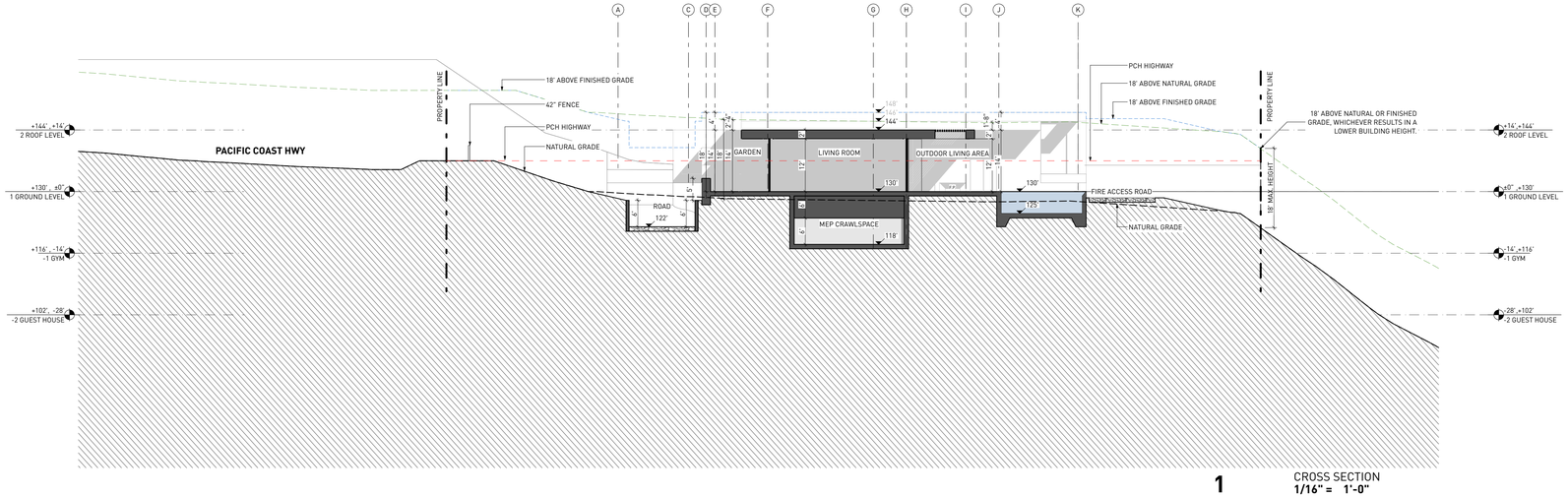

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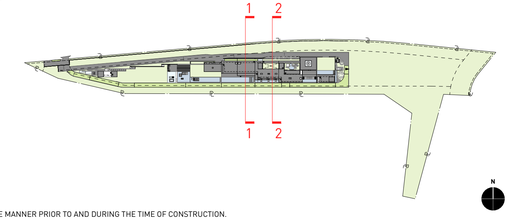

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Project No

1813

Project Name
VILLA COLEAVA

Project Address
25200 Pacific Coast Hwy.
Malibu, California, USA

Property Owner
PAR PCH, LLC
PO Box 6528
Malibu, CA 90265

Design Architect
Oppenheim Architecture
245 NE 37 Street
Miami FL 33137
P 305 576 8404
F 305 576 8433
W oppenoffice.com

Landscape Architect
[place]
3617 exposition boulevard
Los Angeles, CA 90016
P 310-450-8100
F 323-737-3290
W plac-e.com

Civil Engineers
LC Engineering Group
889 Pierce Ct., Ste. 101
Thousand Oaks, CA 91360
P 805-497-1244
P 818-991-7148
W lcegroupinc.com

Revisions

Mark	Date	Description

Title
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1/16" = 1'-0"

NOT FOR CONSTRUCTION

Design Development

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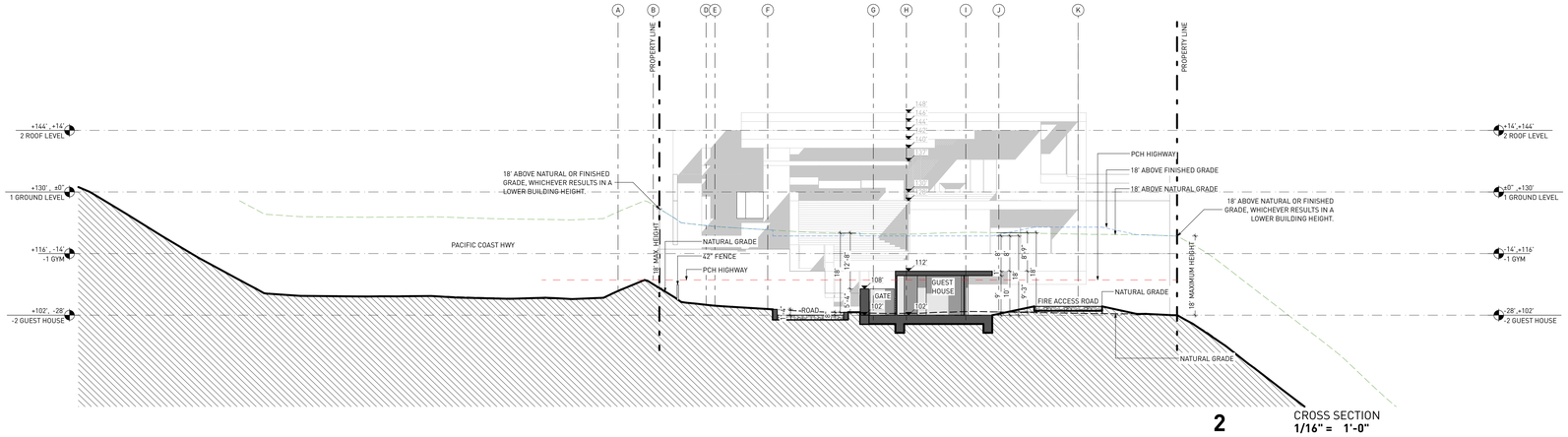
VILLA COLEAVA

Drawing Issued on 03/01/19

A301



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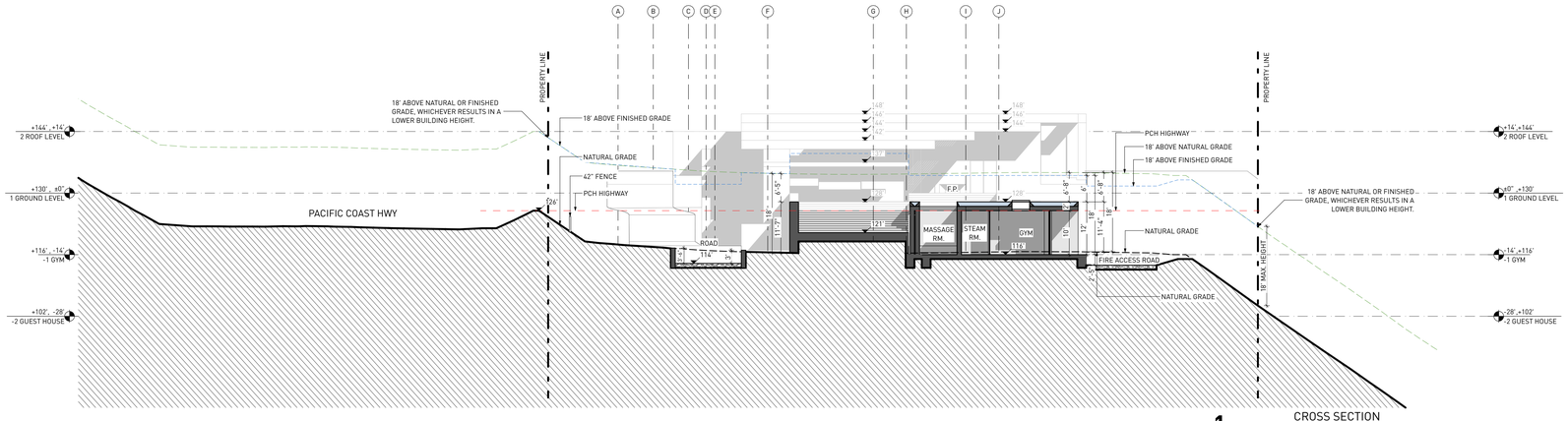

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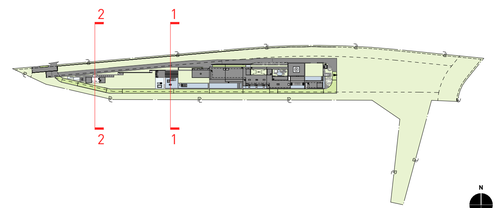

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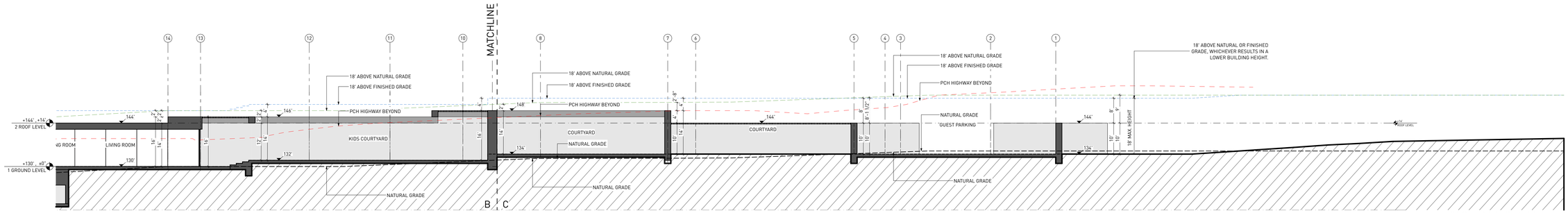
Drawing Issued on 03/01/19

A302



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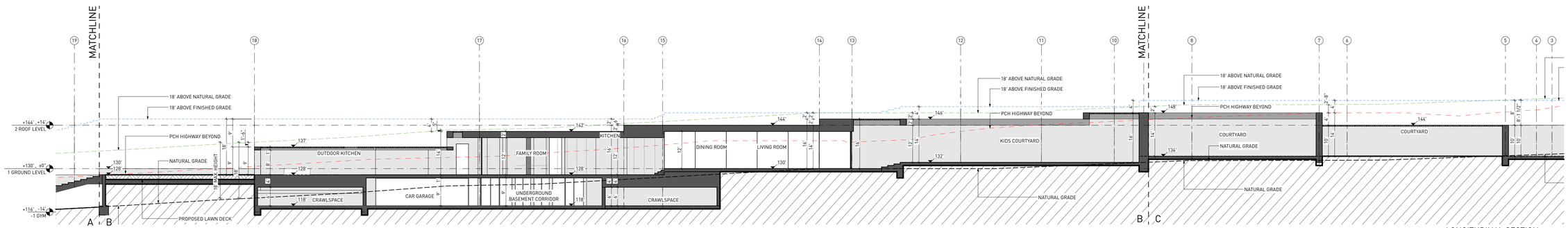

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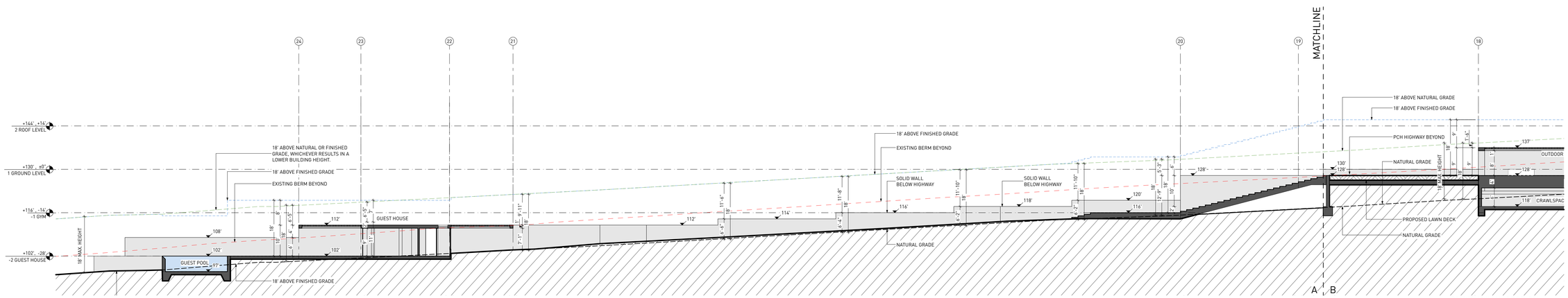

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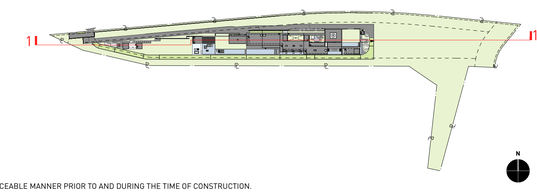

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Project No

1813

Project Name
VILLA COLEAVA

Project Address
25200 Pacific Coast Hwy.
Malibu, California, USA

Property Owner
PAR PCH, LLC
PO Box 6528
Malibu, CA 90265

Design Architect
Oppenheim Architecture
245 NE 37 Street
Miami FL 33137
P 305 576 8404
F 305 576 8433
W oppenoffice.com

Landscape Architect
[place]
3617 exposition boulevard
Los Angeles, CA 90016
P 310-450-8100
F 323-737-3290
W plac-e.com

Civil Engineers
LC Engineering Group
889 Pierce Ct., Ste. 101
Thousand Oaks, CA 91360
P 805-497-1244
P 818-991-7148
W lcegroupinc.com

Revisions

Mark	Date	Description

Title
LONGITUDINAL SECTION

1/16" = 1'-0"

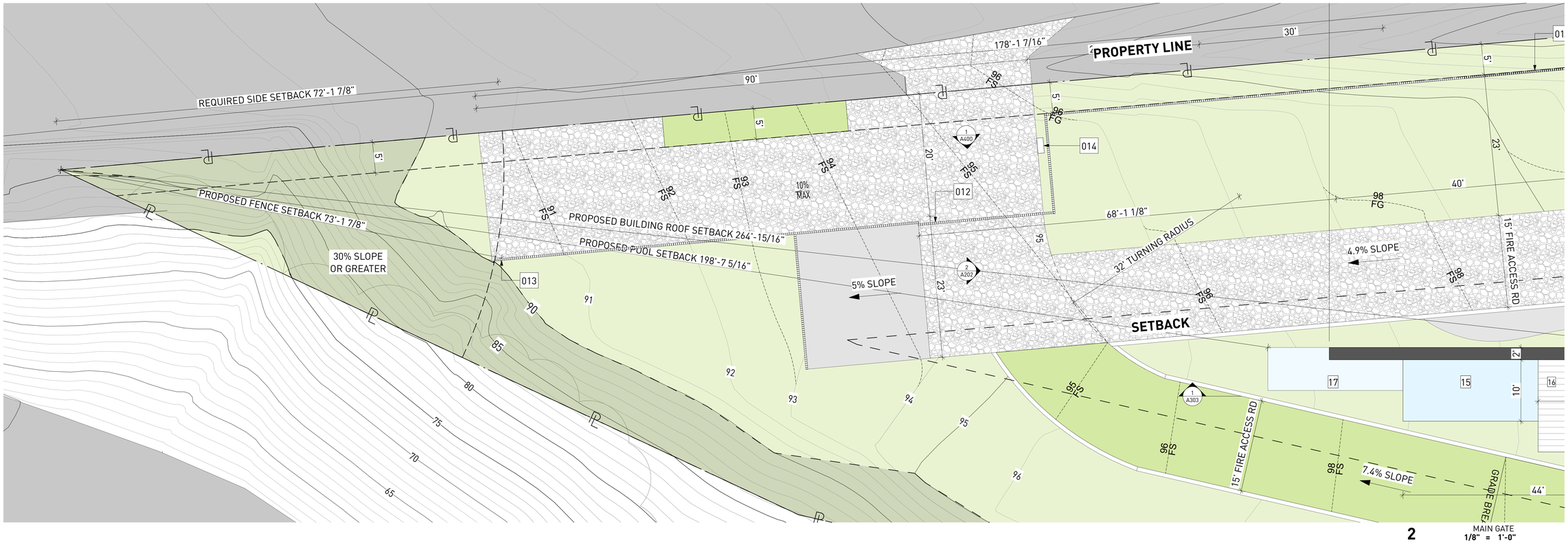
NOT FOR CONSTRUCTION

Design Development

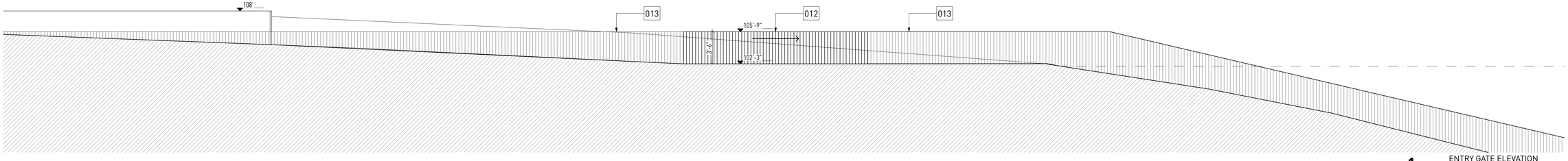
1813
VILLA COLEAVA

Drawing Issued on 03/01/19

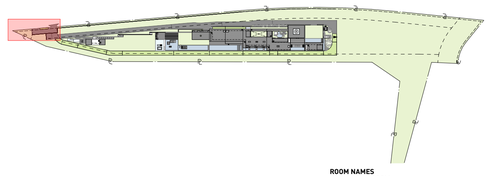
A303



2 MAIN GATE
1/8" = 1'-0"



1 ENTRY GATE ELEVATION
3/16" = 1'-0"



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ROOM NAMES

01 LIVING ROOM
02 DINING ROOM
03 KITCHEN
04 SERVICE KITCHEN
05 POWDER ROOM
06 PANTRY
07 FAMILY ROOM
08 OUTDOOR KITCHEN
09 BEDROOM
10 BATHROOM
11 COURTYARD
12 MASTER BEDROOM
13 MASTER BATHROOM
14 MASTER CLOSET
15 POOL
16 POOL DECK
17 WATER FEATURE
18 TERRACE
19 FIRE PIT
20 OFFICE
21 OUTDOOR SHOWER
22 STORAGE
23 FIREPLACE
24 GYM
25 STEAM ROOM
26 SAUNA
27 MASSAGE ROOM
28 LAUNDRY
29 MUD ROOM
30 WINE STORAGE
31 GARAGE
32 LIGHTWELL
33 OUTDOOR BATHROOM
34 SUNKEN TUB
35 MINI BAR
36 COLD PLUNGE POOL
37 HOT TUB

Project No

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Revisions

Mark	Date	Description

Title
MAIN GATE/ ENTRANCE

3/16" = 1'-0",
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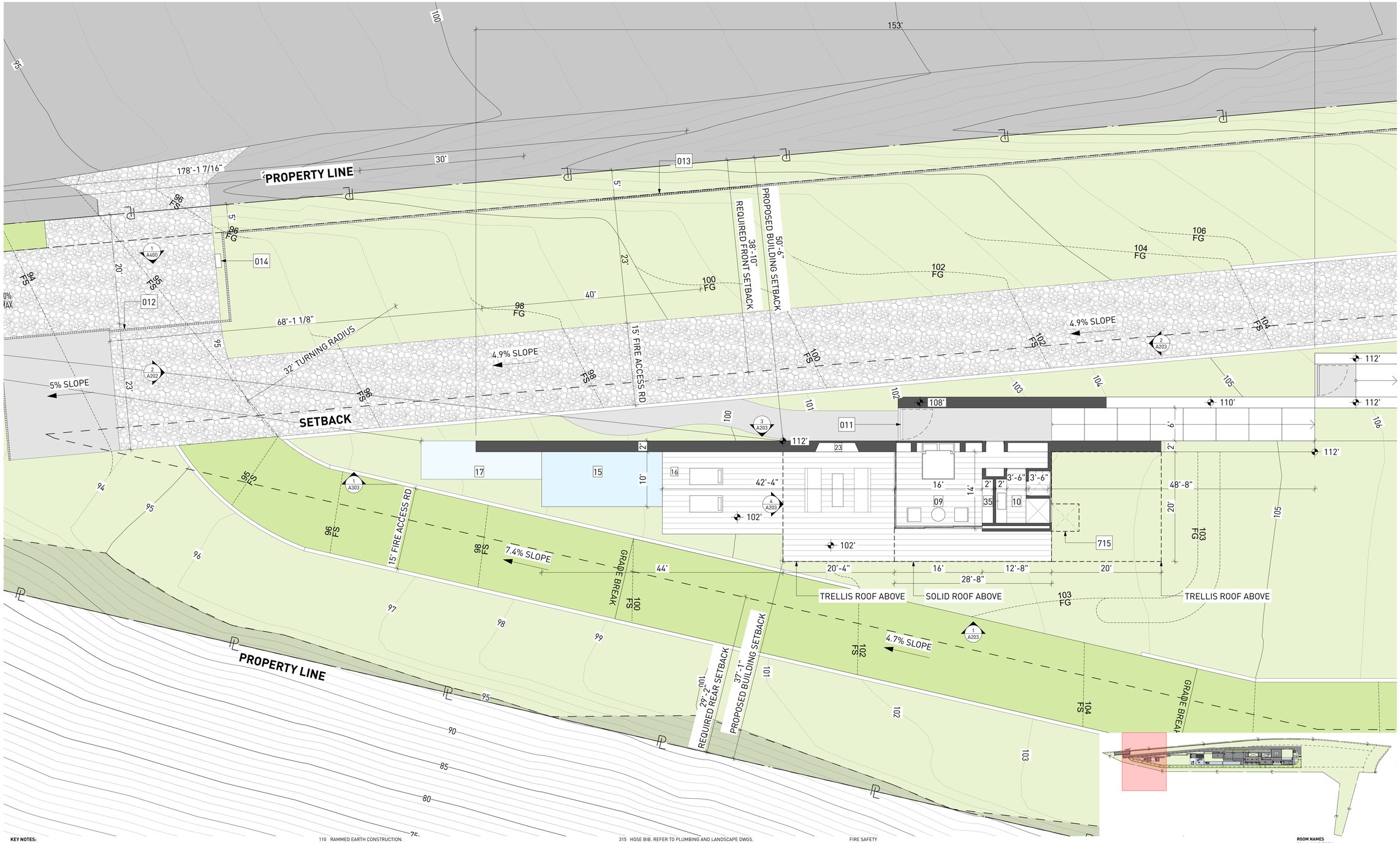
NOT FOR CONSTRUCTION

Design Development

1813
VILLA COLEAVA

Drawing Issued on 4/16/25

A400



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23 FIREPLACE
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35 MINI BAR
36 COLD PLUNGE POOL
37 HOT TUB

Project No

1813

Project Name
VILLA COLEAVA

Project Address
25200 Pacific Coast Hwy.
Malibu, California, USA

Property Owner
PAR PCH, LLC
PO Box 6528
Malibu, CA 90265

Design Architect
Oppenheim Architecture
245 NE 37 Street
Miami FL 33137
P 305 576 8404
F 305 576 8433
W oppenoffice.com

Landscape Architect
[place]
3617 exposition boulevard
Los Angeles, CA 90016
P 310-450-8100
F 323-737-3290
W plac-e.com

Civil Engineers
LC Engineering Group
889 Pierce Ct., Ste. 101
Thousand Oaks, CA 91360
P 805-497-1244
P 818-991-7148
W lcegroupinc.com

Revisions

Mark	Date	Description

Title
GUEST HOUSE LEVEL

1/8" = 1'-0"

NOT FOR CONSTRUCTION

Design Development

1813
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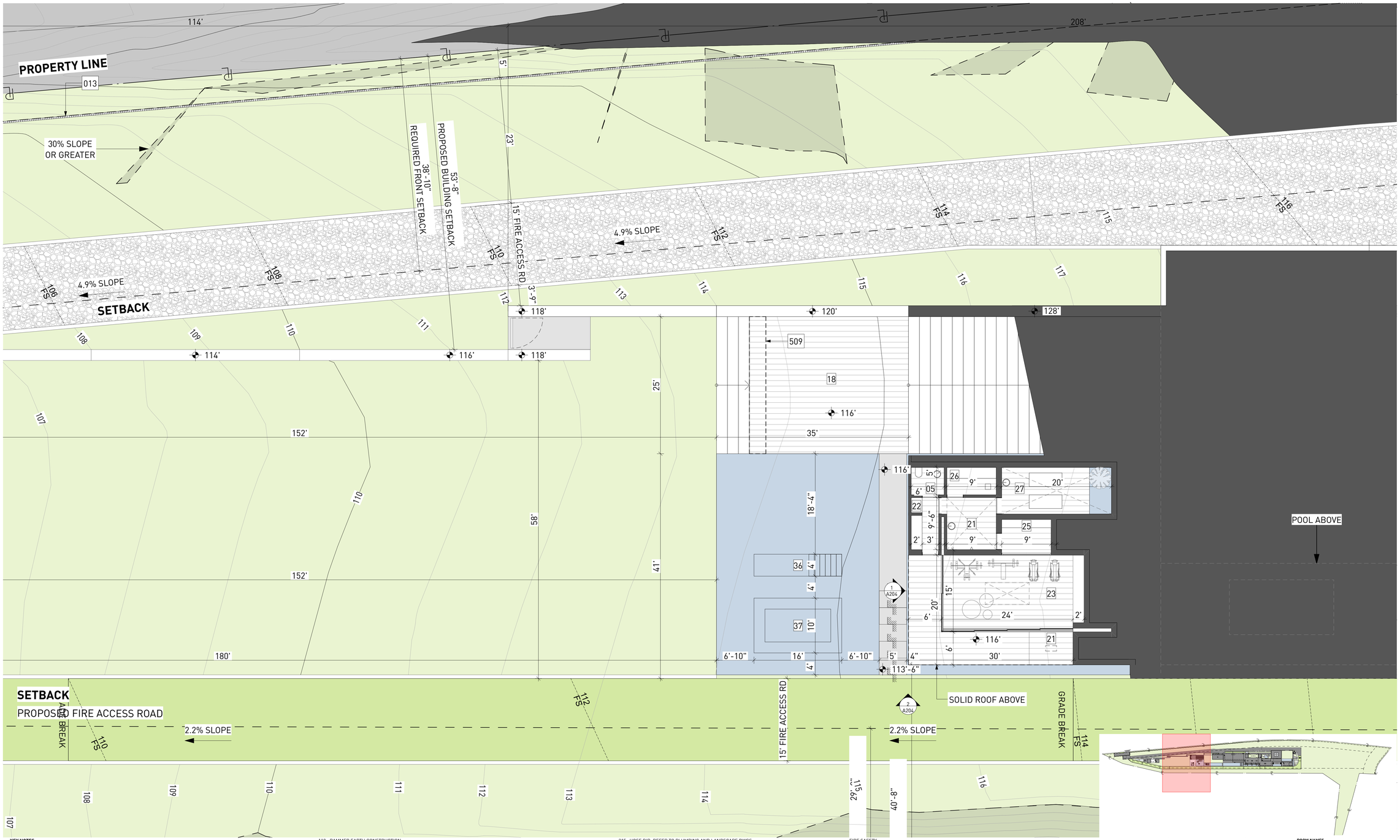
Drawing Issued on 4/16/25

A401



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Civil Engineers
LC Engineering Group
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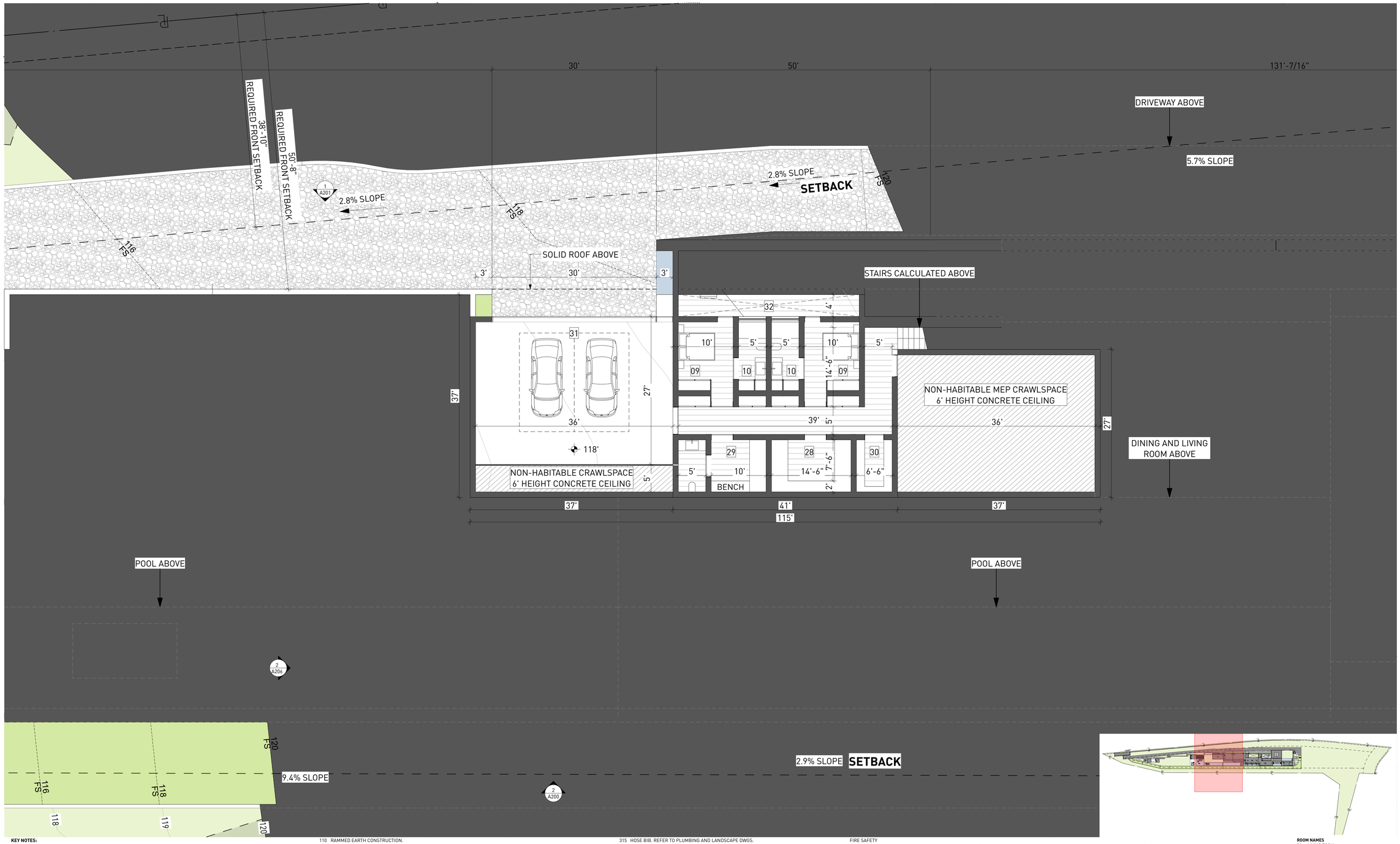
Drawing Issued on 4/16/25

A402



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11 COURTYARD
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32 LIGHTWELL
33 OUTDOOR BATHROOM
34 SUNKEN TUB
35 MINI BAR
36 COLD PLUNGE POOL
37 HOT TUB

Project No

1813

Project Name
VILLA COLEAVA

Project Address
25200 Pacific Coast Hwy.
Malibu, California, USA

Property Owner
PAR PCH, LLC
PO Box 6528
Malibu, CA 90265

Design Architect
Oppenheim Architecture
245 NE 37 Street
Miami FL 33137
P 305 576 8404
F 305 576 8433
W oppenoffice.com

Landscape Architect
[place]
3617 exposition boulevard
Los Angeles, CA 90016
P 310-450-8100
F 323-737-3290
W plac-e.com

Civil Engineers
LC Engineering Group
889 Pierce Ct., Ste. 101
Thousand Oaks, CA 91360
P 805-497-1244
P 818-991-7148
W lcegroupinc.com

Revisions

Mark	Date	Description

Title
BASEMENT LEVEL

1/8" = 1'-0"

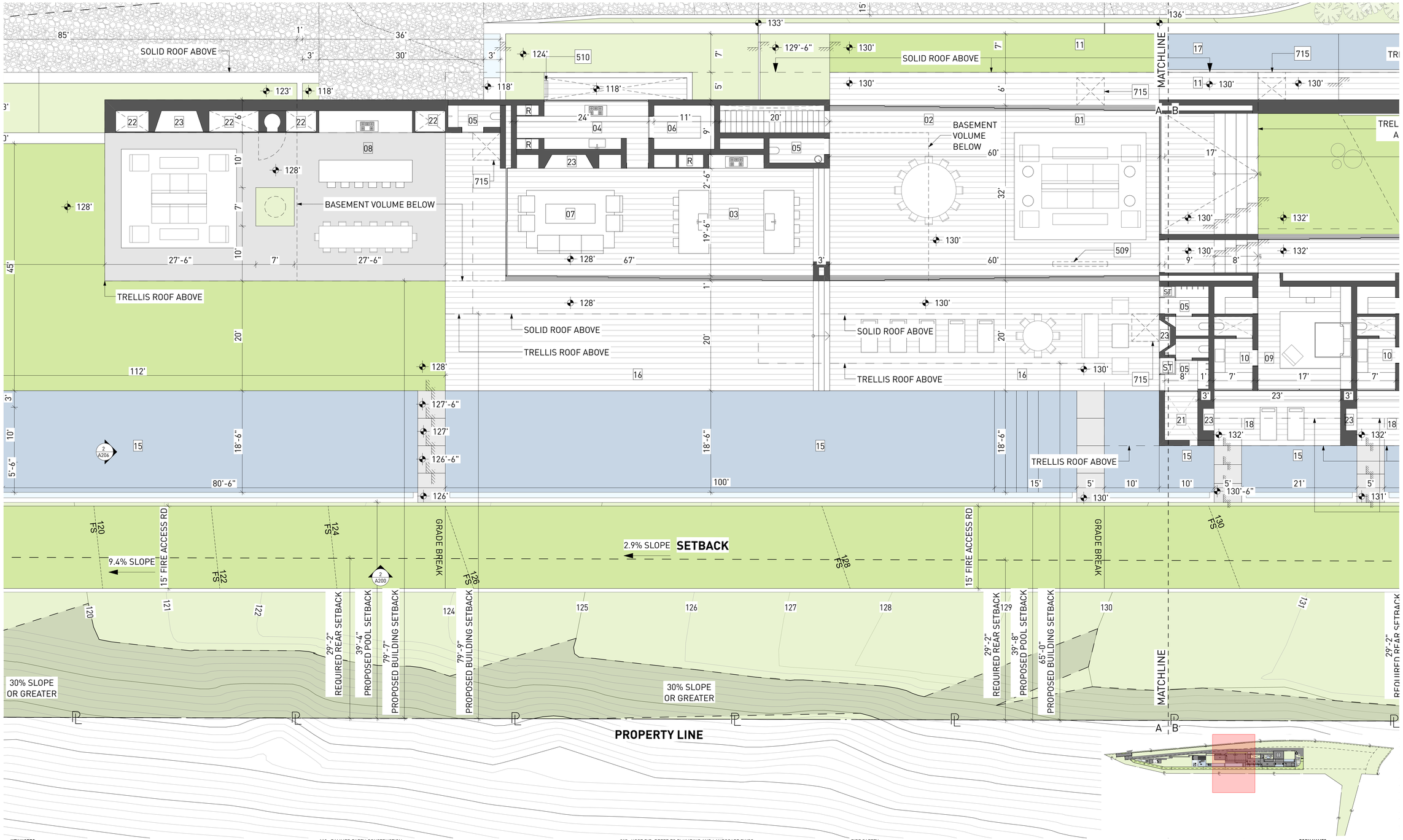
NOT FOR CONSTRUCTION

Design Development

1813
VILLA COLEAVA

Drawing Issued on 4/16/25

A403



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703 PROVIDE AN APPROVED AUTOMATIC FIRE SPRINKLER SYSTEM AS SET FORTH BY BUILDING CODE 903 AND FIRE CODE 9003. PLANS SHALL BE SUBMITTED TO THE SPRINKLER PLAN CHECK UNIT FOR REVIEW AND APPROVAL PRIOR TO INSTALLATION.
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705 WHERE MORE THAN ONE SMOKE ALARM IS REQUIRED TO BE INSTALLED WITHIN AN INDIVIDUAL DWELLING OR SLEEPING UNIT, THE SMOKE ALARMS SHALL BE INTERCONNECTED SIN USCH A MANNER THAT THE ACTIVATION OF ONE ALARM WILL ACTIVATE ALL OF THE ALARMS IN THE INDIVIDUAL UNIT. RESIDENTIAL CODE R314.5
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707 ALL ROOF COVERINGS SHALL BE CLASS 'A' AS SPECIFIED IN BUILDING CODE 1505.1.1 (RESIDENTIAL CODE R327.5.2 & R902)
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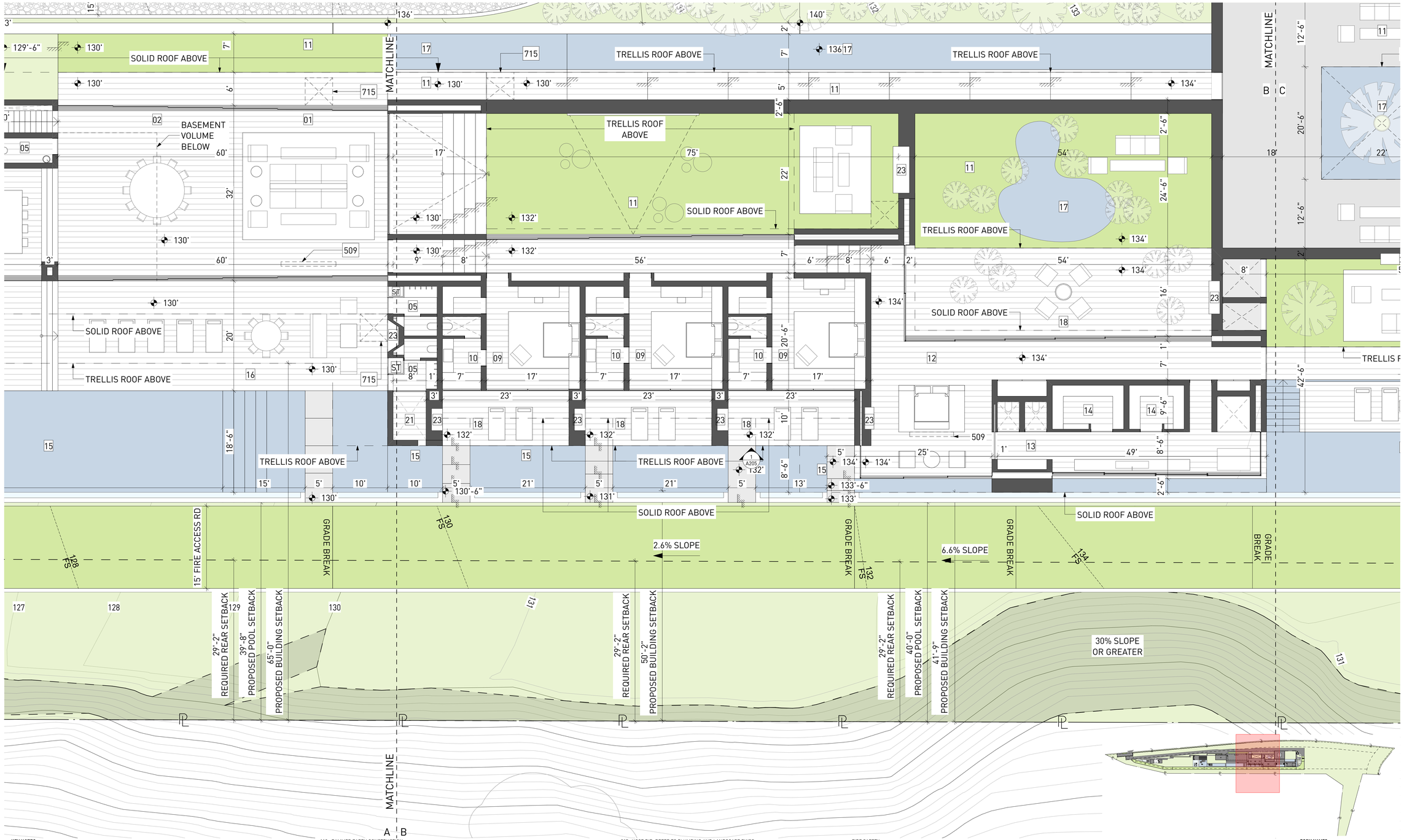

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F 323-737-3290
W plac-e.com

Civil Engineers
LC Engineering Group
889 Pierce Ct., Ste. 101
Thousand Oaks, CA 91360
P 805-497-1244
P 818-991-7148
W lcegroupinc.com

Revisions

Mark	Date	Description

Title
GROUND LEVEL-2

1/8" = 1'-0"

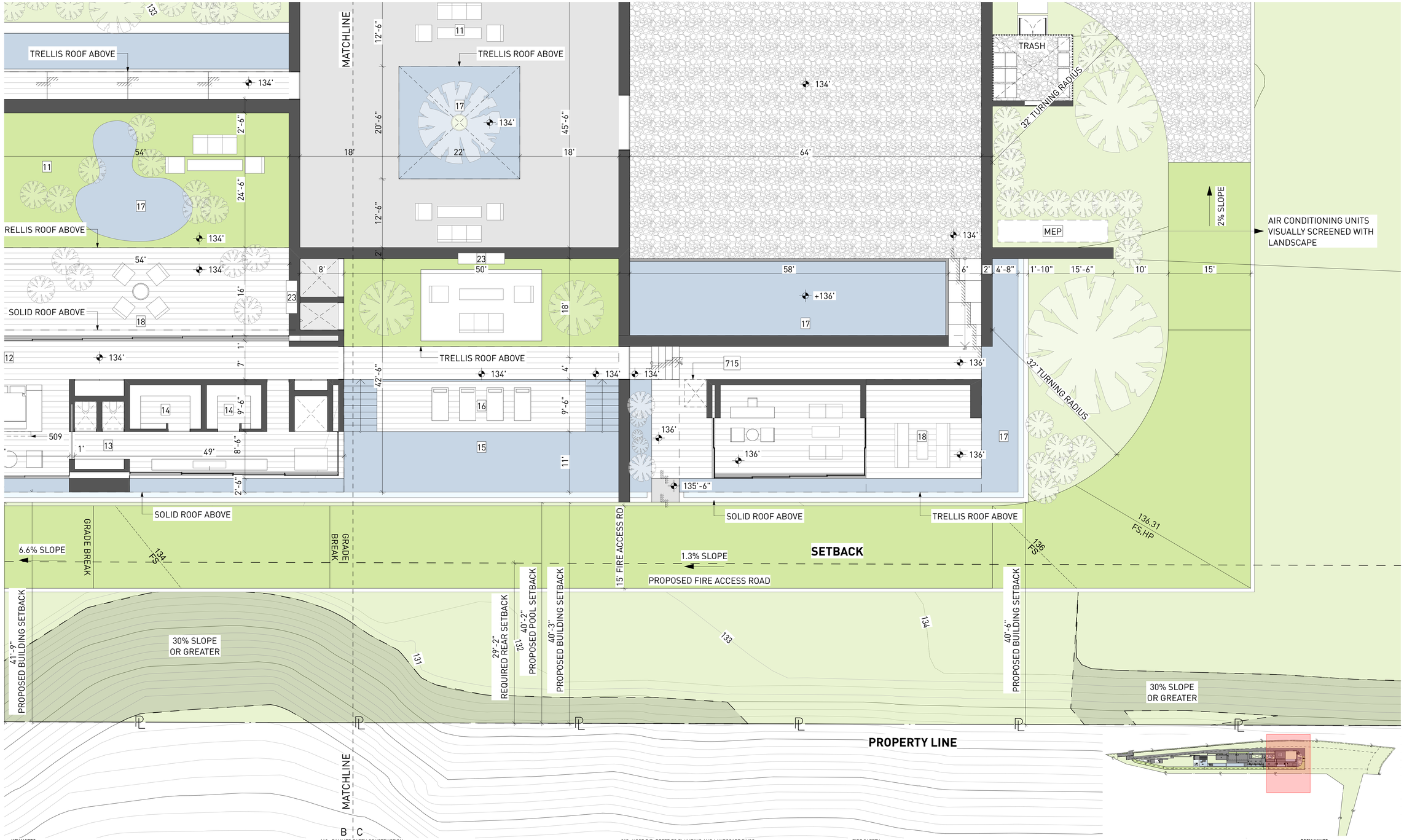
NOT FOR CONSTRUCTION

Design Development

1813
VILLA COLEAVA

Drawing Issued on 4/16/25

A405



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37 HOT TUB

Project No

1813

Project Name
VILLA COLEAVA

Project Address
25200 Pacific Coast Hwy.
Malibu, California, USA

Property Owner
PAR PCH, LLC
PO Box 6528
Malibu, CA 90265

Design Architect
Oppenheim Architecture
245 NE 37 Street
Miami FL 33137
P 305 576 8404
F 305 576 8433
W oppenoffice.com

Landscape Architect
[place]
3617 exposition boulevard
Los Angeles, CA 90016
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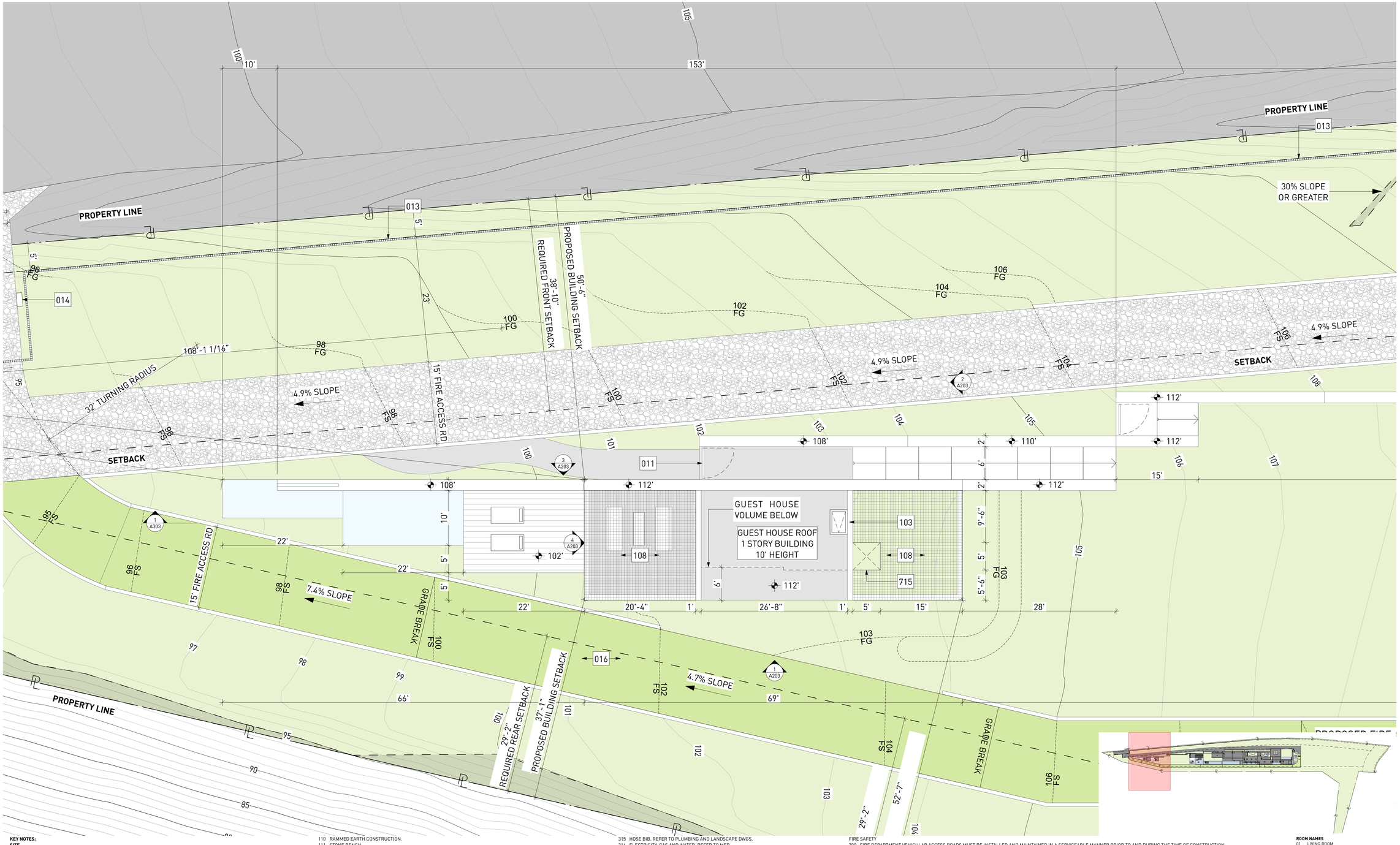

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Project Address
25200 Pacific Coast Hwy.
Malibu, California, USA

Property Owner
PAR PCH, LLC
PO Box 6528
Malibu, CA 90265

Design Architect
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245 NE 37 Street
Miami FL 33137
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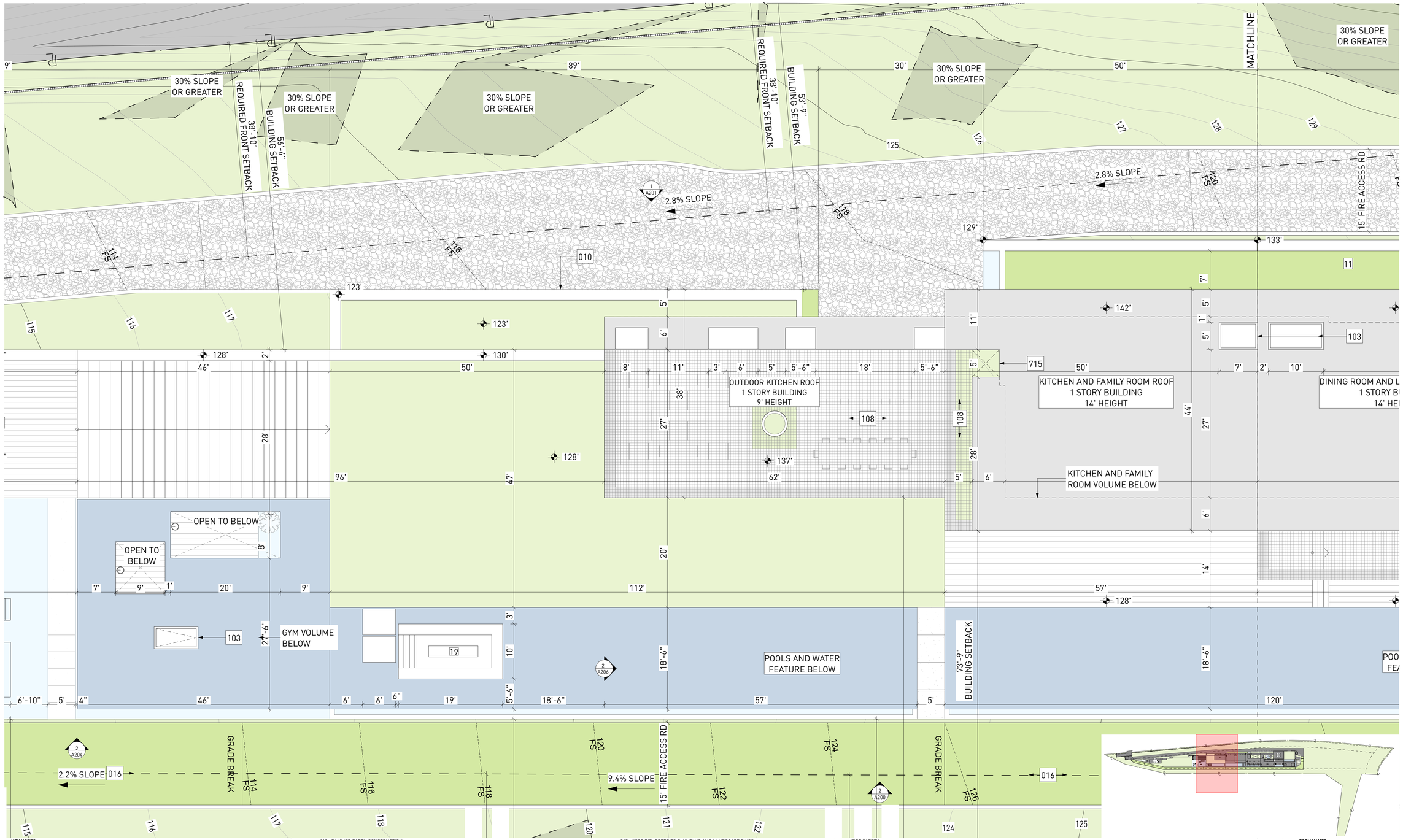

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017 GENERATOR ON EXISTING CONCRETE PLINTH, BOTTOM OF GENERATOR TO BE ABOVE BFE +1', REFER TO ELECTRICAL DWGS.
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105 GRAVEL.
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107 3/8" THERMOCROMEX LIMESTONE PLASTER, SAND FINISH, COLOR T.B.D. 3/8" TYPICAL.
108 TRELLIS. 50 PERCENT OPEN TO THE SKY. DEPTH OF SLOTS TO BE EQUAL TO OR LESS THAN THE WIDTH OF EACH SLOT. PROVIDE SHOP DWGS.
109 REFER TO INTERIOR DESIGN DRAWINGS AND FINISH SCHEDULE.
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311 MINIMUM R:30 BATT INSULATION OR RIGID INSULATION. REFER TO ENERGY CALCULATIONS.
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702 ALL REQUIRED PUBLIC FIRE HYDRANTS SHALL BE INSTALLED, TESTED AND ACCEPTED PRIOR TO BEGINNING CONSTRUCTION. FIRE CODE 501.4
703 PROVIDE AN APPROVED AUTOMATIC FIRE SPRINKLER SYSTEM AS SET FORTH BY BUILDING CODE 903 AND FIRE CODE 9003. PLANS SHALL BE SUBMITTED TO THE SPRINKLER PLAN CHECK UNIT FOR REVIEW AND APPROVAL PRIOR TO INSTALLATION.
704 SMOKE ALARMS SHALL RECEIVE THEIR PRIMARY POWER FROM THE BUILDING WIRING PROVIDED THAT SUCH WIRING IS SERVED FROM A COMMERCIAL SOURCE AND SHALL BE EQUIPPED WITH A BATTERY BACKUP. RESIDENTIAL CODE R314.4
705 WHERE MORE THAN ONE SMOKE ALARM IS REQUIRED TO BE INSTALLED WITHIN AN INDIVIDUAL DWELLING OR SLEEPING UNIT, THE SMOKE ALARMS SHALL BE INTERCONNECTED SIN USCH A MANNER THAT THE ACTIVATION OF ONE ALARM WILL ACTIVATE ALL OF THE ALARMS IN THE INDIVIDUAL UNIT. RESIDENTIAL CODE R314.5
706 APPROVED BUILDING ADDRESS NUMBERS, BUILDING NUMBERS OR APPROVED BUILDING IDENTIFICATION SHALL BE PROVIDED AND MAINTAINED SO AS TO BE PLAINLY VISIBLE AND LEGIBLE FROM THE STREET FRONTING THE PROPERTY. THE MINIMUM OF 4 INCHES HIGH WITH A MINUMM STROKE WIDTH OF 0.5 INCH. FIRE CODE 505.1
707 ALL ROOF COVERINGS SHALL BE CLASS "A" AS SPECIFIED IN BUILDING CODE 1505.1.1 (RESIDENTIAL CODE R327.5.2 & R902)
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711 CLEARANCE OF BRUSH AND VEGETATIVE GROWTH SHALL BE MAINTAINED PER FIRE CODE 325.
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713 ALL FIRE HYDRANTS SHALL MEASURE 6"" X 4"" X 2-1/2"", BRASS OR BRONZE, CONFORMING TO AMERICAN WATER WORKS ASSOCIATION STANDARD C503, OR APPROVED EQUAL.
714 ALL ON-SITE FIRE HYDRANTS SHALL BE INSTALLED, TESTED AND APPROVED PRIOR TO BUILDING OCCUPANCY. FIRE CODE 901.5.1
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36 COLD PLUNGE POOL
37 HOT TUB

Project No

1813

Project Name
VILLA COLEAVA

Project Address
25200 Pacific Coast Hwy.
Malibu, California, USA

Property Owner
PAR PCH, LLC
PO Box 6528
Malibu, CA 90265

Design Architect
Oppenheim Architecture
245 NE 37 Street
Miami FL 33137
P 305 576 8404
F 305 576 8433
W oppenoffice.com

Landscape Architect
[place]
3617 exposition boulevard
Los Angeles, CA 90016
P 310-450-8100
F 323-737-3290
W plac-e.com

Civil Engineers
LC Engineering Group
889 Pierce Ct., Ste. 101
Thousand Oaks, CA 91360
P 805-497-1244
P 818-991-7148
W lcegroupinc.com

Revisions

Mark	Date	Description

Title
ROOF LEVEL-2

1/8" = 1'-0"

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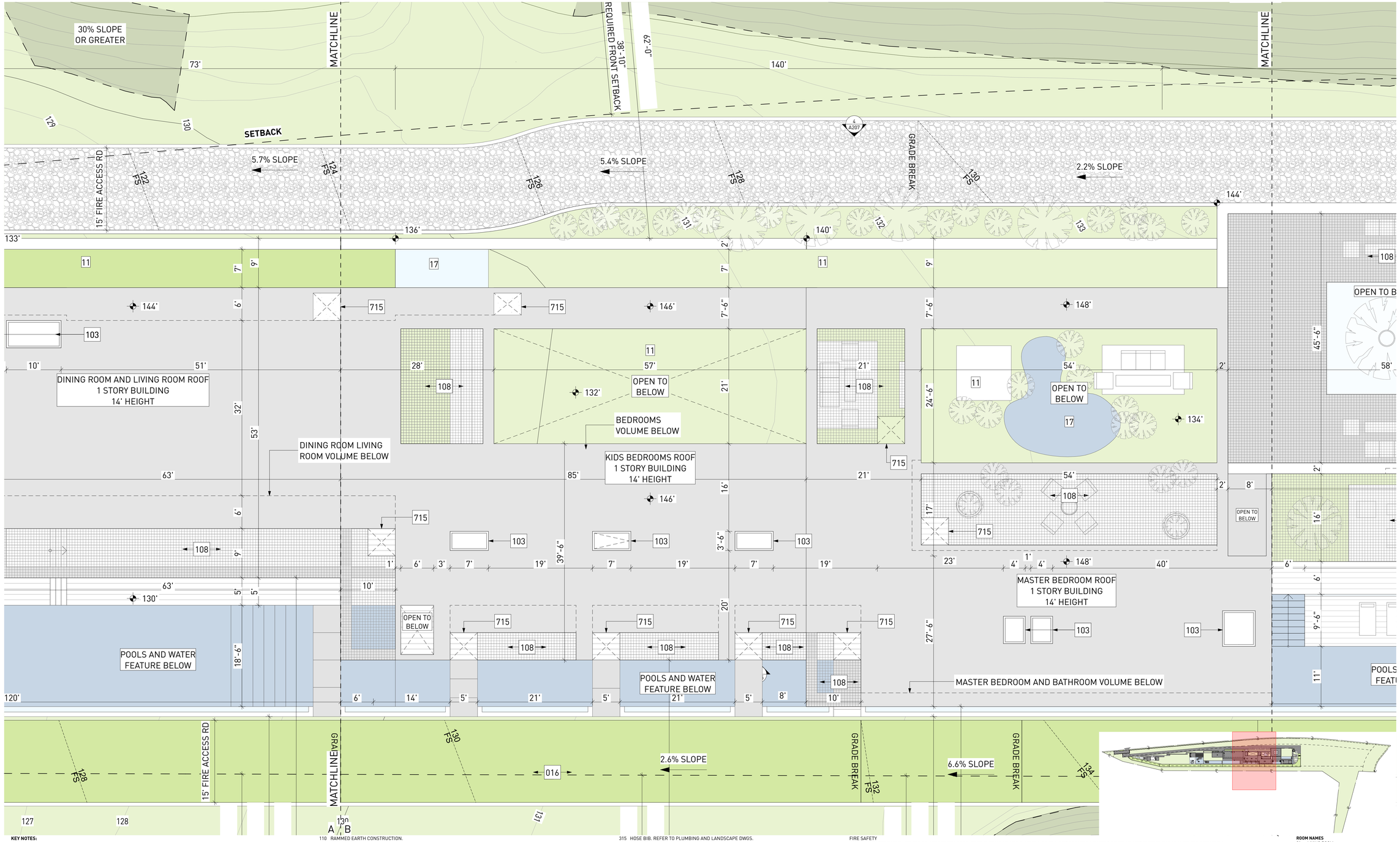
Drawing Issued on 4/16/25

A408



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Project No

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VILLA COLEAVA

Project Address
25200 Pacific Coast Hwy.
Malibu, California, USA

Property Owner
PAR PCH, LLC
PO Box 6528
Malibu, CA 90265

Design Architect
Oppenheim Architecture
245 NE 37 Street
Miami FL 33137
P 305 576 8404
F 305 576 8433
W oppenoffice.com

Landscape Architect
[place]
3617 exposition boulevard
Los Angeles, CA 90016
P 310-450-8100
F 323-737-3290
W plac-e.com

Civil Engineers
LC Engineering Group
889 Pierce Ct., Ste. 101
Thousand Oaks, CA 91360
P 805-497-1244
P 818-991-7148
W lcegroupinc.com

Revisions

Mark	Date	Description

Title
ROOF LEVEL-3

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Design Development

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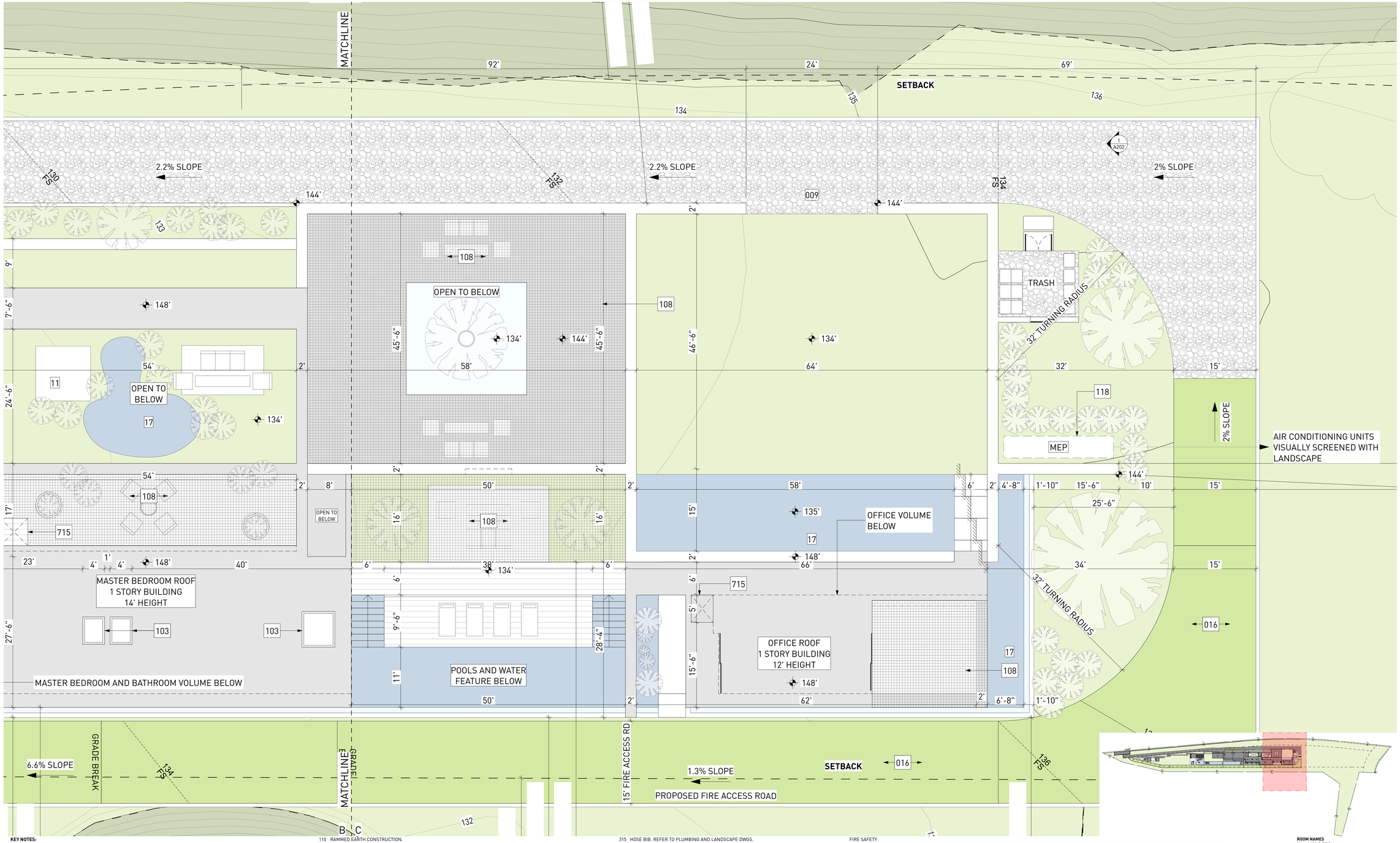
VILLA COLEAVA

Drawing Issued on 4/16/25

A409



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014 CALL BOX
015 TRASH ENCLOSURE AREA
016 STRUCTURAL GRASS DRIVEWAY. GRASSCRETE OR SIMILAR. REFER TO CIVIL & LANDSCAPE DWGS.
017 GENERATOR ON EXISTING CONCRETE PLINTH, BOTTOM OF GENERATOR TO BE ABOVE BFE +1', REFER TO ELECTRICAL DWGS.
018 A/C CONDENSER UNITS BEHIND LANDSCAPE, BOTTOM OF UNITS TO BE ABOVE BFE +1', REFER TO MECHANICAL DWGS.
019 NATURAL LAWN AREA. REFER TO LANDSCAPE DWGS.

MATERIALS

100 ARCHITECTURAL EXPOSED CONCRETE, COLOR T.B.D. REFER TO STRUCTURAL DRAWINGS AND ARCHITECTURAL DETAILS.
101 CUSTOM WOOD DOOR. REFER TO DOOR SCHEDULE.
102 IMPACT RESISTANT SLIDING ALUMINUM WINDOWS / DOORS SYSTEM, LOW-E COATING. REFER TO WINDOW SCHEDULE.
103 PRE-FABRICATED SKYLIGHT ON CONCRETE CURB. REFER TO WINDOW SCHEDULE. SEE SECTION AND DETAILS.
104 GARAGE STEEL DOOR CLADDED WITH CUSTOM CONCRETE PANELS. REFER TO DOOR SCHEDULE.
105 GRAVEL.
106 5/8" G.W.B., FINISH T.B.D.; REFER TO I.D. DWGS.
107 3/8" THERMOCROMEX LIMESTONE PLASTER, SAND FINISH, COLOR T.B.D. 3/8" TYPICAL.
108 TRELLIS. 50 PERCENT OPEN TO THE SKY. DEPTH OF SLOTS TO BE EQUAL TO OR LESS THAN THE WIDTH OF EACH SLOT. PROVIDE SHOP DWGS.
109 REFER TO INTERIOR DESIGN DRAWINGS AND FINISH SCHEDULE.
110 RAMMED EARTH CONSTRUCTION.
111 STONE BENCH.

STRUCTURAL

200 FOUNDATION AND PILES. REFER TO STRUCT. DWGS.
201 COMPACTED EARTH. REFER TO STRCUT. DWGS.
202 RETAINING WALL. REFER TO STRUCT. DWGS.
203 CONCRETE SLAB. REFER TO STRUCT. DWGS.
204 CONCRETE COLUMN. REFER TO STRUCT. DWGS.
205 CONCRETE BEAM. REFER TO STRUCT. DWGS.
206 STEEL COLUMN. REFER TO STRUCT. DWGS.
207 CONCRETE STAIRS. REFER TO STRUCT. DWGS.
208 CONCRETE SHELL FOR POOL. REFER TO STRUCT. DWGS.
209 8" CMU REINFORCED WALL. REFER TO WALL TYPES AND STRUCT. DWGS
210 PROVIDE 2" RECESS ON SLABS ON ALL SHOWERS.
211 OPENING ON CONCRETE SLAB. REFER TO STRUCT. DWGS.

MEP

300 LIGHT FIXTURE/ SEE ARCH. RCP, ELECTRICAL DWGS. AND LIGHTING SPECIFICATIONS.
301 A/C PLENUM SPACE, REFER TO MECHANICAL DWGS. AND RCP. NO COMBUSTIBLES ALLOWED.
302 ROOF DRAIN, REFER TO PLUMBING DWGS. /SEE DETAIL.
303 FLOOR DRAIN, REFER TO PLUMBING DWGS./ SEE DETAIL.
304 DRAIN PIPE TO FIT IN CEILING SPACE, REFER TO PLUMBING DWGS. COORDINATE EXACT LOCATION AND SPECS.
305 KITCHEN HOOD, REFER TO MECH DWGS.
306 KITCHEN HOOD EXHAUST PIPE TO FIT IN CEILING SPACE, REFER TO MECH DWGS. COORDINATE EXACT LOCATION AND SPECS.
307 DESIGNATED POOL EQUIPMENT AREA.
308 GAS WATER HEATER. REFER TO PLUMBING DWGS.
309 ELECTRICAL PANELS. REFER TO ELECTRICAL DWGS.
310 CONDENSER UNITS ON STANDS. REFER TO MECH. DWGS.
311 MINIMUM R:30 BATT INSULATION OR RIGID INSULATION. REFER TO ENERGY CALCULATIONS.
312 ACOUSTICAL INSULATION.
313 MISTING SYSTEM. REFER TO PLUMBING DWGS.
314 SPRINKLER SYSTEM. REFER TO PLUMBING DWGS.
315 HOSE BIB. REFER TO PLUMBING AND LANDSCAPE DWGS.
316 ELECTRICITY, GAS AND WATER. REFER TO MEP DRAWINGS.
317 MOTORIZED VEHICULAR GATE. REFER TO ELECT. DWGS.
318 ALL TOILETS TO BE WALL HUNG. REFER TO MECH. DWGS.
319 LINEAR DRAIN
320 OVERFLOW SCUPPER.

WATERPROOFING

400 CONTINUOUS VAPOR BARRIER. REFER TO ARCH AND STRUCTURAL DWGS.
401 WATERPROOFING MEMBRANE. REFER TO ARCH AND STRUCTURAL DWGS.
402 POOL FINISH/ COLOR TBD.

MISC. ARCHITECTURAL DETAILS

500 CURTAIN CEILING COVE. REFER TO ARCH. DETAIL.
501 CONTINUOUS 1/2" TOOLED WATER DRIP. SEE ARCH. DETAIL.
502 VENT.
503 KITCHEN, BUILT-IN FURNITURE, CABINETRY BY OTHERS. REFER TO KITCHEN SHOP DWGS.
504 5/8" GWB DROPPED CEILING ON 3/4" FURRING STRIPS, PAINTED GWB. COLOR TBD.
505 STAINLESS STEEL SCUPPER IN CONCRETE STRUCTURE. 3" X 3" MIN.OPENING. REFER TO ELEVATION AND PLAN FOR LOCATION.
506 CUSTOM WOOD MILLWORK, REFER TO I.D. DRAWINGS
507 SOLAR PANELS (T.B.D.)
509 CONCEALED LED SCREEN.
510 LADDER ACCESS.

LIGHTING

600 PENDANT LIGHT. REFER TO LIGHTING DWGS.
601 RECESSED DOWN LIGHT. REFER TO LIGHTING DWGS.
602 CONCEALED LINEAR LIGHT. REFER TO LIGHTING DWGS.
603 POOL LINEAR RECESSED LIGHT. REFER TO LIGHTING DWGS.
604 LANDSCAPE LIGHTING. REFER TO LIGHTING DWGS.

FIRE SAFETY

700 FIRE DEPARTMENT VEHICULAR ACCESS ROADS MUST BE INSTALLED AND MAINTAINED IN A SERVICEABLE MANNER PRIOR TO AND DURING THE TIME OF CONSTRUCTION. FIRE CODE 5001.4
701 AN APPROVED KEY BOX, LISTED IN ACCORDANCE WITH UL 1037 SHALL BE PROVIDED AS REQUIRED BY FIRE CODE 506. THE LOCATION OF EACH KEY BOX SHALL BE DETERMINED BY THE FIRE INSPECTOR.
702 ALL REQUIRED PUBLIC FIRE HYDRANTS SHALL BE INSTALLED, TESTED AND ACCEPTED PRIOR TO BEGINNING CONSTRUCTION. FIRE CODE 501.4
703 PROVIDE AN APPROVED AUTOMATIC FIRE SPRINKLER SYSTEM AS SET FORTH BY BUILDING CODE 903 AND FIRE CODE 9003. PLANS SHALL BE SUBMITTED TO THE SPRINKLER PLAN CHECK UNIT FOR REVIEW AND APPROVAL PRIOR TO INSTALLATION.
704 SMOKE ALARMS SHALL RECEIVE THEIR PRIMARY POWER FROM THE BUILDING WIRING PROVIDED THAT SUCH WIRING IS SERVED FROM A COMMERCIAL SOURCE AND SHALL BE EQUIPPED WITH A BATTERY BACKUP. RESIDENTIAL CODE R314.4
705 WHERE MORE THAN ONE SMOKE ALARM IS REQUIRED TO BE INSTALLED WITHIN AN INDIVIDUAL DWELLING OR SLEEPING UNIT, THE SMOKE ALARMS SHALL BE INTERCONNECTED SIN USCH A MANNER THAT THE ACTIVATION OF ONE ALARM WILL ACTIVATE ALL OF THE ALARMS IN THE INDIVIDUAL UNIT. RESIDENTIAL CODE R314.5
706 APPROVED BUILDING ADDRESS NUMBERS, BUILDING NUMBERS OR APPROVED BUILDING IDENTIFICATION SHALL BE PROVIDED AND MAINTAINED SO AS TO BE PLAINLY VISIBLE AND LEGIBLE FROM THE STREET FRONTING THE PROPERTY. THE MINIMUM OF 4 INCHES HIGH WITH A MINIMUM STROKE WIDTH OF 0.5 INCH. FIRE CODE 505.1
707 ALL ROOF COVERINGS SHALL BE CLASS "A" AS SPECIFIED IN BUILDING CODE 1505.1.1 (RESIDENTIAL CODE R327.5.2 & R902)
708 ROOF VALLEY FLASHINGS SHALL BE NOT LESS THAN 0.019 INCH (NO.26 GALVANIZED SHEET GAGE) CORROSION-RESISTANT METAL INSTALLED OVER A MINIMUM 36-INCH WIDE UNDERLAYMENT CONSISTING OF ONE LAYER OF NO. 72 ASTM CAP SHEET MEETING RUNNING THE FULL LEGHTH OF THE VALLEY (RESIDENTIAL CODE R327.5.3 AND BUILDING CODE 705A.3
709 ROOF GUTTERS SHALL BE PROVIDED WITH A MEANS OTO PREVENT THE ACCUMULATION OF LEAVES AND DEBRIS IN THE GUTTER. (RESIDENTIAL CODE R327.534 AND BUILDING GCODE 705A.4)
710 VENTS SHALL RESIST THE INTRUSION OF FLAME AND EMBERS AND FLAME THROUGH THE VENTILATION OPENINGS. VENT OPENINGS SHALL BE PROTECTED BY CORROSION- RESISTANT, NONCOMBUSTIBLE WIRE MESH WITH A MINIMUM 1/16TH INCH OPENINGS AND SHALL NOT EXCEED 1/8TH INCH. VENTS SHALL NOT BE INSTALLED IN EAVES OR CORNICES. (RESIDENTIAL CODE R327.6.1 AND BUILDING CODE 706A.1)
711 CLEARANCE OF BRUSH AND VEGETATIVE GROWTH SHALL BE MAINTAINED PER FIRE CODE 325.
712 PROVIDE APPROVED SIGNS OR OTHER APPROVED NOTICES OR MARKINGS THAT INCLUDE THE WORDS NO PARKING - FIRE LANE. SIGNS SHALL HAVE A MINIMUM DIMENSION OF 12 INCHES WIDE BY 18 INCHES HIGH AND HAVE RED LETTERS ON A WHITE REFLECTIVE BACKGROUND. SIGNS SHALL BE PROVIDED FOR FIRE APPARATUS ACCESS ROADS, TO CLEARLY INDICATE THE ENTRANCE TO SUCH ROAD, OR PROHIBIT THE OBSTRUCTION THEREOF AND AT INTERVALS, AS REQUIRED BY THE FIRE INSPECTOR. FIRE CODE 503.3.
713 ALL FIRE HYDRANTS SHALL MEASURE 6"" X 4"" X 2-1/2"", BRASS OR BRONZE, CONFORMING TO AMERICAN WATER WORKS ASSOCIATION STANDARD C503, OR APPROVED EQUAL.
714 ALL ON-SITE FIRE HYDRANTS SHALL BE INSTALLED, TESTED AND APPROVED PRIOR TO BUILDING OCCUPANCY. FIRE CODE 901.5.1
715 ROOF LADDER ACCESS

ROOM NAMES

01 LIVING ROOM
02 DINING ROOM
03 KITCHEN
04 SERVICE KITCHEN
05 POWDER ROOM
06 PANTRY
07 FAMILY ROOM
08 OUTDOOR KITCHEN
09 BEDROOM
10 BATHROOM
11 COURTYARD
12 MASTER BEDROOM
13 MASTER BATHROOM
14 MASTER CLOSET
15 POOL
16 POOL DECK
17 WATER FEATURE
18 TERRACE
19 FIRE PIT
20 OFFICE
21 OUTDOOR SHOWER
22 STORAGE
23 FIREPLACE
24 GYM
25 STEAM ROOM
26 SAUNA
27 MASSAGE ROOM
28 LAUNDRY
29 MUD ROOM
30 WINE STORAGE
31 GARAGE
32 LIGHTWELL
33 OUTDOOR BATHROOM
34 SUNKEN TUB
35 MINI BAR
36 COLD PLUNGE POOL
37 HOT TUB

Project No

1813

Project Name
VILLA COLEAVA

Project Address
25200 Pacific Coast Hwy.
Malibu, California, USA

Property Owner
PAR PCH, LLC
PO Box 6528
Malibu, CA 90265

Design Architect
Oppenheim Architecture
245 NE 37 Street
Miami FL 33137
P 305 576 8404
F 305 576 8433
W oppenoffice.com

Landscape Architect
[place]
3617 exposition boulevard
Los Angeles, CA 90016
P 310-450-8100
F 323-737-3290
W plac-e.com

Civil Engineers
LC Engineering Group
889 Pierce Ct., Ste. 101
Thousand Oaks, CA 91360
P 805-497-1244
P 818-991-7148
W lcegroupinc.com

Revisions

Mark	Date	Description

Title
ROOF LEVEL-4

1/8" = 1'-0"

NOT FOR CONSTRUCTION

Design Development

1813
VILLA COLEAVA

Drawing Issued on 4/16/25

A410

CITY OF MALIBU GRADING NOTES

1. ANY MODIFICATIONS OF OR CHANGES IN APPROVED GRADING PLANS MUST BE APPROVED BY THE BUILDING OFFICIAL
2. A COPY OF THE GRADING PERMIT AND APPROVED GRADING PLAN MUST BE IN THE POSSESSION OF A RESPONSIBLE PERSON AND AVAILABLE AT THE SITE.
3. ENGINEER MUST SET GRADE STAKES FOR ALL DRAINAGE DEVICES AND OBTAIN INSPECTION APPROVAL BEFORE POURING.
4. PROVISIONS WILL BE MADE FOR CONTRIBUTORY DRAINAGE AT ALL TIMES.
5. SECURE PERMISSION FROM CITY ENGINEER, EASEMENT GRANTEE, STATE HIGHWAY DEPARTMENT, AND/OR HOMEOWNERS ASSOCIATION FOR CONSTRUCTION, GRADING, AND/OR DISCHARGE OF DRAINAGE WITHIN STREET RIGHT-OF-WAY.
6. GRADING SHALL NOT BE STARTED WITHOUT FIRST NOTIFYING THE GRADING INSPECTOR. A PRE-GRADING MEETING ON THE SITE IS REQUIRED BEFORE START OF GRADING WITH THE FOLLOWING PEOPLE PRESENT: OWNER, GRADING CONTRACTOR, DESIGN CIVIL ENGINEER, SOIL ENGINEER, GEOLOGIST, GRADING INSPECTOR, AND, WHEN REQUIRED, THE ARCHAEOLOGIST AND PALEONTOLOGIST. THE REQUIRED INSPECTIONS FOR GRADING WILL BE EXPLAINED AT THIS MEETING.
7. CUT AND FILL SLOPES SHALL BE NO STEEPER THAN 3' HORIZONTAL TO 1' VERTICAL (3:1), EXCEPT WHERE SPECIFICALLY APPROVED OTHERWISE.
8. AREAS TO RECEIVE FILL SHALL BE PROPERLY PREPARED AND APPROVED, IN WRITING, BY THE SOIL ENGINEER AND THE BUILDING OFFICIAL PRIOR TO PLACING FILL.
9. FILL SHALL BE BENCHED INTO COMPETENT MATERIAL PER CITY OF MALIBU STANDARD OR SOIL ENGINEER'S DIRECTION.
10. ALL EXISTING FILLS SHALL BE APPROVED BY THE BUILDING OFFICIAL OR REMOVED PRIOR TO PLACING ADDITIONAL FILLS.
11. ANY EXISTING IRRIGATION LINES AND CISTERNS SHALL BE REMOVED OR CRUSHED, IN PLACE, AND APPROVED BY THE BUILDING OFFICIAL AND SOIL ENGINEER.
12. STOCKPILING OF EXCESS MATERIAL SHALL BE APPROVED BY THE BUILDING OFFICIAL PRIOR TO EXCAVATION.
13. THE DESIGN ENGINEER, AS A CONDITION OF ROUGH GRADE APPROVAL, SHALL PROVIDE A BLUE TOP WITH ACCOMPANYING WITNESS STAKE, SET AT THE CENTER OF EACH PAD REFLECTING THE PAD ELEVATION FOR PRECISE PERMITS AND A BLUE TOP WITH WITNESS STAKE SET AT THE DRAINAGE SWALE HIGH POINT REFLECTING THE HIGH POINT ELEVATION FOR PRELIMINARY PERMITS.
14. ALL TRENCH BACKFILLS SHALL BE TESTED AND APPROVED BY THE SOILS ENGINEER.
15. SUBDRAIN OUTLETS SHALL BE COMPETED AT THE BEGINNING OF THE SUBDRAIN CONSTRUCTION AND SURVEY FOR LOCATION. THE AS GRADED PLAN SHALL SHOW ALL SUBDRAIN LOCATIONS AND ELEVATIONS.
16. SUBDRAIN OUTLETS SHALL BE COMPLETED AT THE BEGINNING OF THE SUBDRAIN CONSTRUCTION.
17. THE EXACT LOCATION OF THE SUBDRAINS SHALL BE SURVEYED IN THE FIELD FOR LINE/GRADE AND REFLECTED ON AS-GRADED PLANS. CONTINUOUS INSPECTION BY THE SOILS ENGINEER OR HIS RESPONSIBLE REPRESENTATIVE SHALL BE PROVIDED DURING ALL SUBDRAIN INSTALLATIONS OR WHEREVER DETERMINED TO BE NECESSARY BY THE BUILDING OFFICIAL.
18. ALL CUT SLOPES SHALL BE INVESTIGATED BOTH DURING AND AFTER GRADING BY THE ENGINEERING GEOLOGIST TO DETERMINE IF ANY SLOPE STABILITY PROBLEM EXISTS. SHOULD EXCAVATION DISCLOSE ANY GEOLOGICAL HAZARDS OR POTENTIAL GEOLOGICAL HAZARDS, THE ENGINEERING GEOLOGIST SHALL SUBMIT RECOMMENDED REMEDIATION TO THE BUILDING OFFICIAL FOR APPROVAL.
19. WHERE SUPPORT OR BUTTRESSING OF CUT AND NATURAL SLOPES IS DETERMINED TO BE NECESSARY BY THE ENGINEERING GEOLOGIST AND SOILS ENGINEER, THE SOILS ENGINEER SHALL SUBMIT DESIGN, LOCATIONS, AND CALCULATIONS TO THE BUILDING OFFICIAL PRIOR TO CONSTRUCTION. THE ENGINEERING GEOLOGIST AND SOILS ENGINEER SHALL INSPECT AND CONTROL THE CONSTRUCTION OF THE BUTTRESSING AND CERTIFY TO THE STABILITY OF THE SLOPE AND ADJACENT STRUCTURES UPON COMPLETION.
20. WHEN CUT PADS ARE BROUGHT TO NEAR GRADE, THE ENGINEERING GEOLOGIST SHALL DETERMINE IF THE BEDROCK IS EXTENSIVELY FRACTURED OR FAULTED AND WILL READILY TRANSMIT WATER. IF CONSIDERED NECESSARY BY THE ENGINEERING GEOLOGIST AND SOIL ENGINEER, A COMPACTED FILL BLANKET WILL BE PLACED.
21. THE ENGINEERING GEOLOGIST SHALL PERFORM PERIODIC INSPECTIONS AND SUBMIT A COMPLETE REPORT AND MAP UPON COMPLETION OF THE ROUGH GRADING.
22. THE COMPACTION REPORT AND APPROVAL FROM THE SOILS ENGINEER SHALL INDICATE THE TYPE OF FIELD TESTING PERFORMED. EACH TEST SHALL BE IDENTIFIED WITH THE METHOD OF OBTAINING THE IN-PLACE DENSITY, WHETHER SAND CONE OR NUCLEAR GAUGE, AND SHALL BE SO NOTED FOR EACH TEST.
23. THE GRADING CONTRACTOR SHALL SUBMIT A WRITTEN STATEMENT VERIFYING THAT THE WORK DONE UNDER HIS DIRECTION WAS PERFORMED IN ACCORDANCE WITH THE APPROVED PLANS AND REQUIREMENTS OF CHAPTER 33 OF THE MALIBU BUILDING CODE OR DESCRIBING ALL VARIANCES FROM THE APPROVED PLANS AND REQUIREMENTS OF THE CODE. [3318.1]
24. THE DESIGN ENGINEER VERIFIES THAT THIS GRADING PLAN WAS PREPARED UNDER MY SUPERVISION IN ACCORDANCE WITH SECTION 3318.1 OF THE MALIBU BUILDING CODE. ALL SOILS ENGINEER AND ENGINEERING GEOLOGY RECOMMENDATIONS WERE INCORPORATED IN THE PLAN. (MUST BE SIGNED AND DATED BY THE DESIGN ENGINEER.)
25. GRADING OPERATIONS MUST BE CONDUCTED UNDER PERIODIC GEOLOGIC INSPECTION WITH INSPECTION REPORTS TO BE SUBMITTED TO THE BUILDING DEPARTMENT.
26. EXPORT SOIL MUST BE TRANSPORTED TO A LEGAL DUMP OR TO A PERMITTED SITE SHOWN CLEARLY ON APPROVED PLANS.
27. SLOPES SHALL BE PLANTED WITH AN APPROVED PLANT MATERIAL AND PROVIDED WITH AN APPROVED IRRIGATION SYSTEM, UNLESS AN ALTERNATIVE HAS BEEN APPROVED BY THE CITY BIOLOGIST.
28. THE ENGINEER SHALL SUBMIT A LETTER OF CERTIFICATION TO THE BUILDING OFFICIAL STATING THAT THE GRADING WAS DONE IN COMPLIANCE WITH THE APPROVED GRADING PLAN.
29. PRELIMINARY SOIL AND GEOLOGY REPORTS AND ALL SUBSEQUENT REPORTS, AS APPROVED BY THE CITY OF MALIBU, ARE CONSIDERED A PART OF THE APPROVED GRADING PLAN. ALL RECOMMENDATIONS CONTAINED ARE TO BE COMPLIED WITH, OR REVISIONS SUBMITTED FOR REVIEW.
30. ALL EXISTING DRAINAGE COURSES THROUGH THIS SITE SHALL REMAIN OPEN UNTIL FACILITIES TO HANDLE STORM WATER ARE APPROVED AND FUNCTIONAL; HOWEVER, IN ANY CASE, THE PERMITEE SHALL BE HELD LIABLE FOR ANY DAMAGE DUE TO OBSTRUCTING NATURAL DRAINAGE PATTERNS.
31. GRADING OPERATIONS, INCLUDING MAINTENANCE OF EQUIPMENT, SHALL BE ACCOMPLISHED WITHIN THE CONFINES OF THE NOISE ORDINANCE AND POLICIES OF THE CITY OF MALIBU.
32. ROOF GUTTERS SHALL BE INSTALLED TO PREVENT ROOF DRAINAGE FROM FALLING ON MANUFACTURED SLOPES. GUTTERS SHALL BE CONNECTED TO NON-EROSIVE PIPING OR ANOTHER METHOD ACCEPTABLE TO THE BUILDING OFFICIAL.
33. ANY EXCAVATIONS ADJACENT TO OTHER PROPERTY OR STRUCTURES ARE SUBJECT TO THE PROVISIONS OF CALIFORNIA CIVIL CODE, SECTION 832, AND IS THE RESPONSIBILITY OF THE PERMITTEE AND/OR THE OWNER.

PLANTING AND IRRIGATION NOTES

34. ALL CUT AND FILL SLOPES WILL BE PLANTED WITH AN APPROVED GROUND COVER AND PROVIDED WITH AN IRRIGATION SYSTEM AS SOON AS IS PRACTICAL DURING GRADING. IN ADDITION TO THE GROUND COVER PLANTS SHALL BE INSTALLED ON ALL SLOPES. ALL PLANTING SHALL BE OF A TYPE APPROVED BY THE CITY BIOLOGIST.
35. THE PLANS FOR A DESIGNED IRRIGATION SYSTEM FOR FULL COVERAGE OF ALL PORTIONS OF THE SLOPES SHALL BE SUBMITTED AND APPROVED PRIOR TO ROUGH GRADING APPROVAL BY THE CITY BIOLOGIST.
36. PLANTING AND IRRIGATION PLANS FOR SLOPES MUST BE PREPARED AND SIGNED BY A CIVIL ENGINEER OR LANDSCAPE ARCHITECT.
37. FINISH GRADING WILL BE COMPLETED AND APPROVED AND SLOPE PLANTING IRRIGATION SYSTEMS INSTALLED BEFORE OCCUPANCY OF BUILDINGS.

FILL NOTES

38. THE PERMITTEE OR HIS AGENT SHALL NOTIFY THE BUILDING OFFICIAL 24 HOURS BEFORE THE GRADING OPERATION IS READY FOR EACH OF THE FOLLOWING INSPECTIONS. (THE PERMITTEE NEED NOT WAIT FOR THE INSPECTOR TO ARRIVE BEFORE PROCEEDING WITH THE WORK).
39. FILL SHALL BE COMPACTED (AS DETERMINED BY A.S.T.M. SOIL COMPACTION TEST D1557-LATEST VERSION) THROUGHOUT THEIR FULL EXTENT TO [3313.4]:
    A. A MINIMUM RELATIVE COMPACTION OF 90% OF MAXIMUM DRY DENSITY WITHIN 40 ft. BELOW FINISH GRAD, AND
    B. 93% OF MAXIMUM DRY DENSITY DEEPER THAN 40 ft. BELOW FINISH GRADE
40. FIELD DENSITY SHALL BE DETERMINED BY SAND-CONE METHOD, A.S.T.M. D1557-LATEST VERSION. IN FINE-GRAINED COHESIVE SOILS FIELD DENSITY SHALL BE DETERMINED BY THE DRIVE-CYLINDER METHOD, A.S.T.M. D-2937-LATEST VERSION, PROVIDED NOT LESS THAN 20% OF THE REQUIRED DENSITY SHALL BE SHOWN IN THE COMPACTION REPORT. OTHER METHODS MAY BE USED IF RECOMMENDED BY THE SOILS ENGINEER AND APPROVED IN ADVANCE BY THE BUILDING OFFICIAL. [33132.4]
41. SUFFICIENT TESTS OF SOIL PROPERTIES, INCLUDING SOIL TYPES AND SHEAR STRENGTH, SHALL BE MADE DURING GRADING OPERATIONS TO VERIFY COMPLIANCE WITH DESIGN CRITERIA. THE RESULTS OF SUCH TESTING SHALL BE FURNISHED TO THE BUILDING OFFICIAL UPON COMPLETION OF GRADING OPERATIONS, OR WHEN NECESSITATED BY FIELD CONDITIONS UPON REQUEST OF THE BUILDING OFFICIAL. [331.8] ONE FIELD DENSITY TEST TO BE MADE AS FOLLOWS:
    a. ONE TEST FOR EACH TWO FOOT VERTICAL LIFT.
    b. ONE TEST FOR EACH 1,000 CUBIC YARDS OF MATERIAL PLACED.
    c. ONE TEST WILL BE MADE AT POINT APPROXIMATELY ONE FOOT BELOW THE FILL SLOPE SURFACE ON THE BASIS OF ONE TEST FOR EACH 1,000 SQUARE FEET OF SLOPE SURFACE BUT NOT LESS THAN ONE TEST FOR EACH 10 FOOT OF VERTICAL SLOPE HEIGHT.
42. NO FILL SHALL BE PLACED UNTIL STRIPPING OF VEGETATION, REMOVAL OF UNSUITABLE SOILS, AND INSTALLATION OF SUBDRAINS (IF ANY) HAVE BEEN INSPECTED AND APPROVED BY SOILS ENGINEER.
43. NO ROCK OR SIMILAR MATERIAL GREATER THAN 12" IN DIAMETER WILL BE PLACED IN THE FILL UNLESS RECOMMENDATIONS FOR SUCH PLACEMENT HAVE BEEN SUBMITTED BY THE SOILS ENGINEER AND APPROVED, IN ADVANCE, BY THE BUILDING OFFICIAL.
44. CONTINUOUS INSPECTION BY THE SOILS ENGINEER OR HIS RESPONSIBLE REPRESENTATIVE SHALL BE PROVIDED DURING ALL SUBDRAIN INSTALLATIONS OR WHEREVER DETERMINED TO BE NECESSARY BY THE BUILDING OFFICIAL.
45. ORIGINAL OF ALL REPORTS SHALL BE PROVIDED TO THE BUILDING OFFICIAL FOR ALL COMPACTED FILLS.
46. ALL CONCRETE PLACED ON GRADE SHALL BE COLORED TO MATCH NATURAL CONDITIONS ADJACENT TO THE STRUCTURES. SURFACE PAINT IS NOT ACCEPTABLE. ALL COLORS ARE TO BE INCORPORATED INTO THE MIX AND BLENDED UNIFORMLY.
47. FILL PLACED OVER EXISTING TERRAIN 5:1 AND STEEPER THAN 3' HORIZONTAL TO 1' VERTICAL (3:1) EXCEPT WHERE SPECIFICALLY APPROVED OTHERWISE.
48. FILL SHALL BE COMPACTED THROUGHOUT TO A MINIMUM OF 90% RELATIVE COMPACTION, AGGREGATE BASE FOR ASPHALTIC AREAS SHALL BE COMPACTED TO A MINIMUM OF 95% RELATIVE COMPACTION, TEST D1557-91T OR APPROVED EQUIVALENT. ORIGINALS OF ALL REPORTS SHALL BE PROVIDED TO THE BUILDING OFFICIAL.

GRADING INSPECTION REQUIREMENTS

49. THE PERMITTEE OR HIS AGENT SHALL NOTIFY THE BUILDING OFFICIAL 24 HOURS BEFORE THE GRADING OPERATION IS READY FOR EACH OF THE INSPECTIONS. (THE PERMITTEE NEED NOT WAIT FOR THE INSPECTOR TO ARRIVE BEFORE PROCEEDING WITH WORK).
    a. INITIAL INSPECTION: WHEN THE SITE HAS BEEN CLEARED OF VEGETATION AND UNAPPROVED FILL AND IT HAS BEEN SCARIFIED, BENCHED OR OTHERWISE PREPARED FOR FILL. NO FILL SHALL HAVE BEEN PLACED PRIOR TO INSPECTION.
    b. TOE INSPECTION: AFTER THE NATURAL GROUND IS EXPOSED AND PREPARED TO RECEIVE FILL AND BEFORE ANY FILL IS PLACED.
    c. EXCAVATION INSPECTION: AFTER THE EXCAVATION IS STARTED AND BEFORE THE DEPTH OF EXCAVATION EXCEEDS 10 FEET.
    d. ROUGH INSPECTION: WHEN APPROXIMATE FINAL ELEVATIONS HAVE BEEN ESTABLISHED; DRAINAGE TERRACE, SWALES AND OTHER DRAINAGE DEVICES NECESSARY FOR THE PROTECTION OF THE BUILDING FROM FLOODING ARE INSTALLED; BERMS INSTALLED AT THE TOP OF SLOPES; SUBMIT THE REQUIRED "ROUGH GRADING RECORDS". FOUNDATIONS SHALL NOT BE EXCAVATED UNTIL THE BUILDING OFFICIAL HAS APPROVED ROUGH GRADING.
    e. FINAL INSPECTION: WHEN GRADING HAS BEEN COMPLETED, ALL DRAINAGE DEVICES NECESSARY TO DRAIN THE BUILDING PAD ARE INSTALLED, SLOPE PLANTING ESTABLISHED AND ALL IRRIGATION SYSTEM INSTALLED. SUBMIT THE REQUIRED "AS-BUILT GRADING PLAN" AND "NOTIFICATION OF COMPLETION".
    f. SUBDRAIN INSTALLATION: PROVIDE CONTINUOUS INSPECTION DURING SUBDRAIN EXCAVATION AND INSTALLATION. CONTINUOUS INSPECTION BY THE SOILS ENGINEER OR HIS RESPONSIBLE REPRESENTATIVE SHALL BE PROVIDED DURING ALL SUBDRAIN INSTALLATIONS. [3313.2]
    g. FILL INSTALLATION:
        i. AFTER THE FILL EMPLACEMENT IS STARTED AND BEFORE THE VERTICAL HEIGHT OF THE LIFTS EXCEEDS 10ft. [3313.2]
        ii. DURING PREPARATION OF NATURAL GROUND AND PLACEMENT AND COMPACTION FILL.
        iii. THE SOILS ENGINEER SHALL BE PRESENT DURING THE ENTIRE FILL PLACEMENT AND COMPACTION OF FILLS THE WILL EXCEED A VERTICAL HEIGHT OR DEPTH OF 30ft> OR RESULTS IN A SLOPE SURFACE STEEPER THE 2 HORIZONTAL 1 VERTICAL [3313.7]
    h. DRAINAGE DEVICE INSPECTION: AFTER FORMS AND PIPES ARE IN PLACE AND BEFORE ANY CONCRETE IS POURED
    i. ROUGH GRADING: WHEN ALL ROUGH GRADING HAS BEEN COMPLETED AND EROSION PROTECTION HAS BEEN INSTALLED. THE GEOTECHNICAL ENGINEER SHALL SUBMIT THE FINAL COMPACTION REPORT PRIOR TO THE APPROVAL OF ROUGH GRADE.

GRADING PLAN NOTES:

50. THE CONTRACTOR SHALL VERIFY ALL EXISTING TOPOGRAPHY AND GRADES PRIOR TO GRADING. IT SHALL BE THE CONTRACTORS RESPONSIBILITY TO NOTIFY THE PROJECT CIVIL ENGINEER OF ANY DISCREPANCIES OR REQUIRED DESIGN CHANGES SO THE APPROPRIATE CHANGES CAN BE MADE.
51. THE CONTRACTOR SHALL ENSURE THAT ALL UTILITIES AND EASEMENTS ARE ADEQUATELY STAKED PRIOR TO ANY GRADING.
52. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ALL UNDERGROUND UTILITIES. UNDERGROUND ALERT SHALL BE NOTIFIED A MINIMUM OF 48 HOURS PRIOR TO DIGGING.
53. THE APPROVED GEOLOGY AND GEOTECHNICAL REPORTS SHALL BE CONSIDERED A PART OF THESE PLANS. COPIES OF THESE REPORTS SHOULD BE MAINTAINED ON SITE DURING SITE DEVELOPMENT.
54. THE PROJECT CIVIL ENGINEER SHALL BE NOTIFIED AND APPROVE ANY DESIGN CHANGES PRIOR TO IMPLEMENTATION DURING SITE DEVELOPMENT.
55. ALL RETAINING WALLS ARE UNDER SEPARATE PERMIT. PRIOR TO IMPLEMENTATION DURING SITE DEVELOPMENT.
56. SOIL COMPACTION REPORT SHALL BE PROVIDED TO THE BUILDING INSPECTOR AT THE JOB SITE PRIOR TO PLACEMENT OF CONCRETE FOR THE FOUNDATION.
57. SOIL ENGINEER SHALL INSPECT FOUNDATION PRIOR TO PLACEMENT OF CONCRETE FOR THE FOUNDATION.

ADDITIONAL NOTES:

58. EXPANSION INDEX TESTING SHOULD BE PERFORMED DURING SITE PREPARATION TO VERIFY AS-GRADED SITE CONDITIONS. THE RESULTS OF THE TESTS AS WELL AS SPECIFIC RECOMMENDATIONS FOR SLAB REINFORCEMENT AND THICKNESS MUST BE SUBMITTED TO THE CITY FOR REVIEW AT THAT TIME.
59. AN EVALUATION OF SOIL CORROSIVITY SHALL BE MADE IN ACCORDANCE WITH SECTION 6.2.1 OF THE CITY OF MALIBU'S GEOTECHNICAL GUIDELINES AT THE COMPLETION OF GRADING BY THE PROJECT GEOTECHNICAL CONSULTANT, WHO SHALL PROVIDE APPROPRIATE RECOMMENDATIONS.
60. PRIOR TO FINAL APPROVAL OF THE PROJECT AN AS-BUILT COMPACTION REPORT PREPARED BY THE PROJECT CONSULTANT MUST BE SUBMITTED TO THE CITY FOR REVIEW. THE REPORT MUST INCLUDE THE RESULTS OF ALL DENSITY TESTS AS WELL AS A MAP DEPICTING THE LIMITS OF FILL LOCATIONS OF ALL DENSITY TESTS, LOCATIONS OF ELEVATIONS OF KEYWAYS AND BACKDRAINS, LOCATIONS AND ELEVATION OF ALL REMOVAL BOTTOMS (INCLUDING THE RESULTS OF ALL TESTING PERFORMED TO VERIFY COMPETENT BOTTOMS) AND LOCATIONS AND ELEVATIONS OF ALL RETAINING WALL BACKDRAINS AND OUTLETS. GEOLOGIC CONDITIONS EXPOSED DURING GRADING MUST BE DEPICTED ON AN AS-BUILT GEOLOGIC MAP.
61. THE SURFACE OF THE CUT SHALL BE NO STEEPER THAN 3 HORIZONTAL TO 1 VERTICAL (33% SLOPE) UNLESS A SOILS ENGINEER OR AN ENGINEERING GEOLOGY REPORT STATING THAT A CUT AT A STEEPER SLOPE WILL BE STABLE AND NOT CRATE A HAZARD. PROVIDE A RECOMMENDATION FROM THE PROJECT GEOTECHNICAL ENGINEER GEOLOGIST AND APPROVED BY THE CITY SOILS AND GEOLOGY STAFF. [3312.2].
62. THE EXPORT OF CUT MATERIAL MAY BE REQUIRED TO PRESERVE THE NATURAL TOPOGRAPHY OF THE PROJECT SITE. [MLCP 8.3B, 2] ADD THE FOLLOWING NOTE ON THE PLANS: "CUT MATERIAL MAY ONLY BE EXPORTED TO AN APPROXIMATE LANDFILL OR A SITE PERMITTED TO ACCEPT MATERIAL".
63. MAXIMUM GRADE OF CUT OR FILL [MLCP 8.3D:
    a. 3:1 FOR AREAS CRATED FOR DEVELOPMENT OF STRUCTURES AND OPEN YARD AREAS.
64. THE FACES OF CUT AND FILL SLOPES SHALL BE PREPARED AND MAINTAINED TO CONTROL EROSION. THIS CONTROL MAY CONSIST OF EFFECTIVE PLANING, EROSION CONTROL BLANKETS. SOIL STABILIZERS OR OTHER APPROVED MEANS.
65. PROVIDE RIP-RAP OR OTHER REDUCER AT DISCHARGE END OF DRAINS NOT CONNECTED TO A PERMANENT SYSTEM. SHOW DETAIL. [3316.2]
66. ALL STORM DRAIN WORK IS TO BE DONE UNDER CONTINUOUS INSPECTION BY THE ENGINEER. WEEKLY STATUS REPORT SHALL BE SUBMITTED BY THE FIELD ENGINEER TO THE CITY BUILDING DEPARTMENT
67. SEPARATE PLANS FOR TEMPORARY DRAINAGE AND WET WEATHER EROSION CONTROL MEASURES TO BE USED DURING THE RAINY SEASON MUST BE SUBMITTED PRIOR TO OCTOBER 1. THE EROSION CONTROL DEVISES SHOWN ON SAID PLANS MUST BE INSTALLED BY NO LATER THAN NOVEMBER 1 AND MAINTAINED IN OPERABLE CONDITION UNTIL APRIL 15. [3319.3]
68. ALL RECOMMENDATIONS INCLUDED IN THE CONSULTANT'S SOIL AND GEOLOGY REPORTS MUST BE COMPLIED WITH AND ARE A PART OF THE GRADING SPECIFICATIONS.
69. THE CONSULTING GEOLOGIST MUST APPROVE ROUGH GRADING BY FINAL REPORT. FINAL REPORT MUST INCLUDE AN AS-BUILT GEOLOGIC MAP.
70. THE BUILDING OFFICIAL SHALL APPROVE STOCK PILING OF EXCESS MATERIAL PRIOR TO EXCAVATION.
71. THE FIELD ENGINEER, AS A CONDITION OF ROUGH GRADE APPROVAL, SHALL PROVIDE A BLUE BLUE TOP WITH ACCOMPANYING WITNESS STAKE, SET AT THE CENTER OF EACH PAD REFLECTING THE PAD ELEVATION FOR PRECISE PERMITS AND A BLUE TOP WITH WITNESS STAKE SET AT THE DRAINAGE SWALE HIGH POINT REFLECTING THE HIGH POINT ELEVATION FOR PRELIMINARY PERMITS.
72. THE COMPACTION REPORT AND APPROVAL FROM THE SOIL ENGINEER SHALL INDICATE THE TYPE OF FIELD-TESTING PERFORMED. EACH TEST SHALL BE IDENTIFIED WITH THE METHOD OF OBTAINING THE IN-PLACE DENSITY, WETHER SAND CONE OR NUCLEAR GAUGE, AND SHALL BE SOS NOTED FOR EACH TEST.

PUBLIC WORKS DEPARTMENT GENERAL NOTES

73. ALL WORK SHOWN ON THESE PLANS SHALL BE CONSTRUCTED IN ACCORDANCE WITH THE CURRENT EDITION OF THE STANDARD SPECIFICATIONS FOR PUBLIC WORKS CONSTRUCTION (SSPWC) "GREEN BOOK."
74. CONTRACTORS SHALL COMPLY WITH ALL APPLICABLE DIVISION OF INDUSTRIAL REGULATIONS (CAL-OSHA) SAFETY STANDARDS. IF REQUESTED BY THE INSPECTOR, THE CONTRACTOR SHALL PROVIDE PROOF OF A PERMIT FROM SAID DIVISION.
75. CONTRACTOR SHALL CALL THE PUBLIC WORKS INSPECTOR AT (310) 456-2489, EXT. 235 FOR PRE-CONSTRUCTION MEETING PRIOR TO THE COMMENCEMENT OF ANY CONSTRUCTION OR GRADING OPERATIONS. CONTRACTOR SHALL NOTIFY THE CITY PUBLIC WORKS INSPECTOR 48 HOURS PRIOR TO COMMENCING ANY CONSTRUCTION AND 24 HOURS IN ADVANCE OF A SPECIFIC INSPECTION NEEDS DURING THE COURSE OF THE WORK.
76. NO IMPROVEMENTS ARE PROPOSED WITHIN THE PUBLIC RIGHT-OF-WAY.
77. STORAGE OF ANY CONSTRUCTION MATERIALS, CONSTRUCTION TRAILER, AND/OR PARKING AND ANY WORK WITH WITHIN THE CALTRANS PUBLIC RIGHT OF WAY SHALL REQUIRE A CALTRANS ENCROACHMENT PERMIT. SUBMIT A COPY OF THE CALTRANS ENCROACHMENT PERMIT TO THE PUBLIC WORKS DEPARTMENT.
78. ALL WORK SHALL BE PERFORMED DURING CITY WORKING HOURS AND IN COMPLIANCE WITH THESE PLANS.
79. CONTRACTOR SHALL VERIFY ALL CONDITIONS AND DIMENSIONS AND SHALL REPORT ANY DISCREPANCIES TO THE ENGINEER PRIOR TO THE COMMENCEMENT OF ANY WORK.
80. CONTRACTOR SHALL LOCATE, PROTECT, AND SAVE ANY AND ALL SURVEY MONUMENTS THAT WILL BE OR MAY BE DAMAGED OR DESTROYED BY THEIR OPERATIONS. ONCE FOUND, THE CONTRACTOR SHALL THEN NOTIFY BOTH THE DEVELOPER'S SUPERVISING CIVIL ENGINEER AND THE PUBLIC WORKS INSPECTOR. THE SUPERVISING CIVIL ENGINEER SHALL RESET ALL SAID MONUMENTS PER THE REQUIREMENTS OF THE PROFESSIONAL LAND SURVEYOR'S ACT.
81. THE CONTRACTOR SHALL BE RESPONSIBLE FOR PROTECTING ALL PUBLIC AND PRIVATE PROPERTY INSOFAR AS IT MAY BE AFFECTED BY THESE OPERATIONS.
82. EXISTING TRAFFIC SIGNS ARE NOT TO BE REMOVED WITHOUT PRIOR TO NOTIFICATION AND APPROVAL OF THE CITY ENGINEER. AS A MINIMUM, CONSTRUCTION WORK ZONE TRAFFIC SIGNS AND STRIPING SHALL BE FURNISHED, INSTALLED, AND MAINTAINED IN ACCORDANCE WITH THE "WORK AREA TRAFFIC CONTROL HANDBOOK ("THE WATCH MANUAL"), PUBLISHED BY BNI BUILDING NEWS, INC. A TRAFFIC CONTROL PLAN, PREPARED BY THE DEVELOPER, MAY BE REQUIRED BY THE CITY.
83. DUST CONTROL SHALL BE MAINTAINED AT ALL TIMES.
84. EROSION CONTROL PLANS SHALL BE PROVIDED FOR ALL PROJECTS. GRADING AND CLEARING IS PROHIBITED FROM NOVEMBER 1 TO MARCH 31 FOR ALL DEVELOPMENTS WITHIN OR ADJACENT TO ESHA AND/OR INCLUDING GRADING ON SLOPES GREATER THAN 4:1.
85. ALL UNDERGROUND UTILITIES AND SERVICE LATERALS SHALL BE INSTALLED PRIOR TO CONSTRUCTION OF CURBS, GUTTERS, SIDEWALKS, AND PAVING UNLESS OTHERWISE PERMITTED BY THE CITY ENGINEER.
86. THE DEVELOPER SHALL COMPLY WITH NDPES REQUIREMENTS. THE STORM WATER POLLUTION PREVENTION PLAN (SWPPP) SHALL BE AVAILABLE AT THE CONSTRUCTION SITE AT ALL TIMES AND SHALL BE KEPT UP TO DATE.
87. ALL RECOMMENDATIONS MADE BY THE GEOTECHNICAL/SOILS ENGINEER (AND ENGINEERING GEOLOGIST, WHERE EMPLOYED), AND CONTAINED IN THE REPORTS REFERENCED HEREON, AS APPROVED OR CONDITIONED BY THE CITY, SHALL BE CONSIDERED A PART OF THE GRADING PLAN.
88. ALL FOUNDATION EXCAVATION MUST BE OBSERVED AND APPROVED BY THE GEOTECHNICAL CONSULTANT PRIOR TO PLACEMENT OF REINFORCING STEEL.
89. ALL STORM DRAIN PIPE WITHIN THE PUBLIC RIGHT-OF-WAY AND EASEMENTS SHALL BE REINFORCED CONCRETE PIPE (RCP).
90. TERRACE DRAINS, INTERCEPTOR DRAINS, AND DOWN DRAINS SHALL BE CONSTRUCTED OF 3" P.C.C. REINFORCED WITH 6"x6"x#10 W.W.M. AND SHALL BE EITHER SEMICIRCULAR OR TRIANGULAR CROSS SECTION. CONCRETE COLOR SHALL BE "OMAHA TAN" OR APPROVED EQUIVALENT.
91. GRADING QUANTITIES:
    CUT: 4,977 CU. YDS. FILL: 1,711 CU. YDS.
    EXPORT: 3,266 CU. YDS. IMPORT: Ø CU. YDS.
92. GROSS LOT AREA: 6.57 ACRES/SQ. FT.
    NET LOT AREA: 5.86 ACRES/SQ. FT.
    PROPOSED IMPERMEABLE COVERAGE: 21,299 SQ. FT.
    MAXIMUM ALLOWABLE IMPERMEABLE COVERAGE: 25,000 SQ. FT.
    TOTAL DISTURBED AREA: 116,800 SQ. FT.
    FLOOD ZONE ON FIRM: Ø BASE FLOOD ELEVATION: Ø FT.
93. ALL SLOPES ON PRIVATE PROPERTY ADJOINING STREETS, DRAINAGE CHANNELS, OR OTHER PUBLIC FACILITIES SHALL BE GRADED NOT STEEPER THAN 2:1 FOR CUT AND FILL UNLESS SPECIFICALLY APPROVED BY THE CITY ENGINEER ON RECOMMENDATION OF THE PROJECT'S GEOTECHNICAL/SOILS CONSULTANT.
94. ALL CATCH BASINS AND DRAINAGE INLETS SHALL BE STENCILED WITH THE CITY OF MALIBU STORM DRAIN LOGO.

CONDITIONS OF APPROVAL

THIS PLAN CONFORMS TO THE COASTAL DEVELOPMENT PERMIT CONDITIONALLY APPROVED BY THE CITY FOR _____ ON _____.

CONTRACTORS NOTE:

THE EARTHWORK QUANTITIES ARE PROVIDED AS A COURTESY AND CONVENIENCE TO THE OWNERS, AND ARE FOR BONDING AND PLAN CHECK PURPOSES ONLY. THE YARDAGE FIGURES SHOWN ARE APPROXIMATE CALCULATED QUANTITIES BASED ON THE DIFFERENCE BETWEEN EXISTING GROUND ELEVATIONS AND DESIGNED ROUGH GRADE ELEVATIONS. THE CALCULATIONS MAKE NO PROVISIONS FOR STRIPPING, SHRINKAGE, BULKING OR ANY OTHER CONDITION NOT IMPLIED. FOR THIS REASON, IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO CONSULT THE PROJECTS SOILS ENGINEER AND GEOLOGIC INVESTIGATIONS, AND TO DETERMINE FOR HIMSELF, THE QUANTITIES OF EARTH MOVING THAT WILL BE REQUIRED TO COMPLETE THIS PROJECT.

STARTING DATE 30 DAYS AFTER PERMIT ISSUANCE ,2022

COMPLETION DATE 90 DAYS AFTER PERMIT ISSUANCE ,2022

NOTE: GRADING PERMITS SHALL NOT BE ISSUED BETWEEN NOVEMBER 1 AND MARCH 31 EACH YEAR PER LCP SECTION 17.2.1. PROJECT APPROVED FOR GRADING PERMIT SHALL NOT RECEIVE GRADING PERMITS UNLESS THE PROJECT CAN BE ROUGH GRADED BEFORE NOVEMBER 1.

NOTE: EXPORTED SOIL FROM A SITE SHALL BE TAKEN TO THE COUNTY LANDFILL OR TO A SITE WITH AN ACTIVE GRADING PERMIT AND THE ABILITY TO ACCEPT THE MATERIAL IN COMPLIANCE WITH THE CITY'S LOCAL IMPLEMENTATION PLAN (LIP), SECTION 8.3.

NOTE: PRIOR TO THE PLACEMENT OF CONCRETE SLABS, THE SLAB SUBGRADE SOILS SHALL BE PRE-MOISTENED TO AT LEAST 120% OF THE OPTIMUM MOISTURE CONTENT TO THE DEPTH SPECIFIED BY THE GEOTECHNICAL ENGINEER. THE PRE-MOISTENED SOILS SHOULD BE TESTED AND VERIFIED TO BE BY THE GEOTECHNICAL ENGINEER WITHIN ONE DAY PRIOR TO THE PLACEMENT OF THE MOISTURE BARRIER AND SAND.

REGISTERED PROFESSIONAL ENGINEER LEONARD T. LISTON III No.93123 CIVIL STATE OF CALIFORNIA

City of Malibu

23815 Stuart Ranch Road ■ Malibu, California ■ 90265-4861
Phone (310) 456-2489 ■ Fax (310) 456-7650 ■ www.ci.malibu.ca.us

TOTAL GRADING YARDAGE VERIFICATION CERTIFICATE
PLANNING DIVISION REVIEW LEVEL

PLANNING APPLICATION NUMBER:
PROJECT ADD

PACIFIC COAST HIGHWAY

N81°56'47"E 821.14'

N80°01'07"W 242.75'

S87°09'15"W 979.66'

N25°42'05"W 120.39'

S87°11'49"E 311.34'

R=2952.84'

Δ=10°51'24"

L=559.52'

S89°13'41"W 94.52'

S89°37'41"E (Rad)

R=150.00'

Δ=52°28'10"

L=137.39'

S36°59'51"W 107.40'

N03°18'43"E 268.68'

S25°21'17"W 45.82'

N80°57'52"W 45.82'

POB Parcel 1

PUERCO CANYON

MALIBU ROAD

MALIBU ROAD

HIGHWAY

TOPANGA MALIBO SCOUT TRAIL CONTRACT

MATTHEW KELLER BY PATENT RECORDED IN BOOK 1 PAGE 402 ET SEQ. OF PATENTS

POR. RANCHO TOPANGA MALIBU SEQUIT

5' wide easement for utilities purposes in favor of Malibehead Land Company rec'd 4/7/1952 in Bk 38646 Pg 104, OR (16)

5' wide easement for utilities purposes in favor of Malibehead Land Company rec'd 4/7/1952 in Bk 38646 Pg 104, OR (16)

2' wide easement for poles and telecommunications purposes in favor of General Telephone Company rec'd 4/1/1959 as Inst No 3229 in Bk D418 Pg 637, OR (19)

15' wide easement for gas purposes in favor of Southern Counties Gas Company of California rec'd 11/7/1962 as Inst No 4118 in Bk D1814 Pg 973, OR (21)

10' wide easement for poles and electrical purposes in favor of Southern California Edison rec'd 7/19/1958 as Inst No 3203 in Bk D131 Pg 527, OR (18)

30' wide easement for road and utility purposes in favor of B.M. and Blanche Olden rec'd 10/28/1957 in Bk 55954 Pg 234 and Bk 55954 Pg 312, both OR (17)

2' wide easement for poles and telecommunications purposes in favor of General Telephone Company rec'd 4/1/1959 as Inst No 3229 in Bk D418 Pg 637, OR (19)

15' wide easement for gas purposes in favor of Southern Counties Gas Company of California rec'd 11/7/1962 as Inst No 4118 in Bk D1814 Pg 973, OR (21)

POB Parcel 1

ENLARGED DETAIL

SCALE 1" = 20'

(13) 2' wide easement for pole lines and electrical purposes in favor of Southern California Edison rec'd 1/12/1939 in Bk 16485 Pg 374, OR

(17) 30' wide easement for road and utility purposes in favor of B.M. and Blanche Olden rec'd 10/28/1957 in Bk 55954 Pg 234, OR

(21) 15' wide easement for gas purposes in favor of Southern Counties Gas Company of California rec'd 11/7/1962 as Inst No 4118 in Bk D1814 Pg 973, OR

(9) 20' wide easement for road purposes granted to the State of California per document rec'd 10/2/1939 in Bk 16845 Pg 253

(9) Agreement not to construct buildings within a width of 10' of the State Highway as described in deed rec'd 10/8/1937 in Bk 15228 Pg 342, OR

(19) 2' wide easement for poles and telecommunications purposes in favor of General Telephone Company rec'd 4/1/1959 as Inst No 3229 in Bk D418 Pg 637, OR

(18) 10' wide easement for poles and electrical purposes in favor of Southern California Edison rec'd 7/19/1958 as Inst No 3203 in Bk D131 Pg 527, OR

2' wide easement for electric pole lines and electrical purposes in favor of Southern California Edison rec'd 2/25/1932 in Bk 11391 Pg 280, OR

(10) 5' wide easement for water lines and incidental purposes in favor of Malibu Water Company rec'd 9/27/1938 in Bk 16057 Pg 211, OR

(9) Portion of 80' wide easement for road purposes granted to the State of California per document rec'd 10/8/1937 in Bk 15228 Pg 342, OR

(16) 5' wide easement for utilities purposes in favor of Malibehead Land Company rec'd 4/7/1932 in Bk 38646 Pg 104, OR

MALIBU ROAD

SCALE: 1"=50'

0 50 100 150

#	REVISIONS	DATE

CITY OF MALIBU

TOPOGRAPHIC SURVEY

25200 PACIFIC COAST HIGHWAY

DRAWN BY / DATE	CHECKED BY / DATE	SHEET 1A OF 8
PK/ 10/17/2025	PK/ 10/17/2025	

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SEE SHEET 3 FOR ENLARGED GRADING & DRAINAGE PLAN

SEE SHEET 4 FOR ENLARGED GRADING & DRAINAGE PLAN

SEE SHEET 5 FOR ENLARGED GRADING & DRAINAGE PLAN

SEE SHEET 6 FOR ENLARGED GRADING & DRAINAGE PLAN

CONSTRUCT AC DIKE ALONG TOE OF ROAD PER CALTRANS STD. PLAN RSP A87B

CONSTRUCT AC DIKE ALONG TOE OF ROAD PER CALTRANS STD. PLAN RSP A87B

EX. AC DIKE TO REMAIN. IF DAMAGED RECONSTRUCT PER CALTRANS STD. PLAN RSP A87B

PACIFIC COAST HIGHWAY

MALIBU

N81°56'47"E 821.14'

N67°51'07"W 312.37'

N80°01'07"W 242.75'

S87°09'15"W 929.66'

R=2952.84'

Δ=10°51'24"

L=559.52'

15' wide easement for utility purposes in favor of County of Los Angeles, California recorded as Instrument No 4118 in Book D1...

30' wide easement for utility purposes in favor of Blanche Glaser recorded in Bk 55954 Pg 334

(2)SMH (NOT MARKED)

SCALE: 1"=40'

0 40 80 120

DIAL TOLL FREE 811

AT LEAST TWO DAYS BEFORE YOU DIG

Know what's below. Call before you dig.

UNDERGROUND SERVICE ALERT OF SOUTHERN CALIFORNIA

REGISTERED PROFESSIONAL ENGINEER LEONARD T. LISTON III No.93123 CIVIL STATE OF CALIFORNIA

#	REVISIONS	DATE

PREPARED BY:

LC ENGINEERING GROUP, INC.
CONSULTING ENGINEERS
889 Pierce Court, Suite 101, Thousand Oaks, California 91360
818-991-7148 • 805-497-1244 • lcengroupinc.com • nordlicht@lcengroupinc.com

93123
REGISTERED ENGINEER RCE DATE

CITY OF MALIBU

OVERALL SITE PLAN

25200 PACIFIC COAST HIGHWAY

DRAWN BY / DATE	CHECKED BY / DATE	SHEET 2 OF 8
PK/ 10/17/2025	PK/ 10/17/2025	

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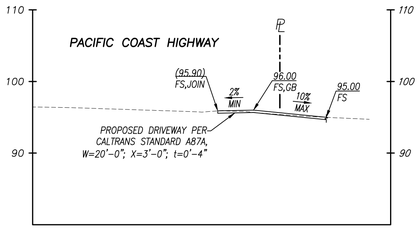

DRIVEWAY PROFILE
1"=10'

PACIFIC COAST HIGHWAY

CALTRANS R/W

MATCHLINE SEE BELOW

MATCHLINE SEE SHEET 4

OUTLET PARKWAY DRAIN THRU CURB INV=90.00

20'-6" DRIVEWAY (SEE PROFILE THIS SHEET)

OVERFLOW

OVERFLOW 91.34 INV,OUT

OUTLET TO IRRIGATION LINE @ 2% MIN. SLOPE INV=78.00 (PER LANDSCAPE PLANS PER SEPARATE PERMIT)

TANK INLET INV=86.50

PIPE TO CONNECT DETENTION TANKS

PROPOSED (2)10' DIAMETER TANKS 30,000 GALLON CAPACITY EACH TOP OF TANK=88.00 BOTTOM OF TANK=78.00 (CAPTURE/REUSE & DETENTION)

PROPOSED SPA (PSP) RIM=102.00 WS=101.50

SITE WALL (10)

PROPOSED GUEST HOUSE FF=102.00 FG=101.33

LIMIT OF 30% SLOPE (TYP)

INDICATES STABILIZATION PILES PER SEPARATE PERMIT (TYP)

BAYSHORE DRIVE

N80°01'07"W 242.75'

S11°21'W 8032.57'

MATCHLINE SEE ABOVE

CONTINUE AC DIKE TO INTERSECTION MALIBU ROAD (APPROXIMATELY 550')

EXISTING GUARDRAIL BEHIND BERM (5)

OUTLET PARKWAY DRAIN THRU CURB INV=90.00

CONSTRUCTION NOTES

1. STRUCTURAL FOUNDATION AND SLABS-ON-GRADE PER ARCHITECT/STRUCTURAL PLANS AND GEOTECHNICAL REPORT.
2. OVER EXCAVATE ENTIRE FOUNDATIONS AS RECOMMENDED BY THE GEOTECHNICAL REPORT.
3. CONSTRUCT SDR 35 PVC PIPE (SIZE AS SHOWN) AT 1% MINIMUM SLOPE (MIN. PIPE SIZE 4"ø.)
4. CONSTRUCT PERMEABLE GRAVEL MOTOR COURT/DRIVEWAY PER ARCHITECTURAL PLANS.
5. EXISTING TO REMAIN.
6. EXISTING TO BE REMOVED.
7. CONSTRUCT STAIRS ON GRADE PER DETAIL 8 ON SHEET 7.
8. CONSTRUCT GRASSY GRADED SWALE @ 2% MIN. SLOPE.
9. CONSTRUCT CHANNEL DRAIN PER DETAIL 9, SHEET 7.
10. CONSTRUCT SITE WALL PER LANDSCAPE PLANS (PER SEPARATE PERMIT).
11. PROPOSED RETAINING WALL PER SEPARATE PERMIT. HEIGHT AND LENGTH PER PLAN.
12. CONSTRUCT 4" THICK CONC. W/ #4 @ 16" O.C.E.W. OVER 4" SAND PER GEOTECHNICAL REPORT.
13. INSTALL 3"ø SDR 35 PVC FORCE MAIN TO DETENTION TANKS.
14. CONSTRUCT GRASSCRETE PER LANDSCAPE PLAN (PER SEPARATE PERMIT).
15. PROPOSED COLUMNS PER ARCHITECTURAL PLANS (PER SEPARATE PERMIT).
16. PROPOSED TRELLIS PER ARCHITECTURAL PLANS (PER SEPARATE PERMIT).
17. PROPOSED STAIRS PER ARCHITECTURAL PLANS (PER SEPARATE PERMIT).
18. PROPOSED DRIVEWAY PER CALTRANS STANDARD A87A, CASE B, W=20'-0"; X=3'-0"; t=0'-4" (SEE DRIVEWAY PROFILE SHEET 3)
19. CONSTRUCT PARKWAY DRAIN PER SPPWC STANDARD DETAIL 151-2. (S=6'-0")
20. CONSTRUCT AC DIKE WHERE NEEDED PER CALTRANS STANDARD PLAN RSP A87B TYPE E.
21. INSTALL BROOKS PRODUCTS 24X24 CATCH BASIN WITH NON-TRAFFIC RATED GRATE, FITTED WITH FLOGARD WALL MOUNTED CATCH BASIN FILTER INSERT PER DETAIL 10 ON SHEET 7.

LEGEND

℄	CENTER LINE
CO	CLEANOUT
DG	DECOMPOSED GRANITE
℘	DAYLIGHT LINE
DN	DOWN
● DS	DOWNSPOUT
FF	FINISH FLOOR
FG	FINISH GRADE
FL	FLOW LINE
FS	FINISH SURFACE
HP	HIGH POINT
INV	INVERT
PA	PLANTER AREA OR "SOFTSCAPE AREA"
ℙ	PROPERTY LINE
NG	NATURAL GRADE
TC	TOP OF CURB
TD	TOP OF DECK
TG	TOP OF GRATE
TW	TOP OF WALL
UNO	UNLESS NOTED OTHERWISE

RETAINING WALL P.S.P. BY OTHERS

STRUCTURE WALL P.S.P. BY OTHERS

LIMIT OF 30% SLOPE PER PROJECT SURVEYOR

FS — CONTRACTOR TO VERIFY HARD SURFACE THICKNESS PER ARCHITECTURAL SPECIFICATIONS AND DETAILS TO DETERMINE ROUGH GRADE ELEVATIONS.

12" SQ. CATCH BASIN PER NDS PLASTIC PRODUCTS PART NO. 1200-1204. U.N.O.

6"ø SPEE-D BASIN PER NDS. PLASTIC PRODUCTS PART NO. 101, 201, 300. U.N.O.

INDICATES 4"ø PERF. SUBDRAIN

(185.5 T.C.) (185.0 F.L.) EXISTING SPOT ELEVATIONS

INDICATES PROPOSED PILE FOUNDATION PER STRUCTURAL PLANS PER SEPARATE PERMIT BY OTHERS.

PERMEABLE PAVERS

GRASSCRETE

PERMEABLE GRAVEL DRIVEWAY

ABOVE GRADE DECKING PER STRUCTURAL PLANS

SCALE: 1"=10'
0 10 20 30

811 Know what's below. Call before you dig.
DIAL TOLL FREE 811
AT LEAST TWO DAYS BEFORE YOU DIG
UNDERGROUND SERVICE ALERT OF SOUTHERN CALIFORNIA

REGISTERED PROFESSIONAL ENGINEER LEONARD T. LISOWYJ No.93123 CIVIL STATE OF CALIFORNIA

#	REVISIONS	DATE

PREPARED BY:
LC ENGINEERING GROUP, INC.
CONSULTING ENGINEERS
889 Pierce Court, Suite 101, Thousand Oaks, California 91360
818-991-7148 • 805-497-1244 • lcengroupinc.com • workoffice@lcengroupinc.com

93123
REGISTERED ENGINEER RCE DATE

CITY OF MALIBU
ENLARGED GRADING AND DRAINAGE PLAN
25200 PACIFIC COAST HIGHWAY

DRAWN BY / DATE	CHECKED BY / DATE	SHEET
PK/ 10/17/2025	PK/ 10/17/2025	SHEET 3 OF 8

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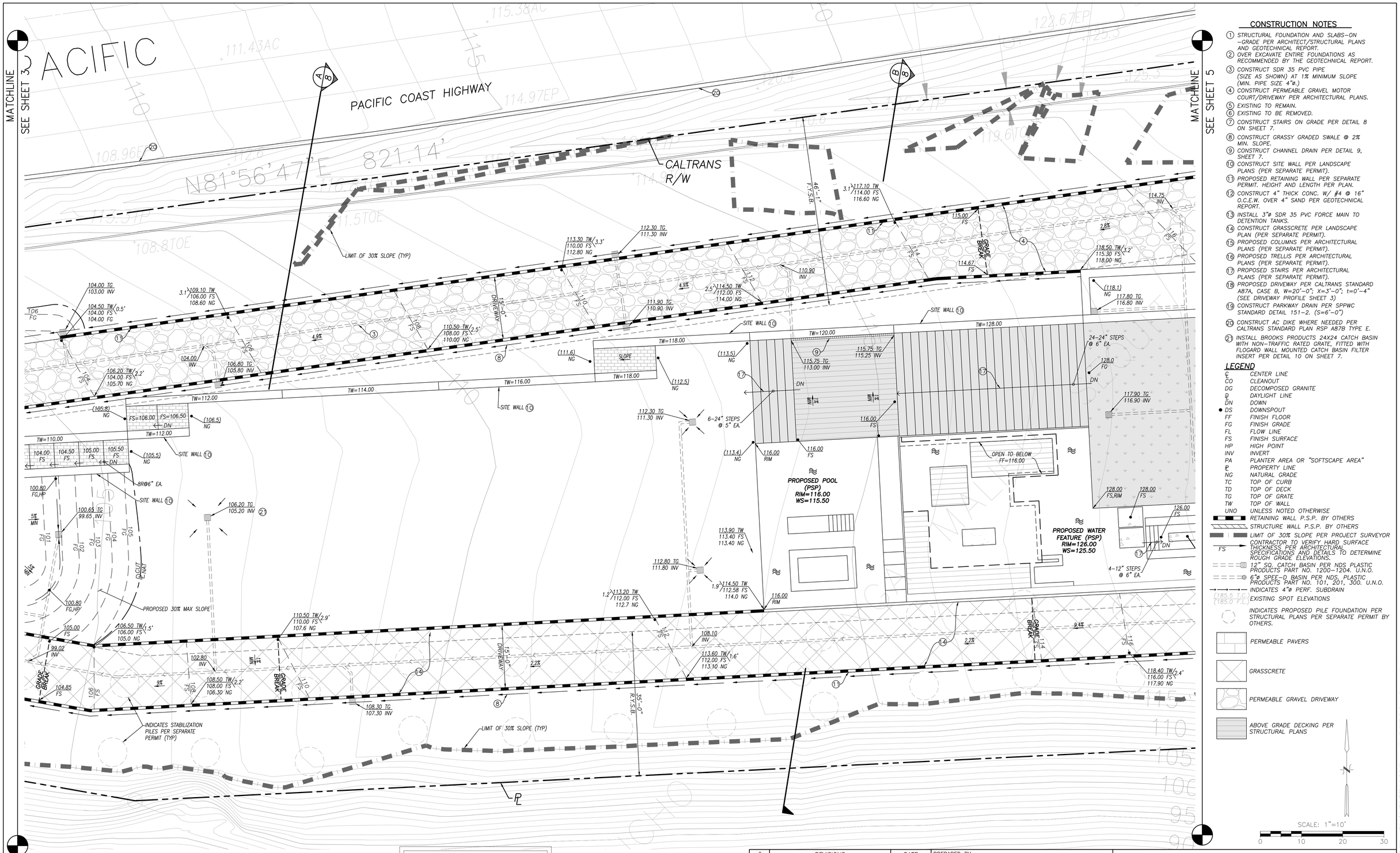

CONSTRUCTION NOTES

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2. OVER EXCAVATE ENTIRE FOUNDATIONS AS RECOMMENDED BY THE GEOTECHNICAL REPORT.
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6. EXISTING TO BE REMOVED.
7. CONSTRUCT STAIRS ON GRADE PER DETAIL 8 ON SHEET 7.
8. CONSTRUCT GRASSY GRADED SWALE @ 2% MIN. SLOPE.
9. CONSTRUCT CHANNEL DRAIN PER DETAIL 9, SHEET 7.
10. CONSTRUCT SITE WALL PER LANDSCAPE PLANS (PER SEPARATE PERMIT).
11. PROPOSED RETAINING WALL PER SEPARATE PERMIT. HEIGHT AND LENGTH PER PLAN.
12. CONSTRUCT 4" THICK CONC. W/ #4 @ 16" O.C.E.W. OVER 4" SAND PER GEOTECHNICAL REPORT.
13. INSTALL 3"ø SDR 35 PVC FORCE MAIN TO DETENTION TANKS.
14. CONSTRUCT GRASSCRETE PER LANDSCAPE PLAN (PER SEPARATE PERMIT).
15. PROPOSED COLUMNS PER ARCHITECTURAL PLANS (PER SEPARATE PERMIT).
16. PROPOSED TRELLIS PER ARCHITECTURAL PLANS (PER SEPARATE PERMIT).
17. PROPOSED STAIRS PER ARCHITECTURAL PLANS (PER SEPARATE PERMIT).
18. PROPOSED DRIVEWAY PER CALTRANS STANDARD A87A, CASE B, W=20'–0"; X=3'–0"; t=0'–4" (SEE DRIVEWAY PROFILE SHEET 3)
19. CONSTRUCT PARKWAY DRAIN PER SPPWC STANDARD DETAIL 151–2. (S=6'–0")
20. CONSTRUCT AC DIKE WHERE NEEDED PER CALTRANS STANDARD PLAN RSP A87B TYPE E.
21. INSTALL BROOKS PRODUCTS 24X24 CATCH BASIN WITH NON–TRAFFIC RATED GRATE, FITTED WITH FLOGARD WALL MOUNTED CATCH BASIN FILTER INSERT PER DETAIL 10 ON SHEET 7.

LEGEND

℄	CENTER LINE
CO	CLEANOUT
DG	DECOMPOSED GRANITE
℗	DAYLIGHT LINE
DN	DOWN
● DS	DOWNSPOUT
FF	FINISH FLOOR
FG	FINISH GRADE
FL	FLOW LINE
FS	FINISH SURFACE
HP	HIGH POINT
INV	INVERT
PA	PLANTER AREA OR "SOFTSCAPE AREA"
ℙ	PROPERTY LINE
NG	NATURAL GRADE
TC	TOP OF CURB
TD	TOP OF DECK
TG	TOP OF GRATE
TW	TOP OF WALL
UNO	UNLESS NOTED OTHERWISE

RETAINING WALL P.S.P. BY OTHERS

STRUCTURE WALL P.S.P. BY OTHERS

LIMIT OF 30% SLOPE PER PROJECT SURVEYOR

FS — CONTRACTOR TO VERIFY HARD SURFACE THICKNESS PER ARCHITECTURAL SPECIFICATIONS AND DETAILS TO DETERMINE ROUGH GRADE ELEVATIONS.

12" SQ. CATCH BASIN PER NDS PLASTIC PRODUCTS PART NO. 1200–1204. U.N.O.

6"ø SPEE–D BASIN PER NDS, PLASTIC PRODUCTS PART NO. 101, 201, 300. U.N.O.

INDICATES 4"ø PERF. SUBDRAIN

(185.5 F.G.) (185.0 F.G.) EXISTING SPOT ELEVATIONS

INDICATES PROPOSED PILE FOUNDATION PER STRUCTURAL PLANS PER SEPARATE PERMIT BY OTHERS.

PERMEABLE PAVERS

GRASSCRETE

PERMEABLE GRAVEL DRIVEWAY

ABOVE GRADE DECKING PER STRUCTURAL PLANS

N

SCALE: 1"=10'

0 10 20 30

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AT LEAST TWO DAYS BEFORE YOU DIG

UNDERGROUND SERVICE ALERT OF SOUTHERN CALIFORNIA

REGISTERED PROFESSIONAL ENGINEER LEONARD T. LISIECKI No.93123 CIVIL STATE OF CALIFORNIA

#	REVISIONS	DATE

PREPARED BY:

LC ENGINEERING GROUP, INC.
CONSULTING ENGINEERS
889 Pierce Court, Suite 101, Thousand Oaks, California 91360
818-991-7148 • 805-497-1244 • lcengroupinc.com • wcehlke@lcengroupinc.com

93123
REGISTERED ENGINEER RCE DATE

CITY OF MALIBU

ENLARGED GRADING AND DRAINAGE PLAN

25200 PACIFIC COAST HIGHWAY

DRAWN BY / DATE	CHECKED BY / DATE	SHEET 4 OF 8
PK/ 10/17/2025	PK/ 10/17/2025	

X: \LCE GROUP\Civil\JOBS\17000\17746 PARPCH LLC\CIVIL\DWG\17746 SHT 3 GP.dwg Oct 17, 2025, 5:45pm Patrick Kaufman

PACIFIC COAST HIGHWAY

MATCHLINE SEE SHEET 4

MATCHLINE SEE SHEET 6

CALTRANS R/W

LIMIT OF 30% SLOPE (TYP)

EXISTING HEADWALL TO REMAIN (SEE DRAINAGE NOTE)

EXISTING 24" CMP STORM DRAIN PER SURVEY

EXISTING HEADWALL TO REMAIN SEE DRAINAGE NOTE*

CONNECT TO EXISTING PRIVATE CMP STORM DRAIN (CONTRACT TO VERIFY INVERT IN FIELD)

PROPOSED 24" CMP STORM DRAIN RE-ALIGNMENT

PROPOSED 2:1 MAX CUT SLOPE

PROPOSED WATER FEATURE (PSP) RIM=118.00 WS=117.50

PROPOSED OUTDOOR KITCHEN FF=128.00 FG=127.33

PROPOSED KITCHEN FF=127.33

PROPOSED SINGLE FAMILY RESIDENCE 1ST FLOOR FF=130.00 FG=129.33 BASEMENT FF=118.00 FG=117.33

OUTDOOR COURTYARD FG=132.00

PROPOSED LAWN DECK TD=128.00

PROPOSED POOL (PSP) RIM=126.00 WS=125.50

PROPOSED POOL (PSP) RIM=130.00 WS=129.50

PROPOSED SEATING AREA FS=124.00

OPEN TO BELOW FF=118.00

INDICATES BASEMENT LINE BELOW FF=118.00

INDICATES STABILIZATION PILES PER SEPARATE PERMIT (TYP)

APPROXIMATE ALIGNMENT OF PRIVATE CMP STORM DRAIN PIPE TO BE RE-ALIGNED PER PLAN SEE DRAINAGE NOTE*

APPROXIMATE ALIGNMENT OF PRIVATE CMP STORM DRAIN PIPE THROUGH SUBJECT PROPERTY (NO EVIDENCE OF EXISTING EASEMENT) SEE DRAINAGE NOTE*

CONNECT TO EXISTING PRIVATE CMP STORM DRAIN (CONTRACT TO VERIFY INVERT IN FIELD)

5-24" STEPS @ 5.4" EA.

4-12" STEPS @ 6" EA.

DRIVEWAY 15'-0"

GRADE BREAK

R.Y.S.B. 35'-0"

CONSTRUCTION NOTES

1. STRUCTURAL FOUNDATION AND SLABS-ON-GRADE PER ARCHITECT/STRUCTURAL PLANS AND GEOTECHNICAL REPORT.
2. OVER EXCAVATE ENTIRE FOUNDATIONS AS RECOMMENDED BY THE GEOTECHNICAL REPORT.
3. CONSTRUCT SDR 35 PVC PIPE (SIZE AS SHOWN) AT 1% MINIMUM SLOPE (MIN. PIPE SIZE 4"ø.)
4. CONSTRUCT PERMEABLE GRAVEL MOTOR COURT/DRIVEWAY PER ARCHITECTURAL PLANS.
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DG	DECOMPOSED GRANITE
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UNO	UNLESS NOTED OTHERWISE

RETAINING WALL P.S.P. BY OTHERS

STRUCTURE WALL P.S.P. BY OTHERS

LIMIT OF 30% SLOPE PER PROJECT SURVEYOR

FS — CONTRACTOR TO VERIFY HARD SURFACE THICKNESS PER ARCHITECTURAL SPECIFICATIONS AND DETAILS TO DETERMINE ROUGH GRADE ELEVATIONS.

12" SQ. CATCH BASIN PER NDS PLASTIC PRODUCTS PART NO. 1200-1204. U.N.O.

6"ø SPEE-D BASIN PER NDS, PLASTIC PRODUCTS PART NO. 101, 201, 300. U.N.O.

INDICATES 4"ø PERF. SUBDRAIN

(189.5 TC) (185.0 FL) EXISTING SPOT ELEVATIONS

INDICATES PROPOSED PILE FOUNDATION PER STRUCTURAL PLANS PER SEPARATE PERMIT BY OTHERS.

PERMEABLE PAVERS

GRASSCRETE

PERMEABLE GRAVEL DRIVEWAY

ABOVE GRADE DECKING PER STRUCTURAL PLANS

SCALE: 1"=10'

0 10 20 30

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DRAINAGE NOTE

PROPOSED IMPROVEMENTS WILL REQUIRE EXISTING CMP STORM DRAIN PIPE TO BE RE-REROUTED THROUGH THE SUBJECT PROPERTY. THE EXTENT OF ANY MODIFICATIONS WILL NOT ALTER THE NATURAL DRAINAGE FLOW COURSE.

REGISTERED PROFESSIONAL ENGINEER LEONARD T. LISION III No.93123 CIVIL STATE OF CALIFORNIA

#	REVISIONS	DATE

PREPARED BY:

LC ENGINEERING GROUP, INC.
CONSULTING ENGINEERS
889 Pierce Court, Suite 101, Thousand Oaks, California 91360
818-991-7484 • 805-497-1264 • lcgroupinc.com • wolflisi@lcgroupinc.com

93123
REGISTERED ENGINEER RCE DATE

CITY OF MALIBU

ENLARGED GRADING AND DRAINAGE PLAN

25200 PACIFIC COAST HIGHWAY

DRAWN BY / DATE	CHECKED BY / DATE	SHEET 5 OF 8
PK/ 10/17/2025	PK/ 10/17/2025	

X:\LC GROUP\Civil\JOBS\17001-17500\17346 PARRISH LLC\CIVIL\DWG\17346 SHT 3 GP.dwg Oct 17, 2025, 3:48pm Patrick Hoffman

MATCHLINE
SEE SHEET 5

PACIFIC COAST HIGHWAY
CALTRANS R/W
2952.84'
E 84
LIMIT OF 30% SLOPE (TYP)
46'-1" FS, S.B.
15'-0" DRIVEWAY
GRADE BREAK
PROPOSED 24" CMP STORM DRAIN RE-ALIGNMENT
PROPOSED WATER FEATURE (PSP) RIM=136.00, WS=135.50
YARD AREA FG=134.00
PROPOSED WATER FEATURE (PSP) RIM=134.00 WS=133.50
PROPOSED POOL (PSP) RIM=136.00 WS=135.50
PROPOSED DECK FS=134.00
FF=134.00 FG=133.33
PROPOSED OFFICE FF=136.00 FG=135.33
TRASH ENCLOSURE FS=134.00
4-12" STEPS @ 5.4" EA.
5.4" STEPS (TYP)
INDICATES STABILIZATION PILES PER SEPARATE PERMIT (TYP)
LIMIT OF 30% SLOPE (TYP)
35'-0" R.1.S.B.
PL

CONSTRUCTION NOTES

1. STRUCTURAL FOUNDATION AND SLABS-ON-GRADE PER ARCHITECT/STRUCTURAL PLANS AND GEOTECHNICAL REPORT.
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GRASSCRETE
PERMEABLE GRAVEL DRIVEWAY
ABOVE GRADE DECKING PER STRUCTURAL PLANS

SCALE: 1"=10'
0 10 20 30

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UNDERGROUND SERVICE ALERT OF SOUTHERN CALIFORNIA

REGISTERED PROFESSIONAL ENGINEER LEONARD T. LISOWYJ No.93123 CIVIL STATE OF CALIFORNIA

#	REVISIONS	DATE

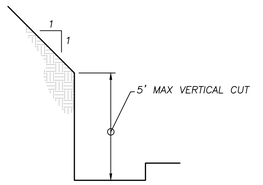
PREPARED BY:
LC ENGINEERING GROUP, INC.
CONSULTING ENGINEERS
889 Pierce Court, Suite 101, Thousand Oaks, California 91360
818-991-7148 • 805-497-1244 • lcengroupinc.com • workfiles@lcengroupinc.com

93123
REGISTERED ENGINEER RCE DATE

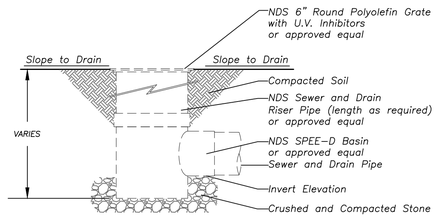
CITY OF MALIBU
ENLARGED GRADING AND DRAINAGE PLAN
25200 PACIFIC COAST HIGHWAY

DRAWN BY / DATE	CHECKED BY / DATE	SHEET 6 OF 8
PK/ 10/17/2025	PK/ 10/17/2025	

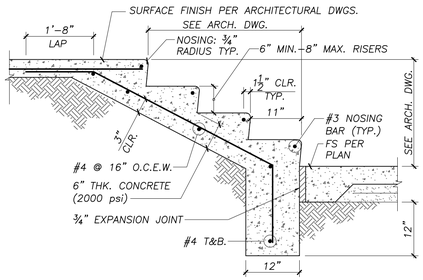
X:\LCE GROUP\Civil\JOBS\17000\17746 PARRISH LLC\CIVIL\DWG\SHT\17746 SHT 7 GP.dwg Oct 17, 2025, 5:48pm Patrick Kauffman



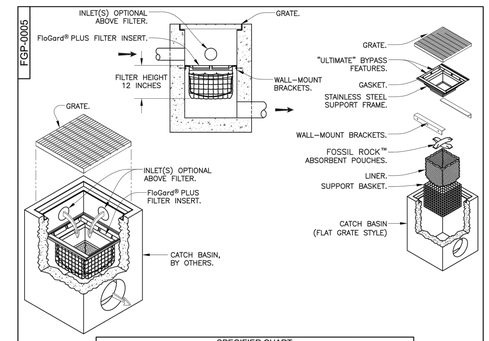
DETAIL NO. 1 TEMPORARY EXCAVATION
N.T.S.



DETAIL NO. 4 6" ROUND GRATE
N.T.S.



DETAIL NO. 8 CONC. STAIRS ON GRADE
N.T.S.



SPECIFIER CHART								
MODEL NO.	STANDARD & SHALLOW DEPTH (Data in these columns is the same for both STANDARD & SHALLOW versions)			STANDARD DEPTH -30 Inches-		MODEL NO.	SHALLOW DEPTH -12 Inches-	
STANDARD DEPTH	INLET ID Inside Dimension (ft-in x in-ft)	GRATE OD Outside Dimension (ft-in x in-ft)	TOTAL BYPASS CAPACITY (cu. ft. / sec.)	SOLIDS STORAGE CAPACITY (cu. ft.)	FILTERED FLOW (cu. ft. / sec.)	SHALLOW DEPTH	SOLIDS STORAGE CAPACITY (cu. ft.)	FILTERED FLOW (cu. ft. / sec.)
FGP-1836W	18 X 36	18 X 40	6.9	2.3	1.8	FGP-1836WB	1.3	.9
FGP-24W	24 X 24	24 X 27	6.1	2.2	1.5	FGP-24WB	1.25	.85
FGP-2436W	24 X 36	24 X 40	8.0	3.4	2.0	FGP-2436WB	1.95	1.15
FGP-48W	48 X 48	54 X 54	18.6	8.8	4.8	FGP-48WB	5.0	2.7

NOTES:
1. Filter insert shall have a high flow bypass feature.
2. Filter support frame shall be constructed from stainless steel Type 304.
3. Filter medium shall be *Fossil Rock* ™, installed and maintained in accordance with manufacturer specifications.
4. Storage capacity reflects 80% of maximum solids collection prior to impeding filtering bypass.

FloGard® Catch Basin Insert Filter — Wall Mount Style
Inlet Filtration
U.S. PATENT
Oldcastle® Stormwater Solutions
7501 Southpark Plaza, Suite 200 | Littleton, CO | 80120 | Ph: 800.579.8819 | oldcastlestormwater.com
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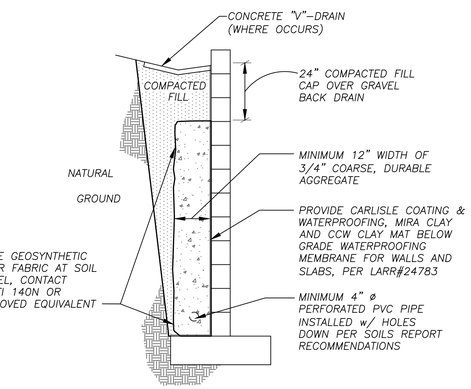
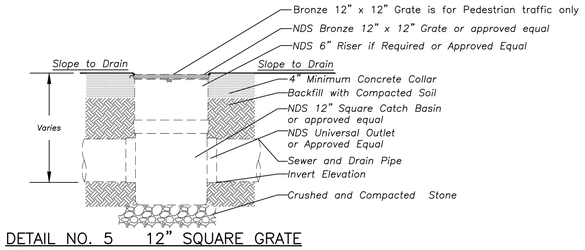
DRAWING NO.	REV.	DATE	SHEET
FGP-0005	B	JPR 7/13/16	JPR 1/25/13	SHEET 1 OF 1

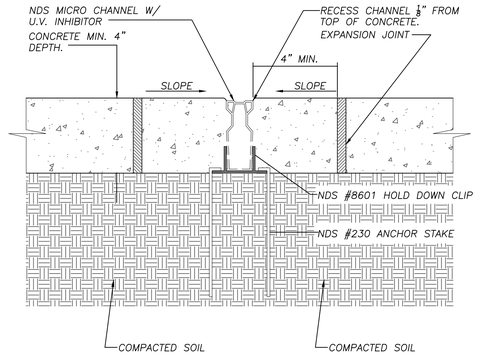
DETAIL NO. 10 WALL MOUNTED FILTER INSERT
N.T.S.

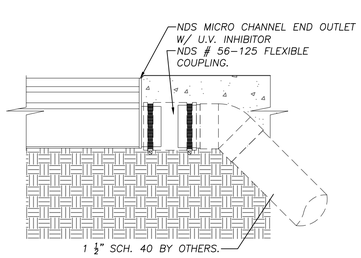


DETAIL NO. 2 BACKFILL
N.T.S.

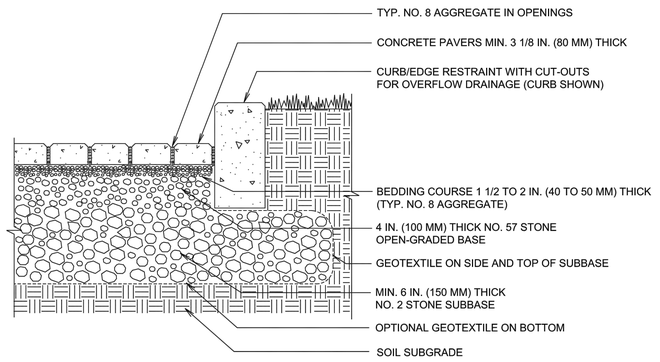


DETAIL NO. 5 12" SQUARE GRATE
N.T.S.





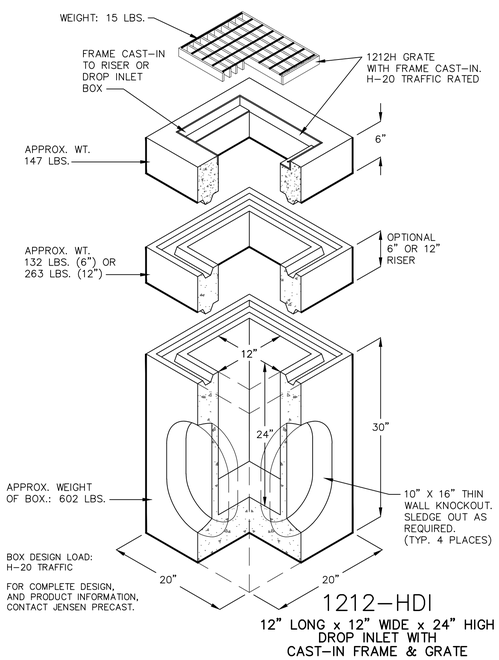
DETAIL NO. 9 CHANNEL DRAIN
N.T.S.



NOTES:
1. 2 3/8 IN. (60 MM) THICK PAVERS MAY BE USED IN PEDESTRIAN APPLICATIONS.
2. NO. 2 STONE SUBBASE THICKNESS VARIES WITH DESIGN.
CONSULT ICPI PERMEABLE INTERLOCKING CONCRETE PAVEMENT MANUAL.

PERMEABLE PAVEMENT WITH FULL EXFILTRATION TO SOIL SUBGRADE
DRAWING NO. ICPI-68
SCALE NO SCALE

DETAIL NO. 3 PERMEABLE DRIVEWAY
N.T.S.



DETAIL NO. 6 6" ATRIUM GRATE
N.T.S.

DETAIL NO. 7 12" CATCH BASIN
N.T.S.

REGISTERED PROFESSIONAL ENGINEER — LEONARD T. LISTON III — No.93123 — CIVIL — STATE OF CALIFORNIA

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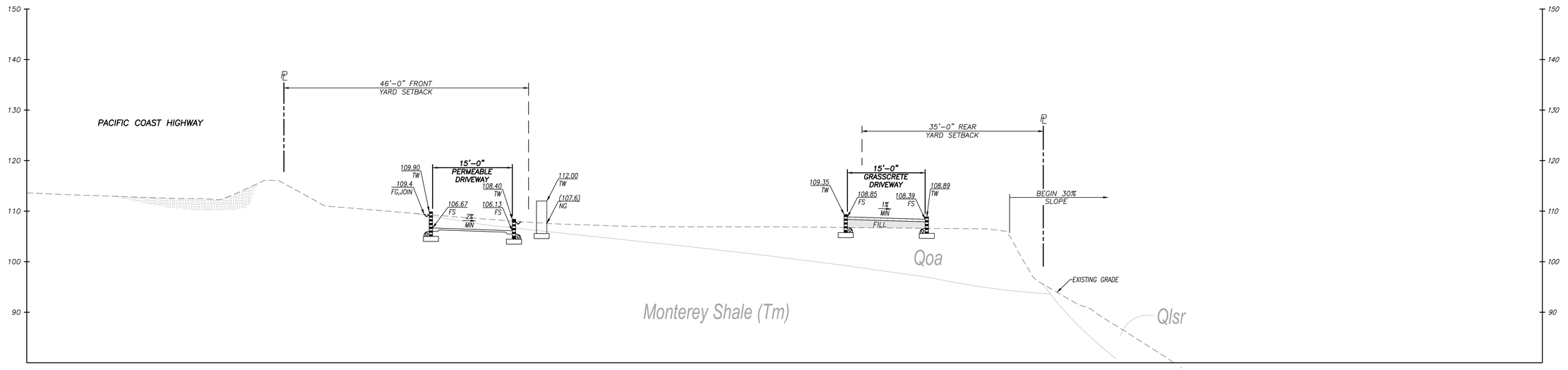
93123
REGISTERED ENGINEER RCE DATE

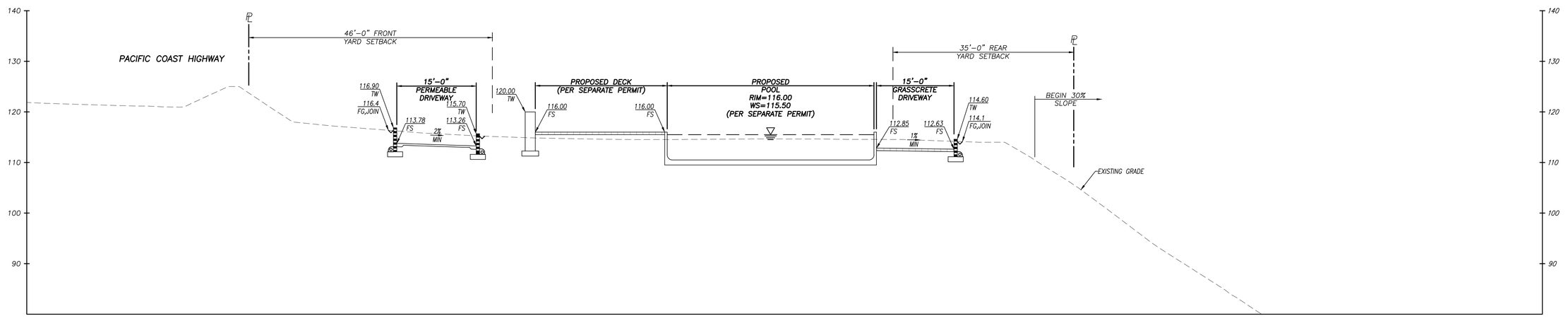
CITY OF MALIBU
DETAILS
25200 PACIFIC COAST HIGHWAY

DRAWN BY / DATE	CHECKED BY / DATE	SHEET
PK/ 10/17/2025	PK/ 10/17/2025	SHEET 7 OF 8

X:\LCE GROUP\CAD\JOBS\2025\1746 PARPICH LLC\CIVIL\DWG\SHT\1746 SHT 5 XSEC DET.dwg Mar 21, 2025, 4:23pm Elizabeth Bryner



SECTION A
1"=10'



SECTION B
1"=10'

REGISTERED PROFESSIONAL ENGINEER
LEONARD T. LISTON III
No.93123
CIVIL
STATE OF CALIFORNIA

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AT LEAST TWO DAYS BEFORE YOU DIG
UNDERGROUND SERVICE ALERT OF SOUTHERN CALIFORNIA

#	REVISIONS	DATE

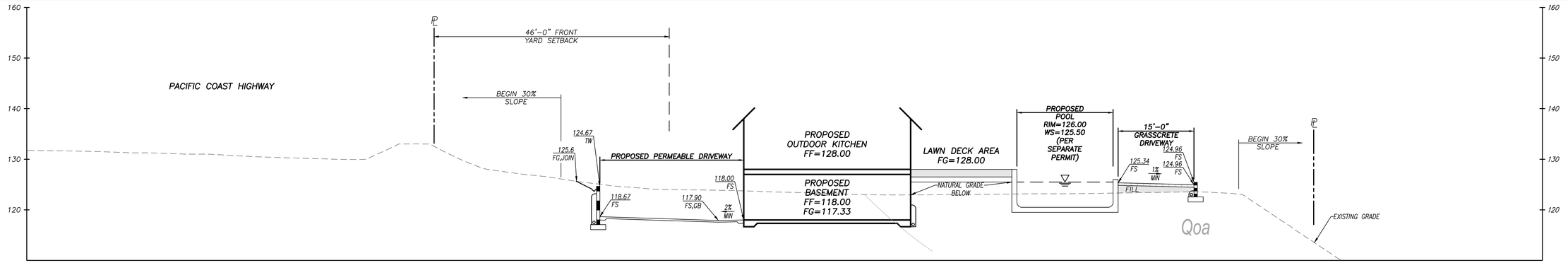
PREPARED BY:
LC ENGINEERING GROUP, INC.
CONSULTING ENGINEERS
889 Pierce Court, Suite 101, Thousand Oaks, California 91360
818-991-7148 • 805-497-1244 • lcegroupinc.com • workfiles@lcegroupinc.com

93123
REGISTERED ENGINEER RCE DATE

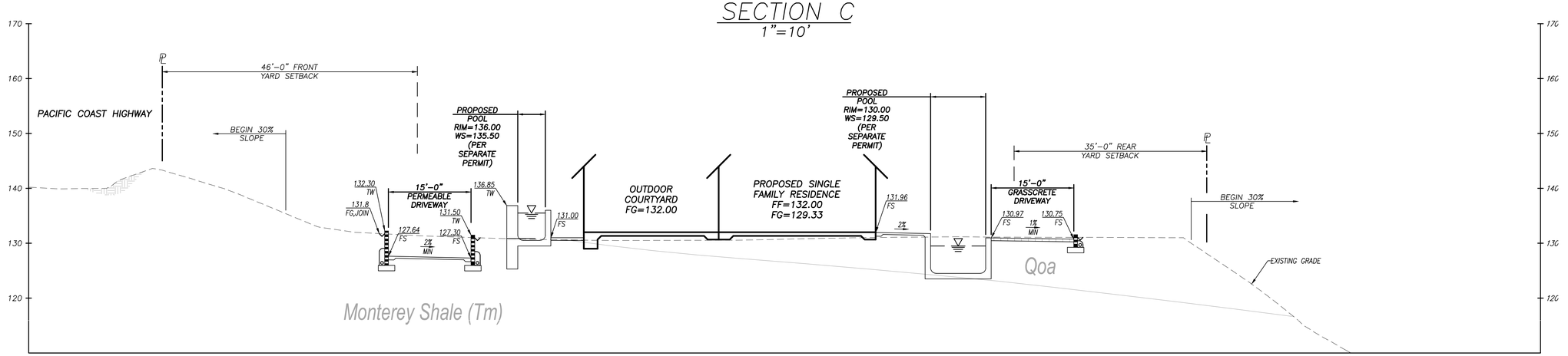
CITY OF MALIBU
CROSS SECTIONS
25200 PACIFIC COAST HIGHWAY

DRAWN BY / DATE	CHECKED BY / DATE	
PK/ 10/17/2025	PK/ 10/17/2025	SHEET 8 OF 8

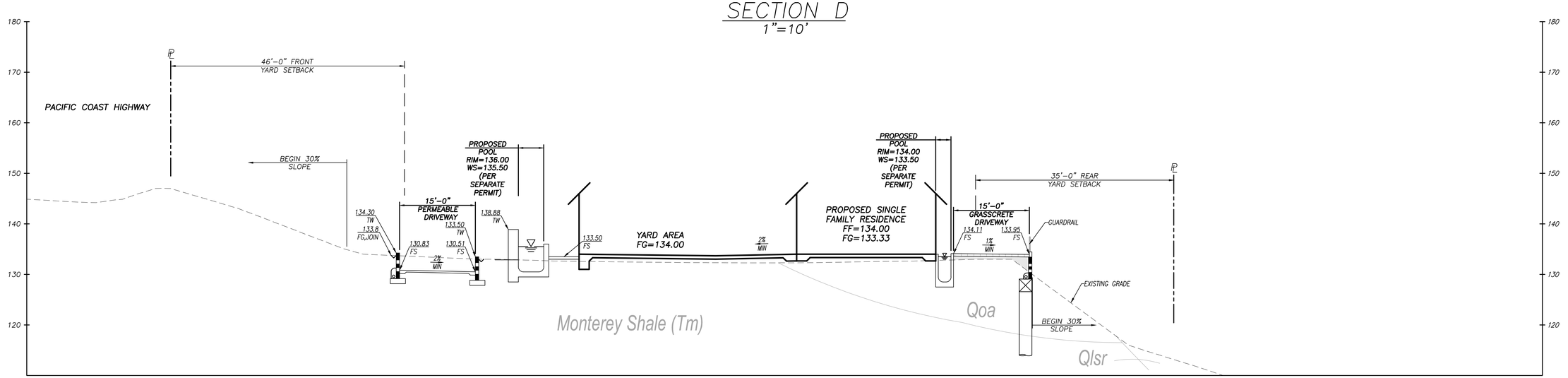
X:\LCE GROUP\Civil\JOBS\7700\7746 PARPCH LLC\CIVIL\DWG\SHT\7746 SHT 5 XSEC DET.dwg Mar 21, 2025, 4:23pm Elizabeth Dreyer



SECTION C
1"=10'



SECTION D
1"=10'



SECTION E
1"=10'

REGISTERED PROFESSIONAL ENGINEER
LEONARD T. LISTON III
No.93123
CIVIL
STATE OF CALIFORNIA

811
Know what's below.
Call before you dig.
DIAL TOLL FREE 811
AT LEAST TWO DAYS BEFORE YOU DIG
UNDERGROUND SERVICE ALERT OF SOUTHERN CALIFORNIA

#	REVISIONS	DATE

PREPARED BY:
LC ENGINEERING GROUP, INC.
CONSULTING ENGINEERS
889 Pierce Court, Suite 101, Thousand Oaks, California 91360
818-991-7148 • 805-497-1244 • lcengroupinc.com • wcefiller@lcengroupinc.com

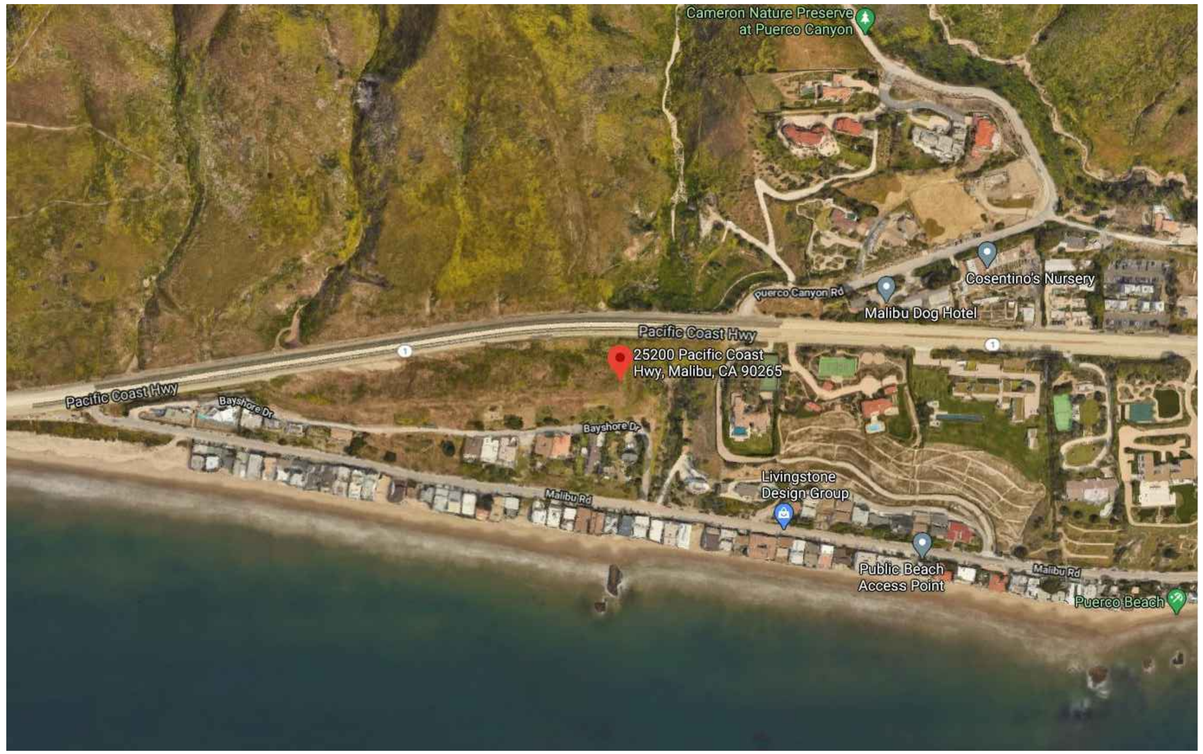
93123
REGISTERED ENGINEER RCE DATE

CITY OF MALIBU
CROSS SECTIONS (CONT)
25200 PACIFIC COAST HIGHWAY

DRAWN BY / DATE	CHECKED BY / DATE	SHEET 8A OF 8
PK/ 10/17/2025	PK/ 10/17/2025	

X:\LCE GROUP\Civil\JOBS\17000\17748 PARPICH LLC\CIVIL\DWG\SHT\17748 SHT 5 XSEC DET.dwg Mar 21, 2025, 4:23pm Elizabeth Bryner

VILLA COLEAVA
LANDSCAPE PLANNING SUBMITTAL



VICINITY MAP

DRAWING INDEX

DWG NO.	DRAWING TITLE	SCALE	PLANNING SUBMITTAL 02.17.2021	BIO REVISIONS 04.05.2021	BIO REVISIONS 08.11.2021
L	LANDSCAPE				
L0.00	TITLE SHEET	NTS	●	●	●
L0.01	GENERAL SHEETS AND DETAILS	NTS	●	●	●
L2.00	OVERALL LANDSCAPE PLAN	1"= 40'-0"	●	●	●
L2.01	OVERALL TREE PLAN	1"= 40'-0"	●	●	●
L2.02	OVERALL PLANTING PLAN	1"= 40'-0"	●	●	●
L2.20	ENLARGED PLANTING PLAN	1/8"=1'-0"	●	●	●
L2.21	ENLARGED PLANTING PLAN	1/8"=1'-0"	●	●	●
L2.22	ENLARGED PLANTING PLAN	1/8"=1'-0"	●	●	●
L2.23	ENLARGED PLANTING PLAN	1/8"=1'-0"	●	●	●
L2.24	ENLARGED PLANTING PLAN	1/8"=1'-0"	●	●	●
L5.01	IRRIGATION KEY PLAN	1"= 40'-0"	●		
L5.20	ENLARGED IRRIGATION PLAN	1/16"=1'-0"	●		
L5.21	ENLARGED IRRIGATION PLAN	1/16"=1'-0"	●		
L5.22	ENLARGED IRRIGATION PLAN	1/16"=1'-0"	●		
L5.23	ENLARGED IRRIGATION PLAN	1/16"=1'-0"	●		
L5.24	ENLARGED IRRIGATION PLAN	1/16"=1'-0"	●		
L5.25	HYDROZONE PLAN / MWELO	1"= 40'-0"	●		
L5.26	IRRIGATION LEGEND	NTS	●		
L5.27	IRRIGATION NOTES & MWELO	NTS	●		
L5.28	IRRIGATION DETAILS	NTS	●		
L5.29	IRRIGATION DETAILS	NTS	●		
L5.30	CROSS CONNECTION NOTES	NTS	●		

Statement of Compliance

I have complied with the criteria of Malibu Municipal Code Chapter 17.53 and applied them for the efficient use of water in the landscape (*or irrigation, as applicable*) design plan.
Preparer Name: Victoria Pakshong
Preparer Signature:
Professional License/designation: Licensed Architect

NOT FOR CONSTRUCTION

[place]

[pakshong landscape and architectural collaborative]
3617 exposition boulevard los angeles ca 90016
310 450 8100 fax 323 737 3290

CONSULTANTS

Property Owner
PAR PCH, LLC
PO Box 6528
Malibu, CA 90265

Design Architect
OPPENHEIM ARCHITECTURE
245 NE 37 Street
Miami, FL 33137
P 305 576 8404
F 305 576 8433
www.oppenoffice.com

Civil Engineers
LC ENGINEERING GROUP
889 Pierce Ct., Ste. 101
Thousand Oaks, CA 91360
P 805 497 1244
F 818 991 7148
www.lcegroupinc.com

NAME OF ISSUE

LICENSED ARCHITECT VICTORIA PAKSHONG No. C27025 REN. 02-28-23 STATE OF CALIFORNIA

KEY PLAN

VILLA COLEAVA

25200 Pacific Coast Highway
Malibu, CA 90265

Project # : 1913
Drawn by : LS
Scale : 1" = 40'-0"

Ref. North

Description:	Date:	No.
PLANNING SUBMITTAL	02/17/21	
BIO REVISIONS	04/05/21	
BIO REVISIONS	08/11/21	

PROJECT NO: 2021

These drawings, specifications, ideas, designs, and arrangements presented thereby, are and shall remain the property of (place). No part thereof shall be copied, disclosed to others or used in connection with any work or project other than the specific project for which they have been prepared and developed without the written consent of (place). Visual contact with these drawings or specifications shall constitute conclusive evidence of acceptance of these restrictions.

SHEET TITLE:

TITLE SHEET

L0.00

GENERAL NOTES

ALL WORK SHALL BE DONE IN ACCORDANCE WITH THESE PLANS, DETAILS, AND SPECIFICATIONS AS WELL AS ALL APPLICABLE LOCAL CODES.

- THE CONTRACTOR SHALL CAREFULLY INSPECT THE SITE AND VERIFY ALL CONDITIONS AND DIMENSIONS PRIOR TO PROCEEDING WITH ANY WORK DESCRIBED HEREIN. THE CONTRACTOR SHALL NOTIFY THE LANDSCAPE DESIGNER OF ANY DISCREPANCIES WITH THESE DOCUMENTS PRIOR TO BEGINNING ANY CONSTRUCTION.
- IT SHALL BE THE RESPONSIBILITY OF THE GENERAL CONTRACTOR TO FAMILIARIZE HIMSELF WITH ALL THE CONDITIONS OF THE SITE RELATIVE TO EXISTING WORK, MATERIALS TO BE MATCHED, AVAILABILITY OF WORKING SPACE, SITE ACCESS AND ANY/ALL OTHER ASPECTS OF THE SITE AFFECTING THE SCOPE OF WORK AND THE DEVELOPMENT OF AN INTELLIGENT BID. NO INCREASE IN COST OR EXTENSION IN PERFORMANCE TIME WILL BE CONSIDERED RESULTING FROM THE CONTRACTOR'S FAILURE TO KNOW THE SITE CONDITIONS.
- THE CONTRACTOR SHALL CARRY ALL WORKERS COMPENSATION, PUBLIC LIABILITY, AND PROPERTY DAMAGE INSURANCE AS REQUIRED BY THE CLIENT.
- HOLD HARMLESS AND INDEMNIFICATION CLAUSE - CONTRACTOR AGREES THAT HE SHALL ASSUME SOLE RESPONSIBILITY FOR JOB SITE CONDITIONS DURING THE COURSE OF CONSTRUCTION OF THIS PROJECT, INCLUDING THE SAFETY OF ALL PERSONS AND PROPERTY; THAT THIS REQUIREMENT SHALL APPLY CONTINUOUSLY AND NOT BE LIMITED TO NORMAL WORKING HOURS, AND THAT THE CONTRACTOR SHALL DEFEND, INDEMNIFY, AND HOLD THE LANDSCAPE DESIGNER HARMLESS FROM ANY AND ALL LIABILITY, REAL OR ALLEGED, IN CONNECTION WITH THE PERFORMANCE OF WORK ON THIS PROJECT, EXCEPTING FOR LIABILITY ARISING FROM THE SOLE NEGLIGENCE OF THE LANDSCAPE DESIGNER.
- DAMAGE RESPONSIBILITY - CONTRACTOR SHALL ERECT AND MAINTAIN TEMPORARY BARRICADES PROOF PARTITIONS AS NEEDED FOR THE CLIENT'S PROTECTION AGAINST ACCIDENT. CONTRACTOR SHALL ASSUME FULL RESPONSIBILITY FOR ANY DAMAGES IMPOSED, INTENTIONALLY OR ACCIDENTALLY, TO EXISTING UTILITIES, BUILDINGS, OR OTHER AMENITIES, DUE TO THE ACTIONS OF THE CONTRACTOR, CONTRACTOR'S EMPLOYEES, AND/OR CONTRACTOR'S SUBCONTRACTORS. CONTRACTOR SHALL AT ALL TIMES PROTECT HIS WORK FROM DAMAGE AND THEFT AND REPLACE ALL DAMAGED OR STOLEN PARTS AT HIS EXPENSE UNTIL THE WORK IS ACCEPTED IN WRITING FROM THE CLIENT.
- THE CONTRACTOR SHALL APPLY FOR, OBTAIN, AND PAY FOR ALL REQUIRED PERMITS TO COMPLETE THE SCOPE OF WORK.
- TRADE COORDINATION - CONSTRUCTION AND INSTALLATION OF ALL ITEMS WITHIN THESE DOCUMENTS SHALL REQUIRE CLOSE COORDINATION BETWEEN TRADES INVOLVED IN UNDERGROUND AND UTILITY INSTALLATION, AND TREE LOCATION. CONTRACTOR SHALL BE RESPONSIBLE TO INSURE PROPER COORDINATION BETWEEN TRADES TO INSURE AND AVOID CONSTRUCTION DELAYS OR DAMAGE TO ANY IMPROVEMENTS OR UTILITIES.
- INSPECTIONS - THE CONTRACTOR SHALL BE RESPONSIBLE FOR NOTIFYING THE CITY REPRESENTATIVE AT LEAST 24 HOURS IN ADVANCE OF ANY REQUIRED CITY INSPECTION.
- THESE DRAWINGS AND SPECIFICATIONS ARE THE PROPERTY AND COPYRIGHT OF [PLACE] AND SHALL NOT BE USED ON ANY OTHER WORK EXCEPT BY WRITTEN AUTHORIZATION FROM [PLACE].
- WRITTEN DIMENSIONS TAKE PREFERENCE OVER SCALED DIMENSIONS AND SHALL BE VERIFIED ON THE JOB SITE. ANY DISCREPANCIES SHALL BE BROUGHT TO THE ATTENTION OF THE LANDSCAPE DESIGNER PRIOR TO THE COMMENCEMENT OF WORK. IN NO EVENT ARE DIMENSIONS TO BE SCALED OFF THE DRAWINGS WITHOUT PRIOR APPROVAL OF THE LANDSCAPE DESIGNER.
- ALL QUANTITIES INDICATED ON THE PLANS ARE FOR BID PURPOSES ONLY. CONTRACTOR SHALL BE RESPONSIBLE FOR VERIFYING THE QUANTITIES SHOWN BY CONDUCTING A QUANTITY TAKE-OFF.
- LANDSCAPE DESIGNER SHALL DECIDE ALL QUESTIONS RELATING TO THE INTERPRETATION(S) OF THE DRAWINGS AND THE ACCEPTABLE FULFILLMENT OF THE CONTRACT.
- THE CONTRACTOR SHALL MAINTAIN THE PREMISES CLEAN AND FREE OF EXCESS EQUIPMENT, MATERIALS, AND RUBBISH INCIDENTAL OF HIS WORK AT ALL TIMES INCLUDING WEEKENDS AND HOLIDAYS. ALL RUBBLE, TRASH, OR DISPOSABLE ITEMS RESULTING FROM DEMOLITION OR CONSTRUCTION SHALL BE DISPOSED OF IN A LEGAL AND LAWFUL MANNER TO AN APPROVED DISPOSAL SITE.
- THE CONTRACTOR SHALL NOTIFY THE LANDSCAPE DESIGNER AT LEAST 48 HOURS IN ADVANCE OF ANY SITE OBSERVATIONS OR MEETINGS AT (310) 450-8100.
- SITE OBSERVATIONS AND MEETINGS SHALL INCLUDE:
  1. PRE-CONSTRUCTION
  2. LANDSCAPE GRADING AND SOIL AMENDING
  3. LANDSCAPE CONSTRUCTION
  4. SPOTTING OF SPECIMEN PLANTS
  5. IRRIGATION PRESSURE AND COVERAGE TEST
  6. PLANTING AND/OR HYDROSEEDING
  7. PRE-MAINTENANCE
  8. POST-MAINTENANCE
- NOTE: "LANDSCAPE" SHALL REFER TO ALL IMPROVEMENTS WITHIN THIS SET OF DOCUMENTS THAT HAVE BEEN DESIGNED BY THIS OFFICE.
- SITE OBSERVATIONS BY THE LANDSCAPE DESIGNER DURING ANY PHASE OF THIS PROJECT DOES NOT RELIEVE THE CONTRACTOR OF HIS PRIMARY RESPONSIBILITY TO PERFORM ALL WORK IN ACCORDANCE WITH THE PLANS, SPECIFICATIONS, AND GOVERNING CODES.
- THIS FIRM DOES NOT PRACTICE OR CONSULT IN THE FIELD OF SAFETY ENGINEERING. THIS FIRM DOES NOT DIRECT THE CONTRACTOR'S OPERATIONS, AND IS NOT RESPONSIBLE FOR THE SAFETY OF ANY PERSONNEL OTHER THAN OF [PLACE] ON THE SITE. THE SAFETY OF OTHERS IS THE RESPONSIBILITY OF THE CONTRACTOR. THE CONTRACTOR SHOULD NOTIFY THE OWNER IF HE CONSIDERS ANY OF THE RECOMMENDED ACTIONS PRESENTED HEREIN TO BE UNSAFE.
- ALL CONSTRUCTION DOCUMENTS AND DETAILS SHALL BE COMPLETED IN FULL COMPLIANCE WITH APPLICABLE LOCAL CODES AND REQUIREMENTS.
- DETAILS ARE INTENDED TO SHOW FINAL EFFECT OF PARTS OF CONSTRUCTION. MINOR MODIFICATIONS MAY BE REQUIRED TO SUIT PARTICULAR JOBSITE DIMENSIONS OR CONDITIONS, AND SHALL BE INCLUDED WITHIN THE SCOPE OF THE WORK AND CONSTRUCTION CONTRACT. ANY MODIFICATIONS REQUIRED IN DETAILS ARE TO BE FIRST REVIEWED AND CONFIRMED WITH THE LANDSCAPE DESIGNER PRIOR TO CONSTRUCTION.
- CONTRACTOR SHALL REVIEW ALL ITEMS NOTED "VERIFY OR CONFIRM WITH LANDSCAPE DESIGNER", (OR NOTED TO THAT EFFECT), WHICH MIGHT AFFECT COSTS OR SCHEDULE, PRIOR TO FINALIZING CONSTRUCTION CONTRACT AND SUBCONTRACTS, AND SHALL CONFIRM ALL FINAL DECISIONS ON ALL ITEMS REGARDING SELECTION, MATERIALS, COLOR, FINISH OR OTHER SPECIFICATIONS NOT YET DECIDED UPON, WITH THE LANDSCAPE DESIGNER. CONTRACTOR SHALL INCLUDE THE COST OF THESE ITEMS WITHIN THE ORIGINAL CONTRACT PRICE.
- CONTRACTOR SHALL IMMEDIATELY NOTIFY THE CLIENT AND LANDSCAPE DESIGNER OF ANY EXTRA COSTS ARISING FORM THE EXECUTION OF THEIR CONTRACT OR SUBCONTRACTS AND SHALL RECEIVE THE CLIENT'S AND LANDSCAPE DESIGNER'S WRITTEN APPROVAL OF ANY ADDITIONAL COST PRIOR TO EXECUTION OF SAID WORK.
- CONTRACTOR SHALL BE RESPONSIBLE FOR SUPERVISING AND VERIFYING THAT ALL GENERAL AND SUBCONTRACT WORK IS ACCOMPLISHED ACCORDING TO THE MOST CURRENT CONSTRUCTION DOCUMENTS, INCLUDING REVISIONS.
- CONTRACTOR SHALL NOT USE ANY POTENTIALLY HAZARDOUS MATERIALS OR PRODUCTS THROUGHOUT CONSTRUCTION. CONTRACTOR SHALL ADVISE CLIENT AND LANDSCAPE DESIGNER OF ANY POTENTIALLY HAZARDOUS MATERIALS OR PRODUCTS RECOMMENDED, SELECTED, OR SPECIFIED, PRIOR TO THE PURCHASE OR INSTALLATION OF SAID MATERIALS OR PRODUCTS.

SITEWORK NOTES

- PRIOR TO FORMING OR POURING CONCRETE, CONTRACTOR SHALL STAKE OUT ALL PERIMETER LINES AS SHOWN ON PLANS FOR LANDSCAPE DESIGNER'S REVIEW, CONFIRM EXISTING STRUCTURE AND PROPERTY LINE LOCATIONS AND ELEVATIONS, AND VERIFY PROPER SETBACKS AND CLEARANCES BY LOCAL CODES.
- THERE SHALL BE NO TRENCHES OR EXCAVATIONS 5'-0" OR MORE IN DEPTH INTO WHICH A PERSON IS REQUIRED TO DESCEND. IF REQUIRED, CONTRACTOR SHALL OBTAIN NECESSARY PERMIT FROM LOCAL/STATE BUILDING AND SAFETY DEPARTMENTS.
- CONTRACTOR SHALL NOTIFY CLIENT AND LANDSCAPE DESIGNER OF ANY UNSTABLE OR QUESTIONABLE SOIL OR GEOLOGICAL CONDITIONS ENCOUNTERED DURING EXCAVATION.
- CONTRACTOR SHALL PROVIDE POSITIVE DRAINAGE OF ALL FINISHED GRADE SURFACES AND WALKWAYS AWAY FROM STRUCTURES AND VERIFY THAT ALL AREAS AFFECTED BY CONSTRUCTION ARE PROPERLY DRAINED, WITH NO PONDING.
- CONTRACTOR SHALL REMOVE ALL EXCESS SOIL, DEBRIS, AND MATERIALS NOT REQUIRED BY CONSTRUCTION. CONFIRM ANY ITEMS TO REMAIN WITH LANDSCAPE DESIGNER, PRIOR TO START OF CONSTRUCTION.

PLANTING NOTES

GENERAL

- ALL WORK SHALL BE IN ACCORDANCE WITH THESE PLANS, NOTES, DETAILS, AND ALL APPROPRIATE LOCAL CODES.
- PLAN IS DIAGRAMMATIC. CONTRACTOR SHALL VERIFY SITE CONDITIONS. IF ANY CONDITION CONFLICTS WITH PLANS, THE CONTRACTOR SHALL NOTIFY THE LANDSCAPE DESIGNER PRIOR TO ANY PLANTING INSTALLATION.
- THE IRRIGATION SYSTEM SHALL BE INSTALLED COMPLETE AND OPERABLE PRIOR TO ANY PLANTING INSTALLATION EXCEPT AS NOTED IN THESE SPECIFICATIONS.
- CONTRACTOR SHALL VERIFY QUANTITIES BY PLAN CHECK. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ALL QUANTITIES SHOWN ON THE PLAN. SHRUB AND GROUND COVER QUANTITIES SPECIFIED MAY NOT REFLECT QUANTITIES DRAWN.
- PLANT SUBSTITUTIONS WILL BE ALLOWED ONLY WITH WRITTEN APPROVAL FROM THE LANDSCAPE DESIGNER.
- CONTRACTOR SHALL BE RESPONSIBLE FOR DELIVERY COORDINATION OF ALL MATERIALS REQUIRED BY THESE PLANS, NOTES, AND DETAILS.

SCOPE OF WORK

- THE CONTRACTOR SHALL FURNISH ALL MATERIAL, LABOR, TRANSPORTATION, EQUIPMENT, AND PROPERTY IN ORDER TO COMPLETE THE LANDSCAPING OF ALL PLANTING AREAS INDICATED, OR REASONABLY IMPLIED, ON THE DRAWINGS AND/OR NOTES.

  INCLUDED AS A PART OF THE PLANTING INSTALLATION, BUT NOT LIMITED, ARE THE FOLLOWING ITEMS: CLEAR AND GRUB ALL PROPOSED LANDSCAPE AREAS; IMPORT SOIL, FINE GRADING OF ALL PLANTING AREAS; PREPARATION OF ALL PLANTING HOLES; FURNISHING AND INSTALLATION OF ALL REQUIRED PLANTING BACKFILL AND SOIL AMENDMENT MATERIALS, AND MULCH, AND MISCELLANEOUS MATERIALS; FURNISHING AND INSTALLING ALL PLANT MATERIALS; PROVIDING MAINTENANCE THROUGHOUT THE SPECIFIED PERIOD; CLEAN-UP AND WEEDING OF ALL LANDSCAPE AREAS; GUARANTEE OF ALL PLANT MATERIALS AND WORKMANSHIP FOR A PERIOD AS SPECIFIED BELOW.

MATERIALS

- ALL PLANT MATERIALS SHALL BE OF SELECT "A-1" QUALITY AND HAVE A GROWTH HABIT NORMAL TO THE SPECIES AND SHALL BE SOUND, HEALTHY, VIGOROUS AND FREE FROM PESTS, PLANT DISEASES, SUN SCALDS, FRESH BARK ABRASIONS, EXCESSIVE ABRASIONS, OR OTHER OBJECTIONABLE DISFIGUREMENTS. ALL PLANTS SHALL HAVE NORMAL WELL-DEVELOPED BRANCH SYSTEMS, AND VIGOROUS AND FIBROUS ROOT SYSTEMS WHICH ARE NEITHER ROOT NOR POT-BOUND AND ARE FREE OF KINKED OR GIRDLING ROOTS. ALL PLANTS SHALL BE TRUE TO SPECIES AND VARIETY. ALL MATERIALS SHALL BE PROVIDED BY A CERTIFIED NURSERY AND SHALL BE FREE OF ANY PEST OR DISEASE. THE LANDSCAPE DESIGNER RESERVES THE RIGHT TO REJECT ANY UNSUITABLE OR OBJECTIONABLE PLANT MATERIAL.
- TREES, SHRUBS, AND VINES - ALL PLANT MATERIALS SHALL BE OF THE SPECIFIED TYPE AND SIZE, SELECTED FROM HIGH QUALITY, WELL-SHAPED NURSERY STOCK.
- FLATTED PLANTS - ALL GROUND COVER PLANTS AND OTHER FLATTED PLANTS SHALL BE GROWN AND REMAIN IN THE FLATS UNTIL TRANSPLANTED AT THE SITE. THE SOIL AND SPACING OF THE PLANTS IN THE FLAT SHALL INSURE THE MINIMUM DISTURBANCE OF THE ROOT SYSTEM AT THE TIME OF TRANSPLANTING.
- THE CONTRACTOR SHALL KEEP ALL PLANT MATERIAL DELIVERED TO THE SITE IN A HEALTHY CONDITION FOR PLANTING. PLANTS SHALL NOT BE ALLOWED TO DRY OUT.
- ALL PLANT MATERIALS SHALL BE APPROVED BY THE LANDSCAPE DESIGNER PRIOR TO INSTALLING PLANT MATERIAL. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE CONDITION OF ALL PLANTS, PLANTED OR OTHERWISE, UNTIL ACCEPTANCE.
- TOPSOIL - TOP SOIL SHALL BE CLASS 'A' WITH THE SAME RELATIVE COMPOSITION AND STRUCTURE, A FRIABLE SANDY LOAM CHARACTER, AND BE FREE OF ROOTS, CLODS, AND STONES LARGER THAN 1 INCH IN GREATEST DIMENSION, POCKETS OF COURSE SAND, NOXIOUS WEEDS, STICKS, SLAG, BRUSH, AND OTHER LITTER. IT SHALL NOT BE INFESTED WITH NEMATODES OR OTHER UNDESIRABLE INSECTS AND PLANT DISEASE ORGANISMS. TOPSOIL PH RANGE SHALL BE 5.3 TO 6.0.
- AGRONOMIC SOILS TEST - CONTRACTOR SHALL OBTAIN AND SUBMIT FOR APPROVAL, A WRITTEN AGRONOMIC SOILS TEXT REPORT FROM A STATE REGISTERED TESTING AGENCY FOR ALL IMPORTED AND SITE TOPSOIL TO BE USED ON THE SITE. TEST REPORT SHALL LIST RECOMMENDED SOIL AMENDMENTS AND PREPARATION TO INSURE ADEQUATE PLANT GROWTH. CONTRACTOR SHALL ADJUST HIS BID ACCORDING TO THE RECOMMENDATIONS LISTED IN THE SOILS TEST REPORT.
- FERTILIZERS - ALL FERTILIZING MATERIALS SHALL COMPLY WITH THE APPLICABLE REQUIREMENTS OF THE STATE AGRICULTURAL CODE. ALL FERTILIZING MATERIALS SHALL BE PACKAGED, FIRST GRADE, COMMERCIAL QUALITY PRODUCTS IDENTIFIED AS TO SOURCE, TYPE OF MATERIAL, WEIGHT AND MANUFACTURER'S GUARANTEED ANALYSIS. FERTILIZING MATERIAL SHALL NOT CONTAIN TOXIC INGREDIENTS OR FILLERS IN QUANTITIES HARMFUL TO HUMAN LIFE, ANIMALS, OR PLANT LIFE.
- COMMERCIAL FERTILIZERS - COMMERCIAL FERTILIZER SHALL BE A PALLETIZED OR GRANULAR PRODUCT HAVING A CHEMICAL ANALYSIS AS SPECIFIED ON THE PLANS OR IN THESE SPECIFICATIONS.
- ORGANIC SOIL AMENDMENT - ORGANIC SOIL AMENDMENT SHALL BE A WELL COMPOSTED ORGANIC BASE, CLASS I OR CLASS II. WOOD BASED PRODUCTS ARE CONDITIONALLY ACCEPTABLE (STABLE HUMUS MUST BE PRESENT). WOOD BASED PRODUCTS ARE NOT ACCEPTABLE WHICH ARE BASED ON RED WOOD OR CEDAR. SLUDGE-BASED MATERIALS ARE NOT ACCEPTABLE.

INSTALLATION

- INSTALL ALL PLANT MATERIALS AS PER PLANS, NOTES, AND DETAILS.
- PLANTING AREAS SHALL BE FREE OF WEEDS AND OTHER EXTRANEOUS MATERIALS TO A DEPTH OF 12 INCHES BELOW FINISH GRADE BEFORE TOPSOIL WORK.
- CONTRACTOR SHALL BE RESPONSIBLE FOR FINISH GRADE, INCLUDING AND IMPORT SOIL ADJUSTMENTS TO EARTH BERMS AND SLOPE SHAPES. PROVIDE FINISH GRADE IN PLANTING AREAS AT A MINIMUM 2% MINIMUM GRADIENT. FINISH GRADES SHALL BE 2" BELOW ADJACENT WALKS, CURBS, DRIVEWAYS, ETC. IN GROUND COVER AREAS.
- FINISH GRADE - THE FINISH GRADE SHALL BE SMOOTH, UNIFORM, AND FREE OF ABRUPT GRADE CHANGES AND DEPRESSIONS TO INSURE SURFACE DRAINAGE. ALL PLANTED AREAS SHALL BE RAKED AND SMOOTHED TO THE REQUIRED GRADES AND CONTOURS PRIOR TO INSTALLATION. FINISH SURFACES SHALL BE CLEAN AND SUITABLE FOR PLANTING.
- ALLOW THE LANDSCAPE DESIGNER TO ADJUST PLANT LOCATIONS PRIOR TO ANY PLANTING.
- ALL LANDSCAPED AREAS SHALL BE PLANTED WITH GROUND COVER AS SHOWN ON THE PLANS. GROUND COVER SHALL BE ROOTED TIP CUTTINGS FROM FLATS AND SHALL BE PLANTED IN STAGGERED ROWS CONTINUOUSLY UNDER ALL TREES AND SHRUBS IN THE AREAS DESIGNATED ON THE PLANS AND AT THE SPACING INDICATED IN THE PLANT LEGEND.
- AMEND ALL PLANT AREAS AS FOLLOWS:

  *SOIL SPECIFICATIONS PROVIDED FOR BID PURPOSES ONLY. CONTRACTOR SHALL ADJUST AMENDMENTS AND BID BASED UPON LAB SOIL TEST PROVIDED BY THE CONTRACTOR. TEST AND REPORT SHALL BE FROM A CERTIFIED SOILS LABORATORY AND SHALL PROVIDE A COMPLETE REGULAR ANALYSIS, ORGANIC MATTER CONTENT, AND TEXTURAL CHARACTERISTICS. A MINIMUM OF ONE SAMPLE AT EACH OF THE FOLLOWING DEPTHS: 0"-12", 12"-24", AND 24"-36". PRIOR TO CONSTRUCTION, THE CONTRACTOR SHALL SUBMIT A COPY OF THE FINAL SOILS REPORT TO THE LANDSCAPE DESIGNER FOR REVIEW AND APPROVAL.

  1. SOIL IMPROVEMENT FOR ALL PLANTER AREAS:

     ROTOTILL THE FOLLOWING AMENDMENTS 6-8" DEEP AND IRRIGATE THOROUGHLY:
- 2 CU YDS WELL COMPOSTED CLASS I OR CLASS II ORGANIC MATTER PER 1,000 SQ FT
- 100 LBS OF *TURF-PLUS* [AVAILABLE AT AGUINAGA FERTILIZER COMPANY, (909) 899-1203]
- 25 LBS AGRICULTURAL GYPSUM PER 1,000 SQ FT

  2. BACKFILL MIX FOR TREES, SHRUBS, AND VINES SHALL BE AS FOLLOWS:
- 80% BY VOLUME NATIVE ON-SITE SOIL
- 20% BY VOLUME WELL COMPOSTED CLASS I OR CLASS II ORGANIC MATTER

SOIL AMENDMENT APPLICATION RATES

GENERAL SOIL PREPARATION:	APPLY 70 LBS. PER 1,000 SQ. FT.
PROBLEM OR COMPACTED SOILS:	APPLY 90-100 LBS. PER 1,000 SQ. FT.

- PLANT INSTALLATION - PLANTING HOLES SHALL BE APPROXIMATELY SQUARE WITH THE VERTICAL SIDES TWICE THE DEPTH AND WIDTH OF THE PLANT CONTAINER OR BALL, AND SHALL BE LARGER IF NECESSARY TO PERMIT HANDLING AND PLANTING WITHOUT INJURY OR BREAKAGE OF THE ROOT BALL OR ROOT SYSTEM. ANY PLANT WITH A BROKEN OR CRACKED ROOT BALL BEFORE OR DURING PLANTING SHALL NOT BE PLANTED.
- THE NATIVE SOIL AT THE BOTTOM OF THE PLANTING HOLES SHALL BE SCARIFIED TO A DEPTH OF 6 INCHES.
- AFTER PLANTING, THE PLANT SHALL BE PLUMB WITH THE ROOT CROWN AT ITS NATURAL GROWING DEPTH WITH RESPECT TO FINISH GRADE. BACKFILL SHALL BE THOROUGHLY WATER-SETTLED AND ADDITIONAL PREPARED SOIL MIX ADDED TO FILL ANY REMAINING VOID BELOW FINISH GRADE. A CIRCULAR WATERING BASIN SLIGHTLY LARGER THAN THE PLANTING HOLE SHALL BE LEFT AROUND THE PLANT. THE BOTTOM OF THE BASIN SHALL BE AT APPROXIMATELY FINISH GRADE OR SLIGHTLY LOWER. MULCH SHALL BE SPREAD AT LEAST 1 INCH THICK IN THE BASIN. THE AREA AROUND PLANTS SHALL BE REGRADED TO FINISH GRADE. THE EXCESS SOIL SHALL BE DISPOSED OF BY THE CONTRACTOR. ALL TREES SHALL BE STAKED AND GUYED PER DETAILS.
- MULCH - ALL LANDSCAPED AREAS SHALL BE MULCHED WITH SPECIFIED MULCH. BARK SHALL BE OF A RELATIVE UNIFORM PARTICLE SIZE WITH A MEDIAN SIZE NO GREATER THAN 1 1/2" IN DIAMETER. CONTRACTOR SHALL PROVIDE A SAMPLE OF BARK MULCH TO THE LANDSCAPE DESIGNER FOR APPROVAL. MULCH SHALL BE INSTALLED TO A MIN. DEPTH OF 3".

MAINTENANCE AND WARRANTIES

- THE MAINTENANCE PERIOD SHALL COMMENCE UPON THE OWNER'S AND THE LANDSCAPE DESIGNER'S WRITTEN APPROVAL OF ALL PHASES OF PLANTING INSTALLATION AND SHALL BE:
  1. WARRANTY PERIOD FOR TREES, SHRUBS AND PLANT MATERIAL OVER 15 GALLONS: ONE YEAR FROM DATE OF FINAL INSPECTION AND ACCEPTANCE.
  2. WARRANTY PERIOD FOR 15 GALLON PLANTS: SIX MONTHS FROM DATE OF FINAL INSPECTION AND ACCEPTANCE
  3. WARRANTY PERIOD FOR 5 GALLON PLANTS: SIX MONTHS FROM DATE OF FINAL INSPECTION AND ACCEPTANCE

FOR BID PURPOSES ONLY: MAINTENANCE WORK SHALL INCLUDE A MINIMUM TWO (2) FERTILIZER APPLICATIONS TO ALL PLANTING AREAS DURING THE MAINTENANCE PERIOD. AT THE FIRST SIGN OF A DEFICIENCY UP TO THIRTY (30) DAYS, THE CONTRACTOR SHALL TEST A MINIMUM OF ONE SOIL SAMPLE FROM GROUND COVER AREAS TO DETERMINE FERTILIZER NEEDS FOR APPLICATION.

- MAINTENANCE PROCEDURES - THE GENERAL CARE AND MAINTENANCE OF ALL AREAS SHALL CONSIST OF PROPER WATERING, FERTILIZATION, WEEDING, CLEAN-UP, AND AS FOLLOWS:
  1. CULTIVATE AND WEED AT NOT LESS THAN TEN (10) WORKING DAY INTERVALS.
  2. APPROXIMATELY THIRTY (30) DAYS AFTER INITIAL PLANTING, APPLY (2) 5 LBS 16-6-8 FERTILIZER PER 1,000 SQ FT. APPLY AND THOROUGHLY IRRIGATE. THE SECOND APPLICATION USING THE ABOVE SPECIFIED FERTILIZER AT THE SAME RATE SHALL BE APPLIED IN ANOTHER SIXTY (60) DAYS OR JUST BEFORE MAINTENANCE PERIOD ENDS.
  3. CONTRACTOR SHALL MAINTAIN THE IRRIGATION SYSTEM IN A LIKE NEW, OPERATING CONDITION, ADJUSTING HEAD HEIGHTS, THROW AND SPRAY ARCS AS NECESSARY. THE CONTRACTOR SHALL BE RESPONSIBLE FOR PROPER WATERING OF ALL PLANTING AREAS, AND SHALL REPLACE ANY PLANT MATERIALS DAMAGED DUE TO IMPROPER MOISTURE.
  4. ANY CONCENTRATED DEVELOPMENT OF WEED GROWTH THAT MAY APPEAR IN PLANTING AREAS DURING MAINTENANCE PERIOD SHALL BE REMOVED AT THIRTY (30) DAY INTERVALS. THE CONTRACTOR MAY ELECT TO REMOVE SUCH CONCENTRATIONS OF WEEDS MANUALLY OR BY AN APPROVED HERBICIDE PROGRAM. THE CONTRACTOR SHALL CONSULT THE LANDSCAPE DESIGNER PRIOR TO USING ANY HERBICIDE.
  5. DURING THE COURSE OF THE MAINTENANCE WORK, THE CONTRACTOR SHALL REMOVE SURPLUS MATERIALS AND DEBRIS FROM THE SITE AND SHALL KEEP THE PREMISES IN A NEAT AND CLEAN CONDITION AT ALL TIMES.
  6. DURING THE MAINTENANCE PERIOD, THE CONTRACTOR SHALL BE RESPONSIBLE FOR MAINTAINING ADEQUATE PROTECTION FOR ALL PLANTING AREAS. ANY DAMAGE TO AREAS SHALL BE IMMEDIATELY REPAIRED AT THE CONTRACTOR'S EXPENSE.

TREE PRESERVATION GUIDELINES DURING CONSTRUCTION

BEFORE CONSTRUCTION WORK BEGINS, WHICH WILL IMPACT A TREE, AN ARBORIST SHALL ASSESS THE IMPACT OF CONSTRUCTION BASED ON THE CONDITION OF THE TREE. MITIGATING MEASURES NECESSARY TO PROTECT THE TREE WILL BE STATED AND REVIEWED BY THE TEAM.

THE FOLLOWING GUIDELINES HAVE BEEN DEVELOPED TO PROTECT TREES DURING CONSTRUCTION PROJECTS:

A. A ROOT PROTECTION ZONE SHALL BE DEFINED BY A FOUR-FOOT HIGH TWO-BY-FOUR BARRIER CONSTRUCTED AROUND ANY POTENTIALLY IMPACTED TREE. THIS BARRIER SHALL BE AT THE DRIP LINE OR AT A DISTANCE FROM THE TRUNK EQUAL TO 6 INCHES FOR EACH INCH OF TRUNK DIAMETER 4 ½ FEET ABOVE THE GROUND IF THIS METHOD DEFINES A LARGER AREA.

B. SHOULD IT BE NECESSARY TO TRENCH WITHIN THIS AREA, TRENCHES SHALL BE HAND DUG. NO ROOTS LARGER THAN TWO INCHES SHALL BE CUT UNLESS NO OTHER ALTERNATIVE IS FEASIBLE. ALL ROOTS GREATER THAN TWO (2) INCHES IN DIAMETER MUST BE CLEANLY CUT TO ENCOURAGE GOOD CALLUS TISSUE. IT IS RECOMMENDED THAT ROOTS BE PRUNED BACK TO THE NEXT ROOT NODE.

C. ALL SMALLER ROOTS THAT MUST BE CUT SHALL BE SAW CUT (NO TRENCHERS) FLUSH WITH THE SIDE OF THE TRENCH. IF AT ANY TIME 25 PERCENT OF THE AREA WITHIN THE ROOT PROTECTION ZONE IS BEING SEPARATED FROM THE TREE BY A TRENCH, THE LINE SHALL BE LOCATED BY BORING OR AN ALTERNATE LOCATION FOR THE TRENCH ESTABLISHED.

D. THE MINIMUM CLEARANCE BETWEEN AN OPEN TRENCH AND A STREET TREE SHALL BE ONE (1) FOOT, OR SIX (6) INCHES FOR EACH INCH OF TRUNK DIAMETER MEASURED AT 4.5 FEET ABOVE EXISTING GRADE IF THIS METHOD DEFINES A LARGER DISTANCE. THE MAXIMUM CLEARANCE SHALL BE TEN (10) FEET. THE CONTRACTOR SHALL CONFORM TO THESE PROVISIONS UNLESS OTHERWISE DIRECTED BY AN ARBORIST.

E. AT NO TIME SHALL ANY EQUIPMENT, MATERIALS, SUPPLIES OR FILL BE ALLOWED WITHIN THE PRESCRIBED ROOT PROTECTION ZONE UNLESS OTHERWISE DIRECTED BY THE CITY. THE ROOT PROTECTION ZONE IS DEFINED AS THE LARGER OF THE DRIP LINE OF THE TREE OR THE DISTANCE FROM THE TRUNK EQUAL TO SIX (6) INCHES FOR EACH INCH OF TRUNK DIAMETER MEASURED AT 4.5 FEET ABOVE EXISTING GRADE.

F. REPAIR OR REPLACE TREES AND VEGETATION INDICATED TO REMAIN THAT ARE DAMAGED BY CONSTRUCTION OPERATIONS, IN A MANNER APPROVED BY ARCHITECT.
  1. EMPLOY A QUALIFIED ARBORIST, LICENSED IN JURISDICTION WHERE PROJECT IS LOCATED, TO SUBMIT DETAILS OF PROPOSED REPAIRS AND TO REPAIR DAMAGE TO TREES AND SHRUBS.
  2. REPLACE TREES THAT CANNOT BE REPAIRED AND RESTORED TO FULL-GROWTH STATUS, AS DETERMINED BY THE QUALIFIED ARBORIST.

SELECTIVE NOTES

A MINIMUM 3-INCH LAYER OF MULCH SHALL BE APPLIED ON ALL EXPOSED SOIL SURFACES OF PLANTING AREAS EXCEPT TURF AREAS, CREEPING OR ROOTING GROUNDCOVERS, OR DIRECT SEEDING APPLICATIONS WHERE MULCH IS CONTRAINDICATED.

FOR SOILS LESS THAN 6% ORGANIC MATTER IN THE TOP 6 INCHES OF SOIL, COMPOST AT A RATE OF A MINIMUM OF FOUR CUBIC YARDS PER 1000 SQUARE FEET OF PERMEABLE AREA SHALL BE INCORPORATED TO A DEPTH OF 6 INCHES INTO THE SOIL.

USE OF CLASS I OR CLASS II COMPOST AS A SOIL AMENDEMENT IN ALL LANDSCAPE AREAS.

PRESSURE REGULATING DEVICES ARE REQUIRED IF WATER PRESSURE IS BELOW OR EXCEEDS THE RECOMMENDED PRESSURE OF THE SPECIFIED IRRIGATION DEVICES.

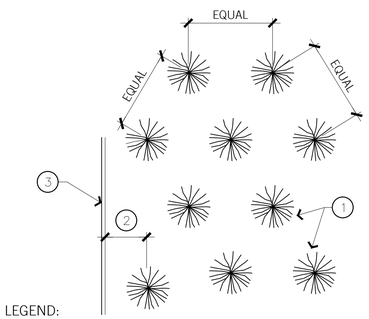
CHECK VALVES OR ANTI-DRAIN VALVES ARE REQUIRED ON ALL SPRINKLER HEADS WHERE LOW POINT DRAINAGE COULD OCCUR.

A DIAGRAM OF THE IRRIGATION PLAN SHOWING HYDROZONES SHALL BE KEPT WITH THE IRRIGATION CONTROLLER FOR SUBSEQUENT MANAGEMENT PURPOSES.

A CERTIFICATE OF COMPLETION SHALL BE FILLED OUT AND CERTIFIED BY EITHER THE DESIGNER OF THE LANDSCAPE PLANS, IRRIGATION PLANS, OR THE LICENSED LANDSCAPE CONTRACTOR FOR THE PROJECT.

AN IRRIGATION AUDIT REPORT SHALL BE COMPLETED AT THE TIME OF FINAL INSPECTION.

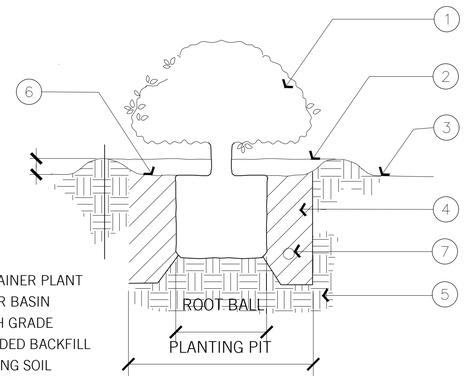
RECIRCULATING WATER SYSTEMS SHALL BE USED FOR WATER FEATURES.



LEGEND:

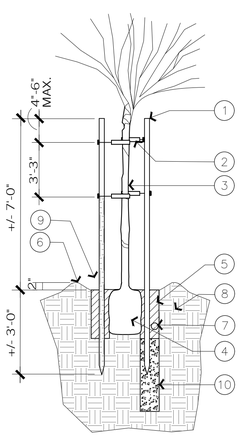
1. LOCATE PLANTS WITH EQUAL SPACING AS INDICATED ON PLAN (TRIANGULAR SPACING).
2. 1/2 ON-CENTER SPACING.
3. FACE OF BUILDING, PAVING, OR HEADER SHOWING AREA LIMIT.

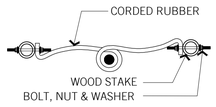
G.C. / SHRUB PLANTING — SCALE: NTS — 3

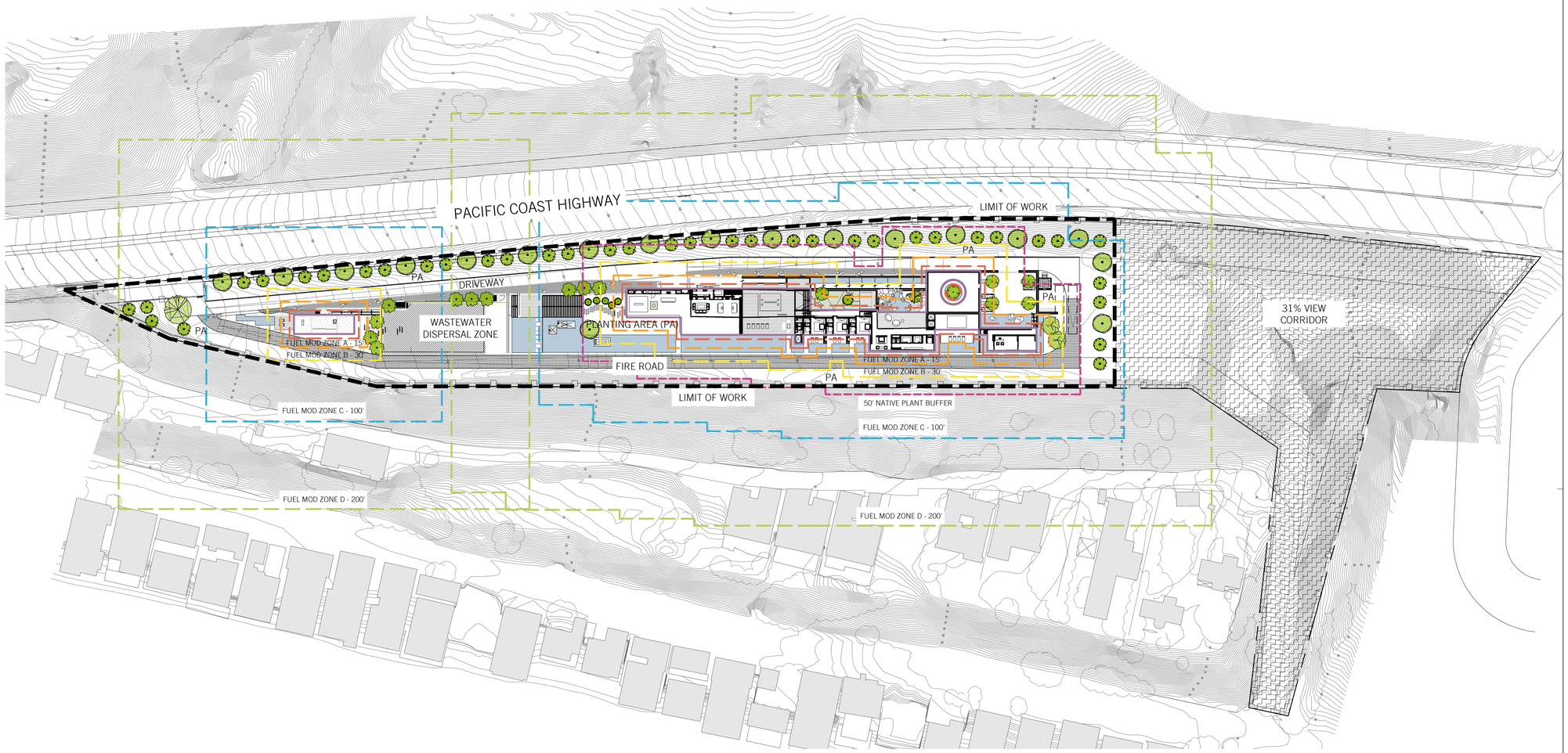


1. CONTAINER PLANT
2. WATER BASIN
3. FINISH GRADE
4. AMENDED BACKFILL
5. EXISTING SOIL
6. 3" MULCH
7. PLANT TABLET

SHRUB PLANTING — SCALE: NTS — 2




CORDED RUBBER
WOOD STAKE
BOLT, NUT & WASHER



FUEL MOD LEGEND

SYMBOL	FUEL MOD ZONE
	Building Perimeter
	5' Buffer
	Fuel Mod Zone A - 15'
	Fuel Mod Zone B - 30'
	Fuel Mod Zone C - 100'
	Fuel Mod Zone D - 200'

LANDSCAPE AREAS

SYMBOL	AREA	QTY
	PLANTING AREA	104,140 SF
	WATER FEATURE	11,810 SF
	WASTE WATER DISPERSAL ZONE	6,533 SF

OVERALL LANDSCAPE PLAN
SCALE: 1/64" = 1'-0"

1

[place]

[pakshong landscape and architectural collaborative]
3617 exposition boulevard los angeles ca 90016
310 450 8100 fax 323 737 3290

CONSULTANTS

Property Owner
PAR PCH, LLC
PO Box 6528
Malibu, CA 90265

Design Architect
OPPENHEIM ARCHITECTURE
245 NE 37 Street
Miami, FL 33137
P 305 576 8404
F 305 576 8433
www.oppenoffice.com

Civil Engineers
LC ENGINEERING GROUP
889 Pierce Ct., Ste. 101
Thousand Oaks, CA 91360
P 805 497 1244
F 818 991 7148
www.lcegroupinc.com

NAME OF ISSUE

LICENSED ARCHITECT
VICTORIA PAKSHONG
NO C27025
REN. 02.26.23
STATE OF CALIFORNIA

KEY PLAN

VILLA COLEAVA

25200 Pacific Coast Highway
Malibu, CA 90265

Project # : 1913
Drawn by : LS
Scale : 1" = 40'-0"

Ref. North

Description:	Date:	No.
PLANNING SUBMITTAL	02/17/21	
BIO REVISIONS	04/05/21	
BIO REVISIONS	08/11/21	

PROJECT NO: 2021

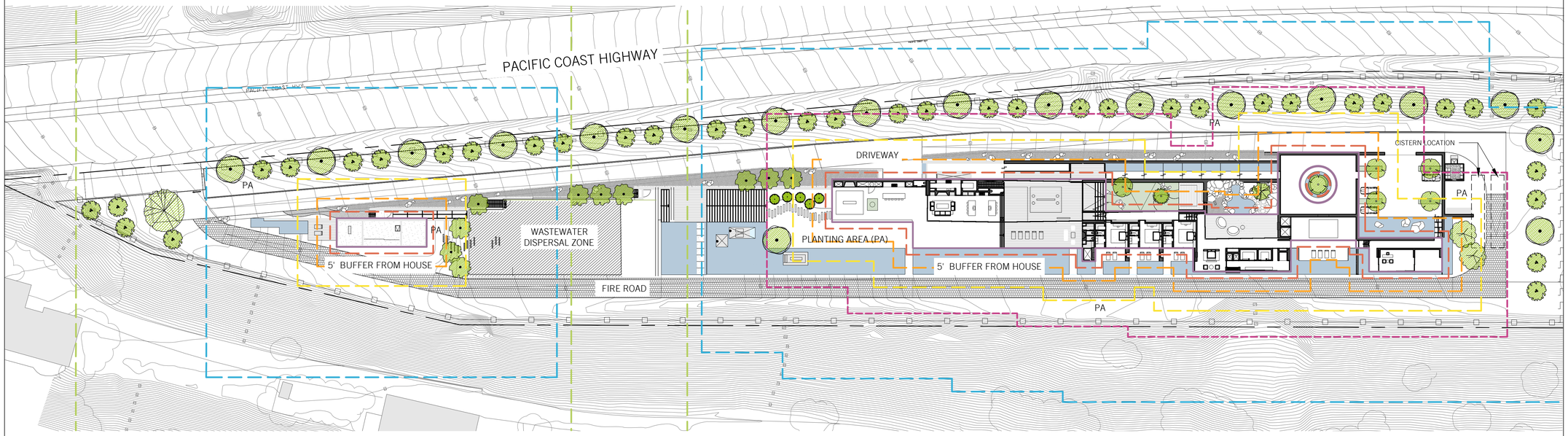
These drawings, specifications, ideas, designs, and arrangements presented thereby, are and shall remain the property of [place]. No part thereof shall be copied, disclosed to others or used in connection with any work or project other than the specific project for which they have been prepared and developed without the written consent of [place]. Visual contact with these drawings or specifications shall constitute conclusive evidence of acceptance of these restrictions.

SHEET TITLE:

OVERALL LANDSCAPE PLAN

L2.00

NOT FOR CONSTRUCTION



OVERALL SITE PLANTING LEGEND

SYMBOL	BOTANICAL NAME	COMMON NAME	SIZE	QTY	PLANT SIZE	SPACING	NOTES	WUCOLS	ORIGIN	50' ZONE	FUEL ZONE
TREES											
	Acer palmatum	Japanese Maple	24" Box	1	15'-25'H x 15'-25'W	Per Plan	MASTER	MOD	NON NATIVE	INSIDE	A
	Arbutus 'Marina'	Marina Strawberry Tree Multi-Branch	48" Box	2	20'-40'H x 20'-30'W	Per Plan	OFFICE	LOW	NON NATIVE	INSIDE	B
	Dracaena draco	Dragon Tree	36" Box	1	15'-25'H x 15'-25'W	Per Plan	ENTRY, KIDS, KITCHEN	V LOW	NON NATIVE	INSIDE	A
	Dwarf Citrus	-	24" Box	5	-	Per Plan	KITCHEN GARDEN	MOD	NON NATIVE	INSIDE	A-10
	Melaleuca nesophila	Pink Melaleuca	24" Box	37	15'-20'H x 8'-12'W	Per Plan	DRIVEWAY	LOW	NON NATIVE	OUTSIDE	A-10
	Olea europaea 'Majestic Beauty'	Olive Tree	36" Box	10	20'-30'H x 15'-25'W	Per Plan	DRIVEWAY, GUEST HOUSE	LOW	NON NATIVE	OUTSIDE	A-15
	Olea europaea 'Majestic Beauty'- field grown	Olive Tree	TBD	1	20'-30'H x 15'-25'W	Per Plan	DRIVEWAY	LOW	NON NATIVE	OUTSIDE	A-15
	Plumeria rubra 'White'	Plumeria	15 gal.	0	15'-25'H x 15'-25'W	Per Plan	COVERED LOUNGE	LOW	NON NATIVE	INSIDE	A
	Quercus agrifolia	Coast Live Oak	24" Box	18	20'-70'H x 20'-70'W	Per Plan	DRIVEWAY, KITCHEN GARDEN	V LOW	NATIVE	OUTSIDE	B-30
	Ulmus parvifolia	Chinese Elm	36" Box	6	40'-50'H x 20'-40'	Per Plan	MOTOR, ENTRY COURT	MOD	NON NATIVE	INSIDE	UNKNOWN

FUEL MOD LEGEND

SYMBOL	FUEL MOD ZONE
	Building Perimeter
	5' Buffer
	Fuel Mod Zone A - 15'
	Fuel Mod Zone B - 30'
	Fuel Mod Zone C - 100'
	Fuel Mod Zone D - 200'

OVERALL TREE PLAN
SCALE: 1" = 40'-0"

1

[place]

[pakshong landscape and architectural collaborative]
3617 exposition boulevard los angeles ca 90016
310 450 8100 fax 323 737 3290

CONSULTANTS

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Civil Engineers
LC ENGINEERING GROUP
889 Pierce Ct., Ste. 101
Thousand Oaks, CA 91360
P 805 497 1244
F 818 991 7148
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NAME OF ISSUE

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REN. 02-26-23
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Project # : 1913
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SHEET TITLE:

OVERALL TREE PLAN

L2.01

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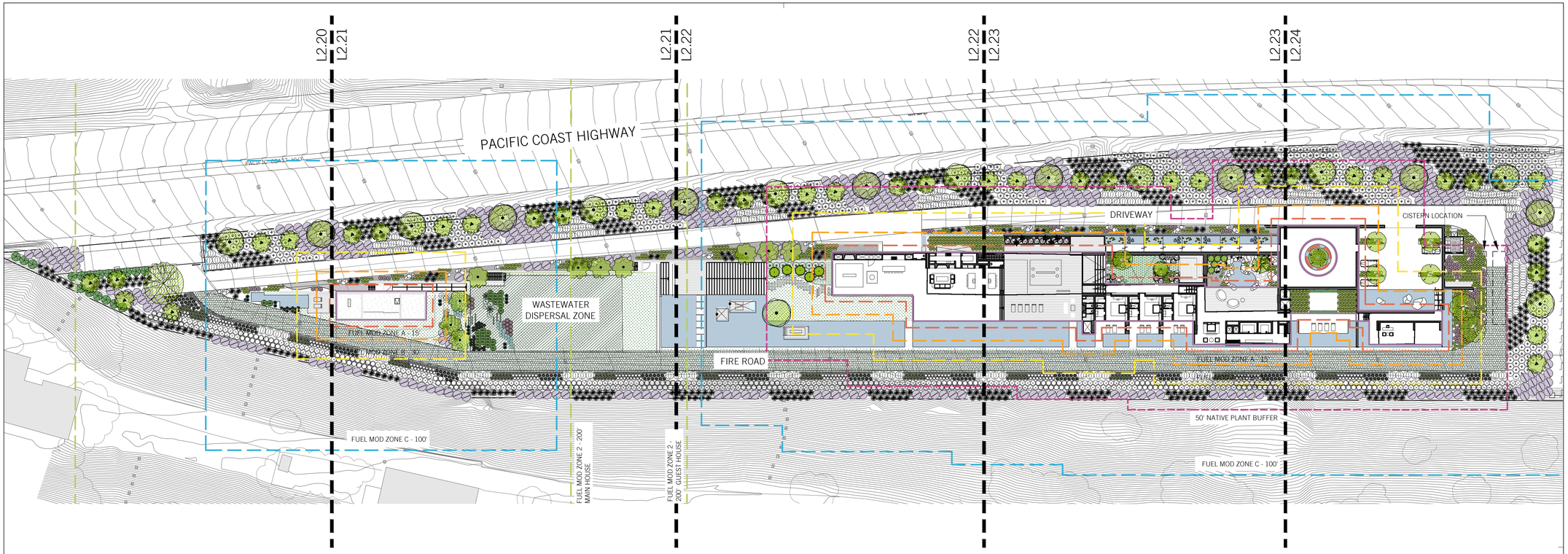


OVERALL SITE PLANTING LEGEND

SYMBOL	BOTANICAL NAME	COMMON NAME	SIZE	QTY	PLANT SIZE	SPACING	NOTES	WUCOLS	ORIGIN	50' ZONE	FUEL ZONE
TREES											
	Acer palmatum	Japanese Maple	24" Box	1	15'-25'H x 15'-25'W	Per Plan	MASTER	MOD	NON NATIVE	INSIDE	A
	Arbutus 'Marina'	Marina Strawberry Tree Multi-Branch	48" Box	2	20'-40'H x 20'-30'W	Per Plan	OFFICE	LOW	NON NATIVE	INSIDE	B
	Dracaena draco	Dragon Tree	36" Box	1	15'-25'H x 15'-25'W	Per Plan	ENTRY, KIDS, KITCHEN	V LOW	NON NATIVE	INSIDE	A
	Dwarf Citrus	-	24" Box	5	-	Per Plan	KITCHEN GARDEN	MOD	NON NATIVE	INSIDE	A-10
	Melaleuca nesophila	Pink Melaleuca	24" Box	37	15'-20'H x 8'-12'W	Per Plan	DRIVEWAY	LOW	NON NATIVE	OUTSIDE	A-10
	Olea europaea 'Majestic Beauty'	Olive Tree	36" Box	10	20'-30'H x 15'-25'W	Per Plan	DRIVEWAY, GUEST HOUSE	LOW	NON NATIVE	OUTSIDE	A-15
	Olea europaea 'Majestic Beauty'- field grown	Olive Tree	TBD	1	20'-30'H x 15'-25'W	Per Plan	DRIVEWAY	LOW	NON NATIVE	OUTSIDE	A-15
	Plumeria rubra 'White'	Plumeria	15 gal.	0	15'-25'H x 15'-25'W	Per Plan	COVERED LOUNGE	LOW	NON NATIVE	INSIDE	A
	Quercus agrifolia	Coast Live Oak	24" Box	18	20'-70'H x 20'-70'W	Per Plan	DRIVEWAY, KITCHEN GARDEN	V LOW	NATIVE	OUTSIDE	B-30
	Ulmus parvifolia	Chinese Elm	36" Box	6	40'-50'H x 20'-40'	Per Plan	MOTOR, ENTRY COURT	MOD	NON NATIVE	INSIDE	UNKNOWN

SYMBOL	BOTANICAL NAME	COMMON NAME	SIZE	QTY	PLANT SIZE	SPACING	NOTES	WUCOLS	ORIGIN	50' ZONE	FUEL ZONE
SHRUBS											
	Acacia cognata Cousin Itt	Little River Wattle	5 gal.	26	2'-3'H x 8'-12'W	Per Plan	ENTRY, KIDS GARDEN	MOD	NON NATIVE	INSIDE	UNKNOWN
	Anigozanthos 'Bush Tango'	Dwarf Orange Kangaroo Paw	5 gal.	12	2'-3'H X 2'-3'W	Per Plan	KIDS GARDEN	MOD	NON NATIVE	INSIDE	UNKNOWN
	Artemisia 'Powis Castle'	Sagebrush	5 gal.	447	2'-4'H x 4'-6'W	Per Plan	DRIVEWAY	MOD	NATIVE	OUTSIDE	A
	Baccharis pilularis 'Pigeon Point'	Prostrate Coyote Brush	5 gal.	199	1'-2'H x 8'-10'W	Per Plan	DRIVEWAY	LOW	NATIVE	OUTSIDE	B
	Camellia sasanqua	Sasanqua Camellia	5 gal.	2	6'-15'H X 6'-15'W	Per Plan	MASTER	MOD	NON NATIVE	INSIDE	A-10
	Carissa macrocarpa 'Prostrata'	Prostrate Natal Plum	5 gal.	13	2'H X 5'-6'W	Per Plan	KITCHEN	LOW	NON NATIVE	INSIDE	A-10
	Carpenteria californica 'Elizabeth'	Elizabeth Bush Anemone	5 gal.	10	4'-6'H X 3'-5'W	Per Plan	GUEST HOUSE	LOW	FRESNO NATIVE	OUTSIDE	A-10
	Cycas revoluta	Sago Palm	5 gal.	5	3'-10'H x 3'-10'W	Per Plan	ENTRY	MOD	NON NATIVE	INSIDE	A
	Encelia californica	Bush Sunflower	5 gal.	300	3'-4'H x 4'-5'W	Per Plan	DRIVEWAY	V LOW	NATIVE	OUTSIDE	A-10
	Eschsholzia californica	California Poppy	4" pot	1483	1'-1'H x 1'-1'W	Per Plan	DRIVEWAY	V LOW	NATIVE	OUTSIDE	UNKNOWN
	Heteromeles arbutifolia	Toyon	5 gal.	18	6'-10'H x 6'-8'W	Per Plan	DRIVEWAY	V LOW	NATIVE	OUTSIDE	A-15
	Mimulus aurantiacus	Bush Monkey Flower	5 gal.	218	2'-3'H x 2'-3'W	Per Plan	DRIVEWAY	V LOW	NATIVE	OUTSIDE	A-10
	Olea europaea 'Little Ollie'	Little Ollie Olive	5 gal.	21	6'-8'H x 4'-5'W	Per Plan	GUEST HOUSE	LOW	NON NATIVE	OUTSIDE	A-15
	Pittosporum crassifolium 'Compactum'	Dwarf Karo	5 gal.	2	2'-3'H x 4'-6'W	Per Plan	MASTER	MOD	NON NATIVE	INSIDE	UNKNOWN
	Polystichum munitum	Sword Fern	5 gal.	11	2'-3'H x 2'-4'W	Per Plan	MASTER	MOD	NON NATIVE	INSIDE	UNKNOWN
	Salvia apiana	White Sage	5 gal.	14	3'-5'H x 4'-5'W	Per Plan	GUEST HOUSE	V LOW	NATIVE	OUTSIDE	B
	Salvia leucophylla	Purple Sage	5 gal.	420	2'-5'H x 6'-10'W	Per Plan	DRIVEWAY, GUEST HOUSE	V LOW	NATIVE	OUTSIDE	B
	Trichostema lanatum	Whooly Blue Curls	5 gal.	225	3'-4'H x 4'-5'W	Per Plan	DRIVEWAY	V LOW	NATIVE	OUTSIDE	B
	Verbena lilacina 'De La Mina'	Cedros Island Verbena	5 gal.	87	1'-2'H x 3'-4'W	Per Plan	DRIVEWAY	LOW	NON NATIVE	MOSTLY INSIDE	A
	Westringia 'Blue Gem'	Blue Gem Coast Rosemary	5 gal.	18	4'-6'H x 3'-4'W	Per Plan	GUEST HOUSE	LOW	NON NATIVE	OUTSIDE	A-10
	Westringia fruticosa 'Grey Box'	Grey Box Coast Rosemary	5 gal.	36	2'-3'H x 2'-3'W	Per Plan	GUEST HOUSE	LOW	NON NATIVE	OUTSIDE	A-10

SYMBOL	BOTANICAL NAME	COMMON NAME	SIZE	QTY	PLANT SIZE	SPACING	NOTES	WUCOLS	ORIGIN	50' ZONE	FUEL ZONE
GRASSES, BAMBOO & PHORMIUMS											
	Bambusa multiplex 'Golden Goddess'	Hedge Bamboo	-	5	6'-10' H x Clumping	Per Plan	MASTER	MOD	NON NATIVE	INSIDE	B-30
	Iris douglasiana	Douglas Iris	1 gal.	11	1'-3'H x 2'-3'W	Per Plan	MASTER	LOW	N CAL NATIVE	INSIDE	A
	Leymus condensatus 'Canyon Prince'	Wild Rye	5 gal.	215	2'-3'H x Spreading	Per Plan	DRIVEWAY, GUEST HOUSE	LOW	NATIVE	OUTSIDE	B
	Lomandra 'Lime Tuff'	Dwarf Mat Rush	5 gal.	759	2'-3'H x 2'-3'W	Per Plan	THROUGHOUT	UNKNOWN	NON NATIVE	MOSTLY INSIDE	UNKNOWN
	Muhlengergia dubia	Pine Muhly	5 gal.	183	2'-3'H x Clumping	Per Plan	DRIVEWAY	UNKNOWN	NON NATIVE	INSIDE/ OUTSIDE	UNKNOWN
	Muhlengergia rigens	Deer Grass	5 gal.	674	4'-5'H x 4'-6'W	Per Plan	DRIVEWAY	LOW	NATIVE	OUTSIDE	UNKNOWN
	Pennisetum 'Fairy Tails'	Evergreen Fountain Grass	5 gal.	23	3'-5'H x 2'-3'W	Per Plan	KIDS GARDEN	MOD	NON NATIVE	INSIDE	UNKNOWN
AGAVES, ALOES & SUCCULENTS											
	Agave americana	Century Plant	5 gal.	4	4'-6'H x 6'-8'W	Per Plan	GUEST HOUSE	V LOW	NON NATIVE	OUTSIDE	A
	Agave 'Blue Glow'	Blue Glow Agave	5 gal.	15	1'-2' H x 2'-3'W	Per Plan	GUEST HOUSE	LOW	NON NATIVE	OUTSIDE	A
	Cereus hildmannianus	Night Blooming Cereus	15 gal.	43	up to 30'H x 1'W	Per Plan	ENTRY CORRIDOR	UNKNOWN	NON NATIVE	INSIDE	UNKNOWN
	Euphorbia ingens	Candelabra Tree	15 gal.	4	15'-25'H x 5'-15'W	Per Plan	ENTRY CORRIDOR	LOW	NON NATIVE	INSIDE	A
WATER PLANTS											
	Cyperus papyrus	Papyrus	5 gal.	12	12'-16'H x 4'-5'W	Per Plan	ENTRY CORRIDOR	HIGH	NON NATIVE	INSIDE	UNKNOWN
	Nymphaeaceae	Water Lily	5 gal.	70		Per Plan	ENTRY CORRIDOR	HIGH	NON NATIVE	INSIDE	UNKNOWN
GROUNDCOVER & VINES											
	Artificial Turf			782 SF		Per Plan	KIDS GARDEN	N/A			N/A
	Agrostis Pallens	Thingrass	flats	31,229 SF	1'-2'H x 12'W	Per Plan	DRIVEWAY, KITCHEN GARDEN, COVERED LOUNGE	UNKNOWN	NATIVE	INSIDE/ OUTSIDE	A
	Phyla nodiflora	Kurapia	flats	90 SF	6" H x Spread	Per Plan	COVERED LOUNGE	LOW	NON NATIVE	INSIDE	A
	Origanum vulgare/ Prostrate Rosemary	Oregano, Rosemary	flats	300 SF	1-2'H x 6-8'W	Per Plan	KITCHEN GARDEN	LOW	NON NATIVE	INSIDE	A
MULCH											
	Shredded Bark			67,592 SF			DRIVEWAY				
	Fine Gravel			12,374 SF			WITH 20' OF STRUCTURES				

FUEL MOD LEGEND

SYMBOL	FUEL MOD ZONE
	Building Perimeter
	5' Buffer
	Fuel Mod Zone A - 15'
	Fuel Mod Zone B - 30'
	Fuel Mod Zone C - 100'
	Fuel Mod Zone D - 200'

OVERALL PLANTING PLAN
SCALE: 1" = 40'-0"

1

NOT FOR CONSTRUCTION

[place]

[pakshong landscape and architectural collaborative]
3617 exposition boulevard los angeles ca 90016
310 450 8100 fax 323 737 3290

CONSULTANTS

Property Owner
PAR PCH, LLC
PO Box 6528
Malibu, CA 90265

Design Architect
OPPENHEIM ARCHITECTURE
245 NE 37 Street
Miami, FL 33137
P 305 576 8404
F 305 576 8433
www.oppenoffice.com

Civil Engineers
LC ENGINEERING GROUP
889 Pierce Ct., Ste. 101
Thousand Oaks, CA 91360
P 805 497 1244
F 818 991 7148
www.lcegroupinc.com

NAME OF ISSUE

LICENSED ARCHITECT
LOUIS PAK
No C27025
REN. 02-28-23
STATE OF CALIFORNIA

KEY PLAN

VILLA COLEAVA

25200 Pacific Coast Highway
Malibu, CA 90265

Project # : 1913
Drawn by : LS
Scale : 1" = 40'-0"

Ref. North

Description:	Date:	No.
PLANNING SUBMITTAL	02/17/21	
BIO REVISIONS	04/05/21	1
BIO REVISIONS	08/11/21	

PROJECT NO: 2021

These drawings, specifications, ideas, designs, and arrangements presented thereby, are and shall remain the property of [place]. No part thereof shall be copied, disclosed to others or used in connection with any work or project other than the specific project for which they have been prepared and developed without the written consent of [place]. Visual contact with these drawings or specifications shall constitute conclusive evidence of acceptance of these restrictions.

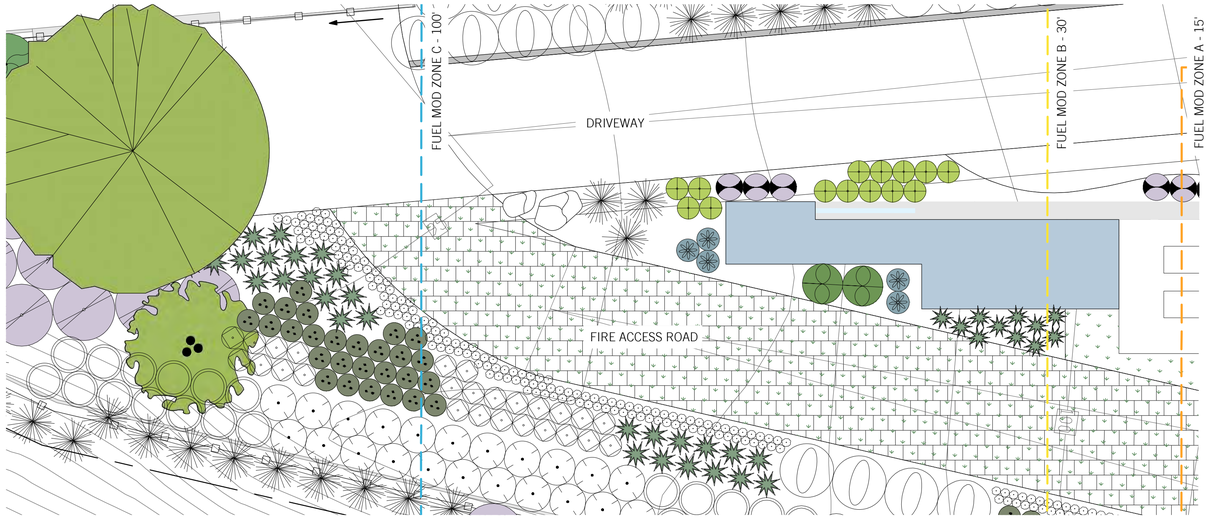
SHEET TITLE:

OVERALL PLANTING PLAN

L2.02

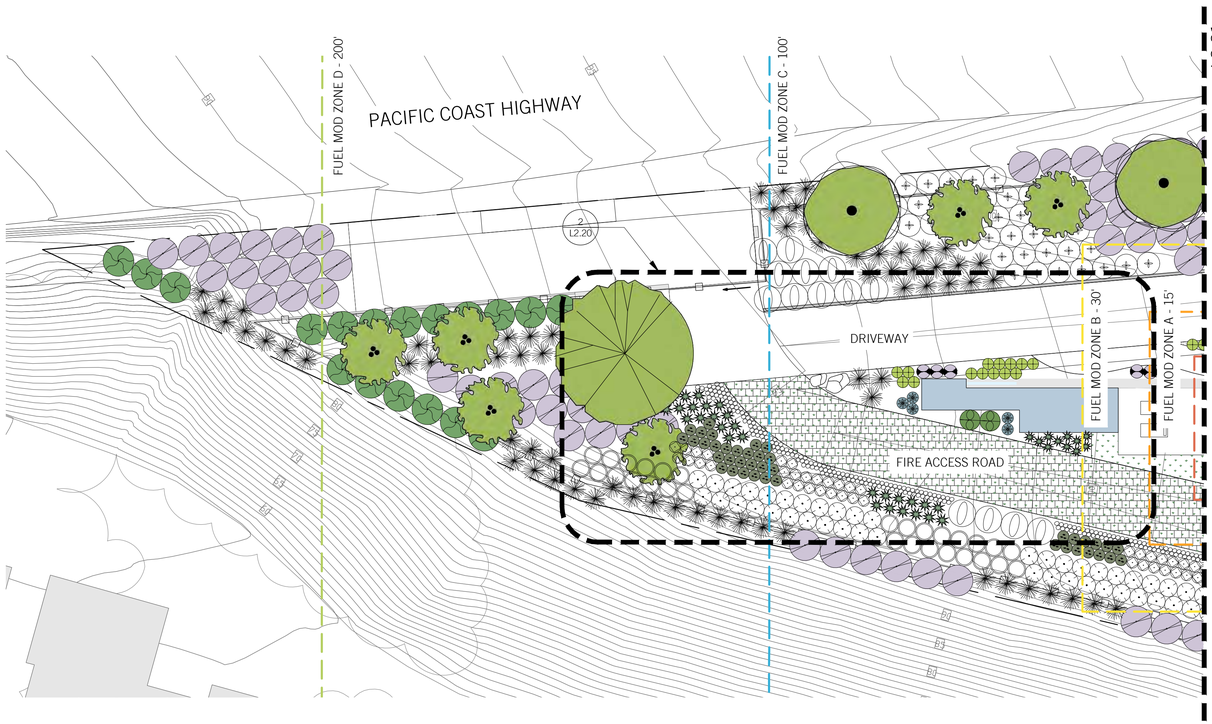
OVERALL SITE PLANTING LEGEND

SYMBOL	BOTANICAL NAME	COMMON NAME	SIZE	QTY	PLANT SIZE	SPACING	NOTES	WUCOLS	ORIGIN	50' ZONE	FUEL ZONE
TREES											
	Acer palmatum	Japanese Maple	24" Box	1	15'-25'H x 15'-25'W	Per Plan	MASTER	MOD	NON NATIVE	INSIDE	A
	Arbutus 'Marina'	Marina Strawberry Tree Multi-Branch	48" Box	2	20'-40'H x 20'-30'W	Per Plan	OFFICE	LOW	NON NATIVE	INSIDE	B
	Dracaena draco	Dragon Tree	36" Box	1	15'-25'H x 15'-25'W	Per Plan	ENTRY, KIDS, KITCHEN	V LOW	NON NATIVE	INSIDE	A
	Dwarf Citrus	-	24" Box	5	-	Per Plan	KITCHEN GARDEN	MOD	NON NATIVE	INSIDE	A-10
	Heteromeles arbutifolia	Toyon	36" Box	37	20'-25' H x 8'-15'W	Per Plan	DRIVEWAY	V LOW	NATIVE	OUTSIDE	A-15
	Umbellularia californica	California Laurel	24" Box	10	20'-30'H x 15'-25'W	Per Plan	DRIVEWAY, GUEST HOUSE	LOW	NATIVE	OUTSIDE	B
	Plumeria rubra 'White'	Plumeria	15 gal.	0	15'-25'H x 15'-25'W	Per Plan	COVERED LOUNGE	LOW	NON NATIVE	INSIDE	A
	Quercus agrifolia	Coast Live Oak	36" Box	18	20'-70'H x 20'-70'W	Per Plan	DRIVEWAY, KITCHEN GARDEN	V LOW	NATIVE	OUTSIDE	B-30
	Quercus agrifolia	Coast Live Oak	96" Box	18	20'-70'H x 20'-70'W	Per Plan	DRIVEWAY SPECIMEN	V LOW	NATIVE	OUTSIDE	B-30
	Ulmus parvifolia	Chinese Elm	36" Box	6	40'-50'H x 20'-40'	Per Plan	MOTOR, ENTRY COURT	MOD	NON NATIVE	INSIDE	UNKNOWN
SHRUBS											
	Acacia cognata Cousin Itt	Little River Wattle	5 gal.	26	2'-3'H x 8'-12'W	Per Plan	ENTRY, KIDS GARDEN	MOD	NON NATIVE	INSIDE	UNKNOWN
	Anigozanthos 'Bush Tango'	Dwarf Orange Kangaroo Paw	5 gal.	12	2'-3'H X 2'-3'W	Per Plan	KIDS GARDEN	MOD	NON NATIVE	INSIDE	UNKNOWN
	Artemisia 'Powis Castle'	Sagebrush	5 gal.	447	2'-4'H x 4'-6'W	Per Plan	DRIVEWAY	MOD	NATIVE	OUTSIDE	A
	Baccharis pilularis 'Pigeon Point'	Prostrate Coyote Brush	5 gal.	199	1'-2'H x 8'-10'W	Per Plan	DRIVEWAY	LOW	NATIVE	OUTSIDE	B
	Camellia sasanqua	Sasanqua Camellia	5 gal.	2	6'-15'H X 6'-15'W	Per Plan	MASTER	MOD	NON NATIVE	INSIDE	A-10
	Carissa macrocarpa 'Prostrata'	Prostrate Natal Plum	5 gal.	13	2'H X 5'-6'W	Per Plan	KITCHEN	LOW	NON NATIVE	INSIDE	A-10
	~~Cycas revoluta~~	~~Sago Palm~~	~~5 gal.~~	~~5~~	~~3'-10'H x 3'-10'W~~	~~Per Plan~~	~~ENTRY~~	~~MOD~~	~~NON NATIVE~~	~~INSIDE~~	~~A~~
	Dendromecon harfordii	Island Bush Poppy	5 gal.	10	4'-8'H X 2'-6' W	Per Plan	GUEST HOUSE	V LOW	NATIVE	OUTSIDE	B
	Encelia californica	Bush Sunflower	5 gal.	300	3'-4'H x 4'-5'W	Per Plan	DRIVEWAY	V LOW	NATIVE	OUTSIDE	A-10
	Eriodictyon crassifolium	Felt leaved Yerba Santa	5 gal.	36	3'-6'H x 3'-6'W	Per Plan	GUEST HOUSE	V LOW	NATIVE	OUTSIDE	UNKNOWN
	Eschsholzia californica	California Poppy	4" pot	1483	1'-1'H x 1'-1'W	Per Plan	DRIVEWAY	V LOW	NATIVE	OUTSIDE	UNKNOWN
	Mimulus aurantiacus	Bush Monkey Flower	5 gal.	218	2'-3'H x 2'-3'W	Per Plan	DRIVEWAY	V LOW	NATIVE	OUTSIDE	A-10
	Penstemon heterophyllus	Foothill Penstemon	5 gal.	9	1'-3' H x 1'-4' W	Per Plan	DRIVEWAY	UNKNOWN	NATIVE	OUTSIDE	A
	Pittosporum crassifolium 'Compactum'	Dwarf Karo	5 gal.	2	2'-3'H x 4'-6'W	Per Plan	MASTER	MOD	NON NATIVE	INSIDE	UNKNOWN
	Polystichum munitum	Sword Fern	5 gal.	11	2'-3'H x 2'-4'W	Per Plan	MASTER	MOD	NON NATIVE	INSIDE	UNKNOWN
	Rhamnus californica	Coffeeberry	5 gal.	21	6'-8'H x 6-8'W	Per Plan	GUEST HOUSE	V LOW	NATIVE	OUTSIDE	B
	Rosa californica 'Elsie'	California Rose	5 gal.	18	4'-8' H x Spreading	Per Plan	GUEST HOUSE	LOW	NATIVE	OUTSIDE	UNKNOWN
	Salvia apiana	White Sage	5 gal.	20	3'-5'H x 4'-5'W	Per Plan	GUEST HOUSE	V LOW	NATIVE	OUTSIDE	B
	Salvia leucophylla	Purple Sage	5 gal.	420	2'-5'H x 6'-10'W	Per Plan	DRIVEWAY, GUEST HOUSE	V LOW	NATIVE	OUTSIDE	B
	Trichostema lanatum	Whooly Blue Curls	5 gal.	225	3'-4'H x 4'-5'W	Per Plan	DRIVEWAY	V LOW	NATIVE	OUTSIDE	B
	Umbellularia californica	California Laurel	15 gal.	18	20'-30'H x 15'-25'W	Per Plan	DRIVEWAY	LOW	NATIVE	OUTSIDE	B
	Verbena lilacina 'De La Mina'	Cedros Island Verbena	5 gal.	78	1'-2'H x 3'-4'W	Per Plan	DRIVEWAY	LOW	NON NATIVE	INSIDE	A
GRASSES, BAMBOO & PHORMIUMS											
	Achnatherum coronatum	Porcupine grass	5 gal.	183	2'-3'H x Clumping	Per Plan	DRIVEWAY	UNKNOWN	NATIVE	INSIDE/ OUTSIDE	UNKNOWN
	Bambusa multiplex 'Golden Goddess'	Hedge Bamboo	-	5	6'-10' H x Clumping	Per Plan	MASTER	MOD	NON NATIVE	INSIDE	B-30
	Iris douglasiana	Douglas Iris	1 gal.	11	1'-3'H x 2'-3'W	Per Plan	MASTER	LOW	N CAL NATIVE	INSIDE	A
	Leymus condensatus 'Canyon Prince'	Wild Rye	5 gal.	215	2'-3'H x Spreading	Per Plan	DRIVEWAY, GUEST HOUSE	LOW	NATIVE	OUTSIDE	B
	Lomandra 'Lime Tuff'	Dwarf Mat Rush	5 gal.	598	2'-3'H x 2'-3'W	Per Plan	THROUGHOUT	UNKNOWN	NON NATIVE	INSIDE	UNKNOWN
	Muhlengergia rigens	Deer Grass	5 gal.	674	4'-5'H x 4'-6'W	Per Plan	DRIVEWAY	LOW	NATIVE	OUTSIDE	UNKNOWN
	Nassella cernua	Nodding needlegrass	5 gal.	161	2'-3'H x 2'-3'W	Per Plan	THROUGHOUT	V LOW	NATIVE	OUTSIDE	UNKNOWN
	Pennisetum 'Fairy Tails'	Evergreen Fountain Grass	5 gal.	23	3'-5'H x 2'-3'W	Per Plan	KIDS GARDEN	MOD	NON NATIVE	INSIDE	UNKNOWN
AGAVES, ALOES & SUCCULENTS											
	Cereus hildmannianus	Night Blooming Cereus	15 gal.	43	up to 30'H x 1'W	Per Plan	ENTRY CORRIDOR	UNKNOWN	NON NATIVE	INSIDE	UNKNOWN
	Euphorbia ingens	Candelabra Tree	15 gal.	4	15'-25'H x 5'-15'W	Per Plan	ENTRY CORRIDOR	LOW	NON NATIVE	INSIDE	A
	Hesperoyucca whipplei 'RBG'	Our Lord's Candle	5 gal.	15	2'-3' H x 3'-4' W	Per Plan	GUEST HOUSE	V LOW	NATIVE	OUTSIDE	UNKNOWN
WATER PLANTS											
	Cyperus papyrus	Papyrus	5 gal.	12	12'-16'H x 4'-5'W	Per Plan	ENTRY CORRIDOR	HIGH	NON NATIVE	INSIDE	UNKNOWN
	Nymphaeaceae	Water Lily	5 gal.	70		Per Plan	ENTRY CORRIDOR	HIGH	NON NATIVE	INSIDE	UNKNOWN
GROUNDCOVER & VINES											
	Artificial Turf			782 SF		Per Plan	KIDS GARDEN	N/A			N/A
	Agrostis Pallens	Thingrass	flats	31,229 SF	1'-2'H x 1'2'W	Per Plan	DRIVEWAY, KITCHEN GARDEN	UNKNOWN	NATIVE	INSIDE/ OUTSIDE	A
	Phyla nodiflora	Kurapia	flats	90 SF	6" H x Spread	Per Plan	COVERED LOUNGE	LOW	NON NATIVE	INSIDE	A
	Origanum vulgare/ Prostrate Rosemary	Oregano, Rosemary	flats	300 SF	1-2'H x 6-8'W	Per Plan	KITCHEN GARDEN	LOW	NON NATIVE	INSIDE	A
MULCH											
	Shredded Bark			67,592 SF			DRIVEWAY				
	Fine Gravel			12,374 SF			W/IN 20' OF STRUCTURES				



ENLARGED PLANTING PLAN
SCALE: 1/8" = 1'-0"

2



ENLARGED PLANTING PLAN
SCALE: 1/16" = 1'-0"

1

NOT FOR CONSTRUCTION

[place]

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CONSULTANTS

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Design Architect
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NAME OF ISSUE

LICENSED LANDSCAPE ARCHITECT
LAURA PAKSHONG
No. C27025
REN. 02-28-23
STATE OF CALIFORNIA

KEY PLAN

VILLA COLEAVA

25200 Pacific Coast Highway
Malibu, CA 90265

Project # : 1913
Drawn by : LS
Scale : AS NOTED

Ref. North

Description:	Date:	No.
PLANNING SUBMITTAL	02/17/21	
BIO REVISIONS	04/05/21	1
BIO REVISIONS	08/11/21	2

PROJECT NO: 2021

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SHEET TITLE:

ENLARGED PLANTING PLAN

L2.20

OVERALL SITE PLANTING LEGEND

SYMBOL	BOTANICAL NAME	COMMON NAME	SIZE	QTY	PLANT SIZE	SPACING	NOTES	WUCOLS	ORIGIN	50' ZONE	FUEL ZONE
TREES											
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	Arbutus 'Marina'	Marina Strawberry Tree Multi-Branch	48" Box	2	20'-40'H x 20'-30'W	Per Plan	OFFICE	LOW	NON NATIVE	INSIDE	B
	Dracaena draco	Dragon Tree	36" Box	1	15'-25'H x 15'-25'W	Per Plan	ENTRY, KIDS, KITCHEN	V LOW	NON NATIVE	INSIDE	A
	Dwarf Citrus	-	24" Box	5	-	Per Plan	KITCHEN GARDEN	MOD	NON NATIVE	INSIDE	A-10
	Heteromeles arbutifolia	Toyon	36" Box	37	20'-25' H x 8'-15'W	Per Plan	DRIVEWAY	V LOW	NATIVE	OUTSIDE	A-15
	Umbellularia californica	California Laurel	24" Box	10	20'-30'H x 15'-25'W	Per Plan	DRIVEWAY, GUEST HOUSE	LOW	NATIVE	OUTSIDE	B
	Plumeria rubra 'White'	Plumeria	15 gal.	0	15'-25'H x 15'-25'W	Per Plan	COVERED LOUNGE	LOW	NON NATIVE	INSIDE	A
	Quercus agrifolia	Coast Live Oak	36" Box	18	20'-70'H x 20'-70'W	Per Plan	DRIVEWAY, KITCHEN GARDEN	V LOW	NATIVE	OUTSIDE	B-30
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~~	~~Cycas revoluta~~	~~Sago Palm~~	~~5 gal.~~	~~5~~	~~3'-10'H x 3'-10'W~~	~~Per Plan~~	~~ENTRY~~	~~MOD~~	~~NON NATIVE~~	~~INSIDE~~	~~A~~
	Dendromecon harfordii	Island Bush Poppy	5 gal.	10	4'-8'H X 2'-6' W	Per Plan	GUEST HOUSE	V LOW	NATIVE	OUTSIDE	B
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GROUNDCOVER & VINES											
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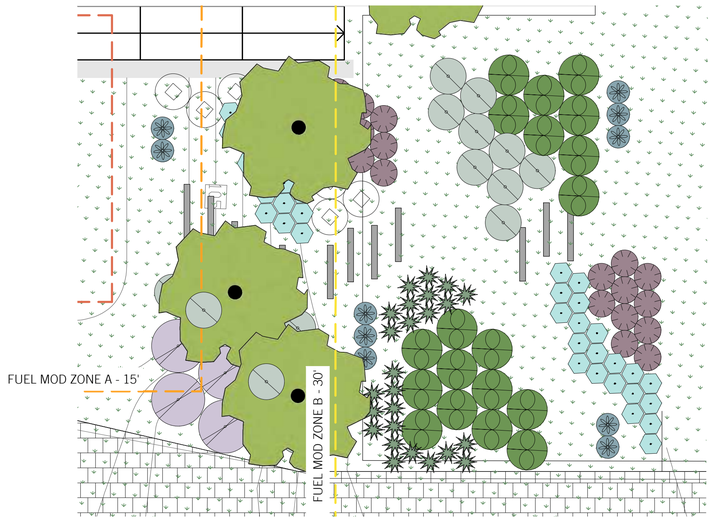
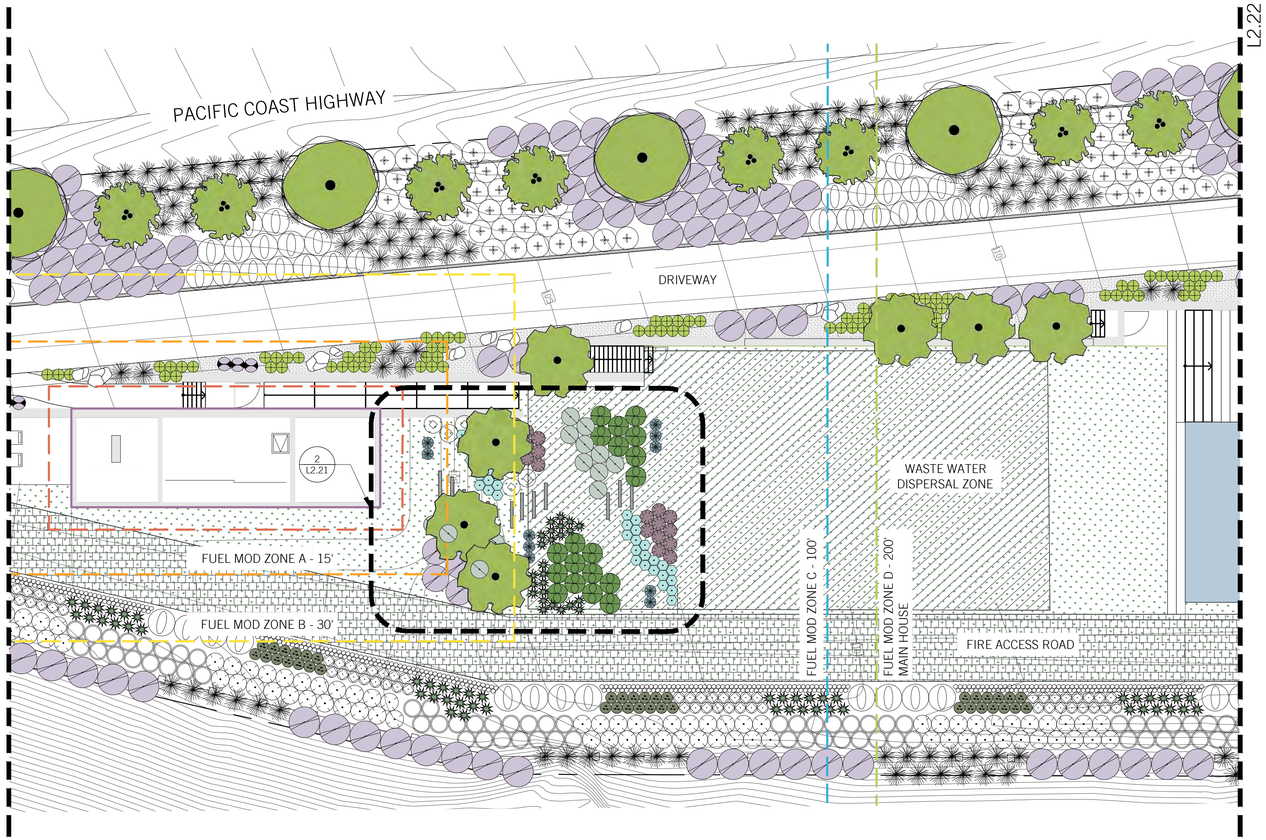
	Agrostis Pallens	Thingrass	flats	31,229 SF	1'-2'H x 1'2'W	Per Plan	DRIVEWAY, KITCHEN GARDEN	UNKNOWN	NATIVE	INSIDE/ OUTSIDE	A
	Phyla nodiflora	Kurapia	flats	90 SF	6" H x Spread	Per Plan	COVERED LOUNGE	LOW	NON NATIVE	INSIDE	A
	Origanum vulgare/ Prostrate Rosemary	Oregano, Rosemary	flats	300 SF	1-2'H x 6-8'W	Per Plan	KITCHEN GARDEN	LOW	NON NATIVE	INSIDE	A
MULCH											
	Shredded Bark			67,592 SF			DRIVEWAY				
	Fine Gravel			12,374 SF			W/IN 20' OF STRUCTURES				



ENLARGED PLANTING PLAN
SCALE: 1/8" = 1'-0"
2



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LICENSED LANDSCAPE ARCHITECT LORNA PAKSHONG No. C27025 REN. 02-26-23 STATE OF CALIFORNIA

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L2.21

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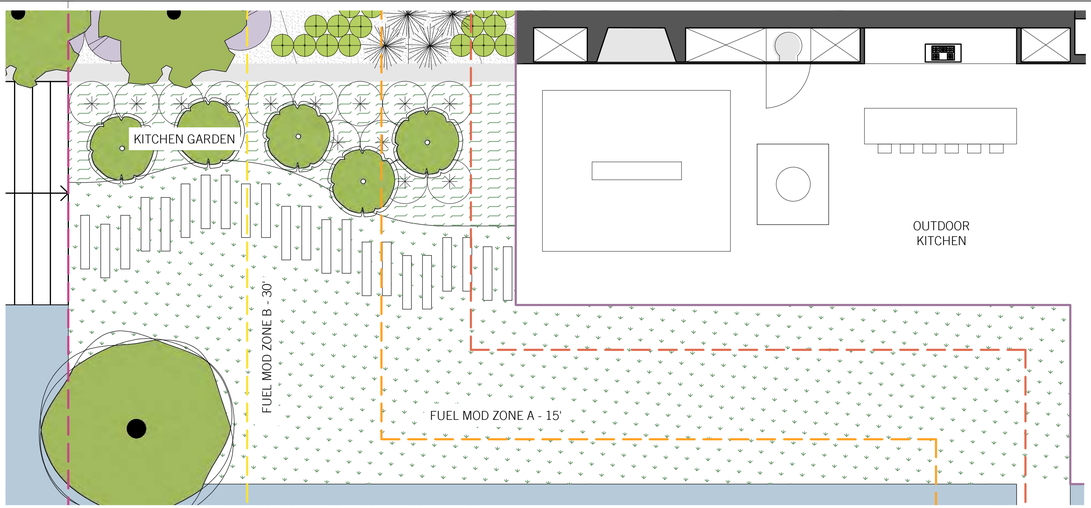
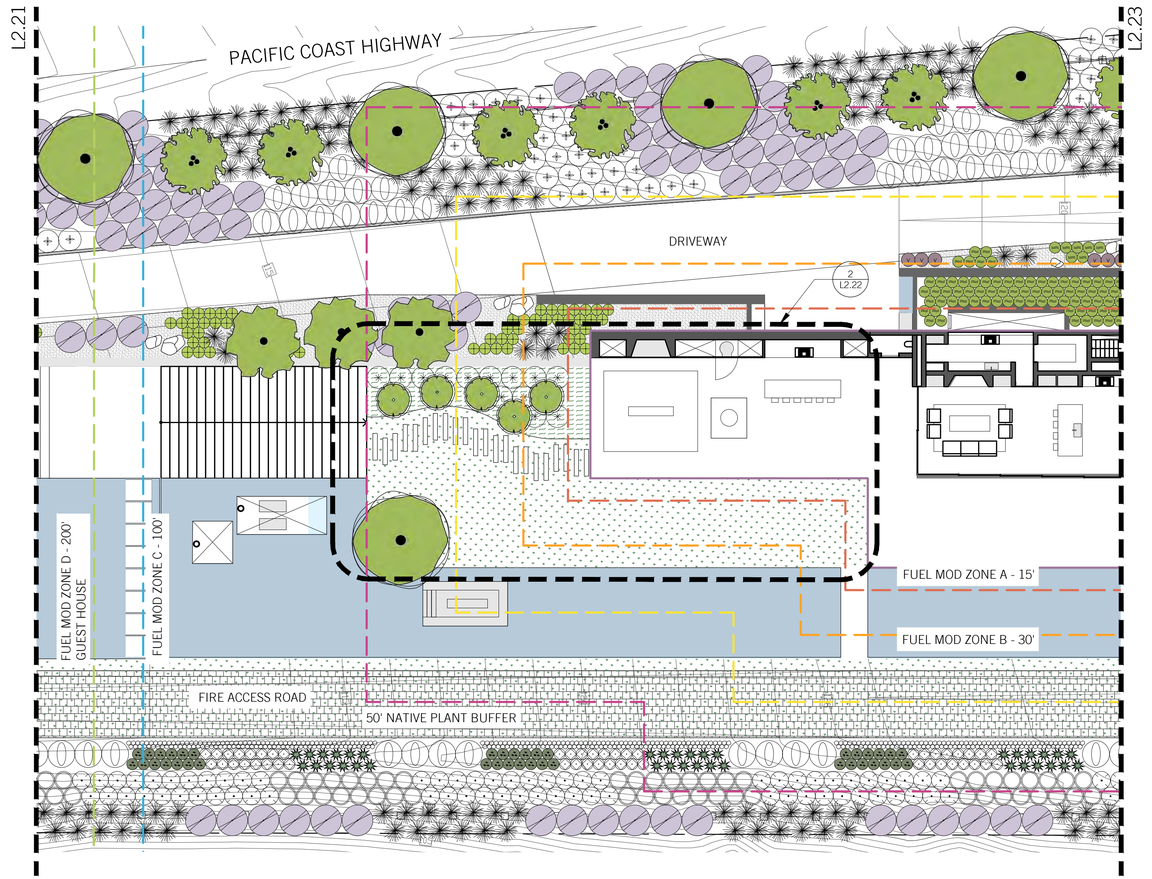
	Dracaena draco	Dragon Tree	36" Box	1	15'-25'H x 15'-25'W	Per Plan	ENTRY, KIDS, KITCHEN	V LOW	NON NATIVE	INSIDE	A
	Dwarf Citrus	-	24" Box	5	-	Per Plan	KITCHEN GARDEN	MOD	NON NATIVE	INSIDE	A-10
	Heteromeles arbutifolia	Toyon	36" Box	37	20'-25' H x 8'-15'W	Per Plan	DRIVEWAY	V LOW	NATIVE	OUTSIDE	A-15
	Umbellularia californica	California Laurel	24" Box	10	20'-30'H x 15'-25'W	Per Plan	DRIVEWAY, GUEST HOUSE	LOW	NATIVE	OUTSIDE	B
	Plumeria rubra 'White'	Plumeria	15 gal.	0	15'-25'H x 15'-25'W	Per Plan	COVERED LOUNGE	LOW	NON NATIVE	INSIDE	A
	Quercus agrifolia	Coast Live Oak	36" Box	18	20'-70'H x 20'-70'W	Per Plan	DRIVEWAY, KITCHEN GARDEN	V LOW	NATIVE	OUTSIDE	B-30
	Quercus agrifolia	Coast Live Oak	96" Box	18	20'-70'H x 20'-70'W	Per Plan	DRIVEWAY SPECIMEN	V LOW	NATIVE	OUTSIDE	B-30
	Ulmus parvifolia	Chinese Elm	36" Box	6	40'-50'H x 20'-40'	Per Plan	MOTOR, ENTRY COURT	MOD	NON NATIVE	INSIDE	UNKNOWN
SHRUBS											
	Acacia cognata Cousin Itt	Little River Wattle	5 gal.	26	2'-3'H x 8'-12'W	Per Plan	ENTRY, KIDS GARDEN	MOD	NON NATIVE	INSIDE	UNKNOWN
	Anigozanthos 'Bush Tango'	Dwarf Orange Kangaroo Paw	5 gal.	12	2'-3'H X 2'-3'W	Per Plan	KIDS GARDEN	MOD	NON NATIVE	INSIDE	UNKNOWN
	Artemisia 'Powis Castle'	Sagebrush	5 gal.	447	2'-4'H x 4'-6'W	Per Plan	DRIVEWAY	MOD	NATIVE	OUTSIDE	A
	Baccharis pilularis 'Pigeon Point'	Prostrate Coyote Brush	5 gal.	199	1'-2'H x 8'-10'W	Per Plan	DRIVEWAY	LOW	NATIVE	OUTSIDE	B
	Camellia sasanqua	Sasanqua Camellia	5 gal.	2	6'-15'H X 6'-15'W	Per Plan	MASTER	MOD	NON NATIVE	INSIDE	A-10
	Carissa macrocarpa 'Prostrata'	Prostrate Natal Plum	5 gal.	13	2'H X 5'-6'W	Per Plan	KITCHEN	LOW	NON NATIVE	INSIDE	A-10
	~~Cycas revoluta~~	~~Sago Palm~~	~~5 gal.~~	~~5~~	~~3'-10'H x 3'-10'W~~	~~Per Plan~~	~~ENTRY~~	~~MOD~~	~~NON NATIVE~~	~~INSIDE~~	~~A~~
	Dendromecon harfordii	Island Bush Poppy	5 gal.	10	4'-8'H X 2'-6' W	Per Plan	GUEST HOUSE	V LOW	NATIVE	OUTSIDE	B
	Encelia californica	Bush Sunflower	5 gal.	300	3'-4'H x 4'-5'W	Per Plan	DRIVEWAY	V LOW	NATIVE	OUTSIDE	A-10
	Eriodictyon crassifolium	Felt leaved Yerba Santa	5 gal.	36	3'-6'H x 3'-6'W	Per Plan	GUEST HOUSE	V LOW	NATIVE	OUTSIDE	UNKNOWN
	Eschsholzia californica	California Poppy	4" pot	1483	1'-1'H x 1'-1'W	Per Plan	DRIVEWAY	V LOW	NATIVE	OUTSIDE	UNKNOWN
	Mimulus aurantiacus	Bush Monkey Flower	5 gal.	218	2'-3'H x 2'-3'W	Per Plan	DRIVEWAY	V LOW	NATIVE	OUTSIDE	A-10
	Penstemon heterophyllus	Foothill Penstemon	5 gal.	9	1'-3' H x 1'-4' W	Per Plan	DRIVEWAY	UNKNOWN	NATIVE	OUTSIDE	A
	Pittosporum crassifolium 'Compactum'	Dwarf Karo	5 gal.	2	2'-3'H x 4'-6'W	Per Plan	MASTER	MOD	NON NATIVE	INSIDE	UNKNOWN
	Polystichum munitum	Sword Fern	5 gal.	11	2'-3'H x 2'-4'W	Per Plan	MASTER	MOD	NON NATIVE	INSIDE	UNKNOWN
	Rhamnus californica	Coffeeberry	5 gal.	21	6'-8'H x 6-8'W	Per Plan	GUEST HOUSE	V LOW	NATIVE	OUTSIDE	B
	Rosa californica 'Elsie'	California Rose	5 gal.	18	4'-8' H x Spreading	Per Plan	GUEST HOUSE	LOW	NATIVE	OUTSIDE	UNKNOWN
	Salvia apiana	White Sage	5 gal.	20	3'-5'H x 4'-5'W	Per Plan	GUEST HOUSE	V LOW	NATIVE	OUTSIDE	B
	Salvia leucophylla	Purple Sage	5 gal.	420	2'-5'H x 6'-10'W	Per Plan	DRIVEWAY, GUEST HOUSE	V LOW	NATIVE	OUTSIDE	B
	Trichostema lanatum	Whooly Blue Curls	5 gal.	225	3'-4'H x 4'-5'W	Per Plan	DRIVEWAY	V LOW	NATIVE	OUTSIDE	B
	Umbellularia californica	California Laurel	15 gal.	18	20'-30'H x 15'-25'W	Per Plan	DRIVEWAY	LOW	NATIVE	OUTSIDE	B
	Verbena lilacina 'De La Mina'	Cedros Island Verbena	5 gal.	78	1'-2'H x 3'-4'W	Per Plan	DRIVEWAY	LOW	NON NATIVE	INSIDE	A
GRASSES, BAMBOO & PHORMIUMS											
	Achnatherum coronatum	Porcupine grass	5 gal.	183	2'-3'H x Clumping	Per Plan	DRIVEWAY	UNKNOWN	NATIVE	INSIDE/ OUTSIDE	UNKNOWN
	Bambusa multiplex 'Golden Goddess'	Hedge Bamboo	-	5	6'-10' H x Clumping	Per Plan	MASTER	MOD	NON NATIVE	INSIDE	B-30
	Iris douglasiana	Douglas Iris	1 gal.	11	1'-3'H x 2'-3'W	Per Plan	MASTER	LOW	N CAL NATIVE	INSIDE	A
	Leymus condensatus 'Canyon Prince'	Wild Rye	5 gal.	215	2'-3'H x Spreading	Per Plan	DRIVEWAY, GUEST HOUSE	LOW	NATIVE	OUTSIDE	B
	Lomandra 'Lime Tuff'	Dwarf Mat Rush	5 gal.	598	2'-3'H x 2'-3'W	Per Plan	THROUGHOUT	UNKNOWN	NON NATIVE	INSIDE	UNKNOWN
	Muhlengergia rigens	Deer Grass	5 gal.	674	4'-5'H x 4'-6'W	Per Plan	DRIVEWAY	LOW	NATIVE	OUTSIDE	UNKNOWN
	Nassella cernua	Nodding needlegrass	5 gal.	161	2'-3'H x 2'-3'W	Per Plan	THROUGHOUT	V LOW	NATIVE	OUTSIDE	UNKNOWN
	Pennisetum 'Fairy Tails'	Evergreen Fountain Grass	5 gal.	23	3'-5'H x 2'-3'W	Per Plan	KIDS GARDEN	MOD	NON NATIVE	INSIDE	UNKNOWN
AGAVES, ALOES & SUCCULENTS											
	Cereus hildmannianus	Night Blooming Cereus	15 gal.	43	up to 30'H x 1'W	Per Plan	ENTRY CORRIDOR	UNKNOWN	NON NATIVE	INSIDE	UNKNOWN
	Euphorbia ingens	Candelabra Tree	15 gal.	4	15'-25'H x 5'-15'W	Per Plan	ENTRY CORRIDOR	LOW	NON NATIVE	INSIDE	A
	Hesperoyucca whipplei 'RBG'	Our Lord's Candle	5 gal.	15	2'-3' H x 3'-4' W	Per Plan	GUEST HOUSE	V LOW	NATIVE	OUTSIDE	UNKNOWN
WATER PLANTS											
	Cyperus papyrus	Papyrus	5 gal.	12	12'-16'H x 4'-5'W	Per Plan	ENTRY CORRIDOR	HIGH	NON NATIVE	INSIDE	UNKNOWN
	Nymphaeaceae	Water Lily	5 gal.	70		Per Plan	ENTRY CORRIDOR	HIGH	NON NATIVE	INSIDE	UNKNOWN
GROUNDCOVER & VINES											
	Artificial Turf			782 SF		Per Plan	KIDS GARDEN	N/A			N/A
	Agrostis Pallens	Thingrass	flats	31,229 SF	1'-2'H x 1'2'W	Per Plan	DRIVEWAY, KITCHEN GARDEN	UNKNOWN	NATIVE	INSIDE/ OUTSIDE	A
	Phyla nodiflora	Kurapia	flats	90 SF	6" H x Spread	Per Plan	COVERED LOUNGE	LOW	NON NATIVE	INSIDE	A
	Origanum vulgare/ Prostrate Rosemary	Oregano, Rosemary	flats	300 SF	1-2'H x 6-8'W	Per Plan	KITCHEN GARDEN	LOW	NON NATIVE	INSIDE	A
MULCH											
	Shredded Bark			67,592 SF			DRIVEWAY				
	Fine Gravel			12,374 SF			WIN 20' OF ~~STRUCTURES~~				



ENLARGED PLANTING PLAN

SCALE: 1/8" = 1'-0"

2



ENLARGED PLANTING PLAN

SCALE: 1/16" = 1'-0"

1

NOT FOR CONSTRUCTION

[place]

[pakshong landscape and architectural collaborative]
3617 exposition boulevard los angeles ca 90016
310 450 8100 fax 323 737 3290

CONSULTANTS

Property Owner
PAR PCH, LLC
PO Box 6528
Malibu, CA 90265

Design Architect
OPPENHEIM ARCHITECTURE
245 NE 37 Street
Miami, FL 33137
P 305 576 8404
F 305 576 8433
www.oppenoffice.com

Civil Engineers
LC ENGINEERING GROUP
889 Pierce Ct., Ste. 101
Thousand Oaks, CA 91360
P 805 497 1244
F 818 991 7148
www.lcegroupinc.com

NAME OF ISSUE

LICENSED LANDSCAPE ARCHITECT LOUIS CHRISTOPHY No. 6270 REN. 02-28-23 STATE OF CALIFORNIA

KEY PLAN

VILLA COLEAVA

25200 Pacific Coast Highway
Malibu, CA 90265

Project # : 1913
Drawn by : LS
Scale : AS NOTED

Ref. North

Description:	Date:	No.
PLANNING SUBMITTAL	02/17/21	
BIO REVISIONS	04/05/21	1
BIO REVISIONS	08/11/21	2

PROJECT NO: 2021

These drawings, specifications, ideas, designs, and arrangements presented thereby, are and shall remain the property of [place]. No part thereof shall be copied, disclosed to others or used in connection with any work or project other than the specific project for which they have been prepared and developed without the written consent of [place]. Visual contact with these drawings or specifications shall constitute conclusive evidence of acceptance of these restrictions.

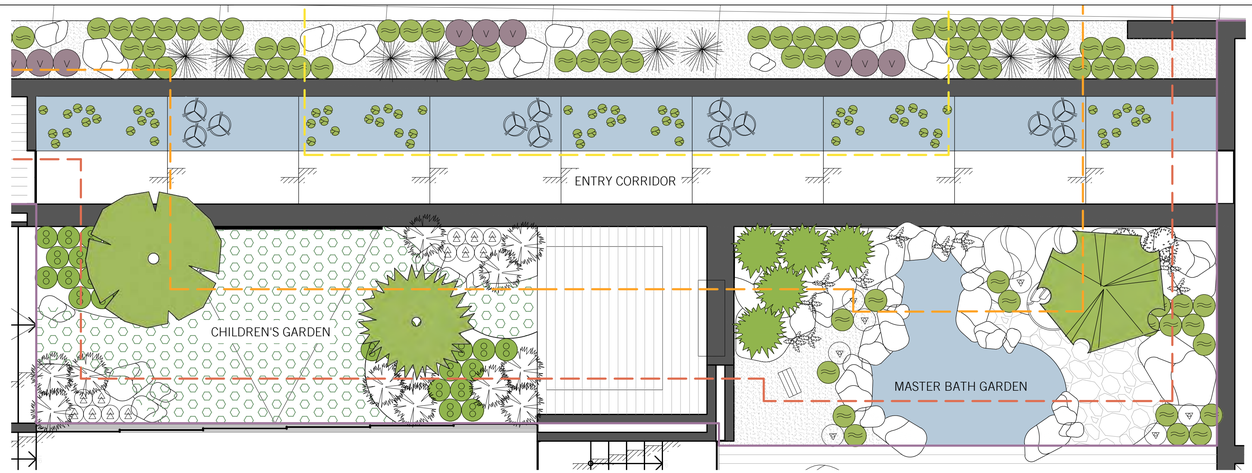
SHEET TITLE:

ENLARGED PLANTING PLAN

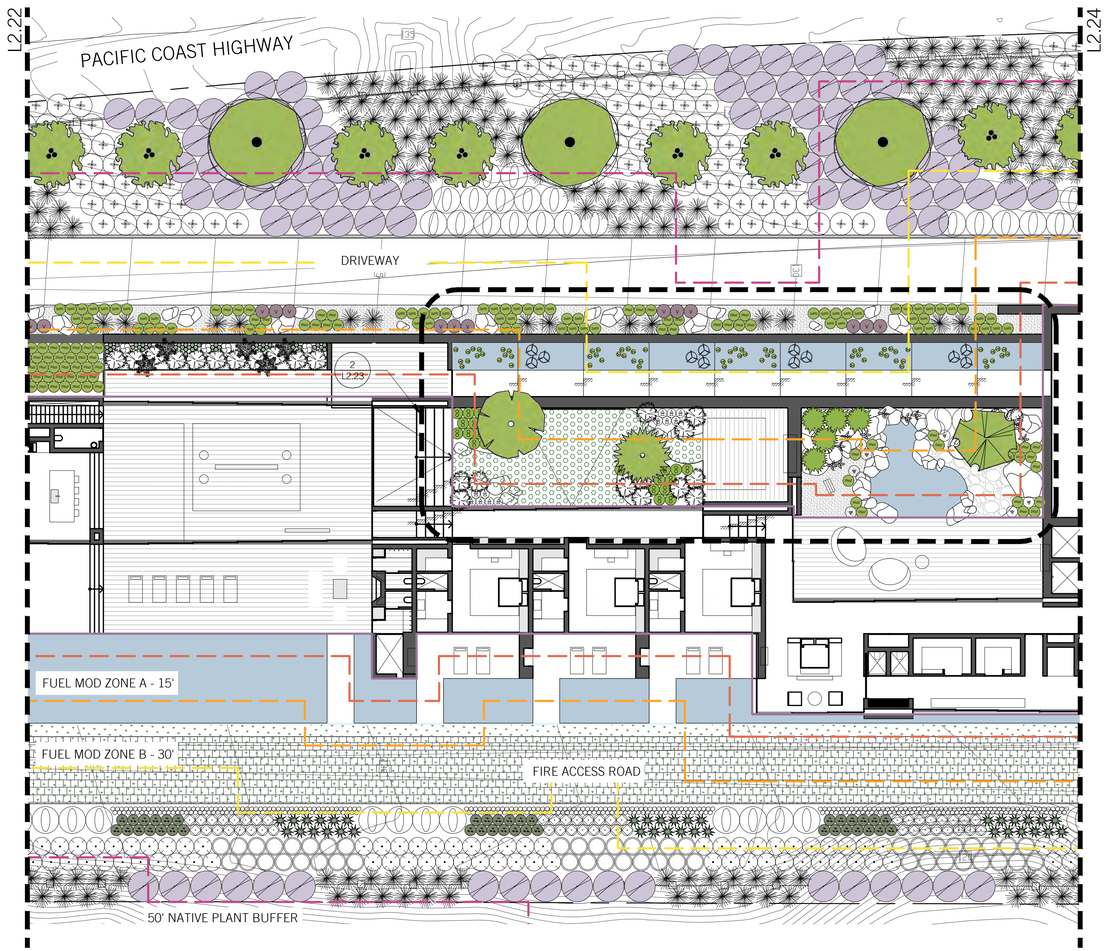
L2.22

OVERALL SITE PLANTING LEGEND

SYMBOL	BOTANICAL NAME	COMMON NAME	SIZE	QTY	PLANT SIZE	SPACING	NOTES	WUCOLS	ORIGIN	50' ZONE	FUEL ZONE
TREES											
	Acer palmatum	Japanese Maple	24" Box	1	15'-25'H x 15'-25'W	Per Plan	MASTER	MOD	NON NATIVE	INSIDE	A
	Arbutus 'Marina'	Marina Strawberry Tree Multi-Branch	48" Box	2	20'-40'H x 20'-30'W	Per Plan	OFFICE	LOW	NON NATIVE	INSIDE	B
	Dracaena draco	Dragon Tree	36" Box	1	15'-25'H x 15'-25'W	Per Plan	ENTRY, KIDS, KITCHEN	V LOW	NON NATIVE	INSIDE	A
	Dwarf Citrus	-	24" Box	5	-	Per Plan	KITCHEN GARDEN	MOD	NON NATIVE	INSIDE	A-10
	Heteromeles arbutifolia	Toyon	36" Box	37	20'-25' H x 8'-15'W	Per Plan	DRIVEWAY	V LOW	NATIVE	OUTSIDE	A-15
	Umbellularia californica	California Laurel	24" Box	10	20'-30'H x 15'-25'W	Per Plan	DRIVEWAY, GUEST HOUSE	LOW	NATIVE	OUTSIDE	B
	Plumeria rubra 'White'	Plumeria	15 gal.	0	15'-25'H x 15'-25'W	Per Plan	COVERED LOUNGE	LOW	NON NATIVE	INSIDE	A
	Quercus agrifolia	Coast Live Oak	36" Box	18	20'-70'H x 20'-70'W	Per Plan	DRIVEWAY, KITCHEN GARDEN	V LOW	NATIVE	OUTSIDE	B-30
	Quercus agrifolia	Coast Live Oak	96" Box	18	20'-70'H x 20'-70'W	Per Plan	DRIVEWAY SPECIMEN	V LOW	NATIVE	OUTSIDE	B-30
	Ulmus parvifolia	Chinese Elm	36" Box	6	40'-50'H x 20'-40'	Per Plan	MOTOR, ENTRY COURT	MOD	NON NATIVE	INSIDE	UNKNOWN
SHRUBS											
	Acacia cognata Cousin Itt	Little River Wattle	5 gal.	26	2'-3'H x 8'-12'W	Per Plan	ENTRY, KIDS GARDEN	MOD	NON NATIVE	INSIDE	UNKNOWN
	Anigozanthos 'Bush Tango'	Dwarf Orange Kangaroo Paw	5 gal.	12	2'-3'H X 2'-3'W	Per Plan	KIDS GARDEN	MOD	NON NATIVE	INSIDE	UNKNOWN
	Artemisia 'Powis Castle'	Sagebrush	5 gal.	447	2'-4'H x 4'-6'W	Per Plan	DRIVEWAY	MOD	NATIVE	OUTSIDE	A
	Baccharis pilularis 'Pigeon Point'	Prostrate Coyote Brush	5 gal.	199	1'-2'H x 8'-10'W	Per Plan	DRIVEWAY	LOW	NATIVE	OUTSIDE	B
	Camellia sasanqua	Sasanqua Camellia	5 gal.	2	6'-15'H X 6'-15'W	Per Plan	MASTER	MOD	NON NATIVE	INSIDE	A-10
	Carissa macrocarpa 'Prostrata'	Prostrate Natal Plum	5 gal.	13	2'H X 5'-6'W	Per Plan	KITCHEN	LOW	NON NATIVE	INSIDE	A-10
	~~Cycas revoluta~~	~~Sago Palm~~	~~5 gal.~~	~~5~~	~~3'-10'H x 3'-10'W~~	~~Per Plan~~	~~ENTRY~~	~~MOD~~	~~NON NATIVE~~	~~INSIDE~~	~~A~~
	Dendromecon harfordii	Island Bush Poppy	5 gal.	10	4'-8'H X 2'-6' W	Per Plan	GUEST HOUSE	V LOW	NATIVE	OUTSIDE	B
	Encelia californica	Bush Sunflower	5 gal.	300	3'-4'H x 4'-5'W	Per Plan	DRIVEWAY	V LOW	NATIVE	OUTSIDE	A-10
	Eriodictyon crassifolium	Felt leaved Yerba Santa	5 gal.	36	3'-6'H x 3'-6'W	Per Plan	GUEST HOUSE	V LOW	NATIVE	OUTSIDE	UNKNOWN
	Eschsholzia californica	California Poppy	4" pot	1483	1'-1'H x 1'-1'W	Per Plan	DRIVEWAY	V LOW	NATIVE	OUTSIDE	UNKNOWN
	Mimulus aurantiacus	Bush Monkey Flower	5 gal.	218	2'-3'H x 2'-3'W	Per Plan	DRIVEWAY	V LOW	NATIVE	OUTSIDE	A-10
	Penstemon heterophyllus	Foothill Penstemon	5 gal.	9	1'-3' H x 1'-4' W	Per Plan	DRIVEWAY	UNKNOWN	NATIVE	OUTSIDE	A
	Pittosporum crassifolium 'Compactum'	Dwarf Karo	5 gal.	2	2'-3'H x 4'-6'W	Per Plan	MASTER	MOD	NON NATIVE	INSIDE	UNKNOWN
	Polystichum munitum	Sword Fern	5 gal.	11	2'-3'H x 2'-4'W	Per Plan	MASTER	MOD	NON NATIVE	INSIDE	UNKNOWN
	Rhamnus californica	Coffeeberry	5 gal.	21	6'-8'H x 6-8'W	Per Plan	GUEST HOUSE	V LOW	NATIVE	OUTSIDE	B
	Rosa californica 'Elsie'	California Rose	5 gal.	18	4'-8' H x Spreading	Per Plan	GUEST HOUSE	LOW	NATIVE	OUTSIDE	UNKNOWN
	Salvia apiana	White Sage	5 gal.	20	3'-5'H x 4'-5'W	Per Plan	GUEST HOUSE	V LOW	NATIVE	OUTSIDE	B
	Salvia leucophylla	Purple Sage	5 gal.	420	2'-5'H x 6'-10'W	Per Plan	DRIVEWAY, GUEST HOUSE	V LOW	NATIVE	OUTSIDE	B
	Trichostema lanatum	Whooly Blue Curls	5 gal.	225	3'-4'H x 4'-5'W	Per Plan	DRIVEWAY	V LOW	NATIVE	OUTSIDE	B
	Umbellularia californica	California Laurel	15 gal.	18	20'-30'H x 15'-25'W	Per Plan	DRIVEWAY	LOW	NATIVE	OUTSIDE	B
	Verbena lilacina 'De La Mina'	Cedros Island Verbena	5 gal.	78	1'-2'H x 3'-4'W	Per Plan	DRIVEWAY	LOW	NON NATIVE	INSIDE	A
GRASSES, BAMBOO & PHORMIUMS											
	Achnatherum coronatum	Porcupine grass	5 gal.	183	2'-3'H x Clumping	Per Plan	DRIVEWAY	UNKNOWN	NATIVE	INSIDE/ OUTSIDE	UNKNOWN
	Bambusa multiplex 'Golden Goddess'	Hedge Bamboo	-	5	6'-10' H x Clumping	Per Plan	MASTER	MOD	NON NATIVE	INSIDE	B-30
	Iris douglasiana	Douglas Iris	1 gal.	11	1'-3'H x 2'-3'W	Per Plan	MASTER	LOW	N CAL NATIVE	INSIDE	A
	Leymus condensatus 'Canyon Prince'	Wild Rye	5 gal.	215	2'-3'H x Spreading	Per Plan	DRIVEWAY, GUEST HOUSE	LOW	NATIVE	OUTSIDE	B
	Lomandra 'Lime Tuff'	Dwarf Mat Rush	5 gal.	598	2'-3'H x 2'-3'W	Per Plan	THROUGHOUT	UNKNOWN	NON NATIVE	INSIDE	UNKNOWN
	Muhlengergia rigens	Deer Grass	5 gal.	674	4'-5'H x 4'-6'W	Per Plan	DRIVEWAY	LOW	NATIVE	OUTSIDE	UNKNOWN
	Nassella cernua	Nodding needlegrass	5 gal.	161	2'-3'H x 2'-3'W	Per Plan	THROUGHOUT	V LOW	NATIVE	OUTSIDE	UNKNOWN
	Pennisetum 'Fairy Tails'	Evergreen Fountain Grass	5 gal.	23	3'-5'H x 2'-3'W	Per Plan	KIDS GARDEN	MOD	NON NATIVE	INSIDE	UNKNOWN
AGAVES, ALOES & SUCCULENTS											
	Cereus hildmannianus	Night Blooming Cereus	15 gal.	43	up to 30'H x 1'W	Per Plan	ENTRY CORRIDOR	UNKNOWN	NON NATIVE	INSIDE	UNKNOWN
	Euphorbia ingens	Candelabra Tree	15 gal.	4	15'-25'H x 5'-15'W	Per Plan	ENTRY CORRIDOR	LOW	NON NATIVE	INSIDE	A
	Hesperoyucca whipplei 'RBG'	Our Lord's Candle	5 gal.	15	2'-3' H x 3'-4' W	Per Plan	GUEST HOUSE	V LOW	NATIVE	OUTSIDE	UNKNOWN
WATER PLANTS											
	Cyperus papyrus	Papyrus	5 gal.	12	12'-16'H x 4'-5'W	Per Plan	ENTRY CORRIDOR	HIGH	NON NATIVE	INSIDE	UNKNOWN
	Nymphaeaceae	Water Lily	5 gal.	70		Per Plan	ENTRY CORRIDOR	HIGH	NON NATIVE	INSIDE	UNKNOWN
GROUNDCOVER & VINES											
	Artificial Turf			782 SF		Per Plan	KIDS GARDEN	N/A			N/A
	Agrostis Pallens	Thingrass	flats	31,229 SF	1'-2'H x 1'2'W	Per Plan	DRIVEWAY, KITCHEN GARDEN	UNKNOWN	NATIVE	INSIDE/ OUTSIDE	A
	Phyla nodiflora	Kurapia	flats	90 SF	6" H x Spread	Per Plan	COVERED LOUNGE	LOW	NON NATIVE	INSIDE	A
	Origanum vulgare/ Prostrate Rosemary	Oregano, Rosemary	flats	300 SF	1-2'H x 6-8'W	Per Plan	KITCHEN GARDEN	LOW	NON NATIVE	INSIDE	A
MULCH											
	Shredded Bark			67,592 SF			DRIVEWAY				
	Fine Gravel			12,374 SF			W/IN 20' OF ~~STRUCTURES~~				



ENLARGED PLANTING PLAN 2
SCALE: 1/8" = 1'-0"



ENLARGED PLANTING PLAN 1
SCALE: 1/8" = 1'-0"

NOT FOR CONSTRUCTION

[place]

[pakshong landscape and architectural collaborative]
3617 exposition boulevard los angeles ca 90016
310 450 8100 fax 323 737 3290

CONSULTANTS

Property Owner
PAR PCH, LLC
PO Box 6528
Malibu, CA 90265

Design Architect
OPPENHEIM ARCHITECTURE
245 NE 37 Street
Miami, FL 33137
P 305 576 8404
F 305 576 8433
www.oppenoffice.com

Civil Engineers
LC ENGINEERING GROUP
889 Pierce Ct., Ste. 101
Thousand Oaks, CA 91360
P 805 497 1244
F 818 991 7148
www.lcegroupinc.com

NAME OF ISSUE

LICENSED LANDSCAPE ARCHITECT LOUIS PAKSHONG No. C27025 REN. 02-28-23 STATE OF CALIFORNIA

KEY PLAN

VILLA COLEAVA

25200 Pacific Coast Highway
Malibu, CA 90265

Project # : 1913
Drawn by : LS
Scale : AS NOTED

Ref. North

Description:	Date:	No.
PLANNING SUBMITTAL	02/17/21	
BIO REVISIONS	04/05/21	1
BIO REVISIONS	08/11/21	2

PROJECT NO: 2021

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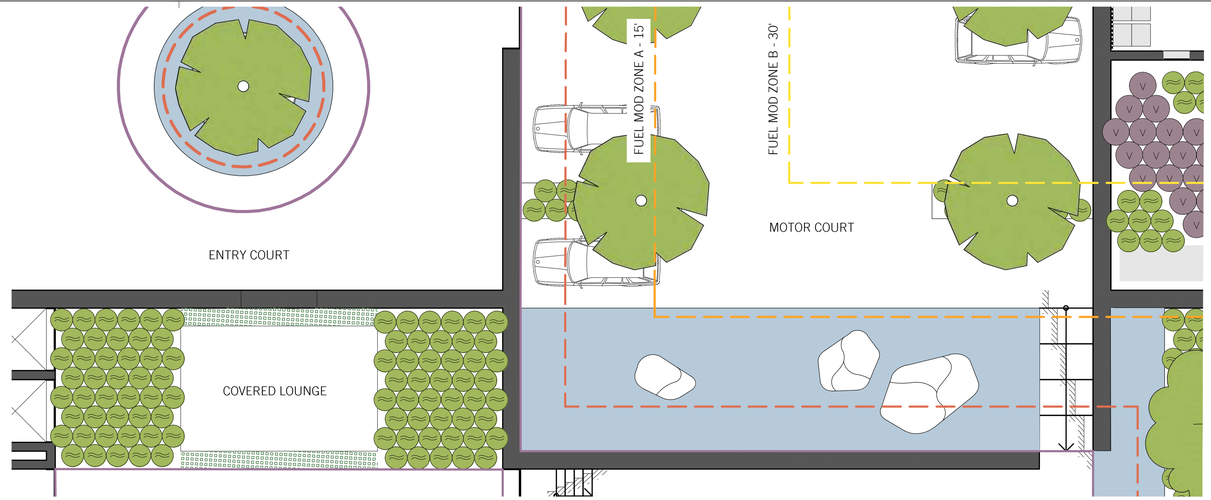
SHEET TITLE:

ENLARGED PLANTING PLAN

L2.23

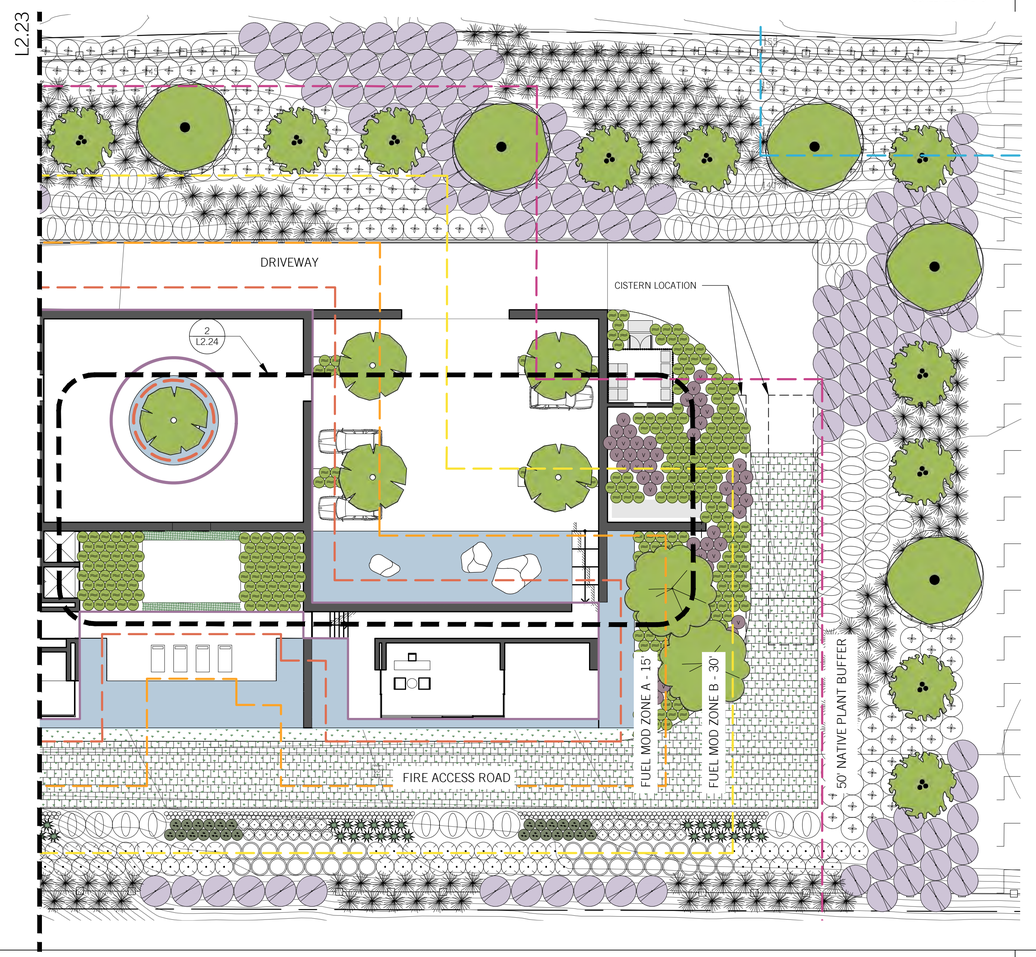
OVERALL SITE PLANTING LEGEND

SYMBOL	BOTANICAL NAME	COMMON NAME	SIZE	QTY	PLANT SIZE	SPACING	NOTES	WUCOLS	ORIGIN	50' ZONE	FUEL ZONE
TREES											
	Acer palmatum	Japanese Maple	24" Box	1	15'-25'H x 15'-25'W	Per Plan	MASTER	MOD	NON NATIVE	INSIDE	A
	Arbutus 'Marina'	Marina Strawberry Tree Multi-Branch	48" Box	2	20'-40'H x 20'-30'W	Per Plan	OFFICE	LOW	NON NATIVE	INSIDE	B
	Dracaena draco	Dragon Tree	36" Box	1	15'-25'H x 15'-25'W	Per Plan	ENTRY, KIDS, KITCHEN	V LOW	NON NATIVE	INSIDE	A
	Dwarf Citrus	-	24" Box	5	-	Per Plan	KITCHEN GARDEN	MOD	NON NATIVE	INSIDE	A-10
	Heteromeles arbutifolia	Toyon	36" Box	37	20'-25' H x 8'-15'W	Per Plan	DRIVEWAY	V LOW	NATIVE	OUTSIDE	A-15
	Umbellularia californica	California Laurel	24" Box	10	20'-30'H x 15'-25'W	Per Plan	DRIVEWAY, GUEST HOUSE	LOW	NATIVE	OUTSIDE	B
	Plumeria rubra 'White'	Plumeria	15 gal.	0	15'-25'H x 15'-25'W	Per Plan	COVERED LOUNGE	LOW	NON NATIVE	INSIDE	A
	Quercus agrifolia	Coast Live Oak	36" Box	18	20'-70'H x 20'-70'W	Per Plan	DRIVEWAY, KITCHEN GARDEN	V LOW	NATIVE	OUTSIDE	B-30
	Quercus agrifolia	Coast Live Oak	96" Box	18	20'-70'H x 20'-70'W	Per Plan	DRIVEWAY SPECIMEN	V LOW	NATIVE	OUTSIDE	B-30
	Ulmus parvifolia	Chinese Elm	36" Box	6	40'-50'H x 20'-40'	Per Plan	MOTOR, ENTRY COURT	MOD	NON NATIVE	INSIDE	UNKNOWN
SHRUBS											
	Acacia cognata Cousin Itt	Little River Wattle	5 gal.	26	2'-3'H x 8'-12'W	Per Plan	ENTRY, KIDS GARDEN	MOD	NON NATIVE	INSIDE	UNKNOWN
	Anigozanthos 'Bush Tango'	Dwarf Orange Kangaroo Paw	5 gal.	12	2'-3'H X 2'-3'W	Per Plan	KIDS GARDEN	MOD	NON NATIVE	INSIDE	UNKNOWN
	Artemisia 'Powis Castle'	Sagebrush	5 gal.	447	2'-4'H x 4'-6'W	Per Plan	DRIVEWAY	MOD	NATIVE	OUTSIDE	A
	Baccharis pilularis 'Pigeon Point'	Prostrate Coyote Brush	5 gal.	199	1'-2'H x 8'-10'W	Per Plan	DRIVEWAY	LOW	NATIVE	OUTSIDE	B
	Camellia sasanqua	Sasanqua Camellia	5 gal.	2	6'-15'H X 6'-15'W	Per Plan	MASTER	MOD	NON NATIVE	INSIDE	A-10
	Carissa macrocarpa 'Prostrata'	Prostrate Natal Plum	5 gal.	13	2'H X 5'-6'W	Per Plan	KITCHEN	LOW	NON NATIVE	INSIDE	A-10
	~~Cycas revoluta~~	~~Sago Palm~~	~~5 gal.~~	~~5~~	~~3'-10'H x 3'-10'W~~	~~Per Plan~~	~~ENTRY~~	~~MOD~~	~~NON NATIVE~~	~~INSIDE~~	~~A~~
	Dendromecon harfordii	Island Bush Poppy	5 gal.	10	4'-8'H X 2'-6' W	Per Plan	GUEST HOUSE	V LOW	NATIVE	OUTSIDE	B
	Encelia californica	Bush Sunflower	5 gal.	300	3'-4'H x 4'-5'W	Per Plan	DRIVEWAY	V LOW	NATIVE	OUTSIDE	A-10
	Eriodictyon crassifolium	Felt leaved Yerba Santa	5 gal.	36	3'-6'H x 3'-6'W	Per Plan	GUEST HOUSE	V LOW	NATIVE	OUTSIDE	UNKNOWN
	Eschsholzia californica	California Poppy	4" pot	1483	1'-1'H x 1'-1'W	Per Plan	DRIVEWAY	V LOW	NATIVE	OUTSIDE	UNKNOWN
	Mimulus aurantiacus	Bush Monkey Flower	5 gal.	218	2'-3'H x 2'-3'W	Per Plan	DRIVEWAY	V LOW	NATIVE	OUTSIDE	A-10
	Penstemon heterophyllus	Foothill Penstemon	5 gal.	9	1'-3' H x 1'-4' W	Per Plan	DRIVEWAY	UNKNOWN	NATIVE	OUTSIDE	A
	Pittosporum crassifolium 'Compactum'	Dwarf Karo	5 gal.	2	2'-3'H x 4'-6'W	Per Plan	MASTER	MOD	NON NATIVE	INSIDE	UNKNOWN
	Polystichum munitum	Sword Fern	5 gal.	11	2'-3'H x 2'-4'W	Per Plan	MASTER	MOD	NON NATIVE	INSIDE	UNKNOWN
	Rhamnus californica	Coffeeberry	5 gal.	21	6'-8'H x 6-8'W	Per Plan	GUEST HOUSE	V LOW	NATIVE	OUTSIDE	B
	Rosa californica 'Elsie'	California Rose	5 gal.	18	4'-8' H x Spreading	Per Plan	GUEST HOUSE	LOW	NATIVE	OUTSIDE	UNKNOWN
	Salvia apiana	White Sage	5 gal.	20	3'-5'H x 4'-5'W	Per Plan	GUEST HOUSE	V LOW	NATIVE	OUTSIDE	B
	Salvia leucophylla	Purple Sage	5 gal.	420	2'-5'H x 6'-10'W	Per Plan	DRIVEWAY, GUEST HOUSE	V LOW	NATIVE	OUTSIDE	B
	Trichostema lanatum	Whooly Blue Curls	5 gal.	225	3'-4'H x 4'-5'W	Per Plan	DRIVEWAY	V LOW	NATIVE	OUTSIDE	B
	Umbellularia californica	California Laurel	15 gal.	18	20'-30'H x 15'-25'W	Per Plan	DRIVEWAY	LOW	NATIVE	OUTSIDE	B
	Verbena lilacina 'De La Mina'	Cedros Island Verbena	5 gal.	78	1'-2'H x 3'-4'W	Per Plan	DRIVEWAY	LOW	NON NATIVE	INSIDE	A
GRASSES, BAMBOO & PHORMIUMS											
	Achnatherum coronatum	Porcupine grass	5 gal.	183	2'-3'H x Clumping	Per Plan	DRIVEWAY	UNKNOWN	NATIVE	INSIDE/ OUTSIDE	UNKNOWN
	Bambusa multiplex 'Golden Goddess'	Hedge Bamboo	-	5	6'-10' H x Clumping	Per Plan	MASTER	MOD	NON NATIVE	INSIDE	B-30
	Iris douglasiana	Douglas Iris	1 gal.	11	1'-3'H x 2'-3'W	Per Plan	MASTER	LOW	N CAL NATIVE	INSIDE	A
	Leymus condensatus 'Canyon Prince'	Wild Rye	5 gal.	215	2'-3'H x Spreading	Per Plan	DRIVEWAY, GUEST HOUSE	LOW	NATIVE	OUTSIDE	B
	Lomandra 'Lime Tuff'	Dwarf Mat Rush	5 gal.	598	2'-3'H x 2'-3'W	Per Plan	THROUGHOUT	UNKNOWN	NON NATIVE	INSIDE	UNKNOWN
	Muhlengergia rigens	Deer Grass	5 gal.	674	4'-5'H x 4'-6'W	Per Plan	DRIVEWAY	LOW	NATIVE	OUTSIDE	UNKNOWN
	Nassella cernua	Nodding needlegrass	5 gal.	161	2'-3'H x 2'-3'W	Per Plan	THROUGHOUT	V LOW	NATIVE	OUTSIDE	UNKNOWN
	Pennisetum 'Fairy Tails'	Evergreen Fountain Grass	5 gal.	23	3'-5'H x 2'-3'W	Per Plan	KIDS GARDEN	MOD	NON NATIVE	INSIDE	UNKNOWN
AGAVES, ALOES & SUCCULENTS											
	Cereus hildmannianus	Night Blooming Cereus	15 gal.	43	up to 30'H x 1'W	Per Plan	ENTRY CORRIDOR	UNKNOWN	NON NATIVE	INSIDE	UNKNOWN
	Euphorbia ingens	Candelabra Tree	15 gal.	4	15'-25'H x 5'-15'W	Per Plan	ENTRY CORRIDOR	LOW	NON NATIVE	INSIDE	A
	Hesperoyucca whipplei 'RBG'	Our Lord's Candle	5 gal.	15	2'-3' H x 3'-4' W	Per Plan	GUEST HOUSE	V LOW	NATIVE	OUTSIDE	UNKNOWN
WATER PLANTS											
	Cyperus papyrus	Papyrus	5 gal.	12	12'-16'H x 4'-5'W	Per Plan	ENTRY CORRIDOR	HIGH	NON NATIVE	INSIDE	UNKNOWN
	Nymphaeaceae	Water Lily	5 gal.	70		Per Plan	ENTRY CORRIDOR	HIGH	NON NATIVE	INSIDE	UNKNOWN
GROUNDCOVER & VINES											
	Artificial Turf			782 SF		Per Plan	KIDS GARDEN	N/A			N/A
	Agrostis Pallens	Thingrass	flats	31,229 SF	1'-2'H x 1'2'W	Per Plan	DRIVEWAY, KITCHEN GARDEN	UNKNOWN	NATIVE	INSIDE/ OUTSIDE	A
	Phyla nodiflora	Kurapia	flats	90 SF	6" H x Spread	Per Plan	COVERED LOUNGE	LOW	NON NATIVE	INSIDE	A
	Origanum vulgare/ Prostrate Rosemary	Oregano, Rosemary	flats	300 SF	1-2'H x 6-8'W	Per Plan	KITCHEN GARDEN	LOW	NON NATIVE	INSIDE	A
MULCH											
	Shredded Bark			67,592 SF			DRIVEWAY				
	Fine Gravel			12,374 SF			~~WIN 20' OF STRUCTURES~~				



ENLARGED PLANTING PLAN 2

SCALE: 1/8" = 1'-0"



ENLARGED PLANTING PLAN 1

SCALE: 1/16" = 1'-0"

NOT FOR CONSTRUCTION

[place]

[pakshong landscape and architectural collaborative]
3617 exposition boulevard los angeles ca 90016
310 450 8100 fax 323 737 3290

CONSULTANTS

Property Owner
PAR PCH, LLC
PO Box 6528
Malibu, CA 90265

Design Architect
OPPENHEIM ARCHITECTURE
245 NE 37 Street
Miami, FL 33137
P 305 576 8404
F 305 576 8433
www.oppenoffice.com

Civil Engineers
LC ENGINEERING GROUP
889 Pierce Ct., Ste. 101
Thousand Oaks, CA 91360
P 805 497 1244
F 818 991 7148
www.lcegroupinc.com

NAME OF ISSUE

LICENSED LANDSCAPE ARCHITECT — LOUIS GUGLIELMO — No C27025 — REN. 02-26-23 — STATE OF CALIFORNIA

KEY PLAN

VILLA COLEAVA

25200 Pacific Coast Highway
Malibu, CA 90265

Project # : 1913
Drawn by : LS
Scale : AS NOTED

Ref. North

Description:	Date:	No.
PLANNING SUBMITTAL	02/17/21	
BIO REVISIONS	04/05/21	1
BIO REVISIONS	08/11/21	2

PROJECT NO: 2021

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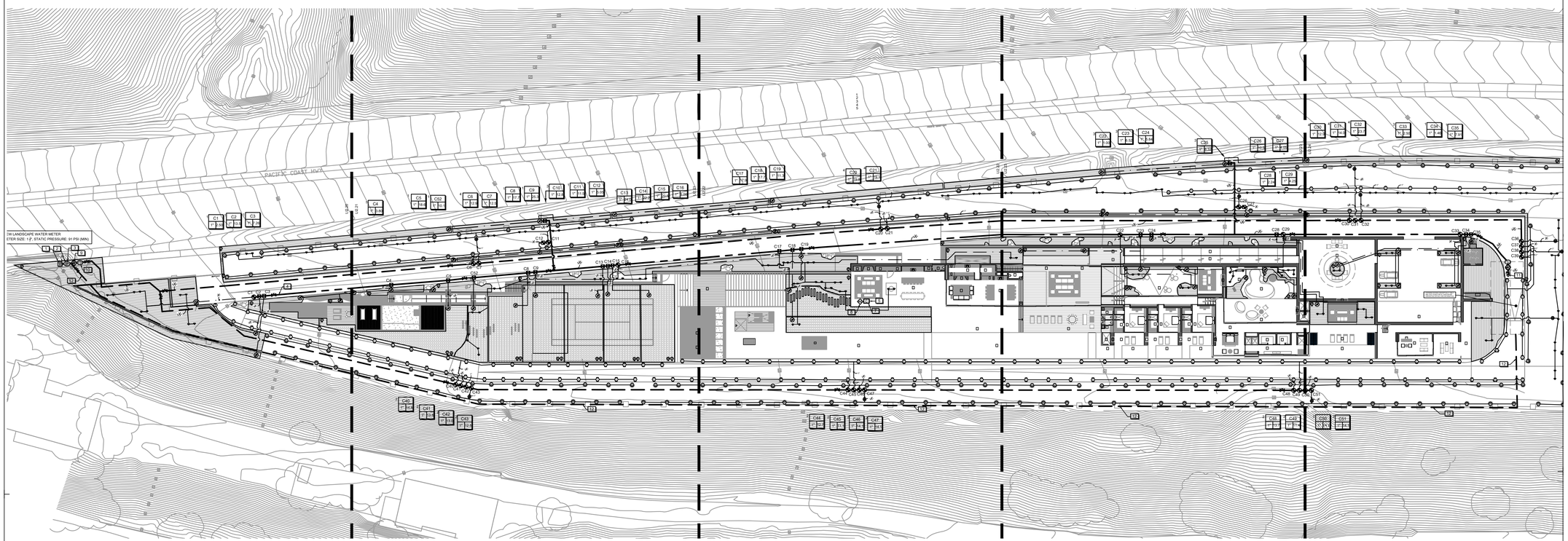
SHEET TITLE:

ENLARGED PLANTING PLAN

L2.24



SPECIAL IRRIGATION NOTES

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0 40 80 120 160 feet

1" = 40'

LICENSED LANDSCAPE ARCHITECT
Mark Sussex 5809
Signature
4-30-2022
Renewal Date
Date
STATE OF CALIFORNIA

[place]

[pakshong landscape and architectural collaborative]
3617 exposition boulevard los angeles ca 90016
310 450 8100 fax 323 737 3290

CONSULTANTS

NAME OF ISSUE

LICENSED ARCHITECT
VICTORIA PAKSHONG
NO C27025
REN 02-28-21
STATE OF CALIFORNIA

KEY PLAN

VILLA COLEAVA

25200 Pacific Coast Highway
Malibu, CA 90265

Project # :
Drawn by :ms
Scale : AS SHOWN

Ref. North

Description:	Date:	No.
		#

PROJECT NO: 2021

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IRRIGATION KEY PLAN

L 5.01

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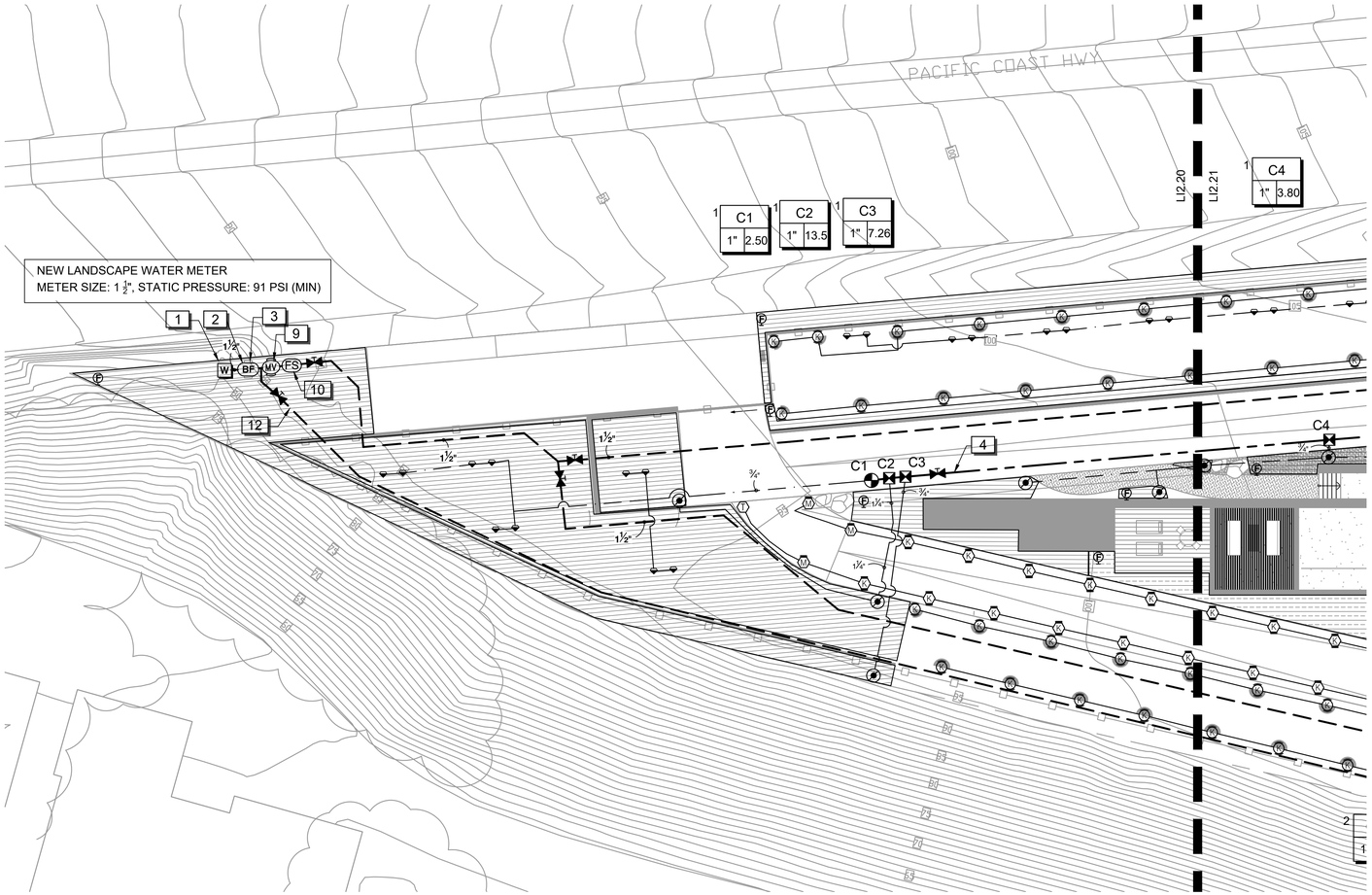

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0 16 32 48 64 feet

1/16" = 1'-0"

LICENSED LANDSCAPE ARCHITECT
Mark Sussen 5809
Signature
4-30-2022
Renewal Date
Date
STATE OF CALIFORNIA

[place]

[pakshong landscape and architectural collaborative]
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P R O J E C T N O: 2021

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IRRIGATION PLANS

L 5.20

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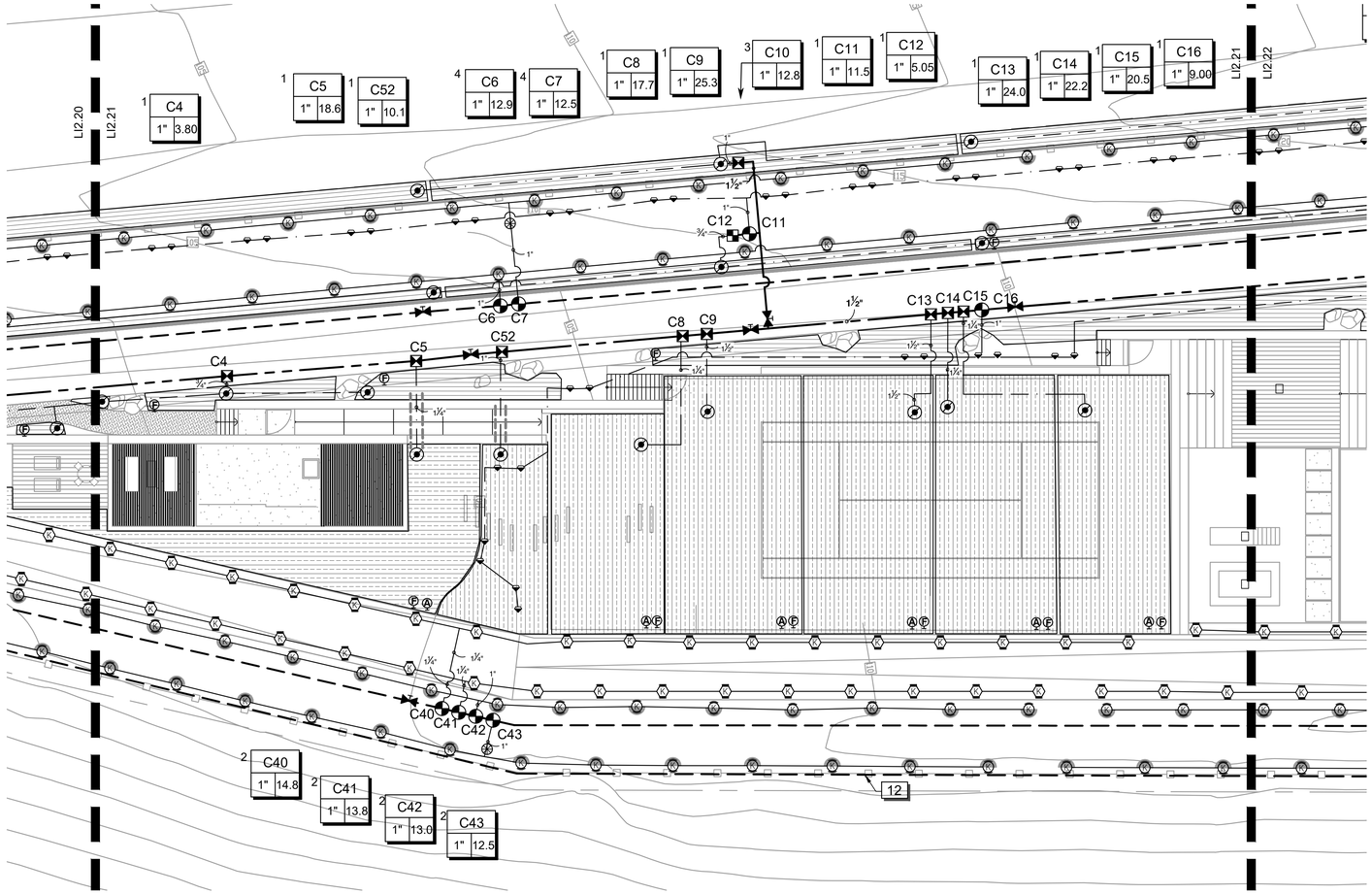

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Mark Simon 5809
Signature
4-30-2022
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Date
STATE OF CALIFORNIA

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VICTORIA FRANCIS
No C27025
REN 02-28-21
STATE OF CALIFORNIA

KEY PLAN

VILLA COLEAVA

25200 Pacific Coast Highway
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		#

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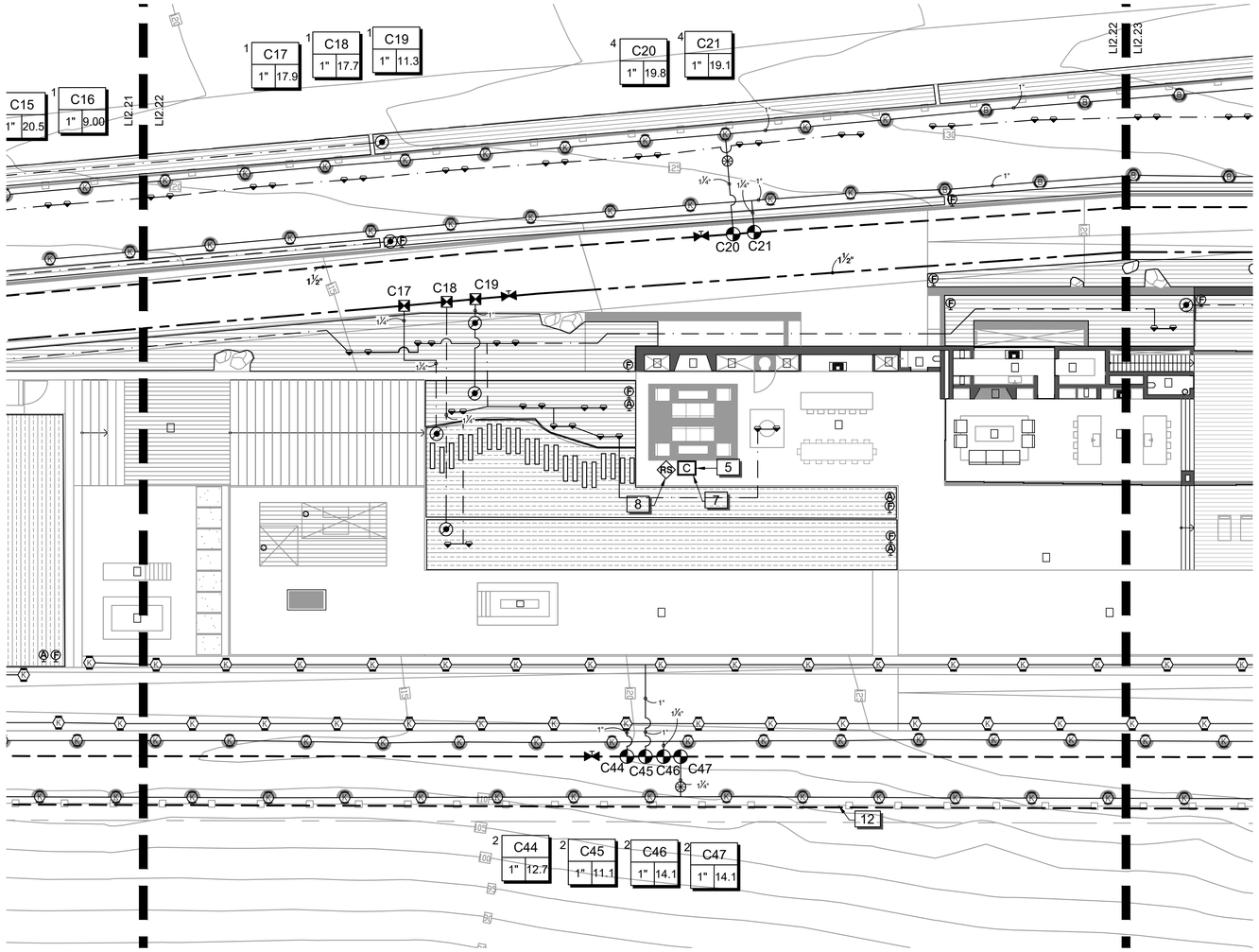
IRRIGATION PLANS

L 5.21



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Mark Sussman 5809
Signature
4-30-2022
Renewal Date
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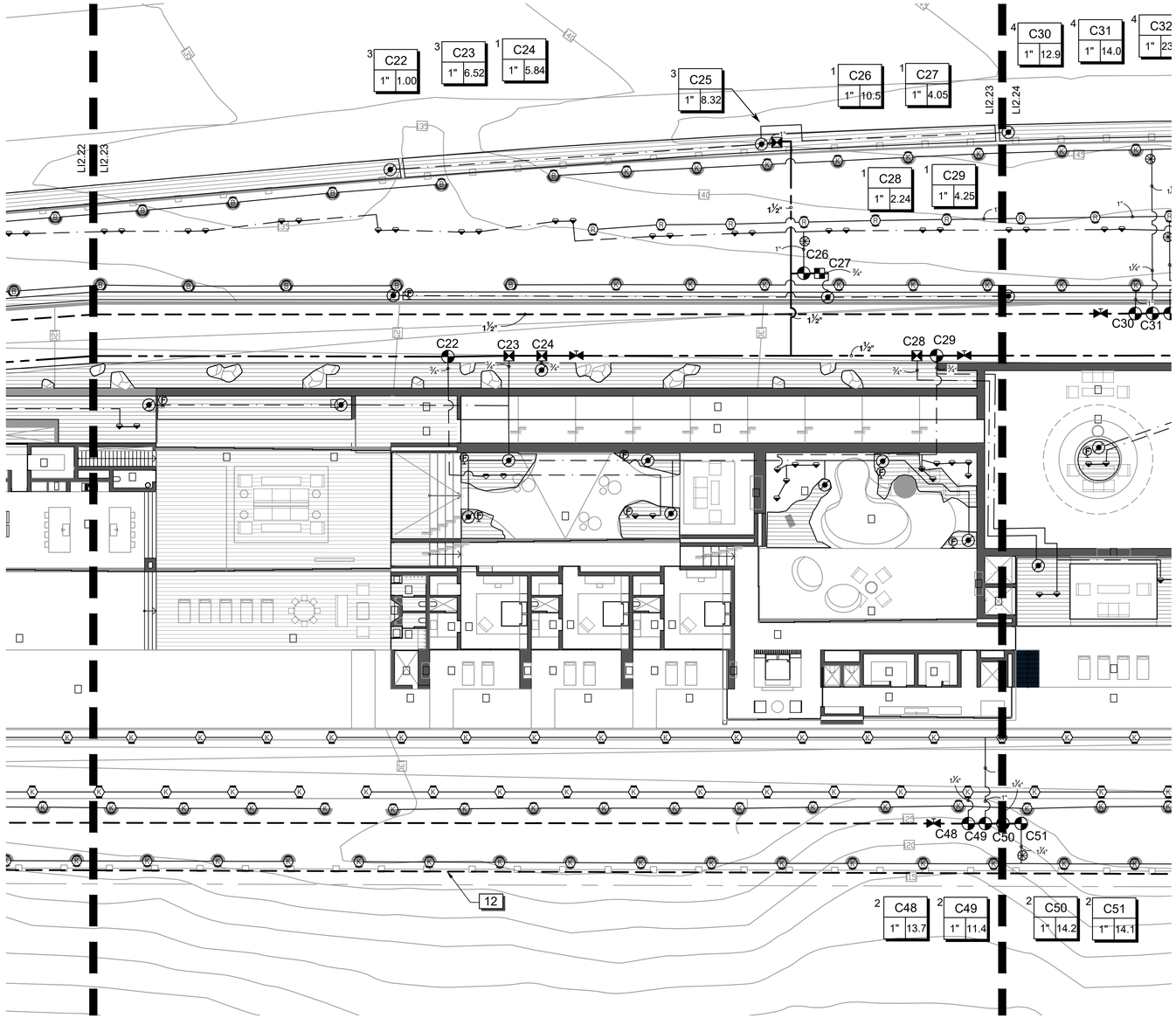

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Mark Siegel 5809
Signature
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VICTORIA FRANCIS
No C27025
REN 02-28-21
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IRRIGATION PLANS

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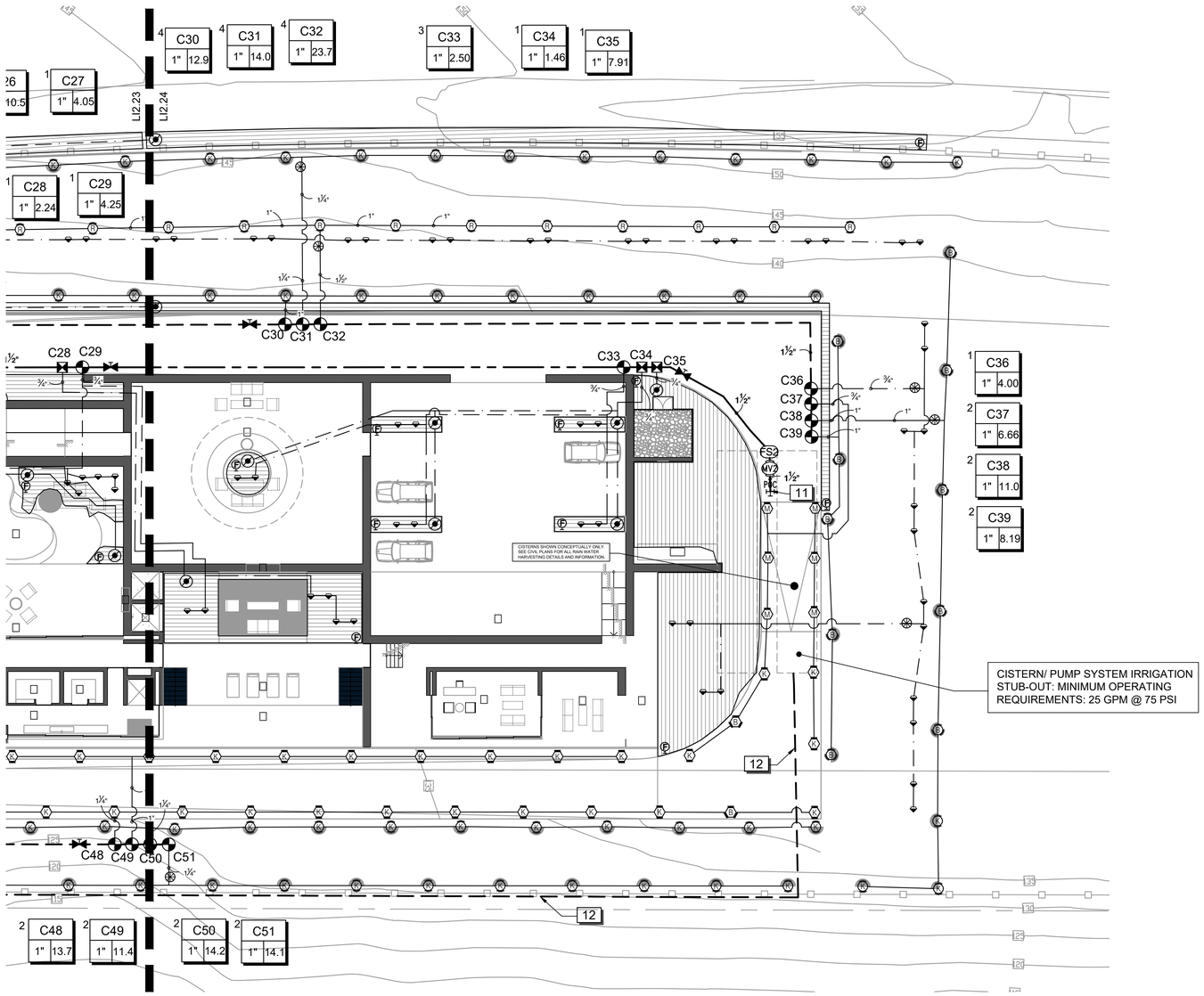

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LICENSED LANDSCAPE ARCHITECT Mark Sussman 5909 Signature 4-30-2022 Renewal Date Date STATE OF CALIFORNIA

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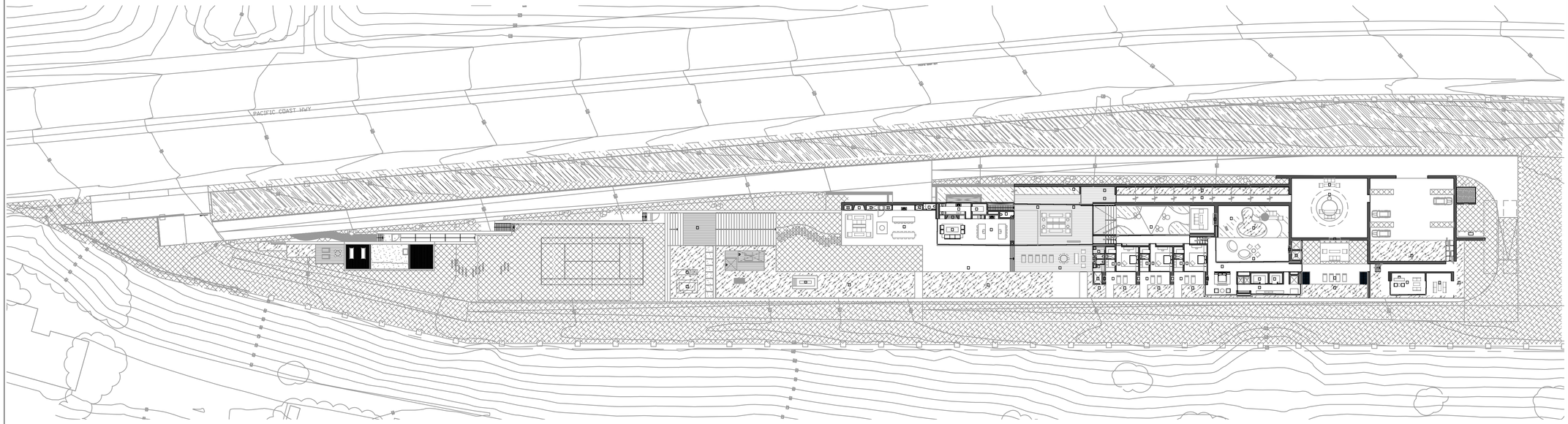
IRRIGATION PLANS

L 5.24



0 40 80 120 160 feet

1" = 40'

HYDROZONE SCHEDULE

SYMBOL	DESCRIPTION	QTY
	HYDROZONE 1 LOW WATER USE DRIP	30,334 sf
	HYDROZONE 2 LOW WATER USE SPRAY	35,576 sf
	HYDROZONE 3 MED WATER USE DRIP	6,184 sf
	HYDROZONE 4 MED WATER USE SPRAY	23,446 sf
	HYDROZONE 5 HIGH WATER USE (POOL/SPA).	9,826 sf

HYDROZONE NOTES:
1. HYDROZONE CALLOUTS ON THE IRRIGATION PLAN REFER TO THE HYDROZONE NUMBER.

WATER EFFICIENT LANDSCAPE WORKSHEET

This worksheet is filled out by the project applicant and it is a required element of the Landscape Documentation Package.

Project Name: 25200 PCH
Project Address: 25200 PCH, Malibu, CA 90265 **2/15/2021**

Reference Evaporation (ETo) 44.2 In/Yr **Residential Project?** YES

ETWU = (Eto)(.62)((ETAF X AREA)

Hydrozone Plant/Desc	Hydrozone #	Valve #	Plant Fctr PF	Irrigation Method	Irrigation Efficiency (IE)	ETAF (PF/IE)	Land. Area	ETAF X Area	Estimated Total Water Use (ETWU)
Regular Landscape Areas									
LOW WATER	1		0.2	D	0.81	0.25	30,334	7489.9	205,253
LOW WATER	2		0.2	S	0.76	0.26	35,576	9362.1	256,559
MED WATER	3		0.5	D	0.81	0.62	6,184	3817.3	104,609
MED WATER	4		0.5	S	0.76	0.66	23,446	15425.0	422,707
HIGH (POOL/SPA)	5		1	0	1	1.00	9,826	9825.7	269,263
TOTALS						Totals	105,366	45,920	1,258,391
Special Landscape Area:						1	0	0	0
						Totals	0	0	0

Estimated Total Water Use (ETWU) Total	1,258,391
Maximum Applied Water Allowance (MAWA)	1,588,093

Hydrozone # Planting Desc. **MAWA = (Eto)(.62)(.55 x LA) + (.45 x SLA)**
Low Water
Med Water

Irrigation Method
Overhead Spray or Drip

Irrigation Efficiency
0.75 for Spray
0.81 for Drip

MAWA (Annual Gallons Allowed) = ETo x .62 x [(ETAF x LA) + [(1-ETAF) x SLA)]
Where 0.62 is a conversion factor that converts acre-inches/acre/year to gallons/squre foor/year, LA is the total landscape area in square feet, SLA is the total special landscape rea in squre feet, and ETAF is 0.55 for residential projects and 0.45 for non-residential projects.

ETWU (Annual Gallons Required) = ETo x 0.62 x ETAF x Area
Where 0.62 is a conversion factor that converts acre-inches/acre/year to gallons/square foor/year.

Evapotranspiration Adjustment Factor (ETAF) Calculation

This residential project complies with the WELO and its average ETAF is less than **0.55**

Regular Landscape Areas	
Total ETAF x Area	45,920
Total Area	105,366
Average ETAF	0.44

All Landscape Areas	
Total ETAF x Area	45,920
Total Area	105,366
Average ETAF	0.44

APPENDIX B WATER EFFICIENT LANDSCAPE WORKSHEET

Maximum Applied Water Allowance

Annual ET(0)	LA Sq Ft	SLA Sq Ft	MAWA (gal/year	Notes
44.2	105,366	0	1,588,093	ET(0) per MWELO09

MAWA = (Eto)(.62)(.55 x LA) + (.45 x SLA)

SLA = 0

[place]

[pakshong landscape and architectural collaborative]
3617 exposition boulevard los angeles ca 90016
310 450 8100 fax 323 737 3290

CONSULTANTS

NAME OF ISSUE

LICENSED ARCHITECT
VICTORIA FRANCIS
No C27025
REN. 02-28-21
STATE OF CALIFORNIA

KEY PLAN

VILLA COLEAVA

25200 Pacific Coast Highway
Malibu, CA 90265

Project # :
Drawn by :ms
Scale : AS SHOWN

Ref. North

Description:	Date:	No.
		#

PROJECT NO: 2021

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HYDROZONE PLAN/MWELO

L 5.25

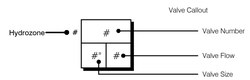
LICENSED LANDSCAPE ARCHITECT
Mark Sweet 5809
Signature
4-30-2022
Renewal Date
Date
STATE OF CALIFORNIA

NOT FOR CONSTRUCTION

REFERENCE NOTES SCHEDULE PLAN

SYMBOL	DESCRIPTION
1	NEW 1 1/2" LANDSCAPE WATER METER (INSTALLED BY OTHERS). EXACT LOCATION SHALL BE CONFIRMED ON SITE. INSTALLING CONTRACTOR SHALL COORDINATE WITH THE GENERAL CONTRACTOR, PRIOR TO START OF CONSTRUCTION.
2	NEW 1 1/2" (REDUCED PRESSURE) BACKFLOW PREVENTION ASSEMBLY AND PRESSURE REGULATOR. EXACT LOCATION SHALL BE DETERMINED ON SITE. LANDSCAPE ARCHITECT TO APPROVE FINAL LOCATION ON SITE.
3	CONTRACTOR TO ADJUST PRESSURE REGULATOR AT THIS LOCATION. SET STATIC WATER PRESSURE NOT TO EXCEED 95 PSI.
4	IRRIGATION PLAN IS DIAGRAMMATIC. ALL PIPING, VALVES AND HEADS ARE TO BE LOCATED IN PLANTING AREAS WHEREVER POSSIBLE.
5	ONE FIFTY FOUR (54) STATION AUTOMATIC ET CONTROLLER ASSEMBLY (INSTALLED AS SHOWN ON PLAN). INSTALLING CONTRACTOR SHALL COORDINATE INSTALLATION AND EXACT LOCATION PRIOR TO START OF CONSTRUCTION. A MINIMUM (2") ELECTRICAL CONDUIT FROM NEW CONTROLLER LOCATION TO ON-GRADE PLANTING AREA, PROVIDED BY OTHERS. INSTALLING CONTRACTOR SHALL VERIFY AND COORDINATE EXACT LOCATION OF STUB-OUTS AND ROUTING OF CONDUIT WITH THE GENERAL CONTRACTOR ON SITE, PRIOR TO START OF CONSTRUCTION.
7	AUTOMATIC ET CONTROLLER AND ALL OTHER IRRIGATION EQUIPMENT LOCATIONS SHOWN ON THIS DRAWING ARE APPROXIMATE. STAKE OUT ALL IRRIGATION EQUIPMENT LOCATIONS FOR REVIEW AND APPROVAL BY OWNER PRIOR TO INSTALLATION. FINAL LOCATION AND EXACT POSITIONING OF ALL IRRIGATION EQUIPMENT SHALL BE DETERMINED BY THE OWNERS REPRESENTATIVE.
8	ET SENSOR ASSEMBLY MOUNTED TO EXTERIOR WALL OF BLDG. (EXACT LOCATION SHALL BE DETERMINED AND APPROVED ON SITE BY LANDSCAPE ARCHITECT.
9	MASTER VALVE (1 1/2") EXACT LOCATION SHALL BE DETERMINED ON SITE. LANDSCAPE ARCHITECT TO APPROVE FINAL LOCATION ON SITE.
10	NEW 1 " FLOW SENSOR, EXACT LOCATION SHALL BE DETERMINED ON SITE. CONTRACTOR TO INSTALL PER MANUFACTURERS INSTRUCTIONS.
11	POC FROM CISTERN/PUMP ASSEMBLY (BY OTHERS). 25 GPM, 75 PSI (MIN)
12	MAKE UP WATER LINE.

SYMBOL	MANUFACTURER/MODEL/DESCRIPTION
	Rain Bird PEB-PRS-D 1", 1-1/2", 2" Plastic Industrial Valves. Low Flow Operating Capability, Globe Configuration. With Pressure Regulator Module.
	LASCO Fittings TUBV-SC 1", 1-1/2", 2", and 3" Plastic Full Block True Union Ball Valve. Shut Off/Isolation Valve to Eliminate Water Hammer. Install same size as mainline.
MV	Buckner-Superior 3200 1-1/2" Normally Closed Brass Master Valve that Provides Dirty Water Protection and No Minimum Flow Feature, which ensures reliable opening and closing of the valve in extreme high or low flow scenarios. Available in 3/4",1"1-1/2",2",2-1/2" and 3".
MV2	Buckner-Superior 3200 1-1/2" Normally Closed Brass Master Valve that Provides Dirty Water Protection and No Minimum Flow Feature, which ensures reliable opening and closing of the valve in extreme high or low flow scenarios. Available in 3/4",1"1-1/2",2",2-1/2" and 3".
	Matco-Norca 523T 1/2"-2" White PVC Inline Check Valve. Threaded Ends. Stainless Steel Spring Loaded. Same size as mainline pipe.
BF	Febco 825Y w Pressure Regulator 1-1/2" Reduced Pressure Backflow Preventer and Pressure Regulator in StrongBox BC-45CR Low Profile Expanded Metal Cover.
C	Hunter A2C-5400-M 54-Station controller with seven (7) A2M-600 modules in an outdoor gray steel wall mount enclosure.
RS	Hunter WSS-SEN Wireless Solar, rain freeze sensor with outdoor interface, connects to Hunter X-Core and ACC Controllers, install as noted. Includes gutter mount bracket. Module not included.
FS	Flomec QS200-10 1" 1" insertion flowmeter, schedule 80 PVC housing. 0.22-33 gpm range, max. operating pressure 150 psi. 2-wire connector w/ LED indicators for power and pulse. Storage temps -20 F to +160 F.
FS2	Flomec QS200-10 1" 1" insertion flowmeter, schedule 80 PVC housing. 0.22-33 gpm range, max. operating pressure 150 psi. 2-wire connector w/ LED indicators for power and pulse. Storage temps -20 F to +160 F.
W	Water Meter 1-1/2" NEW
POC	Point of Connection 1-1/2" Cistern/Pump Stub Out
	Irrigation Lateral Line: PVC Schedule 40
	Irrigation Lateral Line: Polyethylene Pipe SDR-7
	Irrigation Lateral Line: PVC Schedule 40 (Non-potable) Purple lateral pipe
	Irrigation Mainline: PVC Schedule 40
	Irrigation Mainline: PVC Schedule 40 (Non-potable) Purple mainline
	Pipe Sleeve: PVC Schedule 40



SEE HYDROZONE PLAN FOR HYDROZONE TABLE AND EXPLANATION OF HYDROZONE NUMBERS. REFER TO THE WATER EFFICIENT LANDSCAPE WORKSHEET FOR WATER BUDGET CALCULATIONS.

IRRIGATION SCHEDULE

SYMBOL	MANUFACTURER/MODEL/DESCRIPTION	PSI
T	Hunter MP Corner PROS-04-PRS40-CV Turf Rotator, 4" (10.16cm) pop-up with factory installed check valve, pressure regulated to 40 psi (2.76 bar), MP Rotator nozzle. T=Turquoise adj arc 45-105 on PRS40 body.	40
M M M	Hunter MP1000 PROS-04-PRS40-CV Turf Rotator, 4" (10.16 cm) pop-up with check valve, pressure regulated to 40 psi (2.76 bar), MP Rotator nozzle on PRS40 body. M=Maroon adj arc 90 to 210, L=Light Blue 210 to 270 arc, O=Olive 360 arc.	40
K K K	Hunter MP2000 PROS-04-PRS40-CV Turf Rotator, 4" (10.16 cm) pop-up with factory installed check valve, pressure regulated to 40 psi (2.76 bar), MP Rotator nozzle on PRS40 body. K=Black adj arc 90-210, G=Green adj arc 210-270, R=Red 360 arc.	40
B Y A	Hunter MP3000 PROS-04-PRS40-CV Turf Rotator, 4" (10.16 cm) pop-up with factory installed check valve, pressure regulated to 40 psi (2.76 bar), MP Rotator nozzle on PRS40 body. B=Blue adj arc 90-210, Y=Yellow adj arc 210-270, A=Gray 360 arc.	40
K G R	Hunter MP2000 PROS-12-PRS40-CV Shrub Rotator, 12" pop-up with check valve, pressure regulated to 40 psi, MP Rotator nozzle. K=Black adj arc 90-210, G=Green adj arc 210-270, R=Red 360 arc on PRS40 body.	40
B Y A	Hunter MP3000 PROS-12-PRS40-CV Shrub Rotator, 12" pop-up with check valve, pressure regulated to 40 psi, MP rotary nozzle. B=Blue adj arc 90-210, Y=Yellow adj arc 210-270, A=Gray 360 arc on PRS40 body.	40
1401 1402	Rain Bird RWS-M-B-C 1401 Mini Root Watering System with 4.0" diameter x 18.0" long with locking grate, semi-rigid mesh tube and Rain Bird 1401 0.25 gpm or 1402 0.5 gpm bubbler as indicated. With Check Valve.	30

SYMBOL	MANUFACTURER/MODEL/DESCRIPTION
	Netafim LVCZS8010075-HF Pre-Assembled Control Zone Kit, with 1" Series 80 Control Valve, 3/4" Disc Filter, and High Flow Pressure Regulator 4.5GPM to 17.6GPM.
	Netafim LVCZS8010075-LF Pre-Assembled Control Zone Kit, with 1" Series 80 Control Valve, 3/4" Disc Filter, and Low Flow Pressure Regulator 0.25GPM to 4.4GPM.
	Pipe Transition Point (Drip) Pipe transition point from PVC lateral to drip tubing.
	Netafim TLSOV Manual Flush Valve, with Insert Inlet
	Netafim TLAVRV Air/Vacuum relief valve, 1/2" male pipe thread.
	Area to Receive Dripline Netafim TLHCVXR5-18 (18) Techline HCVXR Pressure Compensating Landscape Dripline with Check Valve and Anti-Siphon feature. 0.53GPH emitters at 18.0" O.C. Dripline laterals spaced at 18.0" apart, with emitters offset for triangular pattern. 17mm.
	Area to Receive Dripline Netafim TLHCVXR7-12 (12) Techline HCVXR Pressure Compensating Landscape Dripline with Check Valve and Anti-Siphon feature, installed sub-grade.. 0.77GPH emitters at 12.0" O.C. Dripline laterals spaced at 12.0" apart, with emitters offset for triangular pattern. 17mm.

LICENSED LANDSCAPE ARCHITECT
Mark Smethurst 5809
Signature
4-30-2022
Renewal Date
Date
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[place]
[pakshong landscape and architectural collaborative]
3617 exposition boulevard los angeles ca 90016
310 450 8100 fax 323 737 3290

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KEY PLAN

VILLA COLEAVA

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IRRIGATION LEGEND

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GENERAL NOTES

1. ALL LOCAL MUNICIPAL AND STATE LAWS, RULES AND REGULATIONS GOVERNING OR RELATING TO ANY PORTION OF THIS WORK ARE HEREBY INCORPORATED INTO AND MADE A PART OF THESE SPECIFICATIONS AND THEIR PROVISIONS SHALL BE CARRIED OUT BY THE CONTRACTOR. IN CASE OF CONFLICT BETWEEN THE SPECIFICATIONS, DRAWINGS, AND/OR CODE, THE MORE STRINGENT REQUIREMENT SHALL PREVAIL.

2. THE CONTRACTOR SHALL VERIFY THE LOCATIONS OF ALL EXISTING UTILITIES, STRUCTURES AND SERVICES BEFORE COMMENCING WORK. THE LOCATIONS OF UTILITIES, STRUCTURES AND SERVICES SHOWN IN THESE PLANS ARE APPROXIMATE ONLY. ANY DISCREPANCIES BETWEEN THESE PLANS AND ACTUAL FIELD CONDITIONS SHALL BE REPORTED TO THE OWNER'S REPRESENTATIVE. CONTRACTOR WILL NOT FASTEN ANY PORTION OF THE IRRIGATION SYSTEM TO ANY STRUCTURE, WALL, PATH OR ANY HARDSCAPE WITHOUT THE PERMISSION OF THE LANDSCAPE ARCHITECT OR OWNER.

3. THE CONTRACTOR SHALL OBTAIN THE PERTINENT ENGINEERING OR ARCHITECTURAL PLANS BEFORE BEGINNING WORK.

4. THE CONTRACTOR SHALL OBTAIN ALL NECESSARY PERMITS REQUIRED TO PERFORM THE WORK INDICATED HEREIN BEFORE BEGINNING WORK.

5. THE MAINLINE AND SLEEVING IS DIAGRAMMATIC. ALL PIPING IS FOR DESIGN CLARIFICATION ONLY AND SHALL BE INSTALLED WITHIN LIMIT OF WORK BOUNDARIES. AVOID ANY CONFLICTS BETWEEN THE IRRIGATION SYSTEM, PLANTING, STRUCTURES AND ARCHITECTURAL FEATURES.

6. IRRIGATION EQUIPMENT AS SHOWN IS DIAGRAMMATIC. INSTALL ALL THE IRRIGATION REMOTE CONTROL VALVES, QUICK COUPLERS, MASTER VALVES, FLOW SENSORS, BACKFLOWS, AIR/VACUUM DEVICES, BALL VALVES, AND ANCILLARY EQUIPMENT IN SHRUB PLANTING AREAS WHEN FEASIBLE OR AS APPROVED BY OWNER'S REPRESENTATIVE AND THE LANDSCAPE IRRIGATION DESIGNER.

7. DO NOT WILLFULLY INSTALL ANY EQUIPMENT AS SHOWN ON THE PLANS WHEN IT IS OBVIOUS IN THE FIELD THAT UNKNOWN CONDITIONS EXIST THAT WERE NOT EVIDENT AT THE TIME THESE PLANS WERE PREPARED. ANY SUCH CONDITIONS SHALL BE BROUGHT TO THE ATTENTION OF THE OWNER'S REPRESENTATIVE PRIOR TO ANY WORK OR THE IRRIGATION CONTRACTOR SHALL ASSUME ALL RESPONSIBILITY FOR ANY FIELD REVISIONS DEEMED NECESSARY BY THE OWNER.

8. INSTALL ALL EQUIPMENT AS SHOWN IN THE DETAILS AND SPECIFICATIONS. CONTRACTOR SHALL BE RESPONSIBLE TO COMPLY WITH LOCAL CITY, COUNTY, AND STATE REQUIREMENTS FOR BOTH EQUIPMENT AND INSTALLATION. ACTUAL LOCATION FOR THE INSTALLATION OF ANCILLARY EQUIPMENT INCLUDING, BUT NOT LIMITED TO, THE BACKFLOW PREVENTER, PUMP STATION (IF APPLICABLE) AND THE AUTOMATIC CONTROLLER IS TO BE DETERMINED IN THE FIELD BY THE OWNER'S AUTHORIZED REPRESENTATIVE.

9. CONTRACTOR IS TO PROVIDE THREE (3) ADDITIONAL PILOT WIRES AND ONE (1) COMMON WIRE TO THE END OF THE MAINLINE RUN IN TWO DIRECTIONS FROM THE CONTROLLER. THE ADDITIONAL WIRE SHALL BE EXTENDED 10', MAKING A COIL TO FIT INSIDE A RECTANGULAR PULL BOX. LABEL THE LID OF THE PULL BOX 'SW'.

10. ALL PIPE UNDER PAVED AREAS, HARDSCAPE, OR AS DIRECTED BY OWNERS REPRESENTATIVE TO BE INSTALLED IN SLEEVING, TWICE THE DIAMETER OF PIPE OR WIRE BUNDLE CARRIED. ALL 4" AND SMALLER SLEEVING SHALL BE PVC1220 SCH. 40, TYPE 1, GRADE 2 MATERIAL CONFORMING TO ASTM STANDARD D-1785-4. ALL 6" AND LARGER SLEEVING SHALL BE PVC1220 CLASS 200 SDR21, TYPE 1, GRADE 2 MATERIAL CONFORMING TO ASTM STANDARD D-2241. SLEEVES TO EXTEND AT LEAST 12" PAST THE EDGE OF PAVING.

11. ALL QUICK COUPLER VALVES (IF APPLICABLE) TO BE INSTALLED IN SHRUB OR GROUND COVER AREAS WHERE POSSIBLE. ALL QUICK COUPLER VALVES TO BE INSTALLED AS SHOWN ON THE INSTALLATION DETAILS. INSTALL QUICK COUPLER VALVES WITHIN 18" OF HARDSCAPE OR AS NOTED ON PLANS.

12. THE IRRIGATION CONTRACTOR SHALL ADJUST THE PRESSURE REGULATOR ON EACH ELECTRIC CONTROL VALVE SO THAT THE SPRINKLER HEAD FARTHEST AND HIGHEST IN ELEVATION FROM ITS RESPECTIVE CONTROL VALVE OPERATES WITHIN THE OPERATING PRESSURE SHOWN ON THE IRRIGATION LEGEND. NOT TO EXCEED FIVE (5) PSI ABOVE THE GIVEN OPERATING PRESSURE FROM THE SPECIFIED PRESSURE LOCATED ON THE IRRIGATION LEGEND.

13. THE IRRIGATION SYSTEM DESIGN IS BASED ON THE MINIMUM OPERATING PRESSURE AND THE MAXIMUM FLOW DEMAND SHOWN ON THE IRRIGATION DRAWINGS AT EACH POINT OF CONNECTION. THE IRRIGATION CONTRACTOR SHALL VERIFY WATER PRESSURE BY DIRECT FIELD MEASUREMENT PRIOR TO CONSTRUCTION. REPORT ANY DIFFERENCE BETWEEN THE WATER PRESSURE INDICATED ON THE DRAWINGS AND THE ACTUAL PRESSURE READING AT THE IRRIGATION POINT OF CONNECTION TO THE OWNER'S AUTHORIZED REPRESENTATIVE. IN THE EVENT PRESSURE DIFFERENCES ARE NOT REPORTED PRIOR TO START OF CONSTRUCTION, THE IRRIGATION CONTRACTOR SHALL ASSUME FULL RESPONSIBILITY AND COSTS FOR ANY REVISIONS.

14. SHOULD FIELD CONDITIONS REQUIRE PIPE INSTALLATION OTHER THAN THAT SHOWN ON PLANS, THE CONTRACTOR SHALL LIMIT EXCESS FLOW AND SIZE ALL PIPE NOT TO EXCEED A VELOCITY OF 5 FEET PER SECOND (FPS) IN PVC PIPE AND CAST IRON PIPE. FLOW THROUGH ANCILLARY EQUIPMENT, STEEL AND COPPER PIPE SHALL NOT EXCEED A VELOCITY OF 7.5 FPS. ALL ADJUSTMENTS SHALL BE MADE AT NO ADDITIONAL COST TO THE OWNER.

15. ELECTRICAL POWER SOURCE FOR THE IRRIGATION CONTROLLER AND/OR BOOSTER PUMP (IF APPLICABLE) SHALL BE PROVIDED UNDER THE ELECTRICAL SECTION OF THE SPECIFICATIONS. IT SHALL BE THE RESPONSIBILITY OF THE IRRIGATION CONTRACTOR TO COORDINATE ELECTRICAL SERVICE WITH THE GENERAL CONTRACTOR AND SHALL MAKE THE FINAL CONNECTION FROM THE ELECTRICAL SOURCE TO THE CONTROLLER AND/OR BOOSTER PUMP.

16. LANDSCAPE CONTRACTOR SHALL PROVIDE CLIENT WITH "AS BUILT" IRRIGATION ZONE PLAN CONTAINING ALL IRRIGATION ZONES, VALVE BOXES, MAIN LINES, HOSE BIBS, CONTROLLER, AND MASTER ASSEMBLY.

17. THE IRRIGATION DESIGNER OR LANDSCAPE DESIGNER OR LANDSCAPE ARCHITECT SHALL NOT BE RESPONSIBLE UNDER ANY CIRCUMSTANCES FOR THE QUALITY OR TIMELINESS OF PERFORMANCE OF THE WORK INCLUDING BUT NOT LIMITED TO THE INSTALLATION OF THE BACKFLOW PREVENTION ASSEMBLY MAINLINE, LATERALS, VALVES, SPRINKLER HEADS, DRIP IRRIGATION EQUIPMENT, CONTROL WIRE, CONTROLLERS AND SENSORS (IF APPLICABLE). THE RESPONSIBILITY FOR SAME SHALL REST WITH THE CONTRACTOR PERFORMING THE WORK.

OWNERS RESPONSIBILITY

18. THE OWNER IS RESPONSIBLE FOR THE SCHEDULING OF THE IRRIGATION SYSTEM TO MEET HORTICULTURAL REQUIREMENTS AND TO INSURE THAT EXCESSIVE SOIL SATURATION AND/OR SOIL EROSION DOES NOT OCCUR.

19. THE OWNER IS RESPONSIBLE FOR MAINTENANCE OF THE IRRIGATION SYSTEM.

20. IT IS THE OWNER'S RESPONSIBILITY TO INSPECT THE IRRIGATION SYSTEM PERIODICALLY TO INSURE THAT THE SYSTEM IS OPERATING EFFICIENTLY AND THAT ALL NECESSARY REPAIRS ARE MADE TO PROTECT THE HEALTH, SAFETY AND WELFARE OF THE PUBLIC.

system ANALYSIS

Generated:	2021-02-16 15:55
P.O.C. NUMBER: 01	
Water Source Information:	NEW
FLOW AVAILABLE	
Water Meter Size:	1-1/2"
Flow Available:	40.32 gpm
PRESSURE AVAILABLE	
Static Pressure at POC:	95.00 psi
Elevation Change:	5.00 ft
Service Line Size:	1 1/2"
Length of Service Line:	20.00 ft
Pressure Available:	91.00 psi
DESIGN ANALYSIS	
Maximum Station Flow:	23.68 gpm
Flow Available at POC:	40.32 gpm
Residual Flow Available:	16.64 gpm
Critical Station:	C32
Design Pressure:	40.00 psi
Friction Loss:	4.00 psi
Fittings Loss:	0.40 psi
Elevation Loss:	0.00 psi
Loss through Valve:	3.89 psi
Pressure Req. at Critical Station:	48.30 psi
Loss for Fittings:	1.58 psi
Loss for Main Line:	15.83 psi
Loss for POC to Valve Elevation:	0.00 psi
Loss for Backflow:	12.20 psi
Loss for Master Valve:	0.65 psi
Loss for Water Meter:	1.17 psi
Critical Station Pressure at POC:	79.73 psi
Pressure Available:	91.00 psi
Residual Pressure Available:	11.27 psi

P.O.C. NUMBER: 02	
Water Source Information:	Cistern/Pump
FLOW AVAILABLE	
Point of Connection Size:	1-1/2"
Flow Available:	47.66 gpm
PRESSURE AVAILABLE	
Static Pressure at POC:	85.00 psi
Pressure Available:	85.00 psi
DESIGN ANALYSIS	
Maximum Station Flow:	25.31 gpm
Flow Available at POC:	47.66 gpm
Residual Flow Available:	22.35 gpm
Critical Station:	C9
Design Pressure:	30.00 psi
Friction Loss:	0.32 psi
Fittings Loss:	0.03 psi
Elevation Loss:	0.00 psi
Loss through Valve:	18.20 psi
Pressure Req. at Critical Station:	48.54 psi
Loss for Fittings:	1.35 psi
Loss for Main Line:	13.47 psi
Loss for POC to Valve Elevation:	0.00 psi
Loss for Backflow:	0.00 psi
Loss for Master Valve:	0.74 psi
Critical Station Pressure at POC:	64.10 psi
Pressure Available:	85.00 psi
Residual Pressure Available:	20.90 psi

MINIMUM DESIGN CRITERIA

NEW LANDSCAPE WATER METER SIZE: 1 1/2", STATIC PRESSURE: 92 PSI, (MIN).

MINIMUM SYSTEM DESIGN CRITERIA IS BASED ON 82 P.S.I. USING 24 G.P.M.

CISTERN/PUMP SYS POC: 1 1/2", STATIC PRESSURE: 75 PSI, (MIN).

MINIMUM SYSTEM DESIGN CRITERIA IS BASED ON 65 P.S.I. USING 26 G.P.M.

CONTRACTOR SHALL VERIFY ALL POC SIZE, PRESSURE AND FLOW BEFORE INSTALLATION. IF INFORMATION CONFLICTS, NOTIFY THE OWNER FOR INFORMATION FAILURE TO DO SO MAY RESULT IN CONTRACTOR BEING RESPONSIBLE FOR ANY CHANGES REQUIRED AS A RESULT.

GENERAL IRRIGATION NOTES:

PRESSURE REGULATING DEVICES ARE REQUIRED IF WATER PRESSURE IS BELOW OR EXCEEDS THE RECOMMENDED PRESSURE OF THE SPECIFIED DEVICES.

CHECK VALVES OR ANTI-DRAIN VALVES ARE REQUIRED ON ALL SPRINKLER HEADS WHERE LOW POINT DRAINAGE COULD OCCUR.

A DIAGRAM OF THE IRRIGATION PLAN SHOWING HYDROZONES SHALL BE KEPT WITH THE IRRIGATION CONTROLLER FOR SUBSEQUENT MANAGEMENT PURPOSES.

A CERTIFICATE OF COMPLETION SHALL BE FILLED OUT AND CERTIFIED BY EITHER THE DESIGNER OF THE LANDSCAPE PLANS, IRRIGATION PLANS, OR THE LICENSED LANDSCAPE CONTRACTOR FOR THE PROJECT.

AN IRRIGATION AUDIT REPORT SHALL BE COMPLETED AT THE TIME OF THE FINAL INSPECTION.

A MINIMUM 3-INCH LAYER OF MULCH SHALL BE APPLIED ON ALL EXPOSED SOIL SURFACES OF PLANTING AREAS EXCEPT TURF AREAS, CREEPING OR ROOTING GROUNDCOVERS, OR DIRECT SEEDING APPLICATIONS WHERE MULCH IS CONTRAINDICATED.

AT THE TIME OF FINAL INSPECTION, THE PERMIT APPLICANT MUST PROVIDE THE OWNER OF THE PROPERTY WITH A CERTIFICATE OF COMPLETION, CERTIFICATE OF INSTALLATION, IRRIGATION SCHEDULE OF LANDSCAPE AND IRRIGATION MAINTENANCE.

I HAVE COMPLIED WITH THE CRITERIA OF THE ORDINANCE AND APPLIED THEM FOR THE EFFICIENT USE OF WATER IN THE LANDSCAPE DESIGN PLANS.

UNLESS CONTRADICTED BY A SOILS TEST, COMPOST AT A RATE OF MINIMUM OF FOUR CUBIC YARDS PER 1,000 SQUARE FEET OF PERMEABLE AREA SHALL BE INCORPORATED TO A DEPTH OF SIX INCHES INTO THE SOIL.

A SOILS REPORT HAS NOT BEEN PROVIDED. THIS IRRIGATION DESIGN ASSUMES THE PROPERTY IS SITED ON LOAM SOILS. IF THIS IS NOT THE CASE, PLEASE CONTACT IRRIGATION DESIGNER IMMEDIATELY FOR REDESIGN.

CONTROL OF IRRIGATION WATER IS A NECESSARY PART OF SITE MAINTENANCE. SOGGY GROUND AND PERCHED WATER MAY RESULT IF IRRIGATION WATER IS EXCESSIVELY APPLIED. IRRIGATION SYSTEMS SHOULD BE ADJUSTED TO PROVIDE THE MINIMUM WATER NEEDED. ADJUSTMENTS SHOULD BE MADE FOR CHANGES IN CLIMATE AND RAINFALL.

SLEEVES ARE REQUIRED FOR ALL IRRIGATION PIPING INSTALLED UNDER OR THROUGH PAVING/RETAINING WALLS. REFER TO IRRIGATION SLEEVE SIZING CHART SHOWN ON THIS SHEET.
IT IS RESPONSIBILITY OF THE CONTRACTOR TO FAMILIARIZE HIM/HER SELF WITH ALL GRADE DIFFERENCES, LOCATION OF WALLS, RETAINING WALLS, FOOTINGS AND COORDINATE THIS WORK WITH OTHER TRADES.

IRRIGATION SLEEVE SIZES							
PIPE SIZE	3/4"	1"	1-1/4"	1-1/2"	2"	2-1/2"	3"
SLEEVE SIZE	2"	2"	2-1/2"	3"	4"	5"	6"
NOTE: IRRIGATION CONTROL WIRE CONDUIT SIZE SHALL BE 4"							

LICENSED LANDSCAPE ARCHITECT
Mark Siminski 5809
Signature
4-30-2022
Renewal Date
Date
STATE OF CALIFORNIA

[place]
[pakshong landscape and architectural collaborative]
3617 exposition boulevard los angeles ca 90016
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IRRIGATION NOTES & MWELO

L 5.27

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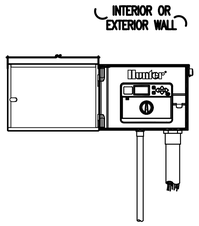
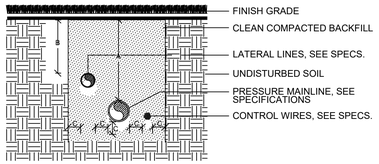


NOTE
SPECIFY 6, 12, 18, 24, 30, 36, 42 STATION MODEL CONTROLLER. MOUNT CONTROLLER WITH LCD SCREEN AT EYE LEVEL. CONTROLLER SHALL BE HARD-WIRED TO GROUNDED 110 or 220 VAC SOURCE.

1 AUTOMATIC CONTROLLER ASSEMBLY
NO SCALE

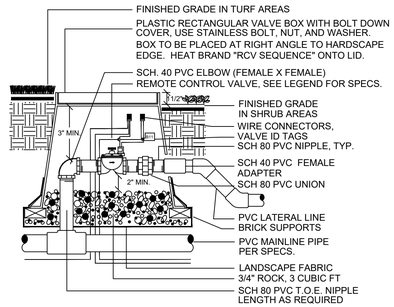


DIMENSION	A	B	C
1/2" TO 3" IN SIZE	18"	12"	4"
4" TO 6" IN SIZE	24"		4"

SECTION VIEW - N.T.S.

NOTE:
ALL PLASTIC PIPING SHALL BE SNAKED WITHIN TRENCH.
BUNDLE WIRING AND WRAP WITH TAPE AT TEN FOOT INTERVALS.
ALL MAINLINE PIPING TO BE INSTALLED IN ACCORDANCE WITH MANUFACTURERS INSTALLATION SPECIFICATIONS.

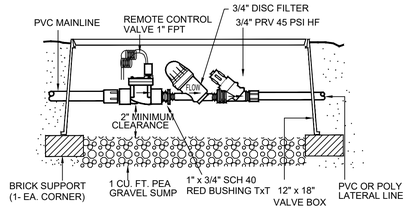
2 TYPICAL TRENCHING UNDER LANDSCAPE AREA
NO SCALE



SECTION VIEW - N.T.S.

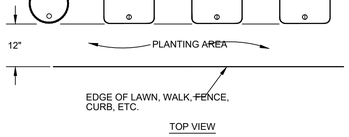
NOTE:
INSTALL CONTROL VALVES A MINIMUM OF ONE FOOT APART IN SHRUB AREAS UNLESS OTHERWISE NOTED.

3 TYPICAL REMOTE CONTROL VALVE ASSEMBLY
NO SCALE



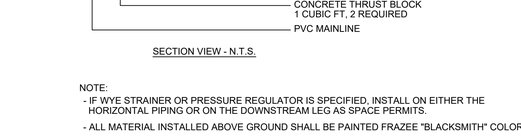
4 LOW VOLUME CONTROL ZONE ASSEMBLY
NO SCALE

NOTES: 1. CENTER BOXES OVER VALVES.
2. SET BOXES IN GROUND COVER/SHRUB AREA WHERE POSSIBLE.
3. SET BOXES PARALLEL TO EACH OTHER AND PERPENDICULAR TO EDGE.
4. AVOID HEAVILY COMPACTING SOIL AROUND BOXES TO PREVENT DAMAGING VALVE BOXES.



TOP VIEW

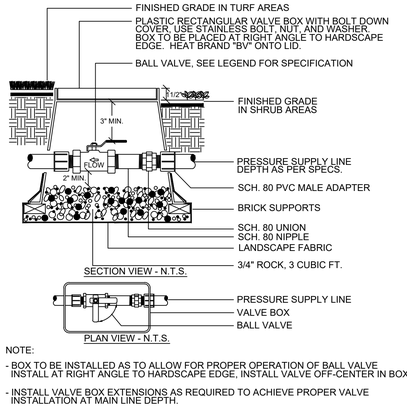
5 TYPICAL VALVE BOX LAYOUT
NO SCALE



SECTION VIEW - N.T.S.

NOTE:
- IF WYE STRAINER OR PRESSURE REGULATOR IS SPECIFIED, INSTALL ON EITHER THE HORIZONTAL PIPING OR ON THE DOWNSTREAM LEG AS SPACE PERMITS.
- ALL MATERIAL INSTALLED ABOVE GROUND SHALL BE PAINTED FRAZEE "BLACKSMITH" COLOR

6 TYPICAL BACKFLOW PREVENTION ASSEMBLY
NO SCALE

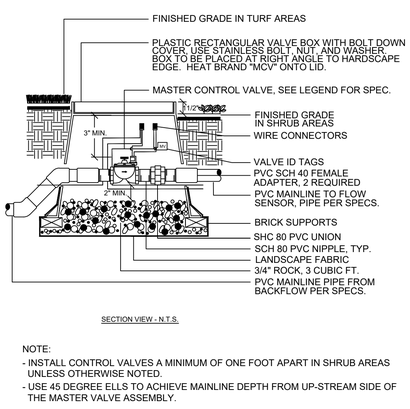


SECTION VIEW - N.T.S.

PLAN VIEW - N.T.S.

NOTE:
- BOX TO BE INSTALLED AS TO ALLOW FOR PROPER OPERATION OF BALL VALVE INSTALL AT RIGHT ANGLE TO HARDSCAPE EDGE, INSTALL VALVE OFF-CENTER IN BOX.
- INSTALL VALVE BOX EXTENSIONS AS REQUIRED TO ACHIEVE PROPER VALVE INSTALLATION AT MAIN LINE DEPTH.

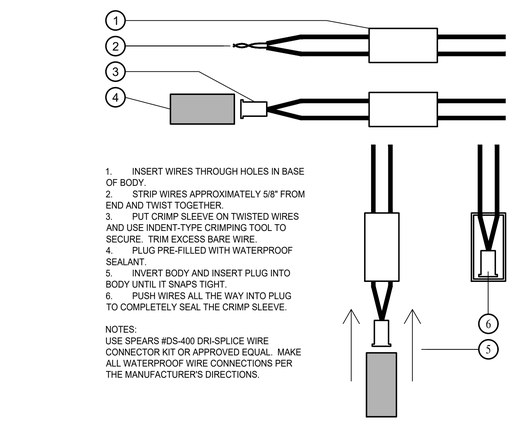
7 TYPICAL BALL VALVE ASSEMBLY
NO SCALE



SECTION VIEW - N.T.S.

NOTE:
- INSTALL CONTROL VALVES A MINIMUM OF ONE FOOT APART IN SHRUB AREAS UNLESS OTHERWISE NOTED.
- USE 45 DEGREE ELLS TO ACHIEVE MAINLINE DEPTH FROM UP-STREAM SIDE OF THE MASTER VALVE ASSEMBLY.

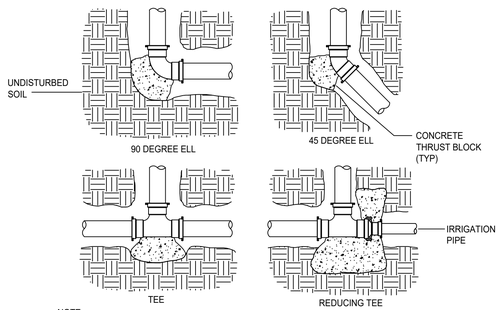
8 TYPICAL MASTER CONTROL VALVE ASSEMBLY
NO SCALE



1. INSERT WIRES THROUGH HOLES IN BASE OF BODY.
2. STRIP WIRES APPROXIMATELY 5/8" FROM END AND TWIST TOGETHER.
3. PUT CRIMP SLEEVE ON TWISTED WIRES AND USE INDENT-TYPE CRIMPING TOOL TO SECURE. TRIM EXCESS BARE WIRE.
4. PLUG PRE-FILLED WITH WATERPROOF SEALANT.
5. INVERT BODY AND INSERT PLUG INTO BODY UNTIL IT SNAPS TIGHT.
6. PUSH WIRES ALL THE WAY INTO PLUG TO COMPLETELY SEAL THE CRIMP SLEEVE.

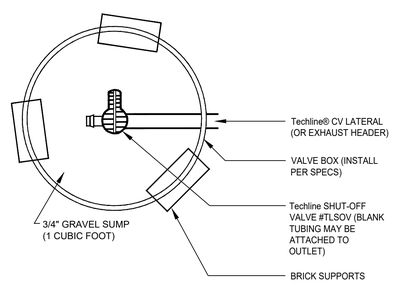
NOTES:
USE SPEARS #DS-400 DRI-SPLICE WIRE CONNECTOR KIT OR APPROVED EQUAL. MAKE ALL WATERPROOF WIRE CONNECTIONS PER THE MANUFACTURER'S DIRECTIONS.

9 WIRE CONNECTION
NO SCALE

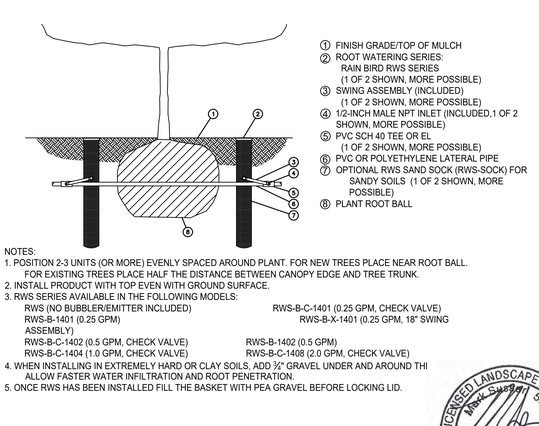


NOTE:
THRUST BLOCKS TO BE A MINIMUM OF 1 CUBIC FEET CONCRETE.
REFER TO MANUFACTURER RECOMMENDATIONS FOR CONFIGURATIONS NOT SHOWN.
PRIOR TO THRUST BLOCKING, WRAP FITTINGS USING AWWA C209 APPROVED TAPE.

10 THRUST BLOCKS
NO SCALE



11 NETAFIM TECHLINE LINE FLUSHING VALVE
NO SCALE



① FINISH GRADE/TOP OF MULCH
② ROOT WATERING SERIES: RAIN BIRD RWS SERIES (1 OF 2 SHOWN, MORE POSSIBLE)
③ SWING ASSEMBLY (INCLUDED) (1 OF 2 SHOWN, MORE POSSIBLE)
④ 1/2-INCH MALE NPT INLET (INCLUDED,1 OF 2 SHOWN, MORE POSSIBLE)
⑤ PVC SCH 40 TEE OR EL (1 OF 2 SHOWN, MORE POSSIBLE)
⑥ PVC OR POLYETHYLENE LATERAL PIPE
⑦ OPTIONAL RWS SAND SOCK (RWS-SOCK) FOR SANDY SOILS (1 OF 2 SHOWN, MORE POSSIBLE)
⑧ PLANT ROOT BALL

NOTES:
1. POSITION 2-3 UNITS (OR MORE) EVENLY SPACED AROUND PLANT. FOR NEW TREES PLACE NEAR ROOT BALL. FOR EXISTING TREES PLACE HALF THE DISTANCE BETWEEN CANOPY EDGE AND TREE TRUNK.
2. INSTALL PRODUCT WITH TOP EVEN WITH GROUND SURFACE.
3. RWS SERIES AVAILABLE IN THE FOLLOWING MODELS:
RWS (NO BUBBLER/EMITTER INCLUDED) RWS-B-C-1401 (0.25 GPM, CHECK VALVE)
RWS-B-1401 (0.25 GPM) RWS-B-X-1401 (0.25 GPM, 18" SWING ASSEMBLY)
RWS-B-C-1402 (0.5 GPM, CHECK VALVE) RWS-B-1402 (0.5 GPM)
RWS-B-C-1404 (1.0 GPM, CHECK VALVE) RWS-B-C-1408 (2.0 GPM, CHECK VALVE)
4. WHEN INSTALLING IN EXTREMELY HARD OR CLAY SOILS, ADD ½" GRAVEL UNDER AND AROUND THI ALLOW FASTER WATER INFILTRATION AND ROOT PENETRATION.
5. ONCE RWS HAS BEEN INSTALLED FILL THE BASKET WITH PEA GRAVEL BEFORE LOCKING LID.

12 RWS INSTALLATION FOR TREES
NO SCALE

LICENSED LANDSCAPE ARCHITECT Mark Sturgeon 5809 Signature 4-30-2022 Renewal Date Date STATE OF CALIFORNIA

NOT FOR CONSTRUCTION

[place]
[pakshong landscape and architectural collaborative]
3617 exposition boulevard los angeles ca 90016
310 450 8100 fax 323 737 3290

CONSULTANTS

NAME OF ISSUE

LICENSED ARCHITECT VICTORIA FRANCIS PAKSHONG NO C27025 REN. 02-28-21 STATE OF CALIFORNIA

KEY PLAN

VILLA COLEAVA

25200 Pacific Coast Highway
Malibu, CA 90265

Project # :
Drawn by :ms
Scale : AS SHOWN
Ref. North

Description:	Date:	No. #

PROJECT NO: 2021

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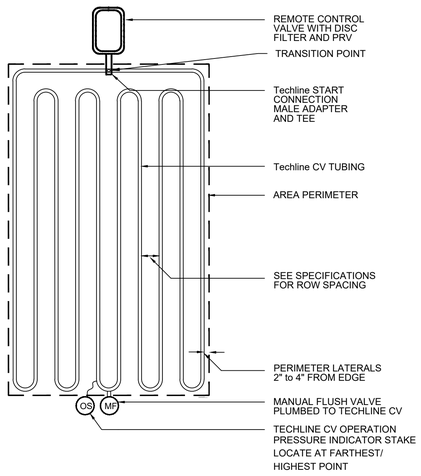
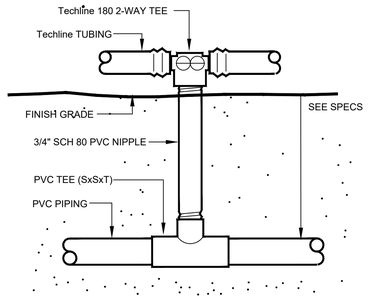
IRRIGATION DETAILS

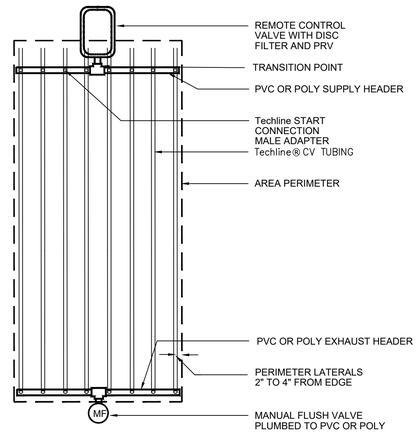
L 5.28



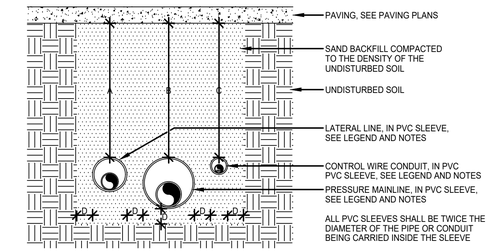
13 NO SCALE Techline® CV LITE END FEED LAYOUT



14 NO SCALE NETAFIM AT-GRADE START CONNECTION



15 NO SCALE Techline® CV END FEED LAYOUT

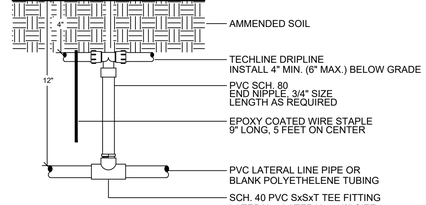


SLEEVE DIMENSION	A	B	C	D
2" TO 6" IN SIZE	36"	36"	36"	6"
8" TO 16" IN SIZE	36"	36"	36"	12"

DETAIL ALSO FOR PIPE INSTALLED IN ROCK SOIL.

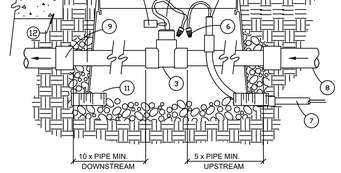
NOTE:
SEE GEO-TECHNICAL REPORT FOR TRENCHING REQUIREMENTS.
ONLY FINE GRAINED SAND BACKFILL IS ACCEPTABLE FOR SLEEVE CROSSINGS.
SLEEVES SHALL EXTEND AT LEAST 18" PAST THE EDGE OF THE PAVING BEING CROSSED.

16 NO SCALE SLEEVE INSTALLATION



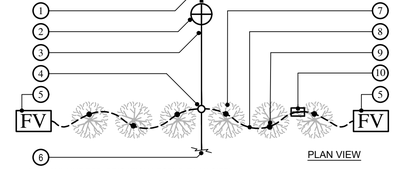
NOTE:
- INSTALL TUBING AT CONSISTANT DEPTH BELOW GRADE. SECURE TUBING WITH STAPLES 5 FEET ON CENTER TO PREVENT SURFACING OF TUBING DURING BACKFILL.
- DRIPPERLINE TUBING SHALL BE INSTALLED IN PARALLEL ROWS.
- INSTALLATION OF TUBING & LAYOUT SHALL BE APPROVED, ON SITE BY THE ARCHITECT, PRIOR TO BACKFILLING OR MULCH COVER.

17 NO SCALE NETAFIM SUB-GRADE START CONNECTION w/PVC RISER



1. RECTANGULAR PLASTIC VALVE BOX
2. FINISH GRADE.
3. FLOW SENSOR.
4. FLOW SENSOR CABLE P-7162D
5. CONDUIT BUSHING.
6. WATERPROOF DRY SPLICE CONNECTOR.
7. 1-1/4" ELECTRICAL CONDUIT AND SWEEP ELBOW
8. IRRIGATION MAINLINE FROM MASTER VALVE
9. MAINLINE TO THE RCV'S
10. CHRISTY'S TAG #ID-MAX-P2-RC1P2.
11. QUANTITY OF (4) -BRICK FOR STABILIZATION
12. EDGE OF PAVING. HEADER OR BUILDING WALL.

18 NO SCALE FLOW SENSOR



1. PVC MAINLINE PER IRRIGATION LEGEND (PLAN SIZE)
2. DRIP VALVE ASSEMBLY PER IRRIGATION LEGEND
3. PVC LATERAL (OR BLANK POLY TUBING IF LESS THAN 5 GAL/MIN) LINE PER IRRIGATION LEGEND (PLAN SIZE) - FROM VALVE TO PLANTED AREA AND THROUGH THE MIDDLE OF THE PLANTED AREA
4. SCH 40 PVC CROSS OR TEE WITH FITTINGS AS NEEDED TO CONNECT AND INSTALL POLY TUBING THROUGH THE PLANTS
5. MANUAL FLUSH VALVE PER IRRIGATION LEGEND OR FLUSH VALVE DETAIL
6. EXTEND PVC LATERAL LINE (OR BLANK POLY TUBING) THROUGH PLANTER AREA AS NECESSARY TYPICAL
7. TYPICAL SHRUB PER PLANTING PLAN.
8. DRIP LINE POLY TUBING PER IRRIGATION LEGEND / PLAN - SNAKE TUBING THROUGH PLANTED AREAS AND STAPLE DOWN PER DETAIL - ALSO APPLIES TO IN-LINE DRIP LINE TYPE TUBING
9. DRIP EMITTER PER IRRIGATION LEGEND
10. NETAFIM IN-LINE CHECK VALVE (TLCV050M1-B) w/2 ea NETAFIM MALE ADAPTERS (TL050MA). w/2 ea UV ¾" THREADED COUPLINGS (SPEARS 430-005UV) . USED ON SIDE WHERE ELEVATION CHANGE IS GREATER THAN 4'.

NOTES:
RUN LATERAL LINE TO AND THROUGH THE APPROXIMATE CENTER OF PLANTS TO BE IRRIGATED. USE CROSS OR TEE FOR CONNECTION TO LATERAL LINE AS NECESSARY TO EXTEND POLY TUBING TO DRIP EMITTER LOCATIONS. INSTALL FLUSH VALVE AT THE TERMINAL END OF ALL POLY TUBING RUNS. WHEN POLY TUBING RUNS IN MULTIPLE DIRECTIONS, INSTALL A FLUSH VALVE AT THE END OF EACH AND EVERY LINE . DO NOT EXCEED MAXIMUM FLOW THROUGH POLY TUBING PER MANUFACTURER'S CATALOG.

19 NO SCALE TYPICAL POINT SOURCE LAYOUT WITH POLY TUBING

NOT FOR CONSTRUCTION

[place]
[pakshong landscape and architectural collaborative]
3617 exposition boulevard los angeles ca 90016
310 450 8100 fax 323 737 3290

CONSULTANTS

NAME OF ISSUE

LICENSED ARCHITECT VICTORIA FRANKLIN No C27025 REN 02-28-21 STATE OF CALIFORNIA

KEY PLAN

VILLA COLEAVA

25200 Pacific Coast Highway
Malibu, CA 90265

Project # :
Drawn by :ms
Scale : AS SHOWN
Ref. North

Description:	Date:	No.
		#

PROJECT NO: 2021

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LICENSED LANDSCAPE ARCHITECT Mark Sherman 5808 Signature 4-30-2022 Renewal Date Date STATE OF CALIFORNIA

IRRIGATION DETAILS

L 5.29

COUNTY OF LOS ANGELES Public Health Environmental Health

POLICY AND OPERATIONS MANUAL

SUBJECT:	APPROVAL AND USE OF CISTERNS FOR RAINFALL / RUN-OFF CAPTURE AND DISTRIBUTION		
POLICY NO.:	515.07	EFFECTIVE DATE:	DECEMBER 15, 2009
APPROVED BY:		SUPERCEDES:	NEW

PROGRAM AFFECTED: **CROSS CONNECTION AND WATER POLLUTION CONTROL, DRINKING WATER AND LAND USE PROGRAMS**

PURPOSE: To establish standardized procedures for the review and approval of plans and specifications for rainfall / non-potable cistern water capture and distribution systems. Additionally, this policy is intended to provide guidelines for the approved use and operational practices for any proposed system prior to implementation.

These requirements will provide the necessary procedures to acquire approval for the installation of pipeline which will convey untreated rain-fall, non-potable cistern water and / or urban run-off water for **irrigation purposes only**. Moreover, it is intended to establish requirements for the protection of the potable domestic water supply as well as that of public health.

Treatment systems for rain, gray and urban run-off water for re-use in toilet flushing have been proposed but are not covered within these requirements.

BACKGROUND: Rain barrels and cisterns are methods of storing rainfall and runoff on-site for landscape irrigation purposes. In semi-arid Los Angeles County, captured rainfall / runoff are valuable resources that could reduce the amount of water that must be imported for domestic use. For this reason, there should be no impediment to storing and reusing rainfall and run-off as long as it can be done safely with adequate protection of public health.

Presently within Los Angeles County, there are no regulatory definitions of rainfall, non-potable cistern water or urban run-off that would categorize them as either recycled water or any other regulated water source. These types of non-potable water sources are categorized within the scope of "alternate non-potable water supplies". Therefore rainfall / run-off, non-potable cistern and urban run-off water, for the purposes of these requirements shall be recognized by the Los Angeles County Department of Public Health – Environmental Health (the Department) (pending adoption of proposed regulation) as "alternate non-potable water supply sources". Those regulations pertaining to the protection of the domestic water supply in relation to an "alternate non-potable water supply source" shall apply.

These requirements are intended to focus on projects which integrate below-grade pipelines, pumps and large capacity holding tanks but not necessarily rain barrels that collect rainfall / run-off water from residential rooftops, gravity-fed and / or hand-held

devices. They apply to onsite collection and re-use for the **same site only**. Offsite distribution of collected rainfall / non-potable cistern and urban run-off to other properties shall be evaluated by the California State Department of Public Health (CADPH) in conjunction with the California State Regional Water Quality Control Board (RWQCB).

DEFINITIONS:

Alternate Non-Potable Water Supply is a non-potable source of water which includes gray water, rainfall/run-off non-potable cistern water, urban run-off, on site treated water and recycled/reclaimed water.

Cistern (non-potable) refers to a receptacle or rainwater catchment system for storing water, usually underground, which captures non-potable water run-off for the purposes of reusing the water for irrigation purposes. Non-potable cisterns are distinct from Potable Cisterns that are installed and managed as potable water reservoirs/storage.

Gray water refers to untreated waste water which has not come into contact with toilet waste. Gray water includes used water from bathtubs, showers, bathroom wash basins, clothes washing machines and laundry. It does not include waste water from kitchen sinks, photo lab sinks, dishwashers or laundry water from soiled diapers.

Non-Potable Water refers to water which is not intended for human consumption. Two distinct variations are inclusive in this definition: Non-potable water from a potable source, via a dedicated backflow prevention device vs. untreated non-potable water from collection methods that never originated from a potable source. The term non-potable water is all-inclusive with respect to the various non-potable water supplies mentioned within these requirements.

Onsite Water Supervisor refers to that person appointed at each location proposing to install a non-potable water cistern, as provided for under Title 17, Section 7586, California Code of Regulations who is responsible for the protection of the potable water system from cross connections. This person is responsible for installation, operation, maintenance of the rain-fall / non-potable cistern water and potable water systems, prevention of potential hazards, implementation of these requirements, and coordination with the Department.

Potable Water refers to water which is fit for consumption by humans and other animals. The U.S. Environmental Protection Agency (EPA) identifies contaminants that may adversely affect public health that occur in drinking water with a frequency and at levels that pose a threat to public health. The EPA establishes maximum contaminant levels (MCLs) (both biological and chemical) permissible in drinking water. These MCLs become enforceable standards.

Rain-fall/ Non-potable Cistern Water refers to the harvested rainwater/storm water collected within a cistern from a rain event and/or urban run-off. Cisterns in Los Angeles County may serve as a secondary source of water for applications that do not require potable water, such as landscape irrigation, which can dramatically lower the potable water demand and reducing off-site rain-fall runoff.

Recycled Water / Reclaimed Water refers to tertiary-treated water produced from the three-stage treatment of municipal wastewater. Recycled water is allowable for full-body human contact but not for direct human consumption. Purple pipe is the designated pipeline material specifically allowed to convey tertiary treated recycled water. Other

non-potable water sources as mentioned in these requirements shall **not** use purple pipe. Untreated stored rainfall/run-off should not be confused with tertiary treated wastewater, defined in Title 22 of the California Code of Regulations.

Urban run-off – refers to non-potable water from a dry weather run-off catchment system used for the collection of water run-off which does not necessarily come from a rain event.

POLICY: The Department shall review construction plans and operational practices for any proposed rainfall / non-potable cistern water capture and distribution system. The Department shall approve those systems which meet the Department Guidelines.

PROCEDURE: **PLAN REVIEW AND SUBMISSION**

1. Plans and specifications for the rain-fall/non-potable cistern water capture, distribution, use and operational practices shall be submitted for review and approval to the Department prior to implementation. The applicable Building & Safety Departments having jurisdiction shall also be notified for approval.
2. The Department will review the plans and operational practices to ensure safe re-use practices, correct labeling of pipelines and appropriate separation from potable water supplies and sanitary sewer lines, prior to approval.
3. Prior to commencing new or retrofit construction the contractor or installer shall contact the Department, to arrange for inspection of all on-site rain-fall/non-potable cistern water and potable water work. No excavation or open trench may be backfilled without first securing the Department approval. If any piping, rain-fall/non-potable cistern water or potable water, is installed prior to plan check approval and/or inspection, all or any portion of the system may be required to be exposed and corrected as necessary.
4. The rain-fall/non-potable cistern water system shall be constructed in conformance with potable water system construction standards and in accordance with all other governing codes, rules and regulations.
5. Unused or abandoned potable water lines are to be severed and capped as close to water mains as practical and a four-foot section of abandoned line removed. The cap shall be cemented under the Department's supervision.

REQUIRED SEPARATION OF LINES

In order to minimize construction accidents resulting in pipeline breaks, which may pollute the domestic water supply or accidental cross-connections between rain-fall/non-potable cistern water and potable water systems, maximum attainable separation of non-potable cistern water lines and potable water lines is required.

- Parallel Construction: There shall be at least a four foot (4') separation for all pressure mains, all distances measured from pipeline outside diameter. In restricted areas where 4 foot separations cannot be met, the use of sleeved pipe is required.

OPERATIONAL GUIDELINES AND SPECIFICATIONS

1. Irrigation systems utilizing untreated rain-fall/non-potable cistern water shall only be by means of "subsurface irrigation. Misting or spraying into the air is prohibited. Irrigation practices shall be controlled to prevent surface runoff from lands owned or controlled by the user. **(* Above grade spray irrigation would necessitate additional treatment to ensure the removal of pathogens. Please contact the Department for more information).**
2. Any pipeline other than potable water that is installed within a structure shall conform to all building code standards and shall be "barber shop" wrapped with the respective continuous identification tape and without any interconnections with the potable water system.
3. Gray water systems, rain-fall/runoff non-potable cistern systems and recycled water systems are not to be interconnected. Each shall be installed as stand alone systems completely separate from one another. Gray water systems are directly connected to the sewage system. Rain-fall/non-potable cisterns are not to be directly connected to a sewer system. For gray water installation requirements refer to California Plumbing Code 2007, Chapter 16/Appendix G (DWR).
4. Cisterns/storage vessels shall be adequately covered to prevent mosquito breeding. Contact the local Mosquito Abatement District for clarification.
5. Contact with untreated rainfall/non-potable cistern water should be kept to a minimum.
6. Deteriorated or inadequately protected water well casings shall be protected against contamination by untreated rain-fall/non-potable cistern water by correcting these physical deficiencies. Surface infiltration of untreated rainfall/runoff is allowed provided it occurs at least 10 feet from an unprotected foundation structure; when there is a least 10 feet of clearance to the seasonal high ground water table; and when it occurs at least 100 feet from a water supply well.
7. An **On-Site Water Supervisor** shall be appointed as provided for under Title 17, Section 7586, California Code of Regulations. Authorizations for any piping changes or additions to either the potable or recycled wastewater systems shall be subject to review and approval by the water supervisor. The name and position of this individual shall be reported to the water purveyor and to the Department.
8. As-built plans shall be prepared and updated as necessary by the user showing the location of rain-fall/non-potable cistern water and potable water system piping.
9. To prevent secondary exposure to rain-fall/non-potable cistern water, hose bibbs and quick couplers shall not be permitted in order to prevent both the unauthorized use of the non-potable water supply and secondary exposure to untreated non-potable water supply.
10. A potable water source may be connected via an approved backflow prevention device to provide a back up water source to a non-potable water cistern. A non-

- Cross-Over Construction: Perpendicular pipeline installation is set at a one foot (1') separation, with potable water pipes above rain-fall/non-potable cistern water pipes, and one full pipe length centered over crossing.
- Alternative Cross-Over construction (distance not maintained): Either the rain-fall/non-potable cistern water may be sleeved with the same class piping (usually schedule 40 PVC) for one full pipe length (minimum four feet) centered over the cross-over.

Existing On-site piping – To the extent feasible, maximum separation of rain-fall/non-potable cistern water lines and potable water lines shall be practiced upon system addition or modification.

IDENTIFICATION OF LINES

All rainfall/non-potable cistern water main lines, valve boxes and appurtenances shall be identified to clearly distinguish between non-potable cistern water and potable water systems. Specific wording on identification tape shall be required. Evaluation shall be on a case-by-case basis, but with the understanding that the minimum requirement for pipeline identification is per the Uniform Plumbing Code. The following identification tape will be accompanied with respective tags of the same colors and wording for all valve boxes, vaults, control valves, quick couplers, outlets and related appurtenances, if applicable.

a. ***POTABLE WATER*** – All potable water lines are required to be installed in accordance with the Uniform Plumbing Code and all other governing codes, rules and regulations. Buried potable water lines shall be identified by continuous tape with lettering on three inch (3") minimum width green or blue tape with one inch black lettering bearing the continuous wording **"Potable Water".** Identification tape shall be permanently affixed to the pipeline at five foot intervals atop all horizontal piping, laterals and mains. Identification tape shall extend to all valve boxes and/or vaults, exposed piping and hydrants. Identification tape is not necessary for extruded colored PVC with continuous wording **"Potable Water"** printed in contrasting lettering on opposite sides of the pipe.

b. ***RAIN-FALL/NON-POTABLE CISTERN WATER*** – All rain-fall/non-potable cistern water lines (pressure/non-pressure) shall be identified by continuous lettering on three inch (3") minimum width YELLOW tape with one inch black lettering bearing the continuous wording **"Caution – Non-Potable Cistern Water, Subsurface Irrigation Only"** permanently affixed at five foot intervals atop all horizontal piping, laterals and mains. Identification tape shall extend to all valve boxes and/or vaults and exposed piping.

c. ***NON-POTABLE WATER*** – All non-potable irrigation/industrial water lines (pressure/non-pressure) shall be identified by continuous lettering on three inch (3") minimum width yellow tape with one inch black lettering bearing the continuous wording **"Non-Potable Water"** permanently affixed at five foot intervals atop all piping. Identification tape shall extend to all valve boxes and/or vaults, exposed piping, hydrants and quick couplers.

d. Tags, respective of each water supply, shall be identified with the appropriate wording on both sides with the inclusion of a universal symbol.

potable water backup supply line from a potable source via an approved backflow prevention device **can** be directly connected to the rain-fall/non-potable cistern discharge line to the irrigation system. Gray water systems **cannot** be directly connected to a potable supply with or without a backflow prevention device, (air gaps are excluded) (2007 California Plumbing Code, Section 603.3.5). Air gaps are the only method that may be utilized when potable water is used as a make-up source to a gray water system due to the required sewer connection.

11. A pressure test/cross-connection test shall be performed to confirm the physical separation of the cistern water and potable water systems. Said testing shall be performed in conjunction with the Water Purveyor and this Department and conducted before the introduction of rainfall/non-potable cistern water.
12. The Department shall refer all plans proposing to install a cistern to the following agencies prior to construction:

- Los Angeles County Cross-Connection & Water Pollution Control Program to: initiate the plan proposal; conditional approval; interim construction inspections and final approval.
- The City or County Building & Safety Department for construction permits and inspections (Building Codes).
- The local water purveyor regarding required backflow protection at the potable/city water service connection(s).
- The Mosquito Abatement District for conditions of approval and to register the cistern tank.
- The City or County Public Works Department for cistern tank overflow discharge requirements.

AUTHORITY: California Health & Safety Code, Section 116800-116820

California Code of Regulations, Title 17, Division 1, Chapter V, Subchapter 1, Group 4, Article 4, Sections 7583 to 7622

Los Angeles County Code, 11.38.380

CROSS REFERENCE: California Health & Safety Code 116800-116820
California Code of Regulations, Title 22, Div. 4, Chapter 3
Los Angeles County Code – Title 11 and Title 28
2007 California Plumbing Code, Chapter 6, Appendix G & J.

LICENSED LANDSCAPE ARCHITECT Mark Sweet 5809 Signature 4-30-2022 Renewal Date Date STATE OF CALIFORNIA

NOT FOR CONSTRUCTION

[place]

[pakshong landscape and architectural collaborative]
3617 exposition boulevard los angeles ca 90016
310 450 8100 fax 323 737 3290

CONSULTANTS

NAME OF ISSUE

LICENSED ARCHITECT VICTORIA FRANKLIN No C27025 REN 02-28-21 STATE OF CALIFORNIA

KEY PLAN

VILLA COLEAVA

25200 Pacific Coast Highway
Malibu, CA 90265

Project # :
Drawn by :ms
Scale : AS SHOWN

Ref. North

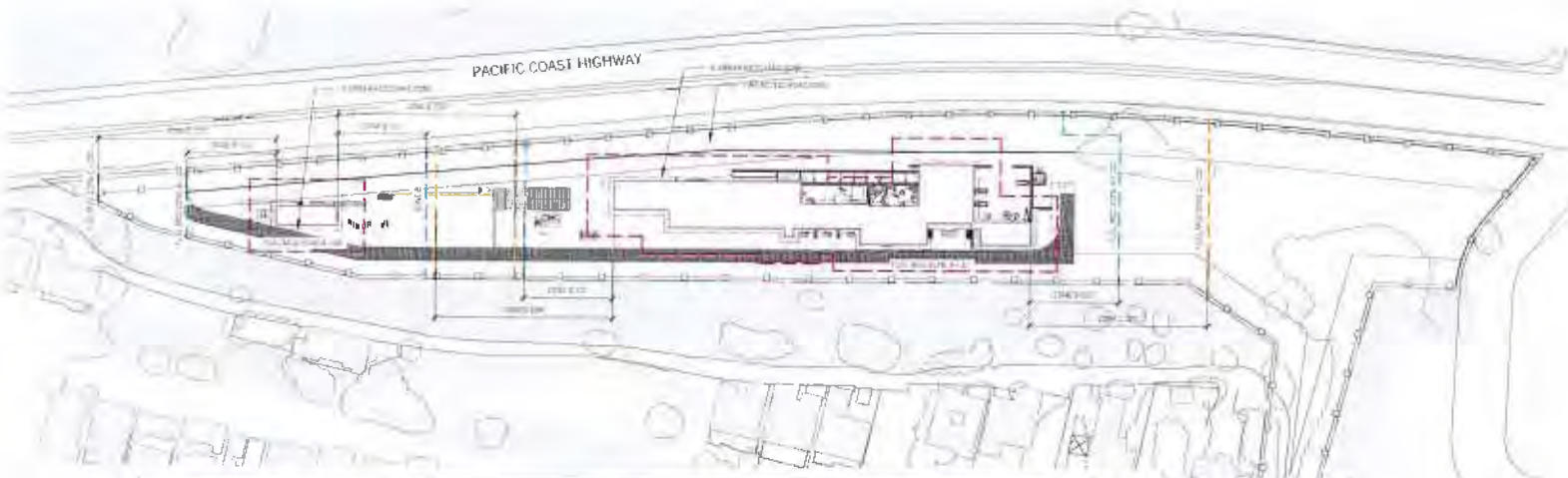
Description:	Date:	No. #

PROJECT NO: 2021

These drawings, specifications, ideas, designs, and arrangements presented thereby, are and shall remain the property of [place]. No part thereof shall be copied, disclosed to others or used in connection with any work or project other than the specific project for which they have been prepared and developed without the written consent of [place]. Visual contact with these drawings or specifications shall constitute conclusive evidence of acceptance of these restrictions.

CROSS CONNECTION NOTES

L 5.30



COUNTY OF LOS ANGELES
FIRE DEPARTMENT

Fuel Modification Plan Notes

Ember Resistant Zone

- Extends 5 feet beyond the edge of any combustible structure, accessory structure, appendage, or projection. The areas between eaves, overhangs or parts of structures including attached decks and pergolas shall be included in the ember resistant zone.
- This area shall be free of materials or overhanging known to be receptive to flying embers.

Zone A

- Extends 30 feet beyond the edge of any combustible structure, accessory structure, appendage, or projection. Projections such as eaves, covered entryways, attached pergolas, decks etc. shall be the point at which this distance is measured.
- Irrigation shall be provided to maintain healthy vegetation and fire resistance.
- Vegetation in this zone shall consist primarily of mowed grasses, low growing ground covers and adequately spaced shrubs. The overall density and arrangement shall provide adequate deterrent space and significantly reduce fire intensity.
- Plant species selected for Zone A shall possess characteristics which increase fire resistance. Such characteristics are high moisture content, plants producing little leaf litter, slow growing plants and plants that do not require pruning to reduce their size or maturity. Species selection should reference the Fuel Modification Plant List. The list is not a pre-approved plant list. Other species may be used subject to approval after review.
- Trees are generally not recommended except for Jewel remains or mature areas less than 25 tall and wide at maturity. Trees shall be positioned so their canopies do not extend over the roof of any structure.
- Vines and climbing plants are not allowed on any combustible structure requiring review.

Zone B

- Extends from the outer edge of Zone A on additional 70 feet for a total of 100 feet from the structure.
- Irrigation shall be provided to maintain healthy vegetation and fire resistance.
- Vegetation in this zone shall be arranged in a manner that does not create vertical or horizontal fuel ladders. Vegetation in this zone can be planted at a slightly higher density than Zone A but the overall density and arrangement shall provide adequate deterrent space and significantly reduce fire intensity.
- Existing California native plants may be approved to remain if determined to be acceptable upon review and are properly spaced and maintained.
- Plant species selected for Zone B shall possess characteristics which increase fire resistance. Such characteristics are high moisture content, plants producing little leaf litter, slow growing plants and plants that do not require pruning to reduce their size or maturity. Species selection should reference the Fuel Modification Plant List. The list is not a pre-approved plant list. Other species may be used subject to approval after review.
- Trees in Zone B may be standard to large at maturity provided they are properly positioned and do not create any vertical or horizontal fuel ladders. Tree selections are subject to denial upon review.

Zone C

- Extends from the outer edge of Zone B on additional 100 feet for a total of 200 feet from the structure.
- Maintenance/modification of vegetation exceeding 100 feet but not to exceed 200 feet from structures may be determined necessary. Any required maintenance/modification is to be determined upon on-site inspection (Fire Code 323.2.2).

Fire Access Road Zone

- Extends a minimum of 10 feet from the edge of any public or private road, driveways and turnarounds used by firefighting resources.
- Clear and remove flammable vegetation on each side of access roads (Fire Code 325.10).
- Fire access roads shall have an unobstructed vertical clearance a minimum width of 30' and vertically clear to the sky (Fire Code 503.2.1).
- Additional clearance beyond 10 feet may be required upon on-site inspection.
- All proposed plantings, unless otherwise approved, shall be positioned so they do not obstruct access or maturity. Pruning will not be considered as an alternative to plant selection.

Maintenance

Routine maintenance shall be regularly performed in all zones. Above all else, regular maintenance is paramount to the fire resistance of a well-planned fire resistant landscape. Critical items are outlined below. Additional information may be found on our website listed in the header of this document.

- Start with the structure. Remove leaf litter and other combustible debris from roofs, eaves, rain gutters etc.
- Ensure the ember resistant zone is maintained free of any material known to be receptive to flying embers.
- Remove any plant or portion of a plant that is dead or dying throughout all zones.
- Remove downed, accumulated plant litter and dead wood throughout all zones.
- Prune to reduce the overall amount and continuity of fuels. Eliminate horizontal and vertical fuel ladders throughout all zones.
- All invasive species and their parts should be removed from the site.
- Ensure irrigation systems are functioning properly.
- Compliance with the fire code is a year-round responsibility. Enforcement will occur following inspection by the Fire Department. Annual inspections for brush clearance code requirements are conducted following the natural drying of fire fuels between the months of April and June depending on the geographic region each dwelling exists.
- Inspection for compliance with an approved fuel modification plan may occur at any time.
- All future planting shall be in accordance with the County of Los Angeles Fire Department Fuel Modification Guidelines and approved prior to installation.

Approval of this Fuel Modification Plan constitutes approval for only those Codes reviewed as part of the Fuel Modification process and does not replace the needed approval of any other office or agency with jurisdiction and review responsibility for those items which may or may not be illustrated on the plan.

FUEL MOD LEGEND

10945
COUNTY OF LOS ANGELES
FIRE DEPARTMENT
PREVENTION SERVICES BUREAU
PRELIMINARY
FUEL MODIFICATION PLAN

By _____ Date _____

FUEL MODIFICATION UNIT
The stamping of this plan and specifications SHALL NOT be held to permit or to be an approval of the violation of any provisions of any County/City or State law

FUEL MOD PLAN 1

[place]

CONSULTANTS

NAME OF ISSUE

KEY PLAN

VILLA COLEAVA

FUEL MOD PLAN
L1.00

NOT FOR CONSTRUCTION

VILLA COLEAVA

PLANNING SUBMITTAL SET

3/19/25

OPPENHEIM ARCHITECTURE

© OPPENHEIM 2024

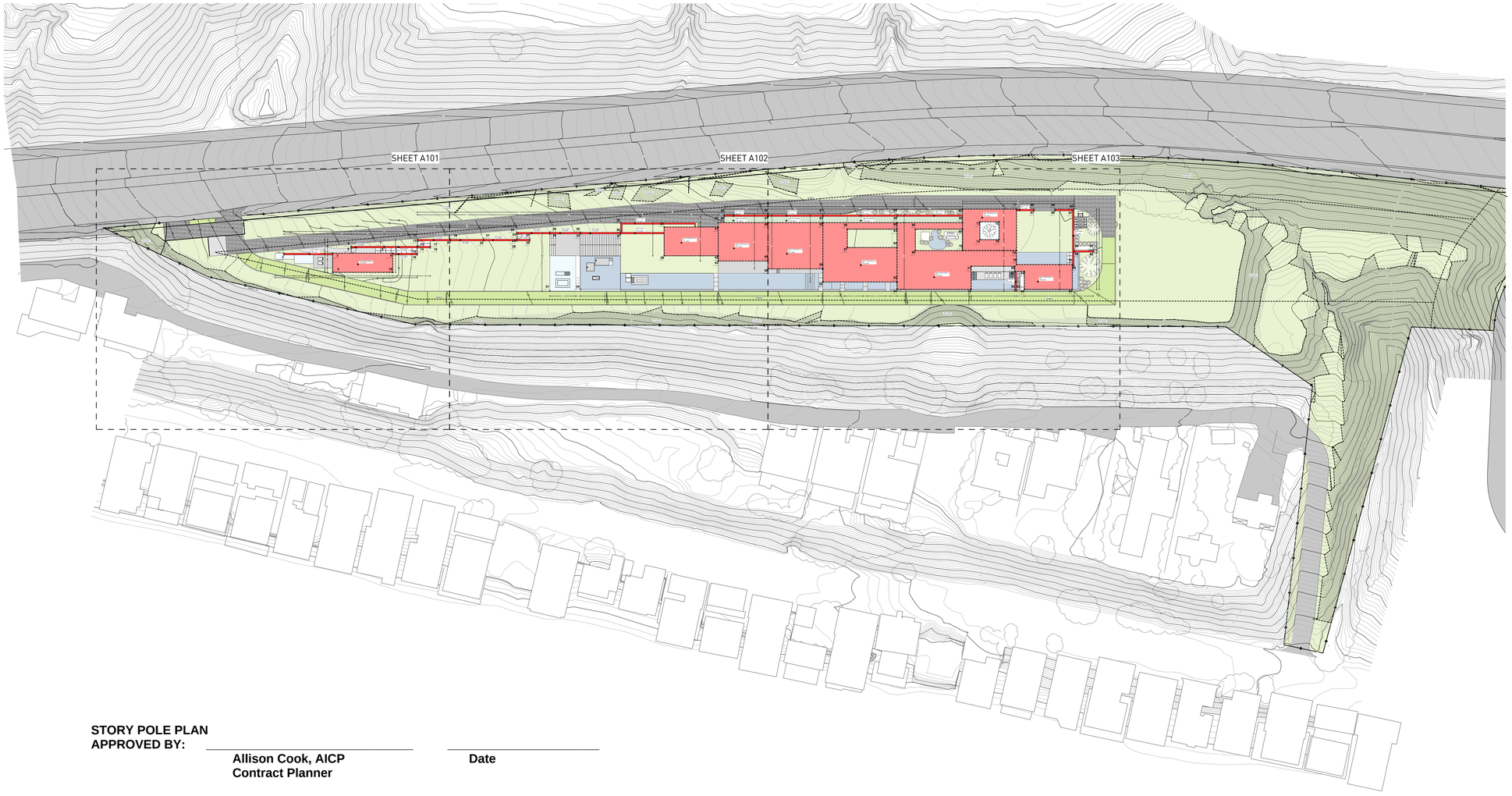
Civil Engineers
LC Engineering Group
889 Pierce Ct., Ste. 101
Thousand Oaks, CA 91360
P 805-497-1244
P 818-991-7148
W lcegroupinc.com

Landscape Architect
[place]
3617 exposition boulevard
Los Angeles, CA 90016
P 310-450-8100
F 323-737-3290
W plac-e.com

Design Architect
Oppenheim Architecture
245 NE 37 Street
Miami FL 33137
P 305 576 8404
F 305 576 8433
W oppenoffice.com

Project Address
VILLA COLEAVA
25200 Pacific Coast Hwy.
Malibu, California, USA

Property Owner
PAR PCH, LLC
PO Box 6528
Malibu, CA 90265



STORY POLE ELEVATIONS

POLE NUMBER	TOP ELEVATION	EXISTING GRADE	HEIGHT FROM EXISTING GRADE	PROPOSED GRADE	HEIGHT FROM PROPOSED GRADE
1	108'AMSL	97'-9"AMSL	10'-3"	102'AMSL	6'
2	108'AMSL	97'-9"AMSL	10'-3"	102'AMSL	6'
3	112'AMSL	100'-6"AMSL	11'-6"	100'-6"AMSL	11'-6"
4	112'AMSL	100'-3"AMSL	11'-9"	100'-3"AMSL	11'-9"
5	108'AMSL	102'AMSL	6'	102'AMSL	6'
6	108'AMSL	102'AMSL	6'	102'AMSL	6'
7	110'AMSL	104'AMSL	6'	104'AMSL	6'
8	110'AMSL	104'AMSL	6'	104'AMSL	6'
9	112'AMSL	104'-2"AMSL	7'-10"	104'AMSL	8'
10	112'AMSL	104'AMSL	8'	104'AMSL	8'
11	112'AMSL	106'-2"AMSL	5'-10"	106'-2"AMSL	5'-10"
12	112'AMSL	106'AMSL	6'	106'AMSL	6'
13	112'AMSL	106'AMSL	6'	106'AMSL	6'
14	112'AMSL	106'AMSL	6'	106'AMSL	6'
15	112'AMSL	105'-7"AMSL	6'-5"	105'-7"AMSL	6'-5"
16	112'AMSL	105'-7"AMSL	6'-5"	105'-7"AMSL	6'-5"
17	112'AMSL	106'-6"AMSL	5'-6"	106'-6"AMSL	5'-6"
18	112'AMSL	106'-6"AMSL	5'-6"	106'-6"AMSL	5'-6"
19	114'AMSL	108'AMSL	6'	108'AMSL	6'
20	114'AMSL	108'AMSL	6'	108'AMSL	6'
21	116'AMSL	110'AMSL	6'	110'AMSL	6'
22	116'AMSL	110'AMSL	6'	110'AMSL	6'
23	118'AMSL	112'AMSL	6'	112'AMSL	6'
24	118'AMSL	112'-6"AMSL	5'-6"	112'-6"AMSL	5'-6"
25	118'AMSL	112'-4"AMSL	5'-8"	112'-4"AMSL	5'-8"
26	118'AMSL	112'-3"AMSL	5'-9"	112'-3"AMSL	5'-9"
27	118'AMSL	113'-3"AMSL	4'-9"	113'-3"AMSL	4'-9"
28	118'AMSL	113'-2"AMSL	4'-10"	113'-2"AMSL	4'-10"
29	120'AMSL	114'-10"AMSL	5'-2"	114'-10"AMSL	5'-2"
30	120'AMSL	114'-9"AMSL	5'-3"	114'-9"AMSL	5'-3"
31	116'AMSL	113'-2"AMSL	2'-10"	113'-2"AMSL	2'-10"
32	128'AMSL	115'-7"AMSL	12'-5"	115'-7"AMSL	12'-5"
33	128'AMSL	115'-7"AMSL	12'-5"	116'-6"AMSL	11'-6"
34	128'AMSL	115'AMSL	13'	116'AMSL	12'
35	123'AMSL	118'-8"AMSL	4'-4"	115'-2"AMSL	7'-10"
36	130'AMSL	112'-8"AMSL	11'-8"	123'AMSL	7'
37	130'AMSL	112'-8"AMSL	11'-8"	128'AMSL	2'
38	137'AMSL	120'-5"AMSL	16'-5"	123'AMSL	14'
39	137'AMSL	120'-6"AMSL	16'-8"	128'AMSL	9'
40	142'AMSL	119'-1"AMSL	17'-11"	128'AMSL	10'-6"
41	137'AMSL	124'AMSL	13'	118'AMSL	24'
42	137'AMSL	123'-4"AMSL	13'-8"	128'AMSL	10'-6"
43	142'AMSL	124'AMSL	18'	128'AMSL	14'
44	129'AMSL	125'AMSL	4'	118'AMSL	11'
45	129'AMSL	125'AMSL	4'	118'AMSL	11'
46	133'AMSL	127'AMSL	6'	127'AMSL	6'
47	133'AMSL	127'AMSL	6'	130'AMSL	3'
48	144'AMSL	126'-6"AMSL	17'-6"	130'AMSL	14'
49	142'AMSL	126'-3"AMSL	15'-9"	128'AMSL	14'
50	144'AMSL	126'AMSL	18'	128'AMSL	16'
51	136'AMSL	130'AMSL	6'	124'AMSL	12'
52	136'AMSL	130'AMSL	6'	130'AMSL	6'
53	146'AMSL	130'AMSL	16'	130'AMSL	16'
54	144'AMSL	129'AMSL	15'	130'AMSL	14'
55	146'AMSL	129'AMSL	17'	130'AMSL	16'
56	146'AMSL	130'AMSL	16'	132'AMSL	14'
57	146'AMSL	130'AMSL	16'	132'AMSL	14'
58	140'AMSL	132'-6"AMSL	7'-6"	128'AMSL	12'
59	140'AMSL	132'-6"AMSL	7'-6"	134'AMSL	6'
60	148'AMSL	132'AMSL	16'	131'-2"AMSL	16'-4"
61	146'AMSL	132'AMSL	14'	132'AMSL	14'
62	146'AMSL	131'AMSL	15'	132'AMSL	14'
63	146'AMSL	130'AMSL	16'	132'AMSL	14'
64	148'AMSL	130'AMSL	18'	132'AMSL	16'
65	148'AMSL	132'AMSL	16'	134'AMSL	14'
66	148'AMSL	133'AMSL	15'	134'AMSL	14'
67	144'AMSL	134'AMSL	10'	132'AMSL	12'
68	144'AMSL	133'-4"AMSL	10'-6"	134'AMSL	10'
69	148'AMSL	133'AMSL	15'	134'AMSL	14'
70	148'AMSL	132'-6"AMSL	15'-6"	134'AMSL	14'
71	148'AMSL	132'AMSL	16'	134'AMSL	14'
72	148'AMSL	131'AMSL	17'	134'AMSL	14'
73	144'AMSL	133'6"AMSL	10'-6"	132'AMSL	12'
74	144'AMSL	133'AMSL	11'	132'AMSL	12'
75	144'AMSL	134'AMSL	10'	132'AMSL	12'
76	144'AMSL	134'AMSL	10'	132'AMSL	12'
77	144'AMSL	135'AMSL	9'	132'AMSL	12'
78	148'AMSL	134'AMSL	14'	134'AMSL	14'
79	148'AMSL	133'AMSL	15'	134'AMSL	14'
80	148'AMSL	133'AMSL	15'	134'AMSL	14'
81	148'AMSL	133'AMSL	15'	134'AMSL	14'
82	148'AMSL	132'-5"AMSL	15'-7"	135'AMSL	13'
83	148'AMSL	132'-6"AMSL	15'-6"	135'AMSL	13'
84	148'AMSL	133'-6"AMSL	14'-6"	136'AMSL	12'
85	148'AMSL	133'AMSL	15'	136'AMSL	12'
86	144'AMSL	135'AMSL	9'	134'AMSL	10'
87	144'AMSL	135'AMSL	9'	134'AMSL	10'
88	144'AMSL	135'AMSL	9'	134'AMSL	10'
89	144'AMSL	135'AMSL	9'	134'AMSL	10'
90	144'AMSL	136'-3"AMSL	7'-9"	134'AMSL	10'
91	144'AMSL	136'AMSL	8'	134'AMSL	10'
92	148'AMSL	135'AMSL	13'	135'AMSL	9'
93	148'AMSL	135'AMSL	13'	135'AMSL	9'
94	144'AMSL	135'AMSL	9'	135'AMSL	9'
95	144'AMSL	135'AMSL	9'	135'AMSL	9'
96	144'AMSL	135'AMSL	9'	136'AMSL	8'
97	144'AMSL	135'AMSL	9'	134'AMSL	10'
98	144'AMSL	134'-4"AMSL	9'-8"	136'AMSL	8'

LEGEND		
WALL		
ROOF/TRELLIS		

STORY POLE PLAN APPROVED BY:

_____ _____

Allison Cook, AICP **Date**
Contract Planner

I hereby absolve the City of any liability associated with the construction of, or damage caused by, the placement of these approved story poles.

_____ **04/10/2025**

(Print Owner's Name) **Date**

KEY NOTES:

SITE

001 MAINTAIN ALL WATER RUNOFF WITHIN PROPERTY. SLOPE AWAY FROM P.L. AT A MIN. SLOPE OF ¼" /FT., REFER TO CIVIL DWGS.
002 TREES/LANDSCAPING PLANTING/GROUND COVER/LAWN, REFER TO LANDSCAPE DWGS.
003 HEDGE. REFER TO LANDSCAPE DWGS.
004 HARDSCAPE. REFER TO LANDSCAPE DWGS.
005 DRIVEWAY. GRAVEL ON GRADE. REFER TO CIVIL & LANDSCAPE DWGS.
006 WOOD DECK. SIZE OF PLANKS T.B.D. FINISH T.B.D.
007 UNDERGROUND DRAINAGE SYSTEM. REFER TO CIVIL DWGS.
008 INFINITY POOL EDGE.
009 OPEN PARKING, REFER TO CIVIL FOR DETAILS
010 6'-0" SITE RETAINING WALL. REFER TO STRUCTURAL AND LANDSCAPE DWGS.
011 PEDESTRIAN GATE DOOR. PROVIDE SHOP DWGS. FOR ARCHITECT REVIEW.
012 42" MOTORIZED VEHICULAR SLIDING ENTRY GATE. STEEL FRAME. 90% VISUALLY PERMEABLE.
013 42" PERIMETER FENCE. 90% VISUALLY PERMEABLE.
014 CALL BOX
015 TRASH ENCLOSURE AREA
016 STRUCTURAL GRASS DRIVEWAY. GRASSCRETE OR SIMILAR. REFER TO CIVIL & LANDSCAPE DWGS.
017 GENERATOR ON EXISTING CONCRETE PLINTH, BOTTOM OF GENERATOR TO BE ABOVE BFE +1', REFER TO ELECTRICAL DWGS.
018 A/C CONDENSER UNITS BEHIND LANDSCAPE, BOTTOM OF UNITS TO BE ABOVE BFE +1', REFER TO MECHANICAL DWGS.
019 NATURAL LAWN AREA. REFER TO LANDSCAPE DWGS.

MATERIALS

100 ARCHITECTURAL EXPOSED CONCRETE, COLOR T.B.D. REFER TO STRUCTURAL DRAWINGS AND ARCHITECTURAL DETAILS.
101 CUSTOM WOOD DOOR. REFER TO DOOR SCHEDULE.
102 IMPACT RESISTANT SLIDING ALUMINUM WINDOWS / DOORS SYSTEM, LOW-E COATING. REFER TO WINDOW SCHEDULE.
103 PRE-FABRICATED SKYLIGHT ON CONCRETE CURB. REFER TO WINDOW SCHEDULE. SEE SECTION AND DETAILS.
104 GARAGE STEEL DOOR CLADDED WITH CUSTOM CONCRETE PANELS. REFER TO DOOR SCHEDULE.
105 GRAVEL.
106 5/8" G.W.B., FINISH T.B.D.; REFER TO I.D. DWGS.
107 3/8" THERMOCROMEX LIMESTONE PLASTER, SAND FINISH, COLOR T.B.D. 3/8" TYPICAL.
108 TRELLIS. 50 PERCENT OPEN TO THE SKY. DEPTH OF SLOTS TO BE EQUAL TO OR LESS THAN THE WIDTH OF EACH SLOT. PROVIDE SHOP DWGS.
109 REFER TO INTERIOR DESIGN DRAWINGS AND FINISH SCHEDULE.
110 RAMMED EARTH CONSTRUCTION.
111 STONE BENCH.

STRUCTURAL

200 FOUNDATION AND PILES. REFER TO STRUCT. DWGS.
201 COMPACTED EARTH. REFER TO STRCUT. DWGS.
202 RETAINING WALL. REFER TO STRUCT. DWGS.
203 CONCRETE SLAB. REFER TO STRUCT. DWGS.
204 CONCRETE COLUMN. REFER TO STRUCT. DWGS.
205 CONCRETE BEAM. REFER TO STRUCT. DWGS.
206 STEEL COLUMN. REFER TO STRUCT. DWGS.
207 CONCRETE STAIRS. REFER TO STRUCT. DWGS.
208 CONCRETE SHELL FOR POOL. REFER TO STRUCT. DWGS.
209 8" CMU REINFORCED WALL. REFER TO WALL TYPES AND STRUCT. DWGS
210 PROVIDE 2" RECESS ON SLABS ON ALL SHOWERS.
211 OPENING ON CONCRETE SLAB. REFER TO STRUCT. DWGS.

MEP

300 LIGHT FIXTURE/ SEE ARCH. RCP, ELECTRICAL DWGS. AND LIGHTING SPECIFICATIONS.
301 A/C PLENUM SPACE, REFER TO MECHANICAL DWGS. AND RCP. NO COMBUSTIBLES ALLOWED.
302 ROOF DRAIN, REFER TO PLUMBING DWGS. /SEE DETAIL.
303 FLOOR DRAIN, REFER TO PLUMBING DWGS./ SEE DETAIL.
304 DRAIN PIPE TO FIT IN CEILING SPACE, REFER TO PLUMBING DWGS. COORDINATE EXACT LOCATION AND SPECS.
305 KITCHEN HOOD, REFER TO MECH DWGS.
306 KITCHEN HOOD EXHAUST PIPE TO FIT IN CEILING SPACE, REFER TO MECH DWGS. COORDINATE EXACT LOCATION AND SPECS.
307 DESIGNATED POOL EQUIPMENT AREA.
308 GAS WATER HEATER. REFER TO PLUMBING DWGS.
309 ELECTRICAL PANELS. REFER TO ELECTRICAL DWGS.
310 CONDENSER UNITS ON STANDS. REFER TO MECH. DWGS.
311 MINIMUM R:30 BATT INSULATION OR RIGID INSULATION. REFER TO ENERGY CALCULATIONS.
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315 HOSE BIB. REFER TO PLUMBING AND LANDSCAPE DWGS.
316 ELECTRICITY, GAS AND WATER. REFER TO MEP DRAWINGS.
317 MOTORIZED VEHICULAR GATE. REFER TO ELECT. DWGS.
318 ALL TOILETS TO BE WALL HUNG. REFER TO MECH. DWGS.
319 LINEAR DRAIN
320 OVERFLOW SCUPPER.

WATERPROOFING

400 CONTINUOUS VAPOR BARRIER. REFER TO ARCH AND STRUCTURAL DWGS.
401 WATERPROOFING MEMBRANE. REFER TO ARCH AND STRUCTURAL DWGS.
402 POOL FINISH/ COLOR TBD.

MISC. ARCHITECTURAL DETAILS

500 CURTAIN CEILING COVE. REFER TO ARCH. DETAIL.
501 CONTINUOUS 1/2" TOOLED WATER DRIP. SEE ARCH. DETAIL.
502 VENT.
503 KITCHEN, BUILT-IN FURNITURE, CABINETRY BY OTHERS. REFER TO KITCHEN SHOP DWGS.
504 5/8" GWB DROPPED CEILING ON 3/4" FURRING STRIPS, PAINTED GWB. COLOR TBD.
505 STAINLESS STEEL SCUPPER IN CONCRETE STRUCTURE. 3" X 3" MIN.OPENING. REFER TO ELEVATION AND PLAN FOR LOCATION.
506 CUSTOM WOOD MILLWORK, REFER TO I.D. DRAWINGS
507 SOLAR PANELS (T.B.D.)
509 CONCEALED LED SCREEN.
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600 PENDANT LIGHT. REFER TO LIGHTING DWGS.
601 RECESSED DOWN LIGHT. REFER TO LIGHTING DWGS.
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700 FIRE DEPARTMENT VEHICULAR ACCESS ROADS MUST BE INSTALLED AND MAINTAINED IN A SERVICEABLE MANNER PRIOR TO AND DURING THE TIME OF CONSTRUCTION. FIRE CODE 5001.4
701 AN APPROVED KEY BOX, LISTED IN ACCORDANCE WITH UL 1037 SHALL BE PROVIDED AS REQUIRED BY FIRE CODE 506. THE LOCATION OF EACH KEY BOX SHALL BE DETERMINED BY THE FIRE INSPECTOR.
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709 ROOF GUTTERS SHALL BE PROVIDED WITH A MEANS OTO PREVENT THE ACCUMULATION OF LEAVES AND DEBRIS IN THE GUTTER. (RESIDENTIAL CODE R327.534 AND BUILDING GCODE 705A.4)
710 VENTS SHALL RESIST THE INTRUSION OF FLAME AND EMBERS AND FLAME THROUGH THE VENTILATION OPENINGS. VENT OPENINGS SHALL BE PROTECTED BY CORROSION- RESISTANT, NONCOMBUSTIBLE WIRE MESH WITH A MINIMUM 1/1ATH INCH OPENINGS AND SHALL NOT EXCEED 1/8TH INCH. VENTS SHALL NOT BE INSTALLED IN EAVES OR CORNICES. (RESIDENTIAL CODE R327.6.1 AND BUILDING CODE 706A.1)
711 CLEARANCE OF BRUSH AND VEGETATIVE GROWTH SHALL BE MAINTAINED PER FIRE CODE 325.
712 PROVIDE APPROVED SIGNS OR OTHER APPROVED NOTICES OR MARKINGS THAT INCLUDE THE WORDS NO PARKING - FIRE LANE. SIGNS SHALL HAVE A MINIMUM DIMENSION OF 12 INCHES WIDE BY 18 INCHES HIGH AND HAVE RED LETTERS ON A WHITE REFLECTIVE BACKGROUND. SIGNS SHALL BE PROVIDED FOR FIRE APPARATUS ACCESS ROADS, TO CLEARLY INDICATE THE ENTRANCE TO SUCH ROAD, OR PROHIBIT THE OBSTRUCTION THEREOF AND AT INTERVALS, AS REQUIRED BY THE FIRE INSPECTOR. FIRE CODE 503.3.
713 ALL FIRE HYDRANTS SHALL MEASURE 6"" X 4"" X 2-1/2"", BRASS OR BRONZE, CONFORMING TO AMERICAN WATER WORKS ASSOCIATION STANDARD C503, OR APPROVED EQUAL.
714 ALL ON-SITE FIRE HYDRANTS SHALL BE INSTALLED, TESTED AND APPROVED PRIOR TO BUILDING OCCUPANCY. FIRE CODE 901.5.1
715 ROOF LADDER ACCESS

Project No

1813

Project Name
VILLA COLEAVA

Project Address
25200 Pacific Coast Hwy.
Malibu, California, USA

Property Owner
PAR PCH, LLC
PO Box 6528
Malibu, CA 90265

Design Architect
Oppenheim Architecture
245 NE 37 Street
Miami FL 33137
P 305 576 8404
F 305 576 8433
W oppenoffice.com

Landscape Architect
[place]
3617 exposition boulevard
Los Angeles, CA 90016
P 310-450-8100
F 323-737-3290
W plac-e.com

Civil Engineers
LC Engineering Group
889 Pierce Ct., Ste. 101
Thousand Oaks, CA 91360
P 805-497-1244
P 818-991-7148
W lcegroupinc.com

Revisions

Mark	Date	Description

Title
STORY POLE PLAN

1/64" = 1'-0"

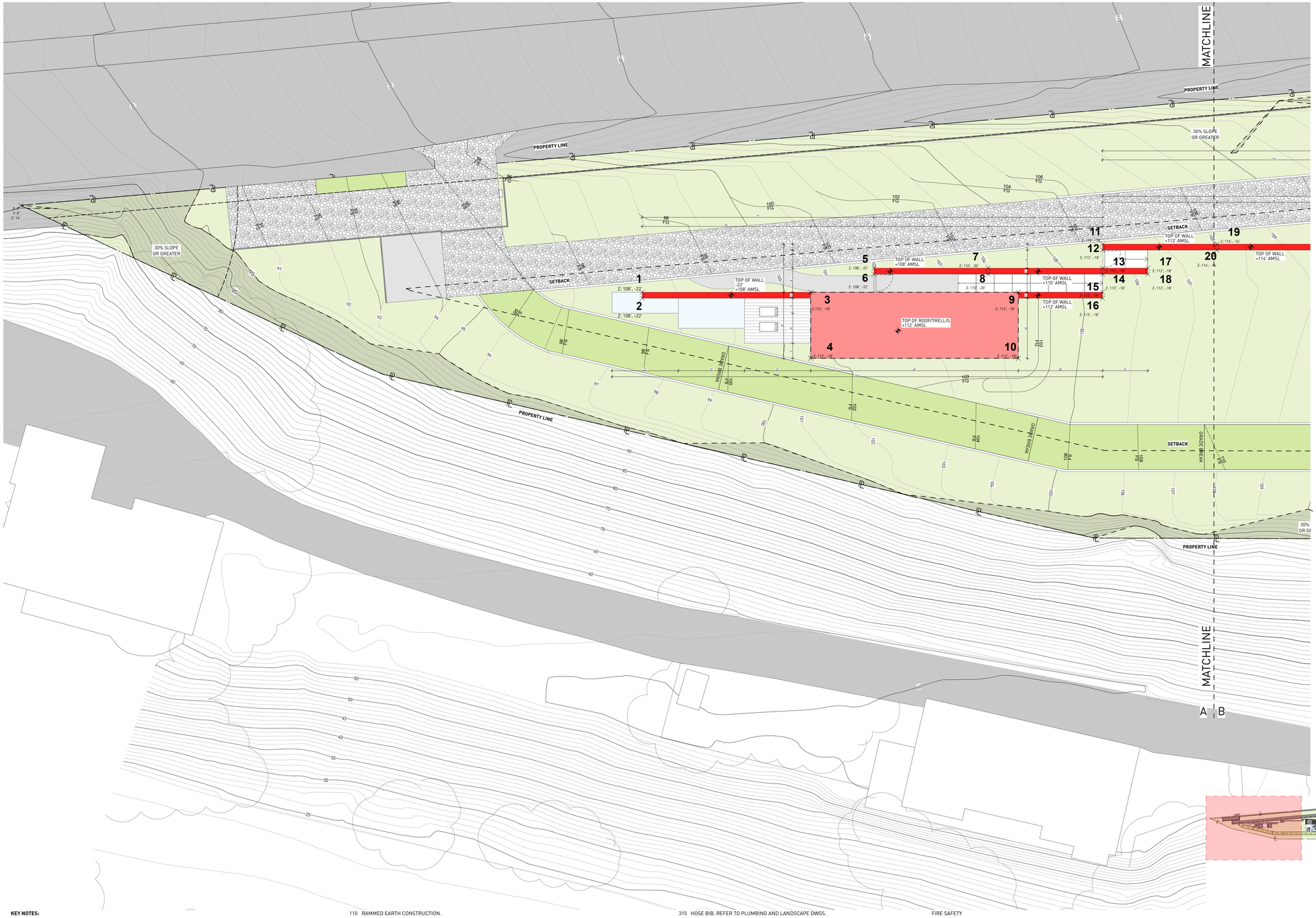
NOT FOR CONSTRUCTION

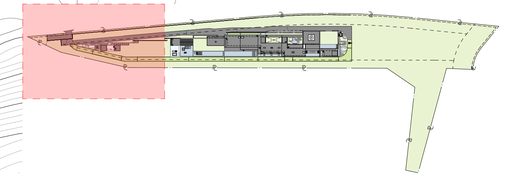
Design Development

1813
VILLA COLEAVA

Drawing Issued on 3/19/25

Z119





STORY POLE ELEVATIONS

POLE NUMBER	TOP ELEVATION	EXISTING GRADE	HEIGHT FROM EXISTING GRADE	PROPOSED GRADE	HEIGHT FROM PROPOSED GRADE
1	108'-6"AMSL	97'-9"AMSL	10'-3"	102'-6"AMSL	6'
2	108'-6"AMSL	97'-9"AMSL	10'-3"	102'-6"AMSL	6'
3	112'-6"AMSL	100'-6"AMSL	11'-6"	100'-6"AMSL	11'-6"
4	112'-6"AMSL	100'-3"AMSL	11'-9"	100'-3"AMSL	11'-9"
5	108'-6"AMSL	102'-6"AMSL	6'	102'-6"AMSL	6'
6	108'-6"AMSL	102'-6"AMSL	6'	102'-6"AMSL	6'
7	110'-6"AMSL	104'-6"AMSL	6'	104'-6"AMSL	6'
8	110'-6"AMSL	104'-6"AMSL	6'	104'-6"AMSL	6'
9	112'-6"AMSL	104'-2"AMSL	7'-10"	104'-6"AMSL	8'
10	112'-6"AMSL	104'-6"AMSL	8'	104'-6"AMSL	8'
11	112'-6"AMSL	106'-2"AMSL	5'-10"	106'-2"AMSL	5'-10"
12	112'-6"AMSL	106'-6"AMSL	6'	106'-6"AMSL	6'
13	112'-6"AMSL	106'-6"AMSL	6'	106'-6"AMSL	6'
14	112'-6"AMSL	106'-6"AMSL	6'	106'-6"AMSL	6'
15	112'-6"AMSL	105'-7"AMSL	6'-5"	105'-7"AMSL	6'-5"
16	112'-6"AMSL	105'-7"AMSL	6'-5"	105'-7"AMSL	6'-5"
17	112'-6"AMSL	106'-6"AMSL	5'-6"	106'-6"AMSL	5'-6"
18	112'-6"AMSL	106'-6"AMSL	5'-6"	106'-6"AMSL	5'-6"
19	114'-6"AMSL	108'-6"AMSL	6'	108'-6"AMSL	6'
20	114'-6"AMSL	108'-6"AMSL	6'	108'-6"AMSL	6'
21	116'-6"AMSL	110'-6"AMSL	6'	110'-6"AMSL	6'
22	116'-6"AMSL	110'-6"AMSL	6'	110'-6"AMSL	6'
23	118'-6"AMSL	112'-6"AMSL	6'	112'-6"AMSL	6'
24	118'-6"AMSL	112'-6"AMSL	5'-6"	112'-6"AMSL	5'-6"
25	118'-6"AMSL	112'-4"AMSL	5'-8"	112'-4"AMSL	5'-8"
26	118'-6"AMSL	112'-3"AMSL	5'-9"	112'-3"AMSL	5'-9"
27	118'-6"AMSL	113'-3"AMSL	4'-9"	113'-3"AMSL	4'-9"
28	118'-6"AMSL	113'-2"AMSL	4'-10"	113'-2"AMSL	4'-10"
29	120'-6"AMSL	114'-10"AMSL	5'-2"	114'-10"AMSL	5'-2"
30	120'-6"AMSL	114'-9"AMSL	5'-3"	114'-9"AMSL	5'-3"
31	116'-6"AMSL	113'-2"AMSL	2'-10"	113'-2"AMSL	2'-10"
32	128'-6"AMSL	115'-7"AMSL	12'-5"	115'-7"AMSL	12'-5"
33	128'-6"AMSL	115'-7"AMSL	12'-5"	116'-6"AMSL	11'-6"
34	128'-6"AMSL	115'AMSL	13'	116'AMSL	12'
35	123'-6"AMSL	118'-8"AMSL	4'-4"	115'-2"AMSL	7'-10"
36	130'-6"AMSL	112'-8"AMSL	11'-8"	123'AMSL	7'
37	130'-6"AMSL	112'-8"AMSL	11'-8"	128'AMSL	2'
38	137'-6"AMSL	120'-5"AMSL	16'-5"	123'AMSL	14'
39	137'-6"AMSL	120'-6"AMSL	16'-8"	128'AMSL	9'
40	142'-6"AMSL	119'-1"AMSL	17'-11"	128'AMSL	10'-6"
41	137'-6"AMSL	124'AMSL	13'	118'AMSL	24'
42	137'-6"AMSL	123'-4"AMSL	13'-8"	128'AMSL	10'-6"
43	142'-6"AMSL	124'AMSL	18'	128'AMSL	14'
44	129'-6"AMSL	125'AMSL	4'	118'AMSL	11'
45	129'-6"AMSL	125'AMSL	4'	118'AMSL	11'
46	133'-6"AMSL	127'AMSL	6'	127'AMSL	6'
47	133'-6"AMSL	127'AMSL	6'	130'AMSL	3'
48	144'-6"AMSL	126'-6"AMSL	17'-6"	130'AMSL	14'
49	142'-6"AMSL	126'-3"AMSL	15'-9"	128'AMSL	14'
50	144'-6"AMSL	126'AMSL	18'	128'AMSL	16'
51	136'-6"AMSL	130'AMSL	6'	124'AMSL	12'
52	136'-6"AMSL	130'AMSL	6'	130'AMSL	6'
53	146'-6"AMSL	130'AMSL	16'	130'AMSL	16'
54	144'-6"AMSL	129'AMSL	15'	130'AMSL	14'
55	146'-6"AMSL	129'AMSL	17'	130'AMSL	16'
56	146'-6"AMSL	130'AMSL	16'	132'AMSL	14'
57	146'-6"AMSL	130'AMSL	16'	132'AMSL	14'
58	140'-6"AMSL	132'-6"AMSL	7'-6"	128'AMSL	12'
59	140'-6"AMSL	132'-6"AMSL	7'-6"	134'AMSL	6'
60	148'-6"AMSL	132'AMSL	16'	131'-6"AMSL	16'-6"
61	146'-6"AMSL	132'AMSL	14'	132'AMSL	14'
62	146'-6"AMSL	131'AMSL	15'	132'AMSL	14'
63	146'-6"AMSL	130'AMSL	16'	132'AMSL	14'
64	148'-6"AMSL	130'AMSL	18'	132'AMSL	16'
65	148'-6"AMSL	132'AMSL	16'	134'AMSL	14'
66	149'-6"AMSL	133'AMSL	15'	134'AMSL	14'
67	144'-6"AMSL	134'AMSL	10'	132'AMSL	12'
68	144'-6"AMSL	133'-6"AMSL	10'-6"	134'AMSL	10'
69	149'-6"AMSL	133'AMSL	15'	134'AMSL	14'
70	148'-6"AMSL	132'-6"AMSL	15'-6"	134'AMSL	14'
71	148'-6"AMSL	132'AMSL	16'	134'AMSL	14'
72	148'-6"AMSL	131'AMSL	17'	134'AMSL	14'
73	144'-6"AMSL	133'6"AMSL	10'-6"	132'AMSL	12'
74	144'-6"AMSL	133'AMSL	11'	132'AMSL	12'
75	144'-6"AMSL	134'AMSL	10'	132'AMSL	12'
76	144'-6"AMSL	134'AMSL	10'	132'AMSL	12'
77	144'-6"AMSL	135'AMSL	9'	132'AMSL	12'
78	148'-6"AMSL	134'AMSL	14'	134'AMSL	14'
79	148'-6"AMSL	133'AMSL	15'	134'AMSL	14'
80	149'-6"AMSL	133'AMSL	15'	134'AMSL	14'
81	148'-6"AMSL	133'AMSL	15'	134'AMSL	14'
82	148'-6"AMSL	132'-5"AMSL	15'-7"	135'AMSL	13'
83	148'-6"AMSL	132'-6"AMSL	15'-6"	135'AMSL	13'
84	148'-6"AMSL	133'-6"AMSL	14'-6"	136'AMSL	12'
85	148'-6"AMSL	133'AMSL	15'	136'AMSL	12'
86	144'-6"AMSL	135'AMSL	9'	134'AMSL	10'
87	144'-6"AMSL	135'AMSL	9'	134'AMSL	10'
88	144'-6"AMSL	135'AMSL	9'	134'AMSL	10'
89	144'-6"AMSL	135'AMSL	9'	134'AMSL	10'
90	144'-6"AMSL	136'-3"AMSL	7'-9"	134'AMSL	10'
91	144'-6"AMSL	136'AMSL	8'	134'AMSL	10'
92	148'-6"AMSL	135'AMSL	13'	135'AMSL	9'
93	148'-6"AMSL	135'AMSL	13'	135'AMSL	9'
94	144'-6"AMSL	135'AMSL	9'	135'AMSL	9'
95	144'-6"AMSL	135'AMSL	9'	135'AMSL	9'
96	144'-6"AMSL	135'AMSL	9'	136'AMSL	8'
97	144'-6"AMSL	135'AMSL	9'	134'AMSL	10'
98	144'-6"AMSL	134'-4"AMSL	9'-8"	136'AMSL	8'

LEGEND	
WALL	
ROOF/TRELLIS	

KEY NOTES:

SITE

001 MAINTAIN ALL WATER RUNOFF WITHIN PROPERTY. SLOPE AWAY FROM P.L. AT A MIN. SLOPE OF ¼" /FT., REFER TO CIVIL DWGS.
002 TREES/LANDSCAPING PLANTING/GROUND COVER/LAWN, REFER TO LANDSCAPE DWGS.
003 HEDGE. REFER TO LANDSCAPE DWGS.
004 HARDSCAPE. REFER TO LANDSCAPE DWGS.
005 DRIVEWAY. GRAVEL ON GRADE. REFER TO CIVIL & LANDSCAPE DWGS.
006 WOOD DECK. SIZE OF PLANKS T.B.D. FINISH T.B.D.
007 UNDERGROUND DRAINAGE SYSTEM. REFER TO CIVIL DWGS.
008 INFINITY POOL EDGE.
009 OPEN PARKING, REFER TO CIVIL FOR DETAILS
010 4'-0" SITE RETAINING WALL. REFER TO STRUCTURAL AND LANDSCAPE DWGS.
011 PEDESTRIAN GATE DOOR. PROVIDE SHOP DWGS. FOR ARCHITECT REVIEW.
012 42" MOTORIZED VEHICULAR SLIDING ENTRY GATE. STEEL FRAME. 90% VISUALLY PERMEABLE.
013 42" PERIMETER FENCE. 90% VISUALLY PERMEABLE.
014 CALL BOX
015 TRASH ENCLOSURE AREA
016 STRUCTURAL GRASS DRIVEWAY. GRASSCRETE OR SIMILAR. REFER TO CIVIL & LANDSCAPE DWGS.
017 GENERATOR ON EXISTING CONCRETE PLINTH, BOTTOM OF GENERATOR TO BE ABOVE BFE +1', REFER TO ELECTRICAL DWGS.
018 A/C CONDENSER UNITS BEHIND LANDSCAPE, BOTTOM OF UNITS TO BE ABOVE BFE +1', REFER TO MECHANICAL DWGS.
019 NATURAL LAWN AREA. REFER TO LANDSCAPE DWGS.

MATERIALS

100 ARCHITECTURAL EXPOSED CONCRETE, COLOR T.B.D. REFER TO STRUCTURAL DRAWINGS AND ARCHITECTURAL DETAILS.
101 CUSTOM WOOD DOOR. REFER TO DOOR SCHEDULE.
102 IMPACT RESISTANT SLIDING ALUMINUM WINDOWS / DOORS SYSTEM, LOW-E COATING. REFER TO WINDOW SCHEDULE.
103 PRE-FABRICATED SKYLIGHT ON CONCRETE CURB. REFER TO WINDOW SCHEDULE. SEE SECTION AND DETAILS.
104 GARAGE STEEL DOOR CLADDED WITH CUSTOM CONCRETE PANELS. REFER TO DOOR SCHEDULE.
105 GRAVEL.
106 5/8" G.W.B., FINISH T.B.D.; REFER TO I.D. DWGS.
107 3/8" THERMOCROMEX LIMESTONE PLASTER, SAND FINISH, COLOR T.B.D. 3/8" TYPICAL.
108 TRELLIS. 50 PERCENT OPEN TO THE SKY. DEPTH OF SLOTS TO BE EQUAL TO OR LESS THAN THE WIDTH OF EACH SLOT. PROVIDE SHOP DWGS.
109 REFER TO INTERIOR DESIGN DRAWINGS AND FINISH SCHEDULE.
110 RAMMED EARTH CONSTRUCTION.
111 STONE BENCH.

STRUCTURAL

200 FOUNDATION AND PILES. REFER TO STRUCT. DWGS.
201 COMPACTED EARTH. REFER TO STRCUT. DWGS.
202 RETAINING WALL. REFER TO STRUCT. DWGS.
203 CONCRETE SLAB. REFER TO STRUCT. DWGS.
204 CONCRETE COLUMN. REFER TO STRUCT. DWGS.
205 CONCRETE BEAM. REFER TO STRUCT. DWGS.
206 STEEL COLUMN. REFER TO STRUCT. DWGS.
207 CONCRETE STAIRS. REFER TO STRUCT. DWGS.
208 CONCRETE SHELL FOR POOL. REFER TO STRUCT. DWGS.
209 8" CMU REINFORCED WALL. REFER TO WALL TYPES AND STRUCT. DWGS
210 PROVIDE 2" RECESS ON SLABS ON ALL SHOWERS.
211 OPENING ON CONCRETE SLAB. REFER TO STRUCT. DWGS.

MEP

300 LIGHT FIXTURE/ SEE ARCH. RCP, ELECTRICAL DWGS. AND LIGHTING SPECIFICATIONS.
301 A/C PLENUM SPACE, REFER TO MECHANICAL DWGS. AND RCP. NO COMBUSTIBLES ALLOWED.
302 ROOF DRAIN, REFER TO PLUMBING DWGS. /SEE DETAIL.
303 FLOOR DRAIN, REFER TO PLUMBING DWGS./ SEE DETAIL.
304 DRAIN PIPE TO FIT IN CEILING SPACE, REFER TO PLUMBING DWGS. COORDINATE EXACT LOCATION AND SPECS.
305 KITCHEN HOOD, REFER TO MECH DWGS.
306 KITCHEN HOOD EXHAUST PIPE TO FIT IN CEILING SPACE, REFER TO MECH DWGS. COORDINATE EXACT LOCATION AND SPECS.
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708 ROOF VALLEY FLASHINGS SHALL BE NOT LESS THAN 0.019 INCH (NO.26 GALVANIZED SHEET GAGE) CORROSION-RESISTANT METAL INSTALLED OVER A MINIMUM 36-INCH WIDE UNDERLAYMENT CONSISTING OF ONE LAYER OF NO. 72 ASTM CAP SHEET MEETING RUNNING THE FULL LEGHTH OF THE VALLEY (RESIDENTIAL CODE R327.5.3 AND BUILDING CODE 705A.3
709 ROOF GUTTERS SHALL BE PROVIDED WITH A MEANS OTO PREVENT THE ACCUMULATION OF LEAVES AND DEBRIS IN THE GUTTER. (RESIDENTIAL CODE R327.534 AND BUILDING GCODE 705A.4)
710 VENTS SHALL RESIST THE INTRUSION OF FLAME AND EMBERS AND FLAME THROUGH THE VENTILATION OPENINGS. VENT OPENINGS SHALL BE PROTECTED BY CORROSION- RESISTANT, NONCOMBUSTIBLE WIRE MESH WITH A MINIMUM 1/14TH INCH OPENINGS AND SHALL NOT EXCEED 1/8TH INCH. VENTS SHALL NOT BE INSTALLED IN EAVES OR CORNICES. (RESIDENTIAL CODE R327.6.1 AND BUILDING CODE 706A.1)
711 CLEARANCE OF BRUSH AND VEGETATIVE GROWTH SHALL BE MAINTAINED PER FIRE CODE 325.
712 PROVIDE APPROVED SIGNS OR OTHER APPROVED NOTICES OR MARKINGS THAT INCLUDE THE WORDS NO PARKING - FIRE LANE. SIGNS SHALL HAVE A MINIMUM DIMENSION OF 12 INCHES WIDE BY 18 INCHES HIGH AND HAVE RED LETTERS ON A WHITE REFLECTIVE BACKGROUND. SIGNS SHALL BE PROVIDED FOR FIRE APPARATUS ACCESS ROADS, TO CLEARLY INDICATE THE ENTRANCE TO SUCH ROAD, OR PROHIBIT THE OBSTRUCTION THEREOF AND AT INTERVALS, AS REQUIRED BY THE FIRE INSPECTOR. FIRE CODE 503.3.
713 ALL FIRE HYDRANTS SHALL MEASURE 6"" X 4"" X 2-1/2"", BRASS OR BRONZE, CONFORMING TO AMERICAN WATER WORKS ASSOCIATION STANDARD C503, OR APPROVED EQUAL.
714 ALL ON-SITE FIRE HYDRANTS SHALL BE INSTALLED, TESTED AND APPROVED PRIOR TO BUILDING OCCUPANCY. FIRE CODE 901.5.1
715 ROOF LADDER ACCESS

Project No

1813

Project Name
VILLA COLEAVA

Project Address
25200 Pacific Coast Hwy.
Malibu, California, USA

Property Owner
PAR PCH, LLC
PO Box 6528
Malibu, CA 90265

Design Architect
Oppenheim Architecture
245 NE 37 Street
Miami FL 33137
P 305 576 8404
F 305 576 8433
W oppenoffice.com

Landscape Architect
[place]
3617 exposition boulevard
Los Angeles, CA 90016
P 310-450-8100
F 323-737-3290
W plac-e.com

Civil Engineers
LC Engineering Group
889 Pierce Ct., Ste. 101
Thousand Oaks, CA 91360
P 805-497-1244
P 818-991-7148
W lcegroupinc.com

Revisions

Mark	Date	Description

Title
ENLARGED STORY POLE PLAN A

1/16" = 1'-0"

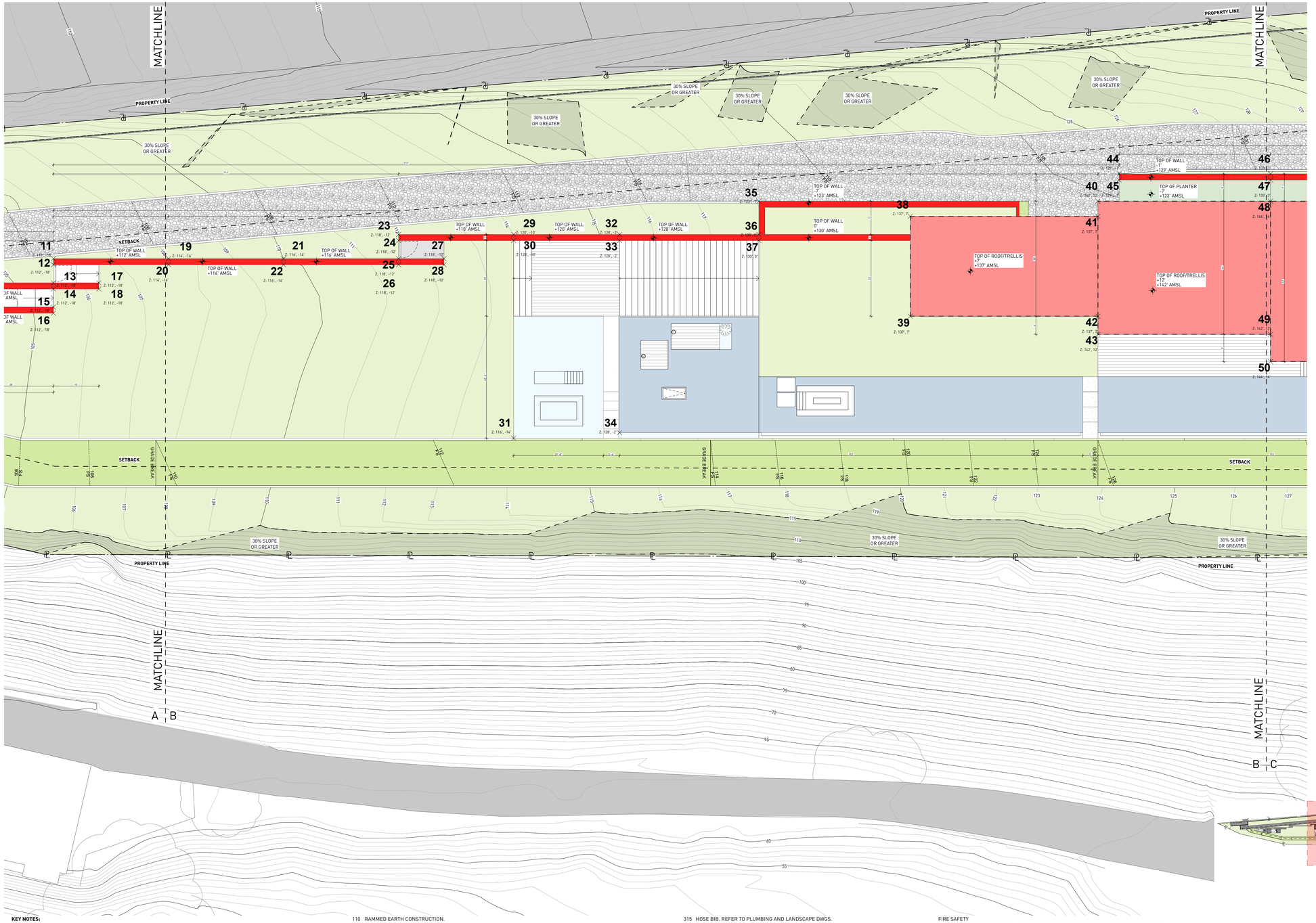
NOT FOR CONSTRUCTION

Design Development

1813
VILLA COLEAVA

Drawing Issued on 3/19/25

Z120



KEY NOTES:

SITE

001 MAINTAIN ALL WATER RUNOFF WITHIN PROPERTY. SLOPE AWAY FROM P.L. AT A MIN. SLOPE OF ¼" /FT., REFER TO CIVIL DWGS.
002 TREES/LANDSCAPING PLANTING/GROUND COVER/LAWN, REFER TO LANDSCAPE DWGS.
003 HEDGE. REFER TO LANDSCAPE DWGS.
004 HARDSCAPE. REFER TO LANDSCAPE DWGS.
005 DRIVEWAY. GRAVEL ON GRADE. REFER TO CIVIL & LANDSCAPE DWGS.
006 WOOD DECK. SIZE OF PLANKS T.B.D. FINISH T.B.D.
007 UNDERGROUND DRAINAGE SYSTEM. REFER TO CIVIL DWGS.
008 INFINITY POOL EDGE.
009 OPEN PARKING, REFER TO CIVIL FOR DETAILS
010 6'-0" SITE RETAINING WALL. REFER TO STRUCTURAL AND LANDSCAPE DWGS.
011 PEDESTRIAN GATE DOOR. PROVIDE SHOP DWGS. FOR ARCHITECT REVIEW.
012 42" MOTORIZED VEHICULAR SLIDING ENTRY GATE. STEEL FRAME. 90% VISUALLY PERMEABLE.
013 42" PERIMETER FENCE. 90% VISUALLY PERMEABLE.
014 CALL BOX
015 TRASH ENCLOSURE AREA
016 STRUCTURAL GRASS DRIVEWAY. GRASSCRETE OR SIMILAR. REFER TO CIVIL & LANDSCAPE DWGS.
017 GENERATOR ON EXISTING CONCRETE PLINTH, BOTTOM OF GENERATOR TO BE ABOVE BFE +1', REFER TO ELECTRICAL DWGS.
018 A/C CONDENSER UNITS BEHIND LANDSCAPE, BOTTOM OF UNITS TO BE ABOVE BFE +1', REFER TO MECHANICAL DWGS.
019 NATURAL LAWN AREA. REFER TO LANDSCAPE DWGS.

MATERIALS

100 ARCHITECTURAL EXPOSED CONCRETE, COLOR T.B.D. REFER TO STRUCTURAL DRAWINGS AND ARCHITECTURAL DETAILS.
101 CUSTOM WOOD DOOR. REFER TO DOOR SCHEDULE.
102 IMPACT RESISTANT SLIDING ALUMINUM WINDOWS / DOORS SYSTEM, LOW-E COATING. REFER TO WINDOW SCHEDULE.
103 PRE-FABRICATED SKYLIGHT ON CONCRETE CURB. REFER TO WINDOW SCHEDULE. SEE SECTION AND DETAILS.
104 GARAGE STEEL DOOR CLADDED WITH CUSTOM CONCRETE PANELS. REFER TO DOOR SCHEDULE.
105 GRAVEL.
106 5/8" G.W.B., FINISH T.B.D.; REFER TO I.D. DWGS.
107 3/8" THERMOCROMEX LIMESTONE PLASTER, SAND FINISH, COLOR T.B.D. 3/8" TYPICAL.
108 TRELLIS. 50 PERCENT OPEN TO THE SKY. DEPTH OF SLOTS TO BE EQUAL TO OR LESS THAN THE WIDTH OF EACH SLOT. PROVIDE SHOP DWGS.
109 REFER TO INTERIOR DESIGN DRAWINGS AND FINISH SCHEDULE.
110 RAMMED EARTH CONSTRUCTION.
111 STONE BENCH.

STRUCTURAL

200 FOUNDATION AND PILES. REFER TO STRUCT. DWGS.
201 COMPACTED EARTH. REFER TO STRCUT. DWGS.
202 RETAINING WALL. REFER TO STRUCT. DWGS.
203 CONCRETE SLAB. REFER TO STRUCT. DWGS.
204 CONCRETE COLUMN. REFER TO STRUCT. DWGS.
205 CONCRETE BEAM. REFER TO STRUCT. DWGS.
206 STEEL COLUMN. REFER TO STRUCT. DWGS.
207 CONCRETE STAIRS. REFER TO STRUCT. DWGS.
208 CONCRETE SHELL FOR POOL. REFER TO STRUCT. DWGS.
209 8" CMU REINFORCED WALL. REFER TO WALL TYPES AND STRUCT. DWGS
210 PROVIDE 2" RECESS ON SLABS ON ALL SHOWERS.
211 OPENING ON CONCRETE SLAB. REFER TO STRUCT. DWGS.

MEP

300 LIGHT FIXTURE/ SEE ARCH. RCP, ELECTRICAL DWGS. AND LIGHTING SPECIFICATIONS.
301 A/C PLENUM SPACE, REFER TO MECHANICAL DWGS. AND RCP. NO COMBUSTIBLES ALLOWED.
302 ROOF DRAIN, REFER TO PLUMBING DWGS. /SEE DETAIL.
303 FLOOR DRAIN, REFER TO PLUMBING DWGS./ SEE DETAIL.
304 DRAIN PIPE TO FIT IN CEILING SPACE, REFER TO PLUMBING DWGS. COORDINATE EXACT LOCATION AND SPECS.
305 KITCHEN HOOD, REFER TO MECH DWGS.
306 KITCHEN HOOD EXHAUST PIPE TO FIT IN CEILING SPACE, REFER TO MECH DWGS. COORDINATE EXACT LOCATION AND SPECS.
307 DESIGNATED POOL EQUIPMENT AREA.
308 GAS WATER HEATER. REFER TO PLUMBING DWGS.
309 ELECTRICAL PANELS. REFER TO ELECTRICAL DWGS.
310 CONDENSER UNITS ON STANDS. REFER TO MECH. DWGS.
311 MINIMUM R:30 BATT INSULATION OR RIGID INSULATION. REFER TO ENERGY CALCULATIONS.
312 ACOUSTICAL INSULATION.
313 MISTING SYSTEM. REFER TO PLUMBING DWGS.
314 SPRINKLER SYSTEM. REFER TO PLUMBING DWGS.
315 HOSE BIB. REFER TO PLUMBING AND LANDSCAPE DWGS.
316 ELECTRICITY, GAS AND WATER. REFER TO MEP DRAWINGS.
317 MOTORIZED VEHICULAR GATE. REFER TO ELECT. DWGS.
318 ALL TOILETS TO BE WALL HUNG. REFER TO MECH. DWGS.
319 LINEAR DRAIN
320 OVERFLOW SCUPPER.

WATERPROOFING

400 CONTINUOUS VAPOR BARRIER. REFER TO ARCH AND STRUCTURAL DWGS.
401 WATERPROOFING MEMBRANE. REFER TO ARCH AND STRUCTURAL DWGS.
402 POOL FINISH/ COLOR TBD.

MISC. ARCHITECTURAL DETAILS

500 CURTAIN CEILING COVE. REFER TO ARCH. DETAIL.
501 CONTINUOUS 1/2" TOOLED WATER DRIP. SEE ARCH. DETAIL.
502 VENT.
503 KITCHEN, BUILT-IN FURNITURE, CABINETRY BY OTHERS. REFER TO KITCHEN SHOP DWGS.
504 5/8" GWB DROPPED CEILING ON 3/4" FURRING STRIPS, PAINTED GWB. COLOR TBD.
505 STAINLESS STEEL SCUPPER IN CONCRETE STRUCTURE. 3" X 3" MIN.OPENING. REFER TO ELEVATION AND PLAN FOR LOCATION.
506 CUSTOM WOOD MILLWORK. REFER TO I.D. DRAWINGS
507 SOLAR PANELS (T.B.D.)
509 CONCEALED LED SCREEN.
510 LADDER ACCESS.

LIGHTING

600 PENDANT LIGHT. REFER TO LIGHTING DWGS.
601 RECESSED DOWN LIGHT. REFER TO LIGHTING DWGS.
602 CONCEALED LINEAR LIGHT. REFER TO LIGHTING DWGS.
603 POOL LINEAR RECESSED LIGHT. REFER TO LIGHTING DWGS.
604 LANDSCAPE LIGHTING. REFER TO LIGHTING DWGS.

FIRE SAFETY

700 FIRE DEPARTMENT VEHICULAR ACCESS ROADS MUST BE INSTALLED AND MAINTAINED IN A SERVICEABLE MANNER PRIOR TO AND DURING THE TIME OF CONSTRUCTION. FIRE CODE 5001.4
701 AN APPROVED KEY BOX, LISTED IN ACCORDANCE WITH UL 1037 SHALL BE PROVIDED AS REQUIRED BY FIRE CODE 506. THE LOCATION OF EACH KEY BOX SHALL BE DETERMINED BY THE FIRE INSPECTOR.
702 ALL REQUIRED PUBLIC FIRE HYDRANTS SHALL BE INSTALLED, TESTED AND ACCEPTED PRIOR TO BEGINNING CONSTRUCTION. FIRE CODE 501.4
703 PROVIDE AN APPROVED AUTOMATIC FIRE SPRINKLER SYSTEM AS SET FORTH BY BUILDING CODE 903 AND FIRE CODE 9003. PLANS SHALL BE SUBMITTED TO THE SPRINKLER PLAN CHECK UNIT FOR REVIEW AND APPROVAL PRIOR TO INSTALLATION.
704 SMOKE ALARMS SHALL RECEIVE THEIR PRIMARY POWER FROM THE BUILDING WIRING PROVIDED THAT SUCH WIRING IS SERVED FROM A COMMERCIAL SOURCE AND SHALL BE EQUIPPED WITH A BATTERY BACKUP. RESIDENTIAL CODE R314.4
705 WHERE MORE THAN ONE SMOKE ALARM IS REQUIRED TO BE INSTALLED WITHIN AN INDIVIDUAL DWELLING OR SLEEPING UNIT, THE SMOKE ALARMS SHALL BE INTERCONNECTED SIN USCH A MANNER THAT THE ACTIVATION OF ONE ALARM WILL ACTIVATE ALL OF THE ALARMS IN THE INDIVIDUAL UNIT. RESIDENTIAL CODE R314.5
706 APPROVED BUILDING ADDRESS NUMBERS, BUILDING NUMBERS OR APPROVED BUILDING IDENTIFICATION SHALL BE PROVIDED AND MAINTAINED SO AS TO BE PLAINLY VISIBLE AND LEGIBLE FROM THE STREET FRONTING THE PROPERTY. THE MINIMUM OF 4 INCHES HIGH WITH A MINUMM STROKE WIDTH OF 0.5 INCH. FIRE CODE 505.1
707 ALL ROOF COVERINGS SHALL BE CLASS "A" AS SPECIFIED IN BUILDING CODE 1505.1.1 (RESIDENTIAL CODE R327.5.2 & R902)
708 ROOF VALLEY FLASHINGS SHALL BE NOT LESS THAN 0.019 INCH (NO.26 GALVANIZED SHEET GAGE) CORROSION-RESISTANT METAL INSTALLED OVER A MINIMUM 36-INCH WIDE UNDERLAYMENT CONSISTING OF ONE LAYER OF NO. 72 ASTM CAP SHEET MEETING RUNNING THE FULL LEGHTH OF THE VALLEY (RESIDENTIAL CODE R327.5.3 AND BUILDING CODE 705A.3
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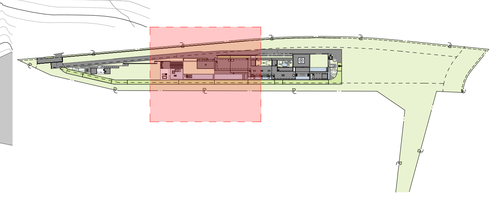
715 ROOF LADDER ACCESS

STORY POLE ELEVATIONS

POLE NUMBER	TOP ELEVATION	EXISTING GRADE	HEIGHT FROM EXISTING GRADE	PROPOSED GRADE	HEIGHT FROM PROPOSED GRADE
1	108'-6"AMSL	97'-9"AMSL	10'-3"	102'AMSL	6'
2	108'-6"AMSL	97'-9"AMSL	10'-3"	102'AMSL	6'
3	112'AMSL	100'-6"AMSL	11'-6"	100'-6"AMSL	11'-6"
4	112'AMSL	100'-3"AMSL	11'-9"	100'-3"AMSL	11'-9"
5	108'AMSL	102'AMSL	6'	102'AMSL	6'
6	108'AMSL	102'AMSL	6'	102'AMSL	6'
7	110'AMSL	104'AMSL	6'	104'AMSL	6'
8	110'AMSL	104'AMSL	6'	104'AMSL	6'
9	112'AMSL	104'-2"AMSL	7'-10"	104'AMSL	8'
10	112'AMSL	104'AMSL	8'	104'AMSL	8'
11	112'AMSL	106'-2"AMSL	5'-10"	106'-2"AMSL	5'-10"
12	112'AMSL	106'AMSL	6'	106'AMSL	6'
13	112'AMSL	106'AMSL	6'	106'AMSL	6'
14	112'AMSL	106'AMSL	6'	106'AMSL	6'
15	112'AMSL	105'-7"AMSL	6'-5"	105'-7"AMSL	6'-5"
16	112'AMSL	105'-7"AMSL	6'-5"	105'-7"AMSL	6'-5"
17	112'AMSL	106'-6"AMSL	5'-6"	106'-6"AMSL	5'-6"
18	112'AMSL	106'-6"AMSL	5'-6"	106'-6"AMSL	5'-6"
19	114'AMSL	108'AMSL	6'	108'AMSL	6'
20	114'AMSL	108'AMSL	6'	108'AMSL	6'
21	116'AMSL	110'AMSL	6'	110'AMSL	6'
22	116'AMSL	110'AMSL	6'	110'AMSL	6'
23	118'AMSL	112'AMSL	6'	112'AMSL	6'
24	118'AMSL	112'-6"AMSL	5'-6"	112'-6"AMSL	5'-6"
25	118'AMSL	112'-4"AMSL	5'-8"	112'-4"AMSL	5'-8"
26	118'AMSL	112'-3"AMSL	5'-9"	112'-3"AMSL	5'-9"
27	118'AMSL	113'-3"AMSL	4'-9"	113'-3"AMSL	4'-9"
28	118'AMSL	113'-2"AMSL	4'-10"	113'-2"AMSL	4'-10"
29	120'AMSL	114'-10"AMSL	5'-2"	114'-10"AMSL	5'-2"
30	120'AMSL	114'-9"AMSL	5'-3"	114'-9"AMSL	5'-3"
31	116'AMSL	113'-2"AMSL	2'-10"	113'-2"AMSL	2'-10"
32	128'AMSL	115'-7"AMSL	12'-5"	115'-7"AMSL	12'-5"
33	128'AMSL	115'-7"AMSL	12'-5"	116'-6"AMSL	11'-6"
34	128'AMSL	115'AMSL	13'	116'AMSL	12'
35	123'AMSL	118'-8"AMSL	4'-4"	115'-2"AMSL	7'-10"
36	130'AMSL	112'-8"AMSL	11'-8"	123'AMSL	7'
37	130'AMSL	112'-8"AMSL	11'-8"	128'AMSL	2'
38	137'AMSL	120'-5"AMSL	16'-5"	123'AMSL	14'
39	137'AMSL	120'-6"AMSL	16'-8"	128'AMSL	9'
40	142'AMSL	119'-1"AMSL	17'-11"	128'AMSL	10'-6"
41	137'AMSL	124'AMSL	13'	118'AMSL	24'
42	137'AMSL	123'-4"AMSL	13'-8"	128'AMSL	10'-6"
43	142'AMSL	124'AMSL	18'	128'AMSL	14'
44	129'AMSL	125'AMSL	4'	118'AMSL	11'
45	129'AMSL	125'AMSL	4'	118'AMSL	11'
46	133'AMSL	127'AMSL	6'	127'AMSL	6'
47	133'AMSL	127'AMSL	6'	130'AMSL	3'
48	144'AMSL	126'-6"AMSL	17'-6"	130'AMSL	14'
49	142'AMSL	126'-3"AMSL	15'-9"	128'AMSL	14'
50	144'AMSL	126'AMSL	18'	128'AMSL	16'
51	136'AMSL	130'AMSL	6'	124'AMSL	12'
52	136'AMSL	130'AMSL	6'	130'AMSL	6'
53	146'AMSL	130'AMSL	16'	130'AMSL	16'
54	144'AMSL	129'AMSL	15'	130'AMSL	14'
55	146'AMSL	129'AMSL	17'	130'AMSL	16'
56	146'AMSL	130'AMSL	16'	132'AMSL	14'
57	146'AMSL	130'AMSL	16'	132'AMSL	14'
58	140'AMSL	132'-6"AMSL	7'-6"	128'AMSL	12'
59	140'AMSL	132'-6"AMSL	7'-6"	134'AMSL	6'
60	148'AMSL	132'AMSL	16'	131'-6"AMSL	16'-6"
61	146'AMSL	132'AMSL	14'	132'AMSL	14'
62	146'AMSL	131'AMSL	15'	132'AMSL	14'
63	146'AMSL	130'AMSL	16'	132'AMSL	14'
64	148'AMSL	130'AMSL	18'	132'AMSL	16'
65	148'AMSL	132'AMSL	16'	134'AMSL	14'
66	148'AMSL	133'AMSL	15'	134'AMSL	14'
67	144'AMSL	134'AMSL	10'	132'AMSL	12'
68	144'AMSL	133'-4"AMSL	10'-6"	134'AMSL	10'
69	148'AMSL	133'AMSL	15'	134'AMSL	14'
70	148'AMSL	132'-6"AMSL	15'-6"	134'AMSL	14'
71	148'AMSL	132'AMSL	16'	134'AMSL	14'
72	148'AMSL	131'AMSL	17'	134'AMSL	14'
73	144'AMSL	133'6"AMSL	10'-6"	132'AMSL	12'
74	144'AMSL	133'AMSL	11'	132'AMSL	12'
75	144'AMSL	134'AMSL	10'	132'AMSL	12'
76	144'AMSL	134'AMSL	10'	132'AMSL	12'
77	144'AMSL	135'AMSL	9'	132'AMSL	12'
78	148'AMSL	134'AMSL	14'	134'AMSL	14'
79	148'AMSL	133'AMSL	15'	134'AMSL	14'
80	148'AMSL	133'AMSL	15'	134'AMSL	14'
81	148'AMSL	133'AMSL	15'	134'AMSL	14'
82	148'AMSL	132'-5"AMSL	15'-7"	135'AMSL	13'
83	148'AMSL	132'-6"AMSL	15'-6"	135'AMSL	13'
84	148'AMSL	133'-6"AMSL	14'-6"	136'AMSL	12'
85	148'AMSL	133'AMSL	15'	136'AMSL	12'
86	144'AMSL	135'AMSL	9'	134'AMSL	10'
87	144'AMSL	135'AMSL	9'	134'AMSL	10'
88	144'AMSL	135'AMSL	9'	134'AMSL	10'
89	144'AMSL	135'AMSL	9'	134'AMSL	10'
90	144'AMSL	136'-3"AMSL	7'-9"	134'AMSL	10'
91	144'AMSL	136'AMSL	8'	134'AMSL	10'
92	148'AMSL	135'AMSL	13'	135'AMSL	9'
93	148'AMSL	135'AMSL	13'	135'AMSL	9'
94	144'AMSL	135'AMSL	9'	135'AMSL	9'
95	144'AMSL	135'AMSL	9'	135'AMSL	9'
96	144'AMSL	135'AMSL	9'	136'AMSL	8'
97	144'AMSL	135'AMSL	9'	134'AMSL	10'
98	144'AMSL	134'-4"AMSL	9'-8"	136'AMSL	8'

LEGEND	
WALL	
ROOF/TRELLIS	



Project No

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25200 Pacific Coast Hwy.
Malibu, California, USA

Property Owner
PAR PCH, LLC
PO Box 6528
Malibu, CA 90265

Design Architect
Oppenheim Architecture
245 NE 37 Street
Miami FL 33137
P 305 576 8404
F 305 576 8433
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Landscape Architect
[place]
3617 exposition boulevard
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Revisions

Mark	Date	Description

Title
ENLARGED STORY POLE PLAN B

1/16" = 1'-0"

N

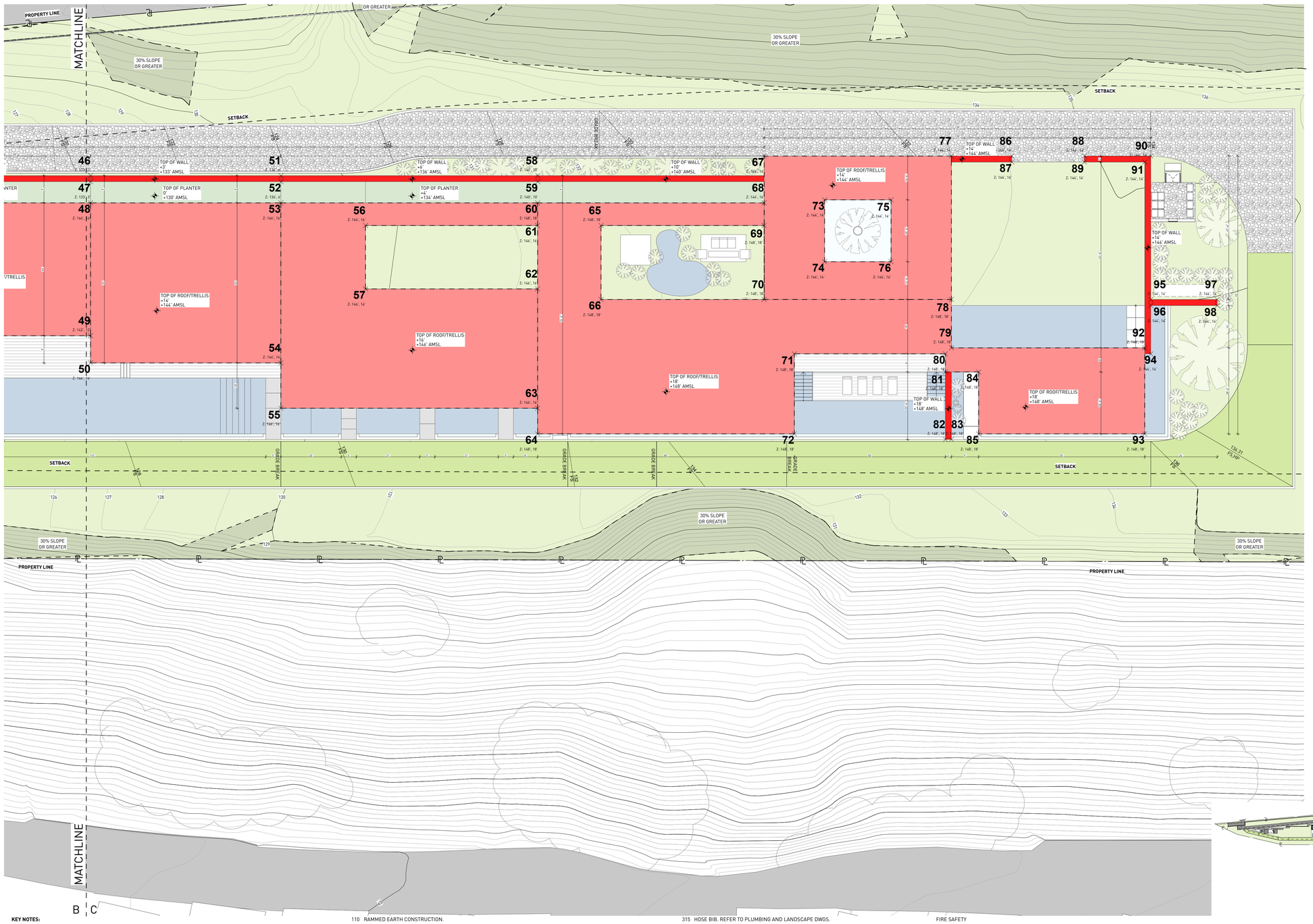
NOT FOR CONSTRUCTION

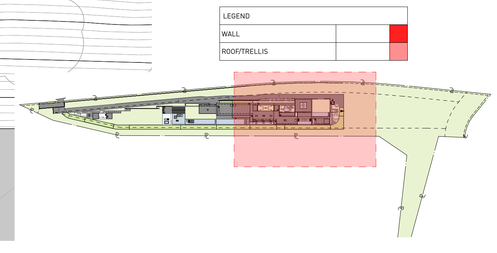
Design Development

1813
VILLA COLEAVA

Drawing Issued on 3/19/25

Z121





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019 NATURAL LAWN AREA. REFER TO LANDSCAPE DWGS.

MATERIALS

100 ARCHITECTURAL EXPOSED CONCRETE, COLOR T.B.D. REFER TO STRUCTURAL DRAWINGS AND ARCHITECTURAL DETAILS.
101 CUSTOM WOOD DOOR. REFER TO DOOR SCHEDULE.
102 IMPACT RESISTANT SLIDING ALUMINUM WINDOWS / DOORS SYSTEM, LOW-E COATING. REFER TO WINDOW SCHEDULE.
103 PRE-FABRICATED SKYLIGHT ON CONCRETE CURB. REFER TO WINDOW SCHEDULE. SEE SECTION AND DETAILS.
104 GARAGE STEEL DOOR CLADDED WITH CUSTOM CONCRETE PANELS. REFER TO DOOR SCHEDULE.
105 GRAVEL.
106 5/8" G.W.B., FINISH T.B.D.; REFER TO I.D. DWGS.
107 3/8" THERMOCROMEX LIMESTONE PLASTER, SAND FINISH, COLOR T.B.D. 3/8" TYPICAL.
108 TRELLIS. 50 PERCENT OPEN TO THE SKY. DEPTH OF SLOTS TO BE EQUAL TO OR LESS THAN THE WIDTH OF EACH SLOT. PROVIDE SHOP DWGS.
109 REFER TO INTERIOR DESIGN DRAWINGS AND FINISH SCHEDULE.
110 RAMMED EARTH CONSTRUCTION.
111 STONE BENCH.

STRUCTURAL

200 FOUNDATION AND PILES. REFER TO STRUCT. DWGS.
201 COMPACTED EARTH. REFER TO STRCUT. DWGS.
202 RETAINING WALL. REFER TO STRUCT. DWGS.
203 CONCRETE SLAB. REFER TO STRUCT. DWGS.
204 CONCRETE COLUMN. REFER TO STRUCT. DWGS.
205 CONCRETE BEAM. REFER TO STRUCT. DWGS.
206 STEEL COLUMN. REFER TO STRUCT. DWGS.
207 CONCRETE STAIRS. REFER TO STRUCT. DWGS.
208 CONCRETE SHELL FOR POOL. REFER TO STRUCT. DWGS.
209 8" CMU REINFORCED WALL. REFER TO WALL TYPES AND STRUCT. DWGS
210 PROVIDE 2" RECESS ON SLABS ON ALL SHOWERS.
211 OPENING ON CONCRETE SLAB. REFER TO STRUCT. DWGS.

MEP

300 LIGHT FIXTURE/ SEE ARCH. RCP, ELECTRICAL DWGS. AND LIGHTING SPECIFICATIONS.
301 A/C PLENUM SPACE, REFER TO MECHANICAL DWGS. AND RCP. NO COMBUSTIBLES ALLOWED.
302 ROOF DRAIN, REFER TO PLUMBING DWGS. /SEE DETAIL.
303 FLOOR DRAIN, REFER TO PLUMBING DWGS./ SEE DETAIL.
304 DRAIN PIPE TO FIT IN CEILING SPACE, REFER TO PLUMBING DWGS. COORDINATE EXACT LOCATION AND SPECS.
305 KITCHEN HOOD, REFER TO MECH DWGS.
306 KITCHEN HOOD EXHAUST PIPE TO FIT IN CEILING SPACE, REFER TO MECH DWGS. COORDINATE EXACT LOCATION AND SPECS.
307 DESIGNATED POOL EQUIPMENT AREA.
308 GAS WATER HEATER. REFER TO PLUMBING DWGS.
309 ELECTRICAL PANELS. REFER TO ELECTRICAL DWGS.
310 CONDENSER UNITS ON STANDS. REFER TO MECH. DWGS.
311 MINIMUM R:30 BATT INSULATION OR RIGID INSULATION. REFER TO ENERGY CALCULATIONS.
312 ACOUSTICAL INSULATION.
313 MISTING SYSTEM. REFER TO PLUMBING DWGS.
314 SPRINKLER SYSTEM. REFER TO PLUMBING DWGS.
315 HOSE BIB. REFER TO PLUMBING AND LANDSCAPE DWGS.
316 ELECTRICITY, GAS AND WATER. REFER TO MEP DRAWINGS.
317 MOTORIZED VEHICULAR GATE. REFER TO ELECT. DWGS.
318 ALL TOILETS TO BE WALL HUNG. REFER TO MECH. DWGS.
319 LINEAR DRAIN
320 OVERFLOW SCUPPER.

WATERPROOFING

400 CONTINUOUS VAPOR BARRIER. REFER TO ARCH AND STRUCTURAL DWGS.
401 WATERPROOFING MEMBRANE. REFER TO ARCH AND STRUCTURAL DWGS.
402 POOL FINISH/ COLOR TBD.

MISC. ARCHITECTURAL DETAILS

500 CURTAIN CEILING COVE. REFER TO ARCH. DETAIL.
501 CONTINUOUS 1/2" TOOLED WATER DRIP. SEE ARCH. DETAIL.
502 VENT.
503 KITCHEN, BUILT-IN FURNITURE, CABINETRY BY OTHERS. REFER TO KITCHEN SHOP DWGS.
504 5/8" GWB DROPPED CEILING ON 3/4" FURRING STRIPS, PAINTED GWB. COLOR TBD.
505 STAINLESS STEEL SCUPPER IN CONCRETE STRUCTURE. 3" X 3" MIN.OPENING. REFER TO ELEVATION AND PLAN FOR LOCATION.
506 CUSTOM WOOD MILLWORK, REFER TO I.D. DRAWINGS
507 SOLAR PANELS (T.B.D.)
509 CONCEALED LED SCREEN.
510 LADDER ACCESS.

LIGHTING

600 PENDANT LIGHT. REFER TO LIGHTING DWGS.
601 RECESSED DOWN LIGHT. REFER TO LIGHTING DWGS.
602 CONCEALED LINEAR LIGHT. REFER TO LIGHTING DWGS.
603 POOL LINEAR RECESSED LIGHT. REFER TO LIGHTING DWGS.
604 LANDSCAPE LIGHTING. REFER TO LIGHTING DWGS.

FIRE SAFETY

700 FIRE DEPARTMENT VEHICULAR ACCESS ROADS MUST BE INSTALLED AND MAINTAINED IN A SERVICEABLE MANNER PRIOR TO AND DURING THE TIME OF CONSTRUCTION. FIRE CODE 5001.4
701 AN APPROVED KEY BOX, LISTED IN ACCORDANCE WITH UL 1037 SHALL BE PROVIDED AS REQUIRED BY FIRE CODE 506. THE LOCATION OF EACH KEY BOX SHALL BE DETERMINED BY THE FIRE INSPECTOR.
702 ALL REQUIRED PUBLIC FIRE HYDRANTS SHALL BE INSTALLED, TESTED AND ACCEPTED PRIOR TO BEGINNING CONSTRUCTION. FIRE CODE 501.4
703 PROVIDE AN APPROVED AUTOMATIC FIRE SPRINKLER SYSTEM AS SET FORTH BY BUILDING CODE 903 AND FIRE CODE 9003. PLANS SHALL BE SUBMITTED TO THE SPRINKLER PLAN CHECK UNIT FOR REVIEW AND APPROVAL PRIOR TO INSTALLATION.
704 SMOKE ALARMS SHALL RECEIVE THEIR PRIMARY POWER FROM THE BUILDING WIRING PROVIDED THAT SUCH WIRING IS SERVED FROM A COMMERCIAL SOURCE AND SHALL BE EQUIPPED WITH A BATTERY BACKUP. RESIDENTIAL CODE R314.4
705 WHERE MORE THAN ONE SMOKE ALARM IS REQUIRED TO BE INSTALLED WITHIN AN INDIVIDUAL DWELLING OR SLEEPING UNIT, THE SMOKE ALARMS SHALL BE INTERCONNECTED SIN USCH A MANNER THAT THE ACTIVATION OF ONE ALARM WILL ACTIVATE ALL OF THE ALARMS IN THE INDIVIDUAL UNIT. RESIDENTIAL CODE R314.5
706 APPROVED BUILDING ADDRESS NUMBERS, BUILDING NUMBERS OR APPROVED BUILDING IDENTIFICATION SHALL BE PROVIDED AND MAINTAINED SO AS TO BE PLAINLY VISIBLE AND LEGIBLE FROM THE STREET FRONTING THE PROPERTY. THE MINIMUM OF 4 INCHES HIGH WITH A MINIMM STROKE WIDTH OF 0.5 INCH. FIRE CODE 505.1
707 ALL ROOF COVERINGS SHALL BE CLASS "A" AS SPECIFIED IN BUILDING CODE 1505.1.1 (RESIDENTIAL CODE R327.5.2 & R902)
708 ROOF VALLEY FLASHINGS SHALL BE NOT LESS THAN 0.019 INCH (NO.26 GALVANIZED SHEET GAGE) CORROSION-RESISTANT METAL INSTALLED OVER A MINIMUM 36-INCH WIDE UNDERLAYMENT CONSISTING OF ONE LAYER OF NO. 72 ASTM CAP SHEET MEETING RUNNING THE FULL LEGHTH OF THE VALLEY (RESIDENTIAL CODE R327.5.3 AND BUILDING CODE 705A.3
709 ROOF GUTTERS SHALL BE PROVIDED WITH A MEANS OTO PREVENT THE ACCUMULATION OF LEAVES AND DEBRIS IN THE GUTTER. (RESIDENTIAL CODE R327.5.3A AND BUILDING GCODE 705A.4)
710 VENTS SHALL RESIST THE INTRUSION OF FLAME AND EMBERS AND FLAME THROUGH THE VENTILATION OPENINGS. VENT OPENINGS SHALL BE PROTECTED BY CORROSION- RESISTANT, NONCOMBUSTIBLE WIRE MESH WITH A MINIMUM 1/16TH INCH OPENINGS AND SHALL NOT EXCEED 1/8TH INCH. VENTS SHALL NOT BE INSTALLED IN EAVES OR CORNICES. (RESIDENTIAL CODE R327.6.1 AND BUILDING CODE 706A.1)
711 CLEARANCE OF BRUSH AND VEGETATIVE GROWTH SHALL BE MAINTAINED PER FIRE CODE 325.
712 PROVIDE APPROVED SIGNS OR OTHER APPROVED NOTICES OR MARKINGS THAT INCLUDE THE WORDS NO PARKING - FIRE LANE. SIGNS SHALL HAVE A MINIMUM DIMENSION OF 12 INCHES WIDE BY 18 INCHES HIGH AND HAVE RED LETTERS ON A WHITE REFLECTIVE BACKGROUND. SIGNS SHALL BE PROVIDED FOR FIRE APPARATUS ACCESS ROADS, TO CLEARLY INDICATE THE ENTRANCE TO SUCH ROAD, OR PROHIBIT THE OBSTRUCTION THEREOF AND AT INTERVALS, AS REQUIRED BY THE FIRE INSPECTOR. FIRE CODE 503.3.
713 ALL FIRE HYDRANTS SHALL MEASURE 6"" X 4"" X 2-1/2"", BRASS OR BRONZE, CONFORMING TO AMERICAN WATER WORKS ASSOCIATION STANDARD C503, OR APPROVED EQUAL.
714 ALL ON-SITE FIRE HYDRANTS SHALL BE INSTALLED, TESTED AND APPROVED PRIOR TO BUILDING OCCUPANCY. FIRE CODE 901.5.1
715 ROOF LADDER ACCESS

STORY POLE ELEVATIONS

POLE NUMBER	TOP ELEVATION	EXISTING GRADE	HEIGHT FROM EXISTING GRADE	PROPOSED GRADE	HEIGHT FROM PROPOSED GRADE
1	108'AMSL	97'-9"AMSL	10'-3"	102'AMSL	6'
2	108'AMSL	97'-9"AMSL	10'-3"	102'AMSL	6'
3	112'AMSL	100'-6"AMSL	11'-6"	100'-6"AMSL	11'-6"
4	112'AMSL	100'-3"AMSL	11'-9"	100'-3"AMSL	11'-9"
5	108'AMSL	102'AMSL	6'	102'AMSL	6'
6	108'AMSL	102'AMSL	6'	102'AMSL	6'
7	110'AMSL	104'AMSL	6'	104'AMSL	6'
8	110'AMSL	104'AMSL	6'	104'AMSL	6'
9	112'AMSL	104'-2"AMSL	7'-10"	104'AMSL	8'
10	112'AMSL	104'AMSL	8'	104'AMSL	8'
11	112'AMSL	106'-2"AMSL	5'-10"	106'-2"AMSL	5'-10"
12	112'AMSL	106'AMSL	6'	106'AMSL	6'
13	112'AMSL	106'AMSL	6'	106'AMSL	6'
14	112'AMSL	106'AMSL	6'	106'AMSL	6'
15	112'AMSL	105'-7"AMSL	6'-5"	105'-7"AMSL	6'-5"
16	112'AMSL	105'-7"AMSL	6'-5"	105'-7"AMSL	6'-5"
17	112'AMSL	106'-6"AMSL	5'-6"	106'-6"AMSL	5'-6"
18	112'AMSL	106'-6"AMSL	5'-6"	106'-6"AMSL	5'-6"
19	114'AMSL	108'AMSL	6'	108'AMSL	6'
20	114'AMSL	108'AMSL	6'	108'AMSL	6'
21	116'AMSL	110'AMSL	6'	110'AMSL	6'
22	116'AMSL	110'AMSL	6'	110'AMSL	6'
23	118'AMSL	112'AMSL	6'	112'AMSL	6'
24	118'AMSL	112'-6"AMSL	5'-6"	112'-6"AMSL	5'-6"
25	118'AMSL	112'-4"AMSL	5'-8"	112'-4"AMSL	5'-8"
26	118'AMSL	112'-3"AMSL	5'-9"	112'-3"AMSL	5'-9"
27	118'AMSL	113'-3"AMSL	4'-9"	113'-3"AMSL	4'-9"
28	118'AMSL	113'-2"AMSL	4'-10"	113'-2"AMSL	4'-10"
29	120'AMSL	114'-10"AMSL	5'-2"	114'-10"AMSL	5'-2"
30	120'AMSL	114'-9"AMSL	5'-3"	114'-9"AMSL	5'-3"
31	116'AMSL	113'-2"AMSL	2'-10"	113'-2"AMSL	2'-10"
32	128'AMSL	115'-7"AMSL	12'-5"	115'-7"AMSL	12'-5"
33	128'AMSL	115'-7"AMSL	12'-5"	116'-6"AMSL	11'-6"
34	128'AMSL	115'AMSL	13'	116'AMSL	12'
35	123'AMSL	118'-8"AMSL	4'-4"	115'-2"AMSL	7'-10"
36	130'AMSL	112'-8"AMSL	11'-8"	123'AMSL	7'
37	130'AMSL	112'-8"AMSL	11'-8"	128'AMSL	2'
38	137'AMSL	120'-5"AMSL	16'-5"	123'AMSL	14'
39	137'AMSL	120'-6"AMSL	16'-8"	128'AMSL	9'
40	142'AMSL	119'-1"AMSL	17'-11"	128'AMSL	10'-6"
41	137'AMSL	124'AMSL	13'	118'AMSL	24'
42	137'AMSL	123'-4"AMSL	13'-8"	128'AMSL	10'-6"
43	142'AMSL	124'AMSL	18'	128'AMSL	14'
44	129'AMSL	125'AMSL	4'	118'AMSL	11'
45	129'AMSL	125'AMSL	4'	118'AMSL	11'
46	133'AMSL	127'AMSL	6'	127'AMSL	6'
47	133'AMSL	127'AMSL	6'	130'AMSL	3'
48	144'AMSL	126'-6"AMSL	17'-6"	130'AMSL	14'
49	142'AMSL	126'-3"AMSL	15'-9"	128'AMSL	14'
50	144'AMSL	126'AMSL	18'	128'AMSL	16'
51	136'AMSL	130'AMSL	6'	124'AMSL	12'
52	136'AMSL	130'AMSL	6'	130'AMSL	6'
53	146'AMSL	130'AMSL	16'	130'AMSL	16'
54	144'AMSL	129'AMSL	15'	130'AMSL	14'
55	146'AMSL	129'AMSL	17'	130'AMSL	16'
56	146'AMSL	130'AMSL	16'	132'AMSL	14'
57	146'AMSL	130'AMSL	16'	132'AMSL	14'
58	140'AMSL	132'-6"AMSL	7'-6"	128'AMSL	12'
59	140'AMSL	132'-6"AMSL	7'-6"	134'AMSL	6'
60	148'AMSL	133'AMSL	16'	131'-6"AMSL	16'-6"
61	146'AMSL	132'AMSL	14'	132'AMSL	14'
62	146'AMSL	131'AMSL	15'	132'AMSL	14'
63	146'AMSL	130'AMSL	16'	132'AMSL	14'
64	148'AMSL	130'AMSL	18'	132'AMSL	16'
65	148'AMSL	132'AMSL	16'	134'AMSL	14'
66	148'AMSL	133'AMSL	15'	134'AMSL	14'
67	144'AMSL	134'AMSL	10'	132'AMSL	12'
68	144'AMSL	133'-4"AMSL	10'-6"	134'AMSL	10'
69	148'AMSL	133'AMSL	15'	134'AMSL	14'
70	148'AMSL	132'-6"AMSL	15'-6"	134'AMSL	14'
71	148'AMSL	132'AMSL	16'	134'AMSL	14'
72	148'AMSL	131'AMSL	17'	134'AMSL	14'
73	144'AMSL	133'6"AMSL	10'-6"	132'AMSL	12'
74	144'AMSL	133'AMSL	11'	132'AMSL	12'
75	144'AMSL	134'AMSL	10'	132'AMSL	12'
76	144'AMSL	134'AMSL	10'	132'AMSL	12'
77	144'AMSL	135'AMSL	9'	132'AMSL	12'
78	148'AMSL	134'AMSL	14'	134'AMSL	14'
79	148'AMSL	133'AMSL	15'	134'AMSL	14'
80	148'AMSL	133'AMSL	15'	134'AMSL	14'
81	148'AMSL	133'AMSL	15'	134'AMSL	14'
82	148'AMSL	132'-5"AMSL	15'-7"	135'AMSL	13'
83	148'AMSL	132'-6"AMSL	15'-6"	135'AMSL	13'
84	148'AMSL	133'-6"AMSL	14'-6"	136'AMSL	12'
85	148'AMSL	133'AMSL	15'	136'AMSL	12'
86	144'AMSL	135'AMSL	9'	134'AMSL	10'
87	144'AMSL	135'AMSL	9'	134'AMSL	10'
88	144'AMSL	135'AMSL	9'	134'AMSL	10'
89	144'AMSL	135'AMSL	9'	134'AMSL	10'
90	144'AMSL	136'-3"AMSL	7'-9"	134'AMSL	10'
91	144'AMSL	136'AMSL	8'	134'AMSL	10'
92	148'AMSL	135'AMSL	13'	135'AMSL	9'
93	148'AMSL	135'AMSL	13'	135'AMSL	9'
94	144'AMSL	135'AMSL	9'	135'AMSL	9'
95	144'AMSL	135'AMSL	9'	135'AMSL	9'
96	144'AMSL	135'AMSL	9'	136'AMSL	8'
97	144'AMSL	135'AMSL	9'	134'AMSL	10'
98	144'AMSL	134'-4"AMSL	9'-8"	136'AMSL	8'

Project No

1813

Project Name
VILLA COLEAVA

Project Address
25200 Pacific Coast Hwy.
Malibu, California, USA

Property Owner
PAR PCH, LLC
PO Box 6528
Malibu, CA 90265

Design Architect
Oppenheim Architecture
245 NE 37 Street
Miami FL 33137
P 305 576 8404
F 305 576 8433
W oppenoffice.com

Landscape Architect
[place]
3617 exposition boulevard
Los Angeles, CA 90016
P 310-450-8100
F 323-737-3290
W plac-e.com

Civil Engineers
LC Engineering Group
889 Pierce Ct., Ste. 101
Thousand Oaks, CA 91360
P 805-497-1244
P 818-991-7148
W lcegroupinc.com

Revisions

Mark	Date	Description

Title
ENLARGED STORY POLE PLAN C

1/16" = 1'-0"

N

NOT FOR CONSTRUCTION

Design Development

1813
VILLA COLEAVA

Drawing Issued on 3/19/25

Z122

City of Malibu

23825 Stuart Ranch Rd., Malibu, California CA 90265-4861
(310) 456-2489 FAX (310) 456-7650

PUBLIC WORKS REVIEW
REFERRAL SHEET

TO: Public Works Department

FROM: City of Malibu Planning Department **REVISED DATE** 10/24/2025

PROJECT NUMBER:	CDP 19-012
JOB ADDRESS:	25200 PACIFIC COAST HWY
APPLICANT / CONTACT:	Jake Jesson, 180 PCH, LLC
APPLICANT ADDRESS:	PO Box 6528 Malibu, CA 90264
APPLICANT PHONE #:	(310)739-7931
APPLICANT FAX #:	(310) 456-2644
APPLICANT EMAIL:	jjesson@weintraubre.com
PROJECT DESCRIPTION:	NSFR, guest house, pool, spa, and lot merger

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TO: Malibu Planning Department and/or Applicant

FROM: Public Works Department

____ **The following items described on the attached memorandum shall be addressed and resubmitted.**

X **The project was reviewed and found to be in conformance with the City's Public Works and LCP policies and CAN proceed through the Planning process.**

Building Plan Check (BPC) Required ☒ Yes ☐ No BPC Fees Req'd $ 2,540

SIGNATURE

10/28/2025
DATE

City of Malibu
MEMORANDUM

To: Community Development Department, Planning Division

From: Public Works Department
Nathaniel McLean, Assistant Engineer

Date: October 28, 2025

Re: Proposed Conditions of Approval for 25200 Pacific Coast Hwy CDP 19-012

The Public Works Department has reviewed the plans submitted for the above referenced project. Based on this review sufficient information has been submitted to confirm that conformance with the Malibu Local Coastal Plan (LCP) and the Malibu Municipal Code (MMC) can be attained. Prior to the issuance of building and grading permits, the applicant shall comply with the following conditions.

STREET IMPROVEMENTS

1. Prior to any work being performed within the City's right-of-way, the applicant shall obtain an encroachment permit from the Public Works Department

2. This project proposes to construct a new driveway within Caltrans' right-of-way. Prior to the Public Works Department approval of the grading or building permit, the applicant shall obtain encroachment permits from Caltrans for the proposed driveway.

3. The applicant shall update and install a new curb and gutter on Pacific Coast Highway to accommodate proposed drainage design. Prior to the Public Works Department approval of the grading or building permit, the applicant shall provide Caltrans approval for Pacific Coast Highway improvements and drainage design.

4. This project proposes to discharge to Pacific Coast Highway. Prior to the Public Works Department approval of the grading or building permit, the applicant shall provide Caltrans approval to discharge onto Pacific Coast Highway.

5. The applicant shall submit an updated geotechnical report prepared by a geotechnical engineer/engineering geologist. The updated report shall include detailed investigation and analyses of the portions of the earthen berms on the project site along the northerly property line. The applicant shall address and mitigate any geotechnical issues related to

Recycled Paper

the berms on the project site identified in the updated report and incorporate them into the final plans. Final plans shall be reviewed and approved by the City geotechnical review consultants and Public Works Department prior to the issuance of a grading permit.

GRADING AND DRAINAGE

6. The applicant shall construct the following improvements to the existing dewatering system to reduce groundwater pressure and increase the slope stability within the Malibu Road Assessment District 98-3, within which the property is located. The work shall be coordinated with the Public Works Department of the City of Malibu and its landslide district dewatering system operation and maintenance contractor.

    a. Construct a new 100-foot deep 6-inch diameter PVC casing installed within a 12.5-inch diameter dewatering well along Bayshore Drive near the easterly property line of APN 4459-013-001. The PVC shall be screened by 0.04-inch machined slots between 10 and 85 feet. Casing backfill and well sealing shall meet requirements of the Los Angeles County well permit. Install a 1/3 HP Grundfos submersible pump at 80 feet deep and a 1-inch ID PVC sounding tube to the drop pipe for the pump to obtain water level measurements. Finish the surface with a flush mount Christy 1830 traffic rated well vault.
    b. Replace the existing SI-3 inclinometer on Malibu Road by over-drilling the existing sheared inclinometer to original depth of 50 feet below ground surface to bottom of casing. Install a 2.75-inch 50-foot-long inclinometer casing with both a vibrating wire piezometer and time domain radar (TDR) cable attached to the casing to the full depth. Temie grout medium strength bentonite grout within the annual space between the borehole and outside of casing. Finish at surface with a 24-inch by 24-inch traffic rated vault.

7. Clearing and grading during the rainy season (extending from November 1 to March 31) shall be prohibited for development LIP Section 17.3.1 that:
    - Is located within or adjacent to ESHA, or
    - Includes grading on slopes greater than 4:1
    - Approved grading for development that is located within or adjacent to ESHA or on slopes greater than 4:1 shall not be undertaken unless there is sufficient time to complete grading operations before the rainy season. If grading operations are not completed before the rainy season begins, grading shall be halted and temporary erosion control measures shall be put into place to minimize erosion until grading resumes after March 31, unless the City determines that completion of grading would be more protective of resources

8. Grading operations involving the hauling of dirt shall be controlled and reasonable efforts to avoid the spillage of dirt onto the public streets shall be enforced. The grading contractor

shall maintain on site at all times a means of preventing dust blowing within the project site and onto adjacent sites.

9. Exported soil from a site shall be taken to the County Landfill or to a site with an active grading permit and the ability to accept the material in compliance with the City's LIP Section 8.3. **A note shall be placed on the project that addresses this condition.**

10. A grading and drainage plan shall be approved containing the following information prior to the issuance of grading permits for the project.
    - Public Works Department General Notes
    - The existing and proposed square footage of impervious coverage on the property shall be shown on the grading plan (including separate areas for buildings, driveways, walkways, parking, tennis courts and pool decks).
    - The limits of land to be disturbed during project development shall be delineated on the grading plan and a total area shall be shown on the plan. Areas disturbed by grading equipment beyond the limits of grading, areas disturbed for the installation of the septic system, and areas disturbed for the installation of the detention system shall be included within the area delineated.
    - The grading limits shall include the temporary cuts made for retaining walls, buttresses, and over excavations for fill slopes and shall be shown on the grading plan.
    - If the property contains trees that are to be protected they shall be highlighted on the grading plan.
    - If the property contains rare and endangered species as identified in the resources study the grading plan shall contain a prominent note identifying the areas to be protected (to be left undisturbed). Fencing of these areas shall be delineated on the grading plan if required by the City Biologist.
    - Private storm drain systems shall be shown on the grading plan. Systems greater than 12-inch diameter shall also have a plan and profile for the system included with the grading plan.
    - Public storm drain modifications shown on the grading plan shall be approved by the Public Works Department prior to the issuance of the grading permit.

11. A digital drawing (AutoCAD) of the project's private storm drain system, public storm drain system within 250 feet of the property limits, and post-construction BMP's shall be submitted to the Public Works Department prior to the issuance of grading or building permits. The digital drawing shall adequately show all storm drain lines, inlets, outlet, post-construction BMP's and other applicable facilities. The digital drawing shall also show the subject property, public or private street, and any drainage easements.

12. The applicant shall label all City/County storm drain inlets within 250 feet from each property line per the City of Malibu's standard label template. A note shall be placed on the project plans that address this condition.

13. Prior to the approval of the drainage plan, the applicant shall remove the existing CMP (Corrugated Metal Pipe) onsite and install a new pipe to redirect water currently draining to the lot. The new pipe shall be designed in accordance with Caltrans and LA County Flood Standards. A video recording and images of the completed pipe shall be submitted to the City of Malibu Public Works Department. Applicant shall coordinate any easements required for the maintenance of the pipe with the appropriate agencies.

14. The installation of the new CMP shall also include necessary improvements to the catch basin on Bayshore Dr, the downstream pipe, and the outfall. The applicant shall obtain the necessary easements required for such drainage purposes. The design will need to address how impacts on the landslide maintenance district will be mitigated.

STORMWATER

15. The ocean between Latigo Point and the West City limits has been established by the State Water Resources Control Board as an Area of Special Biological Significance (ASBS) as part of the California Ocean Plan. This designation allows discharge of storm water only where it is essential for flood control or slope stability, including roof, landscape, road and parking lot drainage, to prevent soil erosion, only occurs during wet weather, and is composed of only storm water runoff. The applicant shall provide a drainage system that accomplishes the following:

    - Installation of BMPs that are designed to treat the potential pollutants in the storm water runoff so that it does not alter the natural ocean water quality. These pollutants include trash, oil and grease, metals, bacteria, nutrients, pesticides, herbicides and sediment.
    - Prohibits the discharge of trash.
    - Only discharges from existing storm drain outfalls are allowed. No new outfalls will be allowed. Any proposed or new storm water discharged shall be routed to existing storm drain outfalls and shall not result in any new contribution of waste to the ASBS (i.e. no additional pollutant loading).
    - Elimination of non-storm water discharges.

16. A Storm Water Pollution Prevention Plan shall be provided prior to the issuance of the Grading/Building permits for the project. This plan shall include an Erosion and Sediment Control Plan (ESCP) that includes, but not limited to:

Erosion Controls	Hydraulic Mulch
	Hydroseeding
	Soil Binders
	Straw Mulch
	Geotextiles and Mats
	Wood Mulching
Sediment Controls	Fiber Rolls

	Gravel Bag Berm
	Street Sweeping and/ or Vacuum
	Storm Drain Inlet Protection
	Scheduling
	Check Dam
Additional Controls	Wind Erosion Controls
	Stabilized Construction Entrance/ Exit
	Stabilized Construction Roadway
	Entrance/ Exit Tire Wash
Non-Stormwater Management	Vehicle and Equipment Washing
	Vehicle and Equipment Fueling
	Vehicle and Equipment Maintenance
Waste Management	Material Delivery and Storage
	Spill Prevention and Control

All Best Management Practices (BMP) shall be in accordance to the latest version of the California Stormwater Quality Association (CASQA) BMP Handbook. Designated areas for the storage of construction materials, solid waste management, and portable toilets must not disrupt drainage patterns or subject the material to erosion by site runoff.

17. Prior to the approval of any permits and prior to the applicant submitting the required Construction General Permit documents to the State Water Quality Control Board, the applicant shall submit to the Public Works Department for review and approval an Erosion and Sediment Control Plan (ESCP). The ESCP shall contain appropriate site-specific construction site BMPs and developed and certified by a Qualified SWPPP Developer (QWD). All structural BMPs must be designed by a licensed California Engineer. The ESCP must address the following elements:

    - Methods to minimize the footprint of the disturbed area and to prevent soil compaction outside the disturbed area.
    - Methods used to protect native vegetation and trees.
    - Sediment/Erosion Control.
    - Controls to prevent tracking on and off the site.
    - Non-storm water controls.
    - Material management (delivery and storage).
    - Spill Prevention and Control.
    - Waste Management
    - Identification of site Risk Level as identified per the requirements in Appendix 1 of the Construction General Permit.
    - Landowner must sign the following statement on the ESCP:

"I certify that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to ensure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system or those persons directly responsible for gathering the information, to the best of my knowledge and belief, the information submitted is true, accurate and complete. I am aware that submitting false and/or inaccurate information, failing to update the ESCP to reflect current conditions, or failing to properly and/or adequately implement the ESCP may result in revocation of grading and/or other permits or other sanctions provided by law."

18. A State Construction activity permit is required for this project due to the disturbance of more than one acre of land for development. Provide a copy of the letter from the State Water Quality Control Board containing the WDID number prior to the issuance of grading or building permits.

19. A Storm Water Management Plan (SWMP) is required for this project. Storm drainage improvements are required to mitigate increased runoff generated by property development. The applicant shall have the choice of one method specified within the City's Local Implementation Plan Section 17.3.2.B.2. The SWMP shall be supported by a hydrology and hydraulic study that identifies all areas contributory to the property and an analysis of the predevelopment and post development drainage of the site. The SWMP shall identify the Site design and Source control Best Management Practices (BMP's) that have been implemented in the design of the project (See LIP Chapter 17 Appendix A). The SWMP shall be reviewed and approved by the Public Works Department prior to the issuance of the grading/building permits for this project.

20. A Water Quality Mitigation Plan (WQMP) is required for this project. The WQMP shall be supported by a hydrology and hydraulic study that identifies all areas contributory to the property and an analysis of the predevelopment and post development drainage of the site. The WQMP shall meet all the requirements of the City's current Municipal Separate Stormwater Sewer System (MS4) permit. The following elements shall be included within the WQMP:
    - Site Design Best Management Practices (BMP's)
    - Source Control BMP's
    - Treatment Control BMP's that retains on-site the Stormwater Quality Design Volume (SWQDv). Or where it is technical infeasible to retain on-site, the project must biofiltrate 1.5 times the SWQDv that is not retained on-site.
    - Drainage Improvements
    - A plan for the maintenance and monitoring of the proposed treatment BMP's for the expected life of the structure.
    - A copy of the WQMP shall be filed against the property to provide constructive notice to future property owners of their obligation to maintain the water quality measures installed during construction prior to the issuance of grading or building permits.

- The WQMP shall be submitted to Public Works Department and the fee applicable at time of submittal for the review of the WQMP shall be paid prior to the start of the technical review. The WQMP shall be approved prior to the Public Works Department's approval of the grading and drainage plan and or building plans. The Public Works Department will tentatively approve the plan and will keep a copy until the completion of the project. Once the project is completed, the applicant shall verify the installation of the BMP's, make any revisions to the WQMP, and resubmit to the Public Works Department for approval. The original signed and notarized document shall be recorded with the County Recorder. A copy of the WQMP shall be submitted to the Public Works Department prior to the certificate of occupancy.

21. HYDROMODIFICATION – Alteration or disturbance of streams or natural drainage courses or human-made or altered drainage courses that have replaced natural streams or drainages and serve the same function, **shall be prohibited**.
    - Necessary water supply projects where no feasible alternative exists.
    - Flood protection for existing development where there is no other feasible alternative.
    - The improvement of fish and wildlife habitat.

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22. The developer's consulting engineer shall sign the final plans prior to the issuance of permits.

23. The discharge of swimming pool, spa and decorative fountain water and filter backwash, including water containing bacteria, detergents, wastes, algaecides or other chemicals is prohibited. Swimming pool, spa, and decorative fountain water may be used as landscape irrigation only if the following items are met:

    - The discharge water is dechlorinated, debrominated or if the water is disinfected using ozonation;
    - There are sufficient BMPs in place to prevent soil erosion; and
    - The discharge does not reach into the MS4 or to the ASBS (including tributaries)

    Discharges not meeting the above-mentioned methods must be trucked to a Publicly Owned Wastewater Treatment Works.

    The applicant shall also provide a construction note on the plans that directs the contractor to install a new sign stating **"It is illegal to discharge pool, spa or water feature waters to a street, drainage course or storm drain per MMC 13.04.060(D)(5)."** The new sign shall be posted in the filtration and/or pumping equipment area for the property. Prior to the issuance of any permits, the applicant shall indicate the method of disinfection and the method of discharging.

24. The applicant shall prepare a Traffic Impact Analysis (TIA) per the City of Malibu TIA Guidelines. The TIA shall be reviewed and approved by the Public Works Department prior to the issuance of the grading and or building permits. The applicant shall also be required to construct the applicable mitigation measures recommended in the TIA. The traffic mitigation measures shall be constructed prior to occupancy of the first building.

25. Prior to the commencement of work, the applicant shall submit a copy of their Construction Management Plan. The Construction Management Plan shall include a dedicated parking location for construction workers, not within the public right of way.

26. Prior to the approval of any grading and drainage permit, the applicant shall submit a PDF of the final plans. If there are further modifications to the plans, the applicant shall provide the City with an updated PDF.

27. LOT LINE ADJUSTMENT/LOT MERGER (with development)

    a. The proposed lot line adjustment/lot merger must be approved by the City and filed with the City Clerk's office prior to the approval of this grading permit.
    b. Upon review of the documents provided, the City may require submittal of additional documents or maps, depending upon the completeness of the initial submittal.

Commission Agenda Report

Planning Commission Meeting
08-18-25
Item 4.A.

To: Chair Leonard and Members of the Planning Commission

Prepared by: Allison Cook, AICP, Contract Planner

Reviewed by: Raneika Brooks, AICP, Principal Planner

Approved by: Yolanda Bundy, PE, MS, CBO, CBFO, Community Development Director

Date prepared: August 7, 2025 Meeting date: August 18, 2025

Subject: Coastal Development Permit No. 19-012, Lot Merger No. 24-002, and Certificate of Compliance No. 19-009 – An application for a new one-story single-family residence and associated development; including a conditional certificate of compliance to recognize an illegally created lot consisting of two parcels and a lot merger to consolidate two parcels into one (Continued from July 21, 2025)

Location: 25200 Pacific Coast Highway, within the appealable coastal zone
APNs: 4459-013-021 and 4459-014-018
Owner: PAR PCH, LLC

RECOMMENDED ACTION: Adopt Planning Commission Resolution No. 25-05 (Exhibit A) determining the project is categorically exempt from the California Environmental Quality Act (CEQA), and approving Coastal Development Permit (CDP) No. 19-012 to construct a new 9,219 square-foot, one-story, single-family residence, including a 1,000 square-foot subterranean two-car garage, 1,523 square-foot basement, 676 square-foot gym, detached 465 square-foot guest house, swimming pools, spa, driveways, decks, landscape, water features, hardscape, grading, retaining walls, and onsite wastewater treatment system (OWTS), including Certificate of Compliance (COC) No. 21-004 to recognize an illegally created lot consisting of two Assessor Parcel Numbers (APNs) (4459-013-021 and 4459-014-018), and Lot Merger (LM) No. 24-002 to consolidate two existing parcels into one, located in the Rural Residential, Two-Acre (RR-2) Zoning District at 25200 Pacific Coast Highway (PCH) (PAR PCH, LLC).

DISCUSSION: The subject item was scheduled for the July 21, 2025 Regular Planning Commission meeting. Due to a lack of quorum, the meeting was cancelled, and the subject item was continued to the August 18, 2025 Regular Planning Commission meeting. This agenda report provides an addendum to the July 21, 2025 Planning Commission Agenda Report, and includes a summary of public comments received after the report was published. The addendum report also provides staff responses to the concerns raised. The July 21, 2025 Planning Commission Agenda Report is provided as Exhibit B and correspondence received after the report was published is provided as Exhibit C. Following each concern raised by the public is a staff response.

Summary of Public Comments

1. Scenic Resource/Bluewater View Impacts

Concerns were expressed about the project blocking views of the ocean from PCH.

Response: Please see the July 21, 2025, agenda report, "Local Implementation Plan (LIP) Findings," "E. Scenic, Visual and Hillside Resource Protection (LIP Chapter 5)," in Exhibit B, and the response to Comment 6. Lot Merger/Certificate of Compliance, further below.

2. Existing Berms Along PCH

Questions were raised regarding when the existing earthen berms were originally placed by the California Department of Transportation (Caltrans) within the right-of-way (ROW) along PCH and if they have been altered/maintained over the years. Public comments suggest the berms have increased in height over the years and concerns were expressed about the source of material for the berms, if the material has been recompacted, and if Caltrans needs permission from other agencies to construct and maintain such berms.

Response: Exhibit D is a series of Google Maps Street View photos since 2008 of two locations along PCH in front of the project site showing the earthen berms within the Caltrans ROW, and photos of the same general areas taken in July 2025 by staff. Google Maps photos are included from 2008, 2011, 2012, 2017, 2021, and 2023. Google Maps Street View photos of these locations are not available prior to 2007, so it cannot be documented whether the berms existed prior to that year. Note that the photos from 2007 of the two locations are poor quality and not easily identifiable, so the next closest year of 2008 was used for Exhibit D.

Caltrans staff has not yet been able to confirm when the berms were originally installed, for what purpose, the source of the material for the berms, and how often they are maintained. Caltrans staff confirmed that the agency is not required to obtain permits from local agencies for work within its ROW and has no record of receiving permits for installation or maintenance of the berms. The applicant has confirmed that the peaks of

the berms are within Caltrans ROW, although the southern portions of the berms extend onto the project site. The applicant has confirmed that Caltrans does not coordinate with the project site owner prior to undertaking berm maintenance activities. Staff estimates that the berms currently range from approximately three to five feet in height.

The project does not propose modification to the existing berms. However, to ensure existing berms do not have stormwater runoff implications for the proposed project, Public Works Department staff added Condition No. 32 to the draft resolution that requires an updated soils report to be submitted during the building plan check stage. The updated soils report must include an analysis of portions of the berms on the project site as it relates to projected stormwater runoff from the proposed project.

3. On-Site Drainage Pipe

Concerns were expressed regarding the ownership and condition of an existing drainage pipe that traverses the center of project site from north to south.

Response: The existing drainage pipe enters the project site at the northern boundary and bisects the project site from north to south. There are no easements that identify the ownership, operation and/or maintenance of the pipe. According to the project plans, the onsite pipe would be removed. A new pipe would be installed at the northern edge of the site to convey this drainage around the eastern portion of the proposed development, then connect to an inlet on the south edge of the site (the same area where the current pipe exits the site). From there, the drainage would continue to flow through the existing pipe system to Malibu Road. The removal of the pipe and installation of a new pipe is a condition of approval of the Public Works Department and is shown on the project plans. Please see the Public Works Department project review sheet for further stormwater conditions of approval (Exhibit B, Attachment 4).

According to the project plans, the project's proposed drainage system would be separate from that noted above. A series of inlets and drainage pipes will collect stormwater throughout the site and convey it to two retention tanks at the east side of the development, after which the stormwater will be conveyed to a sump at the western side of the site and then to an "outlet parkway drain" in PCH (near the proposed site driveway). However, Public Works Department added Condition No. 34, which requires that the drainage plan onsite be revised as a gravity system. This condition would be implemented during final design in Building Safety plan check.

4. Slope Stability of Project Site

The public comments note existing slope stability concerns on the project site and whether slope stability will be exacerbated by the proposed project.

Response: According to the project's geotechnical engineer, the subject site has been extensively studied since the 1960s with onsite investigations (e.g., fault trenches, test pits, borings). The subject site, as well as the surrounding area, was the location of a series of ancient landslides. There has been no prior development of the site. The City has no record of approved CDPs on the site, and no record of prior development applications for the site having been submitted to the City.

As described in the project geotechnical report, grading first began on the site in the 1950s when PCH was constructed, and consisted of the removal of natural materials, imported fill, leveling of the site, and the creation of the terraced portion of the lot. The area south of Bayshore Drive was also graded shortly thereafter and fill material was imported. The site has a height elevation of approximately 65 feet above neighboring properties on Bayshore Drive. Surface drainage is currently by sheet flow to the south and southwest.

The project's geotechnical engineer concludes that the proposed development is suitable from a geotechnical standpoint. The project includes the use of soldier piles and a tieback stabilization system along the southern and eastern slopes of the property. The City's geotechnical consultant reviewers found the project acceptable from a geotechnical perspective in April 2023, with a series of conditions and recommendations (see Exhibit B, Attachment 4: Department Review Comments). Additional information will be required as part of final project design during the Building and Safety plan check process, as is typical for development review. The City's geotechnical consultant reviewers have indicated that the applicant's geotechnical consultants have demonstrated long-term stability of the development.

5. Slope Stability of Properties Off-site

Public comments report previous water pipe and slope failures in areas south of the project site along Bayshore Drive and Malibu Road, and concerns for how the proposed project might affect these areas.

Response: The project site and areas to the south along Bayshore Drive and Malibu Road are within the City's Landslide Assessment District 98-3 and are actively monitored and maintained to address landslide concerns. According to monitoring reports for the Assessment District and the geotechnical report for the project, the Assessment District was established by the County of Los Angeles in 1981, following the activation of a landslide in 1978 on properties along Bayshore Drive and Malibu Road due to poor drainage conditions (excessive rainfall and failure of fill material). The Assessment District is managed by the City with assistance from the City's geotechnical consultant, Yeh and Associates, Inc., which includes maintenance and implementation of capital improvements (e.g., repairing damage to facilities), monitoring, and annual reporting. There are a series of facilities, such as water wells, meters, and other geotechnical instruments, maintained by Yeh and Associates, Inc. along Bayshore Drive and Malibu

Road. The most recent FY23/24 Maintenance and Monitoring Report for AD98-3 prepared for the City in March 20, 2025, by Yeh and Associates, Inc. lists maintenance activities that occurred in the preceding year along Bayshore Drive and Malibu Road, and identifies certain capital projects to address stability concerns in those areas, including projects in the planning and implementation phase, and those that have been identified and are being planned for possible future consideration.

The proposed project, including grading and drainage, as well as geotechnical design for slope safety, has been approved on a preliminary basis by the City's Public Works Department and City geotechnical consultant reviewers, respectively. Recommendations and conditions of approval from these Departments are incorporated into the project (see Exhibit B, Attachment 4: Department Review Sheets and conditions of approval in Exhibit A). In particular, the Public Works Department has provided a condition that the applicant make improvements to the existing dewatering system in Bayshore Drive and Malibu Road to decrease groundwater pressure and increase slope stability (Condition No. 33). As is common practice, the Public Works Department and City geotechnical consultant reviewers will be reviewing final project plans during the Building and Safety plan check phase to ensure the project is designed appropriately.

6. Lot Merger/Certificate of Compliance (LM/COC)

Questions were raised regarding the reason for the LM, how the project would meet the Local Coastal Program (LCP) requirement to protect visual resources of the coastal zone (a required finding for the Lot Merger request), and if the two lots were not merged, would they each be able to meet the Total Development Square Footage (TDSF) and view corridor requirements of the Local Implementation Plan (LIP).

Response: The two lots were originally one parcel, and this one parcel was created in the 1960s. City Public Works Department staff confirmed that the parcel did not comply with the subdivision ordinances (Los Angeles County Subdivision Ordinance and Subdivision Map Act) at the time it was created. Public Works staff indicated that the one parcel was likely always a single parcel, and it is not clear why the County Assessor assigned two Assessor Parcel Numbers (APNs) to a single parcel. Public Works staff provided project conditions of approval noting that development on the parcel is prohibited unless and until compliance with all policies and standards of the LCP, including the requirements of LIP Section 15.2 for approval of land divisions, has been achieved through a CDP process, and a Transfer of Development Credit (TDC) be completed that is consistent with the LIP.

A TDC transfers the development potential from a residential parcel as a donor site to a receiver site where new lots or units are proposed to be created. The City Public Works Department has also provided a condition that the issuance of a CDP and completion of a TDC shall not apply if a Lot Merger is completed. The applicant has requested a Lot

Merger to combine the two lots as part of the subject CDP, therefore a TDC is not required.

The July 21, 2025 Planning Commission Agenda Report (Exhibit B) discusses the project's consistency with LIP Section 15.4.1 (Land Division) which lists the requirements for a LM. Enumerated below are those requirements:

15.4.1 Voluntary Merger

A. Contiguous parcels under common ownership may be voluntarily merged if:

1. Either a merger or lot tie is authorized or required pursuant to a term or condition of a coastal development permit; or

2. The City determines that the merger is not inconsistent with any policy or standard of the LCP that protects environmentally sensitive habitat areas and/or visual resources of the coastal zone. In this case, an administrative coastal development permit shall be approved for the merger if the requirement of Section 13.13 of the Malibu LIP are met.

B. An instrument evidencing the merger shall be recorded. The recorded instrument shall contain a legal description of the contiguous parcels prior to the merger, and the new parcel that results after the merger. The instrument must be reviewed and approved by the City prior to recording. A copy of the recorded instrument shall be provided to the Los Angeles County Assessor's Office.

C. The fee for processing a voluntary merger of parcels shall be in accordance with the adopted fee schedule.

The two parcels subject to the LM are under common ownership and the subject CDP includes a request for a voluntary merger. Condition Nos. 29, 35, and 36 of the draft Planning Commission Resolution No. 25-05 (Exhibit A), require the completion and recordation of the LM. As stated in the LIP findings provided in the July 21, 2025 Planning Commission Agenda Report related to Environmentally Sensitive Habitat Area (ESHA) Overlay (LIP Chapter 4) and Scenic, Visual and Hillside Resource Protection (LIP Chapter 5), the proposed LM is consistent with the policies and standards of the LCP that protect ESHA and visual resources of the coastal zone. Further discussion of the project's consistency is provided below.

Pursuant to LIP Section 4.1, the purpose of the ESHA overlay zone is to protect and preserve areas in which plant or animal life or their habitats are either rare or especially valuable because of their special nature or role in an ecosystem and which could easily be disturbed or degraded by human activities and development. The proposed

development is sited over 300 feet west of the designated ESHA (riparian/stream), which is located at the eastern end of the subject site. The closest fuel modification zone, Zone C, varies from 20-100 feet west of the 100-foot buffer from ESHA for stream/riparian habitat. No grading or other disturbance of land or vegetation, lighting or fencing/walls, are proposed in the ESHA or ESHA buffer. Moreover, a view corridor is proposed in the ESHA area, which must remain unobstructed for the life of the development. Therefore, the proposed project, including LM, would not result in an unpermitted use within the ESHA or ESHA buffer and ensures protection of the ESHA.

The Scenic, Visual, and Hillside Resource Protection Ordinance (LIP Chapter 6) governs those CDP applications concerning any parcel of land that is located along, within, provides views to, or is visible from any scenic area, scenic road, or public viewing area. The subject property is located along the ocean side of PCH, which is a scenic road, and would likely be visible from the public viewing areas of Corral Canyon Park, Corral Canyon Trail/Loop Trail, and Cameron Nature Preserve at Puerco Canyon in the hillsides above PCH.

Section 6.5 of the LIP lists development standards for protection of scenic and visual resources. These consist of development siting and design standards, and particular standards for development on the ocean side of public roads, as listed below:

A. Development Siting

1. *New development shall be sited and designed to minimize adverse impacts on scenic areas from scenic roads or public viewing areas to the maximum feasible extent. If there is no feasible building site location on the proposed project site where development would not be visible, then the development shall be sited and designed to minimize impacts on scenic areas from scenic highways or public viewing areas, through measures including, but not limited to, siting development in the least visible portion of the site, breaking up the mass of new structures, designing structures to blend into the natural hillside setting, restricting the building maximum size, reducing maximum height standards, clustering development, minimizing grading, incorporating landscape elements, and where appropriate, berming.*

2. *Where there is no feasible alternative that is not visible from scenic highways or public viewing areas, the development area shall be restricted to minimize adverse impacts on views from scenic highways or public viewing areas.*

3. *Avoidance of impacts to visual resources through site selection and design alternatives is the preferred method over landscape screening. Landscape screening, as mitigation of visual impacts shall not substitute for project alternatives including resiting, or reducing the height or bulk of structures.*

4. *New development, including a building pad, if provided, shall be sited on the flattest area of the project site, except where there is an alternative location that would be more protective of visual resources or ESHA.*

B. Development Design

1. *The height of structures shall be limited to minimize impacts to visual resources. The maximum allowable height, except for beachfront lots, shall be 18 feet above existing or finished grade, whichever is lower. On beachfront lots, or where found appropriate through Site Plan Review, pursuant to Section 13.27 of the Malibu LIP the maximum height shall be 24 feet (flat roofs) or 28 feet (pitched roofs) above existing or finished grade, whichever is lower. Chimneys and rooftop antennas may be permitted to extend above the permitted height of the structure.*

2. *The length of on-site roads or driveways shall be minimized, except where a longer road or driveway would allow for an alternative building site location that would be more protective of visual resources or ESHA. Driveway slopes shall be designed to follow the natural topography. Driveways that are visible from a scenic highway, a beach, a public viewing area, or public hiking trail shall be a neutral color that blends with the surrounding landforms and vegetation.*

3. *Retaining walls visible from scenic highways, public viewing areas, trails, parks, and beaches should incorporate veneers, texturing and/or colors that blend with the surrounding earth materials or landscape.*

4. *Fences, walls, and landscaping shall not block views of scenic areas from scenic roads, parks, beaches, and other public view areas.*

5. *New development in scenic areas visible from scenic roads or public viewing areas shall incorporate colors and exterior materials that are compatible with the surrounding landscape.*

    a. *Acceptable colors shall be limited to colors compatible with the surrounding environment (earth tones) including shades of green, brown and gray with no white or light shades and no bright tones.*

    b. *The use of highly reflective materials shall be prohibited except for solar energy panels or cells which shall be placed to minimize significant adverse impacts to public views to the maximum extent feasible.*

    c. *All windows shall be comprised of non-glare glass.*

6. *New water tanks in scenic areas visible from scenic roads or public viewing areas shall be designed to be partially below grade, where feasible. Water tanks shall incorporate colors that are compatible with the surrounding landscape and landscape screening to minimize visual impacts.*

E. Ocean Views. New development on parcels located on the ocean side of public roads, including but not limited to, Pacific Coast Highway, Malibu Road, Broad Beach Road, Birdview Avenue, and Cliffside Drive shall protect public ocean views.

1. *Where the topography of the project descends from the roadway, new development shall be sited and designed to preserve bluewater views over the approved structures by incorporating the following measures.*

   a. *Structures shall extend no higher than the road grade adjacent to the project site, where feasible.*

   b. *Structures shall not exceed one story in height, as necessary, to ensure bluewater views are maintained over the entire site.*

   c. *Fences shall be located away from the road edge and fences or walls shall be no higher than the adjacent road grade, with the exception of fences that are composed of visually permeable design and materials.*

   d. *The project site shall be landscaped with native vegetation types that have a maximum growth height at maturity and are located such that landscaping will not extend above road grade.*

2. *Where the topography of the project site does not permit the siting or design of a structure that is located below road grade, new development shall provide an ocean view corridor on the project site by incorporating the following measures:*

   a. *Buildings shall not occupy more than 80 percent maximum of the lineal frontage of the site.*

   b. *The remaining 20 percent of lineal frontage shall be maintained as one contiguous view corridor, except on lots with a width of 50 feet or less. Lots with a lineal frontage of 50 feet or less shall provide 20% of the lot width as view corridor; however, the view corridor may be split to provide a contiguous view corridor of not less than 10% of the lot width on each side. For lots greater than 50 feet in width, the view corridor may be split to provide a contiguous view corridor of not less than 10 percent of the lot width on each side, provided that each foot of lot width greater than 50 feet is added to the view corridor. On irregularly shaped lots, the Planning Manager shall*

determine which side yards shall constitute the view corridor in order to maximize public views. Sites shall not be designed so as to provide for parking within these designated view corridors.

c. *No portion of any structure shall extend into the view corridor above the elevation of the adjacent street.*

d. *Any fencing across the view corridor shall be visually permeable and any landscaping in this area shall include only low-growing species that will not obscure or block bluewater views.*

The project, including the LM, is consistent with the above standards, as discussed in the Scenic and Visual Resource Protection findings provided in the July 21, 2025 Planning Commission Agenda Report (Exhibit B). The report also includes a full discussion of the development's siting and design to minimize adverse impacts to bluewater views from PCH. The topography of the site does not allow for the development to be sited completely below the PCH grade. While the development would occur on the flattest area of the site and the project involves lowering portions of the development pad by approximately one foot, the elevation change from the development pad to the PCH grade and/or top of earthen berm along PCH (whichever is higher) mostly ranges from three to seven feet to a high point of 21 feet at the eastern end of the building pad. To eliminate all obstructions to bluewater views, the buildings would be limited to a height that is completely below the road grade and below the height of the existing berms. In other words, the buildings would need to be below three to seven feet in most areas, although the proposed main residence height of 17 feet, seven inches would be acceptable at the eastern end of the development area, where there is up to a 21-foot difference between the development pad elevation and the roadway/berm grade.

The development is proposed on the flattest part of the site, in areas with slopes 4 to 1 or less. The remaining areas of the site contain slopes that are 3 to 1 or steeper. By siting the development on the flattest area of the site, steep slopes are preserved and grading is minimized.

Substantial earthwork would need to occur to lower the current grade several additional feet to set the buildings completely below PCH and/or the berms. The resulting amount of grading would likely exceed the maximum allowed 1,000 cubic yards for non-exempt grading. Moreover, given the surrounding topography, additional retaining walls would likely be required to create the building pad (see also discussion below for Comment 8).

There are no other feasible locations on the property to accommodate the proposed development that would avoid scenic and visual impacts to bluewater views. The property is long and narrow, except for the eastern portion of the site that contains ESHA, ESHA buffer, and the jurisdictional drainage. The applicant considered reconfiguring all buildings on the eastern portion of the building area, where the PCH grade and/or berms

provide the most screening for the development. However, because the site is narrow, locating all development to this area is infeasible due to available site area. Another option of locating development in the eastern portion of the property (beyond the proposed building pad), which is wider, would result in encroachment into the ESHA, ESHA buffer, and drainage area and would require grading of steep slopes (over 30 percent slope) and shifting fuel modification zones off-site.

The tallest portion of the development, the main residence, would be eight feet and five inches visible above the roadway grade/berms. Other portions of buildings would be as low as two feet and seven inches above the roadway grade/berms, while other portions of the project would not block views at all (see Exhibit B, Attachment 2, Sheets Z112-Z113, Protrusion Above PCH Highway)

Section 6.5(E)(2) of the LIP states that where the topography of the site does not permit the siting or design of a structure that is located below road grade, new development shall provide an ocean view corridor on the project site and the buildings shall not occupy more than 80 percent maximum of the lineal frontage of the site. The project is consistent with these requirements, as it includes a view corridor that is 31 percent of the lineal frontage of the site (approximately 543 feet), with 69 percent of the site occupied by buildings. Condition Nos. 37 and 129 require the view corridor remain free of any structure

The project proposes one-story buildings with flat roofs, with the highest part of the residence proposing a height of 17 feet, 7 inches, which is below the maximum allowed height of 18 feet. The tallest portion of the project is proposed in the eastern part of the building pad where the elevation difference between the building pad and the PCH slope/berm grades is the highest. Configuring the buildings in this manner minimizes views of the development from PCH and bluewater view impacts. The proposed massing of the development has been broken up by siting the guest house on the western edge of the building pad, which is separated from the main residential area by an open area. The development would be stepped down the westerly slope of the site to minimize the appearance of height. The proposed TDSF of 11,121 square feet is less than the maximum 11,172 square feet allowed.

The Landscape Plan includes trees, shrubs, groundcover, and other plants. Native species are proposed along the edges of the development, adjacent to existing natural vegetation. The existing Caltrans earthen berms along the south side of PCH, which are along the site's northern edge, would provide additional screening of the project from PCH.

The 15-foot-wide driveways circling the proposed development are designed to meet the access requirements of the Los Angeles County Fire Department (LACFD) and have been approved by the LACFD on a preliminary basis. The driveway along the northern side of the site would be permeable paving, while the driveway on the southern side

would be grasscrete. Both materials would blend in with the natural environment. No water tanks are proposed with the project.

Conditions of project approval include requiring the use of vegetative species with a potential growth at maturity that does not exceed the PCH road grade and/or berm height to minimize the obstruction of bluewater views. Condition No. 31 requires this to be shown in the Final Landscape Plan. Moreover, Condition Nos. 45 and 46 require the exterior treatment of the buildings, walls, and driveways to use earth tone colors and materials that blend with the surrounding natural environment. Although the retaining walls are not expected to be visible from PCH, Condition No. 45 would still apply to the project to ensure the retaining walls blend with the surrounding natural area. Condition No. 45 also prohibits the use of highly reflective building materials and requires non-glare glass.

Each of the two freestanding (non-building) walls would not exceed six feet in height, would not be visible from PCH, or block bluewater views. The proposed 42-inch-high fence within the front yard setback would be visually permeable so as not to block views to the ocean.

Pursuant to the City Public Works Department comments, either a TDC must occur that transfers development credits to another lot, or the two lots must be merged. Therefore, it is unlikely that each lot would be allowed to be developed separately. Nonetheless, if each lot were to be developed separately, a minimum view corridor of 20 percent of the lineal footage of the lot would be applied if it were infeasible to avoid bluewater view impacts. The maximum allowed TDSF on a parcel is determined by the size of the parcel, less the area of slopes equal to or greater than 1:1. Assessor's Parcel Number (APN) 4459-013-021 is approximately four acres, while APN 4459-014-018 is 2.6 acres. However, the area of each lot in the 1:1 slope category is unknown. Therefore, the TDSF for each lot cannot be determined.

The findings in Section 3.D. (Land Division) of Resolution No. 25-05 (Exhibit A) have been augmented according to the above discussion.

7. <u>On-Site Landscaping</u>

Concerns were expressed regarding the height of proposed vegetation and that the bamboo species listed on the Landscape Plan is flammable.

Response: The County Fire Department, Forestry Division, provided a preliminary approval of the project Fuel Modification Plan in November 2023. According to the Landscape Plan, the bamboo species in question would be planted in an enclosed garden within the main residence. Condition No. 30 requires the applicant to comply with all requirements and conditions of the LACFD. The LACFD reviews final project plans, including the Final Fuel Modification Plan, during the Building and Safety plan check

phase, and may have additional comments the applicant would need to address, including regarding plant selection. Condition No. 31 has been added to minimize bluewater view obstruction from PCH by prohibiting onsite vegetation, including trees, to have a maximum height at maturity that extends above the PCH grade or Caltrans berms, whichever is higher, and to be maintained at this height.

8. Alternative – Reducing Building Pad Grade, Setting Structures Below PCH

Questions were raised about why the site could not be graded, or otherwise designed, so the buildings could be located completely below the PCH grade.

Response: A discussion of project alternatives is provided in Exhibit B, the July 21, 2025 Planning Commission Agenda Report under the findings related to Coastal Development Permit (LIP Chapter 13). One of the alternatives analyzed included lowering the existing grade of the development pad by several more feet to set the buildings completely below PCH and/or the Caltrans berms. However, substantial earthwork would need to occur to lower the current grade, resulting in grading that would likely exceed the maximum allowed 1,000 cubic yards of non-exempt grading. Additional walls could be necessary to create the building pad, given the surrounding topography. Considering the required depth of the building pad, walls exceeding the maximum allowed six feet in height might be necessary (requiring a variance).

To lower the site with shorter retaining walls, or without walls, would require significantly more site disturbance at the edges of the lowered building pad to transition to the existing grade elevations over a long distance. This alternative would require grading on steep slopes that would also exceed the maximum allowed non-exempt grading of 1,000 cubic yards (requiring a variance and inconsistent with the required COC findings for avoidance of steep slopes) and could not be accomplished within the property boundaries. This alternative would also likely be considered inconsistent with the LIP and MMC standards (LIP Section 8.3) and policies for minimizing the alteration of landforms. Section 8.3(E) of the LIP states that grading shall be designed to minimize the alteration of landforms by ensuring that graded slopes blend with the existing terrain of the site and surrounding area and conform to natural topography (LIP Section 8.3(E)).

9. Retaining Walls

Questions were raised regarding the reason the multiple six-foot-high stacked retaining walls proposed for this project did not require a variance.

Response: The project plans do not show stacked retaining walls. Single retaining walls are proposed with a maximum height of six feet, consistent with MMC and LIP standards. Therefore, a variance is not being requested.

10. Views from Public Trails

Concerns were expressed regarding the project's visibility from public trails.

Response: The site may be visible from Corral Canyon Park (1,500 feet northwest of the site), Corral Canyon Trail/Corral Canyon Loop Trail (400 feet northwest of the site), and Cameron Nature Preserve at Puerco Canyon (500 feet northeast of the site). These locations, which are upslope from the site in the hillside above PCH, would be considered public viewing areas pursuant to LIP Chapter 6 (Scenic, Visual, and Hillside Resource Protection Ordinance). The LIP requires a project to be analyzed for the potential to create adverse impacts upon public viewing areas. The required findings pertaining to scenic and visual resources and public viewing areas are the same as for views from PCH, a scenic road, which can be found in the July 21, 2025 Planning Commission Agenda Report under the findings related Scenic, Visual and Hillside Resource Protection (LIP Chapter 6). The following discussion pertains to the project's potential impacts on scenic resources when viewed from public viewing areas. Please also refer to the response to Comment 6 above where the protection of scenic resources was addressed for the Lot Merger/Certificate of Compliance.

Section 6.4 Required Findings and Analysis

1. *The project, as proposed, will have no significant adverse scenic or visual impacts due to project design, location on the site, or other reasons.*

2. *The project, as conditioned, will not have significant adverse scenic or visual impacts due to required project modifications, landscaping, or other conditions.*

3. *The project, as proposed or as conditioned, is the least environmentally damaging alternative.*

4. *There are no feasible alternatives to development that would avoid or substantially lessen any significant adverse impacts on scenic and visual resources.*

5. *Development in a specific location on the site may have adverse scenic and visual impacts but will eliminate, minimize or otherwise contribute to conformance to sensitive resource protection policies contained in the certified LCP.*

The project consists of a one-story single-family residence and associated development with flat roofs, not to exceed a height of 17 feet and seven inches, consistent with the LIP requirements. The buildings, walls, and driveways will be required to use earthtone colors and contain materials to blend with the natural environment (Condition Nos. 45 and 46). Landscaping is proposed throughout the development, and Condition No. 31 prohibits

the use of vegetation that will exceed the height of the existing PCH height/berms to protect bluewater views from PCH.

Current views from the public viewing areas in the hillside above the project site include a large expanse of coastline, PCH, and structures, including residences in the vicinity of the project site. Development of the site, as proposed and conditioned, is not expected to result in significant adverse impacts to views from these public viewing areas, as it is adjacent to existing residential development and proposes a low-profile design. The conditions noted above regarding colors and materials allow the development to be visually compatible with the surrounding natural environment when viewed from above. The development is not expected to have a significant impact on ocean views from the public viewing areas, given the height of the locations in the hillsides above the site, and that the applicant has chosen to create a series of low-profile buildings ranging from 12 feet to a maximum of 17 feet and seven inches in height.

The development is proposed on the flattest area of the property, away from steep slopes, a jurisdictional drainage, and riparian ESHA. Moreover, the project provides a view corridor on the eastern part of the property that is 31 percent of the lineal frontage of the project site.

There are no feasible alternatives for development that would avoid or substantially lessen views from these public viewing areas. The applicant considered clustering all buildings in the eastern portion of the building pad, where the PCH grade and/or berms provide the most screening to the development from PCH, a scenic road. However, because the site is narrow, locating all development in this area is infeasible as it would result in direct impacts to ESHA.

The Scenic, Visual and Hillside Resource Protection finding provided in Section 3.B. of Resolution No. 25-05 (Exhibit A) has been augmented according to the above discussion.

Comment 11. Accuracy of Story Poles

Concerns were raised regarding the story poles that appear taller than those installed in April 2024, and that the story poles do not accurately reflect the proposed development.

Response: Story poles were installed to depict the proposed project in April 2024. Since then, the applicant has reduced some heights of the development, as described in the July 21, 2025 Planning Commission Agenda Report. The main residence has been reduced from a maximum 18 feet to 17 feet and seven inches. The guest house height has been reduced from 15 feet and eight inches to 10 feet. The two freestanding walls to the east of the guest house have been reduced from 12 feet to six feet in height. In May 2025, the story poles were updated to reflect the revised project with decreased heights, lower than those placed onsite the prior year.

The City requires the applicant to prepare a story pole plan to reflect the proposed structure heights as depicted on the roof plan and building elevation plans. City staff reviews the story pole plan for accuracy with the architectural and grading plans, after which time City staff can approve the story pole plan. City staff approved the story pole plan on April 11, 2025. Once installed, a licensed surveyor must sign a certification that the story poles erected have been placed in accordance with the approved story pole plan. The certification is dated May 20, 2025.

Technical Correction Regarding the OWTS

Staff was made aware the size of the OWTS was incorrectly referenced in the July 21, 2025 Planning Commission Agenda Report and resolution. The proposed septic tank is 7,540 gallons, not 1,500 gallons. The staff report is hereby corrected, and the correction has been made to Planning Commission Resolution No. 25-05.

Resolution No. 25-05 (Exhibit A) has been revised to reflect the cancellation of the July 21, 2025 Regular Planning Commission meeting, continuance to August 18, 2025, correct the reference to the size of the OWTS tank, provide additional discussion for the required LM findings pertaining to protection of visual resources of the coastal zone, and provide additional discussion of scenic and visual resources relating public viewing areas.

EXHIBITS:

A. Planning Commission Resolution No. 25-05
B. July 21, 2025 Planning Commission Agenda Report
    1. Resolution No. 25-05
    2. Project Plans
    3. Story Pole Photos
    4. Department Review Sheets
    5. Public Correspondence
    6. Public Hearing Notice
C. Public Comments
D. Photos of Caltrans Berms

CITY OF MALIBU PLANNING COMMISSION
RESOLUTION NO. 25-05

A RESOLUTION OF THE PLANNING COMMISSION OF THE CITY OF MALIBU DETERMINING THE PROJECT IS CATEGORICALLY EXEMPT FROM THE CALIFORNIA ENVIRONMENTAL QUALITY ACT, AND APPROVING COASTAL DEVELOPMENT PERMIT NO. 19-012 TO CONSTRUCT A NEW 9,219 SQUARE FOOT, ONE-STORY, SINGLE-FAMILY RESIDENCE, INCLUDING A 1,000 SQUARE-FOOT SUBTERRANEAN TWO-CAR GARAGE, 1,523 SQUARE FOOT BASEMENT, 676 SQUARE FOOT GYM, DETACHED 465 SQUARE FOOT GUEST HOUSE, SWIMMING POOLS, SPA, DRIVEWAYS, DECKS, LANDSCAPE, WATER FEATURES, HARDSCAPE, GRADING, RETAINING WALLS, AND ONSITE WASTEWATER TREATMENT SYSTEM, INCLUDING CERTIFICATE OF COMPLIANCE NO. 21-004 TO RECOGNIZE AN ILLEGALLY CREATED LOT CONSISTING OF TWO ASSESSOR PARCEL NUMBERS (4459-013-021 AND 4459-014-018), AND LOT MERGER NO. 24-002 TO CONSOLIDATE TWO EXISTING PARCELS INTO ONE, LOCATED IN THE RURAL RESIDENTIAL, TWO-ACRE ZONING DISTRICT AT 25200 PACIFIC COAST HIGHWAY (PAR PCH, LLC).

The Planning Commission of the City of Malibu does hereby find, order and resolve as follows:

SECTION 1. Recitals.

A. On March 7, 2019, an application for a Coastal Development Permit (CDP) No. 19-012 to allow for a new single-family residence and associated development was submitted to the Planning Division by PAR PCH, LLC. The application was routed to the City Biologist, City Environmental Health Administrator, City geotechnical consultant reviewers, City Public Works Department, Los Angeles County Waterworks District No. 29 (WD29), and Los Angeles County Fire Department (LACFD) for review.

B. On September 25, 2023, a Notice of Coastal Development Permit Application was posted on the subject property.

C. On December 11, 2023, the application was deemed complete.

D. On April 25, 2024, a Notice of Planning Commission Public Hearing was published in a newspaper of general circulation within the City of Malibu and was mailed to all property owners and occupants within a 500-foot radius of the subject property.

E. In April 2024, Planning staff received concerns from several community members related to impacts to bluewater views and potential outdoor lighting.

F. On May 20, 2024, the Planning Commission continued the item to a date uncertain.

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G. On July 10, 2025, a Notice of Planning Commission Public Hearing for July 21, 2025, was published in a newspaper of general circulation within the City of Malibu and was mailed to all property owners and occupants within a 500-foot radius of the subject property.

H. On July 21, 2025, the Planning Commission meeting was cancelled due to a lack of a quorum, and a Notice of Cancellation and Notice of Continuance was issued, with the project continued to the Planning Commission meeting on August 18, 2025.

I. On August 18, 2025, the Planning Commission held a duly noticed public hearing on the subject application, reviewed and considered the staff report, and reviewed and considered written reports, public testimony, and other information in the record.

SECTION 2. Environmental Review.

Pursuant to the authority and criteria contained in the California Environmental Quality Act (CEQA), the Planning Commission has analyzed the proposed project. The Planning Commission found that this project is listed among the classes of projects that have been determined not to have a significant adverse effect on the environment. Therefore, the project is categorically exempt from the provisions of CEQA pursuant to Section 15303(a) – New Construction and 15303(e) New Construction or Conversion of Small Structures. The Planning Commission has further determined that none of the six exceptions to the use of a categorical exemption apply to this project (CEQA Guidelines Section 15300.2).

SECTION 3. Coastal Development Permit Findings.

Based on evidence contained within the record, including the agenda report for the project and the hearing on July 21, 2025, and pursuant to the Local Coastal Program (LCP) Local Implementation Plan (LIP), including Sections 13.7(B) and 13.9, and Malibu Municipal Code (MMC), the Planning Commission adopts the findings of fact, and approves CDP No. 19-012 for construction of a 9,219 square-foot single-family residence, 1,000 square-foot subterranean garage, 1,523 square-foot basement, 676 square-foot gym, detached 465 square-foot guest house, swimming pools and spa, driveways, decks, landscape, water features, hardscape, grading, retaining walls, and an onsite wastewater treatment system located in the Rural Residential, Two-Acre (RR-2) zoning district at 25200 Pacific Coast Highway.

The project, as conditioned, is consistent with the LCP's zoning, grading, cultural resources, water quality, and wastewater treatment system standards requirements. With the inclusion of the proposed certificate of compliance (COC) and Lot Merger (LM), the project has been determined to be consistent with all applicable LCP codes, standards, goals, and policies. The required findings are made herein.

A. General Coastal Development Permit (LIP Chapter 13)

1. The project is located in the RR-2 residential zoning district, an area designated for residential uses, including single-family residences. The project has been reviewed for

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conformance with the LCP by the Planning Division, City Biologist, City Environmental Health Administrator, City Public Works Department, City geotechnical review consultants, WD29, and the LACFD. As discussed herein, based on submitted reports, project plans, visual analysis, and site investigation, the proposed project, as conditioned, conforms to the LCP in that it meets all applicable residential development standards, inclusive of the requested COC and LM.

2. Evidence in the record demonstrates that as conditioned, the project will not result in biological impacts and has been designed to minimize grading. There is no evidence that an alternative project would substantially lessen any potential significant adverse impacts of the development on the environment.

B. Scenic, Visual and Hillside Resource Protection (LIP Chapter 6)

1. Story poles were installed onsite to demonstrate the location, mass and height of the proposed project. While the site is below the grade of the adjacent roadway and the building and driveway pads average approximately one foot below the site grade to minimize views to the development, the top portions of some of the buildings will be visible from PCH and block bluewater views. At most, the upper eight feet, five inches of the main residence would be visible from the roadway. Therefore, the proposed project is conditioned to require a view corridor of 31 percent of the site width, so that the project will not result in significant adverse scenic or visual impacts and will be compatible with the character of the surrounding neighborhood. The project, as conditioned, will not have adverse scenic or visual impacts.

2. The project, as conditioned, is the least environmentally damaging feasible alternative.

3. There are no feasible alternatives to development that would avoid or substantially lessen any significant adverse impacts on scenic of visual resources..

4. No outdoor lighting is proposed as part of this project. A condition of approval is included in the event lighting is proposed in the future whereby the lighting plan shall comply with the City lighting requirements, including the Dark Sky Ordinance.

5. As conditioned, development on the site will not have significant adverse impacts on scenic and visual resources.

C. Hazards (LIP Chapter 9)

1. Evidence in the record demonstrates that the project will neither be subject to nor increase the instability of the site from geologic, flood, or fire hazards. The proposed development is suitable for the intended use provided that the certified engineering geologist and/or geotechnical engineer’s recommendations and governing agency’s building codes are followed to incorporate minimum recommended finished floor elevations and piles founded into bedrock, among other measures, as conditioned.

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2. The proposed project, as designed, conditioned and approved by the applicable departments and agencies, will not have any significant adverse impacts on the site stability or structural integrity from geologic or flood hazards due to project modifications and other conditions.

3. The project, as designed and conditioned, is the least environmentally damaging alternative.

4. The proposed development has been analyzed for the hazards listed in LIP Chapter 9 by the City Building Official, City Environmental Health Administrator, and the City geotechnical consultant reviewers. These specialists determined that the proposed project does not impact site stability or structural integrity. Since there are no significant impacts expected, there are no feasible alternatives to reduce significant impacts.

5. There is no evidence in the record that the proposed project, as designed and conditioned, will have adverse impacts to sensitive resources.

D. Land Division (LIP Chapter 15)

1. The Certificate of Compliance (COC) complies with all policies and standards of the LCP, including the requirements of LIP Section 15.2. The site provides for development that avoids any work within slopes over 30 percent. The project site can accommodate adequate roads for fire access, and, as conditioned, development is safe from flooding, erosion, geologic, and extreme fire hazards. The project site is served by adequate public services and can accommodate an OWTS. The site can accommodate development, including fuel modification, outside of the ESHA and ESHA buffer. Development of the site can occur in a manner that minimizes grading and alteration of natural landforms, and that will be landscaped with native species to minimize erosion. The site permits clustering of development on the west side of the property to minimize site disturbance and maximize open space on the east side, in ESHA, a drainage, and in steep slopes.

2. No coastal resources or ridgelines are located on the property that would be affected by the development. The site enables impacts to visual resources, including bluewater views, to be minimized to the extent feasible, and allows for creation of a view corridor of a minimum 31 percent, consistent with the LIP requirements. The site allows for development consistent with the maximum density and Total Development Square Feet (TDSF) permitted in the LCP and would not be smaller than the average size of surrounding parcels.

3. The two parcels subject to the LM are under common ownership and the applicant proposes a voluntary merger that has been initiated by the property owner. The LM is consistent with all policies and standards of the LCP that protect ESHA or visual resources of the coastal zone, as habitat in the ESHA will be protected and no structures in the onsite view corridor are permitted.

SECTION 4. Planning Commission Action.

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Based on the foregoing findings and evidence contained within the record, the Planning Commission hereby approves CDP No. 19-012, LM No. 24-002, and COC No. 21-004, subject to the following conditions.

SECTION 5. Conditions of Approval.

Standard Conditions

1. The property owners, and their successors in interest, shall indemnify and defend the City of Malibu and its officers, employees and agents from and against all liability and costs relating to the City's actions concerning this project, including (without limitation) any award of litigation expenses in favor of any person or entity who seeks to challenge the validity of any of the City's actions or decisions in connection with this project. The City shall have the sole right to choose its counsel and property owners shall reimburse the City's expenses incurred in its defense of any lawsuit challenging the City's actions concerning this project.

2. Approval of this application is to allow for the project described herein. The scope of work approved includes:

    a. 9,219 square-foot, one-story, single-family residence, and a 1,000 square-foot subterranean two-car garage and 1,523 square-foot basement;
    b. Detached 676 square-foot gym;
    c. Detached 465 square-foot guest house;
    d. Swimming pools and spa;
    e. OWTS, including a 7,540-gallon septic tank;
    f. New landscaping and hardscape, including permeable driveways;
    g. Perimeter fencing not to exceed 42 inches in height along the north property line and an entry gate;
    h. Retaining walls up to six feet in height; and
    i. Solid freestanding walls up to six feet in height.

3. Except as specifically changed by conditions of approval, the proposed development shall be constructed in substantial conformance with the approved scope of work, as described in Condition 2 and depicted on plans on file with the Planning Division date stamped April 16, 2025. The proposed development shall further comply with all conditions of approval stipulated in this resolution and Department Review Sheets attached hereto. In the event project plans conflict with any condition of approval, the condition shall take precedence.

4. Pursuant to LIP Section 13.18.2, this Coastal Development Permit (CDP), Lot Merger, and Certificate of Compliance shall not be effective until the property owner signs, notarizes and returns the Acceptance of Conditions Affidavit accepting the conditions set forth herein. The applicant shall file this form with the Community Development Department prior to issuance of any development permits.

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5. The applicant shall digitally submit a complete set of plans to the Planning Division for consistency review and approval prior to plan check and again prior to the issuance of any building or development permits.

6. The CDP shall expire if the project has not commenced within three (3) years after issuance of the permit unless a time extension has been granted. Extension of the permit may be granted by the approving authority for due cause. Extensions shall be requested in writing by the applicant or authorized agent prior to expiration of the three-year period and shall set forth the reasons for the request. In the event of an appeal, the CDP shall expire if the project has not commenced within three years from the date the appeal is decided by the decision-making body or withdrawn by the appellant.

7. Any questions of intent or interpretation of any condition of approval will be resolved by the Community Development Director upon written request of such interpretation.

8. All development shall conform to requirements of the City of Malibu Environmental Sustainability Division, City Biologist, City Coastal Engineer, City Environmental Health Administrator, City geotechnical consultant reviewers, City Public Works Department, WD29 and LACFD, as applicable. Notwithstanding this review, all required permits shall be secured.

9. Minor changes to the approved plans or the conditions of approval may be approved by the Community Development Director, provided such changes achieve substantially the same results and the project is still in compliance with the Malibu Municipal Code and the Local Coastal Program. Revised plans reflecting the minor changes and additional fees shall be required.

10. Pursuant to LIP Section 13.20, development pursuant to an approved CDP shall not commence until the CDP is effective. The CDP is not effective until all appeals, including those to the California Coastal Commission (CCC), have been exhausted. In the event that the CCC denies the permit or issues the permit on appeal, the coastal development permit approved by the City is void.

11. The applicant must submit payment for any outstanding fees payable to the City prior to issuance of any building permit, including grading or demolition.

Cultural Resources

12. In the event that potentially important cultural resources are found in the course of geologic testing or during construction, work shall immediately cease until a qualified archaeologist can provide an evaluation of the nature and significance of the resources and until the Community Development Director can review this information. Thereafter, the procedures contained in LIP Chapter 11 and those in MMC Section 17.54.040(D)(4)(b) shall be followed.

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13. If human bone is discovered during geologic testing or during construction, work shall immediately cease and the procedures described in Section 7050.5 of the California Health and Safety Code shall be followed. Section 7050.5 requires notification of the coroner. If the coroner determines that the remains are those of a Native American, the applicant shall notify the Native American Heritage Commission by phone within 24 hours. Following notification of the Native American Heritage Commission, the procedures described in Section 5097.94 and Section 5097.98 of the California Public Resources Code shall be followed.

Outdoor Lighting

14. No outdoor lighting is approved as part of this project. A lighting plan shall be submitted for City approval prior to Building plan check, consistent with City standards.

15. Exterior lighting must comply with the Dark Sky Ordinance and shall be minimized, shielded, or concealed and restricted to low intensity features, so that no light source is directly visible from public view. Permitted lighting shall conform to the following standards:

    a. Lighting for walkways shall be limited to fixtures that do not exceed two feet in height and are directed downward, and limited to 850 lumens (equivalent to a 60 watt incandescent bulb);
    b. Security lighting controlled by motion detectors may be attached to the residence provided it is directed downward and is limited to 850 lumens;
    c. Driveway lighting shall be limited to the minimum lighting necessary for safe vehicular use. The lighting shall be limited to 850 lumens;
    d. Lights at entrances as required by the Building Code shall be permitted provided that such lighting does not exceed 850 lumens;
    e. Site perimeter lighting shall be prohibited; and
    f. Outdoor decorative lighting for aesthetic purposes is prohibited.

16. Night lighting for sports courts or other private recreational facilities shall be prohibited.

17. No permanently installed lighting shall blink, flash, or be of unusually high intensity or brightness. Lighting levels on any nearby property from artificial light sources on the subject property(ies) shall not produce an illumination level greater than one foot-candle.

18. Night lighting from exterior and interior sources shall be minimized. All exterior lighting shall be low intensity and shielded directed downward and inward so there is no offsite glare or lighting of natural habitat areas. Lighting of the shore or the beach in excess of one foot-candle is prohibited.

19. String lights are allowed in occupied dining and entertainment areas only and must not exceed 3,000 Kelvin.

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20. Motion sensor lights shall be programmed to extinguish ten minutes after activation.

21. No lighting can exceed 18 feet in height except as required by the California building code.

22. Three violations of the conditions by the same property owner will result in a requirement to permanently remove the outdoor light fixture(s) from the site.

Fencing and Walls

23. The applicant shall include an elevation of the proposed driveway gate on the architectural plans that are submitted for building plan check. The gate and all fencing along the front property line shall comply with the regulations set forth in LIP Section 3.5.

24. The height of fences and walls shall comply with LIP Sections 3.5.3(A) and 6.5(E)(1)(c). No retaining wall shall exceed six feet in height or 12 feet in height for a combination of two or more walls.

25. Necessary boundary fencing shall be of an open rail-type design with a wooden rail at the top (instead of wire), be less than 40-inches high, and have a space greater than 14-inches between the ground and the bottom post or wire. A split rail design that blends with the natural environment is preferred.

26. Fencing or walls shall be prohibited within ESHA, except where necessary for public safety or habitat protection or restoration. Fencing or walls that do not permit the free passage of wildlife shall be prohibited in any wildlife corridor.

27. Development adjacent to, but not within ESHA, may include fencing, if necessary for security, that is limited to the area around the clustered development area.

Site Specific Conditions

28. The applicant shall submit to the City a recorded instrument evidencing the Lot Merger prior to issuance of a grading permit. The instrument must be reviewed and approved by the City prior to recording. A copy of the recorded instrument shall be provided to the Los Angeles County Assessor's Office.

29. This project and CDP approval is not valid unless a Certificate of Compliance and Lot Merger have been approved by the City, filed with the City Clerk, and recorded with the County of Los Angeles.

30. The project shall comply with all requirements and conditions of the County of Los Angeles Fire Department.

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31. To minimize bluewater view obstruction from PCH, on-site vegetation, including trees, shall be selected and located to have a maximum growth height at maturity that will not extend above the PCH grade or Caltrans berms, whichever is higher, and be maintained at this height. The Final Landscape Plan submitted for plan check approval shall reflect this requirement.

32. The applicant shall submit an updated geotechnical report prepared by a geotechnical engineer/engineering geologist. The updated report shall include detailed investigation and analyses of the portions of the earthen berms on the project site along the northerly property line. The applicant shall address and mitigate any geotechnical issues related to the berms on the project site identified in the updated report and incorporate them into the final plans. Final plans shall be reviewed and approved by the City geotechnical review consultants and Public Works Department prior to the issuance of a grading permit.

33. The applicant shall construct the following improvements to the existing dewatering system to reduce groundwater pressure and increase the slope stability within the Malibu Road Assessment District 98-3, within which the property is located. The work shall be coordinated with the Public Works Department of the City of Malibu and its landslide district dewatering system operation and maintenance contractor.

    a. Construct a new 100-foot deep 6-inch diameter PVC casing installed within a 12.5-inch diameter dewatering well along Bayshore Drive near the easterly property line of APN 4459-013-001. The PVC shall be screened by 0.04-inch machined slots between 10 and 85 feet. Casing backfill and well sealing shall meet requirements of the Los Angeles County well permit. Install a 1/3 HP Grundfos submersible pump at 80 feet deep and a 1-inch ID PVC sounding tube to the drop pipe for the pump to obtain water level measurements. Finish the surface with a flush mount Christy 1830 traffic rated well vault.
    b. Replace the existing SI-3 inclinometer on Malibu Road by over-drilling the existing sheared inclinometer to original depth of 50 feet below ground surface to bottom of casing. Install a 2.75-inch 50-foot-long inclinometer casing with both a vibrating wire piezometer and time domain radar (TDR) cable attached to the casing to the full depth. Temie grout medium strength bentonite grout within the annual space between the borehole and outside of casing. Finish at surface with a 24-inch by 24-inch traffic rated vault.

34. The applicant's engineer shall prepare drainage plans detailing the onsite and off-site storm drain systems. The onsite storm drainage system shall be privately owned and maintained. The onsite drainage system shall be designed as a gravity-fed system. The applicant shall obtain all necessary Los Angeles County Flood Control District (LACFCD) permits and approvals for connection to the LACFCD storm drain facilities. All work shall be completed prior to the issuance of Certificate of Occupancy.

Certificate of Compliance/Lot Merger

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35. The applicant/property owner shall submit all items required to complete the Certificate of Compliance to the satisfaction of the Public Works Department prior to issuance of any grading or building permit, and prior to approval of a Lot Merger.

36. All items required to complete a Lot Merger of the two parcels that are a part of this application shall be submitted to the satisfaction of the Public Works Department. The proposed Lot Merger must be approved by the City, recorded with the Los Angeles County Recorder's Office, and filed with the City Clerk's office prior to the approval of a grading permit. A copy of the recorded instrument, which shall contain a legal description of the contiguous parcels prior to the merger and the new parcel that results after the merger, shall be provided to the Los Angeles County Assessor's Office.

View Corridor

37. Pursuant to LIP Section 6.5(E)(2) and in order to ensure the protection of scenic and visual resources, the applicant is required to maintain:

    a. A view corridor onsite a minimum of 542 feet and 7 inches wide adjacent to the eastern property line and extending southerly for the length of the property.
    b. No portion of any structure shall extend into the view corridor above the elevation of the adjacent street.
    c. Any fencing across the view corridor shall be permanently maintained as visually permeable. Tinted or frosted glass, and louvered or slatted screen fences are not permitted.
    d. Any landscaping in this area shall include only low-growing species that will not obscure or block bluewater views.
    e. If at any time the property owner allows the view corridor to become impaired or blocked, it would constitute a violation of the coastal development permit and the Coastal Act and be subject to all civil and criminal remedies.

Construction/Framing

38. The applicant shall submit a copy of a Construction Management Plan to the Planning Division. The Construction Management Plan shall include a dedicated parking location for construction workers and storage of construction material. Prior to permit issuance, the Construction Management Plan must be acceptable to the Community Development Director and, if applicable, to the Building Official and Public Works Director.

39. A construction staging plan shall be reviewed and approved by the Building Official prior to plan check submittal.

40. Construction hours shall be limited to Monday through Friday from 7:00 a.m. to 7:00 p.m. and Saturdays from 8:00 a.m. to 5:00 p.m. No construction activities shall be permitted on Sundays or City-designated holidays.

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41. Construction management techniques, including minimizing the amount of equipment used simultaneously and increasing the distance between emission sources, shall be employed as feasible and appropriate. All trucks leaving the construction site shall adhere to the California Vehicle Code. In addition, construction vehicles shall be covered when necessary; and their tires rinsed prior to leaving the property.

42. All new development, including construction, grading, and landscaping shall be designed to incorporate drainage and erosion control measures prepared by a licensed engineer that incorporate structural and non-structural Best Management Practices (BMPs) to control the volume, velocity and pollutant load of storm water runoff in compliance with all requirements contained in LIP Chapter 17, including:

    a. Construction shall be phased to the extent feasible and practical to limit the amount of disturbed areas present at a given time.
    b. Grading activities shall be planned during the southern California dry season (April through October).
    c. During construction, contractors shall be required to utilize sandbags and berms to control runoff during on-site watering and periods of rain in order to minimize surface water contamination.
    d. Filter fences designed to intercept and detain sediment while decreasing the velocity of runoff shall be employed within the project site.

43. When framing is complete, a site survey shall be prepared by a licensed civil engineer or architect that states the finished ground level elevation and the highest roof member elevation. Prior to the commencement of further construction activities, said document shall be submitted to the assigned Building Inspector and Planning Division for review and sign off on framing.

44. For the transportation of heavy construction equipment and/or material, which requires the use of oversized-transport vehicles on State highways, the applicant / property owner is required to obtain a transportation permit from the California Department of Transportation.

Colors and Materials

45. The project is visible from a scenic road, therefore, shall incorporate colors and exterior materials that are compatible with the surrounding landscape.

    a. Acceptable colors shall be limited to colors compatible with the surrounding environment (earth tones) including shades of green, brown and gray, with no white or light shades and no bright tones. Colors shall be reviewed and approved by the Community Development Director and clearly indicated on the building plans.
    b. The use of highly reflective materials shall be prohibited except for solar energy panels or cells, which shall be placed to minimize significant adverse impacts to public views to the maximum extent feasible.

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c. All windows shall be comprised of non-glare glass.

46. All driveways shall be a neutral color that blends with the surrounding landforms and vegetation. Retaining walls shall incorporate veneers, texturing and/or colors that blend with the surrounding earth materials or landscape. The color of driveways and retaining walls shall be reviewed and approved by the Community Development Director and clearly indicated on all grading, improvement and/or building plans.

Biology/Landscaping

47. Except as permitted pursuant to the provisions in LUP policies 3.18 and 3.20, throughout the City of Malibu, development that involves the use of pesticides, including insecticides, herbicides, rodenticides or any other similar toxic chemical substances, shall be prohibited in cases where the application of such substances would have the potential to significantly degrade Environmentally Sensitive Habitat Areas or coastal water quality or harm wildlife. Herbicides may be used for the eradication of invasive plant species or habitat restoration, but only if the use of non-chemical methods for prevention and management such as physical, mechanical, cultural, and biological controls are infeasible. Herbicides shall be restricted to the least toxic product and method, and to the maximum extent feasible, shall be biodegradable, derived from natural sources, and used for a limited time.

48. Prior to final Planning inspection, the applicant shall submit to the Community Development Director for review and approval a certificate of completion in accordance with MMC Chapter 17.53. The certificate shall include the property owner's signed acceptance of responsibility for maintaining the landscaping and irrigation in accordance with the approved plans and MMC Chapter 17.53.

49. Invasive plant species, as determined by the City of Malibu, are prohibited.

50. Vegetation shall be situated on the property so as not to significantly obstruct the primary view from private property at any given time (given consideration of its future growth).

51. The landscape plan shall prohibit the use of building materials treated with toxic compounds such as creosote or copper arsenate.

52. Construction fencing shall be placed within five feet of the southern limits of grading. Construction fencing shall be installed prior to the beginning of any construction and shall be maintained throughout the construction period to protect the site's sensitive habitat areas.

53. The landscape and fuel modification plan shall protect natural resources in accordance with the Malibu Local Coastal Program. All areas shall be planted and maintained as described in the landscape and fuel modification plan, except as indicated elsewhere in these conditions. Failure to comply with the landscape conditions is a violation of the conditions of approval for this project.

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54. All open areas not used for buildings, driveways, parking areas, or walkways shall be attractively landscaped and maintained in accordance with a landscape plan, with native plant species, to the satisfaction of the Community Development Director.

55. Native species of the Santa Monica Mountains, characteristic of the local habitat, shall be used on graded slopes or where slope plantings are required for slope stabilization, erosion control, and watershed protection. Plants should be selected to have a variety of rooting depths. A spacing of 15 feet between large woody (≥10-foot canopy) shrubs is recommended by the LACFD. Lawns are prohibited on slopes > 5 percent.

56. Slope planting measures such as contour planting and terracing or other techniques shall be incorporated on slopes to interrupt the flow and rate of surface runoff in order to prevent surface soil erosion.

57. Prior to installation of any landscaping, the applicant shall obtain a plumbing permit for the proposed irrigation system from the Building Safety Division.

58. Prior to a final plan check approval, the property owner /applicant must provide a landscape water use approval from the Los Angeles County Waterworks District No. 29.

59. Plantings required for fuel modification, except for within irrigated Zone A nearest to approved residential structures, must be native, drought-tolerant species and shall blend with the existing natural vegetation and natural habitats on the site.

60. Any site preparation activities, including removal of vegetation, between February 1 and September 15 will require nesting bird surveys by a qualified biologist at least five days prior to initiation of site preparation activities. Should active nests be identified, a buffer area no less than 150 feet (300 feet for raptors) shall be fenced off until it is determined by a qualified biologist that the nest is no longer active. A report discussing the results of nesting bird surveys shall be submitted to the City within two business days of completing the surveys.

61. Earthmoving shall be scheduled only during the dry season from April 1 through October 31. If it becomes necessary to conduct earthmoving activities from November 1 through March 31, a comprehensive erosion control plan shall be submitted to the City Biologist for approval prior to the issuance of a grading permit and implemented prior to initiation of vegetation removal and/or earthmoving activities.

62. The use of wood chips and shredded rubber is prohibited anywhere on the site. Flammable mulch material, including shredded bark, pine needles, and artificial turf, are prohibited between zero and five feet of a structure. Non-continuous use of flammable mulch (excluding wood chips and shredded rubber) is allowed between 5 and 30 feet from the eave/overhang of a structure with limited application areas. Any mulch materials

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(excluding wood chips and shredded rubber) are allowed 30 feet or more from a structure with no limitation on application area.

Fuel Modification

63. Prior to the issuance of final building permits, the project shall receive LACFD approval of a Final Fuel Modification Plan.

Public Works

64. The applicant shall obtain encroachment permits from the Public Works Department prior to the commencement of any work within the public right-of-way.

65. This project proposes to construct a new driveway within Caltrans' right-of-way. Prior to the Public Works Department approval of the grading or building permit, the applicant shall obtain encroachment permits from Caltrans for the proposed driveway.

66. The driveway shall be constructed of either six inches of concrete over four inches of aggregate base, or four inches of asphalt concrete over six inches of aggregate base. The driveway shall be flush with the existing grades with no curbs.

67. The applicant shall update and install a new curb and gutter on Pacific Coast Highway to accommodate the proposed drainage design. Prior to the Public Works Department approval of the grading or building permit, the applicant shall provide Caltrans approval for Pacific Coast Highway improvements and drainage design.

68. The applicant shall prepare a Traffic Impact Analysis (TIA) per the City of Malibu TIA Guidelines. The TIA shall be reviewed and approved by the Public Works Department prior to the issuance of the grading and or building permits. The applicant shall also be required to construct the applicable mitigation measures recommended in the TIA. The traffic mitigation measures shall be constructed prior to occupancy of the first building.

69. Prior to the commencement of work, the applicant shall submit a copy of a Construction Management Plan. The Construction Management Plan shall include a dedicated parking location for construction workers, not within the public right of way.

70. Prior to the approval of any grading and drainage permit, the applicant shall submit a PDF of the final plans. If there are further modifications to the plans, the applicant shall provide the City with an updated PDF.

71. Prior to the approval of the drainage plan, the applicant shall remove the existing CMP pipe onsite and install a new pipe to redirect water currently draining to the lot. The new pipe shall be designed in accordance with Caltrans and LA County Flood Standards. A video recording and images of the completed pipe shall be submitted to the City of Malibu

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Public Works Department. Applicant shall coordinate any easements required for the maintenance of the pipe with the appropriate agencies.

Grading/Drainage/Hydrology (Public Works)

72. The non-exempt grading for the project shall not exceed a total of 1,000 cubic yards, cut and fill.

73. The total grading yardage verification certificate shall be copied onto the cover sheet of the Grading Plan. No alternative formats or substitutes will be accepted.

74. A Water Quality Mitigation Plan (WQMP) is required for this project. The WQMP shall be supported by a hydrology and hydraulic study that identifies all areas contributory to the property and an analysis of the predevelopment and post development drainage on the site. The WQMP shall meet all the requirements of the City's current Municipal Separate Stormwater Sewer System (MS4) permit. The following elements shall be included within the WQMP:

    a. Site Design Best Management Practices (BMPs):
    b. Source Control BMPs;
    c. Treatment Control BMPs that retain on-site Stormwater Quality Design Volume (SWQDv). Or where it is technically infeasible to retain on-site, the project must biofitrate 1.5 times the SWQDv that is not retained on-site;
    d. Drainage improvements;
    e. A plan for the maintenance and monitoring of the proposed treatment BMPs for the expected life of the structure;
    f. Methods of onsite percolation, site re-vegetation and an analysis for off-site project impacts;
    g. Measures to treat and infiltrate runoff from impervious areas;
    h. A copy of the WQMP shall be filed against the property to provide constructive notice to future property owners of their obligation to maintain the water quality measure installed during construction prior to the issuance of grading or building permits; and
    i. The WQMP shall be submitted to the Public Works Department and the fee applicable at the time of submittal for review of the WQMP shall be paid prior to the start of the technical review. The WQMP shall be approved prior the Public Works Department's approval of the grading and drainage plan and/or building plans. The Public Works Department will tentatively approve the plan and will keep a copy until the completion of the project. Once the project is completed, the applicant shall verify the installation of the BMP's, make any revisions to the WQMP, and resubmit to the Public Works Department for approval. The original signed and notarized document shall be recorded with the Los Angeles County Recorder. A certified copy of the WQMP shall be submitted to the Public Works Department prior to the issuance of the certificate of occupancy.

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75. A grading and drainage plan containing the following information shall be approved and submitted to the Public Works Department prior to the issuance of grading permits for the project.

a. Public Works Department general notes;
b. The existing and proposed square footage of impervious coverage on the property shall be shown on the grading plan (including separate areas for buildings, driveways, walkways, parking, tennis courts and pool decks);
c. The limits of land to be disturbed during project development shall be delineated and a total area of disturbance should be shown on this plan. Areas disturbed by grading equipment, areas disturbed for the installation of the septic system, and areas disturbed for the installation of the detention system beyond the limits of grading shall be included within the area delineated;
d. The grading limits shall include the temporary cuts made for retaining walls, buttresses, and over excavations for fill slopes;
e. If the property contains rare, endangered, or special status species as identified in the Biological Assessment, this plan shall contain a prominent note identifying the areas to be protected (to be left undisturbed). Fencing of these areas shall be delineated on the grading plan if required by the City Biologist; and
f. Private storm drain systems shall be shown on this plan. Systems greater than 12-inch diameter shall also have a plan and profile for the system included with the grading plan.

76. A Local Storm Water Pollution Prevention Plan (LSWPPP) shall be provided prior to the issuance of the Grading/Building permits for the project. This plan shall include and Erosion and Sediment Control Plan (ESCP) that includes, but is not limited to:

Erosion Controls Scheduling	Erosion Controls Scheduling
	Preservation of Existing Vegetation
Sediment Controls	Silt Fence
	Sand Bag Barrier
	Stabilized Construction Entrance
Non-Storm Water Management	Water Conservation Practices
	Dewatering Operations
Waste Management	Material Delivery and Storage
	Stockpile Management
	Spill Prevention and Control
	Solid Waste Management
	Concrete Waste Management
	Sanitary/Septic Waste Management

All Best Management Practices (BMPs) shall be in accordance to the latest version of the California Stormwater Quality Association (CASQA) BMP Handbook. Designated areas

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for the storage of construction materials, solid waste management, and portable toilets must not disrupt drainage patterns or subject the material to erosion by site runoff.

77. Prior to the approval of any permits and prior to the applicant submitting the required Construction General Permit documents to the State Water Quality Control Board, the applicant shall submit to the Public Works Department for review and approval an Erosion and Sediment Control Plan (ESCP). The ESCP shall contain appropriate site-specific construction site BMPs and developed and certified by a Qualified SWPPP Developer (QWD). All structural BMPs must be designed by a licensed California Engineer. The ESCP must address the following elements:

    a. Methods to minimize the footprint of the disturbed area and to prevent soil compaction outside the disturbed area.
    b. Methods used to protect native vegetation and trees.
    c. Sediment/Erosion Control.
    d. Controls to prevent tracking on and off the site.
    e. Non-storm water controls.
    f. Material management (delivery and storage)
    g. Spill prevention and control.
    h. Waste management
    i. Identification of site Risk Level as identified per the requirements in Appendix 1 of the Construction General Permit.
    j. Landowner must sign the following statement on the ESCP:

        "I certify that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to ensure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system or those persons directly responsible for gathering the information, to the best of my knowledge and belief, the information submitted is true, accurate and complete. I am aware that submitting false and/or inaccurate information, failing to update the ESCP to reflect current conditions, or failing to properly and/or adequately implement the ESCP may result in revocation of grading and/or other permits or other sanctions provided by law."

78. Storm drainage improvements are required to mitigate increased runoff generated by property development. The applicant shall have the choice of one method specified within LIP Section 17.3.2.B.2.

79. A Storm Water Management Plan (SWMP) is required for this project. Storm drainage improvements are required to mitigate increased runoff generated by property development. The applicant shall have the choice of one method specified within the City's Local Implementation Plan Section 17.3.2.B.2. The SWMP shall be supported by a hydrology and hydraulic study that identifies all areas contributory to the property and an analysis of the pre-development and post-development drainage of the site. The SWMP

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shall identify the site design and source control Best Management Practices (BMPs) that have been implemented in the design of the project (See LIP Chapter 17 Appendix A). The SWMP shall be reviewed and approved by the Public Works Department prior to the issuance of the grading or building permit for this project.

80. Clearing and grading during the rainy season (extending from November 1 to March 31) shall be prohibited for development that:
    a. Is located within or adjacent to ESHA, or
    b. Includes grading on slopes greater than 4 to 1.

    Approved grading for development that is located within or adjacent to ESHA or on slopes greater than 4 to 1 shall not be undertaken unless there is sufficient time to complete grading operations before the rainy season. If grading operations are not completed before the rainy season begins, grading shall be halted and temporary erosion control measures shall be put into place to minimize erosion until grading resumes after March 31, unless the City determines that completion of grading would be more protective of resources.

81. The Building Official may approve grading during the rainy season to remediate hazardous geologic conditions that endanger public health and safety.

82. Exported soil from a site shall be taken to the Los Angeles County Landfill or to a site with an active grading permit and the ability to accept the material in compliance with LIP Section 8.3.

83. All cut and fill slopes shall be stabilized with landscaping at the completion of final grading.

Geology

84. All recommendations of the consulting certified engineering geologist or geotechnical engineer and/or the City geotechnical review consultants shall be incorporated into all final design and construction including foundations, grading, sewage disposal, and drainage. Final plans shall be reviewed and approved by the City geotechnical review consultants prior to the issuance of a grading permit.

85. Final plans approved by the City geotechnical review consultants shall be in substantial conformance with the approved CDP relative to construction, grading, sewage disposal and drainage. Any substantial changes may require a CDP amendment or a new CDP.

Swimming Pool/Spa/Water Features

86. Onsite noise, including that which emanates from swimming pool and air conditioning equipment, shall be limited as described in MMC Chapter 8.24 (Noise).

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87. Pool and air conditioning equipment that will be installed shall be screened from view by a solid wall or fence on all four sides. The fence or walls shall comply with LIP Section 3.5.3(A).

88. All swimming pools shall contain double walled construction with drains and leak detection systems capable of sensing a leak of the inner wall.

89. The discharge of swimming pool, spa and decorative fountain water and filter backwash, including water containing bacteria, detergents, wastes, algaecides or other chemicals is prohibited. Swimming pool, spa, and decorative fountain water may be used as landscape irrigation only if the following items are met:

    a. The discharge water is dechlorinated, debrominated or if the water is disinfected using ozonation;
    b. There are sufficient BMPs in place to prevent soil erosion; and
    c. The discharge does not reach into the MS4 or to the ASBS (including tributaries)

90. Discharges not meeting the above-mentioned methods must be trucked to a Publicly Owned Wastewater Treatment Works.

91. A sign stating "It is illegal to discharge pool, spa, or water feature waters to a street, drainage course, or storm drain per MMC Section 13.04.060(D)(5)" shall be posted in the filtration and/or pumping equipment area for the property. Prior to the issuance of any permits, the applicant shall indicate the method of disinfection and the method of discharging.

92. Pursuant to MMC Section 9.20.040(B), all ponds, decorative fountains shall require a water recirculating/recycling system.

Onsite Wastewater Treatment System (OWTS)

93. Prior to the issuance of a building permit the applicant shall demonstrate, to the satisfaction of the Building Official, compliance with the City of Malibu's onsite wastewater treatment regulations including provisions of MMC Chapters 15.40, 15.42, 15.44, and LIP Chapter 18 related to continued operation, maintenance and monitoring of the OWTS.

94. Final OWTS Plot Plan: Prior to final Environmental Health approval, a final OWTS plot plan prepared by a City Registered OWTS Designer shall be submitted showing an OWTS design meeting the minimum requirements of the MMC and the LCP, including necessary construction details, the proposed drainage plan for the developed property and the proposed landscape plan for the developed property. The OWTS plot plan shall show essential features of the OWTS and must fit onto an 11 inch by 17 inch sheet leaving a five inch margin clear to provide space for a City applied legend. If the scale of the plans is such that more space is needed to clearly show construction details and/or all necessary

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setbacks, larger sheets may also be provided (up to a maximum size of 18 inches by 22 inches).

95. Final OWTS Design Report, Plans, and System Specifications: If the OWTS design and/or bedroom/drainage fixture unit counts are modified in any way subsequent to the Planning-stage review, then a final OWTS design report and large set of construction drawings with system specifications (four sets) shall be submitted to describe the OWTS design basis and all components (i.e., alarm system, pumps, timers, flow equalization devices, backflow devices, etc.) proposed for use in the construction of the proposed OWTS. For all OWTS, final reports must be signed by a City registered OWTS Designer, and the plans stamped by a California Geologist. The final OWTS design report and construction drawings shall be submitted to the City Environmental Health Administrator with the designer's wet signature, professional registration number and stamp (if applicable).

96. The final design report shall contain the following information (in addition to the items listed above):

a. Required treatment capacity for wastewater treatment and disinfection systems. The treatment capacity shall be specified in terms of flow rate, gallons per day, and shall be supported by calculations relating the treatment capacity to the number of bedroom equivalents, plumbing drainage fixture equivalents, and the subsurface effluent dispersal system acceptance rate. The drainage fixture unit count must be clearly identified in association with the design treatment capacity, even if the design is based on the number of bedrooms. Average and peak rates of hydraulic loading to the treatment system shall be specified in the final design;
b. Sewage and effluent pump design calculations (as applicable);
c. Description of proposed wastewater treatment and/or disinfection system equipment. State the proposed type of treatment system(s) (e.g., aerobic treatment, textile filter ultraviolet disinfection, etc.); major components, manufacturers, and model numbers for "package" systems; and conceptual design for custom engineered systems;
d. Specifications, supporting geology information, and percolation test results for the subsurface effluent dispersal portion of the onsite wastewater disposal system. This must include the proposed type of effluent dispersal system (drainfield, trench, seepage pit subsurface drip, etc.) as well as the system's geometric dimensions and basic construction features. Supporting calculations shall be presented that relate the results of soils analysis or percolation/infiltration tests to the projected subsurface effluent acceptance rate, including any unit conversions or safety factors. Average and peak rates of hydraulic loading to the effluent dispersal system shall be specified in the final design. The projected subsurface effluent acceptance rate shall be reported in units of total gallons per day and gallons per square foot per day. Specifications for the subsurface effluent dispersal system shall be shown to accommodate the design hydraulic loading rate (i.e., average and peak OWTS effluent flow, reported in units of gallons per day). The subsurface effluent dispersal

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system design must take into account the number of bedrooms, fixture units and building occupancy characteristics; and

e. All final design drawings shall be submitted with the wet signature and typed name of the OWTS designer. If the scale of the plan is such that more space is needed to clearly show construction details, larger sheets may also be provided (up to a maximum size of 18 inch by 22 inch, for review by Environmental Health). Note: For OWTS final designs, full-size plans are required for review by the Building Safety Division and/or the Planning Division.

97. Existing OWTS to be Abandoned: Final plans shall clearly show the locations of all existing OWTS components (serving pre-existing development) to be abandoned and provide procedures for the OWTS' proper abandonment in conformance with the MMC.

98. Worker Safety Note and Abandonment of Existing OWTS: The following note shall be added to the plan drawings included with the OWTS final design: "Prior to commencing work to abandon, remove, or replace the existing Onsite Wastewater Treatment System (OWTS) components, an 'OWTS Abandonment Permit' shall be obtained from the City of Malibu. All work performed in the OWTS abandonment, removal or replacement area shall be performed in strict accordance with all applicable federal, state, and local environmental and occupational safety and health regulatory requirements. The obtainment of any such required permits or approvals for this scope of work shall be the responsibility of the applicant and their agents."

99. Proof of Ownership: Proof of ownership of subject property shall be submitted to the City Environmental Health Administrator.

100. Operations and Maintenance Manual: An operations and maintenance manual specified by the OWTS designer shall be submitted to the property owner and maintenance provider of the proposed OWTS.

101. Maintenance Contract: A maintenance contract executed between the owner of the subject property and an entity qualified in the opinion of the City of Malibu to maintain the proposed onsite wastewater disposal system after construction shall be submitted. Note only original "wet signature" documents are acceptable.

102. Advanced Onsite Wastewater Treatment System Covenant: Prior to final Environmental Health approval, a covenant running with the land shall be executed between the City of Malibu and the holder of the fee simple absolute as to subject real property and recorded with the Office of the Los Angeles County Recorder. Said covenant shall serve as constructive notice to any future purchaser for value that the onsite wastewater treatment system serving subject property is an advanced method of sewage disposal pursuant to the City of MMC. Said covenant shall be provided by the City of Malibu Environmental Health Administrator.

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103. A covenant running with the land shall be executed by the property owner and recorded with the Office of the Los Angeles County Recorder. Said covenant shall serve as constructive notice to any successors in interest that: 1) the private sewage disposal system serving the development on the property does not have a 100 percent expansion effluent dispersal area (i.e., replacement disposal field(s) or seepage pit(s)), and 2) if the primary effluent dispersal area fails to drain adequately, the City of Malibu may require remedial measures including, but not limited to, limitations on water use enforced through operating permit and/or repairs, upgrades or modifications to the private sewage disposal system. The recorded covenant shall state and acknowledge that future maintenance and/or repair of the private sewage disposal system may necessitate interruption in the use of the private sewage disposal system and, therefore, any building(s) served by the private sewage disposal system may become non-habitable during any required future maintenance and/or repair. Said covenant shall be in a form acceptable to the City Attorney and approved by the City Environmental Sustainability Department.

104. Project Geologist/Geotechnical Consultant final approval of the OWTS plan shall be submitted to the Environmental Health Administrator.

105. The City Biologist's final approval shall be submitted to the City Environmental Health Administrator. The City Biologist shall review the OWTS design to determine any impact on Environmentally Sensitive Habitat Area.

106. City of Malibu Public Works final approval of the OWTS plan shall be submitted to the Environmental Health Administrator.

107. The City geotechnical review consultants' final approval shall be submitted to the City Environmental Health Administrator.

108. City of Malibu Planning Division final approval of the OWTS plan shall be obtained.

109. Environmental Health Final Review Fee: A final fee in accordance with the adopted fee schedule at the time of the final approval shall be paid to the City of Malibu for Environmental Health review of the OWTS design and system specification.

110. Operating Permit Application and Fee: In accordance with the MMC, prior to Environmental Health approval, an application shall be made to the Environmental Health Office for an OWTS operating permit. An operating permit fee in accordance with the adopted fee schedule at the time of final approval shall be submitted with the application.

111. Prior to final Environmental Health approval, the construction plans for all structures and/or buildings with reduced setbacks must be approved by the City Building Safety Division. The architectural and/or structural plans submitted to Building and Safety plan check must detail methods of construction that will compensate for the reduction in setback (e.g., waterproofing, concrete additives, etc.). For complex waterproofing installations, submittal of a separate waterproofing plan may be required. The architectural/structural/

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waterproofing plans must show the location of OWTS components in relation to those structures from which the setback is reduced, and the plans must be signed and stamped by the architect, structural engineer, and geotechnical consultants (as applicable).

112. Prior to final Environmental Health approval, the applicant shall provide engineer's certification for reduction in setbacks to buildings or structures: All proposed reductions in setback from the OWTS to structures (i.e., setbacks less than those shown in MMC Table 15.42.030(E)) must be supported by a letter from the project structural engineer and a letter from the project soils engineer (i.e., a geotechnical engineer or civil engineer practicing in the area of soils engineering). Both engineers must certify unequivocally that the proposed reduction in setbacks from the treatment tank and effluent dispersal area will not adversely affect the structural integrity of the OWTS and will not adversely affect the structural integrity of the structures for which the Table 15.42.030(E) setback is reduced. Construction drawings submitted for plan check must show OWTS components in relation to those structures from which the setback is reduced. All proposed reductions in setback from the OWTS to buildings (i.e., setbacks less than those shown in Table 15.42.030(E)) also must be supported by a letter from the project architect, who must certify unequivocally that the proposed reduction in setbacks will not produce a moisture intrusion problem for the proposed building(s). If the building designer is not a California-licensed architect, then the required architect's certification may be supplied by an engineer who is responsible for the building design with respect to mitigation of potential moisture intrusion from reduced setbacks to the wastewater system. In this case, the engineer must include in his/her letter an explicit statement of responsibility for mitigation of potential moisture intrusion. If any specific construction features are proposed as part of a moisture intrusion mitigation system in connection with the reduced setback, then the architect or engineer must provide associated construction documents for review and approval during Building Safety Division plan check. The wastewater plans and the construction plans must be specifically referenced in all certification letters.

113. Reference Plans: Reference architectural and grading/drainage plans shall be submitted to Environmental Health during building plan check review of the proposed OWTS. The approved plans are for 121 fixture units, 6 bedrooms and one master bedroom, and a design flow of 1,050 GPD.

114. Any above-ground equipment associated with the installation of the OWTS shall be screened from view by a solid wall or fence on all four sides. The fence or walls shall not be higher than 42-inches tall.

Water Quality/Water Service

115. A State Construction Activity Permit is required for this project due to the disturbance of more than one acre of land for development. Provide a copy of the letter from the State Water Quality Control Board containing the Waste Discharge Identification (WDID) number prior to the issuance of grading or building permits.

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116. Prior to the issuance of a building permit, the applicant shall submit an updated Will Serve Letter from Los Angeles County Waterworks District No. 29 to the Planning Division indicating the ability of the property to receive adequate water service.

117. Prior to final inspection (or project sign off, as applicable) by the Planning Division, the applicant shall demonstrate that all requirements of Los Angeles County Waterworks District No. 29 have been met, including installation of a meter, if applicable.

118. For projects including installation of a private water well, prior to final inspection (or project sign, as applicable) by the Building Safety Division, the applicant shall demonstrate that all requirements of Los Angeles County Waterworks District No. 29 have been met, including installation of a backflow prevention device.

Prior to Occupancy

119. Prior to, or at the time of a Planning Division final inspection, the property owner/applicant shall submit to Planning the plumbing permit for the OWTS signed off by the Building Safety Division.

120. Prior to the issuance of a Certificate of Occupancy, the City Biologist shall inspect the project site and determine that all Planning conditions to protect natural resources are in compliance with the approved plans.

121. Prior to a final Building inspection, the applicant shall provide a Recycling Summary Report (Summary Report) and obtain the approval from the Environmental Sustainability Department. Applicant must provide haul tickets and diversion information. The final Summary Report shall designate the specific materials that were land filled or recycled, and state the facilities where all materials were taken.

122. The applicant shall request a final Planning inspection prior to final inspection by the City of Malibu Building Safety Division. A Certificate of Occupancy shall not be issued until the Planning Division has determined that the project complies with this coastal development permit. A temporary Certificate of Occupancy may be granted at the discretion of the Community Development Director, provided adequate security has been deposited with the City to ensure compliance should the final work not be completed in accordance with this permit.

123. Any construction trailer, storage equipment or similar temporary equipment not permitted as part of the approved scope of work shall be removed prior to final inspection and approval, and if applicable, the issuance of the certificate of occupancy.

Fixed Conditions

124. This coastal development permit shall run with the land and bind all future owners of the property.

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125. Violation of any of the conditions of this approval may be cause for revocation of this permit and termination of all rights granted there under.

Deed Restrictions

126. The property owner is required to execute and record a deed restriction which shall indemnify and hold harmless the City, its officers, agents, and employees against any and all claims, demands, damages, costs and expenses of liability arising out of the acquisition, design, construction, operation, maintenance, existence or failure of the permitted project in an area where an extraordinary potential for damage or destruction from wildfire exists as an inherent risk to life and property. The property owner shall provide a copy of the recorded document to Planning staff prior to final planning approval.

127. The property owner is required to acknowledge, by recordation of a deed restriction, that as part of the project no more than one secondary residential unit is permitted to exist on the subject property. Said document shall include the definitions of a second unit and guest house as defined by the LIP Section 2.1 and shall be recorded with the Office of the Los Angeles County Recorder. The applicant shall submit a copy of the recorded document to the Planning Division.

128. Prior to final Planning approval, the applicant shall be required to execute and record a deed restriction reflecting lighting requirements set forth in Condition Nos. 14-22. The property owner shall provide a copy of the recorded document to the Planning Division prior to final Planning approval.

129. The garage area shall be limited to accessory use as defined by the City of Malibu Local Coastal Plan. The garage area cannot be converted into habitable space at any time in the future. Prior to issuance of building permits, the applicant is required to execute and record a deed restriction to this effect.

130. The applicant shall execute and record any easements required for the use and maintenance of the new drainage pipe onsite with any relevant agencies. The property owner shall provide a copy of the recorded document to the Community Development Department prior to final Planning approval and issuance of a Building Permit.

131. The property owner is required to execute and record a deed restriction stating that as part of the project, a view corridor of 31 percent of the site width shall be established and maintained, as stipulated in Condition No. 37. The terms of Condition No. 37 shall be specifically identified in the deed restriction. The property owner shall provide a copy of the recorded document to Planning staff prior to final planning approval.

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SECTION 6. The Planning Commission shall certify the adoption of this resolution.

PASSED, APPROVED AND ADOPTED this 18th day of August 2025.

DREW LEONARD, Planning Commission Chair

ATTEST:

REBECCA EVANS, Recording Secretary

LOCAL APPEAL - Pursuant to Local Coastal Program Local Implementation Plan (LIP) Section 13.20.1 (Local Appeals) a decision made by the Planning Commission may be appealed to the City Council by an aggrieved person by written statement setting forth the grounds for appeal. An appeal shall be filed with the City Clerk within 10 days and shall be accompanied by an appeal form and filing fee, as specified by the City Council. Appeal forms may be found online at www.malibucity.org, in person at City Hall, or by calling (310) 456-2489, ext. 246.

COASTAL COMMISSION APPEAL – An aggrieved person may appeal the Planning Commission's approval to the Coastal Commission within 10 working days of the issuance of the City's Notice of Final Action. Appeal forms may be found online at www.coastal.ca.gov or by calling (805) 585-1800. Such an appeal must be filed with the Coastal Commission, not the City.

Any action challenging the final decision of the City made as a result of the public hearing on this application must be filed within the time limits set forth in Section 1.12.010 of the MMC and Code of Civil Procedure. Any person wishing to challenge the above action in Superior Court may be limited to raising only those issues they or someone else raised at the public hearing, or in written correspondence delivered to the City of Malibu at or prior to the public hearing.

I CERTIFY THAT THE FOREGOING RESOLUTION NO. 25-05 was passed and adopted by the Planning Commission of the City of Malibu at the Regular meeting held on the 18th day of August 2025 by the following vote:

AYES:
NOES:
ABSTAIN:
ABSENT:

REBECCA EVANS, Recording Secretary

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Commission Agenda Report

Planning Commission Meeting
07-21-25
Item 5.A.

To: Chair Leonard and Members of the Planning Commission

Prepared by: Allison Cook, AICP, Contract Planner

Reviewed by: Raneika Brooks, AICP, Principal Planner

Approved by: Yolanda Bundy, PE, MS, CBO, CBFO, Community Development Director

Date prepared: July 10, 2025 Meeting date: July 21, 2025

Subject: Coastal Development Permit No. 19-012, Lot Merger No. 24-002, and Conditional Certificate of Compliance No. 21-004 – An application for a new one-story single-family residence and associated development; including a conditional certificate of compliance to recognize an illegally created lot consisting of two parcels and a lot merger to consolidate two parcels into one

Location: 25200 Pacific Coast Highway, within the appealable coastal zone
APNs: 4459-013-021 and 4459-014-018
Owner: PAR PCH, LLC

RECOMMENDED ACTION: Adopt Planning Commission Resolution No. 25-05 (Attachment 1) determining the project is categorically exempt from the California Environmental Quality Act (CEQA), and approving Coastal Development Permit (CDP) No. 19-012 to construct a new 9,219 square-foot, one-story, single-family residence, including a 1,000 square-foot subterranean two-car garage, 1,523 square-foot basement, 676 square-foot gym, detached 465 square-foot guest house, swimming pools, spa, driveways, decks, landscape, water features, hardscape, grading, retaining walls, and onsite wastewater treatment system (OWTS), including Conditional Certificate of Compliance (COC) No. 21-004 to recognize an illegally created lot consisting of two Assessor Parcel Numbers (APNs) (4459-013-021 and 4459-014-018), and Lot Merger (LM) No. 24-002 to consolidate two existing parcels into one, located in the Rural Residential, Two-Acre (RR-2) Zoning District at 25200 Pacific Coast Highway (PAR PCH, LLC).

DISCUSSION:

The project was originally scheduled for consideration by the Planning Commission at its May 20, 2024 Regular meeting. After story poles were installed at the project site and the public hearing notice was published for the proposed project, several concerns were raised by members of the community related to bluewater view impacts and the potential for outdoor lighting. Before the staff report was published for the proposed project, Planning staff requested the item be continued to a date uncertain to allow time to work with the applicant to address the concerns raised. In the subsequent months, staff worked with the applicant, which resulted in project modifications to the building and wall heights. The revised plans have been included as Attachment 2.

This agenda report provides a project overview, summary of surrounding land uses and project setting, the specific project scope of work, staff's analysis of the project's consistency with applicable Malibu Local Coastal Program (LCP) and Malibu Municipal Code (MMC) provisions, and environmental review pursuant to CEQA. The analysis and findings contained herein demonstrate the project is consistent with the LCP and MMC.

Project Overview

The vacant project site is 6.36 acres in size and is located at the top of a terraced slope on the south side of the Pacific Coast Highway (PCH), north and east of Bayshore Drive, north of Malibu Road, and west of Puerco Canyon Road (see Figure 1). The site consists of two parcels (APNs 4459-013-021 and 4459-014-018) which would be merged as part of this application.

Approximately two-thirds of the site contains slopes flatter than 4 to 1, with a jurisdictional drainage with slopes ranging from 2.5 to 1 to 1 to 1 located in the northeast area of the site. An earthen berm constructed by Caltrans is located along most of the north side of the site bordering PCH. South of the proposed development area are slopes with a gradient of 1 to 1 or less. The property is a narrow, irregularly shaped lot with 1,692 feet of linear frontage along PCH.

The LCP Environmentally Sensitive Habitat Area (ESHA) Overlay Map delineates a blueline stream that is a jurisdictional drainage along the eastern property line. The site-specific biological assessment prepared by Chambers Group, Inc., dated July 11, 2019, confirmed most of the vegetation on the site has been disturbed, except for the jurisdictional drainage east of the proposed development area. Because the proposed development, including the fuel modification area, is located outside the ESHA and 100-foot ESHA buffer, the ESHA development standards provided in LCP Local Implementation Plan (LIP) Section 4.6 do not apply.

Figure 1 – Project Area Aerial



Source: City GIS, 2025

The project consists of the construction of a one-story, single-family residence with a gym and detached guest house and associated development. Pursuant to LIP Section 6.2, the policies, standards and provisions of the Scenic, Visual, and Hillside Resource Protection Ordinance apply because the site is located along PCH, an LCP-designated scenic highway. In accordance with LIP Section 6.5(B), the project has been designed under 18 feet in height to maximize the protection of scenic views of the ocean. Since the residence, gym, and guest house would project above the road grade of PCH, the eastern portion of the site (containing ESHA, the 100-foot ESHA buffer, and drainage) would be designated as an ocean view corridor. The applicant has requested a Lot Merger (LM) to consolidate two existing parcels into one, and a Conditional Certificate of Compliance (COC) to recognize an illegally created lot and lot split between the two parcels that make up the site.

The project previously included a Variance for construction of retaining walls in excess of six feet in height to accommodate the Fire Department required fire lane north of and parallel to the proposed residence. An alternative was created and has since been incorporated into the plans that avoids the Variance by realigning the driveway closer to the residence, resulting in compliant retaining walls. Additionally, the project previously

proposed a maximum 18-foot-tall main residence, a guest house of a maximum height of 15 feet, eight inches, a gym of 12 feet in height maximum, and solid (visually impermeable) freestanding walls outside of the front yard setback of up to 12 feet high. A Site Plan Review was requested for the freestanding walls to exceed the maximum allowed six feet. In April 2024, story poles were installed on the site to reflect these heights. The applicant has since reconsidered these heights. The maximum height of the main house has been reduced to 17 feet, 7 inches, the guest house has been reduced to a maximum height of 10 feet by lowering the roof height and lowering the finished floor elevation. The gym height has been maintained at 12 feet maximum. The maximum height of the solid freestanding walls is now six feet. Therefore, a Site Plan Review for the freestanding walls is no longer requested. The story poles initially installed on-site have been changed to reflect these new heights of the main residence, solid freestanding walls, and guest house, with the updated story poles installed in May 2025. Attachment 3 contains photos of the current story poles on-site, including views from two Primary View Determinations (PVDs) in the vicinity of the project site.

The City land survey consultant reviewers reviewed a full title history and relevant code requirements related to whether the parcels were created in compliance with State law and local ordinance. The review concluded that the two parcels make a single lot and, at the time of its creation, the subject lot was not consistent with the Subdivision Map Act and Los Angeles County subdivision ordinance. Pursuant to LIP Section 15.3(A), a COC is processed with a CDP to recognize a non-compliant lot. The COC is required to comply with all policies and standards of the LCP, including the requirements of LIP Section 15.2. The requested LM will create a single parcel for the project and is predicated on approval of the COC.

Surrounding Land Uses and Project Setting

The property is in an area primarily developed with one-story and two-story single-family residences and zoned RR-2. The property is bordered on the south, west and east by single-family residences, and to the north by PCH, beyond which are public open space to the north and single-family residences to the northeast. A small segment of the property on the south is adjacent to Malibu Road. Table 1 provides a summary of the neighboring surrounding land uses.

Table 1 – Surrounding Land Uses

Direction	Address/ Parcel No.	Size (Acre)	Zoning	Land Use
North	4459-014-018	32.91	POS***	Vacant/Public Open Space
	3775 Puerco Canyon Road	6.62	RR-5*	SFR**
East	25142 PCH	1.74	RR-5	SFR
	4458-015-023	0.75	RR-2****	Vacant
	25225 Malibu Road	0.85	RR-2	SFR

Table 1 – Surrounding Land Uses				
Direction	**Address/ Parcel No.**	**Size (Acre)**	**Zoning**	**Land Use**
West	25439 Malibu Road	0.51	RR-2	SFR
	25447 Malibu Road	0.39	RR-2	SFR
	25253 Malibu Road	0.25	RR-2	SFR
	4459-013-011	0.77	RR-2	Vacant
South	25429 Malibu Road	0.27	RR-2	SFR
	25423 Malibu Road	0.24	RR-2	SFR
	25411 Malibu Road	0.77	RR-2	SFR
	25377 Malibu Road	0.77	RR-2	SFR
	4459-014-009	0.27	RR-2	Vacant
	4459-014-023	0.53	RR-2	Vacant
	4459-014-005	0.29	RR-2	Vacant
	25331 Malibu Road	0.44	RR-2	SFR
	25325 Malibu Road	0.42	RR-2	SFR
	25321 Malibu Road	0.4	RR-2	SFR
	25315 Malibu Road	0.37	RR-2	SFR
	4459-013-001	0.39	RR-2	Vacant
	25307 Malibu Road	0.4	RR-2	SFR
	25301 Malibu Road	0.42	RR-2	SFR
	4459-013-004	0.44	RR-2	Vacant
	25265 Malibu Road	0.47	RR-2	SFR

*RR-5 = Rural Residential – Five Acres
**** RR-2 = Rural Residential – Two Acres
**SFR = Single-Family Residence
*** POS = Public Open Space

The project site is within the Appeal Jurisdiction of the California Coastal Commission (CCC) as depicted on the Post-LCP Certification Permit and Appeal Jurisdiction Map. The project site has no trails on or adjacent to it according to the LCP Park Lands Map. Table 2 provides a summary of the lot dimensions and lot area of the subject parcel.

Table 2 – Property Data	
Lot Depth	194 feet, 3 inches
Lot Width	577 feet, 3 inches
Gross Lot Area	277,313 square feet (6.36 acres)
Area Comprised of 1:1 Slopes	2,856 square feet
Area Comprised of Easements (road)	8,420 square feet
Net Lot Area*	266,037 square feet (6.10 acre)

*Net Lot Area=Gross Lot Area minus the area of public or private future street easements and 1:1 slopes.

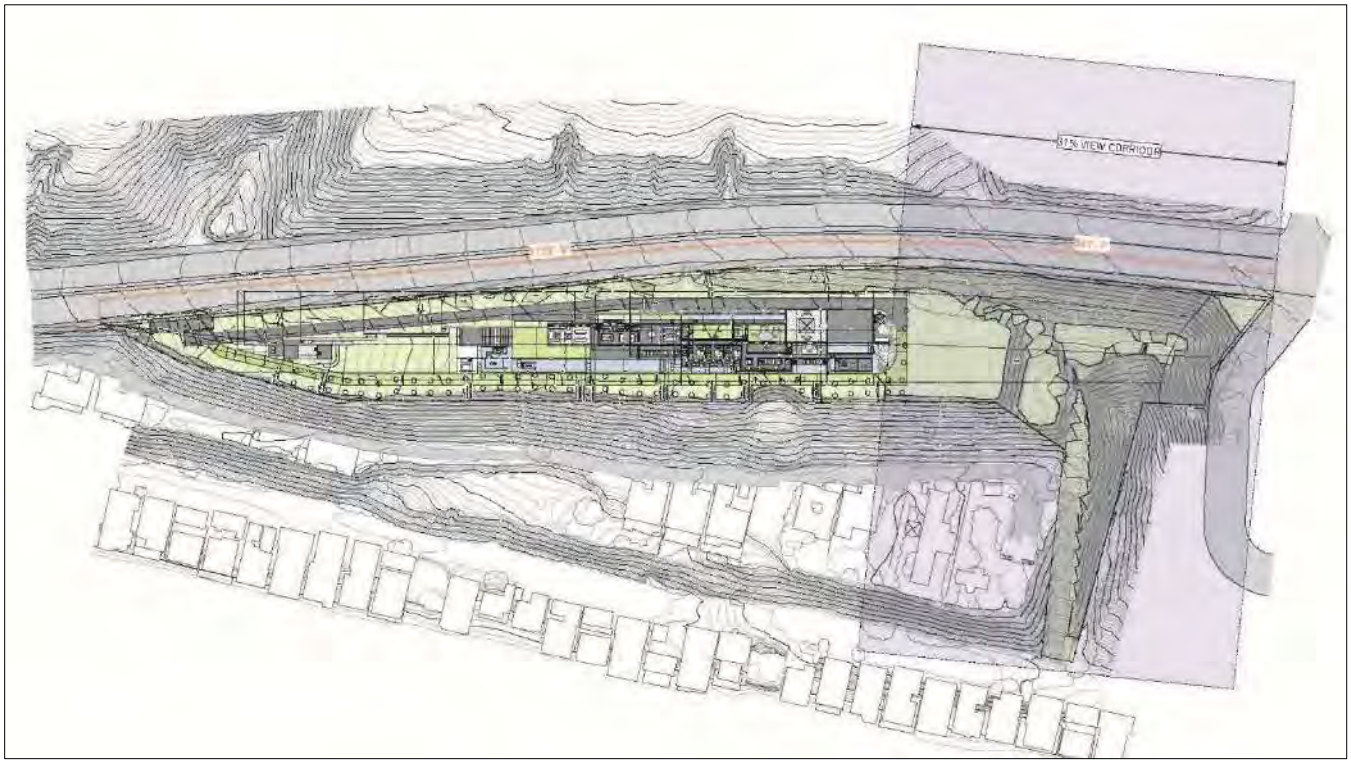
Project Description

As illustrated in Figure 2 below, the project is a series of one-story flat-roofed buildings and active outdoor spaces, framed by a permeable driveway along the northern border of the site, parallel to PCH, that leads to a subterranean garage and outdoor parking area on the east end of the site, and a southern grasscrete fire access driveway connecting with the northern driveway on the east. Both driveways would provide fire access. A 10-foot-high guest house is proposed at the western end of the site. Proposed at the far east of the development area is the main residence with a maximum height of 17 feet, seven inches. Proposed between these two buildings is a 12-foot-high gym building and two freestanding solid walls up to six feet in height. The eastern portion of the site would remain undeveloped open space. It would consist of the view corridor and the ESHA and ESHA buffer areas with existing native vegetation and the jurisdictional drainage.

Landscaping, including trees, is proposed throughout the site and the northerly property frontage near PCH is proposed to be lined with trees. No outdoor lighting is currently proposed for the project. Retaining walls are proposed along both of the driveways. Most retaining walls are under three feet in height, with those along the northern driveway near the center of the site up to six feet in height. The site would be accessed by a gated entrance at PCH. Fencing up to 42 inches in height and of 90 percent transparent material is proposed along the northern site border to delineate the property.

Only the upper portions of the building walls and roofs would be visible from PCH, a scenic road, with most of the development set below the roadway grade and Caltrans earthen berms. While some portions of these buildings would not be visible from PCH and bluewater views would remain, certain segments of these buildings would block bluewater views from PCH. The height of the buildings above the existing PCH grade or Caltrans berm (and so visible from PCH) varies widely, reaching a maximum of eight feet and five inches for the main residence, two feet and seven inches for the gym, and four feet and five inches for the guest house. The freestanding walls would not be visible from the PCH grade. The retaining walls, at a maximum of six feet tall, and given their specific locations, would not block bluewater views from PCH (Attachment 2 - Project Plans). Additionally, the project includes a view corridor of 31 percent of the width of the site (approximately 543 linear feet) on the eastern side of the property, consistent with LIP Section 6.5(E)(2). The view corridor would exclude any structures.

Figure 2 –Proposed Site Plan



Source: Project Plans

The proposed scope of work is as follows:

a. 9,219 square-foot, one-story, single-family residence, and a 1,000 square-foot subterranean two-car garage and 1,523 square-foot basement;
b. Detached 676 square-foot gym;
c. Detached 465 square-foot guest house;
d. Swimming pools and spa;
e. OWTS, including a 1,500-gallon septic tank;
f. New landscaping and hardscape, including permeable driveways;
g. Perimeter fencing not to exceed 42 inches in height along the north property line and an entry gate;
h. Retaining walls up to six feet in height; and
i. Solid freestanding walls up to six feet in height.

Discretionary requests:

a. COC No. 21-004 to recognize an illegally created lot and lot split consisting of APNs 4459-013-021 and 4459-014-018; and
b. LM No. 24-002 to consolidate the two existing parcels into one.

LCP Analysis

The LCP consists of the Land Use Plan (LUP) and LIP. The LUP contains programs and policies implementing the Coastal Act in Malibu. The LIP carries out the LUP policies and contains specific requirements to which every project requiring a coastal development permit must adhere.

There are 14 LIP chapters that potentially apply depending on the nature and location of the proposed project. Of these, five are for conformance review only and contain no findings: 1) Zoning, 2) Grading, 3) Archaeological/Cultural Resources, 4) Water Quality, and 5) OWTS. These chapters are discussed in the *LIP Conformance Analysis* section.

The nine remaining LIP chapters do contain required findings: 1) Coastal Development Permit; 2) ESHA; 3) Native Tree Protection; 4) Scenic, Visual and Hillside Resource Protection; 5) Transfer of Development Credits; 6) Hazards; 7) Shoreline and Bluff Development; 8) Public Access; and 9) Land Division.

For the reasons described in this report, only the following chapters and associated findings are applicable to the project[1]: Coastal Development Permit; Scenic, Visual and Hillside Resource Protection; Transfer of Development Credits; Hazards; and Land Division. These chapters are discussed in the *LIP Findings* section of this report. Additionally, the proposed project is subject to the Landscape Water Conservation Ordinance (MMC Chapter 17.53), as the project is proposing a new landscape area of two thousand five hundred (2,500) square feet or more.

LIP Conformance Analysis

The Planning Division, City Biologist, City Environmental Health Administrator, City Public Works Department, City geotechnical review consultants, Los Angeles County Waterworks District No. 29 (WD29), and the Los Angeles County Fire Department (LACFD) reviewed the proposed project (Attachment 4 – Department Review Sheets). These specialists found the proposed project consistent with all applicable LCP codes, standards, goals and policies.

Zoning (LIP Chapter 3)

The project is subject to development and design standards set forth in LIP Sections 3.5 and 3.6. Table 3 below provides a summary of the standards and whether the project complies. The table shows that the proposed project meets all the standards.

[1] The ESHA, Native Tree Protection, Shoreline and Bluff Development, and Public Access findings are neither applicable nor required for the proposed project.

Table 3 – Zoning Conformance			
Development Requirement	**Allowed/ Required**	**Proposed**	**Comments**
SETBACKS (ft.)			
Front Yard	38 ft., 10 in. (min.)	53 ft., 8 in.	Complies
Rear Yard	29 ft., 2 in. (min.)	37 ft., 1 in.	Complies
Side Yard (Minimum 10%) East	57 ft., 7 in. (min.)	462 ft., 8 in.	Complies
Side Yard (Minimum 10%) West	57 ft., 7 in. (min.)	264 ft., 1 in.	Complies
Total Side Yard (Cumulative 25%)	144 ft. (min.)	726 ft., 8 in.	Complies
PARKING SPACE			
Enclosed (10 ft. x 18 ft.)	2 (min.)	2	Complies
Unenclosed (10 ft. x 18 ft.)	2 (min.)	11	Complies
Total Development Square Footage (TDSF) (sq. ft.)			
TDSF	11,172 (max.)	11,121[2] sq. ft.	Complies
Single-Family Residence		9,218.50 sq. ft.	
Subterranean Garage/Basement		761.65[3] sq. ft.	
Gym		675.83 sq. ft.	
Guest House	900 sq. ft.	465 sq. ft.	Complies
HEIGHT (ft.)			
Single-Family Residence	18 (max.)	17 ft., 7 in.	Complies
Guest House	18 (max.)	10 ft.	Complies
Gym	18 (max.)	12 ft.	Complies
IMPERMEABLE COVERAGE (sq. ft.)	25,000 (max.)	21,294	Complies
NON-EXEMPT GRADING (cu. yd.)	1,000 (max.)	674	Complies
CONSTRUCTION ON SLOPES	3:1 and flatter (max.)	3 to 1 and flatter	Complies
FENCES/WALLS/HEDGES			
Retaining Walls	6 ft. high (max.), 12 ft. high, cumulative	Up to 6 ft. high max, no cumulative	Complies
Front Yard (Permeable)	6 ft. high (max.)	42 in. high	Complies

[2] This square footage does not include the first 1,000 square feet of basement pursuant to LIP Section 3.6(K)(3) which states "The initial one thousand (1,000) square feet of a basement shall not count toward TDSF."
[3] Pursuant to LIP Section 3.6(K)(3), one-half of the additional basement area in excess of 1,000 square feet shall be included in the calculation of TDSF. Accordingly, 761.65 square feet of basement area are included in the total proposed TDSF.

Section 3.5.3(A) of the LIP provides standards for hedges, fences, and walls. Pursuant to LIP Sections 3.5.3(A)(4) and (10), retaining walls may not exceed six feet in height for any one wall, and fences within required yards shall be visually permeable unless non-permeable fences are approved as part of a Site Plan Review. Note that neither the LIP nor MMC specifically address the maximum height allowed for a solid wall not within required yards. Based on Sections 3.5.3(A)(4) and (10), staff understands that the maximum height of the proposed freestanding solid walls outside the front yard setback should not exceed six feet.

The proposed subterranean garage and basement are consistent with the requirements for subterranean garages and basements specified in LIP Sections 3.6(K)(3) and (4). The initial 1,000 square feet of the subterranean garage and basement are not counted toward the Total Development Square Footage (TDSF). The additional area in excess of 1,000 square feet is included in the calculation of TDSF at a ratio of one square foot for every two square feet proposed. The subterranean garage is one, 10-foot-high floor level (maximum allowed 12 feet) and is located beneath the first-floor footprint above. No portion of the basement or subterranean garage wall is daylighting, except for an allowed 30-foot-wide opening for garage vehicular ingress and egress (maximum allowed 36 feet).

Grading (LIP Chapter 8)

LIP Section 8.3 ensures that new development minimizes the visual resource impacts of grading and landform alteration by restricting the amount of non-exempt grading to a maximum of 1,000 cubic yards for a residential parcel. As shown in the Total Grading Yardage Verification Certificate table below and on Sheet 1 Cover Sheet of the civil plan set, the total amount of proposed non-exempt grading is 979 cubic yards, which is less than the maximum allowed. The total amount of grading is 6,688 cubic yards. This includes the 979 cubic yards of non-exempt, 3,284 cubic yards of exempt understructure, and 2,425 cubic yards of exempt safety grading. The project complies with the grading requirements set forth under LIP Section 8.3.

Table 4 - Total Grading Yardage						
	Exempt			***Non-Exempt***	***Remedial***	**Total**
	R&R	*Understructure*	*Safety*			
Cut	0	2,608	2,063	306	0	4,977
Fill	0	676	362	673	0	1,711
Total	0	3,284	2,425	979	0	6,688
Import	0	0	0	367	0	0
Export	0	1,932	1,701	0	0	3,266

All quantities indicated shall be in cubic yards only.
R&R = Removal and Recompaction – R&R must be balanced.
Safety Grading is required grading for L.A. County Fire Department access approval beyond the fifteen foot minimum access and may include turnouts, hammerheads, turnarounds, and access roadway widening.
Remedial Grading is grading recommended by a full site geotechnical or soils report prepared by a licensed geologist or soils engineer which is necessary to correct physical deficiencies on the site for the construction of a primary residential structure or access to the lot.

Archaeological / Cultural Resources (LIP Chapter 11)

LIP Chapter 11 requires that certain procedures be followed to determine potential impacts on archaeological resources. A Phase I Archaeological Survey was prepared by Compass Rose for the subject property in March 2002. No indication of prehistoric or historic archaeological resources was yielded in the project area. Staff determined that any proposed improvements within the project area will have no adverse impact on known cultural resources. To ensure no adverse impact, a condition of approval is added to the project stating that in the event that potentially important cultural resources are found in the course of geologic testing or during construction, work shall immediately cease until a qualified archaeologist can provide an evaluation of the nature and significance of the resources, and until the Community Development Director can review this information.

Water Quality (LIP Chapter 17)

The City Public Works Department reviewed and approved the project for conformance to LIP Chapter 17 requirements for water quality protection. Standard conditions of approval are added to the project, such as implementation of approved storm water management plans during construction activities and management of runoff from the development, including recordation of a water quality mitigation plan, and best management practices. With the implementation of these conditions, the project would conform to the water quality protection standards of LIP Chapter 17.

Wastewater Treatment System Standards (LIP Chapter 18)

LIP Chapter 18 addresses OWTS. LIP Section 18.7 includes specific siting, design, and performance requirements. The project includes an OWTS to serve the proposed development, which has been reviewed by the City Environmental Health Administrator. The system details are included in the Environmental Health approved plot plan in Attachment 4 and were found to meet the minimum requirements of the MMC and the LCP. The proposed OWTS will meet all applicable requirements and operating permits will be required. An operation and maintenance contract and recorded covenant covering such must comply with City of Malibu Environmental Health requirements. Required conditions of approval would ensure continued operation, maintenance, and monitoring of onsite facilities.

LIP Findings

A. Coastal Development Permit (LIP Chapter 13)

Local Implementation Plan (LIP) Section 13.9 requires that the following four findings be made for all coastal development permits.

Finding 1. That the project as described in the application and accompanying materials, as modified by any conditions of approval, conforms with the certified City of Malibu Local Coastal Program.

The project is located in the RR-2 residential zoning district, an area designated for residential uses, including single-family residences. The Planning Division, City Biologist, City Environmental Health Administrator, City Public Works Department, City geotechnical consultant reviewers, WD29, and LACFD reviewed the project for conformance with the LCP. As discussed herein, based on submitted reports, project plans, visual analysis and site investigation, the project could be found to conform to the LCP in that it meets all applicable residential development standards. Conditions of approval are required to ensure it conforms to the LCP.

The project complies with all applicable requirements of State and local law. Construction of the proposed improvements would comply with all building code requirements and would incorporate all recommendations from applicable City agencies and project consultants. Conditions of approval are required to comply with any relevant approvals, permits and licenses from the City of Malibu and other related agencies, such as the LACFD.

Finding 2. If the project is located between the first public road and the sea, that the project is in conformity to the public access and recreation policies of Chapter 3 of the Coastal Act of 1976 (commencing with Sections 30200 of the Public Resources Code).

The project is not located between the first public road and the ocean. In addition, the subject property does not contain any trails as depicted on the LCP Park Lands Map. Therefore, this finding is not applicable.

Finding 3. The project is the least environmentally damaging alternative.

The following alternatives to the project were considered to determine the least environmentally damaging feasible alternative:

Alternate Project- The project was originally contemplated as a two-story residence. However, due to the visual impacts from PCH, the applicant revised the plan to lower the building height to a maximum of 18 feet and one story. The guest house was also reduced from 15 feet and eight inches to 12 feet and eight inches. After the initial installation of story poles in April 2024, the applicant further reduced the main residence maximum height to 17 feet, seven inches and the maximum guest house height to 10 feet. The applicant is also proposing building pads to be set on average about one foot further below the site's current grade to minimize view impacts from PCH, and for the pads to be gradually stepped into the western slope of the site to reduce their visual profile.

To eliminate all obstructions to bluewater views, the buildings would need to be a height that is below that of the adjacent roadway and berms (the buildings would need to be below three to seven feet in most areas, although the proposed main residence height of 17 feet, seven inches would be acceptable at the eastern end of the development area, where there is up to a 21-foot difference between the development surface and the roadway/berm grade). The tallest building, the main residence, is located on the eastern side of the development area, where the elevation difference between the pad and roadway berms is highest.

Substantial earthwork would need to occur to lower the current grade several more feet to set the buildings completely below PCH and/or the berms. The resulting amount of grading would likely exceed the maximum allowed 1,000 cubic yards for non-exempt grading. In addition, further retaining walls would likely be necessary to create the building pad, given the surrounding slopes.

There are no other feasible locations on the property to accommodate the proposed development that would avoid scenic and visual impacts to bluewater views. The property is long and narrow, except for the portion on the east end within the ESHA, ESHA buffer, and drainage. The applicant considered congregating all buildings in the eastern portion of the building area, where the PCH grade and/or berms provide the most screening to the development. However, because the site is narrow, locating all development in this area is infeasible due to available site area. Locating development in the eastern portion of the property, which is wider, would necessitate developing in the ESHA, ESHA buffer, and drainage area, grading of steep slopes (over 30 percent slope), and shifting fuel modification zones off-site.

The applicant has revised the original plans to reduce the maximum retaining wall height from eight feet to six feet, thereby no longer requiring a Variance for exceeding the maximum allowed six-foot-height. To accomplish this, the applicant shifted the driveway parallel to the north side of the main residence closer to the building.

A substantial portion of the development consists of outdoor recreation and gathering spaces, such as an outdoor kitchen, garden rooms, pools and other water features, warranting privacy and roadway noise minimization. Due to the narrow shape of the property with a long roadway frontage and the need for vehicle fire access driveways around the development that reduce available area for buildings, the development cannot feasibly be set back further from the roadway to minimize the privacy and noise concerns. The applicant proposed walls as the most effective solution for privacy and noise reduction, given the site's topographic and shape constraints. Two solid, freestanding walls outside of the front yard setback and along the northern portion of the development site were originally proposed at a maximum 12 feet in height to provide privacy and noise attenuation to the residence from PCH. A Site Plan Review (SPR) was requested since the solid walls would exceed the maximum heights allowed by the LIP. LIP Sections 3.5.3(A)(10) and 13.27.1(A)(3) require freestanding fences and walls over six feet in height outside required setbacks to be visually permeable unless an SPR is approved for non-visually permeable fences or walls. A wall with some transparent features, a transparent fence, or vegetation screening options would not be as effective for privacy and/or noise protection purposes. Nonetheless, the applicant revised the originally proposed walls in some segments to be reduced by six inches and replaced the upper four feet of the wall with glass, allowing for visual permeability, in certain locations where privacy concerns are not as critical. The applicant has since reconsidered the wall height and glass portion and is now proposing two freestanding solid walls of a maximum six feet high. This height is consistent with the LIP requirements, and an SPR is no longer being requested.

The proposed TDSF is 11,120.98 square feet, which is consistent with the maximum allowed 11,172 square feet per the LIP. The site is approximately six acres, and the 11,120.98 square-foot development is proposed as a series of one-story buildings. Reducing the TDSF would not result in a project that would reduce impacts to bluewater views, as the building heights could continue to be 18 feet, consistent with the LIP. Reducing the TDSF would not result in an environmentally superior alternative. All sensitive biological resources (EHSA and drainage) and steep slopes at the eastern end of the site would remain preserved as currently proposed, including considering required fuel modification activities. Reducing the TDSF would not offer additional protection to these resources.

Proposed Project - The project consists of the construction of a new single-family residence, guest house, and gym in an existing residentially developed area. These uses, along with retaining and other walls, are permitted in the RR-2 zone. The project complies with the size, height and location requirements of the LIP. The project also meets the

grading requirements of the LIP. The proposed development, including walls, will avoid the ESHA and ESHA buffer area onsite, and will preserve the areas of steepest slopes (more than 30 percent slope) onsite. A view corridor is proposed in the eastern portion of the site, consistent with ocean and bluewater view protection requirements of the LIP. The City Biologist, City Environmental Health Administrator, City geotechnical consultant reviewers, City Public Works Department, and the LACFD reviewed the project and found it to meet the residential development policies of the LUP, LIP, and MMC. The proposed development is not expected to result in adverse biological, scenic or visual resource impacts, and is considered the least environmentally damaging feasible alternative.

Finding 4. If the project is located in or adjacent to an environmentally sensitive habitat area pursuant to Chapter 4 of the Malibu LIP (ESHA Overlay), that the project conforms with the recommendations of the Environmental Review Board, or if it does not conform with the recommendations, findings explaining why it is not feasible to take the recommended action.

The subject property is within a designated ESHA and ESHA buffer as shown on the LCP ESHA and Marine Resources Map (Dan Blocker to Malibu Pier). However, the project, including the required 200-foot-wide fuel modification activities, is from 20 to 100 feet west of the 100-foot ESHA buffer boundary. Because the project avoids any work within the ESHA and ESHA buffer, no Environmental Review Board review was required, and this finding does not apply.

C. Environmentally Sensitive Habitat Area Overlay (LIP Chapter 4)

The subject property includes a designated ESHA, as shown on the LCP ESHA and Marine Resources Map. The ESHA contains an on-site drainage and sensitive habitat characterized by arroyo willow (*salix lasiolepis*) shrubland alliance and disturbed buckwheat-white sage (*eriogonum elongatum var. elongatum-salvia apian*) shrubland alliance. The proposed project would be located over 300 feet west of the ESHA. No development, including grading, is proposed within this area. Therefore, the supplemental findings of LIP Section 4.7.6 are not applicable.

D. Native Tree Protection (LIP Chapter 5)

There are no native trees on or adjacent to the subject parcel. Therefore, the findings of LIP Chapter 5 are not applicable.

E. Scenic, Visual and Hillside Resource Protection (LIP Chapter 6)

The Scenic, Visual, and Hillside Resource Protection Chapter governs those coastal development permit applications concerning any parcel of land that is located along, within, provides views to or is visible from any scenic area, scenic road or public viewing area. The subject property is located along the ocean side of PCH, which is a scenic road.

Local Implementation Plan (LIP) Section 6.4 requires that the following five findings be made.

Finding 1. The project, as proposed, will have no significant adverse scenic or visual impacts due to project design, location on the site or other reasons.

Staff visited the subject parcel after placement of the initial and revised story poles. Based on staff's site visits and review of project plans, it was determined that the proposed residence would not be visible from any scenic area or public viewing area but would be visible from PCH, a scenic road. Staff has determined that the height of some portions of the buildings would partially obstruct ocean views from PCH. The project meets the maximum height allowed for the freestanding solid walls (6 feet), and the buildings (17 feet, seven inches maximum proposed with 18 feet maximum allowed). The proposed residential buildings incorporate siting and design measures to minimize visual impacts and landform alteration. Consistent with LIP Section 6.5(A) and (B), the proposed development is on the flattest part of the property. The development site is below the grade of the adjacent PCH and berms (mostly three to seven feet, and up to 21 feet at the eastern side of the development). The buildings would also be stepped down the westerly slope of the site to minimize the appearance of height. The proposed building roofs are flat, and the massing of the development is broken up by situating various buildings and improvements in different areas along the building site. However, the project would still be visible from PCH, and bluewater views over the development would be partially obscured. Because the top portions of the buildings would be visible from PCH, the project includes a view corridor along the eastern portion of the site. The tallest portion of the development, the main residence, would be eight feet and five inches visible above the roadway grade/berms, and other portions of buildings would be as low as two feet and seven inches above the roadway grade/berms, while still other portions would not block views at all.

Consistent with the development standards for parcels on the ocean side of PCH in LIP Section 6.5(E), the proposed structures are no higher than one story and the project incorporates native vegetative species. Section 6.5(E)(1)(a) requires structures to extend no higher than the road grade adjacent to the project site, where feasible. The elevation difference between the northern edge of the development pad and the PCH roadway and/or top of existing PCH berms just above on the south side of the road mostly ranges from about three to seven feet. At a few points on the eastern side of the development, the elevation difference is up to 21 feet. Structures would have to be lower than these heights. The project includes a maximum height of 17 feet, seven inches for the main residence, 12 feet for the gym, and a guest house of 10 feet maximum, all of which are consistent with the maximum allowed height of 18 feet in the LIP. The tallest building, the main residence, is located on the eastern side of the building area, where the elevation difference between the building pad and roadway berms is highest. Section 6.5(E)(2) states that where the topography of the project site does not permit the siting or design of a structure that is located below grade, new development shall provide an ocean view corridor on the project site and buildings shall not occupy more than 80 percent of the

lineal frontage of the site. The proposed contiguous 31 percent view corridor, which leaves 69 percent of the lineal frontage of the site occupied with buildings, is consistent with the minimum 20 percent view corridor required by the LIP.

The property is located adjacent to partially built-out single-family residential neighborhoods between Malibu Road and Bayshore Drive, along Puerco Canyon Road to the northeast across PCH, and along PCH to the east. Directly to the north across PCH are vacant public lands (zoned POS). The surrounding development consists of one- and two-story single-family residences with accessory development. Lots in the area along Bayshore Drive range from 0.25 to 0.85 acre, and the building square footage is relative to the lot sizes. Properties to the east and northeast range from 1.74 to 6.6 acres, and the amount of development on the sites reflects the larger lots sizes. The proposed project is characteristic of the larger lot residential development to the east and northeast of the subject property, with a large amount of residential square footage, although limited to one story for the proposed project. The existing surrounding development is oriented along the hillside or flat portions of the lots to face the ocean, as is the proposed project.

The project meets the maximum allowed Total Development Square Footage (TDSF) and building and wall height in the MMC and LIP. The subject site grade is below that of PCH and/or the berms along the roadway, and the building and driveway pads would be established on average approximately one foot further below the site grade to minimize views to the development.

No outdoor lighting is proposed as part of the project. Conditions of approval are included whereby any future lighting plan shall be consistent with City lighting requirements, including the Dark Sky Ordinance.

Finding 2. The project, as conditioned, will not have significant adverse or visual impacts due to required project modifications, landscaping or other conditions.

As described above in *Finding 1*, the building and freestanding wall heights are consistent with the maximum allowed, and a view corridor of 31 percent of the site width, consistent with the LIP, is proposed on the site to ensure the continuation of bluewater views from PCH. A condition of approval is required to ensure the height of proposed vegetation onsite does not exceed the adjacent road grade/berms, along PCH. Therefore, the project will not have significant adverse or visual impacts.

Finding 3. The project, as proposed or as conditioned, is the least environmentally damaging alternative.

The project was originally contemplated as a two-story main residence and buildings of greater height. However, due to the visual impacts of blocking bluewater views from PCH, the applicant revised the plan to lower the residence height to a maximum of 17 feet, seven inches and one story and the guest house to 10 feet (the gym is to remain at 12 feet). The

applicant is also proposing building pads to be set on average approximately one foot further below the site's current grade to minimize view impacts from PCH, and for the pads to be gradually stepped into the western slope of the site to reduce their visual profile. To eliminate obstructions to bluewater views, the buildings would either need to be below the PCH and roadway berm height (three to seven feet in most areas but up to 21 feet at the eastern portion of the development) or substantial earthwork would need to occur to lower the current grade several more feet to set the buildings completely below the PCH berms. The resulting amount of grading could exceed the maximum allowed 1,000 cubic yards for non-exempt grading. In addition, further retaining walls would likely be necessary to create the building pad, given the surrounding slopes. The tallest building, the main residence, is located in the eastern part of the building area, where the berms are highest, to minimize view impacts.

There are no other feasible locations on the property to accommodate the proposed development that would avoid scenic and visual impacts to bluewater views. The property is long and narrow, except for the portion on the east end within the ESHA and ESHA buffer and drainage. The applicant considered congregating all buildings in the eastern portion of the building area, where the PCH grade and/or berms provide the most screening to the development. However, because the site is narrow, locating all development in this area is infeasible due to available site area. Locating development in the eastern portion of the property, which is wider, would necessitate developing in the ESHA and ESHA buffer and drainage area, grading of steep slopes (over 30 percent slope), and shifting fuel modification zones off-site.

The proposed TDSF is 11,120.98 square feet, which is consistent with the maximum allowed 11,172 square feet per the LIP. The site is approximately six acres, and the 11,120.98 square-foot development is proposed as a series of one-story buildings. Reducing the TDSF would not necessarily result in a project that has less impact to bluewater views, as the building heights could continue to be 18 feet, consistent with the LIP.

The project consists of the construction of a new single-family residence, guest house, and gym in an existing residentially developed area. These uses, along with retaining and other walls, are permitted in the RR-2 zone. The project complies with the size, height and location requirements of the LIP. The project also meets the grading requirements of the LIP. The proposed development, including walls, grading, and fuel modification, will avoid the ESHA and ESHA buffer area on-site, and will preserve the areas of steepest slopes (more than 30 percent slope) on-site. A view corridor is proposed in the eastern portion of the site, consistent with ocean and bluewater view protection requirements of the LIP. The City Biologist, City Environmental Health Administrator, City geotechnical consultant reviewers, and City Public Works Department staff reviewed the proposed project and found it consistent with the MMC. Conditions of approval are required to ensure the project will not result in adverse biological, scenic or visual resource impacts, and is the least

environmentally damaging feasible alternative. One such condition is to minimize the height of vegetation planted on-site to protect bluewater views.

Finding 4. There are no feasible alternatives to development that would avoid or substantially lessen any significant adverse impacts on scenic and visual resources.

As described above for *Finding 3*, there are no feasible alternatives to the development that would avoid or substantially lessen any significant adverse impacts on scenic and visual resources that are environmentally superior. Alternatives that would reduce the appearance of the proposed structures from PCH and preserve more bluewater views over the structures would likely require substantially more retaining walls and grading that is likely to exceed the maximum allowed cubic yards of grading in LIP Section 8.3(B). A 31 percent view corridor would be established at the eastern end of the property, consistent with LIP Section 6.5(E), where no development is proposed.

Finding 5. Development in a specific location on the site may have adverse scenic and visual impacts but will eliminate, minimize or otherwise contribute to conformance to sensitive resource protection policies contained in the certified LCP.

The majority of the subject property is long and narrow. The property fronts PCH for 1,692 linear feet. As such, there are no other feasible locations on the site to accommodate the proposed development that would avoid scenic and visual impacts to bluewater views. The alternative to remove soil to set the building pads and driveways further below the roadway grade would require substantially more earthmoving, likely exceeding the LIP established limits for cubic yards of grading, and likely further retaining walls. Shifting the development to the eastern part of the site, where a limited portion of the property becomes wider (i.e., along the on-site drainage) would require developing in ESHA and the ESHA buffer and would shift some fuel modification zones off-site. It would also result in grading of steep slopes (over 30 percent slope). The proposed development area would be the least impactful to sensitive resources and to earth disturbance.

F. Transfer of Development Credit (LIP Chapter 7)

Pursuant to LIP Section 7.2, transfer of development credits only applies to land divisions and multi-family development in specified zones. The proposed project does not include a land division or multi-family development and involves a voluntary merger of two adjacent parcels under common ownership. The property consists of an historical unpermitted lot creation and lot split. While a COC for an illegally created parcel is typically subject to a transfer of development credit, since the application will officially undo the unpermitted lot split through the proposed merger of lots, a transfer of development credit does not apply.

G. Hazards (LIP Chapter 9)

Pursuant to LIP Section 9.3, written findings of fact, analysis and conclusions addressing geologic, flood and fire hazards, structural integrity or other potential hazards listed in LIP Sections 9.2(A)(1-7) must be included in support of all approvals, denials or conditional approvals of development located on a site or in an area where it is determined that the proposed project causes the potential to create adverse impacts upon site stability or structural integrity.

The Planning Division, City Biologist, City Environmental Health Administrator, City Public Works Department, City geotechnical consultant reviewers, WD29 and LACFD analyzed the proposed development for the hazards listed in LIP Chapter 9. The required findings are as follows:

Finding 1. The project, as proposed, will neither be subject to nor increase instability of the site or structural integrity from geologic, flood, or fire hazards due to project design, location on the site or other reasons.

Geologic and Flood Hazard

The applicant submitted geotechnical and engineering reports and addenda prepared by Feffer Geological Consulting and EnSitu Engineering, Inc. These reports are on file at City Hall. In these reports, site-specific conditions are evaluated and recommendations are provided to address any pertinent issues. Potential hazards analyzed include geologic, seismic and fault rupture, liquefaction, landslide, groundwater, wave uprush and tsunami, and flood and fire hazards. Based on review of the project plans and associated geotechnical reports, the City geotechnical consultant reviewers, LACFD, City Public Works Department, and the City Environmental Health Administrator determined that adverse impacts to the project site related to the proposed development are not expected. The project, including the OWTS, will neither be subject to nor increase the instability of the site from geologic, flood, or fire hazards. In summary, the proposed development is anticipated to be suitable for the intended use provided that the certified engineering geologist and/or geotechnical engineer's recommendations and governing agency's building codes are followed.

Conditions of approval contained in the above cited geotechnical reports and conditions required by the City geotechnical consultant reviewers, City Public Works Department, and the LACFD, including foundations, OWTS, and drainage are required to ensure the project will not increase instability of the site or structural integrity from geologic, flood, or any other hazards.

Fire Hazard

The entire City of Malibu is designated as a Very High Fire Hazard Severity Zone, a zone defined by a more destructive behavior of fire and a greater probability of flames and embers threatening buildings. The subject property is currently subject to wildfire hazards

and development of a residence on the subject property will not increase the site's susceptibility to wildfire. The project is not expected to have an impact on wildfire hazards. The proposed development may actually decrease the site's susceptibility to wildfire through compliance with fuel modification requirements, the use of appropriate building materials and measures, and maintaining the required fire access on the site. All fuel modification zones are located on-site, so fuel modification activities would occur on the subject site.

The City is served by the LACFD, as well as the California Department of Forestry, if needed. In the event of major fires, the County has "mutual aid agreements" with cities and counties throughout the State so that additional personnel and firefighting equipment can augment the LACFD. Conditions of approval have been included in the resolution to require compliance with all LACFD development standards. As such, the project, as designed and constructed is not expected to be subject to nor increase the instability of the site or structural integrity involving wildfire hazards. Conditions of approval are required to ensure the project will not be subject to nor increase the instability of the site or structural integrity pertaining to hazards.

Finding 2. The project, as conditioned, will not have significant adverse impacts on site stability or structural integrity from geologic, flood or fire hazards due to required project modifications, landscaping or other conditions.

As stated in *Finding 1* of Section G above, the proposed project, as designed, conditioned and approved by the applicable departments and agencies, is not expected to have any significant adverse impacts on the site stability or structural integrity from geologic, fire or flood hazards due to project modifications, landscaping or other conditions.

Finding 3. The project, as proposed or as conditioned, is the least environmentally damaging alternative.

As previously stated in *Finding 3* of Section E, the proposed project, as designed and conditioned, is the least environmentally damaging alternative. As stated above in *Findings 1 and 2* of Section G, the project is not expected to result in adverse geologic, flood or fire hazards. Shifting the development area further east on the site would result in grading of steep slopes and ESHA areas, including a drainage, which could result in additional geologic and flood concerns. It would also shift fuel modification zones off-site, as opposed to on-site where the property owner would be responsible for vegetation maintenance for fire hazard protection. Establishing lower building and driveway pads to increase bluewater views from the highway would require substantial earthmoving and excavation of land that could result in additional geologic concerns. Therefore, overall, the project is the least environmentally damaging alternative.

Finding 4. There are no alternatives to development that would avoid or substantially lessen impacts on site stability or structural integrity.

As previously discussed above in *Finding 3* of Section G, the project is not expected to result in geologic, flood or fire hazards, and there are no feasible alternatives to development that are expected to avoid or substantially lessen impacts on site stability or structural integrity.

Finding 5. Development in a specific location on the site may have adverse impacts but will eliminate, minimize or otherwise contribute to conformance to sensitive resource protection policies contained in the certified Malibu LCP.

As discussed in *Finding 3* of Section E, the proposed project, as designed and conditioned, would be the least environmentally damaging alternative and no adverse impacts to sensitive resources are anticipated. The proposed project and its location avoid more sensitive resources located in the eastern portion of the property.

H. Shoreline and Bluff Development (LIP Chapter 10)

The project site is not located on or along the shoreline, a coastal bluff or bluff top fronting the shoreline. The subject parcel is located on the ocean side of PCH but is separated from the bluff top and shoreline by Bayshore Drive, Malibu Road, and other residential properties. Therefore, the findings of LIP Chapter 10 are not applicable.

I. Public Access (LIP Chapter 12)

LIP Section 12.4 requires public access for lateral, bluff-top, and vertical access near the ocean, trails, and recreational access for the following cases:

A. New development on any parcel or location specifically identified in the Land Use Plan or in the LCP zoning districts as appropriate for or containing a historically used or suitable public access trail or pathway.
B. New development between the nearest public roadway and the sea.
C. New development on any site where there is substantial evidence of a public right of access to or along the sea or public tidelands, a blufftop trail or an inland trail acquired through use or a public right of access through legislative authorization.
D. New development on any site where a trail, bluff top access or other recreational access is necessary to mitigate impacts of the development on public access where there is no feasible, less environmentally damaging, project alternative that would avoid impacts to public access.

As described herein, the subject property and the proposed project do not meet any of these criteria. While the project site is located between the first public road and the shoreline, the property is not located on a bluff or near recreational area trails identified on the LCP Park Lands Map on or adjacent to the property. The subject site is separated from the bluff top and shoreline by Bayshore Drive, Malibu Road, and other residential

properties. As such, approval of the residence will not affect the public's ability to utilize the wet sand to access the shoreline. Therefore, the project conforms to LIP Chapter 12 and further findings are not required.

J. Land Division (LIP Chapter 15)

This project does not include a land division; however, the proposed LM is subject to the requirements of Section 15.4 (Merger of Parcels). The City can approve a voluntary lot merger if:

Finding 1(A).

1. *Either a merger or lot tie is authorized or required pursuant to a term or condition of a coastal development permit; or*

2. *The City determines that the merger is not inconsistent with any policy or standard of the LCP that protects environmentally sensitive habitat areas and/or visual resources of the coastal zone. In this case, a coastal development permit shall be approved for the merger if the requirements of Section 13.13 of the Malibu LIP are met.*

The two parcels subject to the LM are under common ownership and the application proposes a voluntary merger that has been initiated by the property owner. Based on the findings contained in the resolution, it has been determined that the proposed LM is consistent with policies and standards of the LCP that protect ESHA or visual resources of the coastal zone.

Finding 1(B). An instrument evidencing the merger shall be recorded. The recorded instrument shall contain a legal description of the contiguous parcels prior to the merger, and the new parcel that results after the merger. The instrument must be reviewed and approved by the City prior to recording. A copy of the recorded instrument shall be provided to the Los Angeles County Assessor's Office.

A condition of approval is required for the applicant to submit to the City a recorded instrument evidencing the LM. The instrument must be reviewed and approved by the City prior to recording. A copy of the recorded instrument shall be provided to the Los Angeles County Assessor's Office.

The LM is predicated on the issuance of a COC. The two parcels that are the subject site make a single lot and, at the time of its creation, the subject lot was not consistent with the subdivision map act and Los Angeles County subdivision ordinance. Pursuant to LIP Section 15.3(A), a COC must be processed with a CDP to recognize a non-compliant lot.

The COC complies with all policies and standards of the LCP, including the requirements of LIP Section 15.2. The site provides for development that avoids any work within slopes over 30 percent. The project site can accommodate adequate roads for fire access, and, as conditioned, development is safe from flooding, erosion, geologic, and extreme fire hazards. The project site is served by adequate public services and can accommodate an OWTS. The site can accommodate development, including fuel modification, outside of the ESHA and ESHA buffer. Development of the site can occur in a manner that minimizes grading and alteration of natural landforms, and that will be landscaped with native species to minimize erosion. The site permits clustering of development on the west side of the property to minimize site disturbance and maximize open space on the east side, in ESHA, a drainage, and in steep slopes. No coastal resources or ridgelines are located on the property nor would any be affected by the proposed development. The site enables impacts to visual resources, including bluewater views, to be minimized to the extent feasible, and allows for creation of a view corridor, consistent with the LIP requirements. The site allows for development consistent with the maximum density permitted in the LCP and would not be smaller than the average size of surrounding parcels.

ENVIRONMENTAL REVIEW: Pursuant to the authority and criteria contained in CEQA, the Planning Division has analyzed the proposed project. The Planning Division found that this project is listed among the classes of projects that have been determined not to have a significant adverse effect on the environment. Therefore, the project is categorically exempt from the provisions of CEQA pursuant to Sections 15303(a) and (e) - New Construction. The Planning Division has further determined that none of the six exceptions to the use of a categorical exemption apply to this project (CEQA Guidelines Section 15300.2).

CORRESPONDENCE: After installation of the initial story poles in April 2024, staff received two letters from residents northeast of the project site who expressed concerns about proposed trees for the site that may reach heights taller than 18 feet at maximum growth and blocking ocean views, and the intensity of lighting given the size of the project, and confirmed that there are no Variances requested for the building and wall heights. Comments that were part of an e-mail chain were also provided to the City in April 2024, that expressed concerns about the project blocking ocean views. A condition of approval is required that all trees and other vegetation planted on the site shall not have a growth habit that would exceed the PCH roadway grade and/or berm, whichever is higher, at full maturity. Additionally, while outdoor lighting is not proposed at this time, conditions of approval are included requiring that any lighting plan comply with all City lighting requirements, including the Dark Sky Ordinance. The buildings will not exceed 17 feet, seven inches in height, the freestanding walls outside of the front yard setback will not exceed six feet in height, and the retaining walls will not exceed six feet in height. Therefore, the project is consistent with required heights and does not include a Variance or SPR for exceptions to height standards**.** Public comments are included as Attachment 5.

PUBLIC NOTICE: Staff published a Notice of Public Hearing in a newspaper of general circulation within the City of Malibu on July 10, 2025, and mailed the notice to all property owners and occupants within a 500-foot radius of the subject property on July 10, 2025 (Attachment 6).

SUMMARY: The required findings can be made that the project complies with the LCP and MMC. Furthermore, the Planning Division's findings of fact are supported by substantial evidence in the record. Based on the analysis contained in this report and the accompanying resolution, staff recommends approval of the project, subject to the conditions of approval contained in Section 5 (Conditions of Approval) of Planning Commission Resolution No. 25-05. The project has been reviewed and conditionally approved for conformance with the LCP by Planning Division staff and appropriate City and County departments.

ATTACHMENTS:

1. Resolution No. 25-05
2. Project Plans
3. Story Pole Photos
4. Department Review Sheets
5. Public Correspondence
6. Public Hearing Notice

CITY OF MALIBU PLANNING COMMISSION
RESOLUTION NO. 25-05

A RESOLUTION OF THE PLANNING COMMISSION OF THE CITY OF MALIBU DETERMINING THE PROJECT IS CATEGORICALLY EXEMPT FROM THE CALIFORNIA ENVIRONMENTAL QUALITY ACT, AND APPROVING COASTAL DEVELOPMENT PERMIT NO. 19-012 TO CONSTRUCT A NEW 9,219 SQUARE FOOT, ONE-STORY, SINGLE-FAMILY RESIDENCE, INCLUDING A 1,000 SQUARE-FOOT SUBTERRANEAN TWO-CAR GARAGE, 1,523 SQUARE FOOT BASEMENT, 676 SQUARE-FOOT GYM, DETACHED 465 SQUARE-FOOT GUEST HOUSE, SWIMMING POOLS, SPA, DRIVEWAYS, DECKS, LANDSCAPE, WATER FEATURES, HARDSCAPE, GRADING, RETAINING WALLS, AND ONSITE WASTEWATER TREATMENT SYSTEM, INCLUDING CONDITIONAL CERTIFICATE OF COMPLIANCE NO. 21-004 TO RECOGNIZE AN ILLEGALLY CREATED LOT CONSISTING OF TWO ASSESSOR PARCEL NUMBERS (4459-013-021 AND 4459-014-018), AND LOT MERGER NO. 24-002 TO CONSOLIDATE TWO EXISTING PARCELS INTO ONE, LOCATED IN THE RURAL RESIDENTIAL, TWO-ACRE ZONING DISTRICT AT 25200 PACIFIC COAST HIGHWAY (PAR PCH, LLC)

The Planning Commission of the City of Malibu does hereby find, order and resolve as follows:

SECTION 1. Recitals.

A. On March 7, 2019, an application for a Coastal Development Permit (CDP) No. 19-012 to allow for a new single-family residence and associated development was submitted to the Planning Division by Jake Jesson, representing PAR PCH, LLC. The application was routed to the City Biologist, City Environmental Health Administrator, City geotechnical consultant reviewers, City Public Works Department, Los Angeles County Waterworks District No. 29 (WD29), and Los Angeles County Fire Department (LACFD) for review.

B. On September 25, 2023, a Notice of Coastal Development Permit Application was posted on the subject property.

C. On December 11, 2023, the application was deemed complete.

D. On April 25, 2024, a Notice of Planning Commission Public Hearing was published in a newspaper of general circulation within the City of Malibu and was mailed to all property owners and occupants within a 500-foot radius of the subject property.

E. In April 2024, Planning staff received concerns from several community members related to impacts to bluewater views and potential outdoor lighting.

F. On May 20, 2024, the Planning Commission continued the item to a date uncertain.

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G. On July 10, 2025, a Notice of Planning Commission Public Hearing was published in a newspaper of general circulation within the City of Malibu and was mailed to all property owners and occupants within a 500-foot radius of the subject property.

H. On July 21, 2025, the Planning Commission held a duly noticed public hearing on the subject application, reviewed and considered the staff report, and reviewed and considered written reports, public testimony, and other information in the record.

SECTION 2. Environmental Review.

Pursuant to the authority and criteria contained in the California Environmental Quality Act (CEQA), the Planning Commission has analyzed the proposed project. The Planning Commission found that this project is listed among the classes of projects that have been determined not to have a significant adverse effect on the environment. Therefore, the project is categorically exempt from the provisions of CEQA pursuant to Section 15303(a) – New Construction and 15303(e) New Construction or Conversion of Small Structures. The Planning Commission has further determined that none of the six exceptions to the use of a categorical exemption apply to this project (CEQA Guidelines Section 15300.2).

SECTION 3. Coastal Development Permit Findings.

Based on evidence contained within the record, including the agenda report for the project and the hearing on July 21, 2025, and pursuant to the Local Coastal Program (LCP) Local Implementation Plan (LIP), including Sections 13.7(B) and 13.9, and Malibu Municipal Code (MMC), the Planning Commission adopts the findings of fact, and approves CDP No. 19-012 for construction of a 9,219 square-foot single-family residence, 1,000 square-foot subterranean garage, 1,523 square-foot basement, 676 square-foot gym, detached 465 square-foot guest house, swimming pools and spa, driveways, decks, landscape, water features, hardscape, grading, retaining walls, and an onsite wastewater treatment system located in the Rural Residential, Two-Acre (RR-2) zoning district at 25200 Pacific Coast Highway.

The project, as conditioned, is consistent with the LCP's zoning, grading, cultural resources, water quality, and wastewater treatment system standards requirements. With the inclusion of the proposed conditional certificate of compliance (COC) and Lot Merger (LM), the project has been determined to be consistent with all applicable LCP codes, standards, goals, and policies. The required findings are made herein.

A. General Coastal Development Permit (LIP Chapter 13)

1. The project is located in the RR-2 residential zoning district, an area designated for residential uses, including single-family residences. The project has been reviewed for conformance with the LCP by the Planning Division, City Biologist, City Environmental Health Administrator, City Public Works Department, City geotechnical review consultants, WD29, and the LACFD. As discussed herein, based on submitted reports, project plans, visual analysis, and site investigation, the proposed project, as conditioned, conforms to the LCP in that it meets all applicable residential development standards, inclusive of the requested COC and LM.

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2. Evidence in the record demonstrates that as conditioned, the project will not result in biological impacts and has been designed to minimize grading. There is no evidence that an alternative project would substantially lessen any potential significant adverse impacts of the development on the environment.

B. Scenic, Visual and Hillside Resource Protection (LIP Chapter 6)

1. Story poles were installed onsite to demonstrate the location, mass and height of the proposed project. While the site is below the grade of the adjacent roadway and the building and driveway pads average approximately one foot below the site grade to minimize views to the development, the top portions of some of the buildings will be visible from PCH and block bluewater views. At most, the upper eight feet, five inches of the main residence would be visible from the roadway. Therefore, the proposed project is conditioned to require a view corridor of 31 percent of the site width, so that the project will not result in significant adverse scenic or visual impacts and will be compatible with the character of the surrounding neighborhood. The project, as conditioned, will not have adverse scenic or visual impacts.

2. The project, as conditioned, is the least environmentally damaging feasible alternative.

3. There are no feasible alternatives to development that would avoid or substantially lessen any significant adverse impacts on scenic of visual resources.

4. No outdoor lighting is proposed as part of this project. A condition of approval is included in the event lighting is proposed in the future whereby the lighting plan shall comply with the City lighting requirements, including the Dark Sky Ordinance.

5. As conditioned, development on the site will not have significant adverse impacts on scenic and visual resources.

C. Hazards (LIP Chapter 9)

1. Evidence in the record demonstrates that the project will neither be subject to nor increase the instability of the site from geologic, flood, or fire hazards. The proposed development is suitable for the intended use provided that the certified engineering geologist and/or geotechnical engineer's recommendations and governing agency's building codes are followed to incorporate minimum recommended finished floor elevations and piles founded into bedrock, among other measures, as conditioned.

2. The proposed project, as designed, conditioned and approved by the applicable departments and agencies, will not have any significant adverse impacts on the site stability or structural integrity from geologic or flood hazards due to project modifications and other conditions.

3. The project, as designed and conditioned, is the least environmentally damaging alternative.

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4. The proposed development has been analyzed for the hazards listed in LIP Chapter 9 by the City Building Official, City Environmental Health Administrator, and the City geotechnical consultant reviewers. These specialists determined that the proposed project does not impact site stability or structural integrity. Since there are no significant impacts expected, there are no feasible alternatives to reduce significant impacts.

5. There is no evidence in the record that the proposed project, as designed and conditioned, will have adverse impacts to sensitive resources.

D. Land Division (LIP Chapter 15)

1. The Conditional Certificate of Compliance (COC) complies with all policies and standards of the LCP, including the requirements of LIP Section 15.2. The site provides for development that avoids any work within slopes over 30 percent. The project site can accommodate adequate roads for fire access, and, as conditioned, development is safe from flooding, erosion, geologic, and extreme fire hazards. The project site is served by adequate public services and can accommodate an OWTS. The site can accommodate development, including fuel modification, outside of the ESHA and ESHA buffer. Development of the site can occur in a manner that minimizes grading and alteration of natural landforms, and that will be landscaped with native species to minimize erosion. The site permits clustering of development on the west side of the property to minimize site disturbance and maximize open space on the east side, in ESHA, a drainage, and in steep slopes.

2. No coastal resources or ridgelines are located on the property or would be affected by the development. The site enables impacts to visual resources, including bluewater views, to be minimized to the extent feasible, and allows for creation of a view corridor of a minimum 31 percent, consistent with the LIP requirements. The site allows for development consistent with the maximum density permitted in the LCP and would not be smaller than the average size of surrounding parcels.

3. The two parcels subject to the LM are under common ownership and the applicant proposes a voluntary merger that has been initiated by the property owner. The LM is consistent with all policies and standards of the LCP that protect ESHA or visual resources of the coastal zone, as habitat in the ESHA will be protected and no structures in the view corridor are permitted.

SECTION 4. Planning Commission Action.

Based on the foregoing findings and evidence contained within the record, the Planning Commission hereby approves CDP No. 19-012, LM No. 24-002, and COC No. 21-004, subject to the following conditions.

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SECTION 5. Conditions of Approval.

Standard Conditions

1. The property owners, and their successors in interest, shall indemnify and defend the City of Malibu and its officers, employees and agents from and against all liability and costs relating to the City's actions concerning this project, including (without limitation) any award of litigation expenses in favor of any person or entity who seeks to challenge the validity of any of the City's actions or decisions in connection with this project. The City shall have the sole right to choose its counsel and property owners shall reimburse the City's expenses incurred in its defense of any lawsuit challenging the City's actions concerning this project.

2. Approval of this application is to allow for the project described herein. The scope of work approved includes:

    a. 9,219 square-foot, one-story, single-family residence, and a 1,000 square-foot subterranean two-car garage and 1,523 square-foot basement;
    b. Detached 676 square-foot gym;
    c. Detached 465 square-foot guest house;
    d. Swimming pools and spa;
    e. OWTS, including a 1,500-gallon septic tank;
    f. New landscaping and hardscape, including permeable driveways;
    g. Perimeter fencing not to exceed 42 inches in height along the north property line and an entry gate;
    h. Retaining walls up to six feet in height; and
    i. Solid freestanding walls up to six feet in height.

3. Except as specifically changed by conditions of approval, the proposed development shall be constructed in substantial conformance with the approved scope of work, as described in Condition 2 and depicted on plans on file with the Planning Division date stamped April 16, 2025. The proposed development shall further comply with all conditions of approval stipulated in this resolution and Department Review Sheets attached hereto. In the event project plans conflict with any condition of approval, the condition shall take precedence.

4. Pursuant to LIP Section 13.18.2, this Coastal Development Permit (CDP), Lot Merger, and Conditional Certificate of Compliance shall not be effective until the property owner signs, notarizes and returns the Acceptance of Conditions Affidavit accepting the conditions set forth herein. The applicant shall file this form with the Community Development Department prior to issuance of any development permits.

5. The applicant shall digitally submit a complete set of plans to the Planning Division for consistency review and approval prior to plan check and again prior to the issuance of any building or development permits.

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6. The CDP shall expire if the project has not commenced within three (3) years after issuance of the permit unless a time extension has been granted. Extension of the permit may be granted by the approving authority for due cause. Extensions shall be requested in writing by the applicant or authorized agent prior to expiration of the three-year period and shall set forth the reasons for the request. In the event of an appeal, the CDP shall expire if the project has not commenced within three years from the date the appeal is decided by the decision-making body or withdrawn by the appellant.

7. Any questions of intent or interpretation of any condition of approval will be resolved by the Community Development Director upon written request of such interpretation.

8. All development shall conform to requirements of the City of Malibu Environmental Sustainability Division, City Biologist, City Coastal Engineer, City Environmental Health Administrator, City geotechnical consultant reviewers, City Public Works Department, Los Angeles County Waterworks District No. 29 and LACFD, as applicable. Notwithstanding this review, all required permits shall be secured.

9. Minor changes to the approved plans or the conditions of approval may be approved by the Community Development Director, provided such changes achieve substantially the same results and the project is still in compliance with the Malibu Municipal Code and the Local Coastal Program. Revised plans reflecting the minor changes and additional fees shall be required.

10. Pursuant to LIP Section 13.20, development pursuant to an approved CDP shall not commence until the CDP is effective. The CDP is not effective until all appeals, including those to the California Coastal Commission (CCC), have been exhausted. In the event that the CCC denies the permit or issues the permit on appeal, the coastal development permit approved by the City is void.

11. The applicant must submit payment for any outstanding fees payable to the City prior to issuance of any building permit, including grading or demolition.

Cultural Resources

12. In the event that potentially important cultural resources are found in the course of geologic testing or during construction, work shall immediately cease until a qualified archaeologist can provide an evaluation of the nature and significance of the resources and until the Community Development Director can review this information. Thereafter, the procedures contained in LIP Chapter 11 and those in MMC Section 17.54.040(D)(4)(b) shall be followed.

13. If human bone is discovered during geologic testing or during construction, work shall immediately cease and the procedures described in Section 7050.5 of the California Health and Safety Code shall be followed. Section 7050.5 requires notification of the coroner. If the coroner determines that the remains are those of a Native American, the applicant shall

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notify the Native American Heritage Commission by phone within 24 hours. Following notification of the Native American Heritage Commission, the procedures described in Section 5097.94 and Section 5097.98 of the California Public Resources Code shall be followed.

Outdoor Lighting

14. No outdoor lighting is approved as part of this project. A lighting plan shall be submitted for City approval prior to building plan check, consistent with City standards.

15. Exterior lighting must comply with the Dark Sky Ordinance and shall be minimized, shielded, or concealed and restricted to low intensity features, so that no light source is directly visible from public view. Permitted lighting shall conform to the following standards:

    a. Lighting for walkways shall be limited to fixtures that do not exceed two feet in height and are directed downward, and limited to 850 lumens (equivalent to a 60-watt incandescent bulb);
    b. Security lighting controlled by motion detectors may be attached to the residence provided it is directed downward and is limited to 850 lumens;
    c. Driveway lighting shall be limited to the minimum lighting necessary for safe vehicular use. The lighting shall be limited to 850 lumens;
    d. Lights at entrances as required by the Building Code shall be permitted provided that such lighting does not exceed 850 lumens;
    e. Site perimeter lighting shall be prohibited; and
    f. Outdoor decorative lighting for aesthetic purposes is prohibited.

16. Night lighting for sports courts or other private recreational facilities shall be prohibited.

17. No permanently installed lighting shall blink, flash, or be of unusually high intensity or brightness. Lighting levels on any nearby property from artificial light sources on the subject property(ies) shall not produce an illumination level greater than one foot-candle.

18. Night lighting from exterior and interior sources shall be minimized. All exterior lighting shall be low intensity and shielded directed downward and inward so there is no offsite glare or lighting of natural habitat areas. Lighting of the shore or the beach in excess of one foot-candle is prohibited.

19. String lights are allowed in occupied dining and entertainment areas only and must not exceed 3,000 Kelvin.

20. Motion sensor lights shall be programmed to extinguish ten minutes after activation.

21. No lighting can exceed 18 feet in height except as required by the California building code.

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22. Three violations of the conditions by the same property owner will result in a requirement to permanently remove the outdoor light fixture(s) from the site.

Fencing and Walls

23. The applicant shall include an elevation of the proposed driveway gate on the architectural plans that are submitted for building plan check. The gate and all fencing along the front property line shall comply with the regulations set forth in LIP Section 3.5.

24. The height of fences and walls shall comply with LIP Sections 3.5.3(A) and 6.5(E)(1)(c). No retaining wall shall exceed six feet in height or 12 feet in height for a combination of two or more walls.

25. Necessary boundary fencing shall be of an open rail-type design with a wooden rail at the top (instead of wire), be less than 40-inches high, and have a space greater than 14-inches between the ground and the bottom post or wire. A split rail design that blends with the natural environment is preferred.

26. Fencing or walls shall be prohibited within ESHA, except where necessary for public safety or habitat protection or restoration. Fencing or walls that do not permit the free passage of wildlife shall be prohibited in any wildlife corridor.

27. Development adjacent to, but not within ESHA, may include fencing, if necessary for security, that is limited to the area around the clustered development area.

Site Specific Conditions

28. The applicant shall submit to the City a recorded instrument evidencing the Lot Merger prior to issuance of a grading permit. The instrument must be reviewed and approved by the City prior to recording. A copy of the recorded instrument shall be provided to the Los Angeles County Assessor's Office.

29. This project and CDP approval is not valid unless a Certificate of Compliance and Lot Merger have been approved by the City, filed with the City Clerk, and recorded with the County of Los Angeles.

30. The project shall comply with all requirements and conditions of the County of Los Angeles Fire Department.

31. To minimize bluewater view obstruction from PCH, on-site vegetation, including trees, shall be selected and located to have a maximum growth height at maturity that will not extend above the PCH grade or Caltrans berms, whichever is higher, and be maintained at this height. The Final Landscape Plan submitted for plan check approval shall reflect this requirement.

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Certificate of Compliance/Lot Merger

32. The applicant/property owner shall submit all items required to complete the Conditional Certificate of Compliance to the satisfaction of the Public Works Department prior to issuance of any grading or building permit, and prior to approval of a Lot Merger.

33. All items required to complete a Lot Merger of the two parcels that are a part of this application shall be submitted to the satisfaction of the Public Works Department. The proposed Lot Merger must be approved by the City, recorded with the Los Angeles County Recorder's Office, and filed with the City Clerk's office prior to the approval of a grading permit. A copy of the recorded instrument, which shall contain a legal description of the contiguous parcels prior to the merger and the new parcel that results after the merger, shall be provided to the Los Angeles County Assessor's Office.

View Corridor

34. Pursuant to LIP Section 6.5(E)(2) and in order to ensure the protection of scenic and visual resources, the applicant is required to maintain:
    a. A view corridor onsite a minimum of 542 feet and 7 inches wide adjacent to the eastern property line and extending southerly for the length of the property.
    b. No portion of any structure shall extend into the view corridor above the elevation of the adjacent street.
    c. Any fencing across the view corridor shall be permanently maintained as visually permeable. Tinted or frosted glass, and louvered or slatted screen fences are not permitted.
    d. Any landscaping in this area shall include only low-growing species that will not obscure or block bluewater views.
    e. If at any time the property owner allows the view corridor to become impaired or blocked, it would constitute a violation of the coastal development permit and the Coastal Act and be subject to all civil and criminal remedies.

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Construction/Framing

35. The applicant shall submit a copy of a Construction Management Plan to the Planning Division. The Construction Management Plan shall include a dedicated parking location for construction workers and storage of construction material. Prior to permit issuance, the Construction Management Plan must be acceptable to the Community Development Director and, if applicable, to the Building Official and Public Works Director.

36. A construction staging plan shall be reviewed and approved by the Building Official prior to plan check submittal.

37. Construction hours shall be limited to Monday through Friday from 7:00 a.m. to 7:00 p.m. and Saturdays from 8:00 a.m. to 5:00 p.m. No construction activities shall be permitted on Sundays or City-designated holidays.

38. Construction management techniques, including minimizing the amount of equipment used simultaneously and increasing the distance between emission sources, shall be employed as feasible and appropriate. All trucks leaving the construction site shall adhere to the California Vehicle Code. In addition, construction vehicles shall be covered when necessary; and their tires rinsed prior to leaving the property.

39. All new development, including construction, grading, and landscaping shall be designed to incorporate drainage and erosion control measures prepared by a licensed engineer that incorporate structural and non-structural Best Management Practices (BMPs) to control the volume, velocity and pollutant load of storm water runoff in compliance with all requirements contained in LIP Chapter 17, including:

    a. Construction shall be phased to the extent feasible and practical to limit the amount of disturbed areas present at a given time.
    b. Grading activities shall be planned during the southern California dry season (April through October).
    c. During construction, contractors shall be required to utilize sandbags and berms to control runoff during on-site watering and periods of rain in order to minimize surface water contamination.
    d. Filter fences designed to intercept and detain sediment while decreasing the velocity of runoff shall be employed within the project site.

40. When framing is complete, a site survey shall be prepared by a licensed civil engineer or architect that states the finished ground level elevation and the highest roof member elevation. Prior to the commencement of further construction activities, said document shall be submitted to the assigned Building Inspector and Planning Division for review and sign off on framing.

41. For the transportation of heavy construction equipment and/or material, which requires the use of oversized-transport vehicles on State highways, the applicant / property owner is required to obtain a transportation permit from the California Department of Transportation.

Colors and Materials

42. The project is visible from a scenic road, therefore, shall incorporate colors and exterior materials that are compatible with the surrounding landscape.

    a. Acceptable colors shall be limited to colors compatible with the surrounding environment (earth tones) including shades of green, brown and gray, with no white or light shades and no bright tones. Colors shall be reviewed and approved by the Community Development Director and clearly indicated on the building plans.

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b. The use of highly reflective materials shall be prohibited except for solar energy panels or cells, which shall be placed to minimize significant adverse impacts to public views to the maximum extent feasible.
c. All windows shall be comprised of non-glare glass.

43. All driveways shall be a neutral color that blends with the surrounding landforms and vegetation. Retaining walls shall incorporate veneers, texturing and/or colors that blend with the surrounding earth materials or landscape. The color of driveways and retaining walls shall be reviewed and approved by the Community Development Director and clearly indicated on all grading, improvement and/or building plans.

Biology/Landscaping

44. Except as permitted pursuant to the provisions in LUP policies 3.18 and 3.20, throughout the City of Malibu, development that involves the use of pesticides, including insecticides, herbicides, rodenticides or any other similar toxic chemical substances, shall be prohibited in cases where the application of such substances would have the potential to significantly degrade Environmentally Sensitive Habitat Areas or coastal water quality or harm wildlife. Herbicides may be used for the eradication of invasive plant species or habitat restoration, but only if the use of non-chemical methods for prevention and management such as physical, mechanical, cultural, and biological controls are infeasible. Herbicides shall be restricted to the least toxic product and method, and to the maximum extent feasible, shall be biodegradable, derived from natural sources, and used for a limited time.

45. Prior to final Planning inspection, the applicant shall submit to the Community Development Director for review and approval a certificate of completion in accordance with MMC Chapter 17.53. The certificate shall include the property owner's signed acceptance of responsibility for maintaining the landscaping and irrigation in accordance with the approved plans and MMC Chapter 17.53.

46. Invasive plant species, as determined by the City of Malibu, are prohibited.

47. Vegetation shall be situated on the property so as not to significantly obstruct the primary view from private property at any given time (given consideration of its future growth).

48. The landscape plan shall prohibit the use of building materials treated with toxic compounds such as creosote or copper arsenate.

49. Construction fencing shall be placed within five feet of the southern limits of grading. Construction fencing shall be installed prior to the beginning of any construction and shall be maintained throughout the construction period to protect the site's sensitive habitat areas.

50. The landscape and fuel modification plan shall protect natural resources in accordance with the Local Coastal Program. All areas shall be planted and maintained as described in the

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landscape and fuel modification plan, except as indicated elsewhere in these conditions. Failure to comply with the landscape conditions is a violation of the conditions of approval for this project.

51. All open areas not used for buildings, driveways, parking areas, or walkways shall be attractively landscaped and maintained in accordance with a landscape plan, with native plant species, to the satisfaction of the Community Development Director.

52. Native species of the Santa Monica Mountains, characteristic of the local habitat, shall be used on graded slopes or where slope plantings are required for slope stabilization, erosion control, and watershed protection. Plants should be selected to have a variety of rooting depths. A spacing of 15 feet between large woody (≥10-foot canopy) shrubs is recommended by the LACFD. Lawns are prohibited on slopes > 5 percent.

53. Slope planting measures such as contour planting and terracing or other techniques shall be incorporated on slopes to interrupt the flow and rate of surface runoff in order to prevent surface soil erosion.

54. Prior to installation of any landscaping, the applicant shall obtain a plumbing permit for the proposed irrigation system from the Building Safety Division.

55. Prior to a final plan check approval, the property owner /applicant must provide a landscape water use approval from the Los Angeles County Waterworks District No. 29.

56. Plantings required for fuel modification, except for within irrigated Zone A nearest to approved residential structures, must be native, drought-tolerant species and shall blend with the existing natural vegetation and natural habitats on the site.

57. Any site preparation activities, including removal of vegetation, between February 1 and September 15 will require nesting bird surveys by a qualified biologist at least five days prior to initiation of site preparation activities. Should active nests be identified, a buffer area no less than 150 feet (300 feet for raptors) shall be fenced off until it is determined by a qualified biologist that the nest is no longer active. A report discussing the results of nesting bird surveys shall be submitted to the City within two business days of completing the surveys.

58. Earthmoving shall be scheduled only during the dry season from April 1 through October 31. If it becomes necessary to conduct earthmoving activities from November 1 through March 31, a comprehensive erosion control plan shall be submitted to the City Biologist for approval prior to the issuance of a grading permit and implemented prior to initiation of vegetation removal and/or earthmoving activities.

59. The use of wood chips and shredded rubber is prohibited anywhere on the site. Flammable mulch material, including shredded bark, pine needles, and artificial turf, are prohibited between zero and five feet of a structure. Non-continuous use of flammable mulch

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(excluding wood chips and shredded rubber) is allowed between 5 and 30 feet from the eave/overhang of a structure with limited application areas. Any mulch materials (excluding wood chips and shredded rubber) are allowed 30 feet or more from a structure with no limitation on application area.

Fuel Modification

60. Prior to the issuance of final building permits, the project shall receive LACFD approval of a Final Fuel Modification Plan.

Public Works

61. The applicant shall obtain encroachment permits from the Public Works Department prior to the commencement of any work within the public right-of-way.

62. This project proposes to construct a new driveway within Caltrans' right-of-way. Prior to the Public Works Department approval of the grading or building permit, the applicant shall obtain encroachment permits from Caltrans for the proposed driveway.

63. The driveway shall be constructed of either six inches of concrete over four inches of aggregate base, or four inches of asphalt concrete over six inches of aggregate base. The driveway shall be flush with the existing grades with no curbs.

64. The applicant shall update and install a new curb and gutter on Pacific Coast Highway to accommodate the proposed drainage design. Prior to the Public Works Department approval of the grading or building permit, the applicant shall provide Caltrans approval for Pacific Coast Highway improvements and drainage design.

65. The applicant shall prepare a Traffic Impact Analysis (TIA) per the City of Malibu TIA Guidelines. The TIA shall be reviewed and approved by the Public Works Department prior to the issuance of the grading and or building permits. The applicant shall also be required to construct the applicable mitigation measures recommended in the TIA. The traffic mitigation measures shall be constructed prior to occupancy of the first building.

66. Prior to the commencement of work, the applicant shall submit a copy of a Construction Management Plan. The Construction Management Plan shall include a dedicated parking location for construction workers, not within the public right of way.

67. Prior to the approval of any grading and drainage permit, the applicant shall submit a PDF of the final plans. If there are further modifications to the plans, the applicant shall provide the City with an updated PDF.

68. Prior to the approval of the drainage plan, the applicant shall remove the existing CMP pipe onsite and install a new pipe to redirect water currently draining to the lot. The new pipe shall be designed in accordance with Caltrans and LA County Flood Standards. A

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video recording and images of the completed pipe shall be submitted to the City of Malibu Public Works Department. Applicant shall coordinate any easements required for the maintenance of the pipe with the appropriate agencies.

Grading/Drainage/Hydrology (Public Works)

69. The non-exempt grading for the project shall not exceed a total of 1,000 cubic yards, cut and fill.

70. The total grading yardage verification certificate shall be copied onto the cover sheet of the Grading Plan. No alternative formats or substitutes will be accepted.

71. A Water Quality Mitigation Plan (WQMP) is required for this project. The WQMP shall be supported by a hydrology and hydraulic study that identifies all areas contributory to the property and an analysis of the predevelopment and post development drainage on the site. The WQMP shall meet all the requirements of the City's current Municipal Separate Stormwater Sewer System (MS4) permit. The following elements shall be included within the WQMP:

    a. Site Design Best Management Practices (BMPs):
    b. Source Control BMPs;
    c. Treatment Control BMPs that retain on-site Stormwater Quality Design Volume (SWQDv). Or where it is technically infeasible to retain on-site, the project must biofitrate 1.5 times the SWQDv that is not retained on-site;
    d. Drainage improvements;
    e. A plan for the maintenance and monitoring of the proposed treatment BMPs for the expected life of the structure;
    f. Methods of onsite percolation, site re-vegetation and an analysis for off-site project impacts;
    g. Measures to treat and infiltrate runoff from impervious areas;
    h. A copy of the WQMP shall be filed against the property to provide constructive notice to future property owners of their obligation to maintain the water quality measure installed during construction prior to the issuance of grading or building permits; and
    i. The WQMP shall be submitted to the Public Works Department and the fee applicable at the time of submittal for review of the WQMP shall be paid prior to the start of the technical review. The WQMP shall be approved prior the Public Works Department's approval of the grading and drainage plan and/or building plans. The Public Works Department will tentatively approve the plan and will keep a copy until the completion of the project. Once the project is completed, the applicant shall verify the installation of the BMP's, make any revisions to the WQMP, and resubmit to the Public Works Department for approval. The original signed and notarized document shall be recorded with the Los Angeles County Recorder. A certified copy of the WQMP shall be submitted to the Public Works Department prior to the issuance of the certificate of occupancy.

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72. A grading and drainage plan containing the following information shall be approved and submitted to the Public Works Department prior to the issuance of grading permits for the project.
    a. Public Works Department general notes;
    b. The existing and proposed square footage of impervious coverage on the property shall be shown on the grading plan (including separate areas for buildings, driveways, walkways, parking, tennis courts and pool decks);
    c. The limits of land to be disturbed during project development shall be delineated and a total area of disturbance should be shown on this plan. Areas disturbed by grading equipment, areas disturbed for the installation of the septic system, and areas disturbed for the installation of the detention system beyond the limits of grading shall be included within the area delineated;
    d. The grading limits shall include the temporary cuts made for retaining walls, buttresses, and over excavations for fill slopes;
    e. If the property contains rare, endangered, or special status species as identified in the Biological Assessment, this plan shall contain a prominent note identifying the areas to be protected (to be left undisturbed). Fencing of these areas shall be delineated on the grading plan if required by the City Biologist; and
    f. Private storm drain systems shall be shown on this plan. Systems greater than 12-inch diameter shall also have a plan and profile for the system included with the grading plan.

73. A Local Storm Water Pollution Prevention Plan (LSWPPP) shall be provided prior to the issuance of the Grading/Building permits for the project. This plan shall include an Erosion and Sediment Control Plan (ESCP) that includes, but is not limited to:

Erosion Controls Scheduling	Erosion Controls Scheduling
	Preservation of Existing Vegetation
	Hydraulic Mulch
	Hydroseeding
	Soil Binders
	Straw Mulch
	Geotextiles And Mats
	Wood Mulching
Sediment Controls	Silt Fence
	Sand Bag Barrier
	Stabilized Construction Entrance
	Fiber Rolls
	Gravel Bag Berm
	Street Sweeping and/or Vacuum
	Storm Drain Inlet Protection
	Scheduling
	Check Dam

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Additional Controls	Wind Erosion Controls
	Stabilized Construction Entrance / Exit
	Stabilized Construction Roadway
	Entrance / Exit Tire Wash
Non-Storm Water Management	Water Conservation Practices
	Dewatering Operations
	Vehicle and Equipment Washing
	Vehicle and Equipment Fueling
	Vehicle and Equipment Maintenance
Waste Management	Material Delivery and Storage
	Stockpile Management
	Spill Prevention and Control
	Solid Waste Management
	Concrete Waste Management
	Sanitary/Septic Waste Management

All Best Management Practices (BMP) shall be in accordance to the latest version of the California Stormwater Quality Association (CASQA) BMP Handbook. Designated areas for the storage of construction materials, solid waste management, and portable toilets must not disrupt drainage patterns or subject the material to erosion by site runoff.

74. Prior to the approval of any permits and prior to the applicant submitting the required Construction General Permit documents to the State Water Quality Control Board, the applicant shall submit to the Public Works Department for review and approval an Erosion and Sediment Control Plan (ESCP). The ESCP shall contain appropriate site-specific construction site BMPs and be developed and certified by a Qualified SWPPP Developer (QWD). All structural BMPs must be designed by a licensed California Engineer. The ESCP must address the following elements:

a. Methods to minimize the footprint of the disturbed area and to prevent soil compaction outside the disturbed area.
b. Methods used to protect native vegetation and trees.
c. Sediment/Erosion Control.
d. Controls to prevent tracking on and off the site.
e. Non-storm water controls.
f. Material management (delivery and storage)
g. Spill prevention and control.
h. Waste management
i. Identification of site Risk Level as identified per the requirements in Appendix 1 of the Construction General Permit.
j. Landowner must sign the following statement on the ESCP:

> "I certify that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to ensure that qualified personnel properly gather and evaluate the information submitted. Based on my

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inquiry of the person or persons who manage the system or those persons directly responsible for gathering the information, to the best of my knowledge and belief, the information submitted is true, accurate and complete. I am aware that submitting false and/or inaccurate information, failing to update the ESCP to reflect current conditions, or failing to properly and/or adequately implement the ESCP may result in revocation of grading and/or other permits or other sanctions provided by law."

75. Storm drainage improvements are required to mitigate increased runoff generated by property development. The applicant shall have the choice of one method specified within LIP Section 17.3.2.B.2.

76. A Storm Water Management Plan (SWMP) is required for this project. Storm drainage improvements are required to mitigate increased runoff generated by property development. The applicant shall have the choice of one method specified within the City's Local Implementation Plan Section 17.3.2.B.2. The SWMP shall be supported by a hydrology and hydraulic study that identifies all areas contributory to the property and an analysis of the pre-development and post-development drainage of the site. The SWMP shall identify the site design and source control Best Management Practices (BMPs) that have been implemented in the design of the project (See LIP Chapter 17 Appendix A). The SWMP shall be reviewed and approved by the Public Works Department prior to the issuance of the grading or building permit for this project.

77. Clearing and grading during the rainy season (extending from November 1 to March 31) shall be prohibited for development that:
    a. Is located within or adjacent to ESHA, or
    b. Includes grading on slopes greater than 4 to 1.

    Approved grading for development that is located within or adjacent to ESHA or on slopes greater than 4 to 1 shall not be undertaken unless there is sufficient time to complete grading operations before the rainy season. If grading operations are not completed before the rainy season begins, grading shall be halted and temporary erosion control measures shall be put into place to minimize erosion until grading resumes after March 31, unless the City determines that completion of grading would be more protective of resources.

78. The Building Official may approve grading during the rainy season to remediate hazardous geologic conditions that endanger public health and safety.

79. Exported soil from a site shall be taken to the Los Angeles County Landfill or to a site with an active grading permit and the ability to accept the material in compliance with LIP Section 8.3.

80. All cut and fill slopes shall be stabilized with landscaping at the completion of final grading.

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Geology

81. All recommendations of the consulting certified engineering geologist or geotechnical engineer and/or the City geotechnical review consultants shall be incorporated into all final design and construction including foundations, grading, sewage disposal, and drainage. Final plans shall be reviewed and approved by the City geotechnical review consultants prior to the issuance of a grading permit.

82. Final plans approved by the City geotechnical review consultants shall be in substantial conformance with the approved CDP relative to construction, grading, sewage disposal and drainage. Any substantial changes may require a CDP amendment or a new CDP.

Swimming Pool/Spa/Water Features

83. Onsite noise, including that which emanates from swimming pool and air conditioning equipment, shall be limited as described in MMC Chapter 8.24 (Noise).

84. Pool and air conditioning equipment that will be installed shall be screened from view by a solid wall or fence on all four sides. The fence or walls shall comply with LIP Section 3.5.3(A).

85. All swimming pools shall contain double walled construction with drains and leak detection systems capable of sensing a leak of the inner wall.

86. The discharge of swimming pool, spa and decorative fountain water and filter backwash, including water containing bacteria, detergents, wastes, algaecides or other chemicals is prohibited. Swimming pool, spa, and decorative fountain water may be used as landscape irrigation only if the following items are met:
    a. The discharge water is dechlorinated, debrominated or if the water is disinfected using ozonation;
    b. There are sufficient BMPs in place to prevent soil erosion; and
    c. The discharge does not reach into the MS4 or to the ASBS (including tributaries)

87. Discharges not meeting the above-mentioned methods must be trucked to a Publicly Owned Wastewater Treatment Works.

88. A sign stating “It is illegal to discharge pool, spa, or water feature waters to a street, drainage course, or storm drain per MMC Section 13.04.060(D)(5)” shall be posted in the filtration and/or pumping equipment area for the property. Prior to the issuance of any permits, the applicant shall indicate the method of disinfection and the method of discharging.

89. Pursuant to MMC Section 9.20.040(B), all ponds, decorative fountains shall require a water recirculating/recycling system.

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Onsite Wastewater Treatment System (OWTS)

90. Prior to the issuance of a building permit the applicant shall demonstrate, to the satisfaction of the Building Official, compliance with the City of Malibu's onsite wastewater treatment regulations including provisions of MMC Chapters 15.40, 15.42, 15.44, and LIP Chapter 18 related to continued operation, maintenance and monitoring of the OWTS.

91. Final OWTS Plot Plan: Prior to final Environmental Health approval, a final OWTS plot plan prepared by a City Registered OWTS Designer shall be submitted showing an OWTS design meeting the minimum requirements of the MMC and the LCP, including necessary construction details, the proposed drainage plan for the developed property and the proposed landscape plan for the developed property. The OWTS plot plan shall show essential features of the OWTS and must fit onto an 11 inch by 17 inch sheet leaving a five inch margin clear to provide space for a City applied legend. If the scale of the plans is such that more space is needed to clearly show construction details and/or all necessary setbacks, larger sheets may also be provided (up to a maximum size of 18 inches by 22 inches).

92. Final OWTS Design Report, Plans, and System Specifications: If the OWTS design and/or bedroom/drainage fixture unit counts are modified in any way subsequent to the Planning-stage review, then a final OWTS design report and large set of construction drawings with system specifications (four sets) shall be submitted to describe the OWTS design basis and all components (i.e., alarm system, pumps, timers, flow equalization devices, backflow devices, etc.) proposed for use in the construction of the proposed OWTS. For all OWTS, final reports must be signed by a City registered OWTS Designer, and the plans stamped by a California Geologist. The final OWTS design report and construction drawings shall be submitted to the City Environmental Health Administrator with the designer's wet signature, professional registration number and stamp (if applicable).

93. The final design report shall contain the following information (in addition to the items listed above):
    a. Required treatment capacity for wastewater treatment and disinfection systems. The treatment capacity shall be specified in terms of flow rate, gallons per day, and shall be supported by calculations relating the treatment capacity to the number of bedroom equivalents, plumbing drainage fixture equivalents, and the subsurface effluent dispersal system acceptance rate. The drainage fixture unit count must be clearly identified in association with the design treatment capacity, even if the design is based on the number of bedrooms. Average and peak rates of hydraulic loading to the treatment system shall be specified in the final design;
    b. Sewage and effluent pump design calculations (as applicable);
    c. Description of proposed wastewater treatment and/or disinfection system equipment. State the proposed type of treatment system(s) (e.g., aerobic treatment, textile filter ultraviolet disinfection, etc.); major components, manufacturers, and model numbers for "package" systems; and conceptual design for custom engineered systems;

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d. Specifications, supporting geology information, and percolation test results for the subsurface effluent dispersal portion of the onsite wastewater disposal system. This must include the proposed type of effluent dispersal system (drainfield, trench, seepage pit subsurface drip, etc.) as well as the system's geometric dimensions and basic construction features. Supporting calculations shall be presented that relate the results of soils analysis or percolation/infiltration tests to the projected subsurface effluent acceptance rate, including any unit conversions or safety factors. Average and peak rates of hydraulic loading to the effluent dispersal system shall be specified in the final design. The projected subsurface effluent acceptance rate shall be reported in units of total gallons per day and gallons per square foot per day. Specifications for the subsurface effluent dispersal system shall be shown to accommodate the design hydraulic loading rate (i.e., average and peak OWTS effluent flow, reported in units of gallons per day). The subsurface effluent dispersal system design must take into account the number of bedrooms, fixture units and building occupancy characteristics; and
e. All final design drawings shall be submitted with the wet signature and typed name of the OWTS designer. If the scale of the plan is such that more space is needed to clearly show construction details, larger sheets may also be provided (up to a maximum size of 18 inch by 22 inch, for review by Environmental Health). Note: For OWTS final designs, full-size plans are required for review by the Building Safety Division and/or the Planning Division.

94. Existing OWTS to be Abandoned: Final plans shall clearly show the locations of all existing OWTS components (serving pre-existing development) to be abandoned and provide procedures for the OWTS' proper abandonment in conformance with the MMC.

95. Worker Safety Note and Abandonment of Existing OWTS: The following note shall be added to the plan drawings included with the OWTS final design: "Prior to commencing work to abandon, remove, or replace the existing Onsite Wastewater Treatment System (OWTS) components, an 'OWTS Abandonment Permit' shall be obtained from the City of Malibu. All work performed in the OWTS abandonment, removal or replacement area shall be performed in strict accordance with all applicable federal, state, and local environmental and occupational safety and health regulatory requirements. The obtainment of any such required permits or approvals for this scope of work shall be the responsibility of the applicant and their agents."

96. Proof of Ownership: Proof of ownership of subject property shall be submitted to the City Environmental Health Administrator.

97. Operations and Maintenance Manual: An operations and maintenance manual specified by the OWTS designer shall be submitted to the property owner and maintenance provider of the proposed OWTS.

98. Maintenance Contract: A maintenance contract executed between the owner of the subject property and an entity qualified in the opinion of the City of Malibu to maintain the

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proposed onsite wastewater disposal system after construction shall be submitted. Note only original "wet signature" documents are acceptable.

99. Advanced Onsite Wastewater Treatment System Covenant: Prior to final Environmental Health approval, a covenant running with the land shall be executed between the City of Malibu and the holder of the fee simple absolute as to subject real property and recorded with the Office of the Los Angeles County Recorder. Said covenant shall serve as constructive notice to any future purchaser for value that the onsite wastewater treatment system serving subject property is an advanced method of sewage disposal pursuant to the City of MMC. Said covenant shall be provided by the City of Malibu Environmental Health Administrator.

100. A covenant running with the land shall be executed by the property owner and recorded with the Office of the Los Angeles County Recorder. Said covenant shall serve as constructive notice to any successors in interest that: 1) the private sewage disposal system serving the development on the property does not have a 100 percent expansion effluent dispersal area (i.e., replacement disposal field(s) or seepage pit(s)), and 2) if the primary effluent dispersal area fails to drain adequately, the City of Malibu may require remedial measures including, but not limited to, limitations on water use enforced through operating permit and/or repairs, upgrades or modifications to the private sewage disposal system. The recorded covenant shall state and acknowledge that future maintenance and/or repair of the private sewage disposal system may necessitate interruption in the use of the private sewage disposal system and, therefore, any building(s) served by the private sewage disposal system may become non-habitable during any required future maintenance and/or repair. Said covenant shall be in a form acceptable to the City Attorney and approved by the City Environmental Sustainability Department.

101. Project Geologist/Geotechnical Consultant final approval of the OWTS plan shall be submitted to the Environmental Health Administrator.

102. The City Biologist's final approval shall be submitted to the City Environmental Health Administrator. The City Biologist shall review the OWTS design to determine any impact on Environmentally Sensitive Habitat Area.

103. City of Malibu Public Works final approval of the OWTS plan shall be submitted to the Environmental Health Administrator.

104. The City geotechnical review consultants' final approval shall be submitted to the City Environmental Health Administrator.

105. City of Malibu Planning Division final approval of the OWTS plan shall be obtained.

106. Environmental Health Final Review Fee: A final fee in accordance with the adopted fee schedule at the time of the final approval shall be paid to the City of Malibu for Environmental Health review of the OWTS design and system specification.

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107. Operating Permit Application and Fee: In accordance with the MMC, prior to Environmental Health approval, an application shall be made to the Environmental Health Office for an OWTS operating permit. An operating permit fee in accordance with the adopted fee schedule at the time of final approval shall be submitted with the application.

108. Prior to final Environmental Health approval, the construction plans for all structures and/or buildings with reduced setbacks must be approved by the City Building Safety Division. The architectural and/or structural plans submitted to Building and Safety plan check must detail methods of construction that will compensate for the reduction in setback (e.g., waterproofing, concrete additives, etc.). For complex waterproofing installations, submittal of a separate waterproofing plan may be required. The architectural/structural/ waterproofing plans must show the location of OWTS components in relation to those structures from which the setback is reduced, and the plans must be signed and stamped by the architect, structural engineer, and geotechnical consultants (as applicable).

109. Prior to final Environmental Health approval, the applicant shall provide engineer's certification for reduction in setbacks to buildings or structures: All proposed reductions in setback from the OWTS to structures (i.e., setbacks less than those shown in MMC Table 15.42.030(E)) must be supported by a letter from the project structural engineer and a letter from the project soils engineer (i.e., a geotechnical engineer or civil engineer practicing in the area of soils engineering). Both engineers must certify unequivocally that the proposed reduction in setbacks from the treatment tank and effluent dispersal area will not adversely affect the structural integrity of the OWTS, and will not adversely affect the structural integrity of the structures for which the Table 15.42.030(E) setback is reduced. Construction drawings submitted for plan check must show OWTS components in relation to those structures from which the setback is reduced. All proposed reductions in setback from the OWTS to buildings (i.e., setbacks less than those shown in Table 15.42.030(E)) also must be supported by a letter from the project architect, who must certify unequivocally that the proposed reduction in setbacks will not produce a moisture intrusion problem for the proposed building(s). If the building designer is not a California-licensed architect, then the required architect's certification may be supplied by an engineer who is responsible for the building design with respect to mitigation of potential moisture intrusion from reduced setbacks to the wastewater system. In this case, the engineer must include in his/her letter an explicit statement of responsibility for mitigation of potential moisture intrusion. If any specific construction features are proposed as part of a moisture intrusion mitigation system in connection with the reduced setback, then the architect or engineer must provide associated construction documents for review and approval during Building Safety Division plan check. The wastewater plans and the construction plans must be specifically referenced in all certification letters.

110. Reference Plans: Reference architectural and grading/drainage plans shall be submitted to Environmental Health during building plan check review of the proposed OWTS. The approved plans are for 121 fixture units, 6 bedrooms and one master bedroom, and a design flow of 1,050 GPD.

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111. Any above-ground equipment associated with the installation of the OWTS shall be screened from view by a solid wall or fence on all four sides. The fence or walls shall not be higher than 42-inches tall.

Water Quality/Water Service

112. A State Construction Activity Permit is required for this project due to the disturbance of more than one acre of land for development. Provide a copy of the letter from the State Water Quality Control Board containing the Waste Discharge Identification (WDID) number prior to the issuance of grading or building permits.

113. Prior to the issuance of a building permit, the applicant shall submit an updated Will Serve Letter from Los Angeles County Waterworks District No. 29 to the Planning Division indicating the ability of the property to receive adequate water service.

114. Prior to final inspection (or project sign off, as applicable) by the Planning Division, the applicant shall demonstrate that all requirements of Los Angeles County Waterworks District No. 29 have been met, including installation of a meter, if applicable.

115. For projects including installation of a private water well, prior to final inspection (or project sign, as applicable) by the Building Safety Division, the applicant shall demonstrate that all requirements of Los Angeles County Waterworks District No. 29 have been met, including installation of a backflow prevention device.

Prior to Occupancy

116. Prior to, or at the time of a Planning Division final inspection, the property owner/applicant shall submit to Planning the plumbing permit for the OWTS signed off by the Building Safety Division.

117. Prior to the issuance of a Certificate of Occupancy, the City Biologist shall inspect the project site and determine that all Planning conditions to protect natural resources are in compliance with the approved plans.

118. Prior to a final Building inspection, the applicant shall provide a Recycling Summary Report (Summary Report) and obtain the approval from the Environmental Sustainability Department. Applicant must provide haul tickets and diversion information. The final Summary Report shall designate the specific materials that were land filled or recycled, and state the facilities where all materials were taken.

119. The applicant shall request a final Planning inspection prior to final inspection by the City of Malibu Building Safety Division. A Certificate of Occupancy shall not be issued until the Planning Division has determined that the project complies with this coastal development permit. A temporary Certificate of Occupancy may be granted at the discretion

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of the Community Development Director, provided adequate security has been deposited with the City to ensure compliance should the final work not be completed in accordance with this permit.

120. Any construction trailer, storage equipment or similar temporary equipment not permitted as part of the approved scope of work shall be removed prior to final inspection and approval, and if applicable, the issuance of the certificate of occupancy.

Fixed Conditions

121. This coastal development permit shall run with the land and find all future owners of the property.

122. Violation of any of the conditions of this approval may be cause for revocation of this permit and termination of all rights granted there under.

Deed Restrictions

123. The property owner is required to execute and record a deed restriction which shall indemnify and hold harmless the City, its officers, agents, and employees against any and all claims, demands, damages, costs and expenses of liability arising out of the acquisition, design, construction, operation, maintenance, existence or failure of the permitted project in an area where an extraordinary potential for damage or destruction from wildfire exists as an inherent risk to life and property. The property owner shall provide a copy of the recorded document to Planning staff prior to final planning approval.

124. The property owner is required to acknowledge, by recordation of a deed restriction, that as part of the project no more than one secondary residential unit is permitted to exist on the subject property. Said document shall include the definitions of a second unit and guest house as defined by the LIP Section 2.1 and shall be recorded with the Office of the Los Angeles County Recorder. The applicant shall submit a copy of the recorded document to the Planning Division.

125. Prior to final Planning approval, the applicant shall be required to execute and record a deed restriction reflecting lighting requirements set forth in Condition Nos. 15-22. The property owner shall provide a copy of the recorded document to the Planning Division prior to final Planning approval.

126. The garage area shall be limited to accessory use as defined by the City of Malibu Local Coastal Plan. The garage area cannot be converted into habitable space at any time in the future. Prior to issuance of building permits, the applicant is required to execute and record a deed restriction to this effect.

127. The property owner is required to execute and record a deed restriction stating that as part of the project, a view corridor of 31 percent of the site width shall be established and

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maintained, as stipulated in Condition No. 34. The terms of Condition No. 34 shall be specifically identified in the deed restriction. The property owner shall provide a copy of the recorded document to Planning Division staff prior to final planning approval.

SECTION 6. The Planning Commission shall certify the adoption of this resolution.

PASSED, APPROVED AND ADOPTED this 21st day of July 2025.

DREW LEONARD, Planning Commission Chair

ATTEST:

REBECCA EVANS, Recording Secretary

LOCAL APPEAL - Pursuant to Local Coastal Program Local Implementation Plan (LIP) Section 13.20.1 (Local Appeals) a decision made by the Planning Commission may be appealed to the City Council by an aggrieved person by written statement setting forth the grounds for appeal. An appeal shall be filed with the City Clerk within 10 days and shall be accompanied by an appeal form and filing fee, as specified by the City Council. Appeal forms may be found online at www.malibucity.org, in person at City Hall, or by calling (310) 456-2489, ext. 246.

COASTAL COMMISSION APPEAL – An aggrieved person may appeal the Planning Commission's approval to the Coastal Commission within 10 working days of the issuance of the City's Notice of Final Action. Appeal forms may be found online at www.coastal.ca.gov or by calling (805) 585-1800. Such an appeal must be filed with the Coastal Commission, not the City.

Any action challenging the final decision of the City made as a result of the public hearing on this application must be filed within the time limits set forth in Section 1.12.010 of the MMC and Code of Civil Procedure. Any person wishing to challenge the above action in Superior Court may be limited to raising only those issues they or someone else raised at the public hearing, or in written correspondence delivered to the City of Malibu at or prior to the public hearing.

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I CERTIFY THAT THE FOREGOING RESOLUTION NO. 25-05 was passed and adopted by the Planning Commission of the City of Malibu at the Regular meeting held on the 21st day of July 2025 by the following vote:

AYES:
NOES:
ABSTAIN:
ABSENT:

_____
REBECCA EVANS, Recording Secretary

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VILLA COLEAVA

PLANNING SUBMITTAL SET

4/16/25

OPPENHEIM ARCHITECTURE

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Civil Engineers
LC Engineering Group
889 Pierce Ct., Ste. 101
Thousand Oaks, CA 91360
P 805-497-1244
P 818-991-7148
W lcegroupinc.com

Landscape Architect
[place]
3617 exposition boulevard
Los Angeles, CA 90016
P 310 450 8100
F 323 737 3290
W plac-e.com

Design Architect
Oppenheim Architecture
245 NE 37 Street
Miami FL 33137
P 305 576 8404
F 305 576 8433
W oppenoffice.com

Project Address
VILLA COLEAVA
25200 Pacific Coast Hwy
Malibu, California, USA

Property Owner
PAR PCH, LLC
PO Box 6578
Malibu, CA 90265

ATTACHMENT 2



ZONING INFORMATION

ZONE: RR-2
ADDRESS: 25200 PACIFIC COAST HIGHWAY, MALIBU, CALIFORNIA, 90265.
TYPE OF CONSTRUCTION: TYPE VB
OCCUPANCY CLASSIFICATION: R-3,U
STORIES: ONE STORY + BASEMENT
SPRINKLERED STRUCTURE
ASSESOR PARCEL #: 4459-013-021, 4459-014-018
PROJECT DESCRIPTION:THE PROJECT SEEKS TO PRESERVE AND ACCENTUATE THE VIEWS OF MALIBU BEACH. THE ARCHITECTURE IS REDUCED TO CASCADING HORIZONTAL PLANES THAT ARE CAREFULLY PLACED ON THE SITE'S TOPOGRAPHY, WHICH SERVE TO FRAME THE VIEWS TOWARD MALIBU BEACH. THE PROGRAMMATIC VOLUMES ARE DISCRETELY PLACED UNDER THESE CASCADING HORIZONTAL PLANES AND ARE COMPOSED OF ORGANIC AND LOCALLY SOURCED WOOD, STONE, AND GLASS, WHICH ALLOW THE ARCHITECTURE TO DISAPPEAR AND BLEND IN TO ITS ENVIRONMENT. THE ELEGANT SIMPLICITY OF THE PROJECT'S ELEMENTS AND MATERIALITY ALLOWS FOR THE OPTIMAL INTEGRATION INTO THE SITE.
PACIFIC COAST HIGHWAY LOT FRONTAGE: 1692'
LOT VIEW CORRIDOR: 525'-2"= 31% OF PACIFIC COAST HIGHWAY LOT FRONTAGE (VIEW DOES NOT REQUIRE THE REMOVAL OR TRIMMING OF VEGETATION)
LOT DEPTH: 194'-3"
LOT WIDTH: 577'-3"
REQUIRED FRONT YARD (20% OF LOT DEPTH): 38'-10 3/16"
REQUIRED REAR YARD (15% OF LOT DEPTH): 29'-1 5/8"
CUMULATIVE REQUIRED SIDE YARD (25% OF LOT DEPTH)**:** 144'-3 3/4"
REQUIRED SIDE YARD: 72'-1 7/8"
GROSS LOT AREA: 277,313 SQ.FT.
ROAD EASEMENT AREA: 8,420 SQ.FT.
1:1 AND STEEPER SLOPE AREA: 2,856 SQ.FT.
NET LOT AREA: 266,037 SQ.FT.
PROPOSED TDSF: 11,120.98 SQ.FT.
ALLOWABLE TDSF: 11,172 SQ.FT.
LOT COVERAGE PROPOSED: 21,279.28 SQ.FT.
LOT COVERAGE ALLOWED: 25,000 SQ.FT.

FIRE SAFETY CALCULATIONS

TYPE OF CONSTRUCTION: TYPE VB
VHFHSZ: YES
SIZE OF LOT: 6.36 ACRES
FIRE FLOW BASED ON THE FIRE-FLOW CANCLUATION AREA: 2750 GPM
REDUCTION FOR FIRE SPRINKLERS (MAXIMUM 50%): 1375 GPM
TOTAL FIRE FLOW REQUIRED: 1375 GPM

		I DADI Program Area	
STORY	PROGRAM	MEASURED AREA	CALCULATED AREA
GUEST HOUSE			
	GUEST BATH	209.00	209.00
	GUEST BEDROOM	256.00	256.00
		BASEMENT SUBTOTAL	**465.00 sq ft**
BASEMENT			
	GARAGE	1,000.00	0.00
	LAUNDRY	172.07 /2 =	86.25
	LIGHTWELL	204.00 /2 =	102.00
	MUD ROOM	126.50 /2 =	63.25
	S. BATH	75.00 /2 =	37.50
	S. BATH	75.00 /2 =	37.50
	SERVICE BR.	197.25 /2 =	98.63
	SERVICE BR.	196.25 /2 =	98.13
	SERVICE HALLWAY	304.00 /2 =	152.00
	SERVICE PR	75.00 /2 =	37.50
	WINE STO.	97.75 /2 =	48.88
		BASEMENT SUBTOTAL	**761.65 sq ft**
GYM			
	GYM	410.33	410.33
	GYM PR	118.00	118.00
	SAUNA	65.00	65.00
	STEAM RM.	82.50	82.50
		GYM SUBTOTAL	**675.83 sq ft**
GROUND LEVEL			
	BEDROOM 1	569.75	569.75
	BEDROOM 2	559.00	559.00
	BEDROOM 3	569.75	569.75
	DINING ROOM	960.00	960.00
	FAMILY ROOM	734.00	734.00
	GALLERY	778.00	778.00
	KITCHEN	649.50	649.50
	LIVING ROOM	1,027.00	1,027.00
	MASTER BATHROOM	919.00	919.00
	MASTER BEDROOM	1,004.00	1,004.00
	OFFICE	511.00	511.00
	OUTDOOR KITCHEN	108.00	108.00
	PANTRY	117.00	117.00
	POOL PR	193.50	193.50
	PR	131.50	131.50
	SERVICE KITCHEN	267.50	267.50
	STAIR TO BASEMENT	120.00	120.00
		GROUND LEVEL SUBTOTAL	**9,218.50 sq ft**
		PROPOSED	**11,120.98 sq ft**
		ALLOWED	**11,172.00 sq ft**

LOT COVERAGE		
STORY	PROGRAM	MEASURED AREA
GROUND LEVEL		
	BASEMENT BELOW	960.75
	FIREPIT	190.00
	GYM PR	110.49
	GYM/SPA + TERRACE	669.33
	IMPERMEABLE DECK	1,450.49
	MEP EQUIPMENT	271.28
	OUTDOOR MASSAGE RM.	231.00
	OUTDOOR SHOWER	99.75
	SAUNA	61.75
	SOLID ROOF	14,570.27
	STEAM RM.	71.50
	WALLS	2,592.67
	PROPOSED	**21,279.28 ft²**
	ALLOWED	**25,000.00 sq ft**

		Issued
COVER & GEN SHEETS		
0000	COVER	☐
0001	PROJECT INFORMATION AND LOCATION MAP	☐
0002	SURVEY	☐
PLANS		
A100	SITE PLAN	☐
A101	ENLARGED SITE PLAN A	☐
A102	ENLARGED SITE PLAN B	☐
A103	ENLARGED SITE PLAN C	☐
A104	GUEST HOUSE LEVEL	☐
A105	GYM + BASEMENT LEVEL	☐
A106	GROUND LEVEL B	☐
A107	GROUND LEVEL C	☐
A108	ROOF LEVEL A	☐
A109	ROOF LEVEL B	☐
A110	ROOF LEVEL C	☐
A111	SEPTIC LAYOUT	☐
ELEVATIONS		
A200	OVERALL ELEVATIONS	☐
A201	OVERALL ELEVATIONS	☐
A202	OVERALL ELEVATIONS	☐
A203	ENLARGED GUEST HOUSE ELEVATIONS	☐
A204	ENLARGED GYM ELEVATIONS	☐
A205	ENLARGED MAIN HOUSE ELEVATIONS	☐
A206	ENLARGED MAIN HOUSE ELEVATIONS	☐
A207	ENLARGED MAIN HOUSE ELEVATIONS	☐
SECTIONS		
A300	CROSS SECTIONS	☐
A301	CROSS SECTIONS	☐
A302	CROSS SECTIONS	☐
A303	LONGITUDINAL SECTION	☐
ENLARGED DRAWINGS		
A400	MAIN GATE/ENTRANCE	☐
A401	GUEST HOUSE LEVEL	☐
A402	GYM LEVEL	☐
A403	BASEMENT LEVEL	☐
A404	GROUND LEVEL-1	☐
A405	GROUND LEVEL-2	☐
A406	GROUND LEVEL-3	☐
A407	ROOF LEVEL-1	☐
A408	ROOF LEVEL-2	☐
A409	ROOF LEVEL-3	☐
A410	ROOF LEVEL-4	☐
FIRE SAFETY		
FS100	FIRE ACCESS ROAD A	☐
FS101	FIRE ACCESS ROAD B	☐
FS102	FIRE ACCESS ROAD C	☐
FS103	FIRE ACCESS WALKWAY A	☐
FS104	FIRE ACCESS WALKWAY B	☐
FS105	FIRE ACCESS WALKWAY C	☐
FS107	FIRE HYDRANT LOCATIONS	☐
ZONING DIAGRAMS		
Z100	VIEW CORRIDOR DIAGRAM	☐
Z101	LOT DEPTH AND WIDTH CALCULATION	☐
Z102	FUEL MOD DIAGRAM	☐
Z103	AREA CALCULATION A	☐
Z104	AREA CALCULATION B	☐
Z105	AREA CALCULATION C	☐
Z106	WALL AND FENCE PLAN A	☐
Z107	WALL AND FENCE PLAN B	☐
Z108	WALL AND FENCE PLAN C	☐
Z109	LOT COVERAGE A	☐
Z110	LOT COVERAGE B	☐
Z111	LOT COVERAGE C	☐
Z112	PROTRUSION ABOVE PCH HIGHWAY	☐
Z113	PROTRUSION ABOVE PCH HIGHWAY	☐
Z114	RENDERING	☐
Z115	RENDERING	☐
Z116	RENDERING	☐
Z117	RENDERING	☐

Project No
1813

Project Name
VILLA COLEAVA

Project Address
25200 Pacific Coast Hwy.
Malibu, California, USA

Property Owner
PAR PCH, LLC
PO Box 6528
Malibu, CA 90265

Design Architect
Oppenheim Architecture
245 NE 37 Street
Miami FL 33137
P 305 576 8404
F 305 576 8433
W oppenoffice.com

Landscape Architect
[place]
3617 exposition boulevard
Los Angeles, CA 90016
P 310-450-8100
F 323-737-3290
W plac-e.com

Civil Engineers
LC Engineering Group
889 Pierce Ct., Ste. 101
Thousand Oaks, CA 91360
P 805-497-1244
P 818-991-7148
W lcegroupinc.com

Revisions

Mark	Date	Description

Title
PROJECT INFORMATION AND LOCATION MAP

NOT FOR CONSTRUCTION

Design Development

1813
VILLA COLEAVA

Drawing Issued on 4/16/25

0001

LEGAL DESCRIPTION

THAT PORTION OF THE RANCHO TOPANGA MALIBU SEQUIT AS CONFIRMED TO MATTHEW KELLER, BY PATENT RECORDED IN BOOK 1 PAGE 407, ET SEQ. OF PATENTS, IN THE OFFICE OF THE COUNTY RECORDER OF SAID COUNTY, DESCRIBED AS FOLLOWS:

BEGINNING AT A POINT IN THE NORTHERLY LINE OF MALIBU ROAD, FORMERLY STATE HIGHWAY, NOW 80 FEET IN WIDTH, AS RELINQUISHED TO THE COUNTY OF LOS ANGELES, BY RESOLUTION OF THE CALIFORNIA STATE HIGHWAY COMMISSION, RECORDED MARCH 16, 1949 AS INSTRUMENT NO. 1521 IN BOOK 29600 PAGE 181, OFFICIAL RECORDS OF SAID COUNTY, DISTANT NORTH 81°30'15" WEST 361.86 FEET FROM THE MOST WESTERLY CORNER OF TRACT 18868, AS PER MAP RECORDED IN BOOK 551 PAGES 12 AND 13 OF MAPS, RECORDS OF SAID COUNTY; THENCE NORTH 81°30'15" WEST ALONG SAID NORTHERLY LINE, 45.83 FEET; THENCE LEAVING SAID NORTHERLY LINE NORTH 2°46'20" EAST 298.59 FEET; THENCE NORTH 59°14'25" WEST 120.39; THENCE SOUTH 86°36'52" WEST 929.66 FEET; THENCE NORTH 80°33'30" WEST 242.75 FEET; THENCE NORTH 68°47'07" WEST 132.79 FEET TO A POINT IN THE SOUTHERLY LINE OF PACIFIC COAST HIGHWAY, 100 FEET IN WIDTH, AS DESCRIBED IN PARCEL 1 IN DEED TO THE STATE OF CALIFORNIA, RECORDED MARCH 22, 1944 AS INSTRUMENT NO. 1279, IN BOOK 20743 PAGE 271, OFFICIAL RECORDS, SAID POINT BEING DISTANT SOUTH 81°23'21" WEST 823.85 FEET AND SOUTH 8°36'39" EAST 50.00 FEET FROM A BRASS CAP MONUMENT SET BY THE LOS ANGELES COUNTY SURVEYOR ON THE CENTER LINE OF SAID PACIFIC COAST HIGHWAY AT THE EASTERLY EXTREMITY OF THAT CERTAIN COURSE SHOWN AS "NORTH 81°29'29" EAST 1403.08 FEET" IN COUNTY SURVEYORS MAP NO. R-1698 SHEET 3; THENCE ALONG SAID SOUTHERLY LINE, NORTH 81°23'21" EAST 822.02 FEET TO THE BEGINNING OF A TANGENT CURVE CONCAVE TO THE SOUTH HAVING A RADIUS OF 2850 FEET; THENCE EASTERLY ALONG THE ARC OF SAID CURVE THROUGH A CENTRAL ANGLE OF 10°51'24", A DISTANCE OF 558.98 FEET TO END OF SAME; THENCE TANGENT SOUTH 87°45'15" EAST 311.34 FEET TO AN INTERSECTION WITH THE WESTERLY LINE OF PUERCO CANYON ROAD, 60 FEET IN WIDTH; THENCE ALONG SAID PUERCO CANYON ROAD, SOUTH 25°28'25" WEST 101.45 FEET TO A POINT OF THE BEGINNING OF A TANGENT CURVE CONCAVE TO THE EAST HAVING A RADIUS OF 130 FEET, SAID POINT BEING DISTANT NORTH 54°33'35" WEST 30.00 FEET FROM A POINT AT THE SOUTHERLY EXTREMITY OF THAT CERTAIN CENTER LINE COURSE SHOWN AS "NORTH 35°33'00" EAST 139.12 FEET" IN COUNTY SURVEYORS MAP NO.8838, SHEET 1; THENCE SOUTHERLY ALONG THE ARC OF SAID CURVE THROUGH A CENTRAL ANGLE OF 36°26'10", A DISTANCE OF 82.67 FEET TO END OF CURVE; THENCE ALONG THE PROLONGATION OF A RADIAL LINE TO THE END OF SAID CURVE, SOUTH 89°00'15" WEST 94.52 FEET TO AN INTERSECTION WITH THE WESTERLY LINE OF PARCEL 2, AS DESCRIBED IN DOCUMENT RECORDED IN BOOK 42828 PAGE 48, OFFICIAL RECORDS OF SAID COUNTY; THENCE ALONG SAID WESTERLY LINE OF PARCEL 2, SOUTH 11°37'51" WEST 387.44 FEET, MORE OR LESS, TO THE POINT OF BEGINNING.

EXCEPT THEREFROM ALL MINERALS, OIL, PETROLEUM, ASPHALTUM, GAS, COAL AND OTHER HYDROCARBON SUBSTANCES IN, ON, WITHIN AND UNDER SAID LANDS AND EVERY PART THEREOF, BUT WITHOUT RIGHT OF ENTRY, AS RESERVED BY MARBLEHEAD LAND COMPANY, A DELAWARE CORPORATION, IN DEED RECORDED APRIL 7, 1952 IN BOOK 38646 PAGE 104, OFFICIAL RECORDS.

PARCEL 2 (EASEMENT):

AN EASEMENT FOR PEDESTRIAN TRAVEL, BATHING AND RECREATIONAL PURPOSES ONLY AND NOT FOR CAMPING, ERECTING TENTS OR BUILDINGS, MAINTAINING CONCESSIONS, LIGHTING FIRES OR CONSTRUCTING AND MAINTAINING PIERS, DOCKS, WHARVES, GROINS OR ANY STRUCTURES INTERFERING OR TENDING TO INTERFERE WITH SAID TRAVEL IN OCEAN WATER OVER LOT 64 OF TRACT 13157, AS PER MAP RECORDED IN BOOK 272 PAGES 18 AND 19 OF MAPS, IN THE OFFICE OF THE COUNTY RECORDER OF SAID COUNTY; AND OVER THAT PORTION OF THE RANCHO TOPANGA MALIBU SEQUIT, AS CONFIRMED TO MATTHEW KELLER BY PATENT RECORDED IN BOOK 1 PAGE 407, ET SEQ., OF PATENTS, IN THE OFFICE OF THE COUNTY RECORDER OF SAID COUNTY; BOUNDED ON THE NORTH BY THE 60 FOOT STRIP OF LAND RELINQUISHED TO THE COUNTY OF LOS ANGELES BY RESOLUTION OF THE CALIFORNIA STATE HIGHWAY COMMISSION, RECORDED MARCH 16, 1949 IN BOOK 29600 PAGE 181, OFFICIAL RECORDS, IN THE OFFICE OF THE COUNTY RECORDER OF SAID COUNTY; BOUNDED ON THE SOUTH BY THE NORTHERLY LINE OF LOT 64 OF TRACT 13157, AS PER MAP RECORDED IN BOOK 272 PAGES 18 AND 19 OF MAPS, IN THE OFFICE OF THE COUNTY RECORDER OF SAID COUNTY; BOUNDED ON THE EAST BY THE NORTHERLY PROLONGATION OF THE EASTERLY LINE OF SAID LOT 64; AND BOUNDED ON THE WEST BY THE NORTHERLY PROLONGATION OF THE WESTERLY LINE OF SAID LOT 64.

NOTE: PARCEL 2 IS NOT CONTIGUOUS TO PARCEL 1 AND IS NOT SHOWN HEREON.

COMMENTS:

BOUNDARY LINES . . . . . SHOWN PER RECORD OF SURVEY RECORDED IN BOOK 134, PAGE 11 OF RECORDS OF SURVEYS, COUNTY OF LOS ANGELES.

LEGAL DESCRIPTION . . . . FROM INFORMATION SUPPLIED BY CLIENT. USUALLY A TITLE POLICY OR TITLE REPORT.

EASEMENTS . . . . . PLOTTABLE EASEMENTS ARE SHOWN FROM AN OWNER SUPPLIED TITLE REPORT. NON-PLOTTABLE ONES ARE NOTED ON THE SURVEY AS HAVING "EFFECT OF". BECAUSE OUR SERVICE IS LIMITED TO REPORTING ON EASEMENT LOCATIONS WE STRONGLY RECOMMEND LEGAL COUNSEL BE RETAINED TO REPORT ON TITLE PAPERS IN THEIR ENTIRETY.

TITLE REPORT . . . . . FIRST AMERICAN TITLE INSURANCE COMPANY COMMITMENT NO. NCS-373593-LA2, DATED MAY 13, 2010.

– INDICATES TITLE REPORT EXCEPTION NO.

HORIZONTAL DATUM . . . STATE PLANE COORDINATES, CALIFORNIA COORDINATE SYSTEM ZONE 5 BASED ON NAD83 (NSRS2007). POSITIONAL VALUES SHOWN HEREON ARE BASED UPON LOCAL CONTROL POINTS AND DERIVED FROM THE GPS STATIC OBSERVATIONS UTILIZING DATA FROM SOUTHERN CALIFORNIA INTEGRATED GPS NETWORK (SCIGN) CONTINUOUSLY OPERATING SYSTEM (CORS).

CBHS (NGS PID NO. AJ1846) LAT: 34°08'18.80640" LONG: 118°37'47.24823"
TOST (NGS PID NO. AJ1931) LAT: 34°14'42.62883" LONG: 118°50'11.94154"
SPK1 (NGS PID NO. AI4474) LAT: 34°03'33.61984" LONG: 118°38'46.12944"

DISTANCES SHOWN HEREON ARE GRID. TO GET GROUND DISTANCES DIVIDE BY COMBINATION FACTOR OF 0.99999317

VERTICAL DATUM . . . . . VERTICAL VALUES SHOWN HEREON ARE BASED UPON NORTH AMERICAN VERTICAL DATUM OF 1988 (NAVD88) UTILIZING US NATIONAL GEODETIC SURVEY (NGS) BENCHMARK LISTED BELOW:

TOST (NGS PID NO. DH8045)

TOST IS A CONTINUOUS GPS (CGPS) SITE LOCATED AT THE THOUSAND OAKS SHERIFF STATION, VENTURA COUNTY, CA. IT IS A SOUTHERN CALIFORNIA INTEGRATED GPS NETWORK (SCIGN) CONTINUOUS GPS (CGPS) MONUMENT. IT IS A WYATT-AGNEW DRILLED BRACED MONUMENT. MOUNTED ON THIS MONUMENT IS A SCIGN ANTENNA ADAPTOR (DETAILED SPECIFICATIONS OF THE CONSTRUCTION OF THE MONUMENT AND THE MACHINED SPECIFICATIONS OF THE ADAPTOR ARE AVAILABLE ON THE SCIGN/USGS WEB SITES). THE RPA IS THE BOTTOM OF THE ANTENNA WHICH IS ADJACENT TO THE TOP OF THE ANTENNA ADAPTOR. DAILY GPS DATA AND MORE INFORMATION ON THIS SITE IS AVAILABLE AT CSRC.UCSD.EDU.

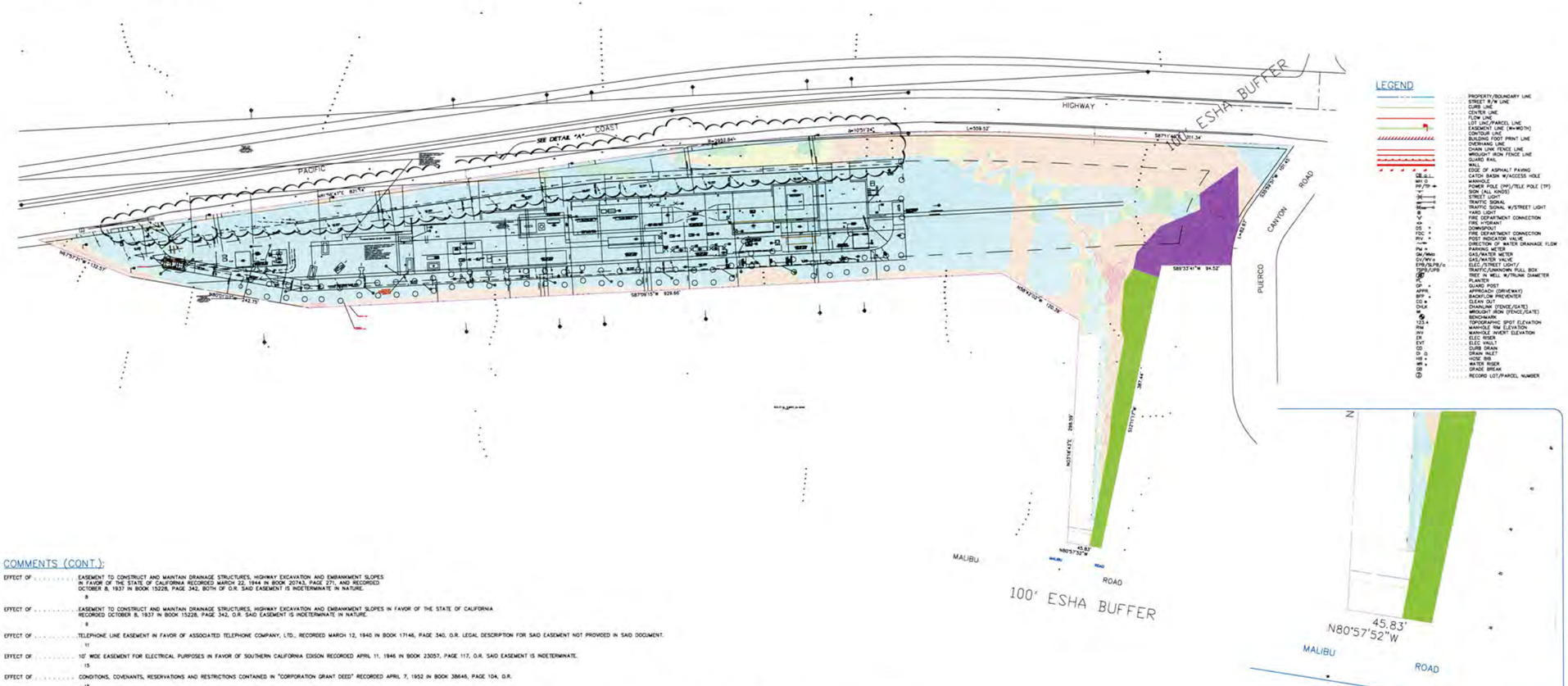
VERT ORDER – SECOND, CLASS II, ELEV 1017.14 FEET (ADJUSTED IN 2007)

AERIAL SURVEY . . . . . THIS SURVEY WAS PREPARED BY PHOTOGRAMMETRIC PROCESSES, UTILIZING AERIAL PHOTOGRAPHY DATED OCTOBER 28, 2010 AND COMPILED AT A SCALE OF 1"=40' WITH A CONTOUR INTERVAL OF 1 FOOT. THE OUTLINE OF BUILDINGS AND OTHER ROOFED IMPROVEMENTS, MAY INCLUDE EAVES, CANOPIES AND BALCONIES. SINCE BUILDINGS BELOW THESE ITEMS ARE NOT VISIBLE TO THE CAMERA.

TOPOGRAPHY . . . . . BY PHOTOGRAMMETRIC PROCESSES FROM AERIAL PHOTOGRAPHY DATED OCTOBER 28, 2010, AND COMPLIES WITH NATIONAL MAP ACCURACY STANDARDS.

CONTOUR INTERVAL . . . . 1 FOOT.

VICINITY MAP



LEGEND

	PROPERTY/BOUNDARY LINE
	STREET R/W LINE
	CURB LINE
	CENTER LINE
	LOT LINE
	LOT LINE/PARCEL LINE
	EASEMENT LINE (W=WIDTH)
	CONTOUR LINE
	BUILDING FOOT PRINT LINE
	OVERHANG LINE
	CHAIN LINK FENCE LINE
	WROUGHT IRON FENCE LINE
	GUARD RAIL
	WALL
	EDGE OF ASPHALT PAVING
	CATCH BASIN W/ACCESS HOLE
	MANHOLE
	POWER POLE (PP)/TELE POLE (TP)
	SIGN (ALL KINDS)
	STREET LIGHT
	TRAFFIC SIGNAL
	TRAFFIC SIGNAL W/STREET LIGHT
	YARD LIGHT
	FIRE DEPARTMENT CONNECTION
	FIRE HYDRANT
	DOWNSPOUT
	FIRE DEPARTMENT CONNECTION
	POST INDICATOR VALVE
	DIRECTION OF WATER DRAINAGE FLOW
	PARKING SPACE
	GAS/WATER METER
	GAS/WATER VALVE
	ELEC./STREET LIGHT/
	TRAFFIC/UNKNOWN PULL BOX
	TREE IN WELL W/TRUNK DIAMETER
	PLANTER
	GUARD POST
	APPROACH (DRIVEWAY)
	BACKFLOW PREVENTER
	CLEAN OUT
	DIMENSION (FENCE/GATE)
	DIMENSION (FENCE/GATE)
	BENCHMARK
	TOPOGRAPHIC SPOT ELEVATION
	MANHOLE RIM ELEVATION
	MANHOLE INVERT ELEVATION
	ELEC. RISER
	ELEC. VAULT
	CURB DRAIN
	DRAIN INLET
	HOSE BIB
	WATER RISER
	SPADE BREAK
	RECORD LOT/PARCEL NUMBER

EASEMENT DETAIL
SCALE 1" = 20'

COMMENTS (CONT.):

EFFECT OF . . . . . EASEMENT TO CONSTRUCT AND MAINTAIN DRAINAGE STRUCTURES, HIGHWAY EXCAVATION AND EMBANKMENT SLOPES IN FAVOR OF THE STATE OF CALIFORNIA RECORDED MARCH 22, 1944 IN BOOK 20743, PAGE 271, AND RECORDED OCTOBER 8, 1937 IN BOOK 15228, PAGE 342, BOTH OF O.R. SAID EASEMENT IS INDETERMINATE IN NATURE.
8

EFFECT OF . . . . . EASEMENT TO CONSTRUCT AND MAINTAIN DRAINAGE STRUCTURES, HIGHWAY EXCAVATION AND EMBANKMENT SLOPES IN FAVOR OF THE STATE OF CALIFORNIA RECORDED OCTOBER 8, 1937 IN BOOK 15228, PAGE 342, O.R. SAID EASEMENT IS INDETERMINATE IN NATURE.
9

EFFECT OF . . . . . TELEPHONE LINE EASEMENT IN FAVOR OF ASSOCIATED TELEPHONE COMPANY, LTD., RECORDED MARCH 12, 1940 IN BOOK 17146, PAGE 340, O.R. LEGAL DESCRIPTION FOR SAID EASEMENT NOT PROVIDED IN SAID DOCUMENT.
11

EFFECT OF . . . . . 10' WIDE EASEMENT FOR ELECTRICAL PURPOSES IN FAVOR OF SOUTHERN CALIFORNIA EDISON RECORDED APRIL 11, 1946 IN BOOK 23057, PAGE 117, O.R. SAID EASEMENT IS INDETERMINATE.
15

EFFECT OF . . . . . CONDITIONS, COVENANTS, RESERVATIONS AND RESTRICTIONS CONTAINED IN "CORPORATION GRANT DEED" RECORDED APRIL 7, 1952 IN BOOK 38646, PAGE 104, O.R.
15

EFFECT OF . . . . . 2' WIDE EASEMENT FOR GUY WIRE AND ANCHORS IN FAVOR OF SOUTHERN CALIFORNIA EDISON RECORDED JULY 19, 1958 AS INSTRUMENT NO. 3203 IN BOOK 0131, PAGE 527, O.R. LEGAL DESCRIPTION PROVIDED IN SAID DOCUMENT IS INSUFFICIENT TO PLOT PORTIONS OF SAID EASEMENT.
18

EFFECT OF . . . . . 2' WIDE EASEMENT FOR POLES AND TELECOMMUNICATIONS PURPOSES IN FAVOR OF GENERAL TELEPHONE COMPANY OF CALIFORNIA RECORDED APRIL 1, 1959 AS INSTRUMENT NO. 3229 IN BOOK D418, PAGE 637, O.R. LEGAL DESCRIPTION PROVIDED IN SAID DOCUMENT IS INSUFFICIENT TO PLOT PORTIONS OF SAID EASEMENT.
19

EFFECT OF . . . . . RESTRICTIONS PROHIBITING THE USE OF SAID LAND FOR INDUSTRIAL, MANUFACTURING, COMMERCIAL OR BUSINESS PURPOSES PER DEED RECORDED JUNE 8, 1944 AS INSTRUMENT NO. 46 IN BOOK 20892, PAGE 395, O.R. SAID RESTRICTIONS EXPIRED AT THE CLOSE OF THE YEAR 1970.
20

NOTE:

1. THIS IS NOT A MAP OF A BOUNDARY SURVEY. NO PROPERTY CORNERS HAVE BEEN SET AS A PART OF THIS WORK.
2. RELATION OF TOPOGRAPHIC FEATURES (FENCES, WALLS, TREES, UTILITY POLES, ETC.) TO PROPERTY LINES AS SHOWN HEREON IS SUBJECT TO THE ADJUSTMENT THAT A BOUNDARY SURVEY MAY REQUIRE.
3. SITE TOPOGRAPHY, BOUNDARY AND EASEMENTS WERE NOT PREPARED BY CHAD NELSON AND ASSOCIATES, BUT WERE PROVIDED BY CLIENT FOR THE PURPOSES OF A SLOPE ANALYSIS. CHAD NELSON AND ASSOCIATES MAKES NO CLAIM TO THE ACCURACY OF NEITHER THE TOPOGRAPHY OR BOUNDARY, EXCEPT WITHIN IN THE AREA CLOSELY WHERE CHAD NELSON AND ASSOCIATES INC. HAS UPDATED TOPOGRAPHIC INFORMATION TO THE SURVEY ON 08/25/2022 BASED ON BOUNDARY SURVEY CONTROL FROM THE PREVIOUS SURVEY.

SLOPE TABLE

NUMBER	MINIMUM SLOPE	MAXIMUM SLOPE	COLOR	SLOPE AREA	PERCENT
1	Horizontal	4.0:1		186441 SQ. FT.	67%
2	4.0:1	3.0:1		9301 SQ. FT.	3%
3	3.0:1	2.5:1		7782 SQ. FT.	3%
4	2.5:1	1.0:1		71383 SQ. FT.	26%
5	1.0:1	0.0:1		2403 SQ. FT.	1%
				TOTAL=277,313 SQ. FT.	

DATED: 11/1/2022

CHRIS NELSON & ASSOCIATES, INC.
SURVEYORS AND ENGINEERS
28118 Agoura Rd., Suite 100, Agoura Hills, CA. 91301
P: 818.991.10410 F: 818.991.0614
www.chrisnelsonassociates.com

PREPARED FOR:
PARPCH LLC
ATTN: JAKE JESSON
P.O. BOX 6528
MALIBU, CA 90265

SLOPE ANALYSIS SURVEY

A.P.N. 4459-013-021

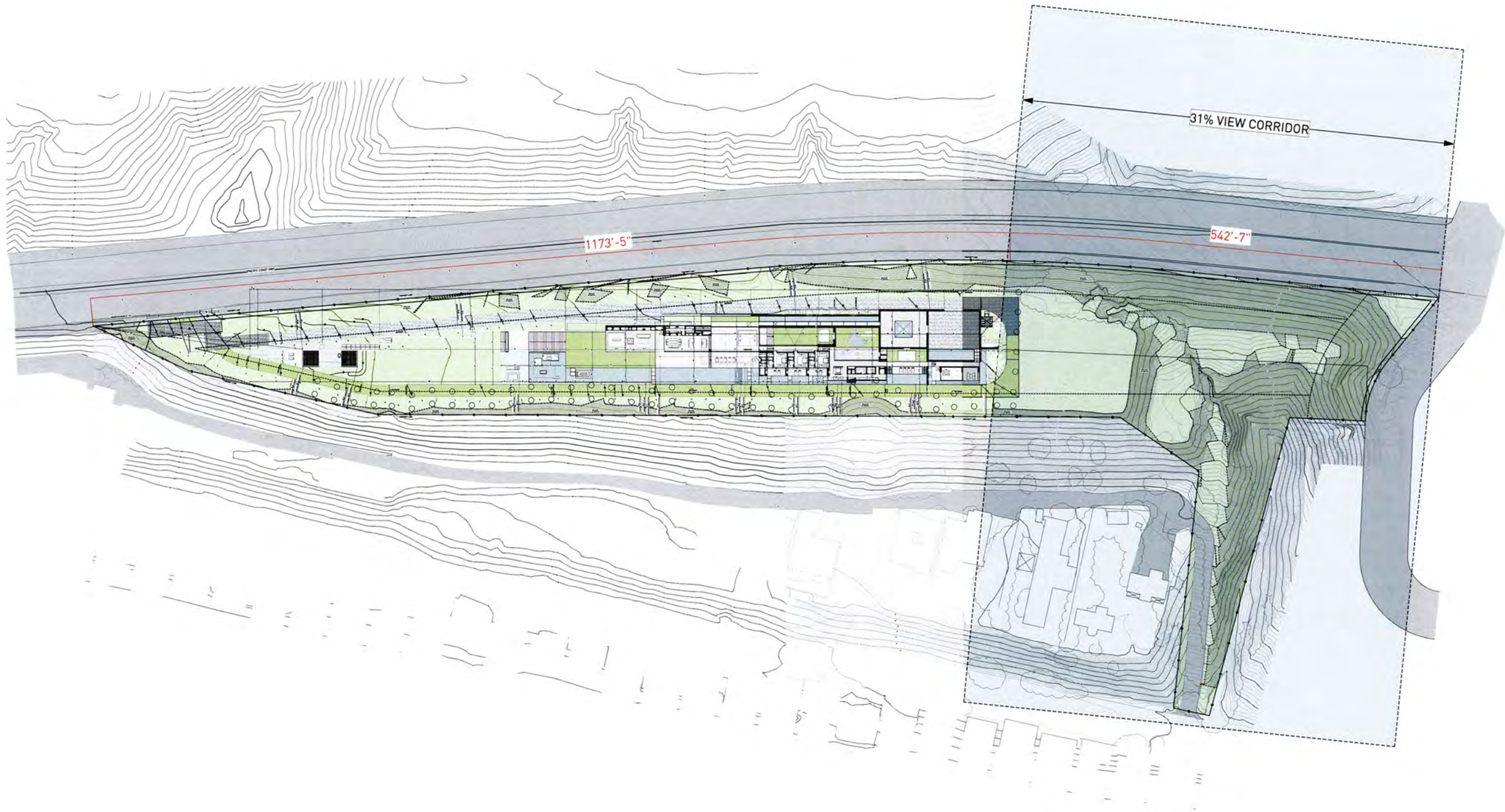
25200 PACIFIC COAST HIGHWAY
MALIBU, CA. 90265

REVISION NOTES

DATE	DESCRIPTION	BY
3/4/23	UPDATED BACKGROUND	CH

JOB NO. 19-4925
SCALE: 1" = 50'
DATE: NOV, 2022
DRAFTED: CH

SHEET NO.
1"=1/64" 1
OF 1 SHEET



ASSESOR PARCEL #: 4459-013-021, 4459-014-018

KEY NOTES:

SITE

001 MAINTAIN ALL WATER RUNOFF WITHIN PROPERTY. SLOPE AWAY FROM P.L. AT A MIN. SLOPE OF ¼" /FT., REFER TO CIVIL DWGS.
002 TREES/LANDSCAPING PLANTING/GROUND COVER/LAWN, REFER TO LANDSCAPE DWGS.
003 HEDGE. REFER TO LANDSCAPE DWGS.
004 HARDSCAPE. REFER TO LANDSCAPE DWGS.
005 DRIVEWAY, GRAVEL ON GRADE. REFER TO CIVIL & LANDSCAPE DWGS.
006 WOOD DECK. SIZE OF PLANKS T.B.D. FINISH T.B.D.
007 UNDERGROUND DRAINAGE SYSTEM. REFER TO CIVIL DWGS.
008 INFINITY POOL EDGE.
009 OPEN PARKING, REFER TO CIVIL FOR DETAILS
010 6'-0" SITE RETAINING WALL. REFER TO STRUCTURAL AND LANDSCAPE DWGS.
011 PEDESTRIAN GATE DOOR. PROVIDE SHOP DWGS. FOR ARCHITECT REVIEW.
012 42" MOTORIZED VEHICULAR SLIDING ENTRY GATE. STEEL FRAME. 90% VISUALLY PERMEABLE.
013 42" PERIMETER FENCE. 90% VISUALLY PERMEABLE.
014 CALL BOX.
015 TRASH ENCLOSURE AREA
016 STRUCTURAL GRASS DRIVEWAY. GRASSCRETE OR SIMILAR. REFER TO CIVIL & LANDSCAPE DWGS.
017 GENERATOR ON EXISTING CONCRETE PLINTH, BOTTOM OF GENERATOR TO BE ABOVE BFE +1', REFER TO ELECTRICAL DWGS.
018 A/C CONDENSER UNITS BEHIND LANDSCAPE, BOTTOM OF UNITS TO BE ABOVE BFE +1', REFER TO MECHANICAL DWGS.
019 NATURAL LAWN AREA. REFER TO LANDSCAPE DWGS.

MATERIALS

100 ARCHITECTURAL EXPOSED CONCRETE, COLOR T.B.D. REFER TO STRUCTURAL DRAWINGS AND ARCHITECTURAL DETAILS.
101 CUSTOM WOOD DOOR. REFER TO DOOR SCHEDULE.
102 IMPACT RESISTANT SLIDING ALUMINUM WINDOWS / DOORS SYSTEM, LOW-E COATING. REFER TO WINDOW SCHEDULE.
103 PRE-FABRICATED SKYLIGHT ON CONCRETE CURB. REFER TO WINDOW SCHEDULE. SEE SECTION AND DETAILS.
104 GARAGE STEEL DOOR CLADDED WITH CUSTOM CONCRETE PANELS. REFER TO DOOR SCHEDULE.
105 GRAVEL.
106 5/8" G.W.B., FINISH T.B.D.; REFER TO I.D. DWGS.
110 RAMMED EARTH CONSTRUCTION.
111 STONE BENCH.

STRUCTURAL

200 FOUNDATION AND PILES. REFER TO STRUCT. DWGS.
201 COMPACTED EARTH. REFER TO STRCUT. DWGS.
202 RETAINING WALL. REFER TO STRUCT. DWGS.
203 CONCRETE SLAB. REFER TO STRUCT. DWGS.
204 CONCRETE COLUMN. REFER TO STRUCT. DWGS.
205 CONCRETE BEAM. REFER TO STRUCT. DWGS.
206 STEEL COLUMN. REFER TO STRUCT. DWGS.
207 CONCRETE STAIRS. REFER TO STRUCT. DWGS.
208 CONCRETE SHELL FOR POOL. REFER TO STRUCT. DWGS.
209 8" CMU REINFORCED WALL. REFER TO WALL TYPES AND STRUCT. DWGS
210 PROVIDE 2" RECESS ON SLABS ON ALL SHOWERS.
211 OPENING ON CONCRETE SLAB. REFER TO STRUCT. DWGS.

MEP

300 LIGHT FIXTURE/ SEE ARCH. RCP, ELECTRICAL DWGS. AND LIGHTING SPECIFICATIONS.
301 A/C PLENUM SPACE, REFER TO MECHANICAL DWGS. AND RCP. NO COMBUSTIBLES ALLOWED.
302 ROOF DRAIN, REFER TO PLUMBING DWGS. /SEE DETAIL.
303 FLOOR DRAIN, REFER TO PLUMBING DWGS./ SEE DETAIL.
304 DRAIN PIPE TO FIT IN CEILING SPACE, REFER TO PLUMBING DWGS. COORDINATE EXACT LOCATION AND SPECS.
305 KITCHEN HOOD, REFER TO MECH DWGS.
306 KITCHEN HOOD EXHAUST PIPE TO FIT IN CEILING SPACE, REFER TO MECH DWGS. COORDINATE EXACT LOCATION AND SPECS.
307 DESIGNATED POOL EQUIPMENT AREA.
308 GAS WATER HEATER. REFER TO PLUMBING DWGS.
309 ELECTRICAL PANELS. REFER TO ELECTRICAL DWGS.
310 CONDENSER UNITS ON STANDS. REFER TO MECH. DWGS.
311 MINIMUM R:30 BATT INSULATION OR RIGID INSULATION. REFER TO ENERGY CALCULATIONS.
315 HOSE BIB. REFER TO PLUMBING AND LANDSCAPE DWGS.
316 ELECTRICITY, GAS AND WATER. REFER TO MEP DRAWINGS.
317 MOTORIZED VEHICULAR GATE. REFER TO ELECT. DWGS.
318 ALL TOILETS TO BE WALL HUNG. REFER TO MECH. DWGS.
319 LINEAR DRAIN
320 OVERFLOW SCUPPER.

WATERPROOFING

400 CONTINUOUS VAPOR BARRIER. REFER TO ARCH AND STRUCTURAL DWGS.
401 WATERPROOFING MEMBRANE. REFER TO ARCH AND STRUCTURAL DWGS.
402 POOL FINISH/ COLOR TBD.

MISC. ARCHITECTURAL DETAILS

500 CURTAIN CEILING COVE. REFER TO ARCH. DETAIL.
501 CONTINUOUS 1/2" TOOLED WATER DRIP. SEE ARCH. DETAIL.
502 VENT.
503 KITCHEN, BUILT-IN FURNITURE, CABINETRY BY OTHERS. REFER TO KITCHEN SHOP DWGS.
504 5/8" DWB DROPPED CEILING ON 3/4" FURRING STRIPS. PAINTED DWB. COLOR TBD
505 STAINLESS STEEL SCUPPER IN CONCRETE STRUCTURE, 3" X 3" MIN OPENING. REFER TO ELEVATION AND PLAN FOR LOCATION.
506 CUSTOM WOOD MILLWORK, REFER TO I.D. DRAWINGS
507 SOLAR PANELS (T.B.D.)
509 CONCEALED LED SCREEN.
510 LADDER ACCESS.

LIGHTING

600 PENDANT LIGHT. REFER TO LIGHTING DWGS.
601 RECESSED DOWN LIGHT. REFER TO LIGHTING DWGS.
602 CONCEALED LINEAR LIGHT. REFER TO LIGHTING DWGS.

FIRE SAFETY

700 FIRE DEPARTMENT VEHICULAR ACCESS ROADS MUST BE INSTALLED AND MAINTAINED IN A SERVICEABLE MANNER PRIOR TO AND DURING THE TIME OF CONSTRUCTION. FIRE CODE 5001.4
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1813

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VILLA COLEAVA

Project Address
25200 Pacific Coast Hwy.
Malibu, California, USA

Property Owner
PAR PCH, LLC
PO Box 6528
Malibu, CA 90265

Design Architect
Oppenheim Architecture
245 NE 37 Street
Miami FL 33137
P 305 576 8404
F 305 576 8433
W oppenoffice.com

Landscape Architect
[place]
3617 exposition boulevard
Los Angeles, CA 90016
P 310-450-8100
F 323-737-3290
W plac-e.com

Civil Engineers
LC Engineering Group
889 Pierce Ct., Ste. 101
Thousand Oaks, CA 91360
P 805-497-1244
P 818-991-7148
W lcegroupinc.com

Revisions

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VIEW CORRIDOR DIAGRAM

1/64" = 1'-0"

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Drawing Issued on 4/16/25

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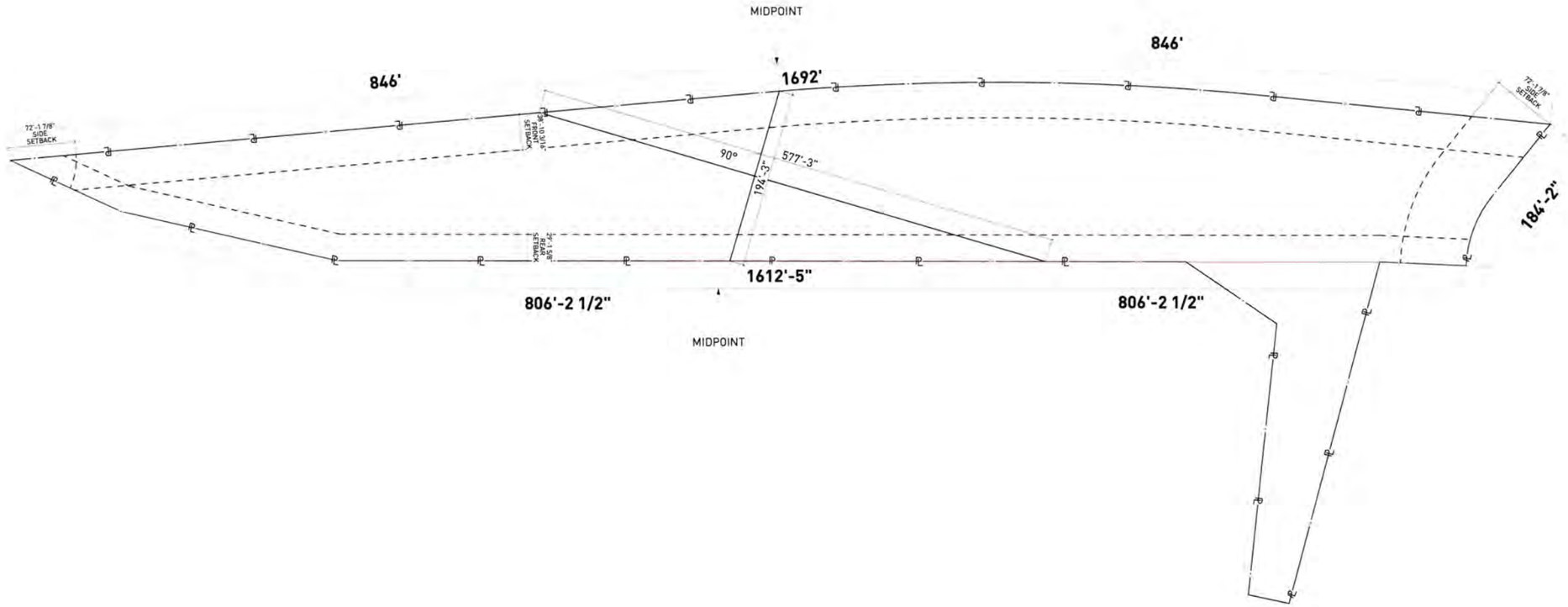

ASSESOR PARCEL #: 4459-013-021, 4459-014-018

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Landscape Architect
[place]
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P 310-450-8100
F 323-737-3290
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Civil Engineers
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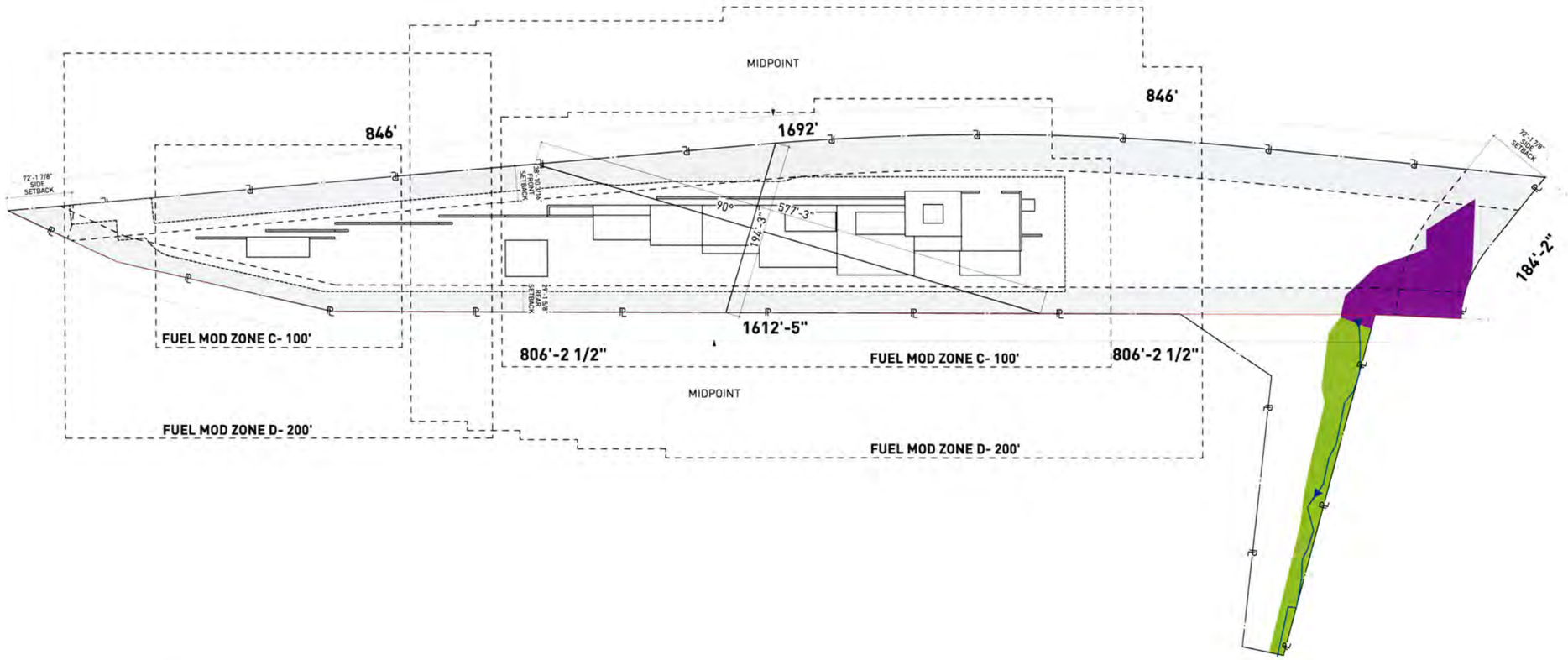

SALIX LASIOLEPIS SHRUBLAND ALLIANCE 0.20 ACRES
DISTURBED ERIOGONUM ELONGATUM VAR. ELONGATUM - SALVIA APIANA SHRUBLAND ALLIANCE (0.24 ACRE)

100'-0" ESHA BUFFER

JURISDICTIONAL WATER FEATURE

100' ESHA BUFFER

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[place]
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Civil Engineers
LC Engineering Group
889 Pierce Ct., Ste. 101
Thousand Oaks, CA 91360
P 805-497-1244
P 818-991-7148
W lcegroupinc.com

Revisions

Mark	Date	Description

Title
FUEL MOD DIAGRAM

1/64" = 1'-0"

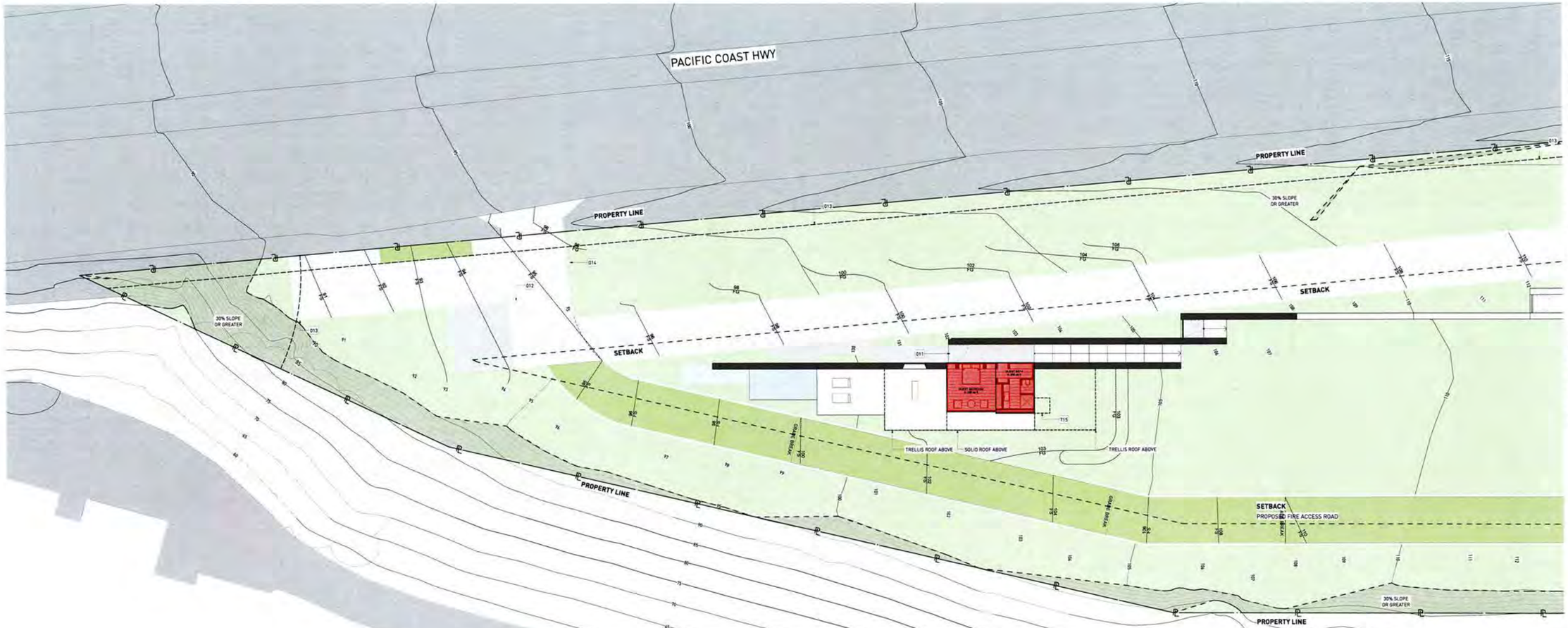
NOT FOR CONSTRUCTION

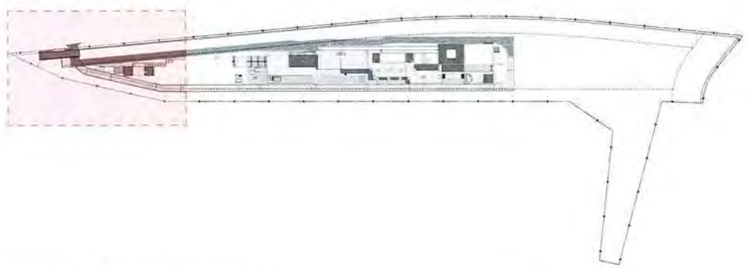
Design Development

1813
VILLA COLEAVA

Drawing Issued on 4/16/25

Z102





I OADI Program Area I											
STORY	PROGRAM	MEASURED AREA	CALCULATED AREA	STORY	PROGRAM	MEASURED AREA	CALCULATED AREA	STORY	PROGRAM	MEASURED AREA	CALCULATED AREA
GUEST HOUSE				**BASEMENT CONTINUED**				**GROUND LEVEL CONTINUED**			
					WINE STO.	97.75 /2 =	48.88		KITCHEN	649.50	649.50
	GUEST BATH	209.00	209.00			**BASEMENT LEVEL SUBTOTAL**	**761.65 sq ft**		LIVING ROOM	1,027.00	1,027.00
	GUEST BEDROOM	256.00	256.00	**GYM**					MASTER BATHROOM	919.00	919.00
		GUEST HOUSE LEVEL SUBTOTAL	**465.00 sq ft**		GYM	410.33	410.33		MASTER BEDROOM	1,004.00	1,004.00
BASEMENT					GYM PR	118.00	118.00		OFFICE	511.00	511.00
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	LAUNDRY	172.50 /2 =	86.25		STEAM RM.	82.50	82.50		PANTRY	117.00	117.00
	LIGHTWELL	204.00 /2 =	102.00			**GYM LEVEL SUBTOTAL**	**675.83 sq ft**		POOL PR	193.50	193.50
	MUD ROOM	126.50 /2 =	63.25	**GROUND LEVEL**					PR	131.50	131.50
	S. BATH	75.00 /2 =	37.50		BEDROOM 1	569.75	569.75		SERVICE KITCHEN	267.50	267.50
	S. BATH	75.00 /2 =	37.50		BEDROOM 2	559.00	559.00		STAIR TO BASEMENT	120.00	120.00
	SERVICE BR.	197.25 /2 =	98.63		BEDROOM 3	569.75	569.75			**GROUND LEVEL SUBTOTAL**	**9,218.50 sq ft**
	SERVICE BR.	196.25 /2 =	98.13		DINING ROOM	960.00	960.00			**TOTAL AREA**	**11,120.98 sq ft**
	SERVICE HALLWAY	304.00 /2 =	152.00		FAMILY ROOM	734.00	734.00			**ALLOWABLE AREA**	**11,172.00 sq ft**
	SERVICE PR	75.00 /2 =	37.50		GALLERY	778.00	778.00				

ASSESOR PARCEL #: 4459-013-021, 4459-014-018

KEY NOTES:
SITE
001 MAINTAIN ALL WATER RUNOFF WITHIN PROPERTY. SLOPE AWAY FROM P.L. AT A MIN. SLOPE OF ¼" /FT., REFER TO CIVIL DWGS.
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210 PROVIDE 2" RECESS ON SLABS ON ALL SHOWERS.
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MEP
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FIRE SAFETY
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701 AN APPROVED KEY BOX, LISTED IN ACCORDANCE WITH UL 1037 SHALL BE PROVIDED AS REQUIRED BY FIRE CODE 506. THE LOCATION OF EACH KEY BOX SHALL BE DETERMINED BY THE FIRE INSPECTOR.
702 ALL REQUIRED PUBLIC FIRE HYDRANTS SHALL BE INSTALLED, TESTED AND ACCEPTED PRIOR TO BEGINNING CONSTRUCTION. FIRE CODE 501.4
703 PROVIDE AN APPROVED AUTOMATIC FIRE SPRINKLER SYSTEM AS SET FORTH BY BUILDING CODE 903 AND FIRE CODE 9003. PLANS SHALL BE SUBMITTED TO THE SPRINKLER PLAN CHECK UNIT FOR REVIEW AND APPROVAL PRIOR TO INSTALLATION.
704 SMOKE ALARMS SHALL RECEIVE THEIR PRIMARY POWER FROM THE BUILDING WIRING PROVIDED THAT SUCH WIRING IS SERVED FROM A COMMERCIAL SOURCE AND SHALL BE EQUIPPED WITH A BATTERY BACKUP. RESIDENTIAL CODE R314.4
705 WHERE MORE THAN ONE SMOKE ALARM IS REQUIRED TO BE INSTALLED WITHIN AN INDIVIDUAL DWELLING OR SLEEPING UNIT, THE SMOKE ALARMS SHALL BE INTERCONNECTED SIN USCH A MANNER THAT THE ACTIVATION OF ONE ALARM WILL ACTIVATE ALL OF THE ALARMS IN THE INDIVIDUAL UNIT. RESIDENTIAL CODE R314.5
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711 CLEARANCE OF BRUSH AND VEGETATIVE GROWTH SHALL BE MAINTAINED PER FIRE CODE 325.
712 PROVIDE APPROVED SIGNS OR OTHER APPROVED NOTICES OR MARKINGS THAT INCLUDE THE WORDS NO PARKING - FIRE LANE. SIGNS SHALL HAVE A MINIMUM DIMENSION OF 12 INCHES WIDE BY 18 INCHES HIGH AND HAVE RED LETTERS ON A WHITE REFLECTIVE BACKGROUND. SIGNS SHALL BE PROVIDED FOR FIRE APPARATUS ACCESS ROADS, TO CLEARLY INDICATE THE ENTRANCE TO SUCH ROAD, OR PROHIBIT THE OBSTRUCTION THEREOF AND AT INTERVALS, AS REQUIRED BY THE FIRE INSPECTOR. FIRE CODE 503.3.
713 ALL FIRE HYDRANTS SHALL MEASURE 6"" X 4"" X 2-1/2"", BRASS OR BRONZE, CONFORMING TO AMERICAN WATER WORKS ASSOCIATION STANDARD C503, OR APPROVED EQUAL.

Project No
1813

Project Name
VILLA COLEAVA

Project Address
25200 Pacific Coast Hwy.
Malibu, California, USA

Property Owner
PAR PCH, LLC
PO Box 6528
Malibu, CA 90265

Design Architect
Oppenheim Architecture
245 NE 37 Street
Miami FL 33137
P 305 576 8404
F 305 576 8433
W oppenoffice.com

Landscape Architect
[place]
3617 exposition boulevard
Los Angeles, CA 90016
P 310-450-8100
F 323-737-3290
W plac-e.com

Civil Engineers
LC Engineering Group
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Revisions

Mark	Date	Description

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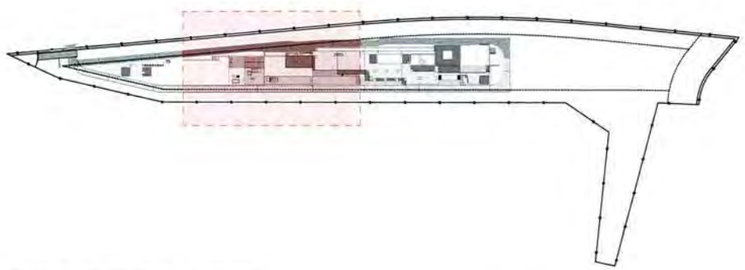

	DADI Program Area			STORY	PROGRAM	MEASURED AREA	CALCULATED AREA	STORY	PROGRAM	MEASURED AREA	CALCULATED AREA
STORY	PROGRAM	MEASURED AREA	CALCULATED AREA	**BASEMENT CONTINUED**				**GROUND LEVEL CONTINUED**			
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Project No
1813

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245 NE 37 Street
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P 305 576 8404
F 305 576 8433
W oppenoffice.com

Landscape Architect
[place]
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F 323-737-3290
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1/16" = 1'-0"

NOT FOR CONSTRUCTION

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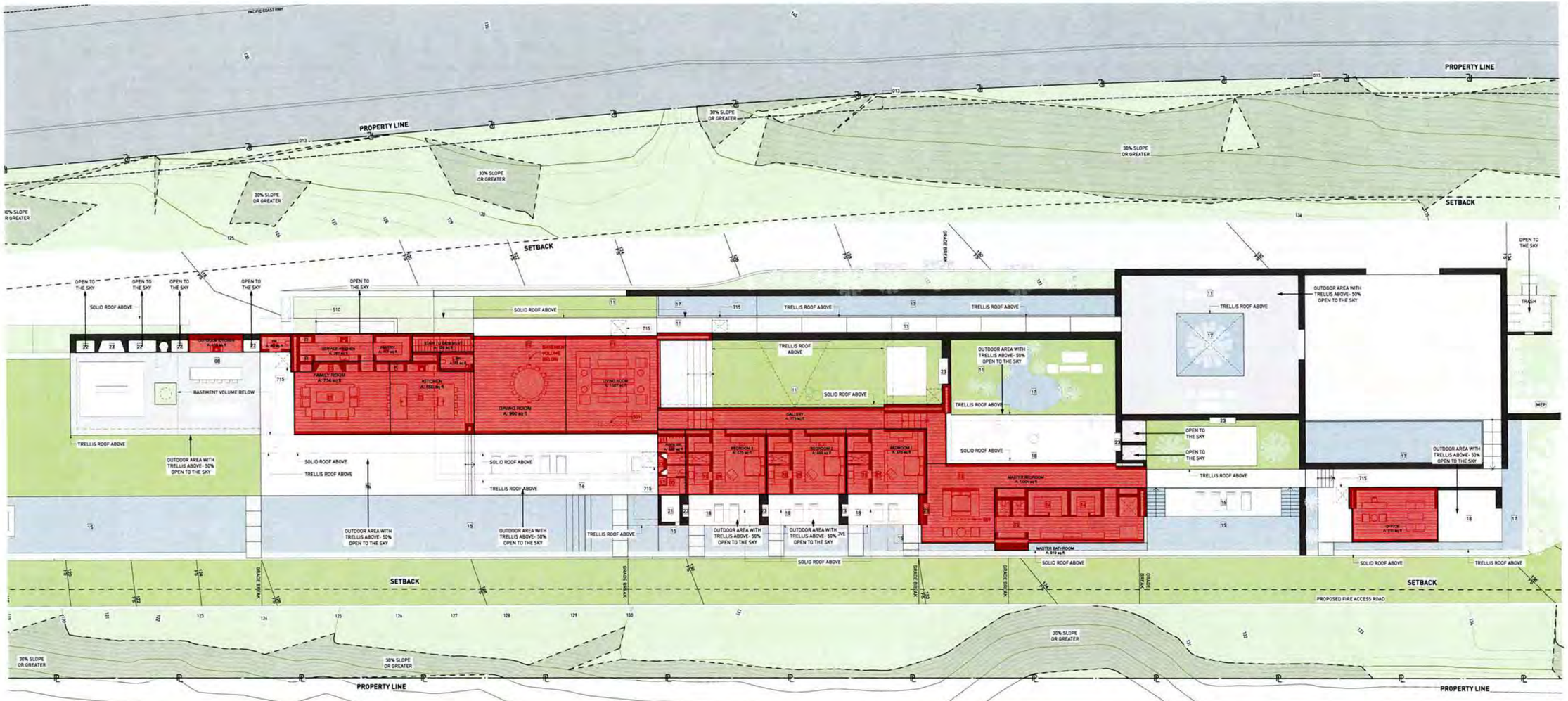
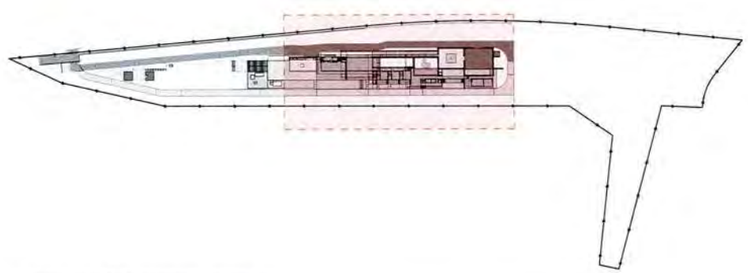
Drawing issued on 4/16/25

Z104





ASSESOR PARCEL #: 4459-013-021, 4459-014-018

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STORY	PROGRAM	MEASURED AREA	CALCULATED AREA	**BASEMENT CONTINUED**				**GROUND LEVEL CONTINUED**			
GUEST HOUSE					WINE STO.	97.75 /2 =	48.88		KITCHEN	649.50	649.50
	GUEST BATH	209.00	209.00			**BASEMENT LEVEL SUBTOTAL**	**761.65 sq ft**		LIVING ROOM	1,027.00	1,027.00
	GUEST BEDROOM	256.00	256.00	**GYM**					MASTER BATHROOM	919.00	919.00
		GUEST HOUSE LEVEL SUBTOTAL	**465.00 sq ft**		GYM	410.33	410.33		MASTER BEDROOM	1,004.00	1,004.00
BASEMENT					GYM PR	118.00	118.00		OFFICE	511.00	511.00
	GARAGE	1,000.00	0.00		SAUNA	65.00	65.00		OUTDOOR KITCHEN	108.00	108.00
	LAUNDRY	172.50 /2 =	86.25		STEAM RM.	82.50	82.50		PANTRY	117.00	117.00
	LIGHTWELL	204.00 /2 =	102.00			**GYM LEVEL SUBTOTAL**	**675.83 sq ft**		POOL PR	193.50	193.50
	MUD ROOM	126.50 /2 =	63.25	**GROUND LEVEL**					PR	131.50	131.50
	S. BATH	75.00 /2 =	37.50		BEDROOM 1	569.75	569.75		SERVICE KITCHEN	267.50	267.50
	S. BATH	75.00 /2 =	37.50		BEDROOM 2	559.00	559.00		STAIR TO BASEMENT	120.00	120.00
	SERVICE BR.	197.25 /2 =	98.63		BEDROOM 3	569.75	569.75			**GROUND LEVEL SUBTOTAL**	**9,218.50 sq ft**
	SERVICE BR.	196.25 /2 =	98.13		DINING ROOM	960.00	960.00			**TOTAL AREA**	**11,120.98 sq ft**
	SERVICE HALLWAY	304.00 /2 =	152.00		FAMILY ROOM	734.00	734.00			**ALLOWABLE AREA**	**11,172.00 sq ft**
	SERVICE PR	75.00 /2 =	37.50		GALLERY	778.00	778.00				

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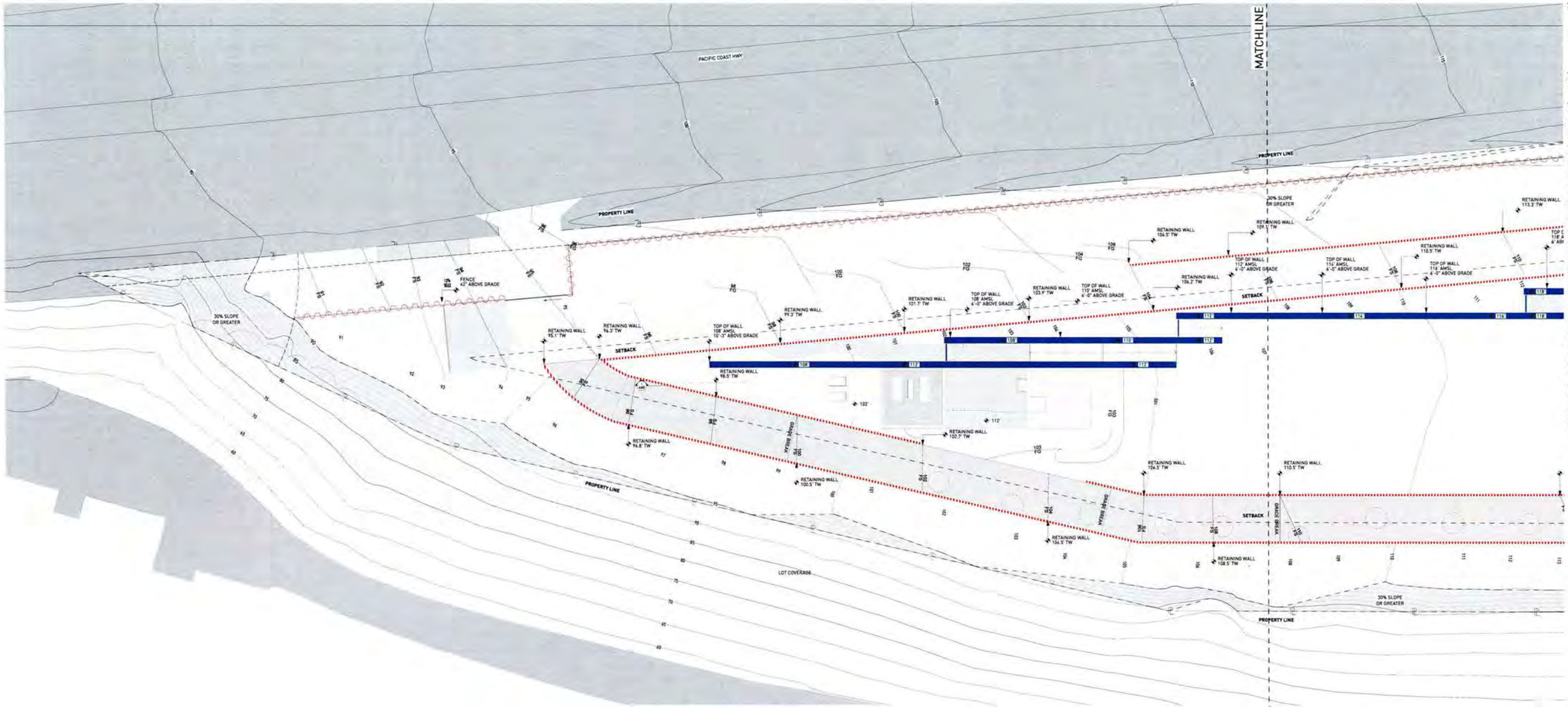
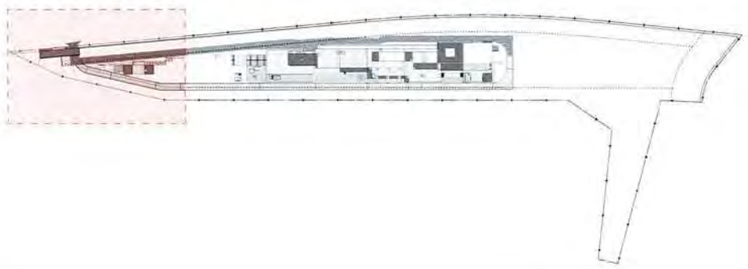
Z105





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Project No

1813

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VILLA COLEAVA

Project Address
25200 Pacific Coast Hwy.
Malibu, California, USA

Property Owner
PAR PCH, LLC
PO Box 6528
Malibu, CA 90265

Design Architect
Oppenheim Architecture
245 NE 37 Street
Miami FL 33137
P 305 576 8404
F 305 576 8433
W oppenoffice.com

Landscape Architect
[place]
3617 exposition boulevard
Los Angeles, CA 90016
P 310-450-8100
F 323-737-3290
W plac-e.com

Civil Engineers
LC Engineering Group
889 Pierce Ct., Ste. 101
Thousand Oaks, CA 91360
P 805-497-1244
P 818-991-7148
W lcegroupinc.com

Revisions

Mark	Date	Description

Title
WALL AND FENCE PLAN A

1/16" = 1'-0"

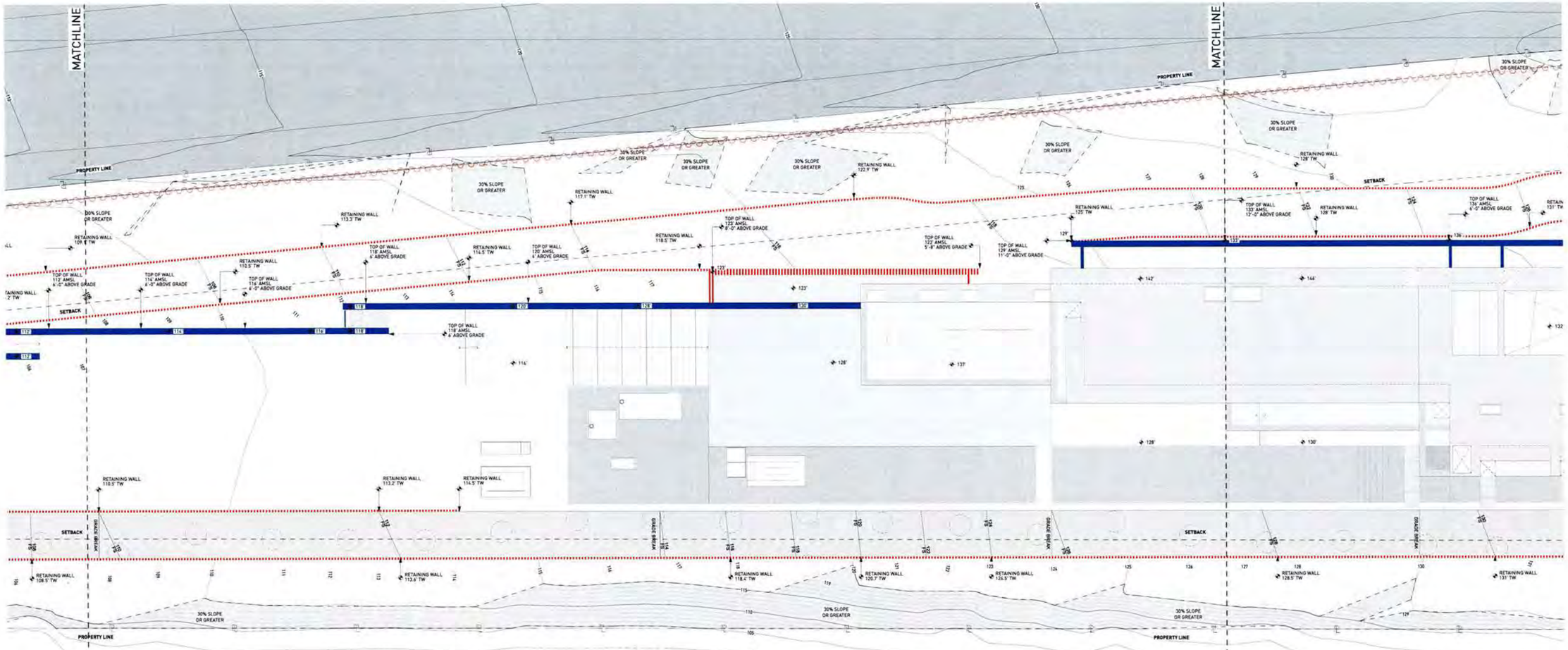
NOT FOR CONSTRUCTION

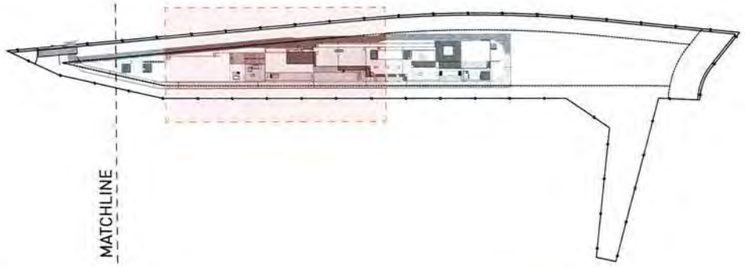
Design Development

1813
VILLA COLEAVA

Drawing Issued on 4/16/25

Z106





A | B

B | C

KEY NOTES:

SITE

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008 INFINITY POOL EDGE.
009 OPEN PARKING, REFER TO CIVIL FOR DETAILS
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012 42" MOTORIZED VEHICULAR SLIDING ENTRY GATE, STEEL FRAME, 90% VISUALLY PERMEABLE.
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015 TRASH ENCLOSURE AREA
016 STRUCTURAL GRASS DRIVEWAY, GRASSCRETE OR SIMILAR, REFER TO CIVIL & LANDSCAPE DWGS.
017 GENERATOR ON EXISTING CONCRETE PLINTH, BOTTOM OF GENERATOR TO BE ABOVE BFE +1', REFER TO ELECTRICAL DWGS.
018 A/C CONDENSER UNITS BEHIND LANDSCAPE, BOTTOM OF UNITS TO BE ABOVE BFE +1', REFER TO MECHANICAL DWGS.
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MATERIALS

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105 GRAVEL.
106 5/8" G.W.B., FINISH T.B.D.; REFER TO I.D. DWGS.
110 RAMMED EARTH CONSTRUCTION
111 STONE BENCH.

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303 FLOOR DRAIN, REFER TO PLUMBING DWGS./ SEE DETAIL.
304 DRAIN PIPE TO FIT IN CEILING SPACE, REFER TO PLUMBING DWGS. COORDINATE EXACT LOCATION AND SPECS.
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316 ELECTRICITY, GAS AND WATER, REFER TO MEP DRAWINGS.
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319 LINEAR DRAIN
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402 POOL FINISH/ COLOR TBD.

MISC. ARCHITECTURAL DETAILS

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501 CONTINUOUS 1/2" TOGLED WATER DRIP, SEE ARCH. DETAIL
502 VENT.
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507 SOLAR PANELS (T.B.D.)
509 CONCEALED LED SCREEN.
510 LADDER ACCESS.

LIGHTING

600 PENDANT LIGHT, REFER TO LIGHTING DWGS.
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602 CONCEALED LINEAR LIGHT, REFER TO LIGHTING DWGS.

FIRE SAFETY

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701 AN APPROVED KEY BOX, LISTED IN ACCORDANCE WITH UL 1037 SHALL BE PROVIDED AS REQUIRED BY FIRE CODE 506. THE LOCATION OF EACH KEY BOX SHALL BE DETERMINED BY THE FIRE INSPECTOR.
702 ALL REQUIRED PUBLIC FIRE HYDRANTS SHALL BE INSTALLED, TESTED AND ACCEPTED PRIOR TO BEGINNING CONSTRUCTION. FIRE CODE 501.4
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704 SMOKE ALARMS SHALL RECEIVE THEIR PRIMARY POWER FROM THE BUILDING WIRING PROVIDED THAT SUCH WIRING IS SERVED FROM A COMMERCIAL SOURCE AND SHALL BE EQUIPPED WITH A BATTERY BACKUP. RESIDENTIAL CODE R314.4
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707 ALL ROOF COVERINGS SHALL BE CLASS "A" AS SPECIFIED IN BUILDING CODE 1505.1.1 (RESIDENTIAL CODE R327.5.2 & R902)
708 ROOF VALLEY FLASHINGS SHALL BE NOT LESS THAN 0.019 INCH (NO.26 GALVANIZED SHEET GAGE) CORROSION-RESISTANT METAL INSTALLED OVER A MINIMUM 36-INCH WIDE UNDERLAYMENT CONSISTING OF ONE LAYER OF NO. 72 ASTM CAP SHEET MEETING RUNNING THE FULL LEGHTH OF THE VALLEY.(RESIDENTIAL CODE R327.5.3 AND BUILDING CODE 705A.3
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714 ALL ON-SITE FIRE HYDRANTS SHALL BE INSTALLED, TESTED AND APPROVED PRIOR TO BUILDING OCCUPANCY. FIRE CODE 901.5.1

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[place]
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1/16" = 1'-0"

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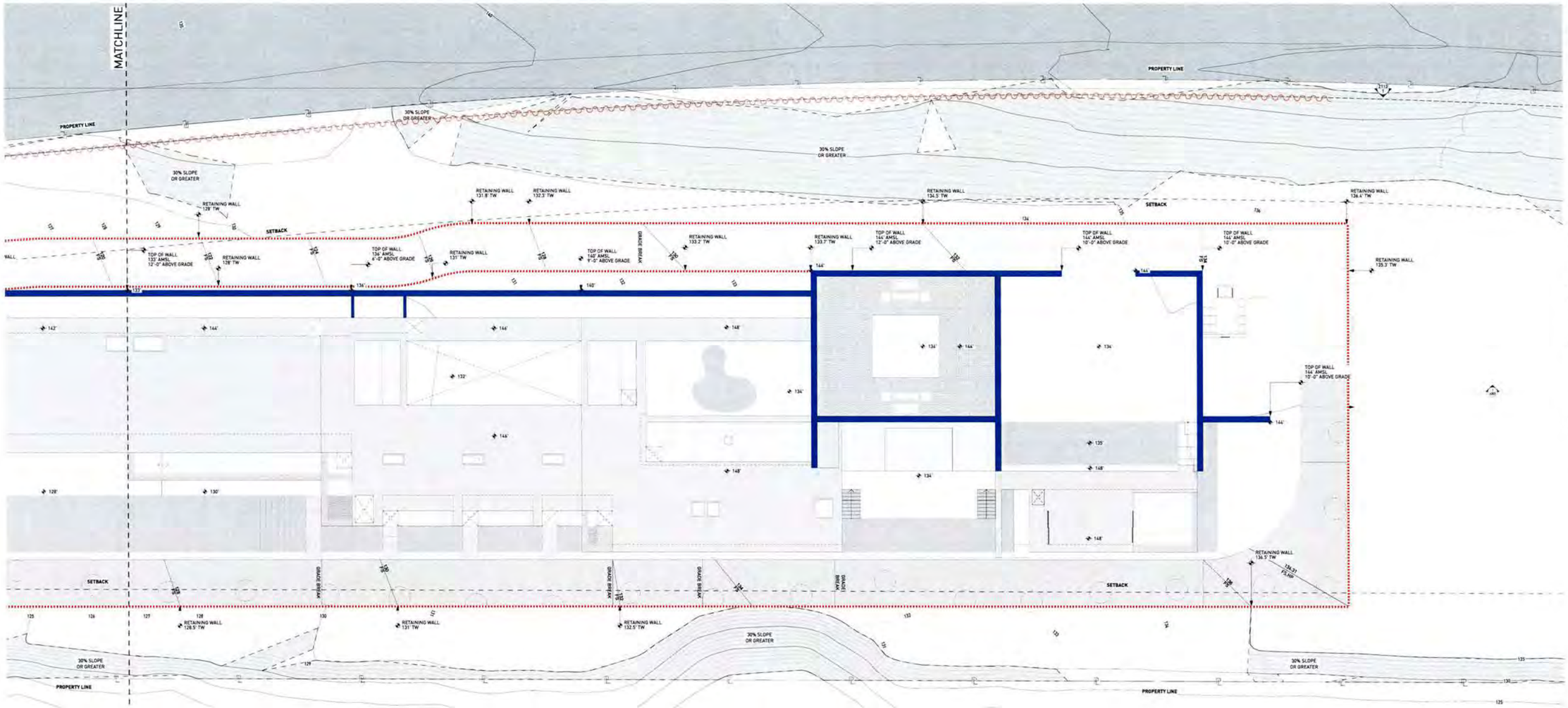

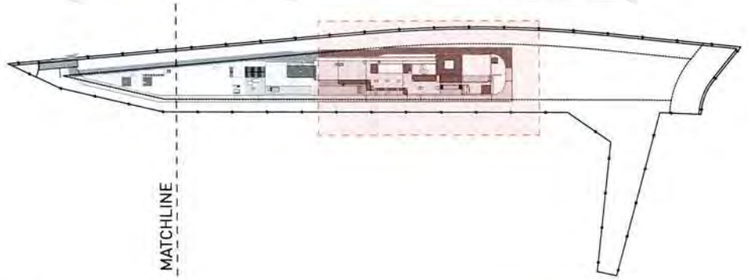

42" GATE- 90% PERMEABLE

RETAINING WALL

12' MAX BUILDING SOLID WALL

42" FENCE- 90% PERMEABLE

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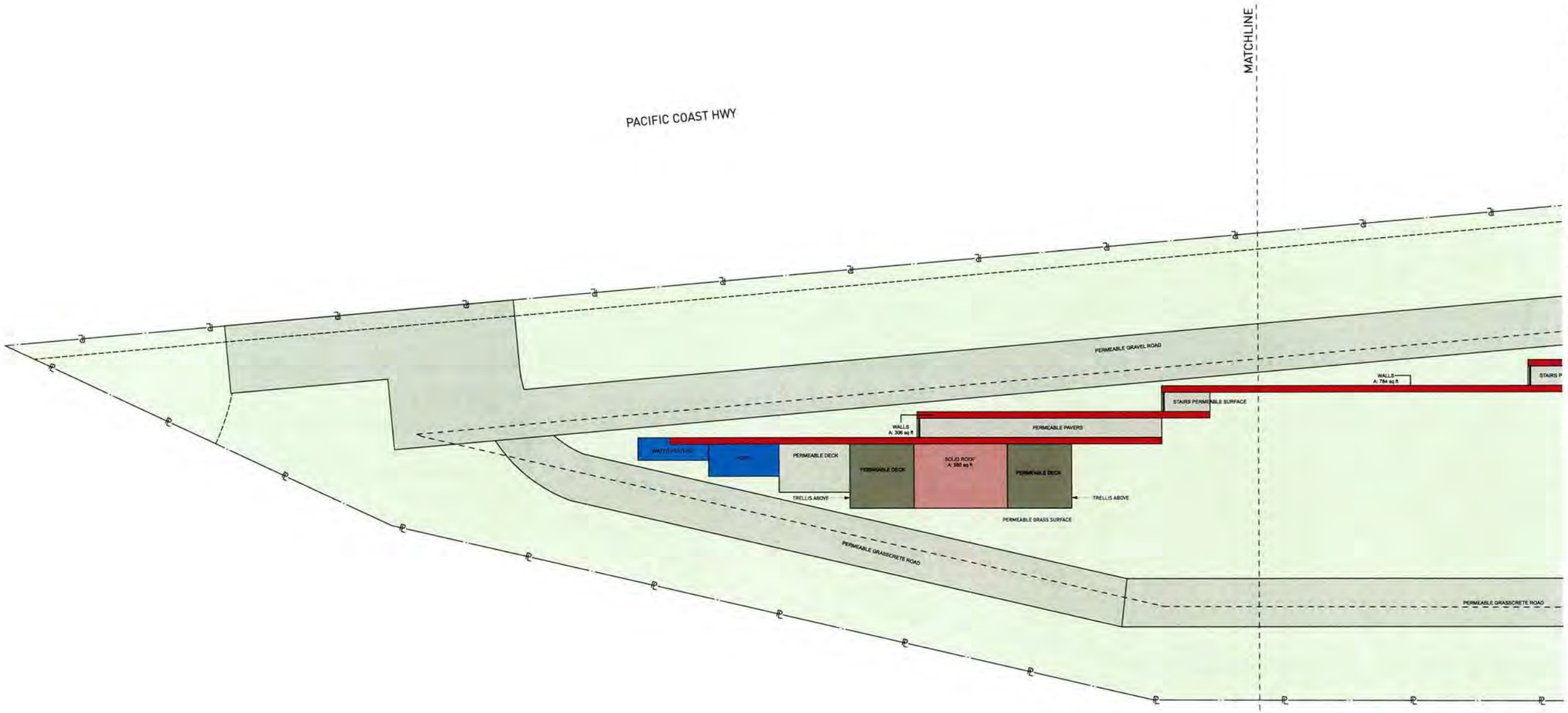

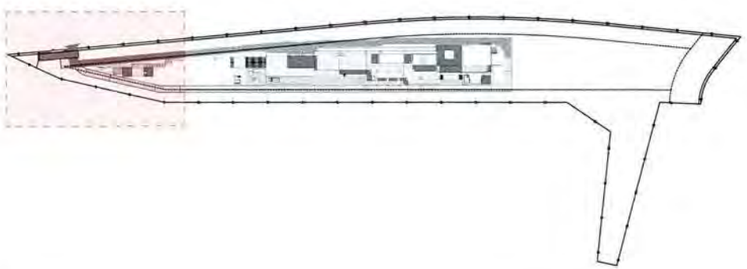

LOT COVERAGE		
STORY	PROGRAM	MEASURED AREA
	BASEMENT BELOW	960.75
	FIREPIT	190.00
	GYM PR	110.49
	GYM/SPA + TERRACE	669.33
	IMPERMEABLE DECK	1,450.49
	MEP EQUIPMENT	271.28
	OUTDOOR MASSAGE RM.	231.00
	OUTDOOR SHOWER	99.75
	SAUNA	61.75
	SOLID ROOF	14,570.27
	STEAM RM.	71.50
	WALLS	2,592.67
	TOTAL LOT COVERAGE	**21,279.28 ft²**
	ALLOWED LOT COVERAGE	**25,000.00 sq ft**
	PERMEABLE SURFACE	
	PERMEABLE WATER FEATURE	

KEY NOTES:

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701 AN APPROVED KEY BOX, LISTED IN ACCORDANCE WITH UL 1037 SHALL BE PROVIDED AS REQUIRED BY FIRE CODE 506. THE LOCATION OF EACH KEY BOX SHALL BE DETERMINED BY THE FIRE INSPECTOR.
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704 SMOKE ALARMS SHALL RECEIVE THEIR PRIMARY POWER FROM THE BUILDING WIRING PROVIDED THAT SUCH WIRING IS SERVED FROM A COMMERCIAL SOURCE AND SHALL BE EQUIPPED WITH A BATTERY BACKUP. RESIDENTIAL CODE R314.4
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706 APPROVED BUILDING ADDRESS NUMBERS, BUILDING NUMBERS OR APPROVED BUILDING IDENTIFICATION SHALL BE PROVIDED AND MAINTAINED SO AS TO BE PLAINLY VISIBLE AND LEGIBLE FROM THE STREET FRONTING THE PROPERTY. THE MINIMUM OF 4 INCHES HIGH WITH A MINUMM STROKE WIDTH OF 0.5 INCH. FIRE CODE 505.1
707 ALL ROOF COVERINGS SHALL BE CLASS "A" AS SPECIFIED IN BUILDING CODE 1505.1.1 (RESIDENTIAL CODE R327.5.2 & R902)
708 ROOF VALLEY FLASHINGS SHALL BE NOT LESS THAN 0.019 INCH (NO.26 GALVANIZED SHEET GAGE) CORROSION-RESISTANT METAL INSTALLED OVER A MINIMUM 36-INCH WIDE UNDERLAYMENT CONSISTING OF ONE LAYER OF NO. 72 ASTM CAP SHEET MEETING RUNNING THE FULL LEGHTH OF THE VALLEY (RESIDENTIAL CODE R327.5.3 AND BUILDING CODE 7056.3
709 ROOF GUTTERS SHALL BE PROVIDED WITH A MEANS OTO PREVENT THE ACCUMULATION OF LEAVES AND DEBRIS IN THE GUTTER. (RESIDENTIAL CODE R327.534 AND BUILDING OCODE 7056.4)
710 VENTS SHALL RESIST THE INTRUSION OF FLAME AND EMBERS AND FLAME THROUGH THE VENTILATION OPENINGS. VENT OPENINGS SHALL BE PROTECTED BY CORROSION- RESISTANT, NONCOMBUSTIBLE WIRE MESH WITH A MINIMUM 1/16TH INCH OPENINGS AND SHALL NOT EXCEED 1/8TH INCH. VENTS SHALL NOT BE INSTALLED IN EAVES OR CORNICES. (RESIDENTIAL CODE R327.6.1 AND BUILDING CODE 706A.1)
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Project No

1813

Project Name
VILLA COLEAVA

Project Address
25200 Pacific Coast Hwy.
Malibu, California, USA

Property Owner
PAR PCH, LLC
PO Box 6528
Malibu, CA 90265

Design Architect
Oppenheim Architecture
245 NE 37 Street
Miami FL 33137
P 305 576 8404
F 305 576 8433
W oppenoffice.com

Landscape Architect
[place]
3617 exposition boulevard
Los Angeles, CA 90016
P 310-450-8100
F 323-737-3290
W plac-e.com

Civil Engineers
LC Engineering Group
889 Pierce Ct., Ste. 101
Thousand Oaks, CA 91360
P 805-497-1244
P 818-991-7148
W lcegroupinc.com

Revisions

Mark	Date	Description

Title
LOT COVERAGE A

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NOT FOR CONSTRUCTION

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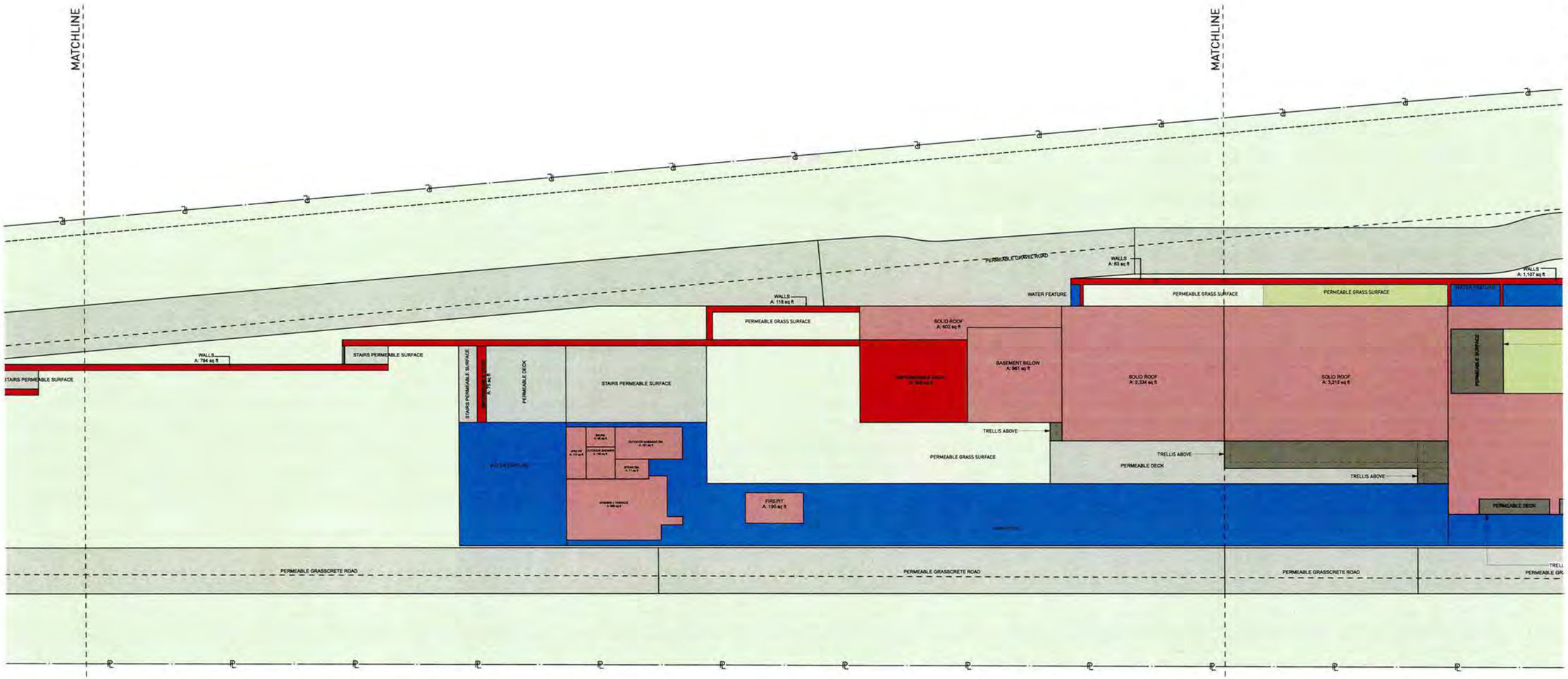
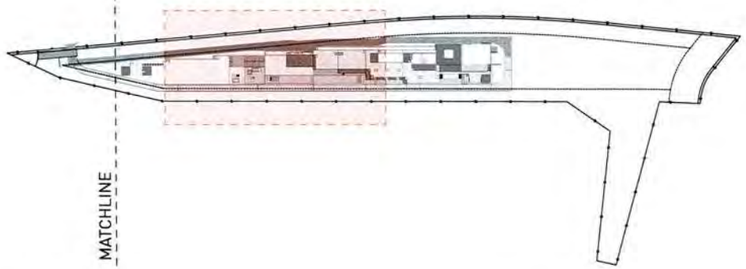
VILLA COLEAVA

Drawing Issued on 4/16/25

Z109





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LOT COVERAGE

STORY	PROGRAM	MEASURED AREA	
	BASEMENT BELOW	960.75	
	FIREPIT	190.00	
	GYM PR	110.49	
	GYM/SPA + TERRACE	669.33	
	IMPERMEABLE DECK	1,450.49	
	MEP EQUIPMENT	271.28	
	OUTDOOR MASSAGE RM.	231.00	
	OUTDOOR SHOWER	99.75	
	SAUNA	61.75	
	SOLID ROOF	14,570.27	
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Project Address
25200 Pacific Coast Hwy.
Malibu, California, USA

Property Owner
PAR PCH, LLC
PO Box 6528
Malibu, CA 90265

Design Architect
Oppenheim Architecture
245 NE 37 Street
Miami FL 33137
P 305 576 8404
F 305 576 8433
W oppenoffice.com

Landscape Architect
[place]
3617 exposition boulevard
Los Angeles, CA 90016
P 310-450-8100
F 323-737-3290
W plac-e.com

Civil Engineers
LC Engineering Group
889 Pierce Ct., Ste. 101
Thousand Oaks, CA 91360
P 805-497-1244
P 818-991-7148
W lcegroupinc.com

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Mark	Date	Description

Title
LOT COVERAGE B

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VILLA COLEAVA

Drawing Issued on 4/16/25

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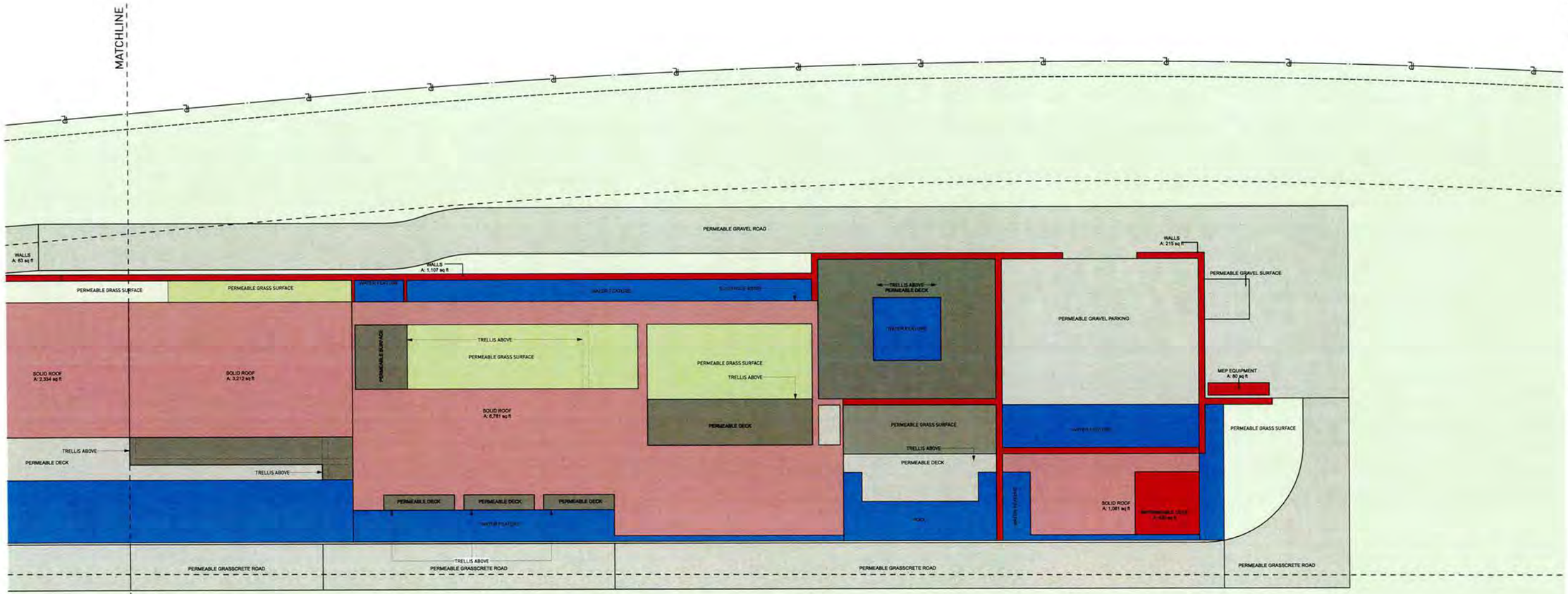

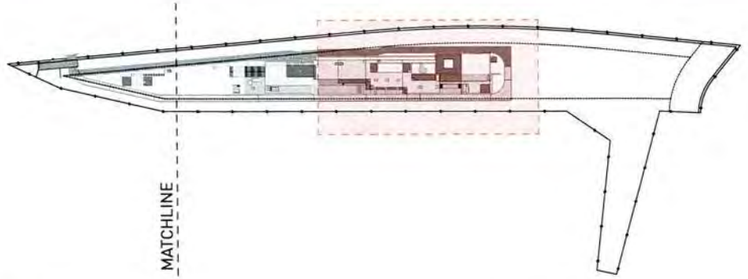

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701 AN APPROVED KEY BOX, LISTED IN ACCORDANCE WITH UL 1037 SHALL BE PROVIDED AS REQUIRED BY FIRE CODE 506. THE LOCATION OF EACH KEY BOX SHALL BE DETERMINED BY THE FIRE INSPECTOR.
702 ALL REQUIRED PUBLIC FIRE HYDRANTS SHALL BE INSTALLED, TESTED AND ACCEPTED PRIOR TO BEGINNING CONSTRUCTION. FIRE CODE 501.4
703 PROVIDE AN APPROVED AUTOMATIC FIRE SPRINKLER SYSTEM AS SET FORTH BY BUILDING CODE 903 AND FIRE CODE 9003. PLANS SHALL BE SUBMITTED TO THE SPRINKLER PLAN CHECK UNIT FOR REVIEW AND APPROVAL PRIOR TO INSTALLATION.
704 SMOKE ALARMS SHALL RECEIVE THEIR PRIMARY POWER FROM THE BUILDING WIRING PROVIDED THAT SUCH WIRING IS SERVED FROM A COMMERCIAL SOURCE AND SHALL BE EQUIPPED WITH A BATTERY BACKUP. RESIDENTIAL CODE R314.4
705 WHERE MORE THAN ONE SMOKE ALARM IS REQUIRED TO BE INSTALLED WITHIN AN INDIVIDUAL DWELLING OR SLEEPING UNIT, THE SMOKE ALARMS SHALL BE INTERCONNECTED SIN USCH A MANNER THAT THE ACTIVATION OF ONE ALARM WILL ACTIVATE ALL OF THE ALARMS IN THE INDIVIDUAL UNIT. RESIDENTIAL CODE R314.5
706 APPROVED BUILDING ADDRESS NUMBERS, BUILDING NUMBERS OR APPROVED BUILDING IDENTIFICATION SHALL BE PROVIDED AND MAINTAINED SO AS TO BE PLAINLY VISIBLE AND LEGIBLE FROM THE STREET FRONTING THE PROPERTY. THE MINIMUM OF 4 INCHES HIGH WITH A MINUMM STROKE WIDTH OF 0.5 INCH. FIRE CODE 505.1
707 ALL ROOF COVERINGS SHALL BE CLASS "A" AS SPECIFIED IN BUILDING CODE 1505.1.1 (RESIDENTIAL CODE R327.5.2 & R902)
708 ROOF VALLEY FLASHINGS SHALL BE NOT LESS THAN 0.019 INCH INO 26 GALVANIZED SHEET GAGE) CORROSION-RESISTANT METAL INSTALLED OVER A MINIMUM 36-INCH WIDE UNDERLAYMENT CONSISTING OF ONE LAYER OF NO. 72 ASTM CAP SHEET MEETING RUNNING THE FULL LEGHTH OF THE VALLEY (RESIDENTIAL CODE R327.5.3 AND BUILDING CODE 705A.3
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713 ALL FIRE HYDRANTS SHALL MEASURE 6"" X 4"" X 2-1/2"", BRASS OR BRONZE, CONFORMING TO AMERICAN WATER WORKS ASSOCIATION STANDARD C503, OR APPROVED EQUAL.
714 ALL ON-SITE FIRE HYDRANTS SHALL BE INSTALLED, TESTED AND APPROVED PRIOR TO BUILDING OCCUPANCY. FIRE CODE 901.5.1

LOT COVERAGE

STORY	PROGRAM	MEASURED AREA	
	BASEMENT BELOW	960.75	
	FIREPIT	190.00	
	GYM PR	110.49	
	GYM/SPA + TERRACE	669.33	
	IMPERMEABLE DECK	1,450.49	
	MEP EQUIPMENT	271.28	
	OUTDOOR MASSAGE RM.	231.00	
	OUTDOOR SHOWER	99.75	
	SAUNA	61.75	
	SOLID ROOF	14,570.27	
	STEAM RM.	71.50	
	WALLS	2,592.67	
	TOTAL LOT COVERAGE	**21,279.28 ft²**	
	ALLOWED LOT COVERAGE	**25,000.00 sq ft**	
	PERMEABLE SURFACE		
	PERMEABLE WATER FEATURE		

Project No

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VILLA COLEAVA

Project Address
25200 Pacific Coast Hwy.
Malibu, California, USA

Property Owner
PAR PCH, LLC
PO Box 6528
Malibu, CA 90265

Design Architect
Oppenheim Architecture
245 NE 37 Street
Miami FL 33137
P 305 576 8404
F 305 576 8433
W oppenoffice.com

Landscape Architect
[place]
3617 exposition boulevard
Los Angeles, CA 90016
P 310-450-8100
F 323-737-3290
W plac-e.com

Civil Engineers
LC Engineering Group
889 Pierce Ct., Ste. 101
Thousand Oaks, CA 91360
P 805-497-1244
P 818-991-7148
W lcegroupinc.com

Revisions

Mark	Date	Description

Title
LOT COVERAGE C

1/16" = 1'-0"

NOT FOR CONSTRUCTION

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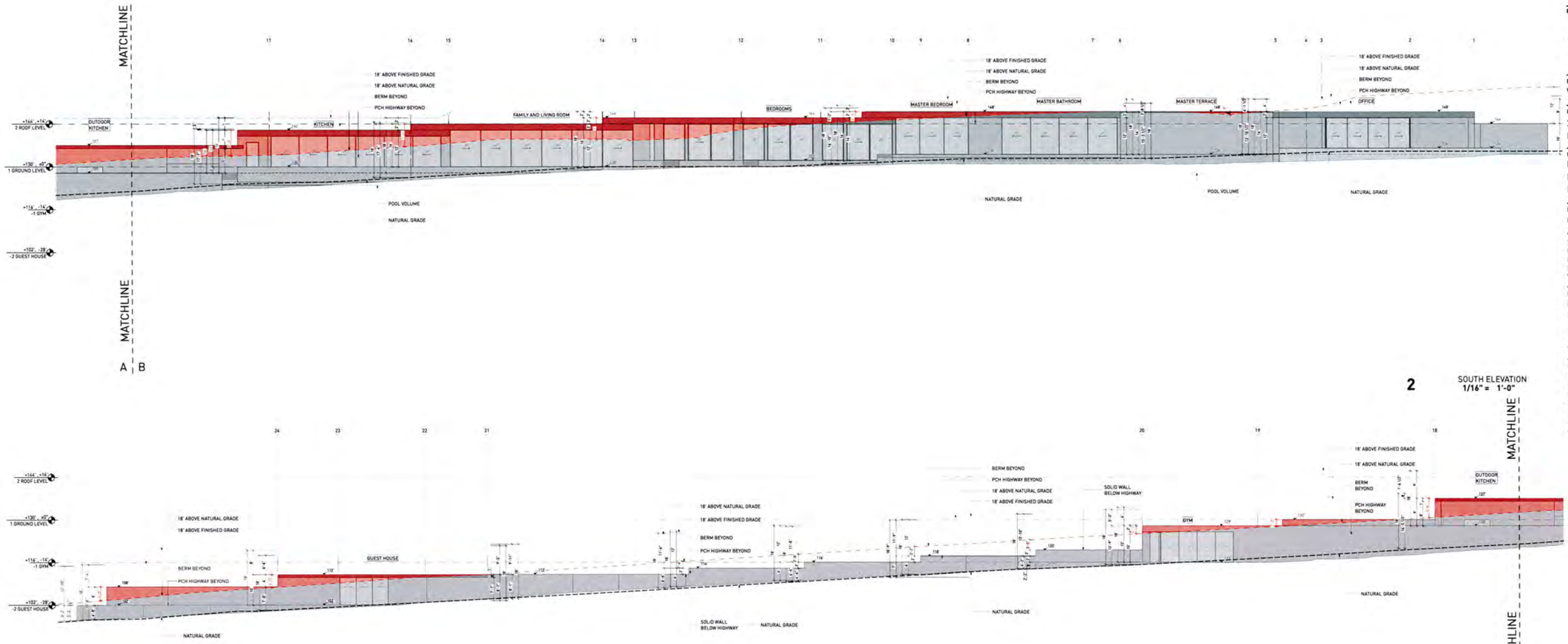
Drawing Issued on 4/16/25

Z111



2 SOUTH ELEVATION
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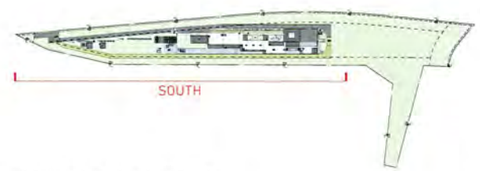
BELOW PACIFIC COAST HIGHWAY

PROTRUSION ABOVE BERM



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VILLA COLEAVA

Project Address
25200 Pacific Coast Hwy.
Malibu, California, USA

Property Owner
PAR PCH, LLC
PO Box 6528
Malibu, CA 90265

Design Architect
Oppenheim Architecture
245 NE 37 Street
Miami FL 33137
P 305 576 8404
F 305 576 8433
W oppenoffice.com

Landscape Architect
[place]
3617 exposition boulevard
Los Angeles, CA 90016
P 310-450-8100
F 323-737-3290
W plac-e.com

Civil Engineers
LC Engineering Group
889 Pierce Ct., Ste. 101
Thousand Oaks, CA 91360
P 805-497-1244
P 818-991-7148
W lcegroupinc.com

Revisions

Mark	Date	Description

Title
PROTRUSION ABOVE PCH HIGHWAY
1/16" = 1'-0"

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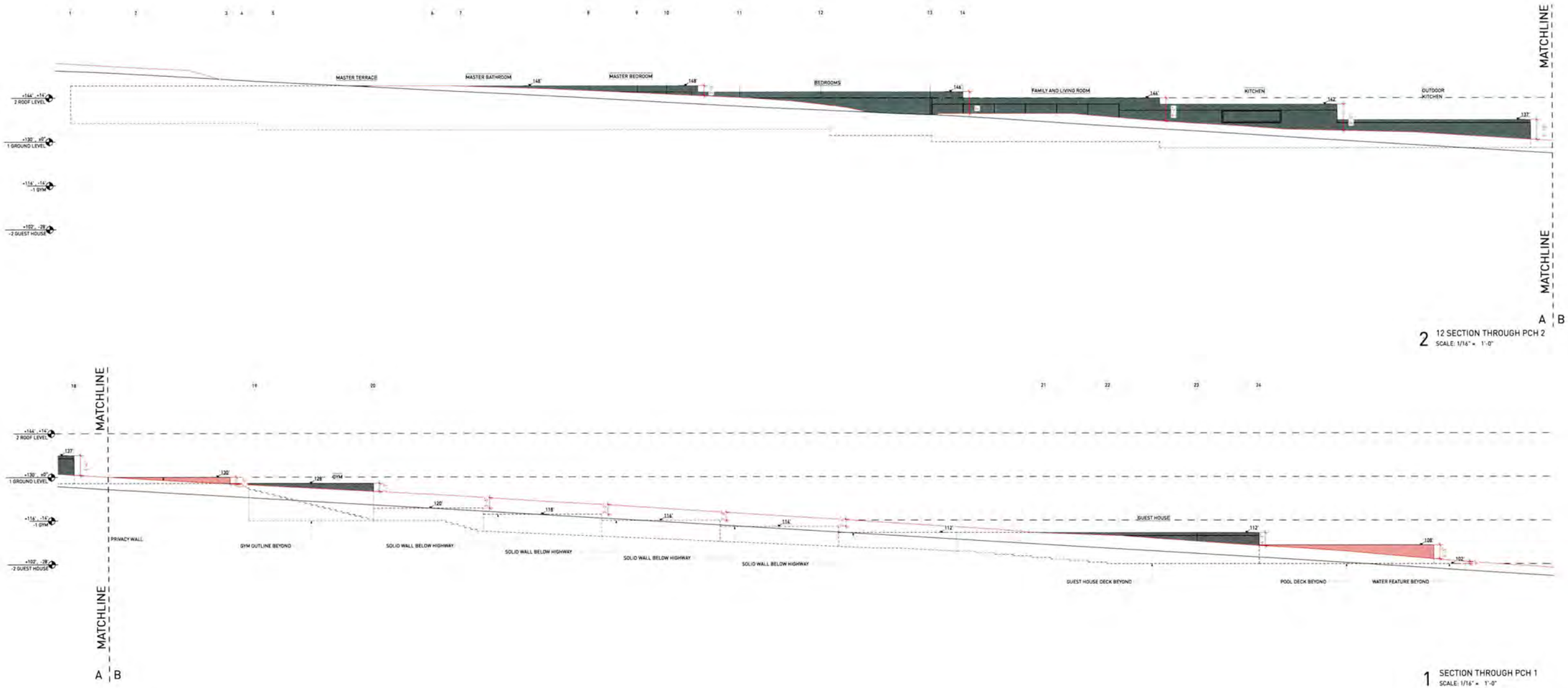
Design Development

1813
VILLA COLEAVA

Drawing Issued on 4/16/25

Z112



2 12 SECTION THROUGH PCH 2
SCALE: 1/16" = 1'-0"

1 SECTION THROUGH PCH 1
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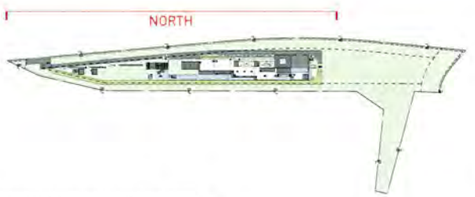
BERM

ROOF STRUCTURES ABOVE BERM

WALL PROTRUSION ABOVE BERM



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317 MOTORIZED VEHICULAR GATE. REFER TO ELECT. DWGS.
318 ALL TOILETS TO BE WALL HUNG. REFER TO MECH. DWGS.
319 LINEAR DRAIN
320 OVERFLOW SCUPPER.

WATERPROOFING

400 CONTINUOUS VAPOR BARRIER. REFER TO ARCH AND STRUCTURAL DWGS.
401 WATERPROOFING MEMBRANE. REFER TO ARCH AND STRUCTURAL DWGS.
402 POOL FINISH/ COLOR TBD.

MISC. ARCHITECTURAL DETAILS

500 CURTAIN CEILING COVE. REFER TO ARCH. DETAIL.
501 CONTINUOUS 1/2" TOGLED WATER GRIP. SEE ARCH. DETAIL.
502 VENT.
503 KITCHEN, BUILT-IN FURNITURE, CABINETRY BY OTHERS. REFER TO KITCHEN SHOP DWGS.
504 5/8" GWB DROPPED CEILING ON 3/4" FURRING STRIPS. PAINTED GWB. COLOR TBD.
505 STAINLESS STEEL SCUPPER IN CONCRETE STRUCTURE. 3" X 3" MIN OPENING. REFER TO ELEVATION AND PLAN FOR LOCATION.
506 CUSTOM WOOD MILLWORK, REFER TO I.D. DRAWINGS.
507 SOLAR PANELS (T.B.D.)
509 CONCEALED LED SCREEN
510 LADDER ACCESS.

LIGHTING

600 PENDANT LIGHT. REFER TO LIGHTING DWGS.
601 RECESSED DOWN LIGHT. REFER TO LIGHTING DWGS.
602 CONCEALED LINEAR LIGHT. REFER TO LIGHTING DWGS.

FIRE SAFETY

700 FIRE DEPARTMENT VEHICULAR ACCESS ROADS MUST BE INSTALLED AND MAINTAINED IN A SERVICEABLE MANNER PRIOR TO AND DURING THE TIME OF CONSTRUCTION FIRE CODE 5001.4
701 AN APPROVED KEY BOX, LISTED IN ACCORDANCE WITH UL 1037 SHALL BE PROVIDED AS REQUIRED BY FIRE CODE 506. THE LOCATION OF EACH KEY BOX SHALL BE DETERMINED BY THE FIRE INSPECTOR.
702 ALL REQUIRED PUBLIC FIRE HYDRANTS SHALL BE INSTALLED, TESTED AND ACCEPTED PRIOR TO BEGINNING CONSTRUCTION. FIRE CODE 501.4
703 PROVIDE AN APPROVED AUTOMATIC FIRE SPRINKLER SYSTEM AS SET FORTH BY BUILDING CODE 903 AND FIRE CODE 9003. PLANS SHALL BE SUBMITTED TO THE SPRINKLER PLAN CHECK UNIT FOR REVIEW AND APPROVAL PRIOR TO INSTALLATION.
704 SMOKE ALARMS SHALL RECEIVE THEIR PRIMARY POWER FROM THE BUILDING WIRING PROVIDED THAT SUCH WIRING IS SERVED FROM A COMMERCIAL SOURCE AND SHALL BE EQUIPPED WITH A BATTERY BACKUP. RESIDENTIAL CODE R314.4
705 WHERE MORE THAN ONE SMOKE ALARM IS REQUIRED TO BE INSTALLED WITHIN AN INDIVIDUAL DWELLING OR SLEEPING UNIT, THE SMOKE ALARMS SHALL BE INTERCONNECTED SIN USCH A MANNER THAT THE ACTIVATION OF ONE ALARM WILL ACTIVATE ALL OF THE ALARMS IN THE INDIVIDUAL UNIT. RESIDENTIAL CODE R314.5
706 APPROVED BUILDING ADDRESS NUMBERS, BUILDING NUMBERS OR APPROVED BUILDING IDENTIFICATION SHALL BE PROVIDED AND MAINTAINED SO AS TO BE PLAINLY VISIBLE AND LEGIBLE FROM THE STREET FRONTING THE PROPERTY. THE MINIMUM OF 4 INCHES HIGH WITH A MINUMM STROKE WIDTH OF 0.5 INCH. FIRE CODE 505.1
707 ALL ROOF COVERINGS SHALL BE CLASS "A" AS SPECIFIED IN BUILDING CODE 1505.1.1 (RESIDENTIAL CODE R327.5.2 & R902)
708 ROOF VALLEY FLASHINGS SHALL BE NOT LESS THAN 0.019 INCH (NO 24 GALVANIZED SHEET GAGE) CORROSION-RESISTANT METAL INSTALLED OVER A MINIMUM 36-INCH WIDE UNDERLAYMENT CONSISITNG OF ONE LAYER OF NO. 72 ASTM CAP SHEET MEETING RUNNING THE FULL LEGHTH OF THE VALLEY (RESIDENTIAL CODE R327.5.3 AND BUILDING CODE 705A.3
709 ROOF GUTTERS SHALL BE PROVIDED WITH A MEANS OTO PREVENT THE ACCUMULATION OF LEAVES AND DEBRIS IN THE GUTTER. (RESIDENTIAL CODE R327.534 AND BUILDING OCODE 705A.4)
710 VENTS SHALL RESIST THE INTRUSION OF FLAME AND EMBERS AND FLAME THROUGH THE VENTILATION OPENINGS. VENT OPENINGS SHALL BE PROTECTED BY CORROSION- RESISTANT, NONCOMBUSTIBLE WIRE MESH WITH A MINIMUM 1/16TH INCH OPENINGS AND SHALL NOT EXCEED 1/8TH INCH. VENTS SHALL NOT BE INSTALLED IN EAVES OR CORNICES. (RESIDENTIAL CODE R327.4.1 AND BUILDING CODE 706A.1)
711 CLEARANCE OF BRUSH AND VEGETATIVE GROWTH SHALL BE MAINTAINED PER FIRE CODE 325.
712 PROVIDE APPROVED SIGNS OR OTHER APPROVED NOTICES OR MARKINGS THAT INCLUDE THE WORDS NO PARKING - FIRE LANE. SIGNS SHALL HAVE A MINIMUM DIMENSION OF 12 INCHES WIDE BY 18 INCHES HIGH AND HAVE RED LETTERS ON A WHITE REFLECTIVE BACKGROUND. SIGNS SHALL BE PROVIDED FOR FIRE APPARATUS ACCESS ROADS, TO CLEARLY INDICATE THE ENTRANCE TO SUCH ROAD, OR PROHIBIT THE OBSTRUCTION THEREOF AND AT INTERVALS, AS REQUIRED BY THE FIRE INSPECTOR. FIRE CODE 503.3.
713 ALL FIRE HYDRANTS SHALL MEASURE 6"" X 4"" X 2-1/2"", BRASS OR BRONZE, CONFORMING TO AMERICAN WATER WORKS ASSOCIATION STANDARD C503, OR APPROVED EQUAL.

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Property Owner
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Design Architect
Oppenheim Architecture
245 NE 37 Street
Miami FL 33137
P 305 576 8404
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W oppenoffice.com

Landscape Architect
[place]
3617 exposition boulevard
Los Angeles, CA 90016
P 310-450-8100
F 323-737-3290
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LC Engineering Group
889 Pierce Ct., Ste. 101
Thousand Oaks, CA 91360
P 805-497-1244
P 818-991-7148
W lcegroupinc.com

Revisions

Mark	Date	Description

Title
PROTRUSION ABOVE PCH HIGHWAY
1/16" = 1'-0"

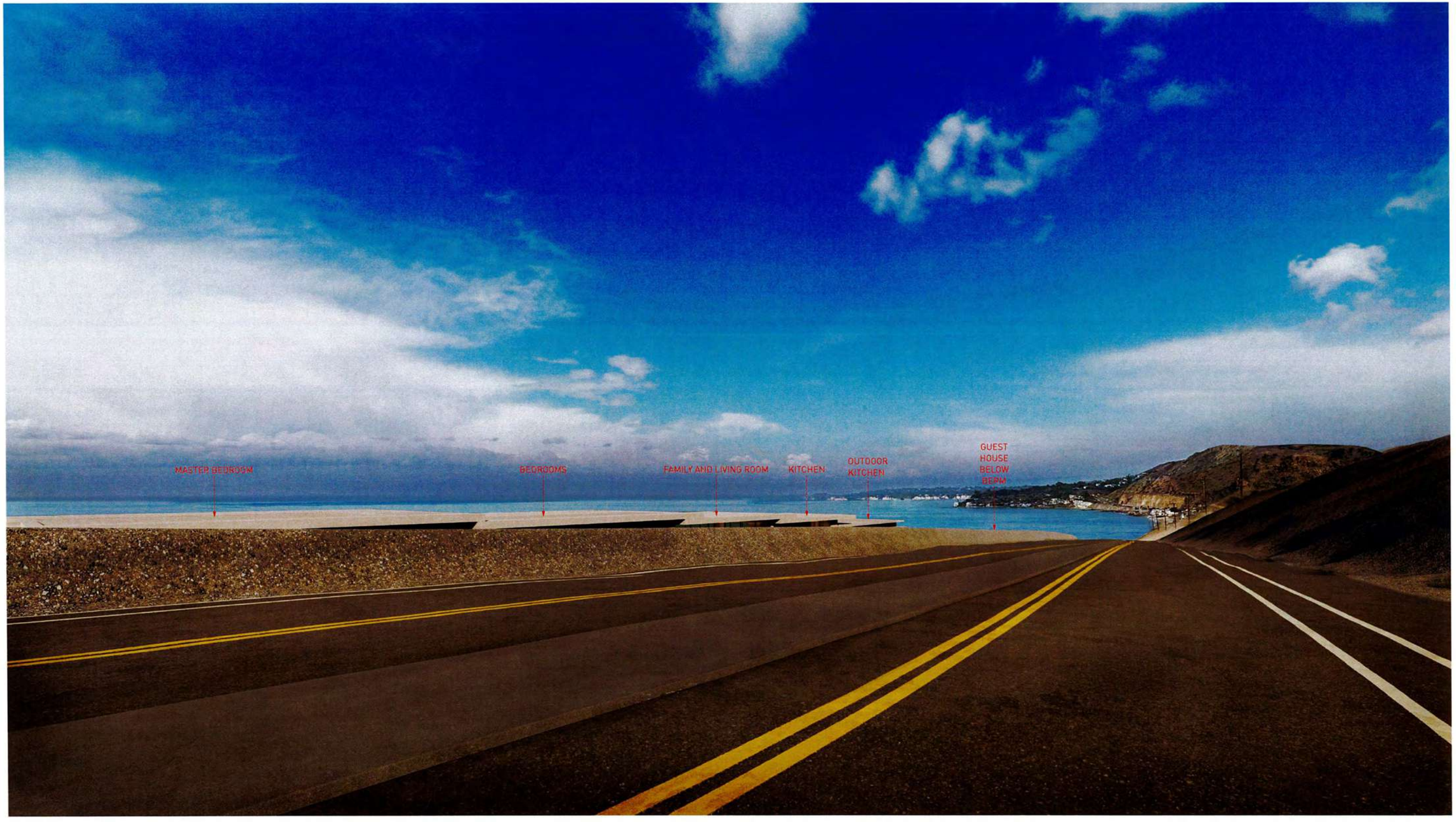
NOT FOR CONSTRUCTION

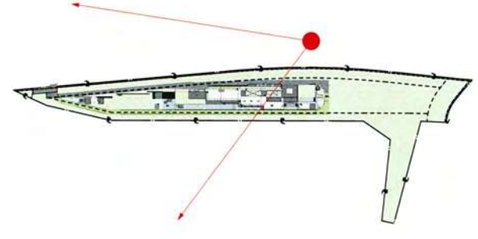
Design Development

1813
VILLA COLEAVA

Drawing Issued on 4/16/25

Z113





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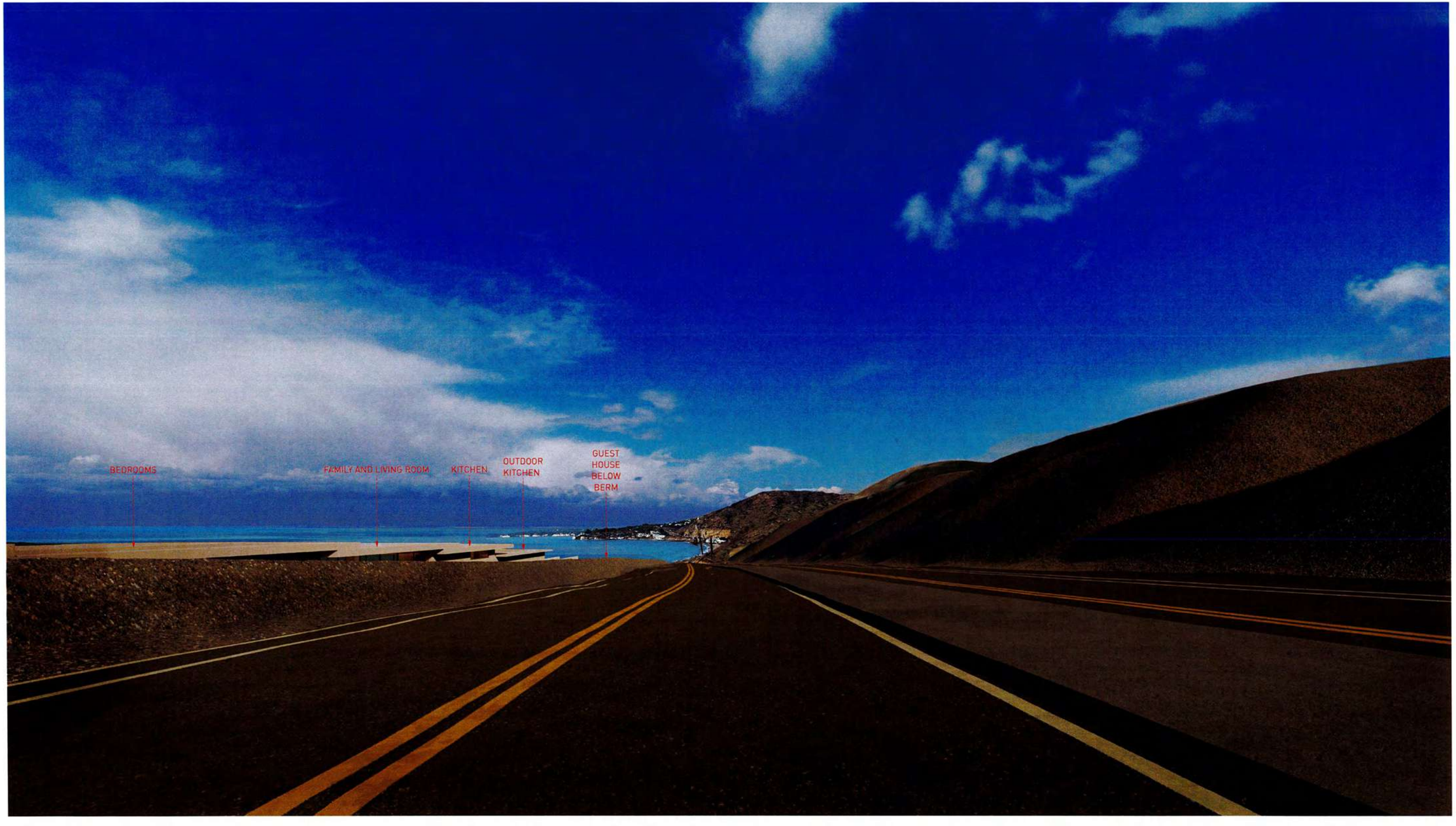

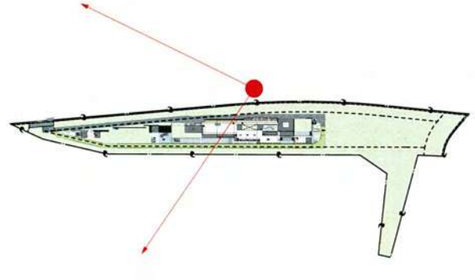

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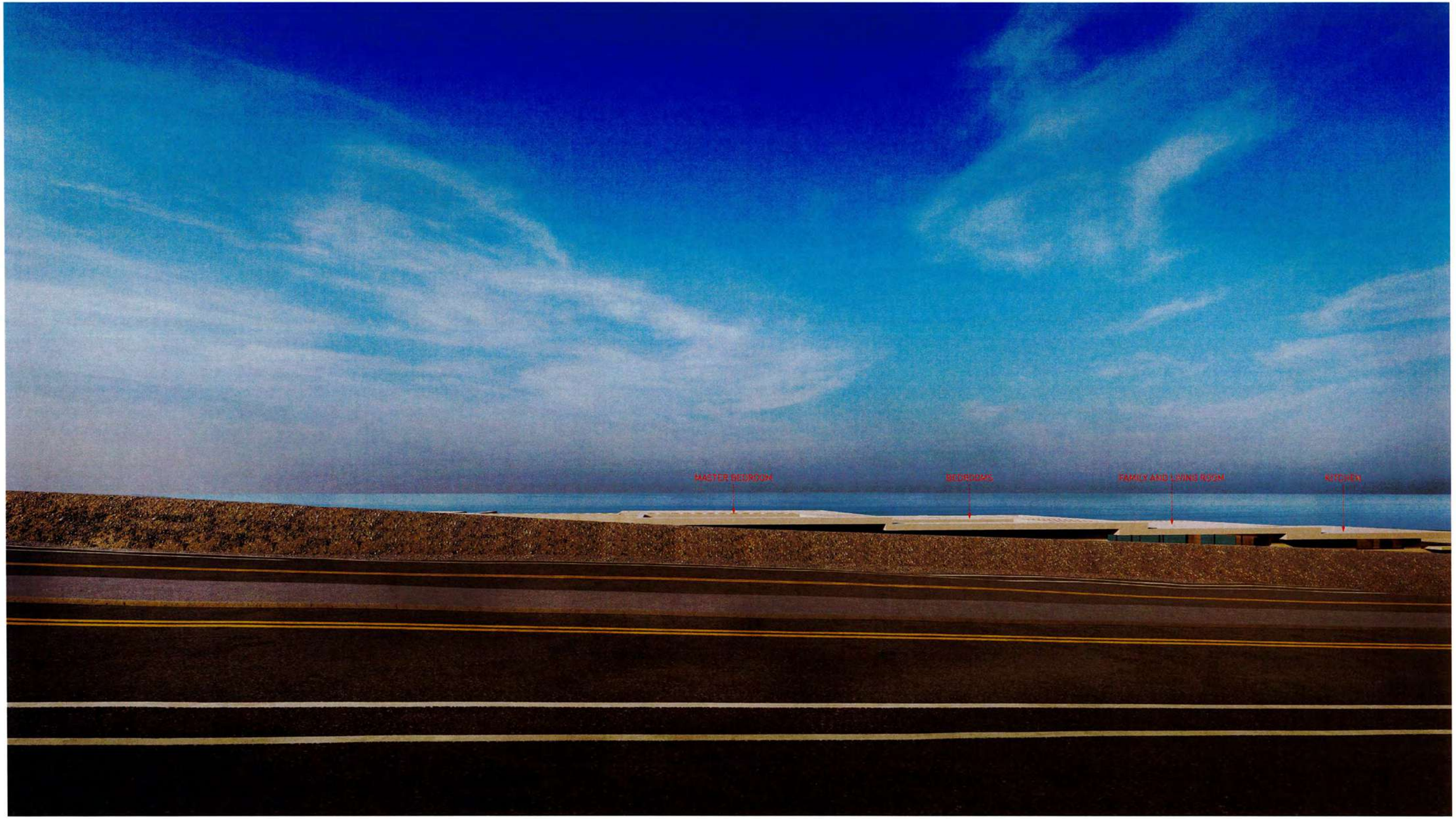

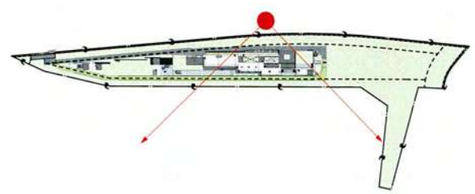

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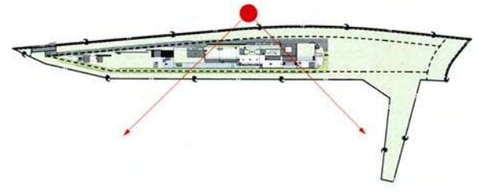

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Z117

LEGAL DESCRIPTION

COMMENTS:

BOUNDARY LINES . . . . . SHOWN PER RECORD OF SURVEY RECORDED IN BOOK 134, PAGE 11 OF RECORDS OF SURVEYS, COUNTY OF LOS ANGELES.

LEGAL DESCRIPTION . . . . FROM INFORMATION SUPPLIED BY CLIENT. USUALLY A TITLE POLICY OR TITLE REPORT.

EASEMENTS . . . . . PLOTTABLE EASEMENTS ARE SHOWN FROM AN OWNER SUPPLIED TITLE REPORT. NON-PLOTTABLE ONES ARE NOTED ON THE SURVEY AS HAVING "EFFECT OF". BECAUSE OUR SERVICE IS LIMITED TO REPORTING ON EASEMENT LOCATIONS WE STRONGLY RECOMMEND LEGAL COUNSEL BE RETAINED TO REPORT ON TITLE PAPERS IN THEIR ENTIRETY.

TITLE REPORT . . . . . FIRST AMERICAN TITLE INSURANCE COMPANY COMMITMENT NO. NCS-373593-LA2, DATED MAY 13, 2010.

– INDICATES TITLE REPORT EXCEPTION NO.

CBHS (NGS PID NO. AJ1846) LAT: 34°08'18.80640" LONG: 118°37'47.24823"
TOST (NGS PID NO. AJ1831) LAT: 34°14'42.62683" LONG: 118°50'11.94154"
SPK1 (NGS PID NO. AI4474) LAT: 34°03'33.61984" LONG: 118°38'46.12944"

DISTANCES SHOWN HEREON ARE GRID. TO GET GROUND DISTANCES DIVIDE BY COMBINATION FACTOR OF 0.99999317

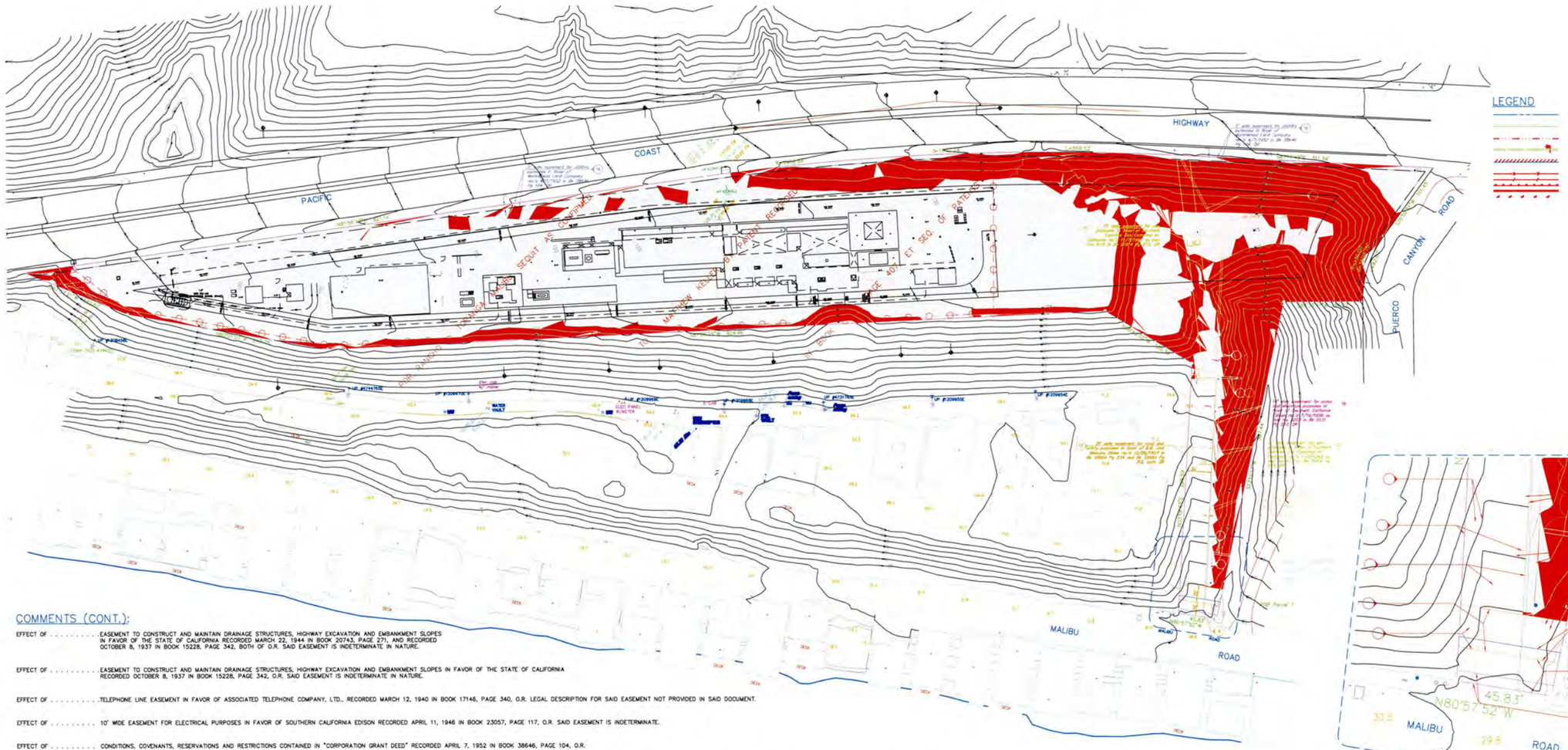
TOST IS A CONTINUOUS GPS (COPS) SITE LOCATED AT THE THOUSAND OAKS SHERIFF STATION, VENTURA COUNTY, CA. IT IS A SOUTHERN CALIFORNIA INTEGRATED GPS NETWORK (SCIGN) CONTINUOUS GPS (COPS) MONUMENT. IT IS A WYATT-AGNEW DRILLED BRACED MONUMENT. MOUNTED ON THIS MONUMENT IS A SCIGN ANTENNA ADAPTOR (DETAILED SPECIFICATIONS OF THE CONSTRUCTION OF THE MONUMENT AND THE MACHINED SPECIFICATIONS OF THE ADAPTOR ARE AVAILABLE ON THE SCIGN/USGS WEB SITES). THE BPA IS THE BOTTOM OF THE ANTENNA WHICH IS ADJACENT TO THE TOP OF THE ANTENNA ADAPTOR. DAILY GPS DATA AND MORE INFORMATION ON THIS SITE IS AVAILABLE AT CSRC.UCSD.EDU.

VERT ORDER – SECOND, CLASS II, ELEV 1017.14 FEET (ADJUSTED IN 2007)

CONTOUR INTERVAL . . . . . 1 FOOT.



VICINITY MAP



EASEMENT DETAIL

COMMENTS (CONT.):

EFFECT OF . . . . . EASEMENT TO CONSTRUCT AND MAINTAIN DRAINAGE STRUCTURES, HIGHWAY EXCAVATION AND EMBANKMENT SLOPES IN FAVOR OF THE STATE OF CALIFORNIA RECORDED MARCH 22, 1944 IN BOOK 20743, PAGE 271, AND RECORDED OCTOBER 8, 1937 IN BOOK 15228, PAGE 342, BOTH OF O.R. SAID EASEMENT IS INDETERMINATE IN NATURE.

EFFECT OF . . . . . EASEMENT TO CONSTRUCT AND MAINTAIN DRAINAGE STRUCTURES, HIGHWAY EXCAVATION AND EMBANKMENT SLOPES IN FAVOR OF THE STATE OF CALIFORNIA RECORDED OCTOBER 8, 1937 IN BOOK 15228, PAGE 342, O.R. SAID EASEMENT IS INDETERMINATE IN NATURE.

EFFECT OF . . . . . TELEPHONE LINE EASEMENT IN FAVOR OF ASSOCIATED TELEPHONE COMPANY, LTD., RECORDED MARCH 12, 1940 IN BOOK 17146, PAGE 340, O.R. LEGAL DESCRIPTION FOR SAID EASEMENT NOT PROVIDED IN SAID DOCUMENT.

EFFECT OF . . . . . 10' WIDE EASEMENT FOR ELECTRICAL PURPOSES IN FAVOR OF SOUTHERN CALIFORNIA EDISON RECORDED APRIL 11, 1946 IN BOOK 23057, PAGE 117, O.R. SAID EASEMENT IS INDETERMINATE.

EFFECT OF . . . . . CONDITIONS, COVENANTS, RESERVATIONS AND RESTRICTIONS CONTAINED IN "CORPORATION GRANT DEED" RECORDED APRIL 7, 1952 IN BOOK 38646, PAGE 104, O.R.

EFFECT OF . . . . . 2' WIDE EASEMENT FOR GUY WIRE AND ANCHORS IN FAVOR OF SOUTHERN CALIFORNIA EDISON RECORDED JULY 19, 1958 AS INSTRUMENT NO. 3203 IN BOOK D131, PAGE 527, O.R. LEGAL DESCRIPTION PROVIDED IN SAID DOCUMENT IS INSUFFICIENT TO PLOT PORTIONS OF SAID EASEMENT.

EFFECT OF . . . . . 2' WIDE EASEMENT FOR POLES AND TELECOMMUNICATIONS PURPOSES IN FAVOR OF GENERAL TELEPHONE COMPANY OF CALIFORNIA RECORDED APRIL 1, 1959 AS INSTRUMENT NO. 3229 IN BOOK D418, PAGE 637, O.R. LEGAL DESCRIPTION PROVIDED IN SAID DOCUMENT IS INSUFFICIENT TO PLOT PORTIONS OF SAID EASEMENT.

EFFECT OF . . . . . RESTRICTIONS PROHIBITING THE USE OF SAID LAND FOR INDUSTRIAL, MANUFACTURING, COMMERCIAL OR BUSINESS PURPOSES PER DEED RECORDED JUNE 8, 1944 AS INSTRUMENT NO. 46 IN BOOK 20892, PAGE 395, O.R. SAID RESTRICTIONS EXPIRED AT THE CLOSE OF THE YEAR 1970.

NOTE:

1. THIS IS NOT A MAP OF A BOUNDARY SURVEY. NO PROPERTY CORNERS HAVE BEEN SET AS A PART OF THIS WORK.
2. RELATION OF TOPOGRAPHIC FEATURES (FENCES, WALLS, TREES, UTILITY POLES, ETC.) TO PROPERTY LINES AS SHOWN HEREON IS SUBJECT TO THE ADJUSTMENT THAT A BOUNDARY SURVEY MAY REQUIRE.
3. SITE TOPOGRAPHY, BOUNDARY AND EASEMENTS WERE NOT PREPARED BY CHRIS NELSON AND ASSOCIATES.
   BUT WERE PROVIDED BY CLIENT FOR THE PURPOSES OF A SLOPE ANALYSIS. CHRIS NELSON AND ASSOCIATES MAKES NO CLAIM TO THE ACCURACY OF NEITHER THE TOPOGRAPHY OR BOUNDARY.

SLOPE TABLE

NUMBER	MINIMUM SLOPE	MAXIMUM SLOPE	COLOR	SLOPE AREA	PERCENT
1	0%	30%		192,289 SQ. FT.	69.3%
2	30%	VERTICAL		85,003 SQ. FT.	30.7%

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P 818-991-7148
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Revisions

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Title
COLOR CODED SLOPE ANALYSIS

NOT FOR CONSTRUCTION

Design Development

1813
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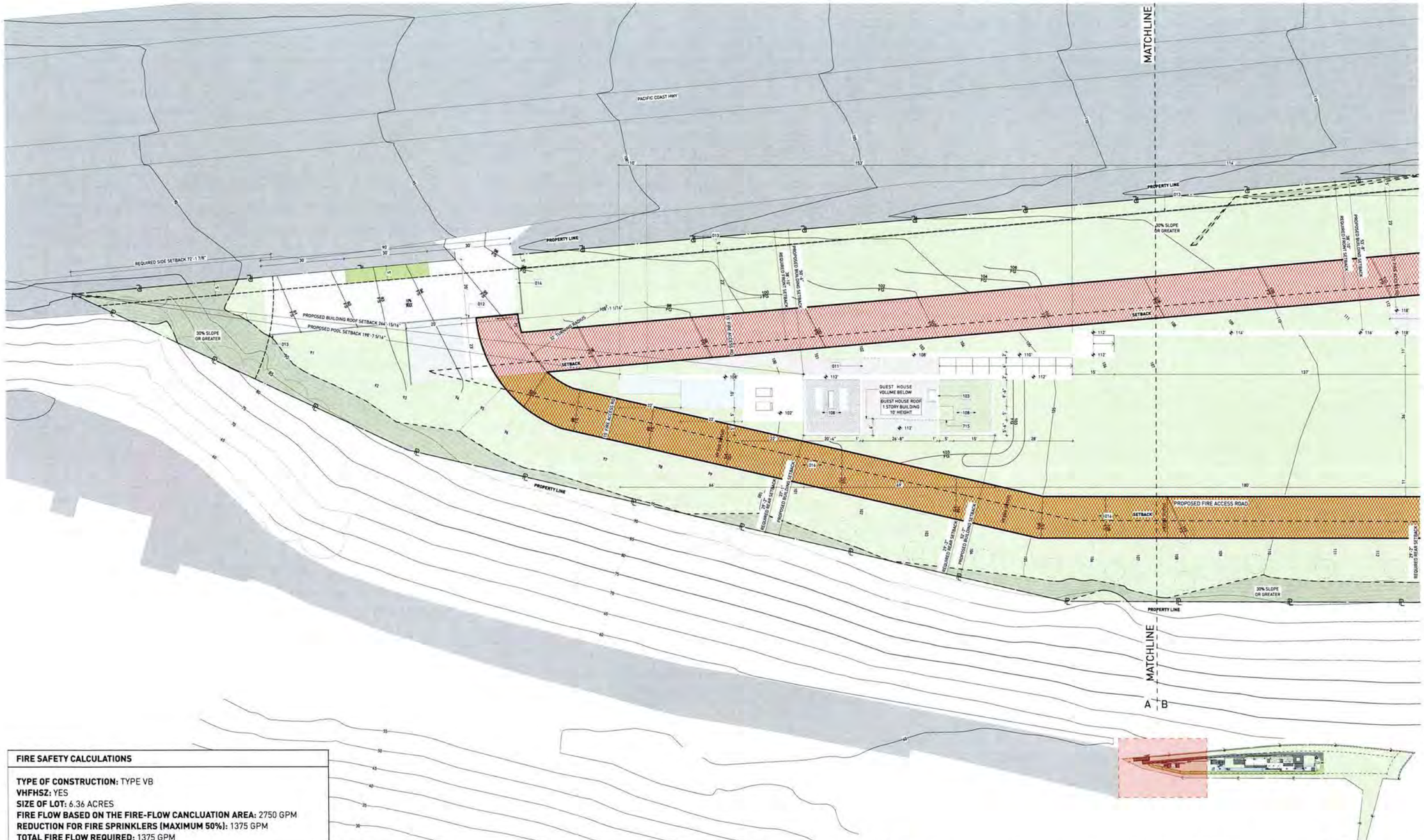
Drawing Issued on 4/16/25

Z118



FIRE SAFETY CALCULATIONS

TYPE OF CONSTRUCTION: TYPE VB
VHFHSZ: YES
SIZE OF LOT: 6.36 ACRES
FIRE FLOW BASED ON THE FIRE-FLOW CANCLUATION AREA: 2750 GPM
REDUCTION FOR FIRE SPRINKLERS (MAXIMUM 50%): 1375 GPM
TOTAL FIRE FLOW REQUIRED: 1375 GPM

KEY NOTES:

SITE

001 MAINTAIN ALL WATER RUNOFF WITHIN PROPERTY. SLOPE AWAY FROM P.L. AT A MIN. SLOPE OF ¼" /FT., REFER TO CIVIL DWGS.
002 TREES/LANDSCAPING. PLANTING/GROUND COVER/LAWN, REFER TO LANDSCAPE DWGS.
003 HEDGE. REFER TO LANDSCAPE DWGS.
004 HARDSCAPE. REFER TO LANDSCAPE DWGS.
005 DRIVEWAY. GRAVEL ON GRADE. REFER TO CIVIL & LANDSCAPE DWGS.
006 WOOD DECK. SIZE OF PLANKS T.B.D. FINISH T.B.D.
007 UNDERGROUND DRAINAGE SYSTEM. REFER TO CIVIL DWGS.
008 INFINITY POOL EDGE.
009 OPEN PARKING. REFER TO CIVIL FOR DETAILS
010 6'-0" SITE RETAINING WALL. REFER TO STRUCTURAL AND LANDSCAPE DWGS.
011 PEDESTRIAN GATE DOOR. PROVIDE SHOP DWGS, FOR ARCHITECT REVIEW.
012 42" MOTORIZED VEHICULAR SLIDING ENTRY GATE. STEEL FRAME. 90% VISUALLY PERMEABLE.
013 42" PERIMETER FENCE. 90% VISUALLY PERMEABLE.
014 CALL BOX.
015 TRASH ENCLOSURE AREA
016 STRUCTURAL GRASS. DRIVEWAY. GRASSCRETE OR SIMILAR. REFER TO CIVIL & LANDSCAPE DWGS.
017 GENERATOR ON EXISTING CONCRETE PLINTH, BOTTOM OF GENERATOR TO BE ABOVE BFE +1', REFER TO ELECTRICAL DWGS.
018 A/C CONDENSER UNITS BEHIND LANDSCAPE, BOTTOM OF UNITS TO BE ABOVE BFE +1', REFER TO MECHANICAL DWGS.
019 NATURAL LAWN AREA. REFER TO LANDSCAPE DWGS.

MATERIALS

100 ARCHITECTURAL EXPOSED CONCRETE, COLOR T.B.D. REFER TO STRUCTURAL DRAWINGS AND ARCHITECTURAL DETAILS.
101 CUSTOM WOOD DOOR. REFER TO DOOR SCHEDULE.
102 IMPACT RESISTANT SLIDING ALUMINUM WINDOWS / DOORS SYSTEM, LOW-E COATING. REFER TO WINDOW SCHEDULE.
103 PRE-FABRICATED SKYLIGHT ON CONCRETE CURB. REFER TO WINDOW SCHEDULE. SEE SECTION AND DETAILS.
104 GARAGE STEEL DOOR CLADDED WITH CUSTOM CONCRETE PANELS. REFER TO DOOR SCHEDULE.
105 GRAVEL.
106 5/8" G.W.B., FINISH T.B.D., REFER TO I.D. DWGS.
110 RAMMED EARTH CONSTRUCTION
111 STONE BENCH.

STRUCTURAL

200 FOUNDATION AND PILES. REFER TO STRUCT. DWGS.
201 COMPACTED EARTH. REFER TO STRCUT. DWGS.
202 RETAINING WALL. REFER TO STRUCT. DWGS.
203 CONCRETE SLAB. REFER TO STRUCT. DWGS.
204 CONCRETE COLUMN. REFER TO STRUCT. DWGS.
205 CONCRETE BEAM. REFER TO STRUCT. DWGS.
206 STEEL COLUMN. REFER TO STRUCT. DWGS.
207 CONCRETE STAIRS. REFER TO STRUCT. DWGS.
208 CONCRETE SHELL FOR POOL. REFER TO STRUCT. DWGS.
209 8" CMU REINFORCED WALL. REFER TO WALL TYPES AND STRUCT. DWGS
210 PROVIDE 2" RECESS ON SLABS ON ALL SHOWERS.
211 OPENING ON CONCRETE SLAB. REFER TO STRUCT. DWGS.

MEP

300 LIGHT FIXTURE/ SEE ARCH. RCP, ELECTRICAL DWGS. AND LIGHTING SPECIFICATIONS.
301 A/C PLENUM SPACE, REFER TO MECHANICAL DWGS. AND RCP. NO COMBUSTIBLES ALLOWED.
302 ROOF DRAIN, REFER TO PLUMBING DWGS. /SEE DETAIL.
303 FLOOR DRAIN, REFER TO PLUMBING DWGS./ SEE DETAIL.
304 DRAIN PIPE TO FIT IN CEILING SPACE, REFER TO PLUMBING DWGS. COORDINATE EXACT LOCATION AND SPECS.
305 KITCHEN HOOD, REFER TO MECH DWGS.
306 KITCHEN HOOD EXHAUST PIPE TO FIT IN CEILING SPACE, REFER TO MECH DWGS. COORDINATE EXACT LOCATION AND SPECS.
307 DESIGNATED POOL EQUIPMENT AREA.
308 GAS WATER HEATER, REFER TO PLUMBING DWGS.
309 ELECTRICAL PANELS. REFER TO ELECTRICAL DWGS.
310 CONDENSER UNITS ON STANDS. REFER TO MECH. DWGS.
311 MINIMUM R-30 BATT INSULATION OR RIGID INSULATION. REFER TO ENERGY CALCULATIONS.
315 HOSE BIB. REFER TO PLUMBING AND LANDSCAPE DWGS.
316 ELECTRICITY, GAS AND WATER. REFER TO MEP DRAWINGS.
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FIRE SAFETY

700 FIRE DEPARTMENT VEHICULAR ACCESS ROADS MUST BE INSTALLED AND MAINTAINED IN A SERVICEABLE MANNER PRIOR TO AND DURING THE TIME OF CONSTRUCTION. FIRE CODE 5001.4
701 AN APPROVED KEY BOX, LISTED IN ACCORDANCE WITH UL 1037 SHALL BE PROVIDED AS REQUIRED BY FIRE CODE 506. THE LOCATION OF EACH KEY BOX SHALL BE DETERMINED BY THE FIRE INSPECTOR.
702 ALL REQUIRED PUBLIC FIRE HYDRANTS SHALL BE INSTALLED, TESTED AND ACCEPTED PRIOR TO BEGINNING CONSTRUCTION. FIRE CODE 501.4
703 PROVIDE AN APPROVED AUTOMATIC FIRE SPRINKLER SYSTEM AS SET FORTH BY BUILDING CODE 903 AND FIRE CODE 9003. PLANS SHALL BE SUBMITTED TO THE SPRINKLER PLAN CHECK UNIT FOR REVIEW AND APPROVAL PRIOR TO INSTALLATION.
704 SMOKE ALARMS SHALL RECEIVE THEIR PRIMARY POWER FROM THE BUILDING WIRING PROVIDED THAT SUCH WIRING IS SERVED FROM A COMMERCIAL SOURCE AND SHALL BE EQUIPPED WITH A BATTERY BACKUP. RESIDENTIAL CODE R314.4
705 WHERE MORE THAN ONE SMOKE ALARM IS REQUIRED TO BE INSTALLED WITHIN AN INDIVIDUAL DWELLING OR SLEEPING UNIT, THE SMOKE ALARMS SHALL BE INTERCONNECTED SIN USCH A MANNER THAT THE ACTIVATION OF ONE ALARM WILL ACTIVATE ALL OF THE ALARMS IN THE INDIVIDUAL UNIT. RESIDENTIAL CODE R314.5
706 APPROVED BUILDING ADDRESS NUMBERS, BUILDING NUMBERS OR APPROVED BUILDING IDENTIFICATION SHALL BE PROVIDED AND MAINTAINED SO AS TO BE PLAINLY VISIBLE AND LEGIBLE FROM THE STREET FRONTING THE PROPERTY. THE MINIMUM OF 4 INCHES HIGH WITH A MINIMUM STROKE WIDTH OF 0.5 INCH. FIRE CODE 505 1
707 ALL ROOF COVERINGS SHALL BE CLASS "A" AS SPECIFIED IN BUILDING CODE 1505.1 1 (RESIDENTIAL CODE R327.5.2 & R902)
708 ROOF VALLEY FLASHINGS SHALL BE NOT LESS THAN 0.019 INCH (NO.26 GALVANIZED SHEET GAGE) CORROSION-RESISTANT METAL INSTALLED OVER A MINIMUM 36-INCH WIDE UNDERLAYMENT CONSISTING OF ONE LAYER OF NO. 72 ASTM CAP SHEET MEETING RUNNING THE FULL LEGHTH OF THE VALLEY (RESIDENTIAL CODE R327.5.3 AND BUILDING CODE 705A.3
709 ROOF GUTTERS SHALL BE PROVIDED WITH A MEANS OTO PREVENT THE ACCUMULATION OF LEAVES AND DEBRIS IN THE GUTTER. (RESIDENTIAL CODE R327.534 AND BUILDING GCODE 705A.4)
710 VENTS SHALL RESIST THE INTRUSION OF FLAME AND EMBERS AND FLAME THROUGH THE VENTILATION OPENINGS. VENT OPENINGS SHALL BE PROTECTED BY CORROSION- RESISTANT, NONCOMBUSTIBLE WIRE MESH WITH A MINIMUM 1/16TH INCH OPENINGS AND SHALL NOT EXCEED 1/8TH INCH. VENTS SHALL NOT BE INSTALLED IN EAVES OR CORNICES. (RESIDENTIAL CODE R327.6.1 AND BUILDING CODE 706A.1)
711 CLEARANCE OF BRUSH AND VEGETATIVE GROWTH SHALL BE MAINTAINED PER FIRE CODE 325.
712 PROVIDE APPROVED SIGNS OR OTHER APPROVED NOTICES OR MARKINGS THAT INCLUDE THE WORDS NO PARKING - FIRE LANE. SIGNS SHALL HAVE A MINIMUM DIMENSION OF 12 INCHES WIDE BY 18 INCHES HIGH AND HAVE RED LETTERS ON A WHITE REFLECTIVE BACKGROUND. SIGNS SHALL BE PROVIDED FOR FIRE APPARATUS ACCESS ROADS, TO CLEARLY INDICATE THE ENTRANCE TO SUCH ROAD, OR PROHIBIT THE OBSTRUCTION THEREOF AND AT INTERVALS, AS REQUIRED BY THE FIRE INSPECTOR. FIRE CODE 503.3
713 ALL FIRE HYDRANTS SHALL MEASURE 6"" X 4"" X 2-1/2"", BRASS OR BRONZE, CONFORMING TO AMERICAN WATER WORKS ASSOCIATION STANDARD C503, OR APPROVED EQUAL.

ROOM NAMES:

01 LIVING ROOM
02 DINING ROOM
03 KITCHEN
04 SERVICE KITCHEN
05 POWDER ROOM
06 PANTRY
07 FAMILY ROOM
08 OUTDOOR KITCHEN
09 BEDROOM
10 BATHROOM
11 COURTYARD
12 MASTER BEDROOM
13 MASTER BATHROOM
14 MASTER CLOSET
15 POOL
16 POOL DECK
17 WATER FEATURE
18 TERRACE
19 FIRE PIT
20 OFFICE
21 OUTDOOR SHOWER
22 STORAGE
23 FIREPLACE
24 GYM
25 STEAM ROOM
26 SAUNA
27 MASSAGE ROOM
28 LAUNDRY
29 MUD ROOM
30 WINE STORAGE
31 GARAGE
32 LIGHTWELL
33 OUTDOOR BATHROOM
34 SUNKEN TUB

Project No
1813

Project Name
VILLA COLEAVA

Project Address
25200 Pacific Coast Hwy.
Malibu, California, USA

Property Owner
PAR PCH, LLC
PO Box 6528
Malibu, CA 90265

Design Architect
Oppenheim Architecture
245 NE 37 Street
Miami FL 33137
P 305 576 8404
F 305 576 8433
W oppenoffice.com

Landscape Architect
[place]
3617 exposition boulevard
Los Angeles, CA 90016
P 310-450-8100
F 323-737-3290
W plac-e.com

Civil Engineers
LC Engineering Group
889 Pierce Ct., Ste. 101
Thousand Oaks, CA 91360
P 805-497-1244
P 818-991-7148
W lcegroupinc.com

Revisions

Mark	Date	Description

Title
FIRE ACCESS ROAD A

1/16" = 1'-0"

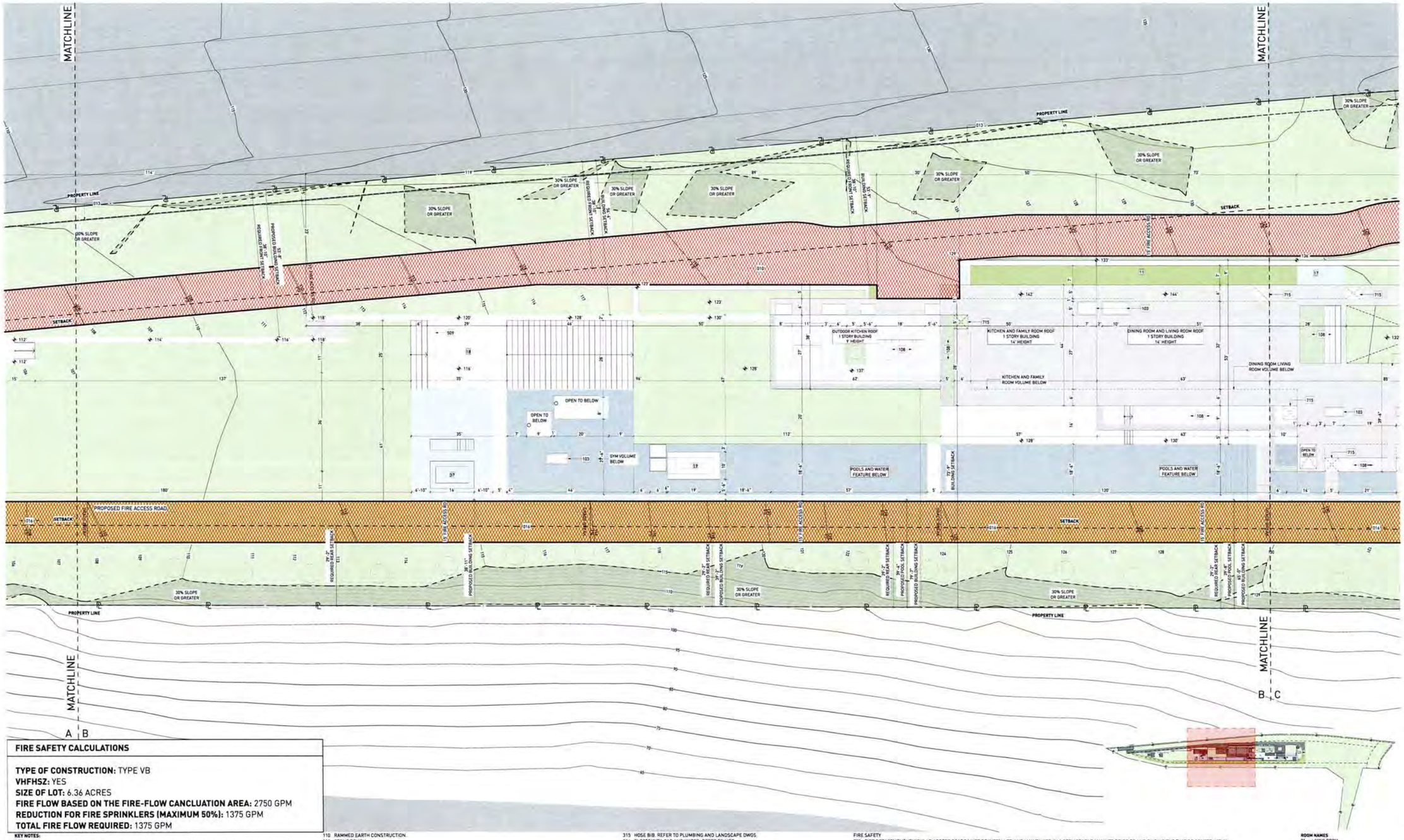
NOT FOR CONSTRUCTION

Design Development

1813
VILLA COLEAVA

Drawing Issued on 4/16/25

FS100



FIRE SAFETY CALCULATIONS

TYPE OF CONSTRUCTION: TYPE VB
VHFHSZ: YES
SIZE OF LOT: 6.36 ACRES
FIRE FLOW BASED ON THE FIRE-FLOW CANCLUATION AREA: 2750 GPM
REDUCTION FOR FIRE SPRINKLERS (MAXIMUM 50%): 1375 GPM
TOTAL FIRE FLOW REQUIRED: 1375 GPM

KEY NOTES:

SITE
001 MAINTAIN ALL WATER RUNOFF WITHIN PROPERTY. SLOPE AWAY FROM P.L. AT A MIN. SLOPE OF ¼" /FT., REFER TO CIVIL DWGS.
002 TREES/LANDSCAPING PLANTING/GROUND COVER/LAWN. REFER TO LANDSCAPE DWGS.
003 HEDGE. REFER TO LANDSCAPE DWGS.
004 HARDSCAPE. REFER TO LANDSCAPE DWGS.
005 DRIVEWAY. GRAVEL ON GRADE. REFER TO CIVIL & LANDSCAPE DWGS.
006 WOOD DECK. SIZE OF PLANKS T.B.D. FINISH T.B.D.
007 UNDERGROUND DRAINAGE SYSTEM. REFER TO CIVIL DWGS.
008 INFINITY POOL EDGE.
009 OPEN PARKING. REFER TO CIVIL FOR DETAILS.
010 6'-0" SITE RETAINING WALL. REFER TO STRUCTURAL AND LANDSCAPE DWGS.
011 PEDESTRIAN GATE DOOR. PROVIDE SHOP DWGS. FOR ARCHITECT REVIEW.
012 42" MOTORIZED VEHICULAR SLIDING ENTRY GATE. STEEL FRAME. 90% VISUALLY PERMEABLE.
013 42" PERIMETER FENCE. 90% VISUALLY PERMEABLE.
014 CALL BOX
015 TRASH ENCLOSURE AREA
016 STRUCTURAL GRASS DRIVEWAY. GRASSCRETE OR SIMILAR. REFER TO CIVIL & LANDSCAPE DWGS.
017 GENERATOR ON EXISTING CONCRETE PLINTH, BOTTOM OF GENERATOR TO BE ABOVE BFE +1'. REFER TO ELECTRICAL DWGS.
018 A/C CONDENSER UNITS BEHIND LANDSCAPE, BOTTOM OF UNITS TO BE ABOVE BFE +1' , REFER TO MECHANICAL DWGS.
019 NATURAL LAWN AREA. REFER TO LANDSCAPE DWGS.

MATERIALS
100 ARCHITECTURAL EXPOSED CONCRETE. COLOR T.B.D. REFER TO STRUCTURAL DRAWINGS AND ARCHITECTURAL DETAILS.
101 CUSTOM WOOD DOOR. REFER TO DOOR SCHEDULE.
102 IMPACT RESISTANT SLIDING ALUMINUM WINDOWS / DOORS SYSTEM, LOW-E COATING. REFER TO WINDOW SCHEDULE.
103 PRE-FABRICATED SKYLIGHT ON CONCRETE CURB. REFER TO WINDOW SCHEDULE. SEE SECTION AND DETAILS.
104 GARAGE STEEL DOOR CLADDED WITH CUSTOM CONCRETE PANELS. REFER TO DOOR SCHEDULE.
105 GRAVEL
106 5/8" G.W.B., FINISH T.B.D., REFER TO I.D. DWGS.
110 RAMMED EARTH CONSTRUCTION.
111 STONE BENCH

STRUCTURAL
200 FOUNDATION AND PILES. REFER TO STRUCT. DWGS.
201 COMPACTED EARTH. REFER TO STRCUT. DWGS.
202 RETAINING WALL. REFER TO STRUCT. DWGS.
203 CONCRETE SLAB. REFER TO STRUCT. DWGS.
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207 CONCRETE STAIRS. REFER TO STRUCT. DWGS.
208 CONCRETE SHELL FOR POOL. REFER TO STRUCT. DWGS.
209 8" CMU REINFORCED WALL. REFER TO WALL TYPES AND STRUCT. DWGS.
210 PROVIDE 2" RECESS ON SLABS ON ALL SHOWERS.
211 OPENING ON CONCRETE SLAB. REFER TO STRUCT. DWGS.

MEP
300 LIGHT FIXTURE/ SEE ARCH. RCP, ELECTRICAL DWGS. AND LIGHTING SPECIFICATIONS.
301 A/C PLENUM SPACE. REFER TO MECHANICAL DWGS. AND RCP. NO COMBUSTIBLES ALLOWED.
302 ROOF DRAIN. REFER TO PLUMBING DWGS. /SEE DETAIL.
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402 POOL FINISH/ COLOR TBD.

MISC. ARCHITECTURAL DETAILS
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501 CONTINUOUS 1/2" TOOLED WATER DRIP SEE ARCH. DETAIL.
502 VENT.
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504 5/8" GWB DROPPED CEILING ON 3/4" FURRING STRIPS, PAINTED GWB. COLOR TBD.
505 STAINLESS STEEL SCUPPER IN CONCRETE STRUCTURE. 3" X 3" MIN.OPENING. REFER TO ELEVATION AND PLAN FOR LOCATION.
506 CUSTOM WOOD MILLWORK, REFER TO I.D. DRAWINGS
507 SOLAR PANELS (T.B.D.)
509 CONCEALED LED SCREEN.
510 LADDER ACCESS.

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ROOM NAMES
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23 FIREPLACE
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28 LAUNDRY
29 MUD ROOM
30 WINE STORAGE
31 GARAGE
32 LIGHTWELL
33 OUTDOOR BATHROOM
34 SUNKEN TUB

Project No
1813

Project Name
VILLA COLEAVA

Project Address
25200 Pacific Coast Hwy.
Malibu, California, USA

Property Owner
PAR PCH, LLC
PO Box 6528
Malibu, CA 90265

Design Architect
Oppenheim Architecture
245 NE 37 Street
Miami FL 33137
P 305 576 8404
F 305 576 8433
W oppenoffice.com

Landscape Architect
[place]
3617 exposition boulevard
Los Angeles, CA 90016
P 310-450-8100
F 323-737-3290
W plac-e.com

Civil Engineers
LC Engineering Group
889 Pierce Ct., Ste. 101
Thousand Oaks, CA 91360
P 805-497-1244
P 818-991-7148
W lcegroupinc.com

Revisions

Mark	Date	Description

Title
FIRE ACCESS ROAD B

1/16" = 1'-0"

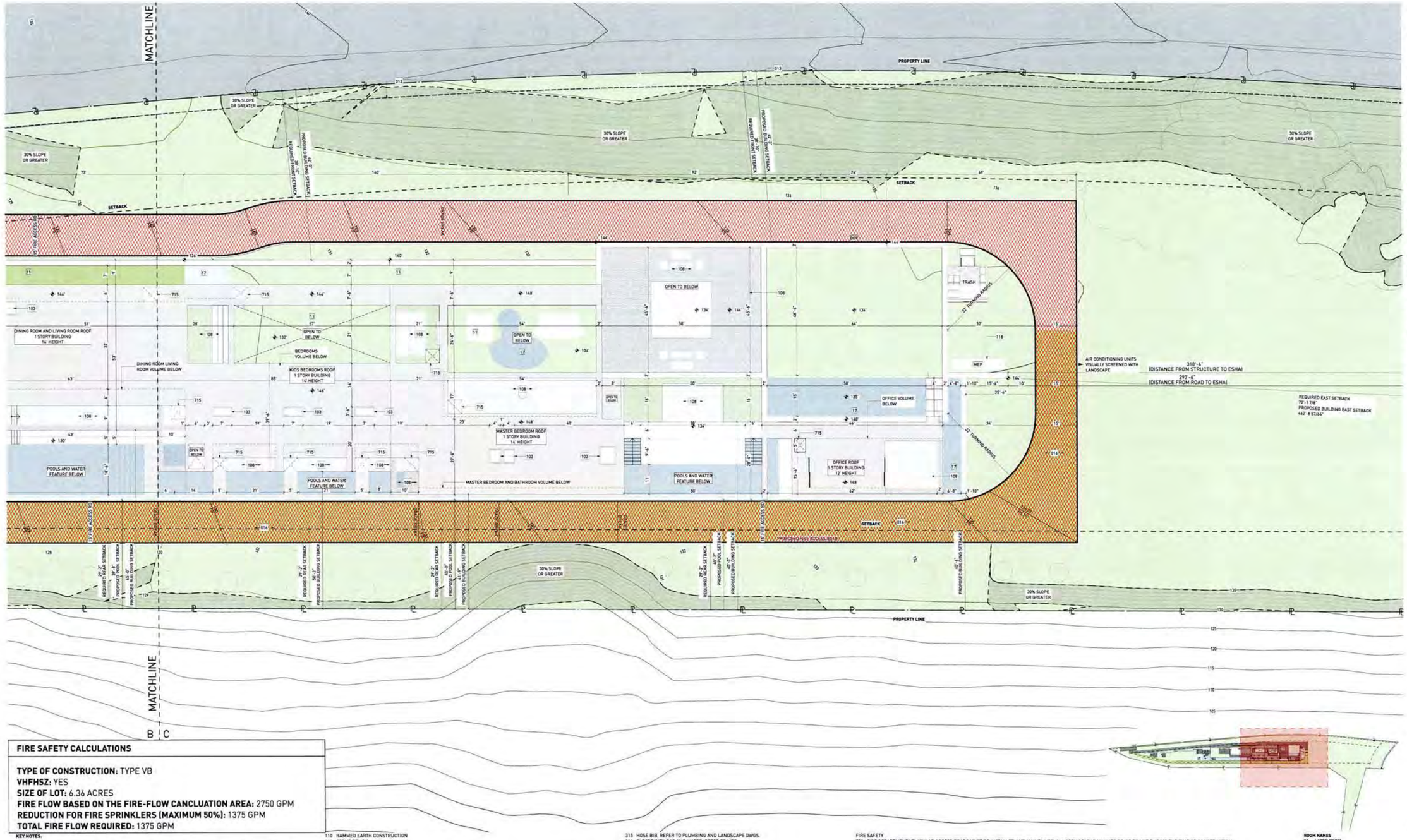
NOT FOR CONSTRUCTION

Design Development

1813
VILLA COLEAVA

Drawing Issued on 4/16/25

FS101



FIRE SAFETY CALCULATIONS

TYPE OF CONSTRUCTION: TYPE VB
VHFHSZ: YES
SIZE OF LOT: 6.36 ACRES
FIRE FLOW BASED ON THE FIRE-FLOW CANCLUATION AREA: 2750 GPM
REDUCTION FOR FIRE SPRINKLERS (MAXIMUM 50%): 1375 GPM
TOTAL FIRE FLOW REQUIRED: 1375 GPM

KEY NOTES:

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709 ROOF GUTTERS SHALL BE PROVIDED WITH A MEANS OTO PREVENT THE ACCUMULATION OF LEAVES AND DEBRIS IN THE GUTTER. (RESIDENTIAL CODE R327.534 AND BUILDING GCODE 705A.4)
710 VENTS SHALL RESIST THE INTRUSION OF FLAME AND EMBERS AND FLAME THROUGH THE VENTILATION OPENINGS. VENT OPENINGS SHALL BE PROTECTED BY CORROSION - RESISTANT, NONCOMBUSTIBLE WIRE MESH WITH A MINIMUM 1/14TH INCH OPENINGS AND SHALL NOT EXCEED 1/8TH INCH. VENTS SHALL NOT BE INSTALLED IN EAVES OR CORNICES. (RESIDENTIAL CODE R327.6.1 AND BUILDING CODE 706A.1)
711 CLEARANCE OF BRUSH AND VEGETATIVE GROWTH SHALL BE MAINTAINED PER FIRE CODE 325.
712 PROVIDE APPROVED SIGNS OR OTHER APPROVED NOTICES OR MARKINGS THAT INCLUDE THE WORDS NO PARKING - FIRE LANE. SIGNS SHALL HAVE A MINIMUM DIMENSION OF 12 INCHES WIDE BY 18 INCHES HIGH AND HAVE RED LETTERS ON A WHITE REFLECTIVE BACKGROUND. SIGNS SHALL BE PROVIDED FOR FIRE APPARATUS ACCESS ROADS, TO CLEARLY INDICATE THE ENTRANCE TO SUCH ROAD, OR PROHIBIT THE OBSTRUCTION THEREOF AND AT INTERVALS, AS REQUIRED BY THE FIRE INSPECTOR. FIRE CODE 503.3
713 ALL FIRE HYDRANTS SHALL MEASURE 6"" X 4"" X 2-1/2"", BRASS OR BRONZE, CONFORMING TO AMERICAN WATER WORKS ASSOCIATION STANDARD C503, OR APPROVED EQUAL.

ROOM NAMES
01 LIVING ROOM
02 DINING ROOM
03 KITCHEN
04 SERVICE KITCHEN
05 POWDER ROOM
06 PANTRY
07 FAMILY ROOM
08 OUTDOOR KITCHEN
09 BEDROOM
10 BATHROOM
11 COURTYARD
12 MASTER BEDROOM
13 MASTER BATHROOM
14 MASTER CLOSET
15 POOL
16 POOL DECK
17 WATER FEATURE
18 TERRACE
19 FIRE PIT
20 OFFICE
21 OUTDOOR SHOWER
22 STORAGE
23 FIREPLACE
24 GYM
25 STEAM ROOM
26 SAUNA
27 MASSAGE ROOM
28 LAUNDRY
29 MUD ROOM
30 WINE STORAGE
31 GARAGE
32 LIGHTWELL
33 OUTDOOR BATHROOM
34 SUNKEN TUB

Project No
1813

Project Name
VILLA COLEAVA

Project Address
25200 Pacific Coast Hwy.
Malibu, California, USA

Property Owner
PAR PCH, LLC
PO Box 6528
Malibu, CA 90265

Design Architect
Oppenheim Architecture
245 NE 37 Street
Miami FL 33137
P 305 576 8404
F 305 576 8433
W oppenoffice.com

Landscape Architect
[place]
3617 exposition boulevard
Los Angeles, CA 90016
P 310-450-8100
F 323-737-3290
W plac-e.com

Civil Engineers
LC Engineering Group
889 Pierce Ct., Ste. 101
Thousand Oaks, CA 91360
P 805-497-1244
P 818-991-7148
W lcegroupinc.com

Revisions

Mark	Date	Description
1		

Title
FIRE ACCESS ROAD C

1/16" = 1'-0"

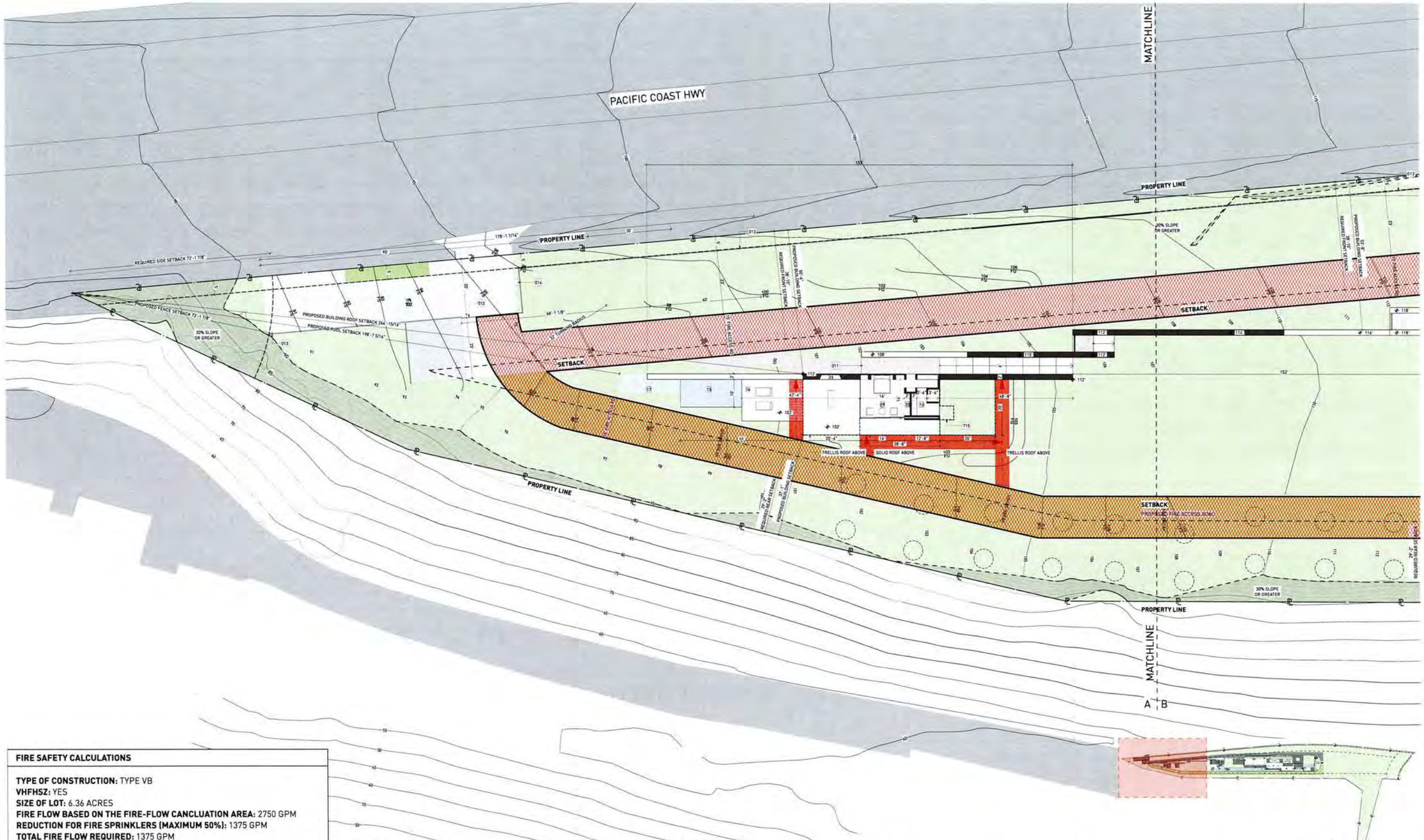
NOT FOR CONSTRUCTION

Design Development

1813
VILLA COLEAVA

Drawing Issued on 4/16/25

FS102



FIRE SAFETY CALCULATIONS

TYPE OF CONSTRUCTION: TYPE VB
VHFHSZ: YES
SIZE OF LOT: 6.36 ACRES
FIRE FLOW BASED ON THE FIRE-FLOW CANCLUATION AREA: 2750 GPM
REDUCTION FOR FIRE SPRINKLERS (MAXIMUM 50%): 1375 GPM
TOTAL FIRE FLOW REQUIRED: 1375 GPM

KEY NOTES:

SITE

001 MAINTAIN ALL WATER RUNOFF WITHIN PROPERTY. SLOPE AWAY FROM P.L. AT A MIN. SLOPE OF ¼" / FT., REFER TO CIVIL DWGS.
002 TREES/LANDSCAPING PLANTING/GROUND COVER/LAWN, REFER TO LANDSCAPE DWGS.
003 HEDGE. REFER TO LANDSCAPE DWGS.
004 HAROSCAPE. REFER TO LANDSCAPE DWGS.
005 DRIVEWAY. GRAVEL ON GRADE. REFER TO CIVIL & LANDSCAPE DWGS.
006 WOOD DECK. SIZE OF PLANKS T.B.D. FINISH T.B.D.
007 UNDERGROUND DRAINAGE SYSTEM. REFER TO CIVIL DWGS.
008 INFINITY POOL EDGE.
009 OPEN PARKING. REFER TO CIVIL FOR DETAILS
010 6'-0" SITE RETAINING WALL. REFER TO STRUCTURAL AND LANDSCAPE DWGS.
011 PEDESTRIAN GATE DOOR. PROVIDE SHOP DWGS. FOR ARCHITECT REVIEW.
012 42" MOTORIZED VEHICULAR SLIDING ENTRY GATE. STEEL FRAME. 90% VISUALLY PERMEABLE.
013 42" PERIMETER FENCE. 90% VISUALLY PERMEABLE.
014 CALL BOX
015 TRASH ENCLOSURE AREA
016 STRUCTURAL GRASS DRIVEWAY. GRASSCRETE OR SIMILAR. REFER TO CIVIL & LANDSCAPE DWGS.
017 GENERATOR ON EXISTING CONCRETE PLINTH, BOTTOM OF GENERATOR TO BE ABOVE BFE +1', REFER TO ELECTRICAL DWGS.
018 A/C CONDENSER UNITS BEHIND LANDSCAPE, BOTTOM OF UNITS TO BE ABOVE BFE +1', REFER TO MECHANICAL DWGS.
019 NATURAL LAWN AREA. REFER TO LANDSCAPE DWGS.

MATERIALS

100 ARCHITECTURAL EXPOSED CONCRETE, COLOR T.B.D. REFER TO STRUCTURAL DRAWINGS AND ARCHITECTURAL DETAILS.
101 CUSTOM WOOD DOOR. REFER TO DOOR SCHEDULE.
102 IMPACT RESISTANT SLIDING ALUMINUM WINDOWS / DOORS SYSTEM, LOW-E COATING. REFER TO WINDOW SCHEDULE.
103 PRE-FABRICATED SKYLIGHT ON CONCRETE CURB. REFER TO WINDOW SCHEDULE. SEE SECTION AND DETAILS.
104 GARAGE STEEL DOOR CLADDED WITH CUSTOM CONCRETE PANELS. REFER TO DOOR SCHEDULE.
105 GRAVEL
106 5/8" G.W.B., FINISH T.B.D.; REFER TO I.D. DWGS.
110 RAMMED EARTH CONSTRUCTION.
111 STONE BENCH

STRUCTURAL

200 FOUNDATION AND PILES. REFER TO STRUCT. DWGS.
201 COMPACTED EARTH. REFER TO STRCUT. DWGS.
202 RETAINING WALL. REFER TO STRUCT. DWGS.
203 CONCRETE SLAB. REFER TO STRUCT. DWGS.
204 CONCRETE COLUMN. REFER TO STRUCT. DWGS.
205 CONCRETE BEAM. REFER TO STRUCT. DWGS.
206 STEEL COLUMN. REFER TO STRUCT. DWGS.
207 CONCRETE STAIRS. REFER TO STRUCT. DWGS.
208 CONCRETE SHELL FOR POOL. REFER TO STRUCT. DWGS.
209 8" CMU REINFORCED WALL. REFER TO WALL TYPES AND STRUCT. DWGS
210 PROVIDE 2" RECESS ON SLABS ON ALL SHOWERS.
211 OPENING ON CONCRETE SLAB. REFER TO STRUCT. DWGS.

MEP

300 LIGHT FIXTURE/ SEE ARCH. RCP, ELECTRICAL DWGS. AND LIGHTING SPECIFICATIONS.
301 A/C PLENUM SPACE, REFER TO MECHANICAL DWGS. AND RCP. NO COMBUSTIBLES ALLOWED.
302 ROOF DRAIN, REFER TO PLUMBING DWGS. /SEE DETAIL.
303 FLOOR DRAIN, REFER TO PLUMBING DWGS./ SEE DETAIL.
304 DRAIN PIPE TO FIT IN CEILING SPACE, REFER TO PLUMBING DWGS. COORDINATE EXACT LOCATION AND SPECS.
305 KITCHEN HOOD, REFER TO MECH DWGS.
306 KITCHEN HOOD EXHAUST PIPE TO FIT IN CEILING SPACE, REFER TO MECH DWGS. COORDINATE EXACT LOCATION AND SPECS.
307 DESIGNATED POOL EQUIPMENT AREA
308 GAS WATER HEATER. REFER TO PLUMBING DWGS.
309 ELECTRICAL PANELS. REFER TO ELECTRICAL DWGS.
310 CONDENSER UNITS ON STANDS. REFER TO MECH. DWGS.
311 MINIMUM R-30 BATT INSULATION OR RIGID INSULATION. REFER TO ENERGY CALCULATIONS.
315 HOSE BIB. REFER TO PLUMBING AND LANDSCAPE DWGS.
316 ELECTRICITY, GAS AND WATER. REFER TO MEP DRAWINGS.
317 MOTORIZED VEHICULAR GATE. REFER TO ELECT. DWGS.
318 ALL TOILETS TO BE WALL HUNG. REFER TO MECH. DWGS.
319 LINEAR DRAIN
320 OVERFLOW SCUPPER.

WATERPROOFING

400 CONTINUOUS VAPOR BARRIER. REFER TO ARCH AND STRUCTURAL DWGS.
401 WATERPROOFING MEMBRANE. REFER TO ARCH AND STRUCTURAL DWGS.
402 POOL FINISH/ COLOR TBD.

MISC. ARCHITECTURAL DETAILS

500 CURTAIN CEILING COVE. REFER TO ARCH. DETAIL.
501 CONTINUOUS 1/2" TOOLED WATER DRIP. SEE ARCH. DETAIL.
502 VENT
503 KITCHEN, BUILT-IN FURNITURE, CABINETRY BY OTHERS. REFER TO KITCHEN SHOP DWGS.
504 5/8" GWB DROPPED CEILING ON 3/4" FURRING STRIPS. PAINTED GWB. COLOR TBD.
505 STAINLESS STEEL SCUPPER IN CONCRETE STRUCTURE. 3' X 3" MIN OPENING. REFER TO ELEVATION AND PLAN FOR LOCATION.
506 CUSTOM WOOD MILLWORK. REFER TO I.D. DRAWINGS.
507 SOLAR PANELS (T.B.D.)
509 CONCEALED LED SCREEN.
510 LADDER ACCESS.

LIGHTING

600 PENDANT LIGHT. REFER TO LIGHTING DWGS.
601 RECESSED DOWN LIGHT. REFER TO LIGHTING DWGS.
602 CONCEALED LINEAR LIGHT. REFER TO LIGHTING DWGS.

FIRE SAFETY

700 FIRE DEPARTMENT VEHICULAR ACCESS ROADS MUST BE INSTALLED AND MAINTAINED IN A SERVICEABLE MANNER PRIOR TO AND DURING THE TIME OF CONSTRUCTION. FIRE CODE 5001.4
701 AN APPROVED KEY BOX, LISTED IN ACCORDANCE WITH UL 1037 SHALL BE PROVIDED AS REQUIRED BY FIRE CODE 506. THE LOCATION OF EACH KEY BOX SHALL BE DETERMINED BY THE FIRE INSPECTOR
702 ALL REQUIRED PUBLIC FIRE HYDRANTS SHALL BE INSTALLED, TESTED AND ACCEPTED PRIOR TO BEGINNING CONSTRUCTION. FIRE CODE 501.4
703 PROVIDE AN APPROVED AUTOMATIC FIRE SPRINKLER SYSTEM AS SET FORTH BY BUILDING CODE 903 AND FIRE CODE 9003. PLANS SHALL BE SUBMITTED TO THE SPRINKLER PLAN CHECK UNIT FOR REVIEW AND APPROVAL PRIOR TO INSTALLATION.
704 SMOKE ALARMS SHALL RECEIVE THEIR PRIMARY POWER FROM THE BUILDING WIRING PROVIDED THAT SUCH WIRING IS SERVED FROM A COMMERCIAL SOURCE AND SHALL BE EQUIPPED WITH A BATTERY BACKUP. RESIDENTIAL CODE R314.4
705 WHERE MORE THAN ONE SMOKE ALARM IS REQUIRED TO BE INSTALLED WITHIN AN INDIVIDUAL DWELLING OR SLEEPING UNIT, THE SMOKE ALARMS SHALL BE INTERCONNECTED SIN USCH A MANNER THAT THE ACTIVATION OF ONE ALARM WILL ACTIVATE ALL OF THE ALARMS IN THE INDIVIDUAL UNIT. RESIDENTIAL CODE R314.5
706 APPROVED BUILDING ADDRESS NUMBERS, BUILDING NUMBERS OR APPROVED BUILDING IDENTIFICATION SHALL BE PROVIDED AND MAINTAINED SO AS TO BE PLAINLY VISIBLE AND LEGIBLE FROM THE STREET FRONTING THE PROPERTY. THE MINIMUM OF 4 INCHES HIGH WITH A MINIMUM STROKE WIDTH OF 0.5 INCH. FIRE CODE 505.1
707 ALL ROOF COVERINGS SHALL BE CLASS "A" AS SPECIFIED IN BUILDING CODE 1505.1.1 (RESIDENTIAL CODE R327.5.2 & R902)
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710 VENTS SHALL RESIST THE INTRUSION OF FLAME AND EMBERS AND FLAME THROUGH THE VENTILATION OPENINGS. VENT OPENINGS SHALL BE PROTECTED BY CORROSION- RESISTANT, NONCOMBUSTIBLE WIRE MESH WITH A MINIMUM 1/16TH INCH OPENINDS AND SHALL NOT EXCEED 1/8TH INCH. VENTS SHALL NOT BE INSTALLED IN EAVES OR CORNICES. TRESIDENTIAL CODE R327.6.1 AND BUILDING CODE 706A.1)
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Project No
1813

Project Name
VILLA COLEAVA

Project Address
25200 Pacific Coast Hwy.
Malibu, California, USA

Property Owner
PAR PCH, LLC
PO Box 6528
Malibu, CA 90265

Design Architect
Oppenheim Architecture
245 NE 37 Street
Miami FL 33137
P 305 576 8404
F 305 576 8433
W oppenoffice.com

Landscape Architect
[place]
3617 exposition boulevard
Los Angeles, CA 90016
P 310-450-8100
F 323-737-3290
W plac-e.com

Civil Engineers
LC Engineering Group
889 Pierce Ct., Ste. 101
Thousand Oaks, CA 91360
P 805-497-1244
P 818-991-7148
W lcegroupinc.com

Revisions

Mark	Date	Description

Title
FIRE ACCESS WALKWAY A

1/16" = 1'-0"

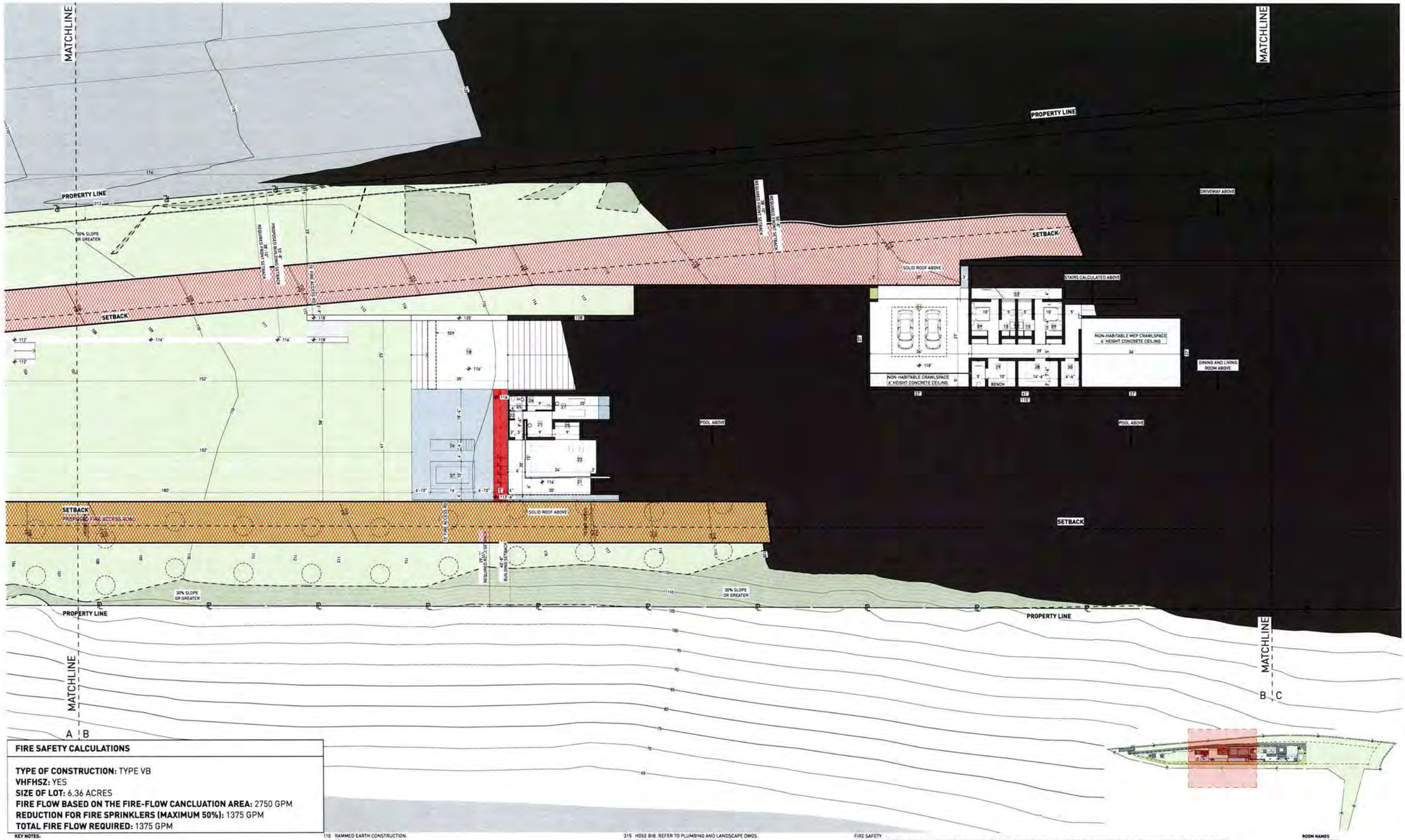
NOT FOR CONSTRUCTION

Design Development

1813
VILLA COLEAVA

Drawing Issued on 4/16/25

FS103



FIRE SAFETY CALCULATIONS

TYPE OF CONSTRUCTION: TYPE VB
VHFHSZ: YES
SIZE OF LOT: 6.36 ACRES
FIRE FLOW BASED ON THE FIRE-FLOW CANCLUATION AREA: 2750 GPM
REDUCTION FOR FIRE SPRINKLERS (MAXIMUM 50%): 1375 GPM
TOTAL FIRE FLOW REQUIRED: 1375 GPM

KEY NOTES:

SITE

001 MAINTAIN ALL WATER RUNOFF WITHIN PROPERTY. SLOPE AWAY FROM P.L. AT A MIN. SLOPE OF ¼" /FT., REFER TO CIVIL DWGS.
002 TREES/LANDSCAPING PLANTING/GROUND COVER/LAWN, REFER TO LANDSCAPE DWGS.
003 HEDGE. REFER TO LANDSCAPE DWGS.
004 HARDSCAPE. REFER TO LANDSCAPE DWGS.
005 DRIVEWAY, GRAVEL ON GRADE. REFER TO CIVIL & LANDSCAPE DWGS.
006 WOOD DECK, SIZE OF PLANKS T.B.D., FINISH T.B.D.
007 UNDERGROUND DRAINAGE SYSTEM. REFER TO CIVIL DWGS.
008 INFINITY POOL, EDGE.
009 OPEN PARKING, REFER TO CIVIL FOR DETAILS.
010 6'-0" SITE RETAINING WALL. REFER TO STRUCTURAL AND LANDSCAPE DWGS.
011 PEDESTRIAN GATE DOOR. PROVIDE SHOP DWGS. FOR ARCHITECT REVIEW.
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015 TRASH ENCLOSURE AREA.
016 STRUCTURAL GRASS DRIVEWAY. GRASSCRETE OR SIMILAR. REFER TO CIVIL & LANDSCAPE DWGS.
017 GENERATOR ON EXISTING CONCRETE PLINTH, BOTTOM OF GENERATOR TO BE ABOVE BFE +1', REFER TO ELECTRICAL DWGS.
018 A/C CONDENSER UNITS BEHIND LANDSCAPE, BOTTOM OF UNITS TO BE ABOVE BFE +1', REFER TO MECHANICAL DWGS.
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MATERIALS

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104 GARAGE STEEL DOOR CLADDED WITH CUSTOM CONCRETE PANELS. REFER TO DOOR SCHEDULE.
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STRUCTURAL

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311 MINIMUM R-30 BATT INSULATION OR RIGID INSULATION. REFER TO ENERGY CALCULATIONS.
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WATERPROOFING

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MISC. ARCHITECTURAL DETAILS

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502 VENT.
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506 CUSTOM WOOD MILLWORK, REFER TO I.D. DRAWINGS
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509 CONCEALED LED SCREEN.
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LIGHTING

600 PENDANT LIGHT. REFER TO LIGHTING DWGS.
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FIRE SAFETY

700 FIRE DEPARTMENT VEHICULAR ACCESS ROADS MUST BE INSTALLED AND MAINTAINED IN A SERVICEABLE MANNER PRIOR TO AND DURING THE TIME OF CONSTRUCTION. FIRE CODE 5001.4
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713 ALL FIRE HYDRANTS SHALL MEASURE 4"" X 4"" X 2-1/2"", BRASS OR BRONZE, CONFORMING TO AMERICAN WATER WORKS ASSOCIATION STANDARD C503, OR APPROVED EQUAL.

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16 POOL DECK
17 WATER FEATURE
18 TERRACE
19 FIRE PIT
20 OFFICE
21 OUTDOOR SHOWER
22 STORAGE
23 FIREPLACE
24 GYM
25 STEAM ROOM
26 SAUNA
27 MASSAGE ROOM
28 LAUNDRY
29 MUD ROOM
30 WINE STORAGE
31 GARAGE
32 LIGHTWELL
33 OUTDOOR BATHROOM
34 SUNKEN TUB

Project No
1813

Project Name
VILLA COLEAVA

Project Address
25200 Pacific Coast Hwy.
Malibu, California, USA

Property Owner
PAR PCH, LLC
PO Box 6528
Malibu, CA 90265

Design Architect
Oppenheim Architecture
245 NE 37 Street
Miami FL 33137
P 305 576 8404
F 305 576 8433
W oppenoffice.com

Landscape Architect
[place]
3617 exposition boulevard
Los Angeles, CA 90016
P 310-450-8100
F 323-737-3290
W plac-e.com

Civil Engineers
LC Engineering Group
889 Pierce Ct., Ste. 101
Thousand Oaks, CA 91360
P 805-497-1244
P 818-991-7148
W lcegroupinc.com

Revisions

Mark	Date	Description

Title
FIRE ACCESS WALKWAY B

1/16" = 1'-0"

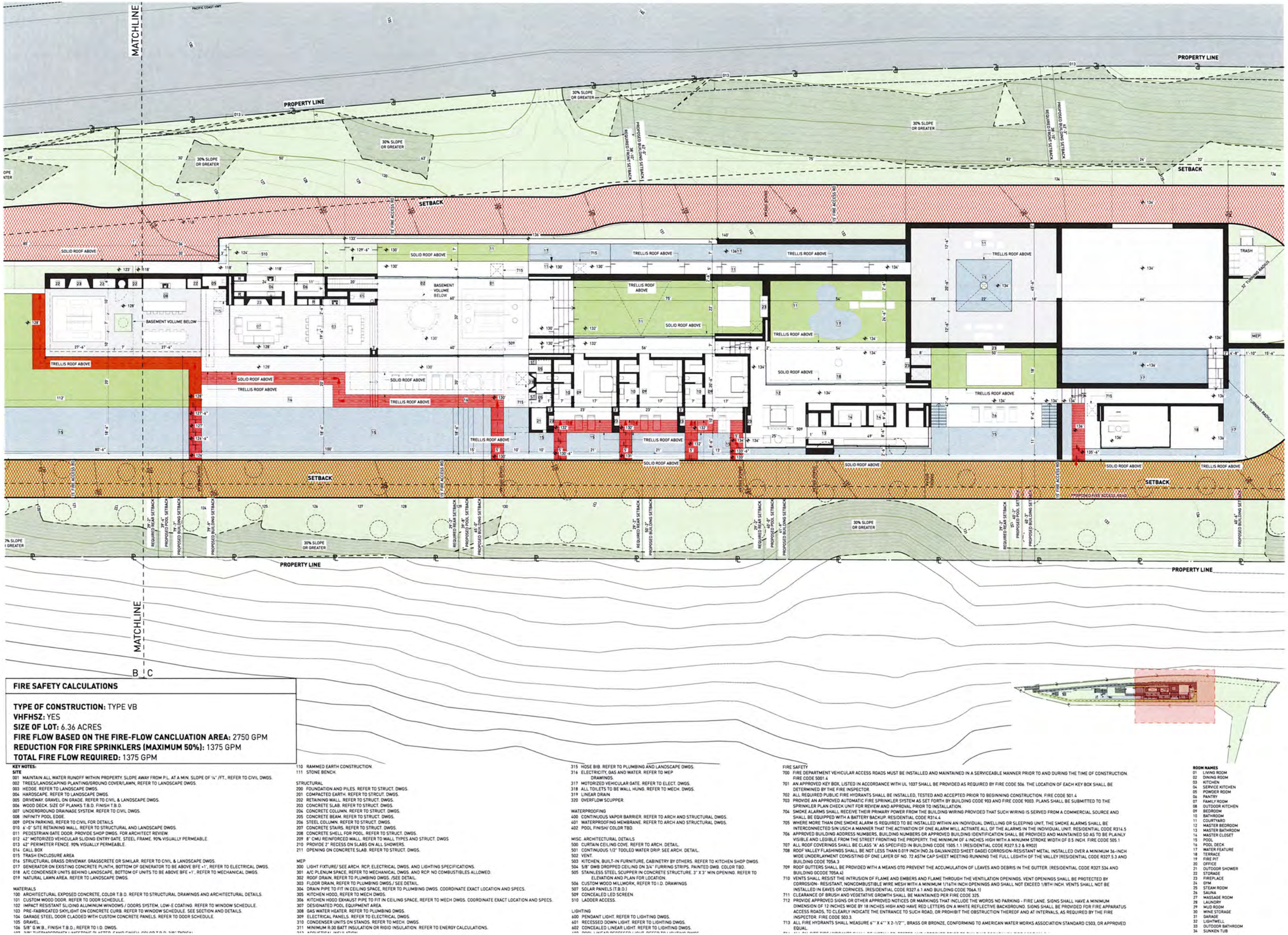
NOT FOR CONSTRUCTION

Design Development

1813
VILLA COLEAVA

Drawing Issued on 4/16/25

FS104



FIRE SAFETY CALCULATIONS

TYPE OF CONSTRUCTION: TYPE VB
VHFHSZ: YES
SIZE OF LOT: 6.36 ACRES
FIRE FLOW BASED ON THE FIRE-FLOW CANCLUATION AREA: 2750 GPM
REDUCTION FOR FIRE SPRINKLERS (MAXIMUM 50%): 1375 GPM
TOTAL FIRE FLOW REQUIRED: 1375 GPM

KEY NOTES:

SITE
001 MAINTAIN ALL WATER RUNOFF WITHIN PROPERTY. SLOPE AWAY FROM P.L. AT A MIN. SLOPE OF ¼" /FT., REFER TO CIVIL DWGS.
002 TREES/LANDSCAPING PLANTING/GROUND COVER/LAWN, REFER TO LANDSCAPE DWGS.
003 HEDGE. REFER TO LANDSCAPE DWGS.
004 HAROSCAPE. REFER TO LANDSCAPE DWGS.
005 DRIVEWAY. GRAVEL ON GRADE. REFER TO CIVIL & LANDSCAPE DWGS.
006 WOOD DECK, SIZE OF PLANKS T.B.D. FINISH T.B.D.
007 UNDERGROUND DRAINAGE SYSTEM. REFER TO CIVIL DWGS.
008 INFINITY POOL EDGE.
009 OPEN PARKING, REFER TO CIVIL FOR DETAILS
010 6'-0" SITE RETAINING WALL. REFER TO STRUCTURAL AND LANDSCAPE DWGS.
011 PEDESTRIAN GATE DOOR. PROVIDE SHOP DWGS. FOR ARCHITECT REVIEW.
012 42" MOTORIZED VEHICULAR SLIDING ENTRY GATE. STEEL FRAME. 90% VISUALLY PERMEABLE.
013 42" PERIMETER FENCE. 90% VISUALLY PERMEABLE.
014 CALL BOX
015 TRASH ENCLOSURE AREA
016 STRUCTURAL GRASS DRIVEWAY. GRASSCRETE OR SIMILAR. REFER TO CIVIL & LANDSCAPE DWGS.
017 GENERATOR ON EXISTING CONCRETE PLINTH, BOTTOM OF GENERATOR TO BE ABOVE BFE +1', REFER TO ELECTRICAL DWGS.
018 A/C CONDENSER UNITS BEHIND LANDSCAPE, BOTTOM OF UNITS TO BE ABOVE BFE +1', REFER TO MECHANICAL DWGS.
019 NATURAL LAWN AREA. REFER TO LANDSCAPE DWGS.

MATERIALS
100 ARCHITECTURAL EXPOSED CONCRETE, COLOR T.B.D. REFER TO STRUCTURAL DRAWINGS AND ARCHITECTURAL DETAILS.
101 CUSTOM WOOD DOOR. REFER TO DOOR SCHEDULE.
102 IMPACT RESISTANT SLIDING ALUMINUM WINDOWS / DOORS SYSTEM, LOW-E COATING. REFER TO WINDOW SCHEDULE.
103 PRE-FABRICATED SKYLIGHT ON CONCRETE CURB. REFER TO WINDOW SCHEDULE. SEE SECTION AND DETAILS.
104 GARAGE STEEL DOOR CLADDED WITH CUSTOM CONCRETE PANELS. REFER TO DOOR SCHEDULE.
105 GRAVEL.
106 5/8" G.W.B., FINISH T.B.D.; REFER TO I.D. DWGS.

110 RAMMED EARTH CONSTRUCTION.
111 STONE BENCH.

STRUCTURAL
200 FOUNDATION AND PILES. REFER TO STRUCT. DWGS.
201 COMPACTED EARTH. REFER TO STRCUT. DWGS.
202 RETAINING WALL. REFER TO STRUCT. DWGS.
203 CONCRETE SLAB. REFER TO STRUCT. DWGS.
204 CONCRETE COLUMN. REFER TO STRUCT. DWGS.
205 CONCRETE BEAM. REFER TO STRUCT. DWGS.
206 STEEL COLUMN. REFER TO STRUCT. DWGS.
207 CONCRETE STAIRS. REFER TO STRUCT. DWGS.
208 CONCRETE SHELL FOR POOL. REFER TO STRUCT. DWGS.
209 8" CMU REINFORCED WALL. REFER TO WALL TYPES AND STRUCT. DWGS
210 PROVIDE 2" RECESS ON SLABS ON ALL SHOWERS.
211 OPENING ON CONCRETE SLAB. REFER TO STRUCT. DWGS.

MEP
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301 A/C PLENUM SPACE, REFER TO MECHANICAL DWGS. AND RCP. NO COMBUSTIBLES ALLOWED.
302 ROOF DRAIN. REFER TO PLUMBING DWGS. /SEE DETAIL.
303 FLOOR DRAIN. REFER TO PLUMBING DWGS./ SEE DETAIL.
304 DRAIN PIPE TO FIT IN CEILING SPACE, REFER TO PLUMBING DWGS. COORDINATE EXACT LOCATION AND SPECS.
305 KITCHEN HOOD, REFER TO MECH DWGS.
306 KITCHEN HOOD EXHAUST PIPE TO FIT IN CEILING SPACE, REFER TO MECH DWGS. COORDINATE EXACT LOCATION AND SPECS.
307 DESIGNATED POOL EQUIPMENT AREA.
308 GAS WATER HEATER. REFER TO PLUMBING DWGS.
309 ELECTRICAL PANELS. REFER TO ELECTRICAL DWGS.
310 CONDENSER UNITS ON STANDS. REFER TO MECH. DWGS.
311 MINIMUM R-30 BATT INSULATION OR RIGID INSULATION. REFER TO ENERGY CALCULATIONS.

315 HOSE BIB. REFER TO PLUMBING AND LANDSCAPE DWGS.
316 ELECTRICITY, GAS AND WATER. REFER TO MEP DRAWINGS.
317 MOTORIZED VEHICULAR GATE. REFER TO ELECT. DWGS.
318 ALL TOILETS TO BE WALL HUNG. REFER TO MECH. DWGS.
319 LINEAR DRAIN
320 OVERFLOW SCUPPER.

WATERPROOFING
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401 WATERPROOFING MEMBRANE. REFER TO ARCH AND STRUCTURAL DWGS.
402 POOL FINISH/ COLOR TBD.

MISC. ARCHITECTURAL DETAILS
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505 STAINLESS STEEL SCUPPER IN CONCRETE STRUCTURE. 3" X 3" MIN OPENING. REFER TO ELEVATION AND PLAN FOR LOCATION.
506 CUSTOM WOOD MILLWORK. REFER TO I.D. DRAWINGS
507 SOLAR PANELS (T.B.D.)
509 CONCEALED LED SCREEN.
510 LADDER ACCESS.

LIGHTING
600 PENDANT LIGHT. REFER TO LIGHTING DWGS.
601 RECESSED DOWN LIGHT. REFER TO LIGHTING DWGS.
602 CONCEALED LINEAR LIGHT. REFER TO LIGHTING DWGS.

FIRE SAFETY
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701 AN APPROVED KEY BOX, LISTED IN ACCORDANCE WITH UL 1037 SHALL BE PROVIDED AS REQUIRED BY FIRE CODE 506. THE LOCATION OF EACH KEY BOX SHALL BE DETERMINED BY THE FIRE INSPECTOR.
702 ALL REQUIRED PUBLIC FIRE HYDRANTS SHALL BE INSTALLED, TESTED AND ACCEPTED PRIOR TO BEGINNING CONSTRUCTION. FIRE CODE 501.4
703 PROVIDE AN APPROVED AUTOMATIC FIRE SPRINKLER SYSTEM AS SET FORTH BY BUILDING CODE 903 AND FIRE CODE 9003. PLANS SHALL BE SUBMITTED TO THE SPRINKLER PLAN CHECK UNIT FOR REVIEW AND APPROVAL PRIOR TO INSTALLATION.
704 SMOKE ALARMS SHALL RECEIVE THEIR PRIMARY POWER FROM THE BUILDING WIRING PROVIDED THAT SUCH WIRING IS SERVED FROM A COMMERCIAL SOURCE AND SHALL BE EQUIPPED WITH A BATTERY BACKUP. RESIDENTIAL CODE R314.4
705 WHERE MORE THAN ONE SMOKE ALARM IS REQUIRED TO BE INSTALLED WITHIN AN INDIVIDUAL DWELLING OR SLEEPING UNIT, THE SMOKE ALARMS SHALL BE INTERCONNECTED S/N USCH A MANNER THAT THE ACTIVATION OF ONE ALARM WILL ACTIVATE ALL OF THE ALARMS IN THE INDIVIDUAL UNIT. RESIDENTIAL CODE R314.5
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707 ALL ROOF COVERINGS SHALL BE CLASS "A" AS SPECIFIED IN BUILDING CODE 1505.1.1 (RESIDENTIAL CODE R327.5.2 & R902)
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709 ROOF GUTTERS SHALL BE PROVIDED WITH A MEANS OTO PREVENT THE ACCUMULATION OF LEAVES AND DEBRIS IN THE GUTTER. (RESIDENTIAL CODE R327.534 AND BUILDING GCODE 705A.4)
710 VENTS SHALL RESIST THE INTRUSION OF FLAME AND EMBERS AND FLAME THROUGH THE VENTILATION OPENINGS. VENT OPENINGS SHALL BE PROTECTED BY CORROSION- RESISTANT, NONCOMBUSTIBLE WIRE MESH WITH A MINIMUM 1/16TH INCH OPENINGS AND SHALL NOT EXCEED 1/8TH INCH. VENTS SHALL NOT BE INSTALLED IN EAVES OR CORNICES. (RESIDENTIAL CODE R327.6.1 AND BUILDING CODE 706A.1)
711 CLEARANCE OF BRUSH AND VEGETATIVE GROWTH SHALL BE MAINTAINED PER FIRE CODE 325.
712 PROVIDE APPROVED SIGNS OR OTHER APPROVED NOTICES OR MARKINGS THAT INCLUDE THE WORDS NO PARKING - FIRE LANE. SIGNS SHALL HAVE A MINIMUM DIMENSION OF 12 INCHES WIDE BY 18 INCHES HIGH AND HAVE RED LETTERS ON A WHITE REFLECTIVE BACKGROUND. SIGNS SHALL BE PROVIDED FOR FIRE APPARATUS ACCESS ROADS, TO CLEARLY INDICATE THE ENTRANCE TO SUCH ROAD, OR PROHIBIT THE OBSTRUCTION THEREOF AND AT INTERVALS, AS REQUIRED BY THE FIRE INSPECTOR. FIRE CODE 503.3
713 ALL FIRE HYDRANTS SHALL MEASURE 6"" X 4"" X 2-1/2"", BRASS OR BRONZE, CONFORMING TO AMERICAN WATER WORKS ASSOCIATION STANDARD C503, OR APPROVED EQUAL.

ROOM NAMES
01 LIVING ROOM
02 DINING ROOM
03 KITCHEN
04 SERVICE KITCHEN
05 POWDER ROOM
06 PANTRY
07 FAMILY ROOM
08 OUTDOOR KITCHEN
09 BEDROOM
10 BATHROOM
11 COURTYARD
12 MASTER BEDROOM
13 MASTER BATHROOM
14 MASTER CLOSET
15 POOL
16 POOL DECK
17 WATER FEATURE
18 TERRACE
19 FIRE PIT
20 OFFICE
21 OUTDOOR SHOWER
22 STORAGE
23 FIREPLACE
24 GYM
25 STEAM ROOM
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Revisions

Mark	Date	Description

Title
FIRE ACCESS WALKWAY C

1/16" = 1'-0"

NOT FOR CONSTRUCTION

Design Development

1813
VILLA COLEAVA

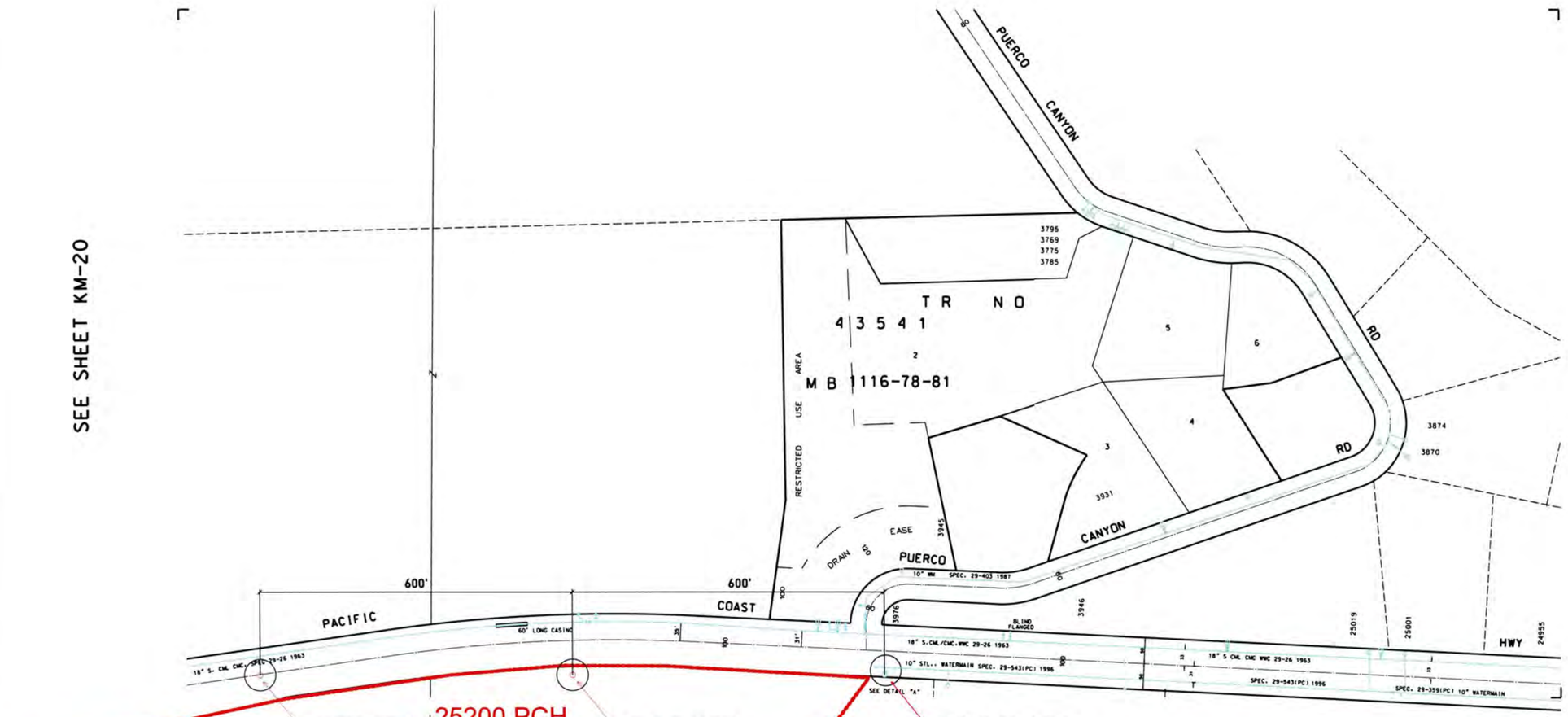
Drawing Issued on 4/16/25

FS105

SEE SHEET JM-19

SEE SHEET KM-20

SEE SHEET KM-18



THIS MAP IS INTENDED FOR USE ONLY AS A WATER OPERATIONS MAP BY THE LOS ANGELES COUNTY WATERWORKS DISTRICTS AND IS BASED UPON INFORMATION AVAILABLE FROM PUBLIC RECORDS. THE LOS ANGELES COUNTY WATERWORKS DISTRICTS EXPRESSLY DISCLAIM ANY LIABILITY FOR ANY INACCURACIES WHICH MAY BE PRESENT IN THIS MAP.

LEGEND

WATERMAINS
GATE VALVES
SERVICES
SERVICES & METERS
REDUCER
ABANDONED WATERMAINS
AIR & VACUUM RELEASE VALVE
4 X 2 1/2 FLUSHOUT

FIRE HYDRANTS
4 X 2 1/2
6 X 2 1/2
6 X 4 X 2 1/2
REFERENCE NO. TO INTERSECTION DETAILS

DATE	DRAWN	CHECKED	REVISIONS
01/04	PS		ATTACHED ZONE 5 MAP BASE.

LOS ANGELES COUNTY DEPARTMENT OF PUBLIC WORKS
WATERWORKS AND SEWER MAINTENANCE DIVISION
LOS ANGELES COUNTY WATERWORKS DISTRICT NO.29. MALIBU
MALIBU ZONE
WATER DISTRIBUTION SYSTEM

DATE:
DRAWN BY
CHECKED BY

KM-19

Project No
1813

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25200 Pacific Coast Hwy.
Malibu, California, USA

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Revisions

Mark	Date	Description

Title
FIRE HYDRANT LOCATIONS

1:1.10

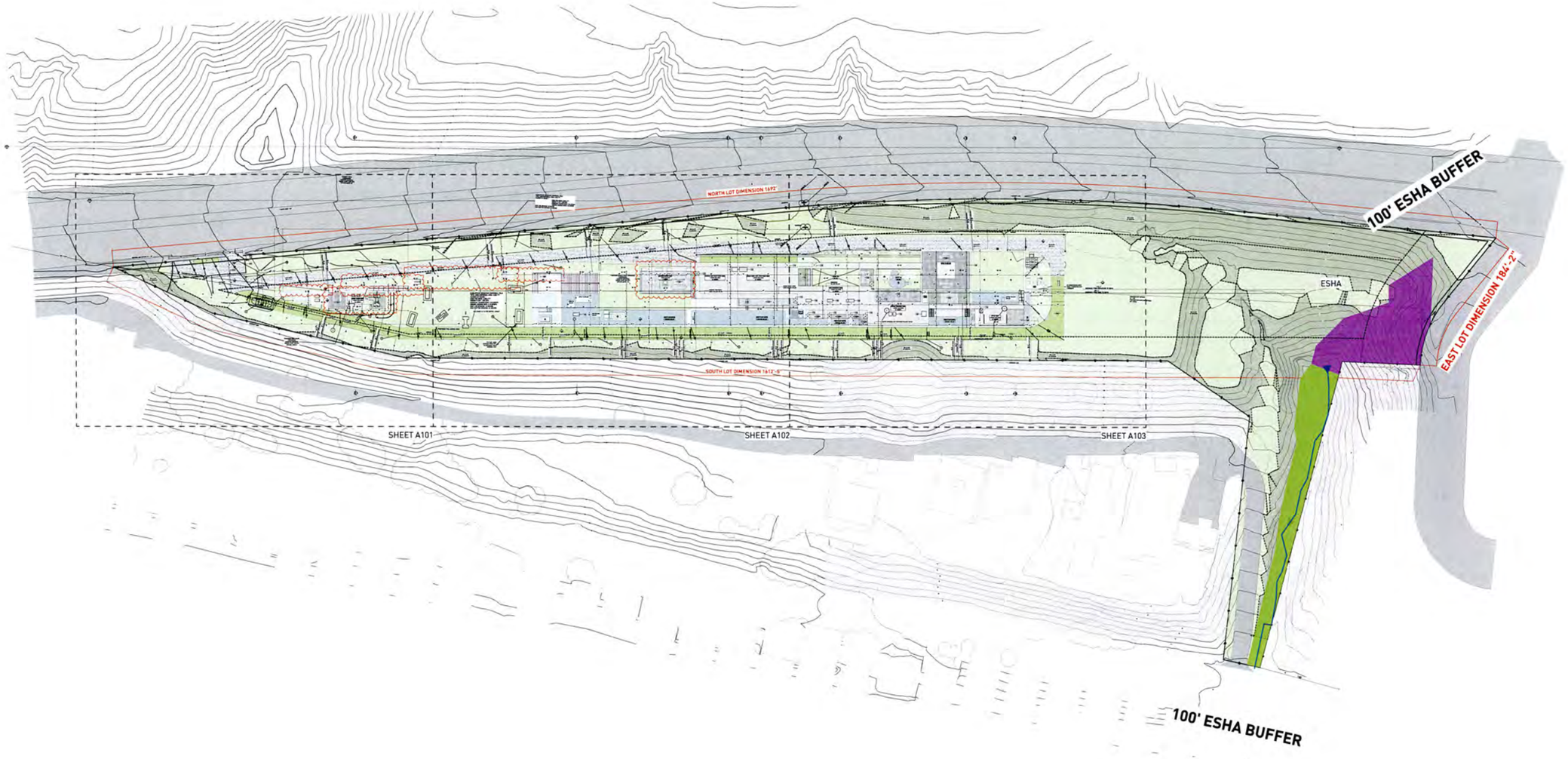
NOT FOR CONSTRUCTION

Design Development

1813
VILLA COLEAVA

Drawing Issued on 4/16/25

FS107



SALIX LASIOLEPIS SHRUBLAND ALLIANCE 0.20 ACRES
DISTURBED ERIOGONUM ELONGATUM VAR. ELONGATUM - SALVIA APIANA SHRUBLAND ALLIANCE (0.24 ACRE)

100'-0" ESHA BUFFER

JURISDICTIONAL WATER FEATURE

ASSESOR PARCEL #: 4459-013-021, 4459-014-018

KEY NOTES:

SITE

001 MAINTAIN ALL WATER RUNOFF WITHIN PROPERTY. SLOPE AWAY FROM P.L. AT A MIN. SLOPE OF ¼" /FT., REFER TO CIVIL DWGS.
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111 STONE BENCH.

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507 SOLAR PANELS (T.B.D.)
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FIRE SAFETY

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701 AN APPROVED KEY BOX, LISTED IN ACCORDANCE WITH UL 1037 SHALL BE PROVIDED AS REQUIRED BY FIRE CODE 506. THE LOCATION OF EACH KEY BOX SHALL BE DETERMINED BY THE FIRE INSPECTOR.
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705 WHERE MORE THAN ONE SMOKE ALARM IS REQUIRED TO BE INSTALLED WITHIN AN INDIVIDUAL DWELLING OR SLEEPING UNIT, THE SMOKE ALARMS SHALL BE INTERCONNECTED SIN USCH A MANNER THAT THE ACTIVATION OF ONE ALARM WILL ACTIVATE ALL OF THE ALARMS IN THE INDIVIDUAL UNIT. RESIDENTIAL CODE R314.5
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707 ALL ROOF COVERINGS SHALL BE CLASS "A" AS SPECIFIED IN BUILDING CODE 1505.1.1 (RESIDENTIAL CODE R327.5.2 & R902)
708 ROOF VALLEY FLASHINGS SHALL BE NOT LESS THAN 0.019 INCH (NO.26 GALVANIZED SHEET GAGE) CORROSION-RESISTANT METAL INSTALLED OVER A MINIMUM 36-INCH WIDE UNDERLAYMENT CONSISTING OF ONE LAYER OF NO. 72 ASTM CAP SHEET MEETING RUNNING THE FULL LEGHTH OF THE VALLEY (RESIDENTIAL CODE R327.5.3 AND BUILDING CODE 705A.3
709 ROOF GUTTERS SHALL BE PROVIDED WITH A MEANS OTO PREVENT THE ACCUMULATION OF LEAVES AND DEBRIS IN THE GUTTER. (RESIDENTIAL CODE R327.5.3& AND BUILDING GCODE 705A.4)
710 VENTS SHALL RESIST THE INTRUSION OF FLAME AND EMBERS AND FLAME THROUGH THE VENTILATION OPENINGS. VENT OPENINGS SHALL BE PROTECTED BY CORROSION- RESISTANT, NONCOMBUSTIBLE WIRE MESH WITH A MINIMUM 1/16TH INCH OPENINGS AND SHALL NOT EXCEED 1/8TH INCH. VENTS SHALL NOT BE INSTALLED IN EAVES OR CORNICES. (RESIDENTIAL CODE R327.6.1 AND BUILDING CODE 706A.1)
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PAR PCH, LLC
PO Box 6528
Malibu, CA 90265

Design Architect
Oppenheim Architecture
245 NE 37 Street
Miami FL 33137
P 305 576 8404
F 305 576 8433
W oppenoffice.com

Landscape Architect
[place]
3617 exposition boulevard
Los Angeles, CA 90016
P 310-450-8100
F 323-737-3290
W plac-e.com

Civil Engineers
LC Engineering Group
889 Pierce Ct., Ste. 101
Thousand Oaks, CA 91360
P 805-497-1244
P 818-991-7148
W lcegroupinc.com

Revisions

Mark	Date	Description

Title
SITE PLAN

1/64" = 1'-0"

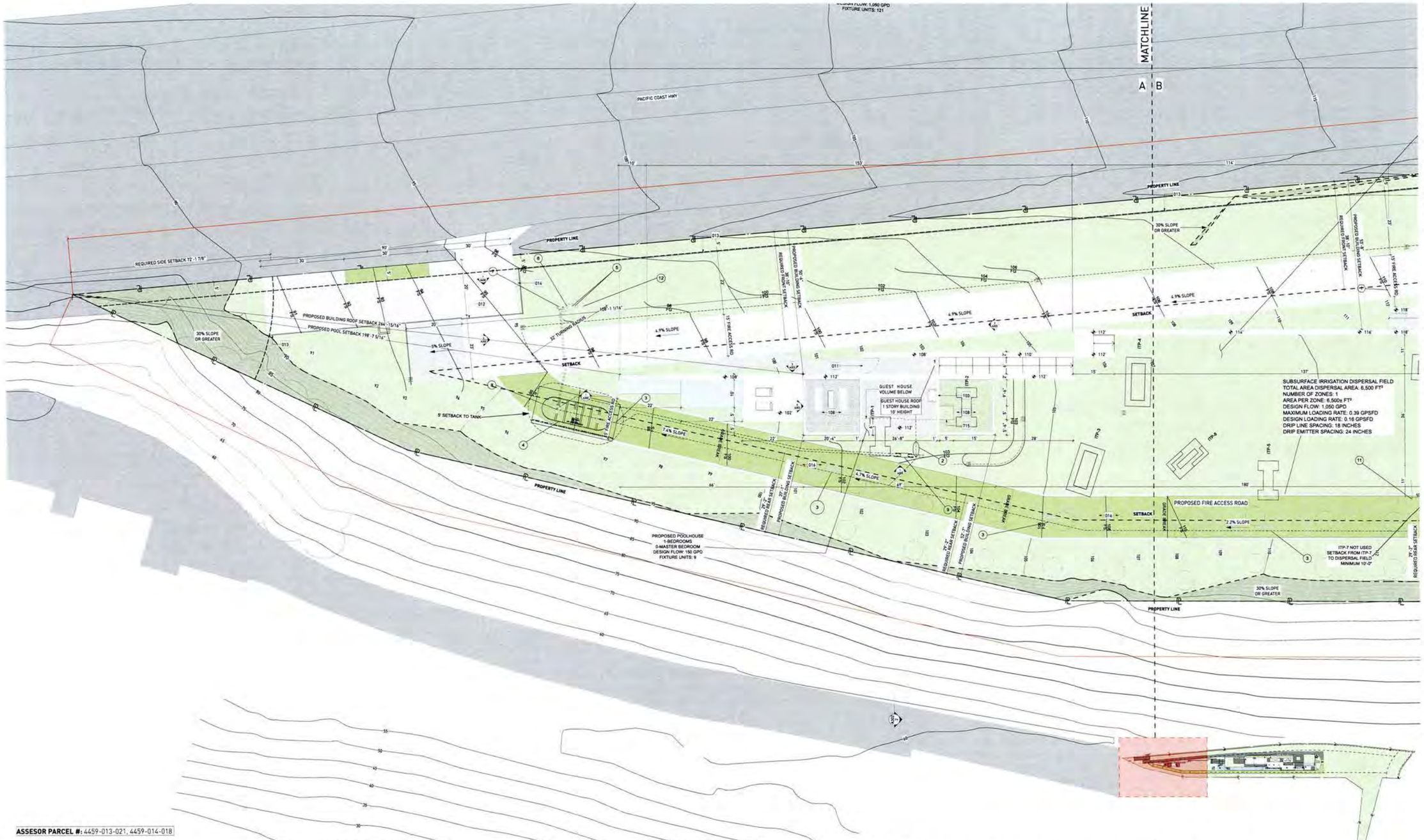
NOT FOR CONSTRUCTION

Design Development

1813
VILLA COLEAVA

Drawing Issued on 4/16/25

A100



ASSESOR PARCEL #: 4459-013-021, 4459-014-018

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704 SMOKE ALARMS SHALL RECEIVE THEIR PRIMARY POWER FROM THE BUILDING WIRING PROVIDED THAT SUCH WIRING IS SERVED FROM A COMMERCIAL SOURCE AND SHALL BE EQUIPPED WITH A BATTERY BACKUP. RESIDENTIAL CODE R314.4
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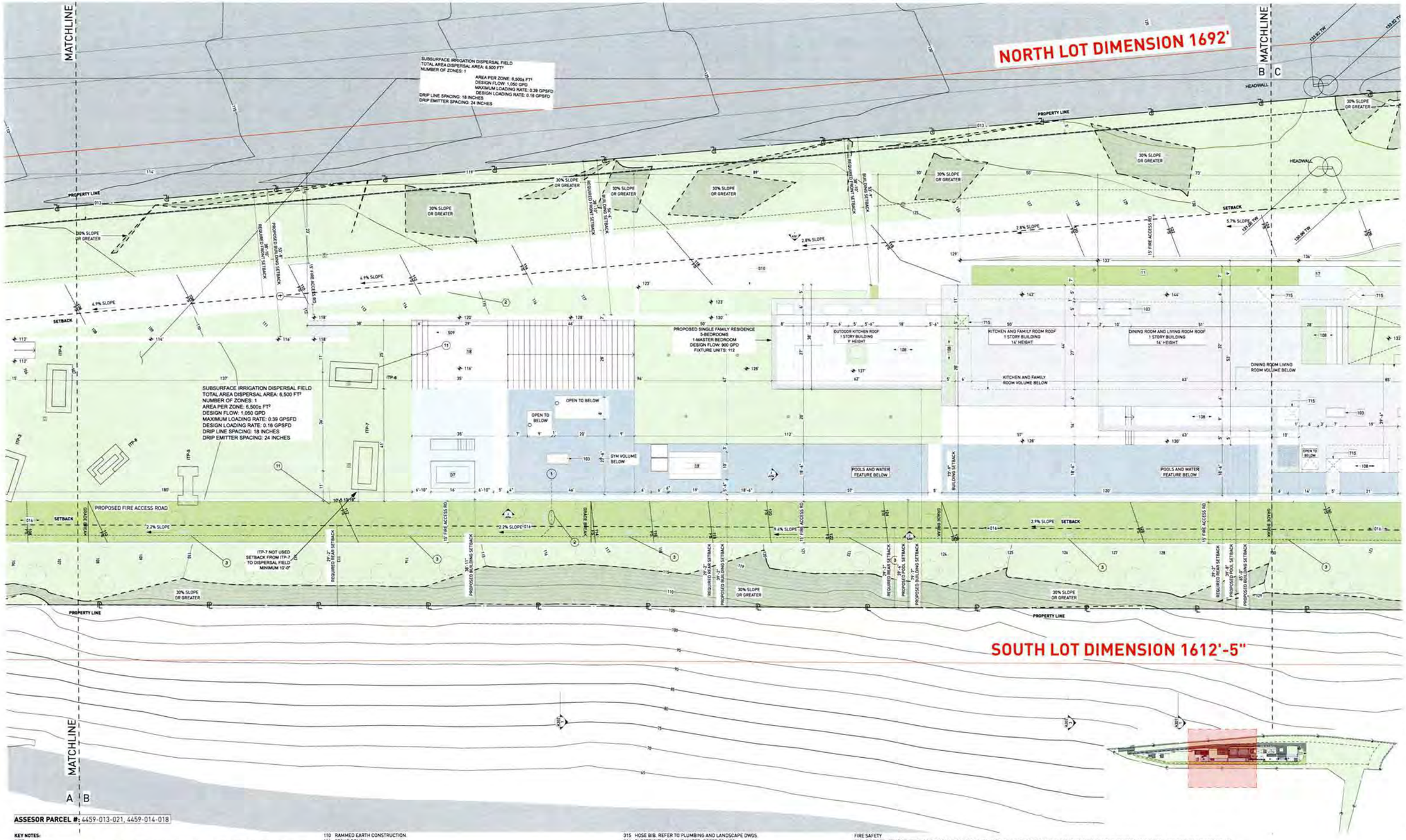

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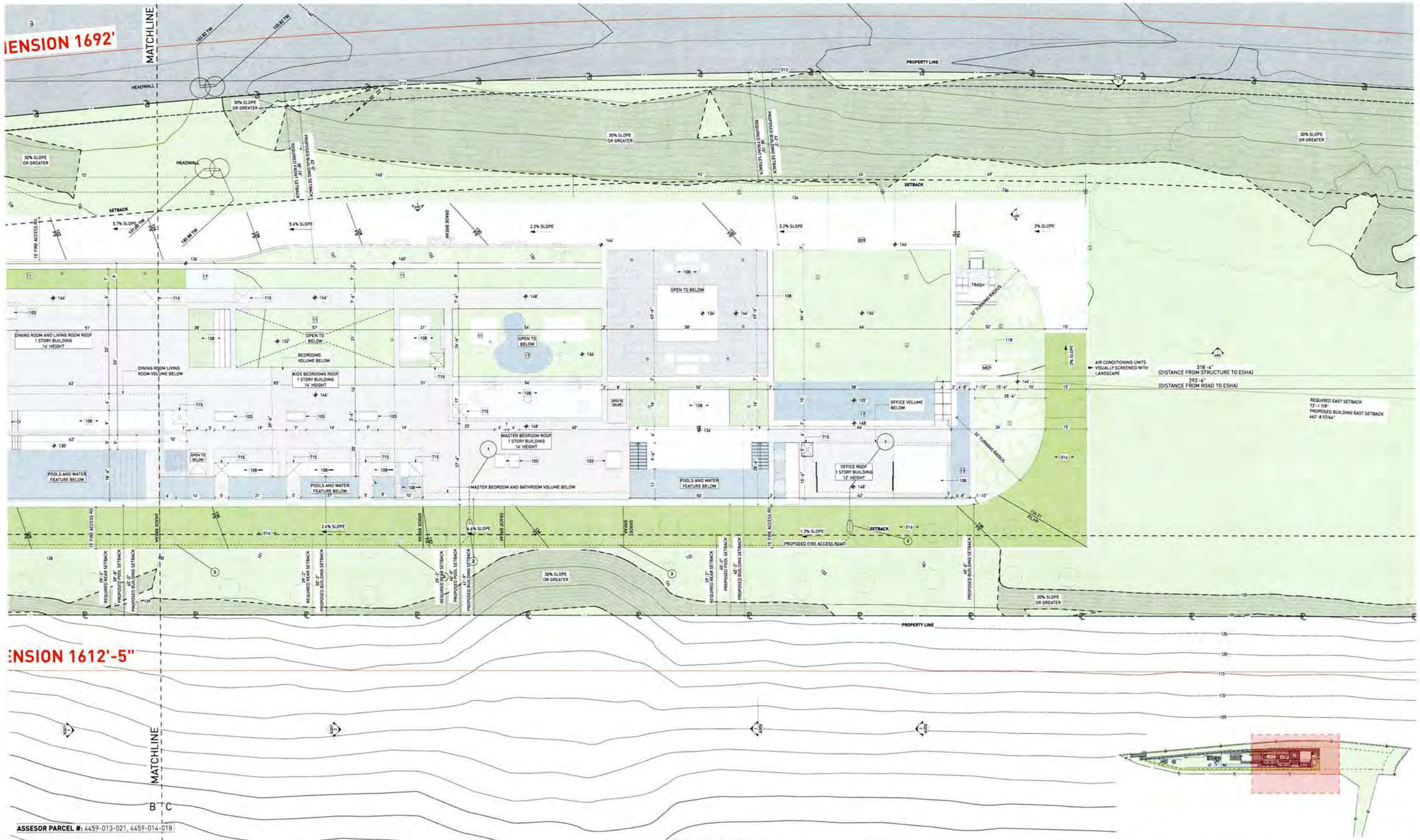

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MISC. ARCHITECTURAL DETAILS

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Project No

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Project Name
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Project Address
25200 Pacific Coast Hwy.
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Property Owner
PAR PCH, LLC
PO Box 6528
Malibu, CA 90265

Design Architect
Oppenheim Architecture
245 NE 37 Street
Miami FL 33137
P 305 576 8404
F 305 576 8433
W oppenoffice.com

Landscape Architect
[place]
3617 exposition boulevard
Los Angeles, CA 90016
P 310-450-8100
F 323-737-3290
W plac-e.com

Civil Engineers
LC Engineering Group
889 Pierce Ct., Ste. 101
Thousand Oaks, CA 91360
P 805-497-1244
P 818-991-7148
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Revisions

Mark	Date	Description

Title
ENLARGED SITE PLAN C

1/16" = 1'-0"

NOT FOR CONSTRUCTION

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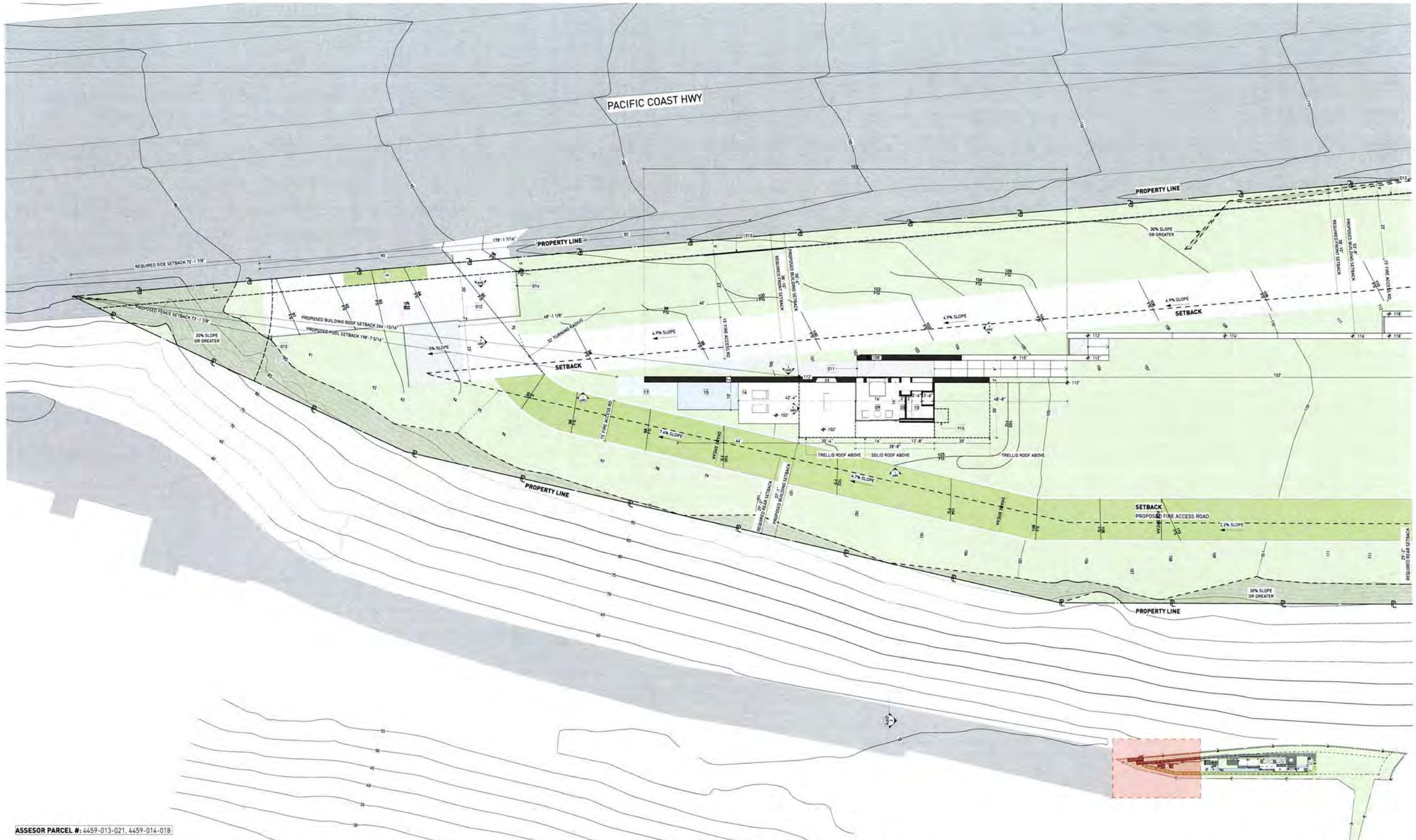
Drawing Issued on 4/16/25

A103



ASSESOR PARCEL #: 4459-013-021, 4459-014-018

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ROOM NAMES

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02 DINING ROOM
03 KITCHEN
04 SERVICE KITCHEN
05 POWDER ROOM
06 PANTRY
07 FAMILY ROOM
08 OUTDOOR KITCHEN
09 BEDROOM
10 BATHROOM
11 COURTYARD
12 MASTER BEDROOM
13 MASTER BATHROOM
14 MASTER CLOSET
15 POOL
16 POOL DECK
17 WATER FEATURE
18 TERRACE
19 FIRE PIT
20 OFFICE
21 OUTDOOR SHOWER
22 STORAGE
23 FIREPLACE
24 GYM
25 STEAM ROOM
26 SAUNA
27 MASSAGE ROOM
28 LAUNDRY
29 MUD ROOM
30 WINE STORAGE
31 GARAGE
32 LIGHTWELL
33 OUTDOOR BATHROOM
34 SUNKEN TUB

Project No

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Project Name
VILLA COLEAVA

Project Address
25200 Pacific Coast Hwy.
Malibu, California, USA

Property Owner
PAR PCH, LLC
PO Box 6528
Malibu, CA 90265

Design Architect
Oppenheim Architecture
245 NE 37 Street
Miami FL 33137
P 305 576 8404
F 305 576 8433
W oppenoffice.com

Landscape Architect
[place]
3617 exposition boulevard
Los Angeles, CA 90016
P 310-450-8100
F 323-737-3290
W plac-e.com

Civil Engineers
LC Engineering Group
889 Pierce Ct., Ste. 101
Thousand Oaks, CA 91360
P 805-497-1244
P 818-991-7148
W lcegroupinc.com

Revisions

Mark	Date	Description

Title
GUEST HOUSE LEVEL

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Design Development

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Drawing Issued on 4/16/25

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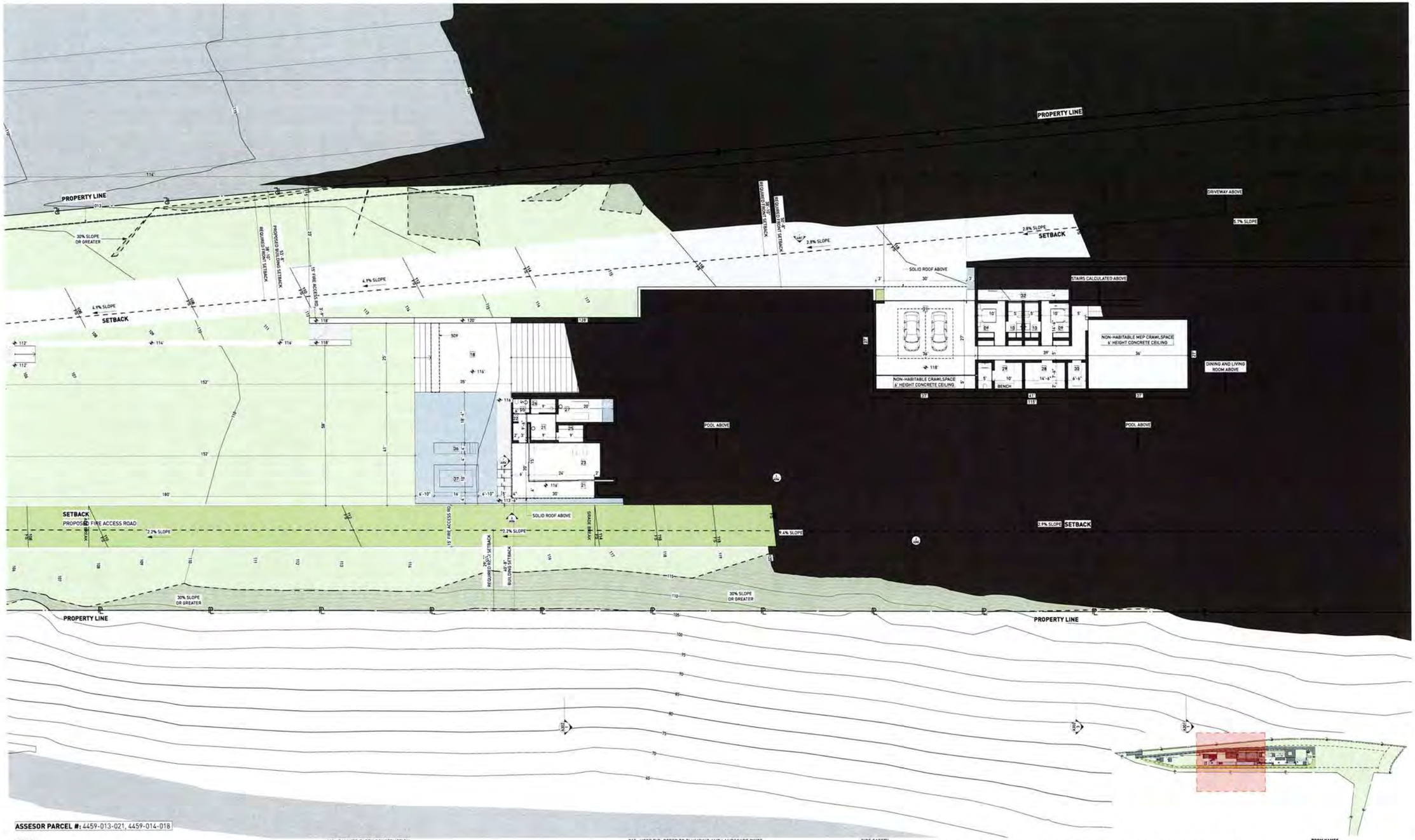

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711 CLEARANCE OF BRUSH AND VEGETATIVE GROWTH SHALL BE MAINTAINED PER FIRE CODE 325.
712 PROVIDE APPROVED SIGNS OR OTHER APPROVED NOTICES OR MARKINGS THAT INCLUDE THE WORDS NO PARKING - FIRE LANE. SIGNS SHALL HAVE A MINIMUM DIMENSION OF 12 INCHES WIDE BY 18 INCHES HIGH AND HAVE RED LETTERS ON A WHITE REFLECTIVE BACKGROUND. SIGNS SHALL BE PROVIDED FOR FIRE APPARATUS ACCESS ROADS, TO CLEARLY INDICATE THE ENTRANCE TO SUCH ROAD, OR PROHIBIT THE OBSTRUCTION THEREOF AND AT INTERVALS, AS REQUIRED BY THE FIRE INSPECTOR. FIRE CODE 503.3
713 ALL FIRE HYDRANTS SHALL MEASURE 6"" X 4"" X 2-1/2"", BRASS OR BRONZE, CONFORMING TO AMERICAN WATER WORKS ASSOCIATION STANDARD C503, OR APPROVED EQUAL.
714 ALL ON-SITE FIRE HYDRANTS SHALL BE INSTALLED, TESTED AND APPROVED PRIOR TO BUILDING OCCUPANCY. FIRE CODE 901.5.1

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14 MASTER CLOSET
15 POOL
16 POOL DECK
17 WATER FEATURE
18 TERRACE
19 FIRE PIT
20 OFFICE
21 OUTDOOR SHOWER
22 STORAGE
23 FIREPLACE
24 GYM
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Project No

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VILLA COLEAVA

Project Address
25200 Pacific Coast Hwy.
Malibu, California, USA

Property Owner
PAR PCH, LLC
PO Box 6528
Malibu, CA 90265

Design Architect
Oppenheim Architecture
245 NE 37 Street
Miami FL 33137
P 305 576 8404
F 305 576 8433
W oppenoffice.com

Landscape Architect
[place]
3617 exposition boulevard
Los Angeles, CA 90016
P 310-450-8100
F 323-737-3290
W plac-e.com

Civil Engineers
LC Engineering Group
889 Pierce Ct., Ste. 101
Thousand Oaks, CA 91360
P 805-497-1244
P 818-991-7148
W lcegroupinc.com

Revisions

Mark	Date	Description

Title
GYM + BASEMENT LEVEL

1/16" = 1'-0"

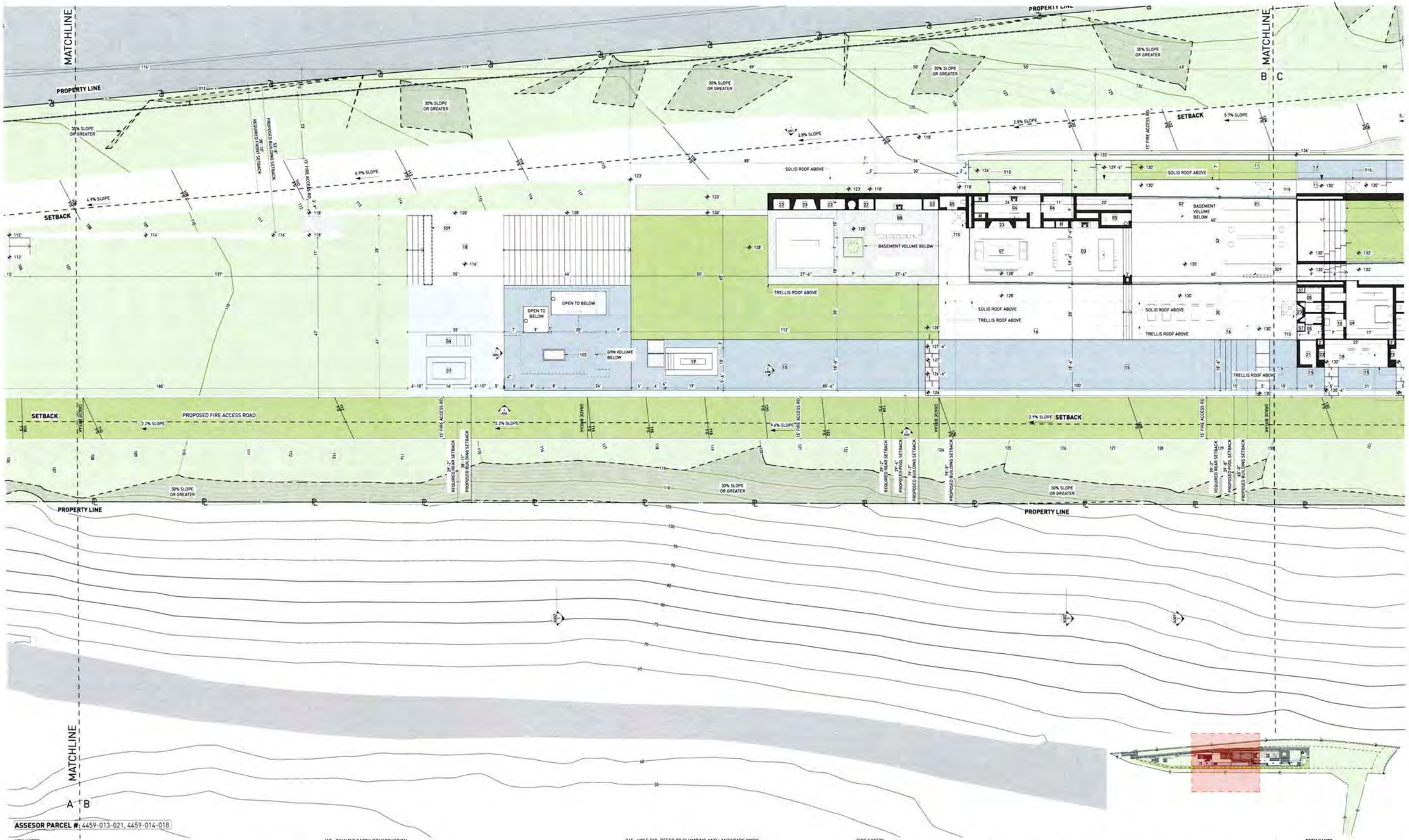
NOT FOR CONSTRUCTION

Design Development

1813
VILLA COLEAVA

Drawing Issued on 4/16/25

A105



ASSESOR PARCEL #: 4459-013-021, 4459-014-018

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Project No

1813

Project Name
VILLA COLEAVA

Project Address
25200 Pacific Coast Hwy.
Malibu, California, USA

Property Owner
PAR PCH, LLC
PO Box 6528
Malibu, CA 90265

Design Architect
Oppenheim Architecture
245 NE 37 Street
Miami FL 33137
P 305 576 8404
F 305 576 8433
W oppenoffice.com

Landscape Architect
[place]
3617 exposition boulevard
Los Angeles, CA 90016
P 310-450-8100
F 323-737-3290
W plac-e.com

Civil Engineers
LC Engineering Group
889 Pierce Ct., Ste. 101
Thousand Oaks, CA 91360
P 805-497-1244
P 818-991-7148
W lcegroupinc.com

Revisions

Mark	Date	Description

Title
GROUND LEVEL B

1/16" = 1'-0"

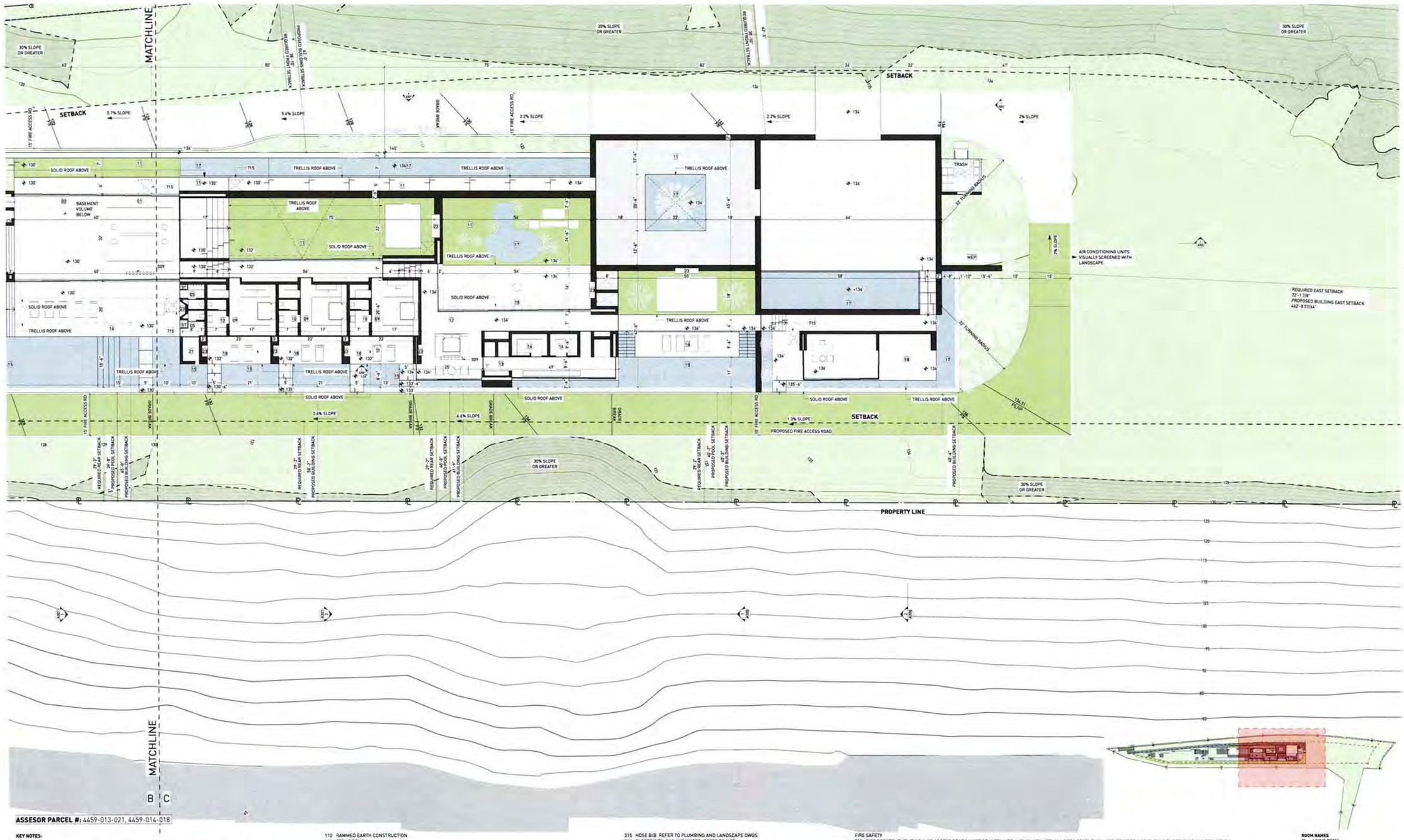
NOT FOR CONSTRUCTION

Design Development

1813
VILLA COLEAVA

Drawing Issued on 4/16/25

A106



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712 PROVIDE APPROVED SIGNS OR OTHER APPROVED NOTICES OR MARKINGS THAT INCLUDE THE WORDS NO PARKING - FIRE LANE. SIGNS SHALL HAVE A MINIMUM DIMENSION OF 12 INCHES WIDE BY 18 INCHES HIGH AND HAVE RED LETTERS ON A WHITE REFLECTIVE BACKGROUND. SIGNS SHALL BE PROVIDED FOR FIRE APPARATUS ACCESS ROADS, TO CLEARLY INDICATE THE ENTRANCE TO SUCH ROAD, OR PROHIBIT THE OBSTRUCTION THEREOF AND AT INTERVALS, AS REQUIRED BY THE FIRE INSPECTOR. FIRE CODE 503.3
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34 SUNKEN TUB

Project No

1813

Project Name
VILLA COLEAVA

Project Address
25200 Pacific Coast Hwy.
Malibu, California, USA

Property Owner
PAR PCH, LLC
PO Box 6528
Malibu, CA 90265

Design Architect
Oppenheim Architecture
245 NE 37 Street
Miami FL 33137
P 305 576 8404
F 305 576 8433
W oppenoffice.com

Landscape Architect
[place]
3617 exposition boulevard
Los Angeles, CA 90016
P 310-450-8100
F 323-737-3290
W plac-e.com

Civil Engineers
LC Engineering Group
889 Pierce Ct., Ste. 101
Thousand Oaks, CA 91360
P 805-497-1244
P 818-991-7148
W lcegroupinc.com

Revisions

Mark	Date	Description

Title
GROUND LEVEL C

1/16" = 1'-0"

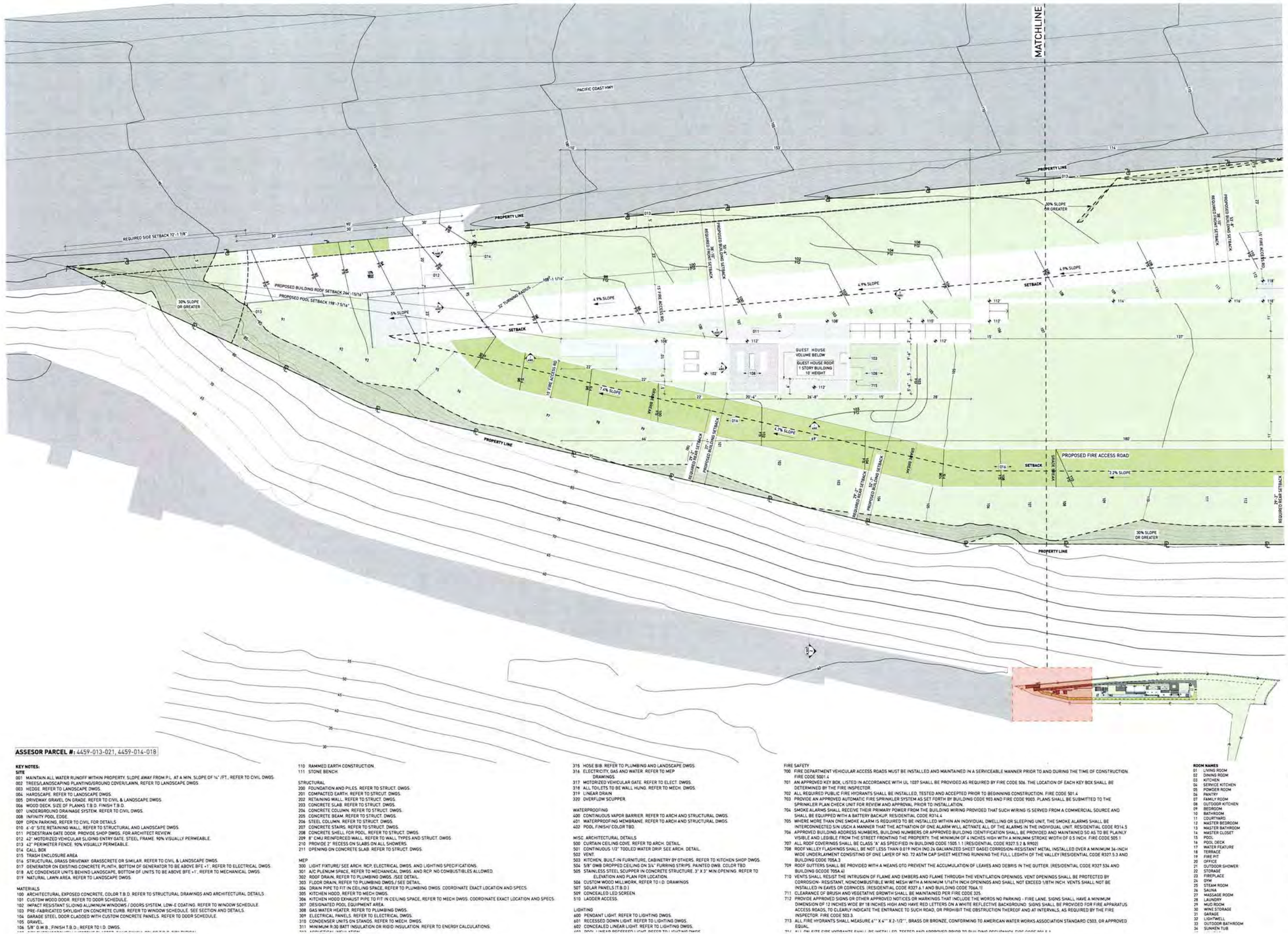
NOT FOR CONSTRUCTION

Design Development

1813
VILLA COLEAVA

Drawing Issued on 4/16/25

A107



ASSESOR PARCEL #: 4459-013-021, 4459-014-018

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005 DRIVEWAY GRAVEL ON GRADE. REFER TO CIVIL & LANDSCAPE DWGS.
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018 A/C CONDENSER UNITS BEHIND LANDSCAPE, BOTTOM OF UNITS TO BE ABOVE BFE +1', REFER TO MECHANICAL DWGS.
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MATERIALS

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102 IMPACT RESISTANT SLIDING ALUMINUM WINDOWS / DOORS SYSTEM, LOW-E COATING. REFER TO WINDOW SCHEDULE.
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MEP

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301 A/C PLENUM SPACE. REFER TO MECHANICAL DWGS. AND RCP. NO COMBUSTIBLES ALLOWED.
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303 FLOOR DRAIN. REFER TO PLUMBING DWGS./ SEE DETAIL.
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315 HOSE BIB. REFER TO PLUMBING AND LANDSCAPE DWGS.
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MISC. ARCHITECTURAL DETAILS

500 CURTAIN CEILING COVE. REFER TO ARCH. DETAIL.
501 CONTINUOUS 1/2" TOOLED WATER DRIP. SEE ARCH. DETAIL.
502 VENT.
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504 5/8" GWB DROPPED CEILING ON 3/4" FURRING STRIPS. PAINTED GWB. COLOR TBD.
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509 CONCEALED LED SCREEN.
510 LADDER ACCESS.

LIGHTING

600 PENDANT LIGHT. REFER TO LIGHTING DWGS.
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FIRE SAFETY

700 FIRE DEPARTMENT VEHICULAR ACCESS ROADS MUST BE INSTALLED AND MAINTAINED IN A SERVICEABLE MANNER PRIOR TO AND DURING THE TIME OF CONSTRUCTION. FIRE CODE 5001.4
701 AN APPROVED KEY BOX, LISTED IN ACCORDANCE WITH UL 1037 SHALL BE PROVIDED AS REQUIRED BY FIRE CODE 506. THE LOCATION OF EACH KEY BOX SHALL BE DETERMINED BY THE FIRE INSPECTOR.
702 ALL REQUIRED PUBLIC FIRE HYDRANTS SHALL BE INSTALLED, TESTED AND ACCEPTED PRIOR TO BEGINNING CONSTRUCTION. FIRE CODE 501.4
703 PROVIDE AN APPROVED AUTOMATIC FIRE SPRINKLER SYSTEM AS SET FORTH BY BUILDING CODE 903 AND FIRE CODE 9003. PLANS SHALL BE SUBMITTED TO THE SPRINKLER PLAN CHECK UNIT FOR REVIEW AND APPROVAL PRIOR TO INSTALLATION.
704 SMOKE ALARMS SHALL RECEIVE THEIR PRIMARY POWER FROM THE BUILDING WIRING PROVIDED THAT SUCH WIRING IS SERVED FROM A COMMERCIAL SOURCE AND SHALL BE EQUIPPED WITH A BATTERY BACKUP. RESIDENTIAL CODE R314.4
705 WHERE MORE THAN ONE SMOKE ALARM IS REQUIRED TO BE INSTALLED WITHIN AN INDIVIDUAL DWELLING OR SLEEPING UNIT, THE SMOKE ALARMS SHALL BE INTERCONNECTED S.IN USCH A MANNER THAT THE ACTIVATION OF ONE ALARM WILL ACTIVATE ALL OF THE ALARMS IN THE INDIVIDUAL UNIT. RESIDENTIAL CODE R314.5
706 APPROVED BUILDING ADDRESS NUMBERS, BUILDING NUMBERS OR APPROVED BUILDING IDENTIFICATION SHALL BE PROVIDED AND MAINTAINED SO AS TO BE PLAINLY VISIBLE AND LEGIBLE FROM THE STREET FRONTING THE PROPERTY. THE MINIMUM OF 4 INCHES HIGH WITH A MINIMUM STROKE WIDTH OF 0.5 INCH. FIRE CODE 505.1
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708 ROOF VALLEY FLASHINGS SHALL BE NOT LESS THAN 0.019 INCH (NO. 24 GALVANIZED SHEET GAGE) CORROSION- RESISTANT METAL INSTALLED OVER A MINIMUM 36-INCH WIDE UNDERLAYMENT CONSISTING OF ONE LAYER OF NO. 72 ASTM CAP SHEET MEETING RUNNING THE FULL LEIGHTH OF THE VALLEY (RESIDENTIAL CODE R327.5.3 AND BUILDING CODE 705A.3
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[place]
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Revisions

Mark	Date	Description

Title
ROOF LEVEL A

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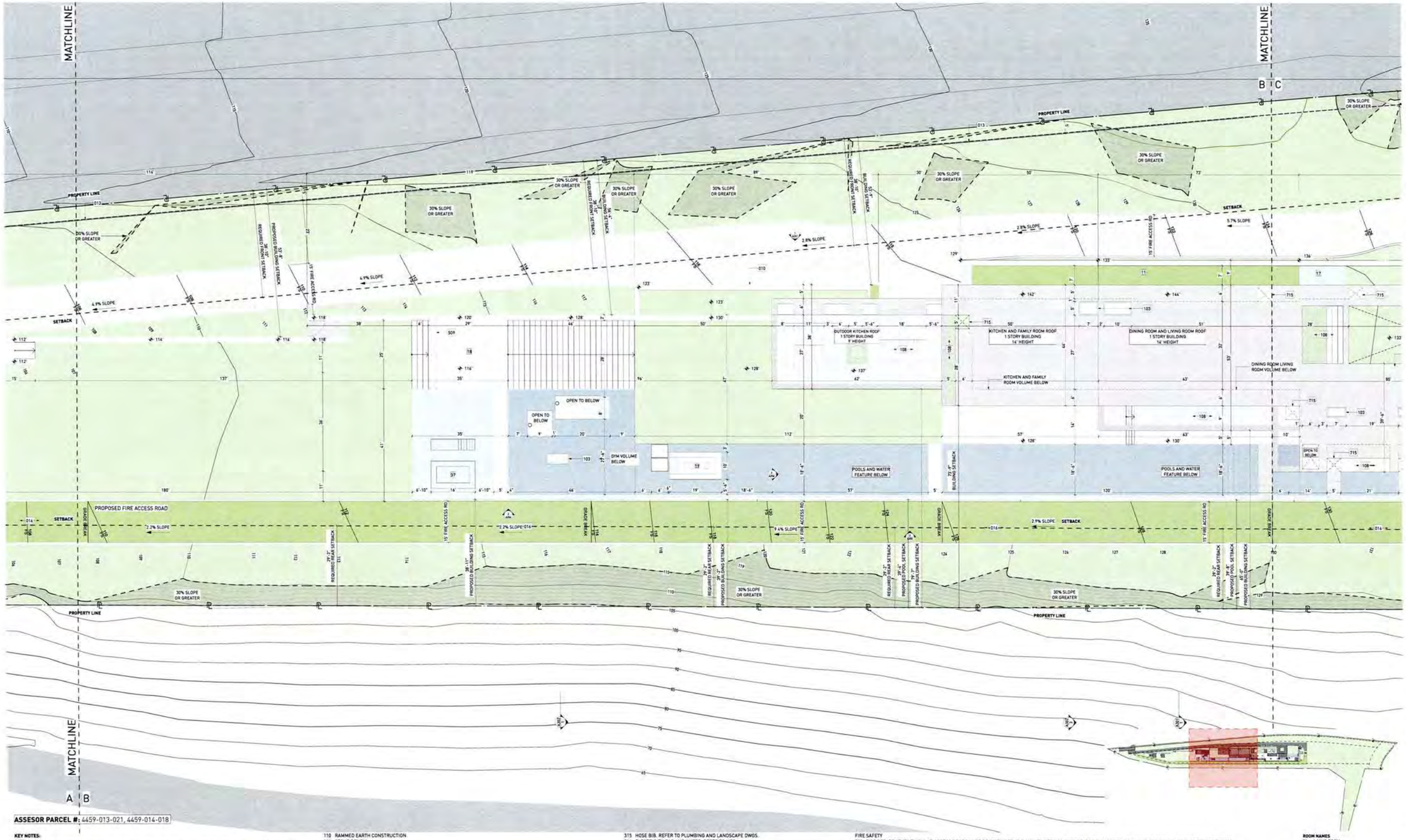
NOT FOR CONSTRUCTION

Design Development

1813
VILLA COLEAVA

Drawing Issued on 4/16/25

A108



ASSESOR PARCEL #: 4459-013-021, 4459-014-018

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LC Engineering Group
889 Pierce Ct., Ste. 101
Thousand Oaks, CA 91360
P 805-497-1244
P 818-991-7148
W lcegroupinc.com

Revisions

Mark	Date	Description

Title
ROOF LEVEL B

1/16" = 1'-0"

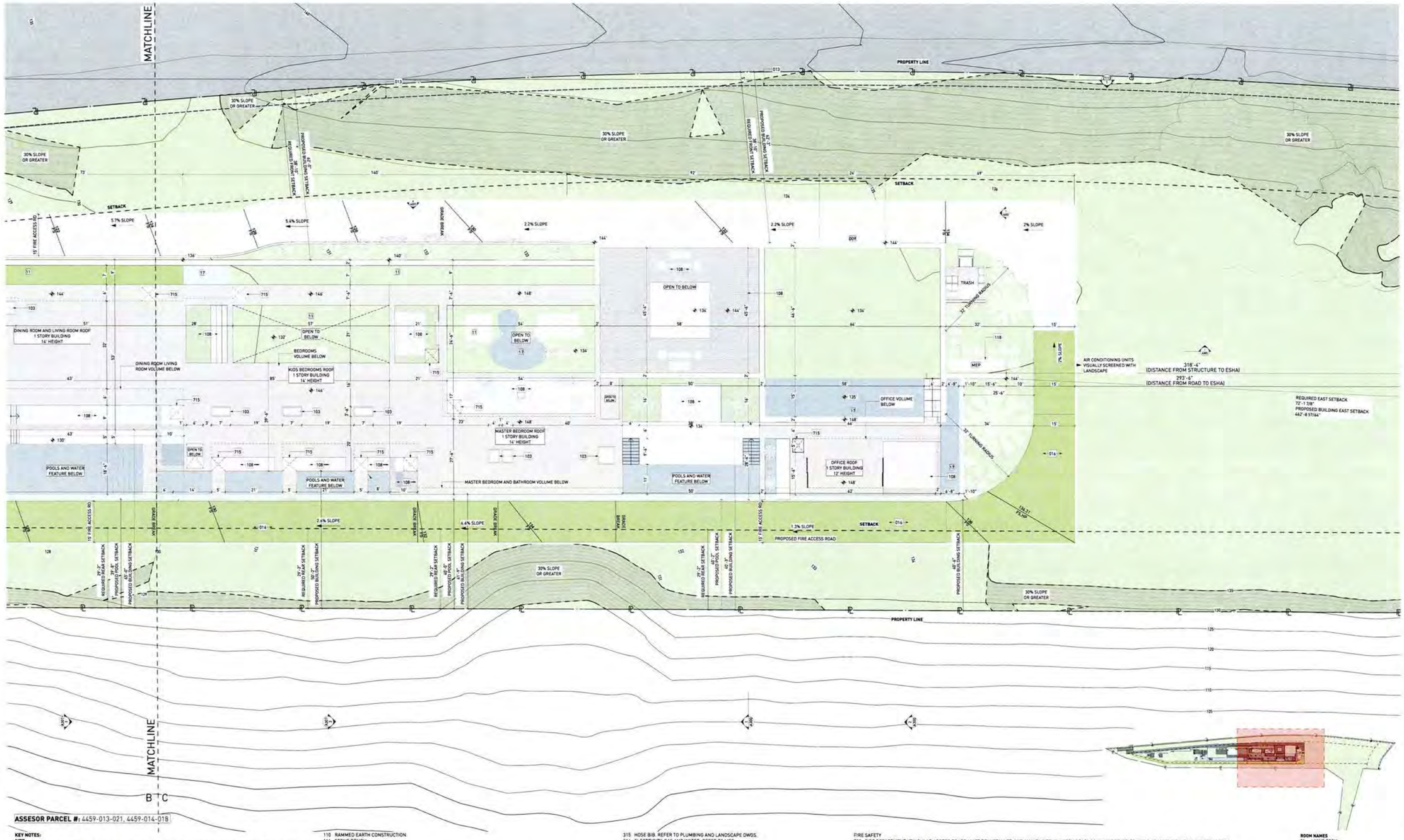
NOT FOR CONSTRUCTION

Design Development

1813
VILLA COLEAVA

Drawing Issued on 4/16/25

A109



ASSESOR PARCEL #: 4459-013-021, 4459-014-018

KEY NOTES:

SITE

001 MAINTAIN ALL WATER RUNOFF WITHIN PROPERTY. SLOPE AWAY FROM P.L. AT A MIN. SLOPE OF ¼" /FT., REFER TO CIVIL DWGS.
002 TREES/LANDSCAPING PLANTING/GROUND COVER/LAWN. REFER TO LANDSCAPE DWGS.
003 HEDGE. REFER TO LANDSCAPE DWGS.
004 HARDSCAPE. REFER TO LANDSCAPE DWGS.
005 DRIVEWAY, GRAVEL ON GRADE. REFER TO CIVIL & LANDSCAPE DWGS.
006 WOOD DECK. SIZE OF PLANKS T.B.D. FINISH T.B.D.
007 UNDERGROUND DRAINAGE SYSTEM. REFER TO CIVIL DWGS.
008 INFINITY POOL EDGE.
009 OPEN PARKING. REFER TO CIVIL FOR DETAILS.
010 6'-0" SITE RETAINING WALL. REFER TO STRUCTURAL AND LANDSCAPE DWGS.
011 PEDESTRIAN GATE DOOR. PROVIDE SHOP DWGS. FOR ARCHITECT REVIEW.
012 42" MOTORIZED VEHICULAR SLIDING ENTRY GATE. STEEL FRAME. 90% VISUALLY PERMEABLE.
013 42" PERIMETER FENCE. 90% VISUALLY PERMEABLE.
014 CALL BOX.
015 TRASH ENCLOSURE AREA
016 STRUCTURAL GRASS DRIVEWAY. GRASSCRETE OR SIMILAR. REFER TO CIVIL & LANDSCAPE DWGS.
017 GENERATOR ON EXISTING CONCRETE PLINTH. BOTTOM OF GENERATOR TO BE ABOVE BFE +1'. REFER TO ELECTRICAL DWGS.
018 A/C CONDENSER UNITS BEHIND LANDSCAPE, BOTTOM OF UNITS TO BE ABOVE BFE +1'. REFER TO MECHANICAL DWGS.
019 NATURAL LAWN AREA. REFER TO LANDSCAPE DWGS.

MATERIALS

100 ARCHITECTURAL EXPOSED CONCRETE, COLOR T.B.D. REFER TO STRUCTURAL DRAWINGS AND ARCHITECTURAL DETAILS
101 CUSTOM WOOD DOOR. REFER TO DOOR SCHEDULE.
102 IMPACT RESISTANT SLIDING ALUMINUM WINDOWS / DOORS SYSTEM, LOW-E COATING. REFER TO WINDOW SCHEDULE.
103 PRE-FABRICATED SKYLIGHT ON CONCRETE CURB. REFER TO WINDOW SCHEDULE. SEE SECTION AND DETAILS.
104 GARAGE STEEL DOOR CLADDED WITH CUSTOM CONCRETE PANELS. REFER TO DOOR SCHEDULE.
105 GRAVEL.
106 5/8" G.W.B., FINISH T.B.D., REFER TO I.D. DWGS.
107 3/8" TIGHT-KNOT WOOD LAGGING (LAYED SAND FINISH, COLOR T.B.D. 3/8" TYPICAL
110 RAMMED EARTH CONSTRUCTION
111 STONE BENCH.

STRUCTURAL

200 FOUNDATION AND PILES. REFER TO STRUCT. DWGS.
201 COMPACTED EARTH. REFER TO STRCUT. DWGS.
202 RETAINING WALL. REFER TO STRUCT. DWGS.
203 CONCRETE SLAB. REFER TO STRUCT. DWGS.
204 CONCRETE COLUMN. REFER TO STRUCT. DWGS.
205 CONCRETE BEAM. REFER TO STRUCT. DWGS.
206 STEEL COLUMN. REFER TO STRUCT. DWGS.
207 CONCRETE STAIRS. REFER TO STRUCT. DWGS.
208 CONCRETE SHELL FOR POOL. REFER TO STRUCT. DWGS.
209 8" CMU REINFORCED WALL. REFER TO WALL TYPES AND STRUCT. DWGS
210 PROVIDE 2" RECESS ON SLABS ON ALL SHOWERS
211 OPENING ON CONCRETE SLAB. REFER TO STRUCT. DWGS.

MEP

300 LIGHT FIXTURE/ SEE ARCH. RCP, ELECTRICAL DWGS. AND LIGHTING SPECIFICATIONS.
301 A/C PLENUM SPACE, REFER TO MECHANICAL DWGS. AND RCP. NO COMBUSTIBLES ALLOWED.
302 ROOF DRAIN, REFER TO PLUMBING DWGS. /SEE DETAIL.
303 FLOOR DRAIN, REFER TO PLUMBING DWGS./ SEE DETAIL.
304 DRAIN PIPE TO FIT IN CEILING SPACE, REFER TO PLUMBING DWGS. COORDINATE EXACT LOCATION AND SPECS.
305 KITCHEN HOOD, REFER TO MECH DWGS.
306 KITCHEN HOOD EXHAUST PIPE TO FIT IN CEILING SPACE, REFER TO MECH DWGS. COORDINATE EXACT LOCATION AND SPECS.
307 DESIGNATED POOL EQUIPMENT AREA.
308 GAS WATER HEATER. REFER TO PLUMBING DWGS.
309 ELECTRICAL PANELS. REFER TO ELECTRICAL DWGS.
310 CONDENSER UNITS ON STANDS. REFER TO MECH. DWGS.
311 MINIMUM R-30 BATT INSULATION OR RIGID INSULATION. REFER TO ENERGY CALCULATIONS.
315 HOSE BIB. REFER TO PLUMBING AND LANDSCAPE DWGS.
316 ELECTRICITY, GAS AND WATER. REFER TO MEP DRAWINGS.
317 MOTORIZED VEHICULAR GATE. REFER TO ELECT. DWGS.
318 ALL TOILETS TO BE WALL HUNG. REFER TO MECH. DWGS.
319 LINEAR DRAIN.
320 OVERFLOW SCUPPER.

WATERPROOFING

400 CONTINUOUS VAPOR BARRIER. REFER TO ARCH AND STRUCTURAL DWGS.
401 WATERPROOFING MEMBRANE. REFER TO ARCH AND STRUCTURAL DWGS.
402 POOL FINISH/ COLOR TBD.

MISC. ARCHITECTURAL DETAILS

500 CURTAIN CEILING COVE. REFER TO ARCH. DETAIL.
501 CONTINUOUS 1/2" TOOLED WATER DRIP. SEE ARCH. DETAIL.
502 VENT.
503 KITCHEN, BUILT-IN FURNITURE, CABINETRY BY OTHERS. REFER TO KITCHEN SHOP DWGS.
504 5/8" GWB DROPPED CEILING ON 3/4" FURRING STRIPS. PAINTED GWB. COLOR TBD.
505 STAINLESS STEEL SCUPPER IN CONCRETE STRUCTURE. 3" X 3" MIN OPENING. REFER TO ELEVATION AND PLAN FOR LOCATION.
506 CUSTOM WOOD MILLWORK. REFER TO I.D. DRAWINGS
507 SOLAR PANELS (T.B.D.)
509 CONCEALED LED SCREEN.
510 LADDER ACCESS.

LIGHTING

600 PENDANT LIGHT. REFER TO LIGHTING DWGS.
601 RECESSED DOWN LIGHT. REFER TO LIGHTING DWGS.
602 CONCEALED LINEAR LIGHT. REFER TO LIGHTING DWGS.
603 POOL LINEAR RECESSED LIGHT. REFER TO LIGHTING DWGS.

FIRE SAFETY

700 FIRE DEPARTMENT VEHICULAR ACCESS ROADS MUST BE INSTALLED AND MAINTAINED IN A SERVICEABLE MANNER PRIOR TO AND DURING THE TIME OF CONSTRUCTION. FIRE CODE 5001.4
701 AN APPROVED KEY BOX, LISTED IN ACCORDANCE WITH UL 1037 SHALL BE PROVIDED AS REQUIRED BY FIRE CODE 506. THE LOCATION OF EACH KEY BOX SHALL BE DETERMINED BY THE FIRE INSPECTOR.
702 ALL REQUIRED PUBLIC FIRE HYDRANTS SHALL BE INSTALLED, TESTED AND ACCEPTED PRIOR TO BEGINNING CONSTRUCTION. FIRE CODE 501.4.
703 PROVIDE AN APPROVED AUTOMATIC FIRE SPRINKLER SYSTEM AS SET FORTH BY BUILDING CODE 903 AND FIRE CODE 9003. PLANS SHALL BE SUBMITTED TO THE SPRINKLER PLAN CHECK UNIT FOR REVIEW AND APPROVAL PRIOR TO INSTALLATION.
704 SMOKE ALARMS SHALL RECEIVE THEIR PRIMARY POWER FROM THE BUILDING WIRING PROVIDED THAT SUCH WIRING IS SERVED FROM A COMMERCIAL SOURCE AND SHALL BE EQUIPPED WITH A BATTERY BACKUP. RESIDENTIAL CODE R314.4
705 WHERE MORE THAN ONE SMOKE ALARM IS REQUIRED TO BE INSTALLED WITHIN AN INDIVIDUAL DWELLING OR SLEEPING UNIT, THE SMOKE ALARMS SHALL BE INTERCONNECTED SIN USCH A MANNER THAT THE ACTIVATION OF ONE ALARM WILL ACTIVATE ALL OF THE ALARMS IN THE INDIVIDUAL UNIT. RESIDENTIAL CODE R314.5
706 APPROVED BUILDING ADDRESS NUMBERS, BUILDING NUMBERS OR APPROVED BUILDING IDENTIFICATION SHALL BE PROVIDED AND MAINTAINED SO AS TO BE PLAINLY VISIBLE AND LEGIBLE FROM THE STREET FRONTING THE PROPERTY. THE MINIMUM OF 4 INCHES HIGH WITH A MINUMM STROKE WIDTH OF 0.5 INCH. FIRE CODE 505.1
707 ALL ROOF COVERINGS SHALL BE CLASS "A" AS SPECIFIED IN BUILDING CODE 1505.1.1 (RESIDENTIAL CODE R327.5.2 & R902)
708 ROOF VALLEY FLASHINGS SHALL BE NOT LESS THAN 8.019 INCH (NO.26 GALVANIZED SHEET GAGE) CORROSION-RESISTANT METAL INSTALLED OVER A MINIMUM 36-INCH WIDE UNDERLAYMENT CONSISTING OF ONE LAYER OF NO. 72 ASTM CAP SHEET MEETING RUNNING THE FULL LEGHTH OF THE VALLEY.(RESIDENTIAL CODE R327.5.3 AND BUILDING CODE 705A.3
709 ROOF GUTTERS SHALL BE PROVIDED WITH A MEANS OTO PREVENT THE ACCUMULATION OF LEAVES AND DEBRIS IN THE GUTTER. (RESIDENTIAL CODE R327.5.6 AND BUILDING (GCODE 705A.4)
710 VENTS SHALL RESIST THE INTRUSION OF FLAME AND EMBERS AND FLAME THROUGH THE VENTILATION OPENINGS. VENT OPENINGS SHALL BE PROTECTED BY CORROSION- RESISTANT, NONCOMBUSTIBLE WIRE MESH WITH A MINIMUM 1/16TH INCH OPENINGS AND SHALL NOT EXCEED 1/8TH INCH. VENTS SHALL NOT BE INSTALLED IN EAVES OR CORNICES. (RESIDENTIAL CODE R327.6.1 AND BUILDING CODE 706A.1)
711 CLEARANCE OF BRUSH AND VEGETATIVE GROWTH SHALL BE MAINTAINED PER FIRE CODE 325.
712 PROVIDE APPROVED SIGNS OR OTHER APPROVED NOTICES OR MARKINGS THAT INCLUDE THE WORDS NO PARKING - FIRE LANE. SIGNS SHALL HAVE A MINIMUM DIMENSION OF 12 INCHES WIDE BY 18 INCHES HIGH AND HAVE RED LETTERS ON A WHITE REFLECTIVE BACKGROUND. SIGNS SHALL BE PROVIDED FOR FIRE APPARATUS ACCESS ROADS, TO CLEARLY INDICATE THE ENTRANCE TO SUCH ROAD, OR PROHIBIT THE OBSTRUCTION THEREOF AND AT INTERVALS, AS REQUIRED BY THE FIRE INSPECTOR. FIRE CODE 503.3.
713 ALL FIRE HYDRANTS SHALL MEASURE 6"" X 4"" X 2-1/2"", BRASS OR BRONZE, CONFORMING TO AMERICAN WATER WORKS ASSOCIATION STANDARD C503, OR APPROVED EQUAL.

ROOM NAMES

01 LIVING ROOM
02 DINING ROOM
03 KITCHEN
04 SERVICE KITCHEN
05 POWDER ROOM
06 PANTRY
07 FAMILY ROOM
08 OUTDOOR KITCHEN
09 BEDROOM
10 BATHROOM
11 COURTYARD
12 MASTER BEDROOM
13 MASTER BATHROOM
14 MASTER CLOSET
15 POOL
16 POOL DECK
17 WATER FEATURE
18 TERRACE
19 FIRE PIT
20 OFFICE
21 OUTDOOR SHOWER
22 STORAGE
23 FIREPLACE
24 GYM
25 STEAM ROOM
26 SAUNA
27 MASSAGE ROOM
28 LAUNDRY
29 MUD ROOM
30 WINE STORAGE
31 GARAGE
32 LIGHTWELL
33 OUTDOOR BATHROOM
34 SUNKEN TUB

Project No

1813

Project Name
VILLA COLEAVA

Project Address
25200 Pacific Coast Hwy.
Malibu, California, USA

Property Owner
PAR PCH, LLC
PO Box 6528
Malibu, CA 90265

Design Architect
Oppenheim Architecture
245 NE 37 Street
Miami FL 33137
P 305 576 8404
F 305 576 8433
W oppenoffice.com

Landscape Architect
[place]
3617 exposition boulevard
Los Angeles, CA 90016
P 310-450-8100
F 323-737-3290
W plac-e.com

Civil Engineers
LC Engineering Group
889 Pierce Ct., Ste. 101
Thousand Oaks, CA 91360
P 805-497-1244
P 818-991-7148
W lcegroupinc.com

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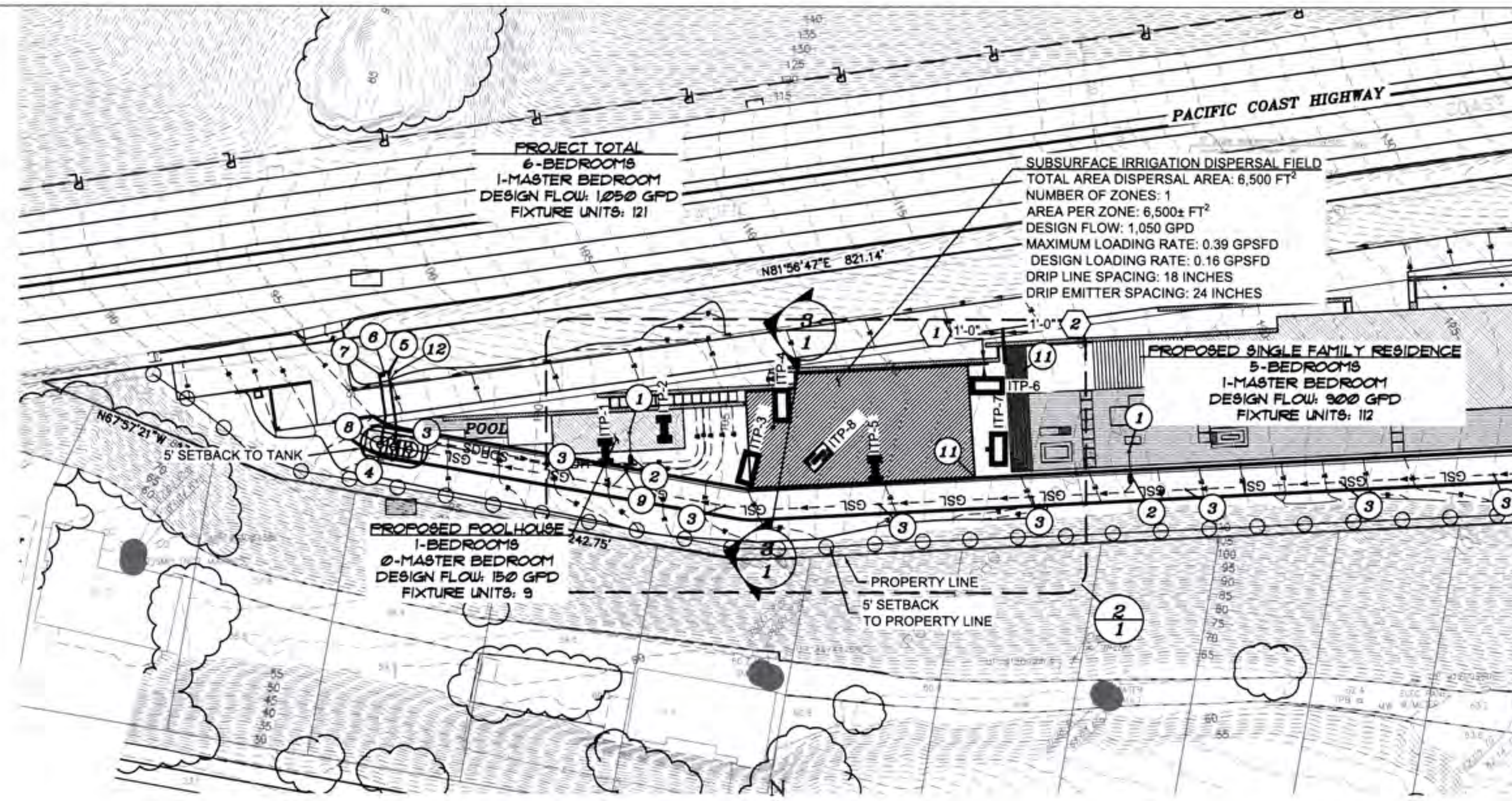


1/1 OVERALL SITE PLAN

0 100' 200'

OWTS Capacity (Design and Maximum)				
Component	Description	Size/Capacity	Design Capacity	Max Capacity
Treatment Volume (Fixture Unit Capacity)	1-MicroSepTec ES25	7,540 gallons	121 fixture units	261 fixture units
Treatment (Organic Capacity)	1-MicroSepTec ES25	4.17 lb BOD5/day	1050 gpd at 220mg/L BOD5	2500 gpd at 220mg/L BOD5
Disinfection	1-MicroSepTec ES25	2,500 gpd	1,050 gpd	2,500 gpd
Subsurface Irrigation Dispersal	Subsurface Irrigation	5100 square feet at 0.206 gallons per square foot per day	1,050 gpd	1,989 gpd

Leaching Field Calculations		
Max Subsurface Irrigation Loading Rate, L_m	0.390	gpsfd
Preferred Subsurface Irrigation Loading Rate Safety factor 10, L_p	0.39	gpsfd
Minimum Square Feet of Leaching Area Required, A_m	2693	ft²
Preferred Square Feet of Leaching Area Required, A_p	2693	ft²
Design Square Feet of leaching Area, A_i	5100	ft²
Is Design Area Adequate (Is $A_i > A_p$)	Yes	
Actual Loading Rate, L_a	0.206	gpsfd

Fixture Units Summary		
Total Proposed Fixture Units	121	
Total Fixture Units	121	
Dwelling Units Summary		
Total Proposed Dwelling Units	1	
Proposed Bedroom Summary		
Total Proposed Bedrooms	6	bedrooms
Number of Proposed Master Bedrooms	1	bedrooms
Number of Proposed Standard	5	bedrooms
Flow Calculations (Q)		
Peak Flow per Master Bedroom	300	gpd
Peak Flow per Standard Bedroom	150	gpd
Average Flow per Master Bedroom	200	gpd
Average Flow per Standard Bedroom	100	gpd
Flow Calculations Proposed (Q)		
Peak Flow, Q_P	1050	gpd
Average Flow, Q_A	700	gpd
Leaching Field Design Flow, Q_P	1050	gpd
Influent Characteristics		
BOD5 (mg/l)	220	
TSS (mg/l)	220	
TN (mg/l)	35	
Effluent Characteristics		
BOD5 (mg/l)	20	
TSS (mg/l)	20	
TN (mg/l)	17.5	

Test Pit Number	Depth ft	Soil Type at Test Depth	Passing Loading Rate gpsfd
ITP-1	1	Loam	5.2
ITP-2	1	Sandy Loam	5.1
ITP-3	1		5.2
ITP-4	1		4.3
ITP-5	1	Loam	3.9
ITP-6	1		5
ITP-7	1	NOT USED 0.9 gpsfd	
ITP-8	6	Clay Loam	Ryon's Test for deep infiltration
Average Passing Rate			4.79
Minimum Passing Rate			3.9
Design Safety Factor			10
Design Application Rate			0.39
Design Safety Factor			10.00

MicroSepTec Design		
Design Flow	1,050	gpd
Design Influent BOD	220	mg/L
Design Effluent BOD	20	mg/L
Design Organic Loading BOD	1.75	lb BOD5
MicroSepTec Model Specified	ES25	
MicroSepTec Tank Volume	7540	gal
MicroSepTec ES25 Base Organic Removal (1)	4.17	lb BOD5
Minimum Number of MicroSepTec ES25 Required	1	units
Design Organic Removal	4.17	lb BOD5
Design Tank Volume	7540	gal
Maximum Effluent Flow Based on Organic loading	2500	gpd
Maximum Effluent Flow Based on Hydraulic Loading	2500	gpd
Maximum Fixtures Based on Design Tank Volume	261	

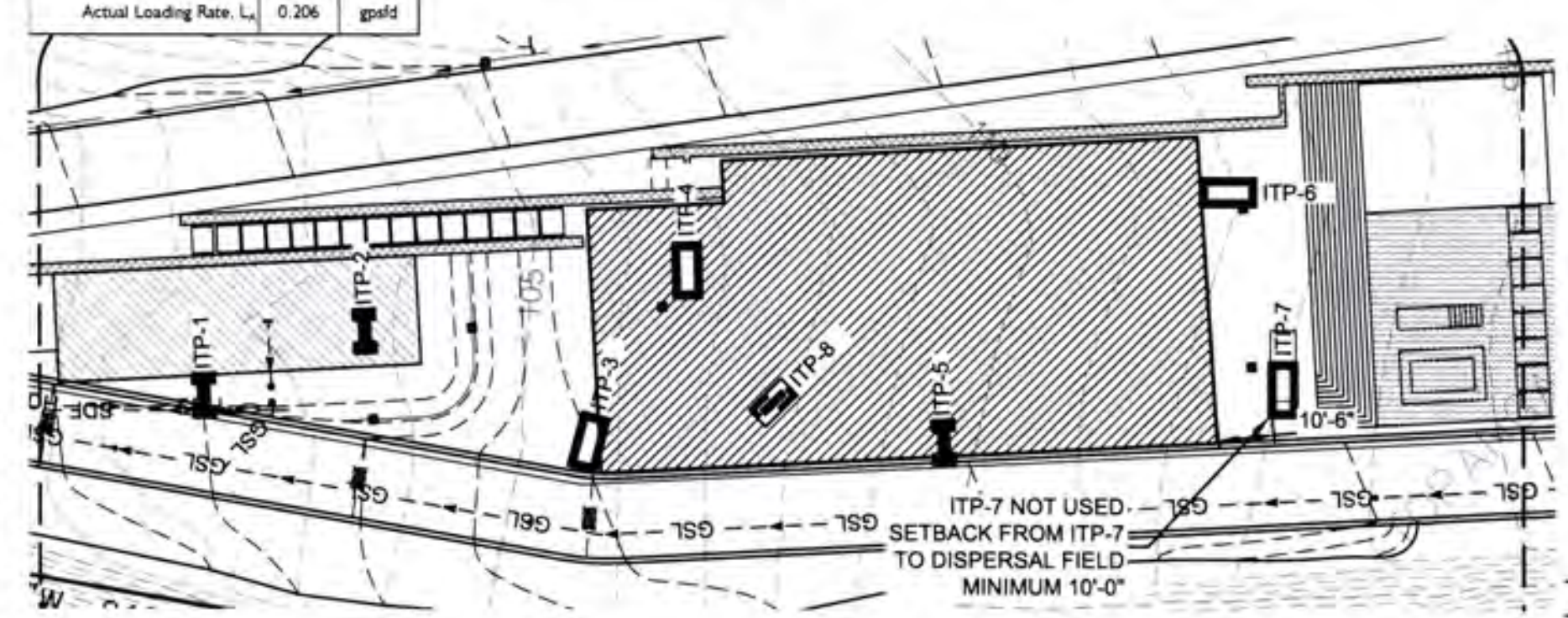
Septic Tank (ST) Calculations		
Total Existing Fixture Units		
Total Proposed Fixture Units	121	
Total Fixture Units	121	
Minimum Septic Tank Size based on Fixtures	4025	gal
Number of Dwelling Units	1	
Number of Bedrooms	6	bedrooms
Minimum Septic Tank Size based on Bedrooms	1500	gal
Design Septic Tank Size	7540	gal

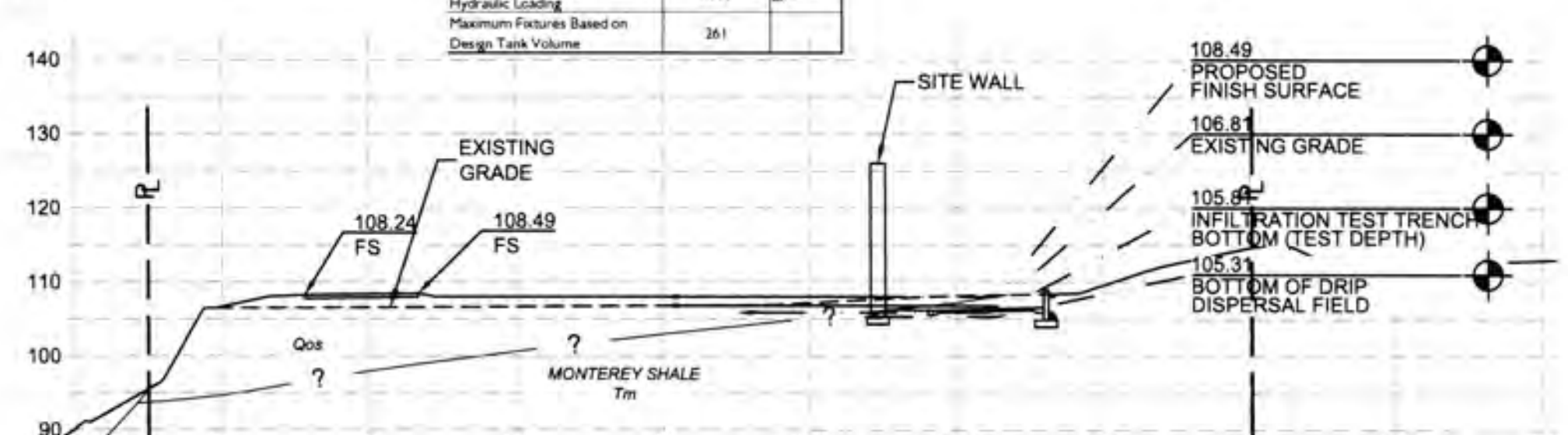
PIPING SCHEDULE

	TAG	DESCRIPTION	SPECIFICATION
GSL	GSL	PROPOSED GRAVITY SEWER LINE	4" SCH40 PVC
PAL	PAL	PROPOSED AIR COMPRESSOR LINE	1" SCH80 PVC
PVL	PVL	PROPOSED AIR VENT LINE	4" SCH40 PVC
RCRC	RCRC	RECIRCULATION RETURN LINE	1½" SCH80 PVC
SDH	SDH	SUBSURFACE DISPERSAL HEADER	1½" SCH80 PVC
SDF	SDF	SUBSURFACE DISPERSAL FLUSH	1½" SCH80 PVC

SETBACK REDUCTIONS

	COMPONENT	SITE ELEMENT	CODE REQUIREMENT	ACTUAL
1	DISPERSAL FIELD	SITE WALL	8'	1'-0"
2	DISPERSAL FIELD	DECK	8'	1'-0"





3/1 SECTION THROUGH DRIP DISPERSAL

GENERAL NOTES:

1. EXISTING OWTS COMPONENTS LOCATION AND ABANDONMENT:
   1.1. CONTRACTOR IS RESPONSIBLE FOR LOCATING ALL EXISTING ONSITE WASTEWATER TREATMENT SYSTEM (OWTS) COMPONENTS. THE LOCATIONS ON THE ENGINEERING PLANS ARE INFORMATIONAL AND MAY NOT INCLUDE ALL COMPONENTS OF THE OWTS. MANY ITEMS, SUCH AS TANKS, PIPING, DISTRIBUTION DEVICES, SEEPAGE PITS, DISPERSAL FIELDS, AND OTHER APPURTENANCES ARE BURIED AND NOT LOCATABLE BY THE SURVEYOR OR UTILITIES LOCATOR.
   1.2. PRIOR TO COMMENCING WORK TO ABANDON, REMOVE, OR REPLACE EXISTING ONSITE WASTEWATER TREATMENT SYSTEM (OWTS) COMPONENTS AN "OWTS ABANDONMENT PERMIT" SHALL BE OBTAINED FROM THE CITY OF MALIBU. ALL WORK PERFORMED IN THE OWTS ABANDONMENT, REMOVAL, OR REPLACEMENT AREA SHALL BE PERFORMED IN STRICT ACCORDANCE WITH ALL APPLICABLE FEDERAL, STATE, AND LOCAL ENVIRONMENTAL AND OCCUPATIONAL SAFETY AND HEALTH REGULATORY REQUIREMENTS. THE OBTAINMENT OF ANY SUCH REQUIRED PERMITS OR APPROVALS FOR THIS SCOPE OF WORK SHALL BE THE RESPONSIBILITY OF THE APPLICANT AND THEIR AGENTS.
   1.3. THE EXISTING OWTS COMPONENTS INCLUDING; SEPTIC TANK(S), PIPING, CLEANOUT(S) SEEPAGE PIT(S), DISPERSAL FIELD(S), AND ALL OTHER APPURTENANCES SHALL BE PROPERLY ABANDONED PURSUANT TO CITY OF MALIBU ORDINANCE 435, SECTION 15.40.170 C, AND SECTION 15.40.170 D, TITLE 28 OF THE LOS ANGELES COUNTY CODE, INCORPORATING THE MOST CURRENT CALIFORNIA PLUMBING CODE, LOCAL PLUMBING CODE, AND POLICIES. METHOD OF ABANDONMENT SHALL BE DETERMINED BY THE ENGINEER AND/OR THE OWNER'S REPRESENTATIVE
2. SEWER PIPE SHALL BE BEDDED IN ACCORDANCE WITH SPECIFICATIONS AND TITLE 28 OF THE LOS ANGELES COUNTY CODE, INCORPORATING THE MOST CURRENT CALIFORNIA PLUMBING CODE, LOCAL PLUMBING CODE, AND ORDINANCES.
3. SYSTEM COMPONENTS AND APPURTENANCES (INCLUDING CLEAN-OUTS, VENTS, BACKWATER VALVES, ETC.) SHALL BE INSTALLED IN ACCORDANCE WITH TITLE 28 OF THE LOS ANGELES COUNTY CODE, INCORPORATING THE MOST CURRENT CALIFORNIA PLUMBING CODE, LOCAL PLUMBING CODE, AND POLICIES.
4. ELECTRICAL COMPONENTS AND APPURTENANCES SHALL BE INSTALLED IN ACCORDANCE WITH TITLE 27 OF THE LOS ANGELES COUNTY CODE, INCORPORATING THE MOST CURRENT CALIFORNIA ELECTRICAL CODE, LOCAL ELECTRICAL CODE, AND ORDINANCES.
5. A REGISTERED GEOTECHNICAL ENGINEER, UNDER THE DIRECTION OF THE OWNER, SHALL DETERMINE IF THE WASTEWATER LOADING RATE WILL CAUSE THE EXISTING SLOPE TO BECOME UNSTABLE. ENSITU ENGINEERING INC., IS NOT A GEOTECHNICAL ENGINEERING FIRM, THEREFORE, WE CAN NOT PREDICT AND/OR DETERMINE THE STABILITY OF THE EXISTING SLOPE.
6. THE PROJECT ENGINEERING GEOLOGIST SHALL OBSERVE THE INSTALLATION OF THE TANK AND DISPERSAL SYSTEM COMPONENTS OF THE AOWTS (INCLUDING BUT NOT LIMITED TO; (A) TANK EXCAVATION, BEDDING, AND BACKFILL (B) SEEPAGE PITS EXCAVATION, CONSTRUCTION, AND BACKFILL (C) SUBSURFACE DISPERSAL SYSTEM BEDDING, FILL MATERIAL, CONSTRUCTION, AND BACKFILL) AND PROVIDE THE CITY INSPECTOR WITH A FIELD MEMORANDUM(S) DOCUMENTING AND VERIFYING THAT THE TANK AND DISPERSAL SYSTEM COMPONENTS WERE INSTALLED PER APPROVED AOWTS PLANS.
7. LEACH FIELDS AND DISPERSAL SYSTEMS DESIGNATED AS SAND CATEGORY: ANY REMAINING FILL MATERIAL AND ANY BEACH SAND SEDIMENT THAT MIGHT HAVE REDUCED PERMEABILITY FROM EXISTING LEACH FIELD OPERATIONS ENCOUNTERED BELOW THE BOTTOM OF THE PROPOSED LEACH FIELD OR ANY MATERIAL ENCOUNTERED IN THE CONSTRUCTION OF THE LEACH FIELD THAT IS NOT CATEGORIZED AS BEACH SAND DEPOSITS SHALL BE EXCAVATED TO THE LEVEL OF THE NATIVE BEACH SAND DEPOSITS AND REPLACED WITH DOUBLE- WASHED SAND. THE PROJECT ENGINEERING GEOLOGIST SHALL OBSERVE THE EXCAVATION OF THE LEACH FIELD AND CONFIRM IN WRITING THAT ALL THE DELETERIOUS FILL AND NON-BEACH SAND MATERIALS BELOW THE LEACH FIELD HAVE BEEN REMOVED AND REPLACED WITH CLEAN SAND AND THE LEACH FIELD WAS CONSTRUCTED IN ACCORDANCE WITH THE APPROVED OWTS PLANS.
8. SUBSURFACE DRIP LINE SHALL BE PLACED IN UNCOMPACTED NATIVE SOILS RIPPED AND TILLED A MINIMUM OF 18 INCHES. SOIL SHALL BE AMENDED TO BE 30% SAND, 30% MULCH, 40% NATIVE OR LANDSCAPE DESIGNER SHALL BE CONTACTED TO ADVISE CONTRACTOR ON TYPE OF TOPSOIL TO IMPORT FOR MINIMUM BURIAL DEPTH. DISPERSAL FIELD SHALL BE PLANTED AND ESTABLISHED PRIOR TO OCCUPANCY (ENGINEER TO VERIFY)
9. ALL DIMENSIONS AND GRADES SHALL BE VERIFIED BY CONTRACTOR PRIOR TO SYSTEM INSTALLATION, BUILDING SEWER DEPTH OR CONNECTION POINT WAS NOT PROVIDED AND SHALL BE DETERMINED BY CONTRACTOR PRIOR TO CONSTRUCTION
10. CONTRACTOR TO VERIFY DEPTH AND LOCATION OF BUILDING SEWER CONNECTION, MINIMUM 2% SLOPE FROM STRUCTURE TO CONNECTION POINT.
11. ONSITE WASTEWATER TREATMENT SYSTEM SHALL BE VENTED IN ACCORDANCE WITH TITLE 28 OF THE LOS ANGELES COUNTY CODE, INCORPORATING THE MOST CURRENT CALIFORNIA PLUMBING CODE, LOCAL PLUMBING CODE, AND POLICIES.

LEGEND

ITP-X	INFILTRATION TEST LOCATION AND SOIL CLASSIFICATION
ITP-X	INFILTRATION TEST LOCATION (WITHOUT SOIL CLASSIFICATION)
ITP-8	DEEP TEST, RYON'S METHOD AND SOIL CLASSIFICATION
	PROPOSED DISPERSAL FIELD
	BUILDINGS AND STRUCTURES
	SITE WALL
	DRIVEWAY
	POOL

EQUIPMENT SCHEDULE

ITEM	QTY	DESCRIPTION	MFG/PART NUMBER
1	4	CONNECTION TO BUILDING SEWER[1]	
2	4	GRAVITY CLEAN-OUT AND BACKWATER VALVE[1]	INDUSTRIAL BACKWATER VALVE (SPEARS MODEL S475P FOR 4") 8" I.D. VALVE BOX (CHRISTY MODEL F08)
3	11	GRAVITY CLEAN-OUT[1]	
4	1	TREATMENT TANK[1][2]	
5	2	AIR COMPRESSOR[1][2]	MICROSEPTEC
6	1	REMOTE TELEMETRY CONTROL UNIT DEDICATED COMMUNICATION AND POWER AS OUTLINED IN MANUFACTURER INSTALLATION GUIDELINES[1][2]	MICROSEPTEC
7	1	CONTROL UNIT DEDICATED COMMUNICATION AND POWER AS OUTLINED IN MANUFACTURER INSTALLATION GUIDELINES[1][2]	GEOFLOW
8	1	DUPLEX PUMP SYSTEM[1][2]	GEOFLOW
9	1	DISPERSAL FIELD HEADWORKS[1][2]	GEOFLOW
10	1	DISPERSAL FIELD ISOLATION CHECK VALVE ASSEMBLY[1][2]	SPEARS MODEL 2229 OR 2222
11	2	AIR VENT/VACUUM RELIEF ASSEMBLY[1]	GEOFLOW PART NUMBER APVBK
12	1	VENT ASSEMBLY[1][2]	ORENCO
[1]	ALL PLUMBING APPURTENANCES AND WORK SHALL COMPLY WITH CURRENT LOCAL, COUNTY, AND STATE PLUMBING CODES. APPURTENANCES AND WORK INCLUDE, BUT ARE NOT LIMITED TO; CONNECTION TO BUILDING PLUMBING, VENTILATION, ISOLATION, BACKWATER VALVES, CLEANOUTS, AND FITTINGS.		
[2]	ALL ELECTRICAL APPURTENANCES INCLUDING BUT NOT LIMITED TO: CONDUIT, CONDUCTOR, CONTROL PANELS, CONTACTORS, FLOATS, PUMPS, DISCONNECTS AND COMMUNICATION DEVICES SHALL COMPLY WITH CURRENT LOCAL COUNTY, STATE ... CODE AND CURRENT NATIONAL ELECTRIC CODE. CONDUIT AND CONDUCTOR RUNS AND SIZING SHOWN ON PLAN ARE FOR ... ELECTRICAL CONTRACTOR SHALL SPECIFY ALL ELECTRICAL ... CONTROL AND POWER CONDUCTORS SHALL BE PLACED IN SEPARATE CONDUIT		

FINAL FOR APPROVAL
ISSUED
04/01/2021

JOHN N. YAROSLASKI
PRINCIPAL ENGINEER

Project Engineer: John N Yaroslaski PE # 60149
DWG NAME: D:\Ensitu Engineering Inc\EEI - P\444-05 25200 Pacific Coast Highway PWCR\Engineering\Cad Design\444-05.010 25200 Pacific Coast Highway PWCR-06.dwg
CREATION TIME: Monday, April 5, 2021 07:27:32
MOD. TIME: Monday, April 5, 2021 07:30:07
PLOT TIME: Thursday, April 8, 2021 08:33:54

REVISIONS		
NO.	DATE	BY

ENSITU

ENSITU ENGINEERING, INC.
"Dedicated to achieving higher standards in onsite and decentralized wastewater systems."
7475 CARMELITA AVE.
ATASCADERO, CA 93422
Tel: 805.772.0150
Fax: 805.772.0813
ENSITU@ensitu.com

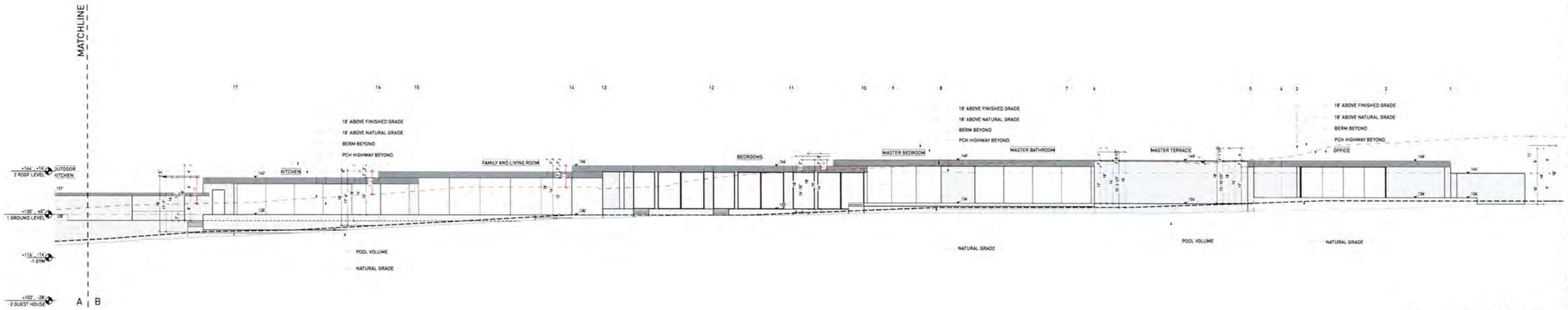
444-05 25200 PACIFIC COAST HIGHWAY: AOWTS CONFORMANCE REVIEW
CR-SITE PLANS AND TABLES 11x17
MALIBU, CALIFORNIA

REGISTERED PROFESSIONAL ENGINEER
JOHN N. YAROSLASKI
60149
EXP 06-2022
CIVIL
STATE OF CALIFORNIA

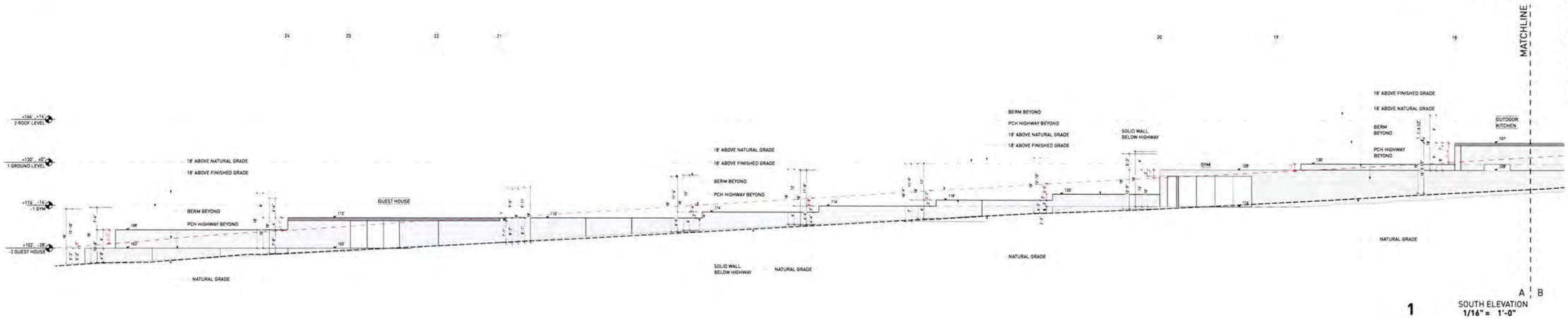
DATE: 04/01/2021
DESIGNED BY: JNY
DRAWN BY: JNY
CHECKED BY: JNY

JOB NO. 444-05

SHEET 1 OF 1



2 SOUTH ELEVATION
1/16" = 1'-0"



1 SOUTH ELEVATION
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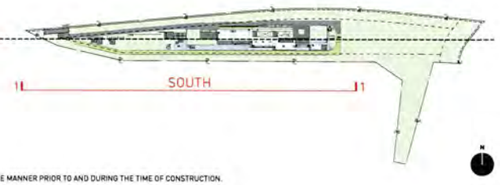
18' ABOVE PROPOSED GRADE
18' ABOVE NATURAL GRADE
EXISTING BERM
WALLS
ROOF

SECTION LINE THROUGH TERRAIN



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107 3/8" THERMOPOLYMER LIMESTONE IN AFTER SAND FINISH, COLOR T.B.D. 3/8" TYPICAL

110 RAMMED EARTH CONSTRUCTION.
111 STONE BENCH.

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210 PROVIDE 2" RECESS ON SLABS ON ALL SHOWERS.
211 OPENING ON CONCRETE SLAB. REFER TO STRUCT. DWGS.

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504 5/8" DWB DROPPED CEILING ON 3/4" FURRING STRIPS. PAINTED DWB. COLOR TBD.
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LIGHTING

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603 POOL LINEAR RECESSED LIGHT. REFER TO LIGHTING DWGS.

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701 AN APPROVED KEY BOX, LISTED IN ACCORDANCE WITH UL 1037 SHALL BE PROVIDED AS REQUIRED BY FIRE CODE 506. THE LOCATION OF EACH KEY BOX SHALL BE DETERMINED BY THE FIRE INSPECTOR.
702 ALL REQUIRED PUBLIC FIRE HYDRANTS SHALL BE INSTALLED, TESTED AND ACCEPTED PRIOR TO BEGINNING CONSTRUCTION. FIRE CODE 501.4
703 PROVIDE AN APPROVED AUTOMATIC FIRE SPRINKLER SYSTEM AS SET FORTH BY BUILDING CODE 903 AND FIRE CODE 9003. PLANS SHALL BE SUBMITTED TO THE SPRINKLER PLAN CHECK UNIT FOR REVIEW AND APPROVAL PRIOR TO INSTALLATION.
704 SMOKE ALARMS SHALL RECEIVE THEIR PRIMARY POWER FROM THE BUILDING WIRING PROVIDED THAT SUCH WIRING IS SERVED FROM A COMMERCIAL SOURCE AND SHALL BE EQUIPPED WITH A BATTERY BACKUP. RESIDENTIAL CODE R314.4
705 WHERE MORE THAN ONE SMOKE ALARM IS REQUIRED TO BE INSTALLED WITHIN AN INDIVIDUAL DWELLING OR SLEEPING UNIT, THE SMOKE ALARMS SHALL BE INTERCONNECTED S/N USCH A MANNER THAT THE ACTIVATION OF ONE ALARM WILL ACTIVATE ALL OF THE ALARMS IN THE INDIVIDUAL UNIT. RESIDENTIAL CODE R314.5
706 APPROVED BUILDING ADDRESS NUMBERS, BUILDING NUMBERS OR APPROVED BUILDING IDENTIFICATION SHALL BE PROVIDED AND MAINTAINED SO AS TO BE PLAINLY VISIBLE AND LEGIBLE FROM THE STREET FRONTING THE PROPERTY. THE MINIMUM OF 4 INCHES HIGH WITH A MINUMM STROKE WIDTH OF 0.5 INCH. FIRE CODE 505.1
707 ALL ROOF COVERINGS SHALL BE CLASS "A" AS SPECIFIED IN BUILDING CODE 1505.1 (RESIDENTIAL CODE R327.5.3 & R902)
708 ROOF VALLEY FLASHINGS SHALL BE NOT LESS THAN 0.019 INCH (NO.26 GALVANIZED SHEET GAGE) CORROSION-RESISTANT METAL INSTALLED OVER A MINIMUM 36-INCH WIDE UNDERLAYMENT CONSISTING OF ONE LAYER OF NO. 72 ASTM CAP SHEET MEETING RUNNING THE FULL LEGHTH OF THE VALLEY (RESIDENTIAL CODE R327.5.3 AND BUILDING CODE 705A.3
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711 CLEARANCE OF BRUSH AND VEGETATIVE GROWTH SHALL BE MAINTAINED PER FIRE CODE 325.
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713 ALL FIRE HYDRANTS SHALL MEASURE 6"" X 4"" X 2-1/2"", BRASS OR BRONZE, CONFORMING TO AMERICAN WATER WORKS ASSOCIATION STANDARD C503, OR APPROVED EQUAL.

Project No

1813

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VILLA COLEAVA

Project Address
25200 Pacific Coast Hwy.
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Property Owner
PAR PCH, LLC
PO Box 6528
Malibu, CA 90265

Design Architect
Oppenheim Architecture
245 NE 37 Street
Miami FL 33137
P 305 576 8404
F 305 576 8433
W oppenoffice.com

Landscape Architect
[place]
3617 exposition boulevard
Los Angeles, CA 90016
P 310-450-8100
F 323-737-3290
W plac-e.com

Civil Engineers
LC Engineering Group
889 Pierce Ct., Ste. 101
Thousand Oaks, CA 91360
P 805-497-1244
P 818-991-7148
W lcegroupinc.com

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Drawing Issued on 03/01/19

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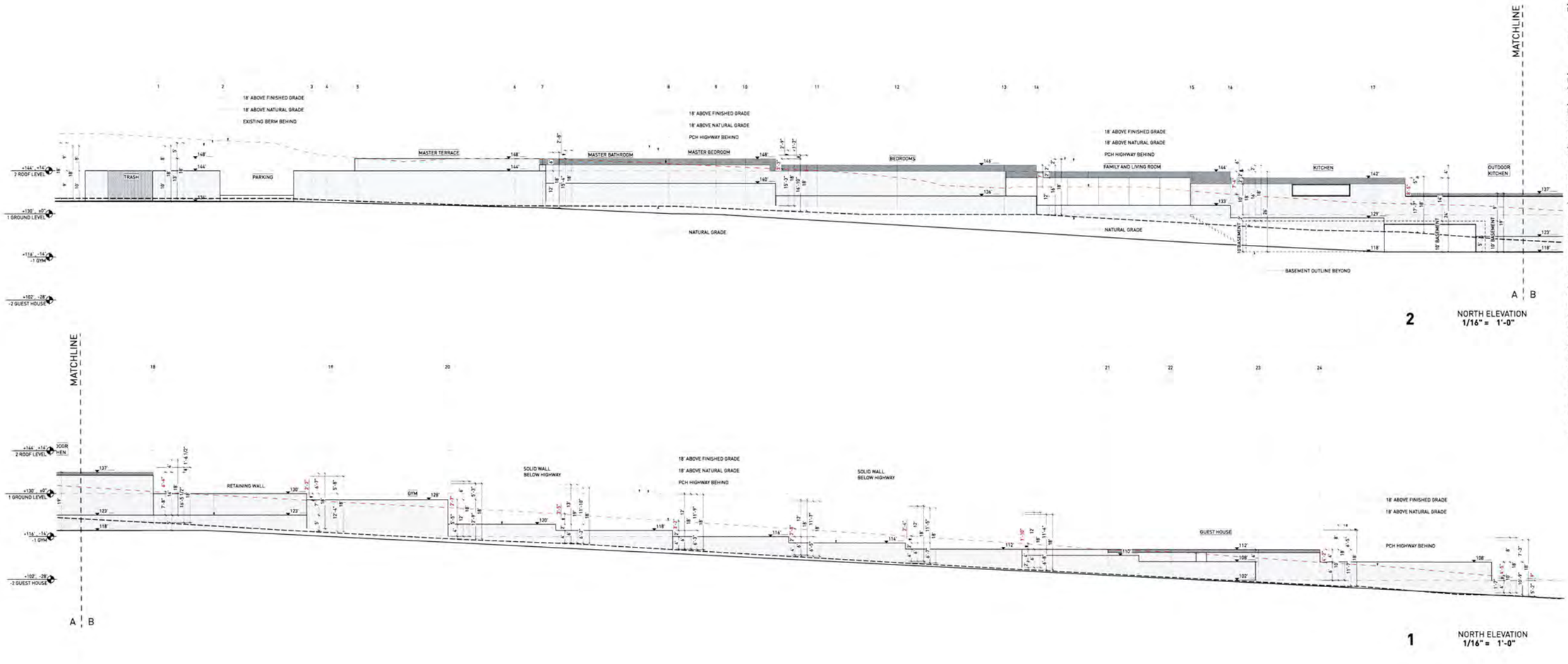

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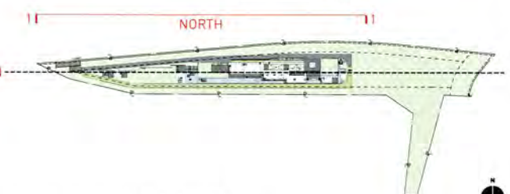

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Malibu, CA 90265

Design Architect
Oppenheim Architecture
245 NE 37 Street
Miami FL 33137
P 305 576 8404
F 305 576 8433
W oppenoffice.com

Landscape Architect
[place]
3617 exposition boulevard
Los Angeles, CA 90016
P 310-450-8100
F 323-737-3290
W plac-e.com

Civil Engineers
LC Engineering Group
889 Pierce Ct., Ste. 101
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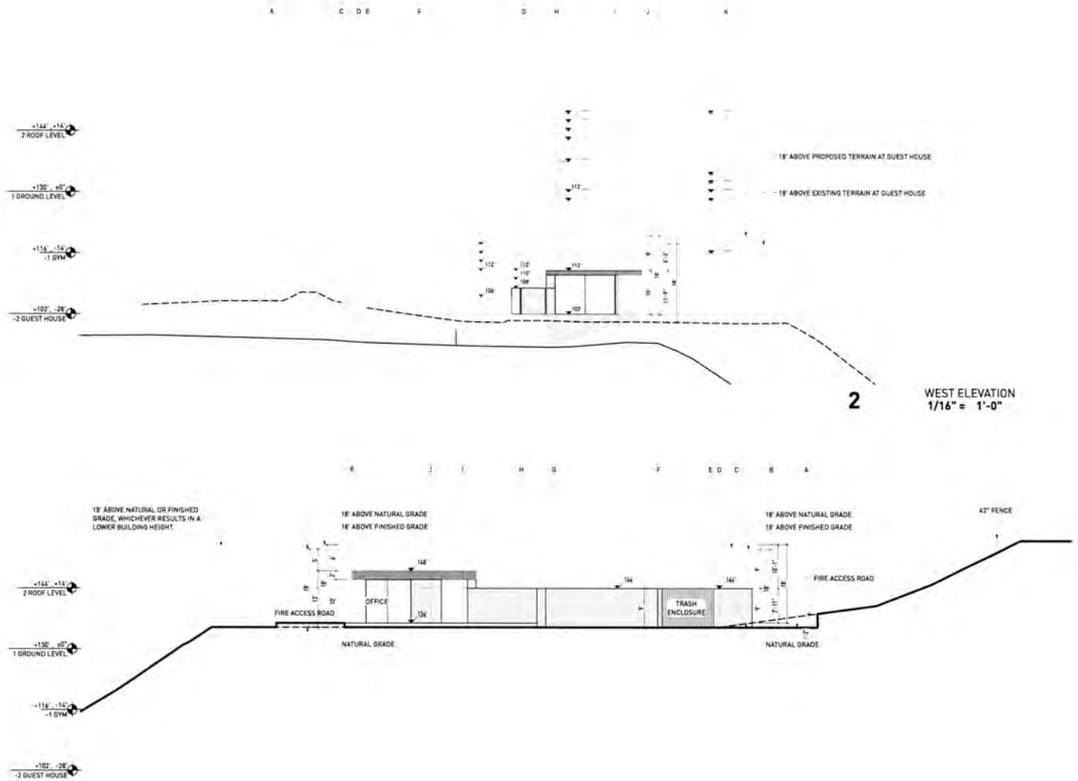

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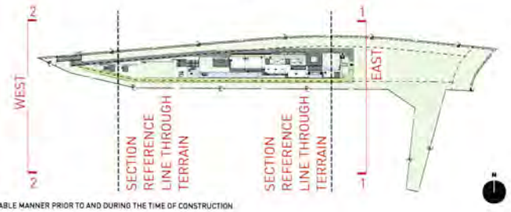

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103 PRE-FABRICATED SKYLIGHT ON CONCRETE CURB. REFER TO WINDOW SCHEDULE. SEE SECTION AND DETAILS.
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704 SMOKE ALARMS SHALL RECEIVE THEIR PRIMARY POWER FROM THE BUILDING WIRING PROVIDED THAT SUCH WIRING IS SERVED FROM A COMMERCIAL SOURCE AND SHALL BE EQUIPPED WITH A BATTERY BACKUP. RESIDENTIAL CODE R314.4
705 WHERE MORE THAN ONE SMOKE ALARM IS REQUIRED TO BE INSTALLED WITHIN AN INDIVIDUAL DWELLING OR SLEEPING UNIT, THE SMOKE ALARMS SHALL BE INTERCONNECTED SIN USCH A MANNER THAT THE ACTIVATION OF ONE ALARM WILL ACTIVATE ALL OF THE ALARMS IN THE INDIVIDUAL UNIT. RESIDENTIAL CODE R314.5
706 APPROVED BUILDING ADDRESS NUMBERS, BUILDING NUMBERS OR APPROVED BUILDING IDENTIFICATION SHALL BE PROVIDED AND MAINTAINED SO AS TO BE PLAINLY VISIBLE AND LEGIBLE FROM THE STREET FRONTING THE PROPERTY. THE MINIMUM OF 4 INCHES HIGH WITH A MINUMM STROKE WIDTH OF 0.5 INCH.. FIRE CODE 505.1
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Project No

1813

Project Name
VILLA COLEAVA

Project Address
25200 Pacific Coast Hwy.
Malibu, California, USA

Property Owner
PAR PCH, LLC
PO Box 6528
Malibu, CA 90265

Design Architect
Oppenheim Architecture
245 NE 37 Street
Miami FL 33137
P 305 576 8404
F 305 576 8433
W oppenoffice.com

Landscape Architect
[place]
3617 exposition boulevard
Los Angeles, CA 90016
P 310-450-8100
F 323-737-3290
W plac-e.com

Civil Engineers
LC Engineering Group
889 Pierce Ct., Ste. 101
Thousand Oaks, CA 91360
P 805-497-1244
P 818-991-7148
W lcegroupinc.com

Revisions

Mark	Date	Description

Title
OVERALL ELEVATIONS

1/16" = 1'-0"

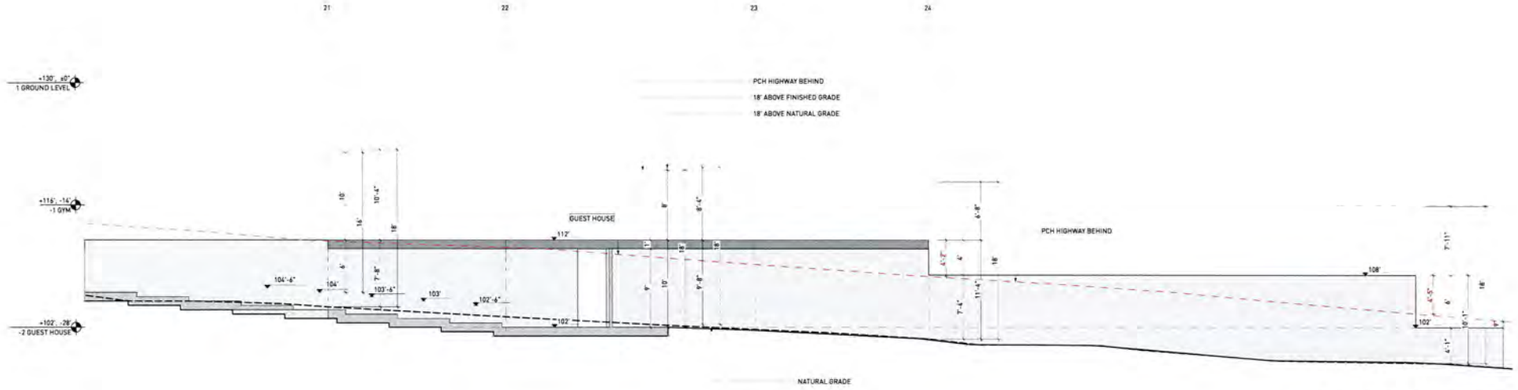
NOT FOR CONSTRUCTION

Design Development

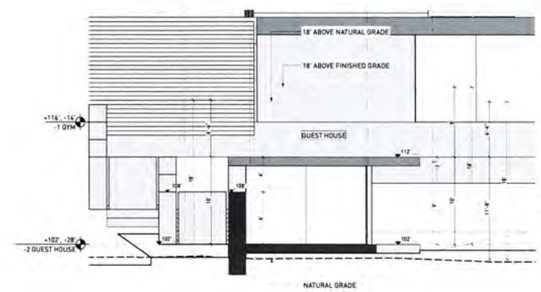
1813
VILLA COLEAVA

Drawing Issued on 03/01/19

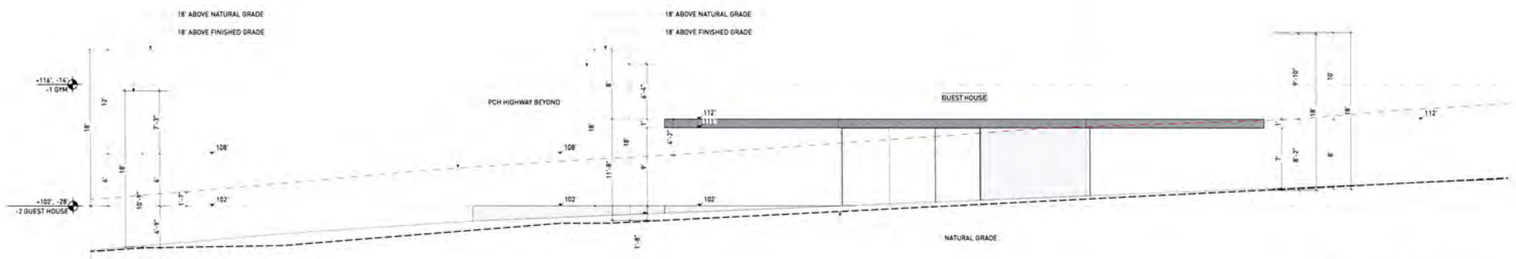
A202



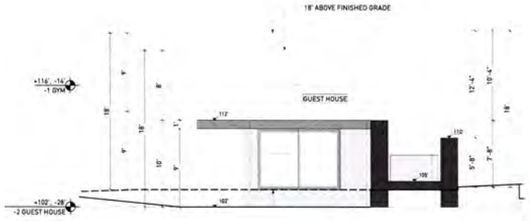
3 GUEST HOUSE - NORTH ELEVATION
1/8" = 1'-0"



4 GUEST HOUSE - WEST ELEVATION
1/8" = 1'-0"

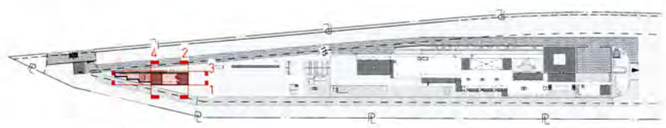


1 GUEST HOUSE - SOUTH ELEVATION
1/8" = 1'-0"



2 GUEST HOUSE - EAST ELEVATION
1/8" = 1'-0"

18' ABOVE PROPOSED GRADE
18' ABOVE NATURAL GRADE
EXISTING BERM
WALLS
ROOF



GUEST HOUSE

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N

Revisions

Mark	Date	Description

Title
ENLARGED GUEST HOUSE ELEVATIONS
1/8" = 1'-0"

NOT FOR CONSTRUCTION

Design Development

1813
VILLA COLEAVA

Drawing Issued on 03/01/19

A203

Project No
1813

Project Name
VILLA COLEAVA

Project Address
25200 Pacific Coast Hwy.
Malibu, California, USA

Property Owner
PAR PCH, LLC
PO Box 6528
Malibu, CA 90265

Design Architect
Oppenheim Architecture
245 NE 37 Street
Miami FL 33137
P 305 576 8404
F 305 576 8433
W oppenoffice.com

Landscape Architect
[place]
3617 exposition boulevard
Los Angeles, CA 90016
P 310-450-8100
F 323-737-3290
W plac-e.com

Civil Engineers
LC Engineering Group
889 Pierce Ct., Ste. 101
Thousand Oaks, CA 91360
P 805-497-1244
P 818-991-7148
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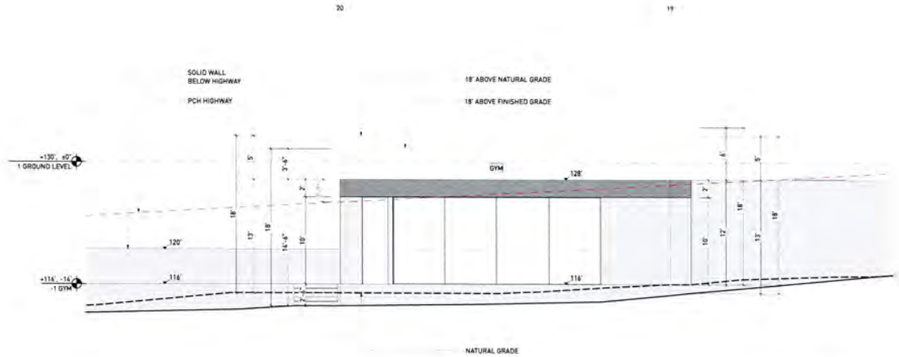

2 SOUTH ELEVATION
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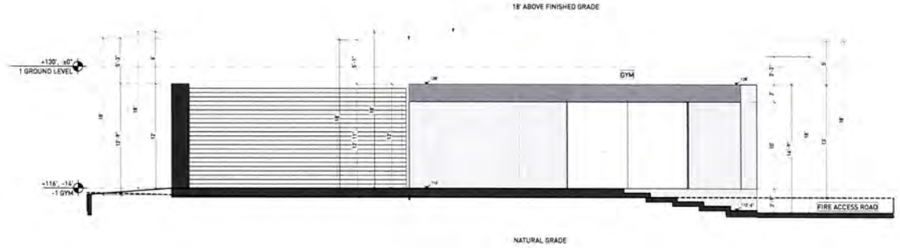

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107 3/8" THERMOFORMED LIMESTONE PLASTER, SAND FINISH, COLOR T.B.D. 3/8" TYPICAL
110 RAMMED EARTH CONSTRUCTION
111 STONE BENCH

STRUCTURAL

200 FOUNDATION AND PILES. REFER TO STRUCT. DWGS.
201 COMPACTED EARTH. REFER TO STRCUT. DWGS.
202 RETAINING WALL. REFER TO STRUCT. DWGS.
203 CONCRETE SLAB. REFER TO STRUCT. DWGS.
204 CONCRETE COLUMN. REFER TO STRUCT. DWGS.
205 CONCRETE BEAM. REFER TO STRUCT. DWGS.
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210 PROVIDE 2" RECESS ON SLABS ON ALL SHOWERS.
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MEP

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302 ROOF DRAIN. REFER TO PLUMBING DWGS. /SEE DETAIL.
303 FLOOR DRAIN, REFER TO PLUMBING DWGS./ SEE DETAIL.
304 DRAIN PIPE TO FIT IN CEILING SPACE, REFER TO PLUMBING DWGS. COORDINATE EXACT LOCATION AND SPECS.
305 KITCHEN HOOD, REFER TO MECH DWGS.
306 KITCHEN HOOD EXHAUST PIPE TO FIT IN CEILING SPACE, REFER TO MECH DWGS. COORDINATE EXACT LOCATION AND SPECS.
307 DESIGNATED POOL EQUIPMENT AREA.
308 GAS WATER HEATER. REFER TO PLUMBING DWGS.
309 ELECTRICAL PANELS. REFER TO ELECTRICAL DWGS.
310 CONDENSER UNITS ON STANDS. REFER TO MECH. DWGS.
311 MINIMUM R-30 BATT INSULATION OR RIGID INSULATION. REFER TO ENERGY CALCULATIONS.
312 ARCHITECTURAL INCH ATRIUM
315 HOSE BIB. REFER TO PLUMBING AND LANDSCAPE DWGS.
316 ELECTRICITY, GAS AND WATER. REFER TO MEP DRAWINGS.
317 MOTORIZED VEHICULAR GATE. REFER TO ELECT. DWGS.
318 ALL TOILETS TO BE WALL HUNG. REFER TO MECH. DWGS.
319 LINEAR DRAIN
320 OVERFLOW SCUPPER.

WATERPROOFING

400 CONTINUOUS VAPOR BARRIER. REFER TO ARCH AND STRUCTURAL DWGS.
401 WATERPROOFING MEMBRANE. REFER TO ARCH AND STRUCTURAL DWGS.
402 POOL FINISH/ COLOR TBD.

MISC. ARCHITECTURAL DETAILS.

500 CURTAIN CEILING COVE. REFER TO ARCH. DETAIL.
501 CONTINUOUS 1/2" TOOLED WATER DRIP. SEE ARCH. DETAIL.
502 VENT.
503 KITCHEN, BUILT-IN FURNITURE, CABINETRY BY OTHERS. REFER TO KITCHEN SHOP DWGS.
504 5/8" GWB DROPPED CEILING ON 3/4" FURRING STRIPS. PAINTED GWB. COLOR TBD.
505 STAINLESS STEEL SCUPPER IN CONCRETE STRUCTURE. 3" X 3" MIN.OPENING. REFER TO ELEVATION AND PLAN FOR LOCATION.
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600 PENDANT LIGHT. REFER TO LIGHTING DWGS.
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702 ALL REQUIRED PUBLIC FIRE HYDRANTS SHALL BE INSTALLED, TESTED AND ACCEPTED PRIOR TO BEGINNING CONSTRUCTION. FIRE CODE 501.4
703 PROVIDE AN APPROVED AUTOMATIC FIRE SPRINKLER SYSTEM AS SET FORTH BY BUILDING CODE 903 AND FIRE CODE 9003. PLANS SHALL BE SUBMITTED TO THE SPRINKLER PLAN CHECK UNIT FOR REVIEW AND APPROVAL PRIOR TO INSTALLATION.
704 SMOKE ALARMS SHALL RECEIVE THEIR PRIMARY POWER FROM THE BUILDING WIRING PROVIDED THAT SUCH WIRING IS SERVED FROM A COMMERCIAL SOURCE AND SHALL BE EQUIPPED WITH A BATTERY BACKUP. RESIDENTIAL CODE R314.4
705 WHERE MORE THAN ONE SMOKE ALARM IS REQUIRED TO BE INSTALLED WITHIN AN INDIVIDUAL DWELLING OR SLEEPING UNIT, THE SMOKE ALARMS SHALL BE INTERCONNECTED SIN USCH A MANNER THAT THE ACTIVATION OF ONE ALARM WILL ACTIVATE ALL OF THE ALARMS IN THE INDIVIDUAL UNIT. RESIDENTIAL CODE R314.5
706 APPROVED BUILDING ADDRESS NUMBERS, BUILDING NUMBERS OR APPROVED BUILDING IDENTIFICATION SHALL BE PROVIDED AND MAINTAINED SO AS TO BE PLAINLY VISIBLE AND LEGIBLE FROM THE STREET FRONTING THE PROPERTY. THE MINIMUM OF 4 INCHES HIGH WITH A MINUMM STROKE WIDTH OF 0.5 INCH. FIRE CODE 505.1
707 ALL ROOF COVERINGS SHALL BE CLASS "A" AS SPECIFIED IN BUILDING CODE 1505.1.1 (RESIDENTIAL CODE R327.5.2 & R902)
708 ROOF VALLEY FLASHINGS SHALL BE NOT LESS THAN 0.019 INCH (NO.26 GALVANIZED SHEET GAGE) CORROSION-RESISTANT METAL INSTALLED OVER A MINIMUM 36-INCH WIDE UNDERLAYMENT CONSISTING OF ONE LAYER OF NO. 72 ASTM CAP SHEET MEETING RUNNING THE FULL LEGHTH OF THE VALLEY (RESIDENTIAL CODE R327.5.3 AND BUILDING CODE 705A.3
709 ROOF GUTTERS SHALL BE PROVIDED WITH A MEANS OTO PREVENT THE ACCUMULATION OF LEAVES AND DEBRIS IN THE GUTTER. (RESIDENTIAL CODE R327.534 AND BUILDING QCODE 705A.4)
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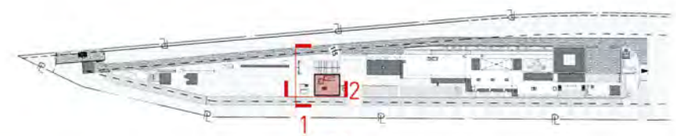
711 CLEARANCE OF BRUSH AND VEGETATIVE GROWTH SHALL BE MAINTAINED PER FIRE CODE 325.
712 PROVIDE APPROVED SIGNS OR OTHER APPROVED NOTICES OR MARKINGS THAT INCLUDE THE WORDS NO PARKING - FIRE LANE. SIGNS SHALL HAVE A MINIMUM DIMENSION OF 12 INCHES WIDE BY 18 INCHES HIGH AND HAVE RED LETTERS ON A WHITE REFLECTIVE BACKGROUND. SIGNS SHALL BE PROVIDED FOR FIRE APPARATUS ACCESS ROADS, TO CLEARLY INDICATE THE ENTRANCE TO SUCH ROAD, OR PROHIBIT THE OBSTRUCTION THEREOF AND AT INTERVALS, AS REQUIRED BY THE FIRE INSPECTOR. FIRE CODE 503.3
713 ALL FIRE HYDRANTS SHALL MEASURE 6"" X 4"" X 2-1/2"", BRASS OR BRONZE, CONFORMING TO AMERICAN WATER WORKS ASSOCIATION STANDARD C503, OR APPROVED EQUAL.

18' ABOVE PROPOSED GRADE
18' ABOVE NATURAL GRADE
EXISTING BERM
WALLS
ROOF



N

Project No

1813

Project Name
VILLA COLEAVA

Project Address
25200 Pacific Coast Hwy.
Malibu, California, USA

Property Owner
PAR PCH, LLC
PO Box 6528
Malibu, CA 90265

Design Architect
Oppenheim Architecture
245 NE 37 Street
Miami FL 33137
P 305 576 8404
F 305 576 8433
W oppenoffice.com

Landscape Architect
[place]
3617 exposition boulevard
Los Angeles, CA 90016
P 310-450-8100
F 323-737-3290
W plac-e.com

Civil Engineers
LC Engineering Group
889 Pierce Ct., Ste. 101
Thousand Oaks, CA 91360
P 805-497-1244
P 818-991-7148
W lcegroupinc.com

Revisions

Mark	Date	Description

Title
ENLARGED GYM ELEVATIONS

1/8" = 1'-0"

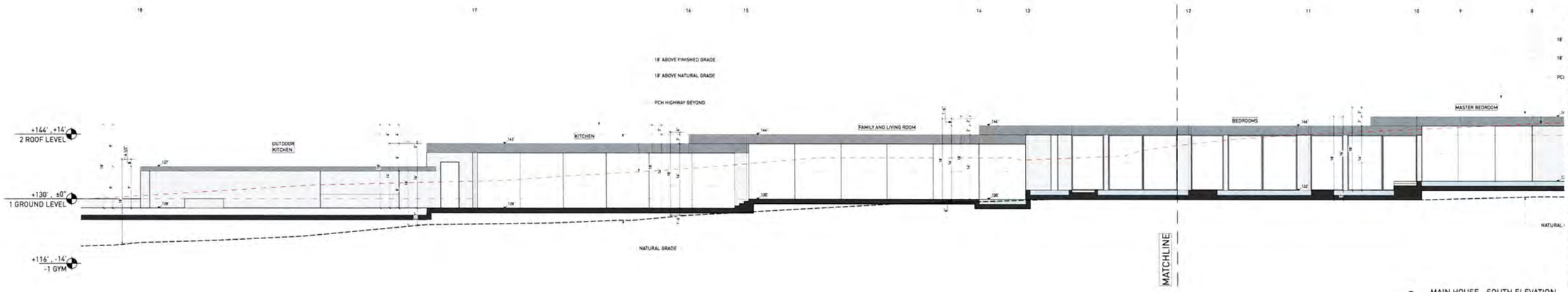
NOT FOR CONSTRUCTION

Design Development

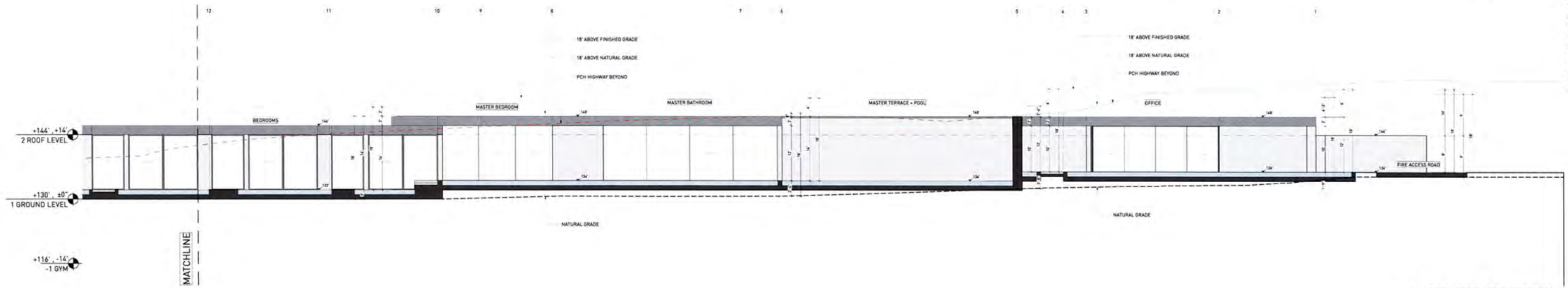
1813
VILLA COLEAVA

Drawing Issued on 03/01/19

A204



2 MAIN HOUSE - SOUTH ELEVATION
3/32" = 1'-0"



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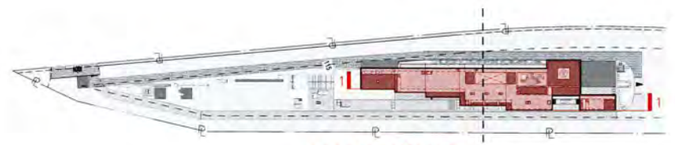
ROOF



MAIN HOUSE

KEY NOTES:

SITE

001 MAINTAIN ALL WATER RUNOFF WITHIN PROPERTY. SLOPE AWAY FROM P.L. AT A MIN. SLOPE OF ¼" /FT., REFER TO CIVIL DWGS.
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Project Name
VILLA COLEAVA

Project Address
25200 Pacific Coast Hwy.
Malibu, California, USA

Property Owner
PAR PCH, LLC
PO Box 6528
Malibu, CA 90265

Design Architect
Oppenheim Architecture
245 NE 37 Street
Miami FL 33137
P 305 576 8404
F 305 576 8433
W oppenoffice.com

Landscape Architect
[place]
3617 exposition boulevard
Los Angeles, CA 90016
P 310-450-8100
F 323-737-3290
W plac-e.com

Civil Engineers
LC Engineering Group
889 Pierce Ct., Ste. 101
Thousand Oaks, CA 91360
P 805-497-1244
P 818-991-7148
W lcegroupinc.com

Revisions

Mark	Date	Description

Title
ENLARGED MAIN HOUSE ELEVATIONS
3/32" = 1'-0"

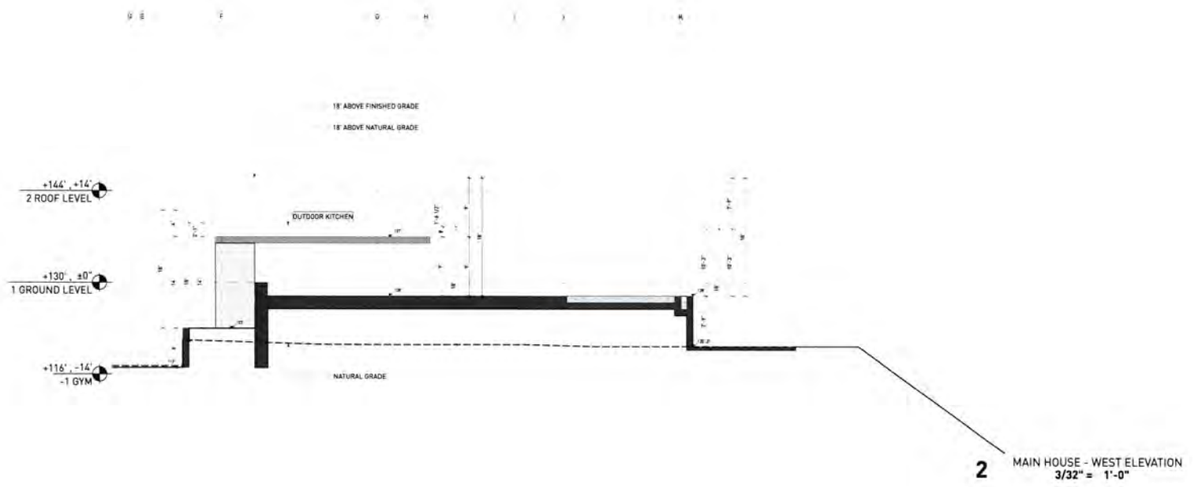
NOT FOR CONSTRUCTION

Design Development

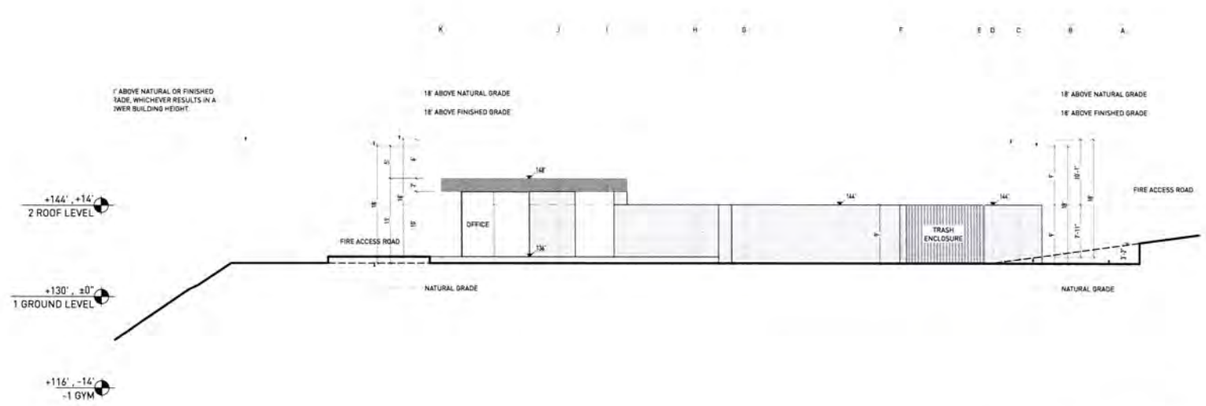
1813
VILLA COLEAVA

Drawing Issued on 03/01/19

A205

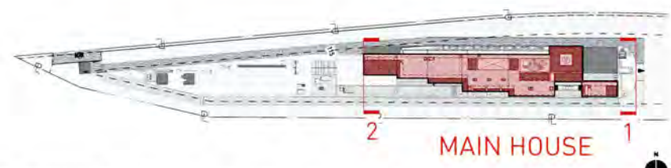


2 MAIN HOUSE - WEST ELEVATION
3/32" = 1'-0"



1 MAIN HOUSE- EAST ELEVATION
3/32" = 1'-0"

18' ABOVE PROPOSED GRADE
18' ABOVE NATURAL GRADE
EXISTING BERM
WALLS
ROOF



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302 ROOF DRAIN. REFER TO PLUMBING DWGS. /SEE DETAIL.
303 FLOOR DRAIN. REFER TO PLUMBING DWGS./ SEE DETAIL.
304 DRAIN PIPE TO FIT IN CEILING SPACE. REFER TO PLUMBING DWGS. COORDINATE EXACT LOCATION AND SPECS.
305 KITCHEN HOOD. REFER TO MECH DWGS.
306 KITCHEN HOOD EXHAUST PIPE TO FIT IN CEILING SPACE. REFER TO MECH DWGS. COORDINATE EXACT LOCATION AND SPECS.
307 DESIGNATED POOL EQUIPMENT AREA.
308 GAS WATER HEATER. REFER TO PLUMBING DWGS.
309 ELECTRICAL PANELS. REFER TO ELECTRICAL DWGS.
310 CONDENSER UNITS ON STANDS. REFER TO MECH. DWGS.
311 MINIMUM R-30 BATT INSULATION OR RIGID INSULATION. REFER TO ENERGY CALCULATIONS.

315 HOSE BIB. REFER TO PLUMBING AND LANDSCAPE DWGS.
316 ELECTRICITY, GAS AND WATER. REFER TO MEP DRAWINGS.
317 MOTORIZED VEHICULAR GATE. REFER TO ELECT. DWGS.
318 ALL TOILETS TO BE WALL HUNG. REFER TO MECH. DWGS.
319 LINEAR DRAIN
320 OVERFLOW SCUPPER

WATERPROOFING

400 CONTINUOUS VAPOR BARRIER. REFER TO ARCH AND STRUCTURAL DWGS.
401 WATERPROOFING MEMBRANE. REFER TO ARCH AND STRUCTURAL DWGS.
402 POOL FINISH/ COLOR TBD.

MISC. ARCHITECTURAL DETAILS

500 CURTAIN CEILING COVE. REFER TO ARCH. DETAIL.
501 CONTINUOUS 1/2" TOOLED WATER DRIP. SEE ARCH. DETAIL.
502 VENT.
503 KITCHEN, BUILT-IN FURNITURE, CABINETRY BY OTHERS. REFER TO KITCHEN SHOP DWGS.
504 5/8" GWB DROPPED CEILING ON 3/4" FURRING STRIPS. PAINTED GWB. COLOR TBD.
505 STAINLESS STEEL SCUPPER IN CONCRETE STRUCTURE. 3" X 3" MIN.OPENING. REFER TO ELEVATION AND PLAN FOR LOCATION.
506 CUSTOM WOOD MILLWORK. REFER TO I.D. DRAWINGS
507 SOLAR PANELS (T.B.D.)
509 CONCEALED LED SCREEN.
510 LADDER ACCESS.

LIGHTING

600 PENDANT LIGHT. REFER TO LIGHTING DWGS.
601 RECESSED DOWN LIGHT. REFER TO LIGHTING DWGS.
602 CONCEALED LINEAR LIGHT. REFER TO LIGHTING DWGS.

FIRE SAFETY

700 FIRE DEPARTMENT VEHICULAR ACCESS ROADS MUST BE INSTALLED AND MAINTAINED IN A SERVICEABLE MANNER PRIOR TO AND DURING THE TIME OF CONSTRUCTION. FIRE CODE 5001.4
701 AN APPROVED KEY BOX, LISTED IN ACCORDANCE WITH UL 1037 SHALL BE PROVIDED AS REQUIRED BY FIRE CODE 506. THE LOCATION OF EACH KEY BOX SHALL BE DETERMINED BY THE FIRE INSPECTOR.
702 ALL REQUIRED PUBLIC FIRE HYDRANTS SHALL BE INSTALLED, TESTED AND ACCEPTED PRIOR TO BEGINNING CONSTRUCTION. FIRE CODE 501.4
703 PROVIDE AN APPROVED AUTOMATIC FIRE SPRINKLER SYSTEM AS SET FORTH BY BUILDING CODE 903 AND FIRE CODE 9003. PLANS SHALL BE SUBMITTED TO THE SPRINKLER PLAN CHECK UNIT FOR REVIEW AND APPROVAL PRIOR TO INSTALLATION.
704 SMOKE ALARMS SHALL RECEIVE THEIR PRIMARY POWER FROM THE BUILDING WIRING PROVIDED THAT SUCH WIRING IS SERVED FROM A COMMERCIAL SOURCE AND SHALL BE EQUIPPED WITH A BATTERY BACKUP. RESIDENTIAL CODE R314.4
705 WHERE MORE THAN ONE SMOKE ALARM IS REQUIRED TO BE INSTALLED WITHIN AN INDIVIDUAL DWELLING OR SLEEPING UNIT, THE SMOKE ALARMS SHALL BE INTERCONNECTED SIN USCH A MANNER THAT THE ACTIVATION OF ONE ALARM WILL ACTIVATE ALL OF THE ALARMS IN THE INDIVIDUAL UNIT. RESIDENTIAL CODE R314.5
706 APPROVED BUILDING ADDRESS NUMBERS, BUILDING NUMBERS OR APPROVED BUILDING IDENTIFICATION SHALL BE PROVIDED AND MAINTAINED SO AS TO BE PLAINLY VISIBLE AND LEGIBLE FROM THE STREET FRONTING THE PROPERTY. THE MINIMUM OF 4 INCHES HIGH WITH A MINUMM STROKE WIDTH OF 0.5 INCH. FIRE CODE 505.1
707 ALL ROOF COVERINGS SHALL BE CLASS "A" AS SPECIFIED IN BUILDING CODE 1505.1.1 (RESIDENTIAL CODE R327.5.2 & R902)
708 ROOF VALLEY FLASHINGS SHALL BE NOT LESS THAN 0.019 INCH (NO.26 GALVANIZED SHEET GAGE) CORROSION-RESISTANT METAL INSTALLED OVER A MINIMUM 36-INCH WIDE UNDERLAYMENT CONSISTING OF ONE LAYER OF NO. 72 ASTM CAP SHEET MEETING RUNNING THE FULL LEGHTH OF THE VALLEY (RESIDENTIAL CODE R327.5.3 AND BUILDING CODE 705A.3
709 ROOF GUTTERS SHALL BE PROVIDED WITH A MEANS OTO PREVENT THE ACCUMULATION OF LEAVES AND DEBRIS IN THE GUTTER. (RESIDENTIAL CODE R327.5.3& AND BUILDING GCODE 705A.4)
710 VENTS SHALL RESIST THE INTRUSION OF FLAME AND EMBERS AND FLAME THROUGH THE VENTILATION OPENINGS. VENT OPENINGS SHALL BE PROTECTED BY CORROSION - RESISTANT, NONCOMBUSTIBLE WIRE MESH WITH A MINIMUM 1/16TH INCH OPENINGS AND SHALL NOT EXCEED 1/8TH INCH. VENTS SHALL NOT BE INSTALLED IN EAVES OR CORNICES. (RESIDENTIAL CODE R327.6.1 AND BUILDING CODE 706A.1)
711 CLEARANCE OF BRUSH AND VEGETATIVE GROWTH SHALL BE MAINTAINED PER FIRE CODE 325.
712 PROVIDE APPROVED SIGNS OR OTHER APPROVED NOTICES OR MARKINGS THAT INCLUDE THE WORDS NO PARKING - FIRE LANE. SIGNS SHALL HAVE A MINIMUM DIMENSION OF 12 INCHES WIDE BY 18 INCHES HIGH AND HAVE RED LETTERS ON A WHITE REFLECTIVE BACKGROUND. SIGNS SHALL BE PROVIDED FOR FIRE APPARATUS ACCESS ROADS, TO CLEARLY INDICATE THE ENTRANCE TO SUCH ROAD, OR PROHIBIT THE OBSTRUCTION THEREOF AND AT INTERVALS, AS REQUIRED BY THE FIRE INSPECTOR. FIRE CODE 503.3.
713 ALL FIRE HYDRANTS SHALL MEASURE 6"" X 4"" X 2-1/2"", BRASS OR BRONZE, CONFORMING TO AMERICAN WATER WORKS ASSOCIATION STANDARD C503, OR APPROVED EQUAL.

Project No

1813

Project Name
VILLA COLEAVA

Project Address
25200 Pacific Coast Hwy.
Malibu, California, USA

Property Owner
PAR PCH, LLC
PO Box 6528
Malibu, CA 90265

Design Architect
Oppenheim Architecture
245 NE 37 Street
Miami FL 33137
P 305 576 8404
F 305 576 8433
W oppenoffice.com

Landscape Architect
[place]
3617 exposition boulevard
Los Angeles, CA 90016
P 310-450-8100
F 323-737-3290
W plac-e.com

Civil Engineers
LC Engineering Group
889 Pierce Ct., Ste. 101
Thousand Oaks, CA 91360
P 805-497-1244
P 818-991-7148
W lcegroupinc.com

Revisions

Mark	Date	Description

Title
ENLARGED MAIN HOUSE ELEVATIONS
3/32" = 1'-0"

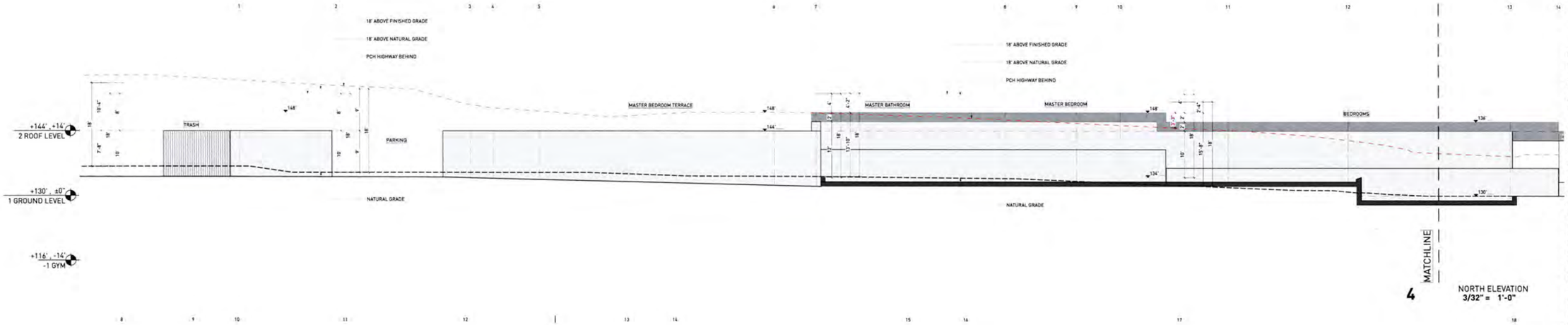
NOT FOR CONSTRUCTION

Design Development

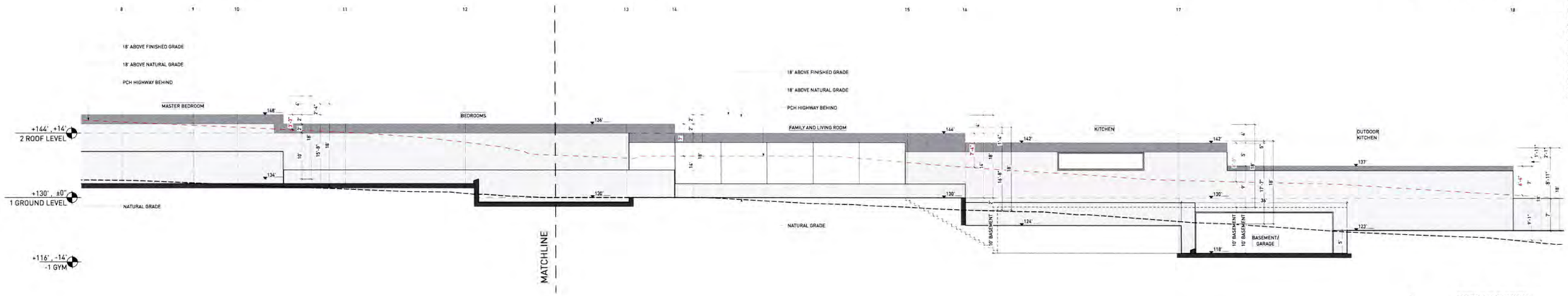
1813
VILLA COLEAVA

Drawing Issued on 03/01/19

A206

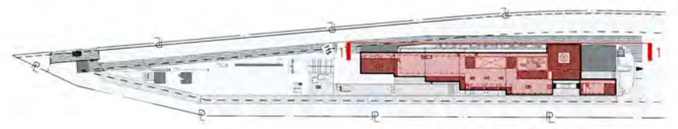


4 NORTH ELEVATION
3/32" = 1'-0"



5 NORTH ELEVATION
3/32" = 1'-0"

18' ABOVE PROPOSED GRADE
18' ABOVE NATURAL GRADE
EXISTING BERM
WALLS
ROOF



MAIN HOUSE

KEY NOTES:

SITE

001 MAINTAIN ALL WATER RUNOFF WITHIN PROPERTY. SLOPE AWAY FROM P.L. AT A MIN. SLOPE OF ¼" /FT., REFER TO CIVIL DWGS.
002 TREES/LANDSCAPING PLANTING/GROUND COVER/LAWN, REFER TO LANDSCAPE DWGS.
003 HEDGE. REFER TO LANDSCAPE DWGS.
004 HARDSCAPE. REFER TO LANDSCAPE DWGS.
005 DRIVEWAY GRAVEL ON GRADE. REFER TO CIVIL & LANDSCAPE DWGS.
006 WOOD DECK, SIZE OF PLANKS T.B.D. FINISH T.B.D.
007 UNDERGROUND DRAINAGE SYSTEM. REFER TO CIVIL DWGS.
008 INFINITY POOL EDGE.
009 OPEN PARKING, REFER TO CIVIL FOR DETAILS.
010 6'-0" SITE RETAINING WALL. REFER TO STRUCTURAL AND LANDSCAPE DWGS.
011 PEDESTRIAN GATE DOOR. PROVIDE SHOP DWGS. FOR ARCHITECT REVIEW.
012 42" MOTORIZED VEHICULAR SLIDING ENTRY GATE. STEEL FRAME. 90% VISUALLY PERMEABLE.
013 42" PERIMETER FENCE. 90% VISUALLY PERMEABLE.
014 CALL BOX.
015 TRASH ENCLOSURE AREA.
016 STRUCTURAL GRASS DRIVEWAY. GRASSCRETE OR SIMILAR. REFER TO CIVIL & LANDSCAPE DWGS.
017 GENERATOR ON EXISTING CONCRETE PLINTH, BOTTOM OF GENERATOR TO BE ABOVE BFE +1'. REFER TO ELECTRICAL DWGS.
018 A/C CONDENSER UNITS BEHIND LANDSCAPE, BOTTOM OF UNITS TO BE ABOVE BFE +1'. REFER TO MECHANICAL DWGS.
019 NATURAL LAWN AREA. REFER TO LANDSCAPE DWGS.

MATERIALS

100 ARCHITECTURAL EXPOSED CONCRETE, COLOR T.B.D. REFER TO STRUCTURAL DRAWINGS AND ARCHITECTURAL DETAILS.
101 CUSTOM WOOD DOOR. REFER TO DOOR SCHEDULE.
102 IMPACT RESISTANT SLIDING ALUMINUM WINDOWS / DOORS SYSTEM, LOW-E COATING. REFER TO WINDOW SCHEDULE.
103 PRE-FABRICATED SKYLIGHT ON CONCRETE CURB. REFER TO WINDOW SCHEDULE. SEE SECTION AND DETAILS.
104 GARAGE STEEL DOOR CLADDED WITH CUSTOM CONCRETE PANELS. REFER TO DOOR SCHEDULE.
105 GRAVEL.
106 5/8" G.W.B., FINISH T.B.D.; REFER TO I.D. DWGS.

110 RAMMED EARTH CONSTRUCTION
111 STONE BENCH.

STRUCTURAL

200 FOUNDATION AND PILES. REFER TO STRUCT. DWGS.
201 COMPACTED EARTH. REFER TO STRCUT. DWGS.
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205 CONCRETE BEAM. REFER TO STRUCT. DWGS.
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209 8" CMU REINFORCED WALL. REFER TO WALL TYPES AND STRUCT. DWGS
210 PROVIDE 2" RECESS ON SLABS ON ALL SHOWERS.
211 OPENING ON CONCRETE SLAB. REFER TO STRUCT. DWGS.

MEP

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Project No

1813

Project Name
VILLA COLEAVA

Project Address
25200 Pacific Coast Hwy.
Malibu, California, USA

Property Owner
PAR PCH, LLC
PO Box 6528
Malibu, CA 90265

Design Architect
Oppenheim Architecture
245 NE 37 Street
Miami FL 33137
P 305 576 8404
F 305 576 8433
W oppenoffice.com

Landscape Architect
[place]
3617 exposition boulevard
Los Angeles, CA 90016
P 310-450-8100
F 323-737-3290
W plac-e.com

Civil Engineers
LC Engineering Group
889 Pierce Ct., Ste. 101
Thousand Oaks, CA 91360
P 805-497-1244
P 818-991-7148
W lcegroupinc.com

Revisions

Mark	Date	Description

Title
ENLARGED MAIN HOUSE ELEVATIONS
3/32" = 1'-0"

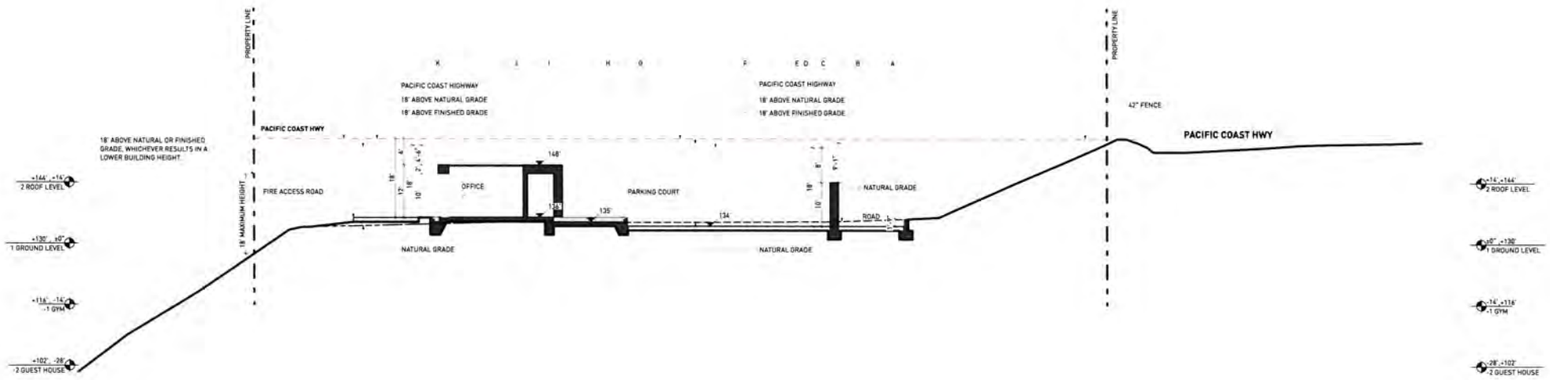
NOT FOR CONSTRUCTION

Design Development

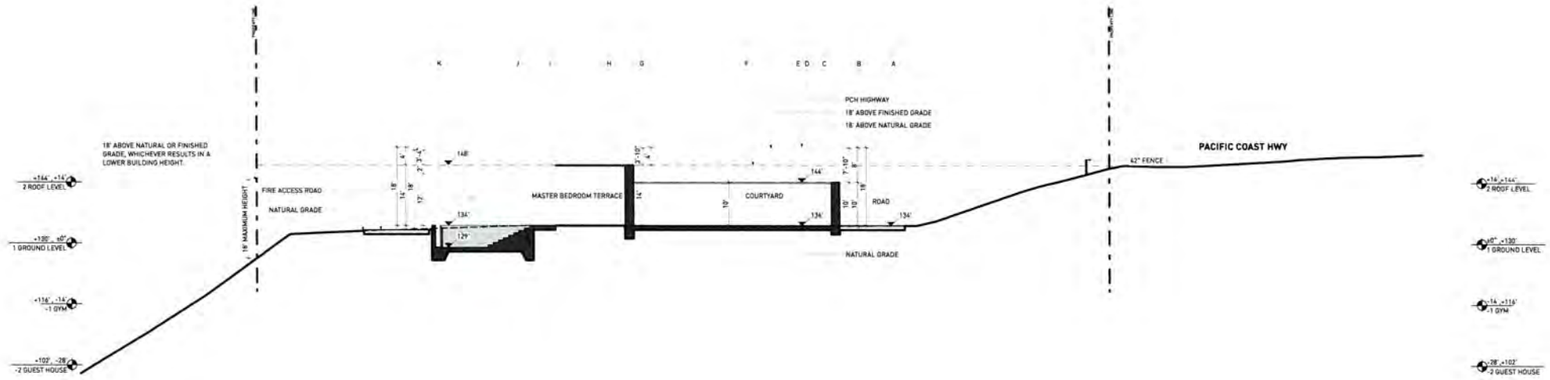
1813
VILLA COLEAVA

Drawing Issued on 03/01/19

A207

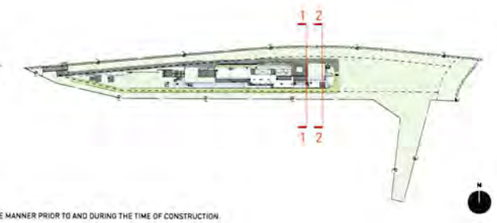


2 CROSS SECTION
1/16" = 1'-0"



1 CROSS SECTION
1/16" = 1'-0"

18' ABOVE PROPOSED GRADE
18' ABOVE NATURAL GRADE
EXISTING BERM



KEY NOTES:

SITE
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602 CONCEALED LINEAR LIGHT. REFER TO LIGHTING DWGS.

FIRE SAFETY
700 FIRE DEPARTMENT VEHICULAR ACCESS ROADS MUST BE INSTALLED AND MAINTAINED IN A SERVICEABLE MANNER PRIOR TO AND DURING THE TIME OF CONSTRUCTION. FIRE CODE 5001.4
701 AN APPROVED KEY BOX, LISTED IN ACCORDANCE WITH UL 1037 SHALL BE PROVIDED AS REQUIRED BY FIRE CODE 506. THE LOCATION OF EACH KEY BOX SHALL BE DETERMINED BY THE FIRE INSPECTOR.
702 ALL REQUIRED PUBLIC FIRE HYDRANTS SHALL BE INSTALLED, TESTED AND ACCEPTED PRIOR TO BEGINNING CONSTRUCTION. FIRE CODE 501.4
703 PROVIDE AN APPROVED AUTOMATIC FIRE SPRINKLER SYSTEM AS SET FORTH BY BUILDING CODE 903 AND FIRE CODE 9003. PLANS SHALL BE SUBMITTED TO THE SPRINKLER PLAN CHECK UNIT FOR REVIEW AND APPROVAL PRIOR TO INSTALLATION.
704 SMOKE ALARMS SHALL RECEIVE THEIR PRIMARY POWER FROM THE BUILDING WIRING PROVIDED THAT SUCH WIRING IS SERVED FROM A COMMERCIAL SOURCE AND SHALL BE EQUIPPED WITH A BATTERY BACKUP. RESIDENTIAL CODE R314.4
705 WHERE MORE THAN ONE SMOKE ALARM IS REQUIRED TO BE INSTALLED WITHIN AN INDIVIDUAL DWELLING OR SLEEPING UNIT, THE SMOKE ALARMS SHALL BE INTERCONNECTED SIN USCH A MANNER THAT THE ACTIVATION OF ONE ALARM WILL ACTIVATE ALL OF THE ALARMS IN THE INDIVIDUAL UNIT. RESIDENTIAL CODE R314.5
706 APPROVED BUILDING ADDRESS NUMBERS, BUILDING NUMBERS OR APPROVED BUILDING IDENTIFICATION SHALL BE PROVIDED AND MAINTAINED SO AS TO BE PLAINLY VISIBLE AND LEGIBLE FROM THE STREET FRONTING THE PROPERTY. THE MINIMUM OF 4 INCHES HIGH WITH A MINIMUM STROKE WIDTH OF 0.5 INCH. FIRE CODE 505.1
707 ALL ROOF COVERINGS SHALL BE CLASS "A" AS SPECIFIED IN BUILDING CODE 1505.1 [RESIDENTIAL CODE R327.5.2 & R902]
708 ROOF VALLEY FLASHINGS SHALL BE NOT LESS THAN 0.019 INCH [NO.26 GALVANIZED SHEET GAGE] CORROSION-RESISTANT METAL INSTALLED OVER A MINIMUM 36-INCH WIDE UNDERLAYMENT CONSISTING OF ONE LAYER OF NO. 72 ASTM CAP SHEET MEETING RUNNING THE FULL LEGHTH OF THE VALLEY [RESIDENTIAL CODE R327.5.3 AND BUILDING CODE 705A.3
709 ROOF GUTTERS SHALL BE PROVIDED WITH A MEANS OTO PREVENT THE ACCUMULATION OF LEAVES AND DEBRIS IN THE GUTTER. [RESIDENTIAL CODE R327.5.3A AND BUILDING GCODE 705A.4]
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711 CLEARANCE OF BRUSH AND VEGETATIVE GROWTH SHALL BE MAINTAINED PER FIRE CODE 325.
712 PROVIDE APPROVED SIGNS OR OTHER APPROVED NOTICES OR MARKINGS THAT INCLUDE THE WORDS NO PARKING - FIRE LANE. SIGNS SHALL HAVE A MINIMUM DIMENSION OF 12 INCHES WIDE BY 18 INCHES HIGH AND HAVE RED LETTERS ON A WHITE REFLECTIVE BACKGROUND. SIGNS SHALL BE PROVIDED FOR FIRE APPARATUS ACCESS ROADS, TO CLEARLY INDICATE THE ENTRANCE TO SUCH ROAD, OR PROHIBIT THE OBSTRUCTION THEREOF AND AT INTERVALS, AS REQUIRED BY THE FIRE INSPECTOR. FIRE CODE 503.3.
713 ALL FIRE HYDRANTS SHALL MEASURE 6"" X 4"" X 2-1/2"", BRASS OR BRONZE, CONFORMING TO AMERICAN WATER WORKS ASSOCIATION STANDARD C503, OR APPROVED EQUAL.

Project No
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Project Address
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Property Owner
PAR PCH, LLC
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Malibu, CA 90265

Design Architect
Oppenheim Architecture
245 NE 37 Street
Miami FL 33137
P 305 576 8404
F 305 576 8433
W oppenoffice.com

Landscape Architect
[place]
3617 exposition boulevard
Los Angeles, CA 90016
P 310-450-8100
F 323-737-3290
W plac-e.com

Civil Engineers
LC Engineering Group
889 Pierce Ct., Ste. 101
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P 805-497-1244
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Revisions

Mark	Date	Description

Title
CROSS SECTIONS

1/16" = 1'-0"

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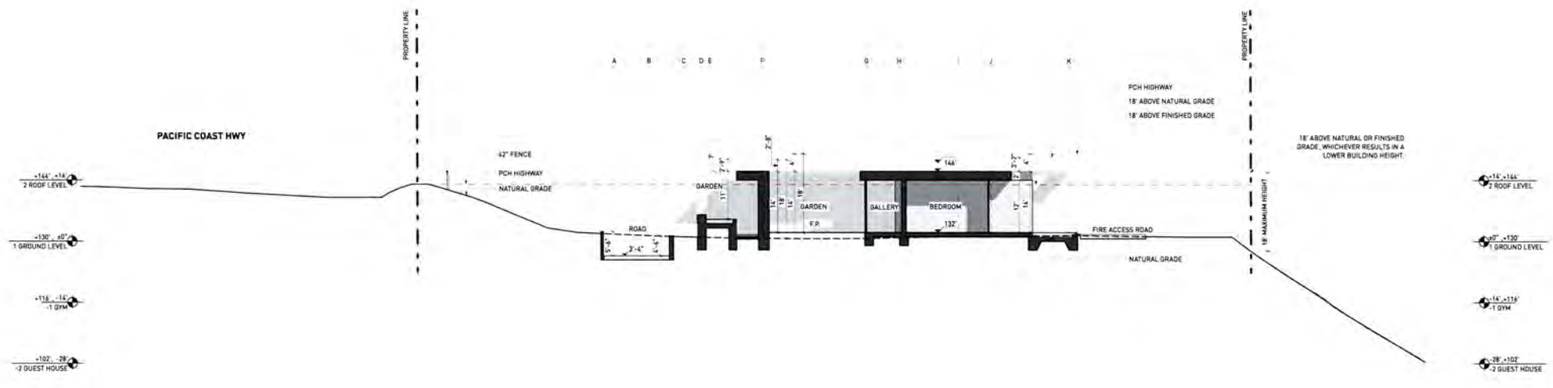
Drawing Issued on 03/01/19

A300



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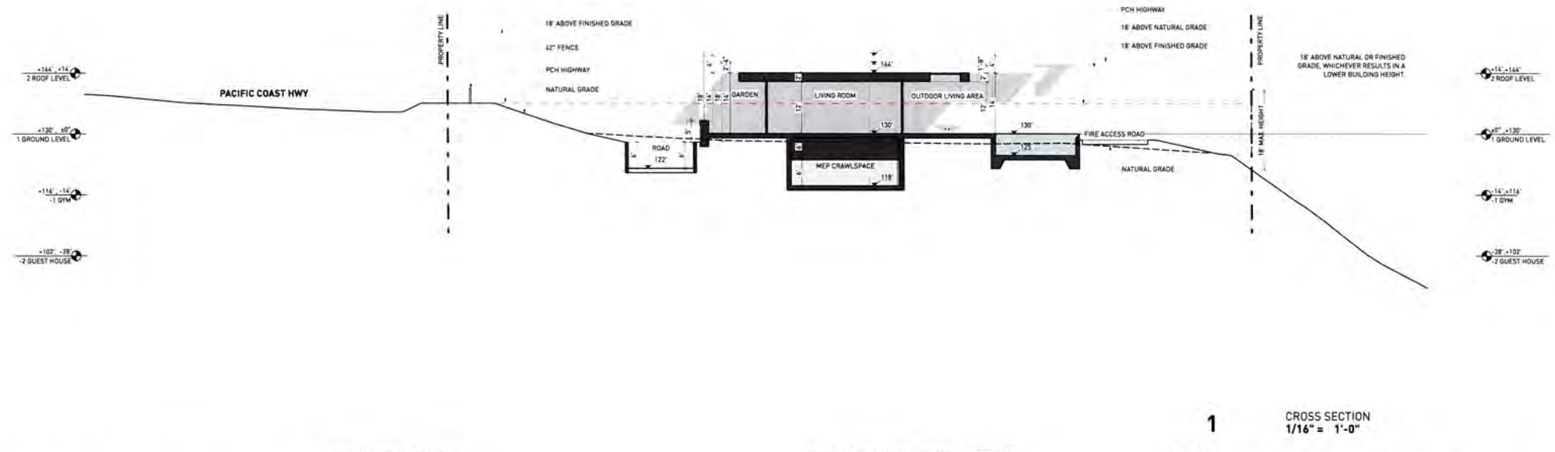

18' ABOVE PROPOSED GRADE
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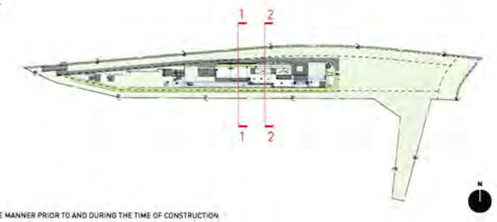

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VILLA COLEAVA

Project Address
25200 Pacific Coast Hwy.
Malibu, California, USA

Property Owner
PAR PCH, LLC
PO Box 6528
Malibu, CA 90265

Design Architect
Oppenheim Architecture
245 NE 37 Street
Miami FL 33137
P 305 576 8404
F 305 576 8433
W oppenoffice.com

Landscape Architect
[place]
3617 exposition boulevard
Los Angeles, CA 90016
P 310-450-8100
F 323-737-3290
W plac-e.com

Civil Engineers
LC Engineering Group
889 Pierce Ct., Ste. 101
Thousand Oaks, CA 91360
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Revisions

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1/16" = 1'-0"

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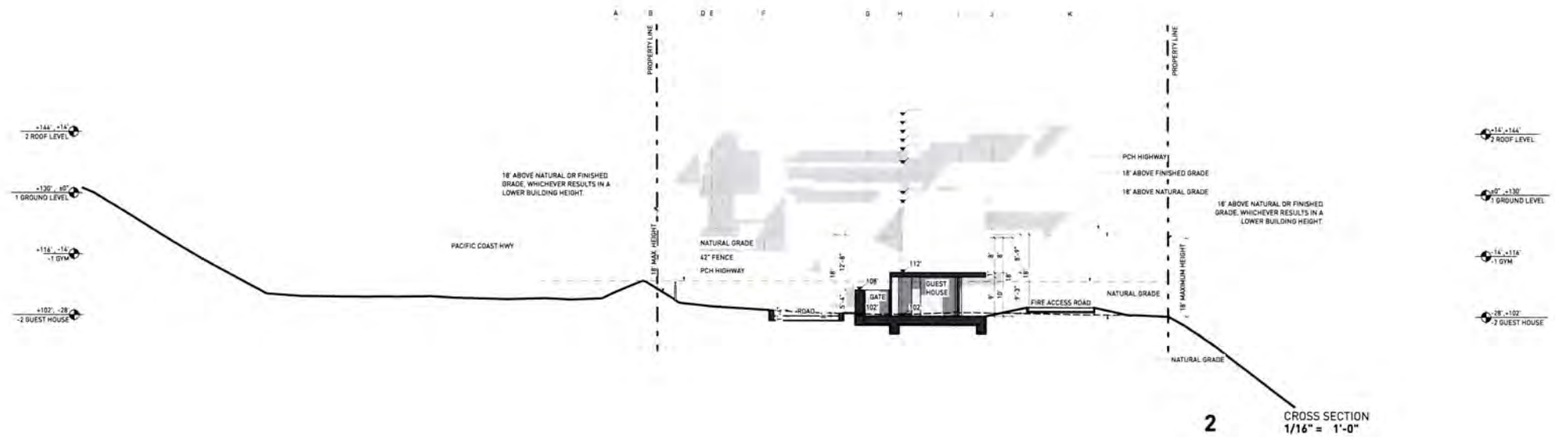
Drawing Issued on 03/01/19

A301



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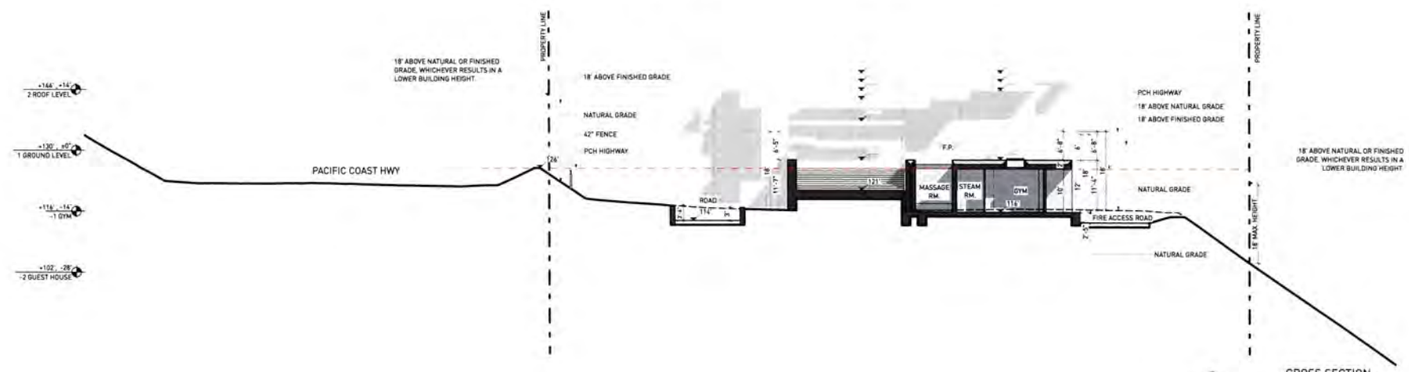

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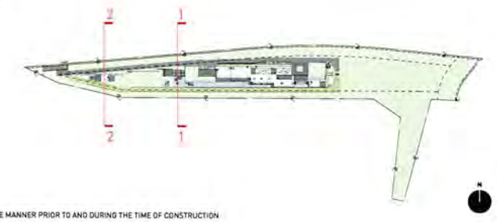
18' ABOVE NATURAL GRADE
EXISTING BERM



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708 ROOF VALLEY FLASHINGS SHALL BE NOT LESS THAN 0.019 INCH (NO.26 GALVANIZED SHEET GAGE) CORROSION-RESISTANT METAL INSTALLED OVER A MINIMUM 36-INCH WIDE UNDERLAYMENT CONSISTING OF ONE LAYER OF NO. 72 ASTM CAP SHEET MEETING RUNNING THE FULL LEGHTH OF THE VALLEY.(RESIDENTIAL CODE R327.5.3 AND BUILDING CODE 705A.3
709 ROOF GUTTERS SHALL BE PROVIDED WITH A MEANS OTO PREVENT THE ACCUMULATION OF LEAVES AND DEBRIS IN THE GUTTER. (RESIDENTIAL CODE R327.5.5& AND BUILDING GCODE 705A.4)
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711 CLEARANCE OF BRUSH AND VEGETATIVE GROWTH SHALL BE MAINTAINED PER FIRE CODE 325.
712 PROVIDE APPROVED SIGNS OR OTHER APPROVED NOTICES OR MARKINGS THAT INCLUDE THE WORDS NO PARKING - FIRE LANE. SIGNS SHALL HAVE A MINIMUM DIMENSION OF 12 INCHES WIDE BY 18 INCHES HIGH AND HAVE RED LETTERS ON A WHITE REFLECTIVE BACKGROUND. SIGNS SHALL BE PROVIDED FOR FIRE APPARATUS ACCESS ROADS, TO CLEARLY INDICATE THE ENTRANCE TO SUCH ROAD, OR PROHIBIT THE OBSTRUCTION THEREOF AND AT INTERVALS, AS REQUIRED BY THE FIRE INSPECTOR. FIRE CODE 503.3.
713 ALL FIRE HYDRANTS SHALL MEASURE 6"" X 4"" X 2-1/2"", BRASS OR BRONZE, CONFORMING TO AMERICAN WATER WORKS ASSOCIATION STANDARD C503, OR APPROVED EQUAL.

Project No
1813

Project Name
VILLA COLEAVA

Project Address
25200 Pacific Coast Hwy.
Malibu, California, USA

Property Owner
PAR PCH, LLC
PO Box 6528
Malibu, CA 90265

Design Architect
Oppenheim Architecture
245 NE 37 Street
Miami FL 33137
P 305 576 8404
F 305 576 8433
W oppenoffice.com

Landscape Architect
[place]
3617 exposition boulevard
Los Angeles, CA 90016
P 310-450-8100
F 323-737-3290
W plac-e.com

Civil Engineers
LC Engineering Group
889 Pierce Ct., Ste. 101
Thousand Oaks, CA 91360
P 805-497-1244
P 818-991-7148
W lcegroupinc.com

Revisions

Mark	Date	Description

N

Title
CROSS SECTIONS

1/16" = 1'-0"

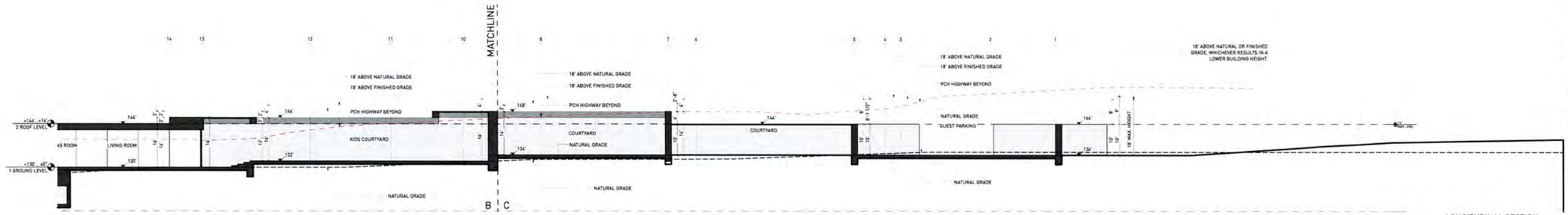
NOT FOR CONSTRUCTION

Design Development

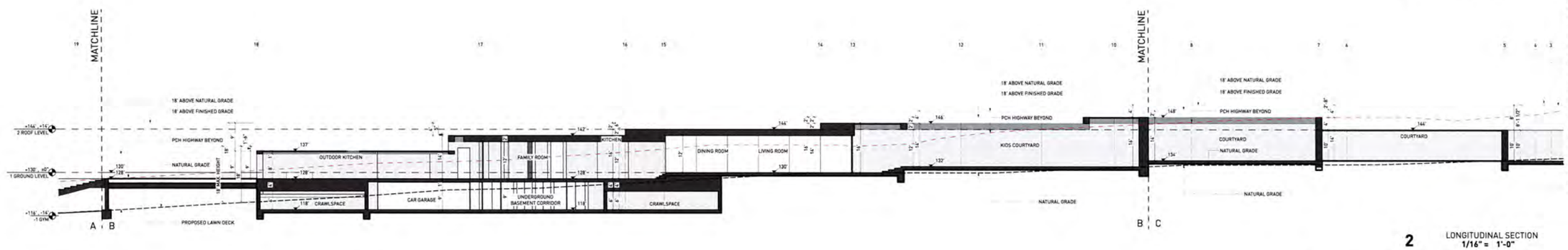
1813
VILLA COLEAVA

Drawing Issued on 03/01/19

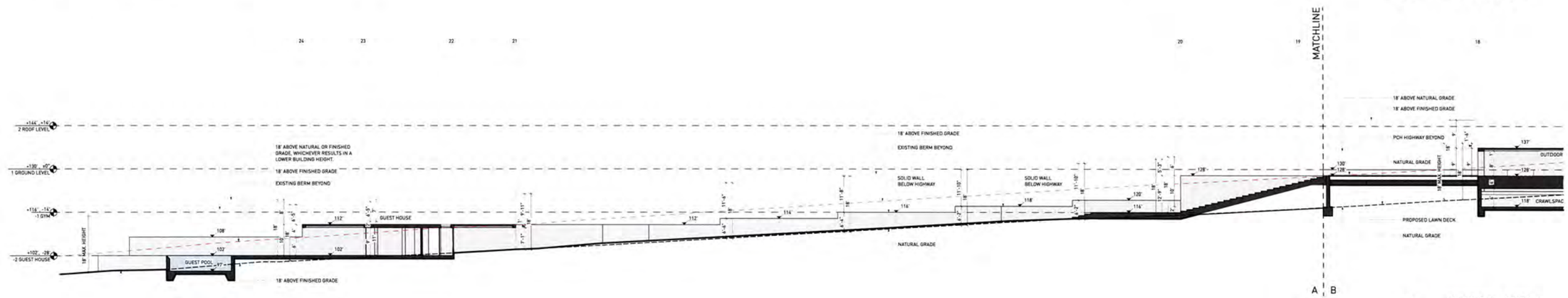
A302



3 LONGITUDINAL SECTION
1/16" = 1'-0"



2 LONGITUDINAL SECTION
1/16" = 1'-0"



1 LONGITUDINAL SECTION
1/16" = 1'-0"

18' ABOVE PROPOSED GRADE
18' ABOVE NATURAL GRADE
EXISTING BERM



KEY NOTES:

SITE
001 MAINTAIN ALL WATER RUNOFF WITHIN PROPERTY. SLOPE AWAY FROM P.L. AT A MIN. SLOPE OF ¼" /FT., REFER TO CIVIL DWGS.
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003 HEDGE. REFER TO LANDSCAPE DWGS.
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007 UNDERGROUND DRAINAGE SYSTEM. REFER TO CIVIL DWGS.
008 INFINITY POOL EDGE.
009 OPEN PARKING, REFER TO CIVIL FOR DETAILS
010 6'-0" SITE RETAINING WALL. REFER TO STRUCTURAL AND LANDSCAPE DWGS.
011 PEDESTRIAN GATE DOOR. PROVIDE SHOP DWGS. FOR ARCHITECT REVIEW.
012 42" MOTORIZED VEHICULAR SLIDING ENTRY GATE. STEEL FRAME. 90% VISUALLY PERMEABLE.
013 42" PERIMETER FENCE. 90% VISUALLY PERMEABLE.
014 CALL BOX.
015 TRASH ENCLOSURE AREA
016 STRUCTURAL GRASS DRIVEWAY. GRASSCRETE OR SIMILAR. REFER TO CIVIL & LANDSCAPE DWGS.
017 GENERATOR ON EXISTING CONCRETE PLINTH. BOTTOM OF GENERATOR TO BE ABOVE BFE +1'. REFER TO ELECTRICAL DWGS.
018 A/C CONDENSER UNITS BEHIND LANDSCAPE, BOTTOM OF UNITS TO BE ABOVE BFE +1'. REFER TO MECHANICAL DWGS.
019 NATURAL LAWN AREA. REFER TO LANDSCAPE DWGS.

MATERIALS
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102 IMPACT RESISTANT SLIDING ALUMINUM WINDOWS / DOORS SYSTEM, LOW-E COATING. REFER TO WINDOW SCHEDULE.
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104 GARAGE STEEL DOOR CLADDED WITH CUSTOM CONCRETE PANELS. REFER TO DOOR SCHEDULE.
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106 5/8" G.W.B., FINISH T.B.D.; REFER TO I.D. DWGS.

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111 STONE BENCH.

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201 COMPACTED EARTH. REFER TO STRCUT. DWGS.
202 RETAINING WALL. REFER TO STRUCT. DWGS.
203 CONCRETE SLAB. REFER TO STRUCT. DWGS.
204 CONCRETE COLUMN. REFER TO STRUCT. DWGS.
205 CONCRETE BEAM. REFER TO STRUCT. DWGS.
206 STEEL COLUMN. REFER TO STRUCT. DWGS.
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210 PROVIDE 2" RECESS ON SLABS ON ALL SHOWERS.
211 OPENING ON CONCRETE SLAB. REFER TO STRUCT. DWGS.

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301 A/C PLENUM SPACE. REFER TO MECHANICAL DWGS. AND RCP. NO COMBUSTIBLES ALLOWED.
302 ROOF DRAIN. REFER TO PLUMBING DWGS. /SEE DETAIL.
303 FLOOR DRAIN. REFER TO PLUMBING DWGS./ SEE DETAIL.
304 DRAIN PIPE TO FIT IN CEILING SPACE. REFER TO PLUMBING DWGS. COORDINATE EXACT LOCATION AND SPECS.
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308 GAS WATER HEATER. REFER TO PLUMBING DWGS.
309 ELECTRICAL PANELS. REFER TO ELECTRICAL DWGS.
310 CONDENSER UNITS ON STANDS. REFER TO MECH. DWGS.
311 MINIMUM R-30 BATT INSULATION OR RIGID INSULATION. REFER TO ENERGY CALCULATIONS.

315 HOSE BIB. REFER TO PLUMBING AND LANDSCAPE DWGS.
316 ELECTRICITY, GAS AND WATER. REFER TO MEP DRAWINGS.
317 MOTORIZED VEHICULAR GATE. REFER TO ELECT. DWGS.
318 ALL TOILETS TO BE WALL HUNG. REFER TO MECH. DWGS.
319 LINEAR DRAIN
320 OVERFLOW SCUPPER.

WATERPROOFING
400 CONTINUOUS VAPOR BARRIER. REFER TO ARCH AND STRUCTURAL DWGS.
401 WATERPROOFING MEMBRANE. REFER TO ARCH AND STRUCTURAL DWGS.
402 POOL FINISH/ COLOR TBD.

MISC. ARCHITECTURAL DETAILS
500 CURTAIN CEILING COVE. REFER TO ARCH. DETAIL.
501 CONTINUOUS 1/2" TOOLED WATER DRIP, SEE ARCH. DETAIL.
502 VENT.
503 KITCHEN, BUILT-IN FURNITURE, CABINETRY BY OTHERS. REFER TO KITCHEN SHOP DWGS.
504 5/8" GWB DROPPED CEILING ON 3/4" FURRING STRIPS. PAINTED GWB. COLOR TBD.
505 STAINLESS STEEL SCUPPER IN CONCRETE STRUCTURE, 3" X 3" MIN OPENING. REFER TO ELEVATION AND PLAN FOR LOCATION.
506 CUSTOM WOOD MILLWORK. REFER TO I.D. DRAWINGS.
507 SOLAR PANELS.(T.B.D.)
509 CONCEALED LED SCREEN.
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LIGHTING
600 PENDANT LIGHT. REFER TO LIGHTING DWGS.
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602 CONCEALED LINEAR LIGHT. REFER TO LIGHTING DWGS.

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702 ALL REQUIRED PUBLIC FIRE HYDRANTS SHALL BE INSTALLED, TESTED AND ACCEPTED PRIOR TO BEGINNING CONSTRUCTION. FIRE CODE 501.4
703 PROVIDE AN APPROVED AUTOMATIC FIRE SPRINKLER SYSTEM AS SET FORTH BY BUILDING CODE 903 AND FIRE CODE 9003. PLANS SHALL BE SUBMITTED TO THE SPRINKLER PLAN CHECK UNIT FOR REVIEW AND APPROVAL PRIOR TO INSTALLATION.
704 SMOKE ALARMS SHALL RECEIVE THEIR PRIMARY POWER FROM THE BUILDING WIRING PROVIDED THAT SUCH WIRING IS SERVED FROM A COMMERCIAL SOURCE AND SHALL BE EQUIPPED WITH A BATTERY BACKUP. RESIDENTIAL CODE R314.4
705 WHERE MORE THAN ONE SMOKE ALARM IS REQUIRED TO BE INSTALLED WITHIN AN INDIVIDUAL DWELLING OR SLEEPING UNIT, THE SMOKE ALARMS SHALL BE INTERCONNECTED SIN USCH A MANNER THAT THE ACTIVATION OF ONE ALARM WILL ACTIVATE ALL OF THE ALARMS IN THE INDIVIDUAL UNIT. RESIDENTIAL CODE R314.5
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Property Owner
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Design Architect
Oppenheim Architecture
245 NE 37 Street
Miami FL 33137
P 305 576 8404
F 305 576 8433
W oppenoffice.com

Landscape Architect
[place]
3617 exposition boulevard
Los Angeles, CA 90016
P 310-450-8100
F 323-737-3290
W plac-e.com

Civil Engineers
LC Engineering Group
889 Pierce Ct., Ste. 101
Thousand Oaks, CA 91360
P 805-497-1244
P 818-991-7148
W lcegroupinc.com

Revisions

Mark	Date	Description

Title
LONGITUDINAL SECTION

1/16" = 1'-0"

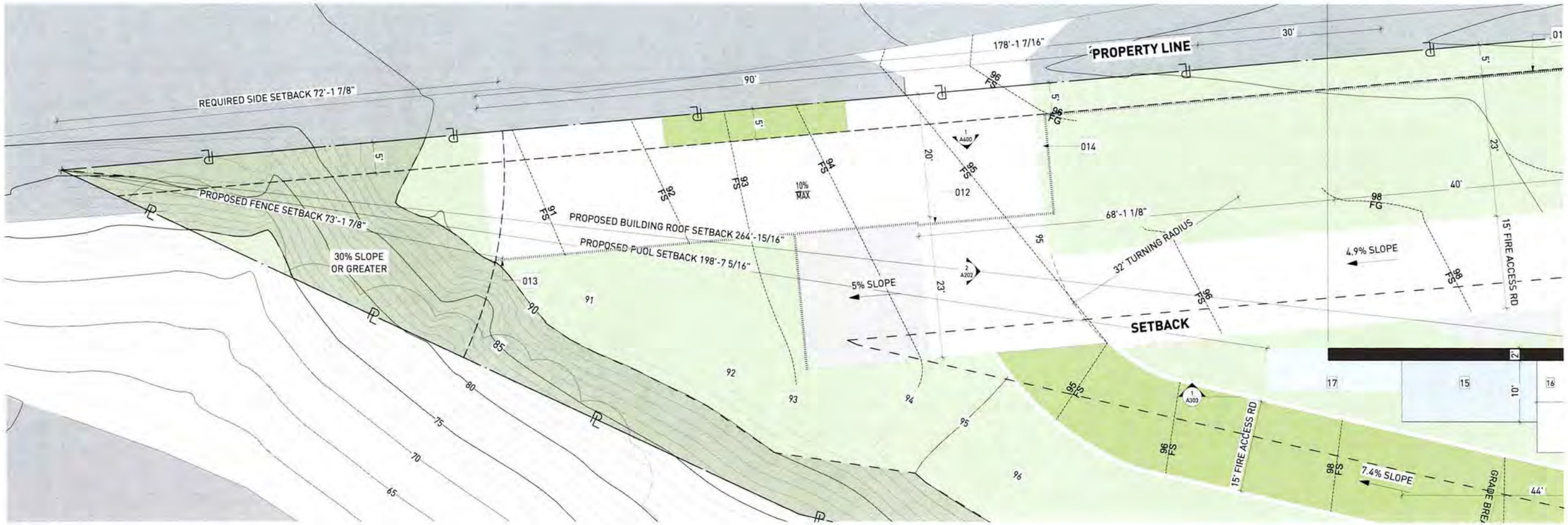
NOT FOR CONSTRUCTION

Design Development

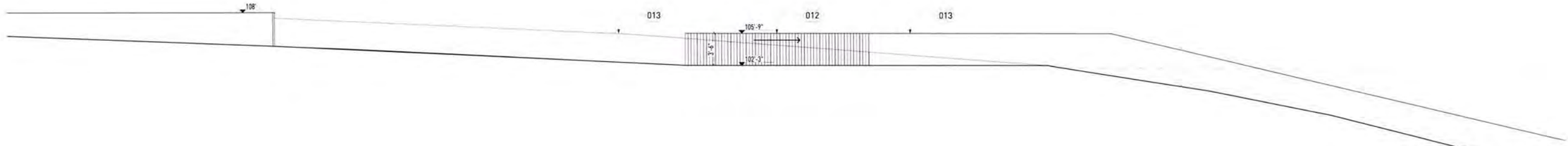
1813
VILLA COLEAVA

Drawing Issued on 03/01/19

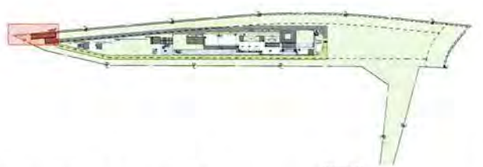
A303



2 MAIN GATE
1/8" = 1'-0"



1 ENTRY GATE ELEVATION
3/16" = 1'-0"



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714 ALL ON-SITE FIRE HYDRANTS SHALL BE INSTALLED, TESTED AND APPROVED PRIOR TO BUILDING OCCUPANCY. FIRE CODE 501.4

ROOM NAMES

01 LIVING ROOM
02 DINING ROOM
03 KITCHEN
04 SERVICE KITCHEN
05 POWDER ROOM
06 PANTRY
07 FAMILY ROOM
08 OUTDOOR KITCHEN
09 BEDROOM
10 BATHROOM
11 COURTYARD
12 MASTER BEDROOM
13 MASTER BATHROOM
14 MASTER CLOSET
15 POOL
16 POOL DECK
17 WATER FEATURE
18 TERRACE
19 FIRE PIT
20 OFFICE
21 OUTDOOR SHOWER
23 STORAGE
23 FIREPLACE
24 GYM
25 STEAM ROOM
26 SAUNA
27 MASSAGE ROOM
28 LAUNDRY
29 MUD ROOM
30 WINE STORAGE
31 GARAGE
32 LIGHTWELL
33 OUTDOOR BATHROOM
34 SUNKEN TUB

Project No
1813

Project Name
VILLA COLEAVA

Project Address
25200 Pacific Coast Hwy.
Malibu, California, USA

Property Owner
PAR PCH, LLC
PO Box 6528
Malibu, CA 90265

Design Architect
Oppenheim Architecture
245 NE 37 Street
Miami FL 33137
P 305 576 8404
F 305 576 8433
W oppenoffice.com

Landscape Architect
[place]
3617 exposition boulevard
Los Angeles, CA 90016
P 310-450-8100
F 323-737-3290
W plac-e.com

Civil Engineers
LC Engineering Group
889 Pierce Ct., Ste. 101
Thousand Oaks, CA 91360
P 805-497-1244
P 818-991-7148
W lcegroupinc.com

Revisions

Mark	Date	Description

Title
MAIN GATE/
ENTRANCE

3/16" = 1'-0",
1/8" = 1'-0"

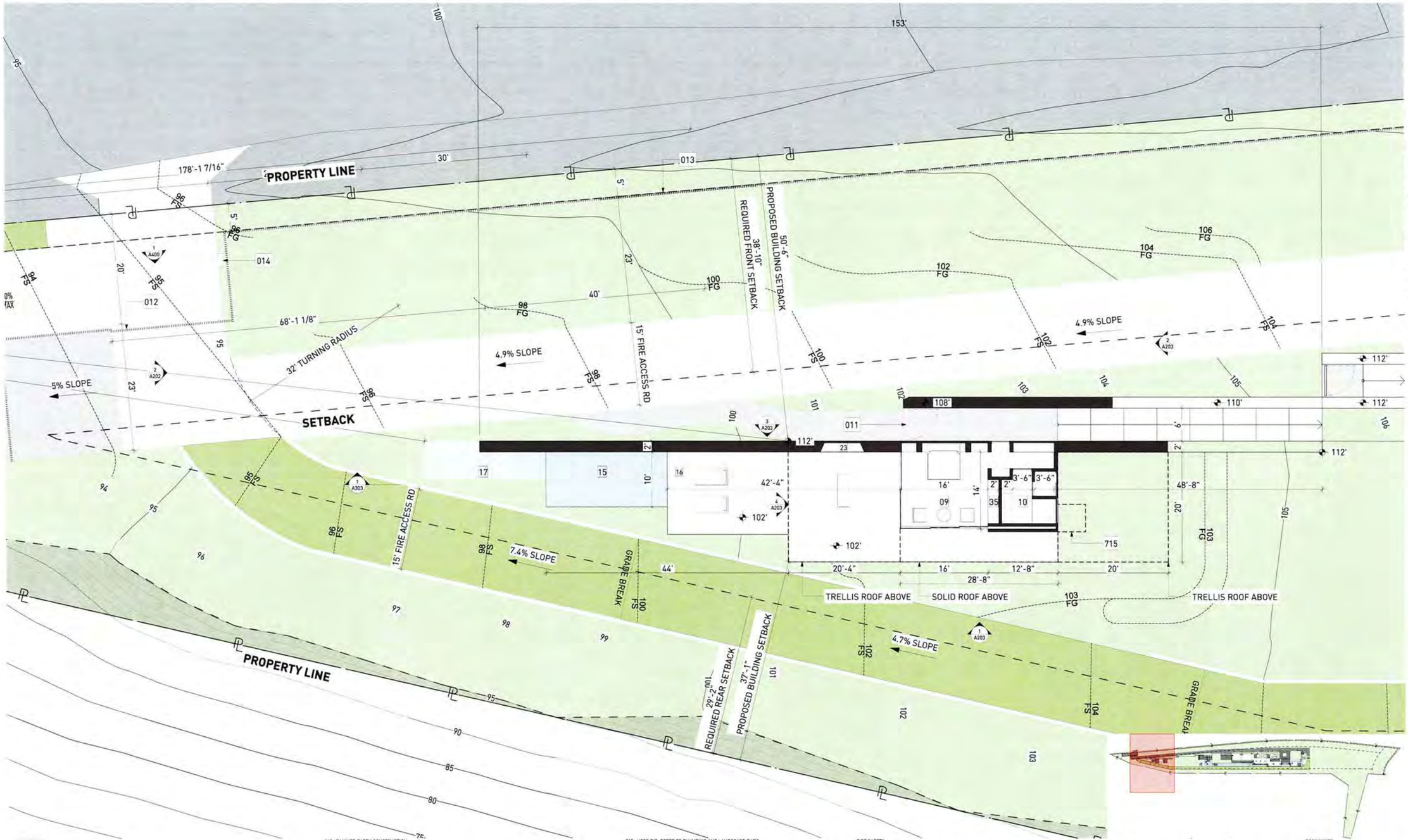
NOT FOR CONSTRUCTION

Design Development

1813
VILLA COLEAVA

Drawing Issued on 4/16/25

A400



KEY NOTES:

SITE

001 MAINTAIN ALL WATER RUNOFF WITHIN PROPERTY. SLOPE AWAY FROM P.L. AT A MIN. SLOPE OF ¼" /FT , REFER TO CIVIL DWGS.
002 TREES/LANDSCAPING PLANTING/GROUND COVER/LAWN, REFER TO LANDSCAPE DWGS.
003 HEDGE. REFER TO LANDSCAPE DWGS.
004 HARDSCAPE. REFER TO LANDSCAPE DWGS.
005 DRIVEWAY. GRAVEL ON GRADE. REFER TO CIVIL & LANDSCAPE DWGS.
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007 UNDERGROUND DRAINAGE SYSTEM. REFER TO CIVIL DWGS.
008 INFINITY POOL EDGE.
009 OPEN PARKING, REFER TO CIVIL FOR DETAILS
010 6'-0" SITE RETAINING WALL. REFER TO STRUCTURAL AND LANDSCAPE DWGS.
011 PEDESTRIAN GATE DOOR. PROVIDE SHOP DWGS. FOR ARCHITECT REVIEW.
012 42" MOTORIZED VEHICULAR SLIDING ENTRY GATE. STEEL FRAME. 90% VISUALLY PERMEABLE.
013 42" PERIMETER FENCE. 90% VISUALLY PERMEABLE.
014 CALL BOX
015 TRASH ENCLOSURE AREA
016 STRUCTURAL GRASS DRIVEWAY. GRASSCRETE OR SIMILAR. REFER TO CIVIL & LANDSCAPE DWGS.
017 GENERATOR ON EXISTING CONCRETE PLINTH, BOTTOM OF GENERATOR TO BE ABOVE BFE +1'. REFER TO ELECTRICAL DWGS.
018 A/C CONDENSER UNITS BEHIND LANDSCAPE, BOTTOM OF UNITS TO BE ABOVE BFE +1' , REFER TO MECHANICAL DWGS.
019 NATURAL LAWN AREA. REFER TO LANDSCAPE DWGS.

MATERIALS

100 ARCHITECTURAL EXPOSED CONCRETE, COLOR T.B.D. REFER TO STRUCTURAL DRAWINGS AND ARCHITECTURAL DETAILS.
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102 IMPACT RESISTANT SLIDING ALUMINUM WINDOWS / DOORS SYSTEM, LOW-E COATING. REFER TO WINDOW SCHEDULE.
103 PRE-FABRICATED SKYLIGHT ON CONCRETE CURB. REFER TO WINDOW SCHEDULE. SEE SECTION AND DETAILS.
104 GARAGE STEEL DOOR CLADDED WITH CUSTOM CONCRETE PANELS. REFER TO DOOR SCHEDULE.
105 GRAVEL
106 5/8" G.W.B., FINISH T.B.D.; REFER TO I.D. DWGS.

110 RAMMED EARTH CONSTRUCTION.
111 STONE BENCH.

STRUCTURAL

200 FOUNDATION AND PILES. REFER TO STRUCT. DWGS.
201 COMPACTED EARTH. REFER TO STRCUT. DWGS.
202 RETAINING WALL. REFER TO STRUCT. DWGS.
203 CONCRETE SLAB. REFER TO STRUCT. DWGS.
204 CONCRETE COLUMN. REFER TO STRUCT. DWGS.
205 CONCRETE BEAM. REFER TO STRUCT. DWGS.
206 STEEL COLUMN. REFER TO STRUCT. DWGS.
207 CONCRETE STAIRS. REFER TO STRUCT. DWGS.
208 CONCRETE SHELL FOR POOL. REFER TO STRUCT. DWGS.
209 8" CMU REINFORCED WALL. REFER TO WALL TYPES AND STRUCT. DWGS
210 PROVIDE 2" RECESS ON SLABS ON ALL SHOWERS
211 OPENING ON CONCRETE SLAB. REFER TO STRUCT. DWGS.

MEP

300 LIGHT FIXTURE/ SEE ARCH. RCP, ELECTRICAL DWGS. AND LIGHTING SPECIFICATIONS.
301 A/C PLENUM SPACE, REFER TO MECHANICAL DWGS. AND RCP. NO COMBUSTIBLES ALLOWED.
302 ROOF DRAIN, REFER TO PLUMBING DWGS. /SEE DETAIL.
303 FLOOR DRAIN, REFER TO PLUMBING DWGS./ SEE DETAIL.
304 DRAIN PIPE TO FIT IN CEILING SPACE, REFER TO PLUMBING DWGS. COORDINATE EXACT LOCATION AND SPECS.
305 KITCHEN HOOD, REFER TO MECH DWGS.
306 KITCHEN HOOD EXHAUST PIPE TO FIT IN CEILING SPACE, REFER TO MECH DWGS. COORDINATE EXACT LOCATION AND SPECS.
307 DESIGNATED POOL EQUIPMENT AREA.
308 GAS WATER HEATER. REFER TO PLUMBING DWGS.
309 ELECTRICAL PANELS. REFER TO ELECTRICAL DWGS.
310 CONDENSER UNITS ON STANDS. REFER TO MECH. DWGS.
311 MINIMUM R:30 BATT INSULATION OR RIGID INSULATION. REFER TO ENERGY CALCULATIONS.

315 HOSE BIB. REFER TO PLUMBING AND LANDSCAPE DWGS.
316 ELECTRICITY, GAS AND WATER. REFER TO MEP DRAWINGS.
317 MOTORIZED VEHICULAR GATE. REFER TO ELECT. DWGS.
318 ALL TOILETS TO BE WALL HUNG. REFER TO MECH. DWGS.
319 LINEAR DRAIN
320 OVERFLOW SCUPPER.

WATERPROOFING

400 CONTINUOUS VAPOR BARRIER. REFER TO ARCH AND STRUCTURAL DWGS.
401 WATERPROOFING MEMBRANE. REFER TO ARCH AND STRUCTURAL DWGS.
402 POOL FINISH/ COLOR TBD.

MISC. ARCHITECTURAL DETAILS

500 CURTAIN CEILING COVE. REFER TO ARCH. DETAIL.
501 CONTINUOUS 1/2" TOGLED WATER DRIP. SEE ARCH. DETAIL.
502 VENT.
503 KITCHEN, BUILT-IN FURNITURE, CABINETRY BY OTHERS. REFER TO KITCHEN SHOP DWGS.
504 5/8" GWB DROPPED CEILING ON 3/4" FURRING STRIPS. PAINTED GWB. COLOR TBD.
505 STAINLESS STEEL SCUPPER IN CONCRETE STRUCTURE. 3" X 3" MIN.OPENING. REFER TO ELEVATION AND PLAN FOR LOCATION.
506 CUSTOM WOOD MILLWORK. REFER TO I.D. DRAWINGS
507 SOLAR PANELS IT.B.D.I
509 CONCEALED LED SCREEN.
510 LADDER ACCESS.

LIGHTING

600 PENDANT LIGHT. REFER TO LIGHTING DWGS.
601 RECESSED DOWN LIGHT. REFER TO LIGHTING DWGS.
602 CONCEALED LINEAR LIGHT. REFER TO LIGHTING DWGS.
603 POOL LINEAR RECESSED LIGHT. REFER TO LIGHTING DWGS.

FIRE SAFETY

700 FIRE DEPARTMENT VEHICULAR ACCESS ROADS MUST BE INSTALLED AND MAINTAINED IN A SERVICEABLE MANNER PRIOR TO AND DURING THE TIME OF CONSTRUCTION FIRE CODE 5001.4
701 AN APPROVED KEY BOX, LISTED IN ACCORDANCE WITH UL 1037 SHALL BE PROVIDED AS REQUIRED BY FIRE CODE 506. THE LOCATION OF EACH KEY BOX SHALL BE DETERMINED BY THE FIRE INSPECTOR.
702 ALL REQUIRED PUBLIC FIRE HYDRANTS SHALL BE INSTALLED, TESTED AND ACCEPTED PRIOR TO BEGINNING CONSTRUCTION. FIRE CODE 501.4
703 PROVIDE AN APPROVED AUTOMATIC FIRE SPRINKLER SYSTEM AS SET FORTH BY BUILDING CODE 903 AND FIRE CODE 9003. PLANS SHALL BE SUBMITTED TO THE SPRINKLER PLAN CHECK UNIT FOR REVIEW AND APPROVAL PRIOR TO INSTALLATION.
704 SMOKE ALARMS SHALL RECEIVE THEIR PRIMARY POWER FROM THE BUILDING WIRING PROVIDED THAT SUCH WIRING IS SERVED FROM A COMMERCIAL SOURCE AND SHALL BE EQUIPPED WITH A BATTERY BACKUP. RESIDENTIAL CODE R314.4
705 WHERE MORE THAN ONE SMOKE ALARM IS REQUIRED TO BE INSTALLED WITHIN AN INDIVIDUAL DWELLING OR SLEEPING UNIT, THE SMOKE ALARMS SHALL BE INTERCONNECTED SIN USCH A MANNER THAT THE ACTIVATION OF ONE ALARM WILL ACTIVATE ALL OF THE ALARMS IN THE INDIVIDUAL UNIT. RESIDENTIAL CODE R314.5
706 APPROVED BUILDING ADDRESS NUMBERS, BUILDING NUMBERS OR APPROVED BUILDING IDENTIFICATION SHALL BE PROVIDED AND MAINTAINED SO AS TO BE PLAINLY VISIBLE AND LEGIBLE FROM THE STREET FRONTING THE PROPERTY. THE MINIMUM OF 4 INCHES HIGH WITH A MINUMM STROKE WIDTH OF 0.5 INCH. FIRE CODE 505.1
707 ALL ROOF COVERINGS SHALL BE CLASS "A" AS SPECIFIED IN BUILDING CODE 1505.1.1 (RESIDENTIAL CODE R327.5.2 & R902)
708 ROOF VALLEY FLASHINGS SHALL BE NOT LESS THAN 0.019 INCH (NO.26 GALVANIZED SHEET GAGE) CORROSION-RESISTANT METAL INSTALLED OVER A MINIMUM 36-INCH WIDE UNDERLAYMENT CONSISTING OF ONE LAYER OF NO. 72 ASTM CAP SHEET MEETING RUNNING THE FULL LEGHTH OF THE VALLEY.(RESIDENTIAL CODE R327.5.3 AND BUILDING CODE 705A.3
709 ROOF GUTTERS SHALL BE PROVIDED WITH A MEANS OTO PREVENT THE ACCUMULATION OF LEAVES AND DEBRIS IN THE GUTTER. (RESIDENTIAL CODE R327.534 AND BUILDING CODE 705A.4)
710 VENTS SHALL RESIST THE INTRUSION OF FLAME AND EMBERS AND FLAME THROUGH THE VENTILATION OPENINGS. VENT OPENINGS SHALL BE PROTECTED BY CORROSION- RESISTANT, NONCOMBUSTIBLE WIRE MESH WITH A MINIMUM 1/16TH INCH OPENINGS AND SHALL NOT EXCEED 1/8TH INCH. VENTS SHALL NOT BE INSTALLED IN EAVES OR CORNICES. (RESIDENTIAL CODE R327.6.1 AND BUILDING CODE 706A.1)
711 CLEARANCE OF BRUSH AND VEGETATIVE GROWTH SHALL BE MAINTAINED PER FIRE CODE 325.
712 PROVIDE APPROVED SIGNS OR OTHER APPROVED NOTICES OR MARKINGS THAT INCLUDE THE WORDS NO PARKING - FIRE LANE. SIGNS SHALL HAVE A MINIMUM DIMENSION OF 12-INCHES WIDE BY 18 INCHES HIGH AND HAVE RED LETTERS ON A WHITE REFLECTIVE BACKGROUND. SIGNS SHALL BE PROVIDED FOR FIRE APPARATUS ACCESS ROADS, TO CLEARLY INDICATE THE ENTRANCE TO SUCH ROAD, OR PROHIBIT THE OBSTRUCTION THEREOF AND AT INTERVALS, AS REQUIRED BY THE FIRE INSPECTOR. FIRE CODE 503.3.
713 ALL FIRE HYDRANTS SHALL MEASURE 4"" X 4"" X 2-1/2"", BRASS OR BRONZE, CONFORMING TO AMERICAN WATER WORKS ASSOCIATION STANDARD C503, OR APPROVED EQUAL.

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PO Box 6528
Malibu, CA 90265

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Oppenheim Architecture
245 NE 37 Street
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P 305 576 8404
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[place]
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Revisions

Mark	Date	Description

Title
GUEST HOUSE LEVEL

1/8" = 1'-0"

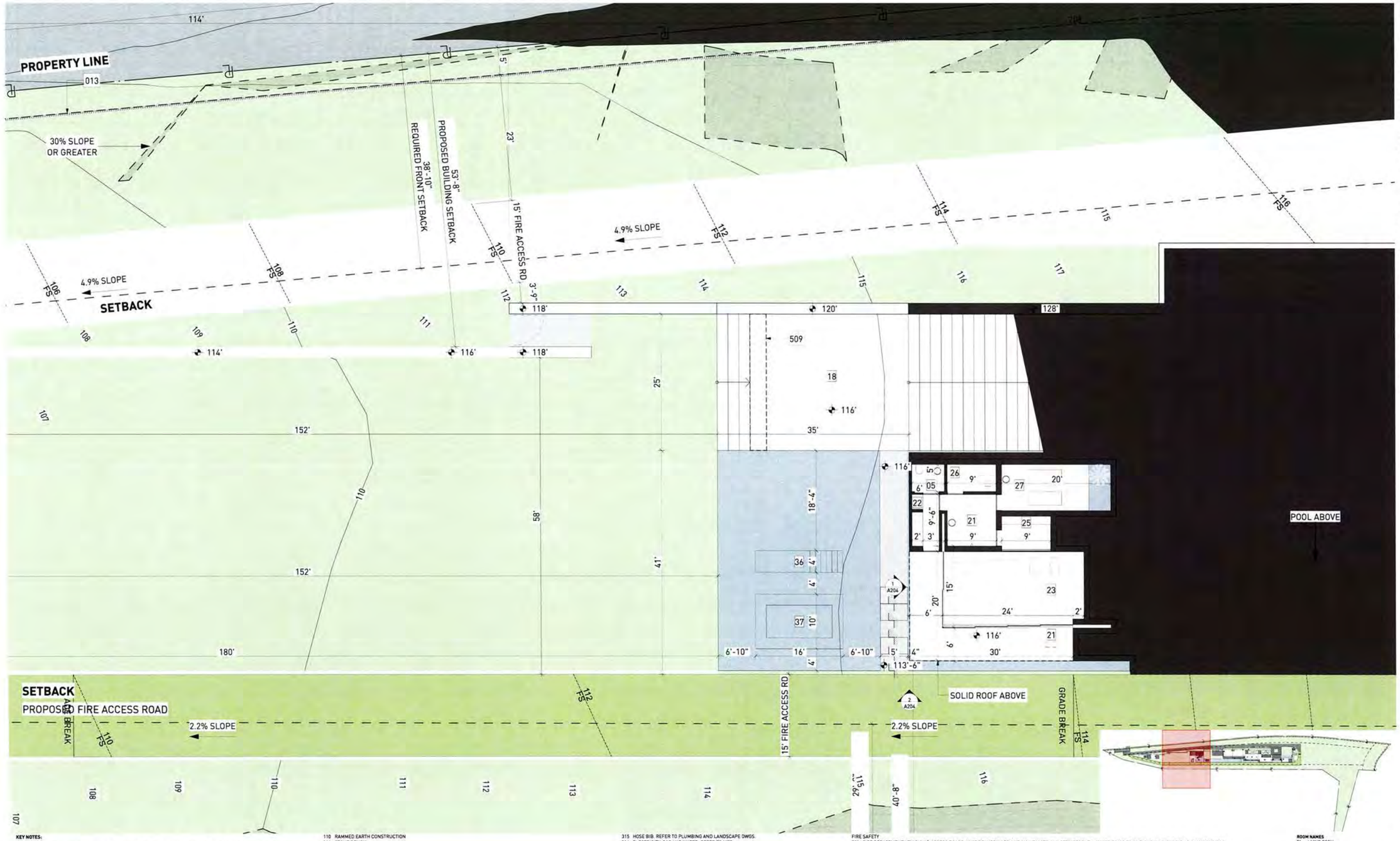
NOT FOR CONSTRUCTION

Design Development

1813
VILLA COLEAVA

Drawing Issued on 4/16/25

A401



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LIGHTING

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Design Architect
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Revisions

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Title
GYM LEVEL

1/8" = 1'-0"

NOT FOR CONSTRUCTION

Design Development

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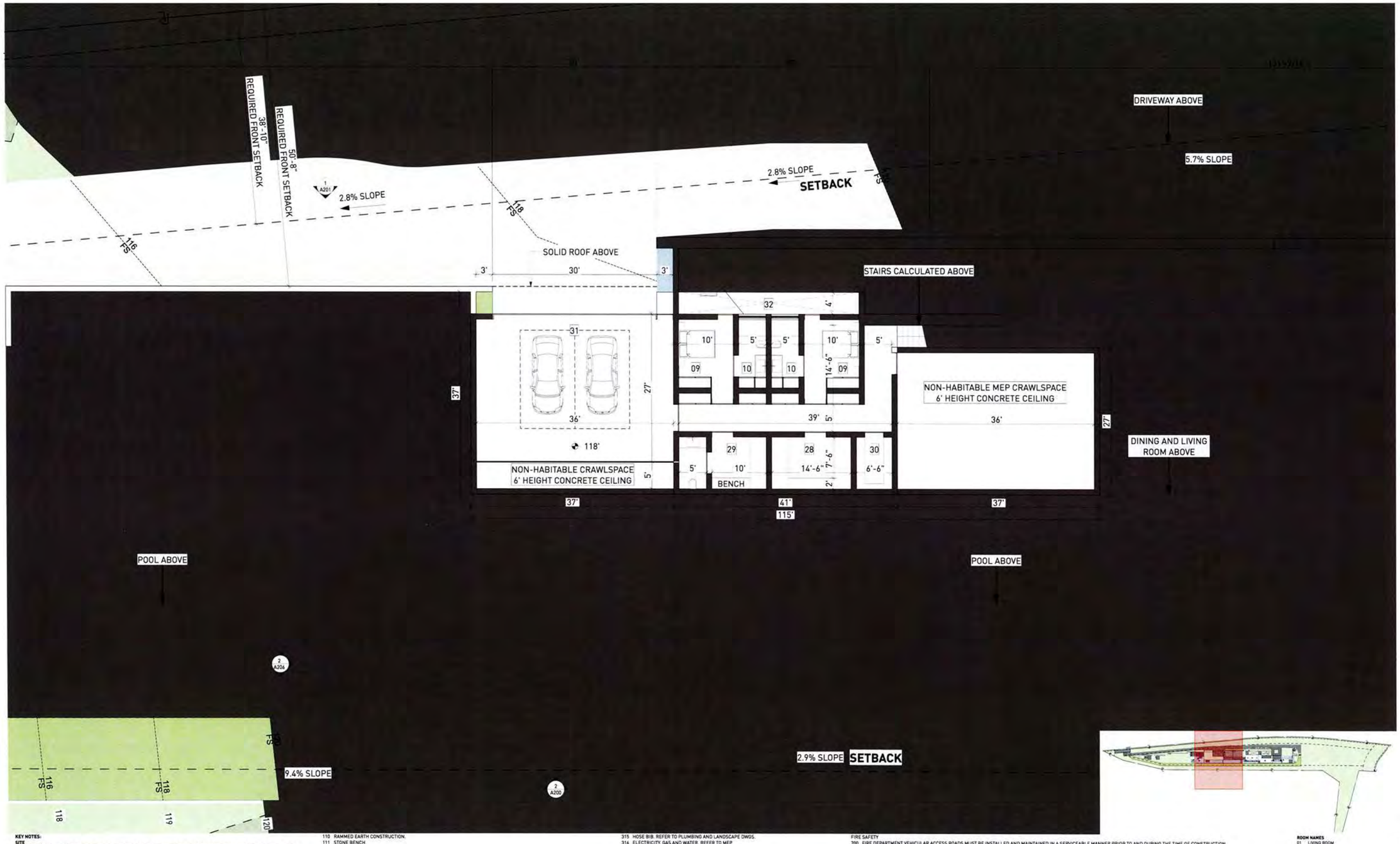
Drawing Issued on 4/16/25

A402



KEY NOTES:

SITE

001 MAINTAIN ALL WATER RUNOFF WITHIN PROPERTY. SLOPE AWAY FROM P.L. AT A MIN. SLOPE OF ¼" /FT., REFER TO CIVIL DWGS.
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003 HEDGE. REFER TO LANDSCAPE DWGS.
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005 DRIVEWAY. GRAVEL ON GRADE. REFER TO CIVIL & LANDSCAPE DWGS.
006 WOOD DECK. SIZE OF PLANKS T.B.D. FINISH T.B.D.
007 UNDERGROUND DRAINAGE SYSTEM. REFER TO CIVIL DWGS.
008 INFINITY POOL EDGE.
009 OPEN PARKING. REFER TO CIVIL FOR DETAILS
010 6'-0" SITE RETAINING WALL. REFER TO STRUCTURAL AND LANDSCAPE DWGS.
011 PEDESTRIAN GATE DOOR. PROVIDE SHOP DWGS. FOR ARCHITECT REVIEW.
012 42" MOTORIZED VEHICULAR SLIDING ENTRY GATE. STEEL FRAME. 90% VISUALLY PERMEABLE.
013 42" PERIMETER FENCE. 90% VISUALLY PERMEABLE.
014 CALL BOX.
015 TRASH ENCLOSURE AREA
016 STRUCTURAL GRASS DRIVEWAY. GRASSCRETE OR SIMILAR. REFER TO CIVIL & LANDSCAPE DWGS.
017 GENERATOR ON EXISTING CONCRETE PLINTH. BOTTOM OF GENERATOR TO BE ABOVE BFE +1'. REFER TO ELECTRICAL DWGS.
018 A/C CONDENSER UNITS BEHIND LANDSCAPE. BOTTOM OF UNITS TO BE ABOVE BFE +1'. REFER TO MECHANICAL DWGS.
019 NATURAL LAWN AREA. REFER TO LANDSCAPE DWGS.

MATERIALS

100 ARCHITECTURAL EXPOSED CONCRETE. COLOR T.B.D. REFER TO STRUCTURAL DRAWINGS AND ARCHITECTURAL DETAILS.
101 CUSTOM WOOD DOOR. REFER TO DOOR SCHEDULE
102 IMPACT RESISTANT SLIDING ALUMINUM WINDOWS / DOORS SYSTEM, LOW-E COATING. REFER TO WINDOW SCHEDULE.
103 PRE-FABRICATED SKYLIGHT ON CONCRETE CURB. REFER TO WINDOW SCHEDULE. SEE SECTION AND DETAILS.
104 GARAGE STEEL DOOR CLADDED WITH CUSTOM CONCRETE PANELS. REFER TO DOOR SCHEDULE.
105 GRAVEL.
106 5/8" G.W.B., FINISH T.B.D., REFER TO I.D. DWGS.
110 RAMMED EARTH CONSTRUCTION.
111 STONE BENCH.

STRUCTURAL

200 FOUNDATION AND PILES. REFER TO STRUCT. DWGS.
201 COMPACTED EARTH. REFER TO STRUCT. DWGS.
202 RETAINING WALL. REFER TO STRUCT. DWGS.
203 CONCRETE SLAB. REFER TO STRUCT. DWGS.
204 CONCRETE COLUMN. REFER TO STRUCT. DWGS.
205 CONCRETE BEAM. REFER TO STRUCT. DWGS.
206 STEEL COLUMN. REFER TO STRUCT. DWGS.
207 CONCRETE STAIRS. REFER TO STRUCT. DWGS.
208 CONCRETE SHELL FOR POOL. REFER TO STRUCT. DWGS.
209 8" CMU REINFORCED WALL. REFER TO WALL TYPES AND STRUCT. DWGS
210 PROVIDE 2" RECESS ON SLABS ON ALL SHOWERS.
211 OPENING ON CONCRETE SLAB. REFER TO STRUCT. DWGS.

MEP

300 LIGHT FIXTURE/ SEE ARCH. RCP. ELECTRICAL DWGS. AND LIGHTING SPECIFICATIONS.
301 A/C PLENUM SPACE. REFER TO MECHANICAL DWGS. AND RCP. NO COMBUSTIBLES ALLOWED
302 ROOF DRAIN. REFER TO PLUMBING DWGS. /SEE DETAIL.
303 FLOOR DRAIN. REFER TO PLUMBING DWGS. / SEE DETAIL.
304 DRAIN PIPE TO FIT IN CEILING SPACE. REFER TO PLUMBING DWGS. COORDINATE EXACT LOCATION AND SPECS.
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509 CONCEALED LED SCREEN.
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LIGHTING

600 PENDANT LIGHT. REFER TO LIGHTING DWGS.
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FIRE SAFETY

700 FIRE DEPARTMENT VEHICULAR ACCESS ROADS MUST BE INSTALLED AND MAINTAINED IN A SERVICEABLE MANNER PRIOR TO AND DURING THE TIME OF CONSTRUCTION. FIRE CODE 5001.4
701 AN APPROVED KEY BOX, LISTED IN ACCORDANCE WITH UL 1037 SHALL BE PROVIDED AS REQUIRED BY FIRE CODE 506. THE LOCATION OF EACH KEY BOX SHALL BE DETERMINED BY THE FIRE INSPECTOR.
702 ALL REQUIRED PUBLIC FIRE HYDRANTS SHALL BE INSTALLED, TESTED AND ACCEPTED PRIOR TO BEGINNING CONSTRUCTION. FIRE CODE 501.4
703 PROVIDE AN APPROVED AUTOMATIC FIRE SPRINKLER SYSTEM AS SET FORTH BY BUILDING CODE 903 AND FIRE CODE 9003. PLANS SHALL BE SUBMITTED TO THE SPRINKLER PLAN CHECK UNIT FOR REVIEW AND APPROVAL PRIOR TO INSTALLATION.
704 SMOKE ALARMS SHALL RECEIVE THEIR PRIMARY POWER FROM THE BUILDING WIRING PROVIDED THAT SUCH WIRING IS SERVED FROM A COMMERCIAL SOURCE AND SHALL BE EQUIPPED WITH A BATTERY BACKUP. RESIDENTIAL CODE R314.4
705 WHERE MORE THAN ONE SMOKE ALARM IS REQUIRED TO BE INSTALLED WITHIN AN INDIVIDUAL DWELLING OR SLEEPING UNIT, THE SMOKE ALARMS SHALL BE INTERCONNECTED SIN USCH A MANNER THAT THE ACTIVATION OF ONE ALARM WILL ACTIVATE ALL OF THE ALARMS IN THE INDIVIDUAL UNIT. RESIDENTIAL CODE R314.5
706 APPROVED BUILDING ADDRESS NUMBERS, BUILDING NUMBERS OR APPROVED BUILDING IDENTIFICATION SHALL BE PROVIDED AND MAINTAINED SO AS TO BE PLAINLY VISIBLE AND LEGIBLE FROM THE STREET FRONTING THE PROPERTY. THE MINIMUM OF 4 INCHES HIGH WITH A MINUMM STROKE WIDTH OF 0.5 INCH. FIRE CODE 505.1
707 ALL ROOF COVERINGS SHALL BE CLASS "A" AS SPECIFIED IN BUILDING CODE 1505.1.1 (RESIDENTIAL CODE R327.5.2 & R902)
708 ROOF VALLEY FLASHINGS SHALL BE NOT LESS THAN 0.019 INCH (NO.26 GALVANIZED SHEET GAGE) CORROSION-RESISTANT METAL INSTALLED OVER A MINIMUM 36-INCH WIDE UNDERLAYMENT CONSISTING OF ONE LAYER OF NO. 72 ASTM CAP SHEET MEETING RUNNING THE FULL LEGHTH OF THE VALLEY (RESIDENTIAL CODE R327.5.3 AND BUILDING 0CODE 705A.3
709 ROOF GUTTERS SHALL BE PROVIDED WITH A MEANS OTO PREVENT THE ACCUMULATION OF LEAVES AND DEBRIS IN THE GUTTER. (RESIDENTIAL CODE R327.534 AND BUILDING 0CODE 705A.4)
710 VENTS SHALL RESIST THE INTRUSION OF FLAME AND EMBERS AND FLAME THROUGH THE VENTILATION OPENINGS. VENT OPENINGS SHALL BE PROTECTED BY CORROSION- RESISTANT, NONCOMBUSTIBLE WIRE MESH WITH A MINIMUM 1/14TH INCH OPENINGS AND SHALL NOT EXCEED 1/8TH INCH. VENTS SHALL NOT BE INSTALLED IN EAVES OR CORNICES. (RESIDENTIAL CODE R327.6.1 AND BUILDING CODE 704A.1)
711 CLEARANCE OF BRUSH AND VEGETATIVE GROWTH SHALL BE MAINTAINED PER FIRE CODE 325.
712 PROVIDE APPROVED SIGNS OR OTHER APPROVED NOTICES OR MARKINGS THAT INCLUDE THE WORDS NO PARKING - FIRE LANE. SIGNS SHALL HAVE A MINIMUM DIMENSION OF 12 INCHES WIDE BY 18 INCHES HIGH AND HAVE RED LETTERS ON A WHITE REFLECTIVE BACKGROUND. SIGNS SHALL BE PROVIDED FOR FIRE APPARATUS ACCESS ROADS, TO CLEARLY INDICATE THE ENTRANCE TO SUCH ROAD, OR PROHIBIT THE OBSTRUCTION THEREOF AND AT INTERVALS, AS REQUIRED BY THE FIRE INSPECTOR. FIRE CODE 503.3
713 ALL FIRE HYDRANTS SHALL MEASURE 6"" X 4"" X 2-1/2"", BRASS OR BRONZE, CONFORMING TO AMERICAN WATER WORKS ASSOCIATION STANDARD C503, OR APPROVED EQUAL.

ROOM NAMES

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14 MASTER CLOSET
15 POOL
16 POOL DECK
17 WATER FEATURE
18 TERRACE
19 FIRE PIT
20 OFFICE
21 OUTDOOR SHOWER
22 STORAGE
23 FIREPLACE
24 GYM
25 STEAM ROOM
26 SAUNA
27 MASSAGE ROOM
28 LAUNDRY
29 MUD ROOM
30 WINE STORAGE
31 GARAGE
32 LIGHTWELL
33 OUTDOOR BATHROOM
34 SUNKEN TUB

Project No
1813

Project Name
VILLA COLEAVA

Project Address
25200 Pacific Coast Hwy.
Malibu, California, USA

Property Owner
PAR PCH, LLC
PO Box 6528
Malibu, CA 90265

Design Architect
Oppenheim Architecture
245 NE 37 Street
Miami FL 33137
P 305 576 8404
F 305 576 8433
W oppenoffice.com

Landscape Architect
[place]
3617 exposition boulevard
Los Angeles, CA 90016
P 310-450-8100
F 323-737-3290
W plac-e.com

Civil Engineers
LC Engineering Group
889 Pierce Ct., Ste. 101
Thousand Oaks, CA 91360
P 805-497-1244
P 818-991-7148
W lcegroupinc.com

Revisions

Mark	Date	Description

Title
BASEMENT LEVEL

1/8" = 1'-0"

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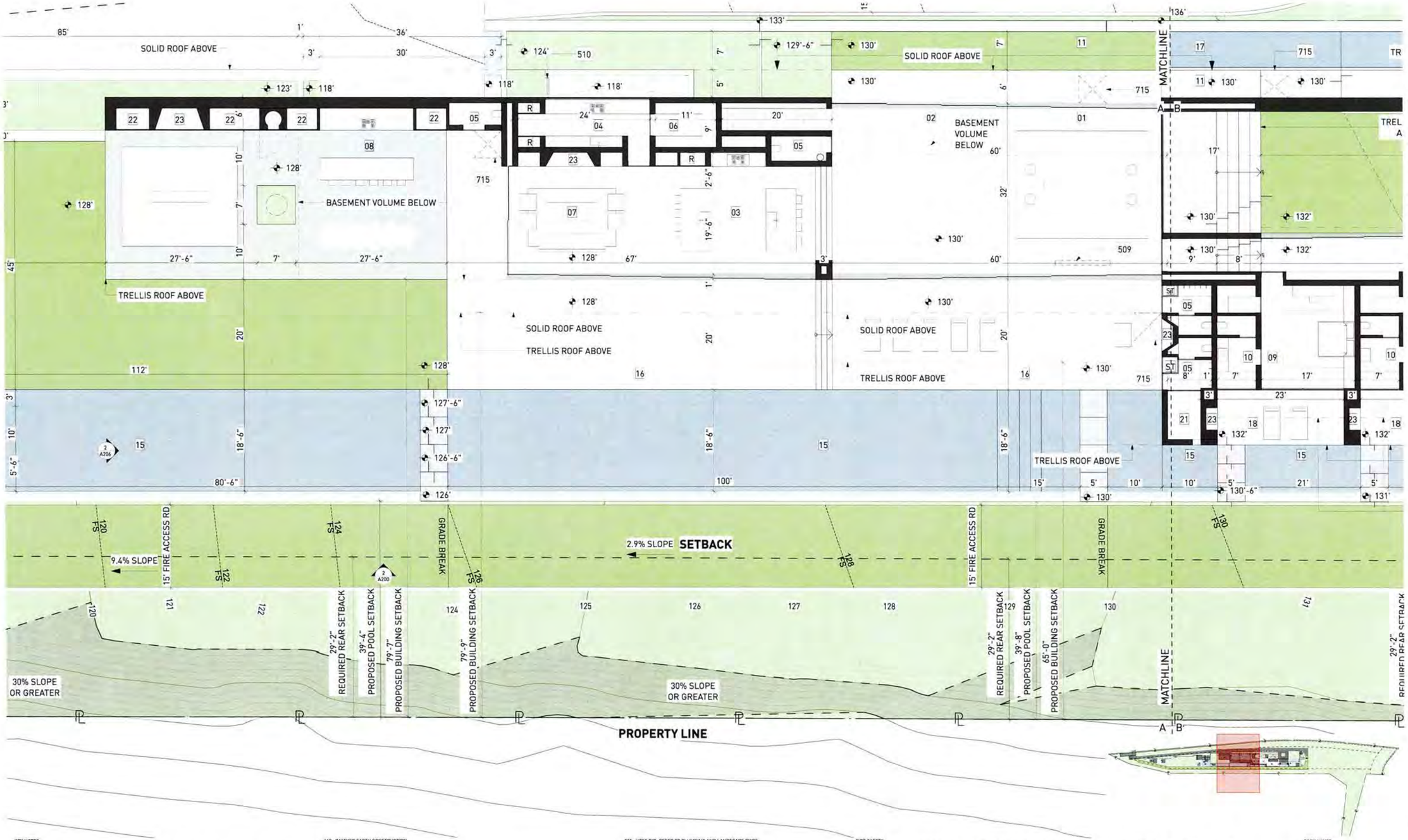

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713 ALL FIRE HYDRANTS SHALL MEASURE 6"" X 4"" X 2-1/2"". BRASS OR BRONZE, CONFORMING TO AMERICAN WATER WORKS ASSOCIATION STANDARD C503, OR APPROVED EQUAL
714 ALL ON-SITE FIRE HYDRANTS SHALL BE INSTALLED, TESTED AND APPROVED PRIOR TO BUILDING OCCUPANCY. FIRE CODE 501.4

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Project No
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Project Name
VILLA COLEAVA

Project Address
25200 Pacific Coast Hwy.
Malibu, California, USA

Property Owner
PAR PCH, LLC
PO Box 6528
Malibu, CA 90265

Design Architect
Oppenheim Architecture
245 NE 37 Street
Miami FL 33137
P 305 576 8404
F 305 576 8433
W oppenoffice.com

Landscape Architect
[place]
3617 exposition boulevard
Los Angeles, CA 90016
P 310-450-8100
F 323-737-3290
W plac-e.com

Civil Engineers
LC Engineering Group
889 Pierce Ct., Ste. 101
Thousand Oaks, CA. 91360
P 805-497-1244
P 818-991-7148
W lcegroupinc.com

Revisions

Mark	Date	Description

Title
GROUND LEVEL-1

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NOT FOR CONSTRUCTION

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1813
VILLA COLEAVA

Drawing Issued on 4/16/25

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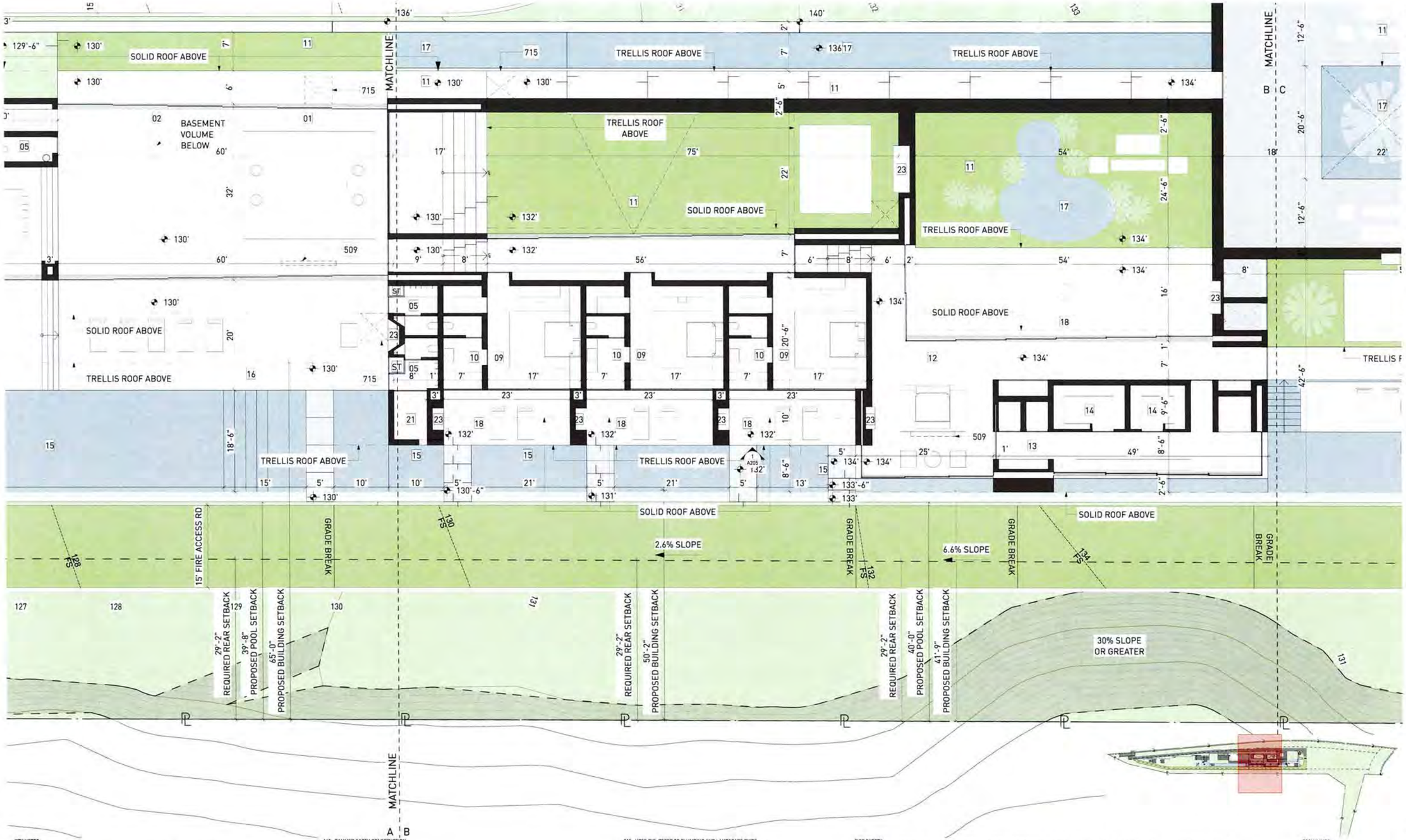

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104 GARAGE STEEL DOOR CLADDED WITH CUSTOM CONCRETE PANELS. REFER TO DOOR SCHEDULE.
105 GRAVEL
106 5/8" G.W.B., FINISH T.B.D.; REFER TO I.D. DWGS.
110 RAMMED EARTH CONSTRUCTION.
111 STONE BENCH.

STRUCTURAL

200 FOUNDATION AND PILES. REFER TO STRUCT. DWGS.
201 COMPACTED EARTH. REFER TO STRCUT. DWGS.
202 RETAINING WALL. REFER TO STRUCT. DWGS.
203 CONCRETE SLAB. REFER TO STRUCT. DWGS.
204 CONCRETE COLUMN. REFER TO STRUCT. DWGS.
205 CONCRETE BEAM. REFER TO STRUCT. DWGS.
206 STEEL COLUMN. REFER TO STRUCT. DWGS.
207 CONCRETE STAIRS. REFER TO STRUCT. DWGS.
208 CONCRETE SHELL FOR POOL. REFER TO STRUCT. DWGS.
209 8" CMU REINFORCED WALL. REFER TO WALL TYPES AND STRUCT. DWGS
210 PROVIDE 2" RECESS ON SLABS ON ALL SHOWERS.
211 OPENING ON CONCRETE SLAB. REFER TO STRUCT. DWGS.

MEP

300 LIGHT FIXTURE/ SEE ARCH. RCP, ELECTRICAL DWGS. AND LIGHTING SPECIFICATIONS.
301 A/C PLENUM SPACE, REFER TO MECHANICAL DWGS. AND RCP. NO COMBUSTIBLES ALLOWED
302 ROOF DRAIN, REFER TO PLUMBING DWGS. /SEE DETAIL.
303 FLOOR DRAIN, REFER TO PLUMBING DWGS./ SEE DETAIL.
304 DRAIN PIPE TO FIT IN CEILING SPACE, REFER TO PLUMBING DWGS. COORDINATE EXACT LOCATION AND SPECS.
305 KITCHEN HOOD. REFER TO MECH DWGS.
306 KITCHEN HOOD EXHAUST PIPE TO FIT IN CEILING SPACE, REFER TO MECH DWGS. COORDINATE EXACT LOCATION AND SPECS.
307 DESIGNATED POOL EQUIPMENT AREA.
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309 ELECTRICAL PANELS. REFER TO ELECTRICAL DWGS.
310 CONDENSER UNITS ON STANDS. REFER TO MECH. DWGS.
311 MINIMUM R-30 BATT INSULATION OR RIGID INSULATION. REFER TO ENERGY CALCULATIONS.
315 HOSE BIB. REFER TO PLUMBING AND LANDSCAPE DWGS.
316 ELECTRICITY, GAS AND WATER. REFER TO MEP DRAWINGS.
317 MOTORIZED VEHICULAR GATE. REFER TO ELECT. DWGS.
318 ALL TOILETS TO BE WALL HUNG. REFER TO MECH. DWGS.
319 LINEAR DRAIN
320 OVERFLOW SCUPPER.

WATERPROOFING

400 CONTINUOUS VAPOR BARRIER. REFER TO ARCH AND STRUCTURAL DWGS.
401 WATERPROOFING MEMBRANE. REFER TO ARCH AND STRUCTURAL DWGS.
402 POOL FINISH/ COLOR TBD

MISC. ARCHITECTURAL DETAILS

500 CURTAIN CEILING COVE. REFER TO ARCH. DETAIL.
501 CONTINUOUS 1/2" TOOLED WATER DRIP. SEE ARCH. DETAIL.
502 VENT.
503 KITCHEN, BUILT-IN FURNITURE, CABINETRY BY OTHERS. REFER TO KITCHEN SHOP DWGS.
504 5/8" GWB DROPPED CEILING ON 3/4" FURRING STRIPS, PAINTED GWB. COLOR TBD.
505 STAINLESS STEEL SCUPPER IN CONCRETE STRUCTURE. 3" X 3" MIN.OPENING. REFER TO ELEVATION AND PLAN FOR LOCATION.
506 CUSTOM WOOD MILLWORK, REFER TO I.D. DRAWINGS.
507 SOLAR PANELS (T.B.D.)
509 CONCEALED LED SCREEN.
510 LADDER ACCESS.

LIGHTING

600 PENDANT LIGHT. REFER TO LIGHTING DWGS.
601 RECESSED DOWN LIGHT. REFER TO LIGHTING DWGS.
602 CONCEALED LINEAR LIGHT. REFER TO LIGHTING DWGS.

FIRE SAFETY

700 FIRE DEPARTMENT VEHICULAR ACCESS ROADS MUST BE INSTALLED AND MAINTAINED IN A SERVICEABLE MANNER PRIOR TO AND DURING THE TIME OF CONSTRUCTION. FIRE CODE 5001.4
701 AN APPROVED KEY BOX, LISTED IN ACCORDANCE WITH UL 1037 SHALL BE PROVIDED AS REQUIRED BY FIRE CODE 506. THE LOCATION OF EACH KEY BOX SHALL BE DETERMINED BY THE FIRE INSPECTOR.
702 ALL REQUIRED PUBLIC FIRE HYDRANTS SHALL BE INSTALLED, TESTED AND ACCEPTED PRIOR TO BEGINNING CONSTRUCTION. FIRE CODE 501.4
703 PROVIDE AN APPROVED AUTOMATIC FIRE SPRINKLER SYSTEM AS SET FORTH BY BUILDING CODE 903 AND FIRE CODE 9003. PLANS SHALL BE SUBMITTED TO THE SPRINKLER PLAN CHECK UNIT FOR REVIEW AND APPROVAL PRIOR TO INSTALLATION.
704 SMOKE ALARMS SHALL RECEIVE THEIR PRIMARY POWER FROM THE BUILDING WIRING PROVIDED THAT SUCH WIRING IS SERVED FROM A COMMERCIAL SOURCE AND SHALL BE EQUIPPED WITH A BATTERY BACKUP. RESIDENTIAL CODE R314.4
705 WHERE MORE THAN ONE SMOKE ALARM IS REQUIRED TO BE INSTALLED WITHIN AN INDIVIDUAL DWELLING OR SLEEPING UNIT, THE SMOKE ALARMS SHALL BE INTERCONNECTED SIN USCH A MANNER THAT THE ACTIVATION OF ONE ALARM WILL ACTIVATE ALL OF THE ALARMS IN THE INDIVIDUAL UNIT. RESIDENTIAL CODE R314.5
706 APPROVED BUILDING ADDRESS NUMBERS, BUILDING NUMBERS OR APPROVED BUILDING IDENTIFICATION SHALL BE PROVIDED AND MAINTAINED SO AS TO BE PLAINLY VISIBLE AND LEGIBLE FROM THE STREET FRONTING THE PROPERTY. THE MINIMUM OF 4 INCHES HIGH WITH A MINIMUM STROKE WIDTH OF 0.5 INCH. FIRE CODE 505.1
707 ALL ROOF COVERINGS SHALL BE CLASS "A" AS SPECIFIED IN BUILDING CODE 1505.1.1 (RESIDENTIAL CODE R327.5.2 & R902)
708 ROOF VALLEY FLASHINGS SHALL BE NOT LESS THAN 0.019 INCH (NO.26 GALVANIZED SHEET GAGE) CORROSION-RESISTANT METAL INSTALLED OVER A MINIMUM 36-INCH WIDE UNDERLAYMENT CONSISTING OF ONE LAYER OF NO. 72 ASTM CAP SHEET MEETING RUNNING THE FULL LEGHTH OF THE VALLEY (RESIDENTIAL CODE R327.5.3 AND BUILDING CODE 705A.3)
709 ROOF GUTTERS SHALL BE PROVIDED WITH A MEANS GTO PREVENT THE ACCUMULATION OF LEAVES AND DEBRIS IN THE GUTTER. (RESIDENTIAL CODE R327.5.3& AND BUILDING GCODE 705A.4)
710 VENTS SHALL RESIST THE INTRUSION OF FLAME AND EMBERS AND FLAME THROUGH THE VENTILATION OPENINGS. VENT OPENINGS SHALL BE PROTECTED BY CORROSION- RESISTANT, NONCOMBUSTIBLE WIRE MESH WITH A MINIMUM 1/16TH INCH OPENINGS AND SHALL NOT EXCEED 1/8TH INCH. VENTS SHALL NOT BE INSTALLED IN EAVES OR CORNICES. (RESIDENTIAL CODE R327.6.1 AND BUILDING CODE 706A.1)
711 CLEARANCE OF BRUSH AND VEGETATIVE GROWTH SHALL BE MAINTAINED PER FIRE CODE 325.
712 PROVIDE APPROVED SIGNS OR OTHER APPROVED NOTICES OR MARKINGS THAT INCLUDE THE WORDS NO PARKING - FIRE LANE. SIGNS SHALL HAVE A MINIMUM DIMENSION OF 12 INCHES WIDE BY 18 INCHES HIGH AND HAVE RED LETTERS ON A WHITE REFLECTIVE BACKGROUND. SIGNS SHALL BE PROVIDED FOR FIRE APPARATUS ACCESS ROADS, TO CLEARLY INDICATE THE ENTRANCE TO SUCH ROAD, OR PROHIBIT THE OBSTRUCTION THEREOF AND AT INTERVALS, AS REQUIRED BY THE FIRE INSPECTOR. FIRE CODE 503.3.
713 ALL FIRE HYDRANTS SHALL MEASURE 6"" X 4"" X 2-1/2"", BRASS OR BRONZE, CONFORMING TO AMERICAN WATER WORKS ASSOCIATION STANDARD C503, OR APPROVED EQUAL.

ROOM NAMES

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06 PANTRY
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08 OUTDOOR KITCHEN
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11 COURTYARD
12 MASTER BEDROOM
13 MASTER BATHROOM
14 MASTER CLOSET
15 POOL
16 POOL DECK
17 WATER FEATURE
18 TERRACE
19 FIRE PIT
20 OFFICE
21 OUTDOOR SHOWER
22 STORAGE
23 FIREPLACE
24 GYM
25 STEAM ROOM
26 SAUNA
27 MASSAGE ROOM
28 LAUNDRY
29 MUD ROOM
30 WINE STORAGE
31 GARAGE
32 LIGHTWELL
33 OUTDOOR BATHROOM
34 SUNKEN TUB

Project No
1813

Project Name
VILLA COLEAVA

Project Address
25200 Pacific Coast Hwy.
Malibu, California, USA

Property Owner
PAR PCH, LLC
PO Box 6528
Malibu, CA 90265

Design Architect
Oppenheim Architecture
245 NE 37 Street
Miami FL 33137
P 305 576 8404
F 305 576 8433
W oppenoffice.com

Landscape Architect
[place]
3617 exposition boulevard
Los Angeles, CA 90016
P 310-450-8100
F 323-737-3290
W plac-e.com

Civil Engineers
LC Engineering Group
889 Pierce Ct., Ste. 101
Thousand Oaks, CA 91360
P 805-497-1244
P 818-991-7148
W lcegroupinc.com

Revisions

Mark	Date	Description

Title
GROUND LEVEL-2

1/8" = 1'-0"

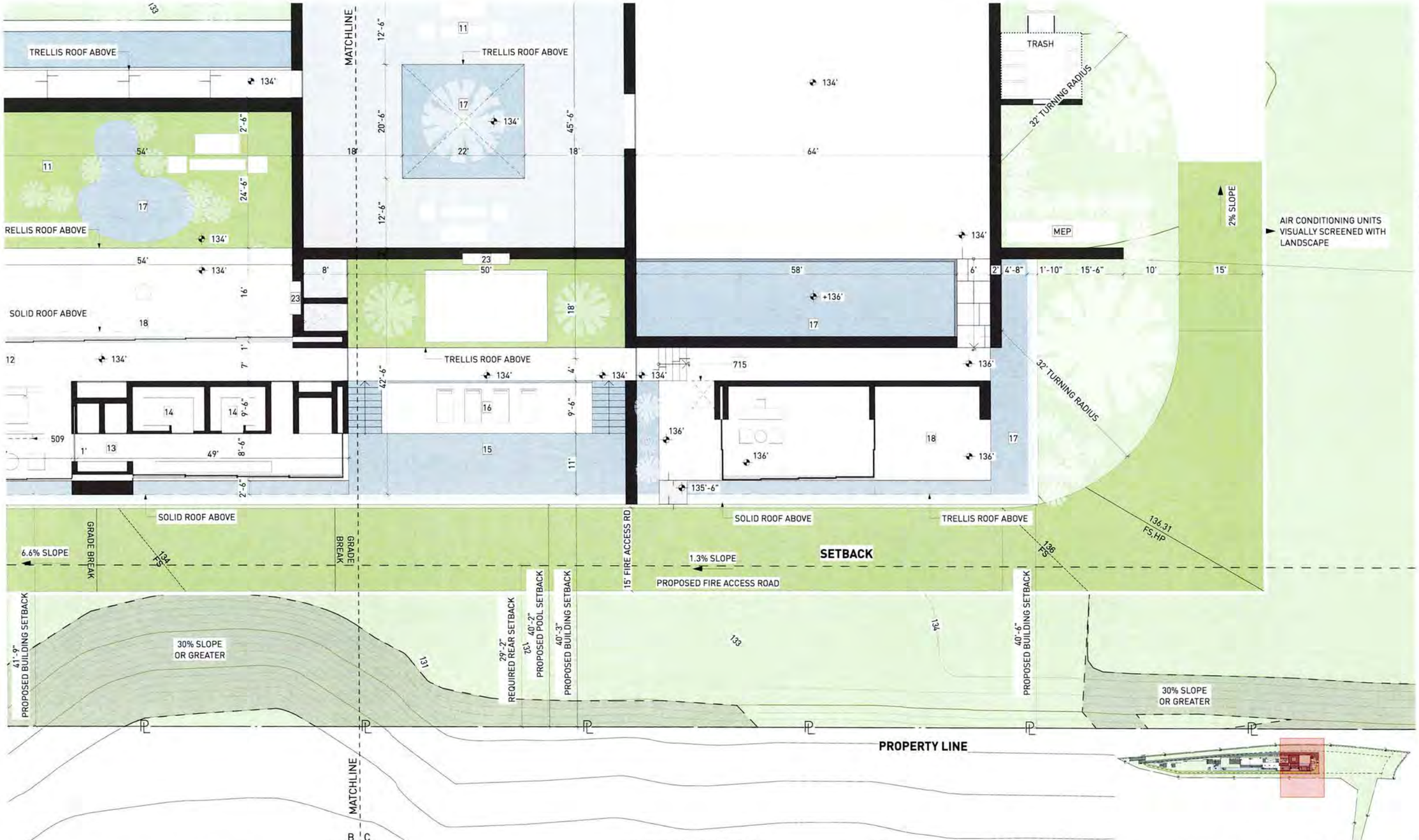
NOT FOR CONSTRUCTION

Design Development

1813
VILLA COLEAVA

Drawing Issued on 4/16/25

A405



KEY NOTES:

SITE

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011 PEDESTRIAN GATE DOOR. PROVIDE SHOP DWGS. FOR ARCHITECT REVIEW.
012 42" MOTORIZED VEHICULAR SLIDING ENTRY GATE. STEEL FRAME. 90% VISUALLY PERMEABLE.
013 42" PERIMETER FENCE. 90% VISUALLY PERMEABLE.
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Project No
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Project Name
VILLA COLEAVA

Project Address
25200 Pacific Coast Hwy.
Malibu, California, USA

Property Owner
PAR PCH, LLC
PO Box 6528
Malibu, CA 90265

Design Architect
Oppenheim Architecture
245 NE 37 Street
Miami FL 33137
P 305 576 8404
F 305 576 8433
W oppenoffice.com

Landscape Architect
[place]
3617 exposition boulevard
Los Angeles, CA 90016
P 310-450-8100
F 323-737-3290
W plac-e.com

Civil Engineers
LC Engineering Group
889 Pierce Ct., Ste. 101
Thousand Oaks, CA 91360
P 805-497-1244
P 818-991-7148
W lcegroupinc.com

Revisions

Mark	Date	Description

Title
GROUND LEVEL-3

1/8" = 1'-0"

NOT FOR CONSTRUCTION

Design Development

1813
VILLA COLEAVA

Drawing Issued on 4/16/25

A406



KEY NOTES:

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507 SOLAR PANELS.(T.B.D.)
509 CONCEALED LED SCREEN.
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LIGHTING

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701 AN APPROVED KEY BOX, LISTED IN ACCORDANCE WITH UL 1037 SHALL BE PROVIDED AS REQUIRED BY FIRE CODE 506. THE LOCATION OF EACH KEY BOX SHALL BE DETERMINED BY THE FIRE INSPECTOR.
702 ALL REQUIRED PUBLIC FIRE HYDRANTS SHALL BE INSTALLED, TESTED AND ACCEPTED PRIOR TO BEGINNING CONSTRUCTION. FIRE CODE 501.4
703 PROVIDE AN APPROVED AUTOMATIC FIRE SPRINKLER SYSTEM AS SET FORTH BY BUILDING CODE 903 AND FIRE CODE 9003. PLANS SHALL BE SUBMITTED TO THE SPRINKLER PLAN CHECK UNIT FOR REVIEW AND APPROVAL PRIOR TO INSTALLATION.
704 SMOKE ALARMS SHALL RECEIVE THEIR PRIMARY POWER FROM THE BUILDING WIRING PROVIDED THAT SUCH WIRING IS SERVED FROM A COMMERCIAL SOURCE AND SHALL BE EQUIPPED WITH A BATTERY BACKUP. RESIDENTIAL CODE R314.4
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706 APPROVED BUILDING ADDRESS NUMBERS, BUILDING NUMBERS OR APPROVED BUILDING IDENTIFICATION SHALL BE PROVIDED AND MAINTAINED SO AS TO BE PLAINLY VISIBLE AND LEGIBLE FROM THE STREET FRONTING THE PROPERTY. THE MINIMUM OF A INCHES HIGH WITH A MINIMM STROKE WIDTH OF 0.5 INCH. FIRE CODE 505.1
707 ALL ROOF COVERINGS SHALL BE CLASS "A" AS SPECIFIED IN BUILDING CODE 1505.1.1 (RESIDENTIAL CODE R327.5.2 & R902)
708 ROOF VALLEY FLASHINGS SHALL BE NOT LESS THAN 0.019 INCH (NO.26 GALVANIZED SHEET GAGE) CORROSION-RESISTANT METAL INSTALLED OVER A MINIMUM 36-INCH WIDE UNDERLAYMENT CONSISTING OF ONE LAYER OF NO. 72 ASTM CAP SHEET MEETING RUNNING THE FULL LEGHTH OF THE VALLEY (RESIDENTIAL CODE R327.5.3 AND BUILDING CODE 705A.3
709 ROOF GUTTERS SHALL BE PROVIDED WITH A MEANS OTO PREVENT THE ACCUMULATION OF LEAVES AND DEBRIS IN THE GUTTER. (RESIDENTIAL CODE R327.534 AND BUILDING GOODE 705A.4)
710 VENTS SHALL RESIST THE INTRUSION OF FLAME AND EMBERS AND FLAME THROUGH THE VENTILATION OPENINGS. VENT OPENINDS SHALL BE PROTECTED BY CORROSION- RESISTANT, NONCOMBUSTIBLE WIRE MESH WITH A MINIMUM 1/16TH INCH OPENINGS AND SHALL NOT EXCEED 1/8TH INCH. VENTS SHALL NOT BE INSTALLED IN EAVES OR CORNICES. (RESIDENTIAL CODE R327.6.1 AND BUILDING CODE 704A.1)
711 CLEARANCE OF BRUSH AND VEGETATIVE GROWTH SHALL BE MAINTAINED PER FIRE CODE 325.
712 PROVIDE APPROVED SIGNS OR OTHER APPROVED NOTICES OR MARKINGS THAT INCLUDE THE WORDS NO PARKING - FIRE LANE. SIGNS SHALL HAVE A MINIMUM DIMENSION OF 12 INCHES WIDE BY 18 INCHES HIGH AND HAVE RED LETTERS ON A WHITE REFLECTIVE BACKGROUND. SIGNS SHALL BE PROVIDED FOR FIRE APPARATUS ACCESS ROADS, TO CLEARLY INDICATE THE ENTRANCE TO SUCH ROAD, OR PROHIBIT THE OBSTRUCTION THEREOF AND AT INTERVALS, AS REQUIRED BY THE FIRE INSPECTOR. FIRE CODE 503.3.
713 ALL FIRE HYDRANTS SHALL MEASURE 6"" X 4"" X 2-1/2"", BRASS OR BRONZE, CONFORMING TO AMERICAN WATER WORKS ASSOCIATION STANDARD C503, OR APPROVED EQUAL.

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31 GARAGE
32 LIGHTWELL
33 OUTDOOR BATHROOM
34 SUNKEN TUB

Project No

1813

Project Name
VILLA COLEAVA

Project Address
25200 Pacific Coast Hwy.
Malibu, California, USA

Property Owner
PAR PCH, LLC
PO Box 6528
Malibu, CA 90265

Design Architect
Oppenheim Architecture
245 NE 37 Street
Miami FL 33137
P 305 576 8404
F 305 576 8433
W oppenoffice.com

Landscape Architect
[place]
3617 exposition boulevard
Los Angeles, CA 90016
P 310-450-8100
F 323-737-3290
W plac-e.com

Civil Engineers
LC Engineering Group
889 Pierce Ct., Ste. 101
Thousand Oaks, CA 91360
P 805-497-1244
P 818-991-7148
W lcegroupinc.com

Revisions

Mark	Date	Description

Title
ROOF LEVEL-1

1/8" = 1'-0"

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Design Development

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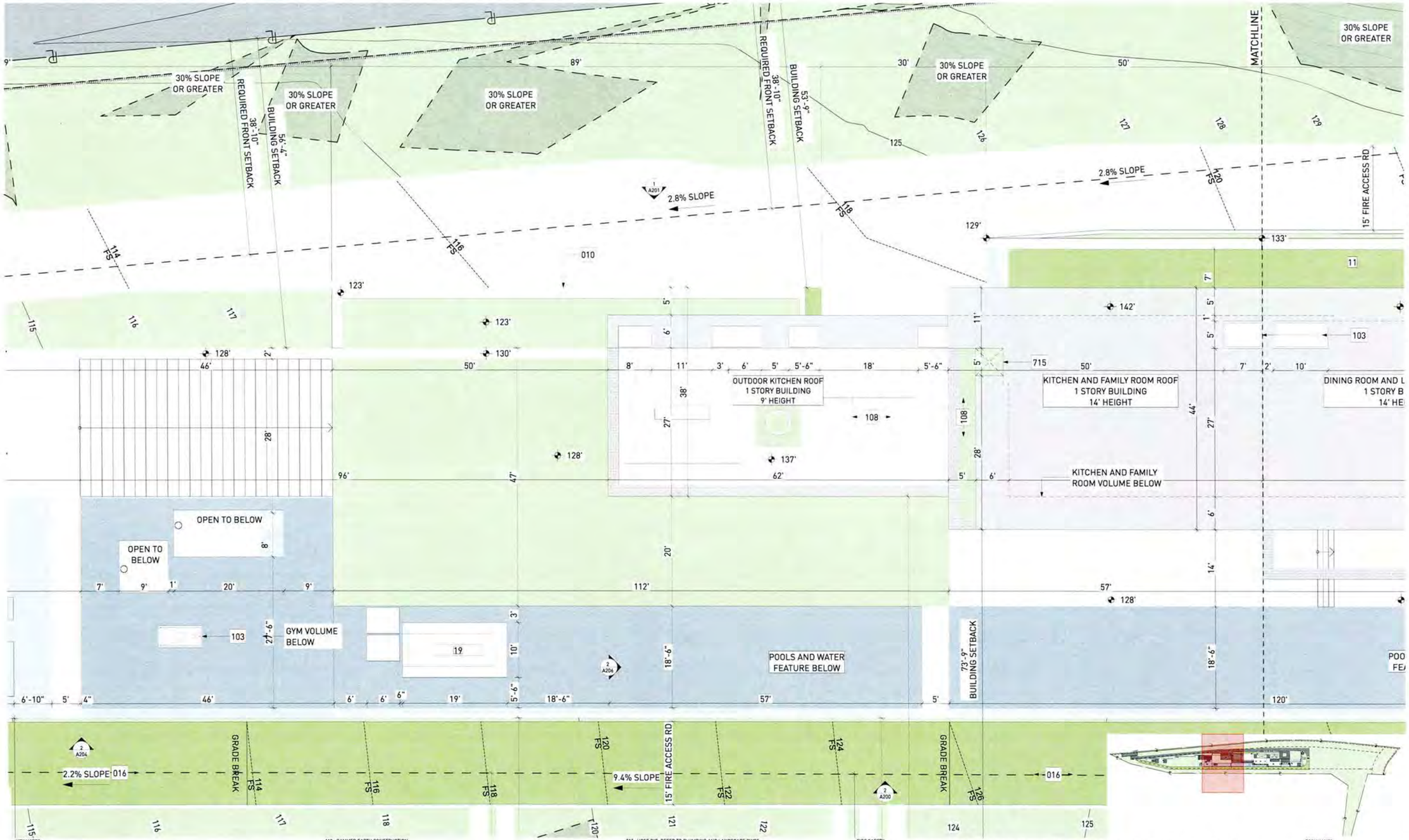
Drawing Issued on 4/16/25

A407



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MATERIALS

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Project No
1813

Project Name
VILLA COLEAVA

Project Address
25200 Pacific Coast Hwy.
Malibu, California, USA

Property Owner
PAR PCH, LLC
PO Box 6528
Malibu, CA 90265

Design Architect
Oppenheim Architecture
245 NE 37 Street
Miami FL 33137
P 305 576 8404
F 305 576 8433
W oppenoffice.com

Landscape Architect
[place]
3617 exposition boulevard
Los Angeles, CA 90016
P 310-450-8100
F 323-737-3290
W plac-e.com

Civil Engineers
LC Engineering Group
889 Pierce Ct., Ste. 101
Thousand Oaks, CA 91360
P 805-497-1244
P 818-991-7148
W lcegroupinc.com

Revisions

Mark	Date	Description

Title
ROOF LEVEL-2

1/8" = 1'-0"

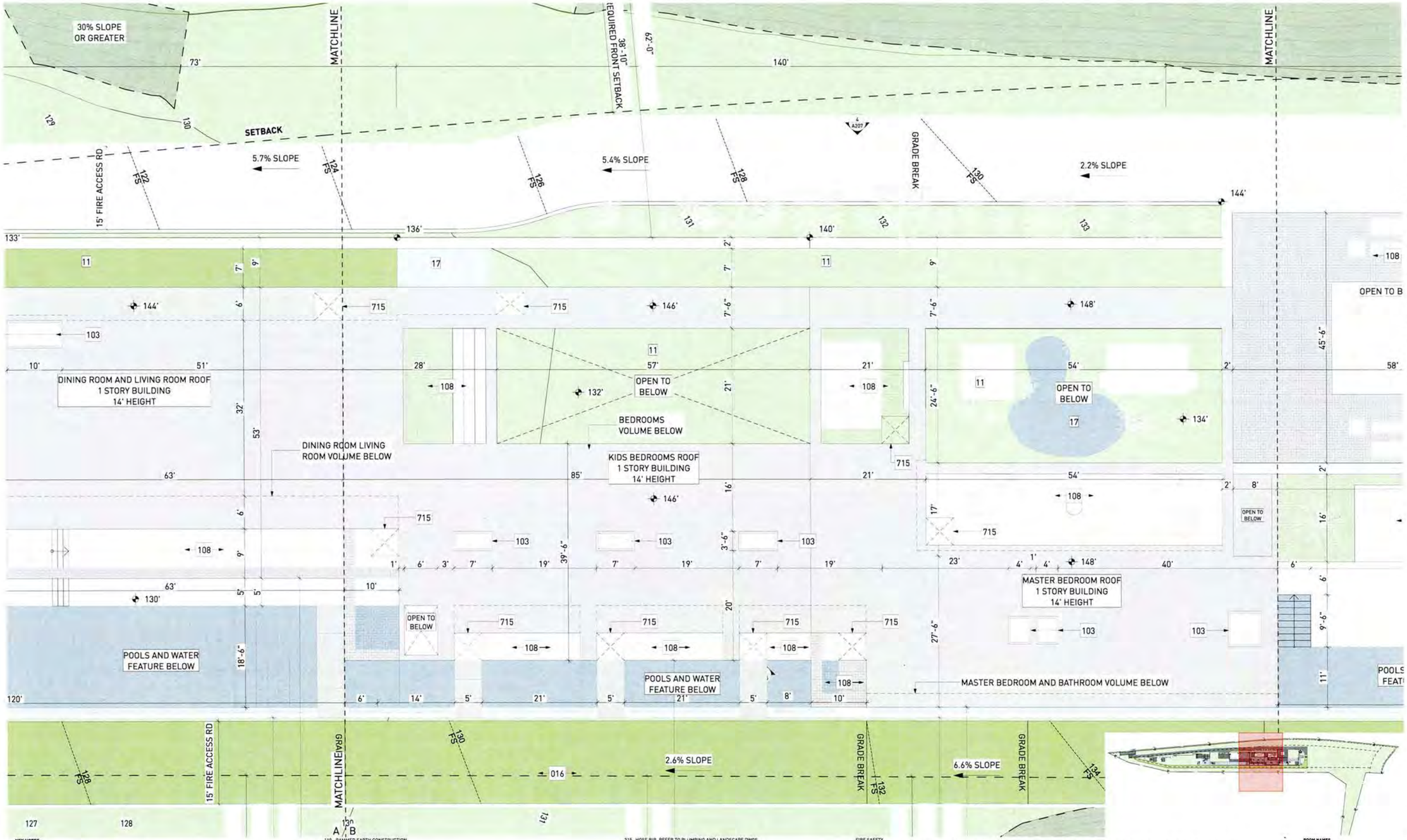
NOT FOR CONSTRUCTION

Design Development

1813
VILLA COLEAVA

Drawing Issued on 4/16/25

A408



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709 ROOF GUTTERS SHALL BE PROVIDED WITH A MEANS OTO PREVENT THE ACCUMULATION OF LEAVES AND DEBRIS IN THE GUTTER. (RESIDENTIAL CODE R327.534 AND BUILDING QCODE 705A.4)
710 VENTS SHALL RESIST THE INTRUSION OF FLAME AND EMBERS AND FLAME THROUGH THE VENTILATION OPENINGS. VENT OPENINGS SHALL BE PROTECTED BY CORROSION- RESISTANT, NONCOMBUSTIBLE WIRE MESH WITH A MINIMUM 1/16TH INCH OPENINGS AND SHALL NOT EXCEED 1/8TH INCH. VENTS SHALL NOT BE INSTALLED IN EAVES OR CORNICES. IRESIDENTIAL CODE R327.6.1 AND BUILDING CODE 706A.1)
711 CLEARANCE OF BRUSH AND VEGETATIVE GROWTH SHALL BE MAINTAINED PER FIRE CODE 325.
712 PROVIDE APPROVED SIGNS OR OTHER APPROVED NOTICES OR MARKINGS THAT INCLUDE THE WORDS NO PARKING - FIRE LANE. SIGNS SHALL HAVE A MINIMUM DIMENSION OF 12 INCHES WIDE BY 18 INCHES HIGH AND HAVE RED LETTERS ON A WHITE REFLECTIVE BACKGROUND. SIGNS SHALL BE PROVIDED FOR FIRE APPARATUS ACCESS ROADS, TO CLEARLY INDICATE THE ENTRANCE TO SUCH ROAD, OR PROHIBIT THE OBSTRUCTION THEREOF AND AT INTERVALS, AS REQUIRED BY THE FIRE INSPECTOR. FIRE CODE 503.3
713 ALL FIRE HYDRANTS SHALL MEASURE 6"" X 4"" X 2-1/2"", BRASS OR BRONZE, CONFORMING TO AMERICAN WATER WORKS ASSOCIATION STANDARD C503, OR APPROVED EQUAL.
714 ALL ON-SITE FIRE HYDRANTS SHALL BE INSTALLED, TESTED AND APPROVED PRIOR TO BUILDING OCCUPANCY. FIRE CODE 901.5.1

ROOM NAMES

01 LIVING ROOM
02 DINING ROOM
03 KITCHEN
04 SERVICE KITCHEN
05 POWDER ROOM
06 PANTRY
07 FAMILY ROOM
08 OUTDOOR KITCHEN
09 BEDROOM
10 BATHROOM
11 COURTYARD
12 MASTER BEDROOM
13 MASTER BATHROOM
14 MASTER CLOSET
15 POOL
16 POOL DECK
17 WATER FEATURE
18 TERRACE
19 FIRE PIT
20 OFFICE
21 OUTDOOR SHOWER
22 STORAGE
23 FIREPLACE
24 GYM
25 STEAM ROOM
26 SAUNA
27 MASSAGE ROOM
28 LAUNDRY
29 MUD ROOM
30 WINE STORAGE
31 GARAGE
32 LIGHTWELL
33 OUTDOOR BATHROOM
34 SUNKEN TUB

Project No
1813

Project Name
VILLA COLEAVA

Project Address
25200 Pacific Coast Hwy.
Malibu, California, USA

Property Owner
PAR PCH, LLC
PO Box 6528
Malibu, CA 90265

Design Architect
Oppenheim Architecture
245 NE 37 Street
Miami FL 33137
P 305 576 8404
F 305 576 8433
W oppenoffice.com

Landscape Architect
[place]
3617 exposition boulevard
Los Angeles, CA 90016
P 310-450-8100
F 323-737-3290
W plac-e.com

Civil Engineers
LC Engineering Group
889 Pierce Ct., Ste. 101
Thousand Oaks, CA 91360
P 805-497-1244
P 818-991-7148
W lcegroupinc.com

Revisions

Mark	Date	Description

Title
ROOF LEVEL-3

1/8" = 1'-0"

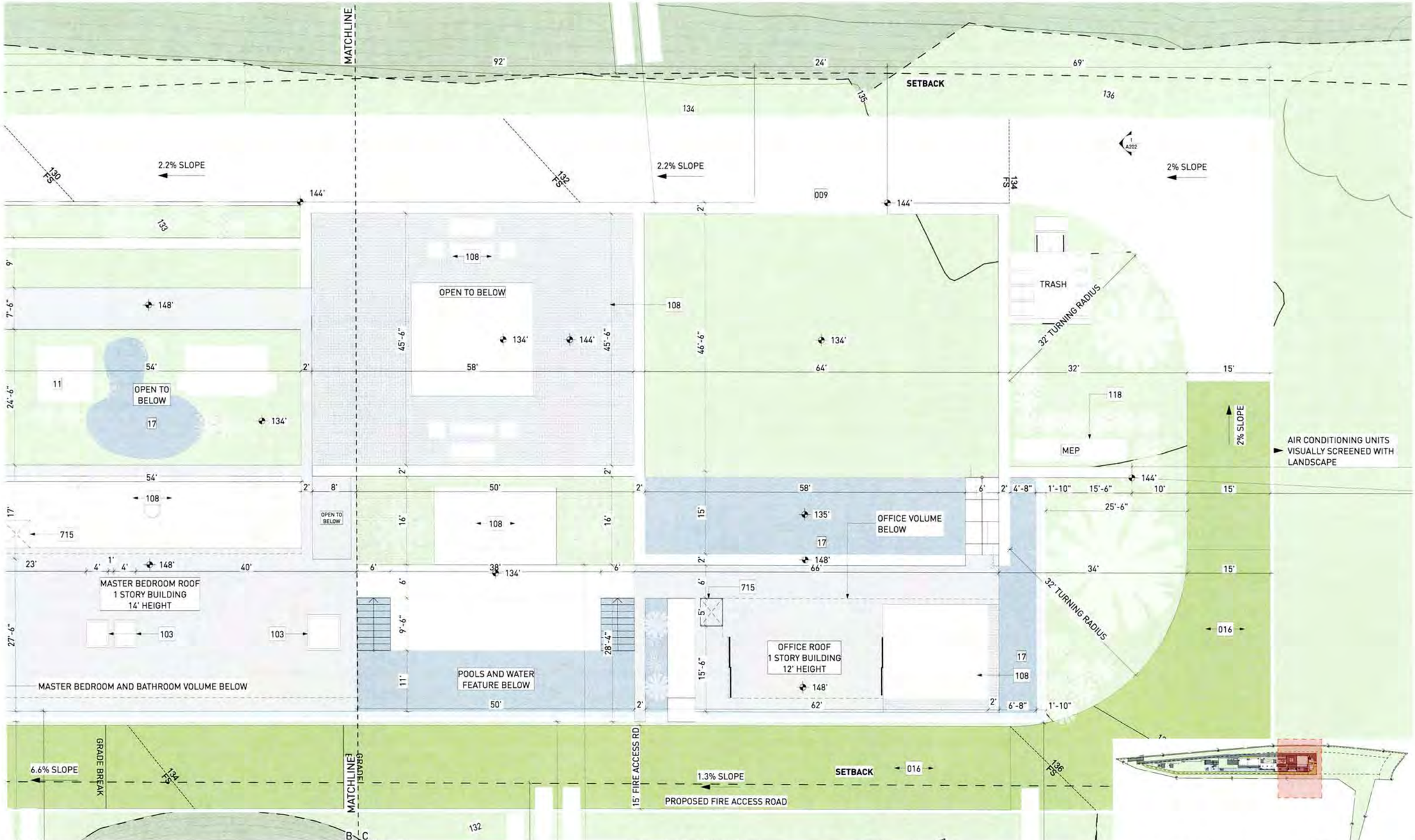
NOT FOR CONSTRUCTION

Design Development

1813
VILLA COLEAVA

Drawing Issued on 4/16/25

A409



KEY NOTES:

SITE

001 MAINTAIN ALL WATER RUNOFF WITHIN PROPERTY. SLOPE AWAY FROM P.L. AT A MIN. SLOPE OF ¼" /FT., REFER TO CIVIL DWGS.
002 TREES/LANDSCAPING PLANTING/GROUND COVER/LAWN, REFER TO LANDSCAPE DWGS.
003 HEDGE. REFER TO LANDSCAPE DWGS.
004 HARDSCAPE. REFER TO LANDSCAPE DWGS.
005 DRIVEWAY. GRAVEL ON GRADE. REFER TO CIVIL & LANDSCAPE DWGS.
006 WOOD DECK, SIZE OF PLANKS T.B.D. FINISH T.B.D.
007 UNDERGROUND DRAINAGE SYSTEM. REFER TO CIVIL DWGS.
008 INFINITY POOL EDGE.
009 OPEN PARKING, REFER TO CIVIL FOR DETAILS
010 6'-0" SITE RETAINING WALL. REFER TO STRUCTURAL AND LANDSCAPE DWGS.
011 PEDESTRIAN GATE DOOR. PROVIDE SHOP DWGS. FOR ARCHITECT REVIEW.
012 42" MOTORIZED VEHICULAR SLIDING ENTRY GATE. STEEL FRAME. 90% VISUALLY PERMEABLE.
013 42" PERIMETER FENCE. 90% VISUALLY PERMEABLE.
014 CALL BOX.
015 TRASH ENCLOSURE AREA
016 STRUCTURAL GRASS DRIVEWAY. GRASSCRETE OR SIMILAR. REFER TO CIVIL & LANDSCAPE DWGS.
017 GENERATOR ON EXISTING CONCRETE PLINTH, BOTTOM OF GENERATOR TO BE ABOVE BFE +1'. REFER TO ELECTRICAL DWGS.
018 A/C CONDENSER UNITS BEHIND LANDSCAPE, BOTTOM OF UNITS TO BE ABOVE BFE +1', REFER TO MECHANICAL DWGS.
019 NATURAL LAWN AREA. REFER TO LANDSCAPE DWGS.

MATERIALS

100 ARCHITECTURAL EXPOSED CONCRETE, COLOR T.B.D. REFER TO STRUCTURAL DRAWINGS AND ARCHITECTURAL DETAILS.
101 CUSTOM WOOD DOOR. REFER TO DOOR SCHEDULE.
102 IMPACT RESISTANT SLIDING ALUMINUM WINDOWS / DOORS SYSTEM, LOW-E COATING. REFER TO WINDOW SCHEDULE.
103 PRE-FABRICATED SKYLIGHT ON CONCRETE CURB. REFER TO WINDOW SCHEDULE. SEE SECTION AND DETAILS.
104 GARAGE STEEL DOOR CLADDED WITH CUSTOM CONCRETE PANELS. REFER TO DOOR SCHEDULE.
105 GRAVEL.
106 5/8" G.W.B., FINISH T.B.D.; REFER TO I.D. DWGS.
107 3/8" THERMOFORMED LIMESTONE PLASTER, SAND FINISH, COLOR T.B.D. 3/8" TYPICAL
110 RAMMED EARTH CONSTRUCTION
111 STONE BENCH.

STRUCTURAL

200 FOUNDATION AND PILES. REFER TO STRUCT. DWGS.
201 COMPACTED EARTH. REFER TO STRCUT. DWGS.
202 RETAINING WALL. REFER TO STRUCT. DWGS.
203 CONCRETE SLAB. REFER TO STRUCT. DWGS.
204 CONCRETE COLUMN. REFER TO STRUCT. DWGS.
205 CONCRETE BEAM. REFER TO STRUCT. DWGS.
206 STEEL COLUMN. REFER TO STRUCT. DWGS.
207 CONCRETE STAIRS. REFER TO STRUCT. DWGS.
208 CONCRETE SHELL FOR POOL. REFER TO STRUCT. DWGS.
209 8" CMU REINFORCED WALL. REFER TO WALL TYPES AND STRUCT. DWGS
210 PROVIDE 2" RECESS ON SLABS ON ALL SHOWERS.
211 OPENING ON CONCRETE SLAB. REFER TO STRUCT. DWGS.

MEP

300 LIGHT FIXTURE/ SEE ARCH. RCP, ELECTRICAL DWGS. AND LIGHTING SPECIFICATIONS.
301 A/C PLENUM SPACE, REFER TO MECHANICAL DWGS. AND RCP. NO COMBUSTIBLES ALLOWED.
302 ROOF DRAIN, REFER TO PLUMBING DWGS. /SEE DETAIL.
303 FLOOR DRAIN, REFER TO PLUMBING DWGS./ SEE DETAIL.
304 DRAIN PIPE TO FIT IN CEILING SPACE, REFER TO PLUMBING DWGS. COORDINATE EXACT LOCATION AND SPECS.
305 KITCHEN HOOD, REFER TO MECH DWGS.
306 KITCHEN HOOD EXHAUST PIPE TO FIT IN CEILING SPACE, REFER TO MECH DWGS. COORDINATE EXACT LOCATION AND SPECS.
307 DESIGNATED POOL EQUIPMENT AREA.
308 GAS WATER HEATER. REFER TO PLUMBING DWGS.
309 ELECTRICAL PANELS. REFER TO ELECTRICAL DWGS.
310 CONDENSER UNITS ON STANDS. REFER TO MECH. DWGS.
311 MINIMUM R-30 BATT INSULATION OR RIGID INSULATION. REFER TO ENERGY CALCULATIONS.
312 ACOUSTICAL INSULATION
315 HOSE BIB. REFER TO PLUMBING AND LANDSCAPE DWGS.
316 ELECTRICITY, GAS AND WATER. REFER TO MEP DRAWINGS.
317 MOTORIZED VEHICULAR GATE. REFER TO ELECT. DWGS.
318 ALL TOILETS TO BE WALL HUNG. REFER TO MECH. DWGS.
319 LINEAR DRAIN
320 OVERFLOW SCUPPER.

WATERPROOFING

400 CONTINUOUS VAPOR BARRIER. REFER TO ARCH AND STRUCTURAL DWGS.
401 WATERPROOFING MEMBRANE. REFER TO ARCH AND STRUCTURAL DWGS.
402 POOL FINISH/ COLOR TBD.

MISC. ARCHITECTURAL DETAILS

500 CURTAIN CEILING COVE. REFER TO ARCH. DETAIL.
501 CONTINUOUS 1/2" TOOLED WATER DRIP. SEE ARCH. DETAIL.
502 VENT.
503 KITCHEN, BUILT-IN FURNITURE, CABINETRY BY OTHERS. REFER TO KITCHEN SHOP DWGS.
504 5/8" GWB DROPPED CEILING ON 3/4" FURRING STRIPS. PAINTED GWB. COLOR TBD.
505 STAINLESS STEEL SCUPPER IN CONCRETE STRUCTURE. 3" X 3" MIN.OPENING. REFER TO ELEVATION AND PLAN FOR LOCATION.
506 CUSTOM WOOD MILLWORK. REFER TO I.D. DRAWINGS.
507 SOLAR PANELS (T.B.D.)
509 CONCEALED LED SCREEN.
510 LADDER ACCESS.

LIGHTING

600 PENDANT LIGHT. REFER TO LIGHTING DWGS.
601 RECESSED DOWN LIGHT. REFER TO LIGHTING DWGS.
602 CONCEALED LINEAR LIGHT. REFER TO LIGHTING DWGS.
603 POOL LINEAR RECESSED LIGHT. REFER TO LIGHTING DWGS.

FIRE SAFETY

700 FIRE DEPARTMENT VEHICULAR ACCESS ROADS MUST BE INSTALLED AND MAINTAINED IN A SERVICEABLE MANNER PRIOR TO AND DURING THE TIME OF CONSTRUCTION. FIRE CODE 5001.4
701 AN APPROVED KEY BOX, LISTED IN ACCORDANCE WITH UL 1037 SHALL BE PROVIDED AS REQUIRED BY FIRE CODE 506. THE LOCATION OF EACH KEY BOX SHALL BE DETERMINED BY THE FIRE INSPECTOR.
702 ALL REQUIRED PUBLIC FIRE HYDRANTS SHALL BE INSTALLED, TESTED AND ACCEPTED PRIOR TO BEGINNING CONSTRUCTION. FIRE CODE 501.4
703 PROVIDE AN APPROVED AUTOMATIC FIRE SPRINKLER SYSTEM AS SET FORTH BY BUILDING CODE 903 AND FIRE CODE 9003. PLANS SHALL BE SUBMITTED TO THE SPRINKLER PLAN CHECK UNIT FOR REVIEW AND APPROVAL PRIOR TO INSTALLATION.
704 SMOKE ALARMS SHALL RECEIVE THEIR PRIMARY POWER FROM THE BUILDING WIRING PROVIDED THAT SUCH WIRING IS SERVED FROM A COMMERCIAL SOURCE AND SHALL BE EQUIPPED WITH A BATTERY BACKUP. RESIDENTIAL CODE R314.4
705 WHERE MORE THAN ONE SMOKE ALARM IS REQUIRED TO BE INSTALLED WITHIN AN INDIVIDUAL DWELLING OR SLEEPING UNIT, THE SMOKE ALARMS SHALL BE INTERCONNECTED SIN USCH A MANNER THAT THE ACTIVATION OF ONE ALARM WILL ACTIVATE ALL OF THE ALARMS IN THE INDIVIDUAL UNIT. RESIDENTIAL CODE R314.5
706 APPROVED BUILDING ADDRESS NUMBERS, BUILDING NUMBERS OR APPROVED BUILDING IDENTIFICATION SHALL BE PROVIDED AND MAINTAINED SO AS TO BE PLAINLY VISIBLE AND LEGIBLE FROM THE STREET FRONTING THE PROPERTY. THE MINIMUM OF 4 INCHES HIGH WITH A MINIMUM STROKE WIDTH OF 0.5 INCH. FIRE CODE 505.1
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33 OUTDOOR BATHROOM
34 SUNKEN TUB

Project No
1813

Project Name
VILLA COLEAVA

Project Address
25200 Pacific Coast Hwy.
Malibu, California, USA

Property Owner
PAR PCH, LLC
PO Box 6528
Malibu, CA 90265

Design Architect
Oppenheim Architecture
245 NE 37 Street
Miami FL 33137
P 305 576 8404
F 305 576 8433
W oppenoffice.com

Landscape Architect
[place]
3617 exposition boulevard
Los Angeles, CA 90016
P 310-450-8100
F 323-737-3290
W plac-e.com

Civil Engineers
LC Engineering Group
889 Pierce Ct., Ste. 101
Thousand Oaks, CA 91360
P 805-497-1244
P 818-991-7148
W lcegroupinc.com

Revisions

Mark	Date	Description

Title
ROOF LEVEL-4

1/8" = 1'-0"

NOT FOR CONSTRUCTION

Design Development

1813
VILLA COLEAVA

Drawing Issued on 4/16/25

A410

VILLA COLEAVA
LANDSCAPE PLANNING SUBMITTAL



VICINITY MAP

DRAWING INDEX

DWG NO.	DRAWING TITLE	SCALE	PLANNING SUBMITTAL 02.17.2021	BIO REVISIONS 04.05.2021	BIO REVISIONS 08.11.2021
L	LANDSCAPE				
L0.00	TITLE SHEET	NTS	●	●	●
L0.01	GENERAL SHEETS AND DETAILS	NTS	●	●	●
L2.00	OVERALL LANDSCAPE PLAN	1"= 40'-0"	●	●	●
L2.01	OVERALL TREE PLAN	1"= 40'-0"	●	●	●
L2.02	OVERALL PLANTING PLAN	1"= 40'-0"	●	●	●
L2.20	ENLARGED PLANTING PLAN	1/8"=1'-0"	●	●	●
L2.21	ENLARGED PLANTING PLAN	1/8"=1'-0"	●	●	●
L2.22	ENLARGED PLANTING PLAN	1/8"=1'-0"	●	●	●
L2.23	ENLARGED PLANTING PLAN	1/8"=1'-0"	●	●	●
L2.24	ENLARGED PLANTING PLAN	1/8"=1'-0"	●	●	●
L5.01	IRRIGATION KEY PLAN	1"= 40'-0"	●		
L5.20	ENLARGED IRRIGATION PLAN	1/16"=1'-0"	●		
L5.21	ENLARGED IRRIGATION PLAN	1/16"=1'-0"	●		
L5.22	ENLARGED IRRIGATION PLAN	1/16"=1'-0"	●		
L5.23	ENLARGED IRRIGATION PLAN	1/16"=1'-0"	●		
L5.24	ENLARGED IRRIGATION PLAN	1/16"=1'-0"	●		
L5.25	HYDROZONE PLAN / MWELO	1"= 40'-0"	●		
L5.26	IRRIGATION LEGEND	NTS	●		
L5.27	IRRIGATION NOTES & MWELO	NTS	●		
L5.28	IRRIGATION DETAILS	NTS	●		
L5.29	IRRIGATION DETAILS	NTS	●		
L5.30	CROSS CONNECTION NOTES	NTS	●		

Statement of Compliance

I have complied with the criteria of Malibu Municipal Code Chapter 17.53 and applied them for the efficient use of water in the landscape (*or irrigation, as applicable*) design plan.
Preparer Name: Victoria Pakshong
Preparer Signature: Victoria Pakshong
Professional License/designation: Licensed Architect

NOT FOR CONSTRUCTION

[place]

[pakshong landscape and architectural collaborative]
3617 exposition boulevard los angeles ca 90016
310 450 8100 fax 323 737 3290

CONSULTANTS

Property Owner
PAR PCH, LLC
PO Box 6528
Malibu, CA 90265

Design Architect
OPPENHEIM ARCHITECTURE
245 NE 37 Street
Miami, FL 33137
P 305 576 8404
F 305 576 8433
www.oppenoffice.com

Civil Engineers
LC ENGINEERING GROUP
889 Pierce Ct., Ste. 101
Thousand Oaks, CA 91360
P 805 497 1244
F 818 991 7148
www.lcegroupinc.com

NAME OF ISSUE

LICENSED ARCHITECT VICTORIA PAKSHONG No. C27025 REN. 02-28-23 STATE OF CALIFORNIA

KEY PLAN

VILLA COLEAVA

25200 Pacific Coast Highway
Malibu, CA 90265

Project # : 1913
Drawn by : LS
Scale : 1" = 40'-0"

Ref. North

Description:	Date:	No.
PLANNING SUBMITTAL	02/17/21	
BIO REVISIONS	04/05/21	
BIO REVISIONS	08/11/21	

PROJECT NO: 2021

These drawings, specifications, ideas, designs, and arrangements presented thereby are and shall remain the property of [place]. No part thereof shall be copied, disclosed to others or used in connection with any work or project other than the specific project for which they have been prepared and developed without the written consent of [place]. Visual contact with these drawings or specifications shall constitute conclusive evidence of acceptance of these restrictions.

SHEET TITLE:

TITLE SHEET

L0.00

GENERAL NOTES

ALL WORK SHALL BE DONE IN ACCORDANCE WITH THESE PLANS, DETAILS, AND SPECIFICATIONS AS WELL AS ALL APPLICABLE LOCAL CODES.

- THE CONTRACTOR SHALL CAREFULLY INSPECT THE SITE AND VERIFY ALL CONDITIONS AND DIMENSIONS PRIOR TO PROCEEDING WITH ANY WORK DESCRIBED HEREIN. THE CONTRACTOR SHALL NOTIFY THE LANDSCAPE DESIGNER OF ANY DISCREPANCIES WITH THESE DOCUMENTS PRIOR TO BEGINNING ANY CONSTRUCTION.
- IT SHALL BE THE RESPONSIBILITY OF THE GENERAL CONTRACTOR TO FAMILIARIZE HIMSELF WITH ALL THE CONDITIONS OF THE SITE RELATIVE TO EXISTING WORK, MATERIALS TO BE MATCHED, AVAILABILITY OF WORKING SPACE, SITE ACCESS AND ANY/ALL OTHER ASPECTS OF THE SITE AFFECTING THE SCOPE OF WORK AND THE DEVELOPMENT OF AN INTELLIGENT BID. NO INCREASE IN COST OR EXTENSION IN PERFORMANCE TIME WILL BE CONSIDERED RESULTING FROM THE CONTRACTOR'S FAILURE TO KNOW THE SITE CONDITIONS.
- THE CONTRACTOR SHALL CARRY ALL WORKERS COMPENSATION, PUBLIC LIABILITY, AND PROPERTY DAMAGE INSURANCE AS REQUIRED BY THE CLIENT.
- HOLD HARMLESS AND INDEMNIFICATION CLAUSE - CONTRACTOR AGREES THAT HE SHALL ASSUME SOLE RESPONSIBILITY FOR JOB SITE CONDITIONS DURING THE COURSE OF CONSTRUCTION OF THIS PROJECT, INCLUDING THE SAFETY OF ALL PERSONS AND PROPERTY; THAT THIS REQUIREMENT SHALL APPLY CONTINUOUSLY AND NOT BE LIMITED TO NORMAL WORKING HOURS, AND THAT THE CONTRACTOR SHALL DEFEND, INDEMNIFY, AND HOLD THE LANDSCAPE DESIGNER HARMLESS FROM ANY AND ALL LIABILITY, REAL OR ALLEGED, IN CONNECTION WITH THE PERFORMANCE OF WORK ON THIS PROJECT, EXCEPTING FOR LIABILITY ARISING FROM THE SOLE NEGLIGENCE OF THE LANDSCAPE DESIGNER.
- DAMAGE RESPONSIBILITY - CONTRACTOR SHALL ERECT AND MAINTAIN TEMPORARY BARRICADES PROOF PARTITIONS AS NEEDED FOR THE CLIENT'S PROTECTION AGAINST ACCIDENT. CONTRACTOR SHALL ASSUME FULL RESPONSIBILITY FOR ANY DAMAGES IMPOSED, INTENTIONALLY OR ACCIDENTALLY, TO EXISTING UTILITIES, BUILDINGS, OR OTHER AMENITIES, DUE TO THE ACTIONS OF THE CONTRACTOR, CONTRACTOR'S EMPLOYEES, AND/OR CONTRACTOR'S SUBCONTRACTORS. CONTRACTOR SHALL AT ALL TIMES PROTECT HIS WORK FROM DAMAGE AND THEFT AND REPLACE ALL DAMAGED OR STOLEN PARTS AT HIS EXPENSE UNTIL THE WORK IS ACCEPTED IN WRITING FROM THE CLIENT.
- THE CONTRACTOR SHALL APPLY FOR, OBTAIN, AND PAY FOR ALL REQUIRED PERMITS TO COMPLETE THE SCOPE OF WORK.
- TRADE COORDINATION - CONSTRUCTION AND INSTALLATION OF ALL ITEMS WITHIN THESE DOCUMENTS SHALL REQUIRE CLOSE COORDINATION BETWEEN TRADES INVOLVED IN UNDERGROUND AND UTILITY INSTALLATION, AND TREE LOCATION. CONTRACTOR SHALL BE RESPONSIBLE TO INSURE PROPER COORDINATION BETWEEN TRADES TO INSURE AND AVOID CONSTRUCTION DELAYS OR DAMAGE TO ANY IMPROVEMENTS OR UTILITIES.
- INSPECTIONS - THE CONTRACTOR SHALL BE RESPONSIBLE FOR NOTIFYING THE CITY REPRESENTATIVE AT LEAST 24 HOURS IN ADVANCE OF ANY REQUIRED CITY INSPECTION.
- THESE DRAWINGS AND SPECIFICATIONS ARE THE PROPERTY AND COPYRIGHT OF [PLACE] AND SHALL NOT BE USED ON ANY OTHER WORK EXCEPT BY WRITTEN AUTHORIZATION FROM [PLACE].
- WRITTEN DIMENSIONS TAKE PREFERENCE OVER SCALED DIMENSIONS AND SHALL BE VERIFIED ON THE JOB SITE. ANY DISCREPANCIES SHALL BE BROUGHT TO THE ATTENTION OF THE LANDSCAPE DESIGNER PRIOR TO THE COMMENCEMENT OF WORK. IN NO EVENT ARE DIMENSIONS TO BE SCALED OFF THE DRAWINGS WITHOUT PRIOR APPROVAL OF THE LANDSCAPE DESIGNER.
- ALL QUANTITIES INDICATED ON THE PLANS ARE FOR BID PURPOSES ONLY. CONTRACTOR SHALL BE RESPONSIBLE FOR VERIFYING THE QUANTITIES SHOWN BY CONDUCTING A QUANTITY TAKE-OFF.
- LANDSCAPE DESIGNER SHALL DECIDE ALL QUESTIONS RELATING TO THE INTERPRETATION(S) OF THE DRAWINGS AND THE ACCEPTABLE FULFILLMENT OF THE CONTRACT.
- THE CONTRACTOR SHALL MAINTAIN THE PREMISES CLEAN AND FREE OF EXCESS EQUIPMENT, MATERIALS, AND RUBBISH INCIDENTAL OF HIS WORK AT ALL TIMES INCLUDING WEEKENDS AND HOLIDAYS. ALL RUBBLE, TRASH, OR DISPOSABLE ITEMS RESULTING FROM DEMOLITION OR CONSTRUCTION SHALL BE DISPOSED OF IN A LEGAL AND LAWFUL MANNER TO AN APPROVED DISPOSAL SITE.
- THE CONTRACTOR SHALL NOTIFY THE LANDSCAPE DESIGNER AT LEAST 48 HOURS IN ADVANCE OF ANY SITE OBSERVATIONS OR MEETINGS AT (310) 450-8100.
- SITE OBSERVATIONS AND MEETINGS SHALL INCLUDE:
  1. PRE-CONSTRUCTION
  2. LANDSCAPE GRADING AND SOIL AMENDING
  3. LANDSCAPE CONSTRUCTION
  4. SPOTTING OF SPECIMEN PLANTS
  5. IRRIGATION PRESSURE AND COVERAGE TEST
  6. PLANTING AND/OR HYDROSEEDING
  7. PRE-MAINTENANCE
  8. POST-MAINTENANCE
- NOTE: "LANDSCAPE" SHALL REFER TO ALL IMPROVEMENTS WITHIN THIS SET OF DOCUMENTS THAT HAVE BEEN DESIGNED BY THIS OFFICE.
- SITE OBSERVATIONS BY THE LANDSCAPE DESIGNER DURING ANY PHASE OF THIS PROJECT DOES NOT RELIEVE THE CONTRACTOR OF HIS PRIMARY RESPONSIBILITY TO PERFORM ALL WORK IN ACCORDANCE WITH THE PLANS, SPECIFICATIONS, AND GOVERNING CODES.
- THIS FIRM DOES NOT PRACTICE OR CONSULT IN THE FIELD OF SAFETY ENGINEERING. THIS FIRM DOES NOT DIRECT THE CONTRACTOR'S OPERATIONS, AND IS NOT RESPONSIBLE FOR THE SAFETY OF ANY PERSONNEL OTHER THAN OF [PLACE] ON THE SITE. THE SAFETY OF OTHERS IS THE RESPONSIBILITY OF THE CONTRACTOR. THE CONTRACTOR SHOULD NOTIFY THE OWNER IF HE CONSIDERS ANY OF THE RECOMMENDED ACTIONS PRESENTED HEREIN TO BE UNSAFE.
- ALL CONSTRUCTION DOCUMENTS AND DETAILS SHALL BE COMPLETED IN FULL COMPLIANCE WITH APPLICABLE LOCAL CODES AND REQUIREMENTS.
- DETAILS ARE INTENDED TO SHOW FINAL EFFECT OF PARTS OF CONSTRUCTION. MINOR MODIFICATIONS MAY BE REQUIRED TO SUIT PARTICULAR JOBSITE DIMENSIONS OR CONDITIONS, AND SHALL BE INCLUDED WITHIN THE SCOPE OF THE WORK AND CONSTRUCTION CONTRACT. ANY MODIFICATIONS REQUIRED IN DETAILS ARE TO BE FIRST REVIEWED AND CONFIRMED WITH THE LANDSCAPE DESIGNER PRIOR TO CONSTRUCTION.
- CONTRACTOR SHALL REVIEW ALL ITEMS NOTED "VERIFY OR CONFIRM WITH LANDSCAPE DESIGNER", (OR NOTED TO THAT EFFECT), WHICH MIGHT AFFECT COSTS OR SCHEDULE, PRIOR TO FINALIZING CONSTRUCTION CONTRACT AND SUBCONTRACTS, AND SHALL CONFIRM ALL FINAL DECISIONS ON ALL ITEMS REGARDING SELECTION, MATERIALS, COLOR, FINISH OR OTHER SPECIFICATIONS NOT YET DECIDED UPON, WITH THE LANDSCAPE DESIGNER. CONTRACTOR SHALL INCLUDE THE COST OF THESE ITEMS WITHIN THE ORIGINAL CONTRACT PRICE.
- CONTRACTOR SHALL IMMEDIATELY NOTIFY THE CLIENT AND LANDSCAPE DESIGNER OF ANY EXTRA COSTS ARISING FORM THE EXECUTION OF THEIR CONTRACT OR SUBCONTRACTS AND SHALL RECEIVE THE CLIENT'S AND LANDSCAPE DESIGNER'S WRITTEN APPROVAL OF ANY ADDITIONAL COST PRIOR TO EXECUTION OF SAID WORK.
- CONTRACTOR SHALL BE RESPONSIBLE FOR SUPERVISING AND VERIFYING THAT ALL GENERAL AND SUBCONTRACT WORK IS ACCOMPLISHED ACCORDING TO THE MOST CURRENT CONSTRUCTION DOCUMENTS, INCLUDING REVISIONS.
- CONTRACTOR SHALL NOT USE ANY POTENTIALLY HAZARDOUS MATERIALS OR PRODUCTS THROUGHOUT CONSTRUCTION. CONTRACTOR SHALL ADVISE CLIENT AND LANDSCAPE DESIGNER OF ANY POTENTIALLY HAZARDOUS MATERIALS OR PRODUCTS RECOMMENDED, SELECTED, OR SPECIFIED, PRIOR TO THE PURCHASE OR INSTALLATION OF SAID MATERIALS OR PRODUCTS.

SITEWORK NOTES

- PRIOR TO FORMING OR POURING CONCRETE, CONTRACTOR SHALL STAKE OUT ALL PERIMETER LINES AS SHOWN ON PLANS FOR LANDSCAPE DESIGNER'S REVIEW, CONFIRM EXISTING STRUCTURE AND PROPERTY LINE LOCATIONS AND ELEVATIONS, AND VERIFY PROPER SETBACKS AND CLEARANCES BY LOCAL CODES.
- THERE SHALL BE NO TRENCHES OR EXCAVATIONS 5'-0" OR MORE IN DEPTH INTO WHICH A PERSON IS REQUIRED TO DESCEND. IF REQUIRED, CONTRACTOR SHALL OBTAIN NECESSARY PERMIT FROM LOCAL/STATE BUILDING AND SAFETY DEPARTMENTS.
- CONTRACTOR SHALL NOTIFY CLIENT AND LANDSCAPE DESIGNER OF ANY UNSTABLE OR QUESTIONABLE SOIL OR GEOLOGICAL CONDITIONS ENCOUNTERED DURING EXCAVATION.
- CONTRACTOR SHALL PROVIDE POSITIVE DRAINAGE OF ALL FINISHED GRADE SURFACES AND WALKWAYS AWAY FROM STRUCTURES AND VERIFY THAT ALL AREAS AFFECTED BY CONSTRUCTION ARE PROPERLY DRAINED, WITH NO PONDING.
- CONTRACTOR SHALL REMOVE ALL EXCESS SOIL, DEBRIS, AND MATERIALS NOT REQUIRED BY CONSTRUCTION. CONFIRM ANY ITEMS TO REMAIN WITH LANDSCAPE DESIGNER, PRIOR TO START OF CONSTRUCTION.

PLANTING NOTES

GENERAL

- ALL WORK SHALL BE IN ACCORDANCE WITH THESE PLANS, NOTES, DETAILS, AND ALL APPROPRIATE LOCAL CODES.
- PLAN IS DIAGRAMMATIC. CONTRACTOR SHALL VERIFY SITE CONDITIONS. IF ANY CONDITION CONFLICTS WITH PLANS, THE CONTRACTOR SHALL NOTIFY THE LANDSCAPE DESIGNER PRIOR TO ANY PLANTING INSTALLATION.
- THE IRRIGATION SYSTEM SHALL BE INSTALLED COMPLETE AND OPERABLE PRIOR TO ANY PLANTING INSTALLATION EXCEPT AS NOTED IN THESE SPECIFICATIONS.
- CONTRACTOR SHALL VERIFY QUANTITIES BY PLAN CHECK. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ALL QUANTITIES SHOWN ON THE PLAN. SHRUB AND GROUND COVER QUANTITIES SPECIFIED MAY NOT REFLECT QUANTITIES DRAWN.
- PLANT SUBSTITUTIONS WILL BE ALLOWED ONLY WITH WRITTEN APPROVAL FROM THE LANDSCAPE DESIGNER.
- CONTRACTOR SHALL BE RESPONSIBLE FOR DELIVERY COORDINATION OF ALL MATERIALS REQUIRED BY THESE PLANS, NOTES, AND DETAILS.

SCOPE OF WORK

- THE CONTRACTOR SHALL FURNISH ALL MATERIAL, LABOR, TRANSPORTATION, EQUIPMENT, AND PROPERTY IN ORDER TO COMPLETE THE LANDSCAPING OF ALL PLANTING AREAS INDICATED, OR REASONABLY IMPLIED, ON THE DRAWINGS AND/OR NOTES.

  INCLUDED AS A PART OF THE PLANTING INSTALLATION, BUT NOT LIMITED, ARE THE FOLLOWING ITEMS: CLEAR AND GRUB ALL PROPOSED LANDSCAPE AREAS; IMPORT SOIL, FINE GRADING OF ALL PLANTING AREAS; PREPARATION OF ALL PLANTING HOLES; FURNISHING AND INSTALLATION OF ALL REQUIRED PLANTING BACKFILL AND SOIL AMENDMENT MATERIALS, AND MULCH; AND MISCELLANEOUS MATERIALS; FURNISHING AND INSTALLING ALL PLANT MATERIALS; PROVIDING MAINTENANCE THROUGHOUT THE SPECIFIED PERIOD; CLEAN-UP AND WEEDING OF ALL LANDSCAPE AREAS; GUARANTEE OF ALL PLANT MATERIALS AND WORKMANSHIP FOR A PERIOD AS SPECIFIED BELOW.

MATERIALS

- ALL PLANT MATERIALS SHALL BE OF SELECT "A-1" QUALITY AND HAVE A GROWTH HABIT NORMAL TO THE SPECIES AND SHALL BE SOUND, HEALTHY, VIGOROUS AND FREE FROM PESTS, PLANT DISEASES, SUN SCALDS, FRESH BARK ABRASIONS, EXCESSIVE ABRASIONS, OR OTHER OBJECTIONABLE DISFIGUREMENTS. ALL PLANTS SHALL HAVE NORMAL WELL-DEVELOPED BRANCH SYSTEMS, AND VIGOROUS AND FIBROUS ROOT SYSTEMS WHICH ARE NEITHER ROOT NOR POT-BOUND AND ARE FREE OF KINKED OR GIRDLING ROOTS. ALL PLANTS SHALL BE TRUE TO SPECIES AND VARIETY. ALL MATERIALS SHALL BE PROVIDED BY A CERTIFIED NURSERY AND SHALL BE FREE OF ANY PEST OR DISEASE. THE LANDSCAPE DESIGNER RESERVES THE RIGHT TO REJECT ANY UNSUITABLE OR OBJECTIONABLE PLANT MATERIAL.
- TREES, SHRUBS, AND VINES - ALL PLANT MATERIALS SHALL BE OF THE SPECIFIED TYPE AND SIZE, SELECTED FROM HIGH QUALITY, WELL-SHAPED NURSERY STOCK.
- FLATTED PLANTS - ALL GROUND COVER PLANTS AND OTHER FLATTED PLANTS SHALL BE GROWN AND REMAIN IN THE FLATS UNTIL TRANSPLANTED AT THE SITE. THE SOIL AND SPACING OF THE PLANTS IN THE FLAT SHALL INSURE THE MINIMUM DISTURBANCE OF THE ROOT SYSTEM AT THE TIME OF TRANSPLANTING.
- THE CONTRACTOR SHALL KEEP ALL PLANT MATERIAL DELIVERED TO THE SITE IN A HEALTHY CONDITION FOR PLANTING. PLANTS SHALL NOT BE ALLOWED TO DRY OUT.
- ALL PLANT MATERIALS SHALL BE APPROVED BY THE LANDSCAPE DESIGNER PRIOR TO INSTALLING PLANT MATERIAL. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE CONDITION OF ALL PLANTS, PLANTED OR OTHERWISE, UNTIL ACCEPTANCE.
- TOPSOIL - TOP SOIL SHALL BE CLASS 'A' WITH THE SAME RELATIVE COMPOSITION AND STRUCTURE, A FRIABLE SANDY LOAM CHARACTER; AND BE FREE OF ROOTS, CLODS, AND STONES LARGER THAN 1 INCH IN GREATEST DIMENSION, POCKETS OF COURSE SAND, NOXIOUS WEEDS, STICKS, SLAG, BRUSH, AND OTHER MATTER. IT SHALL NOT BE INFESTED WITH NEMATODES OR OTHER UNDESIRABLE INSECTS AND PLANT DISEASE ORGANISMS. TOPSOIL PH RANGE SHALL BE 5.3 TO 6.0.
- AGRONOMIC SOILS TEST - CONTRACTOR SHALL OBTAIN AND SUBMIT FOR APPROVAL, A WRITTEN AGRONOMIC SOILS TEXT REPORT FROM A STATE REGISTERED TESTING AGENCY FOR ALL IMPORTED AND SITE TOPSOIL TO BE USED ON THE SITE. TEST REPORT SHALL LIST RECOMMENDED SOIL AMENDMENTS AND PREPARATION TO INSURE ADEQUATE PLANT GROWTH. CONTRACTOR SHALL ADJUST HIS BID ACCORDING TO THE RECOMMENDATIONS LISTED IN THE SOILS TEST REPORT.
- FERTILIZERS - ALL FERTILIZING MATERIALS SHALL COMPLY WITH THE APPLICABLE REQUIREMENTS OF THE STATE AGRICULTURAL CODE. ALL FERTILIZING MATERIALS SHALL BE PACKAGED, FIRST GRADE, COMMERCIAL QUALITY PRODUCTS IDENTIFIED AS TO SOURCE, TYPE OF MATERIAL, WEIGHT AND MANUFACTURER'S GUARANTEED ANALYSIS. FERTILIZING MATERIAL SHALL NOT CONTAIN TOXIC INGREDIENTS OR FILLERS IN QUANTITIES HARMFUL TO HUMAN LIFE, ANIMALS, OR PLANT LIFE.
- COMMERCIAL FERTILIZERS - COMMERCIAL FERTILIZER SHALL BE A PALLETIZED OR GRANULAR PRODUCT HAVING A CHEMICAL ANALYSIS AS SPECIFIED ON THE PLANS OR IN THESE SPECIFICATIONS.
- ORGANIC SOIL AMENDMENT - ORGANIC SOIL AMENDMENT SHALL BE A WELL COMPOSTED ORGANIC BASE, CLASS I OR CLASS II. WOOD BASED PRODUCTS ARE CONDITIONALLY ACCEPTABLE (STABLE HUMUS MUST BE PRESENT). WOOD BASED PRODUCTS ARE NOT ACCEPTABLE WHICH ARE BASED ON RED WOOD OR CEDAR. SLUDGE-BASED MATERIALS ARE NOT ACCEPTABLE.

INSTALLATION

- INSTALL ALL PLANT MATERIALS AS PER PLANS, NOTES, AND DETAILS.
- PLANTING AREAS SHALL BE FREE OF WEEDS AND OTHER EXTRANEOUS MATERIALS TO A DEPTH OF 12 INCHES BELOW FINISH GRADE BEFORE TOPSOIL WORK.
- CONTRACTOR SHALL BE RESPONSIBLE FOR FINISH GRADE, INCLUDING AND IMPORT SOIL ADJUSTMENTS TO EARTH BERMS AND SLOPE SHAPES. PROVIDE FINISH GRADE IN PLANTING AREAS AT A MINIMUM 2% MINIMUM GRADIENT. FINISH GRADES SHALL BE 2" BELOW ADJACENT WALKS, CURBS, DRIVEWAYS, ETC. IN GROUND COVER AREAS.
- FINISH GRADE - THE FINISH GRADE SHALL BE SMOOTH, UNIFORM, AND FREE OF ABRUPT GRADE CHANGES AND DEPRESSIONS TO INSURE SURFACE DRAINAGE. ALL PLANTED AREAS SHALL BE RAKED AND SMOOTHED TO THE REQUIRED GRADES AND CONTOURS PRIOR TO INSTALLATION. FINISH SURFACES SHALL BE CLEAN AND SUITABLE FOR PLANTING.
- ALLOW THE LANDSCAPE DESIGNER TO ADJUST PLANT LOCATIONS PRIOR TO ANY PLANTING.
- ALL LANDSCAPED AREAS SHALL BE PLANTED WITH GROUND COVER AS SHOWN ON THE PLANS. GROUND COVER SHALL BE ROOTED TIP CUTTINGS FROM FLATS AND SHALL BE PLANTED IN STAGGERED ROWS CONTINUOUSLY UNDER ALL TREES AND SHRUBS IN THE AREAS DESIGNATED ON THE PLANS AND AT THE SPACING INDICATED IN THE PLANT LEGEND.
- AMEND ALL PLANT AREAS AS FOLLOWS:

  *SOIL SPECIFICATIONS PROVIDED FOR BID PURPOSES ONLY. CONTRACTOR SHALL ADJUST AMENDMENTS AND BID BASED UPON LAB SOIL TEST PROVIDED BY THE CONTRACTOR. TEST AND REPORT SHALL BE FROM A CERTIFIED SOILS LABORATORY AND SHALL PROVIDE A COMPLETE REGULAR ANALYSIS, ORGANIC MATTER CONTENT, AND TEXTURAL CHARACTERISTICS. A MINIMUM OF ONE SAMPLE AT EACH OF THE FOLLOWING DEPTHS: 0"-12", 12"-24", AND 24"-36". PRIOR TO CONSTRUCTION, THE CONTRACTOR SHALL SUBMIT A COPY OF THE FINAL SOILS REPORT TO THE LANDSCAPE DESIGNER FOR REVIEW AND APPROVAL.

  1. SOIL IMPROVEMENT FOR ALL PLANTER AREAS:

     ROTOTILL THE FOLLOWING AMENDMENTS 6-8" DEEP AND IRRIGATE THOROUGHLY:
- 2 CU YDS WELL COMPOSTED CLASS I OR CLASS II ORGANIC MATTER PER 1,000 SQ FT
- 100 LBS OF *TURF-PLUS* [AVAILABLE AT AGUINAGA FERTILIZER COMPANY, (909) 899-1203]
- 25 LBS AGRICULTURAL GYPSUM PER 1,000 SQ FT

  2. BACKFILL MIX FOR TREES, SHRUBS, AND VINES SHALL BE AS FOLLOWS:
- 80% BY VOLUME NATIVE ON-SITE SOIL
- 20% BY VOLUME WELL COMPOSTED CLASS I OR CLASS II ORGANIC MATTER

SOIL AMENDMENT APPLICATION RATES

GENERAL SOIL PREPARATION: APPLY 70 LBS. PER 1,000 SQ. FT.

PROBLEM OR COMPACTED SOILS: APPLY 90-100 LBS. PER 1,000 SQ. FT

- PLANT INSTALLATION - PLANTING HOLES SHALL BE APPROXIMATELY SQUARE WITH THE VERTICAL SIDES TWICE THE DEPTH AND WIDTH OF THE PLANT CONTAINER OR BALL, AND SHALL BE LARGER IF NECESSARY TO PERMIT HANDLING AND PLANTING WITHOUT INJURY OR BREAKAGE OF THE ROOT BALL OR ROOT SYSTEM. ANY PLANT WITH A BROKEN OR CRACKED ROOT BALL BEFORE OR DURING PLANTING SHALL NOT BE PLANTED.
- THE NATIVE SOIL AT THE BOTTOM OF THE PLANTING HOLES SHALL BE SCARIFIED TO A DEPTH OF 6 INCHES.
- AFTER PLANTING, THE PLANT SHALL BE PLUMB WITH THE ROOT CROWN AT ITS NATURAL GROWING DEPTH WITH RESPECT TO FINISH GRADE. BACKFILL SHALL BE THOROUGHLY WATER-SETTLED AND ADDITIONAL PREPARED SOIL MIX ADDED TO FILL ANY REMAINING VOID BELOW FINISH GRADE. A CIRCULAR WATERING BASIN SLIGHTLY LARGER THAN THE PLANTING HOLE SHALL BE LEFT AROUND THE PLANT. THE BOTTOM OF THE BASIN SHALL BE AT APPROXIMATELY FINISH GRADE OR SLIGHTLY LOWER. MULCH SHALL BE SPREAD AT LEAST 1 INCH THICK IN THE BASIN. THE AREA AROUND PLANTS SHALL BE REGRADED TO FINISH GRADE. THE EXCESS SOIL SHALL BE DISPOSED OF BY THE CONTRACTOR. ALL TREES SHALL BE STAKED AND GUYED PER DETAILS.
- MULCH - ALL LANDSCAPED AREAS SHALL BE MULCHED WITH SPECIFIED MULCH. BARK SHALL BE OF A RELATIVE UNIFORM PARTICLE SIZE WITH A MEDIAN SIZE NO GREATER THAN 1 1/2" IN DIAMETER. CONTRACTOR SHALL PROVIDE A SAMPLE OF BARK MULCH TO THE LANDSCAPE DESIGNER FOR APPROVAL. MULCH SHALL BE INSTALLED TO A MIN. DEPTH OF 3".

MAINTENANCE AND WARRANTIES

- THE MAINTENANCE PERIOD SHALL COMMENCE UPON THE OWNER'S AND THE LANDSCAPE DESIGNER'S WRITTEN APPROVAL OF ALL PHASES OF PLANTING INSTALLATION AND SHALL BE:
  1. WARRANTY PERIOD FOR TREES, SHRUBS AND PLANT MATERIAL OVER 15 GALLONS: ONE YEAR FROM DATE OF FINAL INSPECTION AND ACCEPTANCE.
  2. WARRANTY PERIOD FOR 15 GALLON PLANTS: SIX MONTHS FROM DATE OF FINAL INSPECTION AND ACCEPTANCE
  3. WARRANTY PERIOD FOR 5 GALLON PLANTS: SIX MONTHS FROM DATE OF FINAL INSPECTION AND ACCEPTANCE

FOR BID PURPOSES ONLY: MAINTENANCE WORK SHALL INCLUDE A MINIMUM TWO (2) FERTILIZER APPLICATIONS TO ALL PLANTING AREAS DURING THE MAINTENANCE PERIOD. AT THE FIRST SIGN OF A DEFICIENCY UP TO THIRTY (30) DAYS, THE CONTRACTOR SHALL TEST A MINIMUM OF ONE SOIL SAMPLE FROM GROUND COVER AREAS TO DETERMINE FERTILIZER NEEDS FOR APPLICATION.

- MAINTENANCE PROCEDURES - THE GENERAL CARE AND MAINTENANCE OF ALL AREAS SHALL CONSIST OF PROPER WATERING, FERTILIZATION, WEEDING, CLEAN-UP, AND AS FOLLOWS:
  1. CULTIVATE AND WEED AT NOT LESS THAN TEN (10) WORKING DAY INTERVALS.
  2. APPROXIMATELY THIRTY (30) DAYS AFTER INITIAL PLANTING, APPLY (2) 5 LBS 16-6-8 FERTILIZER PER 1,000 SQ FT. APPLY AND THOROUGHLY IRRIGATE. THE SECOND APPLICATION USING THE ABOVE SPECIFIED FERTILIZER AT THE SAME RATE SHALL BE APPLIED IN ANOTHER SIXTY (60) DAYS OR JUST BEFORE MAINTENANCE PERIOD ENDS.
  3. CONTRACTOR SHALL MAINTAIN THE IRRIGATION SYSTEM IN A LIKE NEW, OPERATING CONDITION, ADJUSTING HEAD HEIGHTS, THROW AND SPRAY ARCS AS NECESSARY. THE CONTRACTOR SHALL BE RESPONSIBLE FOR PROPER WATERING OF ALL PLANTING AREAS, AND SHALL REPLACE ANY PLANT MATERIALS DAMAGED DUE TO IMPROPER MOISTURE.
  4. ANY CONCENTRATED DEVELOPMENT OF WEED GROWTH THAT MAY APPEAR IN PLANTING AREAS DURING MAINTENANCE PERIOD SHALL BE REMOVED AT THIRTY (30) DAY INTERVALS. THE CONTRACTOR MAY ELECT TO REMOVE SUCH CONCENTRATIONS OF WEEDS MANUALLY OR BY AN APPROVED HERBICIDE PROGRAM. THE CONTRACTOR SHALL CONSULT THE LANDSCAPE DESIGNER PRIOR TO USING ANY HERBICIDE.
  5. DURING THE COURSE OF THE MAINTENANCE WORK, THE CONTRACTOR SHALL REMOVE SURPLUS MATERIALS AND DEBRIS FROM THE SITE AND SHALL KEEP THE PREMISES IN A NEAT AND CLEAN CONDITION AT ALL TIMES.
  6. DURING THE MAINTENANCE PERIOD, THE CONTRACTOR SHALL BE RESPONSIBLE FOR MAINTAINING ADEQUATE PROTECTION FOR ALL PLANTING AREAS. ANY DAMAGE TO AREAS SHALL BE IMMEDIATELY REPAIRED AT THE CONTRACTOR'S EXPENSE.

TREE PRESERVATION GUIDELINES DURING CONSTRUCTION

BEFORE CONSTRUCTION WORK BEGINS, WHICH WILL IMPACT A TREE, AN ARBORIST SHALL ASSESS THE IMPACT OF CONSTRUCTION BASED ON THE CONDITION OF THE TREE. MITIGATING MEASURES NECESSARY TO PROTECT THE TREE WILL BE STATED AND REVIEWED BY THE TEAM.

THE FOLLOWING GUIDELINES HAVE BEEN DEVELOPED TO PROTECT TREES DURING CONSTRUCTION PROJECTS:

A. A ROOT PROTECTION ZONE SHALL BE DEFINED BY A FOUR-FOOT HIGH TWO-BY-FOUR BARRIER CONSTRUCTED AROUND ANY POTENTIALLY IMPACTED TREE. THIS BARRIER SHALL BE AT THE DRIP LINE OR AT A DISTANCE FROM THE TRUNK EQUAL TO 6 INCHES FOR EACH INCH OF TRUNK DIAMETER 4 ½ FEET ABOVE THE GROUND IF THIS METHOD DEFINES A LARGER AREA.

B. SHOULD IT BE NECESSARY TO TRENCH WITHIN THIS AREA, TRENCHES SHALL BE HAND DUG. NO ROOTS LARGER THAN TWO INCHES SHALL BE CUT UNLESS NO OTHER ALTERNATIVE IS FEASIBLE. ALL ROOTS GREATER THAN TWO (2) INCHES IN DIAMETER MUST BE CLEANLY CUT TO ENCOURAGE GOOD CALLUS TISSUE. IT IS RECOMMENDED THAT ROOTS BE PRUNED BACK TO THE NEXT ROOT NODE.

C. ALL SMALLER ROOTS THAT MUST BE CUT SHALL BE SAW CUT (NO TRENCHERS) FLUSH WITH THE SIDE OF THE TRENCH. IF AT ANY TIME 25 PERCENT OF THE AREA WITHIN THE ROOT PROTECTION ZONE IS BEING SEPARATED FROM THE TREE BY A TRENCH, THE LINE SHALL BE LOCATED BY BORING OR AN ALTERNATE LOCATION FOR THE TRENCH ESTABLISHED.

D. THE MINIMUM CLEARANCE BETWEEN AN OPEN TRENCH AND A STREET TREE SHALL BE ONE (1) FOOT, OR SIX (6) INCHES FOR EACH INCH OF TRUNK DIAMETER MEASURED AT 4.5 FEET ABOVE EXISTING GRADE IF THIS METHOD DEFINES A LARGER DISTANCE. THE MAXIMUM CLEARANCE SHALL BE TEN (10) FEET. THE CONTRACTOR SHALL CONFORM TO THESE PROVISIONS UNLESS OTHERWISE DIRECTED BY AN ARBORIST.

E. AT NO TIME SHALL ANY EQUIPMENT, MATERIALS, SUPPLIES OR FILL BE ALLOWED WITHIN THE PRESCRIBED ROOT PROTECTION ZONE UNLESS OTHERWISE DIRECTED BY THE CITY. THE ROOT PROTECTION ZONE IS DEFINED AS THE LARGER OF THE DRIP LINE OF THE TREE OR THE DISTANCE FROM THE TRUNK EQUAL TO SIX (6) INCHES FOR EACH INCH OF TRUNK DIAMETER MEASURED AT 4.5 FEET ABOVE EXISTING GRADE.

F. REPAIR OR REPLACE TREES AND VEGETATION INDICATED TO REMAIN THAT ARE DAMAGED BY CONSTRUCTION OPERATIONS, IN A MANNER APPROVED BY ARCHITECT.
  1. EMPLOY A QUALIFIED ARBORIST, LICENSED IN JURISDICTION WHERE PROJECT IS LOCATED, TO SUBMIT DETAILS OF PROPOSED REPAIRS AND TO REPAIR DAMAGE TO TREES AND SHRUBS.
  2. REPLACE TREES THAT CANNOT BE REPAIRED AND RESTORED TO FULL-GROWTH STATUS, AS DETERMINED BY THE QUALIFIED ARBORIST.

SELECTIVE NOTES

A MINIMUM 3-INCH LAYER OF MULCH SHALL BE APPLIED ON ALL EXPOSED SOIL SURFACES OF PLANTING AREAS EXCEPT TURF AREAS, CREEPING OR ROOTING GROUNDCOVERS, OR DIRECT SEEDING APPLICATIONS WHERE MULCH IS CONTRAINDICATED.

FOR SOILS LESS THAN 6% ORGANIC MATTER IN THE TOP 6 INCHES OF SOIL, COMPOST AT A RATE OF A MINIMUM OF FOUR CUBIC YARDS PER 1000 SQUARE FEET OF PERMEABLE AREA SHALL BE INCORPORATED TO A DEPTH OF 6 INCHES INTO THE SOIL.

USE OF CLASS I OR CLASS II COMPOST AS A SOIL AMENDEMENT IN ALL LANDSCAPE AREAS.

PRESSURE REGULATING DEVICES ARE REQUIRED IF WATER PRESSURE IS BELOW OR EXCEEDS THE RECOMMENDED PRESSURE OF THE SPECIFIED IRRIGATION DEVICES.

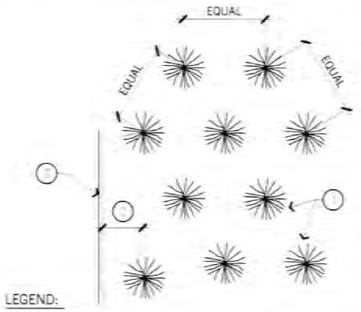
CHECK VALVES OR ANTI-DRAIN VALVES ARE REQUIRED ON ALL SPRINKLER HEADS WHERE LOW POINT DRAINAGE COULD OCCUR.

A DIAGRAM OF THE IRRIGATION PLAN SHOWING HYDROZONES SHALL BE KEPT WITH THE IRRIGATION CONTROLLER FOR SUBSEQUENT MANAGEMENT PURPOSES.

A CERTIFICATE OF COMPLETION SHALL BE FILLED OUT AND CERTIFIED BY EITHER THE DESIGNER OF THE LANDSCAPE PLANS, IRRIGATION PLANS, OR THE LICENSED LANDSCAPE CONTRACTOR FOR THE PROJECT.

AN IRRIGATION AUDIT REPORT SHALL BE COMPLETED AT THE TIME OF FINAL INSPECTION.

RECIRCULATING WATER SYSTEMS SHALL BE USED FOR WATER FEATURES.

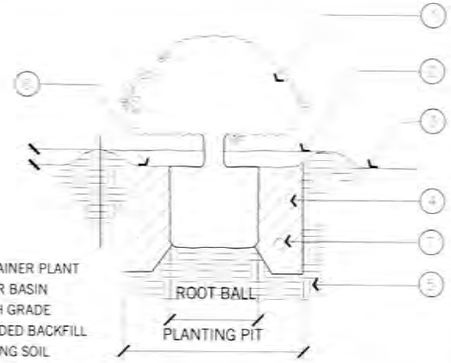


LEGEND:

1. LOCATE PLANTS WITH EQUAL SPACING AS INDICATED ON PLAN (TRIANGULAR SPACING).
2. 1/2 ON-CENTER SPACING.
3. FACE OF BUILDING, PAVING, OR HEADER SHOWING AREA LIMIT.

G.C. / SHRUB PLANTING
SCALE: NTS

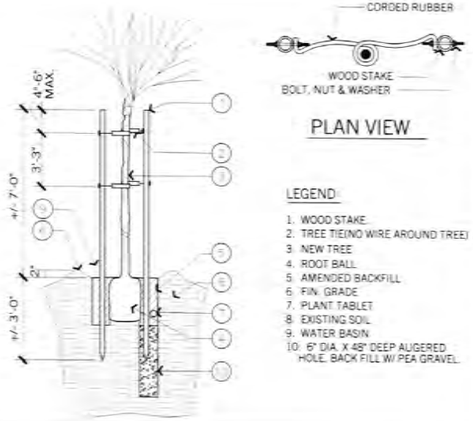
3



1. CONTAINER PLANT
2. WATER BASIN
3. FINISH GRADE
4. AMENDED BACKFILL
5. EXISTING SOIL
6. 3" MULCH
7. PLANT TABLET

SHRUB PLANTING
SCALE: NTS

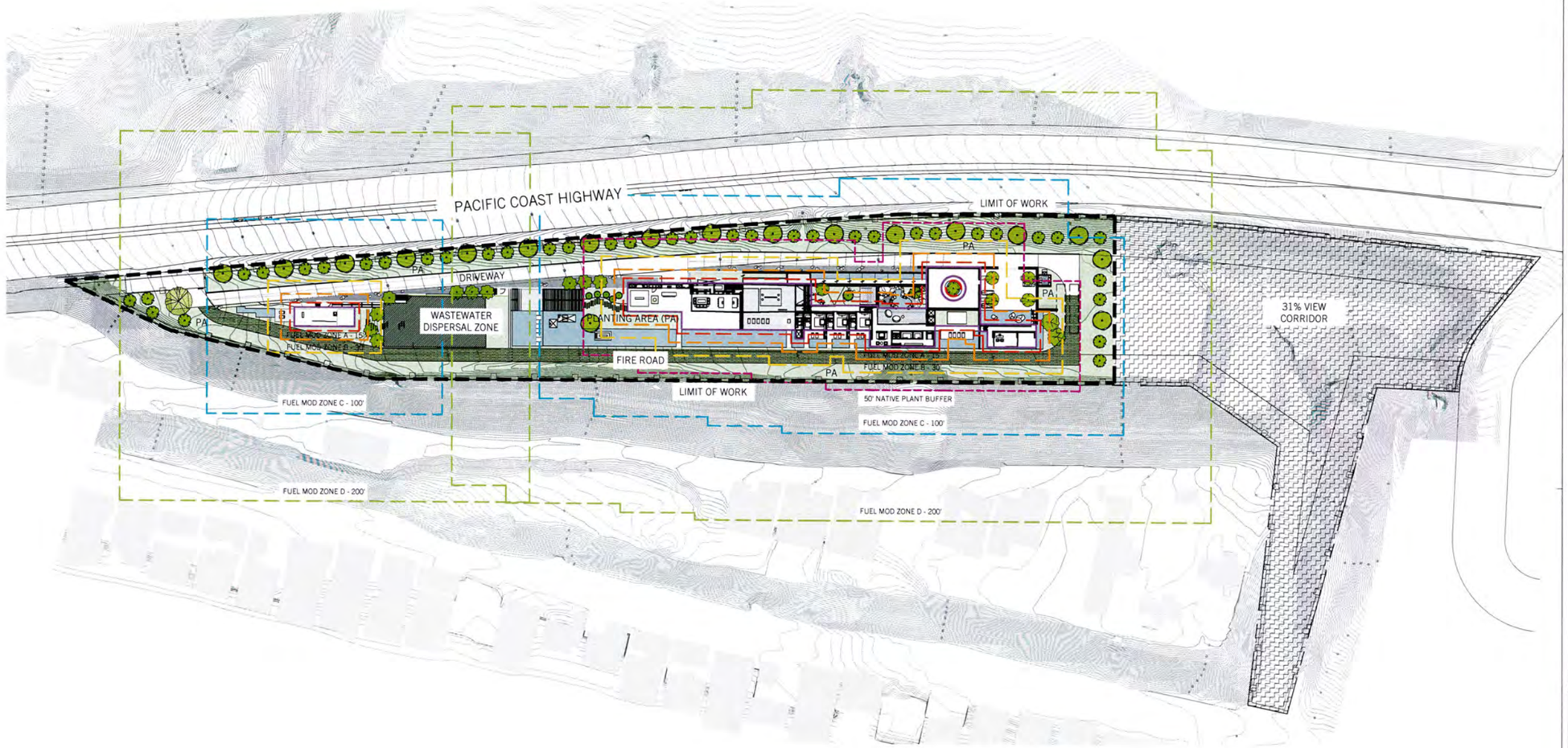
2



PLAN VIEW

LEGEND:

1. WOOD STAKE.
2. TREE TIE(NO WIRE AROUND TREE)
3. NEW TREE
4. ROOT BALL
5. AMENDED BACKFILL
6. FIN. GRADE
7. PLANT T



FUEL MOD LEGEND

SYMBOL	FUEL MOD ZONE
	Building Perimeter
	5' Buffer
	Fuel Mod Zone A - 15'
	Fuel Mod Zone B - 30'
	Fuel Mod Zone C - 100'
	Fuel Mod Zone D - 200'

LANDSCAPE AREAS

SYMBOL	AREA	QTY
	PLANTING AREA	104,140 SF
	WATER FEATURE	11,810 SF
	WASTE WATER DISPERSAL ZONE	6,533 SF

OVERALL LANDSCAPE PLAN
SCALE: 1/64" = 1'-0"

1

NOT FOR CONSTRUCTION

[place]

[pakshong landscape and architectural collaborative]
3617 exposition boulevard los angeles ca 90016
310 450 8100 fax 323 737 3290

CONSULTANTS

Property Owner
PAR PCH, LLC
PO Box 6528
Malibu, CA 90265

Design Architect
OPPENHEIM ARCHITECTURE
245 NE 37 Street
Miami, FL 33137
P 305 576 8404
F 305 576 8433
www.oppenoffice.com

Civil Engineers
LC ENGINEERING GROUP
889 Pierce Ct., Ste. 101
Thousand Oaks, CA 91360
P 805 497 1244
F 818 991 7148
www.lcegroupinc.com

NAME OF ISSUE

REGISTERED ARCHITECT LAURA PAKSHONG No. C27025 REN. 02.28.23 STATE OF CALIFORNIA

KEY PLAN

VILLA COLEAVA

25200 Pacific Coast Highway
Malibu, CA 90265

Project # : 1913
Drawn by : LS
Scale : 1" = 40'-0"

Ref. North

Description:	Date:	No.
PLANNING SUBMITTAL	02/17/21	
BIO REVISIONS	04/05/21	
BIO REVISIONS	08/11/21	

PROJECT NO. 2021

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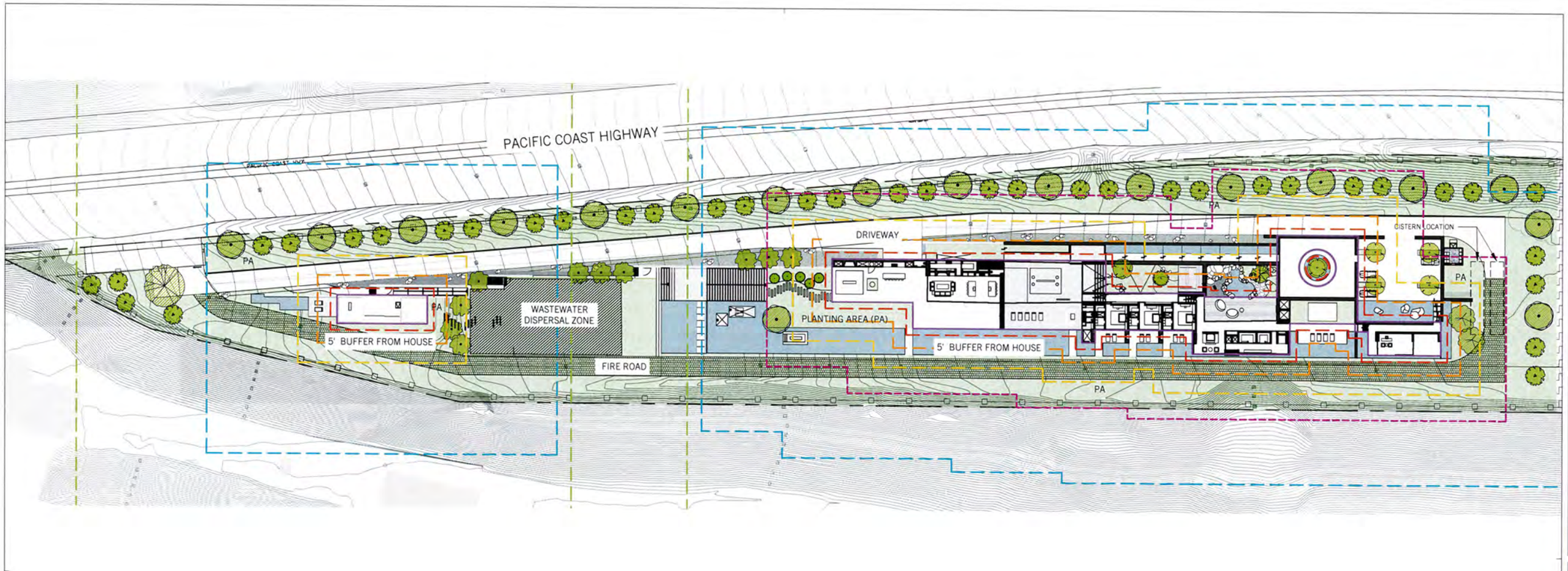
SHEET TITLE:

OVERALL LANDSCAPE PLAN

L2.00



OVERALL SITE PLANTING LEGEND

SYMBOL	BOTANICAL NAME	COMMON NAME	SIZE	QTY	PLANT SIZE	SPACING	NOTES	WUCOLS	ORIGIN	50' ZONE	FUEL ZONE
TREES											
	Acer palmatum	Japanese Maple	24" Box	1	15'-25'H x 15'-25'W	Per Plan	MASTER	MOD	NON NATIVE	INSIDE	A
	Arbutus 'Marina'	Marina Strawberry Tree Multi-Branch	48" Box	2	20'-40'H x 20'-30'W	Per Plan	OFFICE	LOW	NON NATIVE	INSIDE	B
	Dracaena draco	Dragon Tree	36" Box	1	15'-25'H x 15'-25'W	Per Plan	ENTRY, KIDS, KITCHEN	V LOW	NON NATIVE	INSIDE	A
	Dwarf Citrus	-	24" Box	5	-	Per Plan	KITCHEN GARDEN	MOD	NON NATIVE	INSIDE	A-10
	Melaleuca nesophila	Pink Melaleuca	24" Box	37	15'-20'H x 8'-12'W	Per Plan	DRIVEWAY	LOW	NON NATIVE	OUTSIDE	A-10
	Olea europaea 'Majestic Beauty'	Olive Tree	36" Box	10	20'-30'H x 15'-25'W	Per Plan	DRIVEWAY, GUEST HOUSE	LOW	NON NATIVE	OUTSIDE	A-15
	Olea europaea 'Majestic Beauty'- field grown	Olive Tree	TBD	1	20'-30'H x 15'-25'W	Per Plan	DRIVEWAY	LOW	NON NATIVE	OUTSIDE	A-15
	Plumeria rubra 'White'	Plumeria	15 gal.	0	15'-25'H x 15'-25'W	Per Plan	COVERED LOUNGE	LOW	NON NATIVE	INSIDE	A
	Quercus agrifolia	Coast Live Oak	24" Box	18	20'-70'H x 20'-70'W	Per Plan	DRIVEWAY, KITCHEN GARDEN	V LOW	NATIVE	OUTSIDE	B-30
	Ulmus parvifolia	Chinese Elm	36" Box	6	40'-50'H x 20'-40'	Per Plan	MOTOR, ENTRY COURT	MOD	NON NATIVE	INSIDE	UNKNOWN

FUEL MOD LEGEND

SYMBOL	FUEL MOD ZONE
	Building Perimeter
	5' Buffer
	Fuel Mod Zone A - 15'
	Fuel Mod Zone B - 30'
	Fuel Mod Zone C - 100'
	Fuel Mod Zone D - 200'

OVERALL TREE PLAN
SCALE: 1" = 40'-0"

1

[place]

[pakshong landscape and architectural collaborative]
3617 exposition boulevard los angeles ca 90016
310 450 8100 fax 323 737 3290

CONSULTANTS

Property Owner
PAR PCH, LLC
PO Box 6528
Malibu, CA 90265

Design Architect
OPPENHEIM ARCHITECTURE
245 NE 37 Street
Miami, FL 33137
P 305 576 8404
F 305 576 8433
www.oppenoffice.com

Civil Engineers
LC ENGINEERING GROUP
889 Pierce Ct., Ste. 101
Thousand Oaks, CA 91360
P 805 497 1244
F 818 991 7148
www.lcegroupinc.com

NAME OF ISSUE

LICENSED ARCHITECT
VICTORIA PAKSHONG
NO C27025
REN. 02.26.23
STATE OF CALIFORNIA

KEY PLAN

VILLA COLEAVA

25200 Pacific Coast Highway
Malibu, CA 90265

Project # : 1913
Drawn by : LS
Scale : 1" = 40'-0"

Ref. North

Description:	Date:	No.
PLANNING SUBMITTAL	02/17/21	
BIO REVISIONS	04/05/21	1
BIO REVISIONS	08/11/21	

PROJECT NO: 2021

These drawings, specifications, ideas, designs, and arrangements presented thereby, are and shall remain the property of [place]. No part thereof shall be copied, disclosed to others or used in connection with any work or project other than the specific project for which they have been prepared and developed without the written consent of [place]. Visual contact with these drawings or specifications shall constitute conclusive evidence of acceptance of these restrictions.

SHEET TITLE:

OVERALL TREE PLAN

L2.01

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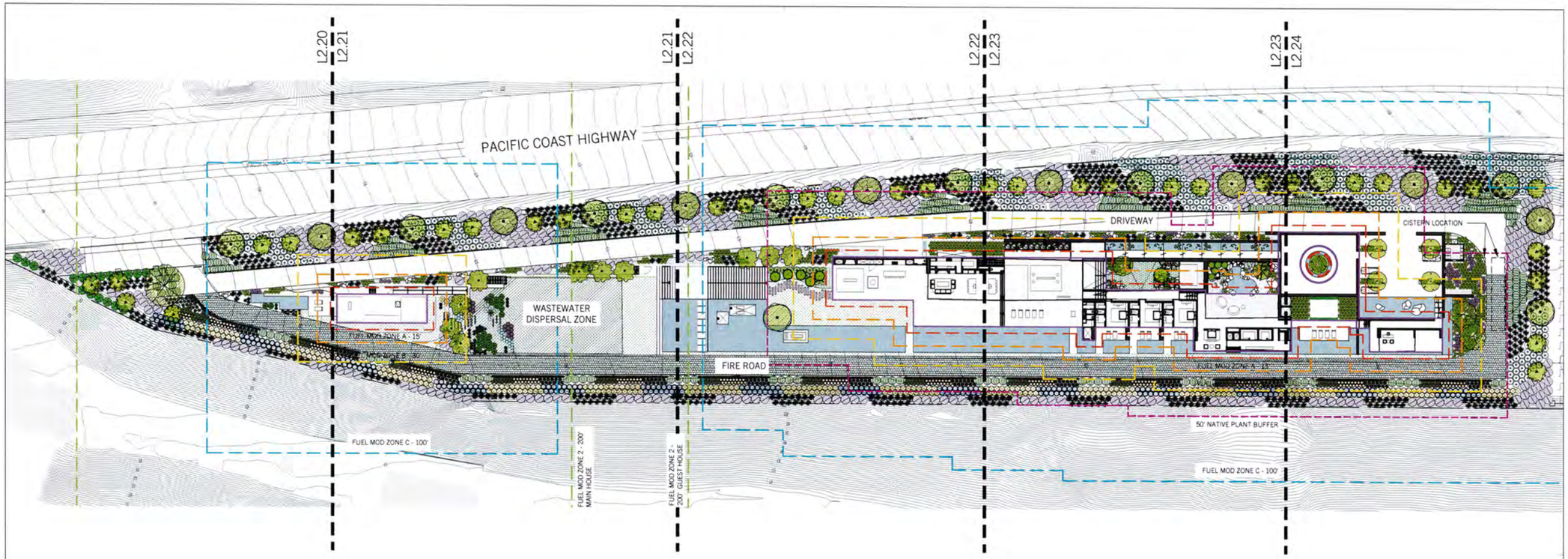

OVERALL SITE PLANTING LEGEND

SYMBOL	BOTANICAL NAME	COMMON NAME	SIZE	QTY	PLANT SIZE	SPACING	NOTES	WUCOLS	ORIGIN	50' ZONE	FUEL ZONE
TREES											
	Acer palmatum	Japanese Maple	24" Box	1	15'-25'H x 15'-25'W	Per Plan	MASTER	MOD	NON NATIVE	INSIDE	A
	Arbutus 'Marina'	Marina Strawberry Tree Multi-Branch	48" Box	2	20'-40'H x 20'-30'W	Per Plan	OFFICE	LOW	NON NATIVE	INSIDE	B
	Dracaena draco	Dragon Tree	36" Box	1	15'-25'H x 15'-25'W	Per Plan	ENTRY, KIDS KITCHEN	V LOW	NON NATIVE	INSIDE	A
	Dwarf Citrus		24" Box	5		Per Plan	KITCHEN GARDEN	MOD	NON NATIVE	INSIDE	A-10
	Melaleuca nesophila	Pink Melaleuca	24" Box	37	15'-20'H x 8'-12'W	Per Plan	DRIVEWAY	LOW	NON NATIVE	OUTSIDE	A-10
	Olea europaea 'Majestic Beauty'	Olive Tree	36" Box	10	20'-30'H x 15'-25'W	Per Plan	DRIVEWAY, GUEST HOUSE	LOW	NON NATIVE	OUTSIDE	A-15
	Olea europaea 'Majestic Beauty - field grown	Olive Tree	TBD	1	20'-30'H x 15'-25'W	Per Plan	DRIVEWAY	LOW	NON NATIVE	OUTSIDE	A-15
	Plumeria rubra 'White'	Plumeria	15 gal.	0	15'-25'H x 15'-25'W	Per Plan	COVERED LOUNGE	LOW	NON NATIVE	INSIDE	A
	Quercus agrifolia	Coast Live Oak	24" Box	18	20'-70'H x 20'-70'W	Per Plan	DRIVEWAY, KITCHEN GARDEN	V LOW	NATIVE	OUTSIDE	B-30
	Ulmus parvifolia	Chinese Elm	36" Box	6	40'-50'H x 20'-40'	Per Plan	MOTOR, ENTRY COURT	MOD	NON NATIVE	INSIDE	UNKNOWN

SYMBOL	BOTANICAL NAME	COMMON NAME	SIZE	QTY	PLANT SIZE	SPACING	NOTES	WUCOLS	ORIGIN	50' ZONE	FUEL ZONE
SHRUBS											
	Acacia cognata Cousin Itt	Little River Wattle	5 gal.	26	2'-3'H x 8'-12'W	Per Plan	ENTRY, KIDS GARDEN	MOD	NON NATIVE	INSIDE	UNKNOWN
	Aniigozanthos 'Bush Tango'	Dwarf Orange Kangaroo Paw	5 gal.	12	2'-3'H X 2'-3'W	Per Plan	KIDS GARDEN	MOD	NON NATIVE	INSIDE	UNKNOWN
	Artemisia 'Powis Castle'	Sagebrush	5 gal.	447	2'-4'H x 4'-6'W	Per Plan	DRIVEWAY	MOD	NATIVE	OUTSIDE	A
	Baccharis pilularis 'Pigeon Point'	Prostrate Coyote Brush	5 gal.	199	1'-2'H x 8'-10'W	Per Plan	DRIVEWAY	LOW	NATIVE	OUTSIDE	B
	Camellia sasanqua	Sasanqua Camellia	5 gal.	2	6'-15'H x 6'-15'W	Per Plan	MASTER	MOD	NON NATIVE	INSIDE	A-10
	Carissa macrocarpa 'Prostrata'	Prostrate Natal Plum	5 gal.	13	2'H x 5'-6'W	Per Plan	KITCHEN	LOW	NON NATIVE	INSIDE	A-10
	Carpenteria californica 'Elizabeth'	Elizabeth Bush Anemone	5 gal.	10	4'-6'H X 3'-5'W	Per Plan	GUEST HOUSE	LOW	FRESNO NATIVE	OUTSIDE	A-10
	Cycas revoluta	Sago Palm	5 gal.	5	3'-10'H x 3'-10'W	Per Plan	ENTRY	MOD	NON NATIVE	INSIDE	A
	Encelia californica	Bush Sunflower	5 gal.	300	3'-4'H x 4'-5'W	Per Plan	DRIVEWAY	V LOW	NATIVE	OUTSIDE	A-10
	Eschsholzia californica	California Poppy	4" pot	1483	1'-1'H x 1'-1'W	Per Plan	DRIVEWAY	V LOW	NATIVE	OUTSIDE	UNKNOWN
	Heteromeles arbutifolia	Toyon	5 gal.	18	6'-10'H x 6'-8'W	Per Plan	DRIVEWAY	V LOW	NATIVE	OUTSIDE	A-15
	Mimulus aurantiacus	Bush Monkey Flower	5 gal.	218	2'-3'H x 2'-3'W	Per Plan	DRIVEWAY	V LOW	NATIVE	OUTSIDE	A-10
	Olea europaea 'Little Ollie'	Little Ollie Olive	5 gal.	21	6'-8'H x 4'-5'W	Per Plan	GUEST HOUSE	LOW	NON NATIVE	OUTSIDE	A-15
	Pittosporum crassifolium 'Compactum'	Dwarf Karo	5 gal.	2	2'-3'H x 4'-6'W	Per Plan	MASTER	MOD	NON NATIVE	INSIDE	UNKNOWN
	Polystichum munitum	Sword Fern	5 gal.	11	2'-3'H x 2'-4'W	Per Plan	MASTER	MOD	NON NATIVE	INSIDE	UNKNOWN
	Salvia apiana	White Sage	5 gal.	14	3'-5'H x 4'-5'W	Per Plan	GUEST HOUSE	V LOW	NATIVE	OUTSIDE	B
	Salvia mucronifolia	Purple Sage	5 gal.	420	2'-5'H x 6'-10'W	Per Plan	DRIVEWAY, GUEST HOUSE	V LOW	NATIVE	OUTSIDE	B
	Trichostema lanatum	Woolly Blue Curls	5 gal.	225	3'-4'H x 4'-5'W	Per Plan	DRIVEWAY	V LOW	NATIVE	OUTSIDE	B
	Verbena lilacina 'De La Mina'	Cedros Island Verbena	5 gal.	87	1'-2'H x 3'-4'W	Per Plan	DRIVEWAY	LOW	NON NATIVE	MOSTLY INSIDE	A
	Westringia 'Blue Gem'	Blue Gem Coast Rosemary	5 gal.	18	4'-6'H x 3'-4'W	Per Plan	GUEST HOUSE	LOW	NON NATIVE	OUTSIDE	A-10
	Westringia fruticosa 'Grey Box'	Grey Box Coast Rosemary	5 gal.	36	2'-3'H x 2'-3'W	Per Plan	GUEST HOUSE	LOW	NON NATIVE	OUTSIDE	A-10

SYMBOL	BOTANICAL NAME	COMMON NAME	SIZE	QTY	PLANT SIZE	SPACING	NOTES	WUCOLS	ORIGIN	50' ZONE	FUEL ZONE
GRASSES, BAMBOO & PHORMIUMS											
	Bambusa multiplex 'Golden Goddess'	Hedge Bamboo		5	6'-10' H x Clumping	Per Plan	MASTER	MOD	NON NATIVE	INSIDE	B-30
	Iris douglasiana	Douglas iris	1 gal.	11	1'-3'H x 2'-3'W	Per Plan	MASTER	LOW	N CAL NATIVE	INSIDE	A
	Leymus condensatus 'Canyon Prince'	Wild Rye	5 gal.	215	2'-3'H x Spreading	Per Plan	DRIVEWAY, GUEST HOUSE	LOW	NATIVE	OUTSIDE	B
	Lomandra 'Lime Tuff'	Dwarf Mat Rush	5 gal.	759	2'-3'H x 2'-3'W	Per Plan	THROUGHOUT	UNKNOWN	NON NATIVE	MOSTLY INSIDE	UNKNOWN
	Muhlengergia dubia	Pine Muhly	5 gal.	183	2'-3'H x Clumping	Per Plan	DRIVEWAY	UNKNOWN	NON NATIVE	INSIDE/ OUTSIDE	UNKNOWN
	Muhlengergia rigens	Deer Grass	5 gal.	674	4'-5'H x 4'-6'W	Per Plan	DRIVEWAY	LOW	NATIVE	OUTSIDE	UNKNOWN
	Pennisetum 'Fairy Tails'	Evergreen Fountain Grass	5 gal.	23	3'-5'H x 2'-3'W	Per Plan	KIDS GARDEN	MOD	NON NATIVE	INSIDE	UNKNOWN
AGAVES, ALOES & SUCCULENTS											
	Agave americana	Century Plant	5 gal.	4	4'-6'H x 6'-8'W	Per Plan	GUEST HOUSE	V LOW	NON NATIVE	OUTSIDE	A
	Agave 'Blue Glow'	Blue Glow Agave	5 gal.	15	1'-2' H x 2'-3'W	Per Plan	GUEST HOUSE	LOW	NON NATIVE	OUTSIDE	A
	Cereus hildmannianus	Night Blooming Cereus	15 gal.	42	up to 30'H x 1'W	Per Plan	ENTRY CORRIDOR	UNKNOWN	NON NATIVE	INSIDE	UNKNOWN
	Euphorbia trigona	Candelabra Tree	15 gal.	4	15'-25'H x 5'-15'W	Per Plan	ENTRY CORRIDOR	LOW	NON NATIVE	INSIDE	A
WATER PLANTS											
	Cyperus papyrus	Papyrus	5 gal.	12	12'-16'H x 4'-5'W	Per Plan	ENTRY CORRIDOR	HIGH	NON NATIVE	INSIDE	UNKNOWN
	Nymphaeaceae	Water Lily	5 gal.	70		Per Plan	ENTRY CORRIDOR	HIGH	NON NATIVE	INSIDE	UNKNOWN
GROUNDCOVER & VINES											
	Artificial Turf			782 SF		Per Plan	KIDS GARDEN	N/A			N/A
	Agrostis Pallens	Thingrass	flats	31,229 SF	1'-2'H x 1'2'W	Per Plan	DRIVEWAY, KITCHEN GARDEN	UNKNOWN	NATIVE	INSIDE/ OUTSIDE	A
	Phyla nodiflora	Kurapia	flats	90 SF	6" H x Spread	Per Plan	COVERED LOUNGE	LOW	NON NATIVE	INSIDE	A
	Origanum vulgare/ Prostrate Rosemary	Oregano, Rosemary	flats	300 SF	1-2'H x 6-8'W	Per Plan	KITCHEN GARDEN	LOW	NON NATIVE	INSIDE	A
MULCH											
	Shredded Bark			67,592 SF			DRIVEWAY				
	Fine Gravel			12,374 SF			WITH 20' OF STRUCTURES				

FUEL MOD LEGEND

SYMBOL	FUEL MOD ZONE
	Building Perimeter
	5' Buffer
	Fuel Mod Zone A - 15'
	Fuel Mod Zone B - 30'
	Fuel Mod Zone C - 100'
	Fuel Mod Zone D - 200'

OVERALL PLANTING PLAN
SCALE: 1" = 40'-0"

1

NOT FOR CONSTRUCTION

[place]

[pakshong landscape and architectural collaborative]
3617 exposition boulevard los angeles ca 90016
310 450 8100 fax 323 737 3290

CONSULTANTS

Property Owner
PAR PCH, LLC
PO Box 6528
Malibu, CA 90265

Design Architect
OPPENHEIM ARCHITECTURE
245 NE 37 Street
Miami, FL 33137
P 305 576 8404
F 305 576 8433
www.oppenoffice.com

Civil Engineers
LC ENGINEERING GROUP
889 Pierce Ct., Ste. 101
Thousand Oaks, CA 91360
P 805 497 1244
F 818 991 7148
www.lcegroupinc.com

NAME OF ISSUE

LICENSED ARCHITECT SONIA PAKSHONG No. C27025 REN. 02-28-23 STATE OF CALIFORNIA

KEY PLAN

VILLA COLEAVA

25200 Pacific Coast Highway
Malibu, CA 90265

Project # : 1913
Drawn by : LS
Scale : 1" = 40'-0"

Ref. North

Description:	Date:	No.
PLANNING SUBMITTAL	02/17/21	
BIO REVISIONS	04/05/21	1
BIO REVISIONS	08/11/21	

PROJECT NO: 2021

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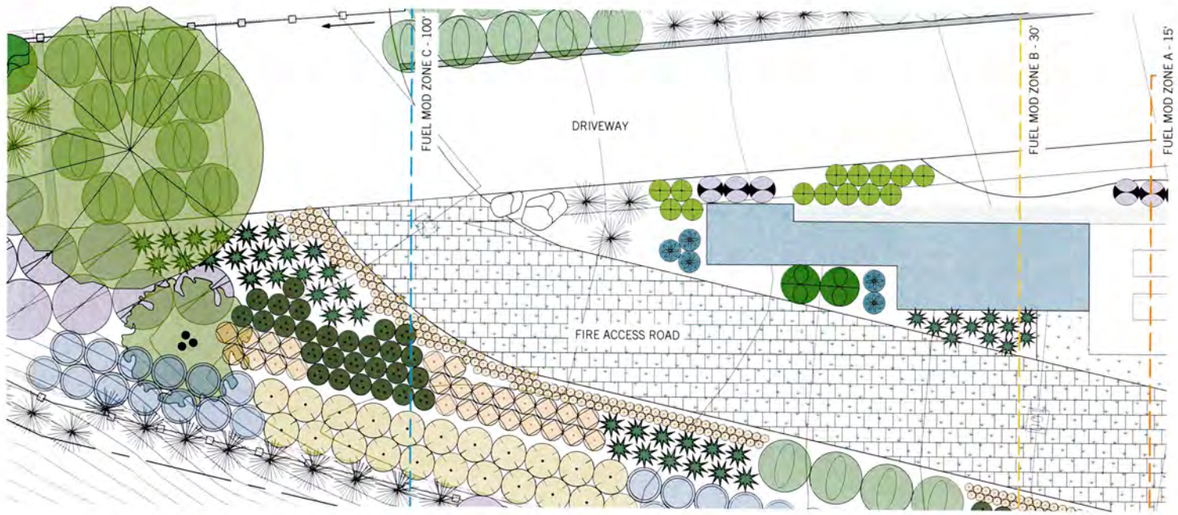
SHEET TITLE:
OVERALL PLANTING PLAN

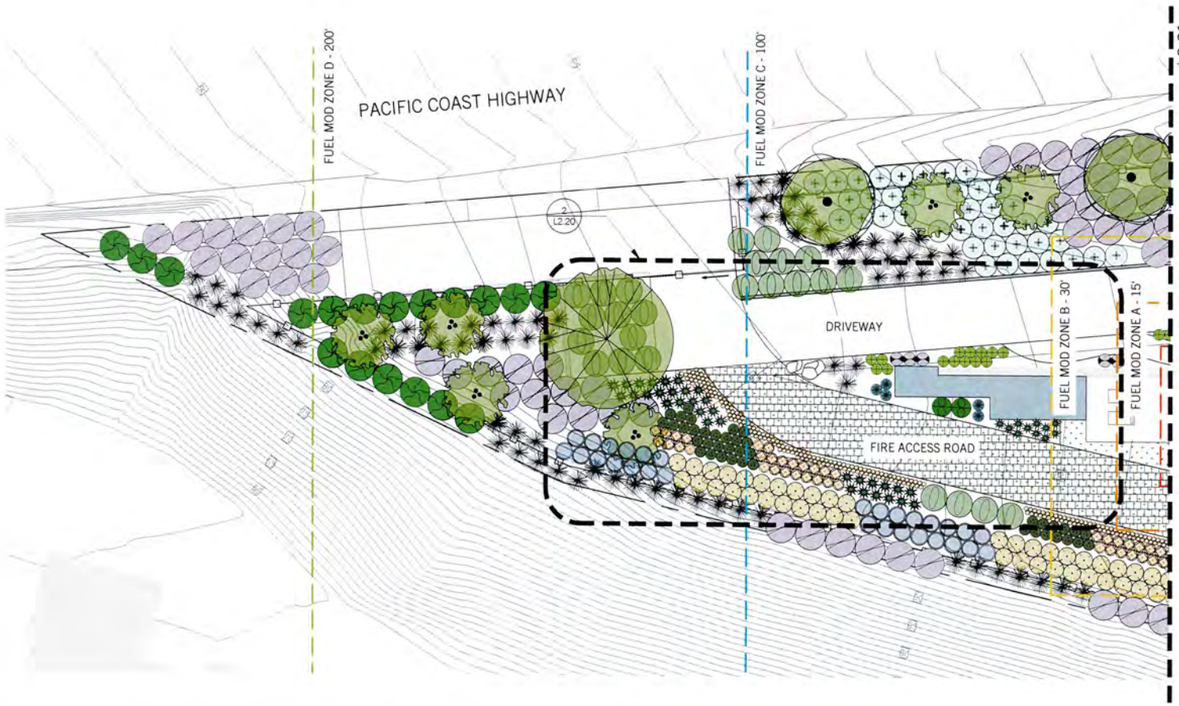
L2.02

OVERALL SITE PLANTING LEGEND

SYMBOL	BOTANICAL NAME	COMMON NAME	SIZE	QTY	PLANT SIZE	SPACING	NOTES	WUCOLS	ORIGIN	50' ZONE	FUEL ZONE
TREES											
	Acer palmatum	Japanese Maple	24" Box	1	15'-25'H x 15'-25'W	Per Plan	MASTER	MOD	NON NATIVE	INSIDE	A
	Arbutus 'Marina'	Marina Strawberry Tree Multi-Branch	48" Box	2	20'-40'H x 20'-30'W	Per Plan	OFFICE	LOW	NON NATIVE	INSIDE	B
	Dracaena draco	Dragon Tree	36" Box	1	15'-25'H x 15'-25'W	Per Plan	ENTRY, KIDS, KITCHEN	V LOW	NON NATIVE	INSIDE	A
	Dwarf Citrus	-	24" Box	5	-	Per Plan	KITCHEN GARDEN	MOD	NON NATIVE	INSIDE	A-10
	Heteromeles arbutifolia	Toyon	36" Box	37	20'-25' H x 8'-15'W	Per Plan	DRIVEWAY	V LOW	NATIVE	OUTSIDE	A-15
	Umbellularia californica	California Laurel	24" Box	10	20'-30'H x 15'-25'W	Per Plan	DRIVEWAY, GUEST HOUSE	LOW	NATIVE	OUTSIDE	B
	Plumeria rubra 'White'	Plumeria	15 gal.	0	15'-25'H x 15'-25'W	Per Plan	COVERED LOUNGE	LOW	NON NATIVE	INSIDE	A
	Quercus agrifolia	Coast Live Oak	36" Box	18	20'-70'H x 20'-70'W	Per Plan	DRIVEWAY, KITCHEN GARDEN	V LOW	NATIVE	OUTSIDE	B-30
	Quercus agrifolia	Coast Live Oak	96" Box	18	20'-70'H x 20'-70'W	Per Plan	DRIVEWAY SPECIMEN	V LOW	NATIVE	OUTSIDE	B-30
	Ulmus parvifolia	Chinese Elm	36" Box	6	40'-50'H x 20'-40'	Per Plan	MOTOR, ENTRY COURT	MOD	NON NATIVE	INSIDE	UNKNOWN
SHRUBS											
	Acacia cognata Cousin Itt	Little River Wattle	5 gal.	26	2'-3'H x 8'-12'W	Per Plan	ENTRY, KIDS GARDEN	MOD	NON NATIVE	INSIDE	UNKNOWN
	Anigozanthos 'Bush Tango'	Dwarf Orange Kangaroo Paw	5 gal.	12	2'-3'H X 2'-3'W	Per Plan	KIDS GARDEN	MOD	NON NATIVE	INSIDE	UNKNOWN
	Artemisia 'Powis Castle'	Sagebrush	5 gal.	447	2'-4'H x 4'-6'W	Per Plan	DRIVEWAY	MOD	NATIVE	OUTSIDE	A
	Baccharis pilularis 'Pigeon Point'	Prostrate Coyote Brush	5 gal.	199	1'-2'H x 8'-10'W	Per Plan	DRIVEWAY	LOW	NATIVE	OUTSIDE	B
	Camellia sasanqua	Sasanqua Camellia	5 gal.	2	6'-15'H X 6'-15'W	Per Plan	MASTER	MOD	NON NATIVE	INSIDE	A-10
	Carissa macrocarpa 'Prostrata'	Prostrate Natal Plum	5 gal.	13	2'H X 5'-6'W	Per Plan	KITCHEN	LOW	NON NATIVE	INSIDE	A-10
	~~Cycas revoluta~~	~~Sago Palm~~	~~5 gal.~~	~~5~~	3'-10'H x 3'-10'W	~~Per Plan~~	~~ENTRY~~	~~MOD~~	NON NATIVE	~~INSIDE~~	~~A~~
	Dendromecon harfordii	Island Bush Poppy	5 gal.	10	4'-8'H X 2'-6' W	Per Plan	GUEST HOUSE	V LOW	NATIVE	OUTSIDE	B
	Encelia californica	Bush Sunflower	5 gal.	300	3'-4'H x 4'-5'W	Per Plan	DRIVEWAY	V LOW	NATIVE	OUTSIDE	A-10
	Eriodictyon crassifolium	Felt leaved Yerba Santa	5 gal.	36	3'-6'H x 3'-6'W	Per Plan	GUEST HOUSE	V LOW	NATIVE	OUTSIDE	UNKNOWN
	Eschsholzia californica	California Poppy	4" pot	1483	1'-1'H x 1'-1'W	Per Plan	DRIVEWAY	V LOW	NATIVE	OUTSIDE	UNKNOWN
	Mimulus aurantiacus	Bush Monkey Flower	5 gal.	218	2'-3'H x 2'-3'W	Per Plan	DRIVEWAY	V LOW	NATIVE	OUTSIDE	A-10
	Penstemon heterophyllus	Foothill Penstemon	5 gal.	9	1'-3' H x 1'-4' W	Per Plan	DRIVEWAY	UNKNOWN	NATIVE	OUTSIDE	A
	Pittosporum crassifolium 'Compactum'	Dwarf Karo	5 gal.	2	2'-3'H x 4'-6'W	Per Plan	MASTER	MOD	NON NATIVE	INSIDE	UNKNOWN
	Polystichum munitum	Sword Fern	5 gal.	11	2'-3'H x 2'-4'W	Per Plan	MASTER	MOD	NON NATIVE	INSIDE	UNKNOWN
	Rhamnus californica	Coffeeberry	5 gal.	21	6'-8'H x 6-8'W	Per Plan	GUEST HOUSE	V LOW	NATIVE	OUTSIDE	B
	Rosa californica 'Elsie'	California Rose	5 gal.	18	4'-8' H x Spreading	Per Plan	GUEST HOUSE	LOW	NATIVE	OUTSIDE	UNKNOWN
	Salvia apiana	White Sage	5 gal.	20	3'-5'H x 4'-5'W	Per Plan	GUEST HOUSE	V LOW	NATIVE	OUTSIDE	B
	Salvia leucophylla	Purple Sage	5 gal.	420	2'-5'H x 6'-10'W	Per Plan	DRIVEWAY, GUEST HOUSE	V LOW	NATIVE	OUTSIDE	B
	Trichostema lanatum	Woolly Blue Curls	5 gal.	225	3'-4'H x 4'-5'W	Per Plan	DRIVEWAY	V LOW	NATIVE	OUTSIDE	B
	Umbellularia californica	California Laurel	15 gal.	18	20'-30'H x 15'-25'W	Per Plan	DRIVEWAY	LOW	NATIVE	OUTSIDE	B
	Verbena lilacina 'De La Mina'	Cedros Island Verbena	5 gal.	78	1'-2'H x 3'-4'W	Per Plan	DRIVEWAY	LOW	NON NATIVE	INSIDE	A
GRASSES, BAMBOO & PHORMIUMS											
	Achnatherum coronatum	Porcupine grass	5 gal.	183	2'-3'H x Clumping	Per Plan	DRIVEWAY	UNKNOWN	NATIVE	INSIDE/ OUTSIDE	UNKNOWN
	Bambusa multiplex 'Golden Goddess'	Hedge Bamboo	-	5	6'-10' H x Clumping	Per Plan	MASTER	MOD	NON NATIVE	INSIDE	B-30
	Iris douglasiana	Douglas Iris	1 gal.	11	1'-3'H x 2'-3'W	Per Plan	MASTER	LOW	N CAL NATIVE	INSIDE	A
	Leymus condensatus 'Canyon Prince'	Wild Rye	5 gal.	215	2'-3'H x Spreading	Per Plan	DRIVEWAY, GUEST HOUSE	LOW	NATIVE	OUTSIDE	B
	Lomandra 'Lime Tuff'	Dwarf Mat Rush	5 gal.	598	2'-3'H x 2'-3'W	Per Plan	THROUGHOUT	UNKNOWN	NON NATIVE	INSIDE	UNKNOWN
	Muhlengergia rigens	Deer Grass	5 gal.	674	4'-5'H x 4'-6'W	Per Plan	DRIVEWAY	LOW	NATIVE	OUTSIDE	UNKNOWN
	Nassella cernua	Nodding needlegrass	5 gal.	161	2'-3'H x 2'-3'W	Per Plan	THROUGHOUT	V LOW	NATIVE	OUTSIDE	UNKNOWN
	Pennisetum 'Fairy Tails'	Evergreen Fountain Grass	5 gal.	23	3'-5'H x 2'-3'W	Per Plan	KIDS GARDEN	MOD	NON NATIVE	INSIDE	UNKNOWN
AGAVES, ALOES & SUCCULENTS											
	Cereus hildmannianus	Night Blooming Cereus	15 gal.	43	up to 30'H x 1'W	Per Plan	ENTRY CORRIDOR	UNKNOWN	NON NATIVE	INSIDE	UNKNOWN
	Euphorbia ingens	Candelabra Tree	15 gal.	4	15'-25'H x 5'-15'W	Per Plan	ENTRY CORRIDOR	LOW	NON NATIVE	INSIDE	A
	Hesperoyucca whipplei 'RBG'	Our Lord's Candle	5 gal.	15	2'-3' H x 3'-4' W	Per Plan	GUEST HOUSE	V LOW	NATIVE	OUTSIDE	UNKNOWN
WATER PLANTS											
	Cyperus papyrus	Papyrus	5 gal.	12	12'-16'H x 4'-5'W	Per Plan	ENTRY CORRIDOR	HIGH	NON NATIVE	INSIDE	UNKNOWN
	Nymphaeaceae	Water Lily	5 gal.	70		Per Plan	ENTRY CORRIDOR	HIGH	NON NATIVE	INSIDE	UNKNOWN
GROUNDCOVER & VINES											
	Artificial Turf			782 SF		Per Plan	KIDS GARDEN	N/A			N/A
	Agrostis Pallens	Thingrass	flats	31,229 SF	1'-2'H x 1'2'W	Per Plan	DRIVEWAY, KITCHEN GARDEN	UNKNOWN	NATIVE	INSIDE/ OUTSIDE	A
	Phyla nodiflora	Kurapia	flats	90 SF	6" H x Spread	Per Plan	COVERED LOUNGE	LOW	NON NATIVE	INSIDE	A
	Origanum vulgare/ Prostrate Rosemary	Oregano, Rosemary	flats	300 SF	1-2'H x 6-8'W	Per Plan	KITCHEN GARDEN	LOW	NON NATIVE	INSIDE	A
MULCH											
	Shredded Bark			67,592 SF			DRIVEWAY				
	Fine Gravel			12,374 SF			WIN 20' OF STRUCTURES				



ENLARGED PLANTING PLAN
SCALE: 1/8" = 1'-0"
2



ENLARGED PLANTING PLAN
SCALE: 1/8" = 1'-0"
1

[place]

[pakshong landscape and architectural collaborative]
3617 exposition boulevard los angeles ca 90016
310 450 8100 fax 323 737 3290

CONSULTANTS

Property Owner
PAR PCH, LLC
PO Box 6528
Malibu, CA 90265

Design Architect
OPPENHEIM ARCHITECTURE
245 NE 37 Street
Miami, FL 33137
P 305 576 8404
F 305 576 8433
www.oppenoffice.com

Civil Engineers
LC ENGINEERING GROUP
889 Pierce Ct., Ste. 101
Thousand Oaks, CA 91360
P 805 497 1244
F 818 991 7148
www.lcegroupinc.com

NAME OF ISSUE

LICENSED ARCHITECT JESSICA PAK No. C27025 REN. 02-28-23 STATE OF CALIFORNIA

KEY PLAN

VILLA COLEAVA

25200 Pacific Coast Highway
Malibu, CA 90265

Project # : 1913
Drawn by : LS
Scale : AS NOTED
Ref. North

Description:	Date:	No.
PLANNING SUBMITTAL	02/17/21	
BIO REVISIONS	04/05/21	1
BIO REVISIONS	08/11/21	2

PROJECT NO: 2021

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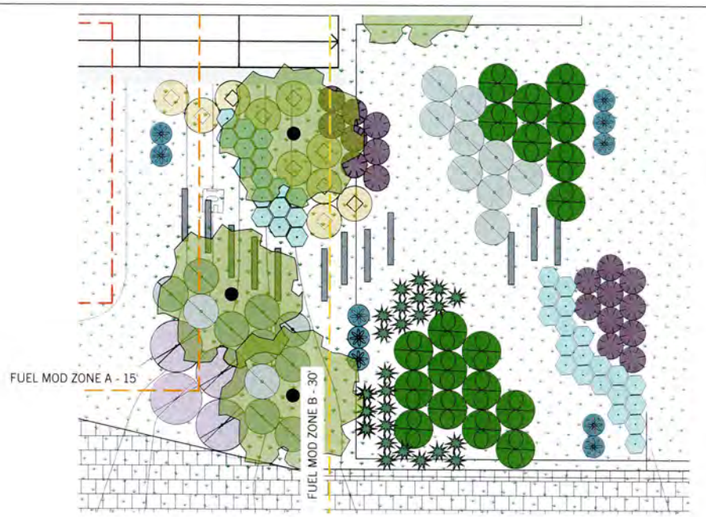
SHEET TITLE:
ENLARGED PLANTING PLAN

L2.20

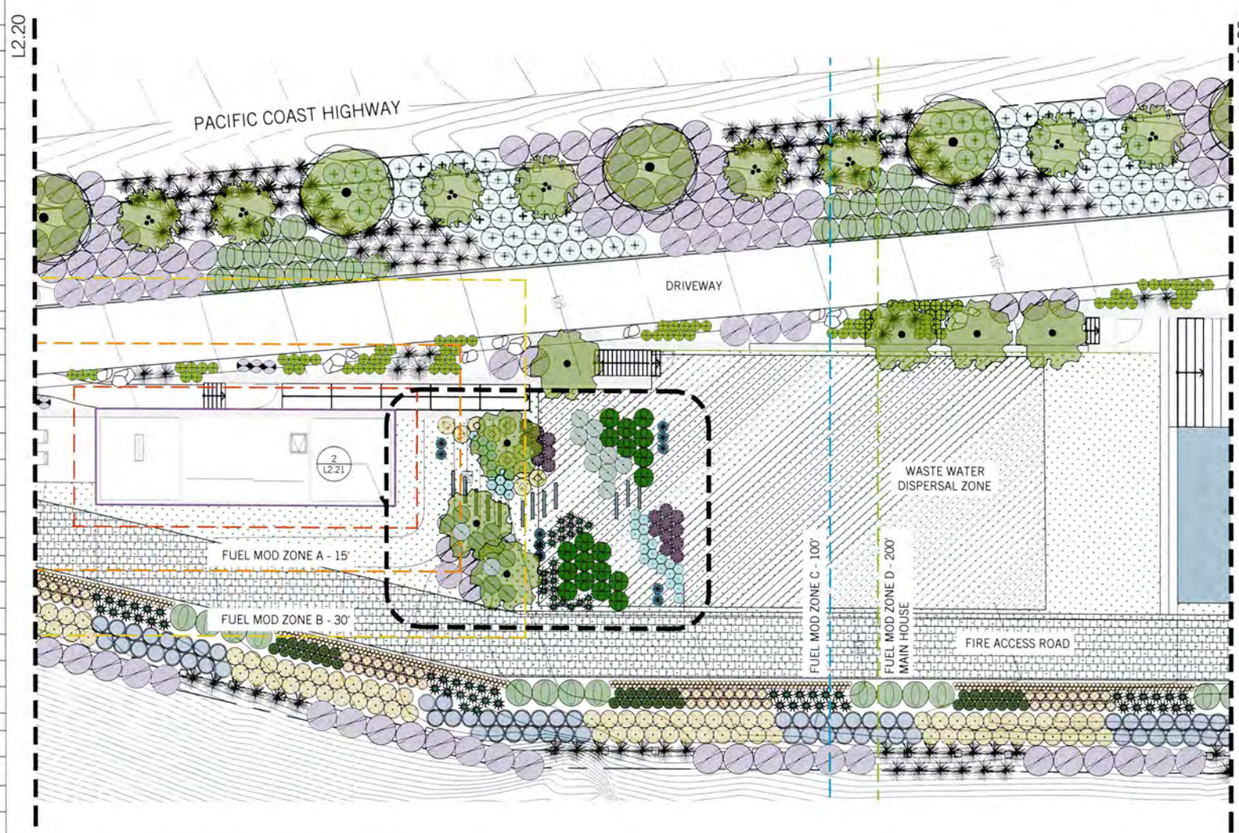
NOT FOR CONSTRUCTION

OVERALL SITE PLANTING LEGEND

SYMBOL	BOTANICAL NAME	COMMON NAME	SIZE	QTY	PLANT SIZE	SPACING	NOTES	WUCOLS	ORIGIN	50' ZONE	FUEL ZONE
TREES											
	Acer palmatum	Japanese Maple	24" Box	1	15'-25'H x 15'-25'W	Per Plan	MASTER	MOD	NON NATIVE	INSIDE	A
	Arbutus 'Marina'	Marina Strawberry Tree Multi-Branch	48" Box	2	20'-40'H x 20'-30'W	Per Plan	OFFICE	LOW	NON NATIVE	INSIDE	B
	Dracaena draco	Dragon Tree	36" Box	1	15'-25'H x 15'-25'W	Per Plan	ENTRY, KIDS, KITCHEN	V LOW	NON NATIVE	INSIDE	A
	Dwarf Citrus	-	24" Box	5	-	Per Plan	KITCHEN GARDEN	MOD	NON NATIVE	INSIDE	A-10
	Heteromeles arbutifolia	Toyon	36" Box	37	20'-25' H x 8'-15'W	Per Plan	DRIVEWAY	V LOW	NATIVE	OUTSIDE	A-15
	Umbellularia californica	California Laurel	24" Box	10	20'-30'H x 15'-25'W	Per Plan	DRIVEWAY, GUEST HOUSE	LOW	NATIVE	OUTSIDE	B
	Plumeria rubra 'White'	Plumeria	15 gal.	0	15'-25'H x 15'-25'W	Per Plan	COVERED LOUNGE	LOW	NON NATIVE	INSIDE	A
	Quercus agrifolia	Coast Live Oak	36" Box	18	20'-70'H x 20'-70'W	Per Plan	DRIVEWAY, KITCHEN GARDEN	V LOW	NATIVE	OUTSIDE	B-30
	Quercus agrifolia	Coast Live Oak	96" Box	18	20'-70'H x 20'-70'W	Per Plan	DRIVEWAY SPECIMEN	V LOW	NATIVE	OUTSIDE	B-30
	Ulmus parvifolia	Chinese Elm	36" Box	6	40'-50'H x 20'-40'	Per Plan	MOTOR, ENTRY COURT	MOD	NON NATIVE	INSIDE	UNKNOWN
SHRUBS											
	Acacia cognata Cousin It	Little River Wattle	5 gal.	26	2'-3'H x 8'-12'W	Per Plan	ENTRY, KIDS GARDEN	MOD	NON NATIVE	INSIDE	UNKNOWN
	Anigozanthos 'Bush Tango'	Dwarf Orange Kangaroo Paw	5 gal.	12	2'-3'H X 2'-3'W	Per Plan	KIDS GARDEN	MOD	NON NATIVE	INSIDE	UNKNOWN
	Artemisia 'Powis Castle'	Sagebrush	5 gal.	447	2'-4'H x 4'-6'W	Per Plan	DRIVEWAY	MOD	NATIVE	OUTSIDE	A
	Baccharis pilularis 'Pigeon Point'	Prostrate Coyote Brush	5 gal.	199	1'-2'H x 8'-10'W	Per Plan	DRIVEWAY	LOW	NATIVE	OUTSIDE	B
	Camellia sasanqua	Sasanqua Camellia	5 gal.	2	6'-15'H X 6'-15'W	Per Plan	MASTER	MOD	NON NATIVE	INSIDE	A-10
	Carissa macrocarpa 'Prostrata'	Prostrate Natal Plum	5 gal.	13	2'H X 5'-6'W	Per Plan	KITCHEN	LOW	NON NATIVE	INSIDE	A-10
~~[redacted]~~	~~Cycas revoluta~~	~~Sago Palm~~	~~5 gal.~~	~~5~~	3'-10'H x 3'-10'W	~~Per Plan~~	~~ENTRY~~	~~MOD~~	NON NATIVE	~~INSIDE~~	~~A~~
	Dendromecon harfordii	Island Bush Poppy	5 gal.	10	4'-8'H X 2'-6' W	Per Plan	GUEST HOUSE	V LOW	NATIVE	OUTSIDE	B
	Encelia californica	Bush Sunflower	5 gal.	300	3'-4'H x 4'-5'W	Per Plan	DRIVEWAY	V LOW	NATIVE	OUTSIDE	A-10
	Eriodictyon crassifolium	Felt leaved Yerba Santa	5 gal.	36	3'-6'H x 3'-6'W	Per Plan	GUEST HOUSE	V LOW	NATIVE	OUTSIDE	UNKNOWN
	Eschsholzia californica	California Poppy	4" pot	1483	1'-1'H x 1'-1'W	Per Plan	DRIVEWAY	V LOW	NATIVE	OUTSIDE	UNKNOWN
	Mimulus aurantiacus	Bush Monkey Flower	5 gal.	218	2'-3'H x 2'-3'W	Per Plan	DRIVEWAY	V LOW	NATIVE	OUTSIDE	A-10
	Penstemon heterophyllus	Foothill Penstemon	5 gal.	9	1'-3' H x 1'-4' W	Per Plan	DRIVEWAY	UNKNOWN	NATIVE	OUTSIDE	A
	Pittosporum crassifolium 'Compactum'	Dwarf Karo	5 gal.	2	2'-3'H x 4'-6'W	Per Plan	MASTER	MOD	NON NATIVE	INSIDE	UNKNOWN
	Polystichum munitum	Sword Fern	5 gal.	11	2'-3'H x 2'-4'W	Per Plan	MASTER	MOD	NON NATIVE	INSIDE	UNKNOWN
	Rhamnus californica	Coffeeberry	5 gal.	21	6'-8'H x 6-8'W	Per Plan	GUEST HOUSE	V LOW	NATIVE	OUTSIDE	B
	Rosa californica 'Elsie'	California Rose	5 gal.	18	4'-8' H x Spreading	Per Plan	GUEST HOUSE	LOW	NATIVE	OUTSIDE	UNKNOWN
	Salvia apiana	White Sage	5 gal.	20	3'-5'H x 4'-5'W	Per Plan	GUEST HOUSE	V LOW	NATIVE	OUTSIDE	B
	Salvia leucophylla	Purple Sage	5 gal.	420	2'-5'H x 6'-10'W	Per Plan	DRIVEWAY, GUEST HOUSE	V LOW	NATIVE	OUTSIDE	B
	Trichostema lanatum	Whooly Blue Curls	5 gal.	225	3'-4'H x 4'-5'W	Per Plan	DRIVEWAY	V LOW	NATIVE	OUTSIDE	B
	Umbellularia californica	California Laurel	15 gal.	18	20'-30'H x 15'-25'W	Per Plan	DRIVEWAY	LOW	NATIVE	OUTSIDE	B
	Verbena lilacina 'De La Mina'	Cedros Island Verbena	5 gal.	78	1'-2'H x 3'-4'W	Per Plan	DRIVEWAY	LOW	NON NATIVE	INSIDE	A
GRASSES, BAMBOO & PHORMIUMS											
	Achnatherum coronatum	Porcupine grass	5 gal.	183	2'-3'H x Clumping	Per Plan	DRIVEWAY	UNKNOWN	NATIVE	INSIDE/ OUTSIDE	UNKNOWN
	Bambusa multiplex 'Golden Goddess'	Hedge Bamboo	-	5	6'-10' H x Clumping	Per Plan	MASTER	MOD	NON NATIVE	INSIDE	B-30
	Iris douglasiana	Douglas Iris	1 gal.	11	1'-3'H x 2'-3'W	Per Plan	MASTER	LOW	N CAL NATIVE	INSIDE	A
	Leymus condensatus 'Canyon Prince'	Wild Rye	5 gal.	215	2'-3'H x Spreading	Per Plan	DRIVEWAY, GUEST HOUSE	LOW	NATIVE	OUTSIDE	B
	Lomandra 'Lime Tuff'	Dwarf Mat Rush	5 gal.	598	2'-3'H x 2'-3'W	Per Plan	THROUGHOUT	UNKNOWN	NON NATIVE	INSIDE	UNKNOWN
	Muhlengergia rigens	Deer Grass	5 gal.	674	4'-5'H x 4'-6'W	Per Plan	DRIVEWAY	LOW	NATIVE	OUTSIDE	UNKNOWN
	Nassella cernua	Nodding needlegrass	5 gal.	161	2'-3'H x 2'-3'W	Per Plan	THROUGHOUT	V LOW	NATIVE	OUTSIDE	UNKNOWN
	Pennisetum 'Fairy Tails'	Evergreen Fountain Grass	5 gal.	23	3'-5'H x 2'-3'W	Per Plan	KIDS GARDEN	MOD	NON NATIVE	INSIDE	UNKNOWN
AGAVES, ALOES & SUCCULENTS											
	Cereus hildmannianus	Night Blooming Cereus	15 gal.	43	up to 30'H x 1'W	Per Plan	ENTRY CORRIDOR	UNKNOWN	NON NATIVE	INSIDE	UNKNOWN
	Euphorbia ingens	Candelabra Tree	15 gal.	4	15'-25'H x 5'-15'W	Per Plan	ENTRY CORRIDOR	LOW	NON NATIVE	INSIDE	A
	Hesperoyucca whipplei 'RBG'	Our Lord's Candle	5 gal.	15	2'-3' H x 3'-4' W	Per Plan	GUEST HOUSE	V LOW	NATIVE	OUTSIDE	UNKNOWN
WATER PLANTS											
	Cyperus papyrus	Papyrus	5 gal.	12	12'-16'H x 4'-5'W	Per Plan	ENTRY CORRIDOR	HIGH	NON NATIVE	INSIDE	UNKNOWN
	Nymphaeaceae	Water Lily	5 gal.	70		Per Plan	ENTRY CORRIDOR	HIGH	NON NATIVE	INSIDE	UNKNOWN
GROUNDCOVER & VINES											
	Artificial Turf			782 SF		Per Plan	KIDS GARDEN	N/A			N/A
	Agrostis Pallens	Thingrass	flats	31,229 SF	1'-2'H x 1'2'W	Per Plan	DRIVEWAY, KITCHEN GARDEN, COVERED LOUNGE	UNKNOWN	NATIVE	INSIDE/ OUTSIDE	A
	Phyla nodiflora	Kurapia	flats	90 SF	6" H x Spread	Per Plan		LOW	NON NATIVE	INSIDE	A
	Origanum vulgare/ Prostrate Rosemary	Oregano, Rosemary	flats	300 SF	1-2'H x 6-8'W	Per Plan	KITCHEN GARDEN	LOW	NON NATIVE	INSIDE	A
MULCH											
	Shredded Bark			67,592 SF			DRIVEWAY				
	Fine Gravel			12,374 SF			WITH 20' OF STRUCTURES				



ENLARGED PLANTING PLAN 2
SCALE: 1/8" = 1'-0"



ENLARGED PLANTING PLAN 1
SCALE: 1/8" = 1'-0"

NOT FOR CONSTRUCTION

[place]

[pakshong landscape and architectural collaborative]
3617 exposition boulevard los angeles ca 90016
310 450 8100 fax 323 737 3290

CONSULTANTS

Property Owner
PAR PCH, LLC
PO Box 6528
Malibu, CA 90265

Design Architect
OPPENHEIM ARCHITECTURE
245 NE 37 Street
Miami, FL 33137
P 305 576 8404
F 305 576 8433
www.oppenoffice.com

Civil Engineers
LC ENGINEERING GROUP
889 Pierce Ct., Ste. 101
Thousand Oaks, CA 91360
P 805 497 1244
F 818 991 7148
www.lcegroupinc.com

NAME OF ISSUE

LICENSED LANDSCAPE ARCHITECT VESCHA PAKSHONG NO. 6270 REN. 02-28-23 STATE OF CALIFORNIA

KEY PLAN

VILLA COLEAVA

25200 Pacific Coast Highway
Malibu, CA 90265

Project # : 1913
Drawn by : LS
Scale : AS NOTED
Ref. North

Description:	Date:	No.
PLANNING SUBMITTAL	02/17/21	
BIO REVISIONS	04/05/21	1
BIO REVISIONS	08/11/21	2

PROJECT NO: 2021

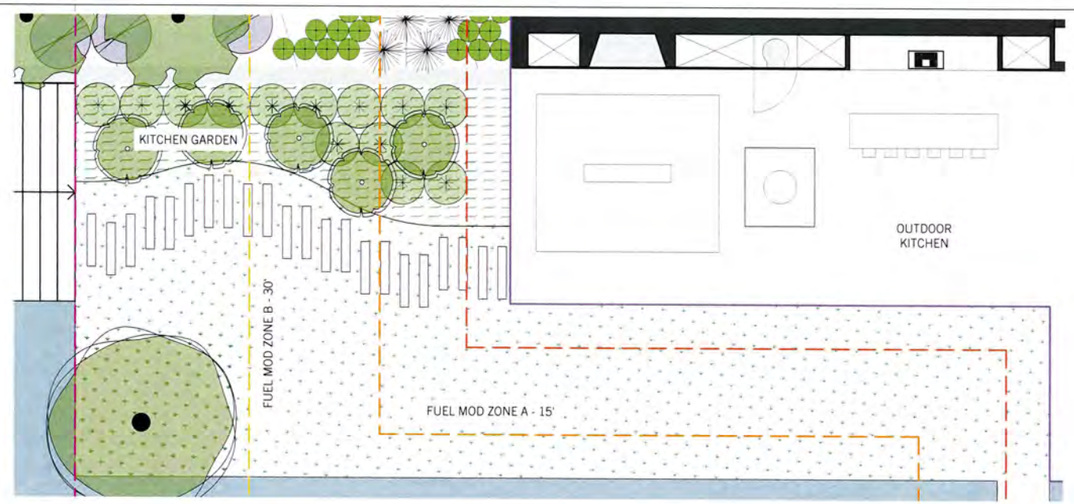
These drawings, specifications, ideas, designs, and arrangements presented thereby are and shall remain the property of [place]. No part thereof shall be copied, disclosed to others or used in connection with any work or project other than the specific project for which they have been prepared and developed without the written consent of [place]. Visual contact with these drawings or specifications shall constitute conclusive evidence of acceptance of these restrictions.

SHEET TITLE:
ENLARGED PLANTING PLAN

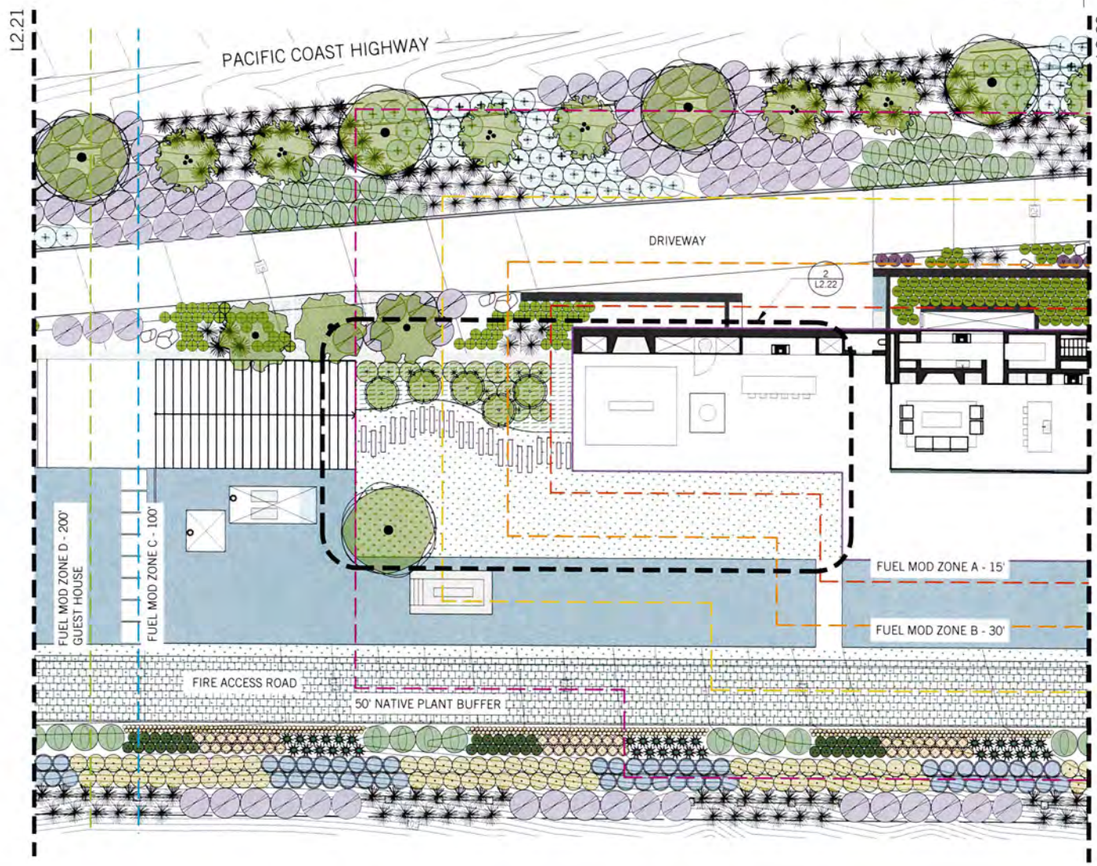
L2.21

OVERALL SITE PLANTING LEGEND

SYMBOL	BOTANICAL NAME	COMMON NAME	SIZE	QTY	PLANT SIZE	SPACING	NOTES	WUCOLS	ORIGIN	50' ZONE	FUEL ZONE
TREES											
	Acer palmatum	Japanese Maple	24" Box	1	15'-25'H x 15'-25'W	Per Plan	MASTER	MOD	NON NATIVE	INSIDE	A
	Arbutus 'Marina'	Marina Strawberry Tree Multi-Branch	48" Box	2	20'-40'H x 20'-30'W	Per Plan	OFFICE	LOW	NON NATIVE	INSIDE	B
	Dracaena draco	Dragon Tree	36" Box	1	15'-25'H x 15'-25'W	Per Plan	ENTRY, KIDS, KITCHEN	V LOW	NON NATIVE	INSIDE	A
	Dwarf Citrus	-	24" Box	5	-	Per Plan	KITCHEN GARDEN	MOD	NON NATIVE	INSIDE	A-10
	Heteromeles arbutifolia	Toyon	36" Box	37	20'-25' H x 8'-15'W	Per Plan	DRIVEWAY	V LOW	NATIVE	OUTSIDE	A-15
	Umbellularia californica	California Laurel	24" Box	10	20'-30'H x 15'-25'W	Per Plan	DRIVEWAY, GUEST HOUSE	LOW	NATIVE	OUTSIDE	B
	Plumeria rubra 'White'	Plumeria	15 gal.	0	15'-25'H x 15'-25'W	Per Plan	COVERED LOUNGE	LOW	NON NATIVE	INSIDE	A
	Quercus agrifolia	Coast Live Oak	36" Box	18	20'-70'H x 20'-70'W	Per Plan	DRIVEWAY, KITCHEN GARDEN	V LOW	NATIVE	OUTSIDE	B-30
	Quercus agrifolia	Coast Live Oak	96" Box	18	20'-70'H x 20'-70'W	Per Plan	DRIVEWAY SPECIMEN	V LOW	NATIVE	OUTSIDE	B-30
	Ulmus parvifolia	Chinese Elm	36" Box	6	40'-50'H x 20'-40'	Per Plan	MOTOR, ENTRY COURT	MOD	NON NATIVE	INSIDE	UNKNOWN
SHRUBS											
	Acacia cognata Cousin Itt	Little River Wattle	5 gal.	26	2'-3'H x 8'-12'W	Per Plan	ENTRY, KIDS GARDEN	MOD	NON NATIVE	INSIDE	UNKNOWN
	Anigozanthos 'Bush Tango'	Dwarf Orange Kangaroo Paw	5 gal.	12	2'-3'H X 2'-3'W	Per Plan	KIDS GARDEN	MOD	NON NATIVE	INSIDE	UNKNOWN
	Artemisia 'Powis Castle'	Sagebrush	5 gal.	447	2'-4'H x 4'-6'W	Per Plan	DRIVEWAY	MOD	NATIVE	OUTSIDE	A
	Baccharis pilularis 'Pigeon Point'	Prostrate Coyote Brush	5 gal.	199	1'-2'H x 8'-10'W	Per Plan	DRIVEWAY	LOW	NATIVE	OUTSIDE	B
	Camellia sasanqua	Sasanqua Camellia	5 gal.	2	6'-15'H X 6'-15'W	Per Plan	MASTER	MOD	NON NATIVE	INSIDE	A-10
	Carissa macrocarpa 'Prostrata'	Prostrate Natal Plum	5 gal.	13	2'H X 5'-6'W	Per Plan	KITCHEN	LOW	NON NATIVE	INSIDE	A-10
	~~Cycas revoluta~~	~~Sago Palm~~	~~5 gal.~~	~~5~~	3'-10'H x 3'-10'W	~~Per Plan~~	~~ENTRY~~	~~MOD~~	NON NATIVE	~~INSIDE~~	~~A~~
	Dendromecon harfordii	Island Bush Poppy	5 gal.	10	4'-8'H X 2'-6' W	Per Plan	GUEST HOUSE	V LOW	NATIVE	OUTSIDE	B
	Encelia californica	Bush Sunflower	5 gal.	300	3'-4'H x 4'-5'W	Per Plan	DRIVEWAY	V LOW	NATIVE	OUTSIDE	A-10
	Eriodictyon crassifolium	Felt leaved Yerba Santa	5 gal.	36	3'-6'H x 3'-6'W	Per Plan	GUEST HOUSE	V LOW	NATIVE	OUTSIDE	UNKNOWN
	Eschsholzia californica	California Poppy	4" pot	1483	1'-1'H x 1'-1'W	Per Plan	DRIVEWAY	V LOW	NATIVE	OUTSIDE	UNKNOWN
	Mimulus aurantiacus	Bush Monkey Flower	5 gal.	218	2'-3'H x 2'-3'W	Per Plan	DRIVEWAY	V LOW	NATIVE	OUTSIDE	A-10
	Penstemon heterophyllus	Foothill Penstemon	5 gal.	9	1'-3' H x 1'-4' W	Per Plan	DRIVEWAY	UNKNOWN	NATIVE	OUTSIDE	A
	Pittosporum crassifolium 'Compactum'	Dwarf Karo	5 gal.	2	2'-3'H x 4'-6'W	Per Plan	MASTER	MOD	NON NATIVE	INSIDE	UNKNOWN
	Polystichum munitum	Sword Fern	5 gal.	11	2'-3'H x 2'-4'W	Per Plan	MASTER	MOD	NON NATIVE	INSIDE	UNKNOWN
	Rhamnus californica	Coffeeberry	5 gal.	21	6'-8'H x 6-8'W	Per Plan	GUEST HOUSE	V LOW	NATIVE	OUTSIDE	B
	Rosa californica 'Elsie'	California Rose	5 gal.	18	4'-8' H x Spreading	Per Plan	GUEST HOUSE	LOW	NATIVE	OUTSIDE	UNKNOWN
	Salvia apiana	White Sage	5 gal.	20	3'-5'H x 4'-5'W	Per Plan	GUEST HOUSE	V LOW	NATIVE	OUTSIDE	B
	Salvia leucophylla	Purple Sage	5 gal.	420	2'-5'H x 6'-10'W	Per Plan	DRIVEWAY, GUEST HOUSE	V LOW	NATIVE	OUTSIDE	B
	Trichostema lanatum	Woolly Blue Curls	5 gal.	225	3'-4'H x 4'-5'W	Per Plan	DRIVEWAY	V LOW	NATIVE	OUTSIDE	B
	Umbellularia californica	California Laurel	15 gal.	18	20'-30'H x 15'-25'W	Per Plan	DRIVEWAY	LOW	NATIVE	OUTSIDE	B
	Verbena lilacina 'De La Mina'	Cedros Island Verbena	5 gal.	78	1'-2'H x 3'-4'W	Per Plan	DRIVEWAY	LOW	NON NATIVE	INSIDE	A
GRASSES, BAMBOO & PHORMIUMS											
	Achnatherum coronatum	Porcupine grass	5 gal.	183	2'-3'H x Clumping	Per Plan	DRIVEWAY	UNKNOWN	NATIVE	INSIDE/ OUTSIDE	UNKNOWN
	Bambusa multiplex 'Golden Goddess'	Hedge Bamboo	-	5	6'-10' H x Clumping	Per Plan	MASTER	MOD	NON NATIVE	INSIDE	B-30
	Iris douglasiana	Douglas Iris	1 gal.	11	1'-3'H x 2'-3'W	Per Plan	MASTER	LOW	N CAL NATIVE	INSIDE	A
	Leymus condensatus 'Canyon Prince'	Wild Rye	5 gal.	215	2'-3'H x Spreading	Per Plan	DRIVEWAY, GUEST HOUSE	LOW	NATIVE	OUTSIDE	B
	Lomandra 'Lime Tuff'	Dwarf Mat Rush	5 gal.	598	2'-3'H x 2'-3'W	Per Plan	THROUGHOUT	UNKNOWN	NON NATIVE	INSIDE	UNKNOWN
	Muhlengergia rigens	Deer Grass	5 gal.	674	4'-5'H x 4'-6'W	Per Plan	DRIVEWAY	LOW	NATIVE	OUTSIDE	UNKNOWN
	Nassella cernua	Nodding needlegrass	5 gal.	161	2'-3'H x 2'-3'W	Per Plan	THROUGHOUT	V LOW	NATIVE	OUTSIDE	UNKNOWN
	Pennisetum 'Fairy Tails'	Evergreen Fountain Grass	5 gal.	23	3'-5'H x 2'-3'W	Per Plan	KIDS GARDEN	MOD	NON NATIVE	INSIDE	UNKNOWN
AGAVES, ALOES & SUCCULENTS											
	Cereus hildmannianus	Night Blooming Cereus	15 gal.	43	up to 30'H x 1'W	Per Plan	ENTRY CORRIDOR	UNKNOWN	NON NATIVE	INSIDE	UNKNOWN
	Euphorbia ingens	Candelabra Tree	15 gal.	4	15'-25'H x 5'-15'W	Per Plan	ENTRY CORRIDOR	LOW	NON NATIVE	INSIDE	A
	Hesperoyucca whipplei 'RBG'	Our Lord's Candle	5 gal.	15	2'-3' H x 3'-4' W	Per Plan	GUEST HOUSE	V LOW	NATIVE	OUTSIDE	UNKNOWN
WATER PLANTS											
	Cyperus papyrus	Papyrus	5 gal.	12	12'-16'H x 4'-5'W	Per Plan	ENTRY CORRIDOR	HIGH	NON NATIVE	INSIDE	UNKNOWN
	Nymphaeaceae	Water Lily	5 gal.	70		Per Plan	ENTRY CORRIDOR	HIGH	NON NATIVE	INSIDE	UNKNOWN
GROUNDCOVER & VINES											
	Artificial Turf			782 SF		Per Plan	KIDS GARDEN	N/A			N/A
	Agrostis Pallens	Thingrass	flats	31,229 SF	1'-2'H x 1'2'W	Per Plan	DRIVEWAY, KITCHEN GARDEN	UNKNOWN	NATIVE	INSIDE/ OUTSIDE	A
	Phyla nodiflora	Kurapia	flats	90 SF	6" H x Spread	Per Plan	COVERED LOUNGE	LOW	NON NATIVE	INSIDE	A
	Origanum vulgare/ Prostrate Rosemary	Oregano, Rosemary	flats	300 SF	1-2'H x 6-8'W	Per Plan	KITCHEN GARDEN	LOW	NON NATIVE	INSIDE	A
MULCH											
	Shredded Bark			67,592 SF			DRIVEWAY				
	Fine Gravel			12,374 SF			~~W/IN 20' OF STRUCTURES~~				



ENLARGED PLANTING PLAN 2
SCALE: 1/8" = 1'-0"



ENLARGED PLANTING PLAN 1
SCALE: 1/8" = 1'-0"

NOT FOR CONSTRUCTION

[place]

[pakshong landscape and architectural collaborative]
3617 exposition boulevard los angeles ca 90016
310 450 8100 fax 323 737 3290

CONSULTANTS

Property Owner
PAR PCH, LLC
PO Box 6528
Malibu, CA 90265

Design Architect
OPPENHEIM ARCHITECTURE
245 NE 37 Street
Miami, FL 33137
P 305 576 8404
F 305 576 8433
www.oppenoffice.com

Civil Engineers
LC ENGINEERING GROUP
889 Pierce Ct., Ste. 101
Thousand Oaks, CA 91360
P 805 497 1244
F 818 991 7148
www.lcegroupinc.com

NAME OF ISSUE

LICENSED APPROVED
CALIFORNIA PLANTING
LIC NO C27 [illegible]
REN. 02-26-23
STATE OF CALIFORNIA

KEY PLAN

VILLA COLEAVA

25200 Pacific Coast Highway
Malibu, CA 90265

Project # : 1913
Drawn by : LS
Scale : AS NOTED

Ref. North

Description:	Date:	No.
PLANNING SUBMITTAL	02/17/21	
BIO REVISIONS	04/05/21	1
BIO REVISIONS	08/11/21	2

PROJECT NO: 2021

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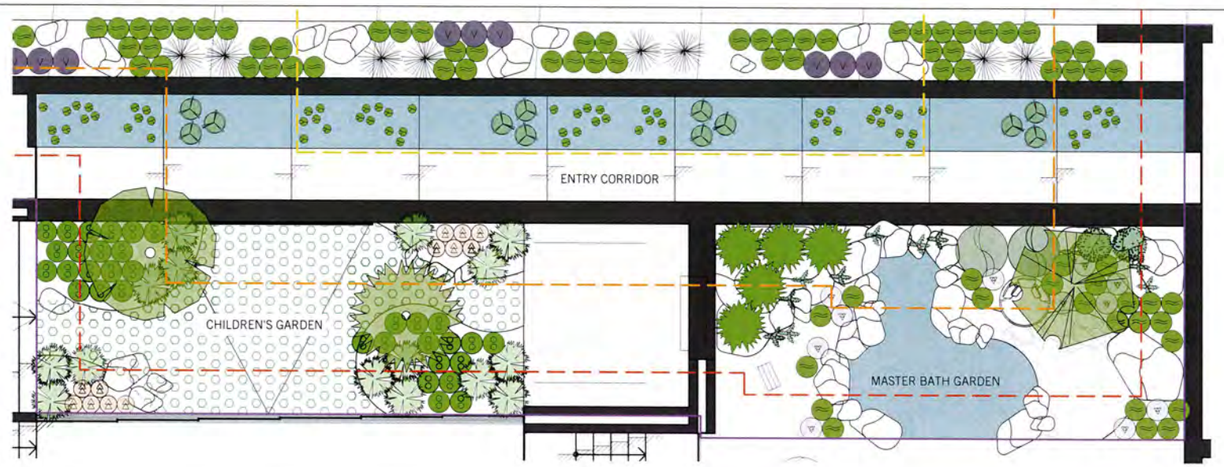
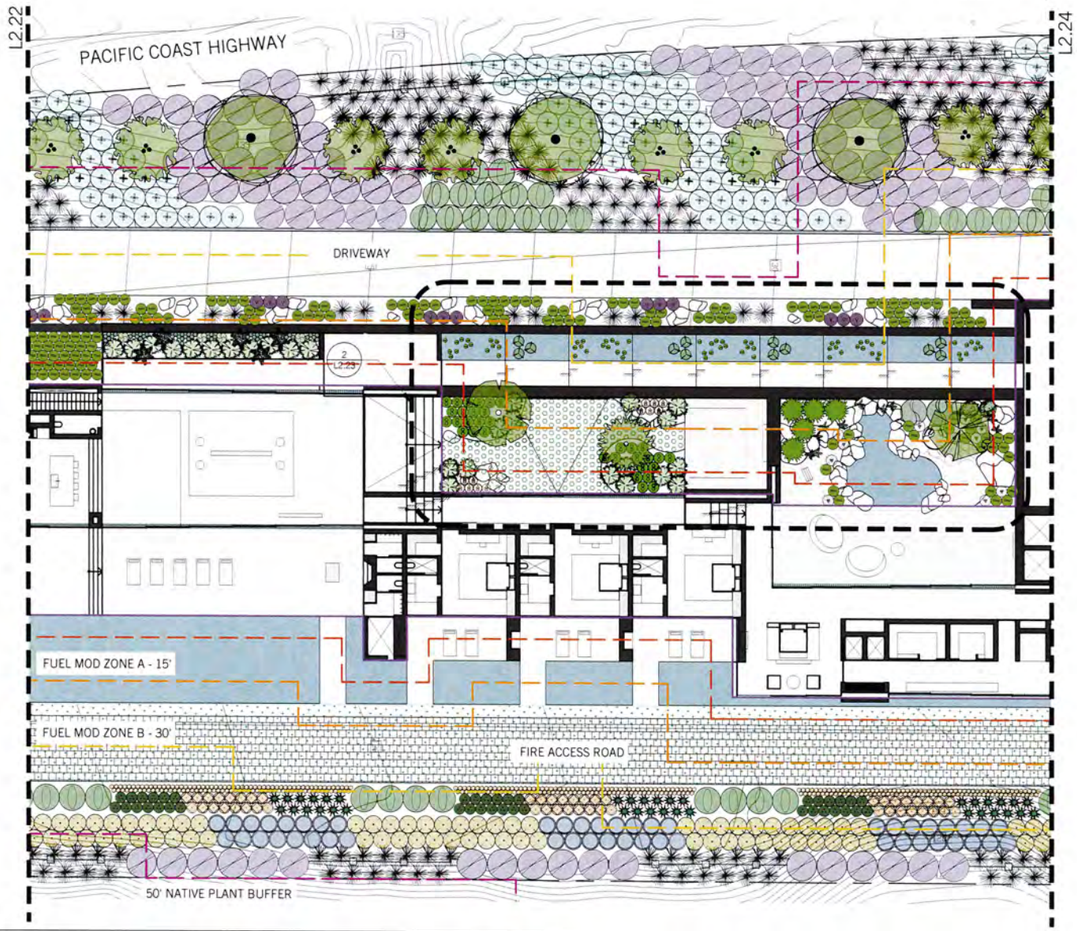
SHEET TITLE:
ENLARGED PLANTING PLAN
L2.22

OVERALL SITE PLANTING LEGEND

SYMBOL	BOTANICAL NAME	COMMON NAME	SIZE	QTY	PLANT SIZE	SPACING	NOTES	WUCOLS	ORIGIN	50' ZONE	FUEL ZONE
TREES											
	Acer palmatum	Japanese Maple	24" Box	1	15'-25'H x 15'-25'W	Per Plan	MASTER	MOD	NON NATIVE	INSIDE	A
	Arbutus 'Marina'	Marina Strawberry Tree Multi-Branch	48" Box	2	20'-40'H x 20'-30'W	Per Plan	OFFICE	LOW	NON NATIVE	INSIDE	B
	Dracaena draco	Dragon Tree	36" Box	1	15'-25'H x 15'-25'W	Per Plan	ENTRY, KIDS, KITCHEN	V LOW	NON NATIVE	INSIDE	A
	Dwarf Citrus	-	24" Box	5	-	Per Plan	KITCHEN GARDEN	MOD	NON NATIVE	INSIDE	A-10
	Heteromeles arbutifolia	Toyon	36" Box	37	20'-25' H x 8'-15'W	Per Plan	DRIVEWAY	V LOW	NATIVE	OUTSIDE	A-15
	Umbellularia californica	California Laurel	24" Box	10	20'-30'H x 15'-25'W	Per Plan	DRIVEWAY, GUEST HOUSE	LOW	NATIVE	OUTSIDE	B
	Plumeria rubra 'White'	Plumeria	15 gal.	0	15'-25'H x 15'-25'W	Per Plan	COVERED LOUNGE	LOW	NON NATIVE	INSIDE	A
	Quercus agrifolia	Coast Live Oak	36" Box	18	20'-70'H x 20'-70'W	Per Plan	DRIVEWAY, KITCHEN GARDEN	V LOW	NATIVE	OUTSIDE	B-30
	Quercus agrifolia	Coast Live Oak	96" Box	18	20'-70'H x 20'-70'W	Per Plan	DRIVEWAY SPECIMEN	V LOW	NATIVE	OUTSIDE	B-30
	Ulmus parvifolia	Chinese Elm	36" Box	6	40'-50'H x 20'-40'	Per Plan	MOTOR, ENTRY COURT	MOD	NON NATIVE	INSIDE	UNKNOWN
SHRUBS											
	Acacia cognata Cousin Itt	Little River Wattle	5 gal.	26	2'-3'H x 8'-12'W	Per Plan	ENTRY, KIDS GARDEN	MOD	NON NATIVE	INSIDE	UNKNOWN
	Anigozanthos 'Bush Tango'	Dwarf Orange Kangaroo Paw	5 gal.	12	2'-3'H X 2'-3'W	Per Plan	KIDS GARDEN	MOD	NON NATIVE	INSIDE	UNKNOWN
	Artemisia 'Powis Castle'	Sagebrush	5 gal.	447	2'-4'H x 4'-6'W	Per Plan	DRIVEWAY	MOD	NATIVE	OUTSIDE	A
	Baccharis pilularis 'Pigeon Point'	Prostrate Coyote Brush	5 gal.	199	1'-2'H x 8'-10'W	Per Plan	DRIVEWAY	LOW	NATIVE	OUTSIDE	B
	Camellia sasanqua	Sasanqua Camellia	5 gal.	2	6'-15'H X 6'-15'W	Per Plan	MASTER	MOD	NON NATIVE	INSIDE	A-10
	Carissa macrocarpa 'Prostrata'	Prostrate Natal Plum	5 gal.	13	2'H X 5'-6'W	Per Plan	KITCHEN	LOW	NON NATIVE	INSIDE	A-10
	~~Cycas revoluta~~	~~Sago Palm~~	~~5 gal.~~	~~5~~	~~3-10'H x 3'-10'W~~	~~Per Plan~~	~~ENTRY~~	~~MOD~~	~~NON NATIVE~~	~~INSIDE~~	~~A~~
	Dendromecon harfordii	Island Bush Poppy	5 gal.	10	4'-8'H X 2'-6' W	Per Plan	GUEST HOUSE	V LOW	NATIVE	OUTSIDE	B
	Encelia californica	Bush Sunflower	5 gal.	300	3'-4'H x 4'-5'W	Per Plan	DRIVEWAY	V LOW	NATIVE	OUTSIDE	A-10
	Eriodictyon crassifolium	Felt leaved Yerba Santa	5 gal.	36	3'-6'H x 3'-6'W	Per Plan	GUEST HOUSE	V LOW	NATIVE	OUTSIDE	UNKNOWN
	Eschsholzia californica	California Poppy	4" pot	1483	1'-1'H x 1'-1'W	Per Plan	DRIVEWAY	V LOW	NATIVE	OUTSIDE	UNKNOWN
	Mimulus aurantiacus	Bush Monkey Flower	5 gal.	218	2'-3'H x 2'-3'W	Per Plan	DRIVEWAY	V LOW	NATIVE	OUTSIDE	A-10
	Penstemon heterophyllus	Foothill Penstemon	5 gal.	9	1'-3' H x 1'-4' W	Per Plan	DRIVEWAY	UNKNOWN	NATIVE	OUTSIDE	A
	Pittosporum crassifolium 'Compactum'	Dwarf Karo	5 gal.	2	2'-3'H x 4'-6'W	Per Plan	MASTER	MOD	NON NATIVE	INSIDE	UNKNOWN
	Polystichum munitum	Sword Fern	5 gal.	11	2'-3'H x 2'-4'W	Per Plan	MASTER	MOD	NON NATIVE	INSIDE	UNKNOWN
	Rhamnus californica	Coffeeberry	5 gal.	21	6'-8'H x 6-8'W	Per Plan	GUEST HOUSE	V LOW	NATIVE	OUTSIDE	B
	Rosa californica 'Elsie'	California Rose	5 gal.	18	4'-8' H x Spreading	Per Plan	GUEST HOUSE	LOW	NATIVE	OUTSIDE	UNKNOWN
	Salvia apiana	White Sage	5 gal.	20	3'-5'H x 4'-5'W	Per Plan	GUEST HOUSE	V LOW	NATIVE	OUTSIDE	B
	Salvia leucophylla	Purple Sage	5 gal.	420	2'-5'H x 6'-10'W	Per Plan	DRIVEWAY, GUEST HOUSE	V LOW	NATIVE	OUTSIDE	B
	Trichostema lanatum	Woolly Blue Curls	5 gal.	225	3'-4'H x 4'-5'W	Per Plan	DRIVEWAY	V LOW	NATIVE	OUTSIDE	B
	Umbellularia californica	California Laurel	15 gal.	18	20'-30'H x 15'-25'W	Per Plan	DRIVEWAY	LOW	NATIVE	OUTSIDE	B
	Verbena lilacina 'De La Mina'	Cedros Island Verbena	5 gal.	78	1'-2'H x 3'-4'W	Per Plan	DRIVEWAY	LOW	NON NATIVE	INSIDE	A
GRASSES, BAMBOO & PHORMIUMS											
	Achnatherum coronatum	Porcupine grass	5 gal.	183	2'-3'H x Clumping	Per Plan	DRIVEWAY	UNKNOWN	NATIVE	INSIDE/ OUTSIDE	UNKNOWN
	Bambusa multiplex 'Golden Goddess'	Hedge Bamboo	-	5	6'-10' H x Clumping	Per Plan	MASTER	MOD	NON NATIVE	INSIDE	B-30
	Iris douglasiana	Douglas Iris	1 gal.	11	1'-3'H x 2'-3'W	Per Plan	MASTER	LOW	N CAL NATIVE	INSIDE	A
	Leymus condensatus 'Canyon Prince'	Wild Rye	5 gal.	215	2'-3'H x Spreading	Per Plan	DRIVEWAY, GUEST HOUSE	LOW	NATIVE	OUTSIDE	B
	Lomandra 'Lime Tuff'	Dwarf Mat Rush	5 gal.	598	2'-3'H x 2'-3'W	Per Plan	THROUGHOUT	UNKNOWN	NON NATIVE	INSIDE	UNKNOWN
	Muhlengergia rigens	Deer Grass	5 gal.	674	4'-5'H x 4'-6'W	Per Plan	DRIVEWAY	LOW	NATIVE	OUTSIDE	UNKNOWN
	Nassella cernua	Nodding needlegrass	5 gal.	161	2'-3'H x 2'-3'W	Per Plan	THROUGHOUT	V LOW	NATIVE	OUTSIDE	UNKNOWN
	Pennisetum 'Fairy Tails'	Evergreen Fountain Grass	5 gal.	23	3'-5'H x 2'-3'W	Per Plan	KIDS GARDEN	MOD	NON NATIVE	INSIDE	UNKNOWN
AGAVES, ALOES & SUCCULENTS											
	Cereus hildmannianus	Night Blooming Cereus	15 gal.	43	up to 30'H x 1'W	Per Plan	ENTRY CORRIDOR	UNKNOWN	NON NATIVE	INSIDE	UNKNOWN
	Euphorbia ingens	Candelabra Tree	15 gal.	4	15'-25'H x 5'-15'W	Per Plan	ENTRY CORRIDOR	LOW	NON NATIVE	INSIDE	A
	Hesperoyucca whipplei 'RBG'	Our Lord's Candle	5 gal.	15	2'-3' H x 3'-4' W	Per Plan	GUEST HOUSE	V LOW	NATIVE	OUTSIDE	UNKNOWN
WATER PLANTS											
	Cyperus papyrus	Papyrus	5 gal.	12	12'-16'H x 4'-5'W	Per Plan	ENTRY CORRIDOR	HIGH	NON NATIVE	INSIDE	UNKNOWN
	Nymphaeaceae	Water Lily	5 gal.	70		Per Plan	ENTRY CORRIDOR	HIGH	NON NATIVE	INSIDE	UNKNOWN
GROUNDCOVER & VINES											
	Artificial Turf			782 SF		Per Plan	KIDS GARDEN	N/A			N/A
	Agrostis Pallens	Thingrass	flats	31,229 SF	1'-2'H x 1'2'W	Per Plan	DRIVEWAY, KITCHEN GARDEN	UNKNOWN	NATIVE	INSIDE/ OUTSIDE	A
	Phyla nodiflora	Kurapia	flats	90 SF	6" H x Spread	Per Plan	COVERED LOUNGE	LOW	NON NATIVE	INSIDE	A
	Origanum vulgare/ Prostrate Rosemary	Oregano, Rosemary	flats	300 SF	1-2'H x 6-8'W	Per Plan	KITCHEN GARDEN	LOW	NON NATIVE	INSIDE	A
MULCH											
	Shredded Bark			67,592 SF			DRIVEWAY				
	Fine Gravel			12,374 SF			WITH 20' OF STRUCTURES				



ENLARGED PLANTING PLAN 2
SCALE: 1/8" = 1'-0"



ENLARGED PLANTING PLAN 1
SCALE: 1/8" = 1'-0"

NOT FOR CONSTRUCTION

[place]

[pakshong landscape and architectural collaborative]
3617 exposition boulevard los angeles ca 90016
310 450 8100 fax 323 737 3290

CONSULTANTS

Property Owner
PAR PCH, LLC
PO Box 6528
Malibu, CA 90265

Design Architect
OPPENHEIM ARCHITECTURE
245 NE 37 Street
Miami, FL 33137
P 305 576 8404
F 305 576 8433
www.oppenoffice.com

Civil Engineers
LC ENGINEERING GROUP
889 Pierce Ct., Ste. 101
Thousand Oaks, CA 91360
P 805 497 1244
F 818 991 7148
www.lcegroupinc.com

NAME OF ISSUE

LICENSED ARCHITECT SHOHA PAKSHONG No. C27625 REN. 02-28-23 STATE OF CALIFORNIA

KEY PLAN

VILLA COLEAVA

25200 Pacific Coast Highway
Malibu, CA 90265

Project # : 1913
Drawn by : LS
Scale : AS NOTED
Ref. North

Description:	Date:	No.
PLANNING SUBMITTAL	02/17/21	
BIO REVISIONS	04/05/21	1
BIO REVISIONS	08/11/21	2

PROJECT NO: 2021

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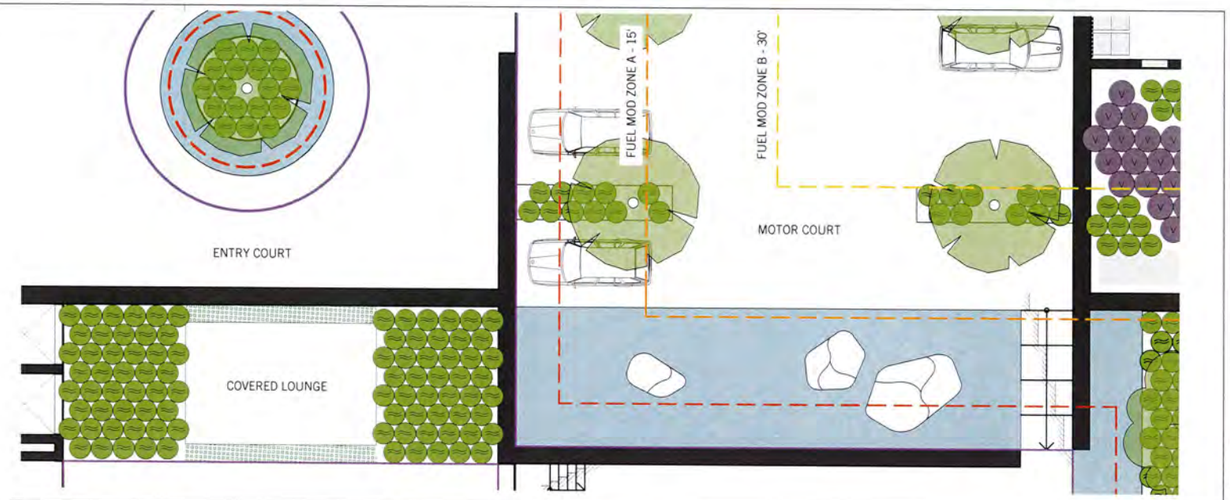
SHEET TITLE:
ENLARGED PLANTING PLAN

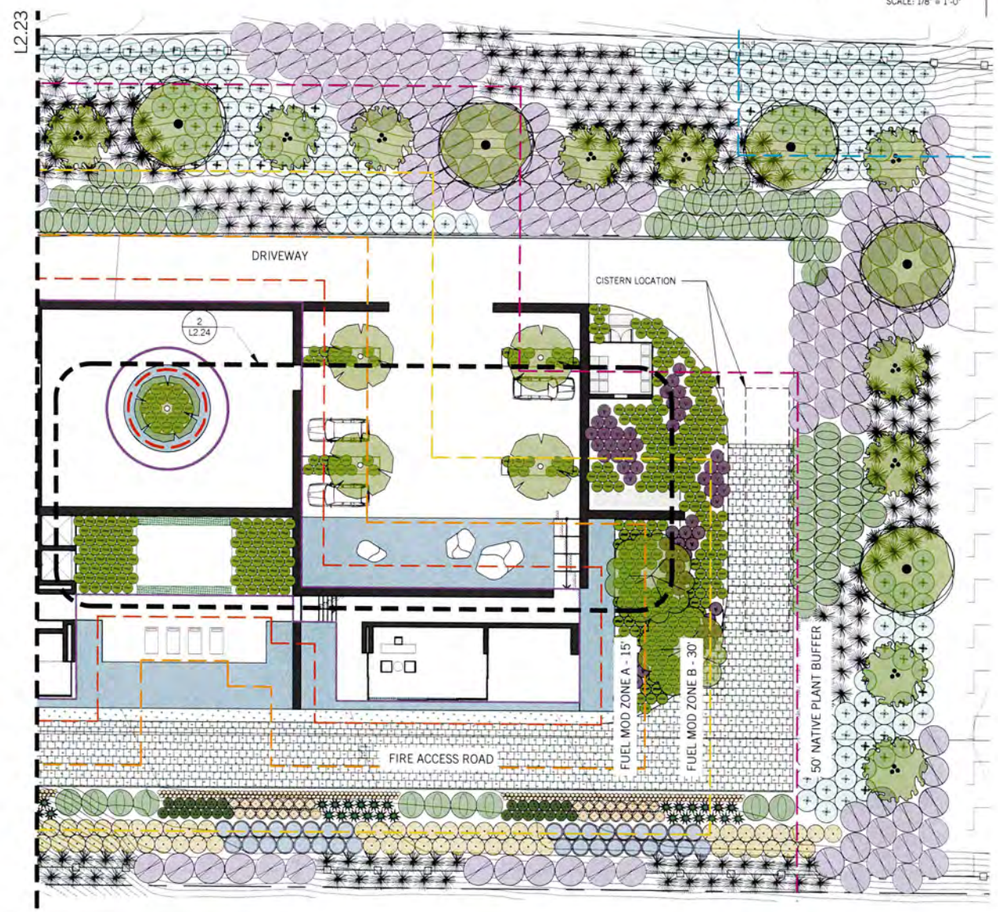
L2.23

OVERALL SITE PLANTING LEGEND

SYMBOL	BOTANICAL NAME	COMMON NAME	SIZE	QTY	PLANT SIZE	SPACING	NOTES	WUCOLS	ORIGIN	50' ZONE	FUEL ZONE
TREES											
	Acer palmatum	Japanese Maple	24" Box	1	15'-25'H x 15'-25'W	Per Plan	MASTER	MOD	NON NATIVE	INSIDE	A
	Arbutus 'Marina'	Marina Strawberry Tree Multi-Branch	48" Box	2	20'-40'H x 20'-30'W	Per Plan	OFFICE	LOW	NON NATIVE	INSIDE	B
	Dracaena draco	Dragon Tree	36" Box	1	15'-25'H x 15'-25'W	Per Plan	ENTRY, KIDS, KITCHEN	V LOW	NON NATIVE	INSIDE	A
	Dwarf Citrus	-	24" Box	5	-	Per Plan	KITCHEN GARDEN	MOD	NON NATIVE	INSIDE	A-10
	Heteromeles arbutifolia	Toyon	36" Box	37	20'-25' H x 8'-15'W	Per Plan	DRIVEWAY	V LOW	NATIVE	OUTSIDE	A-15
	Umbellularia californica	California Laurel	24" Box	10	20'-30'H x 15'-25'W	Per Plan	DRIVEWAY, GUEST HOUSE	LOW	NATIVE	OUTSIDE	B
	Plumeria rubra 'White'	Plumeria	15 gal.	0	15'-25'H x 15'-25'W	Per Plan	COVERED LOUNGE	LOW	NON NATIVE	INSIDE	A
	Quercus agrifolia	Coast Live Oak	36" Box	18	20'-70'H x 20'-70'W	Per Plan	DRIVEWAY, KITCHEN GARDEN	V LOW	NATIVE	OUTSIDE	B-30
	Quercus agrifolia	Coast Live Oak	96" Box	18	20'-70'H x 20'-70'W	Per Plan	DRIVEWAY SPECIMEN	V LOW	NATIVE	OUTSIDE	B-30
	Ulmus parvifolia	Chinese Elm	36" Box	6	40'-50'H x 20'-40'	Per Plan	MOTOR, ENTRY COURT	MOD	NON NATIVE	INSIDE	UNKNOWN
SHRUBS											
	Acacia cognata Cousin Itt	Little River Wattle	5 gal.	26	2'-3'H x 8'-12'W	Per Plan	ENTRY, KIDS GARDEN	MOD	NON NATIVE	INSIDE	UNKNOWN
	Anigozanthos 'Bush Tango'	Dwarf Orange Kangaroo Paw	5 gal.	12	2'-3'H X 2'-3'W	Per Plan	KIDS GARDEN	MOD	NON NATIVE	INSIDE	UNKNOWN
	Artemisia 'Powis Castle'	Sagebrush	5 gal.	447	2'-4'H x 4'-6'W	Per Plan	DRIVEWAY	MOD	NATIVE	OUTSIDE	A
	Baccharis pilularis 'Pigeon Point'	Prostrate Coyote Brush	5 gal.	199	1'-2'H x 8'-10'W	Per Plan	DRIVEWAY	LOW	NATIVE	OUTSIDE	B
	Camellia sasanqua	Sasanqua Camellia	5 gal.	2	6'-15'H X 6'-15'W	Per Plan	MASTER	MOD	NON NATIVE	INSIDE	A-10
	Carissa macrocarpa 'Prostrata'	Prostrate Natal Plum	5 gal.	13	2'H X 5'-6'W	Per Plan	KITCHEN	LOW	NON NATIVE	INSIDE	A-10
	~~Cycas revoluta~~	~~Sago Palm~~	~~5 gal.~~	~~5~~	3'-10'H x 3'-10'W	~~Per Plan~~	~~ENTRY~~	~~MOD~~	NON NATIVE	~~INSIDE~~	~~A~~
	Dendromecon harfordii	Island Bush Poppy	5 gal.	10	4'-8'H X 2'-6' W	Per Plan	GUEST HOUSE	V LOW	NATIVE	OUTSIDE	B
	Encelia californica	Bush Sunflower	5 gal.	300	3'-4'H x 4'-5'W	Per Plan	DRIVEWAY	V LOW	NATIVE	OUTSIDE	A-10
	Eriodictyon crassifolium	Felt leaved Yerba Santa	5 gal.	36	3'-6'H x 3'-6'W	Per Plan	GUEST HOUSE	V LOW	NATIVE	OUTSIDE	UNKNOWN
	Eschsholzia californica	California Poppy	4" pot	1483	1'-1'H x 1'-1'W	Per Plan	DRIVEWAY	V LOW	NATIVE	OUTSIDE	UNKNOWN
	Mimulus aurantiacus	Bush Monkey Flower	5 gal.	218	2'-3'H x 2'-3'W	Per Plan	DRIVEWAY	V LOW	NATIVE	OUTSIDE	A-10
	Penstemon heterophyllus	Foothill Penstemon	5 gal.	9	1'-3' H x 1'-4' W	Per Plan	DRIVEWAY	UNKNOWN	NATIVE	OUTSIDE	A
	Pittosporum crassifolium 'Compactum'	Dwarf Karo	5 gal.	2	2'-3'H x 4'-6'W	Per Plan	MASTER	MOD	NON NATIVE	INSIDE	UNKNOWN
	Polystichum munitum	Sword Fern	5 gal.	11	2'-3'H x 2'-4'W	Per Plan	MASTER	MOD	NON NATIVE	INSIDE	UNKNOWN
	Rhamnus californica	Coffeeberry	5 gal.	21	6'-8'H x 6-8'W	Per Plan	GUEST HOUSE	V LOW	NATIVE	OUTSIDE	B
	Rosa californica 'Elsie'	California Rose	5 gal.	18	4'-8' H x Spreading	Per Plan	GUEST HOUSE	LOW	NATIVE	OUTSIDE	UNKNOWN
	Salvia apiana	White Sage	5 gal.	20	3'-5'H x 4'-5'W	Per Plan	GUEST HOUSE	V LOW	NATIVE	OUTSIDE	B
	Salvia leucophylla	Purple Sage	5 gal.	420	2'-5'H x 6'-10'W	Per Plan	DRIVEWAY, GUEST HOUSE	V LOW	NATIVE	OUTSIDE	B
	Trichostema lanatum	Whooly Blue Curls	5 gal.	225	3'-4'H x 4'-5'W	Per Plan	DRIVEWAY	V LOW	NATIVE	OUTSIDE	B
	Umbellularia californica	California Laurel	15 gal.	18	20'-30'H x 15'-25'W	Per Plan	DRIVEWAY	LOW	NATIVE	OUTSIDE	B
	Verbena lilacina 'De La Mina'	Cedros Island Verbena	5 gal.	78	1'-2'H x 3'-4'W	Per Plan	DRIVEWAY	LOW	NON NATIVE	INSIDE	A
GRASSES, BAMBOO & PHORMIUMS											
	Achnatherum coronatum	Porcupine grass	5 gal.	183	2'-3'H x Clumping	Per Plan	DRIVEWAY	UNKNOWN	NATIVE	INSIDE/ OUTSIDE	UNKNOWN
	Bambusa multiplex 'Golden Goddess'	Hedge Bamboo	-	5	6'-10' H x Clumping	Per Plan	MASTER	MOD	NON NATIVE	INSIDE	B-30
	Iris douglasiana	Douglas Iris	1 gal.	11	1'-3'H x 2'-3'W	Per Plan	MASTER	LOW	N CAL NATIVE	INSIDE	A
	Leymus condensatus 'Canyon Prince'	Wild Rye	5 gal.	215	2'-3'H x Spreading	Per Plan	DRIVEWAY, GUEST HOUSE	LOW	NATIVE	OUTSIDE	B
	Lomandra 'Lime Tuff'	Dwarf Mat Rush	5 gal.	598	2'-3'H x 2'-3'W	Per Plan	THROUGHOUT	UNKNOWN	NON NATIVE	INSIDE	UNKNOWN
	Muhlengergia rigens	Deer Grass	5 gal.	674	4'-5'H x 4'-6'W	Per Plan	DRIVEWAY	LOW	NATIVE	OUTSIDE	UNKNOWN
	Nassella cernua	Nodding needlegrass	5 gal.	161	2'-3'H x 2'-3'W	Per Plan	THROUGHOUT	V LOW	NATIVE	OUTSIDE	UNKNOWN
	Pennisetum 'Fairy Tails'	Evergreen Fountain Grass	5 gal.	23	3'-5'H x 2'-3'W	Per Plan	KIDS GARDEN	MOD	NON NATIVE	INSIDE	UNKNOWN
AGAVES, ALOES & SUCCULENTS											
	Cereus hildmannianus	Night Blooming Cereus	15 gal.	43	up to 30'H x 1'W	Per Plan	ENTRY CORRIDOR	UNKNOWN	NON NATIVE	INSIDE	UNKNOWN
	Euphorbia ingens	Candelabra Tree	15 gal.	4	15'-25'H x 5'-15'W	Per Plan	ENTRY CORRIDOR	LOW	NON NATIVE	INSIDE	A
	Hesperoyucca whipplei 'RBG'	Our Lord's Candle	5 gal.	15	2'-3' H x 3'-4' W	Per Plan	GUEST HOUSE	V LOW	NATIVE	OUTSIDE	UNKNOWN
WATER PLANTS											
	Cyperus papyrus	Papyrus	5 gal.	12	12'-16'H x 4'-5'W	Per Plan	ENTRY CORRIDOR	HIGH	NON NATIVE	INSIDE	UNKNOWN
	Nymphaeaceae	Water Lily	5 gal.	70		Per Plan	ENTRY CORRIDOR	HIGH	NON NATIVE	INSIDE	UNKNOWN
GROUNDCOVER & VINES											
	Artificial Turf			782 SF		Per Plan	KIDS GARDEN	N/A			N/A
	Agrostis Pallens	Thingrass	flats	31,229 SF	1'-2'H x 1'2'W	Per Plan	DRIVEWAY, KITCHEN GARDEN	UNKNOWN	NATIVE	INSIDE/ OUTSIDE	A
	Phyla nodiflora	Kurapia	flats	90 SF	6" H x Spread	Per Plan	COVERED LOUNGE	LOW	NON NATIVE	INSIDE	A
	Origanum vulgare/ Prostrate Rosemary	Oregano, Rosemary	flats	300 SF	1-2'H x 6-8'W	Per Plan	KITCHEN GARDEN	LOW	NON NATIVE	INSIDE	A
MULCH											
	Shredded Bark			67,592 SF			DRIVEWAY				
	Fine Gravel			12,374 SF			~~W/IN 20' OF STRUCTURES~~				



ENLARGED PLANTING PLAN
SCALE: 1/8" = 1'-0" | 2



ENLARGED PLANTING PLAN
SCALE: 1/8" = 1'-0" | 1

NOT FOR CONSTRUCTION

[place]

[pakshong landscape and architectural collaborative]
3617 exposition boulevard los angeles ca 90016
310 450 8100 fax 323 737 3290

CONSULTANTS

Property Owner
PAR PCH, LLC
PO Box 6528
Malibu, CA 90265

Design Architect
OPPENHEIM ARCHITECTURE
245 NE 37 Street
Miami, FL 33137
P 305 576 8404
F 305 576 8433
www.oppenoffice.com

Civil Engineers
LC ENGINEERING GROUP
889 Pierce Ct., Ste. 101
Thousand Oaks, CA 91360
P 805 497 1244
F 818 991 7148
www.lcegroupinc.com

NAME OF ISSUE

LICENSED LANDSCAPE ARCHITECT CHERYL PAK LEE No. 6270 REN. 02-26-23 STATE OF CALIFORNIA

KEY PLAN

VILLA COLEAVA

25200 Pacific Coast Highway
Malibu, CA 90265

Project # : 1913
Drawn by : LS
Scale : AS NOTED

Ref. North

Description:	Date:	No.
PLANNING SUBMITTAL	02/17/21	
BIO REVISIONS	04/05/21	1
BIO REVISIONS	08/11/21	2

PROJECT NO: 2021

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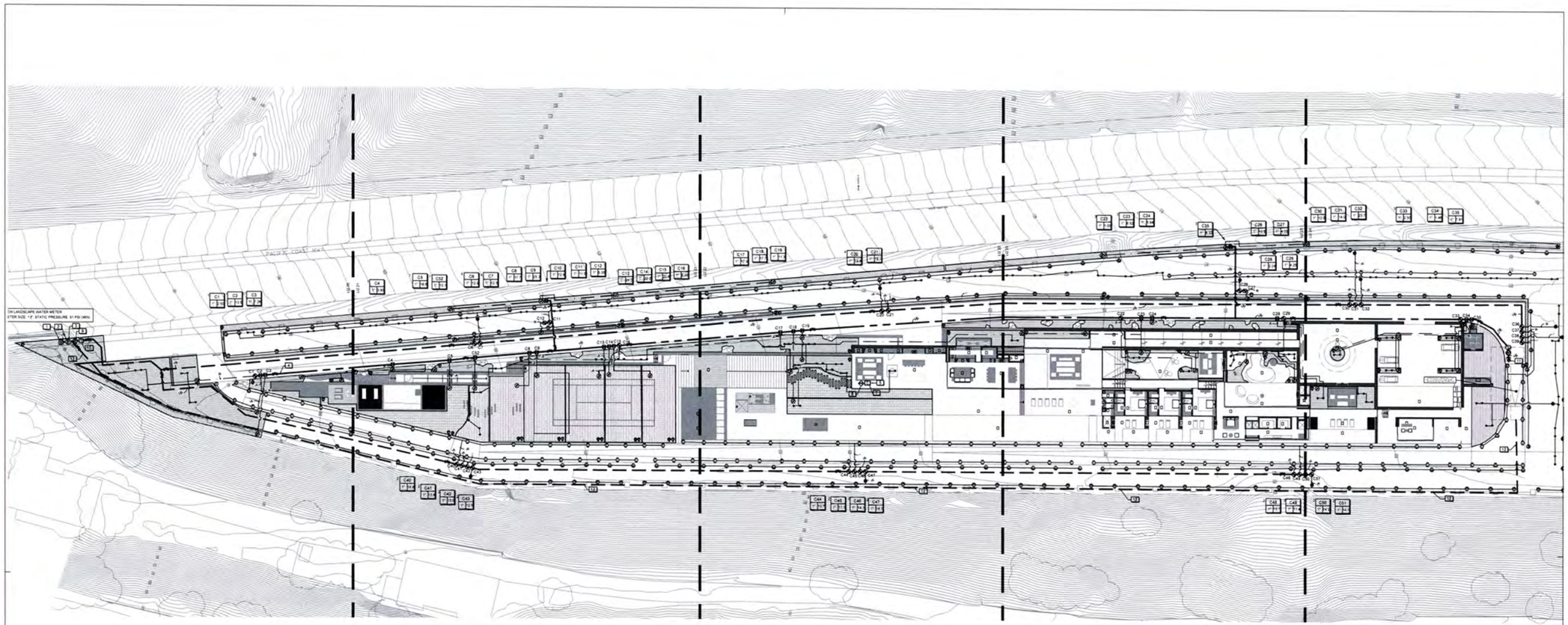
SHEET TITLE:

ENLARGED PLANTING PLAN

L2.24



SPECIAL IRRIGATION NOTES

1. CONTRACTOR SHALL ADJUST ALL IRRIGATION HEADS AS REQUIRED TO ACCOMMODATE ALL/ANY VERTICAL OBSTRUCTIONS THAT MAY OCCUR, INCLUDING LIGHT POLES AND FIRE HYDRANTS. VERIFY ALL HEAD/BUBBLER/DRIPLINE LAYOUT WITH OWNERS AUTHORIZED REPRESENTATIVE PRIOR TO START OF WORK.
2. BUBBLERS AND LATERAL LINES ARE SHOWN ON PLAN WITHIN PAVING AREAS ARE FOR GRAPHICS CLARITY ONLY. ACTUAL LOCATION TO BE WITHIN PLANTER. BUBBLERS SHALL BE ALIGNED WITH TREES AND AS DIRECTED BY OWNERS AUTHORIZED REPRESENTATIVE. CONFIRM ALL LAYOUT IN FIELD WITH OWNER'S REP PRIOR TO START OF WORK.
3. ANY IRRIGATION LATERAL LINE PIPING SHOWN WITHIN BUILDING AREAS SHALL BE A TYPE K COPPER AND IS SHOWN FOR GRAPHIC CLARITY ONLY. ACTUAL DESIGN AND ROUTING OF SUCH SHALL BE COMPLETED BY PLUMBING ENGINEER AND INSTALLED BY PLUMBING CONTRACTOR. ALL PIPING THROUGH BUILDING EXTERIOR AND THROUGH BUILDING TO UPPER FLOORS SHALL BE PROVIDE BY PLUMBER.

0 40 80 120 160 feet

1" = 40'

LICENSED LANDSCAPE ARCHITECT
Mark Sussex 5809
Signature
4-30-2022
Renewal Date
Date
STATE OF CALIFORNIA

[place]

[pakshong landscape and architectural collaborative]
3617 exposition boulevard los angeles ca 90016
310 450 8100 fax 323 737 3290

CONSULTANTS

NAME OF ISSUE

LICENSED ARCHITECT
VICTORIA PAKSHONG
NO. C27025
REN. 02-28-21
STATE OF CALIFORNIA

KEY PLAN

VILLA COLEAVA

25200 Pacific Coast Highway
Malibu, CA 90265

Project # :
Drawn by :ms
Scale : AS SHOWN

Ref. North

Description:	Date:	No.
		#

PROJECT NO: 2021

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IRRIGATION KEY PLAN

L 5.01

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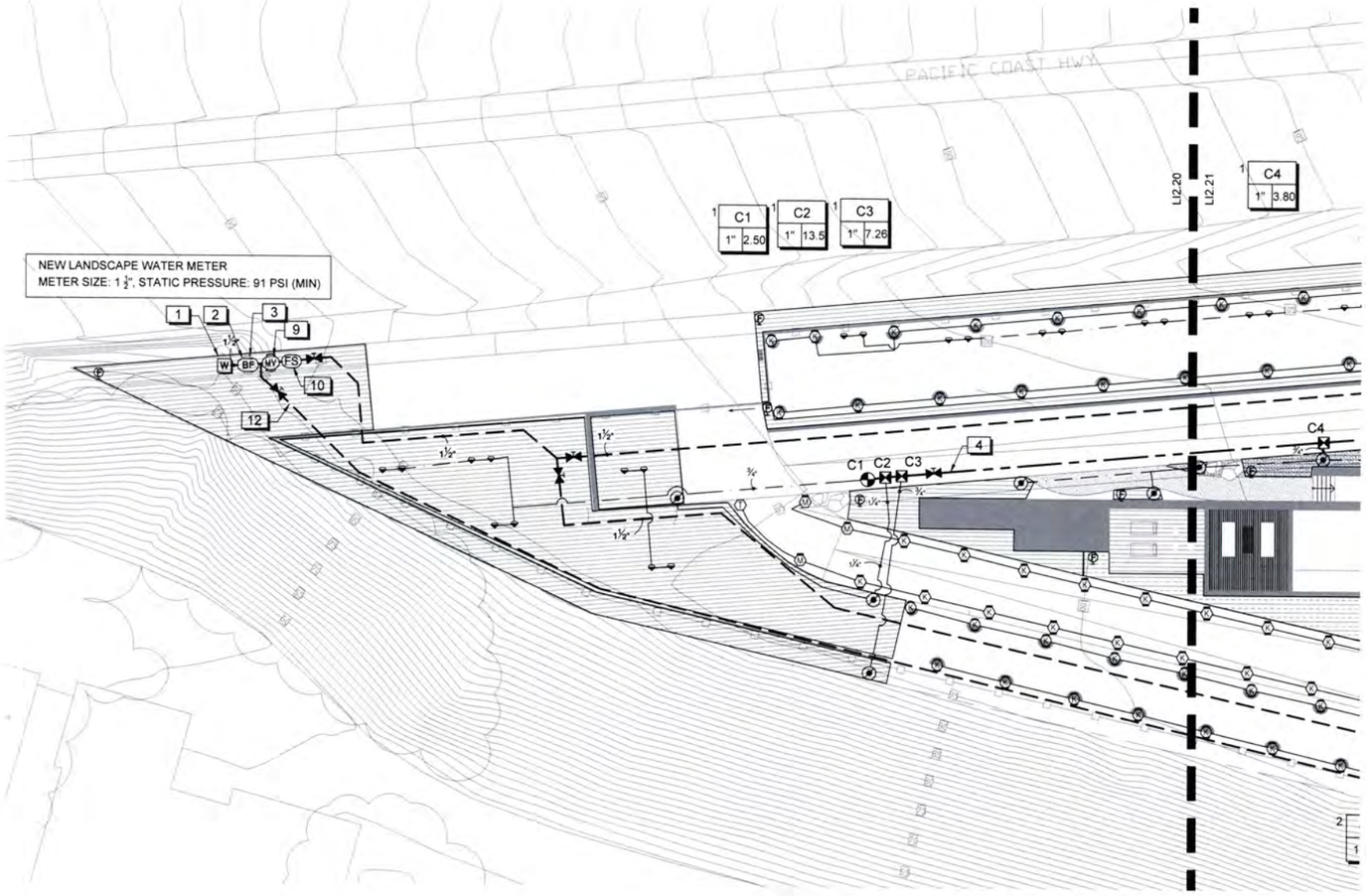

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0 16 32 48 64 feet

1/16" = 1'-0"

LICENSED LANDSCAPE ARCHITECT
Mark Sussman 5809
Signature
4-30-2022
Renewal Date
Date
STATE OF CALIFORNIA

[place]

[pakshong landscape and architectural collaborative]
3617 exposition boulevard los angeles ca 90016
310 450 8100 fax 323 737 3290

CONSULTANTS

NAME OF ISSUE

LICENSED ARCHITECT
VICTORIA PAKSHONG
NO. C27025
REN. 02-28-21
STATE OF CALIFORNIA

KEY PLAN

VILLA COLEAVA

25200 Pacific Coast Highway
Malibu, CA 90265

Project # :
Drawn by :ms
Scale : AS SHOWN

Ref. North

Description:	Date:	No.
		#

PROJECT NO: 2021

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IRRIGATION PLANS

L 5.20

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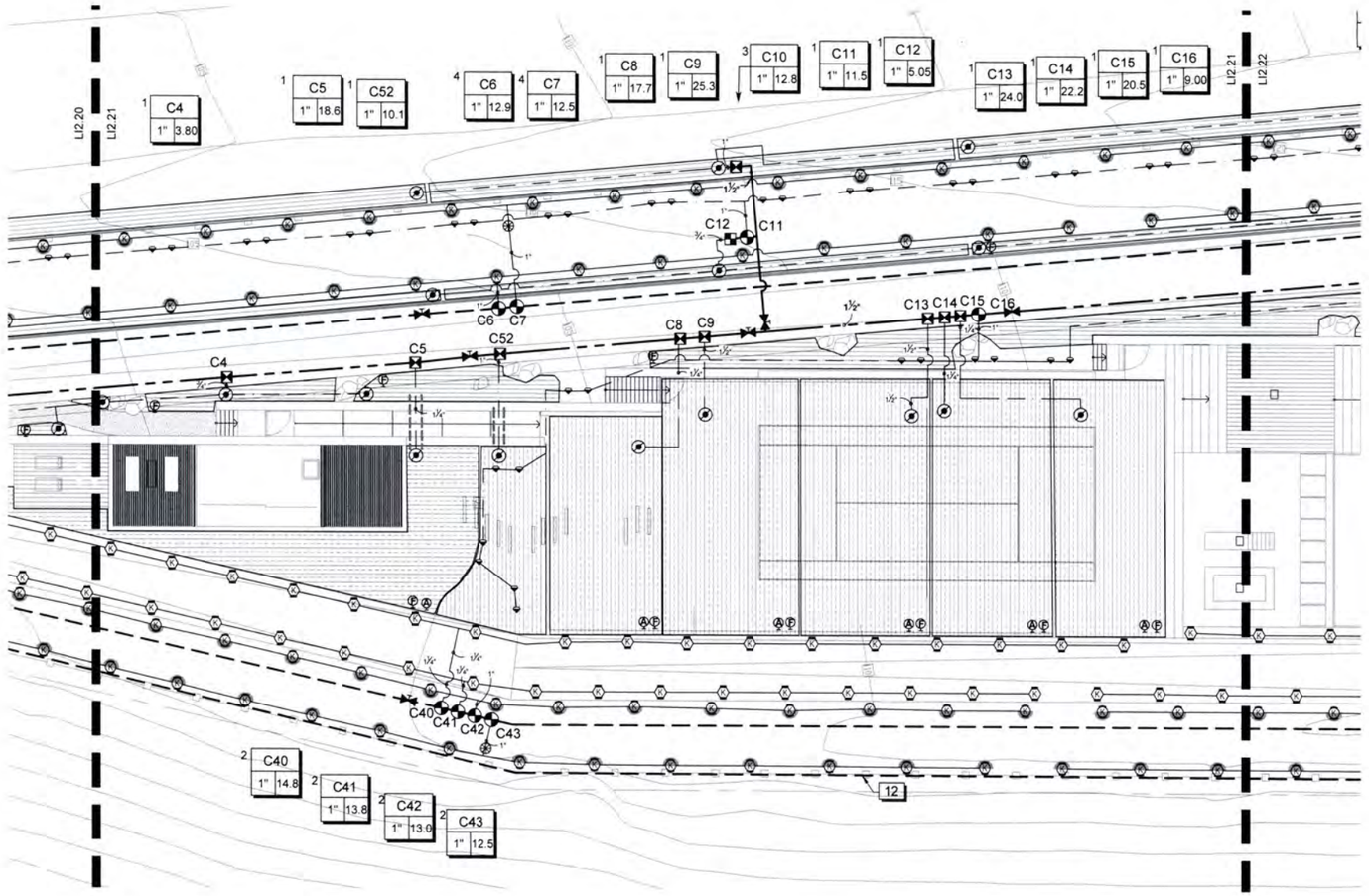

SPECIAL IRRIGATION NOTES

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2. BUBBLERS AND LATERAL LINES ARE SHOWN ON PLAN WITHIN PAVING AREAS ARE FOR GRAPHICS CLARITY ONLY. ACTUAL LOCATION TO BE WITHIN PLANTER. BUBBLERS SHALL BE ALIGNED WITH TREES AND AS DIRECTED BY OWNERS AUTHORIZED REPRESENTATIVE. CONFIRM ALL LAYOUT IN FIELD WITH OWNER'S REP PRIOR TO START OF WORK.
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0 16 32 48 64 feet

1/16" = 1'-0"

LICENSED LANDSCAPE ARCHITECT
Mark Sussman 5809
Signature
4-30-2022
Renewal Date
Date
STATE OF CALIFORNIA

[place]

[pakshong landscape and architectural collaborative]
3617 exposition boulevard los angeles ca 90016
310 450 8100 fax 323 737 3290

CONSULTANTS

NAME OF ISSUE

LICENSED ARCHITECT
VICTORIA PAKSHONG
NO C27025
REN. 02-28-21
STATE OF CALIFORNIA

KEY PLAN

VILLA COLEAVA

25200 Pacific Coast Highway
Malibu, CA 90265

Project # :
Drawn by :ms
Scale : AS SHOWN

Ref. North

Description:	Date:	No.
		#

PROJECT NO: 2021

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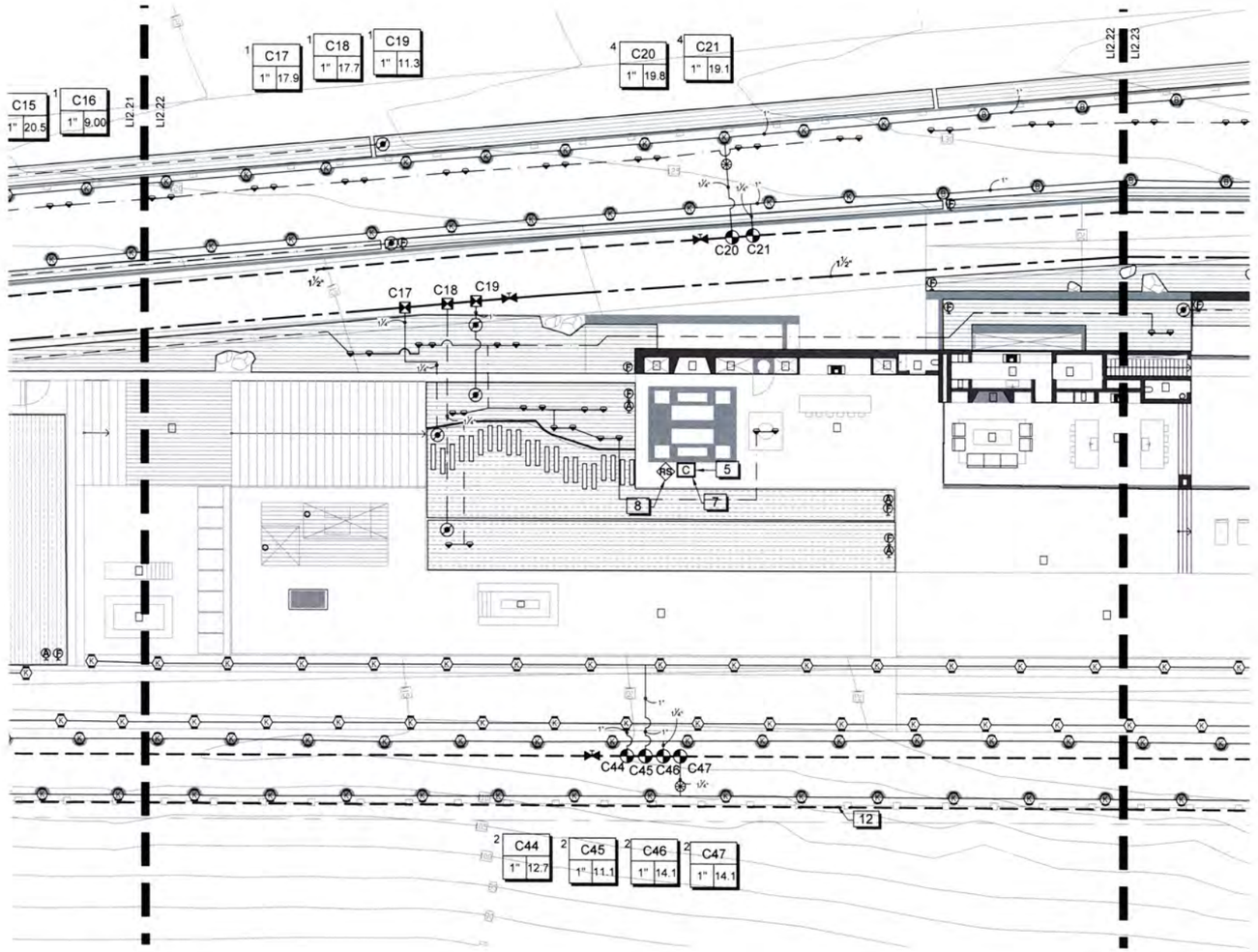
IRRIGATION PLANS

L 5.21

NOT FOR CONSTRUCTION



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IRRIGATION PLANS

L 5.22

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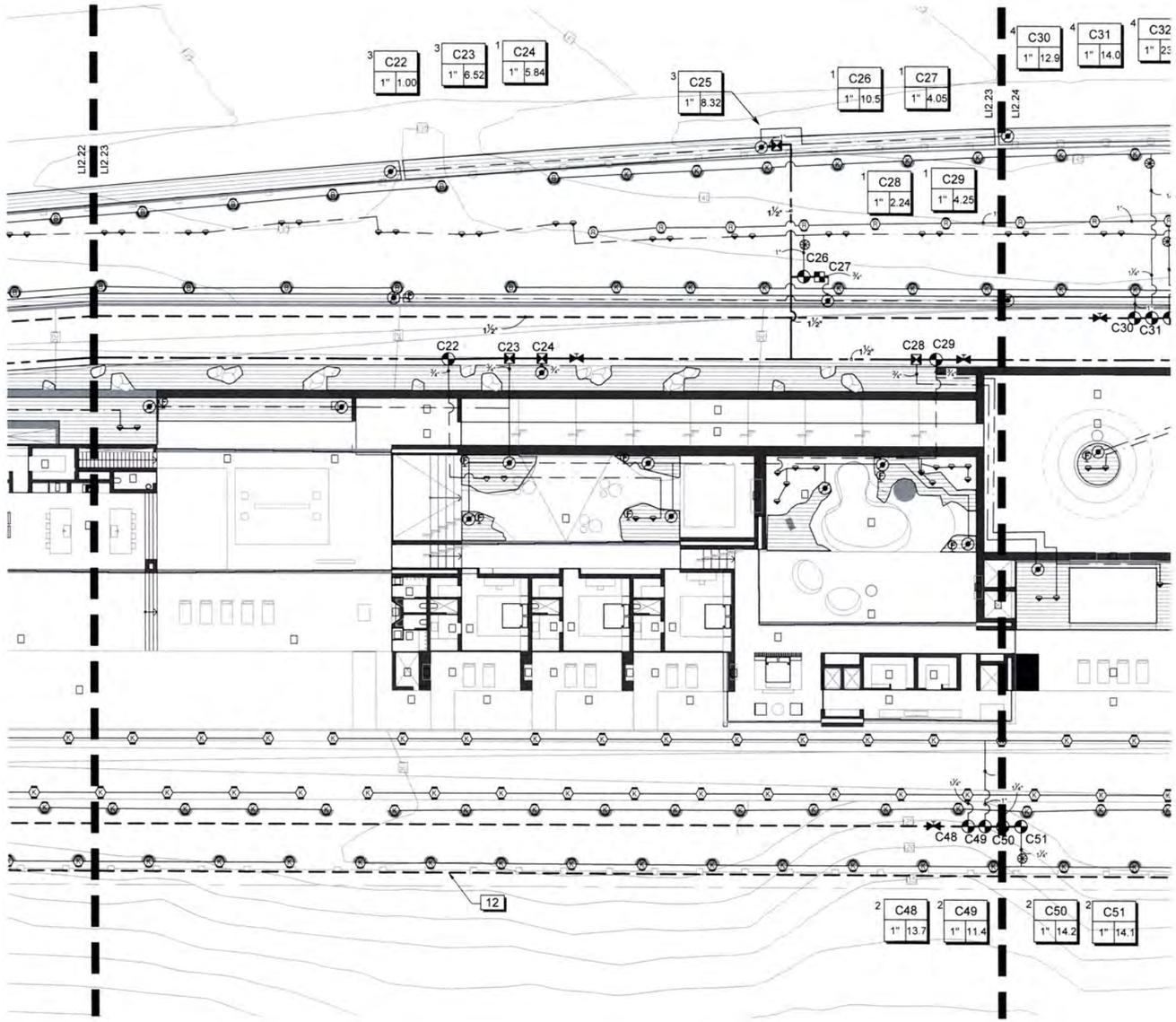

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1/16" = 1'-0"

LICENSED LANDSCAPE ARCHITECT — Nikki Sharon Shoji — 5909 — 4-30-2022 Renewal Date — Date — STATE OF CALIFORNIA

NOT FOR CONSTRUCTION

[place]

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3617 exposition boulevard los angeles ca 90016
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CONSULTANTS

NAME OF ISSUE

LICENSED ARCHITECT — CALIFORNIA REG. — LIC NO C-27025 — REN. 02-29-21 — STATE OF CALIFORNIA

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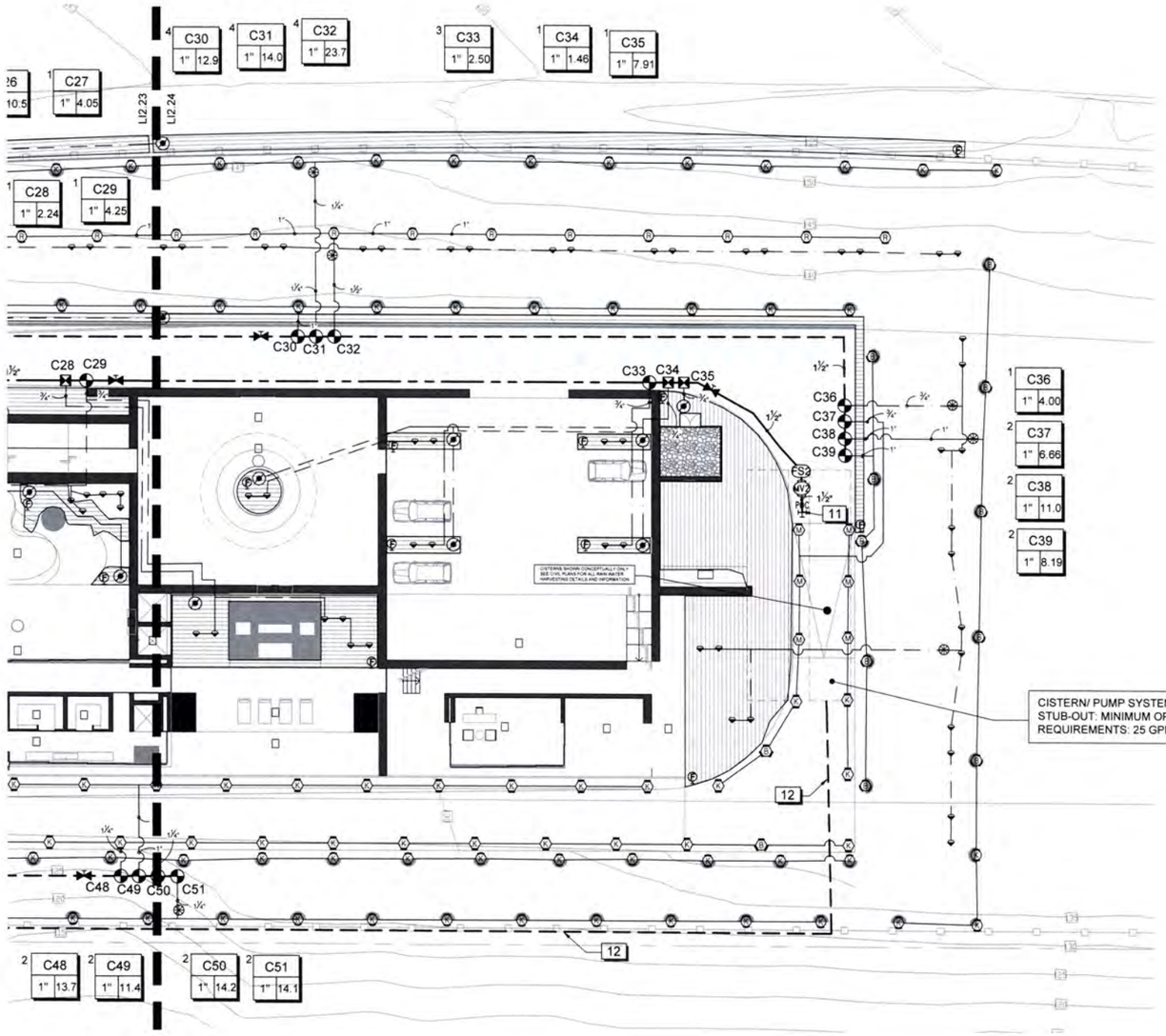
IRRIGATION PLANS

L 5.23



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Mark Swartz 5809
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IRRIGATION PLANS

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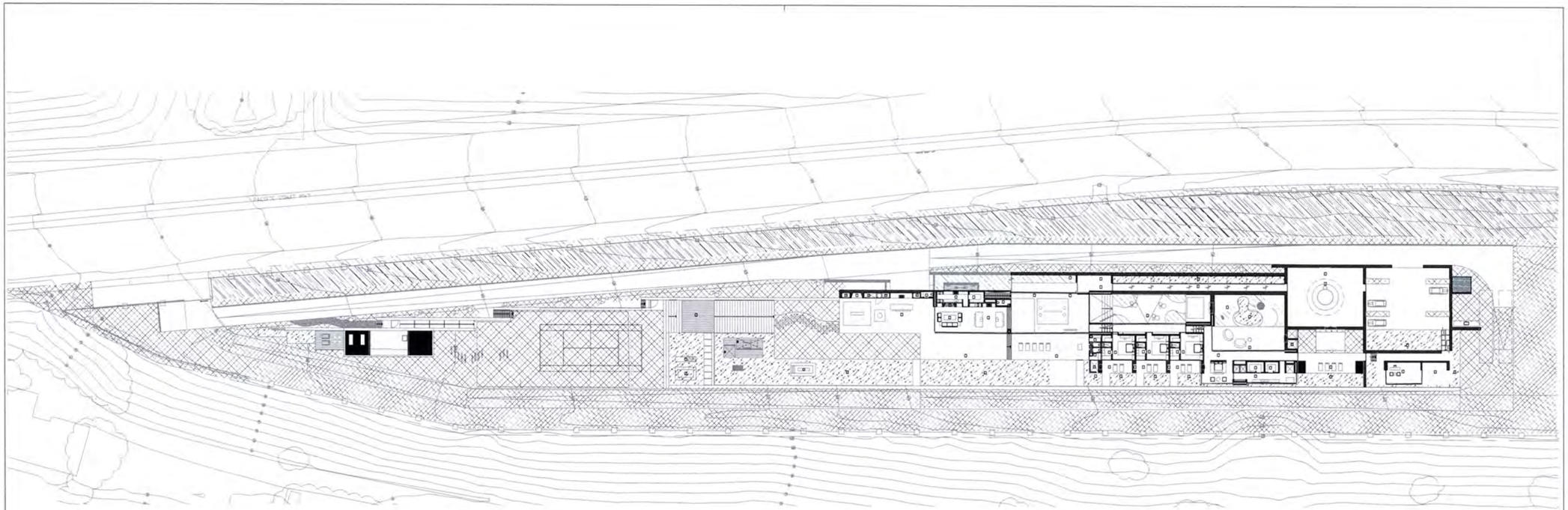

0 40 80 120 160 feet

1" = 40'

HYDROZONE SCHEDULE

SYMBOL	DESCRIPTION	QTY
	HYDROZONE 1 LOW WATER USE DRIP	30,334 sf
	HYDROZONE 2 LOW WATER USE SPRAY	35,576 sf
	HYDROZONE 3 MED WATER USE DRIP	6,184 sf
	HYDROZONE 4 MED WATER USE SPRAY	23,446 sf
	HYDROZONE 5 HIGH WATER USE (POOL/SPA).	9,826 sf

HYDROZONE NOTES
1 HYDROZONE CALLOUTS ON THE IRRIGATION PLAN REFER TO THE HYDROZONE NUMBER

WATER EFFICIENT LANDSCAPE WORKSHEET

This worksheet is filled out by the project applicant and it is a required element of the Landscape Documentation Package.

Project Name: 25200 PCH
Project Address: 25200 PCH, Malibu, CA 90265 **2/15/2021**

Reference Evaporation (ETo) 44.2 In/Yr **Residential Project?** YES

ETWU = (Eto)(.62)((ETAF X AREA)

Hydrozone Plant/Desc	Hydrozone #	Valve #	Plant Fctr PF	Irrigation Method	Irrigation Efficiency (IE)	ETAF (PF/IE)	Land. Area	ETAF X Area	Estimated Total Water Use (ETWU)
Regular Landscape Areas									
LOW WATER	1		0.2	D	0.81	0.25	30,334	7489.9	205,253
LOW WATER	2		0.2	S	0.76	0.26	35,576	9362.1	256,559
MED WATER	3		0.5	D	0.81	0.62	6,184	3817.3	104,609
MED WATER	4		0.5	S	0.76	0.66	23,446	15425.0	422,707
HIGH (POOL/SPA)	5		1	0	1	1.00	9,826	9825.7	269,263
TOTALS						Totals	105,366	45,920	1,258,391
Special Landscape Area:						1	0	0	0
						Totals	0	0	0
						Estimated Total Water Use (ETWU) Total			1,258,391
						Maximum Applied Water Allowance (MAWA)			1,588,093

Hydrozone # Planting Desc. **MAWA = (Eto)(.62)(.55 x LA) + (.45 x SLA)**
Low Water
Med Water

Irrigation Method
Overhead Spray or Drip

Irrigation Efficiency
0.75 for Spray
0.81 for Drip

MAWA (Annual Gallons Allowed) = ETo x .62 x [(ETAF x LA) + [(1-ETAF) x SLA)]
Where 0.62 is a conversion factor that converts acre-inches/acre/year to gallons/squre foor/year, LA is the total landscape area in square feet, SLA is the total special landscape rea in sqaure feet, and ETAF is 0.55 for residential projects and 0.45 for non-residential projects.

ETWU (Annual Gallons Required) = ETo x 0.62 x ETAF x Area
Where 0.62 is a conversion factor that converts acre-inches/acre/year to gallons/square foor/year.

Evapotranspiration Adjustment Factor (ETAF) Calculation

This residential project complies with the WELO and its average ETAF is less than 0.55

Regular Landscape Areas	
Total ETAF x Area	45,920
Total Area	105,366
Average ETAF	0.44

All Landscape Areas	
Total ETAF x Area	45,920
Total Area	105,366
Average ETAF	0.44

APPENDIX B WATER EFFICIENT LANDSCAPE WORKSHEET

Maximum Applied Water Allowance

Annual ET(0)	LA Sq Ft	SLA Sq Ft	MAWA (gal/year	Notes
44.2	105,366	0	1,588,093	ET(0) per MWELO09

MAWA = (Eto)(.62)(.55 x LA) + (.45 x SLA)

SLA = 0

LICENSED LANDSCAPE ARCHITECT
Mark Sussman 5809
Signature
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VICTORIA PAKSHONG
NO C27025
REN. 02-28-21
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KEY PLAN

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HYDROZONE PLAN/MWELO

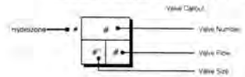
L 5.25

NOT FOR CONSTRUCTION

REFERENCE NOTES SCHEDULE PLAN

SYMBOL	DESCRIPTION
1	NEW 1 1/2" LANDSCAPE WATER METER (INSTALLED BY OTHERS). EXACT LOCATION SHALL BE CONFIRMED ON SITE. INSTALLING CONTRACTOR SHALL COORDINATE WITH THE GENERAL CONTRACTOR, PRIOR TO START OF CONSTRUCTION.
2	NEW 1 1/2" (REDUCED PRESSURE) BACKFLOW PREVENTION ASSEMBLY AND PRESSURE REGULATOR. EXACT LOCATION SHALL BE DETERMINED ON SITE. LANDSCAPE ARCHITECT TO APPROVE FINAL LOCATION ON SITE.
3	CONTRACTOR TO ADJUST PRESSURE REGULATOR AT THIS LOCATION. SET STATIC WATER PRESSURE NOT TO EXCEED 95 PSI.
4	IRRIGATION PLAN IS DIAGRAMMATIC. ALL PIPING, VALVES AND HEADS ARE TO BE LOCATED IN PLANTING AREAS WHEREVER POSSIBLE.
5	ONE FIFTY FOUR (54) STATION AUTOMATIC ET CONTROLLER ASSEMBLY (INSTALLED AS SHOWN ON PLAN). INSTALLING CONTRACTOR SHALL COORDINATE INSTALLATION AND EXACT LOCATION PRIOR TO START OF CONSTRUCTION. A MINIMUM (2") ELECTRICAL CONDUIT FROM NEW CONTROLLER LOCATION TO ON-GRADE PLANTING AREA, PROVIDED BY OTHERS. INSTALLING CONTRACTOR SHALL VERIFY AND COORDINATE EXACT LOCATION OF STUB-OUTS AND ROUTING OF CONDUIT WITH THE GENERAL CONTRACTOR ON SITE, PRIOR TO START OF CONSTRUCTION.
7	AUTOMATIC ET CONTROLLER AND ALL OTHER IRRIGATION EQUIPMENT LOCATIONS SHOWN ON THIS DRAWING ARE APPROXIMATE. STAKE OUT ALL IRRIGATION EQUIPMENT LOCATIONS FOR REVIEW AND APPROVAL BY OWNER PRIOR TO INSTALLATION. FINAL LOCATION AND EXACT POSITIONING OF ALL IRRIGATION EQUIPMENT SHALL BE DETERMINED BY THE OWNERS REPRESENTATIVE.
8	ET SENSOR ASSEMBLY MOUNTED TO EXTERIOR WALL OF BLDG. (EXACT LOCATION SHALL BE DETERMINED AND APPROVED ON SITE BY LANDSCAPE ARCHITECT.
9	MASTER VALVE (1 1/2") EXACT LOCATION SHALL BE DETERMINED ON SITE. LANDSCAPE ARCHITECT TO APPROVE FINAL LOCATION ON SITE.
10	NEW 1 " FLOW SENSOR, EXACT LOCATION SHALL BE DETERMINED ON SITE. CONTRACTOR TO INSTALL PER MANUFACTURERS INSTRUCTIONS.
11	POC FROM CISTERN/PUMP ASSEMBLY (BY OTHERS). 25 GPM, 75 PSI (MIN)
12	MAKE UP WATER LINE.

SYMBOL	MANUFACTURER/MODEL/DESCRIPTION
	Rain Bird PEB-PRS-D 1", 1-1/2", 2" Plastic Industrial Valves. Low Flow Operating Capability, Globe Configuration. With Pressure Regulator Module.
	LASCO Fittings TUBV-SC 1", 1-1/2", 2", and 3" Plastic Full Block True Union Ball Valve. Shut Off/Isolation Valve to Eliminate Water Hammer. Install same size as mainline.
MV	Buckner-Superior 3200 1-1/2" Normally Closed Brass Master Valve that Provides Dirty Water Protection and No Minimum Flow Feature, which ensures reliable opening and closing of the valve in extreme high or low flow scenarios. Available in 3/4",1"1-1/2",2",2-1/2" and 3".
MV2	Buckner-Superior 3200 1-1/2" Normally Closed Brass Master Valve that Provides Dirty Water Protection and No Minimum Flow Feature, which ensures reliable opening and closing of the valve in extreme high or low flow scenarios. Available in 3/4",1"1-1/2",2",2-1/2" and 3".
	Matco-Norca 523T 1/2"-2" White PVC Inline Check Valve. Threaded Ends. Stainless Steel Spring Loaded. Same size as mainline pipe.
BF	Febco 825Y w Pressure Regulator 1-1/2" Reduced Pressure Backflow Preventer and Pressure Regulator in StrongBox BC-45CR Low Profile Expanded Metal Cover.
C	Hunter A2C-5400-M 54-Station controller with seven (7) A2M-600 modules in an outdoor gray steel wall mount enclosure.
RS	Hunter WSS-SEN Wireless Solar, rain freeze sensor with outdoor interface, connects to Hunter X-Core and ACC Controllers, install as noted. Includes gutter mount bracket. Module not included.
FS	Flomec QS200-10 1" 1" insertion flowmeter, schedule 80 PVC housing. 0.22-33 gpm range, max. operating pressure 150 psi. 2-wire connector w/ LED indicators for power and pulse. Storage temps -20 F to +160 F.
FS2	Flomec QS200-10 1" 1" insertion flowmeter, schedule 80 PVC housing. 0.22-33 gpm range, max. operating pressure 150 psi. 2-wire connector w/ LED indicators for power and pulse. Storage temps -20 F to +160 F.
W	Water Meter 1-1/2" NEW
POC	Point of Connection 1-1/2" Cistern/Pump Stub Out
	Irrigation Lateral Line: PVC Schedule 40
	Irrigation Lateral Line: Polyethylene Pipe SDR-7
	Irrigation Lateral Line: PVC Schedule 40 (Non-potable) Purple lateral pipe
	Irrigation Mainline: PVC Schedule 40
	Irrigation Mainline: PVC Schedule 40 (Non-potable) Purple mainline
	Pipe Sleeve: PVC Schedule 40



SEE HYDROZONE PLAN FOR HYDROZONE TABLE AND EXPLANATION OF HYDROZONE NUMBERS. REFER TO THE WATER EFFICIENT LANDSCAPE WORKSHEET FOR WATER BUDGET CALCULATIONS.

IRRIGATION SCHEDULE

SYMBOL	MANUFACTURER/MODEL/DESCRIPTION	PSI
T	Hunter MP Corner PROS-04-PRS40-CV Turf Rotator, 4" (10.16cm) pop-up with factory installed check valve, pressure regulated to 40 psi (2.76 bar), MP Rotator nozzle. T=Turquoise adj arc 45-105 on PRS40 body.	40
M L O	Hunter MP1000 PROS-04-PRS40-CV Turf Rotator, 4" (10.16 cm) pop-up with check valve, pressure regulated to 40 psi (2.76 bar), MP Rotator nozzle on PRS40 body. M=Maroon adj arc 90 to 210, L=Light Blue 210 to 270 arc, O=Olive 360 arc.	40
K G R	Hunter MP2000 PROS-04-PRS40-CV Turf Rotator, 4" (10.16 cm) pop-up with factory installed check valve, pressure regulated to 40 psi (2.76 bar), MP Rotator nozzle on PRS40 body. K=Black adj arc 90-210, G=Green adj arc 210-270, R=Red 360 arc.	40
B Y A	Hunter MP3000 PROS-04-PRS40-CV Turf Rotator, 4" (10.16 cm) pop-up with factory installed check valve, pressure regulated to 40 psi (2.76 bar), MP Rotator nozzle on PRS40 body. B=Blue adj arc 90-210, Y=Yellow adj arc 210-270, A=Gray 360 arc.	40
K G R	Hunter MP2000 PROS-12-PRS40-CV Shrub Rotator, 12" pop-up with check valve, pressure regulated to 40 psi, MP Rotator nozzle. K=Black adj arc 90-210, G=Green adj arc 210-270, R=Red 360 arc on PRS40 body.	40
B Y A	Hunter MP3000 PROS-12-PRS40-CV Shrub Rotator, 12" pop-up with check valve, pressure regulated to 40 psi, MP rotary nozzle. B=Blue adj arc 90-210, Y=Yellow adj arc 210-270, A=Gray 360 arc on PRS40 body.	40
1401 1402	Rain Bird RWS-M-B-C 1401 Mini Root Watering System with 4.0" diameter x 18.0" long with locking grate, semi-rigid mesh tube and Rain Bird 1401 0.25 gpm or 1402 0.5 gpm bubbler as indicated. With Check Valve.	30

SYMBOL	MANUFACTURER/MODEL/DESCRIPTION
	Netafim LVCZS8010075-HF Pre-Assembled Control Zone Kit, with 1" Series 80 Control Valve, 3/4" Disc Filter, and High Flow Pressure Regulator 4.5GPM to 17.6GPM.
	Netafim LVCZS8010075-LF Pre-Assembled Control Zone Kit, with 1" Series 80 Control Valve, 3/4" Disc Filter, and Low Flow Pressure Regulator 0.25GPM to 4.4GPM.
	Pipe Transition Point (Drip) Pipe transition point from PVC lateral to drip tubing.
	Netafim TLSOV Manual Flush Valve, with Insert Inlet
	Netafim TLAVRV Air/Vacuum relief valve, 1/2" male pipe thread.
	Area to Receive Dripline Netafim TLHCVXR5-18 (18) Techline HCVXR Pressure Compensating Landscape Dripline with Check Valve and Anti-Siphon feature. 0.53GPH emitters at 18.0" O.C. Dripline laterals spaced at 18.0" apart, with emitters offset for triangular pattern. 17mm.
	Area to Receive Dripline Netafim TLHCVXR7-12 (12) Techline HCVXR Pressure Compensating Landscape Dripline with Check Valve and Anti-Siphon feature, installed sub-grade.. 0.77GPH emitters at 12.0" O.C. Dripline laterals spaced at 12.0" apart, with emitters offset for triangular pattern. 17mm.

LICENSED LANDSCAPE ARCHITECT — Mark Simpson — 5809 — Signature — 4-30-2022 Renewal Date — Date — STATE OF CALIFORNIA

[place]

[pakahong landscape and architectural collaborative]
3617 exposition boulevard los angeles ca 90016
310 450 8100 fax 323 737 3290

CONSULTANTS

NAME OF ISSUE

LICENSED ARCHITECT — MARK SIMPSON — No C27025 — REN 02-28-21 — STATE OF CALIFORNIA

KEY PLAN

VILLA COLEAVA

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IRRIGATION LEGEND

L 5.26

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GENERAL NOTES

1. ALL LOCAL MUNICIPAL AND STATE LAWS, RULES AND REGULATIONS GOVERNING OR RELATING TO ANY PORTION OF THIS WORK ARE HEREBY INCORPORATED INTO AND MADE A PART OF THESE SPECIFICATIONS AND THEIR PROVISIONS SHALL BE CARRIED OUT BY THE CONTRACTOR. IN CASE OF CONFLICT BETWEEN THE SPECIFICATIONS, DRAWINGS, AND/OR CODE, THE MORE STRINGENT REQUIREMENT SHALL PREVAIL.
2. THE CONTRACTOR SHALL VERIFY THE LOCATIONS OF ALL EXISTING UTILITIES, STRUCTURES AND SERVICES BEFORE COMMENCING WORK. THE LOCATIONS OF UTILITIES, STRUCTURES AND SERVICES SHOWN IN THESE PLANS ARE APPROXIMATE ONLY. ANY DISCREPANCIES BETWEEN THESE PLANS AND ACTUAL FIELD CONDITIONS SHALL BE REPORTED TO THE OWNER'S REPRESENTATIVE. CONTRACTOR WILL NOT FASTEN ANY PORTION OF THE IRRIGATION SYSTEM TO ANY STRUCTURE, WALL, PATH OR ANY HARDSCAPE WITHOUT THE PERMISSION OF THE LANDSCAPE ARCHITECT OR OWNER.
3. THE CONTRACTOR SHALL OBTAIN THE PERTINENT ENGINEERING OR ARCHITECTURAL PLANS BEFORE BEGINNING WORK.
4. THE CONTRACTOR SHALL OBTAIN ALL NECESSARY PERMITS REQUIRED TO PERFORM THE WORK INDICATED HEREIN BEFORE BEGINNING WORK.
5. THE MAINLINE AND SLEEVING IS DIAGRAMMATIC. ALL PIPING IS FOR DESIGN CLARIFICATION ONLY AND SHALL BE INSTALLED WITHIN LIMIT OF WORK BOUNDARIES. AVOID ANY CONFLICTS BETWEEN THE IRRIGATION SYSTEM, PLANTING, STRUCTURES AND ARCHITECTURAL FEATURES.
6. IRRIGATION EQUIPMENT AS SHOWN IS DIAGRAMMATIC. INSTALL ALL THE IRRIGATION REMOTE CONTROL VALVES, QUICK COUPLERS, MASTER VALVES, FLOW SENSORS, BACKFLOWS, AIR/VACUUM DEVICES, BALL VALVES, AND ANCILLARY EQUIPMENT IN SHRUB PLANTING AREAS WHEN FEASIBLE OR AS APPROVED BY OWNER'S REPRESENTATIVE AND THE LANDSCAPE IRRIGATION DESIGNER.
7. DO NOT WILLFULLY INSTALL ANY EQUIPMENT AS SHOWN ON THE PLANS WHEN IT IS OBVIOUS IN THE FIELD THAT UNKNOWN CONDITIONS EXIST THAT WERE NOT EVIDENT AT THE TIME THESE PLANS WERE PREPARED. ANY SUCH CONDITIONS SHALL BE BROUGHT TO THE ATTENTION OF THE OWNER'S REPRESENTATIVE PRIOR TO ANY WORK OR THE IRRIGATION CONTRACTOR SHALL ASSUME ALL RESPONSIBILITY FOR ANY FIELD REVISIONS DEEMED NECESSARY BY THE OWNER.
8. INSTALL ALL EQUIPMENT AS SHOWN IN THE DETAILS AND SPECIFICATIONS. CONTRACTOR SHALL BE RESPONSIBLE TO COMPLY WITH LOCAL CITY, COUNTY, AND STATE REQUIREMENTS FOR BOTH EQUIPMENT AND INSTALLATION. ACTUAL LOCATION FOR THE INSTALLATION OF ANCILLARY EQUIPMENT INCLUDING, BUT NOT LIMITED TO, THE BACKFLOW PREVENTER, PUMP STATION (IF APPLICABLE) AND THE AUTOMATIC CONTROLLER IS TO BE DETERMINED IN THE FIELD BY THE OWNER'S AUTHORIZED REPRESENTATIVE.
9. CONTRACTOR IS TO PROVIDE THREE (3) ADDITIONAL PILOT WIRES AND ONE (1) COMMON WIRE TO THE END OF THE MAINLINE RUN IN TWO DIRECTIONS FROM THE CONTROLLER. THE ADDITIONAL WIRE SHALL BE EXTENDED 10', MAKING A COIL TO FIT INSIDE A RECTANGULAR PULL BOX. LABEL THE LID OF THE PULL BOX 'SW'.
10. ALL PIPE UNDER PAVED AREAS, HARDSCAPE, OR AS DIRECTED BY OWNERS REPRESENTATIVE TO BE INSTALLED IN SLEEVING, TWICE THE DIAMETER OF PIPE OR WIRE BUNDLE CARRIED. ALL 4" AND SMALLER SLEEVING SHALL BE PVC1220 SCH. 40, TYPE 1, GRADE 2 MATERIAL CONFORMING TO ASTM STANDARD D-1785-4. ALL 6" AND LARGER SLEEVING SHALL BE PVC1220 CLASS 200 SDR21, TYPE 1, GRADE 2 MATERIAL CONFORMING TO ASTM STANDARD D-2241. SLEEVES TO EXTEND AT LEAST 12" PAST THE EDGE OF PAVING.
11. ALL QUICK COUPLER VALVES (IF APPLICABLE) TO BE INSTALLED IN SHRUB OR GROUND COVER AREAS WHERE POSSIBLE. ALL QUICK COUPLER VALVES TO BE INSTALLED AS SHOWN ON THE INSTALLATION DETAILS. INSTALL QUICK COUPLER VALVES WITHIN 18" OF HARDSCAPE OR AS NOTED ON PLANS.
12. THE IRRIGATION CONTRACTOR SHALL ADJUST THE PRESSURE REGULATOR ON EACH ELECTRIC CONTROL VALVE SO THAT THE SPRINKLER HEAD FARTHEST AND HIGHEST IN ELEVATION FROM ITS RESPECTIVE CONTROL VALVE OPERATES WITHIN THE OPERATING PRESSURE SHOWN ON THE IRRIGATION LEGEND. NOT TO EXCEED FIVE (5) PSI ABOVE THE GIVEN OPERATING PRESSURE FROM THE SPECIFIED PRESSURE LOCATED ON THE IRRIGATION LEGEND.
13. THE IRRIGATION SYSTEM DESIGN IS BASED ON THE MINIMUM OPERATING PRESSURE AND THE MAXIMUM FLOW DEMAND SHOWN ON THE IRRIGATION DRAWINGS AT EACH POINT OF CONNECTION. THE IRRIGATION CONTRACTOR SHALL VERIFY WATER PRESSURE BY DIRECT FIELD MEASUREMENT PRIOR TO CONSTRUCTION. REPORT ANY DIFFERENCE BETWEEN THE WATER PRESSURE INDICATED ON THE DRAWINGS AND THE ACTUAL PRESSURE READING AT THE IRRIGATION POINT OF CONNECTION TO THE OWNER'S AUTHORIZED REPRESENTATIVE. IN THE EVENT PRESSURE DIFFERENCES ARE NOT REPORTED PRIOR TO START OF CONSTRUCTION, THE IRRIGATION CONTRACTOR SHALL ASSUME FULL RESPONSIBILITY AND COSTS FOR ANY REVISIONS.
14. SHOULD FIELD CONDITIONS REQUIRE PIPE INSTALLATION OTHER THAN THAT SHOWN ON PLANS, THE CONTRACTOR SHALL LIMIT EXCESS FLOW AND SIZE ALL PIPE NOT TO EXCEED A VELOCITY OF 5 FEET PER SECOND (FPS) IN PVC PIPE AND CAST IRON PIPE. FLOW THROUGH ANCILLARY EQUIPMENT, STEEL AND COPPER PIPE SHALL NOT EXCEED A VELOCITY OF 7.5 FPS. ALL ADJUSTMENTS SHALL BE MADE AT NO ADDITIONAL COST TO THE OWNER.
15. ELECTRICAL POWER SOURCE FOR THE IRRIGATION CONTROLLER AND/OR BOOSTER PUMP (IF APPLICABLE) SHALL BE PROVIDED UNDER THE ELECTRICAL SECTION OF THE SPECIFICATIONS. IT SHALL BE THE RESPONSIBILITY OF THE IRRIGATION CONTRACTOR TO COORDINATE ELECTRICAL SERVICE WITH THE GENERAL CONTRACTOR AND SHALL MAKE THE FINAL CONNECTION FROM THE ELECTRICAL SOURCE TO THE CONTROLLER AND/OR BOOSTER PUMP.
16. LANDSCAPE CONTRACTOR SHALL PROVIDE CLIENT WITH "AS BUILT" IRRIGATION ZONE PLAN CONTAINING ALL IRRIGATION ZONES, VALVE BOXES, MAIN LINES, HOSE BIBS, CONTROLLER, AND MASTER ASSEMBLY.
17. THE IRRIGATION DESIGNER OR LANDSCAPE DESIGNER OR LANDSCAPE ARCHITECT SHALL NOT BE RESPONSIBLE UNDER ANY CIRCUMSTANCES FOR THE QUALITY OR TIMELINESS OF PERFORMANCE OF THE WORK INCLUDING BUT NOT LIMITED TO THE INSTALLATION OF THE BACKFLOW PREVENTION ASSEMBLY MAINLINE, LATERALS, VALVES, SPRINKLER HEADS, DRIP IRRIGATION EQUIPMENT, CONTROL WIRE, CONTROLLERS AND SENSORS (IF APPLICABLE). THE RESPONSIBILITY FOR SAME SHALL REST WITH THE CONTRACTOR PERFORMING THE WORK.

OWNERS RESPONSIBILITY

18. THE OWNER IS RESPONSIBLE FOR THE SCHEDULING OF THE IRRIGATION SYSTEM TO MEET HORTICULTURAL REQUIREMENTS AND TO INSURE THAT EXCESSIVE SOIL SATURATION AND/OR SOIL EROSION DOES NOT OCCUR.
19. THE OWNER IS RESPONSIBLE FOR MAINTENANCE OF THE IRRIGATION SYSTEM.
20. IT IS THE OWNER'S RESPONSIBILITY TO INSPECT THE IRRIGATION SYSTEM PERIODICALLY TO INSURE THAT THE SYSTEM IS OPERATING EFFICIENTLY AND THAT ALL NECESSARY REPAIRS ARE MADE TO PROTECT THE HEALTH, SAFETY AND WELFARE OF THE PUBLIC.

system ANALYSIS

Generated:	2021-02-16 15:55
P.O.C. NUMBER: 01	
Water Source Information:	NEW
FLOW AVAILABLE	
Water Meter Size:	1-1/2"
Flow Available:	40.32 gpm
PRESSURE AVAILABLE	
Static Pressure at POC:	95.00 psi
Elevation Change:	5.00 ft
Service Line Size:	1 1/2"
Length of Service Line:	20.00 ft
Pressure Available:	91.00 psi
DESIGN ANALYSIS	
Maximum Station Flow:	23.68 gpm
Flow Available at POC:	40.32 gpm
Residual Flow Available:	16.64 gpm
Critical Station:	C32
Design Pressure:	40.00 psi
Friction Loss:	4.00 psi
Fittings Loss:	0.40 psi
Elevation Loss:	0.00 psi
Loss through Valve:	3.89 psi
Pressure Req. at Critical Station:	48.30 psi
Loss for Fittings:	1.58 psi
Loss for Main Line:	15.83 psi
Loss for POC to Valve Elevation:	0.00 psi
Loss for Backflow:	12.20 psi
Loss for Master Valve:	0.65 psi
Loss for Water Meter:	1.17 psi
Critical Station Pressure at POC:	79.73 psi
Pressure Available:	91.00 psi
Residual Pressure Available:	11.27 psi
P.O.C. NUMBER: 02	
Water Source Information:	Cistern/Pump
FLOW AVAILABLE	
Point of Connection Size:	1-1/2"
Flow Available:	47.66 gpm
PRESSURE AVAILABLE	
Static Pressure at POC:	85.00 psi
Pressure Available:	85.00 psi
DESIGN ANALYSIS	
Maximum Station Flow:	25.31 gpm
Flow Available at POC:	47.66 gpm
Residual Flow Available:	22.35 gpm
Critical Station:	C9
Design Pressure:	30.00 psi
Friction Loss:	0.32 psi
Fittings Loss:	0.03 psi
Elevation Loss:	0.00 psi
Loss through Valve:	18.20 psi
Pressure Req. at Critical Station:	48.54 psi
Loss for Fittings:	1.35 psi
Loss for Main Line:	13.47 psi
Loss for POC to Valve Elevation:	0.00 psi
Loss for Backflow:	0.00 psi
Loss for Master Valve:	0.74 psi
Critical Station Pressure at POC:	64.10 psi
Pressure Available:	85.00 psi
Residual Pressure Available:	20.90 psi

MINIMUM DESIGN CRITERIA

NEW LANDSCAPE WATER METER SIZE: 1 1/2", STATIC PRESSURE: 92 PSI, (MIN).

MINIMUM SYSTEM DESIGN CRITERIA IS BASED ON 82 P.S.I. USING 24 G.P.M.

CISTERN/PUMP SYS POC: 1 1/2", STATIC PRESSURE 75 PSI, (MIN).

MINIMUM SYSTEM DESIGN CRITERIA IS BASED ON 65 P.S.I. USING 26 G.P.M.

CONTRACTOR SHALL VERIFY ALL POC SIZE, PRESSURE AND FLOW BEFORE INSTALLATION. IF INFORMATION CONFLICTS, NOTIFY THE OWNER FOR INFORMATION FAILURE TO DO SO MAY RESULT IN CONTRACTOR BEING RESPONSIBLE FOR ANY CHANGES REQUIRED AS A RESULT.

GENERAL IRRIGATION NOTES:

PRESSURE REGULATING DEVICES ARE REQUIRED IF WATER PRESSURE IS BELOW OR EXCEEDS THE RECOMMENDED PRESSURE OF THE SPECIFIED DEVICES.

CHECK VALVES OR ANTI-DRAIN VALVES ARE REQUIRED ON ALL SPRINKLER HEADS WHERE LOW POINT DRAINAGE COULD OCCUR.

A DIAGRAM OF THE IRRIGATION PLAN SHOWING HYDROZONES SHALL BE KEPT WITH THE IRRIGATION CONTROLLER FOR SUBSEQUENT MANAGEMENT PURPOSES.

A CERTIFICATE OF COMPLETION SHALL BE FILLED OUT AND CERTIFIED BY EITHER THE DESIGNER OF THE LANDSCAPE PLANS, IRRIGATION PLANS, OR THE LICENSED LANDSCAPE CONTRACTOR FOR THE PROJECT.

AN IRRIGATION AUDIT REPORT SHALL BE COMPLETED AT THE TIME OF THE FINAL INSPECTION.

A MINIMUM 3-INCH LAYER OF MULCH SHALL BE APPLIED ON ALL EXPOSED SOIL SURFACES OF PLANTING AREAS EXCEPT TURF AREAS, CREEPING OR ROOTING GROUNDCOVERS, OR DIRECT SEEDING APPLICATIONS WHERE MULCH IS CONTRAINDICATED.

AT THE TIME OF FINAL INSPECTION, THE PERMIT APPLICANT MUST PROVIDE THE OWNER OF THE PROPERTY WITH A CERTIFICATE OF COMPLETION, CERTIFICATE OF INSTALLATION, IRRIGATION SCHEDULE OF LANDSCAPE AND IRRIGATION MAINTENANCE.

I HAVE COMPLIED WITH THE CRITERIA OF THE ORDINANCE AND APPLIED THEM FOR THE EFFICIENT USE OF WATER IN THE LANDSCAPE DESIGN PLANS.

UNLESS CONTRADICTED BY A SOILS TEST, COMPOST AT A RATE OF MINIMUM OF FOUR CUBIC YARDS PER 1,000 SQUARE FEET OF PERMEABLE AREA SHALL BE INCORPORATED TO A DEPTH OF SIX INCHES INTO THE SOIL.

A SOILS REPORT HAS NOT BEEN PROVIDED. THIS IRRIGATION DESIGN ASSUMES THE PROPERTY IS SITED ON LOAM SOILS. IF THIS IS NOT THE CASE, PLEASE CONTACT IRRIGATION DESIGNER IMMEDIATELY FOR REDESIGN.

CONTROL OF IRRIGATION WATER IS A NECESSARY PART OF SITE MAINTENANCE. SOGGY GROUND AND PERCHED WATER MAY RESULT IF IRRIGATION WATER IS EXCESSIVELY APPLIED. IRRIGATION SYSTEMS SHOULD BE ADJUSTED TO PROVIDE THE MINIMUM WATER NEEDED. ADJUSTMENTS SHOULD BE MADE FOR CHANGES IN CLIMATE AND RAINFALL.

SLEEVES ARE REQUIRED FOR ALL IRRIGATION PIPING INSTALLED UNDER OR THROUGH PAVING/RETAINING WALLS. REFER TO IRRIGATION SLEEVE SIZING CHART SHOWN ON THIS SHEET. IT IS RESPONSIBILITY OF THE CONTRACTOR TO FAMILIARIZE HIM/HER SELF WITH ALL GRADE DIFFERENCES, LOCATION OF WALLS, RETAINING WALLS, FOOTINGS AND COORDINATE THIS WORK WITH OTHER TRADES.

IRRIGATION SLEEVE SIZES

PIPE SIZE	3/4"	1"	1-1/4"	1-1/2"	2"	2-1/2"	3"
SLEEVE SIZE	2"	2"	2-1/2"	3"	4"	5"	6"

NOTE: IRRIGATION CONTROL WIRE CONDUIT SIZE SHALL BE 4"

LICENSED LANDSCAPE ARCHITECT Mark Sussman 5809 Signature 4-30-2022 Renewal Date Date STATE OF CALIFORNIA

[place]

[pakshong landscape and architectural collaborative]
3617 exposition boulevard los angeles ca 90018
310 450 8100 fax 323 737 3290

CONSULTANTS

NAME OF ISSUE

LICENSED ARCHITECT VICTORIA PAKSHONG NO C27025 REN. 02-28-21 STATE OF CALIFORNIA

KEY PLAN

VILLA COLEAVA

25200 Pacific Coast Highway
Malibu, CA 90265

Project # :
Drawn by :ms
Scale : AS SHOWN

Ref. North

Description:	Date:	No.
		#

PROJECT NO: 2021

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IRRIGATION NOTES & MWELO

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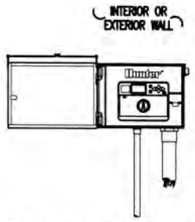
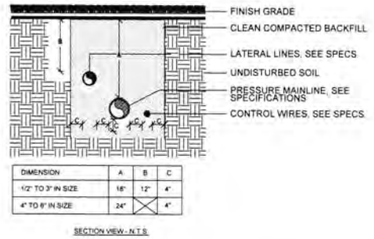
NOT FOR CONSTRUCTION



NOTE
SPECIFY 6, 12, 18, 24, 30, 36, 42 STATION MODEL CONTROLLER. MOUNT CONTROLLER WITH LCD SCREEN AT EYE LEVEL. CONTROLLER SHALL BE HARD-WIRED TO GROUNDED 110 or 220 VAC SOURCE.

1 AUTOMATIC CONTROLLER ASSEMBLY
NO SCALE

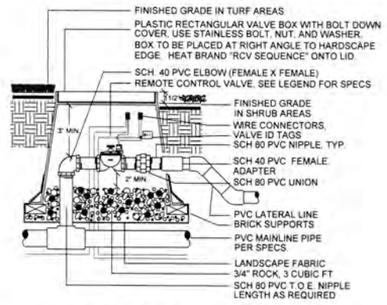


DIMENSION	A	B	C
1/2" TO 3" IN SIZE	18"	12"	4"
4" TO 6" IN SIZE	24"	X	4"

SECTION VIEW - N.T.S.

NOTE:
ALL PLASTIC PIPING SHALL BE SNAKED WITHIN TRENCH.
BUNDLE WIRING AND WRAP WITH TAPE AT TEN FOOT INTERVALS.
ALL MAINLINE PIPING TO BE INSTALLED IN ACCORDANCE WITH MANUFACTURERS INSTALLATION SPECIFICATIONS.

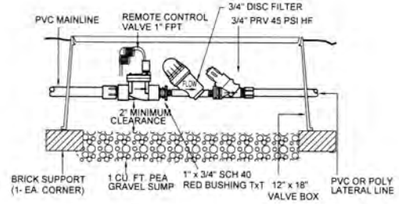
2 TYPICAL TRENCHING UNDER LANDSCAPE AREA
NO SCALE



SECTION VIEW - N.T.S.

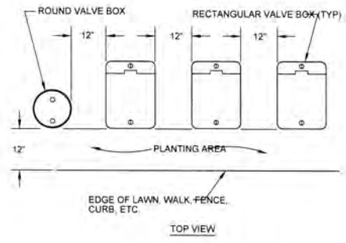
NOTE:
INSTALL CONTROL VALVES A MINIMUM OF ONE FOOT APART IN SHRUB AREAS UNLESS OTHERWISE NOTED.

3 TYPICAL REMOTE CONTROL VALVE ASSEMBLY
NO SCALE



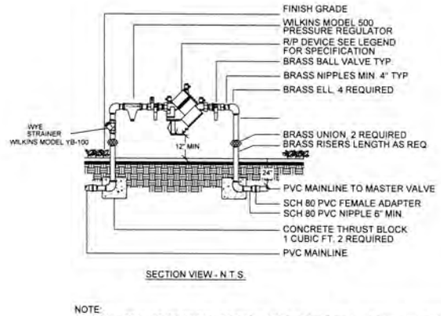
4 LOW VOLUME CONTROL ZONE ASSEMBLY
NO SCALE

NOTES: 1. CENTER BOXES OVER VALVES.
2. SET BOXES IN GROUND COVER/SHRUB AREA WHERE POSSIBLE.
3. SET BOXES PARALLEL TO EACH OTHER AND PERPENDICULAR TO EDGE.
4. AVOID HEAVILY COMPACTING SOIL AROUND BOXES TO PREVENT DAMAGING VALVE BOXES.



TOP VIEW

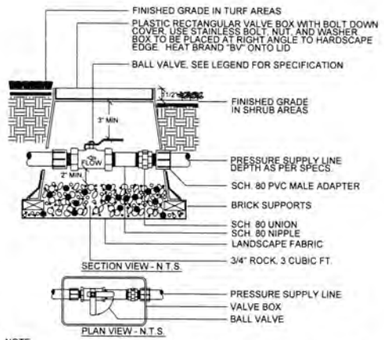
5 TYPICAL VALVE BOX LAYOUT
NO SCALE



SECTION VIEW - N.T.S.

NOTE:
- IF WYE STRAINER OR PRESSURE REGULATOR IS SPECIFIED, INSTALL ON EITHER THE HORIZONTAL PIPING OR ON THE DOWNSTREAM LEG AS SPACE PERMITS.
- ALL MATERIAL INSTALLED ABOVE GROUND SHALL BE PAINTED FRAZEE "BLACKSMITH" COLOR

6 TYPICAL BACKFLOW PREVENTION ASSEMBLY
NO SCALE

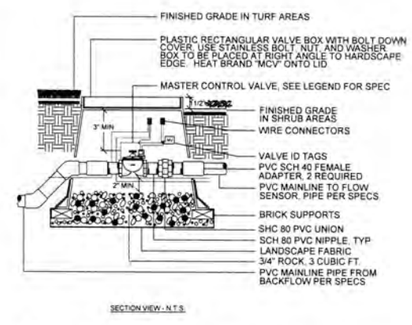


SECTION VIEW - N.T.S.

PLAN VIEW - N.T.S.

NOTE:
- BOX TO BE INSTALLED AS TO ALLOW FOR PROPER OPERATION OF BALL VALVE. INSTALL AT RIGHT ANGLE TO HARDSCAPE EDGE. INSTALL VALVE OFF-CENTER IN BOX.
- INSTALL VALVE BOX EXTENSIONS AS REQUIRED TO ACHIEVE PROPER VALVE INSTALLATION AT MAIN LINE DEPTH.

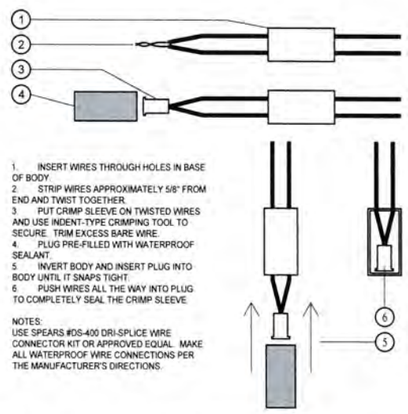
7 TYPICAL BALL VALVE ASSEMBLY
NO SCALE



SECTION VIEW - N.T.S.

NOTE:
- INSTALL CONTROL VALVES A MINIMUM OF ONE FOOT APART IN SHRUB AREAS UNLESS OTHERWISE NOTED.
- USE 45 DEGREE ELLS TO ACHIEVE MAINLINE DEPTH FROM UP-STREAM SIDE OF THE MASTER VALVE ASSEMBLY.

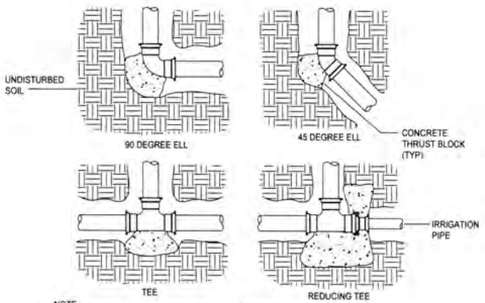
8 TYPICAL MASTER CONTROL VALVE ASSEMBLY
NO SCALE



1. INSERT WIRES THROUGH HOLES IN BASE OF BODY.
2. STRIP WIRES APPROXIMATELY 5/8" FROM END AND TWIST TOGETHER.
3. PUT CRIMP SLEEVE ON TWISTED WIRES AND USE INDENT-TYPE CRIMPING TOOL TO SECURE. TRIM EXCESS BARE WIRE.
4. PLUG PRE-FILLED WITH WATERPROOF SEALANT.
5. INVERT BODY AND INSERT PLUG INTO BODY UNTIL IT SNAPS TIGHT.
6. PUSH WIRES ALL THE WAY INTO PLUG TO COMPLETELY SEAL THE CRIMP SLEEVE.

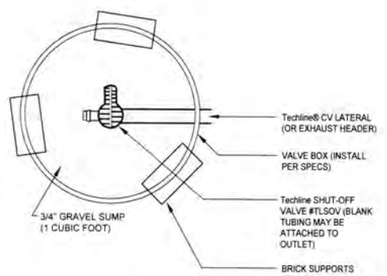
NOTES:
USE SPEARS #DS-400 DRI-SPLICE WIRE CONNECTOR KIT OR APPROVED EQUAL. MAKE ALL WATERPROOF WIRE CONNECTIONS PER THE MANUFACTURER'S DIRECTIONS.

9 WIRE CONNECTION
NO SCALE

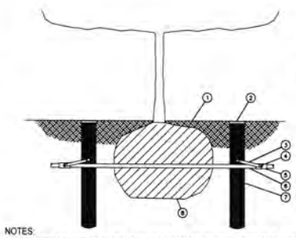


NOTE:
THRUST BLOCKS TO BE A MINIMUM OF 1 CUBIC FEET CONCRETE.
REFER TO MANUFACTURER RECOMMENDATIONS FOR CONFIGURATIONS NOT SHOWN PRIOR TO THRUST BLOCKING. WRAP FITTINGS USING AWWA C209 APPROVED TAPE

10 THRUST BLOCKS
NO SCALE



11 NETAFIM TECHLINE LINE FLUSHING VALVE
NO SCALE



① FINISH GRADE/TOP OF MULCH
② ROOT WATERING SERIES RAIN BIRD RWS SERIES (1 OF 2 SHOWN, MORE POSSIBLE)
③ SWING ASSEMBLY (INCLUDED) (1 OF 2 SHOWN, MORE POSSIBLE)
④ 1/2-INCH MALE NPT INLET (INCLUDED,1 OF 2 SHOWN, MORE POSSIBLE)
⑤ PVC SCH 40 TEE OR EL (1 OF 2 SHOWN, MORE POSSIBLE)
⑥ PVC OR POLYETHYLENE LATERAL PIPE
⑦ OPTIONAL RWS SAND SOCK (RWS-SOCK) FOR SANDY SOILS (1 OF 2 SHOWN, MORE POSSIBLE)
⑧ PLANT ROOT BALL

NOTES:
1. POSITION 2-3 UNITS (OR MORE) EVENLY SPACED AROUND PLANT. FOR NEW TREES PLACE NEAR ROOT BALL. FOR EXISTING TREES PLACE HALF THE DISTANCE BETWEEN CANOPY EDGE AND TREE TRUNK
2. INSTALL PRODUCT WITH TOP EVEN WITH GROUND SURFACE.
3. RWS SERIES AVAILABLE IN THE FOLLOWING MODELS:
RWS (NO BUBBLER/EMITTER INCLUDED) RWS-B-C-1401 (0.25 GPM, CHECK VALVE)
RWS-B-1401 (0.25 GPM) RWS-B-X-1401 (0.25 GPM, 18" SWING ASSEMBLY)
RWS-B-C-1402 (0.5 GPM, CHECK VALVE) RWS-B-1402 (0.5 GPM)
RWS-B-C-1404 (1.0 GPM, CHECK VALVE) RWS-B-1408 (2.0 GPM, CHECK VALVE)
4. WHEN INSTALLING IN EXTREMELY HARD OR CLAY SOILS, ADD ½" GRAVEL UNDER AND AROUND THI ALLOW FASTER WATER INFILTRATION AND ROOT PENETRATION.
5. ONCE RWS HAS BEEN INSTALLED FILL THE BASKET WITH PEA GRAVEL BEFORE LOCKING LID

12 RWS INSTALLATION FOR TREES
NO SCALE

LICENSED LANDSCAPE ARCHITECT
Mark Sumner
5809
4-30-2022
Renewal Date
Date
STATE OF CALIFORNIA

NOT FOR CONSTRUCTION

[place]
[pakshong landscape and architectural collaborative]
3617 exposition boulevard los angeles ca 90016
310 450 8100 fax 323 737 3290

CONSULTANTS

NAME OF ISSUE

LICENSED ARCHITECT
CALIFORNIA
No. C27025
REN. 02-29-21
STATE OF CALIFORNIA

KEY PLAN

VILLA COLEAVA

25200 Pacific Coast Highway
Malibu, CA 90265

Project # :
Drawn by :ms
Scale : AS SHOWN
Ref. North

Description:	Date:	No.

PROJECT NO: 2021

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IRRIGATION DETAILS

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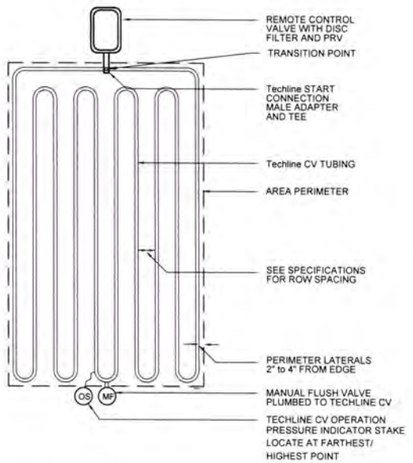
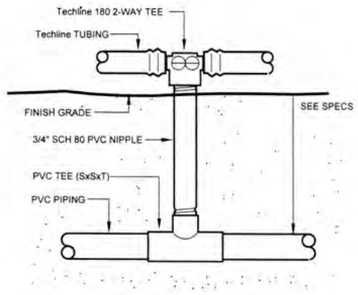
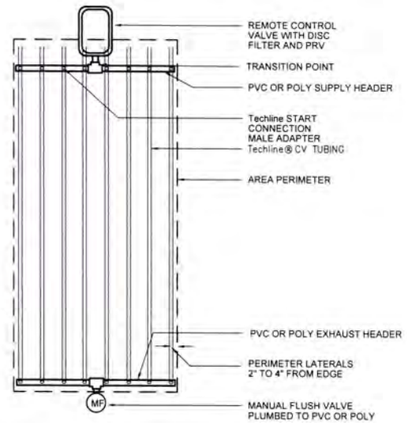


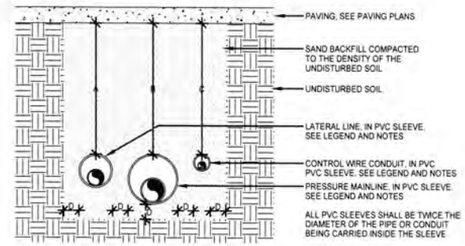
13 NO SCALE Techline® CV LITE END FEED LAYOUT



14 NO SCALE NETAFIM AT-GRADE START CONNECTION



15 NO SCALE Techline® CV END FEED LAYOUT

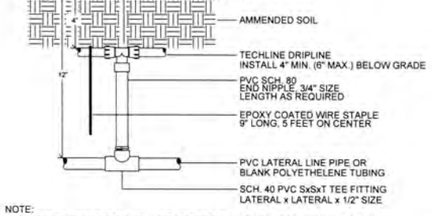


SLEEVE DIMENSION	A	B	C	D
2" TO 8" IN SIZE	36"	36"	36"	6"
8" TO 16" IN SIZE	36"	36"	36"	12"

DETAIL ALSO FOR PIPE INSTALLED IN ROCK SOIL

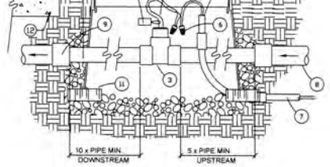
NOTE:
SEE GEO-TECHNICAL REPORT FOR TRENCHING REQUIREMENTS.
ONLY FINE GRAINED SAND BACKFILL IS ACCEPTABLE FOR SLEEVE CROSSINGS.
SLEEVES SHALL EXTEND AT LEAST 18" PAST THE EDGE OF THE PAVING BEING CROSSED.

16 NO SCALE SLEEVE INSTALLATION



NOTE:
- INSTALL TUBING AT CONSISTANT DEPTH BELOW GRADE. SECURE TUBING WITH STAPLES 5 FEET ON CENTER TO PREVENT SURFACING OF TUBING DURING BACKFILL.
- DRIPPERLINE TUBING SHALL BE INSTALLED IN PARALLEL ROWS.
- INSTALLATION OF TUBING & LAYOUT SHALL BE APPROVED, ON SITE BY THE ARCHITECT, PRIOR TO BACKFILLING OR MULCH COVER.

17 NO SCALE NETAFIM SUB-GRADE START CONNECTION w/PVC RISER



1. RECTANGULAR PLASTIC VALVE BOX
2. FINISH GRADE.
3. FLOW SENSOR.
4. FLOW SENSOR CABLE P-7162D
5. CONDUIT BUSHING.
6. WATERPROOF DRY SPLICE CONNECTOR.
7. 1-1/4" ELECTRICAL CONDUIT AND SWEEP ELBOW
8. IRRIGATION MAINLINE FROM MASTER VALVE
9. MAINLINE TO THE RCV'S
10. CHRISTY'S TAG #ID-MAX-P2-RC1P2.
11. QUANTITY OF (4) -BRICK FOR STABILIZATION
12. EDGE OF PAVING. HEADER OR BUILDING WALL.

18 NO SCALE FLOW SENSOR



1. PVC MAINLINE PER IRRIGATION LEGEND (PLAN SIZE)
2. DRIP VALVE ASSEMBLY PER IRRIGATION LEGEND
3. PVC LATERAL (OR BLANK POLY TUBING IF LESS THAN 5 GAL/MIN) LINE PER IRRIGATION LEGEND (PLAN SIZE) - FROM VALVE TO PLANTED AREA AND THROUGH THE MIDDLE OF THE PLANTED AREA.
4. SCH 40 PVC CROSS OR TEE WITH FITTINGS AS NEEDED TO CONNECT AND INSTALL POLY TUBING THROUGH THE PLANTS.
5. MANUAL FLUSH VALVE PER IRRIGATION LEGEND OR FLUSH VALVE DETAIL
6. EXTEND PVC LATERAL LINE (OR BLANK POLY TUBING) THROUGH PLANTER AREA AS NECESSARY TYPICAL
7. TYPICAL SHRUB PER PLANTING PLAN.
8. DRIP LINE POLY TUBING PER IRRIGATION LEGEND / PLAN - SNAKE TUBING THROUGH PLANTED AREAS AND STAPLE DOWN PER DETAIL - ALSO APPLIES TO IN-LINE DRIP LINE TYPE TUBING
9. DRIP EMITTER PER IRRIGATION LEGEND
10. NETAFIM IN-LINE CHECK VALVE (TLCV050M1-B) w/2 ea NETAFIM MALE ADAPTERS (TL050MA), w/2 ea UV-2" THREADED COUPLINGS (SPEARS 430-005UV). USED ON SIDE WHERE ELEVATION CHANGE IS GREATER THAN 4'

NOTES:
RUN LATERAL LINE TO AND THROUGH THE APPROXIMATE CENTER OF PLANTS TO BE IRRIGATED. USE CROSS OR TEE FOR CONNECTION TO LATERAL LINE AS NECESSARY TO EXTEND POLY TUBING TO DRIP EMITTER LOCATIONS. INSTALL FLUSH VALVE AT THE TERMINAL END OF ALL POLY TUBING RUNS. WHEN POLY TUBING RUNS IN MULTIPLE DIRECTIONS, INSTALL A FLUSH VALVE AT THE END OF EACH AND EVERY LINE. DO NOT EXCEED MAXIMUM FLOW THROUGH POLY TUBING PER MANUFACTURER'S CATALOG

19 NO SCALE TYPICAL POINT SOURCE LAYOUT WITH POLY TUBING

[place]
[pakshong landscape and architectural collaborative]
3617 exposition boulevard los angeles ca 90018
310 450 8100 fax 323 737 3290

CONSULTANTS

NAME OF ISSUE

LICENSED ARCHITECT REGINA PAKSHONG No. C27125 REN 02-28-21 STATE OF CALIFORNIA

KEY PLAN

VILLA COLEAVA

25200 Pacific Coast Highway
Malibu, CA 90265

Project # :
Drawn by :ms
Scale : AS SHOWN

Ref. North

Description:	Date:	No.
		#

PROJECT NO: 2021

These drawings, specifications, ideas, designs, and arrangements presented thereby, are and shall remain the property of [place]. No part thereof shall be copied, disclosed to others or used in connection with any work or project other than the specific project for which they have been prepared and developed without the written consent of [place]. Visual contact with these drawings or specifications shall constitute conclusive evidence of acceptance of these restrictions.

IRRIGATION DETAILS

L 5.29

LICENSED LANDSCAPE ARCHITECT Mark Sweatt 5608 Signature 4-30-2022 Renewal Date Date STATE OF CALIFORNIA

NOT FOR CONSTRUCTION

COUNTY OF LOS ANGELES
Public Health
Environmental Health

POLICY AND OPERATIONS MANUAL

SUBJECT:	**APPROVAL AND USE OF CISTERNS FOR RAINFALL / RUN-OFF CAPTURE AND DISTRIBUTION**		
POLICY NO.:	**515.07**	**EFFECTIVE DATE:**	**DECEMBER 15, 2009**
APPROVED BY:		**SUPERCEDES:**	**NEW**

PROGRAM AFFECTED: **CROSS CONNECTION AND WATER POLLUTION CONTROL, DRINKING WATER AND LAND USE PROGRAMS**

PURPOSE: To establish standardized procedures for the review and approval of plans and specifications for rainfall / non-potable cistern water capture and distribution systems. Additionally, this policy is intended to provide guidelines for the approved use and operational practices for any proposed system prior to implementation.

These requirements will provide the necessary procedures to acquire approval for the installation of pipeline which will convey untreated rain-fall, non-potable cistern water and / or urban run-off water for **irrigation purposes only**. Moreover, it is intended to establish requirements for the protection of the potable domestic water supply as well as that of public health.

<u>Treatment systems for rain, gray and urban run-off water for re-use in toilet flushing have been proposed but are not covered within these requirements.</u>

BACKGROUND: Rain barrels and cisterns are methods of storing rainfall and runoff on-site for landscape irrigation purposes. In semi-arid Los Angeles County, captured rainfall / runoff are valuable resources that could reduce the amount of water that must be imported for domestic use. For this reason, there should be no impediment to storing and reusing rainfall and run-off as long as it can be done safely with adequate protection of public health.

Presently within Los Angeles County, there are no regulatory definitions of rainfall, non-potable cistern water or urban run-off that would categorize them as either recycled water or any other regulated water source. These types of non-potable water sources are categorized within the scope of "alternate non-potable water supplies". Therefore rainfall / run-off, non-potable cistern and urban run-off water, for the purposes of these requirements shall be recognized by the Los Angeles County Department of Public Health – Environmental Health (the Department) (pending adoption of proposed regulation) as "alternate non-potable water supply sources". Those regulations pertaining to the protection of the domestic water supply in relation to an "alternate non-potable water supply source" shall apply.

These requirements are intended to focus on projects which integrate below-grade pipelines, pumps and large capacity holding tanks but not necessarily rain barrels that collect rainfall / run-off water from residential rooftops, gravity-fed and / or hand-held

devices. They apply to onsite collection and re-use for the **same site only**. Offsite distribution of collected rainfall / non-potable cistern and urban run-off to other properties shall be evaluated by the California State Department of Public Health (CADPH) in conjunction with the California State Regional Water Quality Control Board (RWQCB).

DEFINITIONS: **<u>Alternate Non-Potable Water Supply</u>** is a non-potable source of water which includes gray water, rainfall/run-off non-potable cistern water, urban run-off, on site treated water and recycled/reclaimed water.

<u>Cistern (non-potable)</u> refers to a receptacle or rainwater catchment system for storing water, usually underground, which captures non-potable water run-off for the purposes of reusing the water for irrigation purposes. Non-potable cisterns are distinct from Potable Cisterns that are installed and managed as potable water reservoirs/storage.

<u>Gray water</u> refers to untreated waste water which has not come into contact with toilet waste. Gray water includes used water from bathtubs, showers, bathroom wash basins, clothes washing machines and laundry. It does not include waste water from kitchen sinks, photo lab sinks, dishwashers or laundry water from soiled diapers.

<u>Non-Potable Water</u> refers to water which is not intended for human consumption. Two distinct variations are inclusive in this definition: Non-potable water from a potable source, via a dedicated backflow prevention device vs. untreated non-potable water from collection methods that never originated from a potable source. The term non-potable water is all-inclusive with respect to the various non-potable water supplies mentioned within these requirements.

<u>Onsite Water Supervisor</u> refers to that person appointed at each location proposing to install a non-potable water cistern, as provided for under Title 17, Section 7586, California Code of Regulations who is responsible for the protection of the potable water system from cross connections. This person is responsible for installation, operation, maintenance of the rain-fall / non-potable cistern water and potable water systems, prevention of potential hazards, implementation of these requirements, and coordination with the Department.

<u>Potable Water</u> refers to water which is fit for consumption by humans and other animals. The U.S. Environmental Protection Agency (EPA) identifies contaminants that may adversely affect public health that occur in drinking water with a frequency and at levels that pose a threat to public health. The EPA establishes maximum contaminant levels (MCLs) (both biological and chemical) permissible in drinking water. These MCLs become enforceable standards.

<u>Rain-fall/ Non-potable Cistern Water</u> refers to the harvested rainwater/storm water collected within a cistern from a rain event and/or urban run-off. Cisterns in Los Angeles County may serve as a secondary source of water for applications that do not require potable water, such as landscape irrigation, which can dramatically lower the potable water demand and reducing off-site rain-fall runoff.

<u>Recycled Water / Reclaimed Water</u> refers to tertiary-treated water produced from the three-stage treatment of municipal wastewater. Recycled water is allowable for full-body human contact but not for direct human consumption. Purple pipe is the designated pipeline material specifically allowed to convey tertiary treated recycled water. Other

non-potable water sources as mentioned in these requirements shall **<u>not</u>** use purple pipe. Untreated stored rainfall/run-off should not be confused with tertiary treated wastewater, defined in Title 22 of the California Code of Regulations.

<u>Urban run-off</u> – refers to non-potable water from a dry weather run-off catchment system used for the collection of water run-off which does not necessarily come from a rain event.

POLICY: The Department shall review construction plans and operational practices for any proposed rainfall / non-potable cistern water capture and distribution system. The Department shall approve those systems which meet the Department Guidelines.

PROCEDURE: **<u>PLAN REVIEW AND SUBMISSION</u>**

1. Plans and specifications for the rain-fall/non-potable cistern water capture, distribution, use and operational practices shall be submitted for review and approval to the Department prior to implementation. The applicable Building & Safety Departments having jurisdiction shall also be notified for approval.
2. The Department will review the plans and operational practices to ensure safe re-use practices, correct labeling of pipelines and appropriate separation from potable water supplies and sanitary sewer lines, prior to approval.
3. Prior to commencing new or retrofit construction the contractor or installer shall contact the Department, to arrange for inspection of all on-site rain-fall/non-potable cistern water and potable water work. No excavation or open trench may be backfilled without first securing the Department approval. If any piping, rain-fall/non-potable cistern water or potable water, is installed prior to plan check approval and/or inspection, all or any portion of the system may be required to be exposed and corrected as necessary.
4. The rain-fall/non-potable cistern water system shall be constructed in conformance with potable water system construction standards and in accordance with all other governing codes, rules and regulations.
5. Unused or abandoned potable water lines are to be severed and capped as close to water mains as practical and a four-foot section of abandoned line removed. The cap shall be cemented under the Department's supervision.

<u>REQUIRED SEPARATION OF LINES</u>

In order to minimize construction accidents resulting in pipeline breaks, which may pollute the domestic water supply or accidental cross-connections between rain-fall/non-potable cistern water and potable water systems, maximum attainable separation of non-potable cistern water lines and potable water lines is required.

- <u>Parallel Construction</u>: There shall be at least a four foot (4') separation for all pressure mains, all distances measured from pipeline outside diameter. In restricted areas where 4 foot separations cannot be met, the use of sleeved pipe is required.

- <u>Cross-Over Construction</u>: Perpendicular pipeline installation is set at a one foot (1') separation, with potable water pipes above rain-fall/non-potable cistern water pipes, and one full pipe length centered over crossing.
- <u>Alternative Cross-Over construction</u> (distance not maintained): Either the rain-fall/non-potable cistern water may be sleeved with the same class piping (usually schedule 40 PVC) for one full pipe length (minimum four feet) centered over the cross-over.

<u>Existing On-site piping</u> – To the extent feasible, maximum separation of rain-fall/non-potable cistern water lines and potable water lines shall be practiced upon system addition or modification.

<u>IDENTIFICATION OF LINES</u>

All rainfall/non-potable cistern water main lines, valve boxes and appurtenances shall be identified to clearly distinguish between non-potable cistern water and potable water systems. Specific wording on identification tape shall be required. Evaluation shall be on a case-by-case basis, but with the understanding that the minimum requirement for pipeline identification is per the Uniform Plumbing Code. The following identification tape will be accompanied with respective tags of the same colors and wording for all valve boxes, vaults, control valves, quick couplers, outlets and related appurtenances, if applicable.

a. ***<u>POTABLE WATER</u>*** – All potable water lines are required to be installed in accordance with the Uniform Plumbing Code and all other governing codes, rules and regulations. Buried potable water lines shall be identified by continuous tape with lettering on three inch (3") minimum width green or blue tape with one inch black lettering bearing the continuous wording **"Potable Water".** Identification tape shall be permanently affixed to the pipeline at five foot intervals atop all horizontal piping, laterals and mains. Identification tape shall extend to all valve boxes and/or vaults, exposed piping and hydrants. Identification tape is not necessary for extruded colored PVC with continuous wording **"Potable Water"** printed in contrasting lettering on opposite sides of the pipe.

b. ***<u>RAIN-FALL/NON-POTABLE CISTERN WATER</u>*** – All rain-fall/non-potable cistern water lines (pressure/non-pressure) shall be identified by continuous lettering on three inch (3") minimum width YELLOW tape with one inch black lettering bearing the continuous wording **"Caution – Non-Potable Cistern Water, Subsurface Irrigation Only"** permanently affixed at five foot intervals atop all horizontal piping, laterals and mains. Identification tape shall extend to all valve boxes and/or vaults and exposed piping.

c. ***<u>NON-POTABLE WATER</u>*** – All non-potable irrigation/industrial water lines (pressure/non-pressure) shall be identified by continuous lettering on three inch (3") minimum width yellow tape with one inch black lettering bearing the continuous wording **"Non-Potable Water"** permanently affixed at five foot intervals atop all piping. Identification tape shall extend to all valve boxes and/or vaults, exposed piping, hydrants and quick couplers.

d. Tags, respective of each water supply, shall be identified with the appropriate wording on both sides with the inclusion of a universal symbol.

<u>OPERATIONAL GUIDELINES AND SPECIFICATIONS</u>

1. Irrigation systems utilizing untreated rain-fall/non-potable cistern water shall only be by means of *subsurface irrigation. Misting or spraying into the air is prohibited. Irrigation practices shall be controlled to prevent surface runoff from lands owned or controlled by the user. **(* Above grade spray irrigation would necessitate additional treatment to ensure the removal of pathogens. Please contact the Department for more information).**
2. Any pipeline other than potable water that is installed within a structure shall conform to all building code standards and shall be "barber shop" wrapped with the respective continuous identification tape and without any interconnections with the potable water system.
3. Gray water systems, rain-fall/runoff non-potable cistern systems and recycled water systems are not to be interconnected. Each shall be installed as stand alone systems completely separate from one another. Gray water systems <u>are</u> directly connected to the sewage system. Rain-fall/non-potable cisterns <u>are not</u> to be directly connected to a sewer system. For gray water installation requirements refer to California Plumbing Code 2007, Chapter 16/Appendix G (DWR).
4. Cisterns/storage vessels shall be adequately covered to prevent mosquito breeding. Contact the local Mosquito Abatement District for clarification.
5. Contact with untreated rainfall/non-potable cistern water should be kept to a minimum.
6. Deteriorated or inadequately protected water well casings shall be protected against contamination by untreated rain-fall/non-potable cistern water by correcting these physical deficiencies. Surface infiltration of untreated rainfall/runoff is allowed provided it occurs at least 10 feet from an unprotected foundation structure; when there is a least 10 feet of clearance to the seasonal high ground water table; and when it occurs at least 100 feet from a water supply well.
7. An **On-Site Water Supervisor** shall be appointed as provided for under Title 17, Section 7586, California Code of Regulations. Authorizations for any piping changes or additions to either the potable or recycled wastewater systems shall be subject to review and approval by the water supervisor. The name and position of this individual shall be reported to the water purveyor and to the Department.
8. As-built plans shall be prepared and updated as necessary by the user showing the location of rain-fall/non-potable cistern water and potable water system piping.
9. To prevent secondary exposure to rain-fall/non-potable cistern water, hose bibbs and quick couplers shall not be permitted in order to prevent both the unauthorized use of the non-potable water supply and secondary exposure to untreated non-potable water supply.
10. A potable water source may be connected via an approved backflow prevention device to provide a back up water source to a non-potable water cistern. A non-

potable water backup supply line from a potable source via an approved backflow prevention device **can** be directly connected to the rain-fall/non-potable cistern discharge line to the irrigation system. Gray water systems **cannot** be directly connected to a potable supply with or without a backflow prevention device, (air gaps are excluded) (2007 California Plumbing Code, Section 603.3.5). Air gaps are the only method that may be utilized when potable water is used as a make-up source to a gray water system due to the required sewer connection.

11. A pressure test/cross-connection test shall be performed to confirm the physical separation of the cistern water and potable water systems. Said testing shall be performed in conjunction with the Water Purveyor and this Department and conducted before the introduction of rainfall/non-potable cistern water.
12. The Department shall refer all plans proposing to install a cistern to the following agencies prior to construction:
    - Los Angeles County Cross-Connection & Water Pollution Control Program to: initiate the plan proposal; conditional approval; interim construction inspections and final approval.
    - The City or County Building & Safety Department for construction permits and inspections (Building Codes).
    - The local water purveyor regarding required backflow protection at the potable/city water service connection(s).
    - The Mosquito Abatement District for conditions of approval and to register the cistern tank.
    - The City or County Public Works Department for cistern tank overflow discharge requirements.

AUTHORITY: California Health & Safety Code, Section 116800-116820

California Code of Regulations, Title 17, Division 1, Chapter V, Subchapter 1, Group 4, Article 4, Sections 7583 to 7622

Los Angeles County Code, 11.38.380

CROSS REFERENCE:
California Health & Safety Code 116800-116820
California Code of Regulations, Title 22, Div. 4, Chapter 3
Los Angeles County Code – Title 11 and Title 28
2007 California Plumbing Code, Chapter 6, Appendix G & J.

[place]

[pakshong landscape and architectural collaborative]
3617 exposition boulevard los angeles ca 90016
310 450 8100 fax 323 737 3290

CONSULTANTS

NAME OF ISSUE

LICENSED ARCHITECT
VICTORIA PAKSHONG
NO C27025
REN. 02-28-21
STATE OF CALIFORNIA

KEY PLAN

VILLA COLEAVA

25200 Pacific Coast Highway
Malibu, CA 90265

Project # :
Drawn by : ms
Scale : AS SHOWN
Ref. North

Description:	Date:	No.
		#

PROJECT NO: 2021

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LICENSED LANDSCAPE ARCHITECT
Mark Sugar
5809
Signature
4-30-2022
Renewal Date
Date
STATE OF CALIFORNIA

CROSS CONNECTION NOTES

L 5.30

NOT FOR CONSTRUCTION

CITY OF MALIBU GRADING NOTES

1. ANY MODIFICATIONS OF OR CHANGES IN APPROVED GRADING PLANS MUST BE APPROVED BY THE BUILDING OFFICIAL.
2. A COPY OF THE GRADING PERMIT AND APPROVED GRADING PLAN MUST BE IN THE POSSESSION OF A RESPONSIBLE PERSON AND AVAILABLE AT THE SITE.
3. ENGINEER MUST SET GRADE STAKES FOR ALL DRAINAGE DEVICES AND OBTAIN INSPECTION APPROVAL BEFORE POURING.
4. PROVISIONS WILL BE MADE FOR CONTRIBUTORY DRAINAGE AT ALL TIMES.
5. SECURE PERMISSION FROM CITY ENGINEER, EASEMENT GRANTEE, STATE HIGHWAY DEPARTMENT, AND/OR HOMEOWNERS ASSOCIATION FOR CONSTRUCTION, GRADING, AND/OR DISCHARGE OF DRAINAGE WITHIN STREET RIGHT-OF-WAY.
6. GRADING SHALL NOT BE STARTED WITHOUT FIRST NOTIFYING THE GRADING INSPECTOR. A PRE-GRADING MEETING ON THE SITE IS REQUIRED BEFORE START OF GRADING WITH THE FOLLOWING PEOPLE PRESENT: OWNER, GRADING CONTRACTOR, DESIGN CIVIL ENGINEER, SOIL ENGINEER, GEOLOGIST, GRADING INSPECTOR, AND, WHEN REQUIRED, THE ARCHAEOLOGIST AND PALEONTOLOGIST. THE REQUIRED INSPECTIONS FOR GRADING WILL BE EXPLAINED AT THIS MEETING.
7. CUT AND FILL SLOPES SHALL BE NO STEEPER THAN 3' HORIZONTAL TO 1' VERTICAL (3:1), EXCEPT WHERE SPECIFICALLY APPROVED OTHERWISE.
8. AREAS TO RECEIVE FILL SHALL BE PROPERLY PREPARED AND APPROVED, IN WRITING, BY THE SOIL ENGINEER AND THE BUILDING OFFICIAL PRIOR TO PLACING FILL.
9. FILL SHALL BE BENCHED INTO COMPETENT MATERIAL PER CITY OF MALIBU STANDARD OR SOIL ENGINEER'S DIRECTION.
10. ALL EXISTING FILLS SHALL BE APPROVED BY THE BUILDING OFFICIAL OR REMOVED PRIOR TO PLACING ADDITIONAL FILLS.
11. ANY EXISTING IRRIGATION LINES AND CISTERNS SHALL BE REMOVED OR CRUSHED, IN PLACE, AND APPROVED BY THE BUILDING OFFICIAL AND SOIL ENGINEER.
12. STOCKPILING OF EXCESS MATERIAL SHALL BE APPROVED BY THE BUILDING OFFICIAL PRIOR TO EXCAVATION.
13. THE DESIGN ENGINEER, AS A CONDITION OF ROUGH GRADE APPROVAL, SHALL PROVIDE A BLUE TOP WITH ACCOMPANYING WITNESS STAKE, SET AT THE CENTER OF EACH PAD REFLECTING THE PAD ELEVATION FOR PRECISE PERMITS AND A BLUE TOP WITH WITNESS STAKE SET AT THE DRAINAGE SWALE HIGH POINT REFLECTING THE HIGH POINT ELEVATION FOR PRELIMINARY PERMITS.
14. ALL TRENCH BACKFILLS SHALL BE TESTED AND APPROVED BY THE SOILS ENGINEER.
15. SUBDRAIN OUTLETS SHALL BE COMPETED AT THE BEGINNING OF THE SUBDRAIN CONSTRUCTION AND SURVEY FOR LOCATION. THE AS GRADED PLAN SHALL SHOW ALL SUBDRAIN LOCATIONS AND ELEVATIONS.
16. SUBDRAIN OUTLETS SHALL BE COMPLETED AT THE BEGINNING OF THE SUBDRAIN CONSTRUCTION.
17. THE EXACT LOCATION OF THE SUBDRAINS SHALL BE SURVEYED IN THE FIELD FOR LINE/GRADE AND REFLECTED ON AS-GRADED PLANS. CONTINUOUS INSPECTION BY THE SOILS ENGINEER OR HIS RESPONSIBLE REPRESENTATIVE SHALL BE PROVIDED DURING ALL SUBDRAIN INSTALLATIONS OR WHEREVER DETERMINED TO BE NECESSARY BY THE BUILDING OFFICIAL.
18. ALL CUT SLOPES SHALL BE INVESTIGATED BOTH DURING AND AFTER GRADING BY THE ENGINEERING GEOLOGIST TO DETERMINE IF ANY SLOPE STABILITY PROBLEM EXISTS. SHOULD EXCAVATION DISCLOSE ANY GEOLOGIC CONDITIONS OR POTENTIAL GEOLOGICAL HAZARDS, THE ENGINEERING GEOLOGIST SHALL SUBMIT RECOMMENDED REMEDIATION TO THE BUILDING OFFICIAL FOR APPROVAL.
19. WHERE SUPPORT OR BUTTRESSING OF CUT AND NATURAL SLOPES IS DETERMINED TO BE NECESSARY BY THE ENGINEERING GEOLOGIST AND SOILS ENGINEER, THE SOILS ENGINEER SHALL SUBMIT DESIGN, LOCATIONS, AND CALCULATIONS TO THE BUILDING OFFICIAL PRIOR TO CONSTRUCTION. THE ENGINEERING GEOLOGIST AND SOILS ENGINEER SHALL INSPECT AND CONTROL THE CONSTRUCTION OF THE BUTTRESSING AND CERTIFY TO THE STABILITY OF THE SLOPE AND ADJACENT STRUCTURES UPON COMPLETION.
20. WHEN CUT PADS ARE BROUGHT TO NEAR GRADE, THE ENGINEERING GEOLOGIST SHALL DETERMINE IF THE BEDROCK IS EXTENSIVELY FRACTURED OR FAULTED AND WILL READILY TRANSMIT WATER. IF CONSIDERED NECESSARY BY THE ENGINEERING GEOLOGIST AND SOIL ENGINEER, A COMPACTED FILL BLANKET WILL BE PLACED.
21. THE ENGINEERING GEOLOGIST SHALL PERFORM PERIODIC INSPECTIONS AND SUBMIT A COMPLETE REPORT AND MAP UPON COMPLETION OF THE ROUGH GRADING.
22. THE COMPACTION REPORT AND APPROVAL FROM THE SOILS ENGINEER SHALL INDICATE THE TYPE OF FIELD TESTING PERFORMED, EACH TEST SHALL BE IDENTIFIED WITH THE METHOD OF OBTAINING THE IN-PLACE DENSITY; WHETHER SAND CONE OR NUCLEAR GAUGE, AND SHALL BE SO NOTED FOR EACH TEST.
23. THE GRADING CONTRACTOR SHALL SUBMIT A WRITTEN STATEMENT VERIFYING THAT THE WORK DONE UNDER HIS DIRECTION WAS PERFORMED IN ACCORDANCE WITH THE APPROVED PLANS AND REQUIREMENTS OF CHAPTER 33 OF THE MALIBU BUILDING CODE OR DESCRIBING ALL VARIANCES FROM THE APPROVED PLANS AND REQUIREMENTS OF THE CODE. [3318.1]
24. THE DESIGN ENGINEER VERIFIES THAT THIS GRADING PLAN WAS PREPARED UNDER MY SUPERVISION IN ACCORDANCE WITH SECTION 3318.1 OF THE MALIBU BUILDING CODE. ALL SOILS ENGINEERING AND ENGINEERING GEOLOGY RECOMMENDATIONS WERE INCORPORATED IN THE PLAN. (MUST BE SIGNED AND DATED BY THE DESIGN ENGINEER.)
25. GRADING OPERATIONS MUST BE CONDUCTED UNDER PERIODIC GEOLOGIC INSPECTION WITH INSPECTION REPORTS TO BE SUBMITTED TO THE BUILDING DEPARTMENT.
26. EXPORT SOIL MUST BE TRANSPORTED TO A LEGAL DUMP OR TO A PERMITTED SITE SHOWN CLEARLY ON APPROVED PLANS.
27. SLOPES SHALL BE PLANTED WITH AN APPROVED PLANT MATERIAL AND PROVIDED WITH AN APPROVED IRRIGATION SYSTEM, UNLESS AN ALTERNATIVE HAS BEEN APPROVED BY THE CITY BIOLOGIST.
28. THE ENGINEER SHALL SUBMIT A LETTER OF CERTIFICATION TO THE BUILDING OFFICIAL STATING THAT THE GRADING WAS DONE IN COMPLIANCE WITH THE APPROVED GRADING PLAN.
29. PRELIMINARY SOIL AND GEOLOGY REPORTS AND ALL SUBSEQUENT REPORTS, AS APPROVED BY THE CITY OF MALIBU, ARE CONSIDERED A PART OF THE APPROVED GRADING PLAN. ALL RECOMMENDATIONS CONTAINED ARE TO BE COMPLIED WITH, OR REVISIONS SUBMITTED FOR REVIEW.
30. ALL EXISTING DRAINAGE COURSES THROUGH THIS SITE SHALL REMAIN OPEN UNTIL FACILITIES TO HANDLE STORM WATER ARE APPROVED AND FUNCTIONAL; HOWEVER, IN ANY CASE, THE PERMITEE SHALL BE HELD LIABLE FOR ANY DAMAGE DUE TO OBSTRUCTING NATURAL DRAINAGE PATTERNS.
31. GRADING OPERATIONS, INCLUDING MAINTENANCE OF EQUIPMENT, SHALL BE ACCOMPLISHED WITHIN THE CONFINES OF THE NOISE ORDINANCE AND POLICIES OF THE CITY OF MALIBU.
32. ROOF GUTTERS SHALL BE INSTALLED TO PREVENT ROOF DRAINAGE FROM FALLING ON MANUFACTURED SLOPES. GUTTERS SHALL BE CONNECTED TO NON-EROSIVE PIPING OR ANOTHER METHOD ACCEPTABLE TO THE BUILDING OFFICIAL.
33. ANY EXCAVATIONS ADJACENT TO OTHER PROPERTY OR STRUCTURES ARE SUBJECT TO THE PROVISIONS OF CALIFORNIA CIVIL CODE, SECTION 832, AND IS THE RESPONSIBILITY OF THE PERMITTEE AND/OR THE OWNER.

PLANTING AND IRRIGATION NOTES

34. ALL CUT AND FILL SLOPES WILL BE PLANTED WITH AN APPROVED GROUND COVER AND PROVIDED WITH AN IRRIGATION SYSTEM AS SOON AS IS PRACTICAL DURING GRADING. IN ADDITION TO THE GROUND COVER PLANTS SHALL BE INSTALLED ON ALL SLOPES. ALL PLANTING SHALL BE OF A TYPE APPROVED BY THE CITY BIOLOGIST.
35. THE PLANS FOR A DESIGNED IRRIGATION SYSTEM FOR FULL COVERAGE OF ALL PORTIONS OF THE SLOPES SHALL BE SUBMITTED AND APPROVED PRIOR TO ROUGH GRADING APPROVAL BY THE CITY BIOLOGIST.
36. PLANTING AND IRRIGATION PLANS FOR SLOPES MUST BE PREPARED AND SIGNED BY A CIVIL ENGINEER OR LANDSCAPE ARCHITECT.
37. FINISH GRADING WILL BE COMPLETED AND APPROVED AND SLOPE PLANTING IRRIGATION SYSTEMS INSTALLED BEFORE OCCUPANCY OF BUILDINGS.

FILL NOTES

38. THE PERMITTEE OR HIS AGENT SHALL NOTIFY THE BUILDING OFFICIAL 24 HOURS BEFORE THE GRADING OPERATION IS READY FOR EACH OF THE FOLLOWING INSPECTIONS: (THE PERMITTEE NEED NOT WAIT FOR THE INSPECTOR TO ARRIVE BEFORE PROCEEDING WITH THE WORK).
39. FILL SHALL BE COMPACTED (AS DETERMINED BY A.S.T.M. SOIL COMPACTION TEST D1557-LATEST VERSION) THROUGHOUT THEIR FULL EXTENT TO [3313.4]:
    A. A MINIMUM RELATIVE COMPACTION OF 90% OF MAXIMUM DRY DENSITY WITHIN 40 ft. BELOW FINISH GRAD, AND
    B. 93% OF MAXIMUM DRY DENSITY DEEPER THAN 40 ft. BELOW FINISH GRADE.
40. FIELD DENSITY SHALL BE DETERMINED BY SAND-CONE METHOD, A.S.T.M. D1557-LATEST VERSION. IN FINE-GRAINED COHESIVE SOILS FIELD DENSITY SHALL BE DETERMINED BY THE DRIVE-CYLINDER METHOD, A.S.T.M. D-2937-LATEST VERSION, PROVIDED NOT LESS THAN 20% OF THE REQUIRED DENSITY SHALL BE SHOWN IN THE COMPACTION REPORT. OTHER METHODS MAY BE USED IF RECOMMENDED BY THE SOILS ENGINEER AND APPROVED IN ADVANCE BY THE BUILDING OFFICIAL. [3310.4]
41. SUFFICIENT TESTS OF SOIL PROPERTIES, INCLUDING SOIL TYPES AND SHEAR STRENGTH, SHALL BE MADE DURING GRADING OPERATIONS TO VERIFY COMPLIANCE WITH DESIGN CRITERIA. THE RESULTS OF SUCH TESTING SHALL BE FURNISHED TO THE BUILDING OFFICIAL UPON COMPLETION OF GRADING OPERATIONS, OR WHEN NECESSITATED BY FIELD CONDITIONS UPON REQUEST OF THE BUILDING OFFICIAL. [331.8] ONE FIELD DENSITY TEST TO BE MADE AS FOLLOWS:
    a. ONE TEST FOR EACH TWO FOOT VERTICAL LIFT.
    b. ONE TEST FOR EACH 1,000 CUBIC YARDS OF MATERIAL PLACED.
    c. ONE TEST WILL BE MADE AT POINT APPROXIMATELY ONE FOOT BELOW THE FILL SLOPE SURFACE ON THE BASIS OF ONE TEST FOR EACH 1,000 SQUARE FEET OF SLOPE SURFACE BUT NOT LESS THAN ONE TEST FOR EACH 10 FOOT OF VERTICAL SLOPE HEIGHT.
42. NO FILL SHALL BE PLACED UNTIL STRIPPING OF VEGETATION, REMOVAL OF UNSUITABLE SOILS, AND INSTALLATION OF SUBDRAINS (IF ANY) HAVE BEEN INSPECTED AND APPROVED BY SOILS ENGINEER.
43. NO ROCK OR SIMILAR MATERIAL GREATER THAN 12" IN DIAMETER WILL BE PLACED IN THE FILL UNLESS RECOMMENDATIONS FOR SUCH PLACEMENT HAVE BEEN SUBMITTED BY THE SOILS ENGINEER AND APPROVED, IN ADVANCE, BY THE BUILDING OFFICIAL.
44. CONTINUOUS INSPECTION BY THE SOILS ENGINEER OR HIS RESPONSIBLE REPRESENTATIVE SHALL BE PROVIDED DURING ALL SUBDRAIN INSTALLATIONS OR WHEREVER DETERMINED TO BE NECESSARY BY THE BUILDING OFFICIAL.
45. ORIGINAL OF ALL REPORTS SHALL BE PROVIDED TO THE BUILDING OFFICIAL FOR ALL COMPACTED FILLS.
46. ALL CONCRETE PLACED ON GRADE SHALL BE COLORED TO MATCH NATURAL CONDITIONS ADJACENT TO THE STRUCTURES. SURFACE PAINT IS NOT ACCEPTABLE. ALL COLORS ARE TO BE INCORPORATED INTO THE MIX AND BLENDED UNIFORMLY.
47. FILL PLACED OVER EXISTING TERRAIN 5:1 AND STEEPER THAN 3' HORIZONTAL TO 1' VERTICAL (3:1) EXCEPT WHERE SPECIFICALLY APPROVED OTHERWISE.
48. FILL SHALL BE COMPACTED THROUGHOUT TO A MINIMUM OF 90% RELATIVE COMPACTION, AGGREGATE BASE FOR ASPHALTIC AREAS SHALL BE COMPACTED TO A MINIMUM OF 95% RELATIVE COMPACTION, TEST D1557-91T OR APPROVED EQUIVALENT. ORIGINALS OF ALL REPORTS SHALL BE PROVIDED TO THE BUILDING OFFICIAL.

GRADING INSPECTION REQUIREMENTS

49. THE PERMITTEE OR HIS AGENT SHALL NOTIFY THE BUILDING OFFICIAL 24 HOURS BEFORE THE GRADING OPERATION IS READY FOR EACH OF THE INSPECTIONS. (THE PERMITTEE NEED NOT WAIT FOR THE INSPECTOR TO ARRIVE BEFORE PROCEEDING WITH WORK)
    a. INITIAL INSPECTION: WHEN THE SITE HAS BEEN CLEARED OF VEGETATION AND UNAPPROVED FILL AND IT HAS BEEN SCARIFIED, BENCHED OR OTHERWISE PREPARED FOR FILL. NO FILL SHALL HAVE BEEN PLACED PRIOR TO INSPECTION.
    b. TOE INSPECTION: AFTER THE NATURAL GROUND IS EXPOSED AND PREPARED TO RECEIVE FILL AND BEFORE ANY FILL IS PLACED.
    c. EXCAVATION INSPECTION: AFTER THE EXCAVATION IS STARTED AND BEFORE THE DEPTH OF EXCAVATION EXCEEDS 10 FEET.
    d. ROUGH INSPECTION: WHEN APPROXIMATE FINAL ELEVATIONS HAVE BEEN ESTABLISHED; DRAINAGE TERRACE, SWALES AND OTHER DRAINAGE DEVICES NECESSARY FOR THE PROTECTION OF THE BUILDING FROM FLOODING ARE INSTALLED; BERMS INSTALLED AT THE TOP OF SLOPES; SUBMIT THE REQUIRED "ROUGH GRADING RECORDS" FOUNDATIONS SHALL NOT BE EXCAVATED UNTIL THE BUILDING OFFICIAL HAS APPROVED ROUGH GRADING.
    e. FINAL INSPECTION: WHEN GRADING HAS BEEN COMPLETED, ALL DRAINAGE DEVICES NECESSARY TO DRAIN THE BUILDING PAD ARE INSTALLED, SLOPE PLANTING ESTABLISHED AND ALL IRRIGATION SYSTEM INSTALLED. SUBMIT THE REQUIRED "AS-BUILT GRADING PLAN" AND "NOTIFICATION OF COMPLETION".
    f. SUBDRAIN INSTALLATION: PROVIDE CONTINUOUS INSPECTION DURING SUBDRAIN EXCAVATION AND INSTALLATION. CONTINUOUS INSPECTION BY THE SOILS ENGINEER OR HIS RESPONSIBLE REPRESENTATIVE SHALL BE PROVIDED DURING ALL SUBDRAIN INSTALLATIONS. [3313.2]
    g. FILL INSTALLATION:
        i. AFTER THE FILL EMPLACEMENT IS STARTED AND BEFORE THE VERTICAL HEIGHT OF THE LIFTS EXCEEDS 10ft. [3313.2]
        ii. DURING PREPARATION OF NATURAL GROUND AND PLACEMENT AND COMPACTION FILL.
        iii. THE SOILS ENGINEER SHALL BE PRESENT DURING THE ENTIRE FILL PLACEMENT AND COMPACTION OF FILLS THE WILL EXCEED A VERTICAL HEIGHT OR DEPTH OF 30ft> OR RESULTS IN A SLOPE SURFACE STEEPER THE 2 HORIZONTAL 1 VERTICAL. [3313.7]
    h. DRAINAGE DEVICE INSPECTION: AFTER FORMS AND PIPES ARE IN PLACE AND BEFORE ANY CONCRETE IS POURED
    i. ROUGH GRADING: WHEN ALL ROUGH GRADING HAS BEEN COMPLETED AND EROSION PROTECTION HAS BEEN INSTALLED. THE GEOTECHNICAL ENGINEER SHALL SUBMIT THE FINAL COMPACTION REPORT PRIOR TO THE APPROVAL OF ROUGH GRADE.

GRADING PLAN NOTES:

50. THE CONTRACTOR SHALL VERIFY ALL EXISTING TOPOGRAPHY AND GRADES PRIOR TO GRADING. IT SHALL BE THE CONTRACTORS RESPONSIBILITY TO NOTIFY THE PROJECT CIVIL ENGINEER OF ANY DISCREPANCIES OR REQUIRED DESIGN CHANGES SO THE APPROPRIATE CHANGES CAN BE MADE.
51. THE CONTRACTOR SHALL ENSURE THAT ALL UTILITIES AND EASEMENTS ARE ADEQUATELY STAKED PRIOR TO ANY GRADING.
52. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ALL UNDERGROUND UTILITIES. UNDERGROUND ALERT SHALL BE NOTIFIED A MINIMUM OF 48 HOURS PRIOR TO DIGGING.
53. THE APPROVED GEOLOGY AND GEOTECHNICAL REPORTS SHALL BE CONSIDERED A PART OF THESE PLANS. COPIES OF THESE REPORTS SHOULD BE MAINTAINED ON SITE DURING SITE DEVELOPMENT.
54. THE PROJECT CIVIL ENGINEER SHALL BE NOTIFIED AND APPROVE ANY DESIGN CHANGES PRIOR TO IMPLEMENTATION DURING SITE DEVELOPMENT.
55. ALL RETAINING WALLS ARE UNDER SEPARATE PERMIT. PRIOR TO IMPLEMENTATION DURING SITE DEVELOPMENT.
56. SOIL COMPACTION REPORT SHALL BE PROVIDED TO THE BUILDING INSPECTOR AT THE JOB SITE PRIOR TO PLACEMENT OF CONCRETE FOR THE FOUNDATION.
57. SOIL ENGINEER SHALL INSPECT FOUNDATION PRIOR TO PLACEMENT OF CONCRETE FOR THE FOUNDATION.

ADDITIONAL NOTES:

58. EXPANSION INDEX TESTING SHOULD BE PERFORMED DURING SITE PREPARATION TO VERIFY AS-GRADED SITE CONDITIONS. THE RESULTS OF THE TESTS AS WELL AS SPECIFIC RECOMMENDATIONS FOR SLAB REINFORCEMENT AND THICKNESS MUST BE SUBMITTED TO THE CITY FOR REVIEW AT THAT TIME.
59. AN EVALUATION OF SOIL CORROSIVITY SHALL BE MADE IN ACCORDANCE WITH SECTION 6.2.1 OF THE CITY OF MALIBU'S GEOTECHNICAL GUIDELINES AT THE COMPLETION OF GRADING BY THE PROJECT GEOTECHNICAL CONSULTANT, WHO SHALL PROVIDE APPROPRIATE RECOMMENDATIONS.
60. PRIOR TO FINAL APPROVAL OF THE PROJECT AN AS-BUILT COMPACTION REPORT PREPARED BY THE PROJECT CONSULTANT MUST BE SUBMITTED TO THE CITY FOR REVIEW. THE REPORT MUST INCLUDE THE RESULTS OF ALL DENSITY TESTS AS WELL AS A MAP DEPICTING THE LIMITS OF FILL LOCATIONS OF ALL DENSITY TESTS, LOCATIONS OF ELEVATIONS OF KEYWAYS AND BACKDRAINS, LOCATIONS AND ELEVATION OF ALL REMOVAL BOTTOMS (INCLUDING THE RESULTS OF ALL TESTING PERFORMED TO VERIFY COMPETENT BOTTOMS) AND LOCATIONS AND ELEVATIONS OF ALL RETAINING WALL BACKDRAINS AND OUTLETS. GEOLOGIC CONDITIONS EXPOSED DURING GRADING MUST BE DEPICTED ON AN AS-BUILT GEOLOGIC MAP.
61. THE SURFACE OF THE CUT SHALL BE NO STEEPER THAN 3 HORIZONTAL TO 1 VERTICAL (33% SLOPE) UNLESS A SOILS ENGINEER OR AN ENGINEERING GEOLOGY REPORT STATING THAT A CUT AT A STEEPER SLOPE WILL BE STABLE AND NOT CRATE A HAZARD. PROVIDE A RECOMMENDATION FROM THE PROJECT GEOTECHNICAL ENGINEER, GEOLOGIST AND APPROVED BY THE CITY SOILS AND GEOLOGY STAFF. [3312.2].
62. THE EXPORT OF CUT MATERIAL MAY BE REQUIRED TO PRESERVE THE NATURAL TOPOGRAPHY OF THE PROJECT SITE. [MLCP 8.3B, 2] ADD THE FOLLOWING NOTE ON THE PLANS: "CUT MATERIAL MAY ONLY BE EXPORTED TO AN APPROXIMATE LANDFILL OR A SITE PERMITTED TO ACCEPT MATERIAL."
63. MAXIMUM GRADE OF CUT OR FILL [MLCP 8.3D:
    a. 3:1 FOR AREAS CRATED FOR DEVELOPMENT OF STRUCTURES AND OPEN YARD AREAS.
64. THE FACES OF CUT AND FILL SLOPES SHALL BE PREPARED AND MAINTAINED TO CONTROL EROSION. THIS CONTROL MAY CONSIST OF EFFECTIVE PLANING, EROSION CONTROL BLANKETS, SOIL STABILIZERS OR OTHER APPROVED MEANS.
65. PROVIDE RIP-RAP OR OTHER REDUCER AT DISCHARGE END OF DRAINS NOT CONNECTED TO A PERMANENT SYSTEM. SHOW DETAIL. [3316.2]
66. ALL STORM DRAIN WORK IS TO BE DONE UNDER CONTINUOUS INSPECTION BY THE ENGINEER. WEEKLY STATUS REPORT SHALL BE SUBMITTED BY THE FIELD ENGINEER TO THE CITY BUILDING DEPARTMENT.
67. SEPARATE PLANS FOR TEMPORARY DRAINAGE AND WET WEATHER EROSION CONTROL MEASURES TO BE USED DURING THE RAINY SEASON MUST BE SUBMITTED PRIOR TO OCTOBER 1. THE EROSION CONTROL DEVISES SHOWN ON SAID PLANS MUST BE INSTALLED BY NO LATER THAN NOVEMBER 1 AND MAINTAINED IN OPERABLE CONDITION UNTIL APRIL 15. [3319.3]
68. ALL RECOMMENDATIONS INCLUDED IN THE CONSULTANT'S SOIL AND GEOLOGY REPORTS MUST BE COMPLIED WITH AND ARE A PART OF THE GRADING SPECIFICATIONS.
69. THE CONSULTING GEOLOGIST MUST APPROVE ROUGH GRADING BY FINAL REPORT. FINAL REPORT MUST INCLUDE AN AS-BUILT GEOLOGIC MAP.
70. THE BUILDING OFFICIAL SHALL APPROVE STOCK PILING OF EXCESS MATERIAL PRIOR TO EXCAVATION.
71. THE FIELD ENGINEER, AS A CONDITION OF ROUGH GRADE APPROVAL, SHALL PROVIDE A BLUE BLUE TOP WITH ACCOMPANYING WITNESS STAKE, SET AT THE CENTER OF EACH PAD REFLECTING THE PAD ELEVATION FOR PRECISE PERMITS AND A BLUE TOP WITH WITNESS STAKE SET AT THE DRAINAGE SWALE HIGH POINT REFLECTING THE HIGH POINT ELEVATION FOR PRELIMINARY PERMITS.
72. THE COMPACTION REPORT AND APPROVAL FROM THE SOIL ENGINEER SHALL INDICATE THE TYPE OF FIELD-TESTING PERFORMED. EACH TEST SHALL BE IDENTIFIED WITH THE METHOD OF OBTAINING THE IN-PLACE DENSITY, WHETHER SAND CONE OR NUCLEAR GAUGE, AND SHALL BE SO NOTED FOR EACH TEST.

PUBLIC WORKS DEPARTMENT GENERAL NOTES

73. ALL WORK SHOWN ON THESE PLANS SHALL BE CONSTRUCTED IN ACCORDANCE WITH THE CURRENT EDITION OF THE STANDARD SPECIFICATIONS FOR PUBLIC WORKS CONSTRUCTION (SSPWC) "GREEN BOOK."
74. CONTRACTORS SHALL COMPLY WITH ALL APPLICABLE DIVISION OF INDUSTRIAL REGULATIONS (CAL-OSHA) SAFETY STANDARDS. IF REQUESTED BY THE INSPECTOR, THE CONTRACTOR SHALL PROVIDE PROOF OF A PERMIT FROM SAID DIVISION.
75. CONTRACTOR SHALL CALL THE PUBLIC WORKS INSPECTOR AT (310) 456-2489, EXT. 235 FOR PRE-CONSTRUCTION MEETING PRIOR TO THE COMMENCEMENT OF ANY CONSTRUCTION OR GRADING OPERATIONS. CONTRACTOR SHALL NOTIFY THE CITY PUBLIC WORKS INSPECTOR 48 HOURS PRIOR TO COMMENCING ANY CONSTRUCTION AND 24 HOURS IN ADVANCE OF A SPECIFIC INSPECTION NEEDS DURING THE COURSE OF THE WORK.
76. NO IMPROVEMENTS ARE PROPOSED WITHIN THE PUBLIC RIGHT-OF-WAY.
77. STORAGE OF ANY CONSTRUCTION MATERIALS, CONSTRUCTION TRAILER, AND/OR PARKING AND ANY WORK WITH WITHIN THE CALTRANS PUBLIC RIGHT OF WAY SHALL REQUIRE A CALTRANS ENCROACHMENT PERMIT. SUBMIT A COPY OF THE CALTRANS ENCROACHMENT PERMIT TO THE PUBLIC WORKS DEPARTMENT.
78. ALL WORK SHALL BE PERFORMED DURING CITY WORKING HOURS AND IN COMPLIANCE WITH THESE PLANS.
79. CONTRACTOR SHALL VERIFY ALL CONDITIONS AND DIMENSIONS AND SHALL REPORT ANY DISCREPANCIES TO THE ENGINEER PRIOR TO THE COMMENCEMENT OF ANY WORK.
80. CONTRACTOR SHALL LOCATE, PROTECT, AND SAVE ANY AND ALL SURVEY MONUMENTS THAT WILL BE OR MAY BE DAMAGED OR DESTROYED BY THEIR OPERATIONS. ONCE FOUND, THE CONTRACTOR SHALL THEN NOTIFY BOTH THE DEVELOPER'S SUPERVISING CIVIL ENGINEER AND THE PUBLIC WORKS INSPECTOR. THE SUPERVISING CIVIL ENGINEER SHALL RESET ALL SAID MONUMENTS PER THE REQUIREMENTS OF THE PROFESSIONAL LAND SURVEYOR'S ACT.
81. THE CONTRACTOR SHALL BE RESPONSIBLE FOR PROTECTING ALL PUBLIC AND PRIVATE PROPERTY INSOFAR AS IT MAY BE AFFECTED BY THESE OPERATIONS.
82. EXISTING TRAFFIC SIGNS ARE NOT TO BE REMOVED WITHOUT PRIOR TO NOTIFICATION AND APPROVAL OF THE CITY ENGINEER. AS A MINIMUM, CONSTRUCTION WORK ZONE TRAFFIC SIGNS AND STRIPING SHALL BE FURNISHED, INSTALLED, AND MAINTAINED IN ACCORDANCE WITH THE "WORK AREA TRAFFIC CONTROL HANDBOOK ("THE WATCH MANUAL"), PUBLISHED BY BNI BUILDING NEWS, INC. A TRAFFIC CONTROL PLAN, PREPARED BY THE DEVELOPER, MAY BE REQUIRED BY THE CITY.
83. DUST CONTROL SHALL BE MAINTAINED AT ALL TIMES.
84. EROSION CONTROL PLANS SHALL BE PROVIDED FOR ALL PROJECTS. GRADING AND CLEARING IS PROHIBITED FROM NOVEMBER 1 TO MARCH 31 FOR ALL DEVELOPMENTS WITHIN OR ADJACENT TO ESHA AND/OR INCLUDING GRADING ON SLOPES GREATER THAN 4:1.
85. ALL UNDERGROUND UTILITIES AND SERVICE LATERALS SHALL BE INSTALLED PRIOR TO CONSTRUCTION OF CURBS, GUTTERS, SIDEWALKS, AND PAVING UNLESS OTHERWISE PERMITTED BY THE CITY ENGINEER.
86. THE DEVELOPER SHALL COMPLY WITH NDPES REQUIREMENTS. THE STORM WATER POLLUTION PREVENTION PLAN (SWPPP) SHALL BE AVAILABLE AT THE CONSTRUCTION SITE AT ALL TIMES AND SHALL BE KEPT UP TO DATE.
87. ALL RECOMMENDATIONS MADE BY THE GEOTECHNICAL/SOILS ENGINEER (AND ENGINEERING GEOLOGIST, WHERE EMPLOYED), AND CONTAINED IN THE REPORTS REFERENCED HEREON, AS APPROVED OR CONDITIONED BY THE CITY, SHALL BE CONSIDERED A PART OF THE GRADING PLAN.
88. ALL FOUNDATION EXCAVATION MUST BE OBSERVED AND APPROVED BY THE GEOTECHNICAL CONSULTANT PRIOR TO PLACEMENT OF REINFORCING STEEL.
89. ALL STORM DRAIN PIPE WITHIN THE PUBLIC RIGHT-OF-WAY AND EASEMENTS SHALL BE REINFORCED CONCRETE PIPE (RCP).
90. TERRACE DRAINS, INTERCEPTOR DRAINS, AND DOWN DRAINS SHALL BE CONSTRUCTED OF 3" P.C.C. REINFORCED WITH 6"x6"x#10 W.W.M. AND SHALL BE EITHER SEMICIRCULAR OR TRIANGULAR CROSS SECTION. CONCRETE COLOR SHALL BE "OMAHA TAN" OR APPROVED EQUIVALENT.
91. GRADING QUANTITIES:
    CUT: 4,977 CU. YDS. FILL: 1,711 CU. YDS.
    EXPORT: 3,266 CU. YDS. IMPORT: 0 CU. YDS.
92. GROSS LOT AREA: 6.57 ACRES/SQ. FT.
    NET LOT AREA: 5.86 ACRES/SQ. FT.
    PROPOSED IMPERMEABLE COVERAGE: 21,295 SQ. FT.
    MAXIMUM ALLOWABLE IMPERMEABLE COVERAGE: 25,000 SQ. FT.
    TOTAL DISTURBED AREA: 116,800 SQ. FT.
    FLOOD ZONE ON FIRM: X BASE FLOOD ELEVATION: 0 FT.
93. ALL SLOPES ON PRIVATE PROPERTY ADJOINING STREETS, DRAINAGE CHANNELS, OR OTHER PUBLIC FACILITIES SHALL BE GRADED NOT STEEPER THAN 2:1 FOR CUT AND FILL UNLESS SPECIFICALLY APPROVED BY THE CITY ENGINEER ON RECOMMENDATION OF THE PROJECT'S GEOTECHNICAL/SOILS CONSULTANT.
94. ALL CATCH BASINS AND DRAINAGE INLETS SHALL BE STENCILED WITH THE CITY OF MALIBU STORM DRAIN LOGO

CONDITIONS OF APPROVAL

THIS PLAN CONFORMS TO THE COASTAL DEVELOPMENT PERMIT CONDITIONALLY APPROVED BY THE CITY FOR _____ ON _____

CONTRACTORS NOTE:

THE EARTHWORK QUANTITIES ARE PROVIDED AS A COURTESY AND CONVENIENCE TO THE OWNERS, AND ARE FOR BONDING AND PLAN CHECK PURPOSES ONLY. THE YARDAGE FIGURES SHOWN ARE APPROXIMATE CALCULATED QUANTITIES BASED ON THE DIFFERENCE BETWEEN EXISTING GROUND ELEVATIONS AND DESIGNED ROUGH GRADE ELEVATIONS. THE CALCULATIONS MAKE NO PROVISIONS FOR STRIPPING, SHRINKAGE, BULKING OR ANY OTHER CONDITION NOT IMPLIED. FOR THIS REASON, IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO CONSULT THE PROJECTS SOILS ENGINEER AND GEOLOGIC INVESTIGATIONS, AND TO DETERMINE FOR HIMSELF, THE QUANTITIES OF EARTH MOVING THAT WILL BE REQUIRED TO COMPLETE THIS PROJECT.

STARTING DATE 30 DAYS AFTER PERMIT ISSUANCE ,2022

COMPLETION DATE 90 DAYS AFTER PERMIT ISSUANCE ,2022

NOTE: GRADING PERMITS SHALL NOT BE ISSUED BETWEEN NOVEMBER 1 AND MARCH 31 EACH YEAR PER LCP SECTION 17.2.1. PROJECT APPROVED FOR GRADING PERMIT SHALL NOT RECEIVE GRADING PERMITS UNLESS THE PROJECT CAN BE ROUGH GRADED BEFORE NOVEMBER 1.

NOTE: EXPORTED SOIL FROM A SITE SHALL BE TAKEN TO THE COUNTY LANDFILL OR TO A SITE WITH AN ACTIVE GRADING PERMIT AND THE ABILITY TO ACCEPT THE MATERIAL IN COMPLIANCE WITH THE CITY'S LOCAL IMPLEMENTATION PLAN (LIP), SECTION 8.3.

NOTE: PRIOR TO THE PLACEMENT OF CONCRETE SLABS, THE SLAB SUBGRADE SOILS SHALL BE PRE-MOISTENED TO AT LEAST 120% OF THE OPTIMUM MOISTURE CONTENT TO THE DEPTH SPECIFIED BY THE GEOTECHNICAL ENGINEER. THE PRE-MOISTENED SOILS SHOULD BE TESTED AND VERIFIED TO BE BY THE GEOTECHNICAL ENGINEER WITHIN ONE DAY PRIOR TO THE PLACEMENT OF THE MOISTURE BARRIER AND SAND.

REGISTERED PROFESSIONAL ENGINEER LEONARD T. LISTON III No.93123 CIVIL STATE OF CALIFORNIA

City of Malibu

23815 Stuart Ranch Road • Malibu, California • 90265-4861
Phone (310) 456-2489 • Fax (310) 456-7650 • www.ci.malibu.ca.us

TOTAL GRADING YARDAGE VERIFICATION CERTIFICATE
PLANNING DIVISION REVIEW LEVEL

PLANNING APPLICATION NUMBER: _____
PROJECT ADDRESS:

PACIFIC COAST HIGHWAY

PUERCO CANYON

MALIBU ROAD

N81°56'47"E 821.14'

N67°57'01"W 932.57'

N80°01'07"W 242.15'

S87°09'13"W 929.66'

N38°47'52"W 130.09'

Δ=10°51'24" R=2952.84' L=559.53'

S87°11'49"E 311.34'

S89°33'41"W 194.52

N01°18'43"E 288.50'

S12°11'17"W

N80°57'52"W 45.83'

POB Parcel 1

1 00'

50'

5' wide easement for utilities purposes in favor of Malibehead Land Company rec'd 4/7/1952 in Bk 38646 Pg 104, OR (16)

2' wide easement for poles and telecommunications purposes in favor of General Telephone Company rec'd 4/7/1959 as Inst No 3229 in Bk 0418 Pg 637, OR (19)

15' wide easement for gas purposes in favor of Southern Counties Gas Company of California rec'd 11/7/1962 as Inst No 4118 in Bk D1814 Pg 973, OR (21)

10' wide easement for poles and electrical purposes in favor of Southern California Edison rec'd 7/19/1958 as Inst No 3203 in Bk D131 Pg 527, OR (18)

30' wide easement for road and utility purposes in favor of B.M. and Blanche Olden rec'd 10/28/1957 in Bk 55954 Pg 234 and Bk 55954 Pg 312, both OR (17)

20' wide easement for road purposes granted to the State of California per document rec'd 10/2/1939 in Bk 16845 Pg 253 (9)

Agreement not to construct buildings within a width of 10' of the State Highway as described in deed rec'd 10/8/1937 in Bk 15228 Pg 342, OR (9)

2' wide easement for electric pole lines and electrical purposes in favor of Southern California Edison rec'd 2/25/1932 in Bk 11391 Pg 280, OR

5' wide easement for water lines and incidental purposes in favor of Malibu Water Company rec'd 9/27/1938 in Bk 16057 Pg 211, OR (10)

Portion of 80' wide easement for road purposes granted to the State of California per document rec'd 10/8/1937 in Bk 15228 Pg 342, OR (9)

2' wide easement for pole lines and electrical purposes in favor of Southern California Edison rec'd 11/12/1939 in Bk 16485 Pg 374, OR (13)

5' wide easement for utilities purposes in favor of Malibehead Land Company rec'd 4/7/1952 in Bk 38646 Pg 104, OR (16)

ENLARGED DETAIL
SCALE 1" = 20'

SCALE: 1"=50'
0 50 100 150

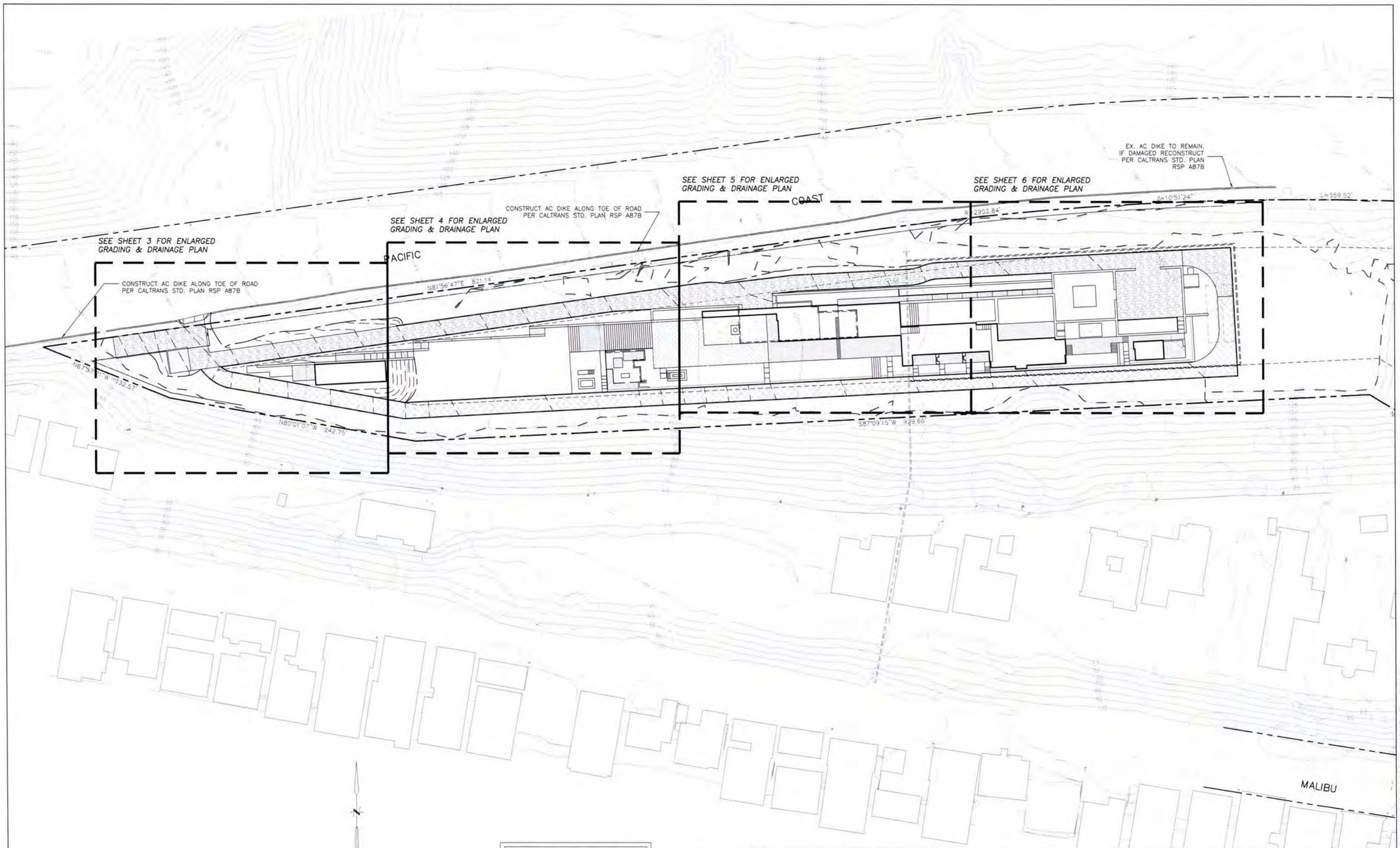
#	REVISIONS	DATE

CITY OF MALIBU

TOPOGRAPHIC SURVEY

25200 PACIFIC COAST HIGHWAY

DRAWN BY / DATE	CHECKED BY / DATE	SHEET 1A OF 8
PK/ 3/21/2025	PK/ 3/21/2025	



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DIAL TOLL FREE 811
AT LEAST TWO DAYS BEFORE YOU DIG
UNDERGROUND SERVICE ALERT OF SOUTHERN CALIFORNIA

REGISTERED PROFESSIONAL ENGINEER LEONARD T. LISTON III No.93123 CIVIL STATE OF CALIFORNIA

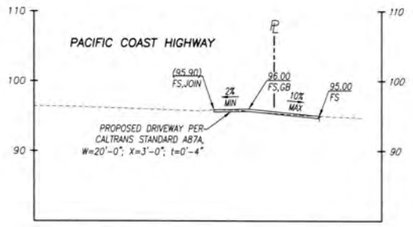
#	REVISIONS	DATE

PREPARED BY:
LC ENGINEERING GROUP, INC.
CONSULTING ENGINEERS
889 Pierce Court, Suite 101, Thousand Oaks, California 91360
818-991-7148 • 805-497-1244 • lcengroupinc.com • workflow@lcengroupinc.com

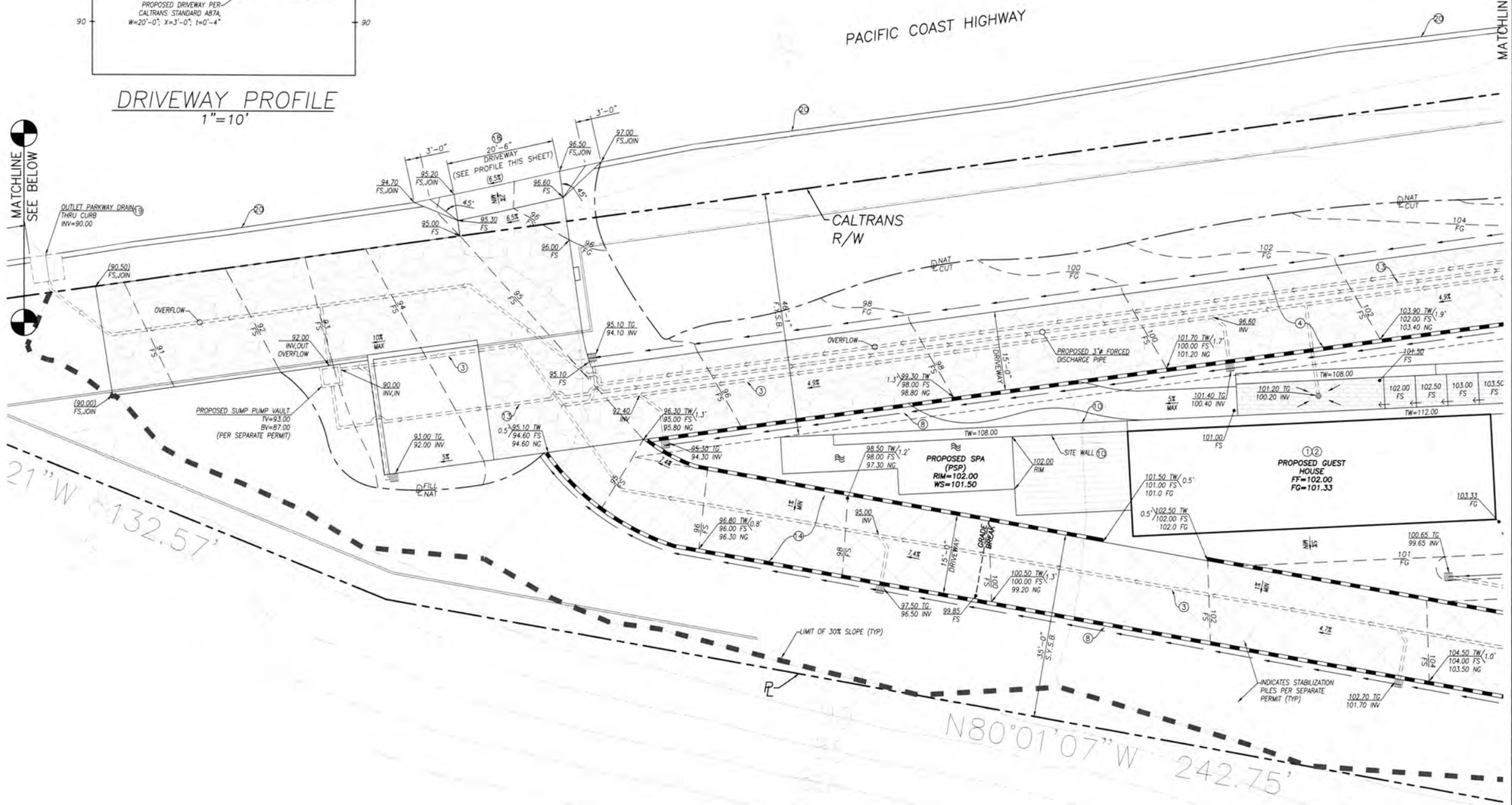
93123
REGISTERED ENGINEER RCE DATE

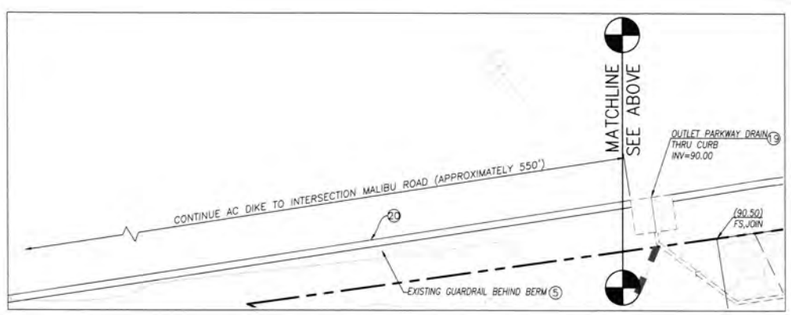
CITY OF MALIBU
OVERALL SITE PLAN
25200 PACIFIC COAST HIGHWAY

DRAWN BY / DATE	CHECKED BY / DATE	
PK/ 3/21/2025	PK/ 3/21/2025	SHEET 2 OF 8



DRIVEWAY PROFILE
1"=10'





811 Know what's below. Call before you dig.
DIAL TOLL FREE 811
AT LEAST TWO DAYS BEFORE YOU DIG
UNDERGROUND SERVICE ALERT OF SOUTHERN CALIFORNIA

REGISTERED PROFESSIONAL ENGINEER LORRAINE I. LISTON III No.93123 CIVIL STATE OF CALIFORNIA

CONSTRUCTION NOTES

1. STRUCTURAL FOUNDATION AND SLABS-ON-GRADE PER ARCHITECT/STRUCTURAL PLANS AND GEOTECHNICAL REPORT.
2. OVER EXCAVATE ENTIRE FOUNDATIONS AS RECOMMENDED BY THE GEOTECHNICAL REPORT.
3. CONSTRUCT SDR 35 PVC PIPE (SIZE AS SHOWN) AT 1% MINIMUM SLOPE (MIN. PIPE SIZE 4"ø.)
4. CONSTRUCT PERMEABLE GRAVEL MOTOR COURT/DRIVEWAY PER ARCHITECTURAL PLANS.
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6. EXISTING TO BE REMOVED.
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8. CONSTRUCT GRASSY GRADED SWALE @ 2% MIN. SLOPE.
9. CONSTRUCT CHANNEL DRAIN PER DETAIL 9, SHEET 7.
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11. PROPOSED RETAINING WALL PER SEPARATE PERMIT. HEIGHT AND LENGTH PER PLAN.
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19. CONSTRUCT PARKWAY DRAIN PER SPPWC STANDARD DETAIL 151-2. (S=6'-0")
20. CONSTRUCT AC DIKE WHERE NEEDED PER CALTRANS STANDARD PLAN RSP A87B TYPE E.
21. INSTALL BROOKS PRODUCTS 24X24 CATCH BASIN WITH NON-TRAFFIC RATED GRATE, FITTED WITH FLOGARD WALL MOUNTED CATCH BASIN FILTER INSERT PER DETAIL 10 ON SHEET 7.

LEGEND

℄	CENTER LINE
CO	CLEANOUT
DG	DECOMPOSED GRANITE
℄	DAYLIGHT LINE
DN	DOWN
DS	DOWNSPOUT
FF	FINISH FLOOR
FG	FINISH GRADE
FL	FLOW LINE
FS	FINISH SURFACE
HP	HIGH POINT
INV	INVERT
PA	PLANTER AREA OR "SOFTSCAPE AREA"
P	PROPERTY LINE
NG	NATURAL GRADE
TC	TOP OF CURB
TD	TOP OF DECK
TG	TOP OF GRADE
TW	TOP OF WALL
UNO	UNLESS NOTED OTHERWISE

RETAINING WALL P.S.P. BY OTHERS
STRUCTURE WALL P.S.P. BY OTHERS
LIMIT OF 30% SLOPE PER PROJECT SURVEYOR
FS — CONTRACTOR TO VERIFY HARD SURFACE THICKNESS PER ARCHITECTURAL SPECIFICATIONS AND DETAILS TO DETERMINE ROUGH GRADE ELEVATIONS.
12" SQ. CATCH BASIN PER NDS PLASTIC PRODUCTS PART NO. 1200-1204, U.N.O.
6"ø SPEE-D BASIN PER NDS PLASTIC PRODUCTS PART NO. 101, 201, 300, U.N.O.
INDICATES 4"ø PERF. SUBDRAIN
EXISTING SPOT ELEVATIONS
INDICATES PROPOSED PILE FOUNDATION PER STRUCTURAL PLANS PER SEPARATE PERMIT BY OTHERS.
PERMEABLE PAVERS
GRASSCRETE
PERMEABLE GRAVEL DRIVEWAY
ABOVE GRADE DECKING PER STRUCTURAL PLANS

SCALE: 1"=10'
0 10 20 30

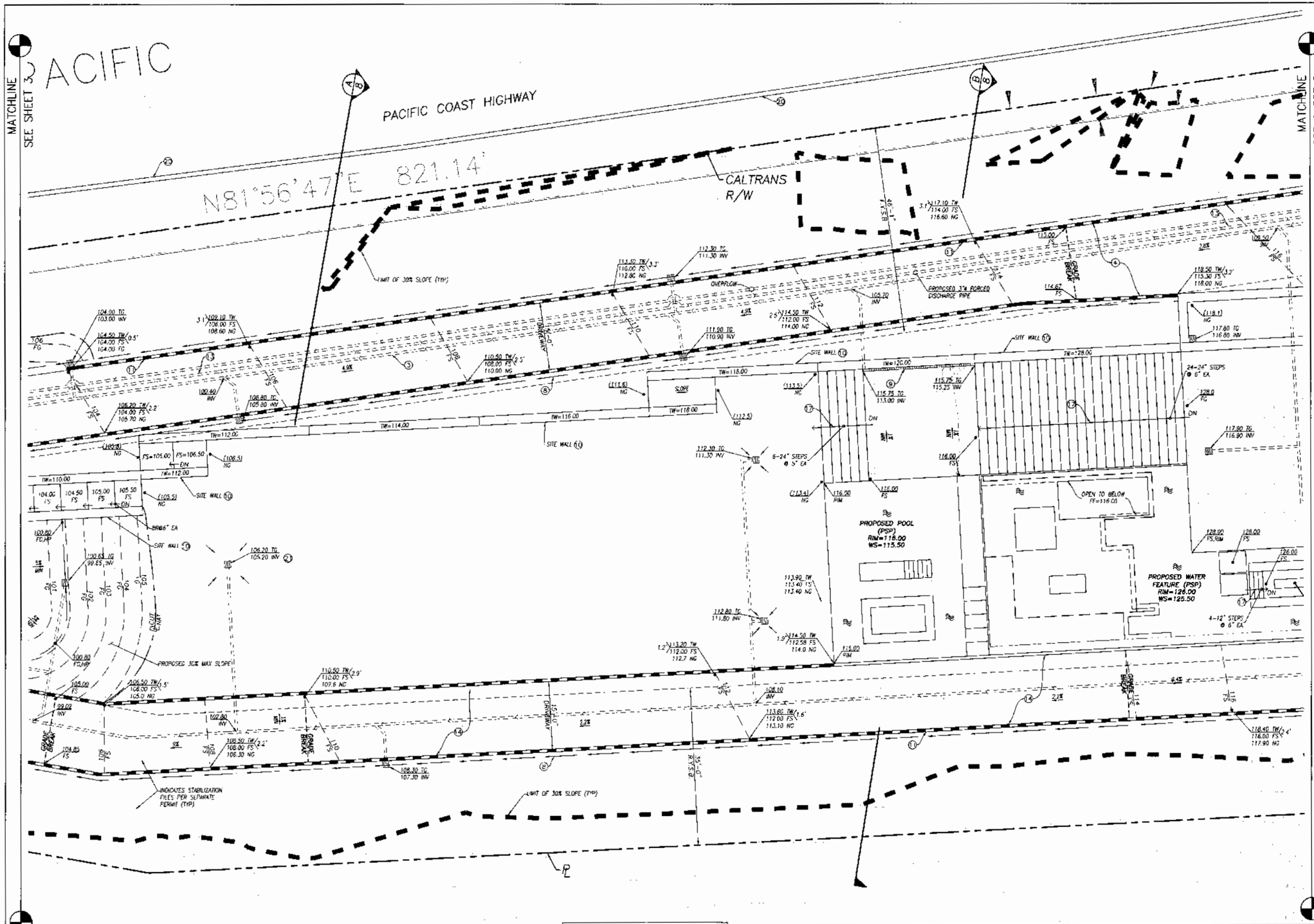
#	REVISIONS	DATE

PREPARED BY:
LC ENGINEERING GROUP, INC.
CONSULTING ENGINEERS
889 Pierce Court, Suite 101, Thousand Oaks, California 91360
818-991-7148 • 805-497-1244 • lcengrupinc.com • workflow@lcengrupinc.com

93123
REGISTERED ENGINEER RCE DATE

CITY OF MALIBU
ENLARGED GRADING AND DRAINAGE PLAN
25200 PACIFIC COAST HIGHWAY

DRAWN BY / DATE	CHECKED BY / DATE	SHEET 3 OF 8
PK/ 3/21/2025	PK/ 3/21/2025	



CONSTRUCTION NOTES

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LEGEND

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	PLUMLAULE PAVERS
	GRASSCRETE
	PERMEABLE GRAVEL DRIVEWAY
	ABOVE GRADE DECKING PER STRUCTURAL PLANS

SCALE: 1"=10'

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REGISTERED PROFESSIONAL ENGINEER — LEONARD T. LUSTIG — No 93123 — CIVIL — STATE OF CALIFORNIA

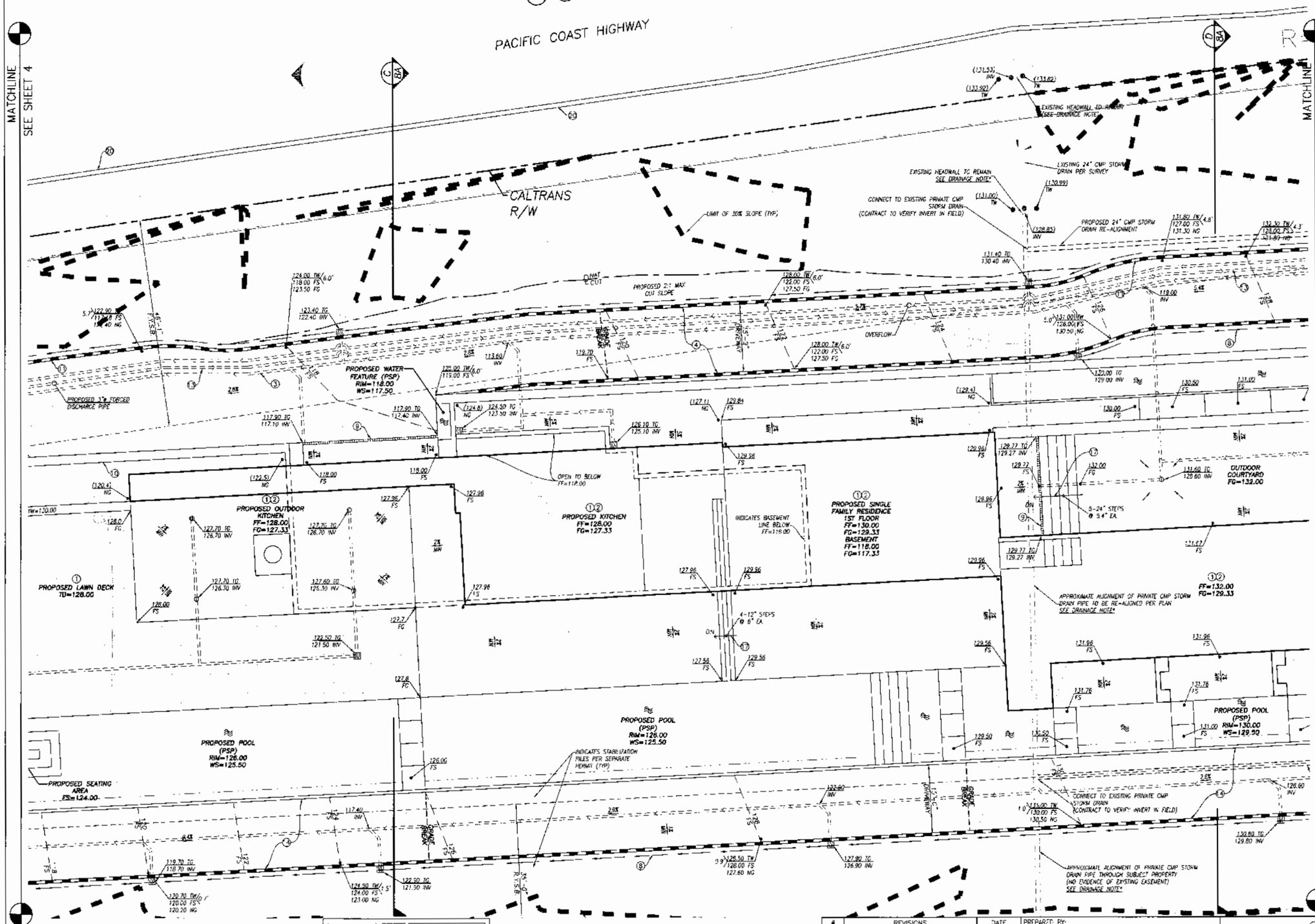
#	REVISIONS	DATE

PREPARED BY:
LC ENGINEERING GROUP, INC.
CONSULTING ENGINEERS
889 Ventura County, Suite 126, Thousand Oaks, California, 91360
818.991-7744 - 805-497-1244 - lcengroup.com - mail@lcengroup.com

REGISTERED ENGINEER 93123 RCE DATE

CITY OF MALIBU
ENLARGED GRADING AND DRAINAGE PLAN
25200 PACIFIC COAST HIGHWAY

DRAWN BY / DATE	CHECKED BY / DATE	SHEET 4 OF 8
PK/ 3/21/2025	PK/ 3/21/2025	



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RETAINING WALL P.S.P. BY OTHERS

STRUCTURE WALL P.S.P. BY OTHERS

LIMIT OF 30% SLOPE PER PROJECT SURVEYOR

FS CONTRACTOR TO VERIFY HARD SURFACE THICKNESS PER ARCHITECTURAL SPECIFICATIONS AND DETAILS TO DETERMINE ROUGH GRADE ELEVATIONS.

12" SQ. CATCH BASIN PER NDS PLASTIC PRODUCTS PART NO. 1200-1204, U.N.O.

6"ø SPEE-D BASIN PER NDS, PLASTIC PRODUCTS PART NO. 101, 201, 300, U.N.O

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DRAINAGE NOTE

PROPOSED IMPROVEMENTS WILL REQUIRE EXISTING CMP STORM DRAIN PIPE TO BE RE-ROUTED THROUGH THE SUBJECT PROPERTY. THE EXTENT OF ANY MODIFICATIONS WILL NOT ALTER THE NATURAL DRAINAGE FLOW COURSE.

REGISTERED PROFESSIONAL ENGINEER — EDWARD I. LISON — No. 93123 — CIVIL — STATE OF CALIFORNIA

#	REVISIONS	DATE

PREPARED BY:
LC ENGINEERING GROUP, INC.
CONSULTING ENGINEERS
689 Paseo Camp, Suite 101, Thousand Oaks, California 91360
818 991 7748 - 800 457 1244 - www.lcengineeringgroup.com

93123
REGISTERED ENGINEER — RCE — DATE

CITY OF MALIBU

ENLARGED GRADING AND DRAINAGE PLAN

25200 PACIFIC COAST HIGHWAY

DRAWN BY / DATE	CHECKED BY / DATE	SHEET 5 OF 8
PK/ 3/21/2025	PK/ 3/21/2025	

MATCHLINE SEE SHEET 5

2952.84' PACIFIC COAST HIGHWAY

CALTRANS R/W

46'-1" F.Y.S.B.

LIMIT OF 30% SLOPE (TYP)

PROPOSED 3"ø FORCED DISCHARGE PIPE

GRADE BREAK

DRIVEWAY 15'-0"

PROPOSED WATER FEATURE (PSP) RIM=136.00, WS=135.50

PROPOSED WATER FEATURE (PSP) RIM=134.00 WS=133.50

YARD AREA FG=134.00

PROPOSED POOL (PSP) RIM=136.00 WS=135.50

4-12" STEPS @ 5.4" SA.

5.4" STEPS (TYP)

PROPOSED DECK FS=134.00

① ② FF=134.00 FG=133.33

① ② PROPOSED OFFICE FF=136.00 FG=135.33

TRASH ENCLOSURE FS=134.00

OVERFLOW - END FORCED DISCHARGE & BEGIN GRAVITY FLOW INV=132.00

DIVERSION 131.50 INV,OUT

TANK INLET INV=130.85

PROPOSED (2)10' DIAMETER TANKS; 30,000 GALLON CAPACITY EACH TOP OF TANK=131.50 BOTTOM OF TANK=121.50 (CAPTURE/REUSE & DETENTION)

PIPE TO CONNECT DETENTION TANKS

PROPOSED 24" CMP STORM DRAIN RE-ALIGNMENT

DISCHARGE FROM PRE-DEVELOPED 2-, 10-, AND 100-YEAR STORMS

OUTLET TO IRRIGATION LINE @ 2% MIN SLOPE INV=121.50 (PER LANDSCAPE PLANS PER SEPARATE PERMIT)

PROPOSED 24" CMP STORM DRAIN RE-ALIGNMENT

INDICATES STABILIZATION PILES PER SEPARATE PERMIT (TYP.)

LIMIT OF 30% SLOPE (TYP)

PROPOSED 24" CMP STORM DRAIN RE-ALIGNMENT

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EXISTING SPOT ELEVATIONS

INDICATES PROPOSED PILE FOUNDATION PER STRUCTURAL PLANS PER SEPARATE PERMIT BY OTHERS:

PERMEABLE PAVERS

GRASSCRETE

PERMEABLE GRAVEL DRIVEWAY

ABOVE GRADE DECKING PER STRUCTURAL PLANS

SCALE 1"=10'

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UNDERGROUND SERVICE ALERT OF SOUTHERN CALIFORNIA

REGISTERED PROFESSIONAL ENGINEER EDWARD T. CISPER III No 93123 CIVIL STATE OF CALIFORNIA

#	REVISIONS	DATE

PREPARED BY:

LC ENGINEERING GROUP, INC.
CONSULTING ENGINEERS
889 Pierre Court, Suite 101, Thousand Oaks, California 91360
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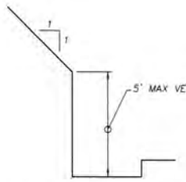
CITY OF MALIBU

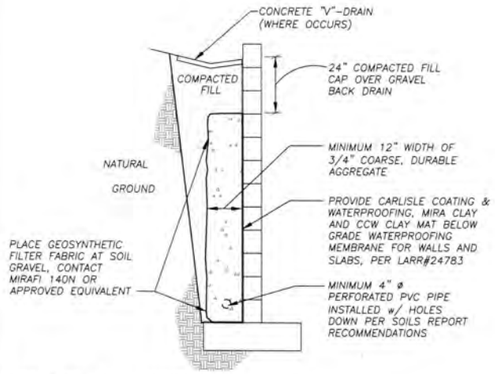
ENLARGED GRADING AND DRAINAGE PLAN

25200 PACIFIC COAST HIGHWAY

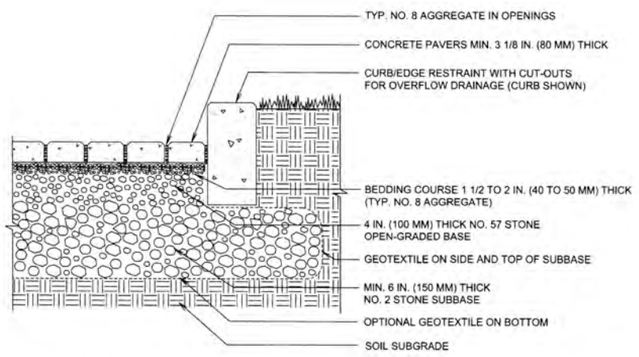
DRAWN BY / DATE PK/ 3/21/2025 | CHECKED BY / DATE PK/ 3/21/2025 | SHEET 6 OF 8



DETAIL NO. 1 TEMPORARY EXCAVATION
N.T.S.



DETAIL NO. 2 BACKFILL
N.T.S.

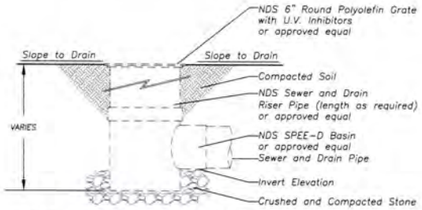


NOTES:
1. 2 3/8 IN. (60 MM) THICK PAVERS MAY BE USED IN PEDESTRIAN APPLICATIONS.
2. NO. 2 STONE SUBBASE THICKNESS VARIES WITH DESIGN. CONSULT ICPI PERMEABLE INTERLOCKING CONCRETE PAVEMENT MANUAL.

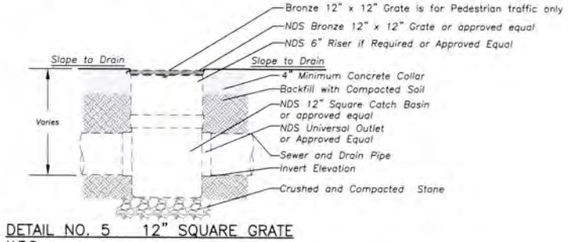
PERMEABLE PAVEMENT WITH FULL EXFILTRATION TO SOIL SUBGRADE

DRAWING NO. ICPI-68
SCALE NO SCALE

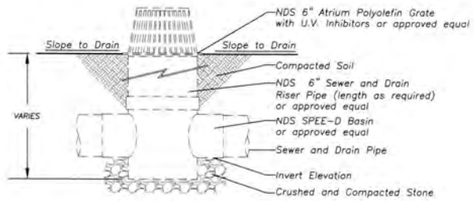
DETAIL NO. 3 PERMEABLE DRIVEWAY
N.T.S.



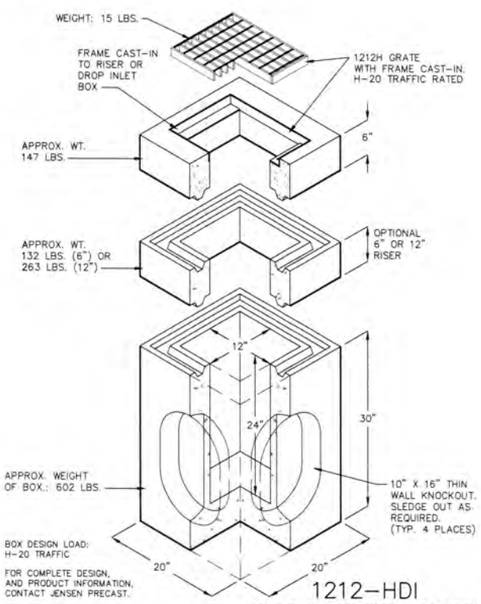
DETAIL NO. 4 6" ROUND GRATE
N.T.S.



DETAIL NO. 5 12" SQUARE GRATE
N.T.S.

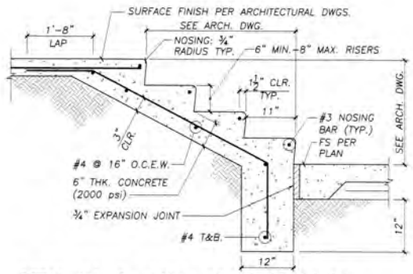


DETAIL NO. 6 6" ATRIUM GRATE
N.T.S.

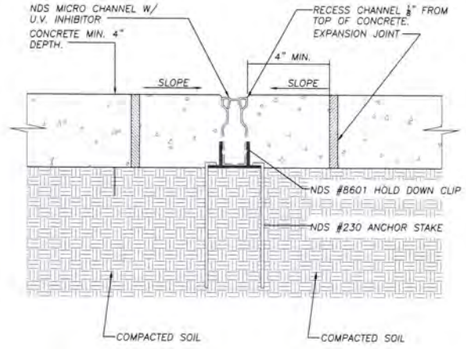


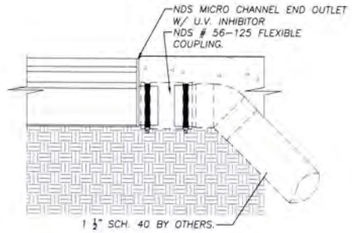
1212-HDI
12" LONG x 12" WIDE x 24" HIGH DROP INLET WITH CAST-IN FRAME & GRATE

DETAIL NO. 7 12" CATCH BASIN
N.T.S.

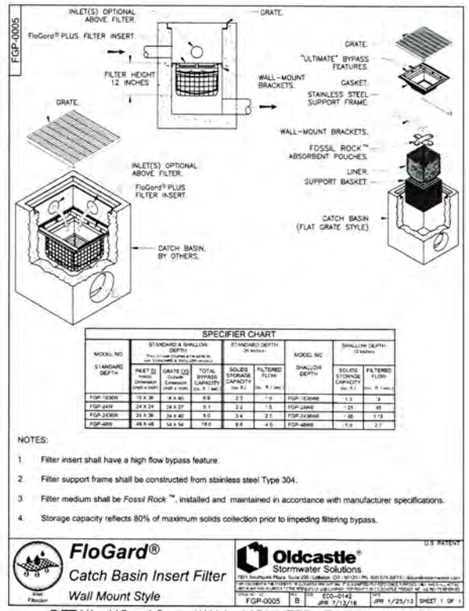


DETAIL NO. 8 CONC. STAIRS ON GRADE
N.T.S.





DETAIL NO. 9 CHANNEL DRAIN
N.T.S.



SPECIFIER CHART

MODEL NO. STANDARD DEPTH	STANDARD & SHALLOW DEPTH (24 inches) Flow Rate (Maximum Hydraulic Capacity) GPM (LPM)			STANDARD DEPTH (36 inches)		MODEL NO.	SHALLOW DEPTH (12 inches)		
	INLET ☐ Opening (Width x Length)	GRATE ☐ Opening (Width x Length)	TOTAL ☐ Opening (Width x Length)	SOLIDS STORAGE CAPACITY (cu. ft. / cu. m)	FILTERED FLOW		SHALLOW DEPTH	SOLIDS STORAGE CAPACITY (cu. ft. / cu. m)	FILTERED FLOW
FGP-1836W	14 x 28	9 x 40	6.5	2.3	1.5	FGP-1836WB	1.1	3
FGP-2436W	20 x 24	24 x 27	6.1	2.2	1.5	FGP-2436WB	1.1	3
FGP-2436W	20 x 36	24 x 40	9.0	3.4	2.0	FGP-2436WB	1.66	4.6
FGP-4836W	44 x 46	54 x 54	19.0	8.9	4.5	FGP-4836WB	1.6	3.7

NOTES:
1. Filter insert shall have a high flow bypass feature.
2. Filter support frame shall be constructed from stainless steel Type 304.
3. Filter medium shall be *Fossil Rock* ™, installed and maintained in accordance with manufacturer specifications.
4. Storage capacity reflects 80% of maximum solids collection prior to impeding filtering bypass.

FloGard® Catch Basin Insert Filter
Wall Mount Style
U.S. PATENT
Oldcastle Stormwater Solutions
FGP-0005 | B | ECO-0142 JPR 7/13/16 | JPR 1/25/13 | SHEET 1 OF 1

DETAIL NO. 10 WALL MOUNTED FILTER INSERT
N.T.S.

REGISTERED PROFESSIONAL ENGINEER LEONARD T. LISEN No.93123 CIVIL STATE OF CALIFORNIA

811 Know what's below. Call before you dig.
DIAL TOLL FREE 811
AT LEAST TWO DAYS BEFORE YOU DIG
UNDERGROUND SERVICE ALERT OF SOUTHERN CALIFORNIA

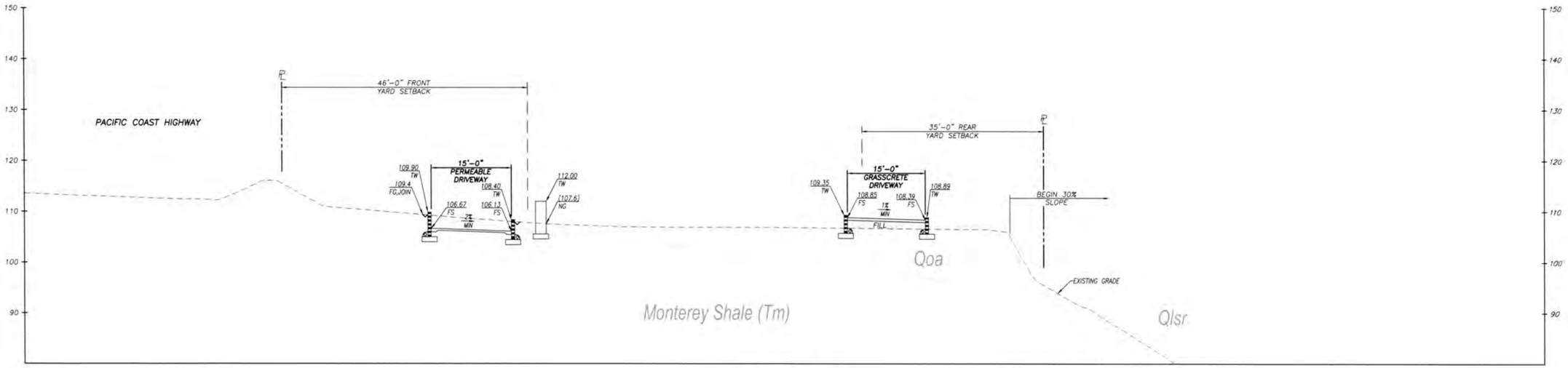
#	REVISIONS	DATE

PREPARED BY:
LC ENGINEERING GROUP, INC.
CONSULTING ENGINEERS
889 Pierce Court, Suite 101, Thousand Oaks, California 91360
818-991-7148 • 805-497-1244 • lcengroupinc.com

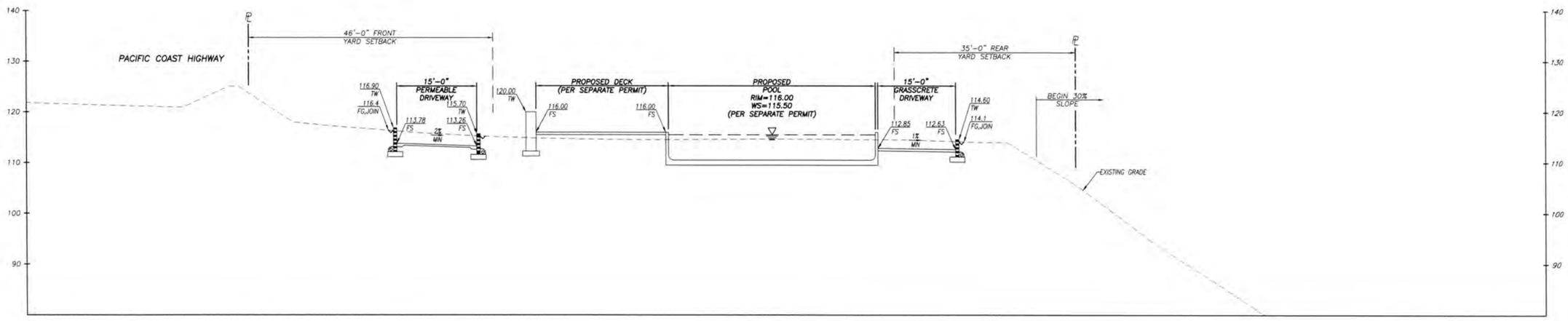
93123
REGISTERED ENGINEER RCE DATE

CITY OF MALIBU
DETAILS
25200 PACIFIC COAST HIGHWAY

DRAWN BY / DATE	CHECKED BY / DATE	SHEET 7 OF 8
PK/ 3/21/2025	PK/ 3/21/2025	



SECTION A
1"=10'



SECTION B
1"=10'

REGISTERED PROFESSIONAL ENGINEER
LEONARD T. LISOWYI
No.93123
CIVIL
STATE OF CALIFORNIA

811 Know what's below. Call before you dig.
DIAL TOLL FREE 811
AT LEAST TWO DAYS BEFORE YOU DIG
UNDERGROUND SERVICE ALERT OF SOUTHERN CALIFORNIA

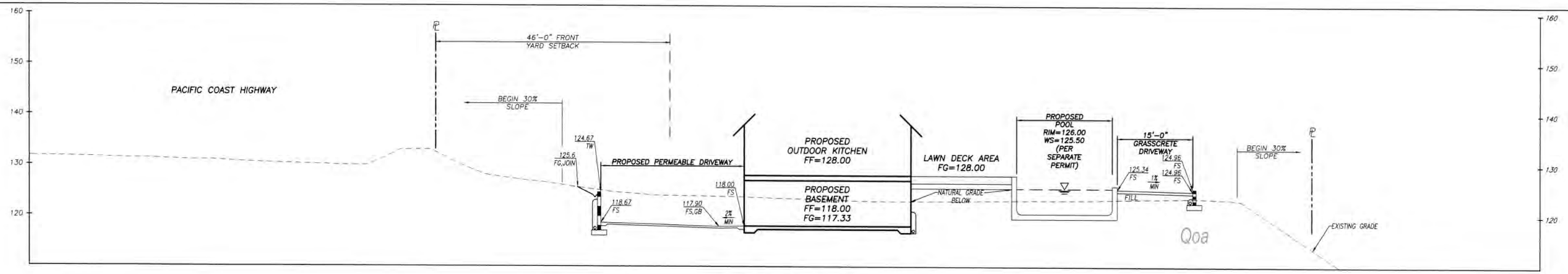
#	REVISIONS	DATE

PREPARED BY:
LC ENGINEERING GROUP, INC.
CONSULTING ENGINEERS
849 Pierce Court, Suite 101, Thousand Oaks, California 91360
818-991-7148 • 805-497-1244 • lcengrspec.com • workfiles@lcengrspec.com

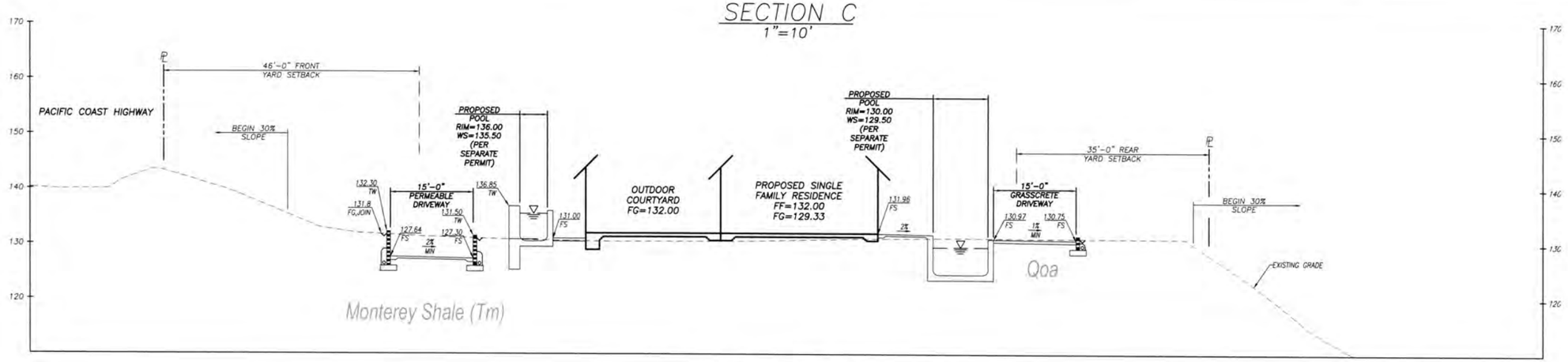
93123
REGISTERED ENGINEER RCE DATE

CITY OF MALIBU
CROSS SECTIONS
25200 PACIFIC COAST HIGHWAY

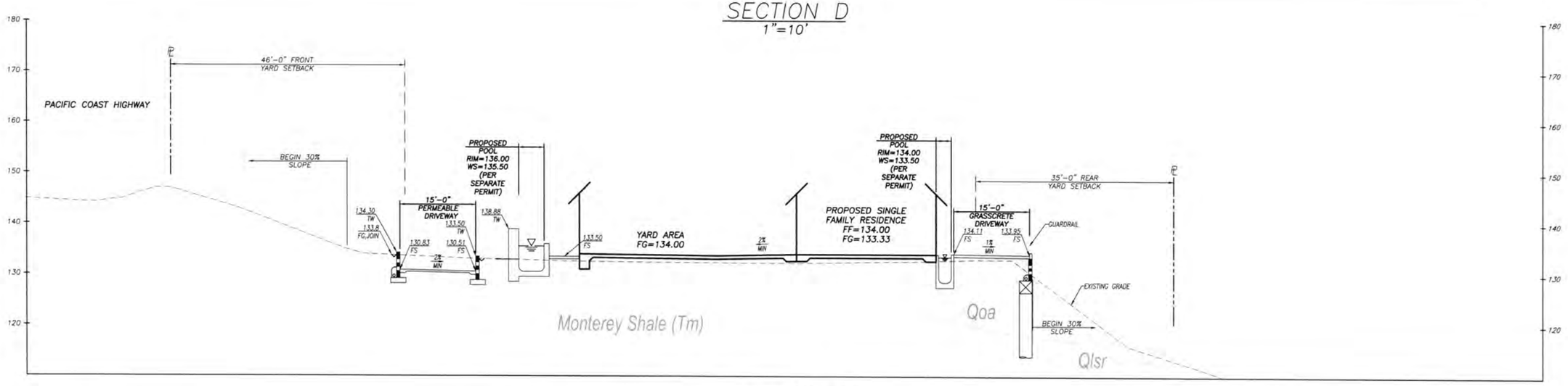
DRAWN BY / DATE	CHECKED BY / DATE	SHEET 8 OF 8
PK/ 3/21/2025	PK/ 3/21/2025	



SECTION C
1"=10'



SECTION D
1"=10'



SECTION E
1"=10'

REGISTERED PROFESSIONAL ENGINEER LEONARD I. LISTON III No.93123 CIVIL STATE OF CALIFORNIA

811 DIAL TOLL FREE 811 AT LEAST TWO DAYS BEFORE YOU DIG
Know what's below. Call before you dig.
UNDERGROUND SERVICE ALERT OF SOUTHERN CALIFORNIA

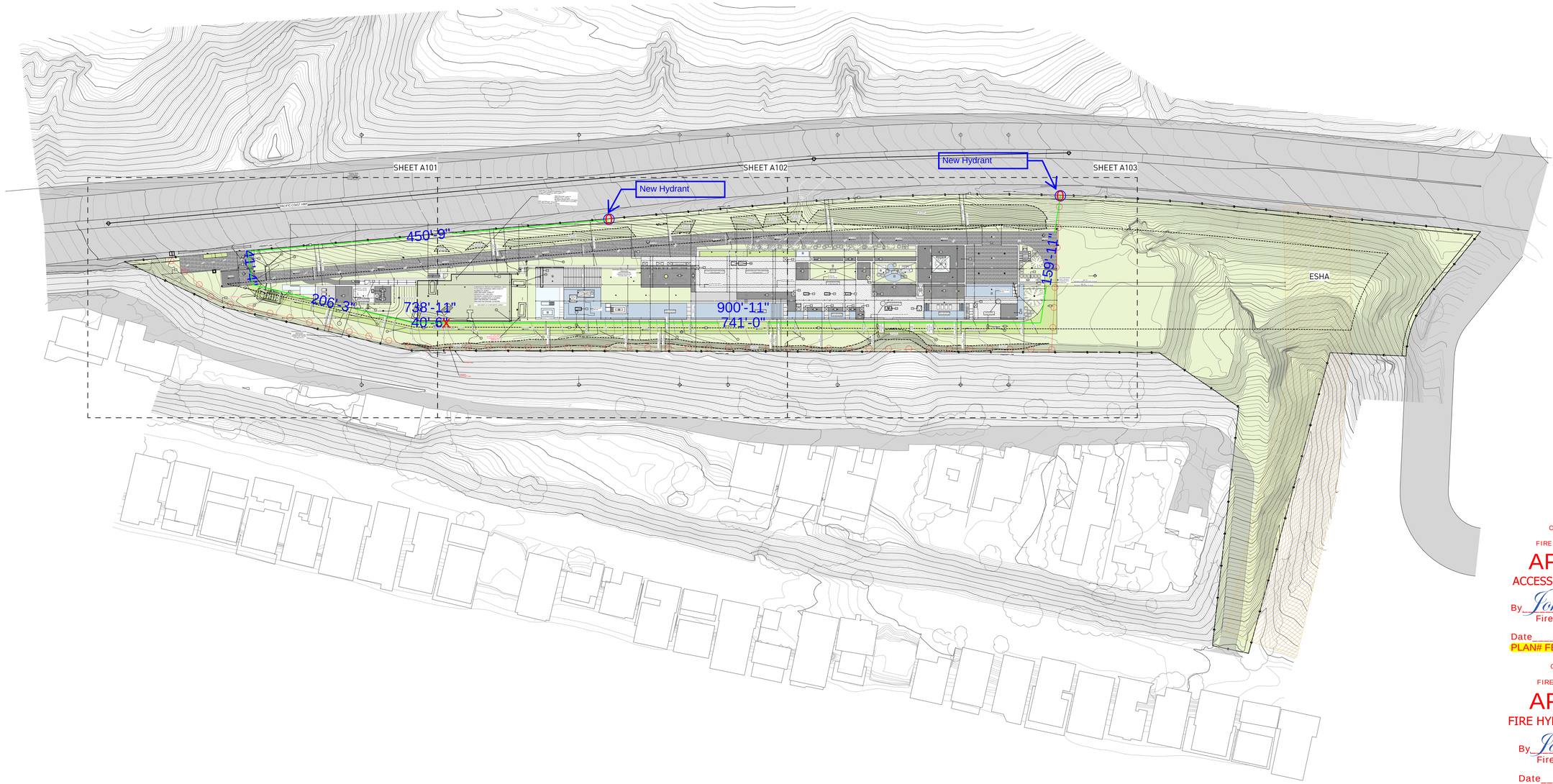
#	REVISIONS	DATE

PREPARED BY:
LC ENGINEERING GROUP, INC.
CONSULTING ENGINEERS
889 Pierce Court, Suite 101, Thousand Oaks, California 91360
816-991-7144 • 805-497-1244 • lcengroupinc.com • workflow@lcengroupinc.com

93123
REGISTERED ENGINEER RCE DATE

CITY OF MALIBU
CROSS SECTIONS (CONT)
25200 PACIFIC COAST HIGHWAY

DRAWN BY / DATE	CHECKED BY / DATE	
PK/ 3/21/2025	PK/ 3/21/2025	SHEET 8A OF 8



KEY NOTES:

SITE

001 MAINTAIN ALL WATER RUNOFF WITHIN PROPERTY. SLOPE AWAY FROM P.L. AT A MIN. SLOPE OF ¼" /FT., REFER TO CIVIL DWGS.
002 TREES/LANDSCAPING PLANTING/GROUND COVER/LAWN, REFER TO LANDSCAPE DWGS.
003 HEDGE. REFER TO LANDSCAPE DWGS.
004 HARDSCAPE. REFER TO LANDSCAPE DWGS.
005 DRIVEWAY. GRAVEL ON GRADE. REFER TO CIVIL & LANDSCAPE DWGS.
006 WOOD DECK. SIZE OF PLANKS T.B.D. FINISH T.B.D.
007 UNDERGROUND DRAINAGE SYSTEM. REFER TO CIVIL DWGS.
008 INFINITY POOL EDGE.
009 OPEN PARKING, REFER TO CIVIL FOR DETAILS
010 4'-0" SITE RETAINING WALL. REFER TO STRUCTURAL AND LANDSCAPE DWGS.
011 PEDESTRIAN GATE DOOR. PROVIDE SHOP DWGS. FOR ARCHITECT REVIEW.
012 42" MOTORIZED VEHICULAR SLIDING ENTRY GATE. STEEL FRAME. 90% VISUALLY PERMEABLE.
013 42" PERIMETER FENCE. 90% VISUALLY PERMEABLE.
014 CALL BOX
015 TRASH ENCLOSURE AREA
016 STRUCTURAL GRASS DRIVEWAY. GRASSCRETE OR SIMILAR. REFER TO CIVIL & LANDSCAPE DWGS.
017 GENERATOR ON EXISTING CONCRETE PLINTH, BOTTOM OF GENERATOR TO BE ABOVE BFE +1', REFER TO ELECTRICAL DWGS.
018 A/C CONDENSER UNITS BEHIND LANDSCAPE, BOTTOM OF UNITS TO BE ABOVE BFE +1', REFER TO MECHANICAL DWGS.
019 NATURAL LAWN AREA. REFER TO LANDSCAPE DWGS.

MATERIALS

100 ARCHITECTURAL EXPOSED CONCRETE, COLOR T.B.D. REFER TO STRUCTURAL DRAWINGS AND ARCHITECTURAL DETAILS.
101 CUSTOM WOOD DOOR. REFER TO DOOR SCHEDULE.
102 IMPACT RESISTANT SLIDING ALUMINUM WINDOWS / DOORS SYSTEM, LOW-E COATING. REFER TO WINDOW SCHEDULE.
103 PRE-FABRICATED SKYLIGHT ON CONCRETE CURB. REFER TO WINDOW SCHEDULE. SEE SECTION AND DETAILS.
104 GARAGE STEEL DOOR CLADDED WITH CUSTOM CONCRETE PANELS. REFER TO DOOR SCHEDULE.
105 GRAVEL.
106 5/8" G.W.B., FINISH T.B.D.; REFER TO I.D. DWGS.
107 3/8" THERMOCROMEX LIMESTONE PLASTER, SAND FINISH, COLOR T.B.D. 3/8" TYPICAL.
108 TRELLIS. 50 PERCENT OPEN TO THE SKY. DEPTH OF SLOTS TO BE EQUAL TO OR LESS THAN THE WIDTH OF EACH SLOT. PROVIDE SHOP DWGS.
109 REFER TO INTERIOR DESIGN DRAWINGS AND FINISH SCHEDULE.
110 RAMMED EARTH CONSTRUCTION.
111 STONE BENCH.

STRUCTURAL

200 FOUNDATION AND PILES. REFER TO STRUCT. DWGS.
201 COMPACTED EARTH. REFER TO STRCUT. DWGS.
202 RETAINING WALL. REFER TO STRUCT. DWGS.
203 CONCRETE SLAB. REFER TO STRUCT. DWGS.
204 CONCRETE COLUMN. REFER TO STRUCT. DWGS.
205 CONCRETE BEAM. REFER TO STRUCT. DWGS.
206 STEEL COLUMN. REFER TO STRUCT. DWGS.
207 CONCRETE STAIRS. REFER TO STRUCT. DWGS.
208 CONCRETE SHELL FOR POOL. REFER TO STRUCT. DWGS.
209 8" CMU REINFORCED WALL. REFER TO WALL TYPES AND STRUCT. DWGS
210 PROVIDE 2" RECESS ON SLABS ON ALL SHOWERS.
211 OPENING ON CONCRETE SLAB. REFER TO STRUCT. DWGS.

MEP

300 LIGHT FIXTURE/ SEE ARCH. RCP, ELECTRICAL DWGS. AND LIGHTING SPECIFICATIONS.
301 A/C PLENUM SPACE, REFER TO MECHANICAL DWGS. AND RCP. NO COMBUSTIBLES ALLOWED.
302 ROOF DRAIN, REFER TO PLUMBING DWGS. /SEE DETAIL.
303 FLOOR DRAIN, REFER TO PLUMBING DWGS./ SEE DETAIL.
304 DRAIN PIPE TO FIT IN CEILING SPACE, REFER TO PLUMBING DWGS. COORDINATE EXACT LOCATION AND SPECS.
305 KITCHEN HOOD, REFER TO MECH DWGS.
306 KITCHEN HOOD EXHAUST PIPE TO FIT IN CEILING SPACE, REFER TO MECH DWGS. COORDINATE EXACT LOCATION AND SPECS.
307 DESIGNATED POOL EQUIPMENT AREA.
308 GAS WATER HEATER. REFER TO PLUMBING DWGS.
309 ELECTRICAL PANELS. REFER TO ELECTRICAL DWGS.
310 CONDENSER UNITS ON STANDS. REFER TO MECH. DWGS.
311 MINIMUM R:30 BATT INSULATION OR RIGID INSULATION. REFER TO ENERGY CALCULATIONS.
312 ACOUSTICAL INSULATION.
313 MISTING SYSTEM. REFER TO PLUMBING DWGS.
314 SPRINKLER SYSTEM. REFER TO PLUMBING DWGS.
315 HOSE BIB. REFER TO PLUMBING AND LANDSCAPE DWGS.
316 ELECTRICITY, GAS AND WATER. REFER TO MEP DRAWINGS.
317 MOTORIZED VEHICULAR GATE. REFER TO ELECT. DWGS.
318 ALL TOILETS TO BE WALL HUNG. REFER TO MECH. DWGS.
319 LINEAR DRAIN
320 OVERFLOW SCUPPER.

WATERPROOFING

400 CONTINUOUS VAPOR BARRIER. REFER TO ARCH AND STRUCTURAL DWGS.
401 WATERPROOFING MEMBRANE. REFER TO ARCH AND STRUCTURAL DWGS.
402 POOL FINISH/ COLOR TBD.

MISC. ARCHITECTURAL DETAILS

500 CURTAIN CEILING COVE. REFER TO ARCH. DETAIL.
501 CONTINUOUS 1/2" TOOLED WATER DRIP. SEE ARCH. DETAIL.
502 VENT.
503 KITCHEN, BUILT-IN FURNITURE, CABINETRY BY OTHERS. REFER TO KITCHEN SHOP DWGS.
504 5/8" GWB DROPPED CEILING ON 3/4" FURRING STRIPS, PAINTED GWB. COLOR TBD.
505 STAINLESS STEEL SCUPPER IN CONCRETE STRUCTURE. 3" X 3" MIN.OPENING. REFER TO ELEVATION AND PLAN FOR LOCATION.
506 CUSTOM WOOD MILLWORK, REFER TO I.D. DRAWINGS
507 SOLAR PANELS (T.B.D.)
508 TENNIS COURT.
509 CONCEALED LED SCREEN.
510 LADDER ACCESS.

LIGHTING

600 PENDANT LIGHT. REFER TO LIGHTING DWGS.
601 RECESSED DOWN LIGHT. REFER TO LIGHTING DWGS.
602 CONCEALED LINEAR LIGHT. REFER TO LIGHTING DWGS.
603 POOL LINEAR RECESSED LIGHT. REFER TO LIGHTING DWGS.
604 LANDSCAPE LIGHTING. REFER TO LIGHTING DWGS.

FIRE SAFETY

700 FIRE DEPARTMENT VEHICULAR ACCESS ROADS MUST BE INSTALLED AND MAINTAINED IN A SERVICEABLE MANNER PRIOR TO AND DURING THE TIME OF CONSTRUCTION. FIRE CODE 5001.4
701 AN APPROVED KEY BOX, LISTED IN ACCORDANCE WITH UL 1037 SHALL BE PROVIDED AS REQUIRED BY FIRE CODE 506. THE LOCATION OF EACH KEY BOX SHALL BE DETERMINED BY THE FIRE INSPECTOR.
702 ALL REQUIRED PUBLIC FIRE HYDRANTS SHALL BE INSTALLED, TESTED AND ACCEPTED PRIOR TO BEGINNING CONSTRUCTION. FIRE CODE 501.4
703 PROVIDE AN APPROVED AUTOMATIC FIRE SPRINKLER SYSTEM AS SET FORTH BY BUILDING CODE 903 AND FIRE CODE 9003. PLANS SHALL BE SUBMITTED TO THE SPRINKLER PLAN CHECK UNIT FOR REVIEW AND APPROVAL PRIOR TO INSTALLATION.
704 SMOKE ALARMS SHALL RECEIVE THEIR PRIMARY POWER FROM THE BUILDING WIRING PROVIDED THAT SUCH WIRING IS SERVED FROM A COMMERCIAL SOURCE AND SHALL BE EQUIPPED WITH A BATTERY BACKUP. RESIDENTIAL CODE R314.4
705 WHERE MORE THAN ONE SMOKE ALARM IS REQUIRED TO BE INSTALLED WITHIN AN INDIVIDUAL DWELLING OR SLEEPING UNIT, THE SMOKE ALARMS SHALL BE INTERCONNECTED SIN USCH A MANNER THAT THE ACTIVATION OF ONE ALARM WILL ACTIVATE ALL OF THE ALARMS IN THE INDIVIDUAL UNIT. RESIDENTIAL CODE R314.5
706 APPROVED BUILDING ADDRESS NUMBERS, BUILDING NUMBERS OR APPROVED BUILDING IDENTIFICATION SHALL BE PROVIDED AND MAINTAINED SO AS TO BE PLAINLY VISIBLE AND LEGIBLE FROM THE STREET FRONTING THE PROPERTY. THE MINIMUM OF 4 INCHES HIGH WITH A MINUMM STROKE WIDTH OF 0.5 INCH. FIRE CODE 505.1
707 ALL ROOF COVERINGS SHALL BE CLASS "A" AS SPECIFIED IN BUILDING CODE 1505.1.1 (RESIDENTIAL CODE R327.5.2 & R902)
708 ROOF VALLEY FLASHINGS SHALL BE NOT LESS THAN 0.019 INCH (NO.26 GALVANIZED SHEET GAGE) CORROSION-RESISTANT METAL INSTALLED OVER A MINIMUM 36-INCH WIDE UNDERLAYMENT CONSISTING OF ONE LAYER OF NO. 72 ASTM CAP SHEET MEETING RUNNING THE FULL LEGHTH OF THE VALLEY (RESIDENTIAL CODE R327.5.3 AND BUILDING CODE 705A.3
709 ROOF GUTTERS SHALL BE PROVIDED WITH A MEANS OTO PREVENT THE ACCUMULATION OF LEAVES AND DEBRIS IN THE GUTTER. (RESIDENTIAL CODE R327.534 AND BUILDING GCODE 705A.4)
710 VENTS SHALL RESIST THE INTRUSION OF FLAME AND EMBERS AND FLAME THROUGH THE VENTILATION OPENINGS. VENT OPENINGS SHALL BE PROTECTED BY CORROSION - RESISTANT, NONCOMBUSTIBLE WIRE MESH WITH A MINIMUM 1/14TH INCH OPENINGS AND SHALL NOT EXCEED 1/8TH INCH. VENTS SHALL NOT BE INSTALLED IN EAVES OR CORNICES. (RESIDENTIAL CODE R327.6.1 AND BUILDING CODE 706A.1)
711 CLEARANCE OF BRUSH AND VEGETATIVE GROWTH SHALL BE MAINTAINED PER FIRE CODE 325.
712 PROVIDE APPROVED SIGNS OR OTHER APPROVED NOTICES OR MARKINGS THAT INCLUDE THE WORDS NO PARKING - FIRE LANE. SIGNS SHALL HAVE A MINIMUM DIMENSION OF 12 INCHES WIDE BY 18 INCHES HIGH AND HAVE RED LETTERS ON A WHITE REFLECTIVE BACKGROUND. SIGNS SHALL BE PROVIDED FOR FIRE APPARATUS ACCESS ROADS, TO CLEARLY INDICATE THE ENTRANCE TO SUCH ROAD, OR PROHIBIT THE OBSTRUCTION THEREOF AND AT INTERVALS, AS REQUIRED BY THE FIRE INSPECTOR. FIRE CODE 503.3.
713 ALL FIRE HYDRANTS SHALL MEASURE 6"" X 4"" X 2-1/2"", BRASS OR BRONZE, CONFORMING TO AMERICAN WATER WORKS ASSOCIATION STANDARD C503, OR APPROVED EQUAL.
714 ALL ON-SITE FIRE HYDRANTS SHALL BE INSTALLED, TESTED AND APPROVED PRIOR TO BUILDING OCCUPANCY. FIRE CODE 901.5.1
715 ROOF LADDER ACCESS

Project No

1813

Project Name
VILLA COLEAVA

Project Address
25200 Pacific Coast Hwy.
Malibu, California, USA

Property Owner
PAR PCH, LLC
PO Box 6528
Malibu, CA 90265

Design Architect
Oppenheim Architecture
245 NE 37 Street
Miami FL 33137
P 305 576 8404
F 305 576 8433
W oppenoffice.com

Landscape Architect
[place]
3617 exposition boulevard
Los Angeles, CA 90016
P 310-450-8100
F 323-737-3290
W plac-e.com

Civil Engineers
LC Engineering Group
889 Pierce Ct., Ste. 101
Thousand Oaks, CA 91360
P 805-497-1244
P 818-991-7148
W lcegroupinc.com

COUNTY OF LOS ANGELES
FIRE DEPARTMENT
FIRE PREVENTION ENGINEERING
APPROVED
ACCESS REQUIREMENTS ONLY
By Johnnie McGee
Fire Prevention Engineer
Date 12/30/2021
PLAN# FEPC 2021-0250

COUNTY OF LOS ANGELES
FIRE DEPARTMENT
FIRE PREVENTION ENGINEERING
APPROVED
FIRE HYDRANT LOCATION ONLY
By Johnnie McGee
Fire Prevention Engineer
Date 12/30/2021
PLAN# FEPC 2021-0250

Revisions

REQUIRED FIRE FLOW
1500 GPM @ 20 PSI FOR 1 HOURS

ROOM NAMES

01 LIVING ROOM
02 DINING ROOM
03 KITCHEN
04 SERVICE KITCHEN
05 POWDER ROOM
06 PANTRY
07 FAMILY ROOM
08 OUTDOOR KITCHEN
09 BEDROOM
10 BATHROOM
11 COURTYARD
12 MASTER BEDROOM
13 MASTER BATHROOM
14 MASTER CLOSET
15 POOL
16 POOL DECK
17 WATER FEATURE
18 TERRACE
19 FIRE PIT
20 OFFICE
21 OUTDOOR SHOWER
22 STORAGE
23 FIREPLACE
24 GYM
25 STEAM ROOM
26 SAUNA
27 MASSAGE ROOM
28 LAUNDRY
29 MUD ROOM
30 WINE STORAGE
31 GARAGE
32 LIGHTWELL
33 OUTDOOR BATHROOM
34 SUNKEN TUB
35 MINI BAR
36 COLD PLUNGE POOL
37 HOT TUB

Mark	Date	Description

Title
SITE PLAN

1/64" = 1'-0"

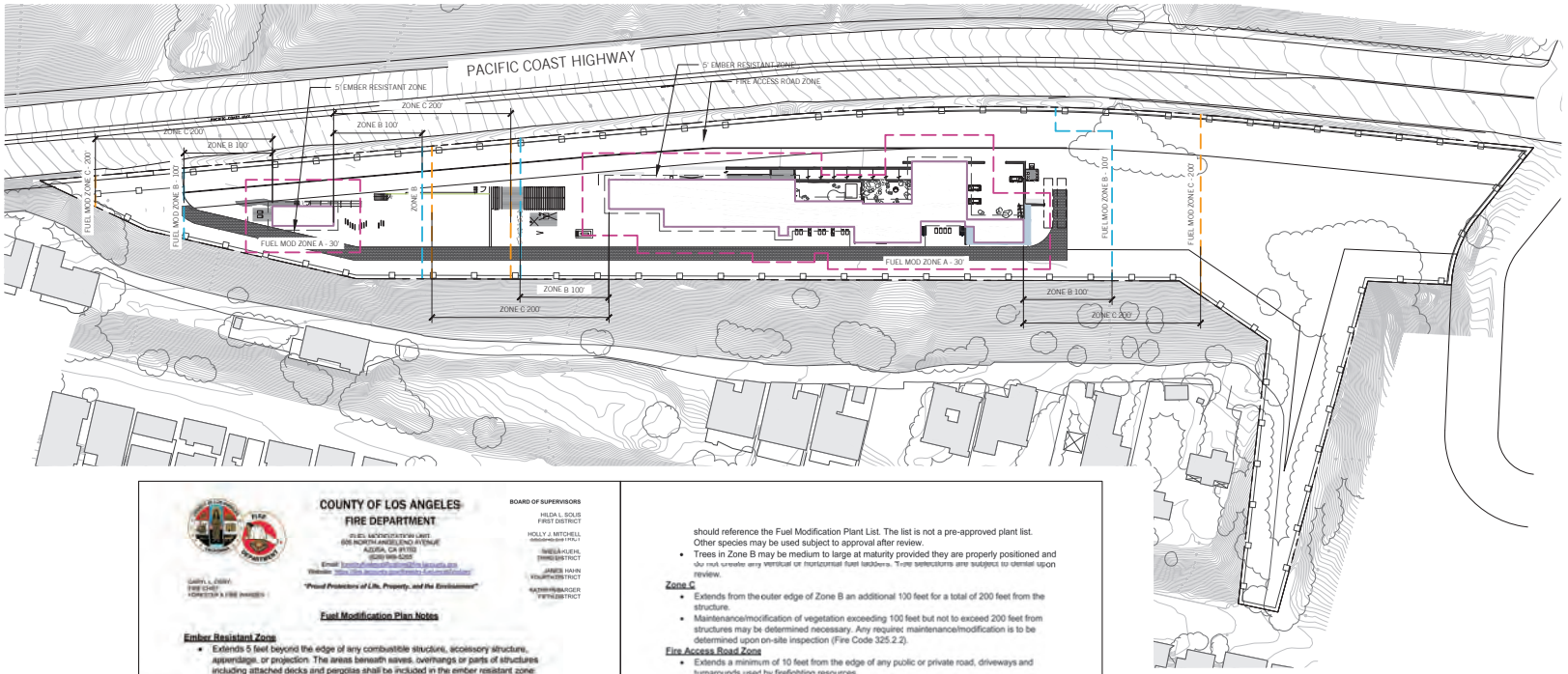
NOT FOR CONSTRUCTION

Design Development

1813
VILLA COLEAVA

Drawing Issued on 10/29/21

A100



COUNTY OF LOS ANGELES
FIRE DEPARTMENT

FUEL MODIFICATION UNIT
605 NORTH ANGELENO AVENUE
AZUSA, CA 91702
(626) 969-5205

"Proud Protectors of Life, Property, and the Environment"

BOARD OF SUPERVISORS
HILDA L. SOLIS
FIRST DISTRICT
HOLLY J. MITCHELL
SECOND DISTRICT
SHEILA KUEHL
THIRD DISTRICT
JANICE HAHN
FOURTH DISTRICT
KATHRYN BARGER
FIFTH DISTRICT

Fuel Modification Plan Notes

Ember Resistant Zone

- Extends 5 feet beyond the edge of any combustible structure, accessory structure, appendage, or projection. The area beneath eaves, overhangs or parts of structures including attached decks and pergolas shall be included in the ember resistant zone.
- This area shall be free of materials or landscaping known to be receptive to flying embers.

Zone A

- Extends 30 feet beyond the edge of any combustible structure, accessory structure, appendage, or projection. Projections such as eaves, covered entryways, attached pergolas, decks etc. shall be the point at which this distance is measured.
- Irrigation shall be provided to maintain healthy vegetation and fire resistance.
- Vegetation in this zone shall consist primarily of mowed grasses, low growing ground covers and adequately spaced shrubs. The overall density and arrangement shall provide adequate defensible space and significantly reduce fire intensity.
- Plant species selected for Zone A shall possess characteristics which increase fire resistance. Such characteristics are high moisture content, plants producing little leaf litter, slow growing plants and plants that do not require pruning to reduce their size at maturity. Species selection should reference the Fuel Modification Plant List. The list is not a pre-approved plant list. Other species may be used subject to approval after review.
- Trees are generally not recommended except for dwarf varieties or mature trees less than 25' tall and wide at maturity. Trees shall be positioned so their canopies do not extend over the roof of any structure.
- Vines and climbing plants are not allowed on any combustible structure requiring review.

Zone B

- Extends from the outer edge of Zone A an additional 70 feet for a total of 100 feet from the structure.
- Irrigation shall be provided to maintain healthy vegetation and fire resistance.
- Vegetation in this zone shall be arranged in a manner that does not create vertical or horizontal fuel ladders. Vegetation in this zone can be planted at a slightly higher density than Zone A but the overall density and arrangement shall provide adequate defensible space and significantly reduce fire intensity.
- Existing California native plants may be approved to remain if determined to be acceptable upon review and are properly spaced and maintained.
- Plant species selected for Zone B shall possess characteristics which increase fire resistance. Such characteristics are high moisture content, plants producing little leaf litter, slow growing plants and plants that do not require pruning to reduce their size at maturity. Species selection should reference the Fuel Modification Plant List. The list is not a pre-approved plant list. Other species may be used subject to approval after review.
- Trees in Zone B may be medium to large at maturity provided they are properly positioned and do not create any vertical or horizontal fuel ladders. Tree selections are subject to clerical upon review.

Zone C

- Extends from the outer edge of Zone B an additional 100 feet for a total of 200 feet from the structure.
- Maintenance/modification of vegetation exceeding 100 feet but not to exceed 200 feet from structures may be determined necessary. Any required maintenance/modification is to be determined upon on-site inspection (Fire Code 325.2.2).

Fire Access Road Zone

- Extends a minimum of 10 feet from the edge of any public or private road, driveways and turnarounds used by firefighting resources.
- Clear and remove flammable vegetation on each side of access roads (Fire Code 325.10).
- Fire access roads shall have an unobstructed vertical clearance a minimum width of 20' and vertically clear to the sky (Fire Code 503.2.1).
- Additional clearance beyond 10 feet may be required upon an on-site inspection.
- All proposed plantings, unless otherwise approved, shall be positioned so they do not obstruct access at maturity. Pruning will not be considered as an alternative to plant selection.

Maintenance

Routine maintenance shall be regularly performed in all zones. Above all else, regular maintenance is paramount to the fire resistance of a well-planned fire-resistant landscape. Critical items are outlined below. Additional information may be found on our website listed in the header of this document.

- Start with the structure. Remove leaf litter and other combustible debris from roofs, eaves, rain gutters etc.
- Ensure the ember resistant zone is maintained free of any material known to be receptive to flying embers.
- Remove any plant or portion or a plant that is dead or dying throughout all zones.
- Remove downed, accumulated plant litter and dead wood throughout all zones.
- Prune to reduce the overall amount and continuity of fuels. Eliminate horizontal and vertical fuel ladders throughout all zones.
- All invasive species and their parts should be removed from the site.
- Ensure irrigation systems are functioning properly.
- Compliance with the fire code is a year-round responsibility. Enforcement will occur following inspection by the Fire Department. Annual inspections for brush clearance code requirements are conducted following the natural drying of fine fuels between the months of April and June depending on the geographic region each dwelling exists.
- Inspection for compliance with an approved fuel modification plan may occur at any time.
- All future planting shall be in accordance with the County of Los Angeles Fire Department Fuel Modification Guidelines and approved prior to installation.

Approval of this Fuel Modification Plan constitutes approval for only those Codes reviewed as part of the Fuel Modification process and does not replace the needed approval of any other office or agency with jurisdiction and review responsibility for those items which may or may not be illustrated on the plan.

SERVING THE UNINCORPORATED AREAS OF LOS ANGELES COUNTY AND THE CITIES OF:

AGOURA HILLS	CARSON	EL MONTE	HIDDEN HILLS	LAWNDALE	PICO RIVERA	SIGNAL HILL
ARTESIA	CERRITOS	GARDENA	IRWINDALE	LOMITA	POMONA	SOUTH EL MONTE
AZUSA	CLAREMONT	GLENDORA	LA CANADA-FLINTRIDGE	LYNWOOD	RANCHO PALOS VERDES	SOUTH GATE
BALDWIN PARK	COMMERCE	HAWAIIAN GARDENS	LA HABRA	MALIBU	ROLLING HILLS	TEMPLE CITY
BELL	COVINA	HAWTHORNE	LA MIRADA	MAYWOOD	ROLLING HILLS ESTATES	VERNON
BELL GARDENS	CUDAHY	HERMOSA BEACH	LA PUENTE	NORWALK	ROSEMEAD	WALNUT
BELLFLOWER	DIAMOND BAR	HIDDEN HILLS	LAKEWOOD	PALMDALE	SAN DIMAS	WEST HOLLYWOOD
BRADBURY	DUARTE	HUNTINGTON PARK	LANCASTER	PALOS VERDES ESTATES	SANTA CLARITA	WESTLAKE VILLAGE
CALABASAS		INDUSTRY		PARAMOUNT		WHITTIER

FUEL MOD LEGEND

SYMBOL	FUEL MOD ZONE
	Building Perimeter
	5' Buffer
	Fuel Mod Zone B - 30'
	Fuel Mod Zone C - 100'
	Fuel Mod Zone D - 200'

10945
COUNTY OF LOS ANGELES
FIRE DEPARTMENT
PREVENTION SERVICES BUREAU
PRELIMINARY
FUEL MODIFICATION PLAN

By _____ Date _____
E=daniel.sheng@fire.lacounty.gov, O=LACoFD Forestry, OU=Fuel Modification Unit, CN=Daniel Sheng
2022.12.12 15:43:00-08'00'
FUEL MODIFICATION UNIT
The stamping of this plan and specifications SHALL NOT be held to permit or to be an approval of the violation of any provisions of any County/City or State law

FUEL MOD PLAN
SCALE: 1/64" = 1'-0"

1

NOT FOR CONSTRUCTION

[place]
[pakshong landscape and architectural collaborative]
3617 exposition boulevard los angeles ca 90016
310 450 8100 fax 323 737 3290

CONSULTANTS

Property Owner
PAR PCH, LLC
PO Box 6528
Malibu, CA 90265

Design Architect
OPPENHEIM ARCHITECTURE
245 NE 37 Street
Miami, FL 33137
P 305 576 8404
F 305 576 8433
www.oppenoffice.com

Civil Engineers
LC ENGINEERING GROUP
889 Pierce Ct., Ste. 101
Thousand Oaks, CA 91360
P 805 497 1244
F 818 991 7148
www.lcegroupinc.com

NAME OF ISSUE

KEY PLAN

VILLA COLEAVA

25200 Pacific Coast Highway
Malibu, CA 90265

Project # : 1913
Drawn by : VP
Scale : 1/64" = 1'-0"

N

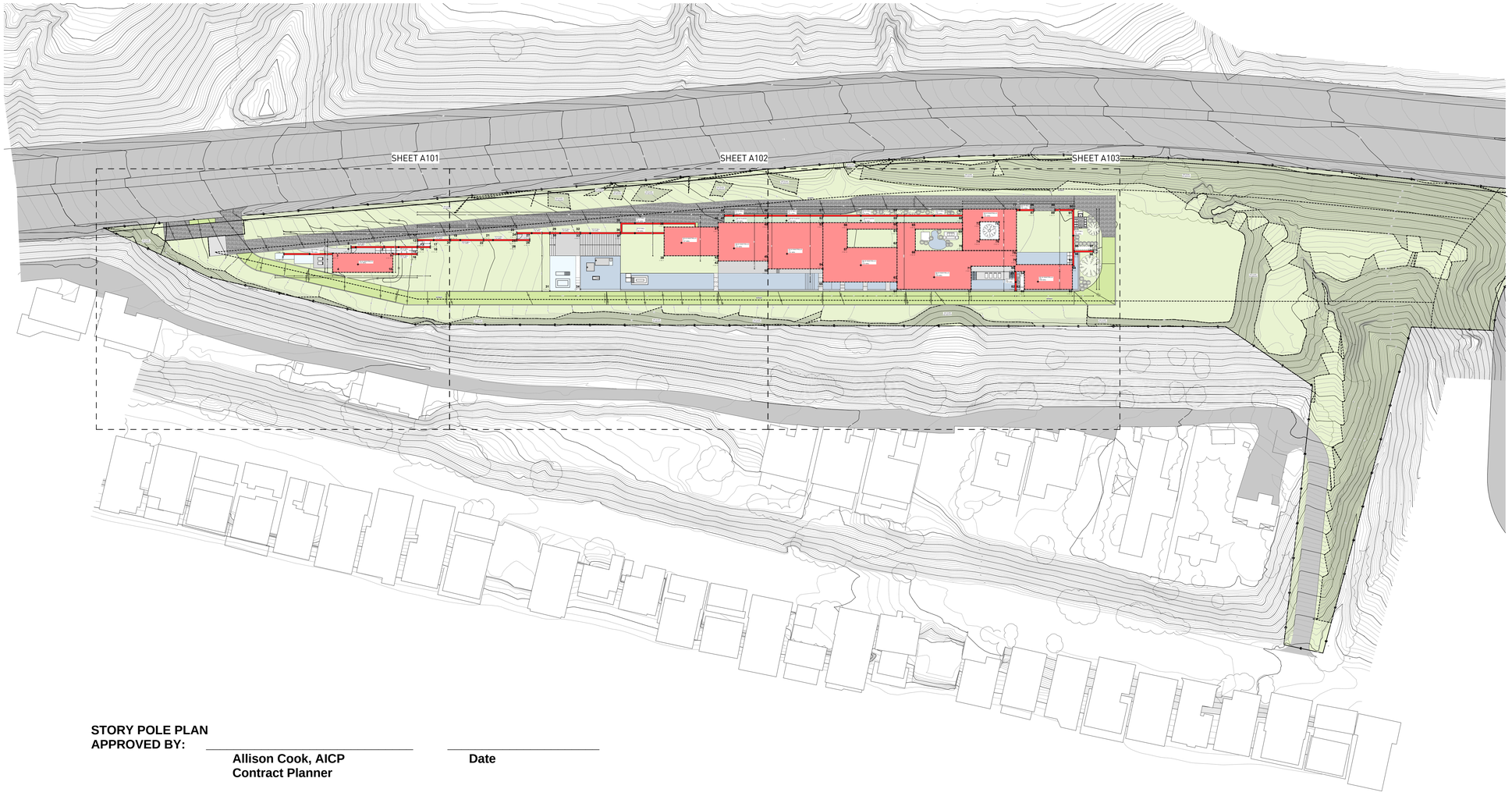
Description:	Date:	No.
PLANNING SUBMITTAL	02/17/21	
PRELIMINARY FUEL MOD	10/30/23	

PROJECT NO: 1913

These drawings, specifications, ideas, designs, and arrangements presented thereby, are and shall remain the property of [place]. No part thereof shall be copied, disclosed to others or used in connection with any work or project other than the specific project for which they have been prepared and developed without the written consent of [place]. Visual contact with these drawings or specifications shall constitute conclusive evidence of acceptance of these restrictions.

SHEET TITLE:
FUEL
MOD PLAN

L1.00



STORY POLE ELEVATIONS

POLE NUMBER	TOP ELEVATION	EXISTING GRADE	HEIGHT FROM EXISTING GRADE	PROPOSED GRADE	HEIGHT FROM PROPOSED GRADE
1	108'AMSL	97'-9"AMSL	10'-3"	102'AMSL	6'
2	108'AMSL	97'-9"AMSL	10'-3"	102'AMSL	6'
3	112'AMSL	100'-6"AMSL	11'-6"	100'-6"AMSL	11'-6"
4	112'AMSL	100'-3"AMSL	11'-9"	100'-3"AMSL	11'-9"
5	108'AMSL	102'AMSL	6'	102'AMSL	6'
6	108'AMSL	102'AMSL	6'	102'AMSL	6'
7	110'AMSL	104'AMSL	6'	104'AMSL	6'
8	110'AMSL	104'AMSL	6'	104'AMSL	6'
9	112'AMSL	104'-2"AMSL	7'-10"	104'AMSL	8'
10	112'AMSL	104'AMSL	8'	104'AMSL	8'
11	112'AMSL	106'-2"AMSL	5'-10"	106'-2"AMSL	5'-10"
12	112'AMSL	106'AMSL	6'	106'AMSL	6'
13	112'AMSL	106'AMSL	6'	106'AMSL	6'
14	112'AMSL	106'AMSL	6'	106'AMSL	6'
15	112'AMSL	105'-7"AMSL	6'-5"	105'-7"AMSL	6'-5"
16	112'AMSL	105'-7"AMSL	6'-5"	105'-7"AMSL	6'-5"
17	112'AMSL	106'-6"AMSL	5'-6"	106'-6"AMSL	5'-6"
18	112'AMSL	106'-6"AMSL	5'-6"	106'-6"AMSL	5'-6"
19	114'AMSL	108'AMSL	6'	108'AMSL	6'
20	114'AMSL	108'AMSL	6'	108'AMSL	6'
21	116'AMSL	110'AMSL	6'	110'AMSL	6'
22	116'AMSL	110'AMSL	6'	110'AMSL	6'
23	118'AMSL	112'AMSL	6'	112'AMSL	6'
24	118'AMSL	112'-6"AMSL	5'-6"	112'-6"AMSL	5'-6"
25	118'AMSL	112'-4"AMSL	5'-8"	112'-4"AMSL	5'-8"
26	118'AMSL	112'-3"AMSL	5'-9"	112'-3"AMSL	5'-9"
27	118'AMSL	113'-3"AMSL	4'-9"	113'-3"AMSL	4'-9"
28	118'AMSL	113'-2"AMSL	4'-10"	113'-2"AMSL	4'-10"
29	120'AMSL	114'-10"AMSL	5'-2"	114'-10"AMSL	5'-2"
30	120'AMSL	114'-9"AMSL	5'-3"	114'-9"AMSL	5'-3"
31	116'AMSL	113'-2"AMSL	2'-10"	113'-2"AMSL	2'-10"
32	128'AMSL	115'-7"AMSL	12'-5"	115'-7"AMSL	12'-5"
33	128'AMSL	115'-7"AMSL	12'-5"	116'-6"AMSL	11'-6"
34	128'AMSL	115'AMSL	13'	116'AMSL	12'
35	123'AMSL	118'-8"AMSL	4'-4"	115'-2"AMSL	7'-10"
36	130'AMSL	112'-8"AMSL	11'-8"	123'AMSL	7'
37	130'AMSL	112'-8"AMSL	11'-8"	128'AMSL	2'
38	137'AMSL	120'-5"AMSL	16'-5"	123'AMSL	14'
39	137'AMSL	120'-6"AMSL	16'-8"	128'AMSL	9'
40	142'AMSL	119'-1"AMSL	17'-11"	128'AMSL	10'-6"
41	137'AMSL	124'AMSL	13'	118'AMSL	24'
42	137'AMSL	123'-4"AMSL	13'-8"	128'AMSL	10'-6"
43	142'AMSL	124'AMSL	18'	128'AMSL	14'
44	129'AMSL	125'AMSL	4'	118'AMSL	11'
45	129'AMSL	125'AMSL	4'	118'AMSL	11'
46	133'AMSL	127'AMSL	6'	127'AMSL	6'
47	133'AMSL	127'AMSL	6'	130'AMSL	3'
48	144'AMSL	126'-6"AMSL	17'-6"	130'AMSL	14'
49	142'AMSL	126'-3"AMSL	15'-9"	128'AMSL	14'
50	144'AMSL	126'AMSL	18'	128'AMSL	16'
51	136'AMSL	130'AMSL	6'	124'AMSL	12'
52	136'AMSL	130'AMSL	6'	130'AMSL	6'
53	146'AMSL	130'AMSL	16'	130'AMSL	16'
54	144'AMSL	129'AMSL	15'	130'AMSL	14'
55	146'AMSL	129'AMSL	17'	130'AMSL	16'
56	146'AMSL	130'AMSL	16'	132'AMSL	14'
57	146'AMSL	130'AMSL	16'	132'AMSL	14'
58	140'AMSL	132'-6"AMSL	7'-6"	128'AMSL	12'
59	140'AMSL	132'-6"AMSL	7'-6"	134'AMSL	6'
60	148'AMSL	133'AMSL	16'	131'-2"AMSL	16'-6"
61	146'AMSL	132'AMSL	14'	132'AMSL	14'
62	146'AMSL	131'AMSL	15'	132'AMSL	14'
63	146'AMSL	130'AMSL	16'	132'AMSL	14'
64	148'AMSL	130'AMSL	18'	132'AMSL	16'
65	148'AMSL	132'AMSL	16'	134'AMSL	14'
66	148'AMSL	133'AMSL	15'	134'AMSL	14'
67	144'AMSL	134'AMSL	10'	132'AMSL	12'
68	144'AMSL	133'-4"AMSL	10'-6"	134'AMSL	10'
69	148'AMSL	133'AMSL	15'	134'AMSL	14'
70	148'AMSL	132'-6"AMSL	15'-6"	134'AMSL	14'
71	148'AMSL	132'AMSL	16'	134'AMSL	14'
72	148'AMSL	131'AMSL	17'	134'AMSL	14'
73	144'AMSL	133'6"AMSL	10'-6"	132'AMSL	12'
74	144'AMSL	133'AMSL	11'	132'AMSL	12'
75	144'AMSL	134'AMSL	10'	132'AMSL	12'
76	144'AMSL	134'AMSL	10'	132'AMSL	12'
77	144'AMSL	135'AMSL	9'	132'AMSL	12'
78	148'AMSL	134'AMSL	14'	134'AMSL	14'
79	148'AMSL	133'AMSL	15'	134'AMSL	14'
80	148'AMSL	133'AMSL	15'	134'AMSL	14'
81	148'AMSL	133'AMSL	15'	134'AMSL	14'
82	148'AMSL	132'-5"AMSL	15'-7"	135'AMSL	13'
83	148'AMSL	132'-6"AMSL	15'-6"	135'AMSL	13'
84	148'AMSL	133'-6"AMSL	14'-6"	136'AMSL	12'
85	148'AMSL	133'AMSL	15'	136'AMSL	12'
86	144'AMSL	135'AMSL	9'	134'AMSL	10'
87	144'AMSL	135'AMSL	9'	134'AMSL	10'
88	144'AMSL	135'AMSL	9'	134'AMSL	10'
89	144'AMSL	135'AMSL	9'	134'AMSL	10'
90	144'AMSL	136'-3"AMSL	7'-9"	134'AMSL	10'
91	144'AMSL	136'AMSL	8'	134'AMSL	10'
92	148'AMSL	135'AMSL	13'	135'AMSL	9'
93	148'AMSL	135'AMSL	13'	135'AMSL	9'
94	144'AMSL	135'AMSL	9'	135'AMSL	9'
95	144'AMSL	135'AMSL	9'	135'AMSL	9'
96	144'AMSL	135'AMSL	9'	136'AMSL	8'
97	144'AMSL	135'AMSL	9'	134'AMSL	10'
98	144'AMSL	134'-4"AMSL	9'-8"	136'AMSL	8'

LEGEND		
WALL		
ROOF/TRELLIS		

STORY POLE PLAN
APPROVED BY: _____ _____

Allison Cook, AICP **Date**
Contract Planner

I hereby absolve the City of any liability associated with the construction of, or damage caused by, the placement of these approved story poles.

_____ **04/10/2025**

(Print Owner's Name) **Date**

KEY NOTES:

SITE

001 MAINTAIN ALL WATER RUNOFF WITHIN PROPERTY. SLOPE AWAY FROM P.L. AT A MIN. SLOPE OF ¼" /FT., REFER TO CIVIL DWGS.
002 TREES/LANDSCAPING PLANTING/GROUND COVER/LAWN, REFER TO LANDSCAPE DWGS.
003 HEDGE. REFER TO LANDSCAPE DWGS.
004 HARDSCAPE. REFER TO LANDSCAPE DWGS.
005 DRIVEWAY. GRAVEL ON GRADE. REFER TO CIVIL & LANDSCAPE DWGS.
006 WOOD DECK. SIZE OF PLANKS T.B.D. FINISH T.B.D.
007 UNDERGROUND DRAINAGE SYSTEM. REFER TO CIVIL DWGS.
008 INFINITY POOL EDGE.
009 OPEN PARKING, REFER TO CIVIL FOR DETAILS
010 6'-0" SITE RETAINING WALL. REFER TO STRUCTURAL AND LANDSCAPE DWGS.
011 PEDESTRIAN GATE DOOR. PROVIDE SHOP DWGS. FOR ARCHITECT REVIEW.
012 42" MOTORIZED VEHICULAR SLIDING ENTRY GATE. STEEL FRAME. 90% VISUALLY PERMEABLE.
013 42" PERIMETER FENCE. 90% VISUALLY PERMEABLE.
014 CALL BOX
015 TRASH ENCLOSURE AREA
016 STRUCTURAL GRASS DRIVEWAY. GRASSCRETE OR SIMILAR. REFER TO CIVIL & LANDSCAPE DWGS.
017 GENERATOR ON EXISTING CONCRETE PLINTH, BOTTOM OF GENERATOR TO BE ABOVE BFE +1', REFER TO ELECTRICAL DWGS.
018 A/C CONDENSER UNITS BEHIND LANDSCAPE, BOTTOM OF UNITS TO BE ABOVE BFE +1', REFER TO MECHANICAL DWGS.
019 NATURAL LAWN AREA. REFER TO LANDSCAPE DWGS.

MATERIALS

100 ARCHITECTURAL EXPOSED CONCRETE, COLOR T.B.D. REFER TO STRUCTURAL DRAWINGS AND ARCHITECTURAL DETAILS.
101 CUSTOM WOOD DOOR. REFER TO DOOR SCHEDULE.
102 IMPACT RESISTANT SLIDING ALUMINUM WINDOWS / DOORS SYSTEM, LOW-E COATING. REFER TO WINDOW SCHEDULE.
103 PRE-FABRICATED SKYLIGHT ON CONCRETE CURB. REFER TO WINDOW SCHEDULE. SEE SECTION AND DETAILS.
104 GARAGE STEEL DOOR CLADDED WITH CUSTOM CONCRETE PANELS. REFER TO DOOR SCHEDULE.
105 GRAVEL.
106 5/8" G.W.B., FINISH T.B.D.; REFER TO I.D. DWGS.
107 3/8" THERMOCROMEX LIMESTONE PLASTER, SAND FINISH, COLOR T.B.D. 3/8" TYPICAL.
108 TRELLIS. 50 PERCENT OPEN TO THE SKY. DEPTH OF SLOTS TO BE EQUAL TO OR LESS THAN THE WIDTH OF EACH SLOT. PROVIDE SHOP DWGS.
109 REFER TO INTERIOR DESIGN DRAWINGS AND FINISH SCHEDULE.
110 RAMMED EARTH CONSTRUCTION.
111 STONE BENCH.

STRUCTURAL

200 FOUNDATION AND PILES. REFER TO STRUCT. DWGS.
201 COMPACTED EARTH. REFER TO STRCUT. DWGS.
202 RETAINING WALL. REFER TO STRUCT. DWGS.
203 CONCRETE SLAB. REFER TO STRUCT. DWGS.
204 CONCRETE COLUMN. REFER TO STRUCT. DWGS.
205 CONCRETE BEAM. REFER TO STRUCT. DWGS.
206 STEEL COLUMN. REFER TO STRUCT. DWGS.
207 CONCRETE STAIRS. REFER TO STRUCT. DWGS.
208 CONCRETE SHELL FOR POOL. REFER TO STRUCT. DWGS.
209 8" CMU REINFORCED WALL. REFER TO WALL TYPES AND STRUCT. DWGS
210 PROVIDE 2" RECESS ON SLABS ON ALL SHOWERS.
211 OPENING ON CONCRETE SLAB. REFER TO STRUCT. DWGS.

MEP

300 LIGHT FIXTURE/ SEE ARCH. RCP, ELECTRICAL DWGS. AND LIGHTING SPECIFICATIONS.
301 A/C PLENUM SPACE, REFER TO MECHANICAL DWGS. AND RCP. NO COMBUSTIBLES ALLOWED.
302 ROOF DRAIN, REFER TO PLUMBING DWGS. /SEE DETAIL.
303 FLOOR DRAIN, REFER TO PLUMBING DWGS./ SEE DETAIL.
304 DRAIN PIPE TO FIT IN CEILING SPACE, REFER TO PLUMBING DWGS. COORDINATE EXACT LOCATION AND SPECS.
305 KITCHEN HOOD, REFER TO MECH DWGS.
306 KITCHEN HOOD EXHAUST PIPE TO FIT IN CEILING SPACE, REFER TO MECH DWGS. COORDINATE EXACT LOCATION AND SPECS.
307 DESIGNATED POOL EQUIPMENT AREA.
308 GAS WATER HEATER. REFER TO PLUMBING DWGS.
309 ELECTRICAL PANELS. REFER TO ELECTRICAL DWGS.
310 CONDENSER UNITS ON STANDS. REFER TO MECH. DWGS.
311 MINIMUM R:30 BATT INSULATION OR RIGID INSULATION. REFER TO ENERGY CALCULATIONS.
312 ACOUSTICAL INSULATION.
313 MISTING SYSTEM. REFER TO PLUMBING DWGS.
314 SPRINKLER SYSTEM. REFER TO PLUMBING DWGS.
315 HOSE BIB. REFER TO PLUMBING AND LANDSCAPE DWGS.
316 ELECTRICITY, GAS AND WATER. REFER TO MEP DRAWINGS.
317 MOTORIZED VEHICULAR GATE. REFER TO ELECT. DWGS.
318 ALL TOILETS TO BE WALL HUNG. REFER TO MECH. DWGS.
319 LINEAR DRAIN
320 OVERFLOW SCUPPER.

WATERPROOFING

400 CONTINUOUS VAPOR BARRIER. REFER TO ARCH AND STRUCTURAL DWGS.
401 WATERPROOFING MEMBRANE. REFER TO ARCH AND STRUCTURAL DWGS.
402 POOL FINISH/ COLOR TBD.

MISC. ARCHITECTURAL DETAILS

500 CURTAIN CEILING COVE. REFER TO ARCH. DETAIL.
501 CONTINUOUS 1/2" TOOLED WATER DRIP. SEE ARCH. DETAIL.
502 VENT.
503 KITCHEN, BUILT-IN FURNITURE, CABINETRY BY OTHERS. REFER TO KITCHEN SHOP DWGS.
504 5/8" GWB DROPPED CEILING ON 3/4" FURRING STRIPS, PAINTED GWB. COLOR TBD.
505 STAINLESS STEEL SCUPPER IN CONCRETE STRUCTURE. 3" X 3" MIN.OPENING. REFER TO ELEVATION AND PLAN FOR LOCATION.
506 CUSTOM WOOD MILLWORK, REFER TO I.D. DRAWINGS
507 SOLAR PANELS (T.B.D.)
509 CONCEALED LED SCREEN.
510 LADDER ACCESS.

LIGHTING

600 PENDANT LIGHT. REFER TO LIGHTING DWGS.
601 RECESSED DOWN LIGHT. REFER TO LIGHTING DWGS.
602 CONCEALED LINEAR LIGHT. REFER TO LIGHTING DWGS.
603 POOL LINEAR RECESSED LIGHT. REFER TO LIGHTING DWGS.
604 LANDSCAPE LIGHTING. REFER TO LIGHTING DWGS.

FIRE SAFETY

700 FIRE DEPARTMENT VEHICULAR ACCESS ROADS MUST BE INSTALLED AND MAINTAINED IN A SERVICEABLE MANNER PRIOR TO AND DURING THE TIME OF CONSTRUCTION. FIRE CODE 5001.4
701 AN APPROVED KEY BOX, LISTED IN ACCORDANCE WITH UL 1037 SHALL BE PROVIDED AS REQUIRED BY FIRE CODE 506. THE LOCATION OF EACH KEY BOX SHALL BE DETERMINED BY THE FIRE INSPECTOR.
702 ALL REQUIRED PUBLIC FIRE HYDRANTS SHALL BE INSTALLED, TESTED AND ACCEPTED PRIOR TO BEGINNING CONSTRUCTION. FIRE CODE 501.4
703 PROVIDE AN APPROVED AUTOMATIC FIRE SPRINKLER SYSTEM AS SET FORTH BY BUILDING CODE 903 AND FIRE CODE 9003. PLANS SHALL BE SUBMITTED TO THE SPRINKLER PLAN CHECK UNIT FOR REVIEW AND APPROVAL PRIOR TO INSTALLATION.
704 SMOKE ALARMS SHALL RECEIVE THEIR PRIMARY POWER FROM THE BUILDING WIRING PROVIDED THAT SUCH WIRING IS SERVED FROM A COMMERCIAL SOURCE AND SHALL BE EQUIPPED WITH A BATTERY BACKUP. RESIDENTIAL CODE R314.4
705 WHERE MORE THAN ONE SMOKE ALARM IS REQUIRED TO BE INSTALLED WITHIN AN INDIVIDUAL DWELLING OR SLEEPING UNIT, THE SMOKE ALARMS SHALL BE INTERCONNECTED SIN USCH A MANNER THAT THE ACTIVATION OF ONE ALARM WILL ACTIVATE ALL OF THE ALARMS IN THE INDIVIDUAL UNIT. RESIDENTIAL CODE R314.5
706 APPROVED BUILDING ADDRESS NUMBERS, BUILDING NUMBERS OR APPROVED BUILDING IDENTIFICATION SHALL BE PROVIDED AND MAINTAINED SO AS TO BE PLAINLY VISIBLE AND LEGIBLE FROM THE STREET FRONTING THE PROPERTY. THE MINIMUM OF 4 INCHES HIGH WITH A MINIMM STROKE WIDTH OF 0.5 INCH. FIRE CODE 505.1
707 ALL ROOF COVERINGS SHALL BE CLASS "A" AS SPECIFIED IN BUILDING CODE 1505.1.1 (RESIDENTIAL CODE R327.5.2 & R902)
708 ROOF VALLEY FLASHINGS SHALL BE NOT LESS THAN 0.019 INCH (NO.26 GALVANIZED SHEET GAGE) CORROSION-RESISTANT METAL INSTALLED OVER A MINIMUM 36-INCH WIDE UNDERLAYMENT CONSISTING OF ONE LAYER OF NO. 72 ASTM CAP SHEET MEETING RUNNING THE FULL LEGHTH OF THE VALLEY (RESIDENTIAL CODE R327.5.3 AND BUILDING CODE 705A.3
709 ROOF GUTTERS SHALL BE PROVIDED WITH A MEANS OTO PREVENT THE ACCUMULATION OF LEAVES AND DEBRIS IN THE GUTTER. (RESIDENTIAL CODE R327.534 AND BUILDING GCODE 705A.4)
710 VENTS SHALL RESIST THE INTRUSION OF FLAME AND EMBERS AND FLAME THROUGH THE VENTILATION OPENINGS. VENT OPENINGS SHALL BE PROTECTED BY CORROSION- RESISTANT, NONCOMBUSTIBLE WIRE MESH WITH A MINIMUM 1/1ATH INCH OPENINGS AND SHALL NOT EXCEED 1/8TH INCH. VENTS SHALL NOT BE INSTALLED IN EAVES OR CORNICES. (RESIDENTIAL CODE R327.6.1 AND BUILDING CODE 706A.1)
711 CLEARANCE OF BRUSH AND VEGETATIVE GROWTH SHALL BE MAINTAINED PER FIRE CODE 325.
712 PROVIDE APPROVED SIGNS OR OTHER APPROVED NOTICES OR MARKINGS THAT INCLUDE THE WORDS NO PARKING - FIRE LANE. SIGNS SHALL HAVE A MINIMUM DIMENSION OF 12 INCHES WIDE BY 18 INCHES HIGH AND HAVE RED LETTERS ON A WHITE REFLECTIVE BACKGROUND. SIGNS SHALL BE PROVIDED FOR FIRE APPARATUS ACCESS ROADS, TO CLEARLY INDICATE THE ENTRANCE TO SUCH ROAD, OR PROHIBIT THE OBSTRUCTION THEREOF AND AT INTERVALS, AS REQUIRED BY THE FIRE INSPECTOR. FIRE CODE 503.3.
713 ALL FIRE HYDRANTS SHALL MEASURE 6"" X 4"" X 2-1/2"", BRASS OR BRONZE, CONFORMING TO AMERICAN WATER WORKS ASSOCIATION STANDARD C503, OR APPROVED EQUAL.
714 ALL ON-SITE FIRE HYDRANTS SHALL BE INSTALLED, TESTED AND APPROVED PRIOR TO BUILDING OCCUPANCY. FIRE CODE 901.5.1
715 ROOF LADDER ACCESS

Project No

1813

Project Name
VILLA COLEAVA

Project Address
25200 Pacific Coast Hwy.
Malibu, California, USA

Property Owner
PAR PCH, LLC
PO Box 6528
Malibu, CA 90265

Design Architect
Oppenheim Architecture
245 NE 37 Street
Miami FL 33137
P 305 576 8404
F 305 576 8433
W oppenoffice.com

Landscape Architect
[place]
3617 exposition boulevard
Los Angeles, CA 90016
P 310-450-8100
F 323-737-3290
W plac-e.com

Civil Engineers
LC Engineering Group
889 Pierce Ct., Ste. 101
Thousand Oaks, CA 91360
P 805-497-1244
P 818-991-7148
W lcegroupinc.com

Revisions

Mark	Date	Description

Title
STORY POLE PLAN

1/64" = 1'-0"

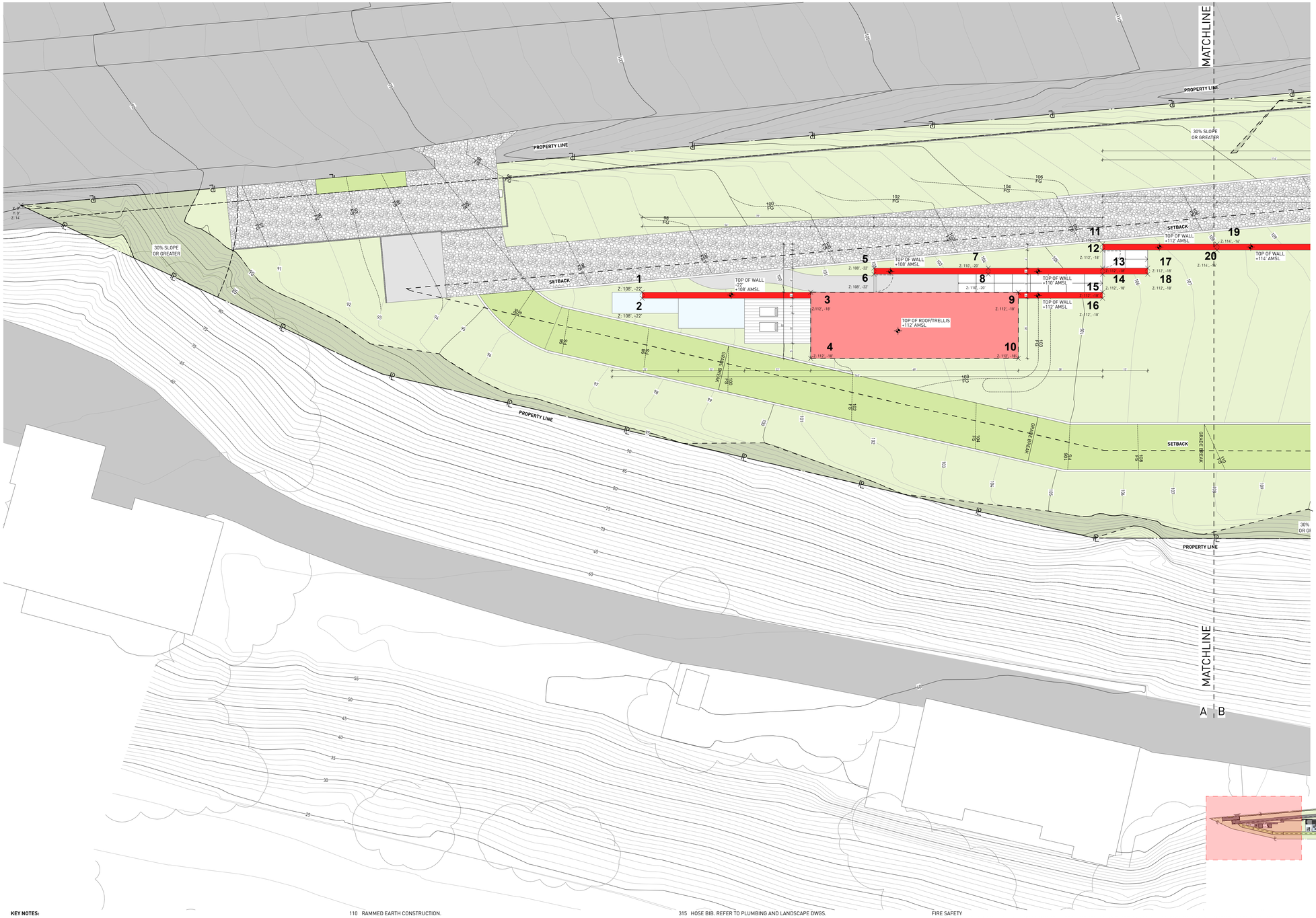
NOT FOR CONSTRUCTION

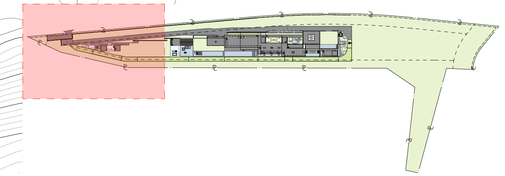
Design Development

1813
VILLA COLEAVA

Drawing Issued on 3/19/25

Z119





STORY POLE ELEVATIONS

POLE NUMBER	TOP ELEVATION	EXISTING GRADE	HEIGHT FROM EXISTING GRADE	PROPOSED GRADE	HEIGHT FROM PROPOSED GRADE
1	108'-6"AMSL	97'-9"AMSL	10'-3"	102'-6"AMSL	6'
2	108'-6"AMSL	97'-9"AMSL	10'-3"	102'-6"AMSL	6'
3	112'-6"AMSL	100'-6"AMSL	11'-6"	100'-6"AMSL	11'-6"
4	112'-6"AMSL	100'-3"AMSL	11'-9"	100'-3"AMSL	11'-9"
5	108'-6"AMSL	102'-6"AMSL	6'	102'-6"AMSL	6'
6	108'-6"AMSL	102'-6"AMSL	6'	102'-6"AMSL	6'
7	110'-6"AMSL	104'-6"AMSL	6'	104'-6"AMSL	6'
8	110'-6"AMSL	104'-6"AMSL	6'	104'-6"AMSL	6'
9	112'-6"AMSL	104'-2"AMSL	7'-10"	104'-6"AMSL	8'
10	112'-6"AMSL	104'-6"AMSL	8'	104'-6"AMSL	8'
11	112'-6"AMSL	106'-2"AMSL	5'-10"	106'-2"AMSL	5'-10"
12	112'-6"AMSL	106'-6"AMSL	6'	106'-6"AMSL	6'
13	112'-6"AMSL	106'-6"AMSL	6'	106'-6"AMSL	6'
14	112'-6"AMSL	106'-6"AMSL	6'	106'-6"AMSL	6'
15	112'-6"AMSL	105'-7"AMSL	6'-5"	105'-7"AMSL	6'-5"
16	112'-6"AMSL	105'-7"AMSL	6'-5"	105'-7"AMSL	6'-5"
17	112'-6"AMSL	106'-6"AMSL	5'-6"	106'-6"AMSL	5'-6"
18	112'-6"AMSL	106'-6"AMSL	5'-6"	106'-6"AMSL	5'-6"
19	114'-6"AMSL	108'-6"AMSL	6'	108'-6"AMSL	6'
20	114'-6"AMSL	108'-6"AMSL	6'	108'-6"AMSL	6'
21	116'-6"AMSL	110'-6"AMSL	6'	110'-6"AMSL	6'
22	116'-6"AMSL	110'-6"AMSL	6'	110'-6"AMSL	6'
23	118'-6"AMSL	112'-6"AMSL	6'	112'-6"AMSL	6'
24	118'-6"AMSL	112'-6"AMSL	5'-6"	112'-6"AMSL	5'-6"
25	118'-6"AMSL	112'-4"AMSL	5'-8"	112'-4"AMSL	5'-8"
26	118'-6"AMSL	112'-3"AMSL	5'-9"	112'-3"AMSL	5'-9"
27	118'-6"AMSL	113'-3"AMSL	4'-9"	113'-3"AMSL	4'-9"
28	118'-6"AMSL	113'-2"AMSL	4'-10"	113'-2"AMSL	4'-10"
29	120'-6"AMSL	114'-10"AMSL	5'-2"	114'-10"AMSL	5'-2"
30	120'-6"AMSL	114'-9"AMSL	5'-3"	114'-9"AMSL	5'-3"
31	116'-6"AMSL	113'-2"AMSL	2'-10"	113'-2"AMSL	2'-10"
32	128'-6"AMSL	115'-7"AMSL	12'-5"	115'-7"AMSL	12'-5"
33	128'-6"AMSL	115'-7"AMSL	12'-5"	116'-6"AMSL	11'-6"
34	128'-6"AMSL	115'AMSL	13'	116'AMSL	12'
35	123'-6"AMSL	118'-8"AMSL	4'-4"	115'-2"AMSL	7'-10"
36	130'-6"AMSL	112'-8"AMSL	11'-8"	123'AMSL	7'
37	130'-6"AMSL	112'-8"AMSL	11'-8"	128'AMSL	2'
38	137'-6"AMSL	120'-5"AMSL	16'-5"	123'AMSL	14'
39	137'-6"AMSL	120'-6"AMSL	16'-8"	128'AMSL	9'
40	142'-6"AMSL	119'-1"AMSL	17'-11"	128'AMSL	10'-6"
41	137'-6"AMSL	124'AMSL	13'	118'AMSL	24'
42	137'-6"AMSL	123'-4"AMSL	13'-8"	128'AMSL	10'-6"
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47	133'-6"AMSL	127'AMSL	6'	130'AMSL	3'
48	144'-6"AMSL	126'-6"AMSL	17'-6"	130'AMSL	14'
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53	146'-6"AMSL	130'AMSL	16'	130'AMSL	16'
54	144'-6"AMSL	129'AMSL	15'	130'AMSL	14'
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60	148'-6"AMSL	132'AMSL	16'	131'-6"AMSL	16'-6"
61	146'-6"AMSL	132'AMSL	14'	132'AMSL	14'
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67	144'-6"AMSL	134'AMSL	10'	132'AMSL	12'
68	144'-6"AMSL	133'-6"AMSL	10'-6"	134'AMSL	10'
69	149'-6"AMSL	135'AMSL	15'	134'AMSL	14'
70	148'-6"AMSL	132'-6"AMSL	15'-6"	134'AMSL	14'
71	148'-6"AMSL	132'AMSL	16'	134'AMSL	14'
72	148'-6"AMSL	131'AMSL	17'	134'AMSL	14'
73	144'-6"AMSL	133'6"AMSL	10'-6"	132'AMSL	12'
74	144'-6"AMSL	133'AMSL	11'	132'AMSL	12'
75	144'-6"AMSL	134'AMSL	10'	132'AMSL	12'
76	144'-6"AMSL	134'AMSL	10'	132'AMSL	12'
77	144'-6"AMSL	135'AMSL	9'	132'AMSL	12'
78	148'-6"AMSL	134'AMSL	14'	134'AMSL	14'
79	148'-6"AMSL	133'AMSL	15'	134'AMSL	14'
80	148'-6"AMSL	133'AMSL	15'	134'AMSL	14'
81	148'-6"AMSL	133'AMSL	15'	134'AMSL	14'
82	148'-6"AMSL	132'-5"AMSL	15'-7"	135'AMSL	13'
83	148'-6"AMSL	132'-6"AMSL	15'-6"	135'AMSL	13'
84	148'-6"AMSL	133'-6"AMSL	14'-6"	136'AMSL	12'
85	148'-6"AMSL	133'AMSL	15'	136'AMSL	12'
86	144'-6"AMSL	135'AMSL	9'	134'AMSL	10'
87	144'-6"AMSL	135'AMSL	9'	134'AMSL	10'
88	144'-6"AMSL	135'AMSL	9'	134'AMSL	10'
89	144'-6"AMSL	135'AMSL	9'	134'AMSL	10'
90	144'-6"AMSL	136'-3"AMSL	7'-9"	134'AMSL	10'
91	144'-6"AMSL	136'AMSL	8'	134'AMSL	10'
92	148'-6"AMSL	135'AMSL	13'	135'AMSL	9'
93	148'-6"AMSL	135'AMSL	13'	135'AMSL	9'
94	144'-6"AMSL	135'AMSL	9'	135'AMSL	9'
95	144'-6"AMSL	135'AMSL	9'	135'AMSL	9'
96	144'-6"AMSL	135'AMSL	9'	136'AMSL	8'
97	144'-6"AMSL	135'AMSL	9'	134'AMSL	10'
98	144'-6"AMSL	134'-4"AMSL	9'-8"	136'AMSL	8'

LEGEND	
WALL	
ROOF/TRELLIS	

KEY NOTES:

SITE

001 MAINTAIN ALL WATER RUNOFF WITHIN PROPERTY. SLOPE AWAY FROM P.L. AT A MIN. SLOPE OF ¼" /FT., REFER TO CIVIL DWGS.
002 TREES/LANDSCAPING PLANTING/GROUND COVER/LAWN, REFER TO LANDSCAPE DWGS.
003 HEDGE. REFER TO LANDSCAPE DWGS.
004 HARDSCAPE. REFER TO LANDSCAPE DWGS.
005 DRIVEWAY. GRAVEL ON GRADE. REFER TO CIVIL & LANDSCAPE DWGS.
006 WOOD DECK. SIZE OF PLANKS T.B.D. FINISH T.B.D.
007 UNDERGROUND DRAINAGE SYSTEM. REFER TO CIVIL DWGS.
008 INFINITY POOL EDGE.
009 OPEN PARKING, REFER TO CIVIL FOR DETAILS
010 4'-0" SITE RETAINING WALL. REFER TO STRUCTURAL AND LANDSCAPE DWGS.
011 PEDESTRIAN GATE DOOR. PROVIDE SHOP DWGS. FOR ARCHITECT REVIEW.
012 42" MOTORIZED VEHICULAR SLIDING ENTRY GATE. STEEL FRAME. 90% VISUALLY PERMEABLE.
013 42" PERIMETER FENCE. 90% VISUALLY PERMEABLE.
014 CALL BOX
015 TRASH ENCLOSURE AREA
016 STRUCTURAL GRASS DRIVEWAY. GRASSCRETE OR SIMILAR. REFER TO CIVIL & LANDSCAPE DWGS.
017 GENERATOR ON EXISTING CONCRETE PLINTH, BOTTOM OF GENERATOR TO BE ABOVE BFE +1', REFER TO ELECTRICAL DWGS.
018 A/C CONDENSER UNITS BEHIND LANDSCAPE, BOTTOM OF UNITS TO BE ABOVE BFE +1', REFER TO MECHANICAL DWGS.
019 NATURAL LAWN AREA. REFER TO LANDSCAPE DWGS.

MATERIALS

100 ARCHITECTURAL EXPOSED CONCRETE, COLOR T.B.D. REFER TO STRUCTURAL DRAWINGS AND ARCHITECTURAL DETAILS.
101 CUSTOM WOOD DOOR. REFER TO DOOR SCHEDULE.
102 IMPACT RESISTANT SLIDING ALUMINUM WINDOWS / DOORS SYSTEM, LOW-E COATING. REFER TO WINDOW SCHEDULE.
103 PRE-FABRICATED SKYLIGHT ON CONCRETE CURB. REFER TO WINDOW SCHEDULE. SEE SECTION AND DETAILS.
104 GARAGE STEEL DOOR CLADDED WITH CUSTOM CONCRETE PANELS. REFER TO DOOR SCHEDULE.
105 GRAVEL.
106 5/8" G.W.B., FINISH T.B.D.; REFER TO I.D. DWGS.
107 3/8" THERMOCROMEX LIMESTONE PLASTER, SAND FINISH, COLOR T.B.D. 3/8" TYPICAL.
108 TRELLIS. 50 PERCENT OPEN TO THE SKY. DEPTH OF SLOTS TO BE EQUAL TO OR LESS THAN THE WIDTH OF EACH SLOT. PROVIDE SHOP DWGS.
109 REFER TO INTERIOR DESIGN DRAWINGS AND FINISH SCHEDULE.
110 RAMMED EARTH CONSTRUCTION.
111 STONE BENCH.

STRUCTURAL

200 FOUNDATION AND PILES. REFER TO STRUCT. DWGS.
201 COMPACTED EARTH. REFER TO STRCUT. DWGS.
202 RETAINING WALL. REFER TO STRUCT. DWGS.
203 CONCRETE SLAB. REFER TO STRUCT. DWGS.
204 CONCRETE COLUMN. REFER TO STRUCT. DWGS.
205 CONCRETE BEAM. REFER TO STRUCT. DWGS.
206 STEEL COLUMN. REFER TO STRUCT. DWGS.
207 CONCRETE STAIRS. REFER TO STRUCT. DWGS.
208 CONCRETE SHELL FOR POOL. REFER TO STRUCT. DWGS.
209 8" CMU REINFORCED WALL. REFER TO WALL TYPES AND STRUCT. DWGS
210 PROVIDE 2" RECESS ON SLABS ON ALL SHOWERS.
211 OPENING ON CONCRETE SLAB. REFER TO STRUCT. DWGS.

MEP

300 LIGHT FIXTURE/ SEE ARCH. RCP, ELECTRICAL DWGS. AND LIGHTING SPECIFICATIONS.
301 A/C PLENUM SPACE, REFER TO MECHANICAL DWGS. AND RCP. NO COMBUSTIBLES ALLOWED.
302 ROOF DRAIN, REFER TO PLUMBING DWGS. /SEE DETAIL.
303 FLOOR DRAIN, REFER TO PLUMBING DWGS./ SEE DETAIL.
304 DRAIN PIPE TO FIT IN CEILING SPACE, REFER TO PLUMBING DWGS. COORDINATE EXACT LOCATION AND SPECS.
305 KITCHEN HOOD, REFER TO MECH DWGS.
306 KITCHEN HOOD EXHAUST PIPE TO FIT IN CEILING SPACE, REFER TO MECH DWGS. COORDINATE EXACT LOCATION AND SPECS.
307 DESIGNATED POOL EQUIPMENT AREA.
308 GAS WATER HEATER. REFER TO PLUMBING DWGS.
309 ELECTRICAL PANELS. REFER TO ELECTRICAL DWGS.
310 CONDENSER UNITS ON STANDS. REFER TO MECH. DWGS.
311 MINIMUM R:30 BATT INSULATION OR RIGID INSULATION. REFER TO ENERGY CALCULATIONS.
312 ACOUSTICAL INSULATION.
313 MISTING SYSTEM. REFER TO PLUMBING DWGS.
314 SPRINKLER SYSTEM. REFER TO PLUMBING DWGS.
315 HOSE BIB. REFER TO PLUMBING AND LANDSCAPE DWGS.
316 ELECTRICITY, GAS AND WATER. REFER TO MEP DRAWINGS.
317 MOTORIZED VEHICULAR GATE. REFER TO ELECT. DWGS.
318 ALL TOILETS TO BE WALL HUNG. REFER TO MECH. DWGS.
319 LINEAR DRAIN
320 OVERFLOW SCUPPER.

WATERPROOFING

400 CONTINUOUS VAPOR BARRIER. REFER TO ARCH AND STRUCTURAL DWGS.
401 WATERPROOFING MEMBRANE. REFER TO ARCH AND STRUCTURAL DWGS.
402 POOL FINISH/ COLOR TBD.

MISC. ARCHITECTURAL DETAILS

500 CURTAIN CEILING COVE. REFER TO ARCH. DETAIL.
501 CONTINUOUS 1/2" TOOLED WATER DRIP. SEE ARCH. DETAIL.
502 VENT.
503 KITCHEN, BUILT-IN FURNITURE, CABINETRY BY OTHERS. REFER TO KITCHEN SHOP DWGS.
504 5/8" GWB DROPPED CEILING ON 3/4" FURRING STRIPS, PAINTED GWB. COLOR TBD.
505 STAINLESS STEEL SCUPPER IN CONCRETE STRUCTURE. 3" X 3" MIN.OPENING. REFER TO ELEVATION AND PLAN FOR LOCATION.
506 CUSTOM WOOD MILLWORK, REFER TO I.D. DRAWINGS
507 SOLAR PANELS (T.B.D.)
509 CONCEALED LED SCREEN.
510 LADDER ACCESS.

LIGHTING

600 PENDANT LIGHT. REFER TO LIGHTING DWGS.
601 RECESSED DOWN LIGHT. REFER TO LIGHTING DWGS.
602 CONCEALED LINEAR LIGHT. REFER TO LIGHTING DWGS.
603 POOL LINEAR RECESSED LIGHT. REFER TO LIGHTING DWGS.
604 LANDSCAPE LIGHTING. REFER TO LIGHTING DWGS.

FIRE SAFETY

700 FIRE DEPARTMENT VEHICULAR ACCESS ROADS MUST BE INSTALLED AND MAINTAINED IN A SERVICEABLE MANNER PRIOR TO AND DURING THE TIME OF CONSTRUCTION. FIRE CODE 5001.4
701 AN APPROVED KEY BOX, LISTED IN ACCORDANCE WITH UL 1037 SHALL BE PROVIDED AS REQUIRED BY FIRE CODE 506. THE LOCATION OF EACH KEY BOX SHALL BE DETERMINED BY THE FIRE INSPECTOR.
702 ALL REQUIRED PUBLIC FIRE HYDRANTS SHALL BE INSTALLED, TESTED AND ACCEPTED PRIOR TO BEGINNING CONSTRUCTION. FIRE CODE 501.4
703 PROVIDE AN APPROVED AUTOMATIC FIRE SPRINKLER SYSTEM AS SET FORTH BY BUILDING CODE 903 AND FIRE CODE 9003. PLANS SHALL BE SUBMITTED TO THE SPRINKLER PLAN CHECK UNIT FOR REVIEW AND APPROVAL PRIOR TO INSTALLATION.
704 SMOKE ALARMS SHALL RECEIVE THEIR PRIMARY POWER FROM THE BUILDING WIRING PROVIDED THAT SUCH WIRING IS SERVED FROM A COMMERCIAL SOURCE AND SHALL BE EQUIPPED WITH A BATTERY BACKUP. RESIDENTIAL CODE R314.4
705 WHERE MORE THAN ONE SMOKE ALARM IS REQUIRED TO BE INSTALLED WITHIN AN INDIVIDUAL DWELLING OR SLEEPING UNIT, THE SMOKE ALARMS SHALL BE INTERCONNECTED SIN USCH A MANNER THAT THE ACTIVATION OF ONE ALARM WILL ACTIVATE ALL OF THE ALARMS IN THE INDIVIDUAL UNIT. RESIDENTIAL CODE R314.5
706 APPROVED BUILDING ADDRESS NUMBERS, BUILDING NUMBERS OR APPROVED BUILDING IDENTIFICATION SHALL BE PROVIDED AND MAINTAINED SO AS TO BE PLAINLY VISIBLE AND LEGIBLE FROM THE STREET FRONTING THE PROPERTY. THE MINIMUM OF 4 INCHES HIGH WITH A MINUMM STROKE WIDTH OF 0.5 INCH. FIRE CODE 505.1
707 ALL ROOF COVERINGS SHALL BE CLASS "A" AS SPECIFIED IN BUILDING CODE 1505.1.1 (RESIDENTIAL CODE R327.5.2 & R902)
708 ROOF VALLEY FLASHINGS SHALL BE NOT LESS THAN 0.019 INCH (NO.26 GALVANIZED SHEET GAGE) CORROSION-RESISTANT METAL INSTALLED OVER A MINIMUM 36-INCH WIDE UNDERLAYMENT CONSISTING OF ONE LAYER OF NO. 72 ASTM CAP SHEET MEETING RUNNING THE FULL LEGHTH OF THE VALLEY (RESIDENTIAL CODE R327.5.3 AND BUILDING CODE 705A.3
709 ROOF GUTTERS SHALL BE PROVIDED WITH A MEANS OTO PREVENT THE ACCUMULATION OF LEAVES AND DEBRIS IN THE GUTTER. (RESIDENTIAL CODE R327.534 AND BUILDING GCODE 705A.4)
710 VENTS SHALL RESIST THE INTRUSION OF FLAME AND EMBERS AND FLAME THROUGH THE VENTILATION OPENINGS. VENT OPENINGS SHALL BE PROTECTED BY CORROSION- RESISTANT, NONCOMBUSTIBLE WIRE MESH WITH A MINIMUM 1/14TH INCH OPENINGS AND SHALL NOT EXCEED 1/8TH INCH. VENTS SHALL NOT BE INSTALLED IN EAVES OR CORNICES. (RESIDENTIAL CODE R327.6.1 AND BUILDING CODE 706A.1)
711 CLEARANCE OF BRUSH AND VEGETATIVE GROWTH SHALL BE MAINTAINED PER FIRE CODE 325.
712 PROVIDE APPROVED SIGNS OR OTHER APPROVED NOTICES OR MARKINGS THAT INCLUDE THE WORDS NO PARKING - FIRE LANE. SIGNS SHALL HAVE A MINIMUM DIMENSION OF 12 INCHES WIDE BY 18 INCHES HIGH AND HAVE RED LETTERS ON A WHITE REFLECTIVE BACKGROUND. SIGNS SHALL BE PROVIDED FOR FIRE APPARATUS ACCESS ROADS, TO CLEARLY INDICATE THE ENTRANCE TO SUCH ROAD, OR PROHIBIT THE OBSTRUCTION THEREOF AND AT INTERVALS, AS REQUIRED BY THE FIRE INSPECTOR. FIRE CODE 503.3.
713 ALL FIRE HYDRANTS SHALL MEASURE 6"" X 4"" X 2-1/2"", BRASS OR BRONZE, CONFORMING TO AMERICAN WATER WORKS ASSOCIATION STANDARD C503, OR APPROVED EQUAL.
714 ALL ON-SITE FIRE HYDRANTS SHALL BE INSTALLED, TESTED AND APPROVED PRIOR TO BUILDING OCCUPANCY. FIRE CODE 901.5.1
715 ROOF LADDER ACCESS

Project No

1813

Project Name
VILLA COLEAVA

Project Address
25200 Pacific Coast Hwy.
Malibu, California, USA

Property Owner
PAR PCH, LLC
PO Box 6528
Malibu, CA 90265

Design Architect
Oppenheim Architecture
245 NE 37 Street
Miami FL 33137
P 305 576 8404
F 305 576 8433
W oppenoffice.com

Landscape Architect
[place]
3617 exposition boulevard
Los Angeles, CA 90016
P 310-450-8100
F 323-737-3290
W plac-e.com

Civil Engineers
LC Engineering Group
889 Pierce Ct., Ste. 101
Thousand Oaks, CA 91360
P 805-497-1244
P 818-991-7148
W lcegroupinc.com

Revisions

Mark	Date	Description

Title
ENLARGED STORY POLE PLAN A

1/16" = 1'-0"

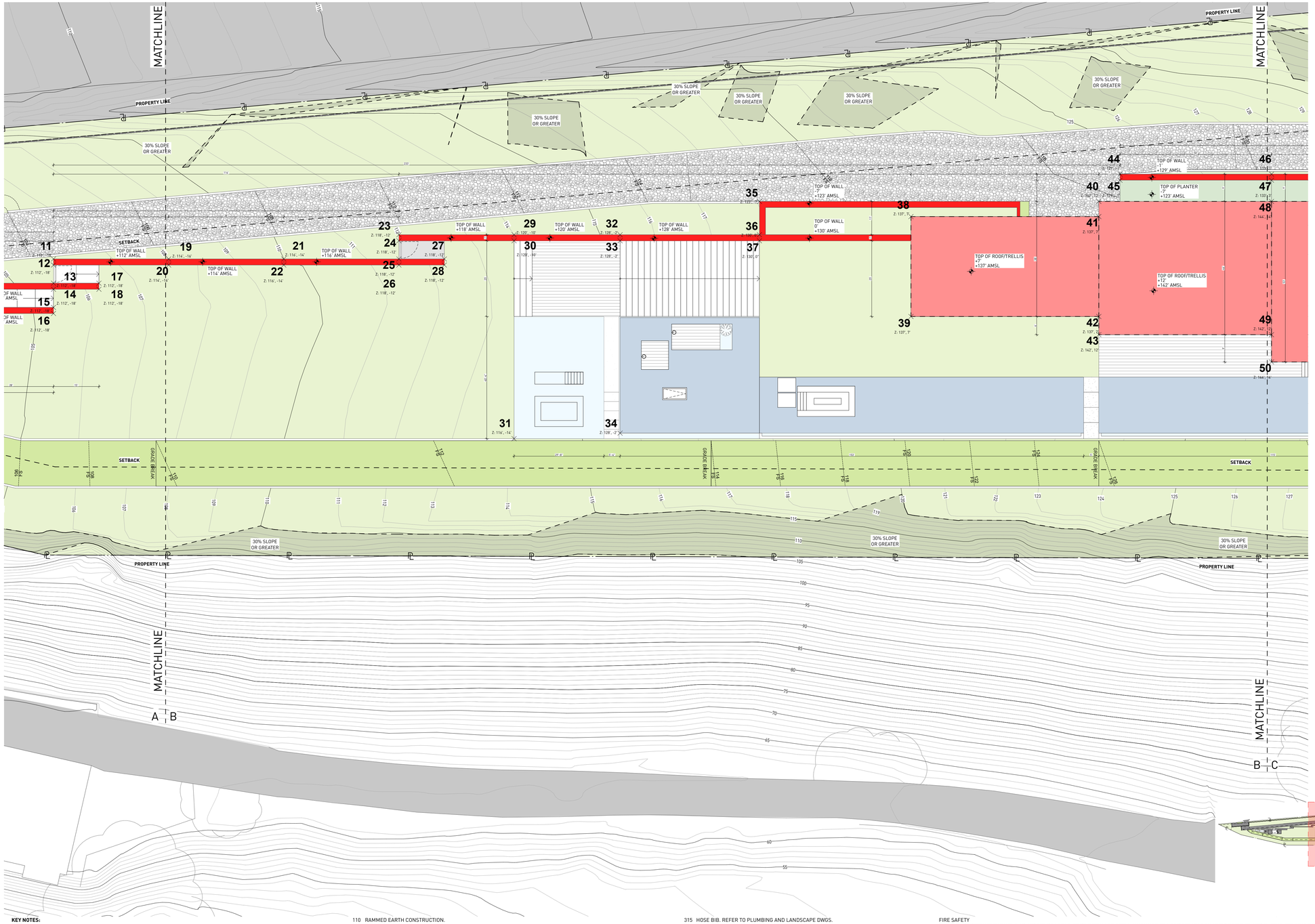
NOT FOR CONSTRUCTION

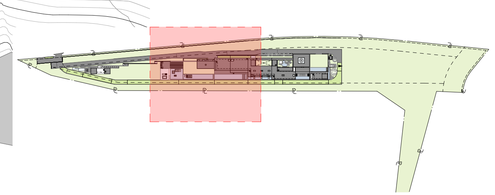
Design Development

1813
VILLA COLEAVA

Drawing Issued on 3/19/25

Z120





STORY POLE ELEVATIONS

POLE NUMBER	TOP ELEVATION	EXISTING GRADE	HEIGHT FROM EXISTING GRADE	PROPOSED GRADE	HEIGHT FROM PROPOSED GRADE
1	108'-6"AMSL	97'-9"AMSL	10'-3"	102'AMSL	6'
2	108'-6"AMSL	97'-9"AMSL	10'-3"	102'AMSL	6'
3	112'AMSL	100'-6"AMSL	11'-6"	100'-6"AMSL	11'-6"
4	112'AMSL	100'-3"AMSL	11'-9"	100'-3"AMSL	11'-9"
5	108'AMSL	102'AMSL	6'	102'AMSL	6'
6	108'AMSL	102'AMSL	6'	102'AMSL	6'
7	110'AMSL	104'AMSL	6'	104'AMSL	6'
8	110'AMSL	104'AMSL	6'	104'AMSL	6'
9	112'AMSL	104'-2"AMSL	7'-10"	104'AMSL	8'
10	112'AMSL	104'AMSL	8'	104'AMSL	8'
11	112'AMSL	106'-2"AMSL	5'-10"	106'-2"AMSL	5'-10"
12	112'AMSL	106'AMSL	6'	106'AMSL	6'
13	112'AMSL	106'AMSL	6'	106'AMSL	6'
14	112'AMSL	106'AMSL	6'	106'AMSL	6'
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69	148'AMSL	133'AMSL	15'	134'AMSL	14'
70	148'AMSL	132'-6"AMSL	15'-6"	134'AMSL	14'
71	148'AMSL	132'AMSL	16'	134'AMSL	14'
72	148'AMSL	131'AMSL	17'	134'AMSL	14'
73	144'AMSL	133'6"AMSL	10'-6"	132'AMSL	12'
74	144'AMSL	133'AMSL	11'	132'AMSL	12'
75	144'AMSL	134'AMSL	10'	132'AMSL	12'
76	144'AMSL	134'AMSL	10'	132'AMSL	12'
77	144'AMSL	135'AMSL	9'	132'AMSL	12'
78	148'AMSL	134'AMSL	14'	134'AMSL	14'
79	148'AMSL	133'AMSL	15'	134'AMSL	14'
80	148'AMSL	133'AMSL	15'	134'AMSL	14'
81	148'AMSL	133'AMSL	15'	134'AMSL	14'
82	148'AMSL	132'-5"AMSL	15'-7"	135'AMSL	13'
83	148'AMSL	132'-6"AMSL	15'-6"	135'AMSL	13'
84	148'AMSL	133'-6"AMSL	14'-6"	136'AMSL	12'
85	148'AMSL	133'AMSL	15'	136'AMSL	12'
86	144'AMSL	135'AMSL	9'	134'AMSL	10'
87	144'AMSL	135'AMSL	9'	134'AMSL	10'
88	144'AMSL	135'AMSL	9'	134'AMSL	10'
89	144'AMSL	135'AMSL	9'	134'AMSL	10'
90	144'AMSL	136'-3"AMSL	7'-9"	134'AMSL	10'
91	144'AMSL	136'AMSL	8'	134'AMSL	10'
92	148'AMSL	135'AMSL	13'	135'AMSL	9'
93	148'AMSL	135'AMSL	13'	135'AMSL	9'
94	144'AMSL	135'AMSL	9'	135'AMSL	9'
95	144'AMSL	135'AMSL	9'	135'AMSL	9'
96	144'AMSL	135'AMSL	9'	136'AMSL	8'
97	144'AMSL	135'AMSL	9'	134'AMSL	10'
98	144'AMSL	134'-4"AMSL	9'-8"	136'AMSL	8'

LEGEND	
WALL	
ROOF/TRELLIS	

KEY NOTES:

SITE

001 MAINTAIN ALL WATER RUNOFF WITHIN PROPERTY. SLOPE AWAY FROM P.L. AT A MIN. SLOPE OF ¼" /FT., REFER TO CIVIL DWGS.
002 TREES/LANDSCAPING PLANTING/GROUND COVER/LAWN, REFER TO LANDSCAPE DWGS.
003 HEDGE. REFER TO LANDSCAPE DWGS.
004 HARDSCAPE. REFER TO LANDSCAPE DWGS.
005 DRIVEWAY. GRAVEL ON GRADE. REFER TO CIVIL & LANDSCAPE DWGS.
006 WOOD DECK. SIZE OF PLANKS T.B.D. FINISH T.B.D.
007 UNDERGROUND DRAINAGE SYSTEM. REFER TO CIVIL DWGS.
008 INFINITY POOL EDGE.
009 OPEN PARKING, REFER TO CIVIL FOR DETAILS
010 6'-0" SITE RETAINING WALL. REFER TO STRUCTURAL AND LANDSCAPE DWGS.
011 PEDESTRIAN GATE DOOR. PROVIDE SHOP DWGS. FOR ARCHITECT REVIEW.
012 42" MOTORIZED VEHICULAR SLIDING ENTRY GATE. STEEL FRAME. 90% VISUALLY PERMEABLE.
013 42" PERIMETER FENCE. 90% VISUALLY PERMEABLE.
014 CALL BOX
015 TRASH ENCLOSURE AREA
016 STRUCTURAL GRASS DRIVEWAY. GRASSCRETE OR SIMILAR. REFER TO CIVIL & LANDSCAPE DWGS.
017 GENERATOR ON EXISTING CONCRETE PLINTH, BOTTOM OF GENERATOR TO BE ABOVE BFE +1', REFER TO ELECTRICAL DWGS.
018 A/C CONDENSER UNITS BEHIND LANDSCAPE, BOTTOM OF UNITS TO BE ABOVE BFE +1', REFER TO MECHANICAL DWGS.
019 NATURAL LAWN AREA. REFER TO LANDSCAPE DWGS.

MATERIALS

100 ARCHITECTURAL EXPOSED CONCRETE, COLOR T.B.D. REFER TO STRUCTURAL DRAWINGS AND ARCHITECTURAL DETAILS.
101 CUSTOM WOOD DOOR. REFER TO DOOR SCHEDULE.
102 IMPACT RESISTANT SLIDING ALUMINUM WINDOWS / DOORS SYSTEM, LOW-E COATING. REFER TO WINDOW SCHEDULE.
103 PRE-FABRICATED SKYLIGHT ON CONCRETE CURB. REFER TO WINDOW SCHEDULE. SEE SECTION AND DETAILS.
104 GARAGE STEEL DOOR CLADDED WITH CUSTOM CONCRETE PANELS. REFER TO DOOR SCHEDULE.
105 GRAVEL.
106 5/8" G.W.B., FINISH T.B.D.; REFER TO I.D. DWGS.
107 3/8" THERMOCROMEX LIMESTONE PLASTER, SAND FINISH, COLOR T.B.D. 3/8" TYPICAL.
108 TRELLIS. 50 PERCENT OPEN TO THE SKY. DEPTH OF SLOTS TO BE EQUAL TO OR LESS THAN THE WIDTH OF EACH SLOT. PROVIDE SHOP DWGS.
109 REFER TO INTERIOR DESIGN DRAWINGS AND FINISH SCHEDULE.
110 RAMMED EARTH CONSTRUCTION.
111 STONE BENCH.

STRUCTURAL

200 FOUNDATION AND PILES. REFER TO STRUCT. DWGS.
201 COMPACTED EARTH. REFER TO STRCUT. DWGS.
202 RETAINING WALL. REFER TO STRUCT. DWGS.
203 CONCRETE SLAB. REFER TO STRUCT. DWGS.
204 CONCRETE COLUMN. REFER TO STRUCT. DWGS.
205 CONCRETE BEAM. REFER TO STRUCT. DWGS.
206 STEEL COLUMN. REFER TO STRUCT. DWGS.
207 CONCRETE STAIRS. REFER TO STRUCT. DWGS.
208 CONCRETE SHELL FOR POOL. REFER TO STRUCT. DWGS.
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210 PROVIDE 2" RECESS ON SLABS ON ALL SHOWERS.
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MEP

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302 ROOF DRAIN, REFER TO PLUMBING DWGS. /SEE DETAIL.
303 FLOOR DRAIN, REFER TO PLUMBING DWGS./ SEE DETAIL.
304 DRAIN PIPE TO FIT IN CEILING SPACE, REFER TO PLUMBING DWGS. COORDINATE EXACT LOCATION AND SPECS.
305 KITCHEN HOOD, REFER TO MECH DWGS.
306 KITCHEN HOOD EXHAUST PIPE TO FIT IN CEILING SPACE, REFER TO MECH DWGS. COORDINATE EXACT LOCATION AND SPECS.
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308 GAS WATER HEATER. REFER TO PLUMBING DWGS.
309 ELECTRICAL PANELS. REFER TO ELECTRICAL DWGS.
310 CONDENSER UNITS ON STANDS. REFER TO MECH. DWGS.
311 MINIMUM R:30 BATT INSULATION OR RIGID INSULATION. REFER TO ENERGY CALCULATIONS.
312 ACOUSTICAL INSULATION.
313 MISTING SYSTEM. REFER TO PLUMBING DWGS.
314 SPRINKLER SYSTEM. REFER TO PLUMBING DWGS.
315 HOSE BIB. REFER TO PLUMBING AND LANDSCAPE DWGS.
316 ELECTRICITY, GAS AND WATER. REFER TO MEP DRAWINGS.
317 MOTORIZED VEHICULAR GATE. REFER TO ELECT. DWGS.
318 ALL TOILETS TO BE WALL HUNG. REFER TO MECH. DWGS.
319 LINEAR DRAIN
320 OVERFLOW SCUPPER.

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400 CONTINUOUS VAPOR BARRIER. REFER TO ARCH AND STRUCTURAL DWGS.
401 WATERPROOFING MEMBRANE. REFER TO ARCH AND STRUCTURAL DWGS.
402 POOL FINISH/ COLOR TBD.

MISC. ARCHITECTURAL DETAILS

500 CURTAIN CEILING COVE. REFER TO ARCH. DETAIL.
501 CONTINUOUS 1/2" TOOLED WATER DRIP. SEE ARCH. DETAIL.
502 VENT.
503 KITCHEN, BUILT-IN FURNITURE, CABINETRY BY OTHERS. REFER TO KITCHEN SHOP DWGS.
504 5/8" GWB DROPPED CEILING ON 3/4" FURRING STRIPS, PAINTED GWB. COLOR TBD.
505 STAINLESS STEEL SCUPPER IN CONCRETE STRUCTURE. 3" X 3" MIN.OPENING. REFER TO ELEVATION AND PLAN FOR LOCATION.
506 CUSTOM WOOD MILLWORK, REFER TO I.D. DRAWINGS
507 SOLAR PANELS (T.B.D.)
509 CONCEALED LED SCREEN.
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LIGHTING

600 PENDANT LIGHT. REFER TO LIGHTING DWGS.
601 RECESSED DOWN LIGHT. REFER TO LIGHTING DWGS.
602 CONCEALED LINEAR LIGHT. REFER TO LIGHTING DWGS.
603 POOL LINEAR RECESSED LIGHT. REFER TO LIGHTING DWGS.
604 LANDSCAPE LIGHTING. REFER TO LIGHTING DWGS.

FIRE SAFETY

700 FIRE DEPARTMENT VEHICULAR ACCESS ROADS MUST BE INSTALLED AND MAINTAINED IN A SERVICEABLE MANNER PRIOR TO AND DURING THE TIME OF CONSTRUCTION. FIRE CODE 5001.4
701 AN APPROVED KEY BOX, LISTED IN ACCORDANCE WITH UL 1037 SHALL BE PROVIDED AS REQUIRED BY FIRE CODE 506. THE LOCATION OF EACH KEY BOX SHALL BE DETERMINED BY THE FIRE INSPECTOR.
702 ALL REQUIRED PUBLIC FIRE HYDRANTS SHALL BE INSTALLED, TESTED AND ACCEPTED PRIOR TO BEGINNING CONSTRUCTION. FIRE CODE 501.4
703 PROVIDE AN APPROVED AUTOMATIC FIRE SPRINKLER SYSTEM AS SET FORTH BY BUILDING CODE 903 AND FIRE CODE 9003. PLANS SHALL BE SUBMITTED TO THE SPRINKLER PLAN CHECK UNIT FOR REVIEW AND APPROVAL PRIOR TO INSTALLATION.
704 SMOKE ALARMS SHALL RECEIVE THEIR PRIMARY POWER FROM THE BUILDING WIRING PROVIDED THAT SUCH WIRING IS SERVED FROM A COMMERCIAL SOURCE AND SHALL BE EQUIPPED WITH A BATTERY BACKUP. RESIDENTIAL CODE R314.4
705 WHERE MORE THAN ONE SMOKE ALARM IS REQUIRED TO BE INSTALLED WITHIN AN INDIVIDUAL DWELLING OR SLEEPING UNIT, THE SMOKE ALARMS SHALL BE INTERCONNECTED SIN USCH A MANNER THAT THE ACTIVATION OF ONE ALARM WILL ACTIVATE ALL OF THE ALARMS IN THE INDIVIDUAL UNIT. RESIDENTIAL CODE R314.5
706 APPROVED BUILDING ADDRESS NUMBERS, BUILDING NUMBERS OR APPROVED BUILDING IDENTIFICATION SHALL BE PROVIDED AND MAINTAINED SO AS TO BE PLAINLY VISIBLE AND LEGIBLE FROM THE STREET FRONTING THE PROPERTY. THE MINIMUM OF 4 INCHES HIGH WITH A MINUMM STROKE WIDTH OF 0.5 INCH. FIRE CODE 505.1
707 ALL ROOF COVERINGS SHALL BE CLASS "A" AS SPECIFIED IN BUILDING CODE 1505.1.1 (RESIDENTIAL CODE R327.5.2 & R902)
708 ROOF VALLEY FLASHINGS SHALL BE NOT LESS THAN 0.019 INCH (NO.26 GALVANIZED SHEET GAGE) CORROSION-RESISTANT METAL INSTALLED OVER A MINIMUM 36-INCH WIDE UNDERLAYMENT CONSISTING OF ONE LAYER OF NO. 72 ASTM CAP SHEET MEETING RUNNING THE FULL LEGHTH OF THE VALLEY (RESIDENTIAL CODE R327.5.3 AND BUILDING CODE 705A.3
709 ROOF GUTTERS SHALL BE PROVIDED WITH A MEANS OTO PREVENT THE ACCUMULATION OF LEAVES AND DEBRIS IN THE GUTTER. (RESIDENTIAL CODE R327.534 AND BUILDING GCODE 705A.4)
710 VENTS SHALL RESIST THE INTRUSION OF FLAME AND EMBERS AND FLAME THROUGH THE VENTILATION OPENINGS. VENT OPENINGS SHALL BE PROTECTED BY CORROSION- RESISTANT, NONCOMBUSTIBLE WIRE MESH WITH A MINIMUM 1/14TH INCH OPENINGS AND SHALL NOT EXCEED 1/8TH INCH. VENTS SHALL NOT BE INSTALLED IN EAVES OR CORNICES. (RESIDENTIAL CODE R327.6.1 AND BUILDING CODE 706A.1)
711 CLEARANCE OF BRUSH AND VEGETATIVE GROWTH SHALL BE MAINTAINED PER FIRE CODE 325.
712 PROVIDE APPROVED SIGNS OR OTHER APPROVED NOTICES OR MARKINGS THAT INCLUDE THE WORDS NO PARKING - FIRE LANE. SIGNS SHALL HAVE A MINIMUM DIMENSION OF 12 INCHES WIDE BY 18 INCHES HIGH AND HAVE RED LETTERS ON A WHITE REFLECTIVE BACKGROUND. SIGNS SHALL BE PROVIDED FOR FIRE APPARATUS ACCESS ROADS, TO CLEARLY INDICATE THE ENTRANCE TO SUCH ROAD, OR PROHIBIT THE OBSTRUCTION THEREOF AND AT INTERVALS, AS REQUIRED BY THE FIRE INSPECTOR. FIRE CODE 503.3.
713 ALL FIRE HYDRANTS SHALL MEASURE 6"" X 4"" X 2-1/2"", BRASS OR BRONZE, CONFORMING TO AMERICAN WATER WORKS ASSOCIATION STANDARD C503, OR APPROVED EQUAL.
714 ALL ON-SITE FIRE HYDRANTS SHALL BE INSTALLED, TESTED AND APPROVED PRIOR TO BUILDING OCCUPANCY. FIRE CODE 901.5.1
715 ROOF LADDER ACCESS

Project No

1813

Project Name
VILLA COLEAVA

Project Address
25200 Pacific Coast Hwy.
Malibu, California, USA

Property Owner
PAR PCH, LLC
PO Box 6528
Malibu, CA 90265

Design Architect
Oppenheim Architecture
245 NE 37 Street
Miami FL 33137
P 305 576 8404
F 305 576 8433
W oppenoffice.com

Landscape Architect
[place]
3617 exposition boulevard
Los Angeles, CA 90016
P 310-450-8100
F 323-737-3290
W plac-e.com

Civil Engineers
LC Engineering Group
889 Pierce Ct., Ste. 101
Thousand Oaks, CA 91360
P 805-497-1244
P 818-991-7148
W lcegroupinc.com

Revisions

Mark	Date	Description

Title
ENLARGED STORY POLE PLAN B

1/16" = 1'-0"

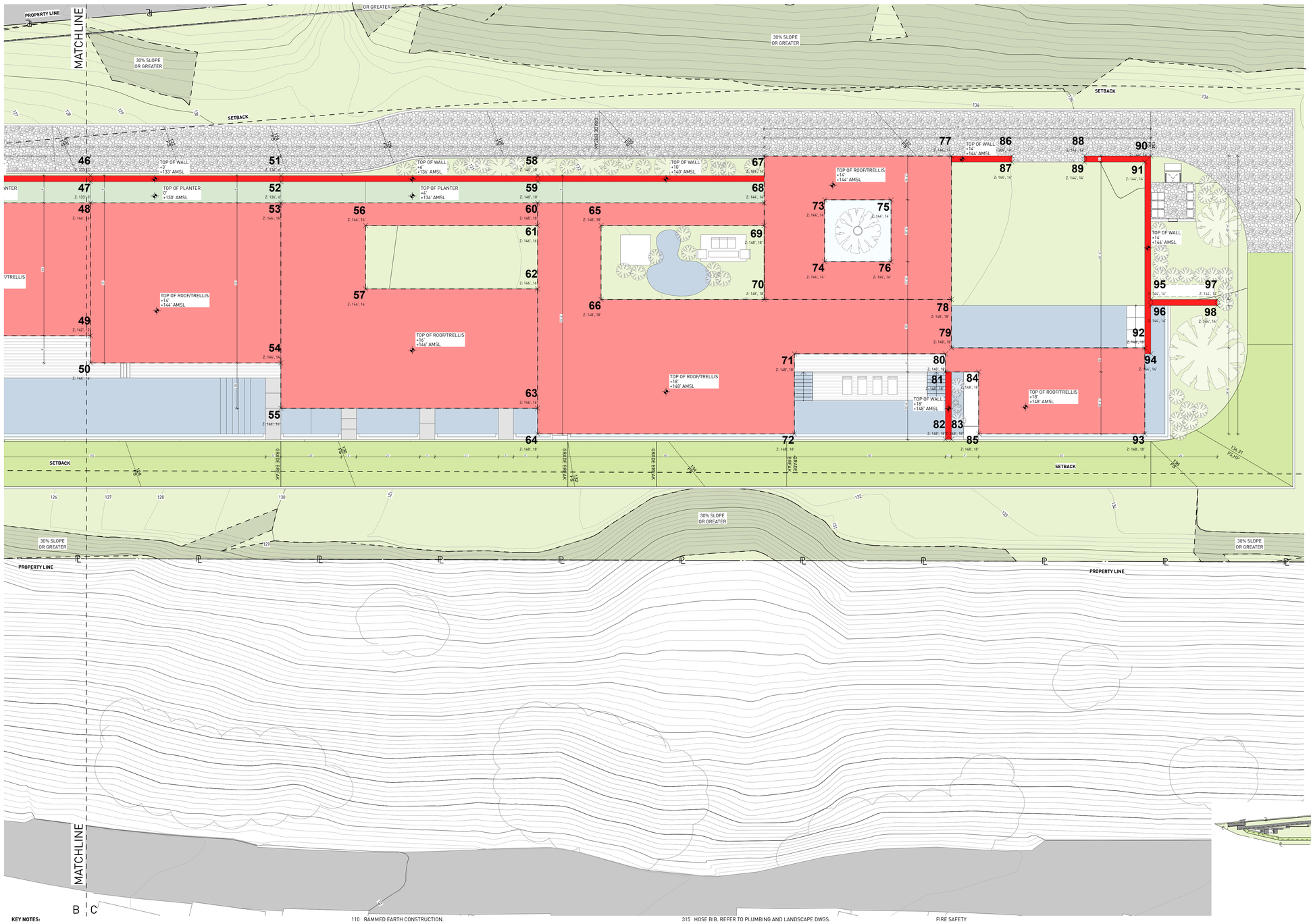
NOT FOR CONSTRUCTION

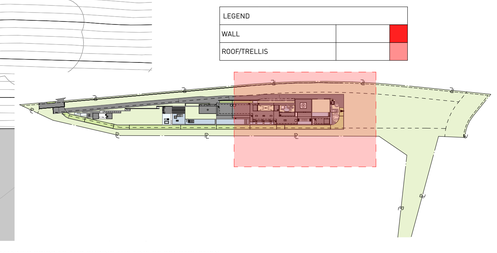
Design Development

1813
VILLA COLEAVA

Drawing Issued on 3/19/25

Z121





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FIRE SAFETY

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715 ROOF LADDER ACCESS

STORY POLE ELEVATIONS

POLE NUMBER	TOP ELEVATION	EXISTING GRADE	HEIGHT FROM EXISTING GRADE	PROPOSED GRADE	HEIGHT FROM PROPOSED GRADE
1	108'AMSL	97'-9"AMSL	10'-3"	102'AMSL	6'
2	108'AMSL	97'-9"AMSL	10'-3"	102'AMSL	6'
3	112'AMSL	100'-6"AMSL	11'-6"	100'-6"AMSL	11'-6"
4	112'AMSL	100'-3"AMSL	11'-9"	100'-3"AMSL	11'-9"
5	108'AMSL	102'AMSL	6'	102'AMSL	6'
6	108'AMSL	102'AMSL	6'	102'AMSL	6'
7	110'AMSL	104'AMSL	6'	104'AMSL	6'
8	110'AMSL	104'AMSL	6'	104'AMSL	6'
9	112'AMSL	104'-2"AMSL	7'-10"	104'AMSL	8'
10	112'AMSL	104'AMSL	8'	104'AMSL	8'
11	112'AMSL	106'-2"AMSL	5'-10"	106'-2"AMSL	5'-10"
12	112'AMSL	106'AMSL	6'	106'AMSL	6'
13	112'AMSL	106'AMSL	6'	106'AMSL	6'
14	112'AMSL	106'AMSL	6'	106'AMSL	6'
15	112'AMSL	105'-7"AMSL	6'-5"	105'-7"AMSL	6'-5"
16	112'AMSL	105'-7"AMSL	6'-5"	105'-7"AMSL	6'-5"
17	112'AMSL	106'-6"AMSL	5'-6"	106'-6"AMSL	5'-6"
18	112'AMSL	106'-6"AMSL	5'-6"	106'-6"AMSL	5'-6"
19	114'AMSL	108'AMSL	6'	108'AMSL	6'
20	114'AMSL	108'AMSL	6'	108'AMSL	6'
21	116'AMSL	110'AMSL	6'	110'AMSL	6'
22	116'AMSL	110'AMSL	6'	110'AMSL	6'
23	118'AMSL	112'AMSL	6'	112'AMSL	6'
24	118'AMSL	112'-6"AMSL	5'-6"	112'-6"AMSL	5'-6"
25	118'AMSL	112'-4"AMSL	5'-8"	112'-4"AMSL	5'-8"
26	118'AMSL	112'-3"AMSL	5'-9"	112'-3"AMSL	5'-9"
27	118'AMSL	113'-3"AMSL	4'-9"	113'-3"AMSL	4'-9"
28	118'AMSL	113'-2"AMSL	4'-10"	113'-2"AMSL	4'-10"
29	120'AMSL	114'-10"AMSL	5'-2"	114'-10"AMSL	5'-2"
30	120'AMSL	114'-9"AMSL	5'-3"	114'-9"AMSL	5'-3"
31	116'AMSL	113'-2"AMSL	2'-10"	113'-2"AMSL	2'-10"
32	128'AMSL	115'-7"AMSL	12'-5"	115'-7"AMSL	12'-5"
33	128'AMSL	115'-7"AMSL	12'-5"	116'-6"AMSL	11'-6"
34	128'AMSL	115'AMSL	13'	116'AMSL	12'
35	123'AMSL	118'-8"AMSL	4'-4"	115'-2"AMSL	7'-10"
36	130'AMSL	112'-8"AMSL	11'-8"	123'AMSL	7'
37	130'AMSL	112'-8"AMSL	11'-8"	128'AMSL	2'
38	137'AMSL	120'-5"AMSL	16'-5"	123'AMSL	14'
39	137'AMSL	120'-6"AMSL	16'-8"	128'AMSL	9'
40	142'AMSL	119'-1"AMSL	17'-11"	128'AMSL	10'-6"
41	137'AMSL	124'AMSL	13'	118'AMSL	24'
42	137'AMSL	123'-4"AMSL	13'-8"	128'AMSL	10'-6"
43	142'AMSL	124'AMSL	18'	128'AMSL	14'
44	129'AMSL	125'AMSL	4'	118'AMSL	11'
45	129'AMSL	125'AMSL	4'	118'AMSL	11'
46	133'AMSL	127'AMSL	6'	127'AMSL	6'
47	133'AMSL	127'AMSL	6'	130'AMSL	3'
48	144'AMSL	126'-6"AMSL	17'-6"	130'AMSL	14'
49	142'AMSL	126'-3"AMSL	15'-9"	128'AMSL	14'
50	144'AMSL	126'AMSL	18'	128'AMSL	16'
51	136'AMSL	130'AMSL	6'	124'AMSL	12'
52	136'AMSL	130'AMSL	6'	130'AMSL	6'
53	146'AMSL	130'AMSL	16'	130'AMSL	16'
54	144'AMSL	129'AMSL	15'	130'AMSL	14'
55	146'AMSL	129'AMSL	17'	130'AMSL	16'
56	146'AMSL	130'AMSL	16'	132'AMSL	14'
57	146'AMSL	130'AMSL	16'	132'AMSL	14'
58	140'AMSL	132'-6"AMSL	7'-6"	128'AMSL	12'
59	140'AMSL	132'-6"AMSL	7'-6"	134'AMSL	6'
60	148'AMSL	133'AMSL	16'	131'-2"AMSL	16'-6"
61	146'AMSL	132'AMSL	14'	132'AMSL	14'
62	146'AMSL	131'AMSL	15'	132'AMSL	14'
63	146'AMSL	130'AMSL	16'	132'AMSL	14'
64	148'AMSL	130'AMSL	18'	132'AMSL	16'
65	148'AMSL	132'AMSL	16'	134'AMSL	14'
66	148'AMSL	133'AMSL	15'	134'AMSL	14'
67	144'AMSL	134'AMSL	10'	132'AMSL	12'
68	144'AMSL	133'-4"AMSL	10'-6"	134'AMSL	10'
69	148'AMSL	133'AMSL	15'	134'AMSL	14'
70	148'AMSL	132'-6"AMSL	15'-6"	134'AMSL	14'
71	148'AMSL	132'AMSL	16'	134'AMSL	14'
72	148'AMSL	131'AMSL	17'	134'AMSL	14'
73	144'AMSL	133'6"AMSL	10'-6"	132'AMSL	12'
74	144'AMSL	133'AMSL	11'	132'AMSL	12'
75	144'AMSL	134'AMSL	10'	132'AMSL	12'
76	144'AMSL	134'AMSL	10'	132'AMSL	12'
77	144'AMSL	135'AMSL	9'	132'AMSL	12'
78	148'AMSL	134'AMSL	14'	134'AMSL	14'
79	148'AMSL	133'AMSL	15'	134'AMSL	14'
80	148'AMSL	133'AMSL	15'	134'AMSL	14'
81	148'AMSL	133'AMSL	15'	134'AMSL	14'
82	148'AMSL	132'-5"AMSL	15'-7"	135'AMSL	13'
83	148'AMSL	132'-6"AMSL	15'-6"	135'AMSL	13'
84	148'AMSL	133'-6"AMSL	14'-6"	136'AMSL	12'
85	148'AMSL	133'AMSL	15'	136'AMSL	12'
86	144'AMSL	135'AMSL	9'	134'AMSL	10'
87	144'AMSL	135'AMSL	9'	134'AMSL	10'
88	144'AMSL	135'AMSL	9'	134'AMSL	10'
89	144'AMSL	135'AMSL	9'	134'AMSL	10'
90	144'AMSL	136'-3"AMSL	7'-9"	134'AMSL	10'
91	144'AMSL	136'AMSL	8'	134'AMSL	10'
92	148'AMSL	135'AMSL	13'	135'AMSL	9'
93	148'AMSL	135'AMSL	13'	135'AMSL	9'
94	144'AMSL	135'AMSL	9'	135'AMSL	9'
95	144'AMSL	135'AMSL	9'	135'AMSL	9'
96	144'AMSL	135'AMSL	9'	136'AMSL	8'
97	144'AMSL	135'AMSL	9'	134'AMSL	10'
98	144'AMSL	134'-4"AMSL	9'-8"	136'AMSL	8'

Project No

1813

Project Name
VILLA COLEAVA

Project Address
25200 Pacific Coast Hwy.
Malibu, California, USA

Property Owner
PAR PCH, LLC
PO Box 6528
Malibu, CA 90265

Design Architect
Oppenheim Architecture
245 NE 37 Street
Miami FL 33137
P 305 576 8404
F 305 576 8433
W oppenoffice.com

Landscape Architect
[place]
3617 exposition boulevard
Los Angeles, CA 90016
P 310-450-8100
F 323-737-3290
W plac-e.com

Civil Engineers
LC Engineering Group
889 Pierce Ct., Ste. 101
Thousand Oaks, CA 91360
P 805-497-1244
P 818-991-7148
W lcegroupinc.com

Revisions

Mark	Date	Description

Title

ENLARGED STORY POLE PLAN C

1/16" = 1'-0"

N

NOT FOR CONSTRUCTION

Design Development

1813
VILLA COLEAVA

Drawing Issued on 3/19/25

Z122

Attachment 4

Story Pole Photos

25200 Pacific Coast Highway
(5-27-25, 6-6-25 & 6-20-25)



1. View from berm at site's western edge, looking easterly.



2. View from middle of site, looking westerly. PCH and berms are upslope to the right.



3. View from middle of site, looking northeasterly. PCH/ berms are to the left.



4. View toward middle of site (main residence), looking southeasterly from furthest edge of PCH.



5. View southeasterly toward site from furthest edge of PCH (further west from Photo 4).



6. View southwesterly toward site from furthest edge of PCH (further west from Photo 5).



7. View southwesterly toward site from furthest edge of PCH (further east from Photo 6).



8. View toward site from PVD 070816 at 3775 Puerco Canyon Road.



9. View toward site from PVD 23-020 at 3945 Puerco Canyon Road.

City of Malibu

23825 Stuart Ranch Rd., Malibu, California CA 90265-4804
(310) 456-2489 FAX (310) 456-7650

BIOLOGY REVIEW REFERRAL SHEET

TO: City of Malibu Biologist

FROM: City of Malibu Planning Department **REVISED DATE** 04/18/2023

PROJECT NUMBER:	CDP 19-012
JOB ADDRESS:	25200 PACIFIC COAST HWY
APPLICANT / CONTACT:	Jake Jesson, 180 PCH, LLC
APPLICANT ADDRESS:	PO Box 6528 Malibu, CA 90265
APPLICANT PHONE #:	(310)739-7931
APPLICANT FAX #:	(310) 456-2644
APPLICANT EMAIL:	jjesson@weintraubre.com
PLANNER:	Allison Cook
PROJECT DESCRIPTION:	NSFR, guest house, pool, and spa

TO: Malibu Planning Department and/or Applicant

FROM: City Biologist, Courtney McCammon

_____ **The project review package is INCOMPLETE and; CANNOT proceed through Final Planning Review until corrections and conditions from Biological Review are incorporated into the proposed project design** (See Attached).

X **The project is APPROVED, consistent with City Goals & Policies associated with the protection of biological resources and CAN proceed through the Planning process.**

_____ **The project may have the potential to significantly impact the following resources, either individually or cumulatively: Sensitive Species or Habitat, Watersheds, and/or Shoreline Resources and therefore Requires Review by the Environmental Review Board (ERB).**

Courtney McCammon — 5/1/23

Signature — Date

Additional requirements/conditions may be imposed upon review of plan revision

Contact Information:
Courtney McCammon, City Biologist, biology@malibucity.org, (310) 456-2489, extension 277

City of Malibu

Biology • Planning Department
23825 Stuart Ranch Road · Malibu, California · 90265-4861
Phone (310) 456-2489 · Fax (310) 456-3356 · www.malibucity.org

BIOLOGY REVIEW SHEET

PROJECT INFORMATION

Applicant: (name and email)	Jake Jesson, 180 PCH, LLC jjesson@weintraubre.com	
Project Address:	**25200 PACIFIC COAST HWY** Malibu, CA 90265	
Planning Case No.:	CDP 19-012	
Project Description:	NSFR, guest house, pool, and spa	
Date of Review:	May 1, 2023	
Reviewer:	Courtney McCammon	Signature: Courtney McCammon
Contact Information:	Phone: (310) 456-2489 ext 277	Email: biology@malibucity.org

SUBMITTAL INFORMATION

Site Plan:	4/18/23
Site Survey:	4/18/23
Landscape Plan:	
Hydrozone Plan:	
Irrigation Plan:	
Fuel Modification Plan:	
Grading Plan:	
OWTS Plan:	
Bio Assessment:	
Bio Inventory:	
Native Tree Survey:	
Native Tree Protection Plan:	
Miscellaneous:	
Previous Reviews:	

REVIEW FINDINGS

Review Status:	☐	**INCOMPLETE**: Additional information and/or a response to the listed review comments is required.
	☒	**APPROVED**: The project has been approved with regards to biological impacts.
	☐	**CANNNOT APPROVE AS SUBMITTED**: The proposed project does not conform to the requirements of the MMC and/or LCP.
	☐	**ERB**: This project has the potential to impact ESHA and may require review by the Environmental Review Board pursuant to LIP Section 4.4.4

Recycled Paper

RECOMMENDATIONS:

1. The project is recommended for **APPROVAL** with the following conditions:

   A. The purpose of this review is to correct a statement made in the August 5, 2021 Biology Review by City Biologist Dave Crawford. The review stated that:

   "Pursuant to LIP Section 4.7.1, the allowable development area is limited to 10,000 square feet as all feasible building areas will result in impacts to Environmentally Sensitive Habitat Area (ESHA)."

   However, upon submission of an additional exhibit by the applicant showing that the 200-foot required fuel modification area does not overlap with the 100-foot ESHA buffer, the above recommendation is not required. The fuel modification area does not overlap with the nearby ESHA or ESHA buffer. Therefore, the 10,000 square foot development area is not required. All other biological recommendations and restrictions are applicable and the stricter shall apply.

-o0o-

If you have any questions regarding the above requirements, please contact the City Biologist office at your earliest convenience.

cc: Planning Project file
Planning Department

City of Malibu

23825 Stuart Ranch Rd., Malibu, California CA 90265-4861
(310) 456-2489 FAX (310) 456-3356 www.malibucity.org

ENVIRONMENTAL HEALTH REVIEW
REFERRAL SHEET

TO: City of Malibu Environmental Health Administrator

FROM: City of Malibu Planning Department **REVISED DATE** 02/13/2025

PROJECT NUMBER: CDP 19-012

JOB ADDRESS: 25200 PACIFIC COAST HWY

APPLICANT / CONTACT: Jake Jesson, 180 PCH, LLC

APPLICANT EMAIL: jjesson@weintraubre.com

PROJECT DESCRIPTION: NSFR, guest house, pool, spa, and lot merger

REVISION:

TO: Malibu Planning Department and/or Applicant

FROM: City of Malibu Environmental Health Reviewer

✓ **Conformance Review Complete** for project submittals reviewed with respect to the City of Malibu Local Coastal Plan/Local Implementation Plan (LCP/LIP) and Malibu Municipal Code (MMC). The Conditions of Planning conformance review and plan check review comments listed on the attached review sheet(s) (or else handwritten below) shall be addressed prior to plan check approval.

Building Plan Check (BPC) Required ☒ Yes ☐ No BPC Fees Req'd $_____

_____ **Conformance Review Incomplete** for the City of Malibu LCP/LIP and MMC. The Planning stage review comments listed on the City of Malibu Environmental Health review sheet(s) shall be addressed prior to conformance review completion.

OWTS Plot Plan: ☐ **NOT REQUIRED**

☑ **REQUIRED (attached hereto)** ☐ **REQUIRED (not attached)**

Matthew Young 4/2/2025

Signature **Date**

The applicant must submit to the City of Malibu Environmental Health Specialist to determine whether or not an onsite wastewater treatment system (OWTS) Plot Plan approval is required.

The Environmental Health Specialist may be contacted Tuesday and Thursday from 8:00 am to 11:00 am, or by calling (310) 456-2489, extension 364.

*Please refer to the appended Environmental Health conformance review dated 8-18-2021 for conditions of final OWTS and building plan check.

*All final project site plans must show the proposed OWTS components.

City of Malibu

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(310) 456-2489 FAX (310) 456-3356 www.malibucity.org

ENVIRONMENTAL HEALTH REVIEW
REFERRAL SHEET

TO: City of Malibu Environmental Health Administrator 8/3/2021

FROM: City of Malibu Planning Department **REVISED DATE** ~~06/02/2021~~

PROJECT NUMBER:	CDP 19-012
JOB ADDRESS:	25200 PACIFIC COAST HWY
APPLICANT / CONTACT:	Jake Jesson
APPLICANT ADDRESS:	PO Box 6528 Malibu, CA 90265
APPLICANT PHONE #:	(805)298-6570
APPLICANT FAX #:	(310) 456-2644
APPLICANT EMAIL:	jjesson@weintraubre.com
PROJECT DESCRIPTION:	NSFR, guest house, pool, and spa

TO: Malibu Planning Department and/or Applicant

FROM: City of Malibu Environmental Health Reviewer

✓ **Conformance Review Complete** for project submittals reviewed with respect to the City of Malibu Local Coastal Plan/Local Implementation Plan (LCP/LIP) and Malibu Municipal Code (MMC). The Conditions of Planning conformance review and plan check review comments listed on the attached review sheet(s) (or else handwritten below) shall be addressed prior to plan check approval.

_____ **Conformance Review Incomplete** for the City of Malibu LCP/LIP and MMC. The Planning stage review comments listed on the City of Malibu Environmental Health review sheet(s) shall be addressed prior to conformance review completion.

OWTS Plot Plan: ☐ **NOT REQUIRED**

☑ **REQUIRED (attached hereto)** ☐ **REQUIRED (not attached)**

Melinda Talbot 8/18/2021

Signature **Date**

The applicant must submit to the City of Malibu Environmental Health Specialist to determine whether or not an onsite wastewater treatment system (OWTS) Plot Plan approval is required.

The Environmental Health Specialist may be contacted Tuesday and Thursday from 8:00 am to 11:00 am, or by calling (310) 456-2489, extension 364.

City of Malibu

Environmental Health ● Environmental Sustainability Department
23825 Stuart Ranch Road · Malibu, California · 90265-4861
Phone (310) 456-2489 · Fax (310) 456-3356 · www.malibucity.org

ENVIRONMENTAL HEALTH REVIEW SHEET

PROJECT INFORMATION

Applicant: (name and email address)	Jake Jesson jjesson@weintraubre.com		
Project Address:	**25200 Pacific Coast Highway** Malibu, California 90265		
Planning Case No.:	CDP 19-012		
Project Description:	NSFR, guest house, pool/spa, OWTS		
Date of Review:	August 18, 2021		
Reviewer:	Melinda Talent	Signature:	Melinda Talent
Contact Information:	Phone: (310) 456-2489 ext. 364	Email:	mtalent@malibucity.org

SUBMITTAL INFORMATION

Architectural Plans:	Oppenheim Architecture: Plans dated 3-1-19 (received by Planning 9-30-19), revised plans dated 12-3-20, 4-12-21, 4-23-21
Grading Plans:	LC Engineering: 9-12-19, revised 10-29-20, 1-4-21, 4-12-21
OWTS Plan:	Ensitu Engineering: 7-2-20, 3-1-21, 4-1-21
OWTS Report:	Ensitu Engineering: 7-2-20
Geology Report:	Feffer Geological Consulting: 7-1-20
Miscellaneous:	EPD Consultants: Infiltration/percolation test report 4-29-20
Previous Reviews:	3-19-19, 7-30-20, 12-14-20, 2-5-21, 4-1-21

REVIEW FINDINGS

Planning Stage:	☒	**CONFORMANCE REVIEW COMPLETE** for the City of Malibu Local Coastal Program/Local Implementation Plan (LIP) and Malibu Municipal Code (MMC). The listed conditions of Planning stage conformance review and plan check review comments shall be addressed prior to plan check approval.
	☐	**CONFORMANCE REVIEW INCOMPLETE** for the City of Malibu LIP and MMC. The listed Planning stage review comments shall be addressed prior to conformance review completion.
OWTS Plot Plan:	☐	**NOT REQUIRED**
	☒	**REQUIRED (attached hereto)** ☐ **REQUIRED (not attached)**

Based upon the project description and submittal information noted above, a **conformance review** was completed for a new advanced onsite wastewater treatment system (OWTS) proposed to serve the onsite wastewater treatment and disposal needs of the subject property. The proposed advanced OWTS meets the minimum requirements of the Malibu Municipal Code and the City of Malibu Local Coastal Program (LCP)/Local Implementation Plan (LIP). Please distribute this review sheet to all of the project consultants and, prior to final approval, provide a coordinated submittal addressing all conditions for final approval and plan check items.

The conditional conformance findings hereby transmitted complete the Planning stage Environmental Health review of the subject development project. In order to obtain Environmental Health final approval of the project OWTS Plot Plan and associated construction drawings (during Building Safety plan check),

all conditions and plan check items listed below must be addressed through submittals to the Environmental Health office.

Conditions of Planning Conformance Review for Building Plan Check Approval:

1) **Final Onsite Wastewater Treatment System (OWTS) Plot Plan:** A final plot plan prepared by a City Registered OWTS Designer shall be submitted showing an OWTS design meeting the minimum requirements of the Malibu Municipal Code (MMC) and the Local Coastal Program (LCP)/Local Implementation Plan (LIP). The plans must include all necessary construction details, the proposed drainage plan for the developed property, and the proposed landscape plan for the developed property. The OWTS Plot Plan shall show essential features of the OWTS, existing improvements, and proposed/new improvements. The plot must fit on an 11" x 17" sheet leaving a 5" left margin clear to provide space for a City-applied legend. If the plan scale is such that more space is needed to clearly show construction details and/or all necessary setbacks, larger sheets may also be provided (up to a maximum size of 18" x 22" for review by Environmental Health).

2) **Final OWTS Design Report, Plans, and System Specifications:** A final OWTS design report and large set of construction drawings with system specifications (four sets) shall be submitted to describe the OWTS design basis and all components proposed for use in the construction of the OWTS. All plans and reports must be signed by a City Registered OWTS Designer and the plans stamped by the project Geologist, Coastal Engineer, and Structural Engineer as applicable. The final OWTS design report and construction drawings shall be submitted with the designer's signature, professional registration number, and stamp (if applicable).

   The final OWTS design submittal shall contain the following information (in addition to the items listed above).

   a. Required treatment capacity for wastewater treatment and disinfection systems. The treatment capacity shall be specified in terms of flow rate, gallons per day (gpd), and shall be supported by calculations relating the treatment capacity to the number of bedroom equivalents, plumbing drainage fixture units, and the subsurface effluent dispersal system acceptance rate. The drainage fixture unit count must be clearly identified in association with the design treatment capacity, even if the design is based on the number of bedrooms. Average and peak rates of hydraulic loading to the treatment system shall be specified in the final design.

   b. Sewage and effluent pump design calculations (as applicable).

   c. Description of proposed wastewater treatment and/or disinfection system equipment. State the proposed type of treatment system(s) (e.g., aerobic treatment, textile filter, ultraviolet disinfection, etc.); major components, manufacturers, and model numbers for "package" systems; and the design basis for engineered systems.

   d. Specifications, supporting geology information, and percolation test results for the subsurface effluent dispersal portion of the onsite wastewater disposal system. This must include the proposed type of effluent dispersal system (drainfield, trench, seepage pit, subsurface drip, etc.) as well as the system's geometric dimensions and basic construction features. Supporting calculations shall be presented that relate the results of soils analysis or percolation/infiltration tests to the projected subsurface effluent acceptance rate, including any unit conversions or safety factors. Average and peak rates of hydraulic loading to the effluent

dispersal system shall be specified in the final design. The projected subsurface effluent acceptance rate shall be reported in units of total gallons per day (gpd) and gallons per square foot per day (gpsf). Specifications for the subsurface effluent dispersal system shall be shown to accommodate the design hydraulic loading rate (i.e., average and peak OWTS effluent flow, reported in units of gpd). The subsurface effluent dispersal system design must take into account the number of bedrooms, fixture units, and building occupancy characteristics.

e. All OWTS design drawings shall be submitted with the wet signature and typed name of the OWTS designer. If the plan scale is such that more space than is available on the 11" x 17" plot plan is needed to clearly show construction details, larger sheets may also be provided (up to a maximum size of 18" x 22" for review by Environmental Health). [Note: For OWTS final designs, full-size plans for are also required for review by Building & Safety and Planning.]

3) **Building Plans:** All project architectural plans and grading/drainage plans shall be submitted for Environmental Health review and approval. These plans must be approved by the Building Safety Division prior to receiving Environmental Health final approval.

4) **Traffic-Rated Slab Plan(s):** All project traffic rated slab plans shall be submitted for Environmental Health review and approval. These plans must be approved by the Building Safety Division prior to receiving Environmental Health final approval.

5) **Notice of Decision:** The final onsite wastewater treatment system plans shall include the Conditions of Approval sections of the Notice of Decision (NOD) from the Planning Department.

6) **Architect / Engineer Certification for Reduction in Setbacks to Buildings or Structures:**
All proposed reductions in setbacks from the onsite wastewater treatment system to structures or other features less than those shown in Malibu Municipal Code (MMC) Section 15.42 must be supported by letters from the project consultants. The wastewater plans and the construction plans must be specifically referenced in all certification letters. The construction plans for all structures and/or buildings with reduced setback must be approved by City of Malibu Building Safety prior to Environmental Health final approval. The architectural and/or structural plans submitted for Building Safety plan check must detail methods of construction that will compensate for the reduction in setback (e.g., waterproofing, concrete additives). For complex waterproofing installations, submittal of a separate waterproofing plan may be required. All plans must show the location of onsite wastewater treatment system components in relation to those structures from which the setback is reduced, and the plans must be signed and stamped by the architect, structural engineer, and geotechnical consultants (as applicable).

- Structures – All proposed reductions in setback from the onsite wastewater treatment system to structures (i.e., setbacks less than those shown in MMC Section 15.42) must be supported by a letter from the project Structural Engineer and a letter from the project Soils Engineer (i.e., a Geotechnical Engineer or Civil Engineer practicing in the area of soils engineering). Both engineers must certify unequivocally that the proposed reduction in setbacks from the treatment tank and effluent dispersal area will not adversely affect the structural integrity of the onsite wastewater treatment system and will not adversely affect the structural integrity of the structures for which the setback is reduced.

- Buildings – All proposed reductions in setback from the onsite wastewater treatment system to buildings (i.e., setbacks less than those shown in MMC Section 15.42) also must be supported by

a letter from the project Architect, who must certify unequivocally that the proposed reduction in setbacks will not produce a moisture intrusion problem for the proposed building(s). If the building designer is not a California licensed architect, then the required Architect's certification may be supplied by an Engineer who is responsible for the building design with respect to mitigation of potential moisture intrusion from reduced setback to the wastewater system; in this case the Engineer must include in the letter an explicit statement of responsibility for mitigation of potential moisture intrusion. If any specific construction features are proposed as part of a moisture intrusion mitigation system in connection with the reduced setback(s), then the Architect (or Engineer) must provide associated construction documents for review and approval during Building Plan Check.

7) **Proof of Ownership:** Proof of ownership of subject property shall be submitted.

8) **Operations & Maintenance Manual:** An operations and maintenance manual specified by the OWTS designer shall be submitted to the property owner and maintenance provider of the proposed advanced OWTS.

9) **Maintenance Contract:** A maintenance contract executed between the owner of subject property and an entity qualified in the opinion of the City of Malibu to maintain the proposed advanced onsite wastewater treatment system shall be submitted prior to Environmental Health approval. ***Please note only original "wet* signature" documents are acceptable**.

10) **Advanced Onsite Wastewater Treatment System (OWTS) Covenant:** A covenant running with the land shall be executed between the City of Malibu and the holder of the fee simple absolute as to subject real property and recorded with the City of Malibu Recorder's Office. Said covenant shall serve as constructive notice to any future purchaser for value that the onsite wastewater treatment system serving subject property is an advanced method of sewage disposal pursuant to the City of Malibu Municipal Code. Said covenant shall be provided by the City of Malibu Environmental Health Administrator. ***Please submit a certified* copy issued by the City of Malibu Recorder**.

11) **Covenant to Forfeit 100% Expansion Effluent Disposal Area:** A covenant running with the land shall be executed by the property owner and recorded with the City of Malibu Recorder's Office. Said covenant shall serve as constructive notice to any successors in interest that (1) the private sewage disposal system serving the development on the property does not have a 100% expansion effluent dispersal area (i.e., replacement disposal field(s) or seepage pit(s)) and (2) if the primary effluent dispersal area fails to drain adequately, the City of Malibu may require remedial measures including, but not limited to, limitations on water use enforced through an operating permit and/or repairs, upgrades or modifications to the private sewage disposal system. The recorded covenant shall state and acknowledge that future maintenance and/or repair of the private sewage disposal system may necessitate interruption in use of the private sewage disposal system and, therefore, any building(s) served by the private sewage disposal system may become non-habitable during any required future maintenance and/or repair. Said covenant shall be in a form acceptable to the City Attorney and approved by the Environmental Sustainability Department. ***Please submit a certified copy issued by* the City of Malibu Recorder.**

12) **Project Geologist/Geotechnical Consultant Approval:** Project Geologist/Geotechnical Consultant final approval of the Onsite Wastewater Treatment System plan shall be submitted to the Environmental Health Administrator.

13) **City of Malibu Geologist/Geotechnical Approval:** City of Malibu geotechnical staff final approval of the Onsite Wastewater Treatment System plan shall be submitted to the Environmental Health Administrator.

14) **City of Malibu Planning Approval:** City of Malibu Planning Department final approval of the OWTS plan shall be obtained.

15) **Environmental Health Final Review Fee:** A final fee in accordance with the adopted fee schedule at the time of final approval shall be paid to the City of Malibu for Environmental Health review of the OWTS design and system specifications.

16) **Operating Permit Application and Fee:** In accordance with Malibu Municipal Code, an application shall be made to the Environmental Health office for an Onsite Wastewater Treatment System operating permit. An operating permit fee in accordance with the adopted fee schedule at the time of final approval shall be submitted with the application.

-o0o-

If you have any questions regarding the above requirements, please contact the Environmental Health office at your earliest convenience.

cc: Environmental Health file
Planning Department

25200 PACIFIC COAST HWY (CDP 19-012)
MALIBU, CA 90265

S.F.D.:	5 Bedrooms/112 Fixture Units (N)
GUEST HOUSE:	1 Bedroom/9 Fixture Units (N)
TREATMENT TANK:	7,540 Gallon MicroSepTec ES25 w/ UV Disinfection Unit (N)
ACTIVE:	5,100-sf Drip Dispersal Field (N)
FUTURE:	N/A
PERC RATE:	0.39 gpsf
DESIGNER:	John Yaroslaski, PE (60149)
REFERENCE:	Ensitu: OWTS report dated 7-2-2020

NOTES:

1. This conformance review is for a new 5 bedroom (112 fixture units) single family dwelling, 1 bedroom (9 fixture units) guest house and new advanced onsite wastewater treatment system (OWTS). The new OWTS conforms to the requirements of the Malibu Municipal Code (MMC) and the Local Coastal Program (LCP).

2. This review relates only to the minimum requirements of the MMC, and the LCP, and does not include an evaluation of any geological or other potential problems, which may require an alternative method of wastewater treatment.

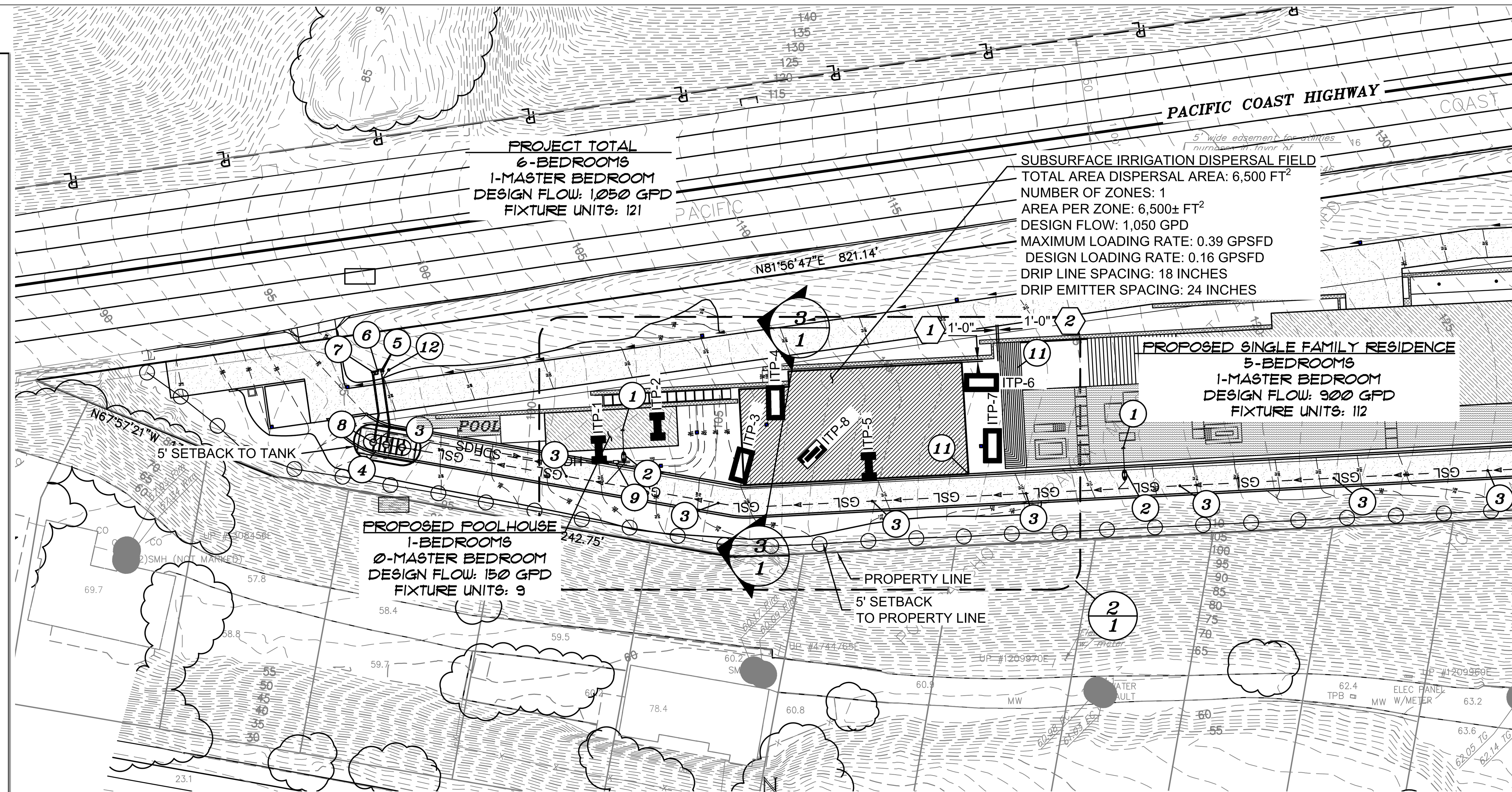
3. This review is valid for one year, or until MMC, and/or LCP, and/or Administrative Policy changes render it noncomplying.

CITY OF MALIBU
ENVIRONMENTAL SUSTAINABILITY DEPT.
ENVIRONMENTAL HEALTH

CONFORMANCE REVIEW

SIGNATURE: Melinda Talent DATE: 8/18/21

THIS IS NOT AN APPROVAL. FINAL APPROVAL IS REQUIRED PRIOR TO THE ISSUANCE OF ANY CONSTRUCTION PERMITS



1/1 OVERALL SITE PLAN

0 100' 200'

OWTS Capacity (Design and Maximum)				
Component	Description	Size/Capacity	Design Capacity	Max Capacity
Treatment Volume (Fixture Unit Capacity)	1-MicroSepTec ES25	7,540 gallons	121 fixture units	261 fixture units
Treatment (Organic Capacity)	1-MicroSepTec ES25	4.17 lb BOD5/day	1050 gpd at 220mg/L BOD5	2500 gpd at 220mg/L BOD5
Disinfection	1-MicroSepTec ES25	2,500 gpd	1,050 gpd	2,500 gpd
Subsurface Irrigation Dispersal	Subsurface Irrigation	5100 square feet at 0.206 gallons per square foot per day	1,050 gpd	1,989 gpd

Leaching Field Calculations		
Max Subsurface Irrigation Loading Rate, L_M	0.390	gpsfd
Preferred Subsurface Irrigation Loading Rate Safety factor 10, L_P	0.39	gpsfd
Minimum Square Feet of Leaching Area Required, A_M	2693	ft^2
Preferred Square Feet of Leaching Area Required, A_P	2693	ft^2
Design Square Feet of leaching Area, A_F	5100	ft^2
Is Design Area Adequate (Is $A_F > A_P$)	Yes	
Actual Loading Rate, L_A	0.206	gpsfd

Fixture Units Summary		
Total Proposed Fixture Units	121	
Total Fixture Units	121	
Dwelling Units Summary		
Total Proposed Dwelling Units	1	
Proposed Bedroom Summary		
Total Proposed Bedrooms	6	bedrooms
Number of Proposed Master Bedrooms	1	bedrooms
Number of Proposed Standard	5	bedrooms
Flow Calculations (Q)		
Peak Flow per Master Bedroom	300	gpd
Peak Flow per Standard Bedroom	150	gpd
Average Flow per Master Bedroom	200	gpd
Average Flow per Standard Bedroom	100	gpd
Flow Calculations Proposed (Q)		
Peak Flow, Q_P	1050	gpd
Average Flow, Q_A	700	gpd
Leaching Field Design Flow, Q_P	1050	gpd
Influent Characteristics		
BOD5 (mg/l)	220	
TSS (mg/l)	220	
TN (mg/l)	35	
Effluent Characteristics		
BOD5 (mg/l)	20	
TSS (mg/l)	20	
TN (mg/l)	17.5	

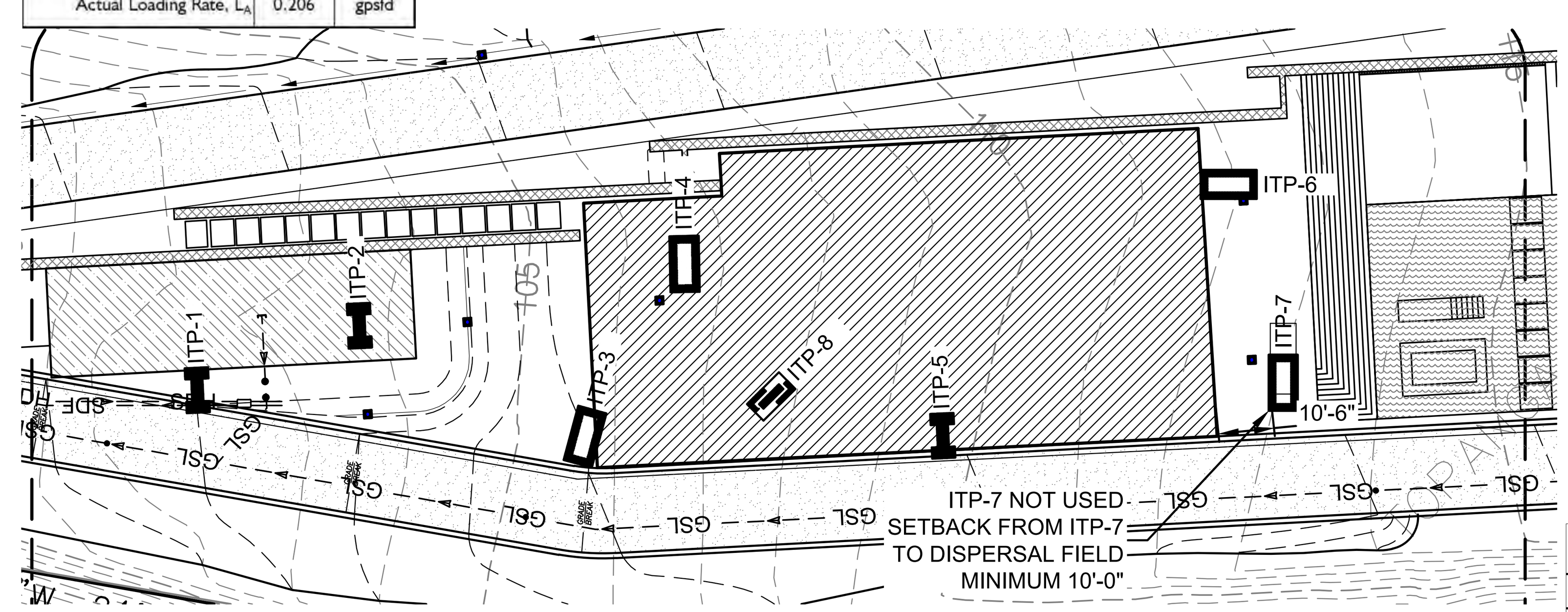
Septic Tank (ST) Calculations		
Total Existing Fixture Units		
Total Proposed Fixture Units	121	
Total Fixture Units	121	
Minimum Septic Tank Size based on Fixtures	4025	gal
Number of Dwelling Units	1	
Number of Bedrooms	6	bedrooms
Minimum Septic Tank Size based on Bedrooms	1500	gal
Design Septic Tank Size	7540	gal

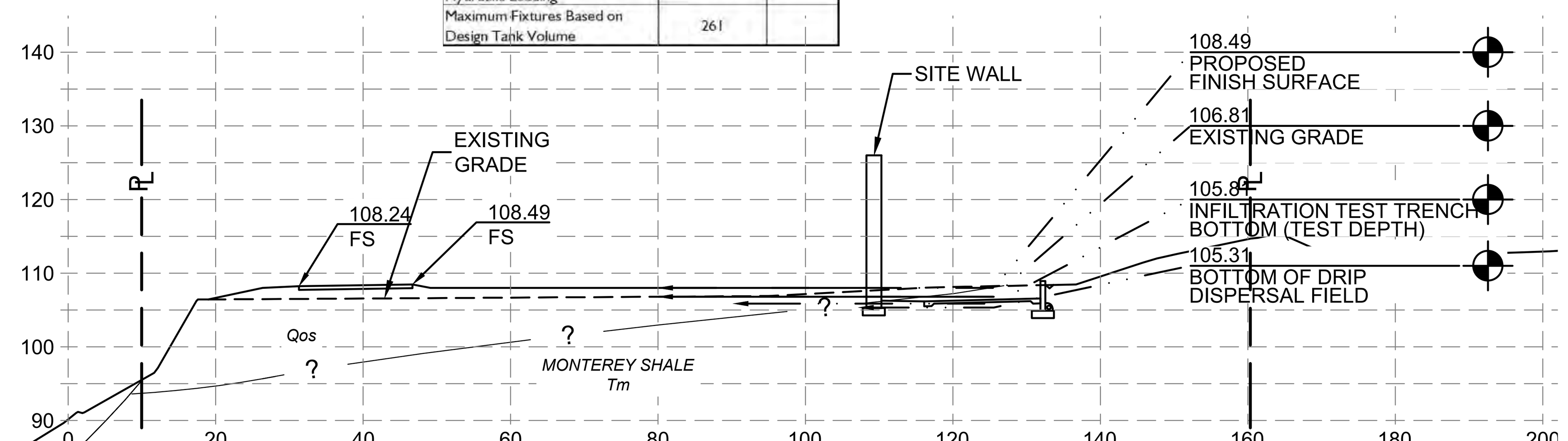
Test Pit Number	Depth ft	Soil Type at Test Depth	Passing Loading Rate gpsfd
ITP-1	1	Loam	5.2
ITP-2	1	Sandy Loam	5.1
ITP-3	1		5.2
ITP-4	1		4.3
ITP-5	1	Loam	3.9
ITP-6	1		5
ITP-7	1	NOT USED 0.9 gpsfd	
ITP-8	6	Clay Loam	Ryon's Test for deep infiltration
Average Passing Rate			4.79
Minimum Passign Rate			3.9
Design Safety Factor			10
Design Application Rate			0.39
Design Safety Factor			10.00

MicroSepTec Design		
Design Flow	1,050	gpd
Design Influent BOD	220	mg/L
Design Effluent BOD	20	mg/L
Design Organic Loading BOD	1.75	lb BOD_5
MicroSepTec Model Specified	ES25	
MicroSepTec Tank Volume	7540	gal
MicroSepTec ES25 Base Organic Removal (1)	4.17	lb BOD_5
Minimum Number of MicroSepTec ES25 Required	1	units
Design Organic Removal	4.17	lb BOD_5
Design Tank Volume	7540	gal
Maximum Effluent Flow Based on Organic loading	2500	gpd
Maximum Effluent Flow Based on Hydraulic Loading	2500	gpd
Maximum Fixtures Based on Design Tank Volume	261	

PIPING SCHEDULE			
	TAG	DESCRIPTION	SPECIFICATION
—►— GSL —	GSL	PROPOSED GRAVITY SEWER LINE	4" SCH40 PVC
—►— PAL —	PAL	PROPOSED AIR COMPRESSOR LINE	1" SCH80 PVC
—►— PVL —	PVL	PROPOSED AIR VENT LINE	4" SCH40 PVC
—►— RCRC —	RCRC	RECIRCULATION RETURN LINE	1½" SCH80 PVC
—►— SDH —	SDH	SUBSURFACE DISPERSAL HEADER	1½" SCH80 PVC
—►— SDF —	SDF	SUBSURFACE DISPERSAL FLUSH	1½" SCH80 PVC

SETBACK REDUCTIONS				
	COMPONENT	SITE ELEMENT	CODE REQUIREMENT	ACTUAL
1	DISPERSAL FIELD	SITE WALL	8'	1'-0"
2	DISPERSAL FIELD	DECK	8'	1'-0"





3/1 SECTION THROUGH DRIP DISPERSAL

GENERAL NOTES:

1. EXISTING OWTS COMPONENTS LOCATION AND ABANDONMENT:
   - 1.1. CONTRACTOR IS RESPONSIBLE FOR LOCATING ALL EXISTING ONSITE WASTEWATER TREATMENT SYSTEM (OWTS) COMPONENTS. THE LOCATIONS ON THE ENGINEERING PLANS ARE INFORMATIONAL AND MAY NOT INCLUDE ALL COMPONENTS OF THE OWTS. MANY ITEMS, SUCH AS TANKS, PIPING, DISTRIBUTION DEVICES, SEEPAGE PITS, DISPERSAL FIELDS, AND OTHER APPURTENANCES ARE BURIED AND NOT LOCATABLE BY THE SURVEYOR OR UTILITIES LOCATOR .
   - 1.2. PRIOR TO COMMENCING WORK TO ABANDON, REMOVE, OR REPLACE EXISTING ONSITE WASTEWATER TREATMENT SYSTEM (OWTS) COMPONENTS AN "OWTS ABANDONMENT PERMIT" SHALL BE OBTAINED FROM THE CITY OF MALIBU. ALL WORK PERFORMED IN THE OWTS ABANDONMENT, REMOVAL, OR REPLACEMENT AREA SHALL BE PERFORMED IN STRICT ACCORDANCE WITH ALL APPLICABLE FEDERAL, STATE, AND LOCAL ENVIRONMENTAL AND OCCUPATIONAL SAFETY AND HEALTH REGULATORY REQUIREMENTS. THE OBTAINMENT OF ANY SUCH REQUIRED PERMITS OR APPROVALS FOR THIS SCOPE OF WORK SHALL BE THE RESPONSIBILITY OF THE APPLICANT AND THEIR AGENTS.
   - 1.3. THE EXISTING OWTS COMPONENTS INCLUDING; SEPTIC TANK(S), PIPING, CLEANOUT(S) SEEPAGE PIT(S), DISPERSAL FIELD(S), AND ALL OTHER APPURTENANCES SHALL BE PROPERLY ABANDONED PURSUANT TO CITY OF MALIBU ORDINANCE 435, SECTION 15.40.170 C, AND SECTION 15.40.170 D, TITLE 28 OF THE LOS ANGELES COUNTY CODE, INCORPORATING THE MOST CURRENT CALIFORNIA PLUMBING CODE, LOCAL PLUMBING CODE, AND POLICIES. METHOD OF ABANDONMENT SHALL BE DETERMINED BY THE ENGINEER AND/OR THE OWNER'S REPRESENTATIVE
2. SEWER PIPE SHALL BE BEDDED IN ACCORDANCE WITH SPECIFICATIONS AND TITLE 28 OF THE LOS ANGELES COUNTY CODE, INCORPORATING THE MOST CURRENT CALIFORNIA PLUMBING CODE, LOCAL PLUMBING CODE, AND ORDINANCES.
3. SYSTEM COMPONENTS AND APPURTENANCES (INCLUDING CLEAN-OUTS, VENTS, BACKWATER VALVES, ETC.) SHALL BE INSTALLED IN ACCORDANCE WITH TITLE 28 OF THE LOS ANGELES COUNTY CODE, INCORPORATING THE MOST CURRENT CALIFORNIA PLUMBING CODE, LOCAL PLUMBING CODE, AND POLICIES.
4. ELECTRICAL COMPONENTS AND APPURTENANCES SHALL BE INSTALLED IN ACCORDANCE WITH TITLE 27 OF THE LOS ANGELES COUNTY CODE, INCORPORATING THE MOST CURRENT CALIFORNIA ELECTRICAL CODE, LOCAL ELECTRICAL CODE, AND ORDINANCES.
5. A REGISTERED GEOTECHNICAL ENGINEER, UNDER THE DIRECTION OF THE OWNER, SHALL DETERMINE IF THE WASTEWATER LOADING RATE WILL CAUSE THE EXISTING SLOPE TO BECOME UNSTABLE. ENSITU ENGINEERING INC., IS NOT A GEOTECHNICAL ENGINEERING FIRM, THEREFORE, WE CAN NOT PREDICT AND/OR DETERMINE THE STABILITY OF THE EXISTING SLOPE.
6. THE PROJECT ENGINEERING GEOLOGIST SHALL OBSERVE THE INSTALLATION OF THE TANK AND DISPERSAL SYSTEM COMPONENTS OF THE AOWTS (INCLUDING BUT NOT LIMITED TO; (A) TANK EXCAVATION, BEDDING, AND BACKFILL (B) SEEPAGE PITS EXCAVATION, CONSTRUCTION, AND BACKFILL (C) SUBSURFACE DISPERSAL SYSTEM BEDDING, FILL MATERIAL, CONSTRUCTION, AND BACKFILL) AND PROVIDE THE CITY INSPECTOR WITH A FIELD MEMORANDUM(S) DOCUMENTING AND VERIFYING THAT THE TANK AND DISPERSAL SYSTEM COMPONENTS WERE INSTALLED PER APPROVED AOWTS PLANS.
7. LEACH FIELDS AND DISPERSAL SYSTEMS DESIGNATED AS SAND CATEGORY: ANY REMAINING FILL MATERIAL AND ANY BEACH SAND SEDIMENT THAT MIGHT HAVE REDUCED PERMEABILITY FROM EXISTING LEACH FIELD OPERATIONS ENCOUNTERED BELOW THE BOTTOM OF THE PROPOSED LEACH FIELD OR ANY MATERIAL ENCOUNTERED IN THE CONSTRUCTION OF THE LEACH FIELD THAT IS NOT CATEGORIZED AS BEACH SAND DEPOSITS SHALL BE EXCAVATED TO THE LEVEL OF THE NATIVE BEACH SAND DEPOSITS AND REPLACED WITH DOUBLE- WASHED SAND. THE PROJECT ENGINEERING GEOLOGIST SHALL OBSERVE THE EXCAVATION OF THE LEACH FIELD AND CONFIRM IN WRITING THAT ALL THE DELETERIOUS FILL AND NON-BEACH SAND MATERIALS BELOW THE LEACH FIELD HAVE BEEN REMOVED AND REPLACED WITH CLEAN SAND AND THE LEACH FIELD WAS CONSTRUCTED IN ACCORDANCE WITH THE APPROVED OWTS PLANS.
8. SUBSURFACE DRIP LINE SHALL BE PLACED IN UNCOMPACTED NATIVE SOILS RIPPED AND TILLED A MINIMUM OF 18 INCHES. SOIL SHALL BE AMENDED TO BE 30% SAND, 30% MULCH, 40% NATIVE OR LANDSCAPE DESIGNER SHALL BE CONTACTED TO ADVISE CONTRACTOR ON TYPE OF TOPSOIL TO IMPORT FOR MINIMUM BURIAL DEPTH. DISPERSAL FIELD SHALL BE PLANTED AND ESTABLISHED PRIOR TO OCCUPANCY (ENGINEER TO VERIFY)
9. ALL DIMENSIONS AND GRADES SHALL BE VERIFIED BY CONTRACTOR PRIOR TO SYSTEM INSTALLATION, BUILDING SEWER DEPTH OR CONNECTION POINT WAS NOT PROVIDED AND SHALL BE DETERMINED BY CONTRACTOR PRIOR TO CONSTRUCTION
10. CONTRACTOR TO VERIFY DEPTH AND LOCATION OF BUILDING SEWER CONNECTION, MINIMUM 2% SLOPE FROM STRUCTURE TO CONNECTION POINT.
11. ONSITE WASTEWATER TREATMENT SYSTEM SHALL BE VENTED IN ACCORDANCE WITH TITLE 28 OF THE LOS ANGELES COUNTY CODE, INCORPORATING THE MOST CURRENT CALIFORNIA PLUMBING CODE, LOCAL PLUMBING CODE, AND POLICIES.

LEGEND	
ITP-X	INFILTRATION TEST LOCATION AND SOIL CLASSIFICATION
ITP-X	INFILTRATION TEST LOCATION (WITHOUT SOIL CLASSIFICATION)
ITP-8	DEEP TEST, RYON'S METHOD AND SOIL CLASSIFICATION
	PROPOSED DISPERSAL FIELD
	BUILDINGS AND STRUCTURES
	SITE WALL
	DRIVEWAY
	POOL

EQUIPMENT SCHEDULE			
ITEM	QTY	DESCRIPTION	MFG/PART NUMBER
1	4	CONNECTION TO BUILDING SEWER[1]	
2	4	GRAVITY CLEAN-OUT AND BACKWATER VALVE[1]	INDUSTRIAL BACKWATER VALVE (SPEARS MODEL S475P FOR 4") 8" I.D. VALVE BOX (CHRISTY MODEL F08)
3	11	GRAVITY CLEAN-OUT[1]	
4	1	TREATMENT TANK[1][2]	
5	2	AIR COMPRESSOR[1][2]	MICROSEPTEC
6	1	REMOTE TELEMETRY CONTROL UNIT DEDICATED COMMUNICATION AND POWER AS OUTLINED IN MANUFACTURER INSTALLATION GUIDELINES[1][2]	MICROSEPTEC
7	1	CONTROL UNIT DEDICATED COMMUNICATION AND POWER AS OUTLINED IN MANUFACTURER INSTALLATION GUIDELINES.[1][2]	GEOFLOW
8	1	DUPLEX PUMP SYSTEM[1][2]	GEOFLOW
9	1	DISPERSAL FIELD HEADWORKS[1][2]	GEOFLOW
10	1	DISPERSAL FIELD ISOLATION CHECK VALVE ASSEMBLY[1][2]	SPEARS MODEL 2229 OR 2222
11	2	AIR VENT/VACUUM RELIEF ASSEMBLY[1]	GEOFLOW PART NUMBER APVBK
12	1	VENT ASSEMBLY[1][2]	ORENCO
[1]		ALL PLUMBING APPURTENANCES AND WORK SHALL COMPLY WITH CURRENT LOCAL, COUNTY, AND STATE PLUMBING CODES. APPURTENANCES AND WORK INCLUDE, BUT ARE NOT LIMITED TO; CONNECTION TO BUILDING PLUMBING, VENTILATION, ISOLATION, BACKWATER VALVES, CLEANOUTS, AND FITTINGS.	
[2]		ALL ELECTRICAL APPURTENANCES INCLUDING BUT NOT LIMITED TO: CONDUIT, CONDUCTOR, CONTROL PANELS, CONTACTORS, FLOATS, PUMPS, DISCONNECTS, AND COMMUNICATION DEVICES SHALL COMPLY WITH CURRENT LOCAL, COUNTY, AND STATE ELECTRICAL CODE AND CURRENT NATIONAL ELECTRIC CODE. CONDUIT AND CONDUCTOR RUNS AND SIZING SHOWN ON PLAN ARE FOR ALIGNMENT AND COST ESTIMATION. ELECTRICAL CONTRACTOR SHALL SPECIFY ALL ELECTRICAL APPURTENANCES. CONTROL AND POWER CONDUCTORS SHALL BE PLACED IN SEPARATE CONDUIT	

FINAL FOR APPROVAL
ISSUED
04/01/2021

JOHN N. YAROSLASKI
PRINCIPAL ENGINEER

Project Engineer: John N Yaroslaski PE # 60149
DWG NAME: D:\Ensitu Engineering Inc\EEI - P\444-05 25200 Pacific Coast Highway PWCR\444-05 Engineering\Cad Design\444-05.010 25200 Pacific Coast Highway PWCR-06.dwg
CREATION TIME: Monday, April 5, 2021 07:27:32
MOD. TIME: Monday, April 5, 2021 07:30:07
PLOT TIME: Thursday, April 8, 2021 08:33:54

REVISIONS

NO.	DATE	BY

444-05 25200 PACIFIC COAST HIGHWAY: AOWTS
CONFORMANCE REVIEW
CR-SITE PLANS AND TABLES 11x17
MALIBU, CALIFORNIA

ENSITU
ENSITU ENGINEERING, INC.
"Dedicated to achieving higher standards in onsite and decentralized wastewater systems."
7475 CARMELITA AVE.
ATASCADERO, CA 93422
Tel: 805.772.0150
Fax: 805.772.0813
ENSITU@ensitu.com

REGISTERED PROFESSIONAL ENGINEER
JOHN N. YAROSLASKI
60149
EXP 06-2022
CIVIL
STATE OF CALIFORNIA

DATE: 04/01/2021
DESIGNED BY: JNY
DRAWN BY: JNY
CHECKED BY: JNY

JOB NO. 444-05

SHEET 1 OF 1

City of Malibu

23825 Stuart Ranch Road • Malibu, California 90265-4861
(310) 456-2489 • Fax (310) 456-3356 • www.malibucity.org

GEOTECHNICAL REVIEW SHEET

Project Information

Date: April 11, 2023 **4165**

Site Address: 25200 Pacific Coast Highway

Lot/Tract/PM #: n/a **Planning #:** **CDP 19-012** PA 18-001

Applicant/Contact: Cole Smith, csmith@weintraubre.com; Jake Jesson, JJesson@weintraubre.com **BPC/GPC #:**

Contact Phone #: 949-878-6298 **Fax #:** **Planner:** **Adrian Fernandez**

Project Type: New single-family residential development

Submittal Information

Consultant(s)/Report Date(s): *(Current submittal(s) in **Bold**.)*	Feffer Geological Consulting (Daneshfar, RCE 68377; Feffer, CEG 2138): **3-17-23**, 1-6-23**,** 9-28-2022, 4-28-2022, 11-18-2021, 4-26-21, 3-25-2021, 6-18-2020, 12-17-2019, 11-20-18, 5-21-18 Feffer Geological Consulting (Feffer, CEG 2138): 7-1-2020 EnSitu Engineering, Inc. (Yaroslaski, RCE 60149): **11-25-2020**, 7-2-2020, 4-29-2020 Architectural plans prepared by Oppenheim Architecture dated April 12, 2021. OWTS plans prepared by EnSitu Engineering, Inc. dated April 1, 2021.
Previous Reviews:	2-14-23, 11-11-22, 7-5-2022, 2-28-2022, Environmental Health Review Sheet dated 8-18-2021, 6-4-2021, 8-4-20, 1-29-2020, 1-14-19, 8-27-18

Review Findings

Coastal Development Permit Review

☒ The residential development project is **ACCEPTABLE** from a geotechnical perspective.

☐ The revised soldier pile locations for the residential development project is **NOT ACCEPTABLE** from a geotechnical perspective. The listed 'Review Comments' shall be addressed prior to acceptance.

Building Plan-Check Stage Review

☒ Awaiting Building plan check submittal.

☐ The plans are **COMPLETE** from a geotechnical perspective. Please review the attached 'Geotechnical Notes for Building Plan Check' and incorporate into Building Plan-Check submittals.

☐ The plans are **NOT COMPLETE** from a geotechnical perspective. The listed 'Building Plan-Check Stage Review Comments' shall be addressed prior to Building Plan-Check Stage completion.

Project submittals were reviewed from a geotechnical perspective for conformance with applicable codes, guidelines and standards of practice, including the following current City adopted standards:

- City of Malibu Local Coastal Program – Land Use Plan and Local Implementation Plan (LCP-LUP and LCP-LIP)
- Malibu Municipal Code – Title 15, Buildings and Construction
- City of Malibu Guidelines for the Preparation of Geotechnical Reports and Procedures for Report Submittal (November 2013) referred to herein as Geotechnical Report Guidelines

In the case of conflicting requirements between the Geotechnical Guidelines and any other referenced standards, the latest standard will apply. The Applicant is responsible for complying with the submittal requirements for all Planning variances, as appropriate; any questions regarding variances should be directed to the case Planner.

Remarks

The recent submittal includes a response by Feffer Geological Consulting, the Project Geotechnical Consultant, to the review letter by the City of Malibu dated February 14, 2023 regarding the proposed soldier pile and tieback stabilization system. The referenced response geotechnical report and OWTS design report (appended in the response geotechnical report dated 9-28-2022) were reviewed by the City's consultants from a geotechnical perspective. The project, originally submitted to the City as a Pre-Application (PA) for City geotechnical staff to review to determine if a single-family residential project is feasible on the property, has now been submitted to the City for a Coastal Development Permit (CDP). The project includes a new 9,808 square foot one-story single-family residence with a 2,881 square foot basement/garage, a detached 429 square foot guest bedroom, water features in the basement and the ground floor totaling 10,462 square feet, a swimming pool and plunge pool, covered terraces totaling 5,734 square feet, a tennis court, grading, and retaining walls. The OWTS consists of a treatment tank system (7,540-gallon MicroSeptec ES25 with a UV disinfection unit) and a 5,100 square foot subsurface irrigation dispersal field. The design flow is 1,050 gpd, the maximum loading rate is 0.39 gpsfd and the design loading rate is 0.206 gpsfd.

Building Plan-Check Stage Review Comments:

1. Please submit a fee of $1016.00 to City geotechnical staff for building plan check review.
2. The Project Geotechnical Consultant provides recommendations for earth pressures on retaining walls under static and pseudo-static loading conditions. The consultant used shear strength of bedrock, not backfill materials in the limit equilibrium analyses. As discussed in a phone conversation with the consultant on June 7, 2021, shear strength parameters of backfill materials shall be used. The Consultant provided the undersigned geotechnical reviewer revised earth pressure calculations for retaining walls design that were considered acceptable via email on June 10, 2021. Hence, retaining wall recommendations should be revised accordingly.

   Note: In response to the above comment, the Consultant provided calculations, not revised recommendations, as requested in the above comment. Please provide revised recommendations based on the submitted calculations.
3. The Consultant needs to evaluate the lateral deformation and rotation of the proposed piles when foundations loads and plans become available. Provide the results of the evaluation for review.
4. A schedule of soldier piles diameter, free standing depth, total depth, and the magnitude and points of application of the applied lateral forces/shear and moments need to be depicted on the foundation plans.
5. Tiebacks total length and loading schedule should be depicted on the plans.
6. Areas above tiebacks should be designated as restricted use areas.
7. Tiebacks installation specifications and testing schedule should be depicted on the plans.
8. Please provide reduced setback letters from the OWTS, geotechnical and structural consultants for any reduced setbacks between the OWTS components and new foundations, as applicable.

9. Section 7.4 of the City's geotechnical guidelines requires a minimum thickness of 10 mils for vapor barriers beneath slabs-on-grade. Building plans shall reflect this requirement.

10. Please include the following note on the plans: *"The Project Geotechnical Consultant shall prepare an as-built report documenting the installation of the pile foundation elements for review by City Geotechnical staff. The report shall include total depths of the piles, minimum depth into the recommended bearing material, actual depth into the recommended bearing material, and a map depicting the locations of the piles."*

11. One set of final electronic OWTS plans incorporating the Project Geotechnical and Environmental Health Specialists' recommendations and items in this review sheet must be **reviewed and e-stamped and e-signed by the Project Engineering Geologist**. The City's geotechnical consultants will review the plans for conformance with the Project Geotechnical Consultants' recommendations and items in this review sheet**.**

12. One set of electronic grading, retaining wall, guest bedroom, swimming pool and spa and plunge pool, tennis court, and residence plans **(APPROVED BY BUILDING AND SAFETY)** incorporating the Project Geotechnical Consultant's recommendations and items in this review sheet must be **reviewed and e-stamped and e-signed by the Project Engineering Geologist and Project Civil/Geotechnical Engineer**. City geotechnical staff will review the plans for conformance with the Project Geotechnical Consultants' recommendations and items in this review sheet. Please direct questions regarding this review sheet to City Geotechnical staff listed below.

Please direct questions regarding this review sheet to the City's Geotechnical consultants listed below.

Engineering Geology Review by: _____ 4-11-2023

Christopher Dean, C.E.G. #1751, Exp. 9-30-24 Date
Engineering Geology Reviewer (408-656-3210)
Email: cdean@malibucity.org

Geotechnical Engineering Review by: _____ 4-11-2023

Ali Abdel-Haq, G.E. #2308, Exp. 12-31-23 Date
Geotechnical Engineering Reviewer (805-496-1222)
Email: ali@geodynamics-inc.com

This review sheet was prepared by representatives of Cotton, Shires and Associates, Inc. and GeoDynamics, Inc., contracted through Cotton, Shires and Associates, Inc., as an agent of the City of Malibu.

COTTON, SHIRES AND ASSOCIATES, INC.
CONSULTING ENGINEERS AND GEOLOGISTS

GeoDynamics, Inc.
Applied Earth Sciences
Geotechnical Engineering & Engineering Geology Consultants

City of Malibu

23825 Stuart Ranch Rd., Malibu, California CA 90265-4804
(310) 456-2489 FAX (310) 456-3356 www.malibucity.org

LOS ANGELES COUNTY WATERWORKS DISTRICTS REVIEW
REFERRAL SHEET

FROM: City of Malibu Planning Department **DATE:** 12/02/2021

PROJECT NUMBER: CDP 19-012

JOB ADDRESS: 25200 Pacific Coast Highway, Malibu, CA 90265

APPLICANT / CONTACT: Jake Jesson

APPLICANT EMAIL: jjesson@weintraubre.com

APPLICANT PHONE #: (310) 739-7931

PLANNER: Adrian Fernandez

PROJECT DESCRIPTION:

TO: Malibu Planning Department and/or Applicant

FROM: LACWD No. 29, Malibu

Compliance with the conditions checked below is required prior to Waterworks District approval

The project **DOES NOT** require any system improvements for domestic and/or fire flow conditions _____

The project **DOES NOT** require capital improvement fees and/or participation fees _____

The project **DOES** require a Will Serve Letter ***(Final Waterworks Districts approval)*** ✓

The project **DOES** require capital improvement fees and/or participation fees _____

The project **DOES** require the owner to execute an agreement and participate financially in the design and construction of a future water system to increase local storage and conveyance capacity in the event of an interruption of the primary water supply _____

The project **DOES** require private contract water system improvements for domestic and/or fire flow conditions ✓

The required fire flow for this project set by the Fire Department is 1,350 gallons per minute at 20 pounds per square inch for a 2 hour duration

Scope of water system improvements required:

Installation of approximately 1,000 to 1,500 feet of 8" diameter water main (final length will be determine when we receive the approved hydrant location fom FD), one 6" x 4" x 2-1/2" fire hydrant assembly per Standard detail W-8, one 8" gate valve, one new interconnections to the existing 8" water main, and all necessary appurtenances.

Note: Los Angeles County Waterworks District No. 29, Malibu approval expires upon the earliest of the following: 1) Two years from the date of this form; 2) Expiration date of the City Planning permit(s), or 3) Date County adopts changes to the county of Los Angeles Fire Code an makes revisions to appli le ire Department regulations and standards.

12/15/2021

SIGNATURE **DATE**

Additional requirements/conditions may be imposed upon review of complete architectural plans.
Los Angeles County Waterworks District No. 29, Malibu may be contacted by phone at (310) 317-1389 or at the Waterworks Public Counter:
23533 Civic Center Way, Malibu CA 90265; Hours: Monday-Thursday 8:00am – 12:00pm

City of Malibu

23825 Stuart Ranch Rd., Malibu, California CA 90265-4861
(310) 456-2489 FAX (310) 456-7650

PUBLIC WORKS REVIEW
REFERRAL SHEET

TO: Public Works Department

FROM: City of Malibu Planning Department **REVISED DATE** 04/08/2025

PROJECT NUMBER:	CDP 19-012
JOB ADDRESS:	25200 PACIFIC COAST HWY
APPLICANT / CONTACT:	Jake Jesson, 180 PCH, LLC
APPLICANT ADDRESS:	PO Box 6528 Malibu, CA 90264
APPLICANT PHONE #:	(310)739-7931
APPLICANT FAX #:	(310) 456-2644
APPLICANT EMAIL:	jjesson@weintraubre.com
PROJECT DESCRIPTION:	NSFR, guest house, pool, spa, and lot merger

---

TO: Malibu Planning Department and/or Applicant

FROM: Public Works Department

____ **The following items described on the attached memorandum shall be addressed and resubmitted.**

X **The project was reviewed and found to be in conformance with the City's Public Works and LCP policies and CAN proceed through the Planning process.**

Building Plan Check (BPC) Required ☒ Yes ☐ No BPC Fees Req'd $ 2,540

Nathan Mercer — SIGNATURE

4/8/2025 — DATE

Previous conditions issued 12/21/2021 still apply.

City of Malibu
MEMORANDUM

To: Planning Department

From: Public Works Department
Jenna Sobieray, Associate Civil Engineer

Date: December 21, 2021

Re: Proposed Conditions of Approval for 25200 Pacific Coast Hwy CDP 19-012

The Public Works Department has reviewed the plans submitted for the above referenced project. Based on this review sufficient information has been submitted to confirm that conformance with the Malibu Local Coastal Plan (LCP) and the Malibu Municipal Code (MMC) can be attained. Prior to the issuance of building and grading permits, the applicant shall comply with the following conditions.

STREET IMPROVEMENTS

1. This project proposes to construct a new driveway within Caltrans' right-of-way. Prior to the Public Works Department approval of the grading or building permit, the applicant shall obtain encroachment permits from Caltrans for the proposed driveway.

2. The applicant shall update and install a new curb and gutter on Pacific Coast Highway to accommodate proposed drainage design. Prior to the Public Works Department approval of the grading or building permit, the applicant shall provide Caltrans approval for Pacific Coast Highway improvements and drainage design.

GRADING AND DRAINAGE

3. Clearing and grading during the rainy season (extending from November 1 to March 31) shall be prohibited for development LIP Section 17.3.1 that:
    - Is located within or adjacent to ESHA, or
    - Includes grading on slopes greater than 4:1
    - Approved grading for development that is located within or adjacent to ESHA or on slopes greater than 4:1 shall not be undertaken unless there is sufficient time to complete grading operations before the rainy season. If grading operations are not completed before the rainy season begins, grading shall be halted and temporary

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erosion control measures shall be put into place to minimize erosion until grading resumes after March 31, unless the City determines that completion of grading would be more protective of resources

4. Exported soil from a site shall be taken to the County Landfill or to a site with an active grading permit and the ability to accept the material in compliance with the City's LIP Section 8.3. **A note shall be placed on the project that addresses this condition.**

5. A grading and drainage plan shall be approved containing the following information prior to the issuance of grading permits for the project.
    - Public Works Department General Notes
    - The existing and proposed square footage of impervious coverage on the property shall be shown on the grading plan (including separate areas for buildings, driveways, walkways, parking, tennis courts and pool decks).
    - The limits of land to be disturbed during project development shall be delineated on the grading plan and a total area shall be shown on the plan. Areas disturbed by grading equipment beyond the limits of grading, areas disturbed for the installation of the septic system, and areas disturbed for the installation of the detention system shall be included within the area delineated.
    - The grading limits shall include the temporary cuts made for retaining walls, buttresses, and over excavations for fill slopes and shall be shown on the grading plan.
    - If the property contains trees that are to be protected they shall be highlighted on the grading plan.
    - If the property contains rare and endangered species as identified in the resources study the grading plan shall contain a prominent note identifying the areas to be protected (to be left undisturbed). Fencing of these areas shall be delineated on the grading plan if required by the City Biologist.
    - Private storm drain systems shall be shown on the grading plan. Systems greater than 12-inch diameter shall also have a plan and profile for the system included with the grading plan.
    - Public storm drain modifications shown on the grading plan shall be approved by the Public Works Department prior to the issuance of the grading permit.

6. A digital drawing (AutoCAD) of the project's private storm drain system, public storm drain system within 250 feet of the property limits, and post-construction BMP's shall be submitted to the Public Works Department prior to the issuance of grading or building permits. The digital drawing shall adequately show all storm drain lines, inlets, outlet, post-construction BMP's and other applicable facilities. The digital drawing shall also show the subject property, public or private street, and any drainage easements.

7. The applicant shall label all City/County storm drain inlets within 250 feet from each property line per the City of Malibu's standard label template. A note shall be placed on the project plans that address this condition.

8. Prior to the approval of the drainage plan, the applicant shall remove the existing CMP pipe onsite and install a new pipe to redirect water currently draining to the lot. The new pipe shall be designed in accordance with Caltrans and LA County Flood Standards. A video recording and images of the completed pipe shall be submitted to the City of Malibu Public Works Department. Applicant shall coordinate any easements required for the maintenance of the pipe with the appropriate agencies.

STORMWATER

9. The ocean between Latigo Point and the West City limits has been established by the State Water Resources Control Board as an Area of Special Biological Significance (ASBS) as part of the California Ocean Plan. This designation allows discharge of storm water only where it is essential for flood control or slope stability, including roof, landscape, road and parking lot drainage, to prevent soil erosion, only occurs during wet weather, and is composed of only storm water runoff. The applicant shall provide a drainage system that accomplishes the following:

    - Installation of BMPs that are designed to treat the potential pollutants in the storm water runoff so that it does not alter the natural ocean water quality. These pollutants include trash, oil and grease, metals, bacteria, nutrients, pesticides, herbicides and sediment.
    - Prohibits the discharge of trash.
    - Only discharges from existing storm drain outfalls are allowed. No new outfalls will be allowed. Any proposed or new storm water discharged shall be routed to existing storm drain outfalls and shall not result in any new contribution of waste to the ASBS (i.e. no additional pollutant loading).
    - Elimination of non-storm water discharges.

10. A Storm Water Pollution Prevention Plan shall be provided prior to the issuance of the Grading/Building permits for the project. This plan shall include an Erosion and Sediment Control Plan (ESCP) that includes, but not limited to:

Erosion Controls	Hydraulic Mulch
	Hydroseeding
	Soil Binders
	Straw Mulch
	Geotextiles and Mats
	Wood Mulching
Sediment Controls	Fiber Rolls
	Gravel Bag Berm
	Street Sweeping and/ or Vacuum
	Storm Drain Inlet Protection
	Scheduling

	Check Dam
Additional Controls	Wind Erosion Controls
	Stabilized Construction Entrance/ Exit
	Stabilized Construction Roadway
	Entrance/ Exit Tire Wash
Non-Stormwater Management	Vehicle and Equipment Washing
	Vehicle and Equipment Fueling
	Vehicle and Equipment Maintenance
Waste Management	Material Delivery and Storage
	Spill Prevention and Control

All Best Management Practices (BMP) shall be in accordance to the latest version of the California Stormwater Quality Association (CASQA) BMP Handbook. Designated areas for the storage of construction materials, solid waste management, and portable toilets must not disrupt drainage patterns or subject the material to erosion by site runoff.

11. Prior to the approval of any permits and prior to the applicant submitting the required Construction General Permit documents to the State Water Quality Control Board, the applicant shall submit to the Public Works Department for review and approval an Erosion and Sediment Control Plan (ESCP). The ESCP shall contain appropriate site-specific construction site BMPs and developed and certified by a Qualified SWPPP Developer (QWD). All structural BMPs must be designed by a licensed California Engineer. The ESCP must address the following elements:

    - Methods to minimize the footprint of the disturbed area and to prevent soil compaction outside the disturbed area.
    - Methods used to protect native vegetation and trees.
    - Sediment/Erosion Control.
    - Controls to prevent tracking on and off the site.
    - Non-storm water controls.
    - Material management (delivery and storage).
    - Spill Prevention and Control.
    - Waste Management
    - Identification of site Risk Level as identified per the requirements in Appendix 1 of the Construction General Permit.
    - Landowner must sign the following statement on the ESCP:

      "I certify that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to ensure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system or those persons directly responsible for gathering the information, to the best of my knowledge and belief,

Recycled Paper

the information submitted is true, accurate and complete. I am aware that submitting false and/or inaccurate information, failing to update the ESCP to reflect current conditions, or failing to properly and/or adequately implement the ESCP may result in revocation of grading and/or other permits or other sanctions provided by law."

12. A State Construction activity permit is required for this project due to the disturbance of more than one acre of land for development. Provide a copy of the letter from the State Water Quality Control Board containing the WDID number prior to the issuance of grading or building permits.

13. A Storm Water Management Plan (SWMP) is required for this project. Storm drainage improvements are required to mitigate increased runoff generated by property development. The applicant shall have the choice of one method specified within the City's Local Implementation Plan Section 17.3.2.B.2. The SWMP shall be supported by a hydrology and hydraulic study that identifies all areas contributory to the property and an analysis of the predevelopment and post development drainage of the site. The SWMP shall identify the Site design and Source control Best Management Practices (BMP's) that have been implemented in the design of the project (See LIP Chapter 17 Appendix A). The SWMP shall be reviewed and approved by the Public Works Department prior to the issuance of the grading/building permits for this project.

14. A Water Quality Mitigation Plan (WQMP) is required for this project. The WQMP shall be supported by a hydrology and hydraulic study that identifies all areas contributory to the property and an analysis of the predevelopment and post development drainage of the site. The WQMP shall meet all the requirements of the City's current Municipal Separate Stormwater Sewer System (MS4) permit. The following elements shall be included within the WQMP:
    - Site Design Best Management Practices (BMP's)
    - Source Control BMP's
    - Treatment Control BMP's that retains on-site the Stormwater Quality Design Volume (SWQDv). Or where it is technical infeasible to retain on-site, the project must biofiltrate 1.5 times the SWQDv that is not retained on-site.
    - Drainage Improvements
    - A plan for the maintenance and monitoring of the proposed treatment BMP's for the expected life of the structure.
    - A copy of the WQMP shall be filed against the property to provide constructive notice to future property owners of their obligation to maintain the water quality measures installed during construction prior to the issuance of grading or building permits.
    - The WQMP shall be submitted to Public Works Department and the fee applicable at time of submittal for the review of the WQMP shall be paid prior to the start of the technical review. The WQMP shall be approved prior to the Public Works Department's approval of the grading and drainage plan and or building plans.

The Public Works Department will tentatively approve the plan and will keep a copy until the completion of the project. Once the project is completed, the applicant shall verify the installation of the BMP's, make any revisions to the WQMP, and resubmit to the Public Works Department for approval. The original signed and notarized document shall be recorded with the County Recorder. A copy of the WQMP shall be submitted to the Public Works Department prior to the certificate of occupancy.

15. HYDROMODIFICATION – Alteration or disturbance of streams or natural drainage courses or human-made or altered drainage courses that have replaced natural streams or drainages and serve the same function, **shall be prohibited**.
    - Necessary water supply projects where no feasible alternative exists.
    - Flood protection for existing development where there is no other feasible alternative.
    - The improvement of fish and wildlife habitat.

MISCELLANOUS

16. The developer's consulting engineer shall sign the final plans prior to the issuance of permits.

17. The discharge of swimming pool, spa and decorative fountain water and filter backwash, including water containing bacteria, detergents, wastes, algaecides or other chemicals is prohibited. Swimming pool, spa, and decorative fountain water may be used as landscape irrigation only if the following items are met:

    - The discharge water is dechlorinated, debrominated or if the water is disinfected using ozonation;
    - There are sufficient BMPs in place to prevent soil erosion; and
    - The discharge does not reach into the MS4 or to the ASBS (including tributaries)

    Discharges not meeting the above-mentioned methods must be trucked to a Publicly Owned Wastewater Treatment Works.

    The applicant shall also provide a construction note on the plans that directs the contractor to install a new sign stating **"It is illegal to discharge pool, spa or water feature waters to a street, drainage course or storm drain per MMC 13.04.060(D)(5)."** The new sign shall be posted in the filtration and/or pumping equipment area for the property. Prior to the issuance of any permits, the applicant shall indicate the method of disinfection and the method of discharging.

18. The applicant shall prepare a Traffic Impact Analysis (TIA) per the City of Malibu TIA Guidelines. The TIA shall be reviewed and approved by the Public Works Department prior to the issuance of the grading and or building permits. The applicant shall also be

required to construct the applicable mitigation measures recommended in the TIA. The traffic mitigation measures shall be constructed prior to occupancy of the first building.

19. Prior to the commencement of work, the applicant shall submit a copy of their Construction Management Plan. The Construction Management Plan shall include a dedicated parking location for construction workers, not within the public right of way.

20. Prior to the approval of any grading and drainage permit, the applicant shall submit a PDF of the final plans. If there are further modifications to the plans, the applicant shall provide the City with an updated PDF.

21. LOT LINE ADJUSTMENT/LOT MERGER (with development)

    a. The proposed lot line adjustment/lot merger must be approved by the City and filed with the City Clerk's office prior to the approval of this grading permit.
    b. Upon review of the documents provided, the City may require submittal of additional documents or maps, depending upon the completeness of the initial submittal.

Recycled Paper

From: Bill Sampson [redacted]
Sent: Saturday, April 20, 2024 10:35 PM
To: Jo Drummond [redacted]; Frank Angel [redacted]
Cc: Charlotte Frieze [redacted]; John Mazza [redacted]; LSGLA [redacted]; Patricia Salazar <psalazar@malibucity.org>; andrea slosberg-philipson [redacted]; [redacted] Andrew Ferguson [redacted]; Peggy Hall Kaplan [redacted]; Lonnie Gordon [redacted]; Scott Dittrich [redacted] Trevor Neilson [redacted]; Richard Lawrence [redacted]; Paul Taublieb [redacted] Colin Drummond [redacted]; Dawn Ericson [redacted]; Mark Olsen [redacted]; MariEllen [redacted]; Poison Malibu [redacted]; Georgia Goldfarb [redacted]; Richard Mollica <rmollica@malibucity.org>; Kraig Hill [redacted]; Sam Kaplan [redacted]; Patt Healy [redacted]; Ann Doneen [redacted]; Jefferson Wagner [redacted]; R N [redacted]; Barbara Burke [redacted]; Samantha Bravo <samantha@malibutimes.com>; Dru Jacobson [redacted]
Subject: Re: What are all these story poles on PCH between Puerco and Corral Canyon??

I am shocked, SHOCKED that dastardly concrete caballeros exist in Malibu. Round up the usual suspects

MalibuBill

On Saturday, April 20, 2024 at 09:46:05 PM PDT, Frank Angel [redacted] wrote:

Guess who it is:

BA20240576938

STATE OF CALIFORNIA
Office of the Secretary of State
STATEMENT OF INFORMATION
LIMITED LIABILITY COMPANY
California Secretary of State
1500 11th Street
Sacramento, California 95814
(916) 657-5448

For Office Use Only
-FILED-
File No.: BA20240576938
Date Filed: 3/28/2024

Entity Details

Limited Liability Company Name	PAR PCH LLC
Entity No.	[redacted]
Formed In	CALIFORNIA

Street Address of Principal Office of LLC

Principal Address	[redacted]

Mailing Address of LLC

Mailing Address	[redacted]
Attention	

Street Address of California Office of LLC

Street Address of California Office	[redacted]

Manager(s) or Member(s)

Manager or Member Name	Manager or Member Address
[redacted]	[redacted]

Agent for Service of Process

California Registered Corporate Agent (1505)	PARACORP INCORPORATED Registered Corporate 1505 Agent

Type of Business

Type of Business	REAL ESTATE INVESTMENT

Email Notifications

Opt-in Email Notifications	Yes, I opt-in to receive entity notifications via email.

Chief Executive Officer (CEO)

CEO Name	CEO Address
None Entered	

Labor Judgment

No Manager or Member, as further defined by California Corporations Code section 17702.09(a)(8), has an outstanding final judgment issued by the Division of Labor Standards Enforcement or a court of law, for which no appeal is pending, for the violation of any wage order or provision of the Labor Code.

Electronic Signature

☒ By signing, I affirm under penalty of perjury that the information herein is true and correct and that I am authorized by California law to sign.

Lisa Strickland — Signature

03/28/2024 — Date

B2618-9628 03/28/2024 10:59 AM Received by California Secretary of State

Sent from my iPad

Frank P. Angel

@FrankPAngel1

www.angellaw.com

[redacted]

[redacted]

On Apr 20, 2024, at 12:22 PM, Jo Drummond [redacted] wrote:

We must all come together to oppose these projects in GREAT NUMBERS.

We need a ton of written opposition and in person: 1. On Monday, May 13 at city council for the Malibu Inn Hotel that we will be sending out the multiple risk and violations talking points in the next week and the future obvious threat to Aviator Nation this project holds and 2. On Monday, May 20 at the Planning Commission when this HUGE view blocking beachside property will be likely bulldozed through by our THREE PRO DEVELOPMENT Planning Commissioners. Grisanti continues to show what he really stands for in appointing Dennis Smith who APPROVES EVERYTHING with multiple variances and height violations. Grisanti did this with the Bluffs and the Crummer/Case property he sold out for and now he's going to try and ruin the view here next.

Not again and not if we can help it!

He NEEDS to be voted out in November.

We will keep you posted on what you can do to oppose upcoming projects like this. Stay tuned!

Xx, Jo

On Apr 20, 2024, at 11:45 AM, Charlotte Frieze [redacted] wrote:

How do you think we can best save our views?

On Sat, Apr 20, 2024 at 11:42 AM John Mazza [redacted] wrote:

Another impressive view that is almost gone at the very end of Birdview as the road starts to go down to the Sunset Restaurant. The owner has but in a forest of pine trees that is blocking a great up coast view of the coast towards Pt Magu on a view protected street.

On Saturday, April 20, 2024 at 11:39:11 AM PDT, Charlotte Frieze [redacted] wrote:

I would add to this that it is an important view corridor appreciated by every visitor to Malibu. It is the reason that PCH is a must on every California adventure.

Could we designate this an historical view? It is definitely an American Cultural View.

Charlotte

On Sat, Apr 20, 2024 at 10:58 AM LSGLA [redacted] wrote:

Dear Jo, Friends, Neighbors and Planning:

We are in full agreement with you, Jo!

In reference to the project, 180 PCH, as submitted below, it is a true example of excess and a violation of our Mission statement, codes and character — not unlike the Malibu Inn 'HMotel' project.

I am reminded of years past when I worked with Doug Burdge for a client, who loved to remodel vanity projects, including a BASEMENT...ludicrous.

As I learned from Burdge & Associates, the strategy was to always ask for the most outrageous, knowing it would be pared down to what you were truly after... I suspect this was the case with the 'HMotel' and the jokes on planning, who 'planned' his farcical endeavor.

Needless to say, I am unaware of the architect for 180 PCH, or their strategy, albeit very reminiscent of Burdge. The Billionaires Boys Club, in neon, has been illuminated to our detriment. Vanity projects to feed empty vessels. Malibu For Sale by the unscrupulous.

I would ask my friends and neighbors

who occupy the seats of the Planning Commission, especially those who grew up here, to vote with your conscience, and restore the moral compass of our community and values. Or, just apply the codes, lawfully, and the restrictions, stop with the variances.

More is just more, not better. Malibu kids deserve a rural community, untouched nature and open spaces, not the West Coast Miami Beach.

When will we rise up, use our voices and stop this blatant violation and exploitation of Malibu? We are the guardians...or are we?

With gratitude, Jo 🙏🏻

LSG

Lynn Saunders Guilburt

[redacted]

Malibu, CA 90265

[redacted]

CONFIDENTIAL: The information contained in this message may be privileged and confidential and protected from disclosure. If the reader of this message is not the intended recipient, or an employee or agent responsible for delivering this message to the intended recipient, you are hereby notified that any reproduction, dissemination or distribution of this communication is strictly prohibited. If you have received this communication in error, please notify us immediately by replying to the message and deleting it from your computer.

On Apr 20, 2024, at 9:43 AM, Jo Drummond [redacted] wrote:

Hi Patricia...thanks for this.

Not sure why I can't reply all as there is no Brown Act issue here. But if you need to send to the other Planning Commissioners please do let them know of the flood of opposition coming to yet another HUGE beachside, insanely view blocking, beach eroding, geology questioning, ocean and ESHA polluting monstrosity in our once quiet, safe and rural beach town.

The City needs to STOP approving boundary and code breaking gigantic projects like these including the upcoming MALIBU INN HOTEL - across from the pier - over the multitude of small EXISTING resident projects and modest fire rebuilds in planning that are hardly as risky. We NEED TO KEEP the open space along our coastline and protect our beaches, cultural resources and scenic views.

Please send the story pole plans and the heights. The story poles definitely show MORE than is described in the CDP info below and should be checked on the applications to match.

Thanks very much, Jo

On Apr 19, 2024, at 6:01 PM, Patricia Salazar <psalazar@malibucity.org> wrote:

PLEASE DO NOT REPLY TO ALL

Good evening,

The project is CDP 19-012 located at 25200 PCH (4459-013-021 and 4459-014-018). The Notice of Planning Commission Public Hearing will be published on Thursday, April 25, for a hearing on May 20. Below is the project description contained in the notice.

COASTAL DEVELOPMENT PERMIT NO. 19-012, CONDITIONAL CERTIFICATE OF COMPLIANCE NO. 21-004, AND SITE PLAN REVIEW NO. 23-027 - An application for the construction of a new one-story, 9,219 square foot single-family residence, including a 1,000 square foot subterranean two-car garage, 1,523 square foot basement, 676 square foot gym, detached 465 square foot guest house, swimming pools, driveways, decks, landscaping, water features, hardscape, grading, retaining walls, and onsite wastewater treatment system; including a site plan review for construction of visually impermeable freestanding walls up to 12 feet in height and a conditional certificate of compliance to recognize the existing property as a single lot

Location:	25200 Pacific Coast Highway
APNs:	4459-013-021 and 4459-014-018
Zoning:	Rural Residential, Two-Acre (RR-2)
Applicant:	180 PCH, LLC
Owner:	PAR PCH LLC

Appealable to:	City Council and California Coastal Commission
Environmental Review: and 15303(e)	Categorical Exemption CEQA Guidelines Sections 15303(a)
Application Filed:	March 7, 2019
Case Planner:	Allison Cook, Contract Planner
	(805) 415-1991
	capstonecityplan@gmail.com

Regards,

Patricia Salazar

Development and Operations Manager | Planning Department

Office: (310) 456-2489 ext. 245

23825 Stuart Ranch Road | Malibu, CA 90265





From: [redacted]
Sent: Friday, April 19, 2024 4:20 PM
To: John Mazza [redacted]; Jo Drummond [redacted]; Richard Mollica <rmollica@malibucity.org>; Patricia Salazar <psalazar@malibucity.org>
Cc: Kraig Hill [redacted]; Lsgla Saunders [redacted]; Sam Kaplan [redacted]; Patt Healy [redacted]; Bill Sampson [redacted]; Ann Doneen [redacted] Jefferson Wagner [redacted]; Dru Jacobson [redacted]
Subject: Re: What are all these story poles?

It's the property next to Cher.

On Friday, April 19, 2024 at 04:15:32 PM PDT, Patricia Salazar <psalazar@malibucity.org> wrote:

Good afternoon,

I'm working to identify the application for you. I'll get back to you on Monday.

Regards,

<image001.png>

Patricia Salazar

Development and Operations Manager | Planning Department

Office: (310) 456-2489 ext. 245

23825 Stuart Ranch Road | Malibu, CA 90265

<image002.png>

<image003.png>

<image004.png>

<image005.png>

<image006.png>

On Friday, April 19, 2024 at 03:59:57 PM PDT, [redacted] wrote:

Worse is that then they'll plant the entire average with trees and shrubs. Even though they're not allowed, this city has NO ENFORCEMENT to protect those scenic ocean views for the public. All of those estates along PCH on the ocean side have blocked the public views with no repercussions whatsoever. None. It's so irresponsible.

We will all need to contact CCC to have those historic views protected an d enforced. It's an exhausting effort because Malibu does not take care of it.

The uber-wealthy win and win and win.

On Friday, April 19, 2024, 1:28 PM, Jo Drummond [redacted] wrote:

I just drove by a ton of them along PCH in between puerco and corral canyon? They are blocking most of the ocean view there from PCH.

Pls advise on them...Tysm, Jo

<image0.jpeg>

--

Charlotte M. Frieze
Malibu, CA

[redacted]

--

Charlotte M. Frieze
Malibu, CA

[redacted]

April 22, 2024

Allison Cook, AICP
Planner to the City of Malibu
capstonecityplan@gmail.com

Hi Allison,

I am the Malibu homeowner, located at [redacted]. with a "Primary View Determination ([redacted])", which protects my ocean view, directly over the proposed development site, located at 25200 Pacific Coast Highway (PCH). The story poles have just been installed at this site which shows the maximum roof height, which I assume is 18 ft. The proposed building structure will partially block my primary ocean view, which I was trying to protect with the PVD. This proposed project is of great concern to our family. We have lived in our home for 30 years and there has never been any structure on the 25200 PCH land as it was deemed too unstable or costly to build upon. It was one of the main reasons we bought our home, confident our view would not be impacted by future development .

I would like to confirm whether there are no height variances being requested for roof line or retaining walls. We understand the maximum roof height is 18 ft. permitted by code. We would also like to request that the landscaping plan call for trees that will be low profile and not grow to a height, in the future, that will block our view. We do not wish to face enforcement issues in the future, continually requiring our neighbors to trim the height of their trees. We are also concerned about the volume of lighting required to light up the proposed complex that will be an "eye-sore" over which we will have to stare at each night.

I would appreciate if you could submit my request, regarding protecting my PVD [redacted] part of your project submission documents to the Planning commission, which is scheduled to meet on May 20, 2024. We will be out of the country during this public hearing and we will need to rely on this letter to represent our concerns to the planning commission. Please let me know if you need any further information or documentation from me prior to May 10th which is my departure date for my trip. My email address is [redacted]

I appreciate your kind assistance helping us with this issue.

Sincerely,

[redacted], Homeowner
[redacted]

April 24, 2024

Allison Cook, AICP

Planner to the City of Malibu

capstonecityplan@gmail.com

Dear Allison,

I am the President of the Malibu Colony Ranch Estates Homeowners Association and the homeowner at [redacted] Puerco Canyon Rd., Malibu, with a "Primary View Determination (PVD-[redacted])" safeguarding my ocean view directly over the proposed development site at 25200 Pacific Coast Highway (PCH). The recently installed story poles reveal a maximum roof height of 18 ft., which, if the proposed building structure proceeds, will partially obstruct my protected ocean view. This is deeply concerning for our family and association members. The absence of any structure on the 25200 PCH land, due to its instability or high construction costs, was a key factor in our decision to purchase this property, assuring us that our view would remain unobstructed.

I seek confirmation that no height variances are being sought for the roofline or retaining walls. While we understand the permissible maximum roof height of 18 ft. according to code, we also request that the landscaping plan incorporate low-profile trees, ensuring they won't grow to obstruct our view in the future. It is our desire to avoid ongoing enforcement issues requiring neighbors to trim tree heights. Additionally, we are apprehensive about the potential visual pollution from excessive lighting illuminating the proposed complex, which would be an unwelcome eyesore in our nightly vista.

I kindly request that you include my plea for the protection of my PVD-[redacted]n your project submission documents to the Planning Commission, convening on May 20, 2024. As I will be out of the country during the public hearing, this letter will serve as our sole means to express our concerns to the commission. Should you require further information or documentation from me before my departure on May 10th, please do not hesitate to reach out via [redacted]

Your assistance in addressing this matter is greatly appreciated.

Sincerely,

Tony Azzi, Homeowner & HOA President

[redacted] Puerco Canyon Rd

Malibu CA 90265

[redacted]

City Of Malibu
23825 Stuart Ranch Road
Malibu, CA 90265
Phone (310) 456-2489
www.malibucity.org

COMMUNITY DEVELOPMENT DEPARTMENT

NOTICE OF PUBLIC HEARING



NOTICE OF PUBLIC HEARING

The Malibu Planning Commission will hold a public hearing on **Monday, July 21, 2025, at 6:30 p.m**. in the Council Chambers, Malibu City Hall, 23825 Stuart Ranch Road, Malibu, CA and via teleconference, for the project identified below. Public comment can be submitted ahead of the public hearing to planningcommission@malibucity.org for inclusion in the public record. To participate during the public hearing, please review the meeting agenda posted at MalibuCity.org/AgendaCenter and follow the directions for public participation.

COASTAL DEVELOPMENT PERMIT NO. 19-012, CONDITIONAL CERTIFICATE OF COMPLIANCE NO. 21-004, AND LOT MERGER NO. 24-002 - An application for the construction of a new one-story, 9,219 square- foot single-family residence, including a 1,000 square-foot subterranean two-car garage, 1,523 square-foot basement, 676 square- foot gym, detached 465 square- foot detached guest house, swimming pools, driveways, decks, landscaping, water features, hardscape, grading, retaining walls, and onsite wastewater treatment system; including a conditional certificate of compliance to recognize an illegally created lot consisting of two parcels, and a lot merger to consolidate two parcels into one

LOCATION / APNs:	**25200 Pacific Coast Hwy** / 4459-013-021 & 4459-014-018
ZONING:	Rural Residential-Two Acre (RR-2)
APPLICANT / OWNER:	180 PCH, LLC / PAR PCH LLC
APPEALABLE TO:	City Council and California Coastal Commission
ENVIRONMENTAL REVIEW:	Categorical Exemption CEQA Guidelines Sections 15303(a) and 15303(e)
APPLICATION FILED:	March 7, 2019
CASE PLANNER:	Allison Cook, Contract Planner, capstonecityplan@gmail.com (805) 415-1991

A written staff report will be available at or before the hearing for the project. All persons wishing to address the Commission regarding this matter will be afforded an opportunity in accordance with the Commission's procedures. Copies of all related documents can be reviewed by any interested person at City Hall during regular business hours. Oral and written comments may be presented to the Planning Commission on, or before, the date of the meeting.

LOCAL APPEAL - A decision of the Planning Commission may be appealed to the City Council by an aggrieved person by written statement setting forth the grounds for appeal. An appeal shall be filed with the City Clerk within ten days following the date of action which the appeal is made and shall be accompanied by an appeal form and filing fee, as specified by the City Council. Appeal forms may be found online at www.malibucity.org/planningforms or in person at City Hall, or by calling (310) 456-2489, extension 246.

COASTAL COMMISSION APPEAL - An aggrieved person may appeal the Planning Commission's approval directly to the Coastal Commission within 10 working days of the issuance of the City's Notice of Final Action. More information may be found online at www.coastal.ca.gov or by calling 805-585-1800.

IF YOU CHALLENGE THE CITY'S ACTION IN COURT, YOU MAY BE LIMITED TO RAISING ONLY THOSE ISSUES YOU OR SOMEONE ELSE RAISED AT THE PUBLIC HEARING DESCRIBED IN THIS NOTICE, OR IN WRITTEN CORRESPONDENCE DELIVERED TO THE CITY, AT OR PRIOR TO THE PUBLIC HEARING.

YOLANDA BUNDY, Community Development Director — Date: July 10, 2025

ATTACHMENT 6

Received

7/20/25

Planning Dept.

From: Monica DeMoulin
To: Planning Commission
Cc: Yolanda Bundy
Subject: 25200 Pacific Coast Highway
Date: Sunday, July 20, 2025 9:05:26 PM

Warning: Unusual sender [redacted]
You don't usually receive emails from this address. Make sure you trust this sender before taking any actions.

Dear Planning Commission,
We do not support the build at 25200 Pacific Coast Highway as it poses a danger to the community and is in direct violation of our mission statement to preserve coastal character and view corridors. We ask that this hearing be postponed until July 30th or later so that members of the community can attend and make their voices heard.

Thank you,

Chris and Monica DeMoulin
Malibu, CA

EXHIBIT C

Received
7/25/25
Planning Dept.

From: Charlotte
To: Planning Commission; Yolanda Bundy
Subject: PCH build
Date: Wednesday, July 23, 2025 4:41:14 PM

We do not support the build at 25200 Pacific Coast Highway as it poses a danger to the community and is in direct violation of our mission statement to preserve coastal character and view corridors. We ask that this hearing be postpon

Warning: Unusual sender [redacted]
You don't usually receive emails from this address. Make sure you trust this sender before taking any actions.

We do not support the build at 25200 Pacific Coast Highway as it poses a danger to the community and is in direct violation of our mission statement to preserve coastal character and view corridors.

We ask that this hearing be postponed until July 30th or later so that members of the community can attend and make their voices heard.

Received
7/25/25
Planning Dept.

From: Devavani Conroy
To: Planning Commission
Cc: Yolanda Bundy
Subject: 25200 pch
Date: Monday, July 21, 2025 1:41:30 PM

Warning: Unusual sender [redacted]

You don't usually receive emails from this address.
Make sure you trust this sender before taking any actions.

As a long term resident of Malibu getting to see the pacific ocean on the drive is one of the biggest reasons to be here.

If you allow this building to rise up not only are you blocking one of the prettiest corridors you are doing so in an unstable environment prone to landslides:

I do not support the build at 25200 Pacific Coast Highway as it poses a danger to the community and is in direct violation of our mission statement to preserve coastal character and view corridors.

We ask that this hearing be postponed until July 30th or later so that members of the community can attend and make their voices heard."

Thank you for your time and attention,
Devavani Conroy
sent from me to you via electronic waves...

From: G7 Animation
To: Planning Commission
Cc: vbundy@malibucity.org
Subject: 25200 PCH
Date: Monday, July 21, 2025 4:15:41 PM

Warning: Unusual sender [redacted]
You don't usually receive emails from this address. Make sure you trust this sender before taking any actions.

We do not support the build at 25200 Pacific Coast Highway as it poses a danger to the community and is in direct violation of our mission statement to preserve coastal character and view corridors.

We ask that this hearing be postponed until July 30th or later so that members of the community can attend and make their voices heard.

Sincerely,

Deborah Zak
Thomas Tataranowicz
[redacted]
Malibu, CA 90265-3041

Received

7/25/25

Planning Dept.

From: JimmyDee
To: Planning Commission
Subject: ybundy@malibucity.org
Date: Monday, July 21, 2025 3:35:23 PM

Warning: Unusual sender [redacted]
You don't usually receive emails from this address. Make sure you trust this sender before taking any actions.

We do not support the build at 25200 Pacific Coast Highway as it poses a danger to the community and is in direct violation of our mission statement to preserve coastal character and view corridors.

Sent from AOL on Android

Received
7/25/25
Planning Dept.

From: JT
To: Planning Commission; Yolanda Bundy; Home JC
Subject: re: 25200 Pacific Coast Highway
Date: Wednesday, July 23, 2025 8:58:04 PM

I was asked to send this to you so you know. This property was actively listed on the market in 1994-1995 with the provision that it was not buildable. We checked into it with a prominent local realtor and were told there was no around it. The propert
Warning: Unusual sender [redacted]
You don't usually receive emails from this address. Make sure you trust this sender before taking any actions.
I was asked to send this to you so you know. This property was actively listed on the market in 1994-1995 with the provision that it was not buildable. We checked into it with a prominent local realtor and were told there was no around it. The property was not stable enough on which to be built.
Jacky Tomlinson
I was offered this piece of land back in the 90s for $115,000 which sounded like a great price for such a cool piece of land. Of course we would not have been building anything other than a small home for the 3 of us. Looking into it, though we found that the geological studies would not allow building there and so obviously we decided against it. How unfair is it to me if now they've decided someone else can build something there when we were advised that we could not? And how unsafe is it that they're building something there which is of course the more important matter? Not to mention we wanted a very simple small home and this is a proposed mansion! Obviously it would be a far greater danger to anyone in, below or around such a large home that was not suitable for one a 7th the size? I think we would have law suit and I am not litigious but this is ridiculous! You cannot tell one party they cannot build a 1500 ft.² and then allow an 11,000+ ft.² mansion? Someone forward this to the building committee because I don't know who is on it now?

Sent from my iPad

Received
7/25/25
Planning Dept.

From: Ellen Francisco
To: Planning Commission
Cc: Yolanda Bundy
Subject: PCH project
Date: Monday, July 21, 2025 10:07:18 AM

Warning: Unusual sender [redacted]

You don't usually receive emails from this address.
Make sure you trust this sender before taking any actions.

I oppose the project along PCH and I want to report that the owner has slowly been building up dirt along the roadside so that it covers the poles and looks like he is not blocking the view with his house from the road. I have observed this on a constant basis since he applied for a permit. Now there are weeds growing and it looks like it has always been like that, but he created dirt mound to hide the proposed monster house. The property has always been known to be a slide area and it is above homes on Malibu Rd.

Kent Francisco

Received
7/21/25
Planning Dept.

From: LETICIA ALOI
To: Planning Commission
Cc: Yolanda Bundy; City Council
Subject: 25200 Pacific Coast Hwy / CDP 19-012 - Planning Commission Notice of Public Hearing - July 21, 2025
Date: Sunday, July 20, 2025 1:07:09 PM

Warning: Unusual sender [redacted]
You don't usually receive emails from this address. Make sure you trust this sender before taking any actions.

Dear Planning Commission,

As a Malibu resident I oppose this .

Please stop this oversized, risky build that needs more vetting before coming to the Planning Commission. There is also a broken drain pipe that runs directly through the property that needs to be fixed before any approvals can take place as it causes further instability that has not been mentioned in the staff report. And the tall row of trees against the wall along the PCH will block scenic views even further. Fire rebuilds in this city should be prioritized over these maxed out projects that go against everything our vision & mission statement stand for."

Thank you
Sincerely
Leticia ALOI
Malibu homeowner

Received

7/25/25

Planning Dept.

From: Mia Hall
To: Planning Commission
Subject: 25200 Pacific Coast Highway
Date: Monday, July 21, 2025 1:03:07 PM

Warning: Unusual sender [redacted]
You don't usually receive emails from this address. Make sure you trust this sender before taking any actions.

regarding
Coastal Development Permit Number 19-012
Conditional Certificate of Compliance No 21-004
Lot Merger No 24-002

My name is Mia Hall and I am 12 years old and I have lived in Malibu since I was zero years old.
I can see the new house story poles from my room so they would be able to see me also.
This is very creepy.
I also object to this project

Thank you,
Mia Hall

Received

7/20/25

Planning Dept.

From: Timothy Harrington
To: Planning Commission
Subject: The build at 25200 Pacific Coast Highway
Date: Sunday, July 20, 2025 9:04:56 PM

Warning: Unusual sender [redacted]
You don't usually receive emails from this address. Make sure you trust this sender before taking any actions.

"We do not support the build at 25200 Pacific Coast Highway as it poses a danger to the community and is in direct violation of our mission statement to preserve coastal character and view corridors. We ask that this hearing be postponed until July 30th or later so that members of the community can attend and make their voices heard."

Family WellthCare Coaching

A strategic, non-clinical approach to lasting family resilience.

Website: www.familyaddictionrecovery.net
Email: [redacted]
Phone: [redacted]
LinkedIn: Timothy Harrington
→ Scheduling Link: [redacted]

Family WellthCare Global Community:
https://www.facebook.com/groups/682944916447428/

Received

7/25/25

Planning Dept.

From: Arpie Petkus
To: Planning Commission
Cc: Yolanda Bundy
Subject: 25200 Pacific Coast Highway
Date: Monday, July 21, 2025 4:14:16 PM

Warning: Unusual sender [redacted]
You don't usually receive emails from this address. Make sure you trust this sender before taking any actions.

I do not support the build at 25200 Pacific Coast Highway as it poses a danger to the community. It endangers the homes below it on Malibu Road. It is in direct violation of our mission statement to preserve coastal character and view corridors. This project goes against our Local Implementation Plan (LIP) which rules against blocking views and protecting the values we all share.
We ask that this hearing be postponed until July 30th or later so that members of the community can attend and make their voices heard.

Additionally time should be prioritized on getting our community members that have been affected and lost homes in the Palisades fire.

Thank you,

Arpie Petkus

Malibu Resident

Received
7/25/25
Planning Dept.

From: Carla McCloskey
To: Planning Commission
Cc: Yolanda Bundy
Subject: Opposition to 25200 PCH. Please postpone hearing so the community can learn of this travesty
Date: Friday, July 25, 2025 8:43:33 AM

External sender [redacted]
Make sure you trust this sender before taking any actions.

We do not support the build at 25200 Pacific Coast Highway as it poses a danger to the community and is in direct violation of our mission statement to preserve coastal character and view corridors. We ask that this hearing be postponed until July 30th or later so that members of the community can attend and make their voices heard.
Carla and Leigh McCloskey

Received

7/28/25

Planning Dept.

From: Danusia
To: Planning Commission; Yolanda Bundy
Subject: Who handles geology for building?
Date: Saturday, July 26, 2025 3:53:27 AM

Warning: Unusual sender [redacted]
You don't usually receive emails from this address. Make sure you trust this sender before taking any actions.

Hi,

Is there no requirements to have a property geologically tested for stability before it can be built on?

I ask this because it is a no brainer to see that the sliver of land along PCH (where story poles are erected) could not be build on because the steep drop off, and the risk to those homes below that have been there a lot longer than anyone thought the property would be in planning. The whole area is only stable because no one is messing with the land.

What if the plans include a pool? There is no public sewer system, means that they are on septic. Even with the modern tanks, how much fluid will it take to change the stability of that hillside? How long did it take to take out Dukes? Less than 24 hrs. The houses below could be swallowed up entirely!

Please do not turn a blind eye to the repercussions down the road just to get planning/building numbers up. There is a reason no one has built. That too is a no brainer!

Please **deny** any petition to merge these properties and **deny** ANY plans to building at the 25200 Pacific Coast Highway.

Just to make sure you are fully aware that allowing any work on the proposed property will put these homes, below the property, in danger. There is no IF, it is WHEN, but it will be on YOU as the mud slides and bury these homes along the road below it. You know, the builder is just testing you to see how much he can get away with at Malibu's Building and Planning. With all the distractions from the fire, I bet they thought they could get this through because everyone is distracted with the fire properties.

Deny any/all building on the above property. Keep it stable, leave it alone.

D. Larsen



Received

7/28/25

Planning Dept.

From: Linda Rivera
To: Planning Commission
Cc: Yolanda Bundy
Subject: 25200 PCH
Date: Friday, July 25, 2025 6:11:36 PM

Warning: Unusual sender [redacted]
You don't usually receive emails from this address. Make sure you trust this sender before taking any actions.

"We do not support the build at 25200 Pacific Coast Highway as it poses a danger to the community and is in direct violation of our mission statement to preserve coastal character and view corridors. We ask that this hearing be postponed until July 30th or later so that members of the community can attend and make their voices heard."

Received
7/21/25
Planning Dept.

From: Liz Robinson
To: Planning Commission
Cc: Yolanda Bundy
Subject: 25200 PCH
Date: Monday, July 21, 2025 4:55:44 PM

Warning: Unusual sender [redacted]

You don't usually receive emails from this address.
Make sure you trust this sender before taking any actions.

I do not support the proposed build at 25200 Pacific Coast Highway. Not only does this structure potentially pose a danger to the community in tis geological location, it also is a direct violation of the City's mission statement to preserve coastal character and view corridors.

I would ask that the hearing be postponed until at least after July 30th to allow more members of the community to be able to weigh on on this structure that will affect all residents as they drive along that section of PCH.

Thank you.

Elizabeth Robinson
[redacted]

Received
7/21/25
Planning Dept.

From: LSGLA
To: Planning Commission
Cc: Yolanda Bundy
Subject: NO! Weintraub and VILLA COLEAVA
Date: Monday, July 21, 2025 12:54:09 PM

Warning: Unusual sender [redacted]
You don't usually receive emails from this address. Make sure you trust this sender before taking any actions.

Dear Planning Commissioners:

There are numerous objections to raise against this ill-advised project.

•Blocking view corridors.

•Extreme height of proposed wall and planting of trees and foliage to further impact views.

•Unstable hillside jeopardizing the homes and lives of Malibu residents on Bayshore and Malibu Road.

•Circumventing of Malibu codes and setting these egregious precedents for other real estate speculators.

•The overbuild in square footage based upon the area's that are unbuildable on the property?

•The stream, that potentially could become a river, that flows out of the mountains through the outer edge of this property.

Realtor's mention Richard Weintraub is a local and should be afforded special privileges. I on the other hand find the aspect of a local resident purposely causing harm to his fellow residents by an over-designed, variance thirsty property for greed to be what is unconscionable.

Furthermore, he has listed
the property for sale and desperately needs approved plans from the City of Malibu to maximize his profits.

Thank you for your time and attention to this matter.

Sincerely,

Lynn

Lynn Saunders Guilburt
[redacted]
Malibu, CA 90265

[redacted]

CONFIDENTIAL: The information contained in this message may be privileged and confidential and protected from disclosure. If the reader of this message is not the intended recipient, or an employee or agent responsible for delivering this message to the intended recipient, you are hereby notified that any reproduction, dissemination or distribution of this communication is strictly prohibited. If you have received this communication in error, please notify us immediately by replying to the message and deleting it from your computer.

Received
7/25/25
Planning Dept.

From: Maura Lucus
To: Planning Commission
Cc: Yolanda Bundy
Subject: 25200 PCH
Date: Monday, July 21, 2025 2:12:39 PM

Warning: Unusual sender [redacted]

You don't usually receive emails from this address.
Make sure you trust this sender before taking any actions.

We do NOT support the construction of the 11,000 square ft structure on an unstable bluff that will destroy views forever and violate Malibu's goal to retain open spaces.

The Malibu planning commission/department should ONLY be engaged in assisting homeowners in burn area. This project should be at the bottom of the list for the least consideration.

Reschedule this discussion to July 30 at the earliest to give real Malibu residents an opportunity to consider it by and form an opinion.

Maura Lucus

Civic Guardian Since 1947

Received
7/21/25
Planning Dept.

July 21, 2025

Honorable Planning Commission,

RE: 25200 Pacific Coast Highway, Coastal Development Permit No. 19-012

Malibu Township Council has been advocating for responsible development and protecting our natural, rural environment in Malibu since 1947.

These are reasons that the Planning Commission's decision on this project should be postponed.

1. The applicant should be required to redesign this project so that all structures are invisible from PCH.
2. Before you approve this project the applicant should come back with a revised landscape plan showing none of the vegetation will be at maturity above the height of the highway.
3. The berm along this property seems to have risen higher over the last few years and vegetation has been allowed to grow further blocking the beautiful scenic view from the PCH. This should be double checked for any illegal grading as requested by Mayor Pro Tem Silverstein at the last City Council meeting.
4. Landslide studies must be completed in the geotechnical review for this project prior to approval since several landslides have occurred adjacent to this lot AND it is entirely in the Malibu Road Landslide Assessment District and as new development needs to be deemed safe or not to build as NOTHING has ever stood on the lot. NOTHING in the staff report or review mentioned this at all. How can a project of this size and width be allowed in a landslide area when a similar project - Rappaport - caused landslides in a non-landslide area further on Malibu Road? There are several unbuildable lots just below this project on Malibu Road due to landslides. See p. 9 & 10 of this Assessment District report - under 5. Emergency Services: https://www.malibucity.org/DocumentCenter/View/31025/FY21-22-Annual-Report---Malibu-Road-AD-98-3?bidId= It states that the slope has been steepened by erosion and may be subject to further erosion and thus should be treated as a Coastal Bluff as there are only beachfront homes and some empty lots by the beachside in front of this bluff.
5. A broken 20-inch drainpipe that goes right through the middle of this lot has not been dealt with by the City, County or Caltrans or any private parcel owners and continues overflow, flood and erosion of the slope and the immediate areas causing several adjacent slides over the past decade. At the very least it should be mandated that the applicant repair this if he intends to proceed with the project. This would require finding out who is responsible for the pipe and receiving the appropriate permissions.
6. Clarity is needed on how large the septic tank is. The staff report on p 7 states that it will be 1500 gallons for a 7+ bedroom, 11+ bathroom complex with 5 pools, etc. as per the plans. Yet there is an OWTS plan buried within p 173 stating a 7540-gallon tank for a 6-bedroom, 12-bathroom residence incl guest house? If it is a 7540-gallon tank it should be reduced in size. Between this much effluent and excessive irrigation for over 70 trees, etc. planned this can put the landslide area in jeopardy from this one home which already has an eroding unstable slope. Excess water causes erosion and further landslide risk so safety findings cannot be made.
7. Why are more than four 6 ft back-to-back retaining walls proposed without a variance?
8. Here neighborhood standards for Malibu Road and Bayshore Drive needs to be accounted for - this project is more than 5 times the average size of the homes there and completely out of character of the remaining homes in the same assessment district, and NONE block the scenic ocean view as this one proposes. Cher's house nearby is NOT in the assessment district and was built before Cityhood so cannot be compared and this finding can't be made for residential development standards.
9. We were wondering why this project is a priority and not given more scrutiny over L4L fire rebuilds. Especially when it is obviously for a spec house as it is already being advertised for sale - https://www.weintraubre.com/projects/coleava/

Please either postpone a decision or deny this project until further information and studies are completed to ensure the public's scenic views are protected and that public safety is assured.

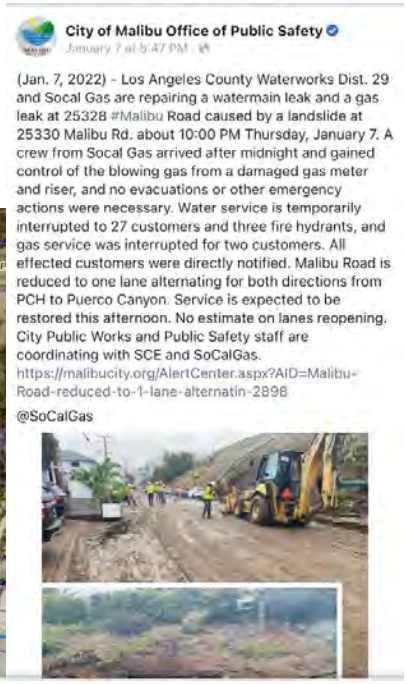
Thank you,

Jo Drummond
On behalf of Malibu Township Council

Established to promote, stimulate and further community spirit, to sponsor any project of merit that may benefit any district of Malibu Township, to foster and promote the cultural development of the Township; and in general, to do all things that tend to build and uphold the character of this residential area.

— Malibu Township Council Articles of Incorporation, January 2, 1947





5. Emergency Services

On the evening of January 6, 2021 an uncontrolled discharge from a watermain break near culvert MTD-10 caused erosion and partial slope failure from MTD-10 westward approximately 100 feet. The waterline is owned and maintained by Los Angeles County Waterworks District 29. Yeh was contacted by the City on January 7, 2021 and dispatched personnel onsite on January 7 and 8 to investigate potential impacts to district facilities. Yeh personnel surveyed slope inclinometers and did not

observe shear type movement. Yeh personnel noted that several district facilities were damaged or buried and after the event, maintained communication with the City and Water District to confirm repairs and recovery of the impacted assessment district facilities were completed. It should be noted that the slope behind MTD-10 and approximately 100 feet west remains in an over-steepened condition by the erosion and the slope may be susceptible to additional or more frequent erosion.

Malibu Road Landslide Assessment District Includes this entire parcel

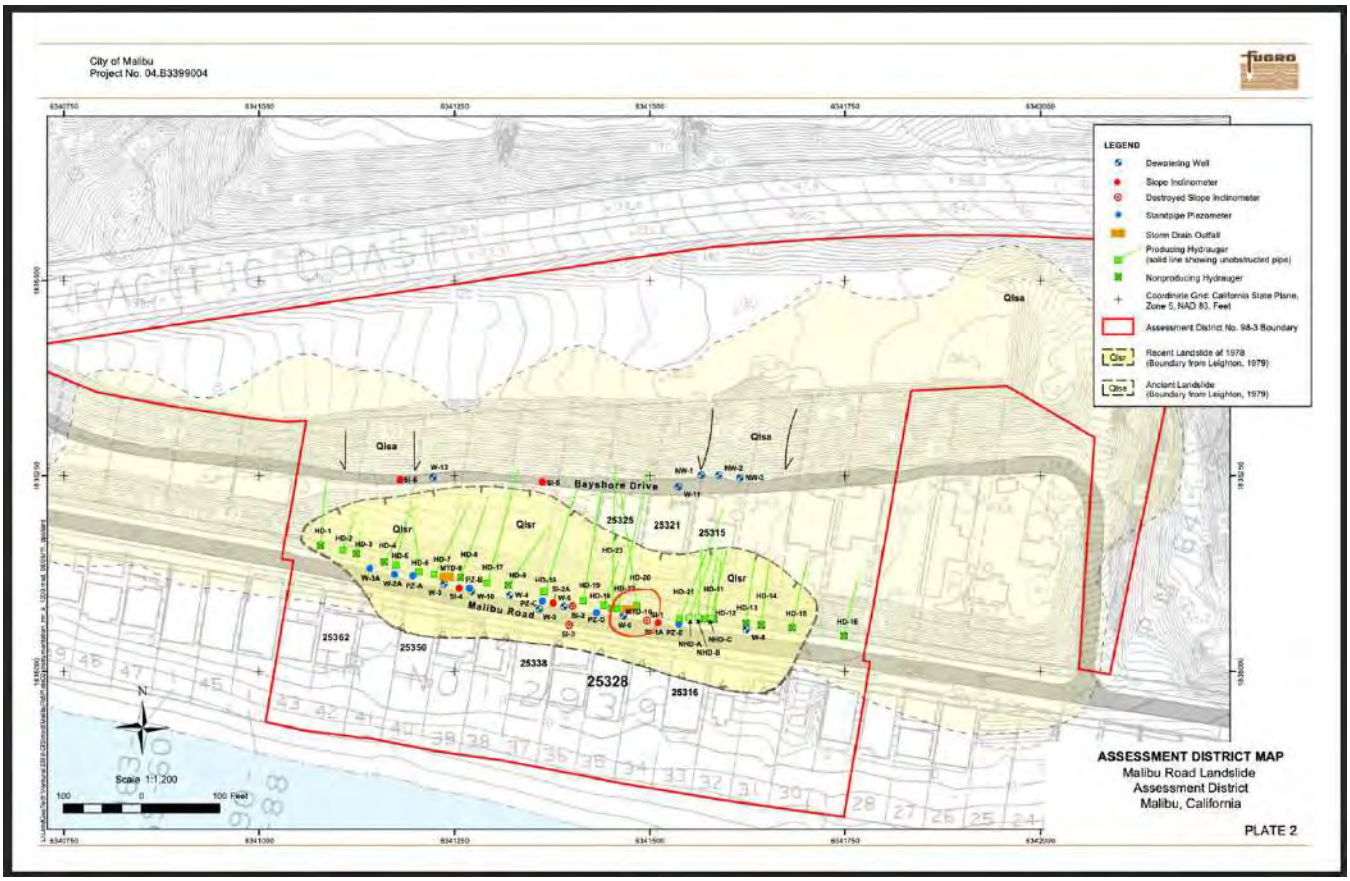
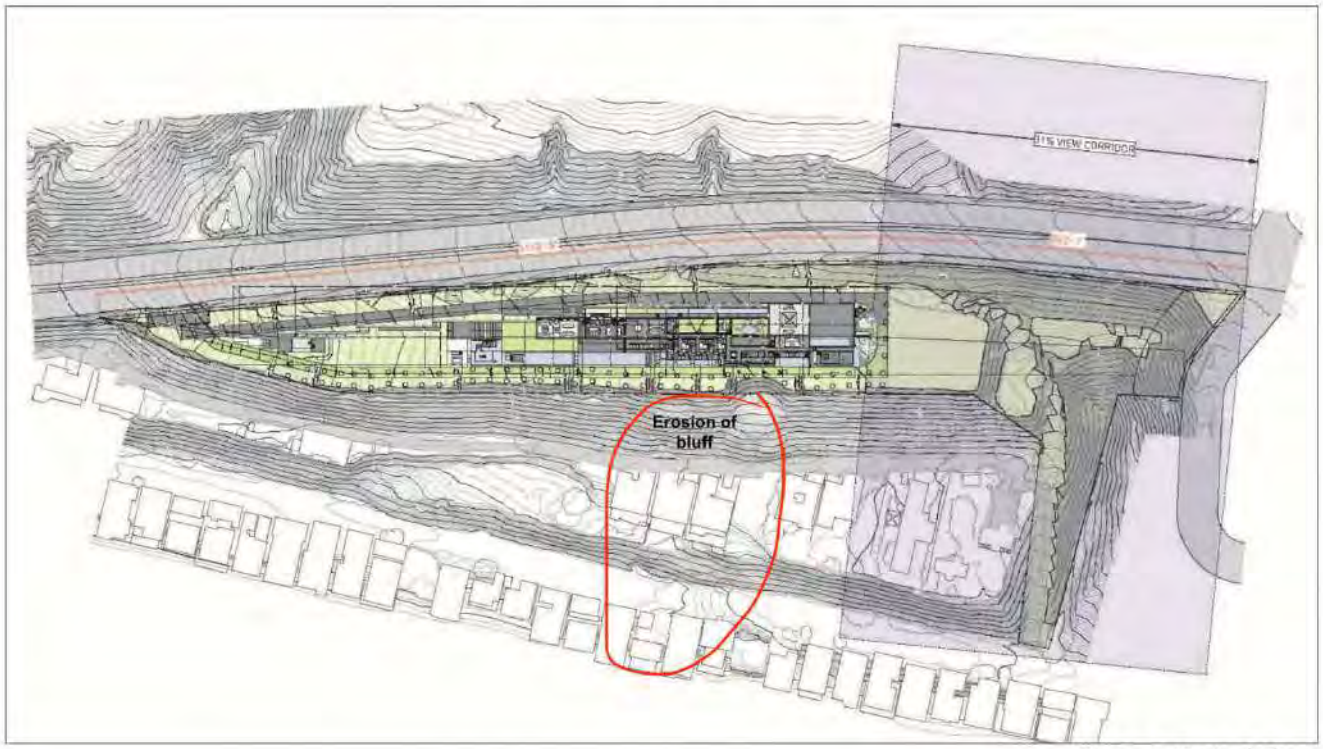
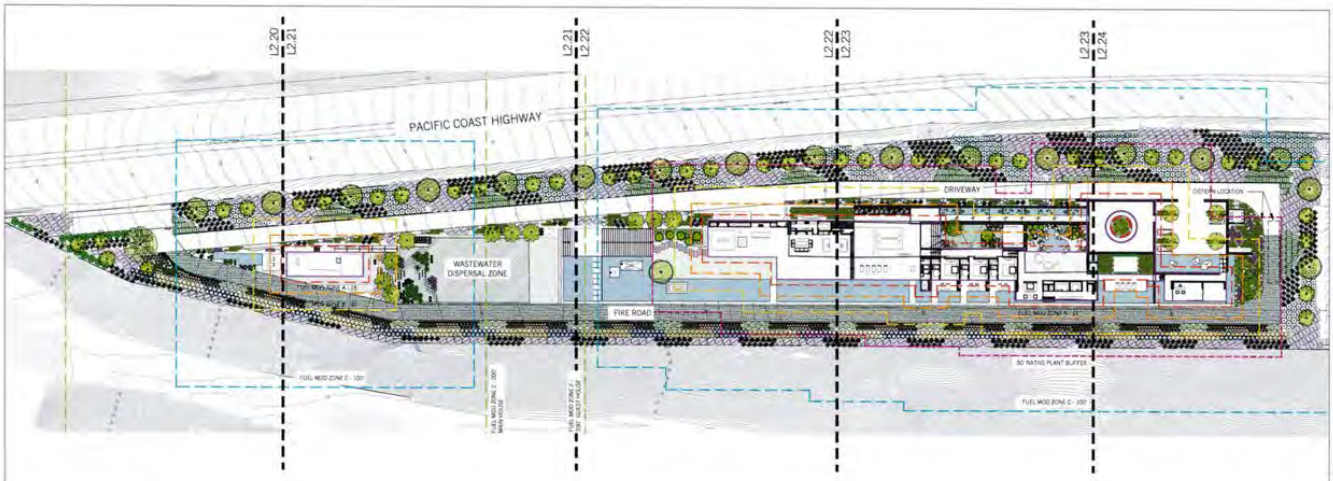


Figure 2 –Proposed Site Plan



Source: Project Plans

Please note at least 50 trees along the berm/PCH side that grow up to heights of 50 feet. This goes against the condition of landscaping not blocking any scenic views.



OVERALL SITE PLANTING LEGEND

FUEL MOD LEGEND

SYMBOL	FUEL MOD ZONE
	Building Perimeter
	5' Buffer
	Fuel Mod Zone A - 15'
	Fuel Mod Zone B - 30'
	Fuel Mod Zone C - 100'
	Fuel Mod Zone D - 200'

OVERALL PLANTING PLAN

SCALE: 1" = 40'-0"

1

NOT FOR CONSTRUCTION

[place]

CONSULTANTS

Property Owner
FAM PCH, LLC
PO Box 6928
Malibu, CA 90265

Design Architect
OPPENHEIM ARCHITECTURE
245 NE 37 Street
Miami, FL 33137
T 305 576 8404
F 305 576 8403
www.oppenoffice.com

Civil Engineers
LC ENGINEERING GROUP
885 Pierce St., Ste. 101
Thousand Oaks, CA 91360
T 805 497 1244
F 818 991 7148
www.lcengineering.com

NAME OF ISSUE

KEY PLAN

VILLA COLEAVA

25200 Pacific Coast Highway
Malibu, CA 90265

Project #: 2021
Drawn by: LS
Scale: 1" = 40'-0"

Ref. North

Description	Date	No
PLANNING SUBMITTAL	02/19/21	
BIO REVISIONS	04/05/21	1
BIO REVISIONS	06/11/21	

PROJECT NO: 2021

SHEET TITLE

OVERALL PLANTING PLAN

L2.02

From:	Patricia Neuray
To:	Planning Commission
Cc:	Yolanda Bundy
Subject:	Objection to proposed development
Date:	Tuesday, July 22, 2025 12:23:56 PM
Attachments:	Outlook-signature .png Outlook-kxumsuyj.png

Members of the Planning Commission:

I do not support the build at 25200 Pacific Coast Highway as it poses a danger to the community and is in direct violation of our mission statement to preserve coastal character and view corridors.

We request that this hearing be postponed until July 30th or later, allowing community members to attend and express their views.

Thank you for your consideration.

Sincerely,
Pat

TANGELO

Patricia Neuray
Co-Founder
[redacted]
[redacted]
Book time to meet with me

From: Scott Dittrich
To: Planning Commission
Cc: Yolanda Bundy
Subject: 25200 Pacific Coast Hwy / CDP 19-012
Date: Monday, July 21, 2025 10:48:08 PM

Warning: Unusual sender [redacted]
You don't usually receive emails from this address. Make sure you trust this sender before taking any actions.

Hi Yolanda and Planning Commissioners,

I understand that today's meeting was cancelled. I was returning from out of town when I saw the cancellation.

This project looks suspiciously like a rehab or similar and should be denied. It is way beyond any reasonable size and not in compliance with Malibu's Vision Statement.

Thank you,

Scott Dittrich

Received
7/21/25
Planning Dept.

From: Tiffany Murray
To: Planning Commission; City Council
Subject: 25200 PCH and request for 21 july hearing postponement
Date: Saturday, July 19, 2025 5:14:41 PM

Warning: Unusual sender [redacted]
You don't usually receive emails from this address. Make sure you trust this sender before taking any actions.

Dear City Council, and Planning Commissioners.

Given the significant number of residents away during summer, advancing a project of the scale impact without full public presence and input is simply unreasonable. We are formally requesting this item be postponed to allow for proper review, community input, and accountability. At a minimum, this must be delayed beyond July 30.

With full regard for the seriousness of the issues involved, we are reiterating the following—with greater urgency:

- The leaking pipe running through the property to 25328 Malibu Rd remains unaddressed, despite being reported over a decade ago. Caltrans has acknowledged responsibility but has taken no action. This poses an ongoing threat to hillside stability.
- Recent slide activity in this exact area was already noted by the city; yet no remediation has occurred—this is unacceptable given the known risks.
- We need a clear answer from Caltrans: Was the berm behind the property raised in recent years? If so, was this work permitted? The height increase appears significant and unexplained.
- This project has been marketed publicly as if approved, despite no proper public notice and very limited community outreach. Many residents were never informed or invited to participate in the planning process.
- The proposed design is massive, visually obstructive, and fundamentally out of step with Malibu's environmental goals and

neighborhood standards. Over 80% of the public scenic view along PCH would be lost.

- At a time when Malibu must focus on rebuilding homes for fire-affected families, this speculative project should not consume Planning’s time or resources.

We are trusting you to provide a timely and transparent response.

Sincerely,

Tiffany Murray

Sent from my iPhone

Planning Commission

From: YVETTE LANG-EINCZIG [redacted]
Sent: Monday, July 21, 2025 4:27 PM
To: Planning Commission
Subject: Bluff estate

Received
7/25/25
Planning Dept.

Warning: Unusual sender [redacted]

You don't usually receive emails from this address.
Make sure you trust this sender before taking any actions.

To whom it may concern… I have lived in Malibu and have enjoyed the scenic route from PCH for years. It would be criminal to put a house on the Bluff next to Chers. You would ruin so many people's enjoyment going down that hill to Point Dume. Please vote against putting any type of structure there on the bluff next to Chers. Thank you.

Yvette Lang Einczig
[redacted]
https://nam10.safelinks.protection.outlook.com/?url=https%3A%2F%2Flinkprotect.cudasvc.com%2Furl%3Fa%3Dhttps%253a%252f%252fwww.Yellproductions.com%26c%3DE%2C1%2CencVUrXk_lnZ7fam4Cx7i32sl8CH2R6rWoXp9SCSyXVjlSlf9Ezg9HlgVfR_81501o_zsrz5KRyqpApKDlXPkt8mPCfBupo-3aEiKA6HuttrXto%2C%26typo%3D1&data=05%7C02%7Cplanningcommission%40malibucity.org%7Ca1319eea227942057efd08ddc8ae1b22%7Cd9ff1357102f436fb28d329b273eb450%7C0%7C0%7C638887372923266325%7CUnknown%7CTWFpbGZsb3d8eyJFbXB0eU1hcGkiOnRydWUsIlYiOiIwLjAuMDAwMCIsIlAiOiJXaW4zMiIsIkFOIjoiTWFpbCIsIldUIjoyfQ%3D%3D%7C40000%7C%7C%7C&sdata=usTWS%2FM9NLkTnPxfZlxuA1rRsR2SSUTcSrUwOC0I%2BQo%3D&reserved=0
[redacted]

Received
07/15/25
Planning Dept.

From: ALBERT A
To: Allison Cook
Cc: Rebecca Evans
Subject: Re: 25200 PCH
Date: Tuesday, July 15, 2025 11:47:08 AM

Warning: Unusual sender [redacted]>
You don't usually receive emails from this address. Make sure you trust this sender before taking any actions.

Hi Allison. It was pleasure to talk to you. I will be out of town as I have mentioned for the hearing. My main concern is not to have any pool or any structure above 25423 and 25411 Malibu rd. We have a subsurface septic irrigation dispersal field right below proposed guest house and pool. And it cannot be disturbed in any way. Other than that I have no objection to the project. Thanks
Albert
[redacted]

On Jul 15, 2025, at 10:30 AM, Allison Cook <capstonecityplan@gmail.com> wrote:

Item 5.A.
https://www.malibucity.org/AgendaCenter/Planning-Commission-4

Email any comments to revans@malibucity.org

Allison Cook, AICP
Owner, Capstone City Planning
Contract Planner to the City of Malibu
805-415-1991
capstonecityplan@gmail.com

CC: Planning Commission, PD,

Recording Secretary, File

Date Received 07/15/25 Time 11:47 AM
Planning Commission meeting of 07/21/25
Agenda Item No. 5A
Total No. of Pages 1

Received
7/17/25
Planning Dept.

Alessandro "Sandro" Dazzan
[redacted]
Malibu, CA 90265
[redacted]

July 17, 2025
Via: email at planningcommission@malibucity.org

Re: Coastal Development Permit (CDP) #19-012, Conditional Certificate of Compliance #21-004 and lot merger #24-002

Dear Planning Commissioners,

I am a resident neighboring the proposed development at 25200 Pacific Coast Highway and wish to express my support for the new home project, provided a critical issue is resolved. The CalTrans drain, located on both the north and south sides of Pacific Coast Highway, is damaged. During rainfall, water runoff enters the drain, flows beneath the subject property, and results in mud spilling onto Bayshore Drive through an opening just west of my property. This is particularly concerning given the history of landslides on our street and a past lawsuit involving the late Steve Karsh and CalTrans regarding this same un-repaired drain.

I fully support the proposed project, contingent upon the repair of the damaged CalTrans drain to address these safety and environmental concerns. Thank you for your attention to this matter, and I look forward to the project moving forward with this necessary improvement.

Sincerely,

Alessandro "Sandro" Dazzan

CC: Planning Commission, PD,

Recording Secretary, File

Date Received 7/17/25 Time 6:30 PM
Planning Commission meeting of 7/21/25
Agenda Item No. 5A
Total No. of Pages 1

From: Beate
To: Planning Commission; Yolanda Bundy
Subject: Fwd: Story Poles for Weintraub?
Date: Saturday, July 19, 2025 4:19:04 PM
Attachments: image001.png
image002.png
image003.png
image004.png
image005.png
image006.png
image007.png
image008.png
image009.png
image010.png
image.png

Received
07/21/25
Planning Dept.

Warning: Unusual link
This message contains an unusual link, which may lead to a malicious site. Confirm the message is safe before clicking any links.

Funnily enuf, Malibu Township Council just emailed me that this meeting is set for a sneak meeting on July 21, 2025.

As a very concerned Malibu Road homeowner (my thread below is querying the landslide issues dating all the way thru 2024), we'd like to request a postponement so more of the public can attend.

Thanks so much. If you scroll down to pictures, you'll see impacts from 2011 landslide caused by Rappoport's underground garage filling up w. water and affecting 3 PCH properties as well as 4 or 5 on Malibu Rd/Puerco Cyn Rd across from my place. The whole hill had to be encased in industrial-grade plastic to protect it from rains.
--
All the Best, Beate Nilsen

[redacted] Malibu Rd

---------- Forwarded message ---------
From: **Beate** [redacted]
Date: Sat, **Jul 19, 2025 at 2:23 PM**
Subject: Fwd: Story Poles for Weintraub?
To: Steve Uhring <SUhring@malibucity.org>, <BSilverstein@malibucity.org>, Doug Stewart <DStewart@malibucity.org>, Marianne Riggins <mriggins@malibucity.org>, Haylynn Conrad <HConrad@malibucity.org>, <CBond@malibucity.org>

As this land issue was brought up by Jo Drummond in the last City Council meeting, I wanted to point out that the story poles which were blown about in the winds leading to Palisades Fire, seem now to be re-erected even *higher* than the previous ones. Could someone please check on the architecturally-stated heights and compare?

CC: Planning Commission, PD,

Recording Secretary, File

Date Received 07/21/25 Time 7:30 AM
Planning Commission meeting of 07/21/25
Agenda Item No. 5A
Total No. of Pages 8

In May 2024, Steve McClary said there was already **a discrepancy between the story poles erected for the project and the project elevations submitted previously to City planning.**

Below thread states my concerns of just over a year ago w. landslides from the top down to Malibu Road:

From: **Beate** [redacted]>
Date: Wed, **Jul 3, 2024** at 9:27 AM
Subject: Fwd: Story Poles by Cher's?
To: Steve Uhring <SUhring@malibucity.org>, <BSilverstein@malibucity.org>, Doug Stewart <DStewart@malibucity.org>, Marianne Riggins <mriggins@malibucity.org>, Paul Grisanti <PGrisanti@malibucity.org>

Because I didn't hear back from Steve on this, forwarding to you: 2 issues on the Weintraub lot adjacent to Cher's property...

---------- Forwarded message ---------
From: **Beate** <[redacted]>
Date: Thu, **Jun 13, 2024** at 1:38 PM
Subject: Re: Story Poles by Cher's?
To: Steve McClary <SMcClary@malibucity.org>

Back to the story poles: my brother, a Malibu contractor, said he read thru all the plans, and NOT TO CODE is an 11 ft wall requested for PCH side of Weintraub's extended bluff house. Cher had to fight for a good long time for her 10ft wall, and pay $125,000 into a musicians fund after her *fait accompli*. The LA Times in 1991 said she'd hit a *wall* of resistance from the California Coastal Commission...They also ordered that an independent study be conducted to determine whether the septic system proposed for the property, which is "near" a landslide, would cause a geologic hazard.

"We're talking about a house that is close to the landslide and that is going to have a lot of bathrooms in it," commissioner Madelyn Glickfeld said. "It's not going to have the typical sewage effluent of the typical 3,000-square-foot home."

Apparently her wall was 3 feet above zoning, so that puts Weintraub another foot over that. https://www.gettyimages.com/detail/news-photo/cher-lived-in-this-home-in-2003-she-got-away-with-building-news-photo/881199978
As you know from my previous posts about caissons (April 20 & May 2)

the Weintraub property IS on a landslide.

On Fri, May 3, 2024 at 7:29 AM Beate [redacted] wrote:

> Thank you; it did seem a bit "short." Main thing tho, is pilings/caissons go down to bedrock, however far that is.
>
> On Thu, **May 2, 2024** at 6:00 PM Steve McClary <SMcClary@malibucity.org> wrote:
>
> > Please be advised the City has continued the hearing previously scheduled on this matter to a date uncertain to clarify what staff sees as **a discrepancy between the story poles erected for the project and the project elevations submitted previously to City planning.**
> >
> > Steve
> >
> > **Steve McClary**
> >
> > City Manager
> >
> > Office: (310) 456-2489 ext. 226
> >
> > 23825 Stuart Ranch Road | Malibu, CA 90265
> >
> > **From:** Beate <newdna@gmail.com>
> >
> > **Sent:** Thursday, May 2, 2024 9:30 AM
> > **To:** Steve McClary <SMcClary@malibucity.org>
> > **Subject:** Re: Story Poles by Cher's?
> >
> > PS. 25362 Malibu Rd has an empty lot to the east of it, which used to have an identical A-Frame apt building, both owned by firemen?, but a leak of water from the hills opp. cracked the building in 1/2 !!!
>
> No building there since.



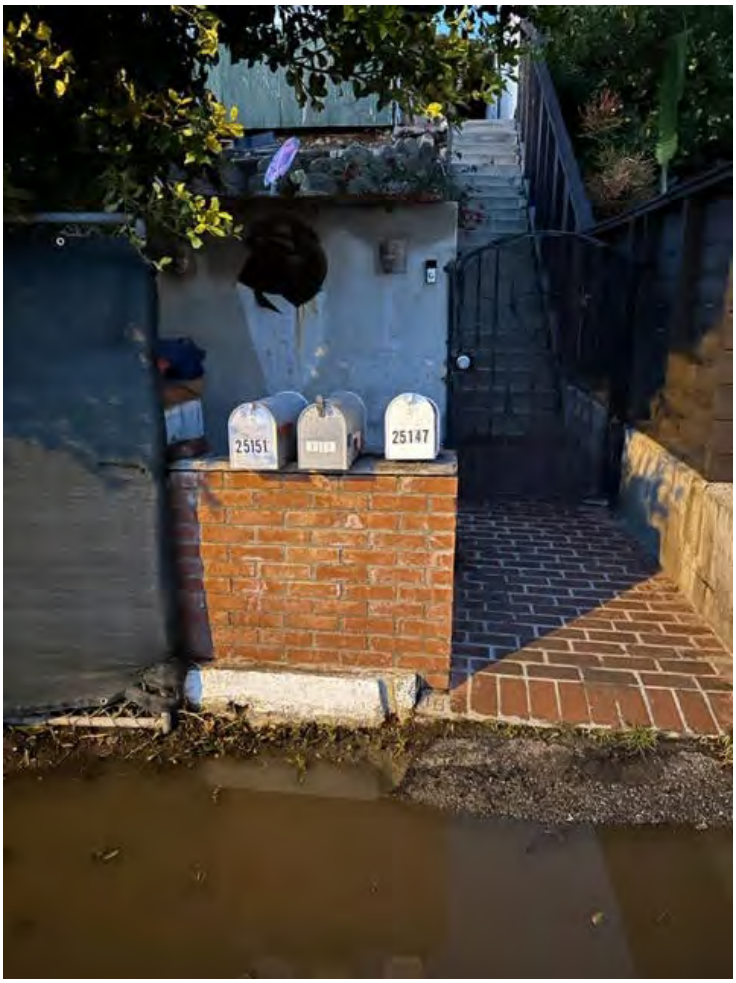
This empty A-frame ^^^lot is also on pg 15 of

https://www.malibucity.org/DocumentCenter/View/6081/Malibu-Road-Geological-Annual-Report-2010-2011?bidId=

which is indicating the 1978 slide below Weintraub's story poles.

On Thu, Apr 25, 2024 at 11:03 AM Beate [redacted] wrote:

> Thanks to both of you. Pertinent, as I'm listening to a giant crane pounding caissons into Malibu Rd for 2nd house affected by landslide. God only knows how long *that's* going to take.



Previous house, which was red-lined, is 25157 Malibu Rd



The green one next door is the one slamming pilings into earth...

On Wed, Apr 24, 2024 at 4:21 PM Steve McClary <SMcClary@malibucity.org> wrote:

> Staff is looking into the matter. I should have a more definitive answer soon, which I will provide.
>
> ---
>
> **From:** Doug Stewart <dstewart@malibucity.org>
> **Sent:** Sunday, April 21, 2024 9:27 PM
> **To:** Beate [redacted]>
> **Cc:** Steve McClary <SMcClary@malibucity.org>
> **Subject:** RE: I know its Saturday, but Story Poles by Cher's?
>
> I have copied the City Manager in my reply as he is the best one to respond to your inquiry.
>
> Doug Stewart
>
> ---
>
> **From:** Beate <[redacted]>
> **Sent:** Saturday, April 20, 2024 11:31 AM
> **To:** Steve Uhring <suhring@malibucity.org>; Bruce Silverstein <bsilverstein@malibucity.org>; Doug Stewart <dstewart@malibucity.org>; Marianne Riggins <mriggins@malibucity.org>; Paul Grisanti <pgrisanti@malibucity.org>
> **Subject:** I know its Saturday, but Story Poles by Cher's?
>
> That is landslide territory. Are the owners mandated to sink pylons to bedrock? I think Cher had to go to 175 ft! As we know, Lower Puerco was taken out in the (70's? 80's?) after which she somehow co-opted the [lower 1/2 of Puerco] road around her house. The second big one, in 2011, caused by Rappaport's underground garage filling up w. rainwater, took years to resolve, w. houses below redlined and all smaller houses requiring lawyers, hydrologists, weekly septic pumping, etc. **Sent:** Thursday, January 13, 2011 9:20 AM
>
> **To:** Pamela Conley Ulich

Subject: Re: newsmedia on Malibu Rd at dawn, landslide caused by house on PCH

..."I read in Surfrider that the council passed a *variance* allowing the house above to remove dirt at an angle one would think unadvised in a previous landslide area."

New houses on PCH at that point would fall down on Bayshore Drive. (see pg. 15)

This was 4th April 2016, tear in the plastic sheeting to prevent rain damage post-Jan. 2011 landslide.



Plastic blowing away:



Date: Tue, Feb 8, 2011 at 12:18 PM

Subject: Malibu Rd Landslide

To: [redacted]

Anyway, please give us some details, as I presume that's what story poles are for; to invite public comment.

THX

Here's the A-frame house whose duplicate cracked in half, leaving a perpetually empty lot next door: (I put it above to illustrate the May 2, 2024 9:30 AM **To:** Steve McClary)

--

All the Best, Beate Nilsen

[redacted] Malibu Rd

Received
07/21/25
Planning Dept.

From: Bill Sampson
To: Planning Commission
Subject: Agenda of July 21, 2025, item 5A, 25200 PCH
Date: Saturday, July 19, 2025 12:09:27 PM

Warning: Unusual sender [redacted]
You don't usually receive emails from this address. Make sure you trust this sender before taking any actions.

Gentlepersons:

I am the president of the Malibu Township Council. The member of our organization most knowledgeable about our position that the present proposal should not be approved, Jo Drummond, is moving her daughter to London and will be out of town until July 30, 2025. I am writing to respectfully request a continuance of this matter until Ms. Drummond may be present to discuss our position regarding the proposed development.

Thank you for your attention to this matter.

Bill Sampson
Malibu Township Council President

CC: Planning Commission, PD,

Recording Secretary, File

Date Received 07/21/25 Time 7:30 AM
Planning Commission meeting of 07/21/25
Agenda Item No. 5A
Total No. of Pages 1

Received
07/21/25
Planning Dept.

From: Bill Sampson
To: Planning Commission
Subject: Re: Agenda of July 21, 2025, item 5A, 25200 PCH
Date: Saturday, July 19, 2025 3:25:24 PM

Warning: Unusual sender [redacted]
You don't usually receive emails from this address. Make sure you trust this sender before taking any actions.

As noted previously (and copied below) this is a massive project that requires more review and simply begs for the people with the most knowledge of why it should not be built as proposed to be heard. That said, for the record please note that I, as an individual, and the Malibu Township Council, of which I am president oppose the proposal as presented. Please stop this oversized, risky build that needs more vetting before coming to the Planning Commission. Fire rebuilds in this city should be prioritized over these maxed out projects that go against everything our vision & mission statement stand for.

Thank you for your attention to this matter.

Bill Sampson
President, Malibu Township Council

On Saturday, July 19, 2025 at 12:09:15 PM PDT, Bill Sampson [redacted] wrote:

Gentlepersons:

CC: Planning Commission, PD,

Recording Secretary, File

Date Received 07/21/25 Time 7:30 AM
Planning Commission meeting of 07/21/25
Agenda Item No. 5A
Total No. of Pages 2

I am the president of the Malibu Township Council. The member of our organization most knowledgeable about our position that the present proposal should not be approved, Jo Drummond, is moving her daughter to London and will be out of town until July 30, 2025. I am writing to respectfully request a continuance of this matter until Ms. Drummond may be present to discuss our position regarding the proposed development.

Thank you for your attention to this matter.

Bill Sampson
Malibu Township Council President

Received
7/21/25
Planning Dept.

CHARLOTTE M FRIEZE

To: Members of the Planning Commission

CC: Yolanda Bundy

Re: 25200 PCH item 5A

Date: 7-21-25

Honorable Members of the Planning Commission:

I can remember the first time I saw the view this proposed development at 25200 PCH will destroy forever.

It was the 90's. I was a young landscape architect driving from LAX to my client's property in Montecito. It took my breath away. I even called my father to tell him about it. (The only other time I called him while on business was from a train speeding past Mt. Fuji.)

Now that I am a Malibu resident, I have seen how the Pacific Ocean views along PCH have been blocked little by little, project by project. Structures. Trees. Walls. Fences. Gates. All conspire to prevent the public from enjoying the absolutely stunning views.

There is a reason why **the Pacific Coast Highway is a DESIGNATED SCENIC HIGHWAY**.

It is Malibu's responsibility to preserve and protect these views.

CC: Planning Commission, PD,

Recording Secretary, File

Date Received 7/21/25 Time 7:30 AM
Planning Commission meeting of 7/21/25
Agenda Item No. 5A
Total No. of Pages 2

Please DENY This project.

This project is not respectful of Malibu's Vision and Mission Statements.

This project is disrespectful of everyone's appreciation of the scenic views - visitors and residents alike.

The project is excessive in size. Applicants are not automatically guaranteed the maximum Total Development Square Footage. Planning Director Richard Mollica previously directed Planning Commissioners: **"As Commissioners, if you feel you cannot make the findings and you would like to see a smaller home on the site and you feel it is out of character …that is where the Commission has its discretion here. You have the ability to say you can't make the findings. It is out of character. As a Commission you can always ask for less."**

The walls along the PCH slope are too high. The max wall height is 6ft and should be staggered at least 6ft apart.

The project consumes too much water – the pools are not even covered which wastes precious water. Malibu needs water in the event of another fire. Think about what happened when the Pacific Palisades reservoir was empty. The water tank on Busch was empty before the Woolsey Fire even reached Malibu Park.

The plant list should be revised for height and flammability. For instance, bamboo is flammable and could disperse burning cinders upon the landscape and houses below. The placement of large-growing trees such as *Quercus agrifolia* which grows to 70 ft. will block the views

This precarious project would loom over many residences. Please request another geology report. And coordinate with Public Works concerning possible leaks from a CALTRANS pipe before reviewing this project.

Thank you for your consideration.

Received
07/18/25
Planning Dept.

CHRIS & PAT REED
[redacted] Malibu Road
Malibu, CA 90265
[redacted]

July 17, 2025
Via: email at planningcommission@malibucity.org

ATTN: PLANNING COMMISSION
CITY OF MALIBU
23825 Stuart Ranch Road
Malibu, CA 90265

Re: Coastal Development Permit (CDP) #19-012, Conditional Certificate of Compliance #21-004 and lot merger #24-002

Dear Planning Commissioners,
We live at [redacted] Malibu Road and our home is directly beneath the subject property on a bluff overlooking Malibu Road. On "our" bluff, we are very conscious of our neighbors and their properties. Our concerns are that we are protected from any potential landslide, that drainage from either rain, landscape watering, or runoff from PCH; and that their septic system doesn't compromise our property in any way.
From what I've seen, the project looks well thought out and will be a good addition to our community.
Please issue their requested permits so that they can complete the building of their beautiful new home and improve our neighborhood's aesthetics. Mr. Weintraub has proven himself to be a good and caring neighbor for several years by maintaining his vacant property and biannually cutting back the overgrowth of weeds to meet the requirements of the fire department.

Sincerely,

Chris & Pat Reed

CC: Planning Commission, PD,

Recording Secretary, File

Date Received 07/18/25 Time 12:19 PM
Planning Commission meeting of 07/21/25
Agenda Item No. 5A
Total No. of Pages 1

Received

07/21/25

Planning Dept.

From: Emily Ravlich
To: Planning Commission
Cc: Yolanda Bundy
Subject: We do not support the build at 25200 Pacific Coast Highway
Date: Saturday, July 19, 2025 4:19:03 PM

Warning: Unusual sender [redacted]
You don't usually receive emails from this address. Make sure you trust this sender before taking any actions.

We do not support the build at 25200 Pacific Coast Highway as it poses a danger to the community and is in direct violation of our mission statement to preserve coastal character and view corridors.

We ask that this hearing be postponed until July 30th or later so that members of the community can attend and make their voices heard.

Ty!

--

Emily Ravlich
Co-Founder & Executive Recruiter
[redacted]

CC: Planning Commission, PD,

Recording Secretary, File

Date Received 07/21/25 Time 7:30 AM
Planning Commission meeting of 07/21/25
Agenda Item No. 5A
Total No. of Pages 1

Received

07/17/25

Planning Dept.

From: Malibu Township Council
To: Planning Commission; Marni Kamins; John Mazza; Rebecca Evans
Cc: Bill Sampson; Yolanda Bundy; Patt Healy; Tiffany Murray; Jan Ravlich; Emily Ravlich; R Y A N; Bruce Silverstein; Steve Uhrin
Subject: Fwd: Planning commission item 5A
Date: Thursday, July 17, 2025 6:02:16 AM

Warning: Unusual sender <info@malibutownshipcouncil.org>
You don't usually receive emails from this address. Make sure you trust this sender before taking any actions.

Please forward to the planning commission and also request a continuance for this project given all the unanswered questions below in the staff report including the questions regarding the altered berm by Mayor Pro Tem Silverstein last Monday. We haven't heard back from Yolanda about this yet.

Tyyy…Jo Drummond

Begin forwarded message:

From: Malibu Township Council <info@malibutownshipcouncil.org>
Date: July 15, 2025 at 9:46:08 AM GMT+1
To: Yolanda Bundy <ybundy@malibucity.org>
Cc: Tyler Eaton <teaton@malibucity.org>, Bruce Silverstein <bsilverstein@malibucity.org>, Steve Uhring <suhring@malibucity.org>, Patt Healy [redacted] Bill Sampson [redacted]>, Andy Lyon [redacted], Tiffany Murray [redacted]>, Ann Doneen <[redacted]>, R Y A N <[redacted]>, Rebecca Evans <revans@malibucity.org>, Emily Ravlich <[redacted]>, Jan Ravlich [redacted]>, Rob Duboux <rduboux@malibucity.org>, Scott Dittrich <info@actionsportsstockfootage.com>, Jyoti Drummond [redacted]>, Beate <[redacted]>
Subject: Re: Planning commission item 5A

Sorry - for some reason the other photos that went with my email from April 2022 did not attach - ty, Jo

CC: Planning Commission, PD,

Recording Secretary, File

Date Received 07/17/25 Time 7:30 AM
Planning Commission meeting of 07/21/25
Agenda Item No. 5A
Total No. of Pages 5







On Tue, Jul 15, 2025 at 1:36 AM Malibu Township Council <info@malibutownshipcouncil.org> wrote:

> Dear Yolanda,
>
> Thank you for all your hard work for our community and especially to us fire victims.
>
> As I requested in my email from last Friday, we earnestly request that this item be continued to the next Planning Commission meeting after July 30.
>
> 1. On behalf of MTC I would like to request information from our public works department regarding the slope/bluff/hillside where this project is proposed. It was apparently recently on one of the latest public works commission agendas where some slide activity there was reported. There have also been slides there in the recent past (see attached City of Malibu Public Safety Notice).
>
> 2. It has been investigated several times yet without ANY remediation of a pipe that constantly leaks and overflows that goes directly through this property down to 25328 Malibu Rd (same area where previous slides have occurred). This was originally reported over 10 years ago by then public works commissioner, Jim Palmer. Jefferson Wagner also has informed the City of this several times. I personally followed up on this with Caltrans and public works in September 2022 and discovered finally that it was under Caltrans responsibility yet they have taken ZERO actions in repairing this pipe that is risking the stability of the entire area. Pls see the first email and photos attached that I sent the City and LADWP to follow up on this unmitigated slide area.
>
> 3. We also would like to consult with Caltrans if they indeed did increase the height of the berm in the last year or so. It has definitely become higher over the last few years and we need to know if, when and why it was completed and if it was illegally graded, increasing the height of this berm.

4. We have been asking about this project when the original story poles went up with no info given to us and only a handful of people were invited and accepted the city planning's invitation to see the plans about a year ago. No other information has been given yet this property is already being advertised for sale as if it's been approved -

https://www.weintraubre.com/projects/coleava/

5. A project this size, mass, etc. is not in line with our Vision & Mission statement nor is it the least environmentally damaging or anywhere in the neighborhood character of the area. With its current ongoing extreme horizontally long design it plans on blocking over 80% of the public scenic view along PCH and needs much more notice to the public.

6. This precarious project should NOT be the focus and a distraction of our planning department during this time where we need to rebuild 1/4 of all of our homes in Malibu back.

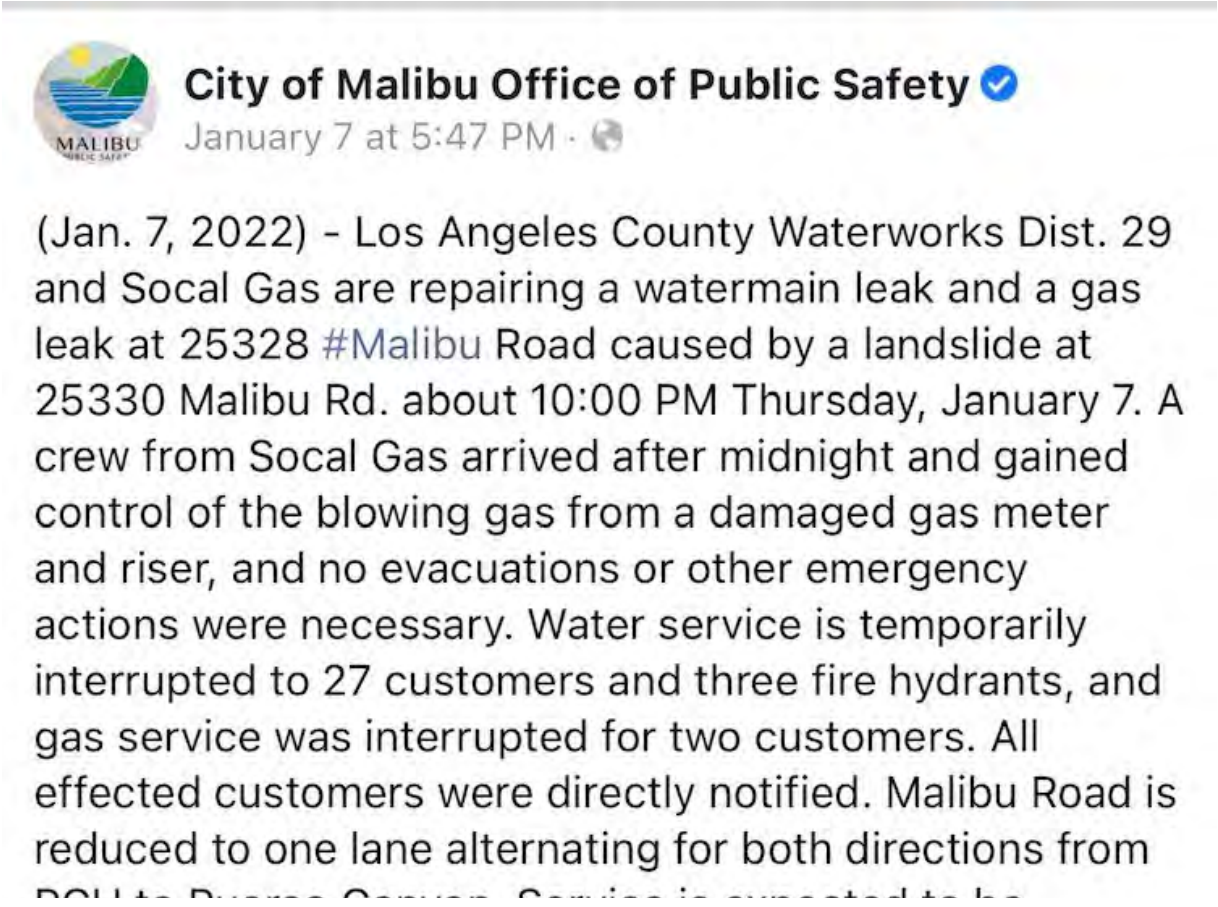
7. Most residents leave the city for vacation during the month of July - for instance my family is traveling to London, England tomorrow afternoon moving our daughter there and will be back in two weeks so this should be scheduled during a time when families are home in the fall.

Please advise on if and when this application/item can be postponed to after July 30 at the very least.

Thank youuuu, Jo

On Apr 21, 2022, at 5:10 PM, Jo Drummond [redacted] wrote:
"I'll attach some photos of the result of the broken pipe at bayshore drive on Tuesday morning after Monday rain on March 29, 2022. This can't be good for the nearby landslide area. I'm also attaching easement info showing the county is responsible for public utilities there.

Thanks very much! Jo Drummond"
(Photos above)



PCH to Puerco Canyon. Service is expected to be restored this afternoon. No estimate on lanes reopening. City Public Works and Public Safety staff are coordinating with SCE and SoCalGas.
https://malibucity.org/AlertCenter.aspx?AID=Malibu-Road-reduced-to-1-lane-alternatin-2898

@SoCalGas



Received
7/21/25
Planning Dept.

From: Jo Drummond
To: Yolanda Bundy
Cc: Tiffany Murray; Patt Healy; Bill Sampson; Emily Ravlich; Ann Doneen; Charlotte Frieze; Carla Mccloskey; Kraig Hill; Planning Commission; Rebecca Evans; Rob Duboux; Arthur Aladjadjian; Tyler Eaton; Abe Roy; Bruce Silverstein; Steve Uhring; Haylynn Conrad; Doug Stewart; Marianne Riggins; Scott Dittrich; Janet Fulk; Terry Davis; Luis Tena; Lea Johnson; Danny Smith; Colin Drummond; Beatrix Zilinskas; Melissa Ireland; R. Y. A. N.; Jefferson Wagner
Subject: Fw: [External] Need Help Locating a Plotted Easement on APN 4459-014-004 RE - 25200 PCH
Date: Sunday, July 20, 2025 5:05:10 AM
Attachments: image004.png
image005.png
image006.png

Warning: Unusual sender [redacted]
You don't usually receive emails from this address. Make sure you trust this sender before taking any actions.

Dear Yolanda...

I will be forwarding you emails sent back and forth from Public Works back in 2022 (see first chain below) regarding the over one decade **broken Caltrans pipe that has been leaking and runs directly through** the center of the property at 25200 PCH that is scheduled to be heard on Monday. There is still an ongoing dispute between the City, County and Caltrans where the MUCH NEEDED repairs have still not been completed.

Until this is sorted out this scenic view blocking project with its **11+ Proposed bathrooms and 7+ bedrooms** CANNOT be approved by planning or planning commission. This is why I hope that you can coordinate proper communication in the future between Public Works and Planning so important facts like this are not continuously overlooked for the stability of new projects.

If Public Works was ALSO consulted regarding our fire rebuilds in Big Rock and beyond then we would not need such EXTENSIVE geo studies for our lots where we are simply trying to rebuild what we had - they could simply be stamped approved as they are all on lots that have never moved. City Public Works commissions extensive geo studies of our area all year long and reports annually on our active and properly working dewatering system that can settle any issues. The landslide itself 300 feet below has barely moved a few millimeters over decades because we are on top of the dewatering system and massive NEW development has NOT occurred over the last decade thanks to prudent building and safety practices and responding to neighborhood concerns on questionable larger cliffside and vacant parcel projects. Pls enforce that our burned down homes are NOT new development and use discretion wisely here and fast track their approvals as mandated by the Governor's recent Executive Order N-29-25 on local agencies determinations in Paragraph 4. This has been an ENORMOUS road block to our rebuilding from both Palisades and Woolsey. Fire does not affect the **land** where our homes have stood for decades.

Please put our fire rebuilds as a priority above such at risk, HUGE projects such as

CC: Planning Commission, PD,

Recording Secretary, File

Date Received 7/21/25 Time 7:30 AM
Planning Commission meeting of 7/21/25
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this that go beyond the limits of our General Plan.

I know that you will do the right thing after we lobbied to put you in charge and we are all counting on you now.

Looking forward to your response.

Thank you, Jo

----- Forwarded Message -----
From: Valerie A. Esparza (PW) <vesparza@dpw.lacounty.gov>
To: Jo Drummond [redacted]
Cc: James Palmer [redacted]; Arthur Aladjadjian <aaladjadjian@malibucity.org>; Jefferson Wagner [redacted]; William Johnson <WJOHNSON@dpw.lacounty.gov>; Jemellee Cruz <JCRUZ@dpw.lacounty.gov>; Eden (Mulu) Berhan <EBERHAN@dpw.lacounty.gov>; Win Naing (PW) <WNAING@dpw.lacounty.gov>
Sent: Friday, May 6, 2022 at 12:35:01 AM GMT+1
Subject: RE: [External] Need Help Locating a Plotted Easement on APN 4459-014-004

Hello Jo, apologies for the delayed response!

We have completed our investigation and according to our as-built plan there is an existing 20-inch pipe upstream of the Malibu Road inlet (downstream of PCH); we have determined the *20-inch pipe line,* connected to our MTD 622 line A (at 25328 Malibu Rd.), is Caltrans owned. This section of pipe, shown below in red, collects drainage from PCH and is to be maintained by Caltrans. The Malibu Road inlet, 18-inch RCP, and MTD 622 line A, are all Flood Control owned.

Our recommendation would be to request as-built drawings from Caltrans for PCH, to solidify ownership of this existing 20-inch pipe (between PCH and Malibu Road inlet).

Thank you,

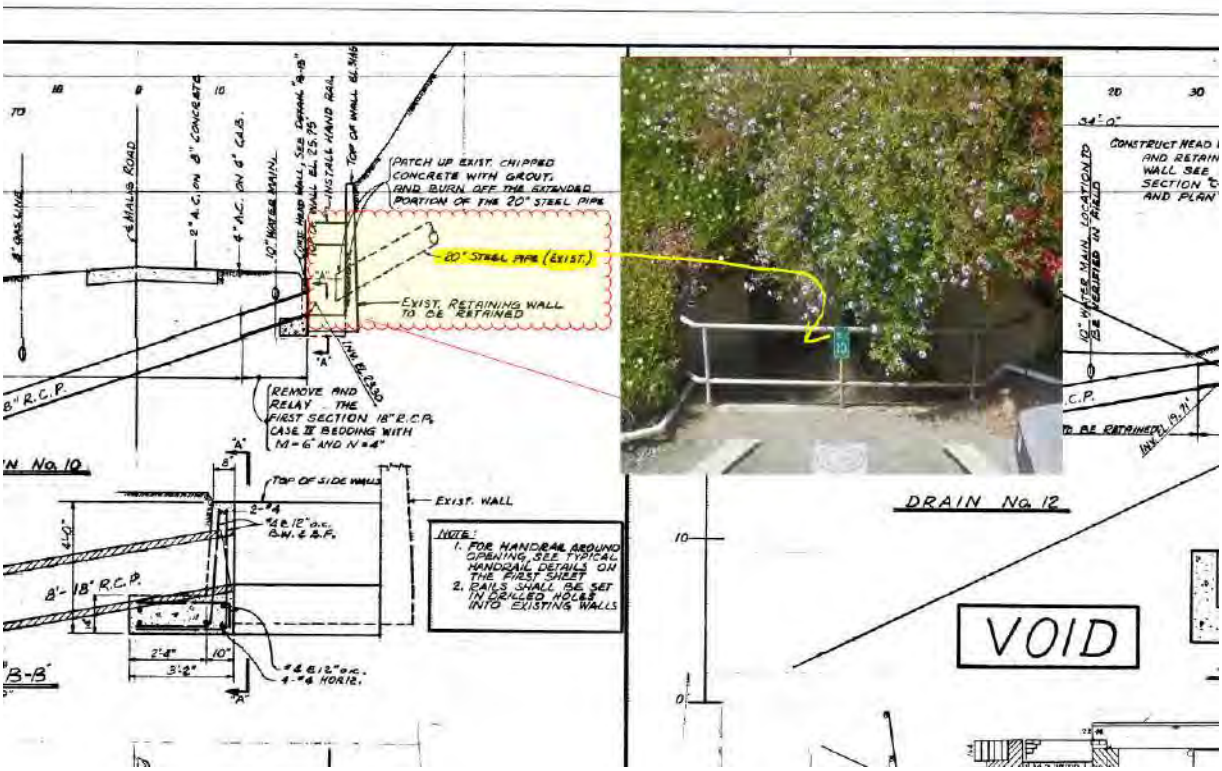
Valerie Esparza, MPA

Principal Civil Engineering Assistant

Los Angeles County Public Works

Work: (562) 861-0316

Mobile: (626) 660-9392





From: William Johnson <WJOHNSON@dpw.lacounty.gov>
Sent: Thursday, May 5, 2022 2:56 PM
To: Jo Drummond [redacted]; Valerie A. Esparza (PW) <vesparza@dpw.lacounty.gov>
Cc: James Palmer [redacted]; Arthur Aladjadjian <aaladjadjian@malibucity.org>;

Jefferson Wagner [redacted]
Subject: RE: [External] Need Help Locating a Plotted Easement on APN 4459-014-004

Hi Jo,

Valerie in our Stormwater Maintenance Division was looking into this. She will provide the update. Thanks

William Johnson, P.E.

Senior Civil Engineer

Los Angeles County Public Works

Mobile: (626) 703-6500

From: Jo Drummond [redacted]
Sent: Thursday, May 5, 2022 11:53 AM
To: William Johnson <WJOHNSON@dpw.lacounty.gov>; Russ Bryden <RBRYDEN@dpw.lacounty.gov>; Valerie A. Esparza (PW) <vesparza@dpw.lacounty.gov>
Cc: James Palmer [redacted]; Arthur Aladjadjian <aaladjadjian@malibucity.org>; Jefferson Wagner [redacted]
Subject: Re: [External] Need Help Locating a Plotted Easement on APN 4459-014-004

CAUTION: External Email. Proceed Responsibly.

Any update William?

Thx! Jo

On Apr 25, 2022, at 12:33 PM, Arthur Aladjadjian <aaladjadjian@malibucity.org> wrote:

Good afternoon William,

We recently did a survey of the area in an effort to identify ownership of the stormdrain facilities in the area. The pipe from land side of Malibu Road to the outfall on the ocean side appears to be marked as a County drain. However, the attached plan view “Section B-B” from our survey records shows another pipe (owner not identified) between the county catch basin on the land side of Malibu Road going uphill towards Bayshore Drive. We need some input on who owns the pipe connecting between land side of Malibu Road uphill towards Bayshore Drive.

Our Survey records could not verify any stormdrain easement/ownership between Malibu Road and Bayshore Drive.. and up to PCH. Any input is much appreciated.

Any feedback is much appreciated.

Thank you,

Arthur

From: William Johnson <WJOHNSON@dpw.lacounty.gov>
Sent: Friday, April 22, 2022 2:11 PM
To: Jo Drummond [redacted]
Cc: Arthur Aladjadjian <aaladjadjian@malibucity.org>; James Palmer [redacted]; Jefferson Wagner [redacted]; Valerie A. Esparza (PW) <vesparza@dpw.lacounty.gov>; Russ Bryden <RBRYDEN@dpw.lacounty.gov>
Subject: RE: [External] Need Help Locating a Plotted Easement on APN 4459-014-004

Hi Jo,

I've forwarded this to our Stormwater Maintenance Division. They'll investigate and let us know what they find.

William Johnson, P.E.

Senior Civil Engineer

Los Angeles County Public Works

Office: (310) 456-5341

From: Jo Drummond [redacted]
Sent: Thursday, April 21, 2022 5:20 PM
To: Russ Bryden <RBRYDEN@dpw.lacounty.gov>
Cc: Arthur Aladjadjian <aaladjadjian@malibucity.org>; [redacted] Jefferson Wagner [redacted] William Johnson <WJOHNSON@dpw.lacounty.gov>
Subject: Re: [External] Need Help Locating a Plotted Easement on APN 4459-014-004

CAUTION: External Email. Proceed Responsibly.

Hi Russ!

I just received a bounce back from Dave Rydman's office saying you have taken over for him.

Welcome and Pls advise on the request below…

Thanks very much!

Jo Drummond

(Newly appointed public works commissioner for city of Malibu)

On Apr 21, 2022, at 5:10 PM, Jo Drummond <jyotidrummond@yahoo.com> wrote:

Hi Dave!

Hope you're well…

There is a large drain pipe going from PCH to Malibu Rd under Bayshore Drive. It looks like the County has public utility easement where this pipe lies (see attached). It has been broken and causing infrastructure damage for over 10 years and needs to be repaired as soon as possible. If you visually look at the pipe coming out on Malibu rd you can see it is full of dirt and debris. Can you get together with Arthur Aladjadjian at the city and resolve this outstanding issue?

I'll attach some photos of the result of the broken pipe at bayshore drive on Tuesday morning after Monday rain on March 29, 2022. This can't be good for the nearby landslide area. I'm also attaching easement info showing the county is responsible for public utilities there.

Thanks very much! Jo Drummond







Begin forwarded message:

From: Jo Drummond [redacted]
Date: April 20, 2022 at 10:34:40 AM PDT
To: Arthur Aladjadjian <aaladjadjian@malibucity.org>
Cc: Rob Duboux <rduboux@malibucity.[redacted] candace Brown [redacted]
Subject: Fwd: [External] Need Help Locating a Plotted Easement on APN 4459-014-004

Here is more easement detail. Let us know if the county and/or the city can repair. Thanks! Jo

Begin forwarded message:

From: [redacted]
Date: April 14, 2022 at 12:06:39 PM PDT
To: [redacted]
Subject: Fwd: [External] Need Help Locating a Plotted Easement on APN 4459-014-004
Reply-To: [redacted]

Jo:

Here is a more detailed easement description of the broken pipe on Malibu Road.

Jim

-----Original Message-----
From: Meehan, Patrick (TRG) [redacted]
To: malibuvineyards [redacted]; malibujonny1 [redacted]
Sent: Fri, Jul 16, 2021 5:04 pm
Subject: Re: [External] Need Help Locating a Plotted Easement on APN 4459-014-004

Hi Jim,

Attached, please find the prelim with all easement documents hyperlinked. I have asked my Engineering Dept to plot them on a map so we can see where they are located. As soon as they are complete, I will send them to you.

Have a great weekend!

Pat

From: Meehan, Patrick (TRG) [redacted]
Sent: Tuesday, July 13, 2021 3:24 PM
To: malibuvineyards [redacted]; malibujonny1 [redacted]
Subject: Re: [External] Need Help Locating a Plotted Easement on APN 4459-014-004

Hi Jim,

I am going to open a prelim and have my search team do a deep dive into the property and all recorded documents on it. We tried searching specifically for easement documents but were unsuccessful. As soon as I have more info, I will send it over.

Pat



From: malibuvineyards [redacted]
Sent: Tuesday, July 13, 2021 3:19 PM
To: Meehan, Patrick (TRG) [redacted]; malibujonny1 [redacted]
Subject: Re: [External] Need Help Locating a Plotted Easement on APN 4459-014-004

Patrick: Thank you for your help.

I am trying to locate a broken drain pipe location some where between the LA county and State of California Cal trans boundaries. The pipe runs through this property. It cannot be repaired until we determine the legal responsibility of county or state.

Any thoughts?

Jim Palmer

Sent from the all new AOL app for iOS

On Tuesday, July 13, 2021, 2:35 PM, Meehan, Patrick (TRG) [redacted] wrote:

> Hi Jonny,
>
> I am unable to find this easement. Do you have a document number? I checked the neighborhood properties as well and was unsuccessful. Is it only on our property? We may need to have a complete title search run to locate it. Any additional information you have would be great.
>
> Pat

From: Jonny Palmer [redacted]
Sent: Friday, July 9, 2021 4:57 PM
To: Meehan, Patrick (TRG) [redacted]
Cc: James Palmer [redacted]
Subject: Re: [External] Need Help Locating a Plotted Easement on APN 4459-014-004

Yes, that address is correct.

On Fri, Jul 9, 2021 at 4:52 PM Meehan, Patrick (TRG) [redacted] wrote:

> The address is: 25331 MALIBU RD MALIBU, CA 90265? Is that right? Please confirm.
>
> Thanks!
>
> Pat
>
> ---
>
> **From:** Jonny Palmer [redacted]
> **Sent:** Friday, July 9, 2021 4:51 PM
> **To:** Meehan, Patrick (TRG) [redacted]
> **Cc:** James Palmer [redacted]
> **Subject:** Re: [External] Need Help Locating a Plotted Easement on APN 4459-014-004
>
> Thank you so much Patrick.. I have cc'd him in this email.
>
> On Fri, Jul 9, 2021 at 4:50 PM Meehan, Patrick (TRG) [redacted] wrote:
>
> > Hi Jonny,
> >
> > Let me see what I can find for him. I will get back to you as soon as I have something.
> >
> > Pat
> >
> > ---
> >
> > **From:** Jonny Palmer [redacted]
> > **Sent:** Friday, July 9, 2021 4:36 PM
> > **To:** Meehan, Patrick (TRG) [redacted]
> > **Cc:** James Palmer [redacted]
> > **Subject:** [External] Need Help Locating a Plotted Easement on APN 4459-014-004

Dear Patrick,

My dad wanted to know if it Is it possible for you to locate a plotted easement on APN 4459-014-004 This easement is in reference to an underground drain by the county of los angeles or Caltrans state of california easement. Any help would be greatly appreciated.

Best Regards,

Jonny

This email originated from outside the organization. Do not click links or open any attachments unless you recognize the source of the email.

BEWARE OF CYBER-FRAUD! Before wiring any funds, call the intended recipient at a number you know is valid to confirm the instructions and be wary of any request to change wire instructions you already received.

This email may be confidential. If you are not the intended recipient, please notify us immediately and delete this copy from your system.

In our ongoing focus on your security, we have changed our encryption provider to Proofpoint encryption. This may require you to create a new account.

--

Jonny Palmer

Received
7/21/25
Planning Dept.

From: Jo Drummond
To: Yolanda Bundy
Cc: Arthur Aladjadjian; Rob Duboux; Travis Hart; Patt Healy; R. Y. A. N.; Scott Dittrich; Tiffany Murray; James Palmer; Jefferson Wagner; Emily Ravlich; Brandie Ayala; Raneika Brooks; Allison Cook; Bill Sampson; Malibu Township Council; Planning Commission; Rebecca Evans; [redacted]
Subject: Fw: [External] Need Help Locating a Plotted Easement on APN 4459-014-004 - 25200 PCH
Date: Sunday, July 20, 2025 7:20:21 AM
Attachments: IMG_3338.PNG
Screen Shot 2025-07-20 at 1.16.23 PM.png
image006.png
25331 Malibu Road Plotted Map.pdf

CAUTION: This email originated from outside of the organization. Do not click links or open attachments unless you recognize the sender and know the content is safe.

Warning: Unusual sender [redacted]
You don't usually receive emails from this address. Make sure you trust this sender before taking any actions.

Hi Yolanda...here is the last email regarding the broken drain pipe that was never formally responded to below. I have followed up verbally at almost every Planning Commission meeting since I started in 2021 and this still has not yet been repaired.

Perhaps Arthur and Brandie can follow up with Caltrans again now that this project has come up - nothing can be approved on this lot until this pipe at the very least is taken care of. As far as we are aware Caltrans is still denying responsibility. Given the instability in the area that has been caused by this pipe that leaks when it rains the effluent coming from such a large project should definitely be considered and adjustments made to the current plans for the large heavy massing taking up almost the entire parcel and water usage. As there are no structures between a majority of the property and Malibu Road along the beach it should also be considered a coastal bluff and restrict development accordingly. One of the beachfront lots also remains empty and unsellable as it was taken out by a landslide from where this project is proposed. See images below.

Pls also note in the images that compare the lot via the first google earth image to the massively long project designed by a Miami architect, that is approaching over 1100 ft in length along PCH. It plans on blocking the views from PCH on the entire 1700+ ft length of the property with 20-50ft tree plantings also not mentioned in the description of the project - see below. NONE of these should be allowed per view ordinance and for fire safety. As well, no one wants a wall to block the scenic ocean view enjoyed by all visitors and residents currently.

There is also a GLARING error on p 7 of the staff report e. the septic tank is over **7500 gallons NOT 1500 gallons**. This needs to be corrected for the public also so justifies a postponement as well. We ask that the City state publicly exactly how many trees and what heights are proposed for them along the PCH side also. The individual lots that this one lot has illegally combined thus far should also be split into

Date Received 7/21/25 Time 7:30 AM
Planning Commission meeting of 7/21/25
Agenda Item No. 5A
Total No. of Pages 18

CC: Planning Commission, PD,

Recording Secretary, File

two viewing corridors not just from one lot where the one side is planning to keep a small section of 31% SUPPOSEDLY clear of any view obstruction yet the other side of the lot should also have the SAME stipulation and view corridor although NONE of this scenic view should be destroyed.

Thank you, Jo

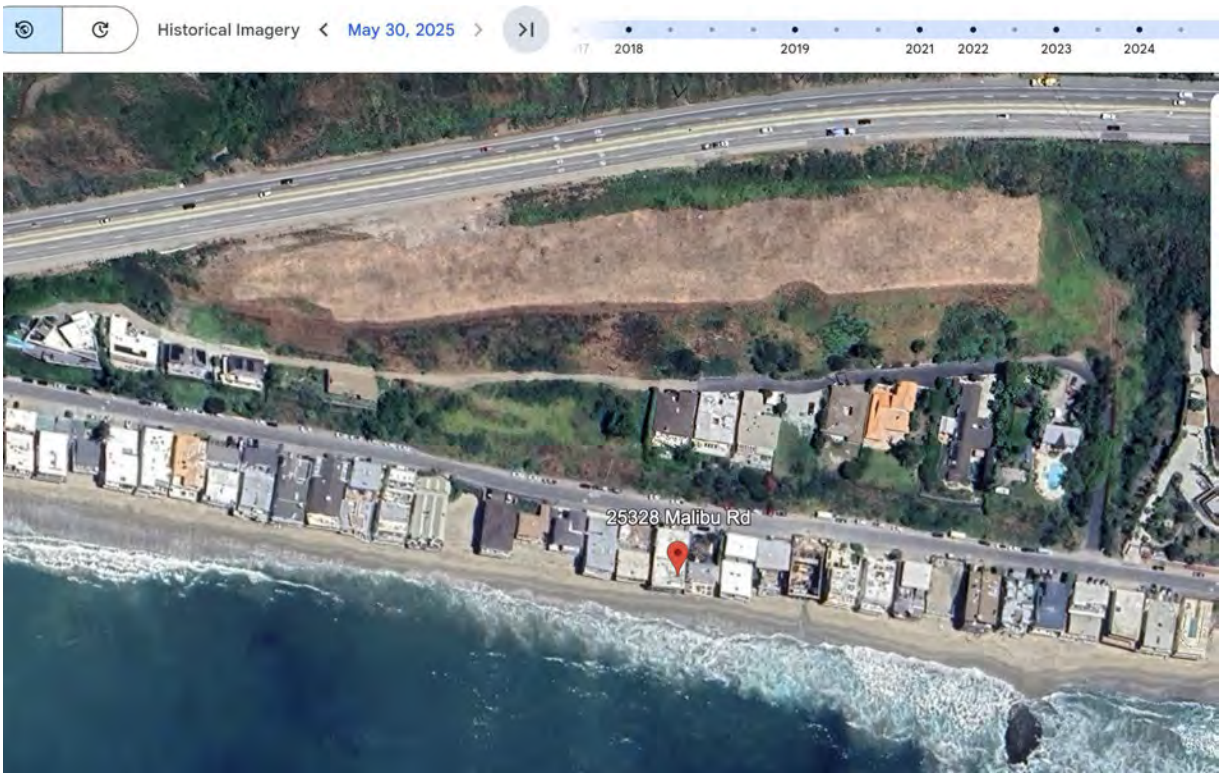
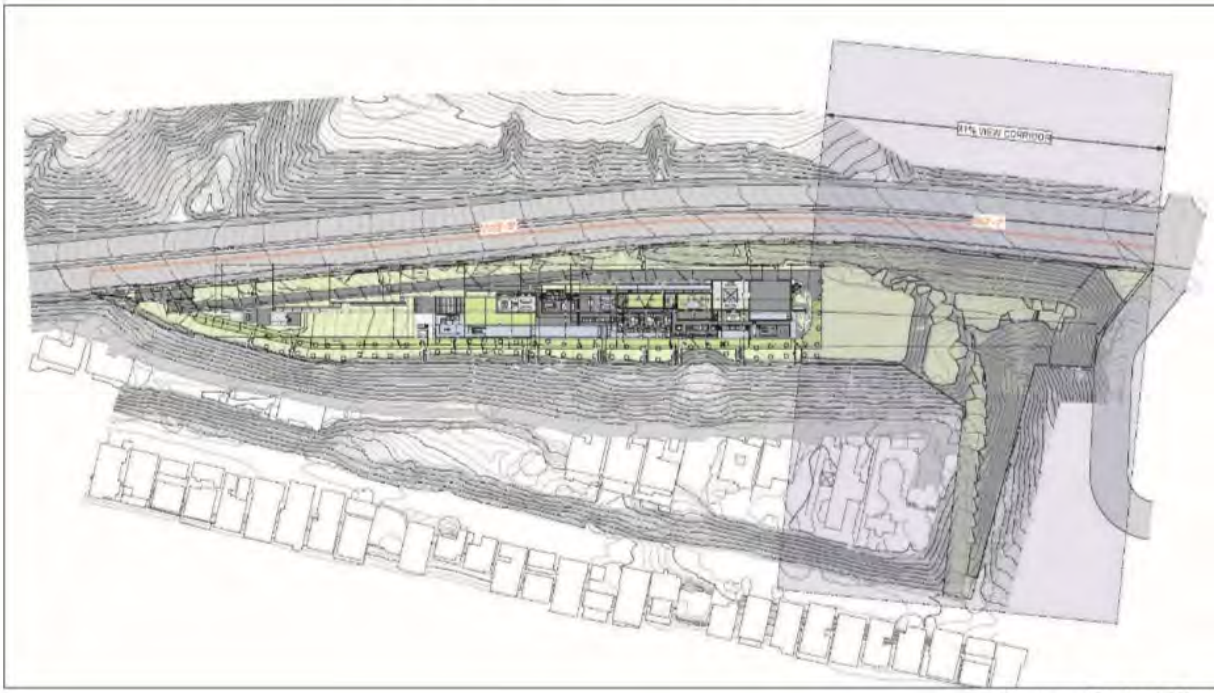




Figure 2 –Proposed Site Plan



Source: Project Plan

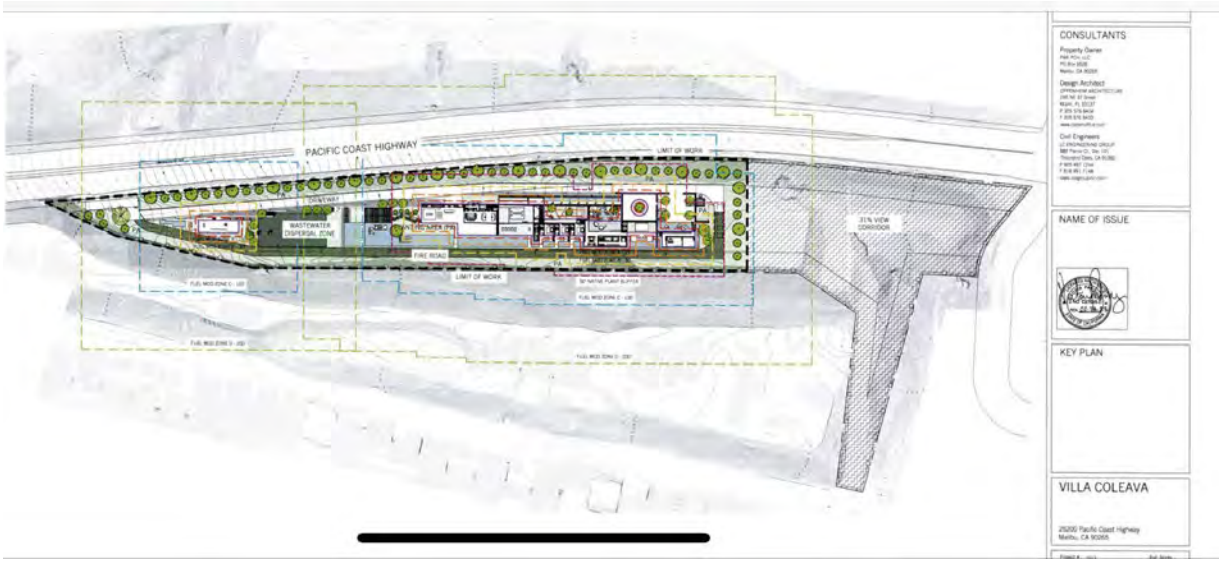


ZONING INFORMATION

ZONE: RR-2
ADDRESS: 25200 PACIFIC COAST HIGHWAY, MALIBU, CALIFORNIA, 90265.
TYPE OF CONSTRUCTION: TYPE VB
OCCUPANCY CLASSIFICATION: R-3,U
STORIES: ONE STORY + BASEMENT
SPRINKLERED STRUCTURE
ASSESOR PARCEL #: 4459-013-021, 4459-014-018
PROJECT DESCRIPTION:THE PROJECT SEEKS TO PRESERVE AND ACCENTUATE THE VIEWS OF MALIBU BEACH. THE ARCHITECTURE IS REDUCED TO CASCADING HORIZONTAL PLANES THAT ARE CAREFULLY PLACED ON THE SITE'S TOPOGRAPHY, WHICH SERVE TO FRAME THE VIEWS TOWARD MALIBU BEACH. THE PROGRAMMATIC VOLUMES ARE DISCRETELY PLACED UNDER THESE CASCADING HORIZONTAL PLANES AND ARE COMPOSED OF ORGANIC AND LOCALLY SOURCED WOOD, STONE, AND GLASS, WHICH ALLOW THE ARCHITECTURE TO DISAPPEAR AND BLEND IN TO ITS ENVIRONMENT. THE ELEGANT SIMPLICITY OF THE PROJECT'S ELEMENTS AND MATERIALITY ALLOWS FOR THE OPTIMAL INTEGRATION INTO THE SITE.
PACIFIC COAST HIGHWAY LOT FRONTAGE: 1692'
LOT VIEW CORRIDOR: 525'-2"= 31% OF PACIFIC COAST HIGHWAY LOT FRONTAGE (VIEW DOES NOT REQUIRE THE REMOVAL OR TRIMMING OF VEGETATION)
LOT DEPTH: 194'-3"
LOT WIDTH: 577'-3"
REQUIRED FRONT YARD (20% OF LOT DEPTH): 38'-10 3/16"
REQUIRED REAR YARD (15% OF LOT DEPTH): 29'-1 5/8"

FIRE SAFETY CALCULATIONS

TYPE OF CONSTRUCTION: TYPE VB
VHFHSZ: YES
SIZE OF LOT: 6.36 ACRES
FIRE FLOW BASED ON THE FIRE-FLOW CANCLUATION AREA: 2750 GPM
REDUCTION FOR FIRE SPRINKLERS (MAXIMUM 50%): 1375 GPM
TOTAL FIRE FLOW REQUIRED: 1375 GPM


PACIFIC COAST HIGHWAY
LIMIT OF WORK
WASTEWATER DISPERSAL ZONE
FIRE ROAD
LIMIT OF WORK
31% VIEW CORRIDOR
CONSULTANTS
NAME OF ISSUE
KEY PLAN
VILLA COLEAVA


[place]
PACIFIC COAST HIGHWAY
CONSULTANTS
NAME OF ISSUE
KEY PLAN
VILLA COLEAVA
FUEL MOD LEGEND

Inline image



City of Malibu Office of Public Safety

January 7 at 5:47 PM ·

(Jan. 7, 2022) - Los Angeles County Waterworks Dist. 29 and Socal Gas are repairing a watermain leak and a gas leak at 25328 #Malibu Road caused by a landslide at 25330 Malibu Rd. about 10:00 PM Thursday, January 7. A crew from Socal Gas arrived after midnight and gained control of the blowing gas from a damaged gas meter and riser, and no evacuations or other emergency

and riser, and no evacuations or other emergency actions were necessary. Water service is temporarily interrupted to 27 customers and three fire hydrants, and gas service was interrupted for two customers. All effected customers were directly notified. Malibu Road is reduced to one lane alternating for both directions from PCH to Puerco Canyon. Service is expected to be restored this afternoon. No estimate on lanes reopening. City Public Works and Public Safety staff are coordinating with SCE and SoCalGas.
https://malibucity.org/AlertCenter.aspx?AID=Malibu-Road-reduced-to-1-lane-alternatin-2898

@SoCalGas



----- Forwarded Message -----
From: Jo Drummond [redacted]
To: Arthur Aladjadjian <aaladjadjian@malibucity.org>
Cc: James Palmer [redacted]; Jefferson Wagner [redacted]; William Johnson <WJOHNSON@dpw.lacounty.gov>; Jemellee Cruz <JCRUZ@dpw.lacounty.gov>; Troy Spayd <tspayd@malibucity.org>; Brandie Ayala <bayala@malibucity.org>; Travis Hart <thart@malibucity.org>;

Rob Duboux <rduboux@malibucity.org>
Sent: Thursday, May 11, 2023 at 06:50:45 PM GMT+1
Subject: Re: [External] Need Help Locating a Plotted Easement on APN 4459-014-004

Hi Arthur! Hope all is well…

Do we have an update on the Malibu rd pipe repair that's desperately needed?

Jim Palmer checked the broken pipe after all the rains and is still not fixed. It still floods the road and creates a huge muddy mess.

Please advise on where we are at with this repair.

Thanks very much! Jo

On Oct 31, 2022, at 5:15 PM, Arthur Aladjadjian <aaladjadjian@malibucity.org> wrote:

Good afternoon Jo,

Weekend was nice I hope you enjoyed yours as well!

Appreciate your follow up. We had to elevate this issue to upper management at Department of Transportation. For that reason, Caltrans Deputy District Director of Maintenance has a team currently collecting information to share their findings on the subject matter. After a preliminary review, they indicated it may not be their facility but will wait to gather all the facts and follow up with us on what their records show.

You are also welcome Submit Customer Service Requests through their online portal to help push this matter to further document maintenance request and also receive follow up updates (i.e. used for storm drains issues, potholes, down signs, brush clearance, signal issues, striping, etc.) …..
https://csr.dot.ca.gov/index.php/Msrsubmit

Thank you,

Arthur

From: Jo Drummond [redacted]
Sent: Monday, October 31, 2022 10:03 AM
To: Arthur Aladjadjian <aaladjadjian@malibucity.org>
Cc: James Palmer [redacted] Jefferson Wagner [redacted]; William Johnson <WJOHNSON@dpw.lacounty.gov>; Jemellee Cruz <JCRUZ@dpw.lacounty.gov>; Troy Spayd <tspayd@malibucity.org>; Brandie Ayala <bayala@malibucity.org>; Travis Hart <thart@malibucity.org>; Rob Duboux <rduboux@malibucity.org>
Subject: Re: [External] Need Help Locating a Plotted Easement on APN 4459-014-004

CAUTION: This email originated from outside of the organization. Do not click links or open attachments unless you recognize the sender and know the content is safe.

Good morning Arthur, hope you enjoyed your weekend.

Any update from Caltrans on repairing this pipe on Malibu Road? The rains are coming soon and this really needs to be fixed before then.

Thanks! Jo

On Oct 3, 2022, at 12:56 PM, Arthur Aladjadjian <aaladjadjian@malibucity.org> wrote:

Good afternoon Jo,

Thank you for your email. Yes, we have followed up with the Caltrans maintenance team on several occasion and reached out again this week.

The Joint Public Works and Public Safety Commission meeting scheduled for this Thursday is to provide an update on Caltrans' Capital Improvement Projects (CIP), per the meeting agenda item. For that reason Caltrans CIP representatives attending the meeting will not have the information requested below that is related to their maintenance division team.

We will continue to follow up with Caltrans maintenance and anticipate an official response soon.

Have a wonderful day.

Arthur

From: Jo Drummond [redacted]
Sent: Friday, September 30, 2022 3:45 PM
To: Arthur Aladjadjian <aaladjadjian@malibucity.org>
Cc: James Palmer [redacted]; Jefferson Wagner [redacted]; William Johnson <WJOHNSON@dpw.lacounty.gov>; Jemellee Cruz <JCRUZ@dpw.lacounty.gov>; Troy Spayd <tspayd@malibucity.org>; Brandie Ayala <bayala@malibucity.org>; Travis Hart <thart@malibucity.org>; Rob Duboux <rduboux@malibucity.org>
Subject: Re: [External] Need Help Locating a Plotted Easement on APN 4459-014-004

CAUTION: This email originated from outside of the organization. Do not click links or open attachments unless you recognize the sender and know the content is safe.

Hi Arthur,

Have you followed up with Caltrans yet regarding the pipe on Malibu Rd that they own that needs urgent repair? I believe you confirmed this verbally to me a few months ago. I'd like to ask them about this during the meeting this Thursday.

Thanks and pls let me know if you've heard anything… I don't see it mentioned in this agenda attached. Jo

On Sep 15, 2022, at 1:18 PM, Jo Drummond [redacted] wrote:

Hi Arthur,

It's been almost 4 months and the pipe has still not been repaired at Malibu road.

Do we have any update from Caltrans?

Let us know…thanks very much!:) Jo

On May 19, 2022, at 3:24 PM, Jo Drummond [redacted] wrote:

Thank you Valerie!

Arthur will you be following up with Caltrans on this?

Thanks! Jo

On May 5, 2022, at 4:35 PM, Valerie A. Esparza (PW) <vesparza@dpw.lacounty.gov> wrote:

Hello Jo, apologies for the delayed response!

We have completed our investigation and according to our as-built plan there is an existing 20-inch pipe upstream of the Malibu Road inlet (downstream of PCH); we have determined the *20-inch pipe line,* connected to our MTD 622 line A (at 25328 Malibu Rd.), is Caltrans owned. This section of pipe, shown below in red, collects drainage from PCH and is to be maintained by Caltrans. The Malibu Road inlet, 18-inch RCP, and MTD 622 line A, are all Flood Control owned.

Our recommendation would be to request as-built drawings from Caltrans for PCH, to solidify ownership of this existing 20-inch pipe (between PCH and Malibu Road inlet).

Thank you,

Valerie Esparza, MPA

Principal Civil Engineering Assistant

Los Angeles County Public Works

Work: (562) 861-0316

Mobile: (626) 660-9392

<image001.png>

<image002.png>

From: William Johnson <WJOHNSON@dpw.lacounty.gov>
Sent: Thursday, May 5, 2022 2:56 PM
To: Jo Drummond [redacted]; Valerie A. Esparza (PW) <vesparza@dpw.lacounty.gov>
Cc: James Palmer [redacted] Arthur Aladjadjian <aaladjadjian@malibucity.org>; Jefferson Wagner [redacted]
Subject: RE: [External] Need Help Locating a Plotted Easement on APN 4459-014-004

Hi Jo,

Valerie in our Stormwater Maintenance Division was looking into this. She will provide the update. Thanks

William Johnson, P.E.

Senior Civil Engineer

Los Angeles County Public Works

Mobile: (626) 703-6500

From: Jo Drummond [redacted]
Sent: Thursday, May 5, 2022 11:53 AM
To: William Johnson <WJOHNSON@dpw.lacounty.gov>; Russ Bryden <RBRYDEN@dpw.lacounty.gov>; Valerie A. Esparza (PW) <vesparza@dpw.lacounty.gov>
Cc: James Palmer [redacted]; Arthur Aladjadjian <aaladjadjian@malibucity.org>; Jefferson Wagner [redacted]>
Subject: Re: [External] Need Help Locating a Plotted Easement on APN 4459-014-004

CAUTION: External Email. Proceed Responsibly.

Any update William?

Thx! Jo

On Apr 25, 2022, at 12:33 PM, Arthur Aladjadjian <aaladjadjian@malibucity.org> wrote:

Good afternoon William,

We recently did a survey of the area in an effort to identify ownership of the stormdrain facilities in the area. The pipe from land side of Malibu Road to the outfall on the ocean side appears to be marked as a County drain. However, the attached plan view “Section B-B” from our survey records shows another pipe (owner not identified) between the county catch basin on the land side of Malibu Road going uphill towards Bayshore Drive. We need some input on who owns the pipe connecting between land side of Malibu Road uphill towards Bayshore Drive.

Our Survey records could not verify any stormdrain easement/ownership between Malibu Road and Bayshore Drive.. and up to PCH. Any input is much appreciated.

Any feedback is much appreciated.

Thank you,

Arthur

From: William Johnson <WJOHNSON@dpw.lacounty.gov>
Sent: Friday, April 22, 2022 2:11 PM
To: Jo Drummond [redacted]
Cc: Arthur Aladjadjian <aaladjadjian@malibucity.org>; James Palmer [redacted];

Jefferson Wagner [redacted]; Valerie A. Esparza (PW) <vesparza@dpw.lacounty.gov>; Russ Bryden <RBRYDEN@dpw.lacounty.gov>
Subject: RE: [External] Need Help Locating a Plotted Easement on APN 4459-014-004

Hi Jo,

I've forwarded this to our Stormwater Maintenance Division. They'll investigate and let us know what they find.

William Johnson, P.E.

Senior Civil Engineer

Los Angeles County Public Works

Office: (310) 456-5341

From: Jo Drummond [redacted]
Sent: Thursday, April 21, 2022 5:20 PM
To: Russ Bryden <RBRYDEN@dpw.lacounty.gov>
Cc: Arthur Aladjadjian <aaladjadjian@malibucity.org>; [redacted] Jefferson Wagner [redacted]; William Johnson <WJOHNSON@dpw.lacounty.gov>
Subject: Re: [External] Need Help Locating a Plotted Easement on APN 4459-014-004

CAUTION: External Email. Proceed Responsibly.

Hi Russ!

I just received a bounce back from Dave Rydman's office saying you have taken over for him.

Welcome and Pls advise on the request below…

Thanks very much!

Jo Drummond

(Newly appointed public works commissioner for city of Malibu)

On Apr 21, 2022, at 5:10 PM, Jo Drummond <[redacted] wrote:

Hi Dave!

Hope you're well…

There is a large drain pipe going from PCH to Malibu Rd under Bayshore Drive. It looks like the County has public utility easement where this pipe lies (see attached). It has been broken and causing

infrastructure damage for over 10 years and needs to be repaired as soon as possible. If you visually look at the pipe coming out on Malibu rd you can see it is full of dirt and debris. Can you get together with Arthur Aladjadjian at the city and resolve this outstanding issue?

I'll attach some photos of the result of the broken pipe at bayshore drive on Tuesday morning after Monday rain on March 29, 2022. This can't be good for the nearby landslide area. I'm also attaching easement info showing the county is responsible for public utilities there.

Thanks very much! Jo Drummond

<image003.jpg>

<image004.jpg>

<image005.jpg>

Begin forwarded message:

From: Jo Drummond [redacted]
Date: April 20, 2022 at 10:34:40 AM PDT
To: Arthur Aladjadjian <aaladjadjian@malibucity.org>
Cc: Rob Duboux <rduboux@malibucity.org>, [redacted] candace Brown [redacted]
Subject: Fwd: [External] Need Help Locating a Plotted Easement on APN 4459-014-004

Here is more easement detail. Let us know if the county and/or the city can repair. Thanks! Jo

Begin forwarded message:

From: [redacted]
Date: April 14, 2022 at 12:06:39 PM PDT
To: [redacted]
Subject: Fwd: [External] Need Help Locating a Plotted Easement on APN 4459-014-004
Reply-To: [redacted]

Jo:

Here is a more detailed easement description of the broken pipe on Malibu Road.

Jim

-----Original Message-----
From: Meehan, Patrick (TRG) [redacted]
To: malibuvineyards [redacted] >; malibujonny1 [redacted]
Sent: Fri, Jul 16, 2021 5:04 pm
Subject: Re: [External] Need Help Locating a Plotted Easement on APN 4459-014-004

Hi Jim,

Attached, please find the prelim with all easement documents hyperlinked. I have asked my Engineering Dept to plot them on a map so we can see where they are

located. As soon as they are complete, I will send them to you.

Have a great weekend!

Pat

From: Meehan, Patrick (TRG) [redacted]
Sent: Tuesday, July 13, 2021 3:24 PM
To: malibuvineyards [redacted]; malibujonny1 [redacted]
Subject: Re: [External] Need Help Locating a Plotted Easement on APN 4459-014-004

Hi Jim,

I am going to open a prelim and have my search team do a deep dive into the property and all recorded documents on it. We tried searching specifically for easement documents but were unsuccessful. As soon as I have more info, I will send it over.

Pat

From: malibuvineyards [redacted]
Sent: Tuesday, July 13, 2021 3:19 PM
To: Meehan, Patrick (TRG) [redacted] malibujonny1 [redacted]
Subject: Re: [External] Need Help Locating a Plotted Easement on APN 4459-014-004

Patrick: Thank you for your help.

I am trying to locate a broken drain pipe location some where between the LA county and State of California Cal trans boundaries. The pipe runs through this property. It cannot be repaired until we determine the legal responsibility of county or state.

Any thoughts?

Jim Palmer

Sent from the all new AOL app for iOS

On Tuesday, July 13, 2021, 2:35 PM, Meehan, Patrick (TRG) [redacted] wrote:

> Hi Jonny,
>
> I am unable to find this easement. Do you have a document number? I checked the neighborhood properties as well and was unsuccessful. Is it

only on our property? We may need to have a complete title search run to locate it. Any additional information you have would be great.

Pat

From: Jonny Palmer [redacted]

Sent: Friday, July 9, 2021 4:57 PM
To: Meehan, Patrick (TRG) [redacted]
Cc: James Palmer [redacted]
Subject: Re: [External] Need Help Locating a Plotted Easement on APN 4459-014-004

Yes, that address is correct.

On Fri, Jul 9, 2021 at 4:52 PM Meehan, Patrick (TRG) [redacted] wrote:

> The address is: 25331 MALIBU RD MALIBU, CA 90265? Is that right? Please confirm.
>
> Thanks!
>
> Pat
>
> ---
>
> **From:** Jonny Palmer [redacted]
> **Sent:** Friday, July 9, 2021 4:51 PM
> **To:** Meehan, Patrick (TRG) [redacted]
> **Cc:** James Palmer [redacted]
> **Subject:** Re: [External] Need Help Locating a Plotted Easement on APN 4459-014-004
>
> Thank you so much Patrick.. I have cc'd him in this email.
>
> On Fri, Jul 9, 2021 at 4:50 PM Meehan, Patrick (TRG) <[redacted] wrote:
>
> > Hi Jonny,
> >
> > Let me see what I can find for him. I will get back to you as soon as I have something.
> >
> > Pat
> >
> > ---

From: Jonny Palmer [redacted]
Sent: Friday, July 9, 2021 4:36 PM
To: Meehan, Patrick (TRG) [redacted]
Cc: James Palmer [redacted]
Subject: [External] Need Help Locating a Plotted Easement on APN 4459-014-004

Dear Patrick,

My dad wanted to know if it Is it possible for you to locate a plotted easement on APN 4459-014-004 This easement is in reference to an underground drain by the county of los angeles or Caltrans state of california easement. Any help would be greatly appreciated.

Best Regards,

Jonny

This email originated from outside the organization. Do not click links or open any attachments unless you recognize the source of the email.

BEWARE OF CYBER-FRAUD! Before wiring any funds, call the intended recipient at a number you know is valid to confirm the instructions and be wary of any request to change wire instructions you already received.

This email may be confidential. If you are not the intended recipient, please notify us immediately and delete this copy from your system.

In our ongoing focus on your security, we have changed our encryption provider to Proofpoint encryption. This may require you to create a new account.

Jonny Palmer

THE**AGENCY**

A Global Marketing and Sales Organization

Assistant

Office of Irene Dazzan-Palmer

(310) 866-8191 - Cell

www.IreneDazzan-Palmer.com

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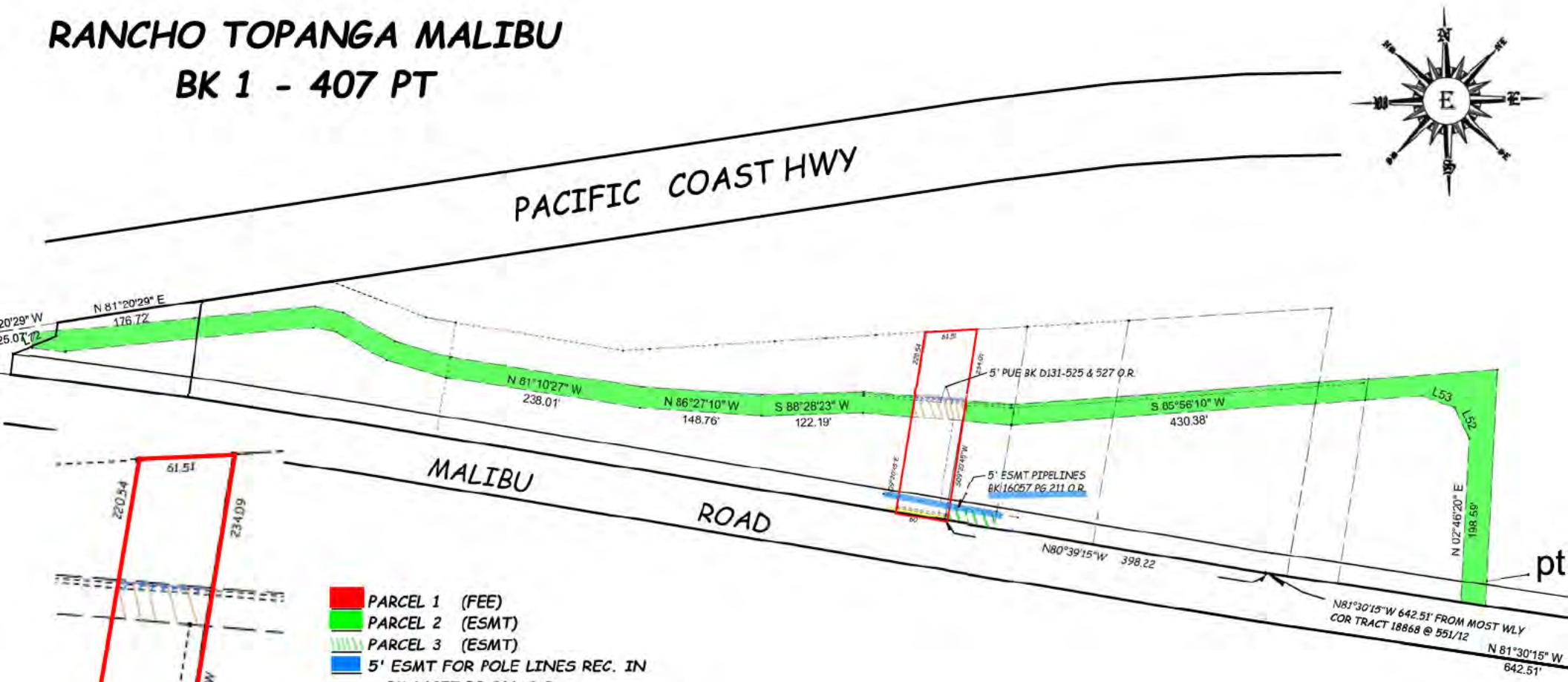
BK 1 - 407 PT



DETAIL

PARCEL 1 (FEE)
PARCEL 2 (ESMT)
PARCEL 3 (ESMT)
5' ESMT FOR POLE LINES REC. IN BK 16057 PG 211 O.R.
5' ESMT FOR POLE LINE & CONDUITS REC. 04-07-52 AS INS. No. 31 IN BK 38646 PG 104 O.R.
ESMT FOR INGRESS EGRESS REC. IN BK 55954 PG 234 O.R.
5' ESMT FOR PUBLIC UTILITIES REC. IN D-131 PG 525 O.R. & BK D-131 PG 527 O.R.
2' ESMT FOR PUBLIC UTILITIES REC. 04-01-59 AS INS. No. 3229 IN BK D-418 PG 637 O.R.
ESMT REC. IN BK 15228 PG 342 O.R., BK 20743 PG 271 O.R., BK 45423 PG 435 O.R.
04-11-45 AS INS. No. 1037 ARE INDETERMINATE

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This plat is not a part of a preliminary title report or policy of title insurance.
Equity title Company does not guarantee the square footage or lot size as shown on this plat.
Easements and other matters depicted hereon are provided as a courtesy only and no representation is made as to
The accuracy or completeness thereof. The Company assumes no liability for any loss occurring by reason of reliance thereon.

Received
7/21/25
Planning Dept.

From: K Hill
To: Planning Commission
Cc: Skylar Peak; John Mazza
Subject: Item 5A, Coastal Development Permit No. 19-012 / 25200 Pacific Coast Highway
Date: Saturday, July 19, 2025 11:22:13 PM
Attachments: TpqfbEfQWwhKUqjd.png

External sender [redacted]
Make sure you trust this sender before taking any actions.

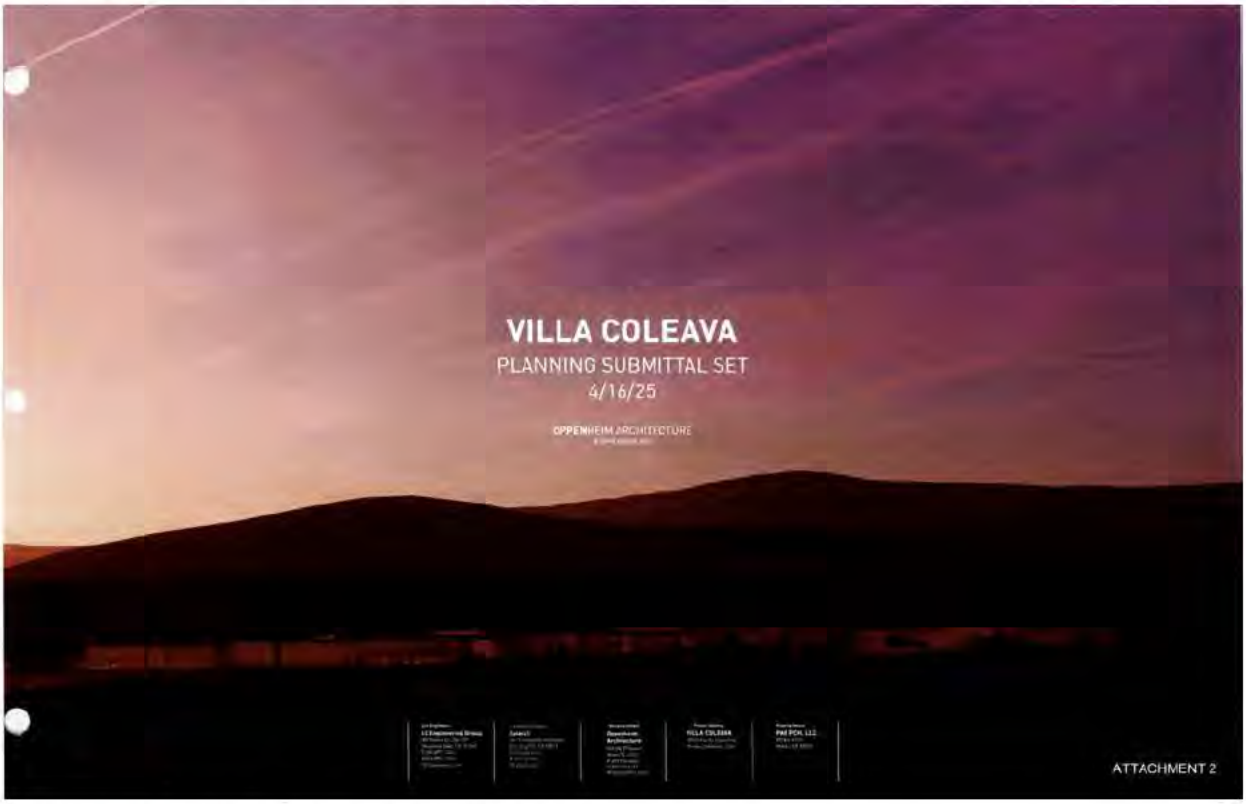
Hi Commissioners,

I haven't read the staff report closely this time – not to my usual standard – but I did walk the whole site not long before the Palisades Fire, when it appeared the project would be imminently in front of the Commission. I'm qualified to make a few limited observations.

Recently I was driving up the PCH with a friend who knows Malibu well but hadn't been in town for a while. When we got to this site, they saw the story poles and exclaimed,

> "Whoa, they're building a strip mall there?!"
> I said, "It's a house."
> "You mean condos, right?"
> "No, one house."

Therein lies at least one rub. In attempting to spread a house out so thin as to avoid two stories, they've affected the entire view along that area. What makes the blockage of a "visually impressive" view significant is not simply the proportion of ocean or mountains it blocks from a certain spot; a little bit of blockage across that wide span of view can and does affect the entire view. It's hard to hide a really big spec house, no matter how it's shaped. Even the cover sheet of the Planning Submittal (at PDF 52) is a rendering "at dusk," such that the full width of the proposal can scarcely be seen:



(I saw something similar in an ad for the struggling NEOM resort in Saudi Arabia.)

The way it's arrayed on the lot doesn't account for the fact that the public views from PCH feel more significant closer to the west end of the lot, where the beach and Point Dume are more of what you're looking at as you drive west. In effect, the view corridor is on the wrong end of the lot. I understand there are some private views from Puerco Cyn Rd. that would be affected, but all things considered, the public interest is to be preferenced. Anyway, it looks like Puerco houses would see the structure no matter where it is on the lot.

The report doesn't mention that the project would be in full view of the public trails on MRCA land on the other side of PCH, accessed via the Sara Wan trailhead at Corral beach. Tucking the project back further on the East side *might* also help those views.

Evidently in an attempt to sink the structure from view, large retaining walls have been proposed between the structure and PCH. Someone sent me a link to the website for this spec house; it shows an oversize retaining wall on the north side, not part of the building structure. The Wall and Fence Plan A (at PDF 61) show several lines of 12 ft "building walls" in addition to multiple retaining walls of unspec'd height. On that sheet to the left of the vertical "match line" there's an area where four walls are staggered, one above the other. Recall that retaining walls, unless they are integrated in the building, can be a max of two 6ft walls staggered at least 6ft apart. For a building wall, you get one wall of 12 ft max. So that one spot looks like it could be impermissibly stacking as much as (12+12+6+6) 36 ft of wall going up the slope between the structure and PCH.

Beyond that, as others will doubtless point out, this area has geological issues. The setting is right in or adjacent to a known active slide. That makes the over-height walls not only impermissible, but imprudent.

Date Received 7/21/25 Time 7:30 AM
Planning Commission meeting of 7/21/25
Agenda Item No. 5A
Total No. of Pages 2

CC: Planning Commission, PD,

Recording Secretary, File

From a land use and traffic perspective, the analysis has not considered the small shopping area proposal that has been developed for the NE corner of PCH and Puerco Cyn. I don't know how active those plans are currently – the developer showed them to me some time before Covid hit – but there could be interactions associated with that intersection to be accounted for (recall that CEQA cares about *potential* impacts too). All traffic to the west from the current project site would first have to turn around at Puerco.

More generally, consider carefully the interactions with freeway-speed PCH traffic there. Those artificially high berms could block sightlines, making egress unsafe – especially because merging onto the PCH you'd be driving uphill, slow to accelerate to traffic speed (even if the owner drives race cars, their tradies will have trucks and panel vans).

Finally, this one feels like one that could get sent up to Council, no matter which way you decide it. So, when there's a debate about some aspect, there's little need to argue; just be sure to get all your thoughts in the record.

Best,
K

Received

7/21/25

Planning Dept.

From: Lonnie Gordon
To: Planning Commission; Yolanda Bundy
Subject: Request for Postponement of Upcoming Hearing - 25200 Pacific Coast Hwy / CDP 19-012
Date: Saturday, July 19, 2025 4:59:29 PM

External sender [redacted]
Make sure you trust this sender before taking any actions.

Subject: Request for Postponement of Upcoming Hearing CDP 19-012

Dear Planning Department Staff and Yolanda Bundy,

I'm writing to formally request a postponement of the scheduled hearing regarding the proposed development at 25200 Pacific Coast Highway (CDP 19-012)

A project of this scale and mass appears to be significantly inconsistent with our city's Vision and Mission statements and is not environmentally optimal in its current form. The design—particularly its long horizontal footprint—is out of character with the surrounding neighborhood and poses a major impact to Malibu's public aesthetic. The view from PCH into the bay is iconic, and must not be blocked. I can't believe anyone would disagree with that.

Based on current renderings, it would obstruct more than 80% of the scenic view corridor along Pacific Coast Highway, a protected and cherished public asset. The community deserves more notice and opportunity to respond.

Additionally, I'd like to call attention to the historical slide activity in this area and further down Malibu Road, including a severe incident that occurred in my friend's backyard and blocked access to her garage for an extended period. The geotechnical risks should be reviewed thoroughly.

Given that many residents are out of town during the summer months, holding a hearing of this magnitude now limits public participation and due process. I respectfully request this hearing be rescheduled for a date after summer when more community members can attend, express their positions, and offer meaningful input.

Thank you for considering this request. We all share a commitment to thoughtful development and transparent decision-making, and I trust the city will honor the public's right to engage fully.

Sincerely,

Lonnie Gordon
(For Public comment)

"The world is not dangerous because of those who do harm,
but because of those who look at it without doing anything".
Albert Einstein

CC: Planning Commission, PD,

Recording Secretary, File

Date Received 7/21/25 Time 7:30 AM
Planning Commission meeting of 7/21/25
Agenda Item No. 5A
Total No. of Pages 1

Received
07/21/25
Planning Dept.

To: Members of the Planning Commission
From: Malibu Coalition for Slow Growth
Re: 25200 PCH item 5A
Date: 7-21-25

Honorable Members of the Planning Commission,

Over the years little by little, project by project, protected public views along PCH are being blocked by structures and/or by landscaping.

This project's height and its landscaping as currently proposed would block an important and a stunning view from PCH, a designated scenic highway. This view needs to be protected and preserved.

Please do the right thing for Malibu Residents, commuters, and visitors alike who travel this portion of the highway by conditioning this project's development, including but not limited to , structures, retaining walls, fencing, the entrance gate be invisible from PCH.

This can be done by either reducing the height of the structures or grading the site low enough to prevent all structures from being seen from PCH. Both options are feasible.

It is more acceptable for the Commission to grant a variance for excessive grading to lower the elevation height of the site to prevent a view obstruction than to allow a permanent view obstruction of the current view from PCH.

Condition *31 states: To minimize bluewater view obstruction from PCH, on-site vegetation, including trees, shall be selected and located to have a maximum growth height at maturity that will not extend above the PCH grade or Caltrans berms, whichever is higher, and be maintained at this height. The Final Landscape Plan submitted for plan check approval shall reflect this requirement.* The existing landscaping plan in the staff packet has vegetation that doesn't comply with this condition and it would be prudent before project approval to require the applicant to submit a new landscaping plan that conforms to this condition for review by the Commission and the public.

CC: Planning Commission, PD,

Recording Secretary, File

Date Received 07/21/25 Time 7:30 AM
Planning Commission meeting of 07/21/25
Agenda Item No. 5A
Total No. of Pages 2

Let's be clear an applicant is not guaranteed the maximum TDSF or a desired height if public views are obstructed. A project can be denied or modified due to: visual impacts or a public view obstruction.

The following findings can't be made for the approval of a Coastal Development Permit:

Finding 1. That the project as described in the application and accompanying materials, as modified by any conditions of approval, conforms with the certified City of Malibu Local Coastal Program. Since this project will substantially block the public view, therefore, it doesn't meet the LCP requirement and this finding can't be made.

Finding 3. The project is the least environmentally damaging alternative. Our recommendation would be a less damaging alternative.

We respectfully request that the project be denied and redesigned to eliminate the obstruction of public views as seen from PCH by either reducing the height of the structures and/or by granting a variance to allow excessive grading to lower the elevation height of the site.

Thank you for considering our comments.

Thomas and Helen Sawyer – [redacted] Malibu Road – Malibu, CA 90265

July 20, 2025

Received
7/21/25
Planning Dept.

Dear Members of the Planning Commission:

I am writing as a nearby resident to express my support for the proposed home at 25200 Pacific Coast Highway, Malibu, CA 90265.

In addition to the important geological work being done to stabilize the hillside, I'm also impressed by the architectural design of the home. Combined with the geotechnical efforts, I believe this project will enhance both the safety and the aesthetic of the neighborhood.

I support this project and hope it receives your approval.

Sincerely,

Thomas Sawyer

CC: Planning Commission, PD,

Recording Secretary, File

Date Received 7/21/25 Time 7:30 AM
Planning Commission meeting of 7/21/25
Agenda Item No. 5A
Total No. of Pages 1

Received
07/18/25
Planning Dept.

From: Jake Jesson
To: Planning Commission
Subject: PARPCH: Support Letter for PC Hearing Item 5A
Date: Friday, July 18, 2025 4:48:10 PM

Warning: Unusual sender <jjesson@weintraubre.com>
You don't usually receive emails from this address. Make sure you trust this sender before taking any actions.

Attached here is a letter of support by seven adjacent neighbors for item 5A on Monday's Planning Commission Hearing.

Thanks,

Jake Jesson
Sr. Project Manager
Weintraub Real Estate Group
P.O. Box 6528, Malibu, CA 90264
jjesson@weintraubre.com
O: (310) 456-2600 ext. 4
C: (310) 739-7931

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CC: Planning Commission, PD,

Recording Secretary, File

Date Received 07/18/25 Time 4:48 PM
Planning Commission meeting of 07/21/25
Agenda Item No. 5A
Total No. of Pages 2

Received
07/18/25
Planning Dept.

July 26, 2023

Mr. Richard E. Weintraub

PO Box 6528

Malibu, CA 90264

Hello Richard,

We are the property owners at [redacted] and [redacted] Malibu Rd (Bayshore Drive) that have participated in the re-construction and sealing of the common driveway that runs from the bottom at Malibu Road to the top at [redacted]. We, jointly, would like to offer support of your proposed project above our properties.

As you are well aware, our neighborhood has had significant drainage and geological issues. We feel that the row of Caissons and soldier piles with the new project will significantly increase the stability of our neighborhood. This is obviously a tremendous benefit for us and for Pacific Coast Highway as well.

Another benefit is the project, as proposed, is currently one story. That helps reduce perspective from both Pacific Coast Highway and Bayshore Drive.

Thank you for your consideration.

Chris & Pat Reed
[redacted] Malibu Rd.

Tom & Holly Sawyer
[redacted] Malibu Rd.

Tricia Newman
[redacted] Malibu Rd.

Sandro Dazzan
[redacted] Malibu Rd

Taper Property
[redacted] Malibu Rd.

Haber Properties
West of [redacted] Malibu Rd.
East of [redacted] Malibu Rd

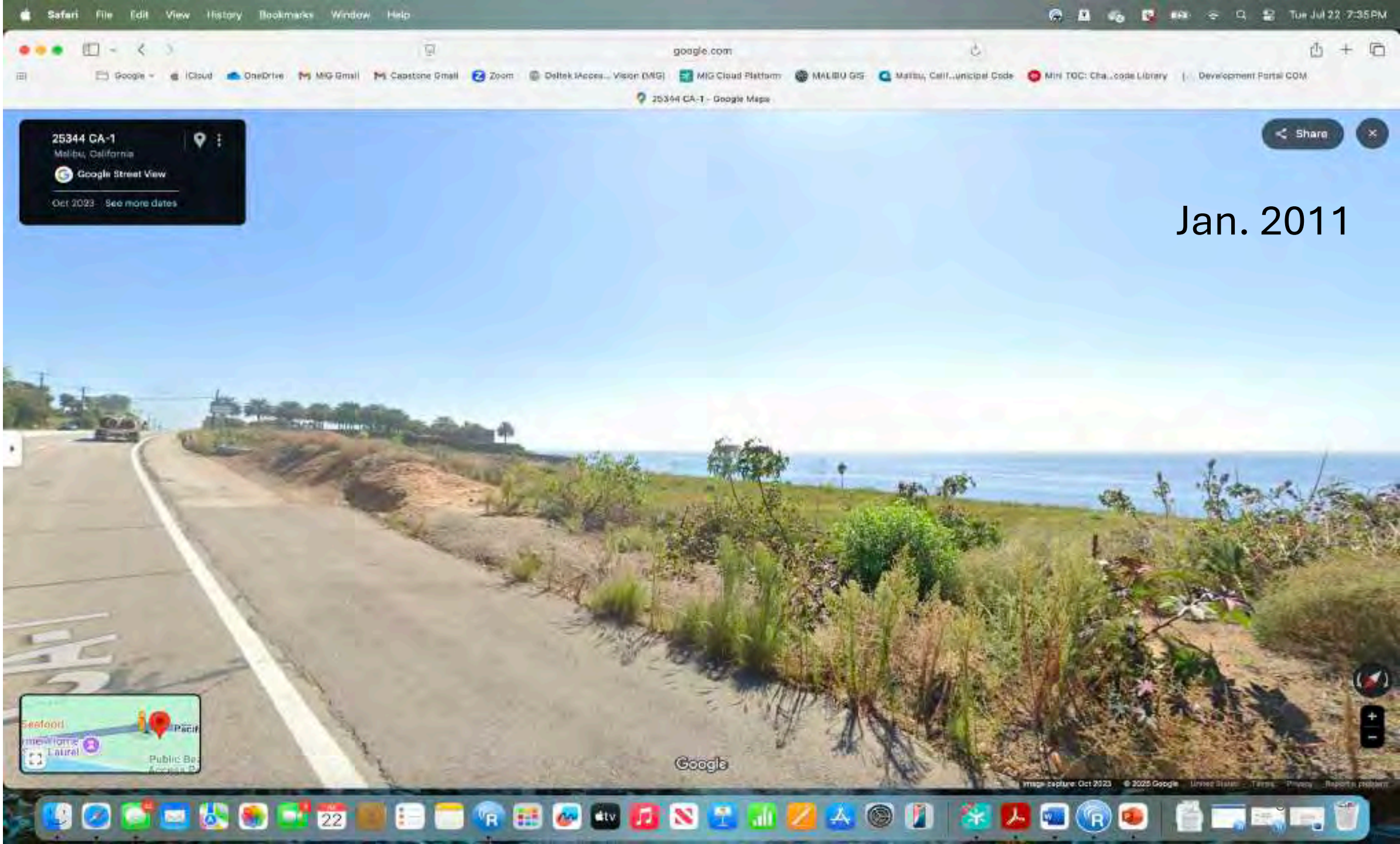
Edith Morgan
[redacted] Malibu Rd.

Views of PCH Berms Location #1

(Looking East)

EXHIBIT D


25200 Pacific Coast Hwy
25224 CA-1
Malibu, California
Google Street View
Dec 2008 See latest date
Share
Dec. 2008
CA-1
Nov 2017
Jan 2017
May 2016
Aug 2015
Jul 2012
Jan 2011
Dec 2008
Dec 2007


25344 CA-1
Malibu, California
Google Street View
Oct 2023 See more dates
Share
Jan. 2011
Google


25224 CA-1
Malibu, California
Google Street View
Jul 2012
See latest date
Share
July 2012
CA-1
Pacific Coast
Public Beach
2018
Nov 2017
Jan 2017
May 2016
Aug 2015
Jul 2012
Jan 2011
Dec 2008
Dec 2007
Image capture: Jul 2012
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Report a problem


25224 CA-1
Malibu, California
Google Street View
Jan 2017
See latest date
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Image capture: Jan 2017
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25224 CA-1
Malibu, California
Google Street View
Feb 2021
See latest date
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25224 CA-1
Malibu, California
Google Street View
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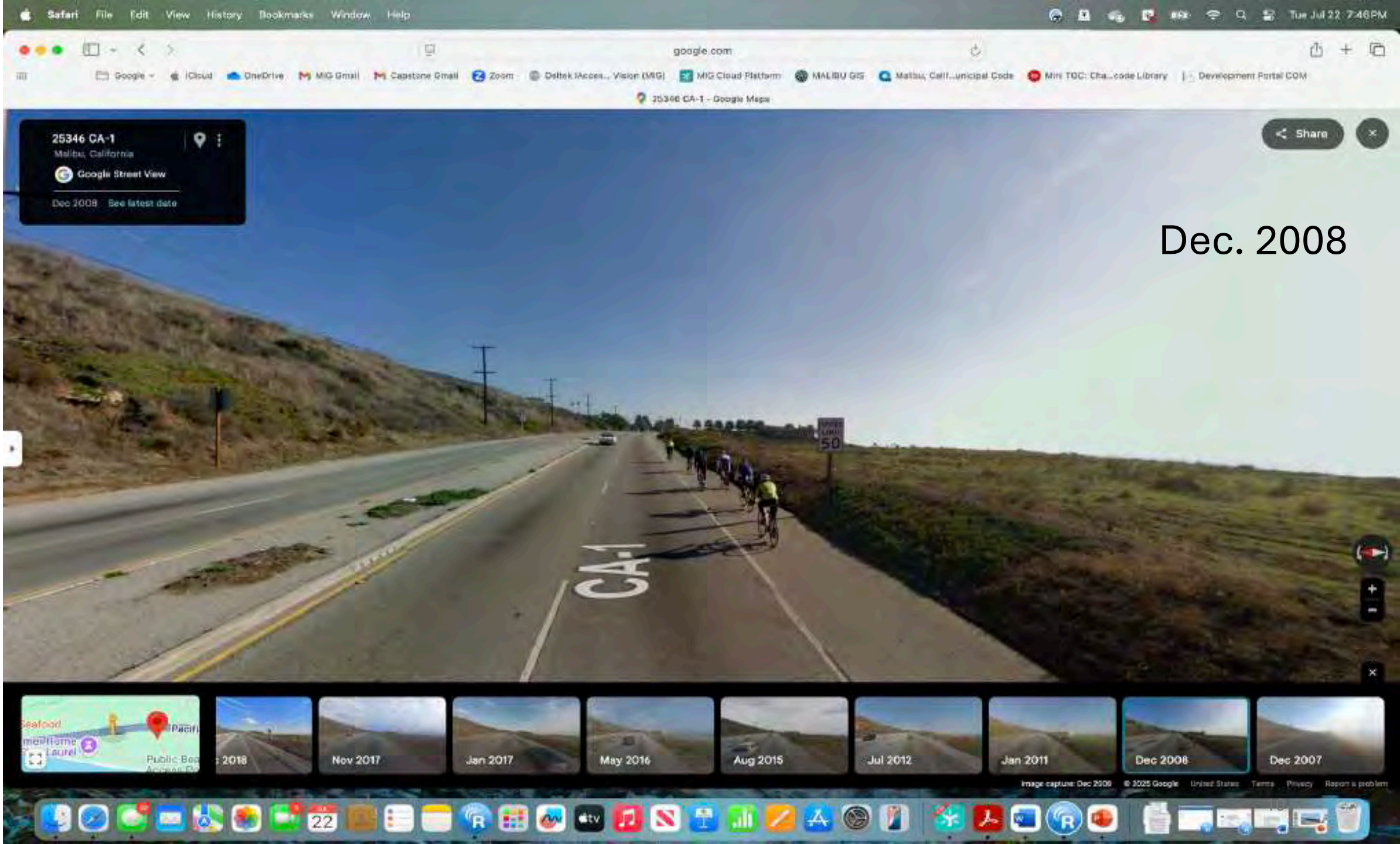
Dec 2018
Nov 2017
Jan 2017
May 2016
Image capture: Oct 2023 © 2025 Google United States Terms Privacy Report a problem

July 2025

Views of PCH Berms Location #2

(Looking East)


25346 CA-1
Malibu, California
Google Street View
Dec 2008 See latest date
Share
Dec. 2008
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2018
Nov 2017
Jan 2017
May 2016
Aug 2015
Jul 2012
Jan 2011
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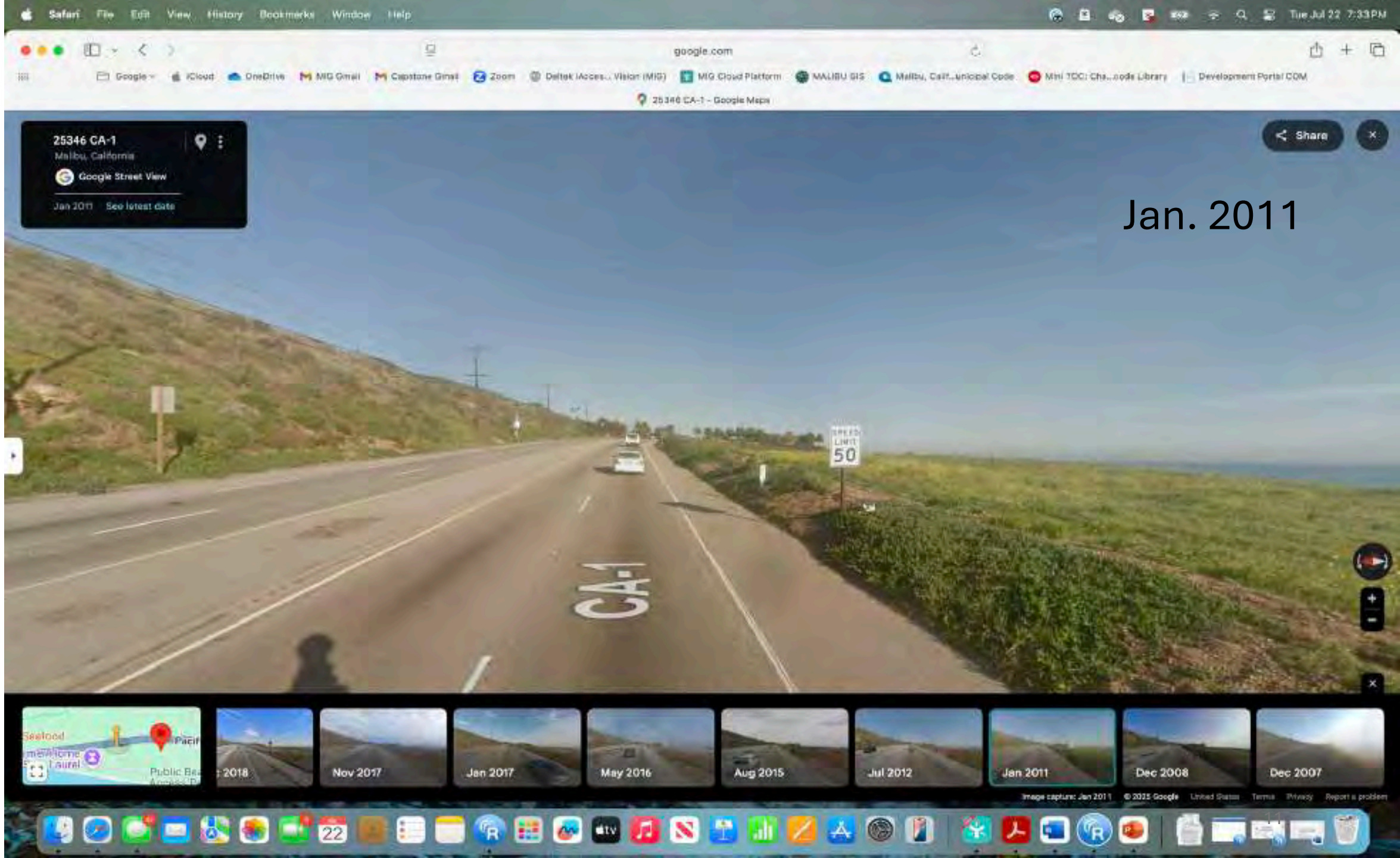
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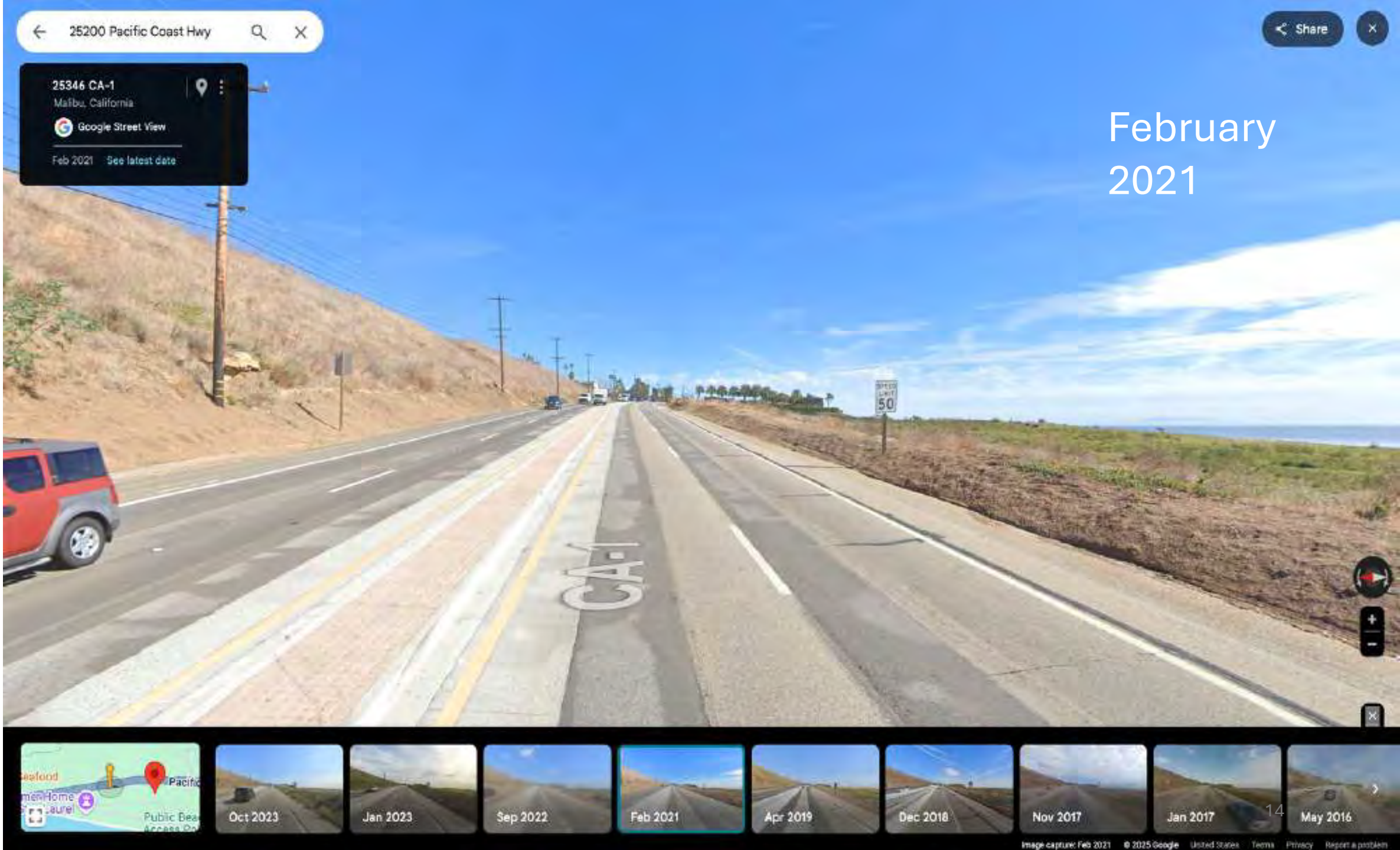
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July 2025

FEFFER
GEOLOGICAL CONSULTING

August 13, 2025 File No. 1992-75

Weintraub Real Estate Group
P.O. Box 6528
Malibu, CA 90264

Subject: **LETTER ON SITE STABILITY**
25200-25300 Pacific Coast Highway, Malibu, CA 90265
APN: 4459-013-021, 4459-014-018

References: **PRELIMINARY GEOTECHNICAL FEASIBILITY INVESTIGATION**
23000-25200 Pacific Coast Highway, Malibu, CA 90265
By: Feffer Geological Consulting, Dated May 21, 2018

GEOTECHNICAL REVIEW SHEET
25200 Pacific Coast Highway, Malibu, CA 90265
By: City of Malibu Dated August 27, 2018
Response By: Feffer Geological, Dated November 20, 2018

GEOTECHNICAL REVIEW SHEET
25200 Pacific Coast Highway, Malibu, CA 90265
By: City of Malibu, Dated January 14, 2019
Response By: Feffer Geological, Dated December 17, 2019

GEOTECHNICAL REVIEW SHEET
25200 Pacific Coast Highway, Malibu, CA 90265
By: City of Malibu, Dated January 30, 2020

GEOTECHNICAL REVIEW SHEET
25200 Pacific Coast Highway, Malibu, CA 90265
By: City of Malibu, Dated August 4, 2020
Response By: Feffer Geological, Dated June 18, 2020

GEOTECHNICAL REVIEW SHEET
25200-25300 Pacific Coast Highway, Malibu, CA 90265
APN: 4459-013-021, 4459-014-018
Response By: Feffer Geological, Dated November 18, 2021

GEOTECHNICAL REVIEW SHEET
25200-25300 Pacific Coast Highway, Malibu, CA 90265
APN: 4459-013-021, 4459-014-018
City of Malibu Review Letter Dated February 28, 2022
Response By: Feffer Geological, Dated April 28, 2022

GEOTECHNICAL REVIEW SHEET
25200-25300 Pacific Coast Highway, Malibu, CA 90265
APN: 4459-013-021, 4459-014-018
City of Malibu Review Letter Dated July 5, 2022
Response By: Feffer Geological, Dated September 28, 2022

GEOTECHNICAL REVIEW SHEET (APPROVAL)
25200-25300 Pacific Coast Highway, Malibu, CA 90265
APN: 4459-013-021, 4459-014-018
City of Malibu Review Letter Dated November 11, 2022

Dear Mr. Weintraub:

Feffer Geological Consulting is providing this letter to address comments related to site stability. It is our understanding that a public comment has been raised which believes that previously approved reporting and analysis prepared by this firm does not meet an outdated requirement from an old code. An email from the City's contract geologist, Lauren Doyel, accurately summarizing the confusion is cited below:

"To be clear, this requirement is ONLY because several years ago the Planning Commission refused to accept that a newer methodology of computing the seismic factor of safety was adopted than that specified in the LIP under section 9.4.D in 2001 (OLD).

- Specified in 2001 under 9.4.D – use a seismic coefficient of 0.2, and set the cutoff at a factor of safety of 1.1 for seismic. This is a regional method.

- Updated in 2013, but never questioned by Planning commission until 2022 – use a higher seismic coefficient of 0.35 for screening, and set the cutoff at 1.0. This is a Malibu specific method, based on likely ground acceleration that covers most of the anticipated design-level earthquake events in Malibu.

Until we can get the guidelines updated this fall to match the LIP again, we are stuck with having to make the consultants compute the seismic factor of safety BOTH ways so Planning Commission does not reject a project based on technicalities. This has generally worked to date."

Bureaucracy aside, actual engineering and geologic analysis has been performed to develop our current conclusion regarding site stability. This firm previously prepared slope stability analyses to evaluate the overall gross static and seismic stability of the site slope. Our original seismic slope stability analyses evaluated the slope in accordance with

the City's 2013 Geotechnical Guidelines using a 0.35g seismic coefficient and a 1.0 factor of safety. Our reports and analyses were approved, having satisfied the City's current geotechnical guidelines.

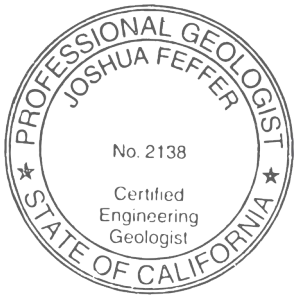
To satisfy the outdated guidelines referenced above, this firm ran a series of seismic calculations using a 0.2g seismic coefficient and a 1.1 factor of safety. All sections analyzed returned factors of safety much greater than 1.1, meaning the recommended (and approved) stabilization design is over-engineered with respect to the outdated code. An exhibit for each slope stability analysis is attached to the back of this letter illustrating that the 1.1 factor of safety has been exceeded.

In sum, the stabilization system has been conservatively designed for worst-case scenarios under both static and seismic conditions. The proposed development and recommended stabilization system will not only create a more stable site than what currently exists but also create a safer development.

We appreciate the opportunity to be of service. Should you have any questions regarding the information contained in this report, please do not hesitate to contact us.

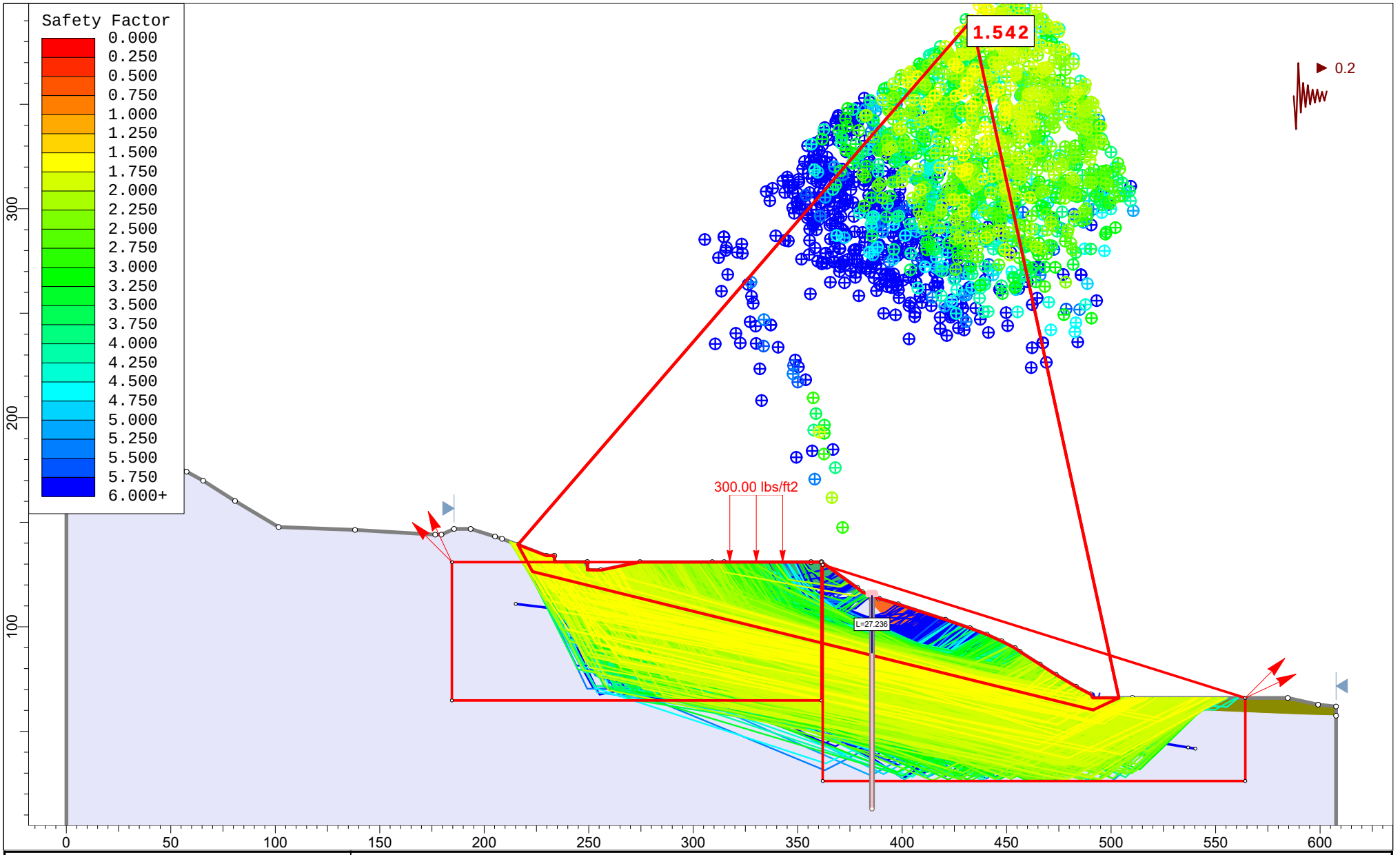
Sincerely,

FEFFER GEOLOGICAL CONSULTING, INC.



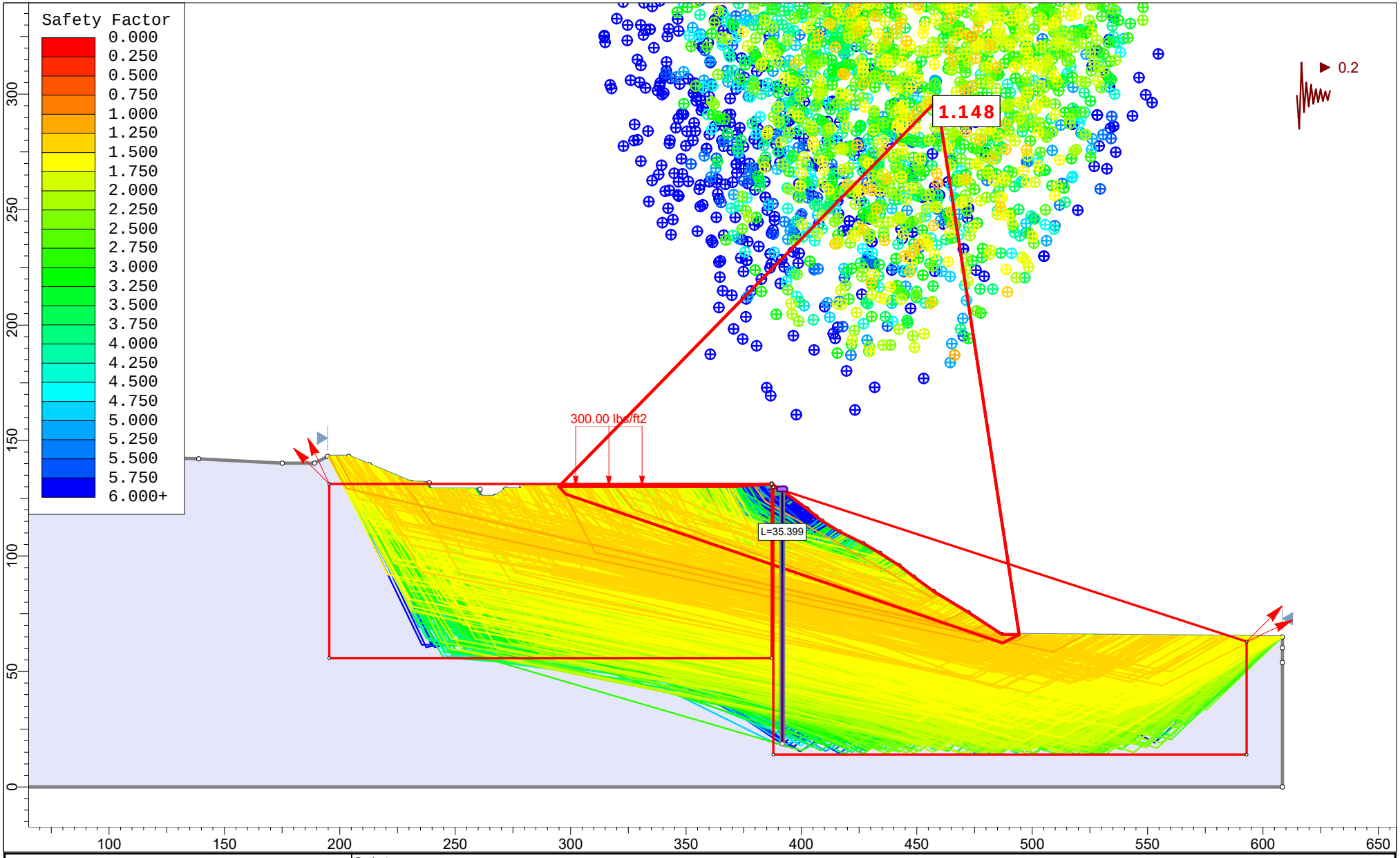
Joshua R. Feffer
Principal Engineering Geologist
C.E.G. 2138

Distribution: Addressee– (1)



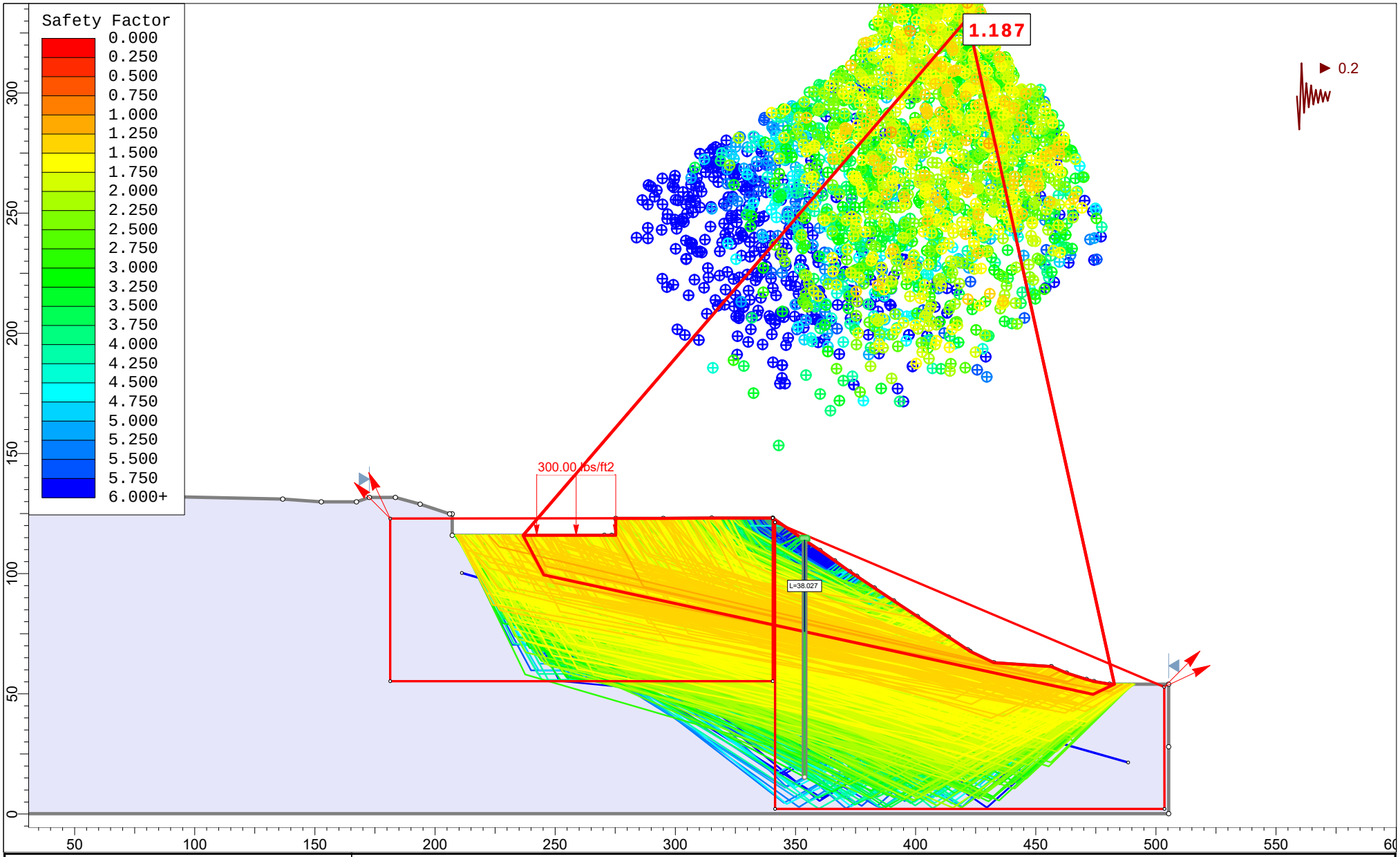
rocscience	Project	Section 2-2'	
	Group	Translational (Seismic) Expanded	Scenario: Master Scenario
	Drawn By	A. Greene	Company: Feffer Geological Consulting
	Date		File Name: Section 2-2' Translational Analysis_2.slmd

SLIDEINTERPRET 9.038



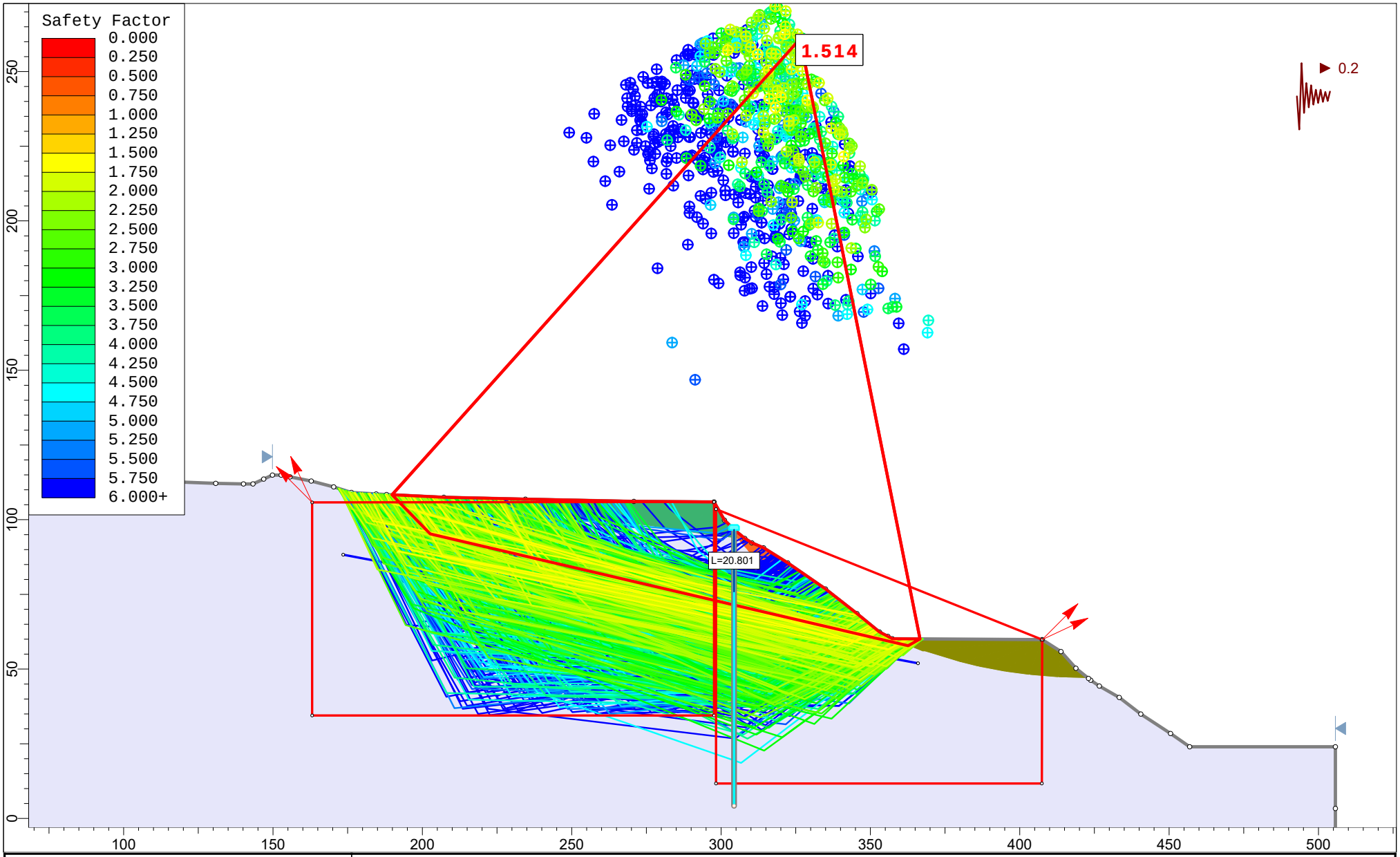
rocscience	Project	Section 3-3'	
	Group	Translational (Seismic)	Scenario: Master Scenario
	Drawn By	A. Greene	Company: Feffer Geological Consulting
	Date		File Name: Section 3-3' Translational Analysis_2.slmd

SLIDEINTERPRET 9.038



rocscience	Project	Section 4-4'	
	Group	Translational (Seismic)	Scenario: Master Scenario
	Drawn By	A. Greene	Company: Feffer Geological Consulting
	Date		File Name: Section 4-4' Translational Analysis_2.slmd

SLIDEINTERPRET 9.038



rocscience	Project	Section 5-5'	
	Group	Translational (Seismic)	Scenario: Master Scenario
	Drawn By	A. Greene	Company: Feffer Geological Consulting
	Date		File Name: Section 5-5' Translational Analysis_2.slmd

SLIDEINTERPRET 9.038

FEFFER
GEOLOGICAL CONSULTING

August 20, 2025 File No. 1992-75

PARPCH, LLC.
P.O. Box 6528
Malibu, CA 90264

Subject: **RESPONSE TO RALPH JEFFERY LETTER**
Preliminary Report by Pacific Coast Land Consulting
Dated August 15, 2025

References: **PRELIMINARY GEOTECHNICAL FEASIBILITY INVESTIGATION**
23000-25200 Pacific Coast Highway, Malibu, CA 90265
By: Feffer Geological Consulting, Dated May 21, 2018

GEOTECHNICAL REVIEW SHEET
25200 Pacific Coast Highway, Malibu, CA 90265
By: City of Malibu Dated August 27, 2018
Response By: Feffer Geological, Dated November 20, 2018

GEOTECHNICAL REVIEW SHEET
25200 Pacific Coast Highway, Malibu, CA 90265
By: City of Malibu, Dated January 14, 2019
Response By: Feffer Geological, Dated December 17, 2019

GEOTECHNICAL REVIEW SHEET
25200 Pacific Coast Highway, Malibu, CA 90265
By: City of Malibu, Dated January 30, 2020

GEOTECHNICAL REVIEW SHEET
25200 Pacific Coast Highway, Malibu, CA 90265
By: City of Malibu, Dated August 4, 2020
Response By: Feffer Geological, Dated June 18, 2020

GEOTECHNICAL REVIEW SHEET
25200-25300 Pacific Coast Highway, Malibu, CA 90265
APN: 4459-013-021, 4459-014-018
Response By: Feffer Geological, Dated November 18, 2021

GEOTECHNICAL REVIEW SHEET
25200-25300 Pacific Coast Highway, Malibu, CA 90265
APN: 4459-013-021, 4459-014-018

City of Malibu Review Letter Dated February 28, 2022
Response By: Feffer Geological, Dated April 28, 2022

GEOTECHNICAL REVIEW SHEET
25200-25300 Pacific Coast Highway, Malibu, CA 90265
APN: 4459-013-021, 4459-014-018
City of Malibu Review Letter Dated July 5, 2022
Response By: Feffer Geological, Dated September 28, 2022

GEOTECHNICAL REVIEW SHEET (APPROVAL)
25200-25300 Pacific Coast Highway, Malibu, CA 90265
APN: 4459-013-021, 4459-014-018
City of Malibu Review Letter Dated November 11, 2022

ADDENDUM LETTER I
Proposed Soldier Pile and Tieback Stabilization System
25200-25300 Pacific Coast Highway, Malibu, CA 90265
APN: 4459-013-021, 4459-014-018
Response By: Feffer Geological, Dated January 6, 2023

GEOTECHNICAL REVIEW SHEET
25200-25300 Pacific Coast Highway, Malibu, CA 90265
APN: 4459-013-021, 4459-014-018
City of Malibu Review Letter Dated February 14, 2023

RESPONSE TO CITY OF MALIBU
Proposed Soldier Pile and Tieback Stabilization System
25200-25300 Pacific Coast Highway, Malibu, CA 90265
APN: 4459-013-021, 4459-014-018
Response By: Feffer Geological, Dated March 17, 2023

GEOTECHNICAL APPROVAL SHEET
25200-25300 Pacific Coast Highway, Malibu, CA 90265
APN: 4459-013-021, 4459-014-018
City of Malibu Review Letter Dated April 11, 2023

Dear PARPCH, LLC:

As requested, Feffer Geological Consulting is providing this letter in response to the referenced report by Pacific Coast Land Consulting. We appreciate the opportunity to be of service. Should you have any questions regarding the information contained in this report, please do not hesitate to contact us.

Sincerely,

FEFFER GEOLOGICAL CONSULTING, INC.

Joshua R. Feffer
Principal Engineering Geologist
C.E.G. 2138

Distribution: Addressee– (1)

INTRODUCTION

Pacific Coast Land Consulting (Ralph Jeffery) has brought up several points that we will refute in a line by line reply below. However, it should be noted that Ralph is questioning the judgement of both the City of Malibu's reviewing geologist and engineer, as well as the competency of Feffer Geological Consulting, Inc. Furthermore, many of the points that Ralph brings up have already been exhaustively addressed, explained, and analyzed within the 9 reports that were prepared by this office over a 5-year period along with the associated City of Malibu review and approval sheets.

A summary of the allegations is as follows and were taken from Ralphs 4.0 Conclusions of his letter:

ALLEGATION 1
The Feffer report for 25200 PCH does not address previously existing and well documented sliding.

RESPONSE
This statement is not correct, and it appears that Ralph has not reviewed the extensive discussion that has already occurred regarding this allegation. We recommend he familiarize himself with the documents produced by this firm.

As taken from the initial report that we wrote dated May 21, 2018:

3.5.1 LANDSLIDE DISCUSSION

Since the study of this property began in the Early 1960's ancient landslides have been inferred to underlie much of the subject site. A preliminary map produced by the USGS in 1961 delineated a slide area that surrounded most of the property and extended from Puerco Canyon as far west as Corral Canyon, and as far north as the Pacific Coast Highway.

Many of the previous consultants that have provided a geotechnical report for the subject property have built their conclusions around a combination of aerial photographs, geologic maps, and the geotechnical reports produced by Stone Geological (which later became Robert Stone and Associates), and the work of Leighton and Associates.

The first geotechnical investigation was conducted by Stone Geological (SG) and completed on December 11, 1962. The investigation consisted of 16 total bucket-auger borings within the vicinity and 8 along the subject property, which ranged in depth from 18 to 55 feet beneath the surface.

Stone Geological determined that the subject property was underlain by multiple intersecting ancient landslides that crossed the property line to the south, and continued beneath neighboring properties below the south-facing descending slope.

To delineate these slide boundaries, SG used a compilation of aerial photographs, geologic maps, and subsurface investigation. The borings were drilled and logged by the Donald R. Warren Company for Stone Geological.

Careful review of the report, and the data collected by SG, indicate that some liberty was taken in the interpretation of the data to identify possible ancient landslide boundaries and slide planes. Of the eight exploratory borings along the subject property, only one boring (SG B-4), contains a structural measurement that could potentially be identified as a feature related to landsliding. Interpretations of landsliding was based predominantly on the review of aerial photographs.

In April of 1965 Pacific Soils Engineering, Inc. (PSE) produced a landslide investigation of the subject property. A total of 17 bucket-auger borings were drilled to depth ranging from 5.5 to 64 feet beneath the surface. None of the boring logs, maps, or associated figures completed by Pacific Soils could be located in the records, and therefore locations of borings, findings, and interpretations cannot be verified.

In March of 1968 F. Beach Leighton provided a preliminary geologic review of the subject property. This preliminary review did not include a subsurface investigation, and therefore contains no data for comparison with past or recent explorations.

Additional work by Robert Stone and Associates (RSA) was conducted in May of 1969, once again in collaboration with Donald R. Warren. Of the 21 total bucket-auger borings completed, 10 were excavated on the subject site. Within the 10 borings conducted on the subject site, seven contained structural measurements, and none positively identified ancient or recent landslide planes or related features.

In 1979 Leighton and Associates (L&A) completed a final geotechnical investigation which included 12 continuous trenches on the subject property. None of the 16 bucket-auger borings were located on the subject site. Within the 12 trenches along the subject property only four trenches (LT-2, LT-7, LT-8, LT-11) identified features that could potentially be related to ancient landsliding. Fault trench 8 (LT-8), located near the eastern most edge of the subject site adjacent to the southern oriented canyon, was used in conjunction with our findings from the recent exploration to create an area delineated as a "No Build Zone" (Section 3.4.3).

Leighton identified several ancient slides on and in the vicinity of the subject site that were labelled as Qlsa 1-6. According to Leighton and Associates, none of these slides have exhibited any evidence of recent movement. These boundaries were ultimately used to delineate the landslide boundaries within the Malibu Road Landslide Assessment District report, which began in 1981. These landslide areas are discussed as follows:

***Qlsa1**-The majority of this ancient slide is located offsite the subject property and only partially affects the northeast corner. The ancient slide movement in this area is inferred to be towards the east and affects Pacific Coast Highway.*

Qlsa2- *This slide affects the easternmost portion of the subject site and is located within the thin layer of fill that was placed by Donald R. Warren circa 1952. Movement is inferred in an easterly direction towards the canyon located on the east side of the property.*

Based on the uncertainty of the landslide in the area of Qlsa-1 and Qlsa-2, and its depth and location adjacent to a canyon, we have established a "No Build Zone" as shown on the Geologic Map. This area will be isolated from the remainder of the subject lot by the installation of soldier piles.

Qlsa3- *This ancient slide, according to Leighton, has had no evidence of recent movement. Leighton's trenches LT-7 and LT-8 extended across the mapped edge of the slide and are described as "disturbed terrace" in contact with bedrock. This firm drilled borings FGB-1, FGB-7, FGB-8 and Trench FGT-1 within the delineated area of Qlsa3 and found no evidence of ancient sliding and simply a contact between the terrace and bedrock with no adverse orientations. Nonetheless, as discussed below, the entirety of the terrace (or ancient slide as described by Leighton) will be remedially removed and recompacted as a controlled and certified fill.*

Qlsa4- *This ancient slide is delineated by Leighton as a smaller slide to the west of Qlsa3. No concise evidence was found within Leighton's exploratory logs for the existence of this slide on the subject pad. Within Leighton LT-4, a questioned possible rupture surface was delineated. However this firm drilled FGB-3 and FGB-6 and simply observed a contact between the terrace and bedrock with no adverse orientations. Nonetheless, as discussed below, the entirety of the terrace (or ancient slide as described by Leighton) will be remedially removed and recompacted as a controlled and certified fill.*

Qlsa5- *This ancient slide is delineated by Leighton as a smaller slide to the west of Qlsa4. No evidence was found within Leighton's exploratory logs for the existence of this slide on the subject pad. The interpretation of this ancient slide is based entirely on borings located along Bayshore Drive to the south of the subject property. This firm drilled FGB-9 and found no evidence of ancient sliding or adverse orientations. Nonetheless, as discussed below, the entirety of the terrace (or ancient slide as described by Leighton) will be remedially removed and recompacted as a controlled and certified fill.*

Qlsa6- *This slide is located entirely offsite and to the west, and does not affect the subject property.*

In summary, evidence from Leighton and Associates (L&A) which positively identifies or locates head scarps, toes, slide planes, or other geomorphic features that are related to landsliding, appears to be very limited. Furthermore, L&A concluded that there are no known reactivations of the underlying ancient landslides.

According to L&A, the recent landsliding which occurred below the property line followed excessive rainfall in 1978 and occurred due to the failure of fill material that was placed on the lower pad, making up the lower terrace adjacent to Bayshore Drive, during early grading in 1952.

Smaller surficial failures were observed by Leighton and Associates on the south descending slope along the southern property line. Leighton and Associates attributed these shallow slumps to the uncontrolled or concentrated runoff over the top of the slopes due to diversions caused by CalTrans. The superficial failures were determined to have occurred in fill material overlying the subject site. None of the recent surficial slides have been observed to be deep seated.

In October of 1989, LeRoy Crandall and associates provided a geotechnical review of the subject site which did not include any additional on-site investigations. This report provided little to no value for the purpose of landslide assessment on the subject property.

In 1981 the County of Los Angeles established The Malibu Road Landslide Assessment District, following the activation of the recent landslide in 1978 on the properties below the subject on Bayshore Drive and Malibu Road. The Malibu Road district was monitored annually by the City until 1991, then independently monitored by consultants from 1991 to the present.

In an effort to quantify movement and the stability of the Malibu Road district, a series of hydraugers, slope inclometers, piezometers, and dewatering wells were installed beginning in the early 1980's. By 1998 Slope inclometers/piezometers SI-5 and SI-6 were installed along Bayshore drive, just south of the subject property. Since quarterly measurements began in 1998 (and continue today) of both SI-5 and SI-6, annul reports conclude that no significant movement is occurring.

C.Y. Geotech, Inc. (CYG) provided a geotechnical investigation in August of 2000, which included the drilling of 5 bucket-auger borings to a maximum depth of 66 feet, five test pits, and five seismic trenches to a maximum depth of 12.5 feet. Data collected by CYG contains no evidence of landslide planes or landslide debris within any of the excavations on the subject property.

3.5.2 LANDSLIDE CONCLUSION

Intensive review of research shows that, while there has been an abundance of exploration on the subject property, no one has been able to clearly identify and map the ancient landslide boundaries or related structural features that likely exist beneath the subject property.

The pre-graded site topography does suggest that ancient landslides exist, at least partially, beneath the subject property. However, the extent and depth to which the ancient slides exist remains uncertain as indicated by previous and current geologic explorations.

No evidence of ancient landsliding was observed within the recent excavations performed by this firm. The inferred landsliding on the subject site seems to be the contact between the overlying alluvium/terrace and the underlying bedrock. No evidence of landsliding within the bedrock was observed.

The recent landsliding that has occurred (e.g. 1978) and surficial slumping are not related to deep seated failures and were predominantly due to poor drainage conditions. Active landsliding along the slope below the subject property is entirely offsite.

In addition, we answered the following specific question from the City of Malibu Reviewers in our response letter dated November 20, 2018.

Item 5
The PGC (Project Geotechnical Consultant) states in the ***Landslide Conclusion*** *section of their report that no evidence of ancient landsliding was observed based on their exploration, and no evidence of landsliding within the bedrock was observed. They also state that, while there has been an abundance of exploration on the property in the past, no consultant has been able to clearly identify and map the landslide boundaries, and the extent and depth to which the landslides exist remains uncertain as indicated by previous and current exploration. However, the geotechnical map indicates most of the exploratory borings performed by the consultant to further assess landslides at the site are located very close to the limit of the landslides. Based on the above, the PGC needs to update their geotechnical map and cross-sections to depict their interpretation of the geologic conditions under the site based on all subsurface data presented to date. Additional exploration appears necessary to further characterize the conditions and map with certainty the limits and depths of landslides which may affect the proposed development on and adjacent to the property.*

Response:
An updated map is provided to illustrate the interpretations by this office of the existing subsurface conditions. Any material previously identified as part of an ancient landslide by others will be removed as part of the development of the property. Further investigation of a condition that will be remediated as part of the development does not appear to be warranted.

An additional map, separate from the "Geotechnical Map" is labeled as a "Geologic Map" and is included to illustrate all previous investigations in the site vicinity. This additional map is being used to reduce confusion on the Geotechnical Map and to illustrate the extent of work completed within and around the site.

To summarize, the ancient landslides that are illustrated on the maps are a conservative acceptance of previous interpretation. The site will be stabilized with a row of soldier piles at the top of the descending slope, and any potentially adverse geologic conditions will be completely removed through grading. Moreover, geogrid will be utilized to reinforce the newly removed and recompacted material to achieve an acceptable factor of safety.

As outlined in the landslide summary below, even though the site was previously interpreted to have ancient landslides, a detailed review of the individual boring logs within the delineated ancient landslides does not conclusively support those findings. Boring logs by this firm and others are also attached for reference.

Landslide Summary

A discussion of borings by others on site and within the inferred ancient landslides is included below.

Qlsa-2

Robert Stone and Associates (1968/69)

B-11: Boring eleven only provides structural measurements at depths of 40.5, 42.5 and 49 feet beneath the surface in the bedrock. The orientation observed at 40.5' is simply a contact between the marine terrace material and the bedrock. The contact is a shallow southeast dipping plane (9-12°) that is reasonable for such wave cut and near shore depositional environments.

Two clay beds were measured at 42.5 and 49 feet and they both dip approximately 30° towards the northeast and into the slope. Fracturing typical of normal geologic process were recorded, but no landslide was directly observed in this boring.

B-13: Boring thirteen contains structural measurements at 4, 21, 25, and 40 feet below the ground surface. All measurements, with the exception of one, dip generally in a north direction ranging from 11 to 60° at most. Similar to boring 11, a gently (~20°) southeast dipping contact is recorded between the terrace material and bedrock. Fracturing and minor shearing typical of normal geologic process were recorded, but no landslide was directly observed in this boring.

Additionally, this inferred ancient slide will be completely isolated by a row of north-south trending piles and no habitable structures will be built within the delineated "No Build Zone". This is a precautionary measure adopted to isolate the site from the historically unstable Puerco Canyon.

C.Y. Geotech (2000)

B-1: Boring one contains no structural measurements for reference. Fracturing and minor shearing typical of normal geologic process were recorded, but no landslide was directly observed in this boring.

Qlsa-3a

Stone Geological (1962)

B-4: Boring four contains one structural measurement striking N 68° E 37°S at a depth of 33-35' beneath the surface. This feature was interpreted as a "glide" plane, but the material was not designated as being landslide affected. Fracturing and minor shearing typical of normal geologic process were recorded, but no landslide was directly observed in this boring.

Robert Stone and Associates (1968/69)
B-10: Boring ten contains structural measurements at 10, 20, and 43' beneath the ground surface. A west dipping 25° contact is observed between the marine terrace material and underlying bedrock. At 20 feet the observed bedding orientation is dipping 25° towards the northeast, into the slope. A "possible slide plane" is observed at 32.5' however no orientation or description is given. The final bedding orientation at 43' is also observed to dip towards the northeast approximately 70°. Fracturing and minor shearing typical of normal geologic process were recorded, but no landslide was directly observed in this boring.

C.Y. Geotech (2000)
B-2: Boring two contains structural measurements at 17.3, 32.5, and 59 feet beneath the ground surface. A south dipping (33°) plane was measured at 17.3 feet and is interpreted as a thin clay layer. It is unclear if the measurement is in bedrock or terrace material, but descriptions more closely represent the onsite terrace material and we therefore interpret this plane as a basal contact between the terrace and bedrock. The depth of this contact is consistent with other interpretations and is a reasonable assumption based on the available data. At 32.5 feet a bedding orientation within the bedrock is measured to dip 73° towards the south. While this is a steep bedding orientation, it is consistent with overturned and folded bedding previously observed within this bedrock. At 59 feet a joint is measured to dip 83° towards the north. Fracturing and minor shearing typical of normal geologic process were recorded, but no landslide was directly observed in this boring.

Qlsa-5
Stone Geological (1962)
B-8: Boring eight contains no recorded structural measurements within the boring. A "slide plane" is recorded at 15 feet beneath the ground surface but not substantiated with a measurement or description of the material. This observation is therefore not considered useful for interpreting underlying conditions. Fracturing and minor shearing typical of normal geologic process were recorded, but no landslide was directly observed in this boring.

C.Y. Geotech (2000)
B-5: Boring five contains an abundance of structural measurements within the bedrock at 10, 13, 19.5, 23.5, 53.5, and 58.5 feet beneath the ground surface. At 13 feet bedding was observed to dip 40° to the north, into the slope. South dipping bedding orientations were measured to range from 19 to 54° for the remaining depths. While these orientations are locally out of slope, no landslide was directly observed within this boring. The observed fracturing and shearing is typical within this bedrock due to normal geologic processes.

Additionally, annual reporting by Fugro (2018) of the Malibu Road Landslide Assessment District indicates that no detectable movement has occurred in the slope inclinometers installed along Bayshore drive, south of the site. If ancient landslides do underlie the site, there is no evidence of recent movement since observations began in 1998.

In conclusion, despite an abundance of work, no consultant has been able to clearly identify and map the ancient landslide boundaries, and the extent and depth to which these landslides exist remains uncertain. Our interpretation is therefore a conservative acceptance of previous work to err on the side of safety for this project and neighboring properties.

ALLEGATION 2
The Feffer report only uses circular failure modes in analysis. The failure modes should be a user specified input. Furthermore, Shear strength utilized are not appropriate for the analysis.

RESPONSE
The statement is factually incorrect, and it appears Ralph just ignored or did not review the submitted reports. This firm performed both circular and translational (also known as planar) slope stability analysis to evaluate both types of failures for static and seismic conditions.

Furthermore, our extensive analysis evaluated the entire site slope, offsite portions of the slope, and even considered the possibility of the offsite slope failing away at the request of the City's reviewing engineer.

The complex analyses modeled landslide material, weak bedrock, high groundwater levels, and any potentially geologically hazardous conditions to provide the most conservative, and therefore safest approach for development.

The resulting soldier pile and tieback design that was approved was designed such that the entire site will remain safe and standing, even if the offsite portions (not owned by our client) has any instability issues.

As stated in the November 18, 2021 report as a response to a specific review item presented by the City of Malibu the following was provided:

Item 4
The consultant needs to perform translational slope stability analyses on all cross-sections with potential adverse geologic conditions (examples: Cross-Sections 2-2', 3-3', 4-4', 5-5' and 6-6'). Substantiated residual shear strength (example: residual shear strength used for landslide planes) should be utilized to model along-bedding shear strength. Mitigation measures should be recommended, as necessary.

Response:
A letter titled "Preliminary Slope Stability Analysis, 25200-25300 Pacific Coast Highway, Malibu, CA 90265" dated March 25, 2021 was provided to the reviewers to open a discussion regarding the selection of appropriate shear values for use in the requested translational analyses. A copy of this letter is provided at the back of this response for the record.

A conference call was initiated between this firm and the reviewers to mutually review and agree on the selection of shear values. Based on that call and the presented letter, all parties agreed that the following values could be used for the translational analysis.

Material	***Phi Angle (°)***	***Cohesion (psf)***	***Type***
Bedrock	*34.5*	*520*	*Ultimate*
	41	*720*	*Peak*
	16	*200*	*Back calc.*

The ultimate value shall be used to model static conditions, and the peak value shall be used to model seismic conditions that apply a 0.35g horizontal acceleration. To model potential adverse bedding planes an anisotropic function shall be adopted for south dipping bedding planes ranging from 10 to 30 degrees and the selected residual value will be applied to this range of bedding planes for translational analysis. Groundwater was also modeled in the additional analyses where applicable.

Translational Stability Analysis

As requested, cross sections 2, 3, 4, 5 and 6 were analyzed for translational stability to model potential adverse geologic conditions. Each section was analyzed under the "post construction" condition to consider all proposed new grades, building loads, groundwater conditions, and reinforcements. Each analysis utilized the spencer method with a non-circular block search. Search windows were placed at the top and bottom of each slope based on a trial-and-error method of selection. Once search windows were defined, reinforcements were added to the slopes and modified until reaching a 1.5 and 1.0 factor of safety (FS) for static and seismic conditions.

The analyses indicate that the existing slopes require a stabilization system to achieve a 1.5 and 1.0 factor of safety and to mitigate potential geologic instability.

It should be noted that section 6-6' was not evaluated further because most of the slope for section 6-6' is within the delineated "No-Build Zone". As stated in previous responses, the proposed row of piles is only recommended to isolate the proposed development from the "No-Build Zone" and are not required to increase the global factor of safety for the slope. As illustrated on the updated translational analysis, all factors of safety less than 1.5 exist within the "No-Build Zone", do not intersect the proposed row of piles, and do not intersect the proposed development. The existing slope in this area is performing well under current conditions but should not be modified.

Pile Design Analysis

After performing the translational analyses, a separate set of analyses were performed for sections 2, 3, 4, and 5 to evaluate the pile loads needed to achieve a 1.5 and 1.0 FS for each portion of the slope. A discussion is provided below:

Offsite Slope

First, we evaluated the offsite portion of the slope from the southern property line to Bayshore Drive. The purpose of this analysis was to determine if the offsite portion of the slope had adequate factors of safety. A summary of the results is provided below:

Section	***Static/Seismic***	***Factor of Safety***
2-2'	*Static*	*0.874*
	Seismic	*0.460*
3-3'	*Static*	*0.952*
	Seismic	*0.528*
4-4'	*Static*	*1.007*
	Seismic	*0.562*
5-5'	*Static*	*1.141*
	Seismic	*0.670*

Offsite Slope Removal

Once we determined the existing FS for the offsite portion of the descending slope, the "failed" wedge of material was removed from each section until the FS was no longer less than 1.5 or 1.0 for static and seismic conditions.

The removal of this material left a freestanding portion of the piles at the property line. The purpose of this analysis was to evaluate the project site under the theoretical assumption that the descending slope failed away and left behind the slope stabilization system.

Due to the complexity of the site geology, the following analyses were used to determine the pile loads required to retain the project site in a post failure condition.

Upper Slope

Next, we evaluated the pile loads required to stabilize the site between the top of the slope and the bottom of the freestanding pile (determined from the analysis above) under static and seismic conditions. This required an iterative approach in which piles were added and loads were increased until achieving a 1.5 and 1.0 FS.

Entire Slope

Finally, to evaluate deep seated instability we evaluated the pile loads required to stabilize the site between the top of the slope and the bottom of the slope. This also required an iterative approach in which piles were added and loads were increased until achieving a 1.5 and 1.0 FS. A summary of the analyses and recommendations for the design of the stabilization system is provided on Table 1. The project engineer should use these values to design an appropriate stabilization system. A combination of grade beams, tiebacks, or other methods may be used to assist in the design to accommodate high pile loads.

Conclusion
The attached analyses indicate that the existing slopes require a stabilization system to achieve a 1.5 and 1.0 factor of safety and to mitigate potential geologic instability. Once reinforced, the slopes are considered grossly stable. The updated site map and cross sections illustrate the proposed locations of the support system.

The updated geotechnical map is color coded to illustrate the approximate proposed pile locations. Transitions between piles with different depths shall occur approximately at the midpoint between analyzed sections. The actual number of piles, their precise locations, and actual dimensions will be determined by the project Structural engineer given the information provided herein. Prior to submittal, the slope stabilization design and layout should be provided to this firm for review and approval.

The analysis we used, the shear strengths adopted, and the depiction of the underlying geology was developed over 5 years with extensive review and subsurface investigation and laboratory testing and is appropriate for the site.

Our offices analysis was conducted utilizing both a geologist and civil engineer and in the opinion of the City reviewer, Ali Abdel-Haq, was well founded on appropriate data and methodology.

Pacific Coast Land Consulting has provided no analysis or alternative methodologies to support their allegation.

ALLEGATION 3
The pile system is too shallow to accommodate an upper slide surface and a lower slide surface. The existing factor of safety is based on rotational conditions only and does not include any analysis of a complex slide surface.

RESPONSE
Not only is this statement false, but is not based on any independent analysis. Ralph has not provided any evidence to support the claims made.

Our conclusions are based on the most conservative interpretation of the underlying geology that is supported by extensive subsurface exploration, laboratory data, and stability analysis completed by this firm. This issue was extensively reviewed and approved over 5 years and multiple reports on an iterative process with Chris Dean and Ali Abdel-Hak, reviewers for the City of Malibu.

The descending slope is about 70 feet in height. The preliminary structural design consists of two rows of piles near southern property line and one row of piles along the western portion of the site. These piles extend nearly the entire length of the site and will extend to depths ranging from 48 to 78.4 feet below the ground surface.

In addition, two rows of tiebacks ranging in length from 101 to 129 feet will also penetrate the slope and provide additional support for the soldier piles.

This complex design is based on the geotechnical recommendations that were provided by this firm in our report dated November 18, 2021. A preliminary pile design schematic is attached to the back of this letter.

ALLEGATION 4

There is inclinometer monitoring data that indicates the active slide is much larger and deeper that has been previously analyzed. Slope indicator reports show movement in si-5 and si-6 at depths of elevations of 32' and 39'. This much deeper that the currently mapped active slide and indicates that the head scarp of the upper slide will, be located up slope on the subject proper(sic)

RESPONSE

This allegation is contradicted by the City of Malibu Assessment District Report dated March 20, 2025 *"FY23/24 Maintenance and Monitoring AD98-3, Malibu Road, City of Malibu by Yeh Project No.220-278."*

The following is taken directly from section 2.2.1 Summary of Slope Inclinometer Monitoring Events, Page 5 of the referenced report.

A summary of key observations over the Monitoring Year include:

- The onset of new shear-type movement on the order of 0.2 inches or less was detected in inclinometers SI-1A, -2A and -4A during the Q1 surveys. No movement was recorded in SI-5 and SI-6.

The report specifically states that no movement was recorded in SI-5 and SI-6.

Additionally on Page 6 of the report, table 5 summarizes all of the inclinometer data.

FY23/24 Maintenance and Monitoring Report
AD98-3 Malibu Road

Project No. 220-278
March 20, 2025

Table 5: Summary of Inclinometer Survey Results

Facility ID	Interpreted Shear Displacement (inches)									
	6/9/23 to 1/11/24	1/11/24 to 2/7/24	2/7/24 to 2/13/24	2/13/24 to 2/21/24	2/21/24 to 2/28/24	2/28/24 to 3/7/24	3/7/24 to 3/13/24	3/13/24 or 3/7/24 to 9/16/24	Cumulative For 23-24 Monitoring Year	Depth of Interpreted Shear (feet)
SI-1A	none	none	<0.01	<0.01	<0.01	none	none	none	0.02	28
SI-2A	none	<0.01 (possible)	0.03	0.09	0.04	<0.01 (possible)	Access Blocked	none	0.16	32-34
SI-4A	none	none	0.03	0.12	0.05	<0.01 (possible)	Access Blocked	none	0.20	30-34
SI-5	None	none	N/R	N/R	none	none	N/R	N/R	none	N/A
SI-6	None	none	N/R	N/R	none	none	N/R	N/R	none	N/A

As can be seen, no movement was recorded in SI-5 and SI-6.

CONCLUSION

Over a more than 5-year period, this firm has spent countless hours performing onsite exploration (including physical downhole logging and trenching), a suite of laboratory testing, thorough and extensive review of previous work, and complex engineering calculations. The time spent has allowed us to not only become intimately familiar with this site, but to provide conservative geotechnical recommendations that will allow for a safe and habitable development. The construction of the recommended soldier pile and tieback design will ultimately result in a slope condition that is safer than its present condition.

Mr. Jeffery makes numerous allegations in a short 5-page report against our professional judgment, reporting and analysis, none of which is based on any independent engineering analysis/calculations, thorough review of reports (both our reports and decades worth of previous reporting by previous consultants, which are all publicly available), or any presentation of supporting data.

City Of Malibu
23825 Stuart Ranch Road
Malibu, CA 90265
Phone (310) 456-2489
www.malibucity.org

COMMUNITY DEVELOPMENT DEPARTMENT

NOTICE OF PUBLIC HEARING



NOTICE OF PUBLIC HEARING

The Malibu Planning Commission will hold a public hearing on **Tuesday, December 16, 2025, at 6:30 p.m**. in the Council Chambers, Malibu City Hall, 23825 Stuart Ranch Road, Malibu, CA for the project identified below. Public comment can be submitted ahead of the public hearing to planningcommission@malibucity.org for inclusion in the public record. To participate during the public hearing, please review the meeting agenda posted at MalibuCity.org/AgendaCenter and follow the directions for public participation.

COASTAL DEVELOPMENT PERMIT NO. 19-012, CERTIFICATE OF COMPLIANCE NO. 21-004, AND LOT MERGER NO. 24-002 - An application for the construction of a new one-story, 9,219 square- foot single-family residence, including a 1,000 square-foot subterranean two-car garage, 1,523 square-foot basement, 676 square- foot gym, detached 465 square- foot detached guest house, swimming pools, driveways, decks, landscaping, water features, hardscape, grading, retaining walls, and onsite wastewater treatment system; including a certificate of compliance to recognize an illegally created lot consisting of two parcels, and a lot merger to consolidate two parcels into one

LOCATION / APNs:	**25200 Pacific Coast Hwy** / 4459-013-021 and 4459-014-018
ZONING:	Rural Residential-Two Acre (RR-2)
APPLICANT / OWNER:	180 PCH, LLC / PAR PCH LLC
APPEALABLE TO:	City Council and California Coastal Commission
ENVIRONMENTAL REVIEW:	Categorical Exemption CEQA Guidelines Sections 15303(e) and 15303(a)
APPLICATION FILED:	March 7, 2019
CASE PLANNER:	Allison Cook, Contract Planner, capstonecityplan@gmail.com (805) 415-1991

A written staff report will be available at or before the hearing for the projects. All persons wishing to address the Commission regarding these matters will be afforded an opportunity in accordance with the Commission's procedures. Copies of all related documents can be reviewed by any interested person at City Hall during regular business hours. Oral and written comments may be presented to the Planning Commission on, or before, the date of the meeting.

LOCAL APPEAL - A decision of the Planning Commission may be appealed to the City Council by an aggrieved person by written statement setting forth the grounds for appeal. An appeal shall be filed with the City Clerk within ten days following the date of action which the appeal is made and shall be accompanied by an appeal form and filing fee, as specified by the City Council. Appeal forms may be found online at www.malibucity.org/planningforms or in person at City Hall, or by calling (310) 456-2489, extension 246.

COASTAL COMMISSION APPEAL - An aggrieved person may appeal the Planning Commission's approval directly to the Coastal Commission within 10 working days of the issuance of the City's Notice of Final Action. More information may be found online at www.coastal.ca.gov or by calling 805-585-1800.

IF YOU CHALLENGE THE CITY'S ACTION IN COURT, YOU MAY BE LIMITED TO RAISING ONLY THOSE ISSUES YOU OR SOMEONE ELSE RAISED AT THE PUBLIC HEARING DESCRIBED IN THIS NOTICE, OR IN WRITTEN CORRESPONDENCE DELIVERED TO THE CITY, AT OR PRIOR TO THE PUBLIC HEARING.

YOLANDA BUNDY, Community Development Director Date: November 20, 2025

ATTACHMENT G

Received
12/16/25
Planning Div.

CHRIS & PAT REED
[redacted] Malibu Road
Malibu, CA 90265
[redacted]

July 17, 2025
Via: email at planningcommission@malibucity.org

ATTN: PLANNING COMMISSION
CITY OF MALIBU
23825 Stuart Ranch Road
Malibu, CA 90265

Re: Coastal Development Permit (CDP) #19-012, Conditional Certificate of Compliance #21-004 and lot merger #24-002

Dear Planning Commissioners,
We live at [redacted] Malibu Road and our home is directly beneath the subject property on a bluff overlooking Malibu Road. On "our" bluff, we are very conscious of our neighbors and their properties. Our concerns are that we are protected from any potential landslide, that drainage from either rain, landscape watering, or runoff from PCH; and that their septic system doesn't compromise our property in any way.
From what I've seen, the project looks well thought out and will be a good addition to our community.
Please issue their requested permits so that they can complete the building of their beautiful new home and improve our neighborhood's aesthetics. Mr. Weintraub has proven himself to be a good and caring neighbor for several years by maintaining his vacant property and biannually cutting back the overgrowth of weeds to meet the requirements of the fire department.

Sincerely,

Chris & Pat Reed

CC: Planning Commission, PD,

Recording Secretary, File

Date Received 12/16/25 Time 11:22 a.m.
Planning Commission meeting of 12/16/25
Agenda Item No. 5C
Total No. of Pages 1

EXHIBIT 3

Received
12/15/25
Planning Div.

From: Malibu Township Council
To: Allison Cook; Yolanda Bundy; Tyler Eaton; Rob Duboux; Trevor Rusin
Cc: Frank Angel; Bill Sampson; Patt Healy; Jason Ernst; Gail Duncan; John Mazza; Skylar Peak; Elizabeth Riddick; Marni Kamins; Drew Leonard; Rebecca Evans; [redacted] cvo@angellaw.com; sleonard@angellaw.com; Tiffany Murray; Jan Ravlich; Emily; R N; Bruce Silverstein; Haylynn Conrad
Subject: Fwd: 25200 PCH - Weintraub property
Date: Friday, December 12, 2025 1:49:47 PM
Attachments: 25200 pch opposition revised comments.docx
Letterfromelkinskaltlackofstabilityanalysis.pdf

2021.11.18 Final Geotechnical Report re PARPC...

Re: 25200 Pacific Coast Highway – Request for Nullification of Approvals Due to Non-Compliance with LCP, LIP §9.4(D), CEQA, and Building Code Requirements

Attention:
Alison Cook – Contract Planner
Trevor Rusin - Interim City Attorney
Yolanda Bundy – Building Official/Community Development Director
Tyler Eaton – Assistant Community Development Director
Rob DuBoux – Head of Public Works

Dear Staff,

Malibu Township Council writes to formally request that the City **nullify all approvals** associated with the proposed development at **25200 Pacific Coast Highway**, as the administrative record clearly demonstrates that the project **violates the Malibu LCP**, **fails to comply with LIP §9.4(D)**, **requires—but has not requested—a variance**, and **is not eligible for CEQA exemptions**.

We attach for reference the **April 26, 2021** letter from **Elkins Kalt**, which resulted in the indefinite continuance of a **770 sq ft addition** at **20238 Piedra Chica Road**—also in the Big Rock Landslide Assessment District. That project was halted because it:

1. did not conform to the LCP,
2. required a variance,
3. did not comply with applicable building code sections, and
4. was not exempt from CEQA.

The same facts—and in this case, far more severe ones—are present at 25200 PCH, where the proposal is not a minor addition but an entirely new **12,000-square-foot** development with a basement, underground garage, multiple pools, extensive grading, and substantial new loading on an active landslide.

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1. The Project Cannot Lawfully Proceed Because It Does Not Meet the Required Factor of Safety Under LIP §9.4(D)

Date Received 12/12/25 Time 1:45 p.m.
Planning Commission meeting of 12/16/25
Agenda Item No. 5C
Total No. of Pages 711

CC: Planning Commission, PD,

Recording Secretary, File

LIP §9.4(D) mandates:

> "New development proposed on landslides… shall be permitted **only <u>where</u> a factor of safety of 1.5 (static) and 1.1 (pseudostatic) can be provided**."
>
> "Analyses shall demonstrate a factor of safety ≥ 1.5 for static and ≥ 1.1 for seismic… **modeling <u>worst-case</u> geologic and slope gradient conditions**."

Critically, these analyses must evaluate **the natural, pre-construction slope condition—before** piles, grading, or stabilization.

The applicant's own geotechnical consultant explicitly admits that the site cannot meet the required factor of safety without major engineered stabilization.

In the March 25, 2021 translational stability analyses incorporated into the November 18, 2021 Feffer Report attached, the consultant concludes:

> **"Preliminary static analyses of translational stability [were] achieving factors of safety slightly greater than 1.0…"**
> (Feffer, 3/25/21, incorporated in 2021.11.18 report p 563)

These reported FS values (**1.094 – 1.186**) are **far below the required 1.5 threshold.**

Feffer then makes an unequivocal admission in the November 18, 2021 report on p 6:

> **"The analyses indicate that the existing slopes require a stabilization system to achieve a 1.5 and 1.0 factor of safety and to mitigate potential geologic instability."**

This statement is dispositive:

• The natural slope does not meet LIP §9.4(D).

• A stabilization system is required just to approach minimum safety.

• Therefore, a variance is legally required under LIP §13.26.

There is **no discretion** to avoid the variance. The LIP does not allow "mitigated compliance"—it requires **natural-condition compliance**.

Because the project fails this mandatory test, all project approvals must be nullified.

---

2. A Variance Is Required Under LIP §13.26 – and None Has Been Requested

LIP §13.26 states:

> "A variance shall not be granted which confers a special privilege… A variance is required for any deviation from the standards or requirements of the Malibu LIP."

This project deviates from the most fundamental geologic safety standard in the LCP.

The applicant:

- Cannot meet FS 1.5 (static) or 1.1 (seismic) in the actual landslide condition;
- Admits stabilization is required *before* compliance;
- Provides no natural-condition cross-sections achieving required safety levels;
- Attempts to substitute "post-construction" modeling for required baseline analyses.

Therefore:

A variance is legally required before any further review.

And critically:

This application cannot lawfully proceed to the Planning Commission because, under the LCP and LIP §13.26, and the City's own geotechnical standards, a variance must be obtained before any further processing, and no such variance has been applied for or evaluated. The City has no authority to advance the project to public hearing without first satisfying this mandatory prerequisite.

---

3. The Project Is Not the Least Environmentally Damaging Alternative Required by LIP §9.4(E)

LIP §9.4(E) requires:

> "Measures to remediate or stabilize landslides… shall be designed to be the **least environmentally damaging alternative** and to minimize landform alteration."

This project represents the **opposite**:

- Over **12,000 sq ft** of development
- A full basement and underground garage
- **12 bedrooms and bathrooms**
- Multiple pools and water features
- A septic system exceeding **7,500 gallons**, dispersing **over 1,000 gallons/day** into unstable soil

Former City Geologist **Donald B. Kowalewsky** warned in 2018 (20272 Inland Lane) included in the Elkins Kalt letter attached:

> **"The introduction of additional mass and water into the ground in Big Rock Mesa will result in a lower safety factor."**

Yet this project dramatically **increases** both mass and water, directly contrary to expert guidance and LIP §9.4(E).

The Feffer report further acknowledges the extensive mitigation required simply to make the

slope marginally stable:

> "**The existing slopes require a stabilization system to achieve a 1.5 and 1.0 factor of safety…**"

A development that **requires** massive stabilization on an **active landslide** cannot be considered the least environmentally damaging option.

---

4. Deep Pile Embedment (~100 ft) Into a Known Landslide Is Geologically Dangerous and Unsupported

The only numerical pile lengths disclosed anywhere in the Feffer report appear in the **Slide model output**, showing piles approximately **99–112 feet deep**.

Such extreme embedment:

- Penetrates directly into the landslide mass;
- Risks disturbing or reactivating shear zones;
- Alters stress conditions in very weak materials (residual $\varphi = 16°$, $c = 200$ psf);
- Creates new stress concentrations and potential slip surfaces;
- Redirects groundwater in ways that may further destabilize the slope.

Yet the report provides **no geologic justification** demonstrating these ~100-foot piles will not worsen slope instability. Despite this, the applicant relies on these same unverified piles to claim compliance with LIP §9.4(D)—which is impermissible.

This further reinforces the necessity of a **variance** and independent geotechnical review.

---

5. CEQA Exemptions Do Not Apply Due to Unusual Circumstances and the Probability of Significant Environmental Impacts

An active landslide, extensive subsurface disturbance, increased water load, and a known broken pipe beneath the property constitute **unusual circumstances** under CEQA Guidelines §15300.2(c).

There is a clear "**reasonable possibility of a significant effect**" due to:

- Instability of the landslide mass;
- Added mass and water;
- Deep pile installation;
- Existing saturation from broken infrastructure.

Therefore, **categorical exemptions cannot apply.**

Conclusion

Because:

- The **natural slope fails** to meet LIP §9.4(D),
- The applicant's geotechnical consultant **admits stabilization is required** to reach minimum FOS,
- The project **requires—but has not applied for—a variance**,
- The proposal is **not** the least environmentally damaging alternative,
- Deep piles pose significant risk to the landslide mass, and
- CEQA exemptions **cannot lawfully be used**,

all project approvals must be nullified.

Furthermore, this application cannot lawfully move forward to the Planning Commission because, under the LCP, LIP §13.26, and the City's own geotechnical standards, a variance must be obtained before any further processing. No such variance has been submitted or evaluated. The City therefore has no authority to advance the project to public hearing until this mandatory prerequisite is satisfied.

This is precisely the kind of egregious, non-compliant project that has contributed to Malibu's backlog and undermined public confidence during the city's rebuild recovery —just as occurred with the Malibu Inn Hotel, whose geotechnically unsound 55-foot retaining wall triggered extensive delays, appeals, and ultimately rejection by the City Council. That outcome could and should have been avoided entirely had Planning identified the non-compliance early, instead of forcing residents, the City Council, and City staff to expend hundreds of hours producing and reviewing voluminous, non-compliant staff reports that should never have been necessary at all, and were the direct result of avoidable failures in the early compliance review—failures that burdened staff, misled decision-makers, and forced residents to correct issues that should have been caught immediately.

Malibu Township Council urges the City to uphold the LCP, protect public safety, and halt all further action on this application unless and until it demonstrates full compliance with all applicable laws.

Sincerely,

Jo Drummond

Malibu Township Council

2021-04-26 Ltr to City Council re Appeal No. 19-0…

https://cityofmalibuca.nextrequest.com/documents/55817576

---------- Forwarded message ---------

From: **Malibu Township Council** <info@malibutownshipcouncil.org>
Date: Sat, Aug 16, 2025 at 3:33 PM
Subject: 25200 PCH - Weintraub property
To: John Mazza [redacted], <skylar@peak[redacted]>, <drew[redacted], Elizabeth Riddick [redacted], marni kamins [redacted]>, Yolanda Bundy <ybundy@malibucity.org>, Tyler Eaton <teaton@malibucity.org>, Trevor Rusin <trevor.rusin@bbklaw.com>, <kellan.martz@bbklaw.com>
Cc: Bruce Silverstein <bsilverstein@malibucity.org>, Bill Sampson [redacted], Sam Hall Kaplan <[redacted]>, Dru Jacobson [redacted]>, Patt Healy [redacted]>, R N <ryan[redacted]>, Rob Duboux <rduboux@malibucity.org>, Ann Doneen <[redacted]>, Mariela Guastavino <[redacted]>, Jyoti Drummond [redacted]>, <cbond@malibucity.org>, <rrojas@malibucity.org>

Attention: Planning Commission, Yolanda Bundy, Tyler Eaton, and Trevor Rusin

The Malibu Township Council (MTC) previously submitted letters on July 21 and August 10 (both attached) regarding the Weintraub project. To date, those concerns have not been addressed. The most critical omission remains the failure to comply with **LIP §9.4D** (attached), which requires all new development in landslide areas to demonstrate a factor of safety of 1.5 (static) and 1.1 (pseudostatic). If those thresholds cannot be met, a variance must be obtained.

This project is a **brand-new, over 12,000 sq. ft. construction** in the Malibu Road Landslide Assessment District. Unlike routine fire rebuilds, this is a discretionary proposal on an undeveloped lot. In a past case at **20238 Piedra Chica Rd**, even a 25% addition had to be sent back after Planning Commission and City Council review when it was discovered no variance had been filed under §9.4D. That error wasted nearly three years of city resources. Approving this project without the variance requirement addressed risks repeating the same mistake.

Compounding the problem, there is a **broken and leaking Caltrans storm drain pipe under this property** that has caused multiple landslides in the past. The City's Public Works Director, Rob Duboux, has confirmed this on record. The applicant does not have the authority to repair this pipe, and the matter must be resolved by Caltrans **before any approvals can be considered**.

Beyond geotechnical hazards, the project would also cause **substantial obstruction of public scenic views**, contrary to the LCP.

MTC recognizes that Planning staff are managing hundreds of Woolsey and Palisades Fire rebuilds—work that should be the City's top priority. **Oversights like the missing variance requirement reflect how stretched staff have become, and why their focus must remain on rebuilding Malibu rather than processing code-violating projects like this one.**

For efficiency, and to prevent further waste of time and resources, **MTC requests that this item be removed from the agenda until**:

1. The applicant files for the required variance under **LIP §13.26.5**,

2. All slope stability studies required by **LIP §9.4D** are completed,

3. The broken Caltrans storm drain pipe is repaired by the responsible agency, and

4. Public view obstruction impacts are fully mitigated.

Under **LIP §13.26.5**, a variance can only be approved if all of the following findings are made, supported by substantial evidence:

- **A.** Special circumstances exist such that strict application of the code would deprive the property of privileges enjoyed by others in the vicinity.

- **B.** The variance will not be detrimental to the public interest, safety, health or welfare, and will not be detrimental or injurious to the property or improvements in the same vicinity and zone(s) in which the property is located.

- **C.** The variance will not confer a special privilege.

- **D.** The variance will not conflict with the purposes and intent of the LCP.

- **E.** For variances to ESHA standards: no feasible alternative exists, and allowable development area is not exceeded.

- **F.** For variances to stringline standards: maximum feasible protection to public access is provided.

- **G.** The request is consistent with the purpose and intent of the zoning designation.

- **H.** The subject site is physically suitable for the variance.

- **I.** The variance complies with all requirements of state and local law.

- **J.** The variance does not reduce or eliminate public parking for beach, trail, or park access.

Given the project's size, location in a landslide district, unresolved infrastructure issues, and public view impacts, **most of these findings will be extremely difficult to satisfy.**

Thank you,

Jo Drummond
Malibu Township Council

See attached:

On Aug 10, 2025, at 12:19 PM, Malibu Township Council <info@malibutownshipcouncil.org> wrote:

Urgent: Weintraub Application Missing Required LIP 9.4D Variance

Dear Yolanda,

The most critical omission in the Weintraub application is the required compliance with LIP 9.4D. Under this section, any new development in a landslide, steep slope, unstable soil, or other geologic hazard area must demonstrate, through slope stability analysis, a factor of safety of at least 1.5 (static) and 1.1 (pseudostatic). If this cannot be met, the applicant must obtain a variance and satisfy the ten findings in LIP 13.26.5 before moving forward. The Project is "new development" as defined by the LCP. It consists of land-disturbing activities including but not limited to, construction of a building or structure that will increase the floor area by more than ten percent. LCP, LIP §2.1.

We've been here before: in the Big Rock case at 20238 Piedra Chica Rd (CDP 18-002), the city had to send the project back to Planning for a variance application—after it had already gone through the Planning Commission and City Council (April 26, 2021) review —because no variance had been filed for the factor of safety. That error wasted nearly three years of staff, commission, and council time. The Weintraub property lies within the Malibu Road Landslide Assessment District, as noted in the latest staff report, yet none of the required 9.4D studies have been completed. Without those studies, the application cannot demonstrate the required factor of safety and is not eligible to proceed without a variance.

Such an attempt to sidestep the LCP is improper, and City Planning must deny the Project for its failure to conform with the LCP. As the LIP takes precedence over the City-adopted County and State Building Code, the City cannot discard development standards and variance requirements under the LCP. Especially where there are no noted impediments to complying with both the LCP and building codes. The Project applicant must file and process a variance to comply with the LCP.

For efficiency and to avoid repeating past mistakes, I request this item be removed from the agenda until the applicant applies for the variance and submits the required slope stability studies. Proceeding without these steps would not only repeat the Piedra Chica error but could also expose the city to significant legal and procedural risk.

Finally, LCP, LIP Section 9.4.M prohibits new development "on property or in areas where such development would present an extraordinary risk to life and property due to an existing or demonstrated potential public health and safety hazard."

I understand that many of these errors are due to the Palisades Fire and the need to rush applications already in planning but this needs to STOP and they all need to be put at the end of the line when there is more time to focus on HUGE code reaching projects. The focus NOW needs to be on the recovery of our community and rebuilding homes up to 10%.

Thank you,

Jo Drummond
Malibu Township Council

ELKINS KALT

Kenneth A. Ehrlich
D: 310.746.4412
KEhrlich@elkinskalt.com
Ref: 13839-0001

Elkins Kalt Weintraub Reuben Gartside LLP

September 2, 2020

VIA E-MAIL AND U.S. MAIL

City Council
City of Malibu
c/o City Clerk, Heather Glaser
23825 Stuart Ranch Road
Malibu, California 90265-4861
E-Mail: hglaser@malibucity.org

Re: Appeal (AP) No. 19-010; 20238 Piedra Chica Road
Appealing Planning Commission Resolution No. 19-25, approving Coastal Development Permit No. 18-002 to allow for an interior and exterior remodel and 770 square foot addition to an existing 3,453 square foot single-family residence, including construction of a courtyard, balcony, exterior stairs, ground-mounted mechanical equipment, fencing, permeable pavers, grading, relocation of the dispersal field for an existing onsite wastewater treatment system, and replacement of existing landscaping

Dear Mayor and City Council Members:

We represent Colin and Joanne Drummond ("**Appellants**") in connection with the above-referenced appeal. Appellants request a continuance of the hearing of the appeal until a date following the completion and receipt of the City-commissioned reports by Yeh and Associates, Inc. ("**Y&A**") concerning the Big Rock Mesa Landslide Assessment District.

Support for Continuance

The hearing for Appeal No. 19-010 (the "**Appeal**") is currently scheduled to occur on September 28, 2020. However, City of Malibu (the "**City**") consultants are presently collecting data concerning Big Rock Mesa that remains critical to the issues raised in the Appeal, including but not limited to evaluating the need to refine and modify landslide geometries and models. All parties benefit by obtaining and evaluating the information developed by Y&A before the City Council considers the Appeal so that all may adequately evaluate the proposed project. We understand from Rob DuBoux, City Public Works Director, that the City anticipates receiving the information in September/October. As such, this request would not unreasonably delay the hearing.

T: 310.746.4400 F: 310.746.4499
10345 W. Olympic Blvd, Los Angeles, CA 90064 | elkinskalt.com

Background

On December 2, 2019, the City of Malibu Planning Commission adopted Resolution No. 20-18, approving Coastal Development Permit No. 18-002 for property located at 20238 Piedra Chica Road (the **"Property**") (approval referred to as "**Planning Commission Approval**"). The Planning Commission Approval found the project categorically exempt from the California Environmental Quality Act and allows for the interior and exterior remodel and 770 square foot addition to an existing 3,453 square foot single-family residence, including the construction of a courtyard, balcony, exterior stairs, ground-mounted mechanical equipment, fencing, permeable pavers, grading, relocation of the dispersal field for an existing onsite wastewater treatment system, and replacement of existing landscaping.

On December 12, 2019, Appellants appealed the Planning Commission Approval based on, among other things, a lack of adequate stability analysis. Importantly, Appellants noted that development near or on Piedra Chica Road, part of Big Rock Mesa, should not occur until the completion of a proper analysis of the ancient landslide and current slope stability. Prior to the Planning Commission Approval, no adequate landslide analysis existed for the Property, and the applicant's consultant clearly used outdated information to support the project.

On June 22, 2020, the City Council authorized the City Manager to execute a Professional Services Agreement with Y&A for, among other tasks, maintenance and monitoring services for the Big Rock Mesa Landslide Assessment District. As part of the agreement, Y&A will collect, compile and revise data, evaluate trends, and evaluate the need to refine and modify landslide geometries and models based on data from recent geotechnical investigations, as well as prepare reports summarizing monitoring and maintenance data. We understand from Mr. DuBoux that the consultant is currently collecting and evaluating data, and the City expects to receive the information in September/October of this year. Given the relevance of the findings to development in the Big Rock Mesa Landslide Assessment District, including that sought by CDP No. 18-002, receipt and evaluation of the consultant's information is crucial to the Appeal.

As noted by the Appellants in prior hearings and in the Appeal, the proposed addition will be the most substantial, both in size and increase of water fixtures, approved in Big Rock Mesa since the most recent landslide. Understanding the geology of the area and the slope stability of the Property remains critically important when considering additional development and the impact of such development on the stability of the existing landslide.

Conclusion

The Appeal raises multiple issues regarding the adequacy of the applicant's geological data in connection with the Planning Commission Approval, including objections to the use of outdated information. Obtaining the Y&A updated information for Big Rock Mesa is vital to determining future development in the area, including the development proposed on the Property. The practical and efficient review of the Appeal mandates the scheduling of the hearing **after** the City receives Y&A's data and findings.

We appreciate your consideration of the above request. Please contact our office with questions or comments.

Very truly yours,



KENNETH A. EHRLICH,
a Professional Corporation of
Elkins Kalt Weintraub Reuben Gartside LLP

KAE

cc: Mikke Pierson (via e-mail mpierson@malibucity.org)
Karen Farrer (via e-mail kfarrer@malibuciy.org)
Skylar Peak (via e-mail speak@malibucity.org)
Jefferson Wagner (via e-mail jwagner@malibucity.org)
Rick Mullen (via e-mail rmullenmalibucity.org)
Jessica Thompson (via e-mail jthompson@malibucity.org)
Richard Mollica (via e-mail rmollica@malibucity.org)
Robert DuBoux (via e-mail rduboux@malibucity.org)

Civic Guardian Since 1947

July 21, 2025

Honorable Planning Commission,

RE: 25200 Pacific Coast Highway, Coastal Development Permit No. 19-012

Malibu Township Council has been advocating for responsible development and protecting our natural, rural environment in Malibu since 1947.

These are reasons that the Planning Commission's decision on this project should be postponed.

1. The applicant should be required to redesign this project so that all structures are invisible from PCH.
2. Before you approve this project the applicant should come back with a revised landscape plan showing none of the vegetation will be at maturity above the height of the highway.
3. The berm along this property seems to have risen higher over the last few years and vegetation has been allowed to grow further blocking the beautiful scenic view from the PCH. This should be double checked for any illegal grading as requested by Mayor Pro Tem Silverstein at the last City Council meeting.
4. Landslide studies must be completed in the geotechnical review for this project prior to approval since several landslides have occurred adjacent to this lot AND it is entirely in the Malibu Road Landslide Assessment District and as new development needs to be deemed safe or not to build as NOTHING has ever stood on the lot. NOTHING in the staff report or review mentioned this at all. How can a project of this size and width be allowed in a landslide area when a similar project - Rappaport - caused landslides in a non-landslide area further on Malibu Road? There are several unbuildable lots just below this project on Malibu Road due to landslides. See p. 9 & 10 of this Assessment District report - under 5. Emergency Services: https://www.malibucity.org/DocumentCenter/View/31025/FY21-22-Annual-Report---Malibu-Road-AD-98-3?bidId= It states that the slope has been steepened by erosion and may be subject to further erosion and thus should be treated as a Coastal Bluff as there are only beachfront homes and some empty lots by the beachside in front of this bluff.
5. A broken 20-inch drainpipe that goes right through the middle of this lot has not been dealt with by the City, County or Caltrans or any private parcel owners and continues overflow, flood and erosion of the slope and the immediate areas causing several adjacent slides over the past decade. At the very least it should be mandated that the applicant repair this if he intends to proceed with the project. This would require finding out who is responsible for the pipe and receiving the appropriate permissions.
6. Clarity is needed on how large the septic tank is. The staff report on p 7 states that it will be 1500 gallons for a 7+ bedroom, 11+ bathroom complex with 5 pools, etc. as per the plans. Yet there is an OWTS plan buried within p 173 stating a 7540-gallon tank for a 6-bedroom, 12-bathroom residence incl guest house? If it is a 7540-gallon tank it should be reduced in size. Between this much effluent and excessive irrigation for over 70 trees, etc. planned this can put the landslide area in jeopardy from this one home which already has an eroding unstable slope. Excess water causes erosion and further landslide risk so safety findings cannot be made.
7. Why are more than four 6 ft back-to-back retaining walls proposed without a variance?
8. Here neighborhood standards for Malibu Road and Bayshore Drive needs to be accounted for - this project is more than 5 times the average size of the homes there and completely out of character of the remaining homes in the same assessment district, and NONE block the scenic ocean view as this one proposes. Cher's house nearby is NOT in the assessment district and was built before Cityhood so cannot be compared and this finding can't be made for residential development standards.
9. We were wondering why this project is a priority and not given more scrutiny over L4L fire rebuilds. Especially when it is obviously for a spec house as it is already being advertised for sale - https://www.weintraubre.com/projects/coleava/

Please either postpone a decision or deny this project until further information and studies are completed to ensure the public's scenic views are protected and that public safety is assured.

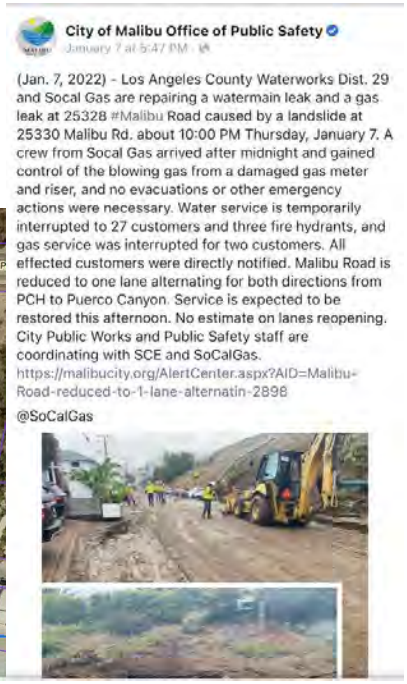
Thank you,

Jo Drummond
On behalf of Malibu Township Council

Established to promote, stimulate and further community spirit, to sponsor any project of merit that may benefit any district of Malibu Township, to foster and promote the cultural development of the Township; and in general, to do all things that tend to build and uphold the character of this residential area.

— Malibu Township Council Articles of Incorporation, January 2, 1947





5. Emergency Services

On the evening of January 6, 2021 an uncontrolled discharge from a watermain break near culvert MTD-10 caused erosion and partial slope failure from MTD-10 westward approximately 100 feet. The waterline is owned and maintained by Los Angeles County Waterworks District 29. Yeh was contacted by the City on January 7, 2021 and dispatched personnel onsite on January 7 and 8 to investigate potential impacts to district facilities. Yeh personnel surveyed slope inclinometers and did not

5

observe shear type movement. Yeh personnel noted that several district facilities were damaged or buried and after the event, maintained communication with the City and Water District to confirm repairs and recovery of the impacted assessment district facilities were completed. It should be noted that the slope behind MTD-10 and approximately 100 feet west remains in an over-steepened condition by the erosion and the slope may be susceptible to additional or more frequent erosion.

Malibu Road Landslide Assessment District Includes this entire parcel

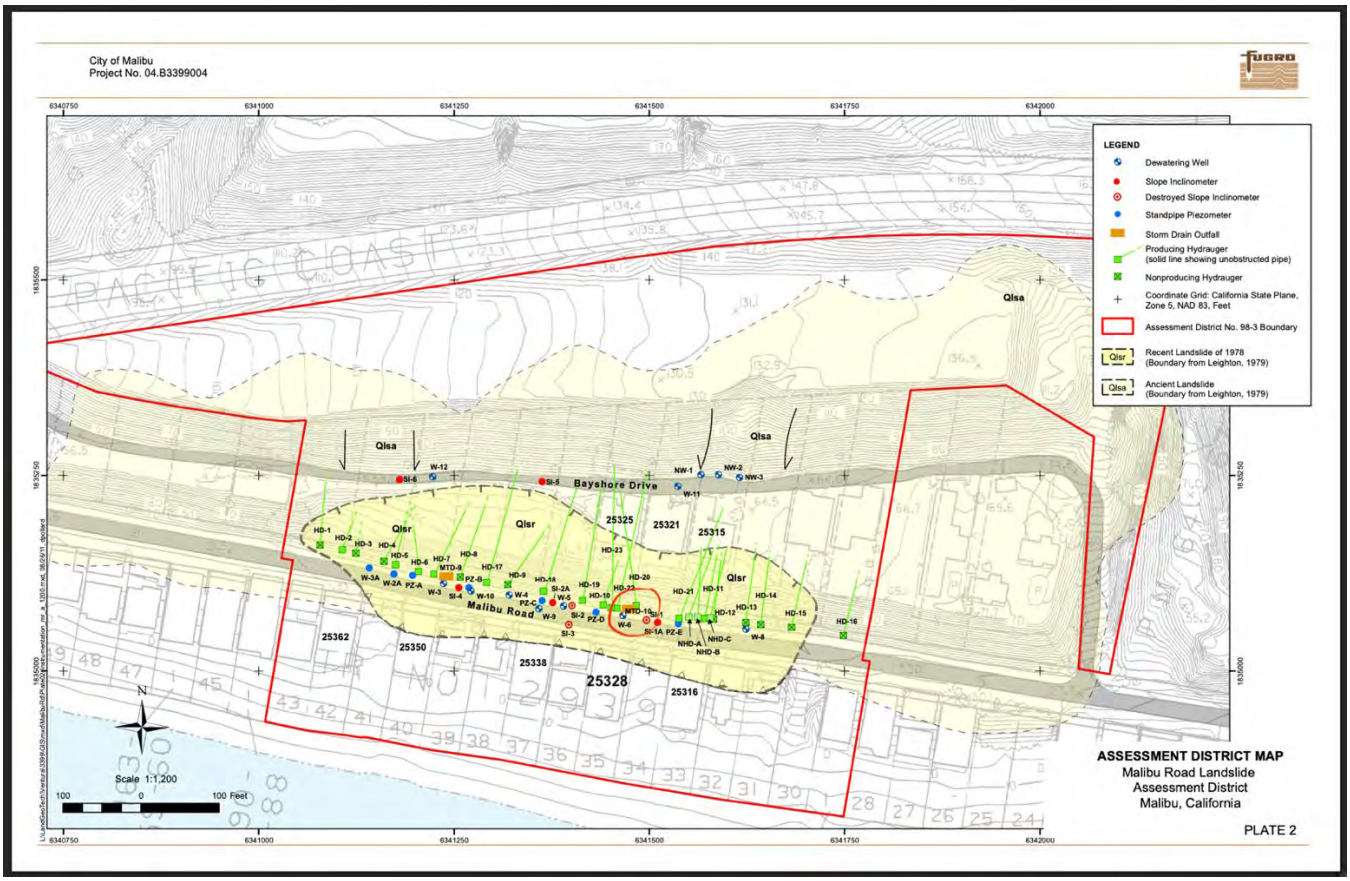
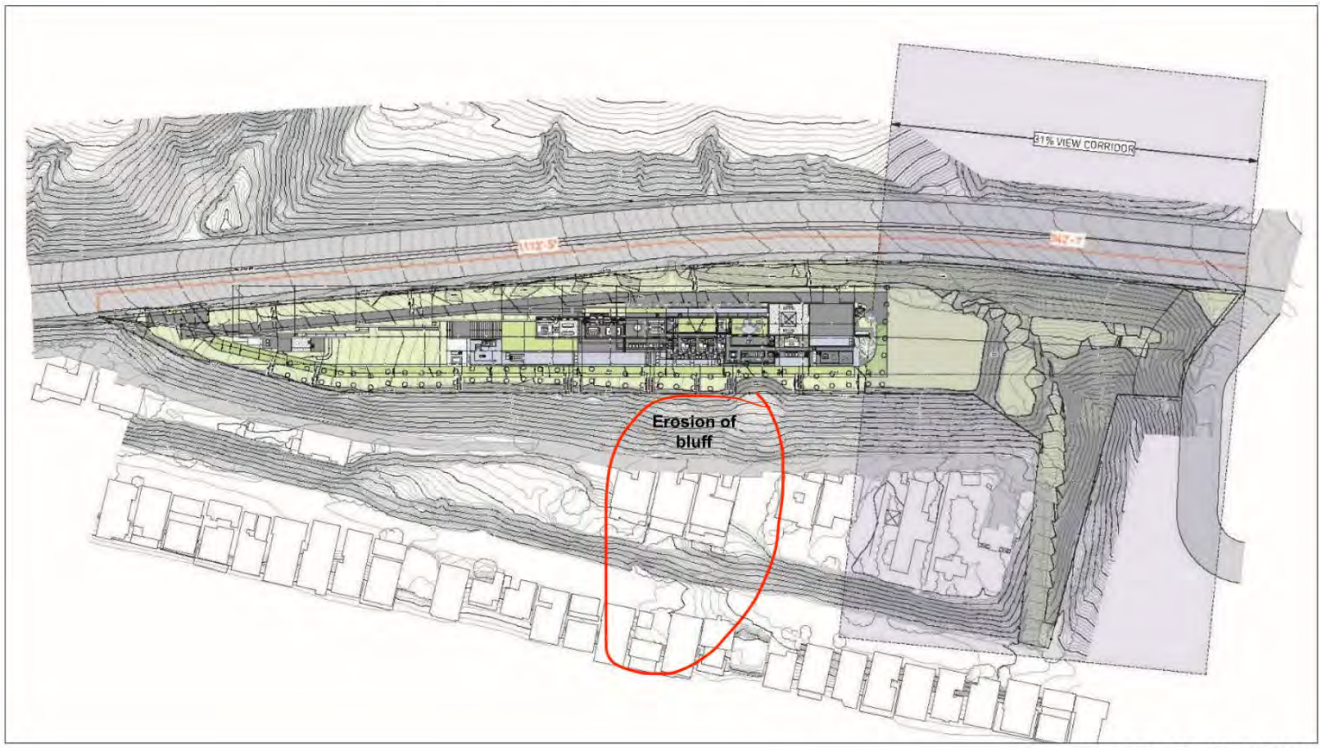
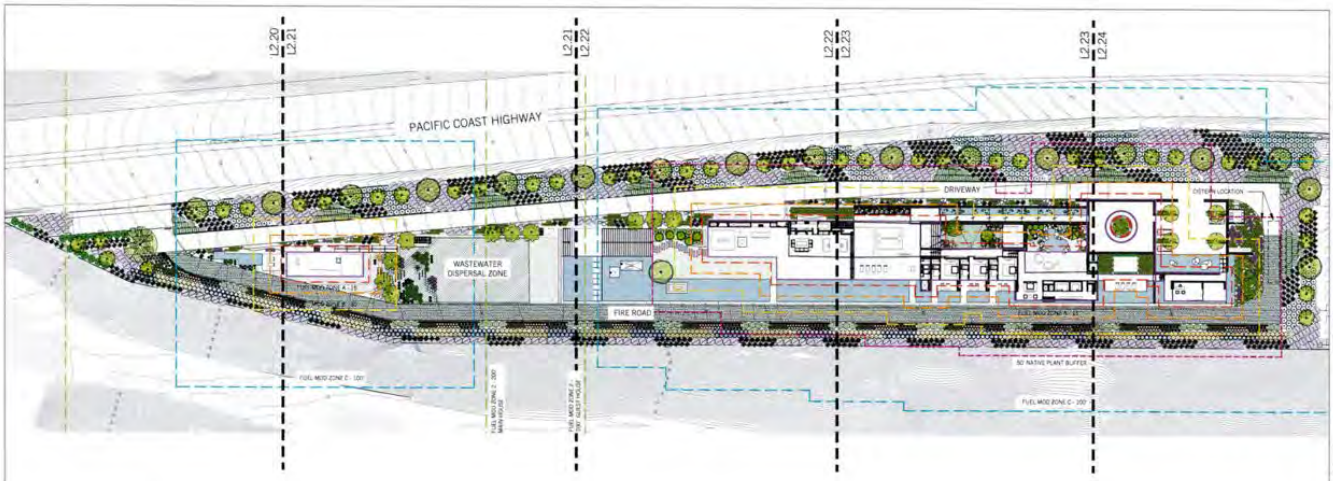


Figure 2 –Proposed Site Plan



Source: Project Plans

Please note at least 50 trees along the berm/PCH side that grow up to heights of 50 feet. This goes against the condition of landscaping not blocking any scenic views.



OVERALL SITE PLANTING LEGEND

FUEL MOD LEGEND

SYMBOL	FUEL MOD ZONE
	Building Perimeter
	5' Buffer
	Fuel Mod Zone A - 15'
	Fuel Mod Zone B - 30'
	Fuel Mod Zone C - 100'
	Fuel Mod Zone D - 200'

OVERALL PLANTING PLAN

SCALE: 1" = 40'-0"

1

NOT FOR CONSTRUCTION

[place]

CONSULTANTS

Property Owner
FAM PCH, LLC
PO Box 6928
Malibu, CA 90265

Design Architect
OPPENHEIM ARCHITECTURE
245 NE 37 Street
Miami, FL 33137
T 305 576 8404
F 305 576 8403
www.oppenoffice.com

Civil Engineers
LC ENGINEERING GROUP
885 Pierce St., Ste. 101
Thousand Oaks, CA 91360
T 805 497 1244
F 818 991 7148
www.lcengineering.com

NAME OF ISSUE

KEY PLAN

VILLA COLEAVA

25200 Pacific Coast Highway
Malibu, CA 90265

Project #: 2021
Drawn by: LS
Scale: 1" = 40'-0"

Ref. North

Description	Date	No
PLANNING SUBMITTAL	02/19/21	
BIO REVISIONS	04/05/21	1
BIO REVISIONS	06/11/21	

PROJECT NO: 2021

SHEET TITLE

OVERALL PLANTING PLAN

L2.02

D. New development proposed on landslides, steep slopes, unstable or weak soils or any other identified geologic hazard area, shall be permitted only where a factor of safety of 1.5 (static) and a factor of safety of 1.1 (pseudostatic) can be provided. Such analysis shall adhere to all provisions of the City of Malibu's "Guidelines for the preparation of engineering geologic and geotechnical engineering reports," dated February 2002. In addition, for the purpose of this section, quantitative slope stability analyses shall be undertaken as follows:

1. The analyses shall demonstrate a factor of safety greater than or equal to 1.5 for the static condition and greater than or equal to 1.1 for the seismic condition. Seismic analyses may be performed by the pseudostatic method, but in any case shall demonstrate a permanent displacement of less than 50 mm.

2. Slope stability analyses shall be undertaken through cross-sections modeling worst case geologic and slope gradient conditions. Analyses shall include postulated failure surfaces such that both the overall stability of the slope and the stability of the surficial units is examined.

3. The effects of earthquakes on slope stability (seismic stability) may be addressed through pseudostatic slope analyses assuming a horizontal seismic coefficient of 0.20g, and should be evaluated in conformance with the guidelines published by the American Society of Civil Engineers, Los Angeles Section (ASCE/SCEC), "Recommended Practices for Implementation of DMS Special Publication 117, Conditions for Analyzing and Mitigating Landslide Hazards in California."

4. All slope analyses shall be performed using shear strength parameters (friction angle and cohesion), and unit weights determined from relatively undisturbed samples collected at the site. The choice of shear strength parameters shall be supported by direct shear tests, triaxial shear test, or literature references.

5. All slope stability analyses shall be undertaken with water table or potentiometric surfaces for the highest potential ground water conditions.

6. If anisotropic conditions are assumed for any geologic unit, strike and dip of weakness planes shall be provided, and shear strength parameters for each orientation shall be supported by reference to pertinent direct sheer tests, triaxial shear test, or literature.

7. When planes of weakness are oriented normal to the slope or dip into the slope, or when the strength of materials is considered homogenous, circular failure surfaces shall be sought through a search routine to analyze the factor of safety along postulated critical failure surfaces. In general, methods that satisfy both force and moment equilibrium (e.g., Spencer, Morgenstern-Price, and General Limit Equilibrium) are preferred. Methods based on moment equilibrium alone (e.g., Bishop's Method) also are acceptable. In general, methods that solve only for

force equilibrium (e.g., Janbu's method) are discouraged due to their sensitivity to the ratio of normal to shear forces between slices.

8. If anisotropic conditions are assumed for units containing critical failure surfaces determined above, and when planes of weakness are inclined at angles ranging from nearly parallel to the slope to dipping out of slope, factors of safety for translational failure surfaces shall also be calculated. The use of a block failure model shall be supported by geologic evidence for anisotropy in rock or soil strength. Shear strength parameters for such weak surfaces shall be supported through direct shear tests, triaxial shear test, or literature references.

9. The selection of shear strength values is a critical component to the evluation of slope stability. Reference should be made to the City of Malibu's "Guidelines for the preparation of engineering geologic and geotechnical engineering reports," dated February 2002, and to the ASCE/SCEC guidelines (see Section 9.4.D.3 of the Malibu LIP) when selecting shear strength parameters and the selection should be based on these guidelines.

FEFFER
GEOLOGICAL CONSULTING

November 18, 2021 File No. 1992-75

Weintraub Real Estate Group
P.O. Box 6528
Malibu, CA 90264

Subject: **RESPONSE TO CITY OF MALIBU**
25200-25300 Pacific Coast Highway, Malibu, CA 90265
APN: 4459-013-021, 4459-014-018

References: **PRELMINARY GEOTECHNICAL FEASIBILITY INVESTIGATION**
23000-25200 Pacific Coast Highway, Malibu, CA 90265
By: Feffer Geological Consulting, Dated May 21, 2018

GEOTECHNICAL REVIEW SHEET
25200 Pacific Coast Highway, Malibu, CA 90265
By: City of Malibu Dated August 27, 2018
Response By: Feffer Geological, Dated November 20, 2018

GEOTECHNICAL REVIEW SHEET
25200 Pacific Coast Highway, Malibu, CA 90265
By: City of Malibu, Dated January 14, 2019
Response By: Feffer Geological, Dated December 17, 2019

GEOTECHNICAL REVIEW SHEET
25200 Pacific Coast Highway, Malibu, CA 90265
By: City of Malibu, Dated January 30, 2020

GEOTECHNICAL REVIEW SHEET
25200 Pacific Coast Highway, Malibu, CA 90265
By: City of Malibu, Dated August 4, 2020
Response By: Feffer Geological, Dated June 18, 2020

Dear Mr. Weintraub:

As requested, Feffer Geological Consultants is providing this response to the referenced City of Malibu geotechnical review sheet.

We appreciate the opportunity to be of service. Should you have any questions regarding the information contained in this report, please do not hesitate to contact us.

Sincerely,

FEFFER GEOLOGICAL CONSULTING, INC.

Joshua R. Feffer
Principal Engineering Geologist
C.E.G. 2138

Dan Daneshfar
Principal Engineer
P.E. 68377

Distribution: Addressee– (1)

Item 1
Some of the cross-sections (example: 2-2' and B-B') show closely stacked retaining walls. The Project Geotechnical Consultant needs to evaluate the potential for interaction (example: lateral surcharge of lower retaining wall) between closely located retaining walls. Mitigation measures should be recommended, as necessary.

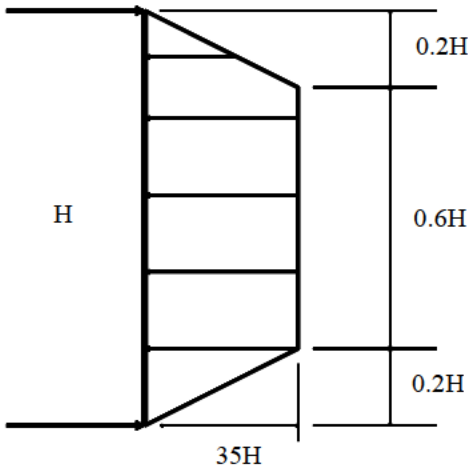
Note: The Project Geotechnical Consultant recommends in response to the above comment that, "Stacked retaining walls, where present, shall be designed such that the upper wall foundation extends below a 45-degree projection from the lowest retaining wall foundation. This will prevent the lateral surcharge between closely stacked retaining walls." Using the 1: 1 criterion for lateral surcharge is not acceptable for lateral surcharge unless substantiated by analyses and/or references. Footings below a 1:1 plane behind walls could laterally surcharge the walls. Lateral surcharge behind any proposed retaining walls need to be evaluated using an appropriate method (e.g.: 1- Spangler & Handy { 1982}, Soil Engineering, fourth Edition, Harper & Row, New York; 2- Navy Design Manual NAVFAC DM-7.2, Figures 11 & 12).

Response:
Stacked retaining walls are no longer planned as part of the development. Please see the updated plans and geotechnical map included in this response. The following recommendations should be used for the design of new retaining walls.

Retaining Walls

Cantilevered retaining walls up to 12 feet high that support fill, alluvium, bedrock, and approved retaining wall backfill, may be designed for an equivalent fluid pressure of 30 pounds per cubic foot (pcf) for level backslopes and 43 pcf for 2:1 (H:V) backslopes.

Restrained walls should be designed for an at-rest earth pressure of 54 pcf. Restrained braced retaining walls that are pinned at the top by a non-yielding floor should be designed for the trapezoidal pressure distribution noted in the figure below. The uniform trapezoidal pressure may be assumed over the central six tenths of the wall height. The pressure may be decreased to zero at the top and bottom of the wall.



Retaining walls should be provided with a subdrain or weepholes covered with a minimum of 12 inches of ¾ inch crushed gravel.

It is recommended that retaining walls be waterproofed. Waterproofing design and inspection of its installation is not the responsibility of the geotechnical engineer. A qualified waterproofing consultant should be retained to recommend a product or method, which would provide protection to below grade walls.

Cantilevered retaining walls higher than six feet need to consider a seismic surcharge from the Design Earthquake. The seismic surcharge should be calculated using a factor of safety of 1.0 with a horizontal seismic coefficient equal to 0.35g.

A seismic surcharge for retaining walls designed for active conditions is considered. For a 12-foot-high retaining wall with a level backslope, the static design force is equal to 2.16 kips (12ft^2 *30 pcf /2).

For a ground motion of 0.35g and a FS of 1.0, the enclosed calculations indicate an unbalanced force under seismic conditions from the Maximum Considered Earthquake is 299.6 pounds or 0.3 kips. Since the static design force is higher than the seismic force an additional seismic surcharge need not be added.

For a 12-foot-high retaining wall with a 2:1 backslope, the static design force is equal to 3.01 kips (12ft^2 *43 pcf /2).

For a ground motion of 0.35g and a FS of 1.0, the enclosed calculations indicate an unbalanced force under seismic conditions from the Maximum Considered Earthquake is 1,049 pounds or 1.05 kips. Since the static design force is higher than the seismic force an additional seismic surcharge need not be added.

Retaining Wall Backfill

Retaining wall backfill should be compacted to a minimum of 90 percent of the maximum density as determined by ASTM D 1557-14. It should be pointed out that the use of heavy compaction equipment in close proximity to retaining walls can result in excess wall movement and/or soil loadings exceeding design values. In this regard, care should be taken during backfilling operations.

Item 2
Please provide the infiltration report for the OWTS for review.

Response:
The report is included with this response.

Item 3
The Project Geotechnical Consultant needs to evaluate the effects effluent from the OWTS and irrigation may have on groundwater levels under the site and the potential to

adversely affect adjacent slopes and properties. Provide the supporting geologic report for the OWTS for review.

Response:
Please see the supporting geology report included with this response.

Item 4
The consultant needs to perform translational slope stability analyses on all cross-sections with potential adverse geologic conditions (examples: Cross-Sections 2-2', 3-3', 4-4', 5-5' and 6-6'). Substantiated residual shear strength (example: residual shear strength used for landslide planes) should be utilized to model along-bedding shear strength. Mitigation measures should be recommended, as necessary.

Response:
A letter titled *"Preliminary Slope Stability Analysis, 25200-25300 Pacific Coast Highway, Malibu, CA 90265"* dated March 25, 2021 was provided to the reviewers to open a discussion regarding the selection of appropriate shear values for use in the requested translational analyses. A copy of this letter is provided at the back of this response for the record.

A conference call was initiated between this firm and the reviewers to mutually review and agree on the selection of shear values. Based on that call and the presented letter, all parties agreed that the following values could be used for the translational analysis.

Material	Phi Angle (°)	Cohesion (psf)	Type
Bedrock	34.5	520	Ultimate
	41	720	Peak
	16	200	Back calc.

The ultimate value shall be used to model static conditions, and the peak value shall be used to model seismic conditions that apply a 0.35g horizontal acceleration. To model potential adverse bedding planes an anisotropic function shall be adopted for south dipping bedding planes ranging from 10 to 30 degrees and the selected residual value will be applied to this range of bedding planes for translational analysis. Groundwater was also modeled in the additional analyses where applicable.

Translational Stability Analysis
As requested, cross sections 2, 3, 4, 5 and 6 were analyzed for translational stability to model potential adverse geologic conditions. Each section was analyzed under the "post construction" condition to consider all proposed new grades, building loads, groundwater conditions, and reinforcements. Each analysis utilized the spencer method with a non-circular block search. Search windows were placed at the top and bottom of each slope based on a trial-and-error method of selection. Once search windows were defined, reinforcements were added to the slopes and modified until reaching a 1.5 and 1.0 factor of safety (FS) for static and seismic conditions.

The analyses indicate that the existing slopes require a stabilization system to achieve a 1.5 and 1.0 factor of safety and to mitigate potential geologic instability.

It should be noted that section 6-6' was not evaluated further because most of the slope for section 6-6' is within the delineated "No-Build Zone". As stated in previous responses, the proposed row of piles is only recommended to isolate the proposed development from the "No-Build Zone" and are not required to increase the global factor of safety for the slope. As illustrated on the updated translational analysis, all factors of safety less than 1.5 exist within the "No-Build Zone", do not intersect the proposed row of piles, and do not intersect the proposed development. The existing slope in this area is performing well under current conditions but should not be modified.

Pile Design Analysis

After performing the translational analyses, a separate set of analyses were performed for sections 2, 3, 4, and 5 to evaluate the pile loads needed to achieve a 1.5 and 1.0 FS for each portion of the slope. A discussion is provided below:

Offsite Slope

First, we evaluated the offsite portion of the slope from the southern property line to Bayshore Drive. The purpose of this analysis was to determine if the offsite portion of the slope had adequate factors of safety. A summary of the results is provided below:

Section	Static/Seismic	Factor of Safety
2-2'	Static	0.874
	Seismic	0.460
3-3'	Static	0.952
	Seismic	0.528
4-4'	Static	1.007
	Seismic	0.562
5-5'	Static	1.141
	Seismic	0.670

Offsite Slope Removal

Once we determined the existing FS for the offsite portion of the descending slope, the "failed" wedge of material was removed from each section until the FS was no longer less than 1.5 or 1.0 for static and seismic conditions.

The removal of this material left a freestanding portion of the piles at the property line. The purpose of this analysis was to evaluate the project site under the theoretical assumption that the descending slope failed away and left behind the slope stabilization system.

Due to the complexity of the site geology, the following analyses were used to determine the pile loads required to retain the project site in a post failure condition.

Upper Slope
Next, we evaluated the pile loads required to stabilize the site between the top of the slope and the bottom of the freestanding pile (determined from the analysis above) under static and seismic conditions. This required an iterative approach in which piles were added and loads were increased until achieving a 1.5 and 1.0 FS.

Entire Slope
Finally, to evaluate deep seated instability we evaluated the pile loads required to stabilize the site between the top of the slope and the bottom of the slope. This also required an iterative approach in which piles were added and loads were increased until achieving a 1.5 and 1.0 FS. A summary of the analyses and recommendations for the design of the stabilization system is provided on Table 1. The project engineer should use these values to design an appropriate stabilization system. A combination of grade beams, tiebacks, or other methods may be used to assist in the design to accommodate high pile loads.

Conclusion
The attached analyses indicate that the existing slopes require a stabilization system to achieve a 1.5 and 1.0 factor of safety and to mitigate potential geologic instability. Once reinforced, the slopes are considered grossly stable. The updated site map and cross sections illustrate the proposed locations of the support system.

The updated geotechnical map is color coded to illustrate the approximate proposed pile locations. Transitions between piles with different depths shall occur approximately at the midpoint between analyzed sections. The actual number of piles, their precise locations, and actual dimensions will be determined by the project Structural engineer given the information provided herein. Prior to submittal, the slope stabilization design and layout should be provided to this firm for review and approval.

Tieback Recommendations
Should the project Structural Engineer require the use of tiebacks, the following recommendations may be used in the design:

Soil Phi Angle: 34.5 degrees
Soil Cohesion Value: 520 psf
Seismic Coefficient: 0.35 g

The soil nail length, inclination, diameter, spacing, and number of tiebacks shall be determined by the designer to achieve the desired loads. The final design assumptions, calculations, and drawings should be reviewed by Feffer Geological Consulting.

Centralizers
Centralizers shall be installed along the length of the soil nail to ensure that the soil nail will be centered in the drill hole and that minimum grout cover encapsulates the rebar. Centralizers shall be manufactured from polyvinyl chloride (PVC), polyethylene (HDPE), polypropylene (HDPP), steel or other material that is non-detrimental to the pre-

stressing steel. Wood spacers shall not be used. The centralizer shall support the nail in the drill hole and position the nail so the required grout cover is achieved. All centralizers shall be designed to permit grout to flow freely around the nail and up the drill hole. Position centralizers should have a maximum center-to-center spacing that does not exceed 7.5 feet. Centralizers should also be located within 3 feet from the top and bottom of the drill hole.

Corrosion Protection
Production nails shall be corrosion protected. The best method for corrosion protection shall be determined by the designer.

Tieback Testing and Monitoring
An annual long-term monitoring plan should be implemented to inspect and record the performance of permanent tiebacks.

Performance Testing
Ten percent of the permanent tiebacks shall be performance tested to 200% of the design load. All testing shall be performed after the grout has cured for a minimum of 72 hours. Testing loads are never to exceed 200% of the design load.

The performance tests will involve the following cyclic loading sequence:

Cycle	**1**	**2**	**3**	**4**	**5**	**6**	**7**
%DL	AL	AL	AL	AL	AL	AL	AL
	25	25	25	25	25	25	25
	AL	50	50	50	50	50	50
		AL	75	75	75	75	75
			AL	100	100	100	100
				AL	125	125	125
					AL	150	150 - 10 or 60 minute hold
						AL	200 - 720 minute or 24 hour hold
							AL - 1 min. hold
							0.80 - look off
AL (alignment load ≈ 20% of the design load DL)							
DL (design load)							

Deformation measurements are to be taken at each load increment.

For the 10-minute hold test at 1.50 DL, measurements should be taken at the following intervals 0, 1, 2, 3, 4, 5, 6, and 10 minutes. The tieback is considered acceptable if the elongation is less than 0.04 inches. If the prescribed deformation is exceeded, the load should be held for an additional 50 minutes, and the movement readings should be recorded at 20, 30, 40, 50, and 60 minutes. If the creep rate from 6 to 60 minutes does not

exceed 0.08 inches and is decreasing (graph the logarithm of time versus creep movement) the tieback is considered acceptable.

For the 24-hour test at 2.0 DL, measurements should be taken at 6, 60, and 720 minutes. If the total creep movement after 720 minutes is less than 0.5 inches and the movement over the previous 4 hours is less than 0.1 inches, then the load test may be terminated and the tieback is considered acceptable. If the total deformation at 720 minutes exceeds 0.5 inches, then the test should be extended and a reading taken at 24 hours. tieback is considered acceptable if the total creep movement at 24 hours is less than 0.75 inches. Additionally, for the tieback to be considered acceptable, the total movement must exceed 80% of the theoretical elastic elongation of the unbounded length of the tendon to ensure that the unbounded length is not providing pullout resistance.

Proof Testing

Proof tests are to be performed on all remaining permanent tiebacks. All testing shall be performed after the grout has cured for a minimum of 72 hours. Testing loads are never to exceed 200% of the design load.

The proof tests will involve the following cyclic loading sequence:

AL / 0.25 DL / 0.50 DL / 0.75 DL / 1.00 DL / 1.25 DL / 1.50 DL - 10 or 60 min hold / AL / 0.80 DL - Look off

Additionally, 10% of the proof tests are to be tested under the following sequence:

AL / 0.25 DL / 0.50 DL / 0.75 DL / 1.00 DL / 1.25 DL / 1.50 DL / 2.0 DL - 30 min hold /AL / 0.80 DL - Look off

Deformation measurements are to be taken at each load increment.

For the 10-minute hold test at 1.50 DL measurements should be taken at the following intervals 0, 1,2, 3, 4, 5, 6, and 10 minutes. If the elongation is greater than 0.04 inches, the load should be held for an additional 50 minutes, and the movement readings recorded at 20, 30, 40, 50, and 60 minutes. If the creep rate in the period of time from 6 to 60 minutes does not exceed 0.08 inches and is decreasing (graph the logarithm of time versus creep movement) the tieback is considered to be acceptable.

For tiebacks subjected to the 30-minute hold test at 2.0 DL, measurements should be taken at the following intervals 0, 1, 2, 3, 4, 5, 6, 10, and 30 minutes. If the creep rate in the 30-minute test does not exceed 0.25 inches the tieback is considered acceptable.

Additionally, for the tieback to be considered acceptable the total movement must exceed 80% of the theoretical elastic elongation of the unbounded length of the tendon to ensure that the unbounded length is not providing pullout resistance.

If the tieback fails the test, it may be utilized at one half of the stabilized load, or there should be a replacement anchor installed. If several tiebacks fail, the construction

procedures or design recommendations are to be modified. The tieback plans are to reflect the testing requirements given above.

Performance Monitoring
Long-term performance monitoring shall be conducted for a period of 25 years. Five percent of the permanent tiebacks are to be monitored long-term with the Dynaforce load monitoring system. Monitoring shall comprise one set of readings at completion of the tieback construction and then every three months until readings stabilize, and once every two years.

If the load loss/gain in the monitored permanent tiebacks exceed 20 % of the design load, the possible causes of such variations are to be investigated to provide recommendations for future action, as necessary. Alternately, if after four years the load loss/gain is less than 10 % it is concluded the permanent tieback system is performing adequately; in which case monitoring may be terminated.

In addition, two inclinometers shall be installed near the northern and southern limits of the proposed permanent tiebacks. Inclinometers shall be monitored every two weeks during the construction phase of the project and every three months thereafter for a minimum of two years after the completion of the project.

The owner should retain the services of specialist consultants to monitor the forces in the permanent tiebacks and the movements within the inclinometers. Reading of the loads in the tiebacks and the movements of the inclinometers shall be processed by the specialist consultant and provided to the owner, the earth retention designer, and the City for review at the specified intervals.

Item 5
Please check the pile static EFP for Section 4-4' in the table for possible typing error.

Response:
Updated analyses have been performed and this item is no longer applicable.

REFERENCES

City of Malibu, 2006, Geotechnical Review Sheet, 25447 Malibu Road, dated December 27, 2006

City of Malibu, 2018, Geotechnical Review Sheet, 25200 Pacific Coast Highway, dated August 27, 2018

City of Malibu, 2019, Geotechnical Review Sheet, 25200 Pacific Coast Highway, dated January 14, 2019

City of Malibu, 2020, Geotechnical Review Sheet, 25200 Pacific Coast Highway, dated January 30, 2020

City of Malibu, 2020a, Geotechnical Review Sheet, 25200 Pacific Coast Highway, dated August 4, 2020

Feffer Geological Consulting, 2018, Preliminary Geotechnical Feasibility Investigation 23000-25200 Pacific Coast Highway, Malibu, CA 90265, dated May 21, 2018

Feffer Geological Consulting, 2018a, Response to City of Malibu 25200-25300 Pacific Coast Highway, Malibu, CA 90265, dated November 20, 2018

Feffer Geological Consulting, 2019, Response to City of Malibu 25200-25300 Pacific Coast Highway, Malibu, CA 90265, dated December 17, 2019

Feffer Geological Consulting, 2020, Response to City of Malibu 25200-25300 Pacific Coast Highway, Malibu, CA 90265, dated June 18, 2020

GeoConcepts, Inc., 2006, Addendum Report No. 3 25447 Malibu Road Malibu, California, dated December 4, 2006

Leighton and Associates, Inc., 1979, Final Report Geotechnical Investigation of Landslide Conditions Affecting Puerco West Area Malibu, California, dated September 4, 1979

City of Malibu

23825 Stuart Ranch Road • Malibu, California 90265-4861
(310) 456-2489 • Fax (310) 456-3356 • www.malibucity.org

GEOTECHNICAL REVIEW SHEET

Project Information

Date: August 4, 2020			**4165**
Site Address:	25200 Pacific Coast Highway		
Lot/Tract/PM #:	n/a	**Planning #:**	**CDP 19-012** PA 18-001
Applicant/Contact:	Cole Smith, csmith@weintraubre.com Jake Jesson, JJesson@weintraubre.com	**BPC/GPC #:**	
Contact Phone #:	949-878-6298 **Fax #:**	**Planner:**	**Adrian Fernandez**
Project Type:	New single-family residential development		

Submittal Information

Consultant(s)/Report Date(s): *(Current submittal(s) in **Bold**.)*	Feffer Geological Consulting (Daneshfar, RCE 68377; Feffer, CEG 2138): **6-18-2020**, 12-17-2019, 11-20-18, 5-21-18 EnSitu Engineering, Inc. (Yaroslaski, RCE 60149): **5-29-2020** **Architectural plans prepared by Oppenheim Architecture dated March 1, 2019.**
Previous Reviews:	1-29-2020, 1-14-19, 8-27-18

Review Findings

Coastal Development Permit Review

☐ The residential development project is **APPROVED** from a geotechnical perspective.

☒ The residential development project is **NOT APPROVED** from a geotechnical perspective. The listed 'Review Comments' shall be addressed prior to approval.

Building Plan-Check Stage Review

☒ Awaiting Building plan check submittal. Please respond to the listed 'Building Plan-Check Stage Review Comments' AND review and incorporate the attached 'Geotechnical Notes for Building Plan Check' into the plans.

☐ **APPROVED** from a geotechnical perspective. Please review the attached 'Geotechnical Notes for Building Plan Check' and incorporate into Building Plan-Check submittals.

☐ **NOT APPROVED** from a geotechnical perspective. The listed 'Building Plan-Check Stage Review Comments' shall be addressed prior to Building Plan-Check Stage approval.

Remarks

The referenced response geotechnical report, OWTS design report, and Architectural plans were reviewed by the City from a geotechnical perspective. The project, originally submitted as to the City as a Pre-Application (PA) for City geotechnical staff to review to determine if a single-family residential project is feasible on the property, has now been submitted to the City for a Coastal Development Permit (CDP). The project includes a new 9,808 square foot one-story single-family residence with a 2,881 square foot basement/garage, a detached 429 square foot guest bedroom, water features in the basement and the ground floor totaling 10,462 square feet, a swimming pool and plunge pool, covered terraces totaling

5,734 square feet, a tennis court, grading, and retaining walls. The OWTS consists of a treatment tank system and a 5,100 square foot subsurface irrigation dispersal field. The design flow is 1,050 gpd and the design loading rate is 0.206 gpsfd.

Review Comments:

1. Some of the cross-sections (example: 2-2' and B-B') show closely stacked retaining walls. The Project Geotechnical Consultant needs to evaluate the potential for interaction (example: lateral surcharge of lower retaining wall) between closely located retaining walls. Mitigation measures should be recommended, as necessary.

   Note: The Project Geotechnical Consultant recommends in response to the above comment that, "*Stacked retaining walls, where present, shall be designed such that the upper wall foundation extends below a 45-degree projection from the lowest retaining wall foundation. This will prevent the lateral surcharge between closely stacked retaining walls.*" Using the 1:1 criterion for lateral surcharge is not acceptable for lateral surcharge unless substantiated by analyses and/or references. Footings below a 1:1 plane behind walls could laterally surcharge the walls. Lateral surcharge behind any proposed retaining walls need to be evaluated using an appropriate method (e.g.: 1- Spangler & Handy {1982}, Soil Engineering, fourth Edition, Harper & Row, New York; 2- Navy Design Manual NAVFAC DM-7.2, Figures 11 & 12).

2. Please provide the infiltration report for the OWTS for review.

3. The Project Geotechnical Consultant needs to evaluate the effects effluent from the OWTS and irrigation may have on groundwater levels under the site and the potential to adversely affect adjacent slopes and properties. Provide the supporting geologic report for the OWTS for review.

4. The consultant needs to perform translational slope stability analyses on all cross-sections with potential adverse geologic conditions (examples: Cross-Sections 2-2', 3-3', 4-4', 5-5' and 6-6'). Substantiated residual shear strength (example: residual shear strength used for landslide planes) should be utilized to model along-bedding shear strength. Mitigation measures should be recommended, as necessary.

5. Please check the pile static EFP for Section 4-4' in the table for possible typing error.

Please direct questions regarding this review sheet to City Geotechnical staff listed below.

Engineering Geology Review by: _____ *8/4/2020*

Christopher Dean, C.E.G. #1751, Exp. 9-30-20 Date
Engineering Geology Reviewer (310-456-2489, x306)
Email: cdean@malibucity.org

Geotechnical Engineering Review by: _____ *8/4/2020*

Ali Abdel-Haq, G.E. #2308, Exp. 12-31-21 Date
Geotechnical Engineering Reviewer (805-496-1222)
Email: ali@geodynamics-inc.com

(MAL5658)

This review sheet was prepared by representatives of Cotton, Shires and Associates, Inc. and GeoDynamics, Inc., contracted through Cotton, Shires and Associates, Inc., as an agent of the City of Malibu.



COTTON, SHIRES AND ASSOCIATES, INC.
CONSULTING ENGINEERS AND GEOLOGISTS



Site Map and Cross Sections

FEFFER GEOLOGICAL BORING MEASUREMENTS

FG B-1: 120 @12' | 133 @15' | 149 @22' | Steep @44'

FG B-2: 131 @10.5' | 165 @14' | Steep @32' | 258 @36'

FG B-3: 355 @19.5'

FG B-4: 149 @18.5' | 130 @23' | Steep @27' | 115 @35'

FG B-5: 68 @8' | 124 @24' | 112 @35.2' | Steep @39.6' | 103 @45.8' | 126 @49' | 151 @51' | 123 @54.5'

FG B-6: 110 @14' | 150 @30' | 147 @40' | Steep @55'

FG B-7: 116 @24.4' | 127 @33' | 135 @40' | 136 @55' | 118 @55.5' | Steep @56'

FG B-8: 143 @12' | 144 @16.5' | 116 @28' | Steep @44'

FG B-9: 137 @10' | 164 @30' | 171 @32' | Steep @42.5'

FG B-10: 136 @19' | Steep @37' | 127 @44.4' | 149 @49'

FG B-11: 157 @11' | 148 @11' | 138 @21.3' | 118 @22.6' | Steep @23.5' | 128 @25.2'

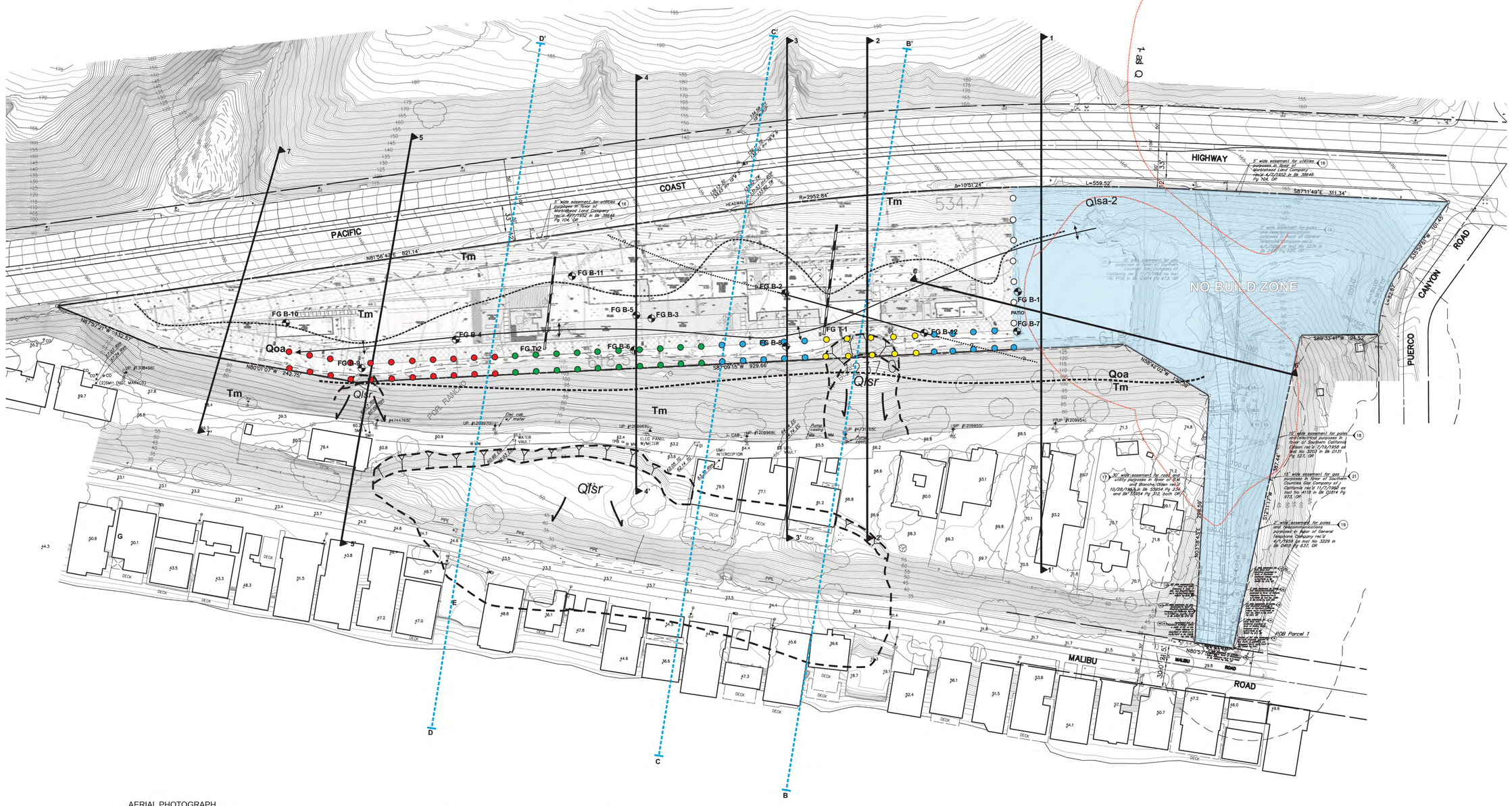
FG B-12: 133 @5.4' | 141 @7.3' | 109 @8.4' | 157 @18.5' | 132 @22.4'

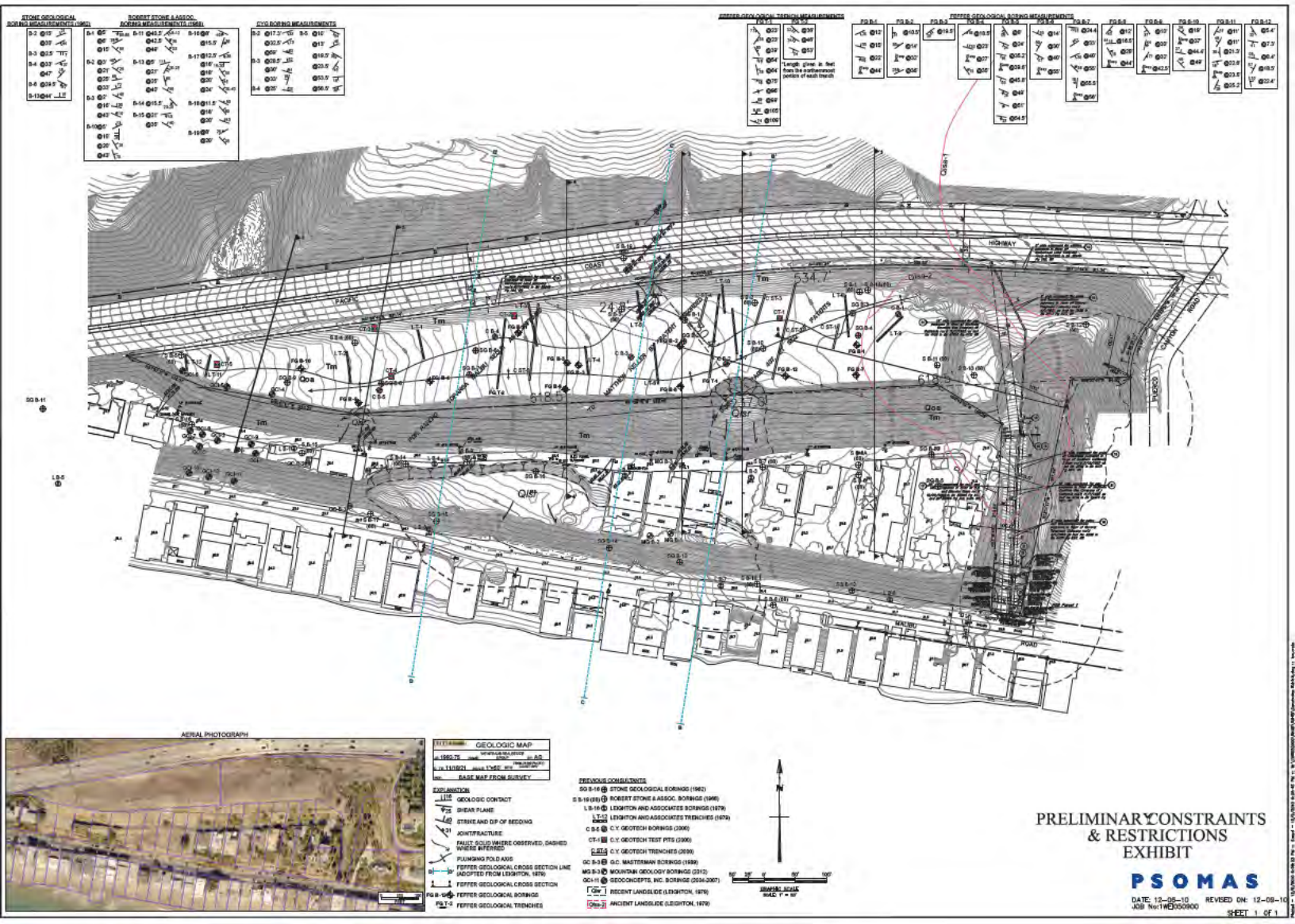
FEFFER GEOLOGICAL TRENCH MEASUREMENTS

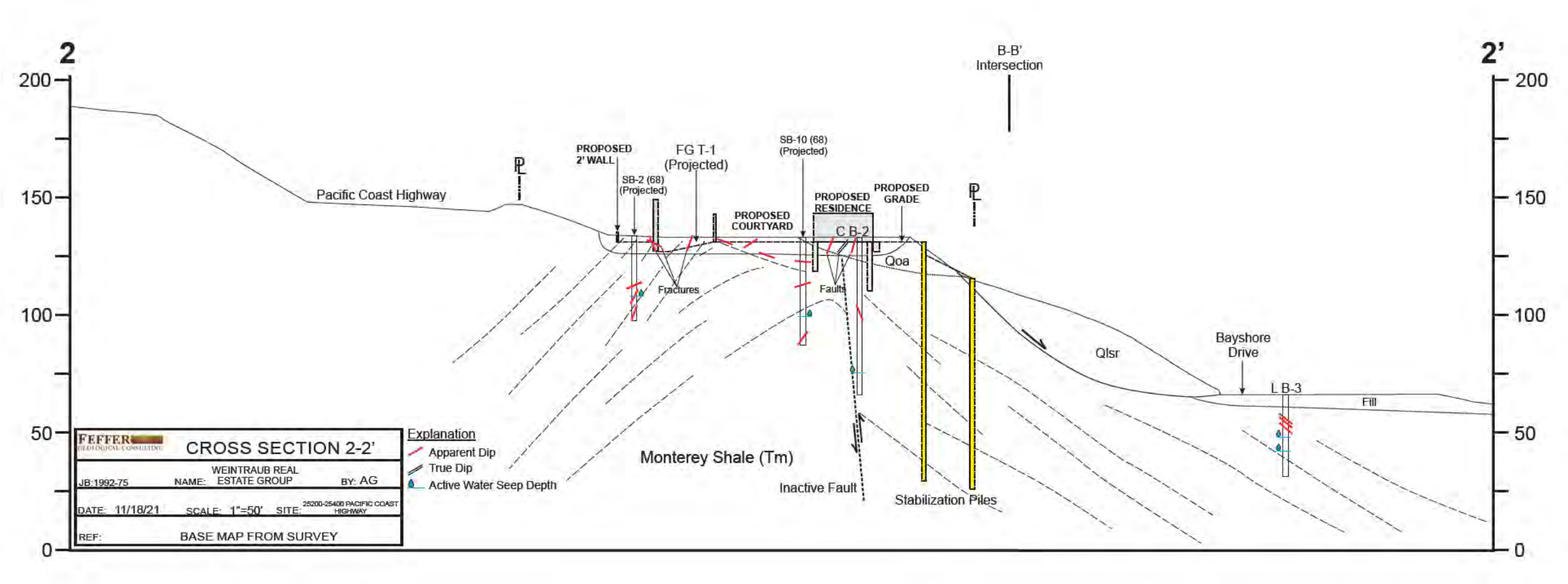
FG T-1: 177 @23' | 158 @23' | 180 @39' | 119 @54' | 176 @64' | 119 @75' | @96' | 169 @99' | 8-50 @105' | 174 @109'

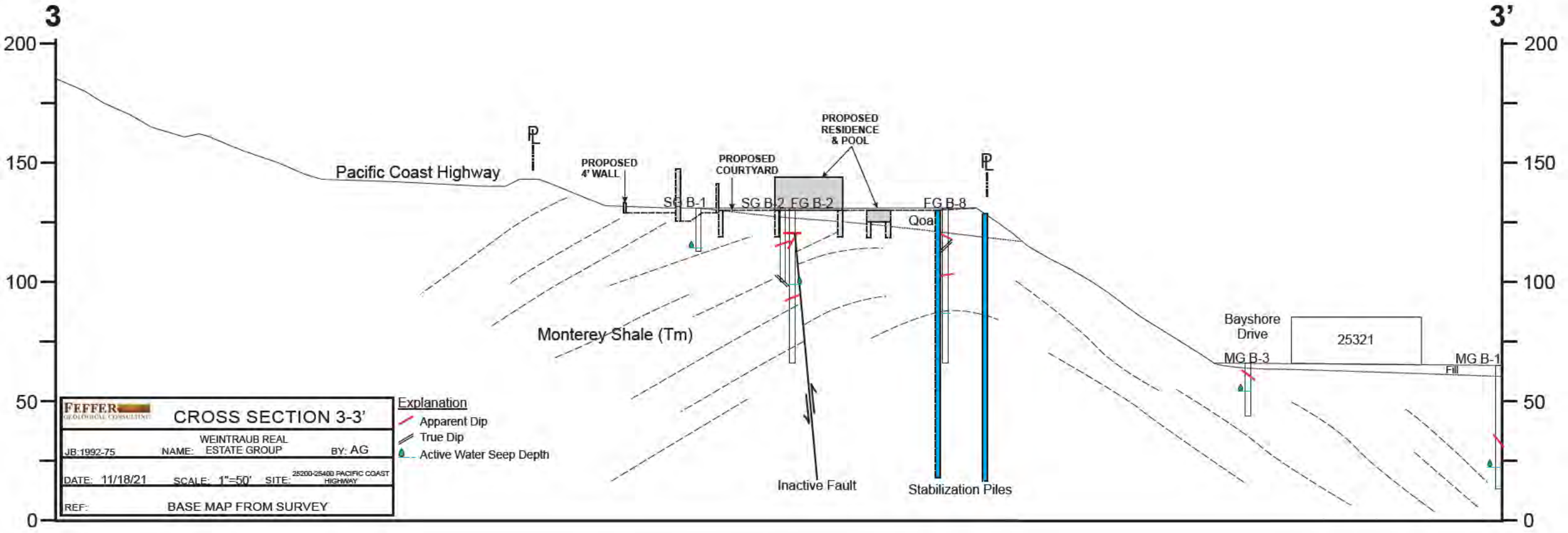
FG T-2: 132 @36' | 124 @46' | 104 @53'

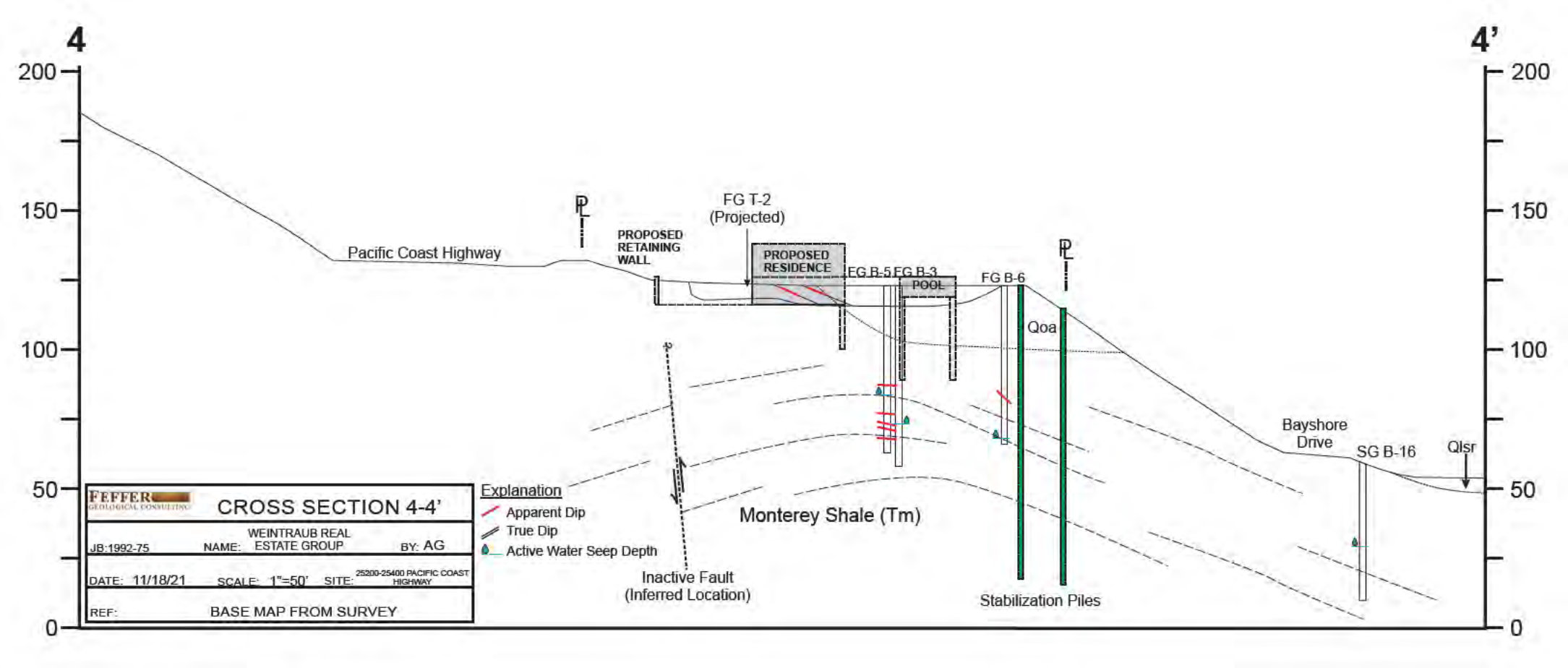
*Length given in feet from the northernmost portion of each trench

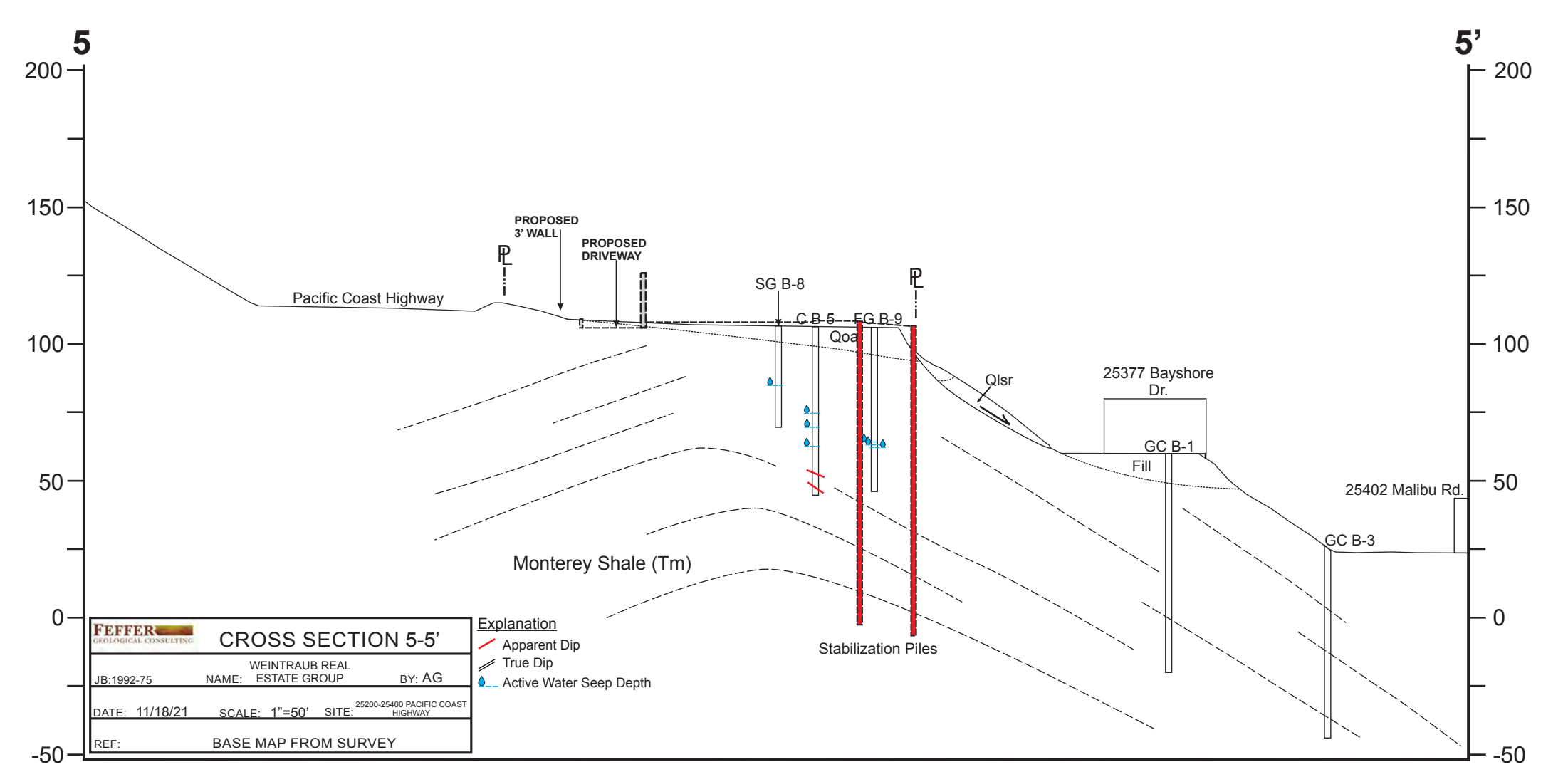

PACIFIC COAST HIGHWAY
MALIBU ROAD
PUERCO CANYON ROAD
NO BUILD ZONE
Qlsa-2
Qoa
Qlsr
Tm
Qal
FG B-1
FG B-2
FG B-3
FG B-4
FG B-5
FG B-6
FG B-7
FG B-8
FG B-9
FG B-10
FG B-11
FG T-1
FG T-2
A
B
C
D
E
F
G
1
2
3
4
5
6
7
PATIO
POOL
DECK
R=2952.84'
Δ=10°51'24"
L=559.52'
S87°11'49"E 311.34'
N81°56'42"E 821.14'
N80°01'07"W 242.75'
N67°57'21"W 332.57'
S85°09'15"W 929.66'
N53°42'03"W 160.00'
S39°59'01"W 109.43'
S89°33'41"W 94.52'
N80°57'00"W 320.00'
S 29°11'57" W 99.44'
R=30.00'
L=52.62'
Δ=100°28'49"
R=30.00'
L=47.16'
Δ=90°00'00"
R=30.00'
L=47.12'
Δ=89°59'11

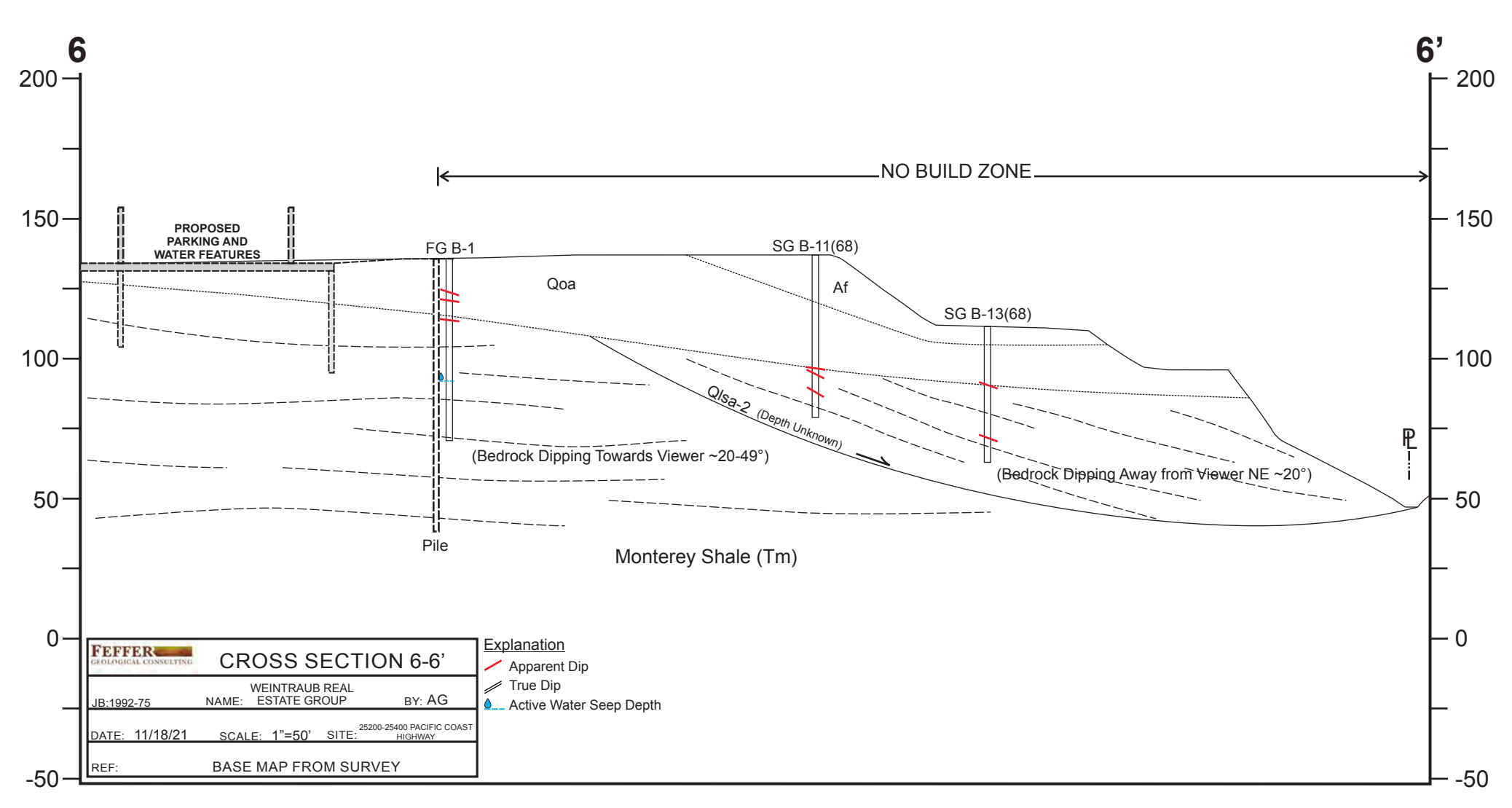

STONE GEOLOGICAL BORING MEASUREMENTS (1962)
ROBERT STONE & ASSOC. BORING MEASUREMENTS (1966)
PVG BORING MEASUREMENTS
FEFFER GEOLOGICAL TRENCH MEASUREMENTS (1979)
FEFFER GEOLOGICAL BORING MEASUREMENTS (1979)
HIGHWAY
COAST
PACIFIC
OCEAN
MALIBU
ROAD
Qlsa-1
Qlsa-2
Tm
Qls
Qaf
Qae
Qoa
Qc
Qs
Qtc
Qtf
Qtr
Qtu
Qtv
Qtw
Qtz
Qvr
Qvs
Qvt
Qvu
Qvv
Qvw
Qvx
Qvy
Qvz
Qw
Qx
Qy
Qz
634.7
618.5
SG B-11
LB-5
AERIAL PHOTOGRAPH
GEOLOGIC MAP
BASE MAP FROM SURVEY
EXPLANATION
GEOLOGIC CONTACT
SHEAR PLANE
STRIKE AND DIP OF BEDDING
JOINT/FRACTURE
FAULT, SOLID WHERE OBSERVED, DASHED WHERE INFERRED
PLUNGING FOLD AXIS
FEFFER GEOLOGICAL CROSS SECTION LINE (ADOPTED FROM LEIGHTON, 1979)
FEFFER GEOLOGICAL CROSS SECTION
FEFFER GEOLOGICAL BORINGS
FEFFER GEOLOGICAL TRENCHES
PREVIOUS CONSULTANTS
SG B-16 STONE GEOLOGICAL BORINGS (1962)
S B-16 (69) ROBERT STONE & ASSOC. BORINGS (1966)
LB-16 LEIGHTON AND ASSOCIATES BORINGS (1979)
LT-12 LEIGHTON AND ASSOCIATES TRENCHES (1979)
C B-6 C.Y. GEOTECH BORINGS (2000)
CT-1 C.Y. GEOTECH TEST PITS (2000)
C BT-6 C.Y. GEOTECH TRENCHES (2000)
GC B-3 G.C. MASTERMAN BORINGS (1999)
MG B-3 MOUNTAIN GEOLOGY BORINGS (2312)
GCI-11 GEOCONCEPTS, INC. BORINGS (2004-2007)
Qlsr RECENT LANDSLIDE (LEIGHTON, 1979)
Qlsa-2 ANCIENT LANDSLIDE (LEIGHTON, 1979)
N
GRAPHIC SCALE
SCALE: 1" = 60'
PRELIMINARY CONSTRAINTS & RESTRICTIONS EXHIBIT
PSOMAS
DATE: 12-06-10 REVISED ON: 12-09-10
JOB No:1W050900
SHEET 1 OF 1


2
2'
200
150
100
50
0
B-B'
Intersection
PROPOSED
2' WALL
SB-2 (68)
(Projected)
FG T-1
(Projected)
SB-10 (68)
(Projected)
PROPOSED
RESIDENCE
PROPOSED
GRADE
PROPOSED
COURTYARD
C B-2
Pacific Coast Highway
Qoa
Fractures
Faults
Qlsr
Bayshore
Drive
L B-3
Fill
Monterey Shale (Tm)
Inactive Fault
Stabilization Piles
FEFFER
GEOLOGICAL CONSULTING
CROSS SECTION 2-2'
JB:1992-75
NAME: WEINTRAUB REAL ESTATE GROUP
BY: AG
DATE: 11/18/21
SCALE: 1"=50'
SITE: 25200-25400 PACIFIC COAST HIGHWAY
REF: BASE MAP FROM SURVEY
Explanation
Apparent Dip
True Dip
Active Water Seep Depth

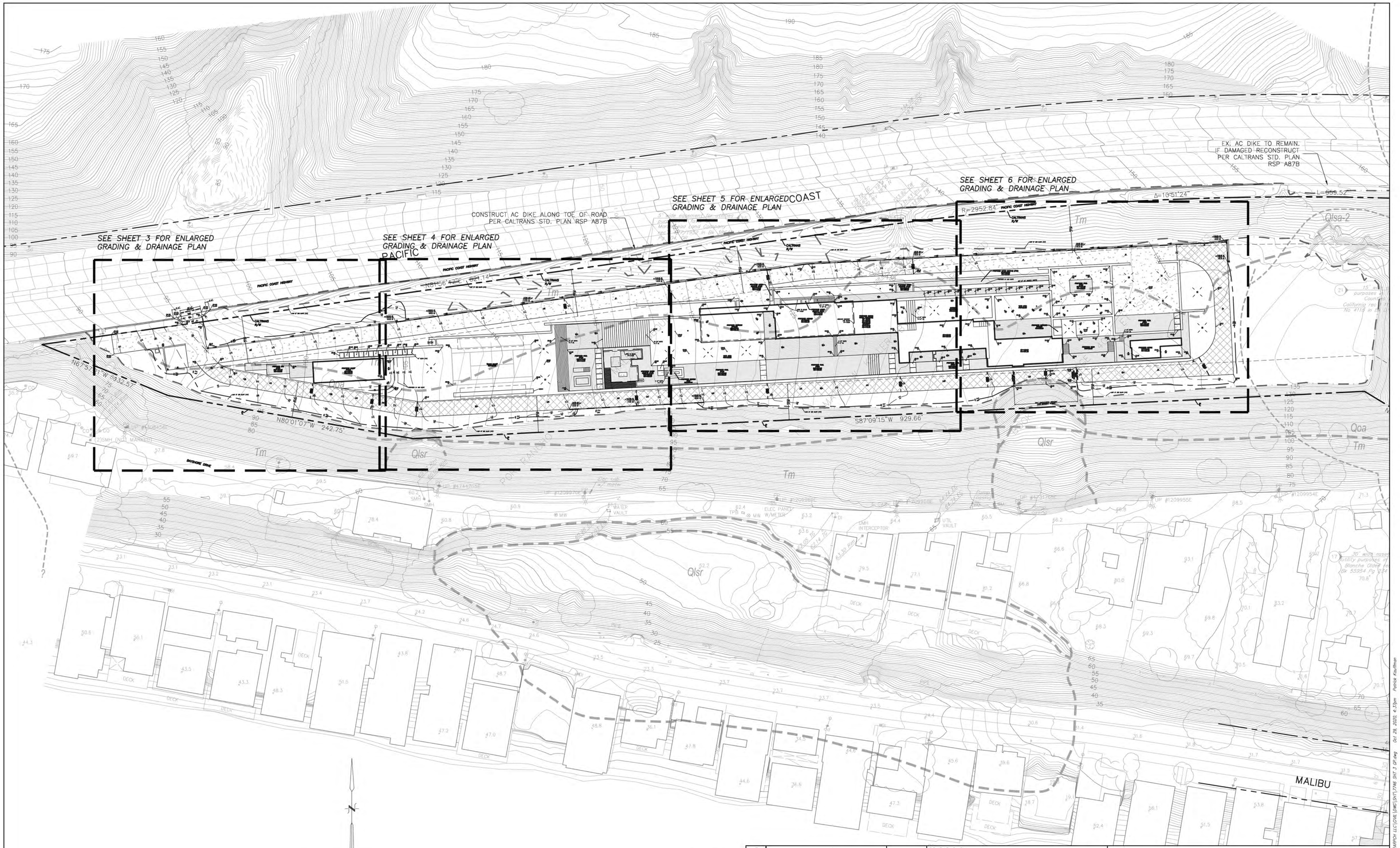

3
3'
200
150
100
50
0
Pacific Coast Highway
PROPOSED 4' WALL
PROPOSED COURTYARD
PROPOSED RESIDENCE & POOL
SG B-1
SG B-2
FG B-2
FG B-8
Qoa
Monterey Shale (Tm)
Inactive Fault
Stabilization Piles
Bayshore Drive
25321
MG B-3
MG B-1
Fill
FEFFER GEOLOGICAL CONSULTING
CROSS SECTION 3-3'
JB:1992-75
NAME: WEINTRAUB REAL ESTATE GROUP
BY: AG
DATE: 11/18/21
SCALE: 1"=50'
SITE: 25200-25400 PACIFIC COAST HIGHWAY
REF: BASE MAP FROM SURVEY
Explanation
Apparent Dip
True Dip
Active Water Seep Depth


4
4'
200
150
100
50
0
Pacific Coast Highway
PROPOSED RETAINING WALL
FG T-2 (Projected)
PROPOSED RESIDENCE
FG B-5
FG B-3
POOL
FG B-6
Qoa
Bayshore Drive
SG B-16
Qlsr
Monterey Shale (Tm)
Inactive Fault (Inferred Location)
Stabilization Piles
Explanation
Apparent Dip
True Dip
Active Water Seep Depth
FEFFER GEOLOGICAL CONSULTING
CROSS SECTION 4-4'
JB:1992-75
NAME: WEINTRAUB REAL ESTATE GROUP
BY: AG
DATE: 11/18/21
SCALE: 1"=50'
SITE: 25200-25400 PACIFIC COAST HIGHWAY
REF: BASE MAP FROM SURVEY


5
5'
200
150
100
50
0
-50
PROPOSED
3' WALL
PROPOSED
DRIVEWAY
PL
PL
Pacific Coast Highway
SG B-8
C B-5
EG B-9
Qoa
Qlsr
25377 Bayshore
Dr.
GC B-1
Fill
25402 Malibu Rd.
GC B-3
Monterey Shale (Tm)
Stabilization Piles
Explanation
Apparent Dip
True Dip
Active Water Seep Depth
FEFFER
GEOLOGICAL CONSULTING
CROSS SECTION 5-5'
WEINTRAUB REAL
ESTATE GROUP
JB:1992-75
NAME:
BY: AG
DATE: 11/18/21
SCALE: 1"=50'
SITE: 25200-25400 PACIFIC COAST
HIGHWAY
REF:
BASE MAP FROM SURVEY


6
6'
200
150
100
50
0
-50
NO BUILD ZONE
PROPOSED PARKING AND WATER FEATURES
FG B-1
SG B-11(68)
SG B-13(68)
Qoa
Af
Qlsa-2 (Depth Unknown)
(Bedrock Dipping Towards Viewer ~20-49°)
(Bedrock Dipping Away from Viewer NE ~20°)
Pile
Monterey Shale (Tm)
FEFFER GEOLOGICAL CONSULTING
CROSS SECTION 6-6'
JB:1992-75
NAME: WEINTRAUB REAL ESTATE GROUP
BY: AG
DATE: 11/18/21
SCALE: 1"=50'
SITE: 25200-25400 PACIFIC COAST HIGHWAY
REF: BASE MAP FROM SURVEY
Explanation
Apparent Dip
True Dip
Active Water Seep Depth

Site Plan



REGISTERED PROFESSIONAL ENGINEER
MICHELLE M. MEEHAN
No.57460
CIVIL
STATE OF CALIFORNIA

#	REVISIONS	DATE

PREPARED BY:

LC ENGINEERING GROUP, INC.
CONSULTING ENGINEERS
889 Pierce Court, Suite 101, Thousand Oaks, California 91360
818-991-7148 • 805-497-1244 • lcegroupinc.com • workfiles@lcegroupinc.com

57460
REGISTERED ENGINEER RCE DATE

CITY OF MALIBU
OVERALL SITE PLAN
25200 PACIFIC COAST HIGHWAY

DRAWN BY / DATE	CHECKED BY / DATE	
PK/ 10/29/2020	PK/ 10/29/2020	SHEET 2 OF 7

X:\LCE GROUP\Civil\JOBS\7700\7746 PARPCH LLC\CIVIL\DWG\SHT\7746 SHT 3 GP.dwg Oct 29, 2020, 4:37pm Patrick Kauffman

Engineering & Slope Stability

RETAINING WALL

IC: **1992-75** CONSULT: **AG**
CLIENT: **Colovea**

CALCULATION SHEET #

CALCULATE THE DESIGN MINIMUM EQUIVALENT FLUID PRESSURE (EFP) FOR PROPOSED RETAINING WALLS. THE WALL HEIGHT AND BACKSLOPE AND SURCHARGE CONDITIONS ARE LISTED BELOW. ASSUME THE BACKFILL IS SATURATED WITH NO EXCESS HYDROSTATIC PRESSURE. USE THE MONONOBE-OKABE METHOD FOR SEISMIC FORCES.

CALCULATION PARAMETERS

EARTH MATERIAL:	Bedrock	WALL HEIGHT	12 feet
SHEAR DIAGRAM:	B-13	BACKSLOPE ANGLE:	0 degrees
COHESION:	520 psf	SURCHARGE:	250 pounds
PHI ANGLE:	34.5 degrees	SURCHARGE TYPE:	U Uniform
DENSITY	124 pcf	INITIAL FAILURE ANGLE:	10 degrees
SAFETY FACTOR:	1.5	FINAL FAILURE ANGLE:	70 degrees
WALL FRICTION	10 degrees	INITIAL TENSION CRACK:	4 feet
CD (C/FS):	346.7 psf	FINAL TENSION CRACK:	12 feet

PHID = ATAN(TAN(PHI)/FS) = 24.6 degrees

HORIZONTAL PSEUDO STATIC SEISMIC COEFFICIENT (k_h) 0 %g

VERTICAL PSEUDO STATIC SEISMIC COEFFICIENT (k_v) 0 %g

CALCULATED RESULTS

CRITICAL FAILURE ANGLE	53 degrees
AREA OF TRIAL FAILURE WEDGE	37.4 square feet
TOTAL EXTERNAL SURCHARGE	0.0 pounds
WEIGHT OF TRIAL FAILURE WEDGE	4635.6 pounds
NUMBER OF TRIAL WEDGES ANALYZED	549 trials
LENGTH OF FAILURE PLANE	6.6 feet
DEPTH OF TENSION CRACK	6.7 feet
HORIZONTAL DISTANCE TO UPSLOPE TENSION CRACK	4.0 feet
CALCULATED HORIZONTAL THRUST ON WALL	**114.6 pounds**
CALCULATED EQUIVALENT FLUID PRESSURE	**1.6 pcf**
DESIGN EQUIVALENT FLUID PRESSURE	**30.0 pcf**

THE CALCULATION INDICATES THAT THE PROPOSED RETAINING WALL MAY BE DESIGNED FOR AN EQUIVALENT FLUID PRESSURE OF 30 POUNDS PER CUBIC FOOT.

RETAINING WALL

IC: **1992-75** CONSULT: **AG**
CLIENT: **Colovea**

CALCULATION SHEET #

CALCULATE THE DESIGN MINIMUM EQUIVALENT FLUID PRESSURE (EFP) FOR PROPOSED RETAINING WALLS. THE WALL HEIGHT AND BACKSLOPE AND SURCHARGE CONDITIONS ARE LISTED BELOW. ASSUME THE BACKFILL IS SATURATED WITH NO EXCESS HYDROSTATIC PRESSURE. USE THE MONONOBE-OKABE METHOD FOR SEISMIC FORCES.

CALCULATION PARAMETERS

EARTH MATERIAL:	Bedrock	WALL HEIGHT	12 feet
SHEAR DIAGRAM:	B-13	BACKSLOPE ANGLE:	0 degrees
COHESION:	520 psf	SURCHARGE:	250 pounds
PHI ANGLE:	34.5 degrees	SURCHARGE TYPE:	U Uniform
DENSITY	124 pcf	INITIAL FAILURE ANGLE:	10 degrees
SAFETY FACTOR:	1	FINAL FAILURE ANGLE:	70 degrees
WALL FRICTION	10 degrees	INITIAL TENSION CRACK:	4 feet
CD (C/FS):	520.0 psf	FINAL TENSION CRACK:	12 feet

PHID = ATAN(TAN(PHI)/FS) = 34.5 degrees

HORIZONTAL PSEUDO STATIC SEISMIC COEFFICIENT (k_h) 0.35 %g

VERTICAL PSEUDO STATIC SEISMIC COEFFICIENT (k_v) 0 %g

CALCULATED RESULTS

CRITICAL FAILURE ANGLE	48 degrees
AREA OF TRIAL FAILURE WEDGE	46.1 square feet
TOTAL EXTERNAL SURCHARGE	250.0 pounds
WEIGHT OF TRIAL FAILURE WEDGE	5968.6 pounds
NUMBER OF TRIAL WEDGES ANALYZED	549 trials
LENGTH OF FAILURE PLANE	7.5 feet
DEPTH OF TENSION CRACK	6.4 feet
HORIZONTAL DISTANCE TO UPSLOPE TENSION CRACK	5.0 feet
CALCULATED HORIZONTAL THRUST ON WALL	**299.6 pounds**

THE CALCULATION INDICATES THAT THE SEISMIC FORCE IS 0.3 KIPS WHICH IS LESS THAN THE STATIC RETAINING WALL PRESSURE. NO ADDITIONAL SEISMIC FORCE IS NEEDED.

RETAINING WALL

IC: **1992-75** CONSULT: **AG**
CLIENT: **Colovea**

CALCULATION SHEET #

CALCULATE THE DESIGN MINIMUM EQUIVALENT FLUID PRESSURE (EFP) FOR PROPOSED RETAINING WALLS. THE WALL HEIGHT AND BACKSLOPE AND SURCHARGE CONDITIONS ARE LISTED BELOW. ASSUME THE BACKFILL IS SATURATED WITH NO EXCESS HYDROSTATIC PRESSURE. USE THE MONONOBE-OKABE METHOD FOR SEISMIC FORCES.

CALCULATION PARAMETERS

EARTH MATERIAL:	Bedrock	WALL HEIGHT	12 feet
SHEAR DIAGRAM:	B-13	BACKSLOPE ANGLE:	26.6 degrees
COHESION:	520 psf	SURCHARGE:	250 pounds
PHI ANGLE:	34.5 degrees	SURCHARGE TYPE:	U Uniform
DENSITY	124 pcf	INITIAL FAILURE ANGLE:	10 degrees
SAFETY FACTOR:	1.5	FINAL FAILURE ANGLE:	70 degrees
WALL FRICTION	10 degrees	INITIAL TENSION CRACK:	4 feet
CD (C/FS):	346.7 psf	FINAL TENSION CRACK:	12 feet

PHID = ATAN(TAN(PHI)/FS) = 24.6 degrees

HORIZONTAL PSEUDO STATIC SEISMIC COEFFICIENT (k_h) 0 %g

VERTICAL PSEUDO STATIC SEISMIC COEFFICIENT (k_v) 0 %g

CALCULATED RESULTS

CRITICAL FAILURE ANGLE	53 degrees
AREA OF TRIAL FAILURE WEDGE	57.1 square feet
TOTAL EXTERNAL SURCHARGE	500.0 pounds
WEIGHT OF TRIAL FAILURE WEDGE	7583.7 pounds
NUMBER OF TRIAL WEDGES ANALYZED	549 trials
LENGTH OF FAILURE PLANE	10.0 feet
DEPTH OF TENSION CRACK	7.0 feet
HORIZONTAL DISTANCE TO UPSLOPE TENSION CRACK	6.0 feet
CALCULATED HORIZONTAL THRUST ON WALL	**487.3 pounds**
CALCULATED EQUIVALENT FLUID PRESSURE	**6.8 pcf**
DESIGN EQUIVALENT FLUID PRESSURE	**43.0 pcf**

THE CALCULATION INDICATES THAT THE PROPOSED RETAINING WALL MAY BE DESIGNED FOR AN EQUIVALENT FLUID PRESSURE OF 43 POUNDS PER CUBIC FOOT.

RETAINING WALL

IC: **1992-75** CONSULT: **AG**
CLIENT: **Colovea**

CALCULATION SHEET #

CALCULATE THE DESIGN MINIMUM EQUIVALENT FLUID PRESSURE (EFP) FOR PROPOSED RETAINING WALLS. THE WALL HEIGHT AND BACKSLOPE AND SURCHARGE CONDITIONS ARE LISTED BELOW. ASSUME THE BACKFILL IS SATURATED WITH NO EXCESS HYDROSTATIC PRESSURE. USE THE MONONOBE-OKABE METHOD FOR SEISMIC FORCES.

CALCULATION PARAMETERS

EARTH MATERIAL:	Bedrock	WALL HEIGHT	12 feet
SHEAR DIAGRAM:	B-13	BACKSLOPE ANGLE:	26.6 degrees
COHESION:	520 psf	SURCHARGE:	250 pounds
PHI ANGLE:	34.5 degrees	SURCHARGE TYPE:	U Uniform
DENSITY	124 pcf	INITIAL FAILURE ANGLE:	10 degrees
SAFETY FACTOR:	1	FINAL FAILURE ANGLE:	70 degrees
WALL FRICTION	10 degrees	INITIAL TENSION CRACK:	4 feet
CD (C/FS):	520.0 psf	FINAL TENSION CRACK:	12 feet

PHID = ATAN(TAN(PHI)/FS) = 34.5 degrees

HORIZONTAL PSEUDO STATIC SEISMIC COEFFICIENT (k_h) 0.35 %g

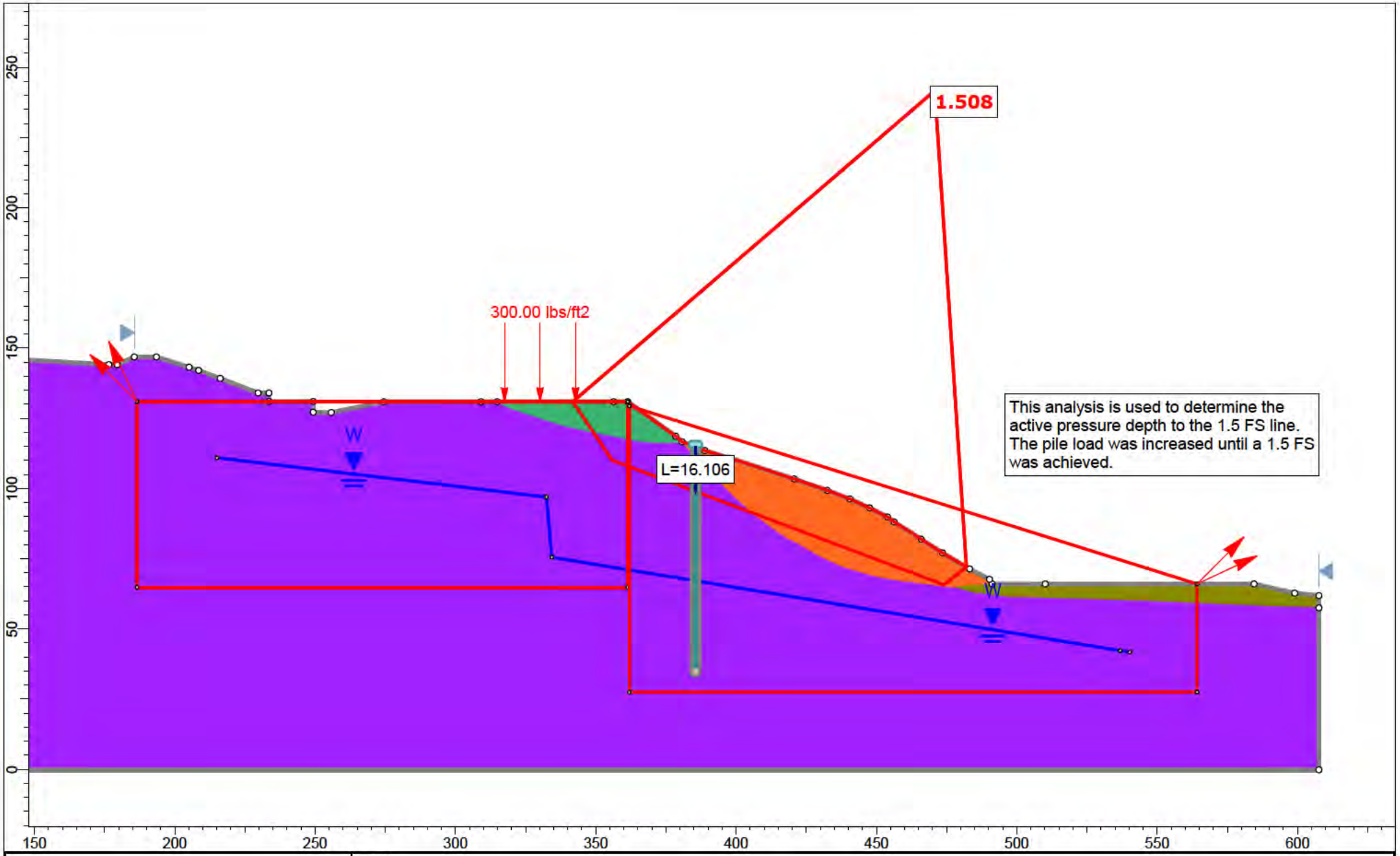
VERTICAL PSEUDO STATIC SEISMIC COEFFICIENT (k_v) 0 %g

CALCULATED RESULTS

CRITICAL FAILURE ANGLE	45 degrees
AREA OF TRIAL FAILURE WEDGE	95.0 square feet
TOTAL EXTERNAL SURCHARGE	1500.0 pounds
WEIGHT OF TRIAL FAILURE WEDGE	13284.7 pounds
NUMBER OF TRIAL WEDGES ANALYZED	549 trials
LENGTH OF FAILURE PLANE	14.1 feet
DEPTH OF TENSION CRACK	7.0 feet
HORIZONTAL DISTANCE TO UPSLOPE TENSION CRACK	10.0 feet
CALCULATED HORIZONTAL THRUST ON WALL	**1049.0 pounds**

THE CALCULATION INDICATES THAT THE SEISMIC FORCE IS 1.05 KIPS WHICH IS LESS THAN THE STATIC RETAINING WALL PRESSURE. NO ADDITIONAL SEISMIC FORCE IS NEEDED.

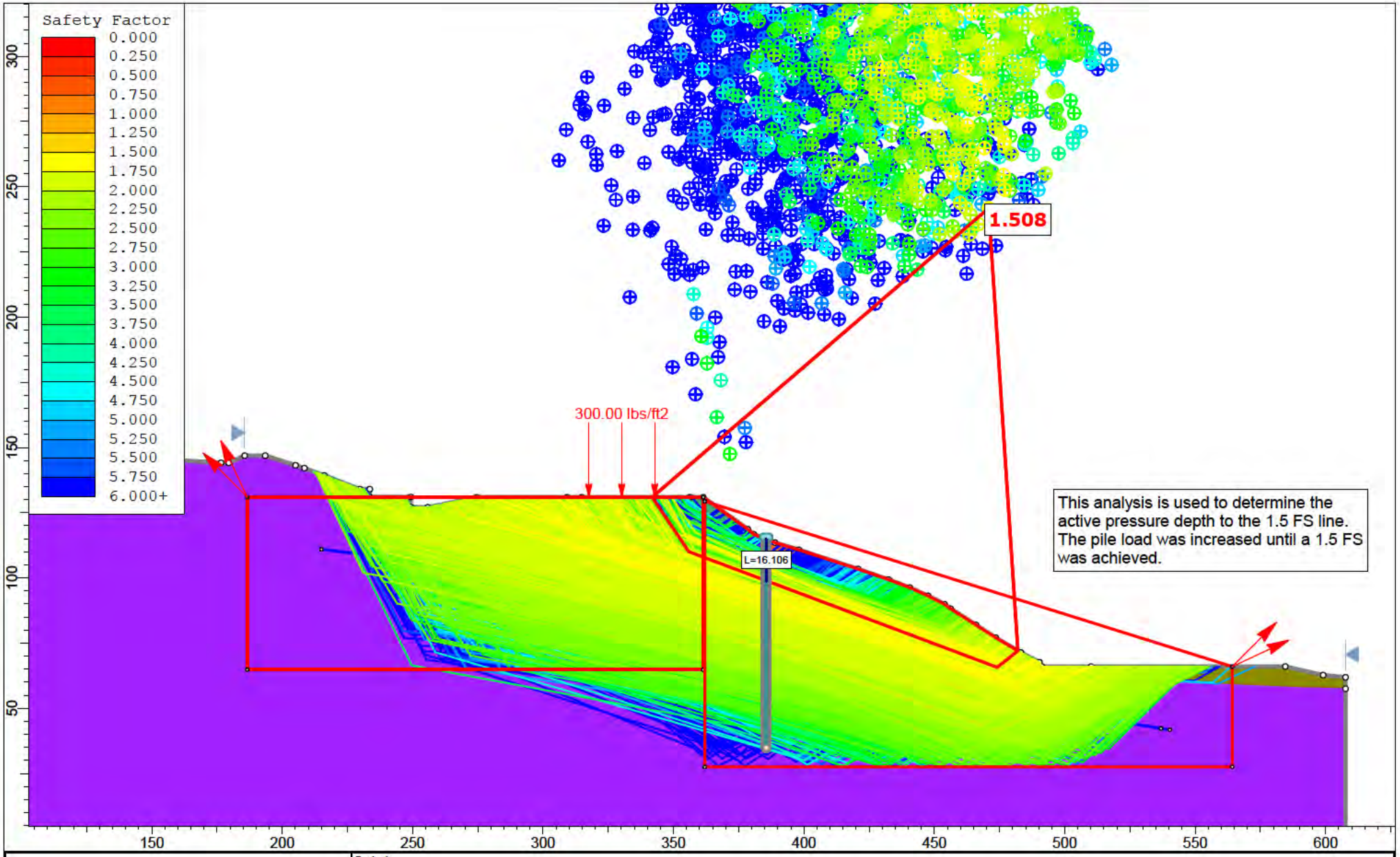
TABLE 1	Summary of Analyses and Pile Designs							
Section	Page	Analysis	Static/Seismic	F.S.	Pile Number	Active Pressure Depth	Calculated EFP	Recommended EFP
2-2'	105, 106	Upper Slope	Static	1.500	1	23.6 ft	64.6 pcf	65 pcf
					2	25.8 ft	63.1 pcf	64 pcf
2-2'	119, 120	Upper Slope	Seismic	1.008	1	23.6 ft	71.8 pcf	72 pcf
					2	35.5 ft	122.2 pcf	123 pcf
2-2'	132, 133	Entire Slope	Static	1.510	1	39.6 ft	41.4 pcf	42 pcf
					2	43.8 ft	36.5 pcf	37 pcf
2-2'	146, 147	Entire Slope	Seismic	1.005	1	35.7 ft	78.5 pcf	79 pcf
					2	47.4 ft	115.7 pcf	116 pcf
3-3'	237, 238	Upper Slope	Static	1.508	1	32.3 ft	31.6 pcf	32 pcf
					2	22.8 ft	62.7 pcf	63 pcf
3-3'	251, 252	Upper Slope	Seismic	1.007	1	32.3 ft	76.2 pcf	77 pcf
					2	29.4 ft	73.8 pcf	74 pcf
3-3'	265, 266	Entire Slope	Static	1.515	1	60.4 ft	35.6 pcf	36 pcf
3-3'	277, 278	Entire Slope	Seismic	1.000	1	45.1 ft	74.4 pcf	75 pcf
					2	43.5 ft	74.0 pcf	74 pcf
4-4'	366, 367	Upper Slope	Static	1.506	1	21.8 ft	44.2 pcf	45 pcf
					2	23.3 ft	36.8 pcf	37 pcf
4-4'	379, 380	Upper Slope	Seismic	1.008	1	21.8 ft	71.5 pcf	72 pcf
					2	28.4 ft	67.2 pcf	68 pcf
4-4'	392, 393	Entire Slope	Static	1.504	1	40.8 ft	25.2 pcf	30 pcf
					2	42.4 ft	27.8 pcf	30 pcf
4-4'	405, 406	Entire Slope	Seismic	1.015	1	47.1 ft	49.3 pcf	50 pcf
					2	52.7 ft	39.6 pcf	40 pcf
5-5'	493, 494	Upper Slope	Static	1.504	1	27.9 ft	52.7 pcf	53 pcf
5-5'	506, 507	Upper Slope	Seismic	1.009	1	27.9 ft	59.1 pcf	60 pcf
					2	25.2 ft	72.4 pcf	73 pcf
5-5'	519, 520	Entire Slope	Static	1.514	1	40.6 ft	36.6 pcf	37 pcf
5-5'	533, 534	Entire Slope	Seismic	1.005	1	36.3 ft	60.7 pcf	61 pcf
					2	33.4 ft	71.3 pcf	72 pcf
6-6'	546, 547	Entire Slope	Static	1.589	1	30 ft	40 pcf	40 pcf



rocscience

SLIDEINTERPRET 9.018

Project	Section 2-2'				
Analysis Description	Translational (Static)				
Drawn By	A. Greene	Scale	1:567	Company	Feffer Geological Consulting
Date				File Name	Section 2-2' Translational Analysis_2.slmd



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SLIDEINTERPRET 9.018

Project	Section 2-2'		
Analysis Description	Translational (Static)		
Drawn By	A. Greene	Scale 1:610	Company Feffer Geological Consulting
Date			File Name Section 2-2' Translational Analysis_2.slmd

Slide Analysis Information

Section 2-2' Translational Analysis_2

Project Summary

File Name:	Section 2-2' Translational Analysis_2.slmd
Slide Modeler Version:	9.018
Compute Time:	00h:00m:00.500s
Project Title:	Section 2-2'
Analysis:	Translational (Static)
Author:	A. Greene
Company:	Feffer Geological Consulting

General Settings

Units of Measurement:	Imperial Units
Time Units:	days
Permeability Units:	feet/second
Data Output:	Standard
Failure Direction:	Left to Right

Analysis Options

Slices Type:	Vertical
Analysis Methods Used	
	Spencer
Number of slices:	50
Tolerance:	0.005
Maximum number of iterations:	75
Check malpha < 0.2:	Yes
Create Interslice boundaries at intersections with water tables and piezos:	Yes
Initial trial value of FS:	1
Steffensen Iteration:	Yes

Groundwater Analysis

Groundwater Method:	Water Surfaces
Pore Fluid Unit Weight [lbs/ft3]:	62.4
Use negative pore pressure cutoff:	Yes
Maximum negative pore pressure [psf]:	0
Advanced Groundwater Method:	None

Random Numbers

Pseudo-random Seed:	10116
Random Number Generation Method:	Park and Miller v.3

Surface Options

Surface Type:	Non-Circular Block Search
Number of Surfaces:	5000
Multiple Groups:	Disabled
Pseudo-Random Surfaces:	Enabled
Convex Surfaces Only:	Disabled
Left Projection Angle (Start Angle) [deg]:	115
Left Projection Angle (End Angle) [deg]:	135
Right Projection Angle (Start Angle) [deg]:	45
Right Projection Angle (End Angle) [deg]:	25
Minimum Elevation:	Not Defined
Minimum Depth:	Not Defined
Minimum Area:	Not Defined
Minimum Weight:	Not Defined

Seismic Loading

Advanced seismic analysis:	No
Staged pseudostatic analysis:	No

Loading

1 Distributed Load present

Distributed Load 1	
Distribution:	Constant
Magnitude [psf]:	300
Orientation:	Normal to boundary

Materials

Terrace (Qoa)	
Color	
Strength Type	Mohr-Coulomb
Unit Weight [lbs/ft3]	115
Cohesion [psf]	100
Friction Angle [deg]	31
Water Surface	None
Ru Value	0
Qlsr	
Color	
Strength Type	Mohr-Coulomb
Unit Weight [lbs/ft3]	115
Cohesion [psf]	200
Friction Angle [deg]	12
Water Surface	None
Ru Value	0
Fill (Af)	
Color	
Strength Type	Mohr-Coulomb
Unit Weight [lbs/ft3]	120
Cohesion [psf]	120
Friction Angle [deg]	31
Water Surface	None
Ru Value	0
Anisotropic Bedrock (Tm) Ultimate	
Color	
Strength Type	Anisotropic function
Unit Weight [lbs/ft3]	124
Water Surface	Water Table
Hu Value	0

Anisotropic Functions

Name: Anisotropic Bedrock (Tm) Ultimate

Angle From	Angle To	c	phi
-90	-30	520	34.5
-30	-10	200	16
-10	90	520	34.5

Support

Pile 1 (Static)	
Color	
Type	Pile/Micro Pile
Force Application	Active (Method A)
Force Orientation	Parallel to surface
Out-Of-Plane Spacing	10 ft
Failure Mode	Shear
Pile Shear Strength	285000 lbs

Global Minimums

Method: spencer

FS	1.508460
Axis Location:	470.817, 241.704
Left Slip Surface Endpoint:	341.809, 130.917
Right Slip Surface Endpoint:	482.042, 72.025
Resisting Moment:	1.66476e+07 lb-ft
Driving Moment:	1.10362e+07 lb-ft
Resisting Horizontal Force:	88135.8 lb
Driving Horizontal Force:	58427.7 lb
Active Support Moment:	-4.6643e+06 lb-ft
Active Horizontal Support Force:	-26681.1 lb
Maximum Single Support Force:	28500 lb
Total Support Force:	28500 lb
Total Slice Area:	2222.36 ft2
Surface Horizontal Width:	140.233 ft
Surface Average Height:	15.8476 ft

Global Minimum Coordinates

Method: spencer

X	Y
341.809	130.917
355.871	110.048
474.087	65.6592
482.042	72.0252

Global Minimum Support Data

Method: spencer

Number of Supports: 1

Pile 1 (Static)

Support Type: Pile/Micro Pile

Start (x, y)	Length (ft)	L Inside SS (ft)	L Outside SS (ft)	Li (ft)	Lo (ft)	Force (lb)
385.532, 114.823	80	15.9122	64.0878	15.9122	64.0878	28500

Valid and Invalid Surfaces

Method: spencer

Number of Valid Surfaces:	2687
Number of Invalid Surfaces:	2313

Error Codes

Error Code -105 reported for 317 surfaces
Error Code -108 reported for 43 surfaces
Error Code -110 reported for 1513 surfaces
Error Code -111 reported for 440 surfaces

Error Code Descriptions

The following errors were encountered during the computation:
-105 = More than two surface / slope intersections with no valid slip surface.
-108 = Total driving moment or total driving force < 0.1. This is to limit the calculation of extremely high safety factors if the driving force is very small (0.1 is an arbitrary number).
-110 = The water table or a piezoline does not span the slip region for a given slip surface, when Water Surfaces is specified as the method of pore pressure calculation. If this error occurs, check that the water table or piezoline(s) span the appropriate soil cells.
-111 = Safety factor equation did not converge

Slice Data

Global Minimum Query (spencer) - Safety Factor: 1.50846

Slice Number	Width [ft]	Weight [lbs]	Angle of Slice Base [deg]	Base Material	Base Cohesion [psf]	Base Friction Angle [deg]	Shear Stress [psf]	Shear Strength [psf]	Base Normal Stress [psf]	Pore Pressure [psf]	Effective Normal Stress [psf]	Base Vertical Stress [psf]	Effective Vertical Stress [psf]
1	2.41016	495.679	-56.0262	Terrace (Qoa)	100	31	123.818	186.775	144.418	0	144.418	328.168	328.168
2	2.41016	1487.04	-56.0262	Terrace (Qoa)	100	31	196.149	295.883	326.003	0	326.003	617.093	617.093
3	2.41016	2478.39	-56.0262	Terrace (Qoa)	100	31	299.136	451.234	584.553	0	584.553	1028.48	1028.48
4	3.41591	5278.79	-56.0262	Anisotropic Bedrock (Tm) Ultimate	520	34.5	625.822	944.027	616.963	0	616.963	1545.7	1545.7
5	3.41591	7406.07	-56.0262	Anisotropic Bedrock (Tm) Ultimate	520	34.5	795.127	1199.42	988.56	0	988.56	2168.55	2168.55
6	2.79903	7115.15	-20.5808	Anisotropic Bedrock (Tm) Ultimate	200	16	574.787	867.043	2326.25	0	2326.25	2542.08	2542.08
7	2.79903	7464.79	-20.5808	Anisotropic Bedrock (Tm) Ultimate	200	16	596.951	900.476	2442.85	0	2442.85	2667	2667
8	2.79903	7469.06	-20.5808	Anisotropic Bedrock (Tm) Ultimate	200	16	597.221	900.884	2444.27	0	2444.27	2668.53	2668.53
9	2.79903	7174.24	-20.5808	Anisotropic Bedrock (Tm) Ultimate	200	16	578.532	872.693	2345.96	0	2345.96	2563.19	2563.19
10	2.79903	6883.51	-20.5808	Anisotropic Bedrock (Tm) Ultimate	200	16	560.103	844.893	2249.01	0	2249.01	2459.32	2459.32

11	2.79903	6595.3	-20.5808	Anisotropic Bedrock (Tm) Ultimate	200	16	541.833	817.334	2152.9	0	2152.9	2356.36	2356.36
12	2.79903	6312.21	-20.5808	Anisotropic Bedrock (Tm) Ultimate	200	16	523.888	790.264	2058.5	0	2058.5	2255.21	2255.21
13	2.79903	6029.26	-20.5808	Anisotropic Bedrock (Tm) Ultimate	200	16	505.952	763.208	1964.14	0	1964.14	2154.12	2154.12
14	2.79903	5697.81	-20.5808	Anisotropic Bedrock (Tm) Ultimate	200	16	484.941	731.514	1853.61	0	1853.61	2035.7	2035.7
15	2.79903	5495.84	-20.5808	Anisotropic Bedrock (Tm) Ultimate	200	16	472.138	712.201	1786.26	0	1786.26	1963.54	1963.54
16	2.79903	5435.77	-20.5808	Anisotropic Bedrock (Tm) Ultimate	200	16	0	0	-1637.27	0	-1637.27	-1637.27	-1637.27
17	2.79903	5380.26	-20.5808	Anisotropic Bedrock (Tm) Ultimate	200	16	464.812	701.15	1747.72	0	1747.72	1922.25	1922.25
18	2.79903	5376.62	-20.5808	Anisotropic Bedrock (Tm) Ultimate	200	16	464.581	700.802	1746.5	0	1746.5	1920.95	1920.95
19	2.79903	5399.54	-20.5808	Anisotropic Bedrock (Tm) Ultimate	200	16	466.034	702.993	1754.14	0	1754.14	1929.13	1929.13
20	2.79903	5423.22	-20.5808	Anisotropic Bedrock (Tm) Ultimate	200	16	467.535	705.258	1762.04	0	1762.04	1937.6	1937.6
21	2.79903	5438.33	-20.5808	Anisotropic Bedrock (Tm) Ultimate	200	16	468.493	706.703	1767.08	0	1767.08	1943	1943
22	2.79903	5446.27	-20.5808	Anisotropic Bedrock (Tm) Ultimate	200	16	468.996	707.462	1769.73	0	1769.73	1945.83	1945.83
23	2.79903	5455.67	-20.5808	Anisotropic Bedrock (Tm) Ultimate	200	16	469.592	708.36	1772.86	0	1772.86	1949.19	1949.19
24	2.82637	5537.05	-20.5808	Qlsr	200	12	388.11	585.448	1813.39	0	1813.39	1959.12	1959.12
25	2.82637	5583.76	-20.5808	Qlsr	200	12	390.321	588.784	1829.09	0	1829.09	1975.65	1975.65
26	2.82637	5630.47	-20.5808	Qlsr	200	12	392.533	592.12	1844.78	0	1844.78	1992.17	1992.17
27	2.82637	5677.18	-20.5808	Qlsr	200	12	394.745	595.457	1860.48	0	1860.48	2008.7	2008.7
28	2.82637	5723.88	-20.5808	Qlsr	200	12	396.956	598.793	1876.17	0	1876.17	2025.23	2025.23
29	2.82637	5762.93	-20.5808	Qlsr	200	12	398.805	601.582	1889.29	0	1889.29	2039.04	2039.04
30	2.82637	5789.46	-20.5808	Qlsr	200	12	400.062	603.477	1898.21	0	1898.21	2048.43	2048.43
31	2.82637	5815.81	-20.5808	Qlsr	200	12	401.309	605.359	1907.06	0	1907.06	2057.75	2057.75
32	2.82637	5842.16	-20.5808	Qlsr	200	12	402.557	607.241	1915.92	0	1915.92	2067.08	2067.08
33	2.82637	5860.75	-20.5808	Qlsr	200	12	403.437	608.568	1922.16	0	1922.16	2073.65	2073.65
34	2.82637	5858.28	-20.5808	Qlsr	200	12	403.32	608.392	1921.33	0	1921.33	2072.78	2072.78
35	2.82637	5854.64	-20.5808	Qlsr	200	12	403.148	608.132	1920.11	0	1920.11	2071.49	2071.49
36	2.82637	5825.51	-20.5808	Qlsr	200	12	401.769	606.052	1910.32	0	1910.32	2061.18	2061.18
37	2.82637	5754.16	-20.5808	Qlsr	200	12	398.39	600.955	1886.35	0	1886.35	2035.94	2035.94
38	2.82637	5678.44	-20.5808	Qlsr	200	12	394.805	595.547	1860.9	0	1860.9	2009.15	2009.15
39	2.82637	5565.29	-20.5808	Qlsr	200	12	389.447	587.465	1822.88	0	1822.88	1969.11	1969.11
40	2.82637	5440.75	-20.5808	Qlsr	200	12	383.549	578.569	1781.03	0	1781.03	1925.05	1925.05
41	2.82637	5197.82	-20.5808	Qlsr	200	12	372.047	561.218	1699.4	0	1699.4	1839.1	1839.1
42	2.82637	4935.39	-20.5808	Qlsr	200	12	359.62	542.473	1611.21	0	1611.21	1746.24	1746.24
43	2.82637	4692.18	-20.5808	Qlsr	200	12	348.104	525.101	1529.48	0	1529.48	1660.19	1660.19
44	2.82637	4448.96	-20.5808	Qlsr	200	12	336.588	507.729	1447.75	0	1447.75	1574.14	1574.14
45	2.82637	4204.62	-20.5808	Qlsr	200	12	325.018	490.276	1365.64	0	1365.64	1487.68	1487.68
46	2.82637	3958.51	-20.5808	Qlsr	200	12	313.364	472.697	1282.94	0	1282.94	1400.6	1400.6

47	2.82637	3713.23	-20.5808	Qlsr	200	12	301.75	455.178	1200.52	0	1200.52	1313.82	1313.82
48	2.65167	2813.31	38.6685	Qlsr	200	12	317.921	479.571	1315.28	0	1315.28	1060.86	1060.86
49	2.65167	1687.99	38.6685	Qlsr	200	12	250.524	377.906	836.982	0	836.982	636.5	636.5
50	2.65167	562.662	38.6685	Qlsr	200	12	183.128	276.241	358.685	0	358.685	212.137	212.137

Interslice Data

Global Minimum Query (spencer) - Safety Factor: 1.50846

Slice Number	X coordinate [ft]	Y coordinate - Bottom [ft]	Interslice Normal Force [lbs]	Interslice Shear Force [lbs]	Interslice Force Angle [deg]
1	341.809	130.917	0	0	0
2	344.219	127.34	218.234	0	0
3	346.629	123.764	911.69	0	0
4	349.039	120.187	2281.78	0	0
5	352.455	115.118	3272.39	0	0
6	355.871	110.048	5568.61	0	0
7	358.67	108.997	6405.29	0	0
8	361.469	107.946	7302.5	0	0
9	364.268	106.895	8200.45	0	0
10	367.067	105.844	9047.36	0	0
11	369.866	104.793	9843.94	0	0
12	372.665	103.742	10590.6	0	0
13	375.464	102.691	11288.3	0	0
14	378.263	101.64	11937	0	0
15	381.062	100.589	12528.3	0	0
16	383.861	99.538	13084.7	0	0
17	386.661	98.487	-15317.2	0	0
18	389.46	97.436	-14780.9	0	0
19	392.259	96.385	-14245.2	0	0
20	395.058	95.334	-13705.5	0	0
21	397.857	94.283	-13161.7	0	0
22	400.656	93.2319	-12615.3	0	0
23	403.455	92.1809	-12067.5	0	0
24	406.254	91.1299	-11518.2	0	0
25	409.08	90.0686	-10690.2	0	0
26	411.906	89.0074	-9851.78	0	0
27	414.733	87.9461	-9002.98	0	0
28	417.559	86.8848	-8143.77	0	0
29	420.386	85.8235	-7274.15	0	0
30	423.212	84.7622	-6395.84	0	0
31	426.038	83.7009	-5511.61	0	0
32	428.865	82.6397	-4621.5	0	0
33	431.691	81.5784	-3725.53	0	0
34	434.517	80.5171	-2825.41	0	0
35	437.344	79.4558	-1925.84	0	0
36	440.17	78.3945	-1027.09	0	0
37	442.997	77.3333	-134.824	0	0
38	445.823	76.272	741.539	0	0
39	448.649	75.2107	1601.03	0	0
40	451.476	74.1494	2435.3	0	0
41	454.302	73.0881	3241.82	0	0
42	457.128	72.0269	3994.21	0	0
43	459.955	70.9656	4688.11	0	0
44	462.781	69.9043	5327.81	0	0
45	465.608	68.843	5913.32	0	0
46	468.434	67.7817	6444.37	0	0
47	471.26	66.7205	6920.57	0	0
48	474.087	65.6592	7342.12	0	0
49	476.738	67.7812	3708.39	0	0
50	479.39	69.9032	1268.25	0	0
51	482.042	72.0252	0	0	0

Discharge Sections

Entity Information

Translational (Static)

Shared Entities

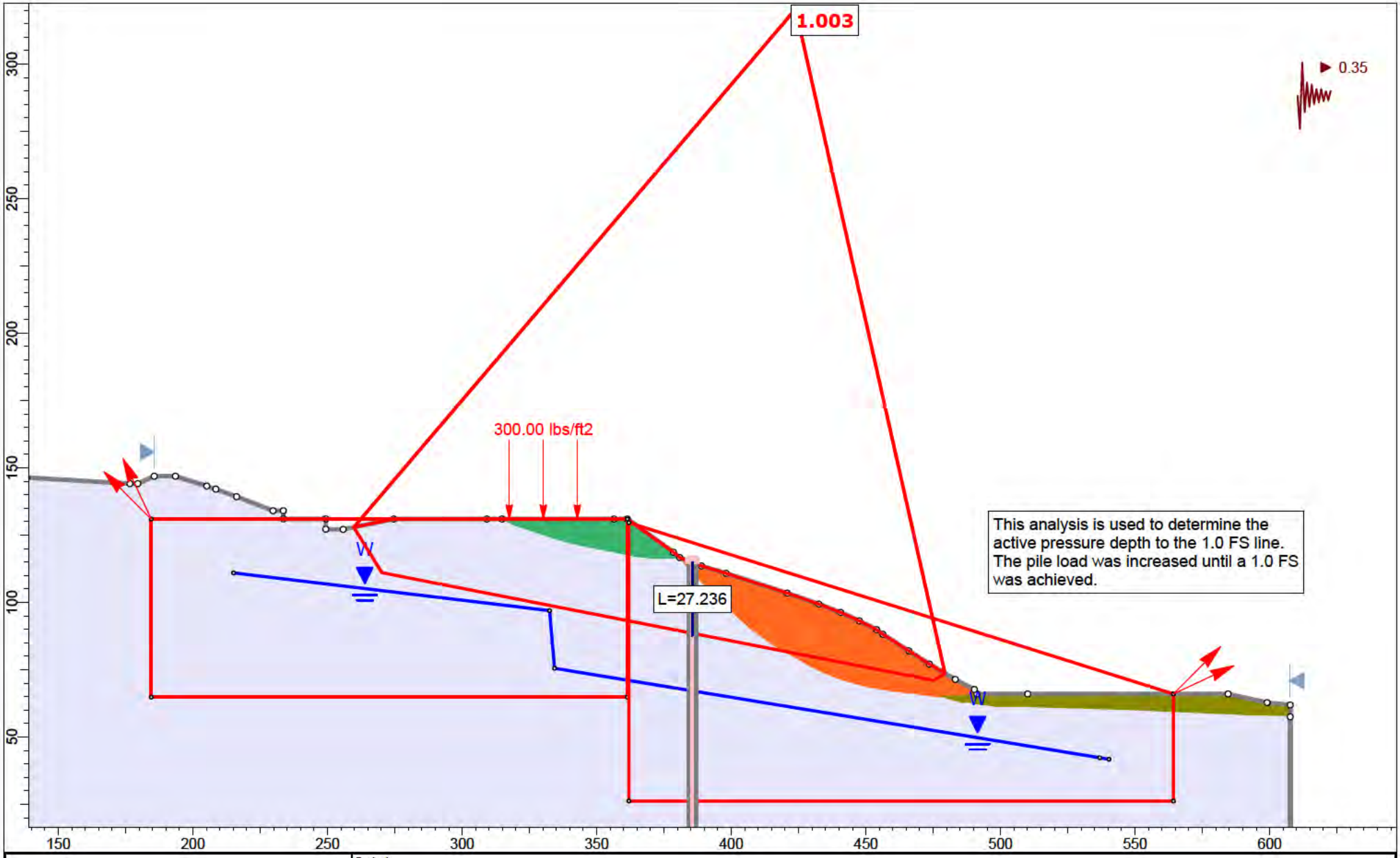
Type	Coordinates (x,y)

External Boundary	0.036, 188.459 0.067, -0.196 607.643, -0.196 607.643, 57.4645 607.643, 61.847 599.042, 62.731 584.548, 65.972 510.136, 65.972 491.224, 65.972 490.282, 67.621 483.212, 71.333 473.549, 77.048 465.949, 81.938 456.287, 88.124 453.93, 89.833 447.567, 93.073 440.556, 96.255 432.484, 99.318 420.76, 103.384 398.077, 110.748 388.886, 113.517 385.532, 114.823 380.809, 116.625 378.482, 118.617 361.373, 130.917 356.376, 130.917 314.827, 130.917 309.126, 130.917 274.531, 130.917 255.791, 127.058 249.338, 127.168 249.338, 130.982 233.566, 130.982 233.566, 134.006 229.738, 134.006 216.211, 139.228 208.509, 142.046 205.127, 143.174 193.481, 146.829 185.591, 146.829 179.496, 144.095 176.551, 144.095 138.196, 146.334 101.609, 147.689 80.752, 160.179 65.493, 169.901 57.598, 174.201 40.925, 182.509 36.741, 184.806

Material Boundary	380.809, 116.625 384.655, 112.071 391.766, 104.817 399.736, 96.943 407.228, 90.261 414.434, 85.012 419.875, 81.29 425.554, 77.997 429.228, 75.849 437.102, 72.175 444.547, 69.789 450.56, 68.214 459.627, 66.639 468.838, 65.589 478.382, 64.921 488.261, 65.589 491.224, 65.972
Material Boundary	314.827, 130.917 319.798, 128.565 331.181, 124.794 339.312, 122.26 347.737, 120.434 355.808, 118.902 364.528, 117.076 370.42, 116.428 378.404, 116.428 380.809, 116.625
Material Boundary	478.382, 64.921 486.105, 62.747 491.839, 61.736 497.757, 61.079 502.485, 61.079 546.833, 59.749 590.839, 57.858 607.643, 57.4645

Scenario-based Entities

Type	Coordinates (x,y)	Master Scenario
Water Table	215.062, 110.934 332.462, 96.909 334.336, 75.504 536.885, 42.2379 540.294, 41.678	Assigned to: Anisotropic Bedrock (Tm) Ultimate
Distributed Load	342.792, 130.917 317.529, 130.917	Constant DistributionOrientation: Normal to boundaryMagnitude: 300 lbs/ft2Creates Excess Pore Pressure: No
Block Search Window	186.591, 64.767 361.373, 64.767 361.373, 130.917 186.591, 130.917	
Block Search Window	564.22, 65.972 361.988, 129.352 361.988, 27.506 564.22, 27.506	



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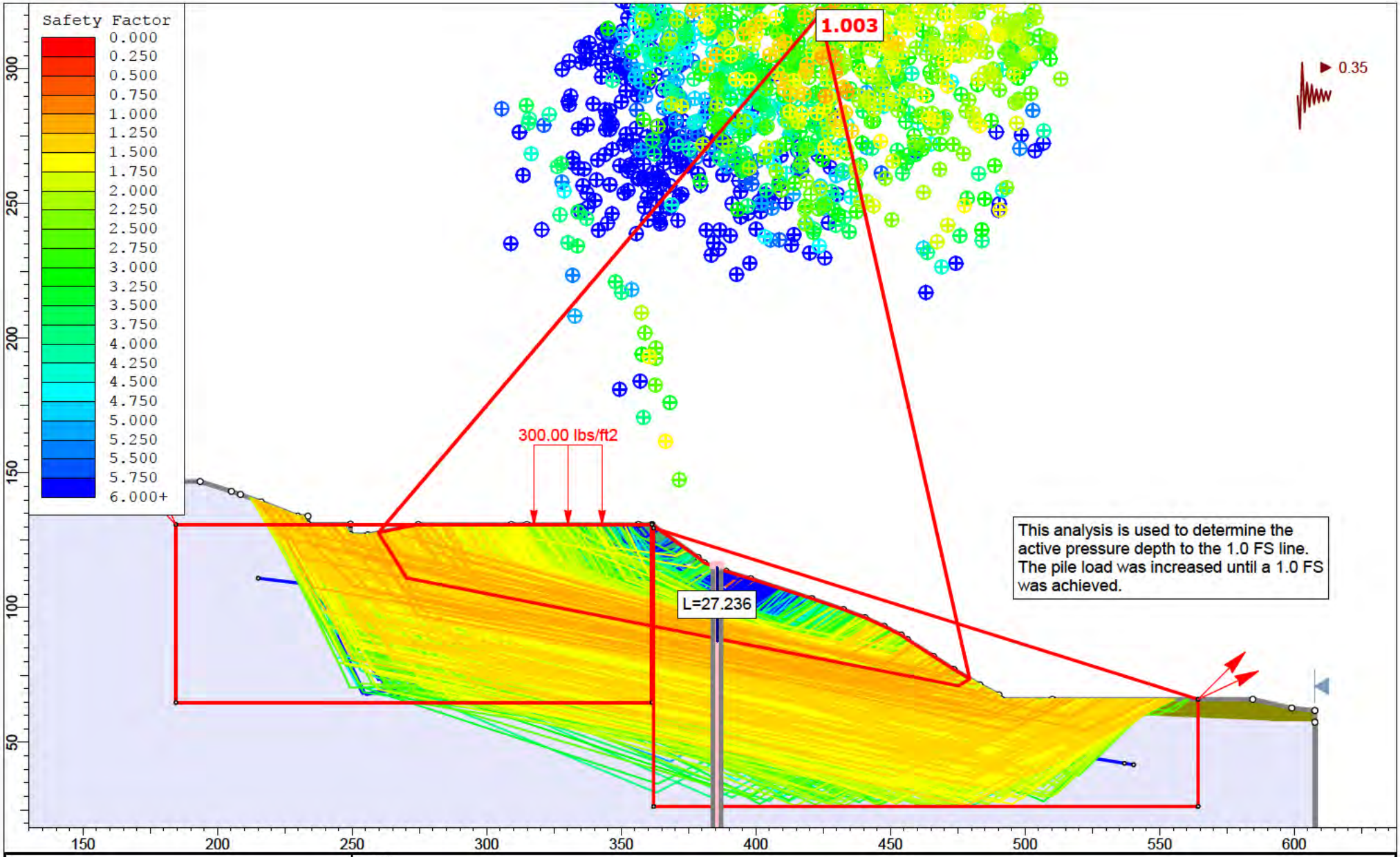
SLIDEINTERPRET 9.018

Project	Section 2-2'		
Analysis Description	Translational (Seismic)		
Drawn By	A. Greene	Scale 1:592	Company Feffer Geological Consulting
Date			File Name Section 2-2' Translational Analysis_2.slmd



rocscience

SLIDEINTERPRET 9.018

Project	Section 2-2'		
Analysis Description	Translational (Seismic)		
Drawn By	A. Greene	Scale 1:592	Company Feffer Geological Consulting
Date			File Name Section 2-2' Translational Analysis_2.slmd

Slide Analysis Information

Section 2-2' Translational Analysis_2

Project Summary

File Name:	Section 2-2' Translational Analysis_2.slmd
Slide Modeler Version:	9.018
Compute Time:	00h:00m:00.634s
Project Title:	Section 2-2'
Analysis:	Translational (Seismic)
Author:	A. Greene
Company:	Feffer Geological Consulting

General Settings

Units of Measurement:	Imperial Units
Time Units:	days
Permeability Units:	feet/second
Data Output:	Standard
Failure Direction:	Left to Right

Analysis Options

Slices Type:	Vertical
Analysis Methods Used	
	Spencer
Number of slices:	50
Tolerance:	0.005
Maximum number of iterations:	75
Check malpha < 0.2:	Yes
Create Interslice boundaries at intersections with water tables and piezos:	Yes
Initial trial value of FS:	1
Steffensen Iteration:	Yes

Groundwater Analysis

Groundwater Method:	Water Surfaces
Pore Fluid Unit Weight [lbs/ft3]:	62.4
Use negative pore pressure cutoff:	Yes
Maximum negative pore pressure [psf]:	0
Advanced Groundwater Method:	None

Random Numbers

Pseudo-random Seed:	10116
Random Number Generation Method:	Park and Miller v.3

Surface Options

Surface Type:	Non-Circular Block Search
Number of Surfaces:	5000
Multiple Groups:	Disabled
Pseudo-Random Surfaces:	Enabled
Convex Surfaces Only:	Disabled
Left Projection Angle (Start Angle) [deg]:	115
Left Projection Angle (End Angle) [deg]:	135
Right Projection Angle (Start Angle) [deg]:	45
Right Projection Angle (End Angle) [deg]:	25
Minimum Elevation:	Not Defined
Minimum Depth:	Not Defined
Minimum Area:	Not Defined
Minimum Weight:	Not Defined

Seismic Loading

Advanced seismic analysis:	No
Staged pseudostatic analysis:	No
Seismic Load Coefficient (Horizontal):	0.35

Loading

1 Distributed Load present

Distributed Load 1	
Distribution:	Constant
Magnitude [psf]:	300
Orientation:	Normal to boundary

Materials

Terrace (Qoa)	
Color	
Strength Type	Mohr-Coulomb
Unit Weight [lbs/ft3]	115
Cohesion [psf]	100
Friction Angle [deg]	31
Water Surface	None
Ru Value	0
Qlsr	
Color	
Strength Type	Mohr-Coulomb
Unit Weight [lbs/ft3]	115
Cohesion [psf]	200
Friction Angle [deg]	12
Water Surface	None
Ru Value	0
Fill (Af)	
Color	
Strength Type	Mohr-Coulomb
Unit Weight [lbs/ft3]	120
Cohesion [psf]	120
Friction Angle [deg]	31
Water Surface	None
Ru Value	0
Anisotropic Bedrock (Tm) Peak	
Color	
Strength Type	Anisotropic function
Unit Weight [lbs/ft3]	124
Water Surface	Water Table
Hu Value	1

Anisotropic Functions

Name: Anisotropic Bedrock (Tm) Peak

Angle From	Angle To	c	phi
-90	-30	720	41
-30	-10	200	16
-10	90	720	41

Support

Pile 1 (Seismic)	
Color	
Type	Pile/Micro Pile
Force Application	Active (Method A)
Force Orientation	Parallel to surface
Out-Of-Plane Spacing	10 ft
Failure Mode	Shear
Pile Shear Strength	1.25e+06 lbs

Global Minimums

Method: spencer

FS	1.003020
Axis Location:	423.860, 320.374
Left Slip Surface Endpoint:	259.755, 127.874
Right Slip Surface Endpoint:	479.396, 73.590
Resisting Moment:	5.09418e+07 lb-ft
Driving Moment:	5.07886e+07 lb-ft
Resisting Horizontal Force:	204789 lb
Driving Horizontal Force:	204173 lb
Active Support Moment:	-2.93672e+07 lb-ft
Active Horizontal Support Force:	-122684 lb
Maximum Single Support Force:	125000 lb
Total Support Force:	125000 lb
Total Slice Area:	5173.74 ft2
Surface Horizontal Width:	219.642 ft
Surface Average Height:	23.5553 ft

Global Minimum Coordinates

Method: spencer

X	Y
259.755	127.874
270.174	111.006
475.224	70.9727
479.396	73.5896

Global Minimum Support Data

Method: spencer

Number of Supports: 1

Pile 1 (Seismic)

Support Type: Pile/Micro Pile

Start (x, y)	Length (ft)	L Inside SS (ft)	L Outside SS (ft)	Li (ft)	Lo (ft)	Force (lb)
385.532, 114.823	101.839	26.3392	75.4998	26.3392	75.4998	125000

Valid and Invalid Surfaces

Method: spencer

Number of Valid Surfaces:	1872
Number of Invalid Surfaces:	3128

Error Codes

Error Code -105 reported for 283 surfaces
Error Code -108 reported for 26 surfaces
Error Code -110 reported for 1519 surfaces
Error Code -111 reported for 1266 surfaces
Error Code -112 reported for 34 surfaces

Error Code Descriptions

The following errors were encountered during the computation:
-105 = More than two surface / slope intersections with no valid slip surface.
-108 = Total driving moment or total driving force < 0.1. This is to limit the calculation of extremely high safety factors if the driving force is very small (0.1 is an arbitrary number).
-110 = The water table or a piezoline does not span the slip region for a given slip surface, when Water Surfaces is specified as the method of pore pressure calculation. If this error occurs, check that the water table or piezoline(s) span the appropriate soil cells.
-111 = Safety factor equation did not converge
-112 = The coefficient M-Alpha = cos(alpha)(1+tan(alpha)tan(phi)/F) < 0.2 for the final iteration of the safety factor calculation. This screens out some slip surfaces which may not be valid in the context of the analysis, in particular, deep seated slip surfaces with many high negative base angle slices in the passive zone.

Slice Data

Global Minimum Query (spencer) - Safety Factor: 1.00302

Slice Number	Width [ft]	Weight [lbs]	Angle of Slice Base [deg]	Base Material	Base Cohesion [psf]	Base Friction Angle [deg]	Shear Stress [psf]	Shear Strength [psf]	Base Normal Stress [psf]	Pore Pressure [psf]	Effective Normal Stress [psf]	Base Vertical Stress [psf]	Effective Vertical Stress [psf]
1	5.20955	3070.7	-58.298	Anisotropic Bedrock (Tm) Peak	720	41	816.784	819.251	114.175	0	114.175	1436.56	1436.56
2	5.20955	9212.1	-58.298	Anisotropic Bedrock (Tm) Peak	720	41	899.062	901.777	209.111	0	209.111	1664.7	1664.7
3	4.37357	10787.5	-11.0472	Anisotropic Bedrock (Tm) Peak	200	16	707.208	709.344	1776.29	0	1776.29	1914.36	1914.36
4	4.37357	11493	-11.0472	Anisotropic Bedrock (Tm) Peak	200	16	736.859	739.084	1880.01	0	1880.01	2023.87	2023.87
5	4.37357	11956	-11.0472	Anisotropic Bedrock (Tm) Peak	200	16	756.322	758.606	1948.09	0	1948.09	2095.75	2095.75
6	4.37357	12419.1	-11.0472	Anisotropic Bedrock (Tm) Peak	200	16	775.786	778.129	2016.17	0	2016.17	2167.63	2167.63
7	4.37357	12882.2	-11.0472	Anisotropic Bedrock (Tm) Peak	200	16	795.249	797.651	2084.25	0	2084.25	2239.51	2239.51
8	4.37357	13345.2	-11.0472	Anisotropic Bedrock (Tm) Peak	200	16	814.713	817.173	2152.34	0	2152.34	2311.4	2311.4
9	4.37357	13808.3	-11.0472	Anisotropic Bedrock (Tm) Peak	200	16	834.176	836.695	2220.42	0	2220.42	2383.28	2383.28
10	4.37357	14271.4	-11.0472	Anisotropic Bedrock (Tm) Peak	200	16	853.639	856.217	2288.51	0	2288.51	2455.17	2455.17

11	4.37357	14734.5	-11.0472	Anisotropic Bedrock (Tm) Peak	200	16	873.102	875.739	2356.59	0	2356.59	2527.05	2527.05
12	4.37357	15197.5	-11.0472	Anisotropic Bedrock (Tm) Peak	200	16	892.566	895.262	2424.65	0	2424.65	2598.91	2598.91
13	4.37357	15635.2	-11.0472	Anisotropic Bedrock (Tm) Peak	200	16	926.452	929.25	2543.19	0	2543.19	2724.06	2724.06
14	4.37357	16023.8	-11.0472	Anisotropic Bedrock (Tm) Peak	200	16	1017.12	1020.19	2860.35	0	2860.35	3058.92	3058.92
15	4.37357	16428.4	-11.0472	Anisotropic Bedrock (Tm) Peak	200	16	1034.12	1037.24	2919.81	0	2919.81	3121.71	3121.71
16	4.37357	16834.4	-11.0472	Anisotropic Bedrock (Tm) Peak	200	16	1051.19	1054.36	2979.51	0	2979.51	3184.74	3184.74
17	4.37357	17242.3	-11.0472	Anisotropic Bedrock (Tm) Peak	200	16	1068.33	1071.56	3039.49	0	3039.49	3248.07	3248.07
18	4.37357	17652.1	-11.0472	Anisotropic Bedrock (Tm) Peak	200	16	1085.55	1088.83	3099.72	0	3099.72	3311.66	3311.66
19	4.37357	18072.5	-11.0472	Anisotropic Bedrock (Tm) Peak	200	16	1067.66	1070.88	3037.11	0	3037.11	3245.56	3245.56
20	4.37357	18498.4	-11.0472	Anisotropic Bedrock (Tm) Peak	200	16	1031.3	1034.42	2909.96	0	2909.96	3111.31	3111.31
21	4.37357	18927.6	-11.0472	Anisotropic Bedrock (Tm) Peak	200	16	1049.34	1052.51	2973.07	0	2973.07	3177.93	3177.93
22	4.37357	19357.7	-11.0472	Anisotropic Bedrock (Tm) Peak	200	16	1067.42	1070.64	3036.28	0	3036.28	3244.68	3244.68
23	4.37357	19768	-11.0472	Anisotropic Bedrock (Tm) Peak	200	16	1084.67	1087.94	3096.63	0	3096.63	3308.39	3308.39
24	4.37357	19189.7	-11.0472	Anisotropic Bedrock (Tm) Peak	200	16	1060.36	1063.56	3011.6	0	3011.6	3218.62	3218.62
25	4.37357	18049.6	-11.0472	Anisotropic Bedrock (Tm) Peak	200	16	1012.44	1015.5	2843.99	0	2843.99	3041.65	3041.65
26	4.37357	16923.2	-11.0472	Anisotropic Bedrock (Tm) Peak	200	16	965.098	968.013	2678.37	0	2678.37	2866.79	2866.79
27	4.37357	15796.9	-11.0472	Anisotropic Bedrock (Tm) Peak	200	16	917.759	920.531	2512.78	0	2512.78	2691.96	2691.96
28	4.37357	14679.7	-11.0472	Anisotropic Bedrock (Tm) Peak	200	16	870.799	873.429	2348.54	0	2348.54	2518.55	2518.55
29	4.37357	14069.6	-11.0472	Anisotropic Bedrock (Tm) Peak	200	16	8614.29	8640.31	29434.9	0	29434.9	31116.7	31116.7
30	4.37357	13572.6	-11.0472	Anisotropic Bedrock (Tm) Peak	200	16	824.267	826.756	2185.76	0	2185.76	2346.68	2346.68
31	4.37357	13199.1	-11.0472	Anisotropic Bedrock (Tm) Peak	200	16	808.568	811.01	2130.85	0	2130.85	2288.71	2288.71
32	4.37357	12815.8	-11.0472	Anisotropic Bedrock (Tm) Peak	200	16	792.462	794.855	2074.5	0	2074.5	2229.22	2229.22
33	4.37357	12409.6	-11.0472	Anisotropic Bedrock (Tm) Peak	200	16	775.384	777.726	2014.77	0	2014.77	2166.15	2166.15
34	4.37357	12011.1	-11.0472	Anisotropic Bedrock (Tm) Peak	200	16	758.639	760.93	1956.2	0	1956.2	2104.31	2104.31
35	4.37357	11633.1	-11.0472	Anisotropic Bedrock (Tm) Peak	200	16	742.749	744.992	1900.61	0	1900.61	2045.62	2045.62

36	4.37357	11260.5	-11.0472	Anisotropic Bedrock (Tm) Peak	200	16	727.091	729.287	1845.84	0	1845.84	1987.8	1987.8
37	4.33456	10829.9	-11.0472	Qlsr	200	12	542.71	544.349	1620.03	0	1620.03	1725.99	1725.99
38	4.33456	10506.9	-11.0472	Qlsr	200	12	533.711	535.323	1577.57	0	1577.57	1681.77	1681.77
39	4.33456	10179.4	-11.0472	Qlsr	200	12	524.586	526.17	1534.51	0	1534.51	1636.93	1636.93
40	4.33456	9825.8	-11.0472	Qlsr	200	12	514.734	516.288	1488.02	0	1488.02	1588.51	1588.51
41	4.33456	9428.44	-11.0472	Qlsr	200	12	503.662	505.183	1435.77	0	1435.77	1534.1	1534.1
42	4.33456	8950.32	-11.0472	Qlsr	200	12	490.34	491.821	1372.91	0	1372.91	1468.64	1468.64
43	4.33456	8382.86	-11.0472	Qlsr	200	12	474.529	475.962	1298.3	0	1298.3	1390.95	1390.95
44	4.33456	7727.43	-11.0472	Qlsr	200	12	456.267	457.645	1212.13	0	1212.13	1301.21	1301.21
45	4.33456	6867.27	-11.0472	Qlsr	200	12	432.301	433.607	1099.03	0	1099.03	1183.43	1183.43
46	4.33456	5871.04	-11.0472	Qlsr	200	12	404.543	405.765	968.049	0	968.049	1047.03	1047.03
47	4.33456	4909.46	-11.0472	Qlsr	200	12	377.752	378.893	841.623	0	841.623	915.373	915.373
48	4.33456	3943.63	-11.0472	Qlsr	200	12	350.841	351.901	714.637	0	714.637	783.133	783.133
49	4.33456	2983.63	-11.0472	Qlsr	200	12	324.093	325.072	588.416	0	588.416	651.691	651.691
50	4.17219	1219.76	32.0968	Qlsr	200	12	387.335	388.505	886.847	0	886.847	643.902	643.902

Interslice Data

Global Minimum Query (spencer) - Safety Factor: 1.00302

Slice Number	X coordinate [ft]	Y coordinate - Bottom [ft]	Interslice Normal Force [lbs]	Interslice Shear Force [lbs]	Interslice Force Angle [deg]
1	259.755	127.874	0	0	0
2	264.964	119.44	-2211.56	-2697.05	50.6485
3	270.174	111.006	-1900.96	-2318.27	50.6486
4	274.547	110.152	302.574	368.996	50.6485
5	278.921	109.298	2712.08	3307.44	50.6485
6	283.294	108.444	5256.78	6410.77	50.6485
7	287.668	107.59	7936.68	9678.97	50.6485
8	292.042	106.736	10751.8	13112.1	50.6486
9	296.415	105.882	13702.1	16710	50.6485
10	300.789	105.029	16787.6	20472.9	50.6485
11	305.162	104.175	20008.3	24400.6	50.6485
12	309.536	103.321	23364.2	28493.2	50.6485
13	313.909	102.467	26855.3	32750.7	50.6485
14	318.283	101.613	30452.8	37137.9	50.6485
15	322.657	100.759	34061.1	41538.3	50.6485
16	327.03	99.9054	37787.5	46082.8	50.6485
17	331.404	99.0515	41632.5	50771.9	50.6486
18	335.777	98.1976	45596.6	55606.2	50.6485
19	340.151	97.3438	49680.3	60586.3	50.6485
20	344.524	96.4899	53935.9	65776.1	50.6485
21	348.898	95.636	58390.7	71208.9	50.6485
22	353.271	94.7821	62970.8	76794.4	50.6485
23	357.645	93.9283	67676.5	82533.2	50.6485
24	362.019	93.0744	72502	88418	50.6485
25	366.392	92.2205	77158.7	94096.9	50.6485
26	370.766	91.3667	81482.5	99369.9	50.6485
27	375.139	90.5128	85477.4	104242	50.6486
28	379.513	89.6589	89143.5	108713	50.6486
29	383.886	88.805	92483.5	112786	50.6486
30	388.26	87.9512	-37766.3	-46056.9	50.6485
31	392.634	87.0973	-34749.6	-42378	50.6485
32	397.007	86.2434	-31842	-38832.1	50.6485
33	401.381	85.3896	-29046.3	-35422.6	50.6485
34	405.754	84.5357	-26369.1	-32157.8	50.6486
35	410.128	83.6818	-23808.4	-29034.9	50.6485
36	414.501	82.8279	-21357.9	-26046.5	50.6485
37	418.875	81.9741	-19016.3	-23190.8	50.6485
38	423.21	81.1278	-16204.1	-19761.3	50.6485
39	427.544	80.2816	-13501.9	-16465.9	50.6485
40	431.879	79.4353	-10911.3	-13306.5	50.6483
41	436.213	78.589	-8441.09	-10294.1	50.6485
42	440.548	77.7428	-6106.29	-7446.77	50.6485
43	444.882	76.8965	-3934.37	-4798.05	50.6485
44	449.217	76.0503	-1955.75	-2385.08	50.6485
45	453.551	75.204	-200.409	-244.404	50.6486
46	457.886	74.3578	1261.91	1538.93	50.6485
47	462.221	73.5115	2384.86	2908.39	50.6485
48	466.555	72.6653	3180.24	3878.38	50.6485
49	470.89	71.819	3646.6	4447.12	50.6485
50	475.224	70.9727	3785.93	4617.04	50.6486
51	479.396	73.5896	0	0	0

Discharge Sections

Entity Information

Translational (Seismic) Expanded

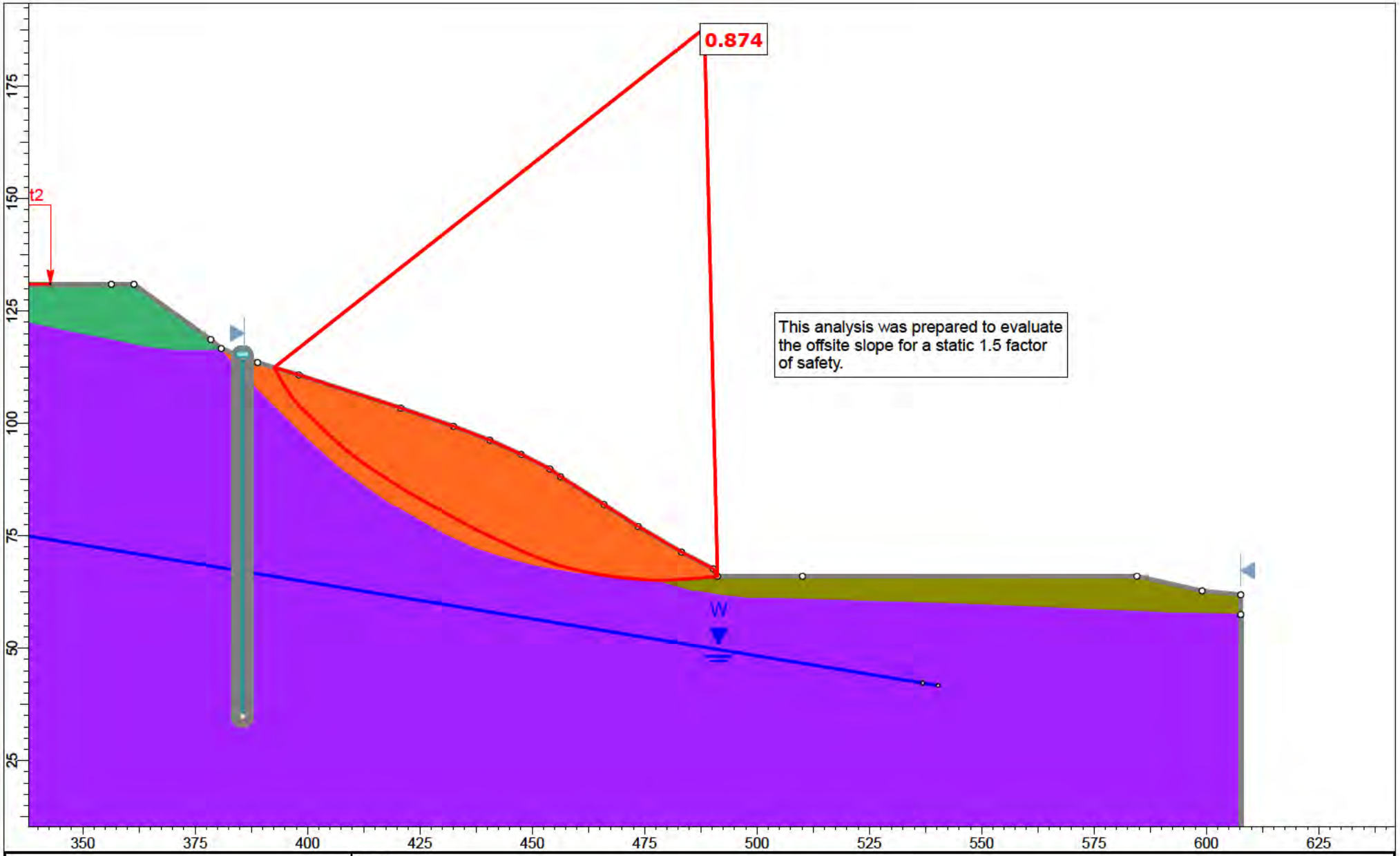
Shared Entities

Type	Coordinates (x,y)
External Boundary	0.036, 188.459 0.067, -0.196 607.643, -0.196 607.643, 57.4645 607.643, 61.847 599.042, 62.731 584.548, 65.972 510.136, 65.972 491.224, 65.972 490.282, 67.621 483.212, 71.333 473.549, 77.048 465.949, 81.938 456.287, 88.124 453.93, 89.833 447.567, 93.073 440.556, 96.255 432.484, 99.318 420.76, 103.384 398.077, 110.748 388.886, 113.517 385.532, 114.823 380.809, 116.625 378.482, 118.617 361.373, 130.917 356.376, 130.917 314.827, 130.917 309.126, 130.917 274.531, 130.917 255.791, 127.058 249.338, 127.168 249.338, 130.982 233.566, 130.982 233.566, 134.006 229.738, 134.006 216.211, 139.228 208.509, 142.046 205.127, 143.174 193.481, 146.829 185.591, 146.829 179.496, 144.095 176.551, 144.095 138.196, 146.334 101.609, 147.689 80.752, 160.179 65.493, 169.901 57.598, 174.201 40.925, 182.509 36.741, 184.806

Material Boundary	380.809, 116.625 384.655, 112.071 391.766, 104.817 399.736, 96.943 407.228, 90.261 414.434, 85.012 419.875, 81.29 425.554, 77.997 429.228, 75.849 437.102, 72.175 444.547, 69.789 450.56, 68.214 459.627, 66.639 468.838, 65.589 478.382, 64.921 488.261, 65.589 491.224, 65.972
Material Boundary	314.827, 130.917 319.798, 128.565 331.181, 124.794 339.312, 122.26 347.737, 120.434 355.808, 118.902 364.528, 117.076 370.42, 116.428 378.404, 116.428 380.809, 116.625
Material Boundary	478.382, 64.921 486.105, 62.747 491.839, 61.736 497.757, 61.079 502.485, 61.079 546.833, 59.749 590.839, 57.858 607.643, 57.4645

Scenario-based Entities

Type	Coordinates (x,y)	Master Scenario
Water Table	215.062, 110.934 332.462, 96.909 334.336, 75.504 536.885, 42.2379 540.294, 41.678	Assigned to: Anisotropic Bedrock (Tm) Peak
Distributed Load	342.792, 130.917 317.529, 130.917	Constant DistributionOrientation: Normal to boundaryMagnitude: 300 lbs/ft2Creates Excess Pore Pressure: No
Block Search Window	184.501, 64.767 361.373, 64.767 361.373, 130.917 184.501, 130.917	
Block Search Window	564.22, 65.972 361.96, 129.585 361.96, 26.197 564.22, 26.197	



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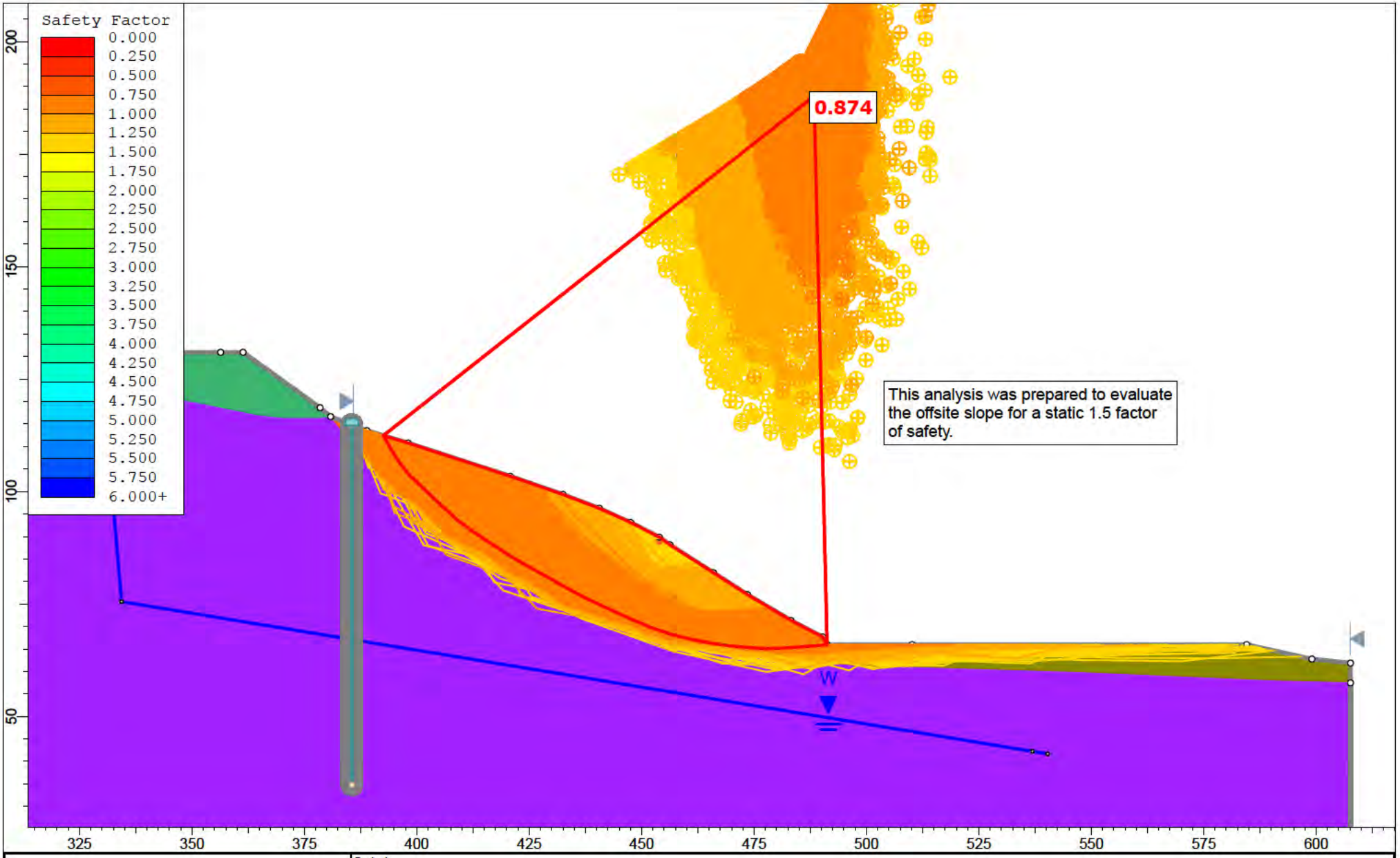
SLIDEINTERPRET 9.018

Project	Section 2-2'		
Analysis Description	Offiste Slope (Static)		
Drawn By	A. Greene	Scale 1:354	Company Feffer Geological Consulting
Date			File Name Section 2-2' Translational Analysis_2.slmd



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SLIDEINTERPRET 9.018

Project	Section 2-2'				
Analysis Description	Offiste Slope (Static)				
Drawn By	A. Greene	Scale	1:354	Company	Feffer Geological Consulting
Date				File Name	Section 2-2' Translational Analysis_2.slmd

Slide Analysis Information

Section 2-2' Translational Analysis_2

Project Summary

File Name:	Section 2-2' Translational Analysis_2.slmd
Slide Modeler Version:	9.018
Compute Time:	00h:00m:08.130s
Project Title:	Section 2-2'
Analysis:	Offiste Slope (Static)
Author:	A. Greene
Company:	Feffer Geological Consulting

General Settings

Units of Measurement:	Imperial Units
Time Units:	days
Permeability Units:	feet/second
Data Output:	Standard
Failure Direction:	Left to Right

Analysis Options

Slices Type:	Vertical
Analysis Methods Used	
	Spencer
Number of slices:	50
Tolerance:	0.005
Maximum number of iterations:	75
Check malpha < 0.2:	Yes
Create Interslice boundaries at intersections with water tables and piezos:	Yes
Initial trial value of FS:	1
Steffensen Iteration:	Yes

Groundwater Analysis

Groundwater Method:	Water Surfaces
Pore Fluid Unit Weight [lbs/ft3]:	62.4
Use negative pore pressure cutoff:	Yes
Maximum negative pore pressure [psf]:	0
Advanced Groundwater Method:	None

Random Numbers

Pseudo-random Seed:	10116
Random Number Generation Method:	Park and Miller v.3

Surface Options

Search Method:	Cuckoo Search
Initial # of Surface Vertices:	8
Maximum Iterations:	500
Number of Nests:	50
Minimum Elevation:	Not Defined
Minimum Depth:	Not Defined
Minimum Area:	Not Defined
Minimum Weight:	Not Defined
Convex Surfaces Only:	Enabled

Seismic Loading

Advanced seismic analysis:	No
Staged pseudostatic analysis:	No

Loading

1 Distributed Load present

Distributed Load 1	
Distribution:	Constant
Magnitude [psf]:	300
Orientation:	Normal to boundary

Materials

Terrace (Qoa)	
Color	
Strength Type	Mohr-Coulomb
Unit Weight [lbs/ft3]	115
Cohesion [psf]	100
Friction Angle [deg]	31
Water Surface	None
Ru Value	0
Qlsr	
Color	
Strength Type	Mohr-Coulomb
Unit Weight [lbs/ft3]	115
Cohesion [psf]	200
Friction Angle [deg]	12
Water Surface	None
Ru Value	0
Fill (Af)	
Color	
Strength Type	Mohr-Coulomb
Unit Weight [lbs/ft3]	120
Cohesion [psf]	120
Friction Angle [deg]	31
Water Surface	None
Ru Value	0
Anisotropic Bedrock (Tm) Ultimate	
Color	
Strength Type	Anisotropic function
Unit Weight [lbs/ft3]	124
Water Surface	Water Table
Hu Value	0

Anisotropic Functions

Name: Anisotropic Bedrock (Tm) Ultimate

Angle From	Angle To	c	phi
-90	-30	520	34.5
-30	-10	200	16
-10	90	520	34.5

Support

Pile 1 (Static)	
Color	
Type	Pile/Micro Pile
Force Application	Active (Method A)
Force Orientation	Parallel to surface
Out-Of-Plane Spacing	10 ft
Failure Mode	Shear
Pile Shear Strength	285000 lbs

Global Minimums

Method: spencer

FS	0.873710
Axis Location:	488.328, 187.865
Left Slip Surface Endpoint:	392.552, 112.413
Right Slip Surface Endpoint:	491.224, 65.972
Resisting Moment:	6.84099e+06 lb-ft
Driving Moment:	7.85389e+06 lb-ft
Resisting Horizontal Force:	49576.2 lb
Driving Horizontal Force:	56916.7 lb
Total Slice Area:	1435.19 ft2
Surface Horizontal Width:	98.6725 ft
Surface Average Height:	14.5449 ft

Global Minimum Coordinates

Method: spencer

X	Y
392.552	112.413
394.327	109.211
396.308	106.17
398.29	103.701
401.817	100.333
405.345	96.9705
408.595	94.0057
412.386	91.1188
414.788	89.543
417.189	87.9672
419.593	86.411
421.996	84.8987
425.844	82.7413
429.691	80.5838
433.538	78.4263
437.386	76.3504
442.321	74.0528
447.256	71.7854
451.973	69.7983
456.688	68.1733
461.513	67.0251
466.376	66.1109
470.761	65.5696
474.978	65.2187
478.183	65.0578
482.536	65.2381
486.89	65.5366
491.224	65.972

Global Minimum Support Data

Method: spencer

Number of Supports: 1

Pile 1 (Static)

Support Type: Pile/Micro Pile

Start (x, y)	Length (ft)	L Inside SS (ft)	L Outside SS (ft)	Li (ft)	Lo (ft)	Force (lb)
385.532, 114.823	80	Not Effective	Not Effective	Not Effective	Not Effective	0

Valid and Invalid Surfaces

Method: spencer

Number of Valid Surfaces:	21428
Number of Invalid Surfaces:	3627

Error Codes

Error Code -106 reported for 27 surfaces
Error Code -108 reported for 112 surfaces
Error Code -110 reported for 356 surfaces
Error Code -111 reported for 646 surfaces
Error Code -112 reported for 220 surfaces
Error Code -121 reported for 510 surfaces
Error Code -145 reported for 14 surfaces
Error Code -1000 reported for 1742 surfaces

Error Code Descriptions

The following errors were encountered during the computation:

-106 = Average slice width is less than 0.0001 * (maximum horizontal extent of soil region). This limitation is imposed to avoid numerical errors which may result from too many slices, or too small a slip region.

-108 = Total driving moment or total driving force < 0.1. This is to limit the calculation of extremely high safety factors if the driving force is very small (0.1 is an arbitrary number).

-110 = The water table or a piezoline does not span the slip region for a given slip surface, when Water Surfaces is specified as the method of pore pressure calculation. If this error occurs, check that the water table or piezoline(s) span the appropriate soil cells.

-111 = Safety factor equation did not converge

-112 = The coefficient M-Alpha = cos(alpha)(1+tan(alpha)tan(phi)/F) < 0.2 for the final iteration of the safety factor calculation. This screens out some slip surfaces which may not be valid in the context of the analysis, in particular, deep seated slip surfaces with many high negative base angle slices in the passive zone.

-121 = Concave failure surface, only convex surfaces have been defined as being allowed.

-145 = Slip surface was clipped vertically by a weak layer in a region of compression. Such a surface cannot be evaluated using Limit Equilibrium. For more information, see Help Documentation on weak layers.

-1000 = No valid slip surface is generated

Slice Data

Global Minimum Query (spencer) - Safety Factor: 0.87371

Slice Number	Width [ft]	Weight [lbs]	Angle of Slice Base [deg]	Base Material	Base Cohesion [psf]	Base Friction Angle [deg]	Shear Stress [psf]	Shear Strength [psf]	Base Normal Stress [psf]	Pore Pressure [psf]	Effective Normal Stress [psf]	Base Vertical Stress [psf]	Effective Vertical Stress [psf]
1	1.77583	272.283	-60.9841	Qlsr	200	12	202.137	176.609	-110.043	0	-110.043	254.383	254.383
2	1.981	885.85	-56.9152	Qlsr	200	12	250.506	218.87	88.7755	0	88.7755	473.275	473.275
3	1.98134	1377.68	-51.2575	Qlsr	200	12	300.828	262.836	295.621	0	295.621	670.544	670.544
4	1.76389	1528.17	-43.6769	Qlsr	200	12	348.774	304.727	492.704	0	492.704	825.73	825.73
5	1.76389	1753.66	-43.6769	Qlsr	200	12	370.225	323.469	580.873	0	580.873	934.381	934.381
6	1.76389	1978.83	-43.6231	Qlsr	200	12	391.822	342.339	669.654	0	669.654	1043.08	1043.08
7	1.76389	2203.68	-43.6231	Qlsr	200	12	413.225	361.039	757.631	0	757.631	1151.46	1151.46
8	1.62472	2222.57	-42.377	Qlsr	200	12	437.889	382.588	859.009	0	859.009	1258.53	1258.53
9	1.62472	2400.99	-42.377	Qlsr	200	12	456.606	398.941	935.941	0	935.941	1352.54	1352.54
10	1.89586	2996.02	-37.2845	Qlsr	200	12	495.349	432.791	1095.2	0	1095.2	1472.34	1472.34
11	1.89586	3176.53	-37.2845	Qlsr	200	12	512.553	447.823	1165.92	0	1165.92	1556.16	1556.16
12	2.40125	4247.59	-33.2746	Qlsr	200	12	547.496	478.353	1309.54	0	1309.54	1668.83	1668.83
13	2.40125	4467.47	-33.2746	Qlsr	200	12	564.778	493.452	1380.58	0	1380.58	1751.21	1751.21
14	2.40367	4689.23	-32.9198	Qlsr	200	12	583.562	509.864	1457.8	0	1457.8	1835.61	1835.61
15	2.40367	4895.67	-32.1762	Qlsr	200	12	603.577	527.351	1540.07	0	1540.07	1919.81	1919.81
16	1.92366	4040	-29.2824	Qlsr	200	12	630.65	551.005	1651.35	0	1651.35	2005	2005
17	1.92366	4131.05	-29.2824	Qlsr	200	12	639.963	559.142	1689.63	0	1689.63	2048.5	2048.5
18	1.92367	4222.12	-29.2824	Qlsr	200	12	649.275	567.278	1727.91	0	1727.91	2092	2092
19	1.92367	4313.18	-29.2824	Qlsr	200	12	658.588	575.415	1766.19	0	1766.19	2135.5	2135.5
20	1.92367	4404.23	-29.2824	Qlsr	200	12	667.9	583.551	1804.47	0	1804.47	2179.01	2179.01
21	1.92367	4493.19	-29.2824	Qlsr	200	12	677	591.502	1841.87	0	1841.87	2221.51	2221.51
22	1.92367	4567.27	-28.3509	Qlsr	200	12	689.926	602.795	1895	0	1895	2267.28	2267.28
23	1.92367	4635.41	-28.3509	Qlsr	200	12	696.962	608.943	1923.92	0	1923.92	2300	2300
24	2.46761	6019.99	-24.964	Qlsr	200	12	722.94	631.64	2030.71	0	2030.71	2367.26	2367.26
25	2.46761	6066.94	-24.964	Qlsr	200	12	726.851	635.057	2046.78	0	2046.78	2385.16	2385.16
26	1.64508	4049.65	-24.6756	Qlsr	200	12	729.208	637.116	2056.47	0	2056.47	2391.49	2391.49
27	1.64508	4051.38	-24.6756	Qlsr	200	12	729.424	637.305	2057.36	0	2057.36	2392.48	2392.48
28	1.64508	4053.11	-24.6756	Qlsr	200	12	729.641	637.495	2058.25	0	2058.25	2393.47	2393.47
29	1.57217	3864.61	-22.8461	Qlsr	200	12	739.507	646.115	2098.8	0	2098.8	2410.36	2410.36
30	1.57217	3839.94	-22.8461	Qlsr	200	12	736.213	643.237	2085.26	0	2085.26	2395.44	2395.44
31	1.57217	3814.96	-22.8461	Qlsr	200	12	732.878	640.323	2071.56	0	2071.56	2380.33	2380.33
32	2.35761	5647.58	-19.015	Qlsr	200	12	749.334	654.701	2139.2	0	2139.2	2397.43	2397.43
33	2.35761	5452.74	-19.015	Qlsr	200	12	731.322	638.963	2065.16	0	2065.16	2317.19	2317.19
34	2.41238	5329	-13.3866	Qlsr	200	12	741.492	647.849	2106.96	0	2106.96	2283.43	2283.43
35	2.41238	5059.79	-13.3866	Qlsr	200	12	715.796	625.398	2001.34	0	2001.34	2171.69	2171.69
36	1.62126	3241.66	-10.6454	Qlsr	200	12	708.608	619.118	1971.79	0	1971.79	2104.99	2104.99
37	1.62126	3104.94	-10.6454	Qlsr	200	12	688.663	601.692	1889.81	0	1889.81	2019.26	2019.26
38	1.62126	2968.2	-10.6454	Qlsr	200	12	668.713	584.261	1807.81	0	1807.81	1933.5	1933.5
39	2.19241	3777.42	-7.03759	Qlsr	200	12	661.896	578.305	1779.78	0	1779.78	1861.49	1861.49
40	2.19241	3490	-7.03759	Qlsr	200	12	629.76	550.228	1647.69	0	1647.69	1725.44	1725.44
41	2.1083	3074.73	-4.75614	Qlsr	200	12	607.882	531.113	1557.77	0	1557.77	1608.34	1608.34
42	2.1083	2794.47	-4.75614	Qlsr	200	12	574.543	501.984	1420.73	0	1420.73	1468.53	1468.53
43	1.60255	1944.4	-2.87475	Qlsr	200	12	554.477	484.452	1338.24	0	1338.24	1366.09	1366.09
44	1.60255	1784.56	-2.87475	Qlsr	200	12	528.98	462.175	1233.44	0	1233.44	1260	1260
45	2.17675	2143.01	2.37144	Qlsr	200	12	516.684	451.432	1182.9	0	1182.9	1161.5	1161.5
46	2.17675	1798.17	2.37144	Qlsr	200	12	473.903	414.054	1007.04	0	1007.04	987.419	987.419
47	2.17678	1454.56	3.92187	Qlsr	200	12	436.385	381.274	852.829	0	852.829	822.912	822.912
48	2.17678	1129.37	3.92187	Qlsr	200	12	395.359	345.429	684.191	0	684.191	657.086	657.086
49	2.16708	794.417	5.73716	Qlsr	200	12	358.098	312.874	531.032	0	531.032	495.054	495.054
50	2.16708	394.074	5.73716	Qlsr	200	12	318.264	278.07	367.291	0	367.291	335.315	335.315

Interslice Data

Global Minimum Query (spencer) - Safety Factor: 0.87371

Slice Number	X coordinate [ft]	Y coordinate - Bottom [ft]	Interslice Normal Force [lbs]	Interslice Shear Force [lbs]	Interslice Force Angle [deg]
1	392.552	112.413	0	0	0
2	394.327	109.211	-713.834	-223.979	17.4202
3	396.308	106.17	-943.692	-296.102	17.4203
4	398.29	103.701	-813.991	-255.406	17.4203
5	400.054	102.017	-603.742	-189.436	17.4203
6	401.817	100.333	-283.098	-88.8275	17.4203
7	403.581	98.6515	146.588	45.995	17.4203
8	405.345	96.9705	686.15	215.293	17.4203
9	406.97	95.4881	1243	390.017	17.4203
10	408.595	94.0057	1883.28	590.916	17.4203
11	410.491	92.5622	2518.32	790.174	17.4203
12	412.386	91.1188	3222.6	1011.15	17.4202
13	414.788	89.543	3962.14	1243.2	17.4203
14	417.189	87.9672	4771.82	1497.25	17.4202
15	419.593	86.411	5627.72	1765.81	17.4203
16	421.996	84.8987	6495.58	2038.12	17.4203
17	423.92	83.82	7055.14	2213.69	17.4203
18	425.844	82.7413	7637.94	2396.56	17.4203
19	427.767	81.6625	8244.01	2586.72	17.4203
20	429.691	80.5838	8873.32	2784.18	17.4203
21	431.615	79.5051	9525.88	2988.93	17.4203
22	433.538	78.4263	10201.2	3200.82	17.4202
23	435.462	77.3883	10831.5	3398.6	17.4203
24	437.386	76.3504	11478.2	3601.53	17.4204
25	439.853	75.2016	12014.4	3769.76	17.4203
26	442.321	74.0528	12559.3	3940.74	17.4203
27	443.966	73.297	12905.5	4049.34	17.4202
28	445.611	72.5412	13251.9	4158.05	17.4203
29	447.256	71.7854	13598.7	4266.85	17.4202
30	448.828	71.123	13817.9	4335.65	17.4203
31	450.4	70.4607	14033.4	4403.27	17.4203
32	451.973	69.7983	14245.1	4469.69	17.4203
33	454.33	68.9858	14204	4456.77	17.4202
34	456.688	68.1733	14145.4	4438.4	17.4203
35	459.1	67.5992	13553.5	4252.68	17.4203
36	461.513	67.0251	12963.4	4067.53	17.4203
37	463.134	66.7204	12407.3	3893.03	17.4203
38	464.755	66.4156	11858.7	3720.91	17.4203
39	466.376	66.1109	11317.7	3551.17	17.4204
40	468.569	65.8402	10338	3243.74	17.4202
41	470.761	65.5696	9393.37	2947.36	17.4203
42	472.869	65.3942	8375.89	2628.1	17.4203
43	474.978	65.2187	7405.15	2323.51	17.4203
44	476.58	65.1383	6617.94	2076.51	17.4203
45	478.183	65.0578	5863.44	1839.77	17.4203
46	480.36	65.1479	4624.09	1450.9	17.4203
47	482.536	65.2381	3494.39	1096.43	17.4202
48	484.713	65.3873	2410.43	756.32	17.4203
49	486.89	65.5366	1441.58	452.324	17.4203
50	489.057	65.7543	544.399	170.816	17.4203
51	491.224	65.972	0	0	0

Discharge Sections

Entity Information

Offsite Slope (Static)

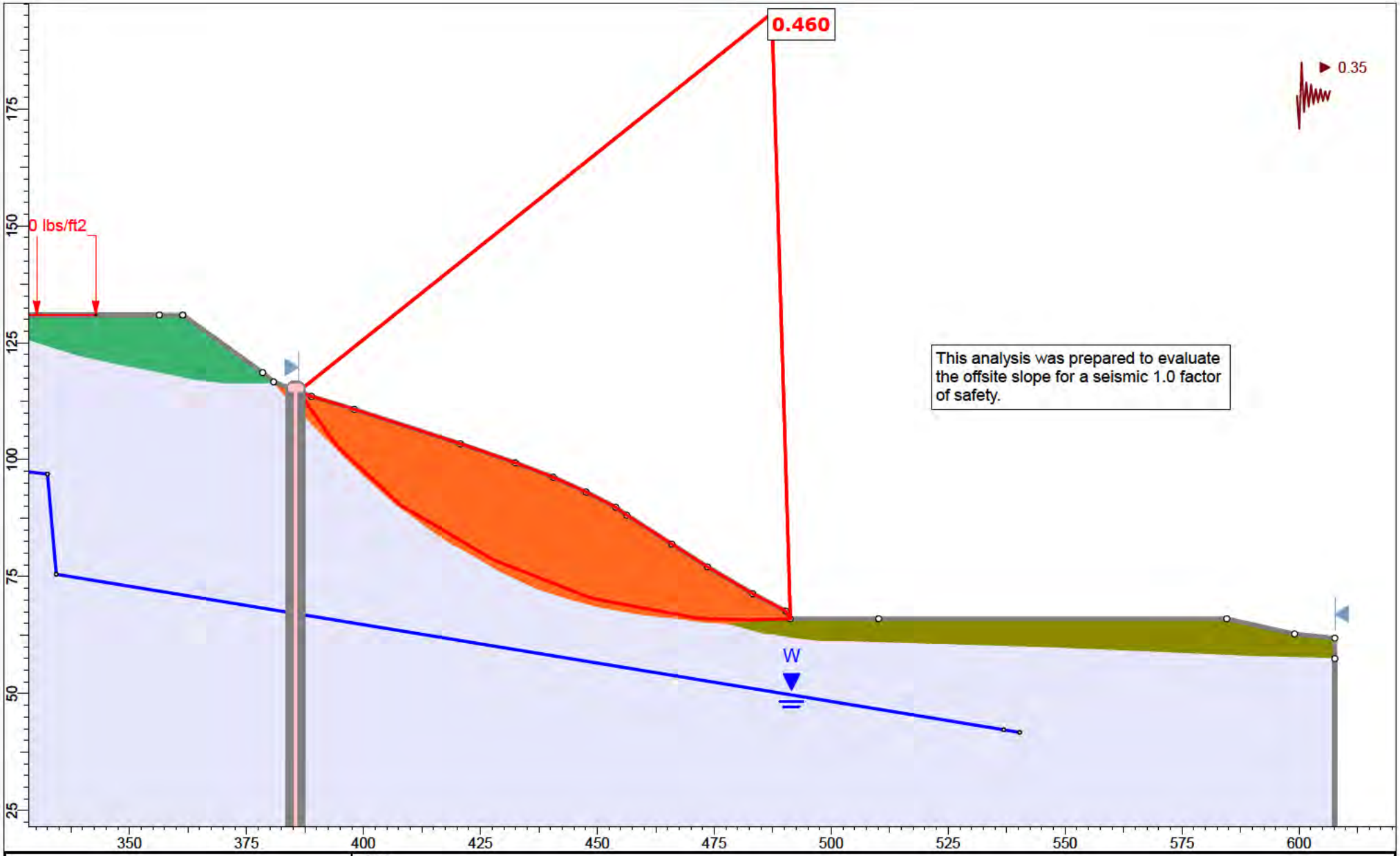
Shared Entities

Type	Coordinates (x,y)
External Boundary	0.036, 188.459 0.067, -0.196 607.643, -0.196 607.643, 57.4645 607.643, 61.847 599.042, 62.731 584.548, 65.972 510.136, 65.972 491.224, 65.972 490.282, 67.621 483.212, 71.333 473.549, 77.048 465.949, 81.938 456.287, 88.124 453.93, 89.833 447.567, 93.073 440.556, 96.255 432.484, 99.318 420.76, 103.384 398.077, 110.748 388.886, 113.517 385.532, 114.823 380.809, 116.625 378.482, 118.617 361.373, 130.917 356.376, 130.917 314.827, 130.917 309.126, 130.917 274.531, 130.917 255.791, 127.058 249.338, 127.168 249.338, 130.982 233.566, 130.982 233.566, 134.006 229.738, 134.006 216.211, 139.228 208.509, 142.046 205.127, 143.174 193.481, 146.829 185.591, 146.829 179.496, 144.095 176.551, 144.095 138.196, 146.334 101.609, 147.689 80.752, 160.179 65.493, 169.901 57.598, 174.201 40.925, 182.509 36.741, 184.806

Material Boundary	380.809, 116.625 384.655, 112.071 391.766, 104.817 399.736, 96.943 407.228, 90.261 414.434, 85.012 419.875, 81.29 425.554, 77.997 429.228, 75.849 437.102, 72.175 444.547, 69.789 450.56, 68.214 459.627, 66.639 468.838, 65.589 478.382, 64.921 488.261, 65.589 491.224, 65.972
Material Boundary	314.827, 130.917 319.798, 128.565 331.181, 124.794 339.312, 122.26 347.737, 120.434 355.808, 118.902 364.528, 117.076 370.42, 116.428 378.404, 116.428 380.809, 116.625
Material Boundary	478.382, 64.921 486.105, 62.747 491.839, 61.736 497.757, 61.079 502.485, 61.079 546.833, 59.749 590.839, 57.858 607.643, 57.4645

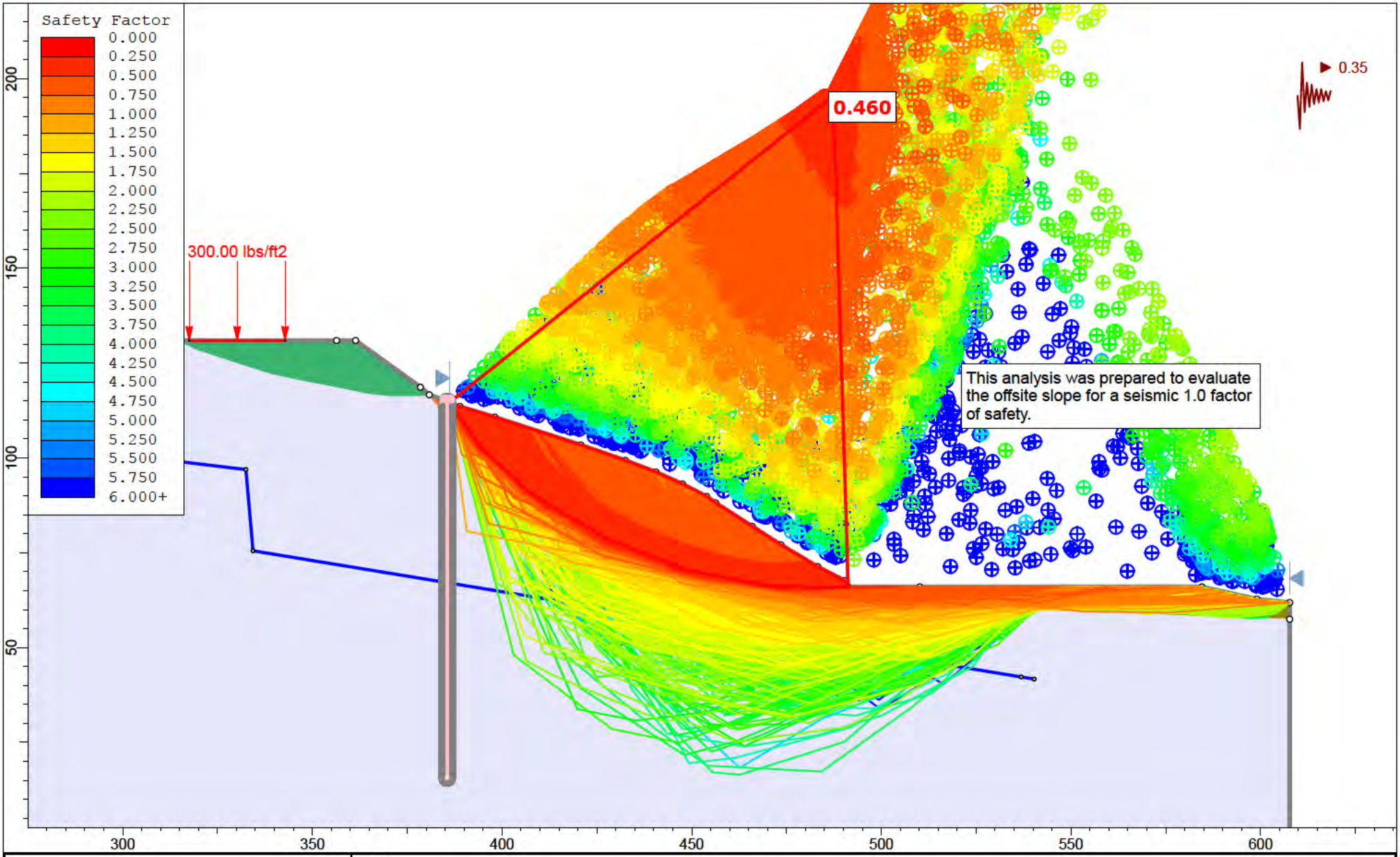
Scenario-based Entities

Type	Coordinates (x,y)	Master Scenario
Water Table	215.062, 110.934 332.462, 96.909 334.336, 75.504 536.885, 42.2379 540.294, 41.678	Assigned to: Anisotropic Bedrock (Tm) Ultimate
Distributed Load	342.792, 130.917 317.529, 130.917	Constant DistributionOrientation: Normal to boundaryMagnitude: 300 lbs/ft2Creates Excess Pore Pressure: No



rocscience	Project	Section 2-2'		
	Analysis Description	Offiste Slope (Seismic)		
	Drawn By	A. Greene	Scale 1:340	Company Feffer Geological Consulting
	Date			File Name Section 2-2' Translational Analysis_2.slmd

SLIDEINTERPRET 9.018



rocscience

SLIDEINTERPRET 9.018

Project	Section 2-2'				
Analysis Description	Offiste Slope (Seismic)				
Drawn By	A. Greene	Scale	1:420	Company	Feffer Geological Consulting
Date				File Name	Section 2-2' Translational Analysis_2.slmd

Slide Analysis Information

Section 2-2' Translational Analysis_2

Project Summary

File Name:	Section 2-2' Translational Analysis_2.slmd
Slide Modeler Version:	9.018
Compute Time:	00h:00m:15.640s
Project Title:	Section 2-2'
Analysis:	Offiste Slope (Seismic)
Author:	A. Greene
Company:	Feffer Geological Consulting

General Settings

Units of Measurement:	Imperial Units
Time Units:	days
Permeability Units:	feet/second
Data Output:	Standard
Failure Direction:	Left to Right

Analysis Options

Slices Type:	Vertical
Analysis Methods Used	
	Spencer
Number of slices:	50
Tolerance:	0.005
Maximum number of iterations:	75
Check malpha < 0.2:	Yes
Create Interslice boundaries at intersections with water tables and piezos:	Yes
Initial trial value of FS:	1
Steffensen Iteration:	Yes

Groundwater Analysis

Groundwater Method:	Water Surfaces
Pore Fluid Unit Weight [lbs/ft3]:	62.4
Use negative pore pressure cutoff:	Yes
Maximum negative pore pressure [psf]:	0
Advanced Groundwater Method:	None

Random Numbers

Pseudo-random Seed:	10116
Random Number Generation Method:	Park and Miller v.3

Surface Options

Search Method:	Cuckoo Search
Initial # of Surface Vertices:	8
Maximum Iterations:	500
Number of Nests:	50
Minimum Elevation:	Not Defined
Minimum Depth:	Not Defined
Minimum Area:	Not Defined
Minimum Weight:	Not Defined
Convex Surfaces Only:	Enabled

Seismic Loading

Advanced seismic analysis:	No
Staged pseudostatic analysis:	No
Seismic Load Coefficient (Horizontal):	0.35

Loading

1 Distributed Load present

Distributed Load 1	
Distribution:	Constant
Magnitude [psf]:	300
Orientation:	Normal to boundary

Materials

Terrace (Qoa)	
Color	
Strength Type	Mohr-Coulomb
Unit Weight [lbs/ft3]	115
Cohesion [psf]	100
Friction Angle [deg]	31
Water Surface	None
Ru Value	0
Qlsr	
Color	
Strength Type	Mohr-Coulomb
Unit Weight [lbs/ft3]	115
Cohesion [psf]	200
Friction Angle [deg]	12
Water Surface	None
Ru Value	0
Fill (Af)	
Color	
Strength Type	Mohr-Coulomb
Unit Weight [lbs/ft3]	120
Cohesion [psf]	120
Friction Angle [deg]	31
Water Surface	None
Ru Value	0
Anisotropic Bedrock (Tm) Peak	
Color	
Strength Type	Anisotropic function
Unit Weight [lbs/ft3]	124
Water Surface	Water Table
Hu Value	1

Anisotropic Functions

Name: Anisotropic Bedrock (Tm) Peak

Angle From	Angle To	c	phi
-90	-30	720	41
-30	-10	200	16
-10	90	720	41

Support

Pile 1 (Seismic)	
Color	
Type	Pile/Micro Pile
Force Application	Active (Method A)
Force Orientation	Parallel to surface
Out-Of-Plane Spacing	10 ft
Failure Mode	Shear
Pile Shear Strength	1.25e+06 lbs

Global Minimums

Method: spencer

FS	0.460352
Axis Location:	487.316, 195.433
Left Slip Surface Endpoint:	386.119, 114.595
Right Slip Surface Endpoint:	491.268, 65.972
Resisting Moment:	7.35657e+06 lb-ft
Driving Moment:	1.59803e+07 lb-ft
Resisting Horizontal Force:	51376 lb
Driving Horizontal Force:	111602 lb
Total Slice Area:	1608.99 ft2
Surface Horizontal Width:	105.15 ft
Surface Average Height:	15.3019 ft

Global Minimum Coordinates

Method: spencer

X	Y
386.119	114.595
394.373	102.824
407.892	90.3085
427.595	78.6592
448.781	70.3551
471.586	66.0769
482.493	65.7462
491.268	65.972

Global Minimum Support Data

Method: spencer

Number of Supports: 1

Pile 1 (Seismic)

Support Type: Pile/Micro Pile

Start (x, y)	Length (ft)	L Inside SS (ft)	L Outside SS (ft)	Li (ft)	Lo (ft)	Force (lb)
385.532, 114.823	99.296	Not Effective	Not Effective	Not Effective	Not Effective	0

Valid and Invalid Surfaces

Method: spencer

Number of Valid Surfaces:	18108
Number of Invalid Surfaces:	6951

Error Codes

Error Code -106 reported for 36 surfaces
Error Code -108 reported for 27 surfaces
Error Code -109 reported for 15 surfaces
Error Code -110 reported for 310 surfaces
Error Code -111 reported for 1200 surfaces
Error Code -112 reported for 136 surfaces
Error Code -121 reported for 695 surfaces
Error Code -145 reported for 23 surfaces
Error Code -1000 reported for 4509 surfaces

Error Code Descriptions

The following errors were encountered during the computation:

-106 = Average slice width is less than 0.0001 * (maximum horizontal extent of soil region). This limitation is imposed to avoid numerical errors which may result from too many slices, or too small a slip region.

-108 = Total driving moment or total driving force < 0.1. This is to limit the calculation of extremely high safety factors if the driving force is very small (0.1 is an arbitrary number).

-109 = Soiltype for slice base not located. This error should occur very rarely, if at all. It may occur if a very low number of slices is combined with certain soil geometries, such that the midpoint of a slice base is actually outside the soil region,even though the slip surface is wholly within the soil region.

-110 = The water table or a piezoline does not span the slip region for a given slip surface, when Water Surfaces is specified as the method of pore pressure calculation. If this error occurs, check that the water table or piezoline(s) span the appropriate soil cells.

-111 = Safety factor equation did not converge

-112 = The coefficient M-Alpha = cos(alpha)(1+tan(alpha)tan(phi)/F) < 0.2 for the final iteration of the safety factor calculation. This screens out some slip surfaces which may not be valid in the context of the analysis, in particular, deep seated slip surfaces with many high negative base angle slices in the passive zone.

-121 = Concave failure surface, only convex surfaces have been defined as being allowed.

-145 = Slip surface was clipped vertically by a weak layer in a region of compression. Such a surface cannot be evaluated using Limit Equilibrium. For more information, see Help Documentation on weak layers.

-1000 = No valid slip surface is generated

Slice Data

Global Minimum Query (spencer) - Safety Factor: 0.460352

Slice Number	Width [ft]	Weight [lbs]	Angle of Slice Base [deg]	Base Material	Base Cohesion [psf]	Base Friction Angle [deg]	Shear Stress [psf]	Shear Strength [psf]	Base Normal Stress [psf]	Pore Pressure [psf]	Effective Normal Stress [psf]	Base Vertical Stress [psf]	Effective Vertical Stress [psf]
1	2.06352	253.8	-54.9591	Qlsr	200	12	397.988	183.215	-78.969	0	-78.969	488.553	488.553
2	2.06352	770.769	-54.9591	Qlsr	200	12	433.063	199.362	-3.00348	0	-3.00348	614.536	614.536
3	2.06352	1319.01	-54.9591	Qlsr	200	12	470.26	216.485	77.5572	0	77.5572	748.138	748.138
4	2.06352	1869.76	-54.9591	Qlsr	200	12	507.627	233.687	158.486	0	158.486	882.352	882.352
5	2.25317	2524.59	-42.7935	Qlsr	200	12	630.688	290.339	425.009	0	425.009	1008.9	1008.9
6	2.25317	2888.35	-42.7935	Qlsr	200	12	662.382	304.929	493.652	0	493.652	1106.89	1106.89
7	2.25317	3242.15	-42.7935	Qlsr	200	12	693.209	319.12	560.419	0	560.419	1202.19	1202.19
8	2.25317	3593.12	-42.7935	Qlsr	200	12	723.79	333.198	626.648	0	626.648	1296.73	1296.73
9	2.25317	3944.09	-42.7935	Qlsr	200	12	754.371	347.276	692.878	0	692.878	1391.27	1391.27
10	2.25317	4295.06	-42.7935	Qlsr	200	12	784.952	361.354	759.111	0	759.111	1485.82	1485.82
11	2.18928	4417.25	-30.5928	Qlsr	200	12	964.76	444.129	1148.53	0	1148.53	1718.93	1718.93
12	2.18928	4564.18	-30.5928	Qlsr	200	12	981.831	451.988	1185.51	0	1185.51	1766	1766
13	2.18928	4711.12	-30.5928	Qlsr	200	12	998.903	459.847	1222.48	0	1222.48	1813.06	1813.06
14	2.18928	4858.06	-30.5928	Qlsr	200	12	1015.97	467.706	1259.45	0	1259.45	1860.13	1860.13
15	2.18928	5004.99	-30.5928	Qlsr	200	12	1033.04	475.564	1296.43	0	1296.43	1907.2	1907.2
16	2.18928	5151.84	-30.5928	Qlsr	200	12	1050.11	483.418	1333.38	0	1333.38	1954.23	1954.23
17	2.18928	5291.27	-30.5928	Qlsr	200	12	1066.31	490.876	1368.46	0	1368.46	1998.89	1998.89
18	2.18928	5425.99	-30.5928	Qlsr	200	12	1081.96	498.081	1402.36	0	1402.36	2042.05	2042.05
19	2.18928	5560.71	-30.5928	Qlsr	200	12	1097.61	505.287	1436.26	0	1436.26	2085.2	2085.2
20	2.11857	5457.94	-21.4036	Qlsr	200	12	1281.26	589.83	1834	0	1834	2336.22	2336.22
21	2.11857	5481.24	-21.4036	Qlsr	200	12	1284.64	591.385	1841.32	0	1841.32	2344.86	2344.86
22	2.11857	5500.51	-21.4036	Qlsr	200	12	1287.43	592.67	1847.36	0	1847.36	2352	2352
23	2.11857	5507.77	-21.4036	Qlsr	200	12	1288.48	593.153	1849.64	0	1849.64	2354.68	2354.68
24	2.11857	5514.22	-21.4036	Qlsr	200	12	1289.41	593.584	1851.67	0	1851.67	2357.08	2357.08
25	2.11857	5520.68	-21.4036	Qlsr	200	12	1290.35	594.015	1853.69	0	1853.69	2359.47	2359.47
26	2.11857	5512.19	-21.4036	Qlsr	200	12	1289.12	593.448	1851.03	0	1851.03	2356.32	2356.32
27	2.11857	5480.51	-21.4036	Qlsr	200	12	1284.53	591.336	1841.09	0	1841.09	2344.58	2344.58
28	2.11857	5448.56	-21.4036	Qlsr	200	12	1279.9	589.205	1831.06	0	1831.06	2332.75	2332.75
29	2.11857	5411.93	-21.4036	Qlsr	200	12	1274.59	586.762	1819.57	0	1819.57	2319.17	2319.17
30	2.07315	5189.39	-10.6252	Qlsr	200	12	1526.86	702.892	2365.92	0	2365.92	2652.36	2652.36
31	2.07315	5030.44	-10.6252	Qlsr	200	12	1496.97	689.134	2301.19	0	2301.19	2582.02	2582.02
32	2.07315	4857.26	-10.6252	Qlsr	200	12	1464.41	674.144	2230.68	0	2230.68	2505.4	2505.4
33	2.07315	4607.11	-10.6252	Qlsr	200	12	1417.38	652.492	2128.81	0	2128.81	2394.71	2394.71
34	2.07315	4375.31	-10.6252	Qlsr	200	12	1373.79	632.429	2034.42	0	2034.42	2292.14	2292.14
35	2.07315	4151.58	-10.6252	Qlsr	200	12	1331.73	613.065	1943.32	0	1943.32	2193.15	2193.15
36	2.07315	3927.86	-10.6252	Qlsr	200	12	1289.67	593.7	1852.21	0	1852.21	2094.15	2094.15
37	2.07315	3704.13	-10.6252	Qlsr	200	12	1247.6	574.336	1761.11	0	1761.11	1995.16	1995.16
38	2.07315	3480	-10.6252	Qlsr	200	12	1205.46	554.936	1669.84	0	1669.84	1895.99	1895.99
39	2.07315	3254.77	-10.6252	Qlsr	200	12	1163.11	535.441	1578.12	0	1578.12	1796.32	1796.32
40	2.07315	3029.47	-10.6252	Qlsr	200	12	1120.75	515.941	1486.38	0	1486.38	1696.64	1696.64
41	2.18142	2901.53	-1.73656	Qlsr	200	12	1275.01	586.952	1820.46	0	1820.46	1859.12	1859.12
42	2.18142	2582.94	-1.73656	Qlsr	200	12	1203.36	553.967	1665.29	0	1665.29	1701.77	1701.77
43	2.18142	2275.88	-1.73656	Qlsr	200	12	1134.3	522.175	1515.71	0	1515.71	1550.1	1550.1
44	2.18142	1968.82	-1.73656	Qlsr	200	12	1065.23	490.383	1366.14	0	1366.14	1398.44	1398.44
45	2.18142	1661.76	-1.73656	Qlsr	200	12	996.177	458.592	1216.58	0	1216.58	1246.78	1246.78
46	2.18004	1346.77	1.47382	Qlsr	200	12	988.891	455.238	1200.8	0	1200.8	1175.36	1175.36
47	2.18004	1043.78	1.47382	Qlsr	200	12	913.979	420.752	1038.55	0	1038.55	1015.04	1015.04
48	2.18004	742.758	1.47382	Qlsr	200	12	839.553	386.49	877.368	0	877.368	855.767	855.767
49	2.18004	380.67	1.47382	Qlsr	200	12	750.028	345.277	683.477	0	683.477	664.18	664.18
50	0.0555445	0.0170265	1.47382	Fill (Af)	120	31	7096.68	3266.97	5237.45	0	5237.45	5054.87	5054.87

Interslice Data

Global Minimum Query (spencer) - Safety Factor: 0.460352

Slice Number	X coordinate [ft]	Y coordinate - Bottom [ft]	Interslice Normal Force [lbs]	Interslice Shear Force [lbs]	Interslice Force Angle [deg]
1	386.119	114.595	0	0	0
2	388.182	111.652	-965.42	-683.783	35.309
3	390.246	108.709	-1598.8	-1132.39	35.309
4	392.309	105.767	-1880.07	-1331.6	35.3089
5	394.373	102.824	-1807.6	-1280.28	35.309
6	396.626	100.738	-1459.56	-1033.77	35.309
7	398.879	98.6524	-912.479	-646.286	35.309
8	401.132	96.5665	-171.814	-121.691	35.3089
9	403.385	94.4805	760.892	538.921	35.309
10	405.639	92.3945	1885.64	1335.55	35.309
11	407.892	90.3085	3202.43	2268.2	35.309
12	410.081	89.0141	4121.35	2919.05	35.309
13	412.27	87.7198	5102.16	3613.73	35.309
14	414.46	86.4254	6144.85	4352.24	35.309
15	416.649	85.131	7249.42	5134.58	35.309
16	418.838	83.8367	8415.88	5960.75	35.309
17	421.027	82.5423	9644.18	6830.73	35.309
18	423.217	81.2479	10931.2	7742.29	35.309
19	425.406	79.9535	12274.9	8694.04	35.3091
20	427.595	78.6592	13675.4	9685.97	35.3091
21	429.714	77.8288	14392.2	10193.6	35.3089
22	431.832	76.9984	15116	10706.3	35.309
23	433.951	76.1679	15845.7	11223.1	35.309
24	436.07	75.3375	16577.6	11741.5	35.309
25	438.188	74.5071	17311.4	12261.2	35.3089
26	440.307	73.6767	18047.2	12782.4	35.309
27	442.425	72.8463	18780.4	13301.7	35.309
28	444.544	72.0159	19504	13814.2	35.309
29	446.662	71.1855	20218	14319.9	35.309
30	448.781	70.3551	20920.8	14817.6	35.3088
31	450.854	69.9661	20489.4	14512.1	35.3089
32	452.927	69.5772	20039.2	14193.3	35.3091
33	455	69.1883	19568.6	13859.9	35.3089
34	457.074	68.7994	19068.3	13505.6	35.309
35	459.147	68.4104	18540.6	13131.9	35.3091
36	461.22	68.0215	17986.5	12739.4	35.309
37	463.293	67.6326	17405.9	12328.2	35.3091
38	465.366	67.2437	16798.9	11898.2	35.3089
39	467.439	66.8547	16165.3	11449.5	35.309
40	469.513	66.4658	15505.1	10981.9	35.3091
41	471.586	66.0769	14818.2	10495.4	35.3091
42	473.767	66.0108	13170.7	9328.5	35.3091
43	475.949	65.9446	11557.9	8186.15	35.3089
44	478.13	65.8785	9978.42	7067.47	35.309
45	480.311	65.8123	8432.37	5972.43	35.309
46	482.493	65.7462	6919.71	4901.06	35.309
47	484.673	65.8023	5166.26	3659.13	35.309
48	486.853	65.8584	3479.3	2464.3	35.309
49	489.033	65.9145	1858.41	1316.26	35.3089
50	491.213	65.9706	316.966	224.499	35.309
51	491.268	65.972	0	0	0

Discharge Sections

Entity Information

Offsite Slope (Seismic)

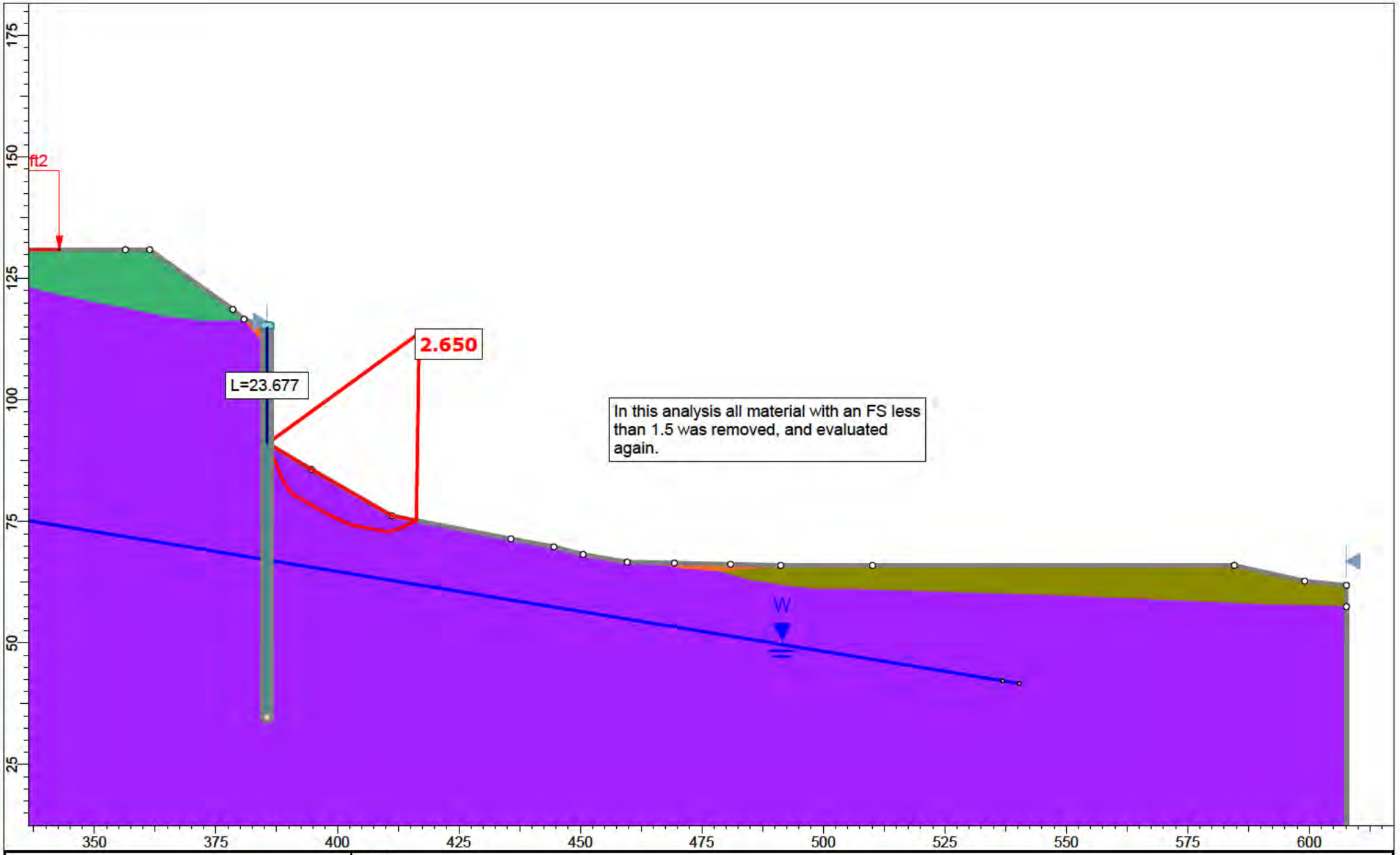
Shared Entities

Type	Coordinates (x,y)
External Boundary	0.036, 188.459 0.067, -0.196 607.643, -0.196 607.643, 57.4645 607.643, 61.847 599.042, 62.731 584.548, 65.972 510.136, 65.972 491.224, 65.972 490.282, 67.621 483.212, 71.333 473.549, 77.048 465.949, 81.938 456.287, 88.124 453.93, 89.833 447.567, 93.073 440.556, 96.255 432.484, 99.318 420.76, 103.384 398.077, 110.748 388.886, 113.517 385.532, 114.823 380.809, 116.625 378.482, 118.617 361.373, 130.917 356.376, 130.917 314.827, 130.917 309.126, 130.917 274.531, 130.917 255.791, 127.058 249.338, 127.168 249.338, 130.982 233.566, 130.982 233.566, 134.006 229.738, 134.006 216.211, 139.228 208.509, 142.046 205.127, 143.174 193.481, 146.829 185.591, 146.829 179.496, 144.095 176.551, 144.095 138.196, 146.334 101.609, 147.689 80.752, 160.179 65.493, 169.901 57.598, 174.201 40.925, 182.509 36.741, 184.806

Material Boundary	380.809, 116.625 384.655, 112.071 391.766, 104.817 399.736, 96.943 407.228, 90.261 414.434, 85.012 419.875, 81.29 425.554, 77.997 429.228, 75.849 437.102, 72.175 444.547, 69.789 450.56, 68.214 459.627, 66.639 468.838, 65.589 478.382, 64.921 488.261, 65.589 491.224, 65.972
Material Boundary	314.827, 130.917 319.798, 128.565 331.181, 124.794 339.312, 122.26 347.737, 120.434 355.808, 118.902 364.528, 117.076 370.42, 116.428 378.404, 116.428 380.809, 116.625
Material Boundary	478.382, 64.921 486.105, 62.747 491.839, 61.736 497.757, 61.079 502.485, 61.079 546.833, 59.749 590.839, 57.858 607.643, 57.4645

Scenario-based Entities

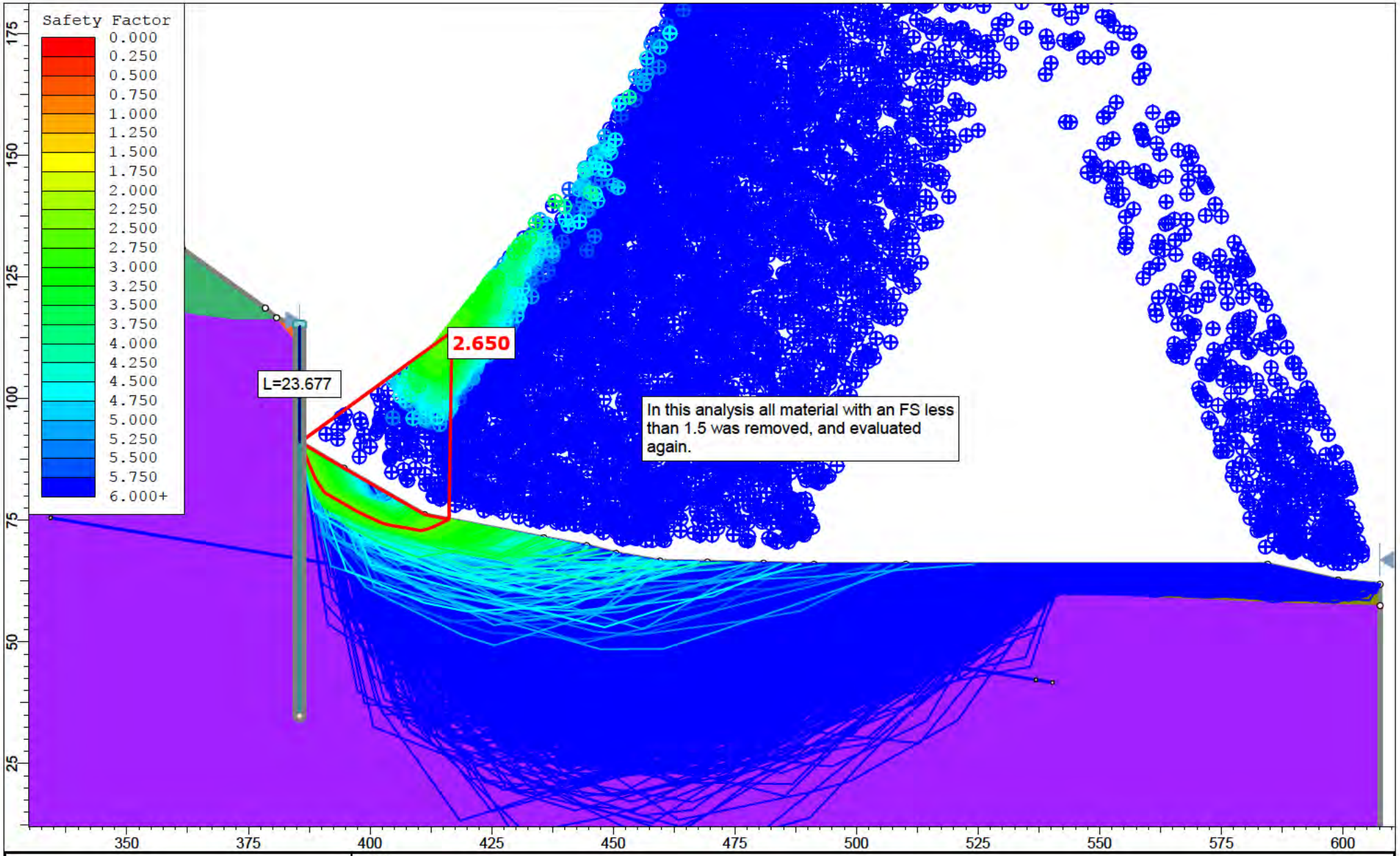
Type	Coordinates (x,y)	Master Scenario
Water Table	215.062, 110.934 332.462, 96.909 334.336, 75.504 536.885, 42.2379 540.294, 41.678	Assigned to: Anisotropic Bedrock (Tm) Peak
Distributed Load	342.792, 130.917 317.529, 130.917	Constant DistributionOrientation: Normal to boundaryMagnitude: 300 lbs/ft2Creates Excess Pore Pressure: No



rocscience

SLIDEINTERPRET 9.018

Project	Section 2-2'				
Analysis Description	Offiste Slope Removal (Static)				
Drawn By	A. Greene	Scale	1:327	Company	Feffer Geological Consulting
Date				File Name	Section 2-2' Translational Analysis_2.slmd



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SLIDEINTERPRET 9.018

Project	Section 2-2'				
Analysis Description	Offiste Slope Removal (Static)				
Drawn By	A. Greene	Scale	1:327	Company	Feffer Geological Consulting
Date				File Name	Section 2-2' Translational Analysis_2.slmd

Slide Analysis Information

Section 2-2' Translational Analysis_2

Project Summary

File Name:	Section 2-2' Translational Analysis_2.slmd
Slide Modeler Version:	9.018
Compute Time:	00h:00m:16.407s
Project Title:	Section 2-2'
Analysis:	Offiste Slope Removal (Static)
Author:	A. Greene
Company:	Feffer Geological Consulting

General Settings

Units of Measurement:	Imperial Units
Time Units:	days
Permeability Units:	feet/second
Data Output:	Standard
Failure Direction:	Left to Right

Analysis Options

Slices Type:	Vertical
Analysis Methods Used	
	Spencer
Number of slices:	50
Tolerance:	0.005
Maximum number of iterations:	75
Check malpha < 0.2:	Yes
Create Interslice boundaries at intersections with water tables and piezos:	Yes
Initial trial value of FS:	1
Steffensen Iteration:	Yes

Groundwater Analysis

Groundwater Method:	Water Surfaces
Pore Fluid Unit Weight [lbs/ft3]:	62.4
Use negative pore pressure cutoff:	Yes
Maximum negative pore pressure [psf]:	0
Advanced Groundwater Method:	None

Random Numbers

Pseudo-random Seed:	10116
Random Number Generation Method:	Park and Miller v.3

Surface Options

Search Method:	Cuckoo Search
Initial # of Surface Vertices:	8
Maximum Iterations:	500
Number of Nests:	50
Minimum Elevation:	Not Defined
Minimum Depth:	Not Defined
Minimum Area:	Not Defined
Minimum Weight:	Not Defined
Convex Surfaces Only:	Enabled

Seismic Loading

Advanced seismic analysis:	No
Staged pseudostatic analysis:	No

Loading

1 Distributed Load present

Distributed Load 1	
Distribution:	Constant
Magnitude [psf]:	300
Orientation:	Normal to boundary

Materials

Terrace (Qoa)	
Color	
Strength Type	Mohr-Coulomb
Unit Weight [lbs/ft3]	115
Cohesion [psf]	100
Friction Angle [deg]	31
Water Surface	None
Ru Value	0
Qlsr	
Color	
Strength Type	Mohr-Coulomb
Unit Weight [lbs/ft3]	115
Cohesion [psf]	200
Friction Angle [deg]	12
Water Surface	None
Ru Value	0
Fill (Af)	
Color	
Strength Type	Mohr-Coulomb
Unit Weight [lbs/ft3]	120
Cohesion [psf]	120
Friction Angle [deg]	31
Water Surface	None
Ru Value	0
Anisotropic Bedrock (Tm) Ultimate	
Color	
Strength Type	Anisotropic function
Unit Weight [lbs/ft3]	124
Water Surface	Water Table
Hu Value	0

Anisotropic Functions

Name: Anisotropic Bedrock (Tm) Ultimate

Angle From	Angle To	c	phi
-90	-30	520	34.5
-30	-10	200	16
-10	90	520	34.5

Support

Pile 1 (Static)	
Color	
Type	Pile/Micro Pile
Force Application	Active (Method A)
Force Orientation	Parallel to surface
Out-Of-Plane Spacing	10 ft
Failure Mode	Shear
Pile Shear Strength	285000 lbs

Global Minimums

Method: spencer

FS	2.649680
Axis Location:	416.829, 113.733
Left Slip Surface Endpoint:	385.643, 91.080
Right Slip Surface Endpoint:	416.240, 75.192
Resisting Moment:	779731 lb-ft
Driving Moment:	299230 lb-ft
Resisting Horizontal Force:	15292.9 lb
Driving Horizontal Force:	5868.8 lb
Total Slice Area:	159.75 ft2
Surface Horizontal Width:	30.5973 ft
Surface Average Height:	5.22105 ft

Global Minimum Coordinates

Method: spencer

X	Y
385.643	91.0799
386.167	89.8071
386.691	88.5342
387.215	87.2613
387.739	85.9883
388.264	84.7153
388.812	83.4285
389.764	81.9985
390.722	80.6655
391.963	79.9492
393.206	79.232
394.449	78.5149
395.692	77.7978
396.935	77.0806
398.177	76.4138
399.258	75.9178
400.339	75.4217
401.419	74.9262
402.5	74.433
403.862	74.0605
405.215	73.8205
406.568	73.5805
407.914	73.3426
409.259	73.1047
410.601	72.868
411.779	73.2367
412.957	73.6431
414.599	74.4177
416.24	75.1923

Global Minimum Support Data

Method: spencer

Number of Supports: 1

Pile 1 (Static)

Support Type: Pile/Micro Pile

Start (x, y)	Length (ft)	L Inside SS (ft)	L Outside SS (ft)	Li (ft)	Lo (ft)	Force (lb)
385.532, 114.823	80	Not Effective	Not Effective	Not Effective	Not Effective	0

Valid and Invalid Surfaces

Method: spencer

Number of Valid Surfaces:	13728
Number of Invalid Surfaces:	11330

Error Codes

Error Code -106 reported for 19 surfaces
Error Code -108 reported for 391 surfaces
Error Code -109 reported for 2 surfaces
Error Code -110 reported for 444 surfaces
Error Code -111 reported for 2620 surfaces
Error Code -112 reported for 220 surfaces
Error Code -121 reported for 111 surfaces
Error Code -145 reported for 38 surfaces
Error Code -1000 reported for 7485 surfaces

Error Code Descriptions

The following errors were encountered during the computation:

-106 = Average slice width is less than 0.0001 * (maximum horizontal extent of soil region). This limitation is imposed to avoid numerical errors which may result from too many slices, or too small a slip region.

-108 = Total driving moment or total driving force < 0.1. This is to limit the calculation of extremely high safety factors if the driving force is very small (0.1 is an arbitrary number).

-109 = Soiltype for slice base not located. This error should occur very rarely, if at all. It may occur if a very low number of slices is combined with certain soil geometries, such that the midpoint of a slice base is actually outside the soil region,even though the slip surface is wholly within the soil region.

-110 = The water table or a piezoline does not span the slip region for a given slip surface, when Water Surfaces is specified as the method of pore pressure calculation. If this error occurs, check that the water table or piezoline(s) span the appropriate soil cells.

-111 = Safety factor equation did not converge

-112 = The coefficient M-Alpha = cos(alpha)(1+tan(alpha)tan(phi)/F) < 0.2 for the final iteration of the safety factor calculation. This screens out some slip surfaces which may not be valid in the context of the analysis, in particular, deep seated slip surfaces with many high negative base angle slices in the passive zone.

-121 = Concave failure surface, only convex surfaces have been defined as being allowed.

-145 = Slip surface was clipped vertically by a weak layer in a region of compression. Such a surface cannot be evaluated using Limit Equilibrium. For more information, see Help Documentation on weak layers.

-1000 = No valid slip surface is generated

Slice Data

Global Minimum Query (spencer) - Safety Factor: 2.64968

Slice Number	Width [ft]	Weight [lbs]	Angle of Slice Base [deg]	Base Material	Base Cohesion [psf]	Base Friction Angle [deg]	Shear Stress [psf]	Shear Strength [psf]	Base Normal Stress [psf]	Pore Pressure [psf]	Effective Normal Stress [psf]	Base Vertical Stress [psf]	Effective Vertical Stress [psf]
1	0.524071	31.2214	-67.6221	Anisotropic Bedrock (Tm) Ultimate	520	34.5	116.534	308.778	-307.331	0	-307.331	-24.2875	-24.2875
2	0.52408	93.6657	-67.6219	Anisotropic Bedrock (Tm) Ultimate	520	34.5	137.958	365.544	-224.735	0	-224.735	110.339	110.339

3	0.52408	156.109	-67.6219	Anisotropic Bedrock (Tm) Ultimate	520	34.5	159.381	422.308	-142.143	0	-142.143	244.963	244.963
4	0.524251	218.625	-67.6169	Anisotropic Bedrock (Tm) Ultimate	520	34.5	180.824	479.125	-59.4727	0	-59.4727	379.607	379.607
5	0.524251	281.089	-67.6169	Anisotropic Bedrock (Tm) Ultimate	520	34.5	202.248	535.894	23.1252	0	23.1252	514.228	514.228
6	0.548501	359.424	-66.9141	Anisotropic Bedrock (Tm) Ultimate	520	34.5	226.914	601.251	118.221	0	118.221	650.578	650.578
7	0.475961	352.965	-56.3492	Anisotropic Bedrock (Tm) Ultimate	520	34.5	281.882	746.897	330.138	0	330.138	753.59	753.59
8	0.475961	378.44	-56.3492	Anisotropic Bedrock (Tm) Ultimate	520	34.5	292.703	775.57	371.856	0	371.856	811.564	811.564
9	0.478764	404.803	-54.3087	Anisotropic Bedrock (Tm) Ultimate	520	34.5	309.006	818.768	434.711	0	434.711	864.877	864.877
10	0.478764	427.449	-54.3087	Anisotropic Bedrock (Tm) Ultimate	520	34.5	318.713	844.487	472.132	0	472.132	915.811	915.811
11	0.620561	568.29	-29.9905	Anisotropic Bedrock (Tm) Ultimate	200	16	167.125	442.828	846.842	0	846.842	943.295	943.295
12	0.620561	567.42	-29.9905	Anisotropic Bedrock (Tm) Ultimate	200	16	166.976	442.434	845.468	0	845.468	941.836	941.836
13	0.621471	567.377	-29.984	Anisotropic Bedrock (Tm) Ultimate	200	16	166.828	442.042	844.102	0	844.102	940.358	940.358
14	0.621471	566.497	-29.984	Anisotropic Bedrock (Tm) Ultimate	200	16	166.679	441.645	842.715	0	842.715	938.885	938.885
15	0.621471	565.617	-29.984	Anisotropic Bedrock (Tm) Ultimate	200	16	166.528	441.247	841.328	0	841.328	937.412	937.412
16	0.621471	564.737	-29.984	Anisotropic Bedrock (Tm) Ultimate	200	16	166.379	440.85	839.942	0	839.942	935.938	935.938
17	0.621471	564.049	-29.984	Anisotropic Bedrock (Tm) Ultimate	200	16	166.261	440.539	838.857	0	838.857	934.786	934.786
18	0.621471	564.028	-29.984	Anisotropic Bedrock (Tm) Ultimate	200	16	166.257	440.529	838.824	0	838.824	934.751	934.751
19	0.621471	564.063	-29.984	Anisotropic Bedrock (Tm) Ultimate	200	16	166.263	440.545	838.878	0	838.878	934.808	934.808
20	0.621471	564.097	-29.984	Anisotropic Bedrock (Tm) Ultimate	200	16	166.269	440.56	838.934	0	838.934	934.868	934.868
21	0.621471	563.161	-28.2115	Anisotropic Bedrock (Tm) Ultimate	200	16	166.507	441.189	841.126	0	841.126	930.449	930.449

22	0.621471	561.256	-28.2115	Anisotropic Bedrock (Tm) Ultimate	200	16	166.181	440.327	838.12	0	838.12	927.269	927.269
23	0.540267	484.971	-24.6587	Anisotropic Bedrock (Tm) Ultimate	200	16	166.36	440.802	839.776	0	839.776	916.148	916.148
24	0.540267	480.73	-24.6587	Anisotropic Bedrock (Tm) Ultimate	200	16	165.526	438.592	832.07	0	832.07	908.059	908.059
25	0.540267	476.489	-24.6587	Anisotropic Bedrock (Tm) Ultimate	200	16	164.692	436.382	824.364	0	824.364	899.97	899.97
26	0.540267	472.248	-24.6587	Anisotropic Bedrock (Tm) Ultimate	200	16	163.859	434.173	816.656	0	816.656	891.88	891.88
27	0.540267	467.997	-24.6349	Anisotropic Bedrock (Tm) Ultimate	200	16	163.028	431.971	808.978	0	808.978	883.738	883.738
28	0.540267	463.738	-24.6349	Anisotropic Bedrock (Tm) Ultimate	200	16	162.19	429.752	801.239	0	801.239	875.615	875.615
29	0.540267	459.441	-24.5362	Anisotropic Bedrock (Tm) Ultimate	200	16	161.365	427.566	793.618	0	793.618	867.28	867.28
30	0.540267	455.107	-24.5362	Anisotropic Bedrock (Tm) Ultimate	200	16	160.513	425.308	785.741	0	785.741	859.014	859.014
31	0.681369	562.514	-15.286	Anisotropic Bedrock (Tm) Ultimate	200	16	160.505	425.287	785.669	0	785.669	829.536	829.536
32	0.681369	545.074	-15.286	Anisotropic Bedrock (Tm) Ultimate	200	16	157.776	418.057	760.455	0	760.455	803.577	803.577
33	0.676468	521.18	-10.0593	Anisotropic Bedrock (Tm) Ultimate	200	16	155.554	412.169	739.922	0	739.922	767.516	767.516
34	0.676468	498.547	-10.0593	Anisotropic Bedrock (Tm) Ultimate	200	16	151.981	402.702	706.906	0	706.906	733.866	733.866
35	0.676468	475.915	-10.0593	Anisotropic Bedrock (Tm) Ultimate	200	16	148.408	393.235	673.891	0	673.891	700.218	700.218
36	0.676468	453.283	-10.0593	Anisotropic Bedrock (Tm) Ultimate	200	16	144.836	383.768	640.875	0	640.875	666.568	666.568
37	0.672674	428.284	-10.0306	Anisotropic Bedrock (Tm) Ultimate	200	16	141.275	374.334	607.976	0	607.976	632.964	632.964
38	0.672674	405.875	-10.0306	Anisotropic Bedrock (Tm) Ultimate	200	16	137.718	364.908	575.103	0	575.103	599.462	599.462
39	0.672674	383.465	-10.0261	Anisotropic Bedrock (Tm) Ultimate	200	16	134.161	355.483	542.233	0	542.233	565.953	565.953
40	0.672674	361.052	-10.0261	Anisotropic Bedrock (Tm) Ultimate	200	16	130.603	346.055	509.353	0	509.353	532.443	532.443

41	0.671001	337.813	-10.0031	Anisotropic Bedrock (Tm) Ultimate	200	16	127.05	336.643	476.531	0	476.531	498.941	498.941
42	0.671001	315.489	-10.0031	Anisotropic Bedrock (Tm) Ultimate	200	16	123.498	327.229	443.699	0	443.699	465.481	465.481
43	0.589104	248.051	17.3755	Anisotropic Bedrock (Tm) Ultimate	520	34.5	320.637	849.585	479.55	0	479.55	379.218	379.218
44	0.589104	216.941	17.3755	Anisotropic Bedrock (Tm) Ultimate	520	34.5	306.519	812.176	425.12	0	425.12	329.206	329.206
45	0.589103	194.41	19.0306	Anisotropic Bedrock (Tm) Ultimate	520	34.5	298.584	791.151	394.526	0	394.526	291.537	291.537
46	0.589103	171.228	19.0306	Anisotropic Bedrock (Tm) Ultimate	520	34.5	288.003	763.115	353.734	0	353.734	254.395	254.395
47	0.820743	194.607	25.2623	Anisotropic Bedrock (Tm) Ultimate	520	34.5	282.371	748.192	332.021	0	332.021	198.772	198.772
48	0.820743	139.005	25.2623	Anisotropic Bedrock (Tm) Ultimate	520	34.5	263.733	698.807	260.166	0	260.166	135.712	135.712
49	0.820743	83.4031	25.2623	Anisotropic Bedrock (Tm) Ultimate	520	34.5	245.095	649.422	188.31	0	188.31	72.651	72.651
50	0.820743	27.801	25.2623	Anisotropic Bedrock (Tm) Ultimate	520	34.5	226.456	600.037	116.455	0	116.455	9.59135	9.59135

Interslice Data

Global Minimum Query (spencer) - Safety Factor: 2.64968

Slice Number	X coordinate [ft]	Y coordinate - Bottom [ft]	Interslice Normal Force [lbs]	Interslice Shear Force [lbs]	Interslice Force Angle [deg]
1	385.643	91.0799	0	0	0
2	386.167	89.8071	-453.298	41.4517	-5.22486
3	386.691	88.5342	-812.88	74.3336	-5.22487
4	387.215	87.2613	-1078.75	98.6459	-5.22486
5	387.739	85.9883	-1250.85	114.384	-5.22488
6	388.264	84.7153	-1329.23	121.551	-5.22486
7	388.812	83.4285	-1303.66	119.213	-5.22487
8	389.288	82.7135	-1204.03	110.103	-5.2249
9	389.764	81.9985	-1079.82	98.7436	-5.22485
10	390.243	81.332	-940.523	86.0059	-5.22487
11	390.722	80.6655	-781.013	71.4196	-5.22487
12	391.342	80.3073	-583.18	53.3287	-5.22486
13	391.963	79.9492	-385.745	35.2743	-5.22486
14	392.584	79.5906	-188.497	17.237	-5.22485
15	393.206	79.232	8.34914	-0.763485	-5.22487
16	393.827	78.8735	204.792	-18.7272	-5.22488
17	394.449	78.5149	400.833	-36.6541	-5.22487
18	395.07	78.1563	596.56	-54.5523	-5.22487
19	395.692	77.7978	792.276	-72.4495	-5.22487
20	396.313	77.4392	988.008	-90.3482	-5.22487
21	396.935	77.0806	1183.76	-108.248	-5.22484
22	397.556	76.7472	1358.96	-124.27	-5.22488
23	398.177	76.4138	1533.36	-140.218	-5.22488
24	398.718	76.1658	1650.25	-150.907	-5.22488
25	399.258	75.9178	1765.69	-161.463	-5.22486
26	399.798	75.6697	1879.67	-171.886	-5.22487
27	400.339	75.4217	1992.21	-182.177	-5.22486
28	400.879	75.174	2103.07	-192.315	-5.22487
29	401.419	74.9262	2212.48	-202.319	-5.22485
30	401.959	74.6796	2319.55	-212.111	-5.22487
31	402.5	74.433	2425.16	-221.768	-5.22486
32	403.181	74.2467	2460.26	-224.978	-5.22487
33	403.862	74.0605	2492.56	-227.932	-5.22488
34	404.539	73.9405	2474.35	-226.266	-5.22486
35	405.215	73.8205	2454.64	-224.464	-5.22487
36	405.892	73.7005	2433.42	-222.524	-5.22488
37	406.568	73.5805	2410.7	-220.446	-5.22487
38	407.241	73.4615	2386.41	-218.224	-5.22485
39	407.914	73.3426	2360.63	-215.867	-5.22486
40	408.586	73.2236	2333.35	-213.373	-5.22488
41	409.259	73.1047	2304.59	-210.743	-5.22488
42	409.93	72.9864	2274.31	-207.973	-5.22485
43	410.601	72.868	2242.56	-205.07	-5.22486
44	411.19	73.0523	1962.09	-179.423	-5.22487
45	411.779	73.2367	1700.11	-155.466	-5.22486
46	412.368	73.4399	1441.08	-131.779	-5.22486
47	412.957	73.6431	1196.68	-109.43	-5.22486
48	413.778	74.0304	832.432	-76.1216	-5.22487
49	414.599	74.4177	511.566	-46.7801	-5.22488
50	415.42	74.805	234.085	-21.4058	-5.22486
51	416.24	75.1923	0	0	0

Discharge Sections

Entity Information

Offisite Slope Removal (Static)

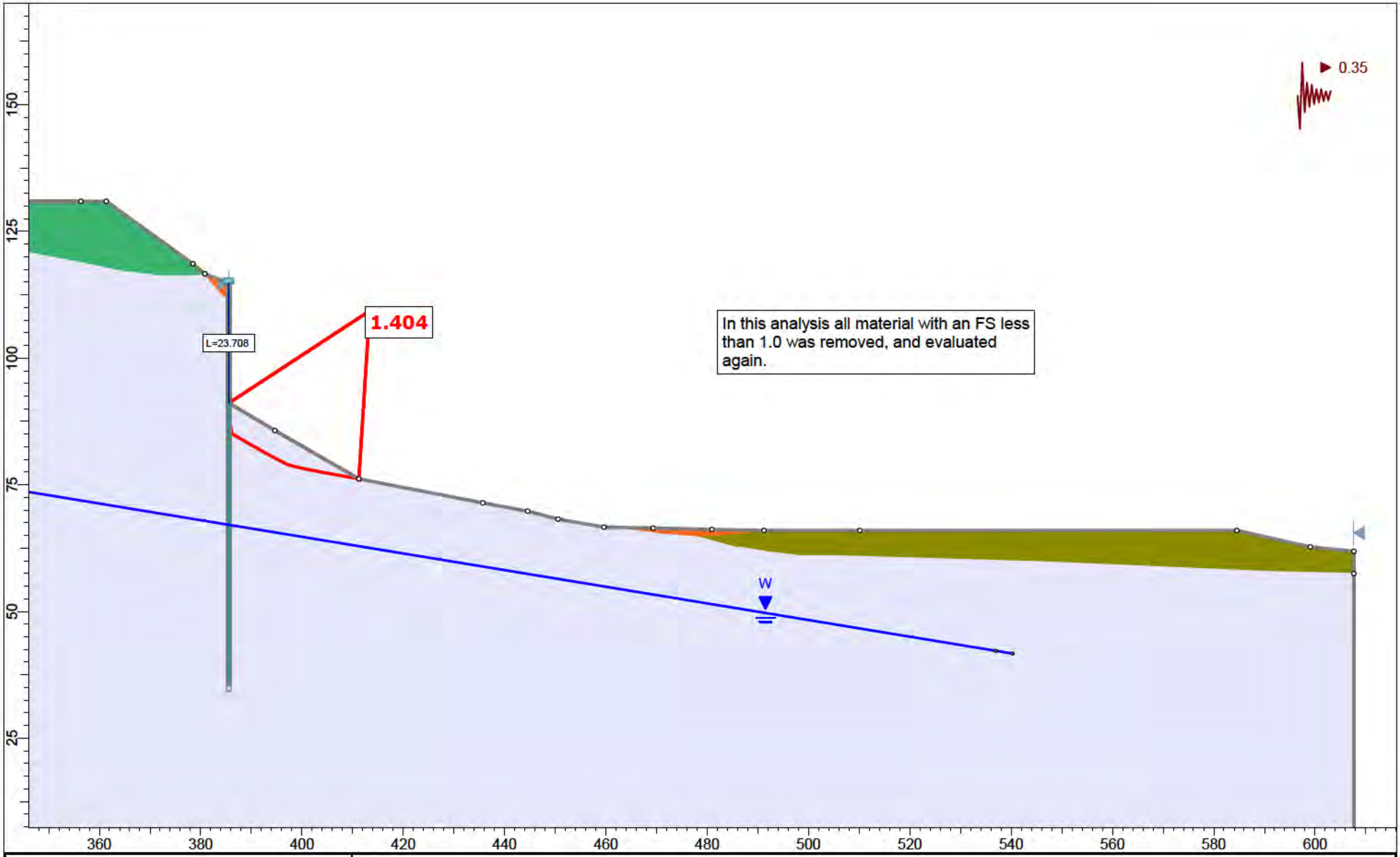
Shared Entities

Type	Coordinates (x,y)
External Boundary	0.036, 188.459 0.067, -0.196 607.643, -0.196 607.643, 57.4645 607.643, 61.847 599.042, 62.731 584.548, 65.972 510.136, 65.972 491.224, 65.972 480.929, 66.1893 469.341, 66.4339 459.627, 66.639 450.56, 68.214 444.547, 69.789 435.716, 71.4185 411.23, 76.1631 394.667, 85.7073 385.532, 91.146 385.532, 111.176 385.532, 114.823 380.809, 116.625 378.482, 118.617 361.373, 130.917 356.376, 130.917 314.827, 130.917 309.126, 130.917 274.531, 130.917 255.791, 127.058 249.338, 127.168 249.338, 130.982 233.566, 130.982 233.566, 134.006 229.738, 134.006 216.211, 139.228 208.509, 142.046 205.127, 143.174 193.481, 146.829 185.591, 146.829 179.496, 144.095 176.551, 144.095 138.196, 146.334 101.609, 147.689 80.752, 160.179 65.493, 169.901 57.598, 174.201 40.925, 182.509 36.741, 184.806
Material Boundary	380.809, 116.625 384.655, 112.071 385.532, 111.176

Material Boundary	314.827, 130.917 319.798, 128.565 331.181, 124.794 339.312, 122.26 347.737, 120.434 355.808, 118.902 364.528, 117.076 370.42, 116.428 378.404, 116.428 380.809, 116.625
Material Boundary	478.382, 64.921 486.105, 62.747 491.839, 61.736 497.757, 61.079 502.485, 61.079 546.833, 59.749 590.839, 57.858 607.643, 57.4645
Material Boundary	459.627, 66.639 468.838, 65.589 478.382, 64.921 488.261, 65.589 491.224, 65.972

Scenario-based Entities

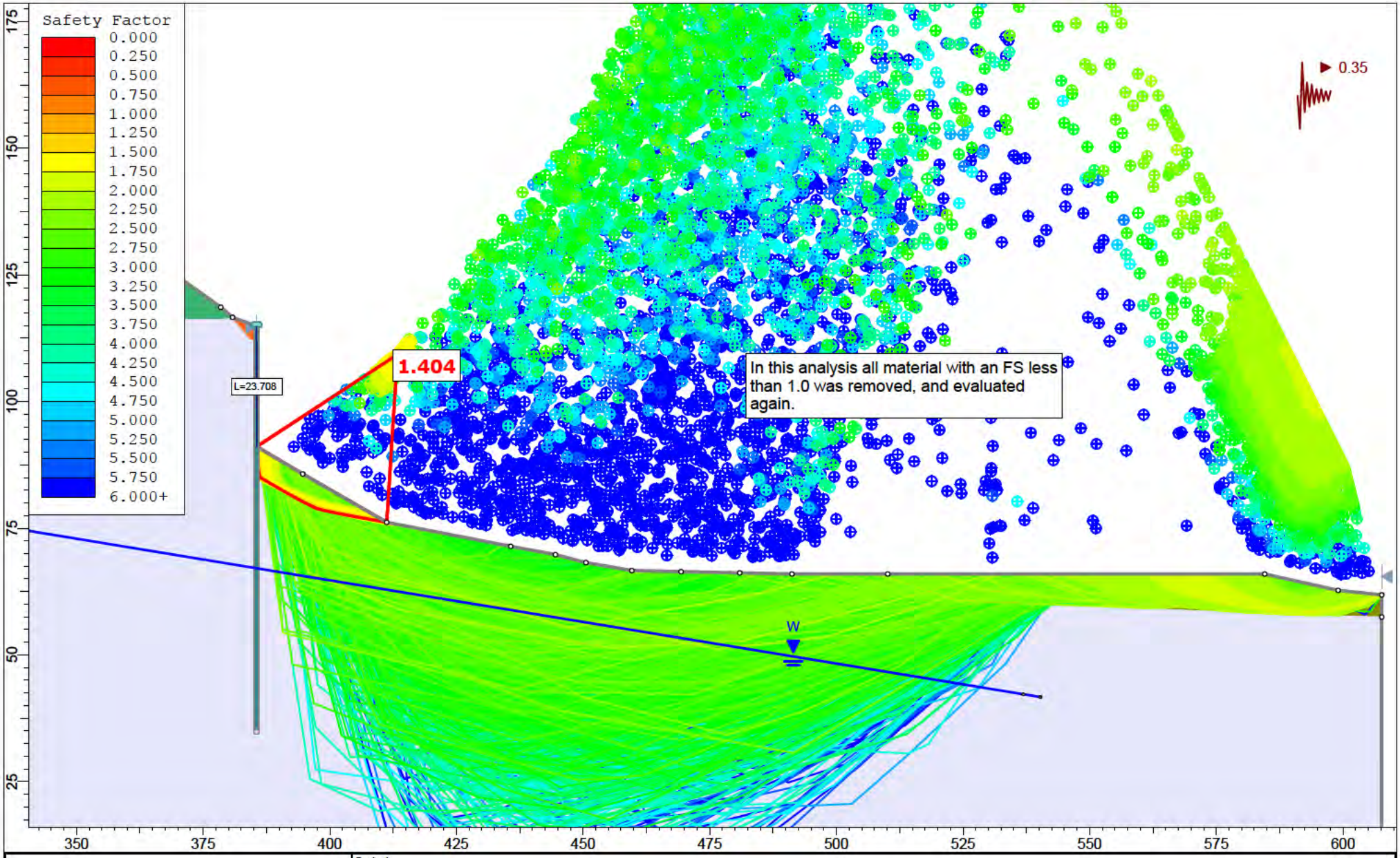
Type	Coordinates (x,y)	Master Scenario
Water Table	215.062, 110.934 332.462, 96.909 334.336, 75.504 536.885, 42.2379 540.294, 41.678	Assigned to: Anisotropic Bedrock (Tm) Ultimate
Distributed Load	342.792, 130.917 317.529, 130.917	Constant DistributionOrientation: Normal to boundaryMagnitude: 300 lbs/ft2Creates Excess Pore Pressure: No
Non-Circular Failure Surface	394.667, 85.7073 411.23, 76.1631	



rocscience

SLIDEINTERPRET 9.018

Project	Section 2-2'				
Analysis Description	Offiste Slope Removal (Seismic)				
Drawn By	A. Greene	Scale	1:314	Company	Feffer Geological Consulting
Date				File Name	Section 2-2' Translational Analysis_2.slmd



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SLIDEINTERPRET 9.018

Project	Section 2-2'		
Analysis Description	Offiste Slope Removal (Seismic)		
Drawn By	A. Greene	Scale 1:314	Company Feffer Geological Consulting
Date			File Name Section 2-2' Translational Analysis_2.slmd

Slide Analysis Information

Section 2-2' Translational Analysis_2

Project Summary

File Name:	Section 2-2' Translational Analysis_2.slmd
Slide Modeler Version:	9.018
Compute Time:	00h:00m:21.936s
Project Title:	Section 2-2'
Analysis:	Offiste Slope Removal (Seismic)
Author:	A. Greene
Company:	Feffer Geological Consulting

General Settings

Units of Measurement:	Imperial Units
Time Units:	days
Permeability Units:	feet/second
Data Output:	Standard
Failure Direction:	Left to Right

Analysis Options

Slices Type:	Vertical
Analysis Methods Used	
	Spencer
Number of slices:	50
Tolerance:	0.005
Maximum number of iterations:	75
Check malpha < 0.2:	Yes
Create Interslice boundaries at intersections with water tables and piezos:	Yes
Initial trial value of FS:	1
Steffensen Iteration:	Yes

Groundwater Analysis

Groundwater Method:	Water Surfaces
Pore Fluid Unit Weight [lbs/ft3]:	62.4
Use negative pore pressure cutoff:	Yes
Maximum negative pore pressure [psf]:	0
Advanced Groundwater Method:	None

Random Numbers

Pseudo-random Seed:	10116
Random Number Generation Method:	Park and Miller v.3

Surface Options

Search Method:	Cuckoo Search
Initial # of Surface Vertices:	8
Maximum Iterations:	500
Number of Nests:	50
Minimum Elevation:	Not Defined
Minimum Depth:	Not Defined
Minimum Area:	Not Defined
Minimum Weight:	Not Defined
Convex Surfaces Only:	Enabled

Seismic Loading

Advanced seismic analysis:	No
Staged pseudostatic analysis:	No
Seismic Load Coefficient (Horizontal):	0.35

Loading

1 Distributed Load present

Distributed Load 1	
Distribution:	Constant
Magnitude [psf]:	300
Orientation:	Normal to boundary

Materials

Terrace (Qoa)	
Color	
Strength Type	Mohr-Coulomb
Unit Weight [lbs/ft3]	115
Cohesion [psf]	100
Friction Angle [deg]	31
Water Surface	None
Ru Value	0
Qlsr	
Color	
Strength Type	Mohr-Coulomb
Unit Weight [lbs/ft3]	115
Cohesion [psf]	200
Friction Angle [deg]	12
Water Surface	None
Ru Value	0
Fill (Af)	
Color	
Strength Type	Mohr-Coulomb
Unit Weight [lbs/ft3]	120
Cohesion [psf]	120
Friction Angle [deg]	31
Water Surface	None
Ru Value	0
Anisotropic Bedrock (Tm) Peak	
Color	
Strength Type	Anisotropic function
Unit Weight [lbs/ft3]	124
Water Surface	Water Table
Hu Value	1

Anisotropic Functions

Name: Anisotropic Bedrock (Tm) Peak

Angle From	Angle To	c	phi
-90	-30	720	41
-30	-10	200	16
-10	90	720	41

Support

Pile 1 (Static)	
Color	
Type	Pile/Micro Pile
Force Application	Active (Method A)
Force Orientation	Parallel to surface
Out-Of-Plane Spacing	10 ft
Failure Mode	Shear
Pile Shear Strength	285000 lbs

Global Minimums

Method: spencer

FS	1.403720
Axis Location:	413.359, 109.284
Left Slip Surface Endpoint:	385.585, 91.115
Right Slip Surface Endpoint:	411.230, 76.163
Resisting Moment:	346800 lb-ft
Driving Moment:	247058 lb-ft
Resisting Horizontal Force:	7895.68 lb
Driving Horizontal Force:	5624.83 lb
Total Slice Area:	101.783 ft2
Surface Horizontal Width:	25.6453 ft
Surface Average Height:	3.96887 ft

Global Minimum Coordinates

Method: spencer

X	Y
385.585	91.1147
385.687	89.5072
385.789	88.0288
385.891	86.8336
386.045	85.7366
386.199	85.0421
387.142	84.4979
388.092	83.9515
388.874	83.5017
389.659	83.0499
390.712	82.4441
391.767	81.8367
392.773	81.2611
393.779	80.7221
394.785	80.2016
395.792	79.6812
396.523	79.3027
397.255	78.9517
397.987	78.732
398.719	78.5481
399.365	78.401
400.011	78.2543
400.947	78.0677
401.884	77.881
403.095	77.6447
404.314	77.4069
405.553	77.183
406.792	76.9591
408.031	76.7352
409.27	76.5112
410.254	76.3363
411.23	76.1631

Global Minimum Support Data

Method: spencer

Number of Supports: 1

Pile 1 (Static)

Support Type: Pile/Micro Pile

Start (x, y)	Length (ft)	L Inside SS (ft)	L Outside SS (ft)	Li (ft)	Lo (ft)	Force (lb)
385.532, 114.823	80	Not Effective	Not Effective	Not Effective	Not Effective	0

Valid and Invalid Surfaces

Method: spencer

Number of Valid Surfaces:	20293
Number of Invalid Surfaces:	4768

Error Codes

Error Code -106 reported for 34 surfaces
Error Code -108 reported for 74 surfaces
Error Code -109 reported for 5 surfaces
Error Code -110 reported for 580 surfaces
Error Code -111 reported for 779 surfaces
Error Code -112 reported for 100 surfaces
Error Code -121 reported for 83 surfaces
Error Code -124 reported for 1 surface
Error Code -145 reported for 23 surfaces
Error Code -1000 reported for 3089 surfaces

Error Code Descriptions

The following errors were encountered during the computation:

-106 = Average slice width is less than 0.0001 * (maximum horizontal extent of soil region). This limitation is imposed to avoid numerical errors which may result from too many slices, or too small a slip region.

-108 = Total driving moment or total driving force < 0.1. This is to limit the calculation of extremely high safety factors if the driving force is very small (0.1 is an arbitrary number).

-109 = Soiltype for slice base not located. This error should occur very rarely, if at all. It may occur if a very low number of slices is combined with certain soil geometries, such that the midpoint of a slice base is actually outside the soil region,even though the slip surface is wholly within the soil region.

-110 = The water table or a piezoline does not span the slip region for a given slip surface, when Water Surfaces is specified as the method of pore pressure calculation. If this error occurs, check that the water table or piezoline(s) span the appropriate soil cells.

-111 = Safety factor equation did not converge

-112 = The coefficient M-Alpha = cos(alpha)(1+tan(alpha)tan(phi)/F) < 0.2 for the final iteration of the safety factor calculation. This screens out some slip surfaces which may not be valid in the context of the analysis, in particular, deep seated slip surfaces with many high negative base angle slices in the passive zone.

-121 = Concave failure surface, only convex surfaces have been defined as being allowed.

-124 = A slice has a width less than the minimum acceptable value.

-145 = Slip surface was clipped vertically by a weak layer in a region of compression. Such a surface cannot be evaluated using Limit Equilibrium. For more information, see Help Documentation on weak layers.

-1000 = No valid slip surface is generated

Slice Data

Global Minimum Query (spencer) - Safety Factor: 1.40372

Slice Number	Width [ft]	Weight [lbs]	Angle of Slice Base [deg]	Base Material	Base Cohesion [psf]	Base Friction Angle [deg]	Shear Stress [psf]	Shear Strength [psf]	Base Normal Stress [psf]	Pore Pressure [psf]	Effective Normal Stress [psf]	Base Vertical Stress [psf]	Effective Vertical Stress [psf]
1	0.102199	9.80038	-86.3623	Anisotropic Bedrock (Tm) Peak	720	41	238.849	335.277	-442.573	0	-442.573	3314.42	3314.42
2	0.102264	28.6009	-86.0431	Anisotropic Bedrock (Tm) Peak	720	41	246.727	346.336	-429.851	0	-429.851	3137.06	3137.06

3	0.102357	44.8208	-85.1051	Anisotropic Bedrock (Tm) Peak	720	41	259.98	364.939	-408.451	0	-408.451	2627.23	2627.23
4	0.153839	87.7719	-82.0166	Anisotropic Bedrock (Tm) Peak	720	41	294.136	412.884	-353.297	0	-353.297	1743.99	1743.99
5	0.154005	103.222	-77.4981	Anisotropic Bedrock (Tm) Peak	720	41	343.226	481.793	-274.025	0	-274.025	1273.93	1273.93
6	0.471557	333.435	-29.9865	Anisotropic Bedrock (Tm) Peak	200	16	234.301	328.893	449.505	0	449.505	584.705	584.705
7	0.471557	332.93	-29.9865	Anisotropic Bedrock (Tm) Peak	200	16	234.158	328.692	448.801	0	448.801	583.918	583.918
8	0.474767	334.664	-29.9164	Anisotropic Bedrock (Tm) Peak	200	16	234.12	328.639	448.617	0	448.617	583.331	583.331
9	0.474767	334.106	-29.9164	Anisotropic Bedrock (Tm) Peak	200	16	233.963	328.418	447.846	0	447.846	582.47	582.47
10	0.781771	548.94	-29.9164	Anisotropic Bedrock (Tm) Peak	200	16	233.755	328.126	446.827	0	446.827	581.331	581.331
11	0.785129	549.776	-29.9164	Anisotropic Bedrock (Tm) Peak	200	16	233.495	327.761	445.556	0	445.556	579.911	579.911
12	0.526374	367.733	-29.9164	Anisotropic Bedrock (Tm) Peak	200	16	233.277	327.456	444.492	0	444.492	578.722	578.722
13	0.526374	367.048	-29.9164	Anisotropic Bedrock (Tm) Peak	200	16	233.103	327.211	443.638	0	443.638	577.767	577.767
14	0.52784	367.382	-29.9164	Anisotropic Bedrock (Tm) Peak	200	16	232.928	326.966	442.783	0	442.783	576.812	576.812
15	0.52784	366.693	-29.9164	Anisotropic Bedrock (Tm) Peak	200	16	232.753	326.72	441.926	0	441.926	575.854	575.854
16	0.503032	348.768	-29.7767	Anisotropic Bedrock (Tm) Peak	200	16	232.791	326.774	442.112	0	442.112	575.307	575.307
17	0.503032	348.04	-29.7767	Anisotropic Bedrock (Tm) Peak	200	16	232.597	326.501	441.161	0	441.161	574.245	574.245
18	0.50304	346.746	-28.1791	Anisotropic Bedrock (Tm) Peak	200	16	234.791	329.581	451.903	0	451.903	577.687	577.687
19	0.50304	344.876	-28.1791	Anisotropic Bedrock (Tm) Peak	200	16	234.282	328.867	449.413	0	449.413	574.925	574.925
20	0.503042	342.717	-27.3519	Anisotropic Bedrock (Tm) Peak	200	16	235.008	329.885	452.961	0	452.961	574.527	574.527
21	0.503042	340.284	-27.3519	Anisotropic Bedrock (Tm) Peak	200	16	234.339	328.947	449.691	0	449.691	570.912	570.912
22	0.503041	338.257	-27.3519	Anisotropic Bedrock (Tm) Peak	200	16	233.783	328.166	446.968	0	446.968	567.9	567.9
23	0.503041	336.407	-27.3519	Anisotropic Bedrock (Tm) Peak	200	16	233.275	327.453	444.48	0	444.48	565.15	565.15
24	0.73171	486.027	-27.3519	Anisotropic Bedrock (Tm) Peak	200	16	232.651	326.577	441.427	0	441.427	561.775	561.775
25	0.731723	480.872	-25.6265	Anisotropic Bedrock (Tm) Peak	200	16	234.366	328.984	449.82	0	449.82	562.243	562.243
26	0.731776	468.536	-16.7083	Anisotropic Bedrock (Tm) Peak	200	16	246.219	345.622	507.846	0	507.846	581.754	581.754
27	0.73179	448.592	-14.1113	Anisotropic Bedrock (Tm) Peak	200	16	246.249	345.664	507.99	0	507.99	569.895	569.895

28	0.646474	377.728	-12.8171	Anisotropic Bedrock (Tm) Peak	200	16	243.76	342.171	495.809	0	495.809	551.266	551.266
29	0.645591	359.168	-12.7993	Anisotropic Bedrock (Tm) Peak	200	16	239.236	335.82	473.66	0	473.66	528.01	528.01
30	0.46829	248.86	-11.2713	Anisotropic Bedrock (Tm) Peak	200	16	237.583	333.5	465.571	0	465.571	512.921	512.921
31	0.46829	238.61	-11.2713	Anisotropic Bedrock (Tm) Peak	200	16	233.954	328.406	447.806	0	447.806	494.432	494.432
32	0.46829	228.36	-11.2713	Anisotropic Bedrock (Tm) Peak	200	16	230.325	323.312	430.04	0	430.04	475.944	475.944
33	0.46829	218.109	-11.2713	Anisotropic Bedrock (Tm) Peak	200	16	226.696	318.218	412.277	0	412.277	457.457	457.457
34	0.605533	266.739	-11.0405	Anisotropic Bedrock (Tm) Peak	200	16	222.839	312.803	393.389	0	393.389	436.868	436.868
35	0.605533	249.41	-11.0405	Anisotropic Bedrock (Tm) Peak	200	16	218.081	306.125	370.102	0	370.102	412.653	412.653
36	0.609568	233.569	-11.0399	Anisotropic Bedrock (Tm) Peak	200	16	213.309	299.426	346.741	0	346.741	388.358	388.358
37	0.609568	216.008	-11.0399	Anisotropic Bedrock (Tm) Peak	200	16	208.52	292.704	323.295	0	323.295	363.978	363.978
38	0.619448	201.177	-10.2444	Anisotropic Bedrock (Tm) Peak	200	16	204.567	287.155	303.946	0	303.946	340.917	340.917
39	0.619448	182.357	-10.2444	Anisotropic Bedrock (Tm) Peak	200	16	199.471	280.001	278.997	0	278.997	315.047	315.047
40	0.412965	111.116	-10.2444	Anisotropic Bedrock (Tm) Peak	200	16	195.224	274.04	258.207	0	258.207	293.49	293.49
41	0.412965	102.752	-10.2444	Anisotropic Bedrock (Tm) Peak	200	16	191.826	269.27	241.574	0	241.574	276.243	276.243
42	0.412965	94.3883	-10.2444	Anisotropic Bedrock (Tm) Peak	200	16	188.429	264.501	224.942	0	224.942	258.996	258.996
43	0.619448	125.9	-10.2444	Anisotropic Bedrock (Tm) Peak	200	16	184.182	258.539	204.152	0	204.152	237.439	237.439
44	0.619448	107.081	-10.2444	Anisotropic Bedrock (Tm) Peak	200	16	179.085	251.386	179.203	0	179.203	211.568	211.568
45	0.619448	88.2614	-10.2444	Anisotropic Bedrock (Tm) Peak	200	16	173.989	244.232	154.254	0	154.254	185.699	185.699
46	0.619448	69.4423	-10.2444	Anisotropic Bedrock (Tm) Peak	200	16	168.893	237.078	129.306	0	129.306	159.829	159.829
47	0.492403	41.7283	-10.0732	Anisotropic Bedrock (Tm) Peak	200	16	164.433	230.819	107.477	0	107.477	136.688	136.688
48	0.492403	29.7442	-10.0732	Anisotropic Bedrock (Tm) Peak	200	16	160.343	225.076	87.4514	0	87.4514	115.935	115.935
49	0.487778	17.6468	-10.0647	Anisotropic Bedrock (Tm) Peak	200	16	156.276	219.368	67.5437	0	67.5437	95.2815	95.2815
50	0.487778	5.88227	-10.0647	Anisotropic Bedrock (Tm) Peak	200	16	152.222	213.677	47.6966	0	47.6966	74.7148	74.7148

Interslice Data

Global Minimum Query (spencer) - Safety Factor: 1.40372

Slice Number	X coordinate [ft]	Y coordinate - Bottom [ft]	Interslice Normal Force [lbs]	Interslice Shear Force [lbs]	Interslice Force Angle [deg]
1	385.585	91.1147	0	0	0
2	385.687	89.5072	-732.435	-328.887	24.1816
3	385.789	88.0288	-1383.16	-621.082	24.1816
4	385.891	86.8336	-1882.25	-845.192	24.1816
5	386.045	85.7366	-2284.32	-1025.74	24.1818
6	386.199	85.0421	-2491.38	-1118.71	24.1816
7	386.671	84.77	-2362.86	-1061	24.1816
8	387.142	84.4979	-2234.63	-1003.42	24.1816
9	387.617	84.2247	-2106.09	-945.705	24.1817
10	388.092	83.9515	-1977.89	-888.137	24.1816
11	388.874	83.5017	-1767.51	-793.668	24.1816
12	389.659	83.0499	-1557.12	-699.198	24.1816
13	390.185	82.747	-1416.58	-636.09	24.1816
14	390.712	82.4441	-1276.44	-573.164	24.1817
15	391.239	82.1404	-1136.33	-510.247	24.1815
16	391.767	81.8367	-996.617	-447.514	24.1817
17	392.27	81.5489	-864.403	-388.145	24.1816
18	392.773	81.2611	-732.62	-328.97	24.1816
19	393.276	80.9916	-607.584	-272.825	24.1816
20	393.779	80.7221	-483.619	-217.161	24.1817
21	394.282	80.4619	-364.019	-163.456	24.1816
22	394.785	80.2016	-245.786	-110.366	24.1816
23	395.288	79.9414	-128.691	-57.7866	24.1817
24	395.792	79.6812	-12.6355	-5.67376	24.1817
25	396.523	79.3027	154.321	69.2952	24.1816
26	397.255	78.9517	309.021	138.76	24.1816
27	397.987	78.732	404.383	181.581	24.1816
28	398.719	78.5481	474.64	213.129	24.1817
29	399.365	78.401	522.182	234.477	24.1817
30	400.011	78.2543	562.911	252.765	24.1816
31	400.479	78.161	582.205	261.429	24.1816
32	400.947	78.0677	597.953	268.5	24.1816
33	401.415	77.9743	610.154	273.979	24.1816
34	401.884	77.881	618.809	277.866	24.1817
35	402.489	77.7629	623.709	280.066	24.1817
36	403.095	77.6447	622.674	279.601	24.1816
37	403.704	77.5258	615.633	276.439	24.1816
38	404.314	77.4069	602.577	270.577	24.1817
39	404.933	77.2949	580.296	260.572	24.1816
40	405.553	77.183	551.793	247.773	24.1816
41	405.966	77.1083	529.334	237.688	24.1816
42	406.379	77.0337	504.109	226.361	24.1816
43	406.792	76.9591	476.118	213.793	24.1817
44	407.411	76.8471	428.947	192.611	24.1816
45	408.031	76.7352	375.552	168.635	24.1816
46	408.65	76.6232	315.935	141.865	24.1816
47	409.27	76.5112	250.095	112.301	24.1817
48	409.762	76.4238	193.133	86.7231	24.1817
49	410.254	76.3363	132.24	59.3799	24.1816
50	410.742	76.2497	68.0351	30.55	24.1817
51	411.23	76.1631	0	0	0

Discharge Sections

Entity Information

Offisite Slope Removal (Seismic)

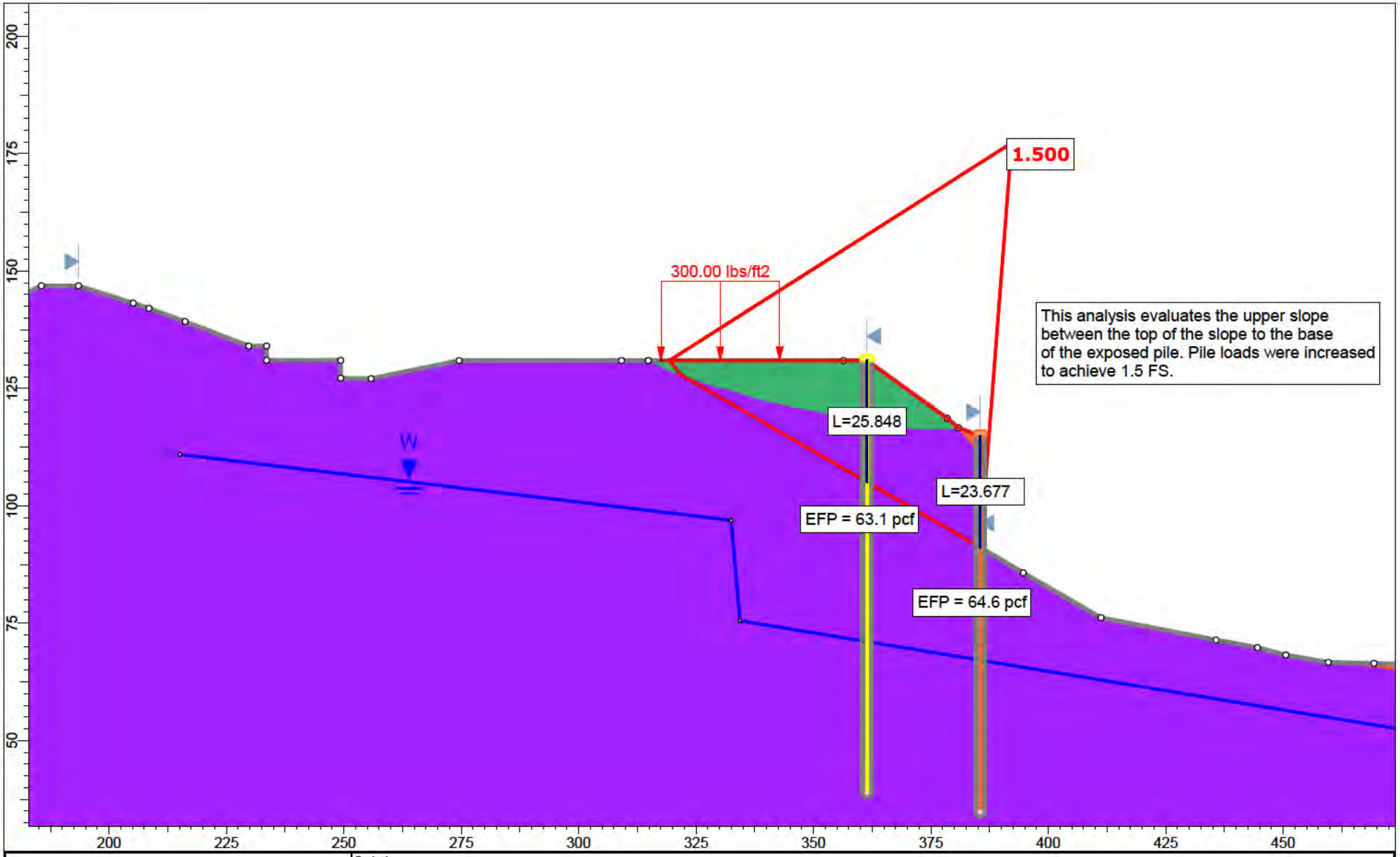
Shared Entities

Type	Coordinates (x,y)
External Boundary	0.036, 188.459 0.067, -0.196 607.643, -0.196 607.643, 57.4645 607.643, 61.847 599.042, 62.731 584.548, 65.972 510.136, 65.972 491.224, 65.972 480.929, 66.1893 469.341, 66.4339 459.627, 66.639 450.56, 68.214 444.547, 69.789 435.716, 71.4185 411.23, 76.1631 394.667, 85.7073 385.532, 91.146 385.532, 111.176 385.532, 114.823 380.809, 116.625 378.482, 118.617 361.373, 130.917 356.376, 130.917 314.827, 130.917 309.126, 130.917 274.531, 130.917 255.791, 127.058 249.338, 127.168 249.338, 130.982 233.566, 130.982 233.566, 134.006 229.738, 134.006 216.211, 139.228 208.509, 142.046 205.127, 143.174 193.481, 146.829 185.591, 146.829 179.496, 144.095 176.551, 144.095 138.196, 146.334 101.609, 147.689 80.752, 160.179 65.493, 169.901 57.598, 174.201 40.925, 182.509 36.741, 184.806
Material Boundary	380.809, 116.625 384.655, 112.071 385.532, 111.176

Material Boundary	314.827, 130.917 319.798, 128.565 331.181, 124.794 339.312, 122.26 347.737, 120.434 355.808, 118.902 364.528, 117.076 370.42, 116.428 378.404, 116.428 380.809, 116.625
Material Boundary	478.382, 64.921 486.105, 62.747 491.839, 61.736 497.757, 61.079 502.485, 61.079 546.833, 59.749 590.839, 57.858 607.643, 57.4645
Material Boundary	459.627, 66.639 468.838, 65.589 478.382, 64.921 488.261, 65.589 491.224, 65.972

Scenario-based Entities

Type	Coordinates (x,y)	Master Scenario
Water Table	215.062, 110.934 332.462, 96.909 334.336, 75.504 536.885, 42.2379 540.294, 41.678	Assigned to: Anisotropic Bedrock (Tm) Peak
Distributed Load	342.792, 130.917 317.529, 130.917	Constant DistributionOrientation: Normal to boundaryMagnitude: 300 lbs/ft2Creates Excess Pore Pressure: No
Non-Circular Failure Surface	394.667, 85.7073 411.23, 76.1631	



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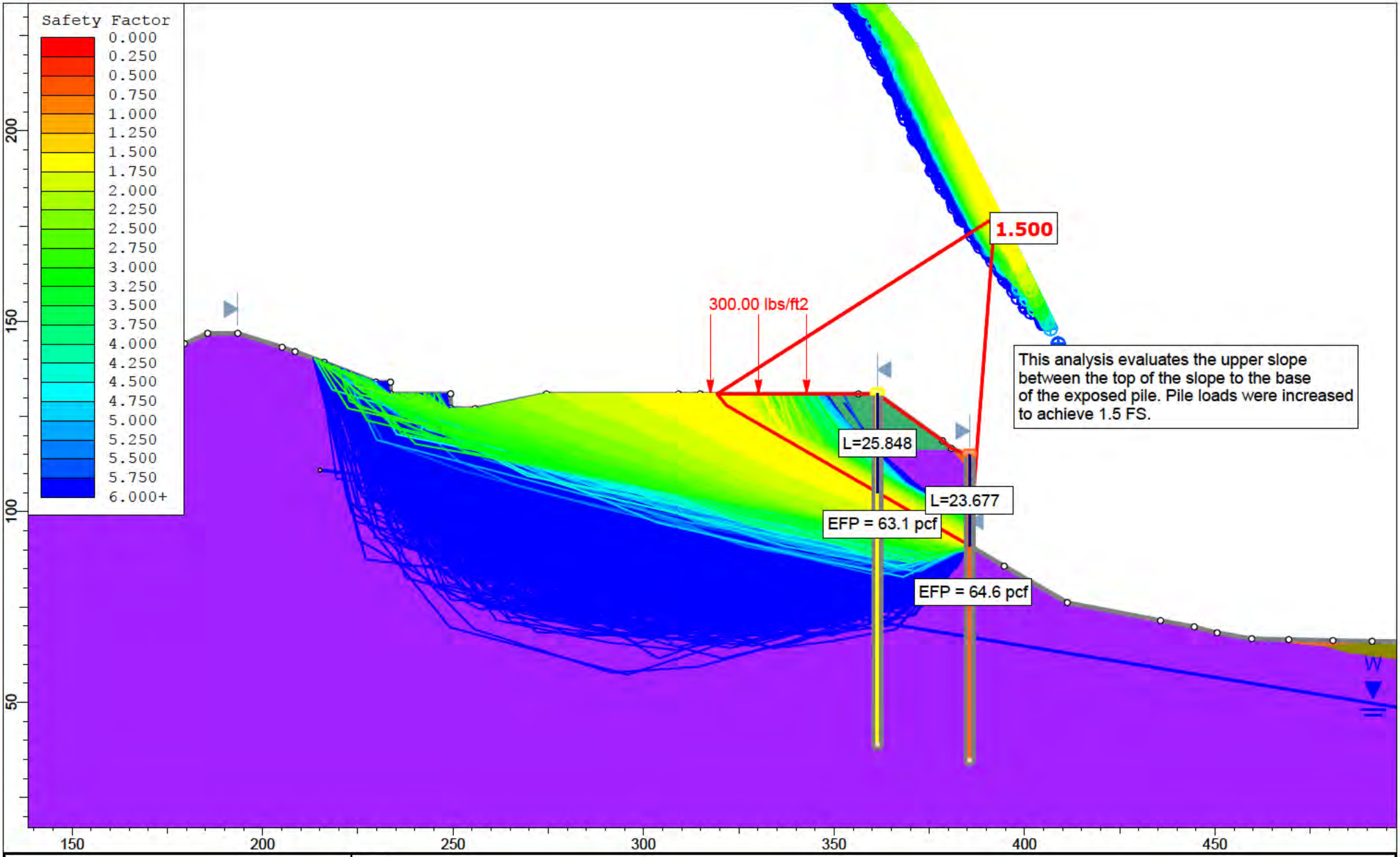
SLIDEINTERPRET 9.018

Project	Section 2-2'		
Analysis Description	Upper Slope (Static)		
Drawn By	A. Greene	Scale 1:339	Company Feffer Geological Consulting
Date			File Name Section 2-2' Translational Analysis_2.slmd



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SLIDEINTERPRET 9.018

Project	Section 2-2'		
Analysis Description	Upper Slope (Static)		
Drawn By	A. Greene	Scale 1:418	Company Feffer Geological Consulting
Date			File Name Section 2-2' Translational Analysis_2.slmd

Slide Analysis Information

Section 2-2' Translational Analysis_2

Project Summary

File Name:	Section 2-2' Translational Analysis_2.slmd
Slide Modeler Version:	9.018
Compute Time:	00h:00m:12.354s
Project Title:	Section 2-2'
Analysis:	Upper Slope (Static)
Author:	A. Greene
Company:	Feffer Geological Consulting

General Settings

Units of Measurement:	Imperial Units
Time Units:	days
Permeability Units:	feet/second
Data Output:	Standard
Failure Direction:	Left to Right

Analysis Options

Slices Type:	Vertical
Analysis Methods Used	
	Spencer
Number of slices:	50
Tolerance:	0.005
Maximum number of iterations:	75
Check malpha < 0.2:	Yes
Create Interslice boundaries at intersections with water tables and piezos:	Yes
Initial trial value of FS:	1
Steffensen Iteration:	Yes

Groundwater Analysis

Groundwater Method:	Water Surfaces
Pore Fluid Unit Weight [lbs/ft3]:	62.4
Use negative pore pressure cutoff:	Yes
Maximum negative pore pressure [psf]:	0
Advanced Groundwater Method:	None

Random Numbers

Pseudo-random Seed:	10116
Random Number Generation Method:	Park and Miller v.3

Surface Options

Search Method:	Cuckoo Search
Initial # of Surface Vertices:	8
Maximum Iterations:	500
Number of Nests:	50
Minimum Elevation:	Not Defined
Minimum Depth:	Not Defined
Minimum Area:	Not Defined
Minimum Weight:	Not Defined
Convex Surfaces Only:	Enabled

Seismic Loading

Advanced seismic analysis:	No
Staged pseudostatic analysis:	No

Loading

1 Distributed Load present

Distributed Load 1	
Distribution:	Constant
Magnitude [psf]:	300
Orientation:	Normal to boundary

Materials

Terrace (Qoa)	
Color	
Strength Type	Mohr-Coulomb
Unit Weight [lbs/ft3]	115
Cohesion [psf]	100
Friction Angle [deg]	31
Water Surface	None
Ru Value	0
Qlsr	
Color	
Strength Type	Mohr-Coulomb
Unit Weight [lbs/ft3]	115
Cohesion [psf]	200
Friction Angle [deg]	12
Water Surface	None
Ru Value	0
Fill (Af)	
Color	
Strength Type	Mohr-Coulomb
Unit Weight [lbs/ft3]	120
Cohesion [psf]	120
Friction Angle [deg]	31
Water Surface	None
Ru Value	0
Anisotropic Bedrock (Tm) Ultimate	
Color	
Strength Type	Anisotropic function
Unit Weight [lbs/ft3]	124
Water Surface	Water Table
Hu Value	0

Anisotropic Functions

Name: Anisotropic Bedrock (Tm) Ultimate

Angle From	Angle To	c	phi
-90	-30	520	34.5
-30	-10	200	16
-10	90	520	34.5

Support

Pile 1_Reinforced (Static)	
Color	
Type	Pile/Micro Pile
Force Application	Active (Method A)
Force Orientation	Parallel to surface
Out-Of-Plane Spacing	10 ft
Failure Mode	Shear
Pile Shear Strength	180000 lbs

Pile 2_Reinforced (Static)	
Color	
Type	Pile/Micro Pile
Force Application	Active (Method A)
Force Orientation	Parallel to surface
Out-Of-Plane Spacing	10 ft
Failure Mode	Shear
Pile Shear Strength	210000 lbs

Global Minimums

Method: spencer

FS	1.500310
Axis Location:	392.188, 177.261
Left Slip Surface Endpoint:	319.303, 130.917
Right Slip Surface Endpoint:	385.532, 91.146
Left Slope Intercept:	319.303 130.917
Right Slope Intercept:	385.532 114.823
Resisting Moment:	4.03343e+06 lb-ft
Driving Moment:	2.68893e+06 lb-ft
Resisting Horizontal Force:	44583.2 lb
Driving Horizontal Force:	29721.9 lb
Active Support Moment:	-3.03888e+06 lb-ft
Active Horizontal Support Force:	-33778.4 lb
Maximum Single Support Force:	21000 lb
Total Support Force:	39000 lb
Total Slice Area:	1159.95 ft2
Surface Horizontal Width:	66.2291 ft
Surface Average Height:	17.5143 ft

Global Minimum Coordinates

Method: spencer

X	Y
319.303	130.917
320.536	129.412
321.77	127.907
324.572	126.289
327.375	124.672
330.179	123.053
332.983	121.435
335.86	119.776
338.737	118.118
341.325	116.626
343.913	115.134
346.501	113.643
349.089	112.151
351.898	110.532
354.707	108.913
357.963	107.036
361.219	105.16
364.475	103.281
367.731	101.404
370.905	99.5762
374.078	97.7486
376.378	96.4235
378.677	95.0984
380.967	93.7789
383.256	92.4595
385.532	91.146
385.533	114.823

Global Minimum Support Data

Method: spencer

Number of Supports: 2

Pile 1_Reinforced (Static)

Support Type: Pile/Micro Pile

Start (x, y)	Length (ft)	L Inside SS (ft)	L Outside SS (ft)	Li (ft)	Lo (ft)	Force (lb)
385.532, 114.823	80	23.677	56.323	23.677	56.323	18000

Pile 2_Reinforced (Static)

Support Type: Pile/Micro Pile

Start (x, y)	Length (ft)	L Inside SS (ft)	L Outside SS (ft)	Li (ft)	Lo (ft)	Force (lb)
361.373, 130.917	92.023	25.8463	66.1767	25.8463	66.1767	21000

Valid and Invalid Surfaces

Method: spencer

Number of Valid Surfaces:	15585
Number of Invalid Surfaces:	9470

Error Codes

Error Code -108 reported for 184 surfaces
Error Code -110 reported for 595 surfaces
Error Code -111 reported for 6479 surfaces
Error Code -112 reported for 245 surfaces
Error Code -113 reported for 1 surface
Error Code -121 reported for 997 surfaces
Error Code -124 reported for 4 surfaces
Error Code -145 reported for 3 surfaces
Error Code -1000 reported for 962 surfaces

Error Code Descriptions

The following errors were encountered during the computation:
-108 = Total driving moment or total driving force < 0.1. This is to limit the calculation of extremely high safety factors if the driving force is very small (0.1 is an arbitrary number).
-110 = The water table or a piezoline does not span the slip region for a given slip surface, when Water Surfaces is specified as the method of pore pressure calculation. If this error occurs, check that the water table or piezoline(s) span the appropriate soil cells.
-111 = Safety factor equation did not converge
-112 = The coefficient M-Alpha = cos(alpha)(1+tan(alpha)tan(phi)/F) < 0.2 for the final iteration of the safety factor calculation. This screens out some slip surfaces which may not be valid in the context of the analysis, in particular, deep seated slip surfaces with many high negative base angle slices in the passive zone.
-113 = Surface intersects outside slope limits.
-121 = Concave failure surface, only convex surfaces have been defined as being allowed.
-124 = A slice has a width less than the minimum acceptable value.
-145 = Slip surface was clipped vertically by a weak layer in a region of compression. Such a surface cannot be evaluated using Limit Equilibrium. For more information, see Help Documentation on weak layers.
-1000 = No valid slip surface is generated

Slice Data

Global Minimum Query (spencer) - Safety Factor: 1.50031

Slice Number	Width [ft]	Weight [lbs]	Angle of Slice Base [deg]	Base Material	Base Cohesion [psf]	Base Friction Angle [deg]	Shear Stress [psf]	Shear Strength [psf]	Base Normal Stress [psf]	Pore Pressure [psf]	Effective Normal Stress [psf]	Base Vertical Stress [psf]	Effective Vertical Stress [psf]
1	1.23347	106.745	-50.6634	Terrace (Qoa)	100	31	138.805	208.25	180.159	0	180.159	349.524	349.524
2	1.23347	320.235	-50.6634	Terrace (Qoa)	100	31	175.594	263.445	272.019	0	272.019	486.273	486.273
3	1.40125	552.458	-29.994	Anisotropic Bedrock (Tm) Ultimate	200	16	233.508	350.335	524.28	0	524.28	659.064	659.064
4	1.40125	687.14	-29.994	Anisotropic Bedrock (Tm) Ultimate	200	16	247.462	371.269	597.285	0	597.285	740.122	740.122

5	1.40125	821.821	-29.994	Anisotropic Bedrock (Tm) Ultimate	200	16	261.414	392.202	670.291	0	670.291	821.182	821.182
6	1.40125	956.502	-29.994	Anisotropic Bedrock (Tm) Ultimate	200	16	275.367	413.136	743.292	0	743.292	902.237	902.237
7	1.40195	1091.77	-29.994	Anisotropic Bedrock (Tm) Ultimate	200	16	289.323	434.074	816.315	0	816.315	983.315	983.315
8	1.40195	1226.58	-29.994	Anisotropic Bedrock (Tm) Ultimate	200	16	303.283	455.018	889.353	0	889.353	1064.41	1064.41
9	1.40195	1361.41	-29.994	Anisotropic Bedrock (Tm) Ultimate	200	16	317.244	475.965	962.404	0	962.404	1145.52	1145.52
10	1.40195	1496.49	-29.994	Anisotropic Bedrock (Tm) Ultimate	200	16	331.231	496.949	1035.58	0	1035.58	1226.77	1226.77
11	1.43855	1675.95	-29.9594	Anisotropic Bedrock (Tm) Ultimate	200	16	345.503	518.361	1110.26	0	1110.26	1309.41	1309.41
12	1.43855	1818.06	-29.9594	Anisotropic Bedrock (Tm) Ultimate	200	16	359.849	539.885	1185.32	0	1185.32	1392.74	1392.74
13	1.43855	1960.17	-29.9594	Anisotropic Bedrock (Tm) Ultimate	200	16	374.195	561.409	1260.38	0	1260.38	1476.07	1476.07
14	1.43855	2102.27	-29.9594	Anisotropic Bedrock (Tm) Ultimate	200	16	388.542	582.933	1335.44	0	1335.44	1559.4	1559.4
15	1.29407	2012.77	-29.9591	Anisotropic Bedrock (Tm) Ultimate	200	16	402.193	603.414	1406.87	0	1406.87	1638.69	1638.69
16	1.29407	2129.05	-29.9591	Anisotropic Bedrock (Tm) Ultimate	200	16	415.243	622.993	1475.15	0	1475.15	1714.5	1714.5
17	1.29407	2245.47	-29.9591	Anisotropic Bedrock (Tm) Ultimate	200	16	428.309	642.596	1543.52	0	1543.52	1790.39	1790.39
18	1.29407	2361.9	-29.9591	Anisotropic Bedrock (Tm) Ultimate	200	16	403.645	605.592	1414.47	0	1414.47	1647.13	1647.13
19	1.29407	2478.32	-29.9591	Anisotropic Bedrock (Tm) Ultimate	200	16	410.872	616.435	1452.28	0	1452.28	1689.11	1689.11
20	1.29407	2594.75	-29.9591	Anisotropic Bedrock (Tm) Ultimate	200	16	423.938	636.038	1520.65	0	1520.65	1765	1765
21	1.29407	2711.17	-29.9591	Anisotropic Bedrock (Tm) Ultimate	200	16	437.004	655.641	1589.01	0	1589.01	1840.9	1840.9
22	1.29407	2827.82	-29.9591	Anisotropic Bedrock (Tm) Ultimate	200	16	450.094	675.28	1657.5	0	1657.5	1916.93	1916.93
23	1.40435	3200.99	-29.959	Anisotropic Bedrock (Tm) Ultimate	200	16	463.764	695.79	1729.02	0	1729.02	1996.34	1996.34

24	1.40435	3338.58	-29.959	Anisotropic Bedrock (Tm) Ultimate	200	16	477.993	717.137	1803.47	0	1803.47	2078.99	2078.99
25	1.40435	3476.17	-29.959	Anisotropic Bedrock (Tm) Ultimate	200	16	492.222	738.485	1877.92	0	1877.92	2161.63	2161.63
26	1.40435	3613.77	-29.959	Anisotropic Bedrock (Tm) Ultimate	200	16	506.45	759.832	1952.36	0	1952.36	2244.28	2244.28
27	1.62803	4361.52	-29.9576	Anisotropic Bedrock (Tm) Ultimate	200	16	521.816	782.886	2032.76	0	2032.76	2333.52	2333.52
28	1.62803	4546.06	-29.9576	Anisotropic Bedrock (Tm) Ultimate	200	16	538.278	807.584	2118.9	0	2118.9	2429.14	2429.14
29	1.08535	3133.17	-29.9576	Anisotropic Bedrock (Tm) Ultimate	200	16	551.989	828.154	2190.63	0	2190.63	2508.78	2508.78
30	1.08535	3215.14	-29.9576	Anisotropic Bedrock (Tm) Ultimate	200	16	562.957	844.61	2248.02	0	2248.02	2572.49	2572.49
31	1.08535	3297.11	-29.9576	Anisotropic Bedrock (Tm) Ultimate	200	16	573.925	861.066	2305.41	0	2305.41	2636.2	2636.2
32	1.62803	5009.66	-29.9883	Anisotropic Bedrock (Tm) Ultimate	200	16	505.794	758.848	1948.93	0	1948.93	2240.82	2240.82
33	1.62803	4976.18	-29.9883	Anisotropic Bedrock (Tm) Ultimate	200	16	576.471	864.885	2318.73	0	2318.73	2651.4	2651.4
34	1.08535	3298.73	-29.9584	Anisotropic Bedrock (Tm) Ultimate	200	16	574.138	861.385	2306.52	0	2306.52	2637.44	2637.44
35	1.08535	3284.36	-29.9584	Anisotropic Bedrock (Tm) Ultimate	200	16	572.216	858.501	2296.46	0	2296.46	2626.28	2626.28
36	1.08535	3270	-29.9584	Anisotropic Bedrock (Tm) Ultimate	200	16	570.293	855.617	2286.41	0	2286.41	2615.12	2615.12
37	1.58679	4754.83	-29.9376	Anisotropic Bedrock (Tm) Ultimate	200	16	568.038	852.233	2274.61	0	2274.61	2601.74	2601.74
38	1.58679	4724.09	-29.9376	Anisotropic Bedrock (Tm) Ultimate	200	16	565.224	848.011	2259.88	0	2259.88	2585.39	2585.39
39	1.58679	4695.13	-29.9376	Anisotropic Bedrock (Tm) Ultimate	200	16	562.572	844.033	2246.01	0	2246.01	2570	2570
40	1.58679	4666.76	-29.9376	Anisotropic Bedrock (Tm) Ultimate	200	16	559.976	840.138	2232.42	0	2232.42	2554.91	2554.91
41	1.1497	3363.6	-29.9538	Anisotropic Bedrock (Tm) Ultimate	200	16	557.651	836.65	2220.27	0	2220.27	2541.63	2541.63
42	1.1497	3348.77	-29.9538	Anisotropic Bedrock (Tm) Ultimate	200	16	555.778	833.84	2210.46	0	2210.46	2530.74	2530.74

43	1.1497	3333.94	-29.9538	Anisotropic Bedrock (Tm) Ultimate	200	16	553.906	831.03	2200.66	0	2200.66	2519.87	2519.87
44	1.1497	3318.84	-29.9538	Anisotropic Bedrock (Tm) Ultimate	200	16	551.998	828.168	2190.68	0	2190.68	2508.78	2508.78
45	1.14482	3277.13	-29.9538	Anisotropic Bedrock (Tm) Ultimate	200	16	548.496	822.914	2172.36	0	2172.36	2488.45	2488.45
46	1.14482	3243.27	-29.9538	Anisotropic Bedrock (Tm) Ultimate	200	16	544.2	816.469	2149.88	0	2149.88	2463.49	2463.49
47	1.14482	3244.41	-29.9538	Anisotropic Bedrock (Tm) Ultimate	200	16	544.346	816.687	2150.64	0	2150.64	2464.33	2464.33
48	1.14482	3266.59	-29.9538	Anisotropic Bedrock (Tm) Ultimate	200	16	547.159	820.908	2165.37	0	2165.37	2480.68	2480.68
49	1.13785	3268.78	-29.9919	Anisotropic Bedrock (Tm) Ultimate	200	16	549.766	824.82	2179.01	0	2179.01	2496.31	2496.31
50	1.13785	3291.4	-29.9919	Anisotropic Bedrock (Tm) Ultimate	200	16	458.177	687.407	1699.79	0	1699.79	1964.23	1964.23

Interslice Data

Global Minimum Query (spencer) - Safety Factor: 1.50031

Slice Number	X coordinate [ft]	Y coordinate - Bottom [ft]	Interslice Normal Force [lbs]	Interslice Shear Force [lbs]	Interslice Force Angle [deg]
1	319.303	130.917	0	0	0
2	320.536	129.412	99.9859	56.5196	29.4784
3	321.77	127.907	292.861	165.547	29.4784
4	323.171	127.098	389.801	220.345	29.4784
5	324.572	126.289	526.242	297.472	29.4784
6	325.974	125.48	702.185	396.928	29.4784
7	327.375	124.672	917.628	518.713	29.4784
8	328.777	123.862	1172.71	662.905	29.4784
9	330.179	123.053	1467.33	829.449	29.4785
10	331.581	122.244	1801.5	1018.35	29.4786
11	332.983	121.435	2175.29	1229.64	29.4784
12	334.421	120.606	2599.03	1469.17	29.4784
13	335.86	119.776	3064.38	1732.22	29.4784
14	337.298	118.947	3571.33	2018.79	29.4785
15	338.737	118.118	4119.9	2328.88	29.4784
16	340.031	117.372	4648.98	2627.95	29.4784
17	341.325	116.626	5212.1	2946.27	29.4784
18	342.619	115.88	5809.31	3283.86	29.4784
19	343.913	115.134	6342.17	3585.08	29.4785
20	345.207	114.389	6893.89	3896.95	29.4784
21	346.501	113.643	7479.7	4228.09	29.4784
22	347.795	112.897	8099.59	4578.5	29.4784
23	349.089	112.151	8753.64	4948.22	29.4784
24	350.494	111.341	9502.13	5371.33	29.4785
25	351.898	110.532	10290.9	5817.2	29.4784
26	353.302	109.722	11120	6285.85	29.4784
27	354.707	108.913	11989.3	6777.27	29.4785
28	356.335	107.975	13047.5	7375.41	29.4783
29	357.963	107.036	14159.6	8004.1	29.4785
30	359.048	106.411	14931.1	8440.17	29.4784
31	360.134	105.785	15726.5	8889.82	29.4785
32	361.219	105.16	16546	9353.03	29.4784
33	362.847	104.22	-634.894	-358.89	29.4784
34	364.475	103.281	605.32	342.173	29.4784
35	365.56	102.655	1425.27	805.672	29.4785
36	366.646	102.029	2241.02	1266.79	29.4783
37	367.731	101.404	3052.56	1725.54	29.4784
38	369.318	100.49	4230.08	2391.16	29.4784
39	370.905	99.5762	5398.61	3051.7	29.4784
40	372.491	98.6624	6558.67	3707.45	29.4784
41	374.078	97.7486	7710.43	4358.52	29.4784
42	375.228	97.086	8540.51	4827.74	29.4784
43	376.378	96.4235	9366.25	5294.52	29.4785
44	377.527	95.7609	10187.7	5758.84	29.4783
45	378.677	95.0984	11004.6	6220.66	29.4785
46	379.822	94.4386	11810.1	6675.95	29.4784
47	380.967	93.7789	12605.6	7125.63	29.4784
48	382.111	93.1192	13401.4	7575.51	29.4785
49	383.256	92.4595	14203.8	8029.05	29.4784
50	384.394	91.8027	15009.4	8484.47	29.4785
51	385.532	91.146	0	0	0

Discharge Sections

Entity Information

Upper Slope (Static)

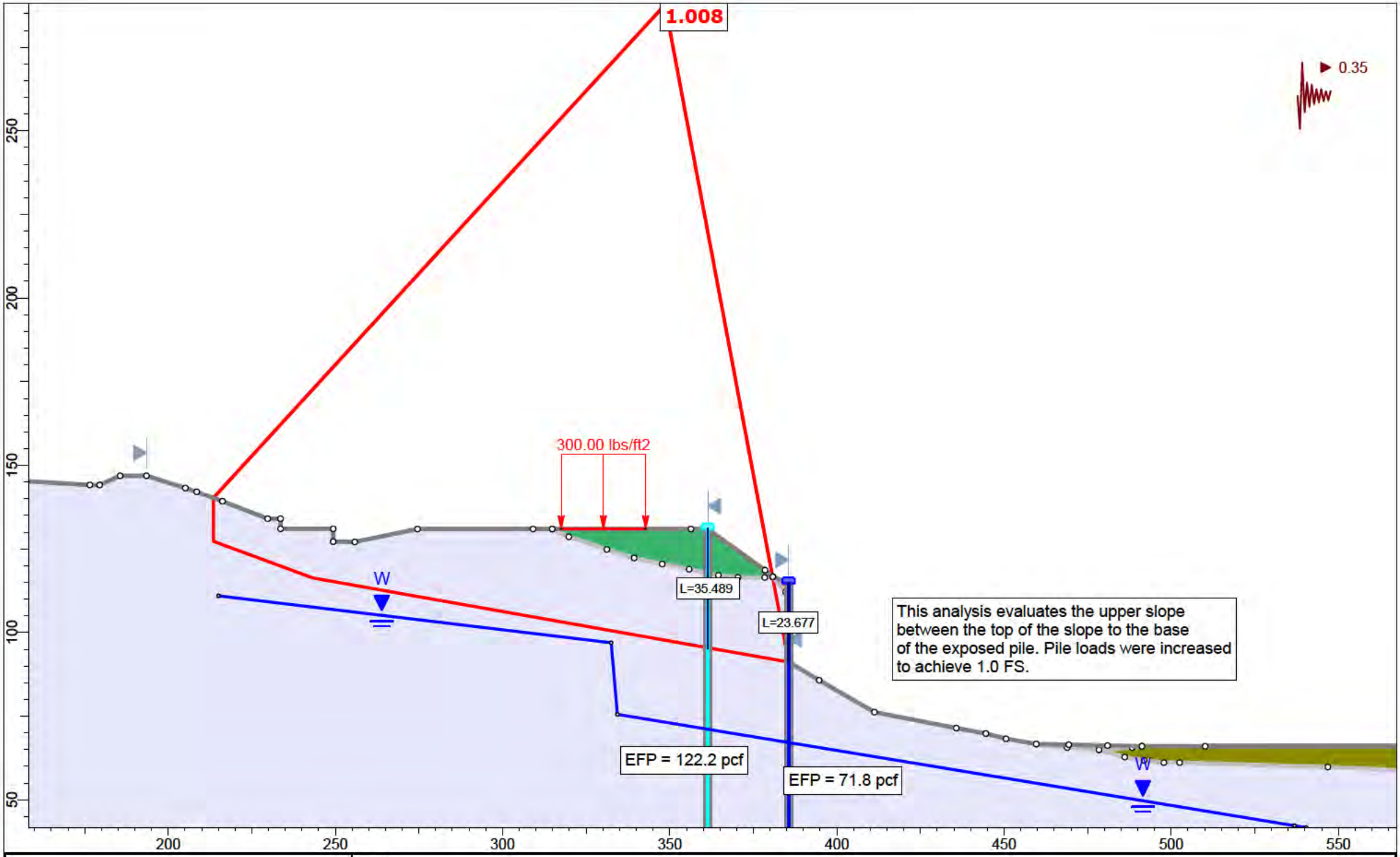
Shared Entities

Type	Coordinates (x,y)
External Boundary	0.036, 188.459 0.067, -0.196 607.643, -0.196 607.643, 57.4645 607.643, 61.847 599.042, 62.731 584.548, 65.972 510.136, 65.972 491.224, 65.972 480.929, 66.1893 469.341, 66.4339 459.627, 66.639 450.56, 68.214 444.547, 69.789 435.716, 71.4185 411.23, 76.1631 394.667, 85.7073 385.532, 91.146 385.532, 111.176 385.532, 114.823 380.809, 116.625 378.482, 118.617 361.373, 130.917 356.376, 130.917 314.827, 130.917 309.126, 130.917 274.531, 130.917 255.791, 127.058 249.338, 127.168 249.338, 130.982 233.566, 130.982 233.566, 134.006 229.738, 134.006 216.211, 139.228 208.509, 142.046 205.127, 143.174 193.481, 146.829 185.591, 146.829 179.496, 144.095 176.551, 144.095 138.196, 146.334 101.609, 147.689 80.752, 160.179 65.493, 169.901 57.598, 174.201 40.925, 182.509 36.741, 184.806
Material Boundary	380.809, 116.625 384.655, 112.071 385.532, 111.176

Material Boundary	314.827, 130.917 319.798, 128.565 331.181, 124.794 339.312, 122.26 347.737, 120.434 355.808, 118.902 364.528, 117.076 370.42, 116.428 378.404, 116.428 380.809, 116.625
Material Boundary	478.382, 64.921 486.105, 62.747 491.839, 61.736 497.757, 61.079 502.485, 61.079 546.833, 59.749 590.839, 57.858 607.643, 57.4645
Material Boundary	459.627, 66.639 468.838, 65.589 478.382, 64.921 488.261, 65.589 491.224, 65.972

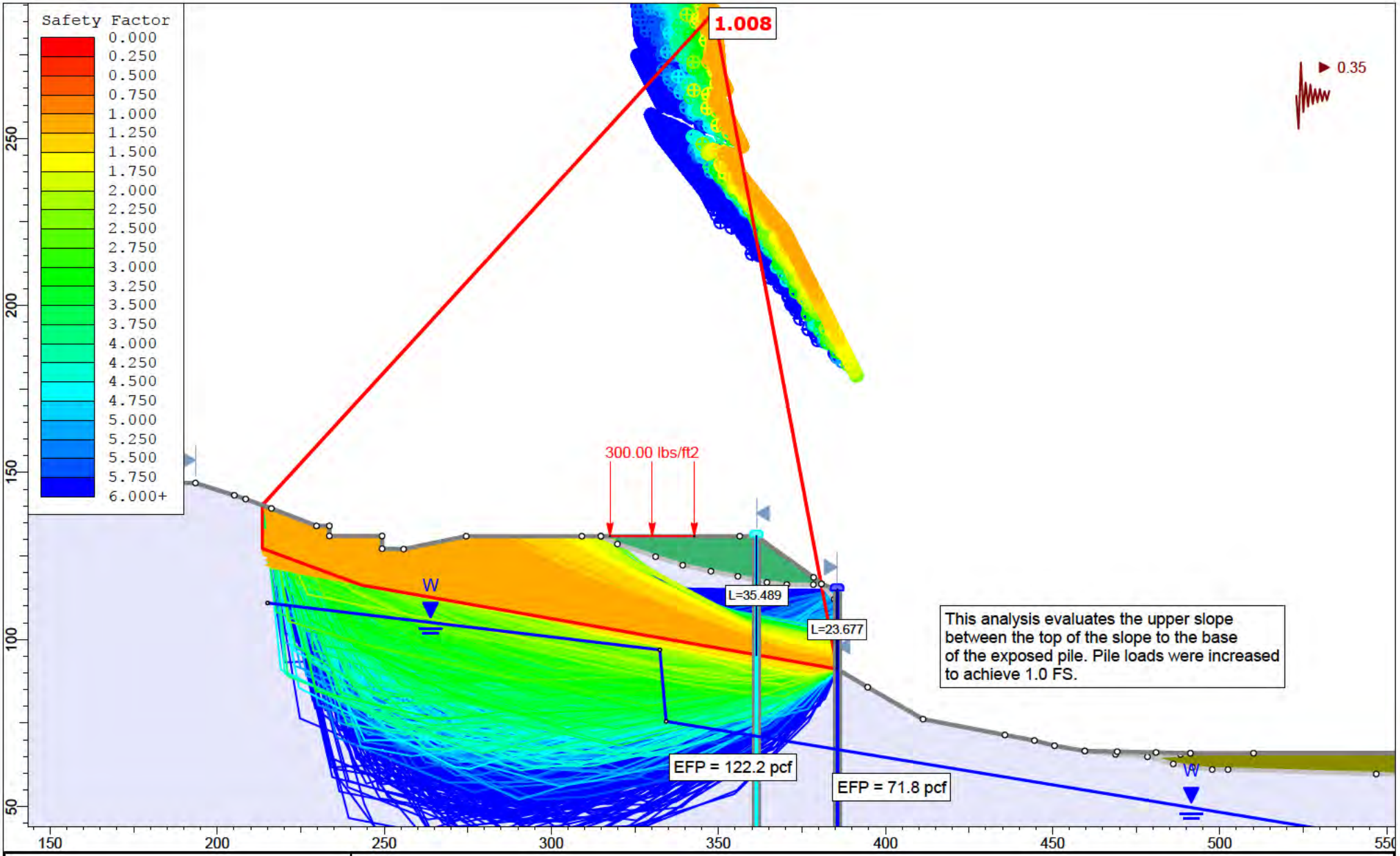
Scenario-based Entities

Type	Coordinates (x,y)	Master Scenario
Water Table	215.062, 110.934 332.462, 96.909 334.336, 75.504 536.885, 42.2379 540.294, 41.678	Assigned to: Anisotropic Bedrock (Tm) Ultimate
Distributed Load	342.792, 130.917 317.529, 130.917	Constant DistributionOrientation: Normal to boundaryMagnitude: 300 lbs/ft2Creates Excess Pore Pressure: No
Non-Circular Failure Surface	394.667, 85.7073 411.23, 76.1631	



rocscience	Project	Section 2-2'		
	Analysis Description	Upper Slope (Seismic)		
	Drawn By	A. Greene	Scale 1:476	Company Feffer Geological Consulting
	Date			File Name Section 2-2' Translational Analysis_2.slmd

SLIDEINTERPRET 9.018



rocscience

SLIDEINTERPRET 9.018

Project	Section 2-2'				
Analysis Description	Upper Slope (Seismic)				
Drawn By	A. Greene	Scale	1:476	Company	Feffer Geological Consulting
Date				File Name	Section 2-2' Translational Analysis_2.slmd

Slide Analysis Information

Section 2-2' Translational Analysis_2

Project Summary

File Name:	Section 2-2' Translational Analysis_2.slmd
Slide Modeler Version:	9.018
Compute Time:	00h:00m:22.933s
Project Title:	Section 2-2'
Analysis:	Upper Slope (Seismic)
Author:	A. Greene
Company:	Feffer Geological Consulting

General Settings

Units of Measurement:	Imperial Units
Time Units:	days
Permeability Units:	feet/second
Data Output:	Standard
Failure Direction:	Left to Right

Analysis Options

Slices Type:	Vertical
Analysis Methods Used	
	Spencer
Number of slices:	50
Tolerance:	0.005
Maximum number of iterations:	75
Check malpha < 0.2:	Yes
Create Interslice boundaries at intersections with water tables and piezos:	Yes
Initial trial value of FS:	1
Steffensen Iteration:	Yes

Groundwater Analysis

Groundwater Method:	Water Surfaces
Pore Fluid Unit Weight [lbs/ft3]:	62.4
Use negative pore pressure cutoff:	Yes
Maximum negative pore pressure [psf]:	0
Advanced Groundwater Method:	None

Random Numbers

Pseudo-random Seed:	10116
Random Number Generation Method:	Park and Miller v.3

Surface Options

Search Method:	Cuckoo Search
Initial # of Surface Vertices:	8
Maximum Iterations:	500
Number of Nests:	50
Minimum Elevation:	Not Defined
Minimum Depth:	Not Defined
Minimum Area:	Not Defined
Minimum Weight:	Not Defined
Convex Surfaces Only:	Enabled

Seismic Loading

Advanced seismic analysis:	No
Staged pseudostatic analysis:	No
Seismic Load Coefficient (Horizontal):	0.35

Loading

1 Distributed Load present

Distributed Load 1	
Distribution:	Constant
Magnitude [psf]:	300
Orientation:	Normal to boundary

Materials

Terrace (Qoa)	
Color	
Strength Type	Mohr-Coulomb
Unit Weight [lbs/ft3]	115
Cohesion [psf]	100
Friction Angle [deg]	31
Water Surface	None
Ru Value	0
Qlsr	
Color	
Strength Type	Mohr-Coulomb
Unit Weight [lbs/ft3]	115
Cohesion [psf]	200
Friction Angle [deg]	12
Water Surface	None
Ru Value	0
Fill (Af)	
Color	
Strength Type	Mohr-Coulomb
Unit Weight [lbs/ft3]	120
Cohesion [psf]	120
Friction Angle [deg]	31
Water Surface	None
Ru Value	0
Anisotropic Bedrock (Tm) Peak	
Color	
Strength Type	Anisotropic function
Unit Weight [lbs/ft3]	124
Water Surface	Water Table
Hu Value	1

Anisotropic Functions

Name: Anisotropic Bedrock (Tm) Peak

Angle From	Angle To	c	phi
-90	-30	720	41
-30	-10	200	16
-10	90	720	41

Support

Pile 1_Reinforced (Seismic)	
Color	
Type	Pile/Micro Pile
Force Application	Active (Method A)
Force Orientation	Parallel to surface
Out-Of-Plane Spacing	10 ft
Failure Mode	Shear
Pile Shear Strength	200000 lbs

Pile 2_Reinforced (Seismic)	
Color	
Type	Pile/Micro Pile
Force Application	Active (Method A)
Force Orientation	Parallel to surface
Out-Of-Plane Spacing	10 ft
Failure Mode	Shear
Pile Shear Strength	770000 lbs

Global Minimums

Method: spencer

FS	1.008370
Axis Location:	348.592, 287.699
Left Slip Surface Endpoint:	213.513, 140.215
Right Slip Surface Endpoint:	385.532, 91.146
Left Slope Intercept:	213.513 140.215
Right Slope Intercept:	385.532 114.823
Resisting Moment:	3.13147e+07 lb-ft
Driving Moment:	3.10548e+07 lb-ft
Resisting Horizontal Force:	163173 lb
Driving Horizontal Force:	161819 lb
Active Support Moment:	-1.81516e+07 lb-ft
Active Horizontal Support Force:	-95520.8 lb
Maximum Single Support Force:	77000 lb
Total Support Force:	97000 lb
Total Slice Area:	3987.72 ft2
Surface Horizontal Width:	172.019 ft
Surface Average Height:	23.1819 ft

Global Minimum Coordinates

Method: spencer

X	Y
213.513	127.24
243.199	116.3
276.625	110.386
307.437	104.943
355.87	96.3863
363.621	95.0169
385.532	91.146
385.533	114.823

Global Minimum Support Data

Method: spencer

Number of Supports: 2

Pile 1_Reinforced (Seismic)

Support Type: Pile/Micro Pile

Start (x, y)	Length (ft)	L Inside SS (ft)	L Outside SS (ft)	Li (ft)	Lo (ft)	Force (lb)
385.532, 114.823	80	23.677	56.323	23.677	56.323	20000

Pile 2_Reinforced (Seismic)

Support Type: Pile/Micro Pile

Start (x, y)	Length (ft)	L Inside SS (ft)	L Outside SS (ft)	Li (ft)	Lo (ft)	Force (lb)
361.373, 130.917	92.023	35.503	56.52	35.503	56.52	77000

Valid and Invalid Surfaces

Method: spencer

Number of Valid Surfaces:	9013
Number of Invalid Surfaces:	16061

Error Codes

Error Code -108 reported for 176 surfaces
Error Code -110 reported for 6559 surfaces
Error Code -111 reported for 4819 surfaces
Error Code -112 reported for 665 surfaces
Error Code -113 reported for 1 surface
Error Code -121 reported for 228 surfaces
Error Code -124 reported for 16 surfaces
Error Code -145 reported for 11 surfaces
Error Code -1000 reported for 3586 surfaces

Error Code Descriptions

The following errors were encountered during the computation:
-108 = Total driving moment or total driving force < 0.1. This is to limit the calculation of extremely high safety factors if the driving force is very small (0.1 is an arbitrary number).
-110 = The water table or a piezoline does not span the slip region for a given slip surface, when Water Surfaces is specified as the method of pore pressure calculation. If this error occurs, check that the water table or piezoline(s) span the appropriate soil cells.
-111 = Safety factor equation did not converge
-112 = The coefficient M-Alpha = cos(alpha)(1+tan(alpha)tan(phi)/F) < 0.2 for the final iteration of the safety factor calculation. This screens out some slip surfaces which may not be valid in the context of the analysis, in particular, deep seated slip surfaces with many high negative base angle slices in the passive zone.
-113 = Surface intersects outside slope limits.
-121 = Concave failure surface, only convex surfaces have been defined as being allowed.
-124 = A slice has a width less than the minimum acceptable value.
-145 = Slip surface was clipped vertically by a weak layer in a region of compression. Such a surface cannot be evaluated using Limit Equilibrium. For more information, see Help Documentation on weak layers.
-1000 = No valid slip surface is generated

Slice Data

Global Minimum Query (spencer) - Safety Factor: 1.00837

Slice Number	Width [ft]	Weight [lbs]	Angle of Slice Base [deg]	Base Material	Base Cohesion [psf]	Base Friction Angle [deg]	Shear Stress [psf]	Shear Strength [psf]	Base Normal Stress [psf]	Pore Pressure [psf]	Effective Normal Stress [psf]	Base Vertical Stress [psf]	Effective Vertical Stress [psf]
1	3.29836	5307.93	-20.232	Anisotropic Bedrock (Tm) Peak	200	16	523.861	528.246	1144.73	0	1144.73	1337.81	1337.81
2	3.29836	5293.44	-20.232	Anisotropic Bedrock (Tm) Peak	200	16	523.002	527.38	1141.71	0	1141.71	1334.47	1334.47
3	3.29836	5269.86	-20.232	Anisotropic Bedrock (Tm) Peak	200	16	521.604	525.97	1136.79	0	1136.79	1329.03	1329.03
4	3.29836	5246.28	-20.232	Anisotropic Bedrock (Tm) Peak	200	16	520.205	524.559	1131.87	0	1131.87	1323.6	1323.6
5	3.29836	5224.41	-20.232	Anisotropic Bedrock (Tm) Peak	200	16	518.908	523.251	1127.31	0	1127.31	1318.56	1318.56
6	3.29836	5501.68	-20.232	Anisotropic Bedrock (Tm) Peak	200	16	535.352	539.833	1185.14	0	1185.14	1382.45	1382.45
7	3.29836	4860.52	-20.232	Anisotropic Bedrock (Tm) Peak	200	16	497.326	501.489	1051.42	0	1051.42	1234.71	1234.71
8	3.29836	5259.27	-20.232	Anisotropic Bedrock (Tm) Peak	200	16	520.975	525.336	1134.58	0	1134.58	1326.59	1326.59
9	3.29836	5756.47	-20.232	Anisotropic Bedrock (Tm) Peak	200	16	550.464	555.071	1238.28	0	1238.28	1441.16	1441.16
10	3.34265	6208.25	-10.0327	Anisotropic Bedrock (Tm) Peak	200	16	646.846	652.26	1577.22	0	1577.22	1691.65	1691.65
11	3.34265	6194.89	-10.0327	Anisotropic Bedrock (Tm) Peak	200	16	645.933	651.339	1574	0	1574	1688.28	1688.28
12	3.34265	5101.96	-10.0327	Anisotropic Bedrock (Tm) Peak	200	16	571.106	575.886	1310.87	0	1310.87	1411.9	1411.9

13	3.34265	5331.85	-10.0327	Anisotropic Bedrock (Tm) Peak	200	16	586.845	591.757	1366.22	0	1366.22	1470.04	1470.04
14	3.34265	5771.37	-10.0327	Anisotropic Bedrock (Tm) Peak	200	16	616.935	622.099	1472.03	0	1472.03	1581.18	1581.18
15	3.34265	6301.77	-10.0327	Anisotropic Bedrock (Tm) Peak	200	16	653.249	658.717	1599.74	0	1599.74	1715.31	1715.31
16	3.34265	6832.18	-10.0327	Anisotropic Bedrock (Tm) Peak	200	16	689.563	695.335	1727.44	0	1727.44	1849.43	1849.43
17	3.34265	7362.59	-10.0327	Anisotropic Bedrock (Tm) Peak	200	16	725.877	731.953	1855.14	0	1855.14	1983.56	1983.56
18	3.34265	7892.99	-10.0327	Anisotropic Bedrock (Tm) Peak	200	16	762.19	768.57	1982.84	0	1982.84	2117.68	2117.68
19	3.34265	8367.42	-10.0327	Anisotropic Bedrock (Tm) Peak	200	16	794.672	801.323	2097.07	0	2097.07	2237.65	2237.65
20	3.42359	8844.34	-10.0187	Anisotropic Bedrock (Tm) Peak	200	16	813.159	819.965	2162.07	0	2162.07	2305.73	2305.73
21	3.42359	9101.1	-10.0187	Anisotropic Bedrock (Tm) Peak	200	16	830.326	837.276	2222.45	0	2222.45	2369.13	2369.13
22	3.42359	9357.86	-10.0187	Anisotropic Bedrock (Tm) Peak	200	16	847.493	854.587	2282.82	0	2282.82	2432.54	2432.54
23	3.42359	9614.63	-10.0187	Anisotropic Bedrock (Tm) Peak	200	16	864.661	871.898	2343.19	0	2343.19	2495.94	2495.94
24	3.42359	9871.39	-10.0187	Anisotropic Bedrock (Tm) Peak	200	16	881.828	889.209	2403.56	0	2403.56	2559.35	2559.35
25	3.42359	10128.2	-10.0187	Anisotropic Bedrock (Tm) Peak	200	16	898.995	906.52	2463.93	0	2463.93	2622.75	2622.75
26	3.42359	10384.9	-10.0187	Anisotropic Bedrock (Tm) Peak	200	16	916.163	923.831	2524.3	0	2524.3	2686.15	2686.15
27	3.42359	10641.7	-10.0187	Anisotropic Bedrock (Tm) Peak	200	16	933.33	941.142	2584.67	0	2584.67	2749.56	2749.56
28	3.42359	10898.4	-10.0187	Anisotropic Bedrock (Tm) Peak	200	16	950.497	958.453	2645.04	0	2645.04	2812.96	2812.96
29	3.45944	11273.4	-10.0187	Anisotropic Bedrock (Tm) Peak	200	16	967.755	975.855	2705.73	0	2705.73	2876.69	2876.69
30	3.45944	11535.6	-10.0187	Anisotropic Bedrock (Tm) Peak	200	16	985.102	993.347	2766.73	0	2766.73	2940.76	2940.76
31	3.45944	11778.7	-10.0187	Anisotropic Bedrock (Tm) Peak	200	16	1008.36	1016.8	2848.52	0	2848.52	3026.67	3026.67
32	3.45944	11991.8	-10.0187	Anisotropic Bedrock (Tm) Peak	200	16	1101.73	1110.95	3176.87	0	3176.87	3371.51	3371.51
33	3.45944	12215.8	-10.0187	Anisotropic Bedrock (Tm) Peak	200	16	1116.55	1125.9	3229	0	3229	3426.25	3426.25
34	3.45944	12442.2	-10.0187	Anisotropic Bedrock (Tm) Peak	200	16	1131.54	1141.01	3281.69	0	3281.69	3481.59	3481.59
35	3.45944	12668.7	-10.0187	Anisotropic Bedrock (Tm) Peak	200	16	1146.52	1156.12	3334.38	0	3334.38	3536.92	3536.92
36	3.45944	12896.6	-10.0187	Anisotropic Bedrock (Tm) Peak	200	16	1161.6	1171.32	3387.41	0	3387.41	3592.62	3592.62
37	3.45944	13125.2	-10.0187	Anisotropic Bedrock (Tm) Peak	200	16	1176.72	1186.57	3440.58	0	3440.58	3648.47	3648.47

38	3.45944	13356.9	-10.0187	Anisotropic Bedrock (Tm) Peak	200	16	1192.06	1202.04	3494.52	0	3494.52	3705.12	3705.12
39	3.45944	13595.5	-10.0187	Anisotropic Bedrock (Tm) Peak	200	16	1140.41	1149.96	3312.91	0	3312.91	3514.38	3514.38
40	3.45944	13834.5	-10.0187	Anisotropic Bedrock (Tm) Peak	200	16	1137.22	1146.74	3301.67	0	3301.67	3502.57	3502.57
41	3.45944	14075.6	-10.0187	Anisotropic Bedrock (Tm) Peak	200	16	1153.17	1162.83	3357.77	0	3357.77	3561.5	3561.5
42	3.45944	14317.4	-10.0187	Anisotropic Bedrock (Tm) Peak	200	16	1169.17	1178.95	3414.02	0	3414.02	3620.57	3620.57
43	3.87551	16325	-10.0187	Anisotropic Bedrock (Tm) Peak	200	16	1186.04	1195.97	3473.37	0	3473.37	3682.9	3682.9
44	3.87551	16416.9	-10.0187	Anisotropic Bedrock (Tm) Peak	200	16	3506.73	3536.08	11634.3	0	11634.3	12253.8	12253.8
45	3.65191	14715.2	-10.0187	Anisotropic Bedrock (Tm) Peak	200	16	1144.18	1153.75	3326.12	0	3326.12	3528.26	3528.26
46	3.65191	13891.3	-10.0187	Anisotropic Bedrock (Tm) Peak	200	16	1092.53	1101.68	3144.54	0	3144.54	3337.55	3337.55
47	3.65191	13075.9	-10.0187	Anisotropic Bedrock (Tm) Peak	200	16	1041.43	1050.14	2964.82	0	2964.82	3148.8	3148.8
48	3.65191	12265.5	-10.0187	Anisotropic Bedrock (Tm) Peak	200	16	990.628	998.92	2786.17	0	2786.17	2961.18	2961.18
49	3.65191	11393.2	-10.0187	Anisotropic Bedrock (Tm) Peak	200	16	935.954	943.788	2593.9	0	2593.9	2759.24	2759.24
50	3.65191	10815.4	-10.0187	Anisotropic Bedrock (Tm) Peak	200	16	1537.31	1550.18	4708.64	0	4708.64	4980.23	4980.23

Interslice Data

Global Minimum Query (spencer) - Safety Factor: 1.00837

Slice Number	X coordinate [ft]	Y coordinate - Bottom [ft]	Interslice Normal Force [lbs]	Interslice Shear Force [lbs]	Interslice Force Angle [deg]
1	213.513	127.24	0	0	0
2	216.812	126.025	1522.02	897.106	30.5159
3	220.11	124.809	3038.12	1790.73	30.516
4	223.408	123.593	4544.61	2678.68	30.5159
5	226.707	122.378	6041.47	3560.96	30.5159
6	230.005	121.162	7529.42	4437.99	30.5159
7	233.303	119.947	9130.48	5381.69	30.516
8	236.602	118.731	10470	6171.2	30.5158
9	239.9	117.515	11972.1	7056.61	30.516
10	243.199	116.3	13677.1	8061.57	30.516
11	246.541	115.708	14621.2	8618.04	30.516
12	249.884	115.117	15561.8	9172.42	30.5159
13	253.226	114.525	16214.3	9557	30.5159
14	256.569	113.934	16927.3	9977.3	30.516
15	259.912	113.343	17756.3	10465.9	30.5159
16	263.254	112.751	18725	11036.9	30.516
17	266.597	112.16	19833.5	11690.3	30.516
18	269.94	111.569	21081.9	12426.1	30.516
19	273.282	110.977	22470.1	13244.3	30.5159
20	276.625	110.386	23983.3	14136.2	30.5159
21	280.049	109.781	25603.5	15091.2	30.5159
22	283.472	109.176	27291.2	16086	30.516
23	286.896	108.571	29046.6	17120.6	30.5159
24	290.319	107.967	30869.6	18195.2	30.516
25	293.743	107.362	32760.2	19309.5	30.5159
26	297.167	106.757	34718.5	20463.8	30.516
27	300.59	106.152	36744.4	21657.9	30.516
28	304.014	105.547	38837.9	22891.8	30.5159
29	307.437	104.943	40999	24165.6	30.5159
30	310.897	104.331	43251.5	25493.3	30.5159
31	314.356	103.72	45573	26861.6	30.5159
32	317.816	103.109	47949.1	28262.2	30.516
33	321.275	102.498	50277.6	29634.6	30.5159
34	324.735	101.887	52665.1	31041.9	30.516
35	328.194	101.276	55112.3	32484.3	30.516
36	331.653	100.664	57619.1	33961.8	30.5159
37	335.113	100.053	60185.9	35474.7	30.5159
38	338.572	99.4421	62812.9	37023.2	30.516
39	342.032	98.8309	65500.9	38607.5	30.5159
40	345.491	98.2198	68340.1	40281	30.5159
41	348.951	97.6086	71267.1	42006.2	30.5159
42	352.41	96.9974	74257.6	43768.9	30.5159
43	355.87	96.3863	77311.8	45569.1	30.5159
44	359.745	95.7016	80808.5	47630.1	30.5159
45	363.621	95.0169	5108.02	3010.77	30.516
46	367.272	94.3718	8227.08	4849.2	30.5159
47	370.924	93.7266	11129.1	6559.74	30.516
48	374.576	93.0815	13816.5	8143.7	30.5159
49	378.228	92.4363	16290.3	9601.84	30.516
50	381.88	91.7912	18534.5	10924.6	30.5159
51	385.532	91.146	0	0	0

Discharge Sections

Entity Information

Upper Slope (Seismic)

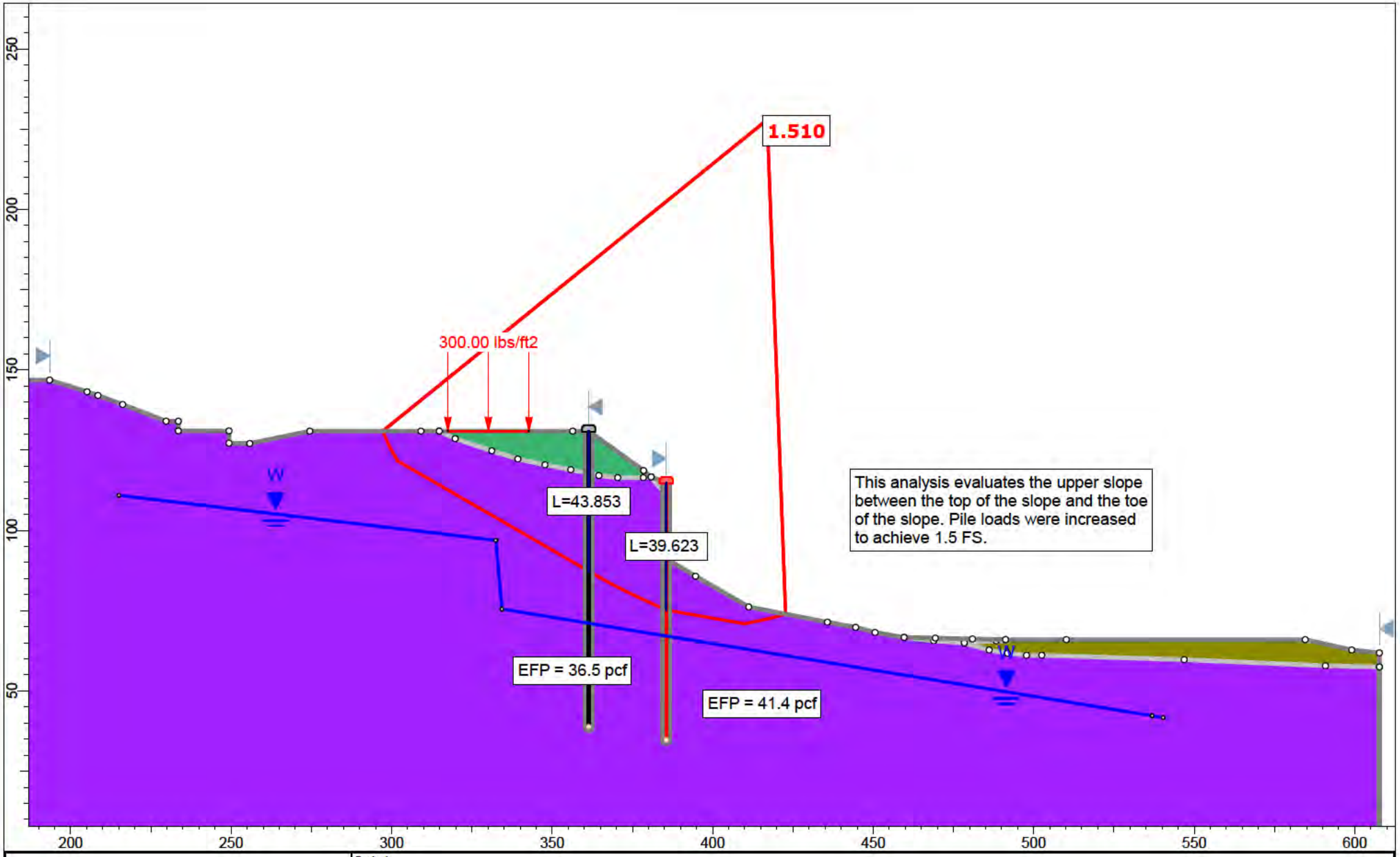
Shared Entities

Type	Coordinates (x,y)
External Boundary	0.036, 188.459 0.067, -0.196 607.643, -0.196 607.643, 57.4645 607.643, 61.847 599.042, 62.731 584.548, 65.972 510.136, 65.972 491.224, 65.972 480.929, 66.1893 469.341, 66.4339 459.627, 66.639 450.56, 68.214 444.547, 69.789 435.716, 71.4185 411.23, 76.1631 394.667, 85.7073 385.532, 91.146 385.532, 111.176 385.532, 114.823 380.809, 116.625 378.482, 118.617 361.373, 130.917 356.376, 130.917 314.827, 130.917 309.126, 130.917 274.531, 130.917 255.791, 127.058 249.338, 127.168 249.338, 130.982 233.566, 130.982 233.566, 134.006 229.738, 134.006 216.211, 139.228 208.509, 142.046 205.127, 143.174 193.481, 146.829 185.591, 146.829 179.496, 144.095 176.551, 144.095 138.196, 146.334 101.609, 147.689 80.752, 160.179 65.493, 169.901 57.598, 174.201 40.925, 182.509 36.741, 184.806
Material Boundary	380.809, 116.625 384.655, 112.071 385.532, 111.176

Material Boundary	314.827, 130.917 319.798, 128.565 331.181, 124.794 339.312, 122.26 347.737, 120.434 355.808, 118.902 364.528, 117.076 370.42, 116.428 378.404, 116.428 380.809, 116.625
Material Boundary	478.382, 64.921 486.105, 62.747 491.839, 61.736 497.757, 61.079 502.485, 61.079 546.833, 59.749 590.839, 57.858 607.643, 57.4645
Material Boundary	459.627, 66.639 468.838, 65.589 478.382, 64.921 488.261, 65.589 491.224, 65.972

Scenario-based Entities

Type	Coordinates (x,y)	Master Scenario
Water Table	215.062, 110.934 332.462, 96.909 334.336, 75.504 536.885, 42.2379 540.294, 41.678	Assigned to: Anisotropic Bedrock (Tm) Peak
Distributed Load	342.792, 130.917 317.529, 130.917	Constant DistributionOrientation: Normal to boundaryMagnitude: 300 lbs/ft2Creates Excess Pore Pressure: No
Non-Circular Failure Surface	394.667, 85.7073 411.23, 76.1631	



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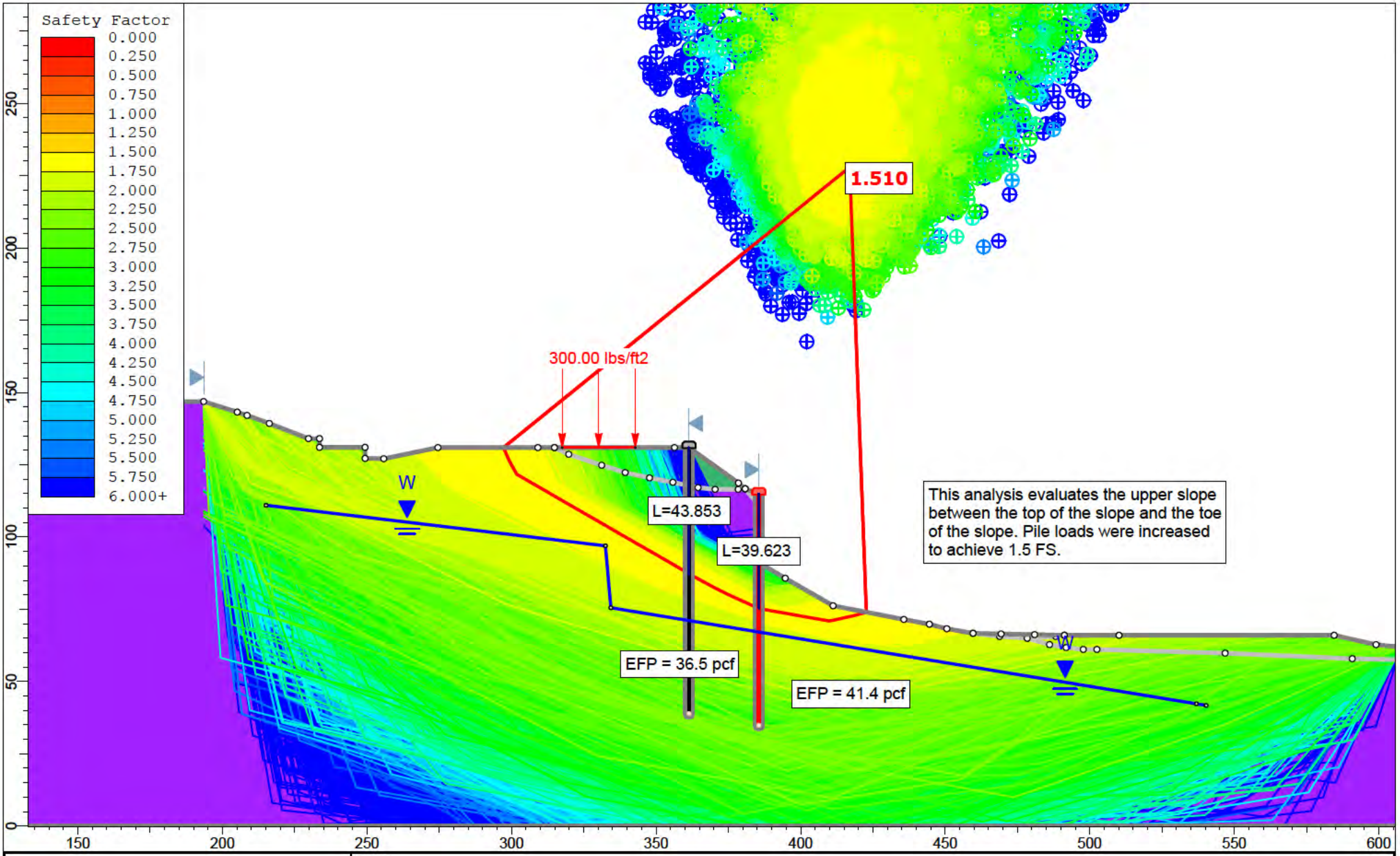
SLIDEINTERPRET 9.018

Project	Section 2-2'				
Analysis Description	Upper Slope (Static) 1				
Drawn By	A. Greene	Scale	1:496	Company	Feffer Geological Consulting
Date				File Name	Section 2-2' Translational Analysis_2.slmd



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SLIDEINTERPRET 9.018

Project	Section 2-2'				
Analysis Description	Upper Slope (Static) 1				
Drawn By	A. Greene	Scale	1:551	Company	Feffer Geological Consulting
Date				File Name	Section 2-2' Translational Analysis_2.slmd

Slide Analysis Information

Section 2-2' Translational Analysis_2

Project Summary

File Name:	Section 2-2' Translational Analysis_2.slmd
Slide Modeler Version:	9.018
Compute Time:	00h:00m:12.120s
Project Title:	Section 2-2'
Analysis:	Upper Slope (Static) 1
Author:	A. Greene
Company:	Feffer Geological Consulting

General Settings

Units of Measurement:	Imperial Units
Time Units:	days
Permeability Units:	feet/second
Data Output:	Standard
Failure Direction:	Left to Right

Analysis Options

Slices Type:	Vertical
Analysis Methods Used	
	Spencer
Number of slices:	50
Tolerance:	0.005
Maximum number of iterations:	75
Check malpha < 0.2:	Yes
Create Interslice boundaries at intersections with water tables and piezos:	Yes
Initial trial value of FS:	1
Steffensen Iteration:	Yes

Groundwater Analysis

Groundwater Method:	Water Surfaces
Pore Fluid Unit Weight [lbs/ft3]:	9.81
Use negative pore pressure cutoff:	Yes
Maximum negative pore pressure [psf]:	0
Advanced Groundwater Method:	None

Random Numbers

Pseudo-random Seed:	10116
Random Number Generation Method:	Park and Miller v.3

Surface Options

Search Method:	Cuckoo Search
Initial # of Surface Vertices:	8
Maximum Iterations:	500
Number of Nests:	50
Minimum Elevation:	Not Defined
Minimum Depth:	Not Defined
Minimum Area:	Not Defined
Minimum Weight:	Not Defined
Convex Surfaces Only:	Enabled

Seismic Loading

Advanced seismic analysis:	No
Staged pseudostatic analysis:	No

Loading

1 Distributed Load present

Distributed Load 1	
Distribution:	Constant
Magnitude [psf]:	300
Orientation:	Normal to boundary

Materials

Terrace (Qoa)	
Color	
Strength Type	Mohr-Coulomb
Unit Weight [lbs/ft3]	115
Cohesion [psf]	100
Friction Angle [deg]	31
Water Surface	None
Ru Value	0
Qlsr	
Color	
Strength Type	Mohr-Coulomb
Unit Weight [lbs/ft3]	115
Cohesion [psf]	200
Friction Angle [deg]	12
Water Surface	None
Ru Value	0
Fill (Af)	
Color	
Strength Type	Mohr-Coulomb
Unit Weight [lbs/ft3]	120
Cohesion [psf]	120
Friction Angle [deg]	31
Water Surface	None
Ru Value	0
Anisotropic Bedrock (Tm) Ultimate	
Color	
Strength Type	Anisotropic function
Unit Weight [lbs/ft3]	124
Water Surface	None
Ru Value	0

Anisotropic Functions

Name: Anisotropic Bedrock (Tm) Ultimate

Angle From	Angle To	c	phi
-90	-30	520	34.5
-30	-10	200	16
-10	90	520	34.5

Support

Pile 1 (Static)_1	
Color	
Type	Pile/Micro Pile
Force Application	Active (Method A)
Force Orientation	Parallel to surface
Out-Of-Plane Spacing	10 ft
Failure Mode	Shear
Pile Shear Strength	324800 lbs

Pile 2 (Static)_1	
Color	
Type	Pile/Micro Pile
Force Application	Active (Method A)
Force Orientation	Parallel to surface
Out-Of-Plane Spacing	10 ft
Failure Mode	Shear
Pile Shear Strength	350000 lbs

Global Minimums

Method: spencer

FS	1.509950
Axis Location:	416.957, 227.928
Left Slip Surface Endpoint:	297.225, 130.917
Right Slip Surface Endpoint:	422.727, 73.935
Resisting Moment:	2.07279e+07 lb-ft
Driving Moment:	1.37277e+07 lb-ft
Resisting Horizontal Force:	121053 lb
Driving Horizontal Force:	80171.1 lb
Active Support Moment:	-1.01712e+07 lb-ft
Active Horizontal Support Force:	-59856.7 lb
Maximum Single Support Force:	35000 lb
Total Support Force:	67480 lb
Total Slice Area:	2899.79 ft2
Surface Horizontal Width:	125.502 ft
Surface Average Height:	23.1055 ft

Global Minimum Coordinates

Method: spencer

X	Y
297.225	130.917
299.276	126.165
301.844	121.637
305.849	119.325
309.856	117.012
313.863	114.699
318.513	112.016
322.117	109.936
325.402	108.04
330.725	104.968
336.062	101.892
341.963	98.4903
347.865	95.0886
353.36	91.9213
358.855	88.754
363.939	85.8232
369.024	83.0176
373.509	80.7987
377.993	78.6738
381.767	76.9237
385.533	75.2
391.929	74.0677
396.101	73.3302
400.273	72.5926
405.142	71.7323
409.972	70.8791
414.068	71.7747
418.164	72.6891
422.727	73.9354

Global Minimum Support Data

Method: spencer

Number of Supports: 2

Pile 1 (Static)_1

Support Type: Pile/Micro Pile

Start (x, y)	Length (ft)	L Inside SS (ft)	L Outside SS (ft)	Li (ft)	Lo (ft)	Force (lb)
385.532, 114.823	80	39.6226	40.3774	39.6226	40.3774	32480

Pile 2 (Static)_1

Support Type: Pile/Micro Pile

Start (x, y)	Length (ft)	L Inside SS (ft)	L Outside SS (ft)	Li (ft)	Lo (ft)	Force (lb)
361.373, 130.917	92.023	43.6146	48.4084	43.6146	48.4084	35000

Valid and Invalid Surfaces

Method: spencer

Number of Valid Surfaces:	20741
Number of Invalid Surfaces:	4320

Error Codes

Error Code -108 reported for 173 surfaces
Error Code -109 reported for 1 surface
Error Code -111 reported for 2051 surfaces
Error Code -112 reported for 290 surfaces
Error Code -113 reported for 1 surface
Error Code -121 reported for 296 surfaces
Error Code -124 reported for 3 surfaces
Error Code -145 reported for 16 surfaces
Error Code -1000 reported for 1489 surfaces

Error Code Descriptions

The following errors were encountered during the computation:
-108 = Total driving moment or total driving force < 0.1. This is to limit the calculation of extremely high safety factors if the driving force is very small (0.1 is an arbitrary number).
-109 = Soiltype for slice base not located. This error should occur very rarely, if at all. It may occur if a very low number of slices is combined with certain soil geometries, such that the midpoint of a slice base is actually outside the soil region,even though the slip surface is wholly within the soil region.
-111 = Safety factor equation did not converge
-112 = The coefficient M-Alpha = cos(alpha)(1+tan(alpha)tan(phi)/F) < 0.2 for the final iteration of the safety factor calculation. This screens out some slip surfaces which may not be valid in the context of the analysis, in particular, deep seated slip surfaces with many high negative base angle slices in the passive zone.
-113 = Surface intersects outside slope limits.
-121 = Concave failure surface, only convex surfaces have been defined as being allowed.
-124 = A slice has a width less than the minimum acceptable value.
-145 = Slip surface was clipped vertically by a weak layer in a region of compression. Such a surface cannot be evaluated using Limit Equilibrium. For more information, see Help Documentation on weak layers.
-1000 = No valid slip surface is generated

Slice Data

Global Minimum Query (spencer) - Safety Factor: 1.50995

Slice Number	Width [ft]	Weight [lbs]	Angle of Slice Base [deg]	Base Material	Base Cohesion [psf]	Base Friction Angle [deg]	Shear Stress [psf]	Shear Strength [psf]	Base Normal Stress [psf]	Pore Pressure [psf]	Effective Normal Stress [psf]	Base Vertical Stress [psf]	Effective Vertical Stress [psf]
1	2.05083	604.205	-66.6556	Anisotropic Bedrock (Tm) Ultimate	520	34.5	287.763	434.507	-124.393	0	-124.393	542.362	542.362
2	2.56861	2234.69	-60.4381	Anisotropic Bedrock (Tm) Ultimate	520	34.5	423.331	639.209	173.45	0	173.45	919.801	919.801

3	2.00247	2447.88	-29.9924	Anisotropic Bedrock (Tm) Ultimate	200	16	310.665	469.088	938.424	0	938.424	1117.73	1117.73
4	2.00247	2734.86	-29.9924	Anisotropic Bedrock (Tm) Ultimate	200	16	331.847	501.073	1049.97	0	1049.97	1241.5	1241.5
5	2.00353	3023.53	-29.9924	Anisotropic Bedrock (Tm) Ultimate	200	16	353.036	533.067	1161.54	0	1161.54	1365.3	1365.3
6	2.00353	3310.82	-29.9924	Anisotropic Bedrock (Tm) Ultimate	200	16	374.23	565.069	1273.14	0	1273.14	1489.14	1489.14
7	2.00353	3598.11	-29.9924	Anisotropic Bedrock (Tm) Ultimate	200	16	395.424	597.071	1384.75	0	1384.75	1612.98	1612.98
8	2.00353	3885.4	-29.9924	Anisotropic Bedrock (Tm) Ultimate	200	16	416.618	629.073	1496.35	0	1496.35	1736.81	1736.81
9	2.32485	4864.68	-29.9924	Anisotropic Bedrock (Tm) Ultimate	200	16	439.261	663.262	1615.59	0	1615.59	1869.12	1869.12
10	2.32485	5230.48	-29.9924	Anisotropic Bedrock (Tm) Ultimate	200	16	481.291	726.726	1836.91	0	1836.91	2114.7	2114.7
11	3.60422	8831.44	-29.9924	Anisotropic Bedrock (Tm) Ultimate	200	16	536.493	810.077	2127.59	0	2127.59	2437.24	2437.24
12	3.28433	8822.47	-29.9881	Anisotropic Bedrock (Tm) Ultimate	200	16	571.387	862.766	2311.34	0	2311.34	2641.07	2641.07
13	2.66173	7692.68	-29.9881	Anisotropic Bedrock (Tm) Ultimate	200	16	601.523	908.269	2470.03	0	2470.03	2817.15	2817.15
14	2.66173	8178.52	-29.9881	Anisotropic Bedrock (Tm) Ultimate	200	16	628.503	949.008	2612.1	0	2612.1	2974.79	2974.79
15	2.66847	8687.09	-29.9596	Anisotropic Bedrock (Tm) Ultimate	200	16	655.711	990.091	2755.37	0	2755.37	3133.33	3133.33
16	2.66847	9176.05	-29.9596	Anisotropic Bedrock (Tm) Ultimate	200	16	682.805	1031	2898.05	0	2898.05	3291.62	3291.62
17	5.90144	22032.7	-29.9596	Anisotropic Bedrock (Tm) Ultimate	200	16	726.388	1096.81	3127.55	0	3127.55	3546.25	3546.25
18	2.95072	11922.1	-29.9596	Anisotropic Bedrock (Tm) Ultimate	200	16	739.88	1117.18	3198.59	0	3198.59	3625.06	3625.06
19	2.95072	12527.4	-29.9596	Anisotropic Bedrock (Tm) Ultimate	200	16	757.75	1144.16	3292.69	0	3292.69	3729.47	3729.47
20	5.4949	24945.9	-29.9596	Anisotropic Bedrock (Tm) Ultimate	200	16	801.265	1209.87	3521.83	0	3521.83	3983.69	3983.69
21	2.74745	13262.9	-29.9596	Anisotropic Bedrock (Tm) Ultimate	200	16	843.776	1274.06	3745.7	0	3745.7	4232.06	4232.06

22	2.74745	13788.7	-29.9596	Anisotropic Bedrock (Tm) Ultimate	200	16	872.075	1316.79	3894.69	0	3894.69	4397.37	4397.37
23	2.54229	13227	-29.9596	Anisotropic Bedrock (Tm) Ultimate	200	16	679.74	1026.37	2881.91	0	2881.91	3273.72	3273.72
24	2.54229	13404.6	-29.9596	Anisotropic Bedrock (Tm) Ultimate	200	16	909.62	1373.48	4092.4	0	4092.4	4616.72	4616.72
25	2.54231	13312	-28.8891	Anisotropic Bedrock (Tm) Ultimate	200	16	914.328	1380.59	4117.19	0	4117.19	4621.7	4621.7
26	2.54231	13213.3	-28.8891	Anisotropic Bedrock (Tm) Ultimate	200	16	908.514	1371.81	4086.61	0	4086.61	4587.91	4587.91
27	2.24233	11555	-26.3248	Anisotropic Bedrock (Tm) Ultimate	200	16	925.925	1398.1	4178.27	0	4178.27	4636.39	4636.39
28	2.24233	11446.8	-26.3248	Anisotropic Bedrock (Tm) Ultimate	200	16	918.487	1386.87	4139.09	0	4139.09	4593.53	4593.53
29	2.24236	11333.2	-25.3523	Anisotropic Bedrock (Tm) Ultimate	200	16	919.699	1388.7	4145.47	0	4145.47	4581.24	4581.24
30	2.24236	11212.9	-25.3523	Anisotropic Bedrock (Tm) Ultimate	200	16	911.335	1376.07	4101.47	0	4101.47	4533.27	4533.27
31	1.8868	9324.93	-24.8807	Anisotropic Bedrock (Tm) Ultimate	200	16	906.56	1368.86	4076.28	0	4076.28	4496.72	4496.72
32	1.8868	9203.44	-24.8807	Anisotropic Bedrock (Tm) Ultimate	200	16	896.467	1353.62	4023.16	0	4023.16	4438.92	4438.92
33	1.88303	9175.65	-24.5935	Anisotropic Bedrock (Tm) Ultimate	200	16	898.281	1356.36	4032.71	0	4032.71	4443.85	4443.85
34	1.88303	9181.46	-24.5935	Anisotropic Bedrock (Tm) Ultimate	200	16	885.162	1336.55	3963.62	0	3963.62	4368.76	4368.76
35	3.19795	6057.87	-10.039	Anisotropic Bedrock (Tm) Ultimate	200	16	489.228	738.71	1878.7	0	1878.7	1965.31	1965.31
36	3.19795	5527.39	-10.039	Anisotropic Bedrock (Tm) Ultimate	200	16	458.576	692.427	1717.3	0	1717.3	1798.48	1798.48
37	2.08616	3319.78	-10.0247	Anisotropic Bedrock (Tm) Ultimate	200	16	433.301	654.263	1584.21	0	1584.21	1660.8	1660.8
38	2.08616	3096.33	-10.0247	Anisotropic Bedrock (Tm) Ultimate	200	16	413.506	624.373	1479.97	0	1479.97	1553.06	1553.06
39	2.08616	2880.24	-10.0247	Anisotropic Bedrock (Tm) Ultimate	200	16	394.363	595.469	1379.17	0	1379.17	1448.88	1448.88
40	2.08616	2664.66	-10.0247	Anisotropic Bedrock (Tm) Ultimate	200	16	375.265	566.632	1278.6	0	1278.6	1344.94	1344.94

41	2.4341	2836.56	-10.0222	Anisotropic Bedrock (Tm) Ultimate	200	16	354.581	535.399	1169.68	0	1169.68	1232.34	1232.34
42	2.4341	2543.04	-10.0222	Anisotropic Bedrock (Tm) Ultimate	200	16	332.294	501.748	1052.32	0	1052.32	1111.05	1111.05
43	2.41512	2233.07	-10.0175	Anisotropic Bedrock (Tm) Ultimate	200	16	310.104	468.241	935.468	0	935.468	990.245	990.245
44	2.41512	1944.05	-10.0175	Anisotropic Bedrock (Tm) Ultimate	200	16	287.986	434.844	818.999	0	818.999	869.869	869.869
45	2.04801	1334.09	12.3341	Anisotropic Bedrock (Tm) Ultimate	520	34.5	1017.03	1535.66	1477.79	0	1477.79	1255.41	1255.41
46	2.04801	1082.06	12.3341	Anisotropic Bedrock (Tm) Ultimate	520	34.5	923.2	1393.99	1271.65	0	1271.65	1069.79	1069.79
47	2.04804	866.374	12.5844	Anisotropic Bedrock (Tm) Ultimate	520	34.5	847.51	1279.7	1105.37	0	1105.37	916.17	916.17
48	2.04804	649.482	12.5844	Anisotropic Bedrock (Tm) Ultimate	520	34.5	766.21	1156.94	926.75	0	926.75	755.702	755.702
49	2.28143	452.019	15.277	Anisotropic Bedrock (Tm) Ultimate	520	34.5	715.355	1080.15	815.023	0	815.023	619.633	619.633
50	2.28143	150.673	15.277	Anisotropic Bedrock (Tm) Ultimate	520	34.5	611.905	923.946	587.746	0	587.746	420.612	420.612

Interslice Data

Global Minimum Query (spencer) - Safety Factor: 1.50995

Slice Number	X coordinate [ft]	Y coordinate - Bottom [ft]	Interslice Normal Force [lbs]	Interslice Shear Force [lbs]	Interslice Force Angle [deg]
1	297.225	130.917	0	0	0
2	299.276	126.165	-1182.72	-534.907	24.3357
3	301.844	121.637	-1487.34	-672.673	24.3356
4	303.847	120.481	-1026.39	-464.2	24.3356
5	305.849	119.325	-479.038	-216.653	24.3357
6	307.853	118.169	155.066	70.1312	24.3357
7	309.856	117.012	875.658	396.031	24.3357
8	311.86	115.856	1682.74	761.047	24.3356
9	313.863	114.699	2576.31	1165.18	24.3357
10	316.188	113.358	3720.4	1682.62	24.3357
11	318.513	112.016	5063.52	2290.06	24.3356
12	322.117	109.936	7551	3415.07	24.3357
13	325.402	108.04	10050.4	4545.45	24.3356
14	328.063	106.504	12239.3	5535.41	24.3356
15	330.725	104.968	14574.4	6591.51	24.3356
16	333.394	103.43	17058.4	7714.95	24.3357
17	336.062	101.892	19689.4	8904.86	24.3357
18	341.963	98.4903	26030.8	11772.9	24.3357
19	344.914	96.7895	29282.4	13243.5	24.3357
20	347.865	95.0886	32641.2	14762.5	24.3356
21	353.36	91.9213	39382	17811.2	24.3357
22	356.107	90.3377	42989.9	19442.9	24.3357
23	358.855	88.754	46755.8	21146.1	24.3357
24	361.397	87.2886	18923.3	8558.39	24.3357
25	363.939	85.8232	22602	10222.2	24.3358
26	366.482	84.4204	26047.3	11780.3	24.3356
27	369.024	83.0176	29464.5	13325.8	24.3356
28	371.266	81.9082	32018.6	14481	24.3357
29	373.509	80.7987	34546	15624	24.3356
30	375.751	79.7363	36883	16681	24.3357
31	377.993	78.6738	39192	17725.2	24.3356
32	379.88	77.7987	41044.2	18562.9	24.3356
33	381.767	76.9237	42869	19388.2	24.3356
34	383.65	76.0618	44648.9	20193.2	24.3356
35	385.533	75.2	16860.5	7625.43	24.3356
36	388.731	74.6338	16355.6	7397.1	24.3357
37	391.929	74.0677	15857.6	7171.89	24.3357
38	394.015	73.6989	15535.7	7026.26	24.3356
39	396.101	73.3302	15216.6	6881.98	24.3357
40	398.187	72.9614	14900.5	6738.99	24.3356
41	400.273	72.5926	14587.2	6597.29	24.3356
42	402.708	72.1625	14225.1	6433.53	24.3356
43	405.142	71.7323	13866.9	6271.53	24.3356
44	407.557	71.3057	13515.2	6112.46	24.3356
45	409.972	70.8791	13167.3	5955.13	24.3357
46	412.02	71.3269	10417.4	4711.46	24.3357
47	414.068	71.7747	7952.51	3596.66	24.3357
48	416.116	72.2319	5707.06	2581.11	24.3356
49	418.164	72.6891	3710.19	1678	24.3357
50	420.445	73.3122	1566.2	708.34	24.3357
51	422.727	73.9354	0	0	0

Discharge Sections

Entity Information

Upper Slope (Static) 1

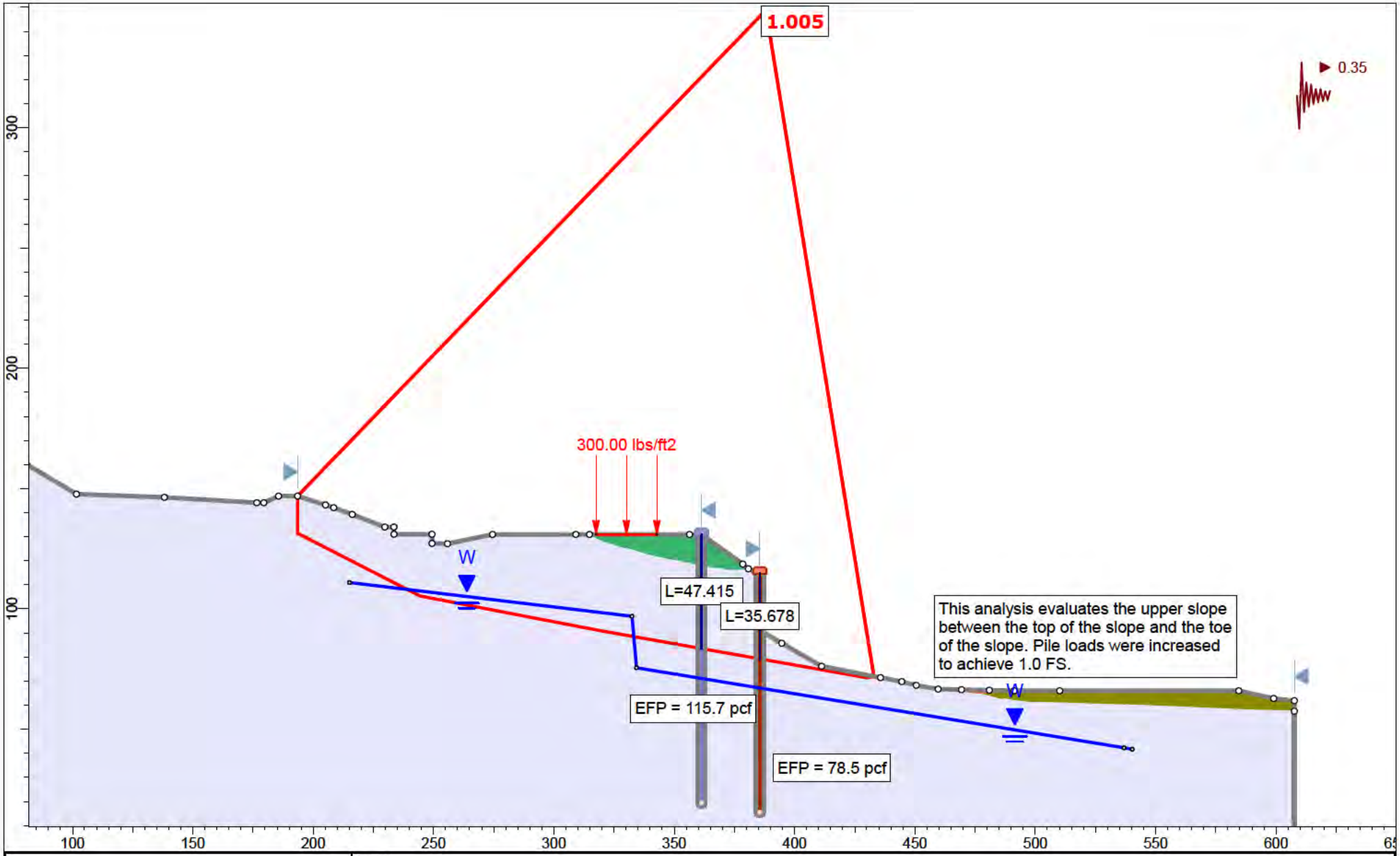
Shared Entities

Type	Coordinates (x,y)
External Boundary	0.036, 188.459 0.067, -0.196 607.643, -0.196 607.643, 57.4645 607.643, 61.847 599.042, 62.731 584.548, 65.972 510.136, 65.972 491.224, 65.972 480.929, 66.1893 469.341, 66.4339 459.627, 66.639 450.56, 68.214 444.547, 69.789 435.716, 71.4185 411.23, 76.1631 394.667, 85.7073 385.532, 91.146 385.532, 111.176 385.532, 114.823 380.809, 116.625 378.482, 118.617 361.373, 130.917 356.376, 130.917 314.827, 130.917 309.126, 130.917 274.531, 130.917 255.791, 127.058 249.338, 127.168 249.338, 130.982 233.566, 130.982 233.566, 134.006 229.738, 134.006 216.211, 139.228 208.509, 142.046 205.127, 143.174 193.481, 146.829 185.591, 146.829 179.496, 144.095 176.551, 144.095 138.196, 146.334 101.609, 147.689 80.752, 160.179 65.493, 169.901 57.598, 174.201 40.925, 182.509 36.741, 184.806
Material Boundary	380.809, 116.625 384.655, 112.071 385.532, 111.176

Material Boundary	314.827, 130.917 319.798, 128.565 331.181, 124.794 339.312, 122.26 347.737, 120.434 355.808, 118.902 364.528, 117.076 370.42, 116.428 378.404, 116.428 380.809, 116.625
Material Boundary	478.382, 64.921 486.105, 62.747 491.839, 61.736 497.757, 61.079 502.485, 61.079 546.833, 59.749 590.839, 57.858 607.643, 57.4645
Material Boundary	459.627, 66.639 468.838, 65.589 478.382, 64.921 488.261, 65.589 491.224, 65.972

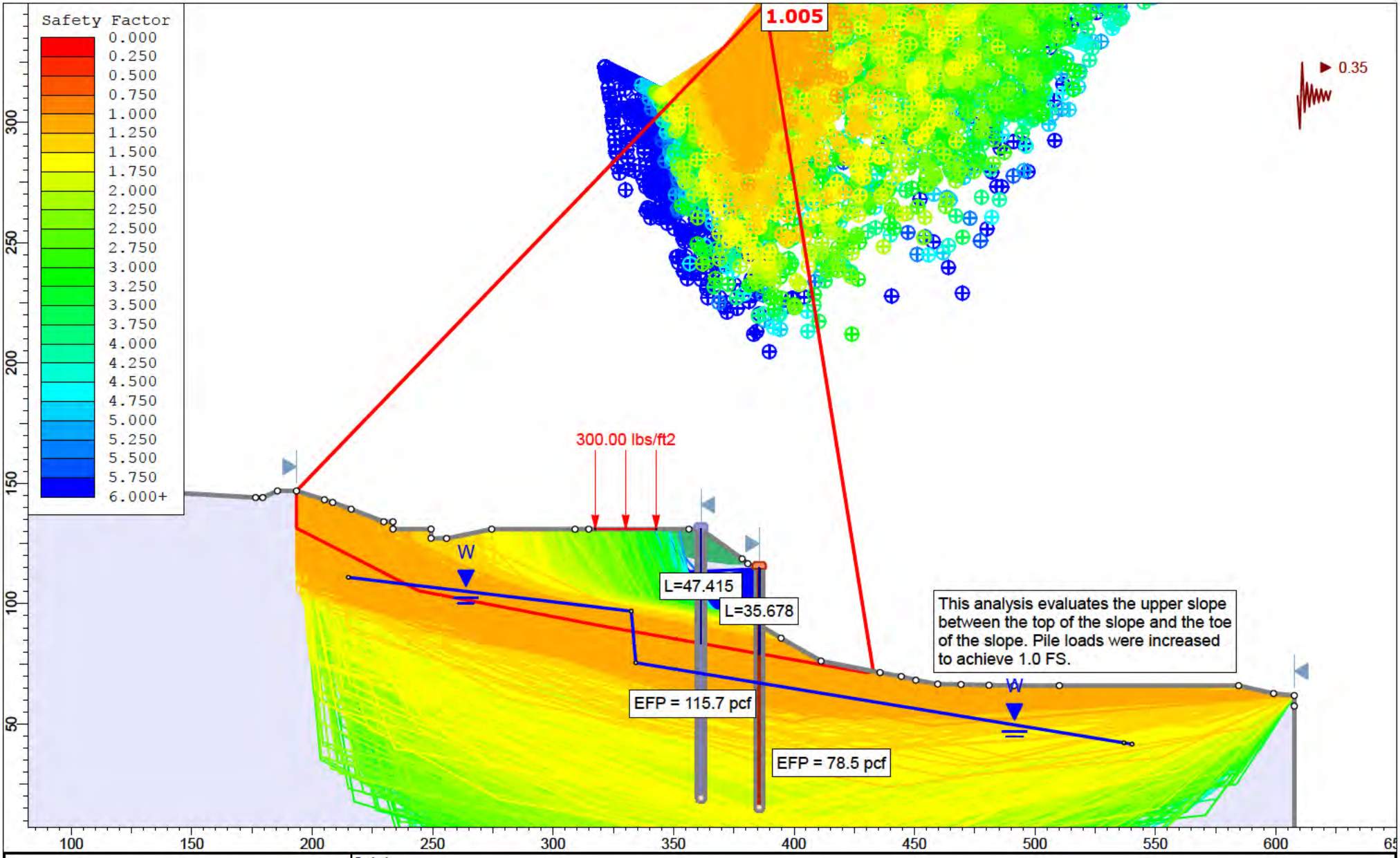
Scenario-based Entities

Type	Coordinates (x,y)	Master Scenario
Water Table	215.062, 110.934 332.462, 96.909 334.336, 75.504 536.885, 42.2379 540.294, 41.678	Not assigned to any materials
Distributed Load	342.792, 130.917 317.529, 130.917	Constant DistributionOrientation: Normal to boundaryMagnitude: 300 lbs/ft2Creates Excess Pore Pressure: No
Non-Circular Failure Surface	394.667, 85.7073 411.23, 76.1631	



rocscience	Project	Section 2-2'		
	Analysis Description	Upper Slope (Seismic) 1		
	Drawn By	A. Greene	Scale 1:661	Company Feffer Geological Consulting
	Date			File Name Section 2-2' Translational Analysis_2.slmd

SLIDEINTERPRET 9.018



rocscience

SLIDEINTERPRET 9.018

Project	Section 2-2'				
Analysis Description	Upper Slope (Seismic) 1				
Drawn By	A. Greene	Scale	1:661	Company	Feffer Geological Consulting
Date				File Name	Section 2-2' Translational Analysis_2.slmd

Slide Analysis Information

Section 2-2' Translational Analysis_2

Project Summary

File Name:	Section 2-2' Translational Analysis_2.slmd
Slide Modeler Version:	9.018
Compute Time:	00h:00m:15.817s
Project Title:	Section 2-2'
Analysis:	Upper Slope (Seismic) 1
Author:	A. Greene
Company:	Feffer Geological Consulting

General Settings

Units of Measurement:	Imperial Units
Time Units:	days
Permeability Units:	feet/second
Data Output:	Standard
Failure Direction:	Left to Right

Analysis Options

Slices Type:	Vertical
Analysis Methods Used	
	Spencer
Number of slices:	50
Tolerance:	0.005
Maximum number of iterations:	75
Check malpha < 0.2:	Yes
Create Interslice boundaries at intersections with water tables and piezos:	Yes
Initial trial value of FS:	1
Steffensen Iteration:	Yes

Groundwater Analysis

Groundwater Method:	Water Surfaces
Pore Fluid Unit Weight [lbs/ft3]:	9.81
Use negative pore pressure cutoff:	Yes
Maximum negative pore pressure [psf]:	0
Advanced Groundwater Method:	None

Random Numbers

Pseudo-random Seed:	10116
Random Number Generation Method:	Park and Miller v.3

Surface Options

Search Method:	Cuckoo Search
Initial # of Surface Vertices:	8
Maximum Iterations:	500
Number of Nests:	50
Minimum Elevation:	Not Defined
Minimum Depth:	Not Defined
Minimum Area:	Not Defined
Minimum Weight:	Not Defined
Convex Surfaces Only:	Enabled

Seismic Loading

Advanced seismic analysis:	No
Staged pseudostatic analysis:	No
Seismic Load Coefficient (Horizontal):	0.35

Loading

1 Distributed Load present

Distributed Load 1	
Distribution:	Constant
Magnitude [psf]:	300
Orientation:	Normal to boundary

Materials

Terrace (Qoa)	
Color	
Strength Type	Mohr-Coulomb
Unit Weight [lbs/ft3]	115
Cohesion [psf]	100
Friction Angle [deg]	31
Water Surface	None
Ru Value	0
Qlsr	
Color	
Strength Type	Mohr-Coulomb
Unit Weight [lbs/ft3]	115
Cohesion [psf]	200
Friction Angle [deg]	12
Water Surface	None
Ru Value	0
Fill (Af)	
Color	
Strength Type	Mohr-Coulomb
Unit Weight [lbs/ft3]	120
Cohesion [psf]	120
Friction Angle [deg]	31
Water Surface	None
Ru Value	0
Anisotropic Bedrock (Tm) Peak	
Color	
Strength Type	Anisotropic function
Unit Weight [lbs/ft3]	124
Water Surface	None
Ru Value	0

Anisotropic Functions

Name: Anisotropic Bedrock (Tm) Peak

Angle From	Angle To	c	phi
-90	-30	720	41
-30	-10	200	16
-10	90	720	41

Support

Pile 1 (Seismic)_1	
Color	
Type	Pile/Micro Pile
Force Application	Active (Method A)
Force Orientation	Parallel to surface
Out-Of-Plane Spacing	10 ft
Failure Mode	Shear
Pile Shear Strength	500000 lbs

Pile 2 (Seismic)_1	
Color	
Type	Pile/Micro Pile
Force Application	Active (Method A)
Force Orientation	Parallel to surface
Out-Of-Plane Spacing	10 ft
Failure Mode	Shear
Pile Shear Strength	1.3e+06 lbs

Global Minimums

Method: spencer

FS	1.005040
Axis Location:	388.077, 348.844
Left Slip Surface Endpoint:	193.481, 146.829
Right Slip Surface Endpoint:	432.931, 71.958
Resisting Moment:	7.10586e+07 lb-ft
Driving Moment:	7.0702e+07 lb-ft
Resisting Horizontal Force:	256325 lb
Driving Horizontal Force:	255038 lb
Active Support Moment:	-4.78705e+07 lb-ft
Active Horizontal Support Force:	-177262 lb
Maximum Single Support Force:	130000 lb
Total Support Force:	180000 lb
Total Slice Area:	6428.7 ft2
Surface Horizontal Width:	239.45 ft
Surface Average Height:	26.8477 ft

Global Minimum Coordinates

Method: spencer

X	Y
193.481	131.395
244.278	105.354
295.663	95.4546
319.994	90.8019
371.125	81.7795
430.227	71.3514
432.931	71.9581

Global Minimum Support Data

Method: spencer

Number of Supports: 2

Pile 1 (Seismic)_1

Support Type: Pile/Micro Pile

Start (x, y)	Length (ft)	L Inside SS (ft)	L Outside SS (ft)	Li (ft)	Lo (ft)	Force (lb)
385.532, 114.823	99.3	35.5855	63.7145	35.5855	63.7145	50000

Pile 2 (Seismic)_1

Support Type: Pile/Micro Pile

Start (x, y)	Length (ft)	L Inside SS (ft)	L Outside SS (ft)	Li (ft)	Lo (ft)	Force (lb)
361.373, 130.917	111.6	47.4168	64.1832	47.4168	64.1832	130000

Valid and Invalid Surfaces

Method: spencer

Number of Valid Surfaces: 15230
Number of Invalid Surfaces: 9834

Error Codes

Error Code -108 reported for 88 surfaces
Error Code -109 reported for 1 surface
Error Code -111 reported for 5612 surfaces
Error Code -112 reported for 397 surfaces
Error Code -113 reported for 1 surface
Error Code -121 reported for 1076 surfaces
Error Code -124 reported for 26 surfaces
Error Code -145 reported for 24 surfaces
Error Code -1000 reported for 2609 surfaces

Error Code Descriptions

The following errors were encountered during the computation:

-108 = Total driving moment or total driving force < 0.1. This is to limit the calculation of extremely high safety factors if the driving force is very small (0.1 is an arbitrary number).

-109 = Soiltype for slice base not located. This error should occur very rarely, if at all. It may occur if a very low number of slices is combined with certain soil geometries, such that the midpoint of a slice base is actually outside the soil region,even though the slip surface is wholly within the soil region.

-111 = Safety factor equation did not converge

-112 = The coefficient M-Alpha = cos(alpha)(1+tan(alpha)tan(phi)/F) < 0.2 for the final iteration of the safety factor calculation. This screens out some slip surfaces which may not be valid in the context of the analysis, in particular, deep seated slip surfaces with many high negative base angle slices in the passive zone.

-113 = Surface intersects outside slope limits.

-121 = Concave failure surface, only convex surfaces have been defined as being allowed.

-124 = A slice has a width less than the minimum acceptable value.

-145 = Slip surface was clipped vertically by a weak layer in a region of compression. Such a surface cannot be evaluated using Limit Equilibrium. For more information, see Help Documentation on weak layers.

-1000 = No valid slip surface is generated

Slice Data

Global Minimum Query (spencer) - Safety Factor: 1.00504

Slice Number	Width [ft]	Weight [lbs]	Angle of Slice Base [deg]	Base Material	Base Cohesion [psf]	Base Friction Angle [deg]	Shear Stress [psf]	Shear Strength [psf]	Base Normal Stress [psf]	Pore Pressure [psf]	Effective Normal Stress [psf]	Base Vertical Stress [psf]	Effective Vertical Stress [psf]
1	5.05361	9986.58	-27.1415	Anisotropic Bedrock (Tm) Peak	200	16	559.083	561.901	1262.1	0	1262.1	1548.71	1548.71
2	5.05361	10616.1	-27.1415	Anisotropic Bedrock (Tm) Peak	200	16	581.7	584.632	1341.37	0	1341.37	1639.57	1639.57
3	5.05361	11230.6	-27.1415	Anisotropic Bedrock (Tm) Peak	200	16	603.773	606.816	1418.74	0	1418.74	1728.25	1728.25
4	5.05361	11746.8	-27.1415	Anisotropic Bedrock (Tm) Peak	200	16	622.318	625.454	1483.73	0	1483.73	1802.76	1802.76
5	5.05361	12203.5	-27.1415	Anisotropic Bedrock (Tm) Peak	200	16	638.725	641.944	1541.24	0	1541.24	1868.68	1868.68
6	5.05361	12612.4	-27.1415	Anisotropic Bedrock (Tm) Peak	200	16	653.411	656.704	1592.72	0	1592.72	1927.68	1927.68
7	5.05361	13013.3	-27.1415	Anisotropic Bedrock (Tm) Peak	200	16	667.813	671.179	1643.2	0	1643.2	1985.54	1985.54
8	5.05361	13701.8	-27.1415	Anisotropic Bedrock (Tm) Peak	200	16	692.548	696.038	1729.89	0	1729.89	2084.92	2084.92
9	5.05361	13540.6	-27.1415	Anisotropic Bedrock (Tm) Peak	200	16	686.758	690.219	1709.6	0	1709.6	2061.66	2061.66
10	5.31458	15991.2	-27.1415	Anisotropic Bedrock (Tm) Peak	200	16	746.583	750.346	1919.28	0	1919.28	2302.01	2302.01
11	4.67138	15105.6	-10.9047	Anisotropic Bedrock (Tm) Peak	200	16	961.584	966.43	2672.85	0	2672.85	2858.1	2858.1
12	4.67138	13582	-10.9047	Anisotropic Bedrock (Tm) Peak	200	16	886.727	891.196	2410.49	0	2410.49	2581.33	2581.33
13	4.67138	13960.1	-10.9047	Anisotropic Bedrock (Tm) Peak	200	16	905.305	909.868	2475.59	0	2475.59	2650.01	2650.01
14	4.67138	14973.5	-10.9047	Anisotropic Bedrock (Tm) Peak	200	16	955.095	959.909	2650.13	0	2650.13	2834.13	2834.13
15	4.67138	16052	-10.9047	Anisotropic Bedrock (Tm) Peak	200	16	1008.08	1013.16	2835.84	0	2835.84	3030.05	3030.05
16	4.67138	17130.5	-10.9047	Anisotropic Bedrock (Tm) Peak	200	16	1061.07	1066.42	3021.56	0	3021.56	3225.98	3225.98
17	4.67138	18132.6	-10.9047	Anisotropic Bedrock (Tm) Peak	200	16	1110.31	1115.9	3194.14	0	3194.14	3408.04	3408.04
18	4.67138	18717.1	-10.9047	Anisotropic Bedrock (Tm) Peak	200	16	1139.02	1144.76	3294.78	0	3294.78	3514.22	3514.22
19	4.67138	19238.4	-10.9047	Anisotropic Bedrock (Tm) Peak	200	16	1164.64	1170.51	3384.56	0	3384.56	3608.93	3608.93
20	4.67138	19759.7	-10.9047	Anisotropic Bedrock (Tm) Peak	200	16	1190.25	1196.25	3474.32	0	3474.32	3703.62	3703.62
21	4.67138	20281	-10.9047	Anisotropic Bedrock (Tm) Peak	200	16	1215.86	1221.99	3564.09	0	3564.09	3798.34	3798.34

22	4.86613	21678.7	-10.8259	Anisotropic Bedrock (Tm) Peak	200	16	1243.25	1249.52	3660.09	0	3660.09	3897.84	3897.84
23	4.86613	22240.2	-10.8259	Anisotropic Bedrock (Tm) Peak	200	16	1269.76	1276.16	3753.02	0	3753.02	3995.84	3995.84
24	4.86613	22801.7	-10.8259	Anisotropic Bedrock (Tm) Peak	200	16	1296.28	1302.81	3845.97	0	3845.97	4093.86	4093.86
25	4.86613	23363	-10.8259	Anisotropic Bedrock (Tm) Peak	200	16	1322.78	1329.45	3938.86	0	3938.86	4191.81	4191.81
26	4.86613	23868.1	-10.8259	Anisotropic Bedrock (Tm) Peak	200	16	1389.9	1396.91	4174.13	0	4174.13	4439.92	4439.92
27	4.40226	21985.4	-10.0073	Anisotropic Bedrock (Tm) Peak	200	16	1469.27	1476.68	4452.32	0	4452.32	4711.58	4711.58
28	4.40226	22351.7	-10.0073	Anisotropic Bedrock (Tm) Peak	200	16	1488.64	1496.14	4520.19	0	4520.19	4782.87	4782.87
29	4.40226	22718.3	-10.0073	Anisotropic Bedrock (Tm) Peak	200	16	1508.02	1515.62	4588.11	0	4588.11	4854.21	4854.21
30	4.74051	24876.7	-10.0073	Anisotropic Bedrock (Tm) Peak	200	16	1528.29	1535.99	4659.16	0	4659.16	4928.83	4928.83
31	4.74051	25310.3	-10.0073	Anisotropic Bedrock (Tm) Peak	200	16	1549.57	1557.38	4733.73	0	4733.73	5007.17	5007.17
32	4.74051	25757.3	-10.0073	Anisotropic Bedrock (Tm) Peak	200	16	1487.06	1494.55	4514.61	0	4514.61	4777.01	4777.01
33	4.74051	26207.6	-10.0073	Anisotropic Bedrock (Tm) Peak	200	16	1507.13	1514.73	4585.01	0	4585.01	4850.96	4850.96
34	4.74051	26660.8	-10.0073	Anisotropic Bedrock (Tm) Peak	200	16	1529.38	1537.09	4662.98	0	4662.98	4932.85	4932.85
35	4.74051	27108.3	-10.0073	Anisotropic Bedrock (Tm) Peak	200	16	4465.36	4487.87	14953.6	0	14953.6	15741.5	15741.5
36	4.74051	26527.1	-10.0073	Anisotropic Bedrock (Tm) Peak	200	16	1522.82	1530.5	4639.98	0	4639.98	4908.7	4908.7
37	4.74051	25135.2	-10.0073	Anisotropic Bedrock (Tm) Peak	200	16	1454.49	1461.82	4400.5	0	4400.5	4657.16	4657.16
38	4.92521	24659.1	-10.0063	Anisotropic Bedrock (Tm) Peak	200	16	1385.74	1392.72	4159.53	0	4159.53	4404.03	4404.03
39	4.92521	23138.3	-10.0063	Anisotropic Bedrock (Tm) Peak	200	16	1313.89	1320.51	3907.67	0	3907.67	4139.49	4139.49
40	4.92521	20832	-10.0063	Anisotropic Bedrock (Tm) Peak	200	16	2283.73	2295.24	7306.95	0	7306.95	7709.89	7709.89
41	4.92521	6548.58	-10.0063	Anisotropic Bedrock (Tm) Peak	200	16	530.03	532.701	1160.27	0	1160.27	1253.78	1253.78
42	4.92521	5289.92	-10.0063	Anisotropic Bedrock (Tm) Peak	200	16	470.558	472.93	951.82	0	951.82	1034.85	1034.85
43	4.92521	4069.83	-10.0063	Anisotropic Bedrock (Tm) Peak	200	16	412.91	414.991	749.764	0	749.764	822.618	822.618
44	4.92521	2867.22	-10.0063	Anisotropic Bedrock (Tm) Peak	200	16	356.087	357.882	550.6	0	550.6	613.428	613.428
45	4.92521	1664.61	-10.0063	Anisotropic Bedrock (Tm) Peak	200	16	299.265	300.773	351.437	0	351.437	404.24	404.24
46	4.92521	884.672	-10.0063	Anisotropic Bedrock (Tm) Peak	200	16	262.413	263.736	222.273	0	222.273	268.573	268.573

47	4.92521	820.815	-10.0063	Anisotropic Bedrock (Tm) Peak	200	16	259.396	260.703	211.697	0	211.697	257.465	257.465
48	4.92521	768.69	-10.0063	Anisotropic Bedrock (Tm) Peak	200	16	256.933	258.228	203.066	0	203.066	248.399	248.399
49	4.92521	716.565	-10.0063	Anisotropic Bedrock (Tm) Peak	200	16	254.47	255.753	194.433	0	194.433	239.332	239.332
50	2.70404	189.549	12.6452	Anisotropic Bedrock (Tm) Peak	720	41	2041.53	2051.82	1532.09	0	1532.09	1074.06	1074.06

Interslice Data

Global Minimum Query (spencer) - Safety Factor: 1.00504

Slice Number	X coordinate [ft]	Y coordinate - Bottom [ft]	Interslice Normal Force [lbs]	Interslice Shear Force [lbs]	Interslice Force Angle [deg]
1	193.481	131.395	0	0	0
2	198.535	128.804	3930.7	2172.48	28.9292
3	203.588	126.213	8172.45	4516.88	28.9293
4	208.642	123.623	12717.8	7029.06	28.9292
5	213.695	121.032	17518.2	9682.22	28.9292
6	218.749	118.441	22544.2	12460.1	28.9293
7	223.803	115.851	27772.3	15349.6	28.9292
8	228.856	113.26	33198.4	18348.6	28.9292
9	233.91	110.669	38964.7	21535.6	28.9292
10	238.964	108.079	44651.4	24678.6	28.9292
11	244.278	105.354	51497.1	28462.2	28.9292
12	248.949	104.454	54683.4	30223.3	28.9293
13	253.621	103.554	57451.1	31753	28.9293
14	258.292	102.654	60322.7	33340.1	28.9292
15	262.964	101.754	63472.8	35081.1	28.9292
16	267.635	100.854	66919.1	36985.9	28.9292
17	272.306	99.9544	70661.8	39054.5	28.9293
18	276.978	99.0544	74679.8	41275.2	28.9292
19	281.649	98.1545	78858.3	43584.6	28.9292
20	286.321	97.2545	83180.1	45973.3	28.9292
21	290.992	96.3546	87645.1	48441	28.9292
22	295.663	95.4546	92253.3	50988	28.9292
23	300.529	94.5241	97177.8	53709.7	28.9292
24	305.396	93.5935	102256	56516.4	28.9292
25	310.262	92.663	107488	59407.9	28.9291
26	315.128	91.7324	112873	62384.3	28.9292
27	319.994	90.8019	118326	65398.2	28.9292
28	324.396	90.0251	122991	67976.5	28.9292
29	328.798	89.2483	127751	70607.5	28.9293
30	333.201	88.4715	132607	73291.4	28.9293
31	337.941	87.635	137944	76240.8	28.9292
32	342.682	86.7985	143393	79252.7	28.9292
33	347.422	85.962	149113	82414.1	28.9292
34	352.163	85.1255	154954	85642.3	28.9292
35	356.903	84.289	160913	88935.8	28.9292
36	361.644	83.4525	33652.3	18599.4	28.9291
37	366.384	82.616	39576.4	21873.7	28.9292
38	371.125	81.7795	45137.9	24947.5	28.9292
39	376.05	80.9105	50536.6	27931.4	28.9293
40	380.975	80.0415	55539.2	30696.3	28.9293
41	385.9	79.1724	8657.41	4784.91	28.9292
42	390.826	78.3034	9338.95	5161.59	28.9292
43	395.751	77.4344	9692.64	5357.08	28.9292
44	400.676	76.5654	9728.53	5376.92	28.9293
45	405.601	75.6964	9451.19	5223.63	28.9292
46	410.526	74.8274	8860.61	4897.22	28.9292
47	415.452	73.9584	8066.88	4458.53	28.9292
48	420.377	73.0894	7256.52	4010.64	28.9292
49	425.302	72.2204	6432.58	3555.26	28.9292
50	430.227	71.3514	5595.06	3092.37	28.9293
51	432.931	71.9581	0	0	0

Discharge Sections

Entity Information

Upper Slope (Seismic) 1

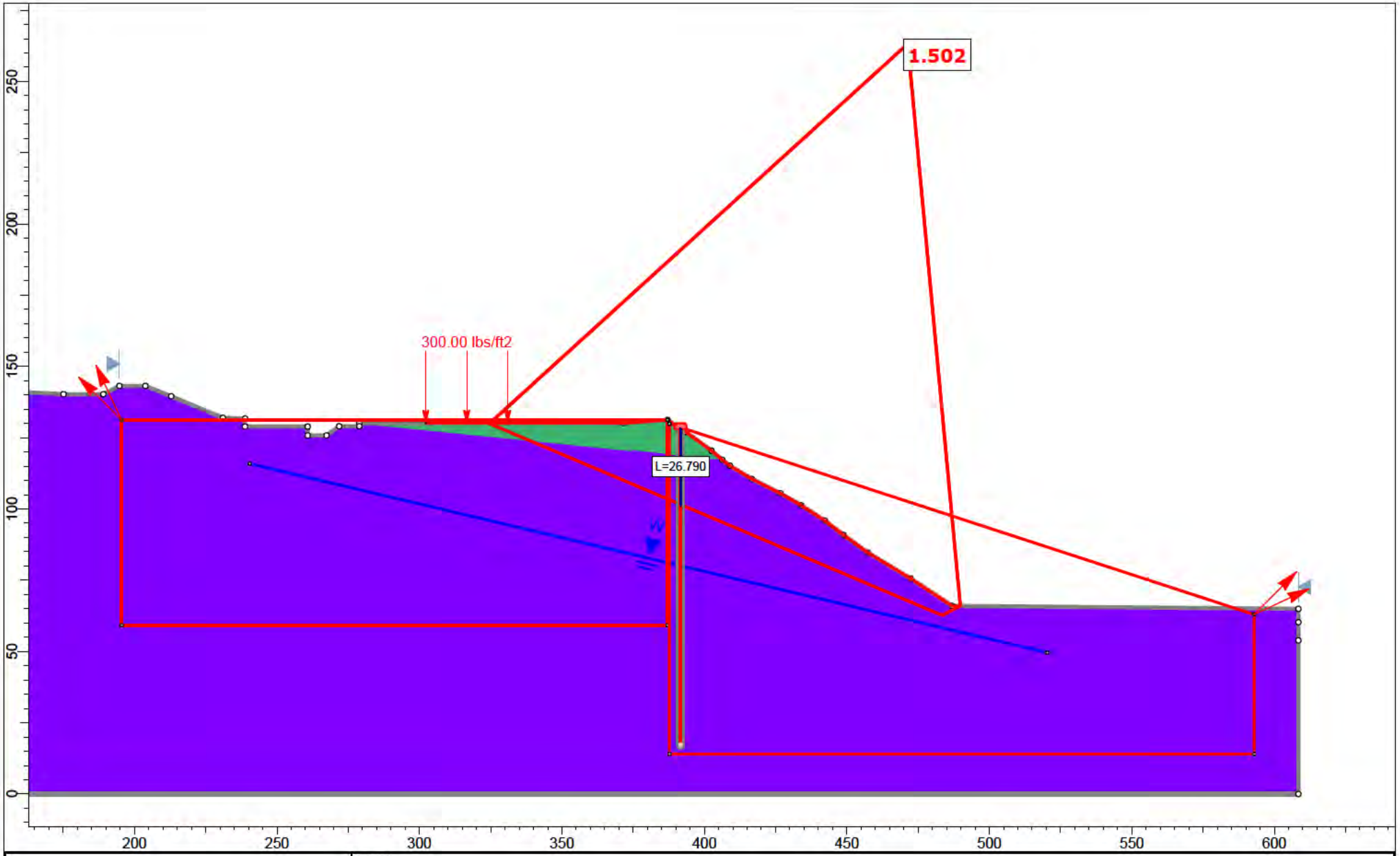
Shared Entities

Type	Coordinates (x,y)
External Boundary	0.036, 188.459 0.067, -0.196 607.643, -0.196 607.643, 57.4645 607.643, 61.847 599.042, 62.731 584.548, 65.972 510.136, 65.972 491.224, 65.972 480.929, 66.1893 469.341, 66.4339 459.627, 66.639 450.56, 68.214 444.547, 69.789 435.716, 71.4185 411.23, 76.1631 394.667, 85.7073 385.532, 91.146 385.532, 111.176 385.532, 114.823 380.809, 116.625 378.482, 118.617 361.373, 130.917 356.376, 130.917 314.827, 130.917 309.126, 130.917 274.531, 130.917 255.791, 127.058 249.338, 127.168 249.338, 130.982 233.566, 130.982 233.566, 134.006 229.738, 134.006 216.211, 139.228 208.509, 142.046 205.127, 143.174 193.481, 146.829 185.591, 146.829 179.496, 144.095 176.551, 144.095 138.196, 146.334 101.609, 147.689 80.752, 160.179 65.493, 169.901 57.598, 174.201 40.925, 182.509 36.741, 184.806
Material Boundary	380.809, 116.625 384.655, 112.071 385.532, 111.176

Material Boundary	314.827, 130.917 319.798, 128.565 331.181, 124.794 339.312, 122.26 347.737, 120.434 355.808, 118.902 364.528, 117.076 370.42, 116.428 378.404, 116.428 380.809, 116.625
Material Boundary	478.382, 64.921 486.105, 62.747 491.839, 61.736 497.757, 61.079 502.485, 61.079 546.833, 59.749 590.839, 57.858 607.643, 57.4645
Material Boundary	459.627, 66.639 468.838, 65.589 478.382, 64.921 488.261, 65.589 491.224, 65.972

Scenario-based Entities

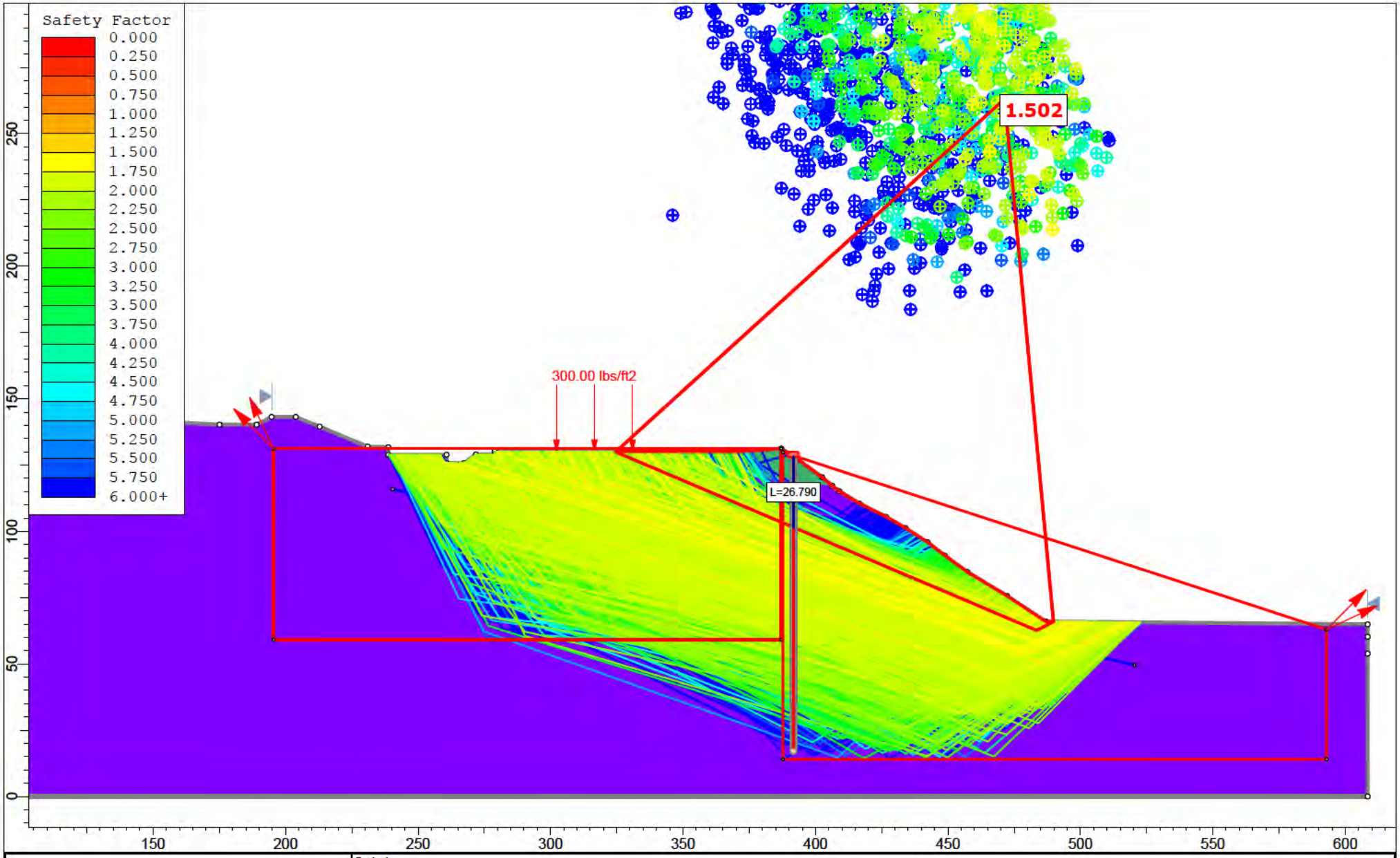
Type	Coordinates (x,y)	Master Scenario
Water Table	215.062, 110.934 332.462, 96.909 334.336, 75.504 536.885, 42.2379 540.294, 41.678	Not assigned to any materials
Distributed Load	342.792, 130.917 317.529, 130.917	Constant DistributionOrientation: Normal to boundaryMagnitude: 300 lbs/ft2Creates Excess Pore Pressure: No
Non-Circular Failure Surface	394.667, 85.7073 411.23, 76.1631	



rocscience

SLIDEINTERPRET 9.018

Project	Section 3-3'				
Analysis Description	Translational (Static)				
Drawn By	A. Greene	Scale	1:558	Company	Feffer Geological Consulting
Date				File Name	Section 3-3' Translational Analysis_2.slmd



rocscience	Project	Section 3-3'		
	Analysis Description	Translational (Static)		
	Drawn By	A. Greene	Scale 1:601	Company Feffer Geological Consulting
	Date			File Name Section 3-3' Translational Analysis_2.slmd

SLIDEINTERPRET 9.018

Slide Analysis Information

Section 3-3' Translational Analysis_2

Project Summary

File Name:	Section 3-3' Translational Analysis_2.slmd
Slide Modeler Version:	9.018
Compute Time:	00h:00m:00.437s
Project Title:	Section 3-3'
Analysis:	Translational (Static)
Author:	A. Greene
Company:	Feffer Geological Consulting

General Settings

Units of Measurement:	Imperial Units
Time Units:	days
Permeability Units:	feet/second
Data Output:	Standard
Failure Direction:	Left to Right

Analysis Options

Slices Type:	Vertical
Analysis Methods Used	
	Spencer
Number of slices:	50
Tolerance:	0.005
Maximum number of iterations:	75
Check malpha < 0.2:	Yes
Create Interslice boundaries at intersections with water tables and piezos:	Yes
Initial trial value of FS:	1
Steffensen Iteration:	Yes

Groundwater Analysis

Groundwater Method:	Water Surfaces
Pore Fluid Unit Weight [lbs/ft3]:	62.4
Use negative pore pressure cutoff:	Yes
Maximum negative pore pressure [psf]:	0
Advanced Groundwater Method:	None

Random Numbers

Pseudo-random Seed:	10116
Random Number Generation Method:	Park and Miller v.3

Surface Options

Surface Type:	Non-Circular Block Search
Number of Surfaces:	5000
Multiple Groups:	Disabled
Pseudo-Random Surfaces:	Enabled
Convex Surfaces Only:	Disabled
Left Projection Angle (Start Angle) [deg]:	115
Left Projection Angle (End Angle) [deg]:	135
Right Projection Angle (Start Angle) [deg]:	45
Right Projection Angle (End Angle) [deg]:	25
Minimum Elevation:	Not Defined
Minimum Depth:	Not Defined
Minimum Area:	Not Defined
Minimum Weight:	Not Defined

Seismic Loading

Advanced seismic analysis:	No
Staged pseudostatic analysis:	No

Loading

1 Distributed Load present

Distributed Load 1	
Distribution:	Constant
Magnitude [psf]:	300
Orientation:	Normal to boundary

Materials

Terrace (Qoa)	
Color	
Strength Type	Mohr-Coulomb
Unit Weight [lbs/ft3]	115
Cohesion [psf]	100
Friction Angle [deg]	31
Water Surface	None
Ru Value	0
Anisotropic Bedrock (Tm) Ultimate	
Color	
Strength Type	Anisotropic function
Unit Weight [lbs/ft3]	124
Water Surface	Water Table
Hu Value	1

Anisotropic Functions

Name: Anisotropic Bedrock (Tm) Ultimate

Angle From	Angle To	c	phi
-90	-30	520	34.5
-30	-10	200	16
-10	90	520	34.5

Support

Pile 1 (Static)	
Color	
Type	Pile/Micro Pile
Force Application	Active (Method A)
Force Orientation	Parallel to surface
Out-Of-Plane Spacing	10 ft
Failure Mode	Shear
Pile Shear Strength	345000 lbs

Global Minimums

Method: spencer

FS	1.501680
Axis Location:	471.369, 263.119
Left Slip Surface Endpoint:	324.701, 130.073
Right Slip Surface Endpoint:	489.805, 65.958
Resisting Moment:	2.18087e+07 lb-ft
Driving Moment:	1.45229e+07 lb-ft
Resisting Horizontal Force:	111074 lb
Driving Horizontal Force:	73966.6 lb
Active Support Moment:	-6.20664e+06 lb-ft
Active Horizontal Support Force:	-31767.8 lb
Maximum Single Support Force:	34500 lb
Total Support Force:	34500 lb
Total Slice Area:	2442.03 ft2
Surface Horizontal Width:	165.104 ft
Surface Average Height:	14.7909 ft

Global Minimum Coordinates

Method: spencer

X	Y
324.701	130.073
324.89	129.788
483.472	62.6174
489.805	65.9575

Global Minimum Support Data

Method: spencer

Number of Supports: 1

Pile 1 (Static)

Support Type: Pile/Micro Pile

Start (x, y)	Length (ft)	L Inside SS (ft)	L Outside SS (ft)	Li (ft)	Lo (ft)	Force (lb)
391.679, 128.135	110.937	26.6371	84.2999	26.6371	84.2999	34500

Valid and Invalid Surfaces

Method: spencer

Number of Valid Surfaces:	1637
Number of Invalid Surfaces:	3363

Error Codes

Error Code -105 reported for 490 surfaces
Error Code -108 reported for 25 surfaces
Error Code -110 reported for 2352 surfaces
Error Code -111 reported for 496 surfaces

Error Code Descriptions

The following errors were encountered during the computation:
-105 = More than two surface / slope intersections with no valid slip surface.
-108 = Total driving moment or total driving force < 0.1. This is to limit the calculation of extremely high safety factors if the driving force is very small (0.1 is an arbitrary number).
-110 = The water table or a piezoline does not span the slip region for a given slip surface, when Water Surfaces is specified as the method of pore pressure calculation. If this error occurs, check that the water table or piezoline(s) span the appropriate soil cells.
-111 = Safety factor equation did not converge

Slice Data

Global Minimum Query (spencer) - Safety Factor: 1.50168

Slice Number	Width [ft]	Weight [lbs]	Angle of Slice Base [deg]	Base Material	Base Cohesion [psf]	Base Friction Angle [deg]	Shear Stress [psf]	Shear Strength [psf]	Base Normal Stress [psf]	Pore Pressure [psf]	Effective Normal Stress [psf]	Base Vertical Stress [psf]	Effective Vertical Stress [psf]
1	0.188364	3.08896	-56.5565	Terrace (Qoa)	100	31	120.31	180.667	134.253	0	134.253	316.412	316.412
2	3.37532	388.176	-22.956	Terrace (Qoa)	100	31	198.933	298.734	330.749	0	330.749	415.011	415.011
3	3.37532	943.124	-22.956	Terrace (Qoa)	100	31	234.417	352.02	419.43	0	419.43	518.722	518.722
4	3.37532	1498.07	-22.956	Terrace (Qoa)	100	31	208.796	313.545	355.397	0	355.397	443.837	443.837
5	3.37532	2053.02	-22.956	Terrace (Qoa)	100	31	265.048	398.018	495.985	0	495.985	608.251	608.251
6	3.37397	2623.34	-22.956	Anisotropic Bedrock (Tm) Ultimate	200	16	260.578	391.305	667.158	0	667.158	777.531	777.531
7	3.37397	3210.9	-22.956	Anisotropic Bedrock (Tm) Ultimate	200	16	291.342	437.503	828.273	0	828.273	951.677	951.677
8	3.37397	3798.46	-22.956	Anisotropic Bedrock (Tm) Ultimate	200	16	322.107	483.702	989.388	0	989.388	1125.82	1125.82
9	3.37397	4386.02	-22.956	Anisotropic Bedrock (Tm) Ultimate	200	16	352.872	529.901	1150.5	0	1150.5	1299.97	1299.97
10	3.37397	4973.58	-22.956	Anisotropic Bedrock (Tm) Ultimate	200	16	383.637	576.1	1311.62	0	1311.62	1474.12	1474.12
11	3.37397	5561.13	-22.956	Anisotropic Bedrock (Tm) Ultimate	200	16	414.402	622.299	1472.73	0	1472.73	1648.26	1648.26
12	3.37397	6148.69	-22.956	Anisotropic Bedrock (Tm) Ultimate	200	16	445.167	668.498	1633.85	0	1633.85	1822.4	1822.4

13	3.37397	6736.25	-22.956	Anisotropic Bedrock (Tm) Ultimate	200	16	475.932	714.697	1794.96	0	1794.96	1996.55	1996.55
14	3.37397	7323.81	-22.956	Anisotropic Bedrock (Tm) Ultimate	200	16	506.696	760.896	1956.08	0	1956.08	2170.7	2170.7
15	3.37397	7912.3	-22.956	Anisotropic Bedrock (Tm) Ultimate	200	16	537.51	807.168	2117.45	0	2117.45	2345.12	2345.12
16	3.37397	8560.63	-22.956	Anisotropic Bedrock (Tm) Ultimate	200	16	571.457	858.145	2295.22	0	2295.22	2537.28	2537.28
17	3.37397	9243.85	-22.956	Anisotropic Bedrock (Tm) Ultimate	200	16	607.23	911.865	2482.57	0	2482.57	2739.77	2739.77
18	3.37397	9926.75	-22.956	Anisotropic Bedrock (Tm) Ultimate	200	16	642.987	965.561	2669.83	0	2669.83	2942.18	2942.18
19	3.37397	10609.5	-22.956	Anisotropic Bedrock (Tm) Ultimate	200	16	678.736	1019.25	2857.06	0	2857.06	3144.55	3144.55
20	3.37397	11134.5	-22.956	Anisotropic Bedrock (Tm) Ultimate	200	16	706.227	1060.53	3001.02	0	3001.02	3300.16	3300.16
21	3.37397	10934.3	-22.956	Anisotropic Bedrock (Tm) Ultimate	200	16	0	0	-747.341	0	-747.341	-747.341	-747.341
22	3.37397	10645.6	-22.956	Anisotropic Bedrock (Tm) Ultimate	200	16	680.627	1022.08	2866.94	0	2866.94	3155.23	3155.23
23	3.37397	10280.5	-22.956	Anisotropic Bedrock (Tm) Ultimate	200	16	661.507	993.372	2766.81	0	2766.81	3047	3047
24	3.37397	9908.95	-22.956	Anisotropic Bedrock (Tm) Ultimate	200	16	642.056	964.162	2664.95	0	2664.95	2936.9	2936.9
25	3.37397	9472.46	-22.956	Anisotropic Bedrock (Tm) Ultimate	200	16	619.2	929.841	2545.26	0	2545.26	2807.53	2807.53
26	3.37397	8979.03	-22.956	Anisotropic Bedrock (Tm) Ultimate	200	16	593.364	891.043	2409.95	0	2409.95	2661.29	2661.29
27	3.37397	8622.66	-22.956	Anisotropic Bedrock (Tm) Ultimate	200	16	574.705	863.023	2312.23	0	2312.23	2555.66	2555.66
28	3.37397	8357.59	-22.956	Anisotropic Bedrock (Tm) Ultimate	200	16	560.825	842.18	2239.55	0	2239.55	2477.09	2477.09
29	3.37397	8145.94	-22.956	Anisotropic Bedrock (Tm) Ultimate	200	16	549.743	825.538	2181.51	0	2181.51	2414.37	2414.37
30	3.37397	8039.79	-22.956	Anisotropic Bedrock (Tm) Ultimate	200	16	544.185	817.192	2152.4	0	2152.4	2382.91	2382.91
31	3.37397	7936.47	-22.956	Anisotropic Bedrock (Tm) Ultimate	200	16	538.775	809.068	2124.07	0	2124.07	2352.28	2352.28

32	3.37397	7789.68	-22.956	Anisotropic Bedrock (Tm) Ultimate	200	16	531.09	797.527	2083.82	0	2083.82	2308.78	2308.78
33	3.37397	7564.33	-22.956	Anisotropic Bedrock (Tm) Ultimate	200	16	519.29	779.808	2022.03	0	2022.03	2241.98	2241.98
34	3.37397	7319.53	-22.956	Anisotropic Bedrock (Tm) Ultimate	200	16	506.472	760.559	1954.9	0	1954.9	2169.43	2169.43
35	3.37397	7016.83	-22.956	Anisotropic Bedrock (Tm) Ultimate	200	16	490.623	736.758	1871.9	0	1871.9	2079.71	2079.71
36	3.37397	6705.77	-22.956	Anisotropic Bedrock (Tm) Ultimate	200	16	474.335	712.3	1786.6	0	1786.6	1987.52	1987.52
37	3.37397	6274.33	-22.956	Anisotropic Bedrock (Tm) Ultimate	200	16	451.745	678.377	1668.3	0	1668.3	1859.64	1859.64
38	3.37397	5788.31	-22.956	Anisotropic Bedrock (Tm) Ultimate	200	16	426.297	640.162	1535.03	0	1535.03	1715.59	1715.59
39	3.37397	5341.88	-22.956	Anisotropic Bedrock (Tm) Ultimate	200	16	402.922	605.06	1412.61	0	1412.61	1583.28	1583.28
40	3.37397	4910.31	-22.956	Anisotropic Bedrock (Tm) Ultimate	200	16	380.325	571.126	1294.27	0	1294.27	1455.36	1455.36
41	3.37397	4527.73	-22.956	Anisotropic Bedrock (Tm) Ultimate	200	16	360.292	541.044	1189.36	0	1189.36	1341.97	1341.97
42	3.37397	4266.06	-22.956	Anisotropic Bedrock (Tm) Ultimate	200	16	346.592	520.47	1117.61	0	1117.61	1264.41	1264.41
43	3.37397	4010.01	-22.956	Anisotropic Bedrock (Tm) Ultimate	200	16	333.185	500.337	1047.4	0	1047.4	1188.53	1188.53
44	3.37397	3753.96	-22.956	Anisotropic Bedrock (Tm) Ultimate	200	16	319.777	480.203	977.186	0	977.186	1112.63	1112.63
45	3.37397	3494.4	-22.956	Anisotropic Bedrock (Tm) Ultimate	200	16	306.187	459.795	906.013	0	906.013	1035.7	1035.7
46	3.37397	3181.31	-22.956	Anisotropic Bedrock (Tm) Ultimate	200	16	289.793	435.177	820.16	0	820.16	942.907	942.907
47	3.37397	2850.1	-22.956	Anisotropic Bedrock (Tm) Ultimate	200	16	272.451	409.134	729.339	0	729.339	844.741	844.741
48	3.37397	2518.88	-22.956	Anisotropic Bedrock (Tm) Ultimate	200	16	255.108	383.091	638.516	0	638.516	746.572	746.572
49	3.16689	1471.64	27.8054	Anisotropic Bedrock (Tm) Ultimate	520	34.5	736.774	1106.4	853.214	0	853.214	464.669	464.669
50	3.16689	336.209	27.8054	Anisotropic Bedrock (Tm) Ultimate	520	34.5	520.482	781.597	380.624	0	380.624	106.143	106.143

Interslice Data

Global Minimum Query (spencer) - Safety Factor: 1.50168

Slice Number	X coordinate [ft]	Y coordinate - Bottom [ft]	Interslice Normal Force [lbs]	Interslice Shear Force [lbs]	Interslice Force Angle [deg]
1	324.701	130.073	0	0	0
2	324.89	129.788	15.6281	0	0
3	328.265	128.358	-182.922	0	0
4	331.64	126.928	-374.446	0	0
5	335.016	125.499	-571.043	0	0
6	338.391	124.069	-756.502	0	0
7	341.765	122.64	-682.179	0	0
8	345.139	121.211	-481.397	0	0
9	348.513	119.782	-154.158	0	0
10	351.887	118.353	299.541	0	0
11	355.261	116.924	879.697	0	0
12	358.635	115.494	1586.31	0	0
13	362.009	114.065	2419.39	0	0
14	365.383	112.636	3378.92	0	0
15	368.757	111.207	4464.91	0	0
16	372.131	109.778	5677.56	0	0
17	375.505	108.349	7029.74	0	0
18	378.879	106.92	8528.98	0	0
19	382.253	105.491	10175.2	0	0
20	385.627	104.062	11968.3	0	0
21	389.001	102.632	13874.5	0	0
22	392.375	101.203	-18961.3	0	0
23	395.748	99.7742	-17160.3	0	0
24	399.122	98.3451	-15438	0	0
25	402.496	96.916	-13795.6	0	0
26	405.87	95.4869	-12247.2	0	0
27	409.244	94.0578	-10805	0	0
28	412.618	92.6287	-9439.42	0	0
29	415.992	91.1996	-8130.93	0	0
30	419.366	89.7705	-6868	0	0
31	422.74	88.3413	-5627.91	0	0
32	426.114	86.9122	-4410.06	0	0
33	429.488	85.4831	-3223.8	0	0
34	432.862	84.054	-2086.05	0	0
35	436.236	82.6249	-1000.98	0	0
36	439.61	81.1958	18.9414	0	0
37	442.984	79.7667	971.912	0	0
38	446.358	78.3376	1832.03	0	0
39	449.732	76.9085	2587.54	0	0
40	453.106	75.4794	3246.96	0	0
41	456.48	74.0502	3813.5	0	0
42	459.854	72.6211	4297.7	0	0
43	463.228	71.192	4725.58	0	0
44	466.602	69.7629	5098.35	0	0
45	469.976	68.3338	5416.02	0	0
46	473.35	66.9047	5677.81	0	0
47	476.724	65.4756	5872.23	0	0
48	480.098	64.0465	5995.35	0	0
49	483.472	62.6174	6047.2	0	0
50	486.639	64.2875	2289.14	0	0
51	489.805	65.9575	0	0	0

Discharge Sections

Entity Information

Translational (Static)

Shared Entities

Type	Coordinates (x,y)

External Boundary	0.386, -0.037 608.423, -0.037 608.423, 53.854 608.423, 60.25 608.423, 64.917 486.904, 65.983 472.319, 75.583 457.333, 84.649 448.803, 90.87 442.281, 95.888 433.985, 101.207 426.659, 105.488 416.624, 110.473 408.964, 115.156 406.288, 117.203 402.474, 120.407 393.476, 126.997 391.679, 128.135 387.087, 131.212 371.662, 130.073 278.904, 130.073 278.904, 128.997 271.84, 128.997 267.423, 125.767 260.778, 125.767 260.778, 128.887 238.79, 128.887 238.79, 131.703 230.993, 131.919 212.872, 139.485 203.868, 143.139 194.712, 143.139 189.062, 140.22 175.096, 140.22 138.858, 142.078 111.823, 142.923 105.91, 144.524 93.371, 149.815 88.658, 151.594 78.564, 155.062 70.561, 158.308 62.068, 161.642 60.181, 161.869 57.907, 161.593 54.496, 160.921 53.083, 160.921 51.326, 161.645 47.382, 162.661 40.767, 164.59 36.375, 167.007 32.42, 169.373 29.924, 170.67 25.97, 172.42 20.427, 174.786 13.166, 179.259 10.217, 180.75 3.993, 183.376 1.367, 184.575 0.386, 185.129

Material Boundary	278.904, 130.073 374.457, 120.429 384.086, 119.333 390.302, 118.536 394.557, 117.991 402.113, 117.203 406.288, 117.203

Scenario-based Entities

Type	Coordinates (x,y)	Master Scenario
Water Table	240.477, 115.859 520.344, 49.554	Assigned to:  Anisotropic Bedrock (Tm) Ultimate
Distributed Load	330.957, 130.073 302.229, 130.073	Constant DistributionOrientation: Normal to boundaryMagnitude: 300 lbs/ft2Creates Excess Pore Pressure: No
Block Search Window	195.439, 131.212 195.439, 59.138 387.087, 59.138 387.087, 131.212	
Block Search Window	592.892, 14.004 592.892, 62.945 387.753, 129.833 387.753, 14.004	



rocscience	Project	Section 3-3'		
	Analysis Description	Translational (Seismic)		
	Drawn By	A. Greene	Scale 1:606	Company Feffer Geological Consulting
	Date			File Name Section 3-3' Translational Analysis_2.slmd

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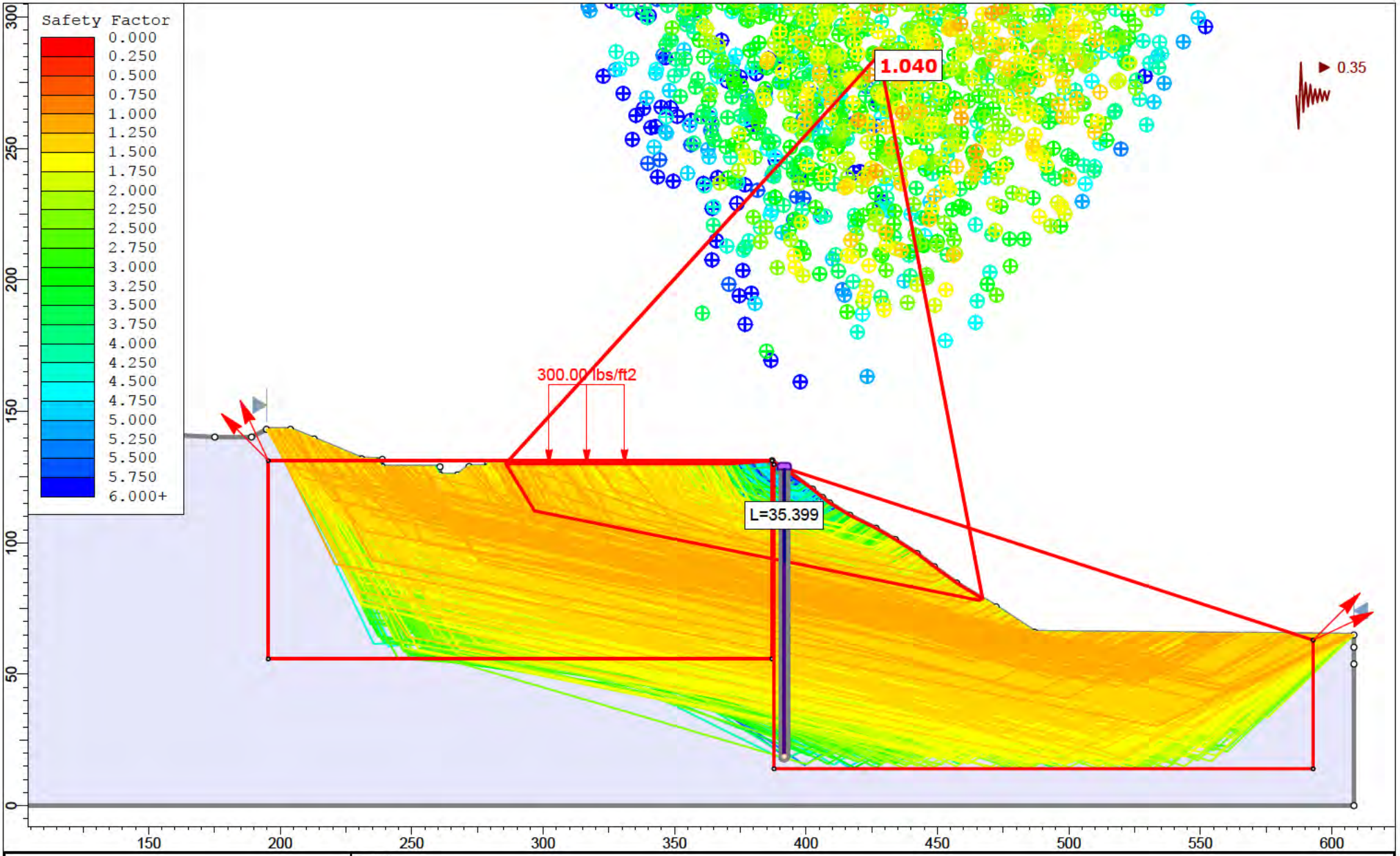

rocscience	Project	Section 3-3'		
	Analysis Description	Translational (Seismic)		
	Drawn By	A. Greene	Scale 1:606	Company Feffer Geological Consulting
	Date			File Name Section 3-3' Translational Analysis_2.slmd

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Slide Analysis Information

Section 3-3' Translational Analysis_2

Project Summary

File Name:	Section 3-3' Translational Analysis_2.slmd
Slide Modeler Version:	9.018
Compute Time:	00h:00m:00.793s
Project Title:	Section 3-3'
Analysis:	Translational (Seismic)
Author:	A. Greene
Company:	Feffer Geological Consulting

General Settings

Units of Measurement:	Imperial Units
Time Units:	days
Permeability Units:	feet/second
Data Output:	Standard
Failure Direction:	Left to Right

Analysis Options

Slices Type:	Vertical
Analysis Methods Used	
	Spencer
Number of slices:	50
Tolerance:	0.005
Maximum number of iterations:	75
Check malpha < 0.2:	Yes
Create Interslice boundaries at intersections with water tables and piezos:	Yes
Initial trial value of FS:	1
Steffensen Iteration:	Yes

Groundwater Analysis

Groundwater Method:	Water Surfaces
Pore Fluid Unit Weight [lbs/ft3]:	62.4
Use negative pore pressure cutoff:	Yes
Maximum negative pore pressure [psf]:	0
Advanced Groundwater Method:	None

Random Numbers

Pseudo-random Seed:	10116
Random Number Generation Method:	Park and Miller v.3

Surface Options

Surface Type:	Non-Circular Block Search
Number of Surfaces:	5000
Multiple Groups:	Disabled
Pseudo-Random Surfaces:	Enabled
Convex Surfaces Only:	Disabled
Left Projection Angle (Start Angle) [deg]:	115
Left Projection Angle (End Angle) [deg]:	135
Right Projection Angle (Start Angle) [deg]:	45
Right Projection Angle (End Angle) [deg]:	25
Minimum Elevation:	Not Defined
Minimum Depth:	Not Defined
Minimum Area:	Not Defined
Minimum Weight:	Not Defined

Seismic Loading

Advanced seismic analysis:	No
Staged pseudostatic analysis:	No
Seismic Load Coefficient (Horizontal):	0.35

Loading

1 Distributed Load present

Distributed Load 1	
Distribution:	Constant
Magnitude [psf]:	300
Orientation:	Normal to boundary

Materials

Terrace (Qoa)	
Color	
Strength Type	Mohr-Coulomb
Unit Weight [lbs/ft3]	115
Cohesion [psf]	100
Friction Angle [deg]	31
Water Surface	None
Ru Value	0
Anisotropic Bedrock (Tm) Peak	
Color	
Strength Type	Anisotropic function
Unit Weight [lbs/ft3]	124
Water Surface	None
Ru Value	0

Anisotropic Functions

Name: Anisotropic Bedrock (Tm) Peak

Angle From	Angle To	c	phi
-90	-30	720	41
-30	-10	200	16
-10	90	720	41

Support

Pile 1 (Seismic)	
Color	
Type	Pile/Micro Pile
Force Application	Active (Method A)
Force Orientation	Parallel to surface
Out-Of-Plane Spacing	10 ft
Failure Mode	Shear
Pile Shear Strength	88500 lbs

Global Minimums

Method: spencer

FS	1.039610
Axis Location:	427.801, 285.757
Left Slip Surface Endpoint:	285.770, 130.073
Right Slip Surface Endpoint:	467.130, 78.722
Resisting Moment:	4.81229e+07 lb-ft
Driving Moment:	4.62891e+07 lb-ft
Resisting Horizontal Force:	224909 lb
Driving Horizontal Force:	216339 lb
Active Support Moment:	-1.73556e+06 lb-ft
Active Horizontal Support Force:	-8675.77 lb
Maximum Single Support Force:	8850 lb
Total Support Force:	8850 lb
Total Slice Area:	4062.34 ft2
Surface Horizontal Width:	181.36 ft
Surface Average Height:	22.3993 ft

Global Minimum Coordinates

Method: spencer

X	Y
285.77	130.073
296.724	112.111
465.762	78.0647
467.13	78.7222

Global Minimum Support Data

Method: spencer

Number of Supports: 1

Pile 1 (Seismic)

Support Type: Pile/Micro Pile

Start (x, y)	Length (ft)	L Inside SS (ft)	L Outside SS (ft)	Li (ft)	Lo (ft)	Force (lb)
391.679, 128.135	109.404	35.1491	74.2549	35.1491	74.2549	8850

Valid and Invalid Surfaces

Method: spencer

Number of Valid Surfaces:	3269
Number of Invalid Surfaces:	1731

Error Codes

Error Code -105 reported for 490 surfaces
Error Code -108 reported for 34 surfaces
Error Code -111 reported for 991 surfaces
Error Code -112 reported for 216 surfaces

Error Code Descriptions

The following errors were encountered during the computation:
-105 = More than two surface / slope intersections with no valid slip surface.
-108 = Total driving moment or total driving force < 0.1. This is to limit the calculation of extremely high safety factors if the driving force is very small (0.1 is an arbitrary number).
-111 = Safety factor equation did not converge
-112 = The coefficient M-Alpha = cos(alpha)(1+tan(alpha)tan(phi)/F) < 0.2 for the final iteration of the safety factor calculation. This screens out some slip surfaces which may not be valid in the context of the analysis, in particular, deep seated slip surfaces with many high negative base angle slices in the passive zone.

Slice Data

Global Minimum Query (spencer) - Safety Factor: 1.03961

Slice Number	Width [ft]	Weight [lbs]	Angle of Slice Base [deg]	Base Material	Base Cohesion [psf]	Base Friction Angle [deg]	Shear Stress [psf]	Shear Strength [psf]	Base Normal Stress [psf]	Pore Pressure [psf]	Effective Normal Stress [psf]	Base Vertical Stress [psf]	Effective Vertical Stress [psf]
1	0.450334	19.1217	-58.6238	Terrace (Qoa)	100	31	77.3772	80.4421	-32.5499	0	-32.5499	94.3329	94.3329
2	3.50117	1538.02	-58.6238	Anisotropic Bedrock (Tm) Peak	720	41	553.295	575.211	-166.561	0	-166.561	740.73	740.73
3	3.50117	4019.4	-58.6238	Anisotropic Bedrock (Tm) Peak	720	41	736.84	766.026	52.9473	0	52.9473	1261.21	1261.21
4	3.50117	6500.79	-58.6238	Anisotropic Bedrock (Tm) Peak	720	41	920.386	956.842	272.455	0	272.455	1781.7	1781.7
5	3.7564	8475.6	-11.3877	Anisotropic Bedrock (Tm) Peak	200	16	719.054	747.536	1909.48	0	1909.48	2054.31	2054.31
6	3.7564	8815.2	-11.3877	Anisotropic Bedrock (Tm) Peak	200	16	782.929	813.941	2141.07	0	2141.07	2298.76	2298.76
7	3.7564	9154.79	-11.3877	Anisotropic Bedrock (Tm) Peak	200	16	841.19	874.51	2352.3	0	2352.3	2521.72	2521.72
8	3.7564	9494.39	-11.3877	Anisotropic Bedrock (Tm) Peak	200	16	861.785	895.92	2426.96	0	2426.96	2600.53	2600.53
9	3.7564	9833.98	-11.3877	Anisotropic Bedrock (Tm) Peak	200	16	882.378	917.329	2501.62	0	2501.62	2679.35	2679.35
10	3.7564	10173.6	-11.3877	Anisotropic Bedrock (Tm) Peak	200	16	902.972	938.739	2576.29	0	2576.29	2758.16	2758.16
11	3.7564	10513.2	-11.3877	Anisotropic Bedrock (Tm) Peak	200	16	923.566	960.148	2650.95	0	2650.95	2836.97	2836.97
12	3.7564	10852.8	-11.3877	Anisotropic Bedrock (Tm) Peak	200	16	944.16	981.558	2725.62	0	2725.62	2915.78	2915.78

13	3.7564	11192.4	-11.3877	Anisotropic Bedrock (Tm) Peak	200	16	964.753	1002.97	2800.28	0	2800.28	2994.59	2994.59
14	3.7564	11532	-11.3877	Anisotropic Bedrock (Tm) Peak	200	16	913.571	949.758	2614.73	0	2614.73	2798.73	2798.73
15	3.7564	11871.5	-11.3877	Anisotropic Bedrock (Tm) Peak	200	16	924.991	961.63	2656.12	0	2656.12	2842.42	2842.42
16	3.7564	12211.1	-11.3877	Anisotropic Bedrock (Tm) Peak	200	16	945.585	983.04	2730.78	0	2730.78	2921.24	2921.24
17	3.7564	12550.7	-11.3877	Anisotropic Bedrock (Tm) Peak	200	16	966.179	1004.45	2805.45	0	2805.45	3000.05	3000.05
18	3.7564	12890.3	-11.3877	Anisotropic Bedrock (Tm) Peak	200	16	986.773	1025.86	2880.11	0	2880.11	3078.86	3078.86
19	3.7564	13229.9	-11.3877	Anisotropic Bedrock (Tm) Peak	200	16	1007.37	1047.27	2954.78	0	2954.78	3157.67	3157.67
20	3.7564	13569.5	-11.3877	Anisotropic Bedrock (Tm) Peak	200	16	1027.96	1068.68	3029.44	0	3029.44	3236.48	3236.48
21	3.7564	13909.1	-11.3877	Anisotropic Bedrock (Tm) Peak	200	16	1048.55	1090.09	3104.1	0	3104.1	3315.3	3315.3
22	3.7564	14248.7	-11.3877	Anisotropic Bedrock (Tm) Peak	200	16	1069.15	1111.5	3178.77	0	3178.77	3394.11	3394.11
23	3.7564	14588.3	-11.3877	Anisotropic Bedrock (Tm) Peak	200	16	1089.74	1132.91	3253.43	0	3253.43	3472.92	3472.92
24	3.7564	14928	-11.3877	Anisotropic Bedrock (Tm) Peak	200	16	1110.34	1154.33	3328.12	0	3328.12	3551.76	3551.76
25	3.7564	15333.4	-11.3877	Anisotropic Bedrock (Tm) Peak	200	16	1134.93	1179.88	3417.24	0	3417.24	3645.83	3645.83
26	3.7564	15791.6	-11.3877	Anisotropic Bedrock (Tm) Peak	200	16	1162.71	1208.76	3517.98	0	3517.98	3752.16	3752.16
27	3.7564	16249.3	-11.3877	Anisotropic Bedrock (Tm) Peak	200	16	1190.48	1237.63	3618.64	0	3618.64	3858.41	3858.41
28	3.7564	16706.6	-11.3877	Anisotropic Bedrock (Tm) Peak	200	16	1218.2	1266.45	3719.16	0	3719.16	3964.52	3964.52
29	3.7564	16624.5	-11.3877	Anisotropic Bedrock (Tm) Peak	200	16	1213.21	1261.27	3701.1	0	3701.1	3945.46	3945.46
30	3.7564	15885.9	-11.3877	Anisotropic Bedrock (Tm) Peak	200	16	1320.29	1372.59	4089.3	0	4089.3	4355.22	4355.22
31	3.7564	15078.7	-11.3877	Anisotropic Bedrock (Tm) Peak	200	16	1119.48	1163.82	3361.24	0	3361.24	3586.72	3586.72
32	3.7564	14229.4	-11.3877	Anisotropic Bedrock (Tm) Peak	200	16	1067.98	1110.28	3174.51	0	3174.51	3389.62	3389.62
33	3.7564	13323.2	-11.3877	Anisotropic Bedrock (Tm) Peak	200	16	1013.02	1053.15	2975.29	0	2975.29	3179.32	3179.32
34	3.7564	12325	-11.3877	Anisotropic Bedrock (Tm) Peak	200	16	952.488	990.216	2755.81	0	2755.81	2947.65	2947.65
35	3.7564	11503.4	-11.3877	Anisotropic Bedrock (Tm) Peak	200	16	902.663	938.418	2575.17	0	2575.17	2756.98	2756.98
36	3.7564	10786.7	-11.3877	Anisotropic Bedrock (Tm) Peak	200	16	859.206	893.239	2417.61	0	2417.61	2590.67	2590.67
37	3.7564	10185.3	-11.3877	Anisotropic Bedrock (Tm) Peak	200	16	822.734	855.323	2285.39	0	2285.39	2451.09	2451.09

38	3.7564	9668.54	-11.3877	Anisotropic Bedrock (Tm) Peak	200	16	791.397	822.744	2171.77	0	2171.77	2331.16	2331.16
39	3.7564	9138.91	-11.3877	Anisotropic Bedrock (Tm) Peak	200	16	759.278	789.353	2055.32	0	2055.32	2208.25	2208.25
40	3.7564	8495.57	-11.3877	Anisotropic Bedrock (Tm) Peak	200	16	720.265	748.795	1913.87	0	1913.87	2058.94	2058.94
41	3.7564	7815.04	-11.3877	Anisotropic Bedrock (Tm) Peak	200	16	678.996	705.891	1764.25	0	1764.25	1901.01	1901.01
42	3.7564	7060.15	-11.3877	Anisotropic Bedrock (Tm) Peak	200	16	633.217	658.299	1598.28	0	1598.28	1725.82	1725.82
43	3.7564	6283.67	-11.3877	Anisotropic Bedrock (Tm) Peak	200	16	586.13	609.347	1427.56	0	1427.56	1545.62	1545.62
44	3.7564	5352.82	-11.3877	Anisotropic Bedrock (Tm) Peak	200	16	529.681	550.662	1222.9	0	1222.9	1329.59	1329.59
45	3.7564	4368.31	-11.3877	Anisotropic Bedrock (Tm) Peak	200	16	469.978	488.594	1006.45	0	1006.45	1101.11	1101.11
46	3.7564	3436.39	-11.3877	Anisotropic Bedrock (Tm) Peak	200	16	413.465	429.842	801.554	0	801.554	884.831	884.831
47	3.7564	2519.2	-11.3877	Anisotropic Bedrock (Tm) Peak	200	16	357.844	372.018	599.899	0	599.899	671.973	671.973
48	3.7564	1750.91	-11.3877	Anisotropic Bedrock (Tm) Peak	200	16	311.253	323.582	430.982	0	430.982	493.672	493.672
49	3.7564	1044.81	-11.3877	Anisotropic Bedrock (Tm) Peak	200	16	268.434	279.067	275.738	0	275.738	329.803	329.803
50	1.36797	125.96	25.6727	Anisotropic Bedrock (Tm) Peak	720	41	44244.4	45996.9	52085.1	0	52085.1	30817.6	30817.6

Interslice Data

Global Minimum Query (spencer) - Safety Factor: 1.03961

Slice Number	X coordinate [ft]	Y coordinate - Bottom [ft]	Interslice Normal Force [lbs]	Interslice Shear Force [lbs]	Interslice Force Angle [deg]
1	285.77	130.073	0	0	0
2	286.221	129.335	-52.1222	-23.1991	23.9934
3	289.722	123.593	-2403.51	-1069.78	23.9934
4	293.223	117.852	-3267.55	-1454.36	23.9935
5	296.724	112.111	-2644.25	-1176.93	23.9934
6	300.481	111.354	-928.935	-413.46	23.9934
7	304.237	110.598	840.975	374.31	23.9934
8	307.993	109.841	2671.13	1188.89	23.9933
9	311.75	109.085	4599.42	2047.16	23.9934
10	315.506	108.328	6625.84	2949.1	23.9934
11	319.263	107.571	8750.41	3894.72	23.9934
12	323.019	106.815	10973.1	4884.03	23.9934
13	326.775	106.058	13294	5917.01	23.9933
14	330.532	105.302	15712.9	6993.68	23.9934
15	334.288	104.545	18302.3	8146.17	23.9934
16	338.045	103.788	20999	9346.45	23.9934
17	341.801	103.032	23793.8	10590.4	23.9934
18	345.557	102.275	26686.8	11878	23.9933
19	349.314	101.519	29677.9	13209.4	23.9935
20	353.07	100.762	32767.2	14584.4	23.9934
21	356.826	100.006	35954.6	16003	23.9933
22	360.583	99.249	39240.1	17465.4	23.9934
23	364.339	98.4924	42623.8	18971.4	23.9933
24	368.096	97.7358	46105.6	20521.2	23.9934
25	371.852	96.9792	49685.6	22114.6	23.9934
26	375.608	96.2227	53382.7	23760.1	23.9934
27	379.365	95.4661	57212.3	25464.6	23.9933
28	383.121	94.7095	61174.1	27228	23.9934
29	386.878	93.9529	65268.1	29050.2	23.9934
30	390.634	93.1963	69338.3	30861.8	23.9934
31	394.39	92.4397	64366.5	28648.9	23.9934
32	398.147	91.6832	67990.1	30261.7	23.9934
33	401.903	90.9266	71368.2	31765.3	23.9934
34	405.66	90.17	74484.4	33152.3	23.9934
35	409.416	89.4134	77312.1	34410.9	23.9934
36	413.172	88.6568	79902.4	35563.8	23.9934
37	416.929	87.9002	82285.6	36624.5	23.9934
38	420.685	87.1437	84495	37607.9	23.9934
39	424.442	86.3871	86555.1	38524.8	23.9934
40	428.198	85.6305	88462.1	39373.6	23.9934
41	431.954	84.8739	90183.2	40139.7	23.9934
42	435.711	84.1173	91707.6	40818.2	23.9934
43	439.467	83.3607	93013.9	41399.6	23.9934
44	443.224	82.6042	94095.7	41881.1	23.9934
45	446.98	81.8476	94908.6	42242.9	23.9934
46	450.736	81.091	95437	42478.1	23.9934
47	454.493	80.3344	95696	42593.4	23.9934
48	458.249	79.5778	95690	42590.7	23.9934
49	462.006	78.8212	95462	42489.2	23.9934
50	465.762	78.0647	95029.9	42296.9	23.9934
51	467.13	78.7222	0	0	0

Discharge Sections

Entity Information

Translational (Seismic)

Shared Entities

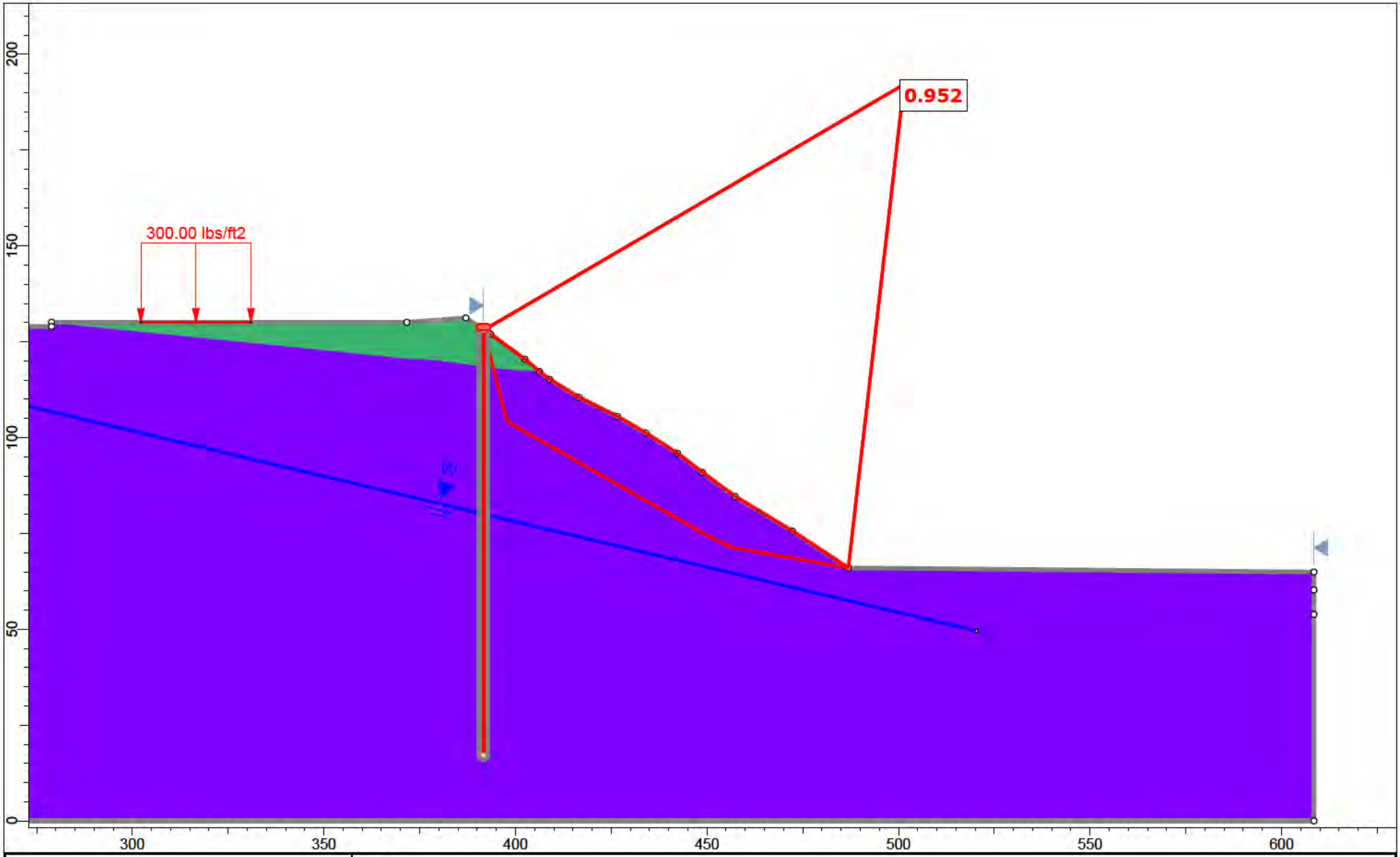
Type	Coordinates (x,y)

External Boundary	0.386, -0.037 608.423, -0.037 608.423, 53.854 608.423, 60.25 608.423, 64.917 486.904, 65.983 472.319, 75.583 457.333, 84.649 448.803, 90.87 442.281, 95.888 433.985, 101.207 426.659, 105.488 416.624, 110.473 408.964, 115.156 406.288, 117.203 402.474, 120.407 393.476, 126.997 391.679, 128.135 387.087, 131.212 371.662, 130.073 278.904, 130.073 278.904, 128.997 271.84, 128.997 267.423, 125.767 260.778, 125.767 260.778, 128.887 238.79, 128.887 238.79, 131.703 230.993, 131.919 212.872, 139.485 203.868, 143.139 194.712, 143.139 189.062, 140.22 175.096, 140.22 138.858, 142.078 111.823, 142.923 105.91, 144.524 93.371, 149.815 88.658, 151.594 78.564, 155.062 70.561, 158.308 62.068, 161.642 60.181, 161.869 57.907, 161.593 54.496, 160.921 53.083, 160.921 51.326, 161.645 47.382, 162.661 40.767, 164.59 36.375, 167.007 32.42, 169.373 29.924, 170.67 25.97, 172.42 20.427, 174.786 13.166, 179.259 10.217, 180.75 3.993, 183.376 1.367, 184.575 0.386, 185.129

Material Boundary	278.904, 130.073 374.457, 120.429 384.086, 119.333 390.302, 118.536 394.557, 117.991 402.113, 117.203 406.288, 117.203

Scenario-based Entities

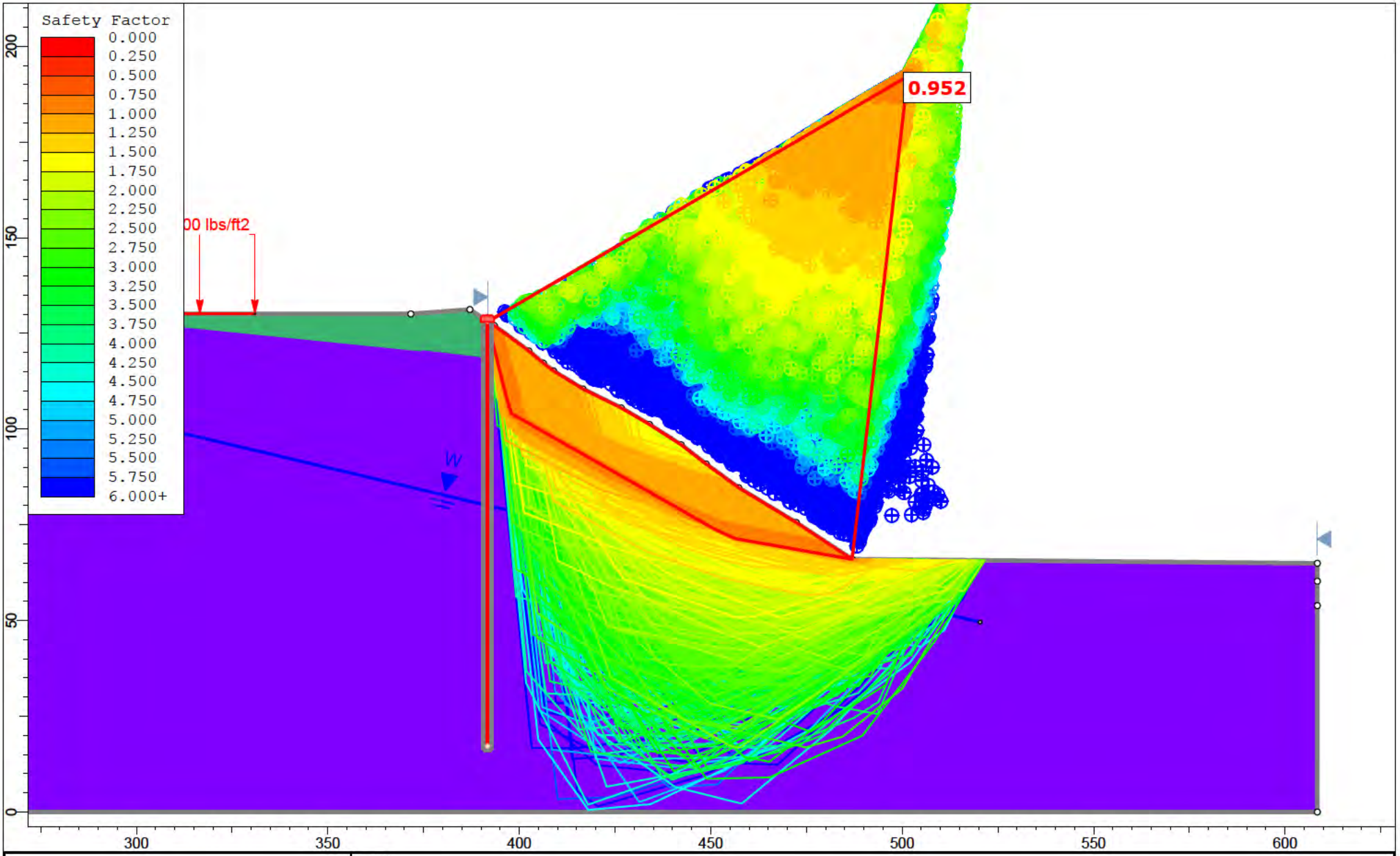
Type	Coordinates (x,y)	Master Scenario
Water Table	240.477, 115.859 520.344, 49.554	Not assigned to any materials
Distributed Load	330.957, 130.073 302.229, 130.073	Constant DistributionOrientation: Normal to boundaryMagnitude: 300 lbs/ft2Creates Excess Pore Pressure: No
Block Search Window	195.439, 131.212 195.439, 55.783 387.087, 55.783 387.087, 131.212	
Block Search Window	592.892, 14.004 592.892, 62.945 387.832, 129.77 387.832, 14.004	



rocscience

Project	Section 3-3'			
Analysis Description	Offsite Slope (Static)			
Drawn By	A. Greene	Scale	1:416	Company: Feffer Geological Consulting
Date				File Name: Section 3-3' Translational Analysis_2.slmd

SLIDEINTERPRET 9.018



rocscience

SLIDEINTERPRET 9.018

Project	Section 3-3'		
Analysis Description	Offsite Slope (Static)		
Drawn By	A. Greene	Scale 1:416	Company Feffer Geological Consulting
Date			File Name Section 3-3' Translational Analysis_2.slmd

Slide Analysis Information

Section 3-3' Translational Analysis_2

Project Summary

File Name:	Section 3-3' Translational Analysis_2.slmd
Slide Modeler Version:	9.018
Compute Time:	00h:00m:03.794s
Project Title:	Section 3-3'
Analysis:	Offsite Slope (Static)
Author:	A. Greene
Company:	Feffer Geological Consulting

General Settings

Units of Measurement:	Imperial Units
Time Units:	days
Permeability Units:	feet/second
Data Output:	Standard
Failure Direction:	Left to Right

Analysis Options

Slices Type:	Vertical
Analysis Methods Used	
	Bishop simplified
Number of slices:	50
Tolerance:	0.005
Maximum number of iterations:	75
Check malpha < 0.2:	Yes
Create Interslice boundaries at intersections with water tables and piezos:	Yes
Initial trial value of FS:	1
Steffensen Iteration:	Yes

Groundwater Analysis

Groundwater Method:	Water Surfaces
Pore Fluid Unit Weight [lbs/ft3]:	62.4
Use negative pore pressure cutoff:	Yes
Maximum negative pore pressure [psf]:	0
Advanced Groundwater Method:	None

Random Numbers

Pseudo-random Seed:	10116
Random Number Generation Method:	Park and Miller v.3

Surface Options

Search Method:	Cuckoo Search
Initial # of Surface Vertices:	8
Maximum Iterations:	500
Number of Nests:	50
Minimum Elevation:	Not Defined
Minimum Depth:	Not Defined
Minimum Area:	Not Defined
Minimum Weight:	Not Defined
Convex Surfaces Only:	Enabled

Seismic Loading

Advanced seismic analysis:	No
Staged pseudostatic analysis:	No

Loading

1 Distributed Load present

Distributed Load 1	
Distribution:	Constant
Magnitude [psf]:	300
Orientation:	Normal to boundary

Materials

Terrace (Qoa)	
Color	
Strength Type	Mohr-Coulomb
Unit Weight [lbs/ft3]	115
Cohesion [psf]	100
Friction Angle [deg]	31
Water Surface	None
Ru Value	0
Anisotropic Bedrock (Tm) Ultimate	
Color	
Strength Type	Anisotropic function
Unit Weight [lbs/ft3]	124
Water Surface	Water Table
Hu Value	1

Anisotropic Functions

Name: Anisotropic Bedrock (Tm) Ultimate

Angle From	Angle To	c	phi
-90	-30	520	34.5
-30	-10	200	16
-10	90	520	34.5

Support

Pile 1 (Static)	
Color	
Type	Pile/Micro Pile
Force Application	Active (Method A)
Force Orientation	Parallel to surface
Out-Of-Plane Spacing	10 ft
Failure Mode	Shear
Pile Shear Strength	345000 lbs

Global Minimums

Method: bishop simplified

FS	0.951926
Axis Location:	501.429, 192.142
Left Slip Surface Endpoint:	391.787, 128.067
Right Slip Surface Endpoint:	486.904, 65.983
Resisting Moment:	8.58885e+06 lb-ft
Driving Moment:	9.02261e+06 lb-ft
Total Slice Area:	1287.09 ft2
Surface Horizontal Width:	95.1174 ft
Surface Average Height:	13.5316 ft

Global Minimum Coordinates

Method: bishop simplified

X	Y
391.787	128.067
392.82	123.638
393.854	119.443
394.888	115.251
395.921	111.105
396.956	107.23
397.984	104.033
401.997	101.749
406.011	99.4653
410.025	97.1815
414.032	94.9013
418.045	92.6177
422.059	90.3342
425.483	88.3857
428.907	86.4373
432.331	84.4888
435.756	82.5404
440.331	79.937
444.92	77.3259
447.756	75.7121
450.604	74.0913
456.3	71.3922
461.176	70.5304
466.11	69.6584
469.407	69.0756
472.704	68.4929
476.001	67.9101
479.298	67.3274
483.145	66.6473
486.904	65.983

Global Minimum Support Data

Method: bishop simplified

Number of Supports: 1

Pile 1 (Static)

Support Type: Pile/Micro Pile

Start (x, y)	Length (ft)	L Inside SS (ft)	L Outside SS (ft)	Li (ft)	Lo (ft)	Force (lb)
391.679, 128.135	110.937	Not Effective	Not Effective	Not Effective	Not Effective	0

Valid and Invalid Surfaces

Method: bishop simplified

Number of Valid Surfaces:	15193
Number of Invalid Surfaces:	9863

Error Codes

Error Code -106 reported for 37 surfaces
Error Code -108 reported for 56 surfaces
Error Code -109 reported for 1 surface
Error Code -110 reported for 436 surfaces
Error Code -111 reported for 3297 surfaces
Error Code -112 reported for 252 surfaces
Error Code -121 reported for 1323 surfaces
Error Code -124 reported for 2 surfaces
Error Code -145 reported for 21 surfaces
Error Code -1000 reported for 4438 surfaces

Error Code Descriptions

The following errors were encountered during the computation:

-106 = Average slice width is less than 0.0001 * (maximum horizontal extent of soil region). This limitation is imposed to avoid numerical errors which may result from too many slices, or too small a slip region.

-108 = Total driving moment or total driving force < 0.1. This is to limit the calculation of extremely high safety factors if the driving force is very small (0.1 is an arbitrary number).

-109 = Soiltype for slice base not located. This error should occur very rarely, if at all. It may occur if a very low number of slices is combined with certain soil geometries, such that the midpoint of a slice base is actually outside the soil region,even though the slip surface is wholly within the soil region.

-110 = The water table or a piezoline does not span the slip region for a given slip surface, when Water Surfaces is specified as the method of pore pressure calculation. If this error occurs, check that the water table or piezoline(s) span the appropriate soil cells.

-111 = Safety factor equation did not converge

-112 = The coefficient M-Alpha = cos(alpha)(1+tan(alpha)tan(phi)/F) < 0.2 for the final iteration of the safety factor calculation. This screens out some slip surfaces which may not be valid in the context of the analysis, in particular, deep seated slip surfaces with many high negative base angle slices in the passive zone.

-121 = Concave failure surface, only convex surfaces have been defined as being allowed.

-124 = A slice has a width less than the minimum acceptable value.

-145 = Slip surface was clipped vertically by a weak layer in a region of compression. Such a surface cannot be evaluated using Limit Equilibrium. For more information, see Help Documentation on weak layers.

-1000 = No valid slip surface is generated

Slice Data

Global Minimum Query (bishop simplified) - Safety Factor: 0.951926

Slice Number	Width [ft]	Weight [lbs]	Angle of Slice Base [deg]	Base Material	Base Cohesion [psf]	Base Friction Angle [deg]	Shear Stress [psf]	Shear Strength [psf]	Base Normal Stress [psf]	Pore Pressure [psf]	Effective Normal Stress [psf]	Base Vertical Stress [psf]	Effective Vertical Stress [psf]
1	1.03374	224.342	-76.8619	Terrace (Qoa)	100	31	65.3388	62.1977	-62.9136	0	-62.9136	217.019	217.019

2	1.03366	658.239	-76.1568	Terrace (Qoa)	100	31	142.358	135.514	59.1057	0	59.1057	636.804	636.804
3	0.346779	313.181	-76.1511	Terrace (Qoa)	100	31	189.615	180.5	133.974	0	133.974	903.116	903.116
4	0.686745	764.215	-76.1511	Anisotropic Bedrock (Tm) Ultimate	520	34.5	343.554	327.038	-280.761	0	-280.761	1112.81	1112.81
5	1.03346	1518.48	-76.0042	Anisotropic Bedrock (Tm) Ultimate	520	34.5	412.43	392.603	-185.364	0	-185.364	1469.32	1469.32
6	1.03473	1943.79	-75.0479	Anisotropic Bedrock (Tm) Ultimate	520	34.5	513.71	489.014	-45.0848	0	-45.0848	1878.55	1878.55
7	1.02793	2291.4	-72.1756	Anisotropic Bedrock (Tm) Ultimate	520	34.5	664.218	632.286	163.377	0	163.377	2229.15	2229.15
8	2.00685	4754.1	-29.6405	Anisotropic Bedrock (Tm) Ultimate	200	16	788.531	750.623	1920.25	0	1920.25	2368.94	2368.94
9	2.00685	4695.28	-29.6405	Anisotropic Bedrock (Tm) Ultimate	200	16	780.993	743.448	1895.23	0	1895.23	2339.63	2339.63
10	2.00695	4623.86	-29.6405	Anisotropic Bedrock (Tm) Ultimate	200	16	771.814	734.71	1864.76	0	1864.76	2303.93	2303.93
11	2.00695	4520.34	-29.6405	Anisotropic Bedrock (Tm) Ultimate	200	16	758.55	722.083	1820.72	0	1820.72	2252.35	2252.35
12	2.00687	4417.87	-29.6405	Anisotropic Bedrock (Tm) Ultimate	200	16	745.442	709.606	1777.21	0	1777.21	2201.38	2201.38
13	2.00687	4330.67	-29.6405	Anisotropic Bedrock (Tm) Ultimate	200	16	734.269	698.97	1740.11	0	1740.11	2157.92	2157.92
14	2.00363	4294.08	-29.6405	Anisotropic Bedrock (Tm) Ultimate	200	16	730.471	695.354	1727.5	0	1727.5	2143.15	2143.15
15	2.00363	4273	-29.6405	Anisotropic Bedrock (Tm) Ultimate	200	16	727.765	692.778	1718.52	0	1718.52	2132.63	2132.63
16	2.00658	4258.17	-29.6405	Anisotropic Bedrock (Tm) Ultimate	200	16	725.057	690.201	1709.53	0	1709.53	2122.1	2122.1
17	2.00658	4251.39	-29.6405	Anisotropic Bedrock (Tm) Ultimate	200	16	724.188	689.373	1706.65	0	1706.65	2118.72	2118.72
18	2.00658	4285.03	-29.6405	Anisotropic Bedrock (Tm) Ultimate	200	16	728.499	693.477	1720.96	0	1720.96	2135.49	2135.49
19	2.00658	4321.1	-29.6405	Anisotropic Bedrock (Tm) Ultimate	200	16	733.122	697.878	1736.31	0	1736.31	2153.46	2153.46
20	1.71212	3715.52	-29.6405	Anisotropic Bedrock (Tm) Ultimate	200	16	737.406	701.956	1750.53	0	1750.53	2170.13	2170.13
21	1.71212	3741.78	-29.6405	Anisotropic Bedrock (Tm) Ultimate	200	16	741.351	705.711	1763.62	0	1763.62	2185.46	2185.46

22	1.71212	3766.49	-29.6405	Anisotropic Bedrock (Tm) Ultimate	200	16	745.061	709.243	1775.94	0	1775.94	2199.89	2199.89
23	1.71212	3768.42	-29.6405	Anisotropic Bedrock (Tm) Ultimate	200	16	745.352	709.52	1776.91	0	1776.91	2201.02	2201.02
24	1.71212	3762.85	-29.6405	Anisotropic Bedrock (Tm) Ultimate	200	16	744.515	708.723	1774.13	0	1774.13	2197.77	2197.77
25	1.71212	3757.27	-29.6405	Anisotropic Bedrock (Tm) Ultimate	200	16	743.677	707.925	1771.34	0	1771.34	2194.51	2194.51
26	1.71212	3751.68	-29.6405	Anisotropic Bedrock (Tm) Ultimate	200	16	742.837	707.126	1768.56	0	1768.56	2191.24	2191.24
27	1.71212	3735.09	-29.6405	Anisotropic Bedrock (Tm) Ultimate	200	16	740.345	704.754	1760.29	0	1760.29	2181.56	2181.56
28	2.28763	4949.66	-29.6405	Anisotropic Bedrock (Tm) Ultimate	200	16	735.745	700.375	1745.01	0	1745.01	2163.66	2163.66
29	2.28763	4902.85	-29.6405	Anisotropic Bedrock (Tm) Ultimate	200	16	730.483	695.366	1727.55	0	1727.55	2143.2	2143.2
30	2.29442	4869.45	-29.6405	Anisotropic Bedrock (Tm) Ultimate	200	16	725.108	690.249	1709.7	0	1709.7	2122.3	2122.3
31	2.29442	4768.89	-29.6405	Anisotropic Bedrock (Tm) Ultimate	200	16	713.837	679.52	1672.28	0	1672.28	2078.47	2078.47
32	2.83603	5713.84	-29.6405	Anisotropic Bedrock (Tm) Ultimate	200	16	697.446	663.917	1617.87	0	1617.87	2014.73	2014.73
33	2.84843	5545.72	-29.6405	Anisotropic Bedrock (Tm) Ultimate	200	16	680.014	647.323	1560	0	1560	1946.94	1946.94
34	2.84818	5333.38	-25.3533	Anisotropic Bedrock (Tm) Ultimate	200	16	677.469	644.9	1551.55	0	1551.55	1872.56	1872.56
35	2.84818	5076.4	-25.3533	Anisotropic Bedrock (Tm) Ultimate	200	16	653.685	622.26	1472.59	0	1472.59	1782.33	1782.33
36	2.43797	4046.9	-10.0235	Anisotropic Bedrock (Tm) Ultimate	200	16	674.224	641.811	1540.78	0	1540.78	1659.95	1659.95
37	2.43797	3723.08	-10.0235	Anisotropic Bedrock (Tm) Ultimate	200	16	636.235	605.649	1414.67	0	1414.67	1527.12	1527.12
38	4.9334	6568.41	-10.0235	Anisotropic Bedrock (Tm) Ultimate	200	16	580.264	552.368	1228.85	0	1228.85	1331.42	1331.42
39	1.64853	1906.81	-10.0235	Anisotropic Bedrock (Tm) Ultimate	200	16	530.287	504.794	1062.94	0	1062.94	1156.67	1156.67
40	1.64853	1762.51	-10.0235	Anisotropic Bedrock (Tm) Ultimate	200	16	505.253	480.963	979.835	0	979.835	1069.14	1069.14

41	1.64853	1618.2	-10.0235	Anisotropic Bedrock (Tm) Ultimate	200	16	480.217	457.131	896.721	0	896.721	981.6	981.6
42	1.64853	1473.41	-10.0235	Anisotropic Bedrock (Tm) Ultimate	200	16	455.097	433.219	813.333	0	813.333	893.771	893.771
43	1.64853	1316.43	-10.0235	Anisotropic Bedrock (Tm) Ultimate	200	16	427.864	407.295	722.921	0	722.921	798.547	798.547
44	1.64853	1154.18	-10.0235	Anisotropic Bedrock (Tm) Ultimate	200	16	399.716	380.5	629.479	0	629.479	700.129	700.129
45	1.64853	991.938	-10.0235	Anisotropic Bedrock (Tm) Ultimate	200	16	371.569	353.706	536.036	0	536.036	601.711	601.711
46	1.64853	829.692	-10.0235	Anisotropic Bedrock (Tm) Ultimate	200	16	343.421	326.911	442.592	0	442.592	503.292	503.292
47	1.92372	763.059	-10.0235	Anisotropic Bedrock (Tm) Ultimate	200	16	312.924	297.88	341.349	0	341.349	396.658	396.658
48	1.92372	542.124	-10.0235	Anisotropic Bedrock (Tm) Ultimate	200	16	280.077	266.613	232.306	0	232.306	281.81	281.81
49	1.87925	316.259	-10.0235	Anisotropic Bedrock (Tm) Ultimate	200	16	247.61	235.707	124.525	0	124.525	168.29	168.29
50	1.87925	105.42	-10.0235	Anisotropic Bedrock (Tm) Ultimate	200	16	215.523	205.162	18.0027	0	18.0027	56.0966	56.0966

Interslice Data

Global Minimum Query (bishop simplified) - Safety Factor: 0.951926

Slice Number	X coordinate [ft]	Y coordinate - Bottom [ft]	Interslice Normal Force [lbs]	Interslice Shear Force [lbs]	Interslice Force Angle [deg]
1	391.787	128.067	0	0	0
2	392.82	123.638	-346.181	0	0
3	393.854	119.443	-245.402	0	0
4	394.201	118.037	-122.703	0	0
5	394.888	115.251	-1140.74	0	0
6	395.921	111.105	-2335.54	0	0
7	396.956	107.23	-3041.78	0	0
8	397.984	104.033	-3202.24	0	0
9	399.991	102.891	-2591.92	0	0
10	401.997	101.749	-1995.04	0	0
11	404.004	100.607	-1414.51	0	0
12	406.011	99.4653	-857.65	0	0
13	408.018	98.3234	-324.195	0	0
14	410.025	97.1815	189.326	0	0
15	412.029	96.0414	695.252	0	0
16	414.032	94.9013	1196.36	0	0
17	416.039	93.7595	1693.38	0	0
18	418.045	92.6177	2188.84	0	0
19	420.052	91.476	2692	0	0
20	422.059	90.3342	3203.4	0	0
21	423.771	89.36	3646.27	0	0
22	425.483	88.3857	4095.15	0	0
23	427.195	87.4115	4549.68	0	0
24	428.907	86.4373	5004.65	0	0
25	430.619	85.4631	5458.35	0	0
26	432.331	84.4888	5910.77	0	0
27	434.043	83.5146	6361.91	0	0
28	435.756	82.5404	6809.26	0	0
29	438.043	81.2387	7397.63	0	0
30	440.331	79.937	7975.29	0	0
31	442.625	78.6314	8543.71	0	0
32	444.92	77.3259	9089.13	0	0
33	447.756	75.7121	9721.98	0	0
34	450.604	74.0913	10313.5	0	0
35	453.452	72.7418	10477.8	0	0
36	456.3	71.3922	10603.4	0	0
37	458.738	70.9613	9623.59	0	0
38	461.176	70.5304	8682.06	0	0
39	466.11	69.6584	6890.93	0	0
40	467.758	69.367	6326.45	0	0
41	469.407	69.0756	5779.03	0	0
42	471.055	68.7842	5248.66	0	0
43	472.704	68.4929	4735.4	0	0
44	474.352	68.2015	4240.7	0	0
45	476.001	67.9101	3765.17	0	0
46	477.65	67.6187	3308.82	0	0
47	479.298	67.3274	2871.64	0	0
48	481.222	66.9873	2385.73	0	0
49	483.145	66.6473	1925.93	0	0
50	485.025	66.3152	1501.97	0	0
51	486.904	65.983	0	0	0

Discharge Sections

Entity Information

Offiste Slope (Static)

Shared Entities

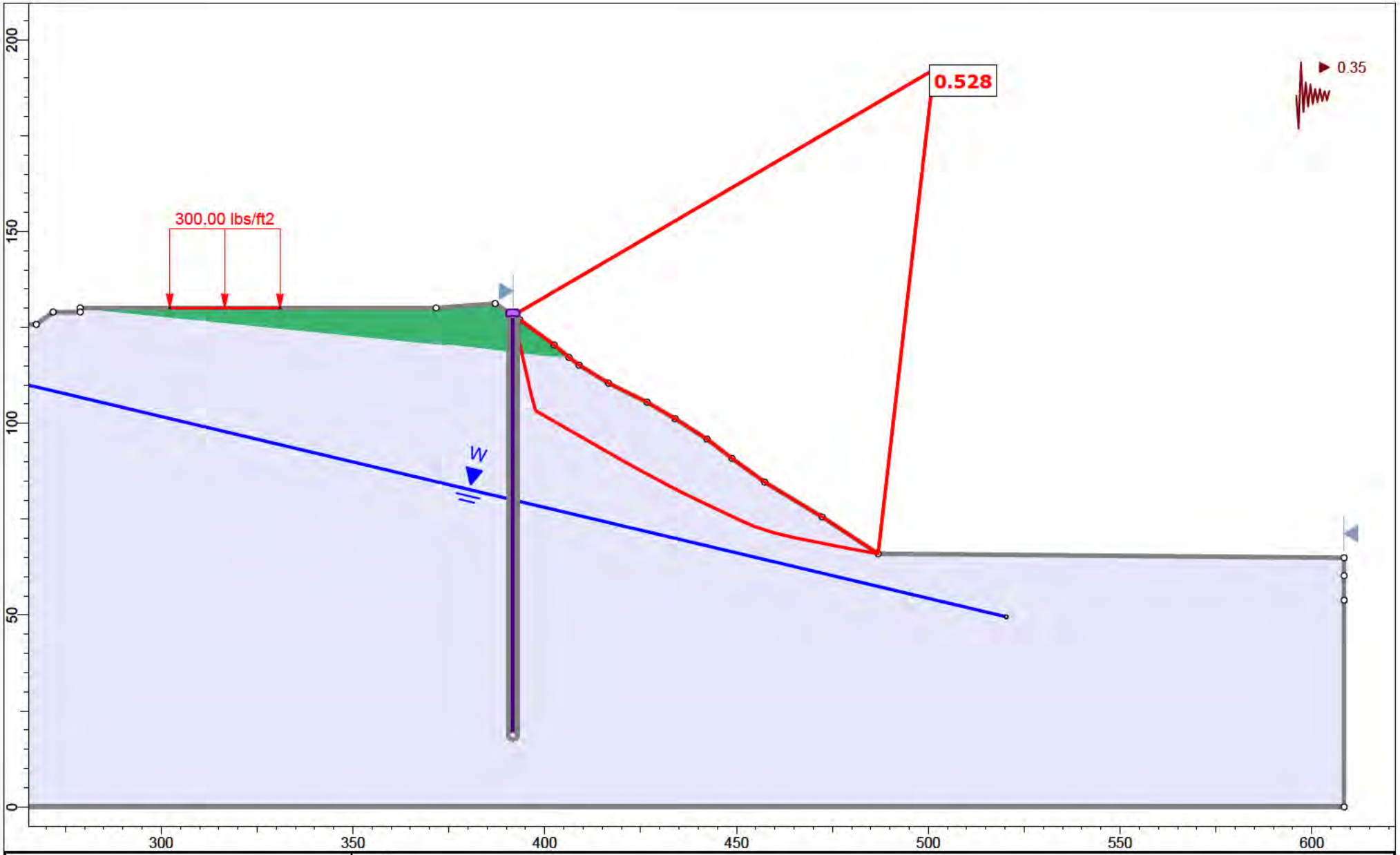
Type	Coordinates (x,y)

External Boundary	0.386, -0.037 608.423, -0.037 608.423, 53.854 608.423, 60.25 608.423, 64.917 486.904, 65.983 472.319, 75.583 457.333, 84.649 448.803, 90.87 442.281, 95.888 433.985, 101.207 426.659, 105.488 416.624, 110.473 408.964, 115.156 406.288, 117.203 402.474, 120.407 393.476, 126.997 391.679, 128.135 387.087, 131.212 371.662, 130.073 278.904, 130.073 278.904, 128.997 271.84, 128.997 267.423, 125.767 260.778, 125.767 260.778, 128.887 238.79, 128.887 238.79, 131.703 230.993, 131.919 212.872, 139.485 203.868, 143.139 194.712, 143.139 189.062, 140.22 175.096, 140.22 138.858, 142.078 111.823, 142.923 105.91, 144.524 93.371, 149.815 88.658, 151.594 78.564, 155.062 70.561, 158.308 62.068, 161.642 60.181, 161.869 57.907, 161.593 54.496, 160.921 53.083, 160.921 51.326, 161.645 47.382, 162.661 40.767, 164.59 36.375, 167.007 32.42, 169.373 29.924, 170.67 25.97, 172.42 20.427, 174.786 13.166, 179.259 10.217, 180.75 3.993, 183.376 1.367, 184.575 0.386, 185.129

Material Boundary	278.904, 130.073 374.457, 120.429 384.086, 119.333 390.302, 118.536 394.557, 117.991 402.113, 117.203 406.288, 117.203

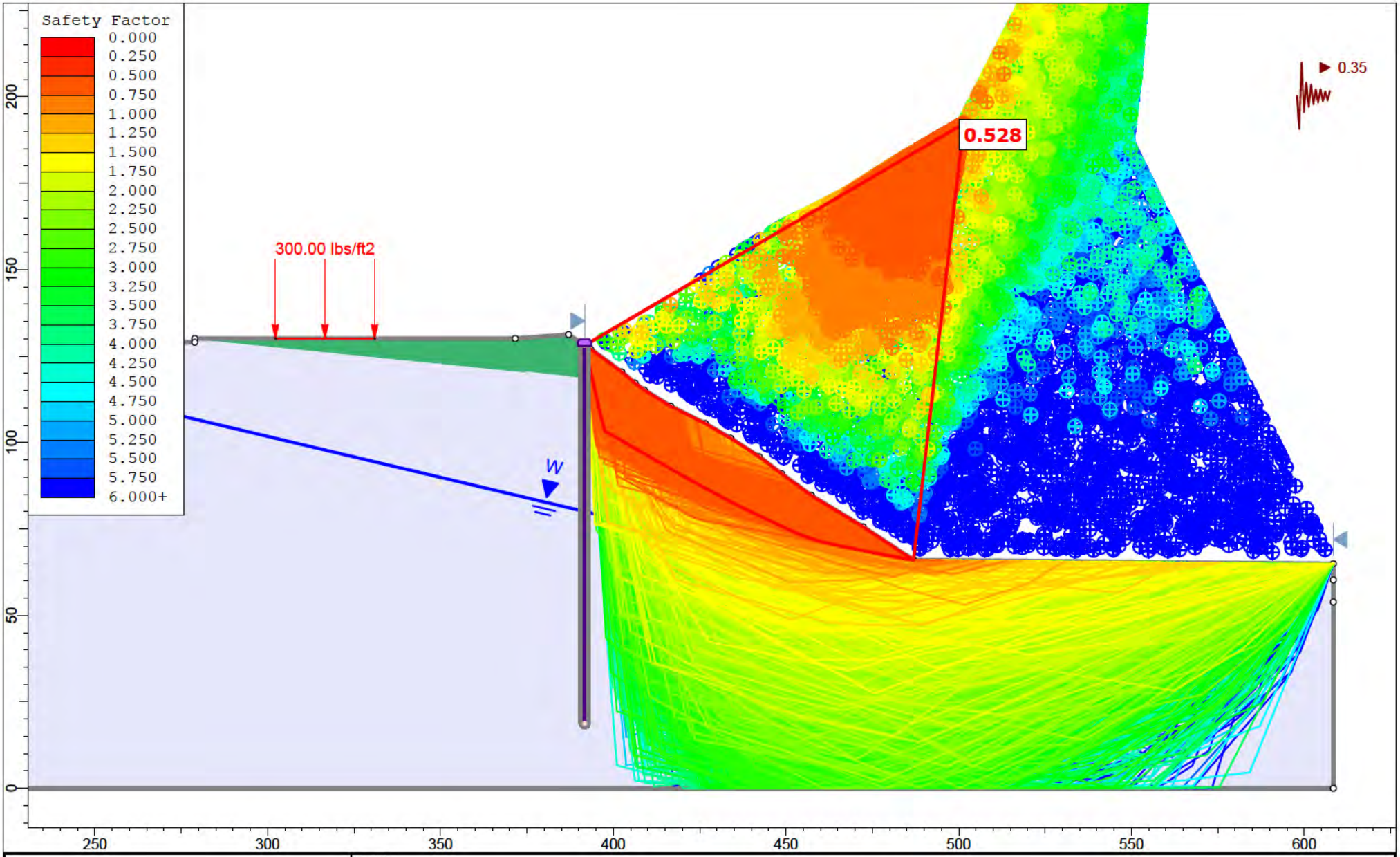
Scenario-based Entities

Type	Coordinates (x,y)	Master Scenario
Water Table	240.477, 115.859 520.344, 49.554	Assigned to: Anisotropic Bedrock (Tm) Ultimate
Distributed Load	330.957, 130.073 302.229, 130.073	Constant DistributionOrientation: Normal to boundaryMagnitude: 300 lbs/ft2Creates Excess Pore Pressure: No



rocscience	Project	Section 3-3'		
	Analysis Description	Offsite Slope (Seismic)		
	Drawn By	A. Greene	Scale 1:415	Company Feffer Geological Consulting
	Date			File Name Section 3-3' Translational Analysis_2.slmd

SLIDEINTERPRET 9.018



rocscience

SLIDEINTERPRET 9.018

Project	Section 3-3'				
Analysis Description	Offsite Slope (Seismic)				
Drawn By	A. Greene	Scale	1:461	Company	Feffer Geological Consulting
Date				File Name	Section 3-3' Translational Analysis_2.slmd

Slide Analysis Information

Section 3-3' Translational Analysis_2

Project Summary

File Name:	Section 3-3' Translational Analysis_2.slmd
Slide Modeler Version:	9.018
Compute Time:	00h:00m:02.542s
Project Title:	Section 3-3'
Analysis:	Offsite Slope (Seismic)
Author:	A. Greene
Company:	Feffer Geological Consulting

General Settings

Units of Measurement:	Imperial Units
Time Units:	days
Permeability Units:	feet/second
Data Output:	Standard
Failure Direction:	Left to Right

Analysis Options

Slices Type:	Vertical
Analysis Methods Used	
	Bishop simplified
Number of slices:	50
Tolerance:	0.005
Maximum number of iterations:	75
Check malpha < 0.2:	Yes
Create Interslice boundaries at intersections with water tables and piezos:	Yes
Initial trial value of FS:	1
Steffensen Iteration:	Yes

Groundwater Analysis

Groundwater Method:	Water Surfaces
Pore Fluid Unit Weight [lbs/ft3]:	62.4
Use negative pore pressure cutoff:	Yes
Maximum negative pore pressure [psf]:	0
Advanced Groundwater Method:	None

Random Numbers

Pseudo-random Seed:	10116
Random Number Generation Method:	Park and Miller v.3

Surface Options

Search Method:	Cuckoo Search
Initial # of Surface Vertices:	8
Maximum Iterations:	500
Number of Nests:	50
Minimum Elevation:	Not Defined
Minimum Depth:	Not Defined
Minimum Area:	Not Defined
Minimum Weight:	Not Defined
Convex Surfaces Only:	Enabled

Seismic Loading

Advanced seismic analysis:	No
Staged pseudostatic analysis:	No
Seismic Load Coefficient (Horizontal):	0.35

Loading

1 Distributed Load present

Distributed Load 1	
Distribution:	Constant
Magnitude [psf]:	300
Orientation:	Normal to boundary

Materials

Terrace (Qoa)	
Color	
Strength Type	Mohr-Coulomb
Unit Weight [lbs/ft3]	115
Cohesion [psf]	100
Friction Angle [deg]	31
Water Surface	None
Ru Value	0
Anisotropic Bedrock (Tm) Peak	
Color	
Strength Type	Anisotropic function
Unit Weight [lbs/ft3]	124
Water Surface	None
Ru Value	0

Anisotropic Functions

Name: Anisotropic Bedrock (Tm) Peak

Angle From	Angle To	c	phi
-90	-30	720	41
-30	-10	200	16
-10	90	720	41

Support

Pile 1 (Seismic)	
Color	
Type	Pile/Micro Pile
Force Application	Active (Method A)
Force Orientation	Parallel to surface
Out-Of-Plane Spacing	10 ft
Failure Mode	Shear
Pile Shear Strength	88500 lbs

Global Minimums

Method: bishop simplified

FS	0.527680
Axis Location:	501.435, 192.198
Left Slip Surface Endpoint:	391.744, 128.094
Right Slip Surface Endpoint:	486.904, 65.983
Resisting Moment:	7.69063e+06 lb-ft
Driving Moment:	1.45744e+07 lb-ft
Total Slice Area:	1313.93 ft2
Surface Horizontal Width:	95.1595 ft
Surface Average Height:	13.8077 ft

Global Minimum Coordinates

Method: bishop simplified

X	Y
391.744	128.094
392.713	123.875
393.681	119.656
394.649	115.437
395.617	111.218
396.586	107
397.594	103.303
401.751	100.917
405.916	98.5274
410.08	96.1376
414.249	93.7452
418.409	91.3581
422.569	89.0019
425.661	87.3087
428.594	85.7473
431.528	84.186
434.645	82.5269
437.485	81.096
440.325	79.7507
443.9	78.0574
447.471	76.3658
451.044	74.6737
454.611	73.0969
459.698	71.4611
464.951	70.2021
470.205	69.1486
475.459	68.095
481.179	67.0028
486.904	65.983

Global Minimum Support Data

Method: bishop simplified

Number of Supports: 1

Pile 1 (Seismic)

Support Type: Pile/Micro Pile

Start (x, y)	Length (ft)	L Inside SS (ft)	L Outside SS (ft)	Li (ft)	Lo (ft)	Force (lb)
391.679, 128.135	109.404	Not Effective	Not Effective	Not Effective	Not Effective	0

Valid and Invalid Surfaces

Method: bishop simplified

Number of Valid Surfaces:	18139
Number of Invalid Surfaces:	6917

Error Codes

Error Code -106 reported for 18 surfaces
Error Code -108 reported for 34 surfaces
Error Code -109 reported for 1 surface
Error Code -111 reported for 359 surfaces
Error Code -112 reported for 302 surfaces
Error Code -121 reported for 1605 surfaces
Error Code -124 reported for 1 surface
Error Code -145 reported for 13 surfaces
Error Code -1000 reported for 4584 surfaces

Error Code Descriptions

The following errors were encountered during the computation:
-106 = Average slice width is less than 0.0001 * (maximum horizontal extent of soil region). This limitation is imposed to avoid numerical errors which may result from too many slices, or too small a slip region.
-108 = Total driving moment or total driving force < 0.1. This is to limit the calculation of extremely high safety factors if the driving force is very small (0.1 is an arbitrary number).
-109 = Soiltype for slice base not located. This error should occur very rarely, if at all. It may occur if a very low number of slices is combined with certain soil geometries, such that the midpoint of a slice base is actually outside the soil region,even though the slip surface is wholly within the soil region.
-111 = Safety factor equation did not converge
-112 = The coefficient M-Alpha = cos(alpha)(1+tan(alpha)tan(phi)/F) < 0.2 for the final iteration of the safety factor calculation. This screens out some slip surfaces which may not be valid in the context of the analysis, in particular, deep seated slip surfaces with many high negative base angle slices in the passive zone.
-121 = Concave failure surface, only convex surfaces have been defined as being allowed.
-124 = A slice has a width less than the minimum acceptable value.
-145 = Slip surface was clipped vertically by a weak layer in a region of compression. Such a surface cannot be evaluated using Limit Equilibrium. For more information, see Help Documentation on weak layers.
-1000 = No valid slip surface is generated

Slice Data

Global Minimum Query (bishop simplified) - Safety Factor: 0.52768

Slice Number	Width [ft]	Weight [lbs]	Angle of Slice Base [deg]	Base Material	Base Cohesion [psf]	Base Friction Angle [deg]	Shear Stress [psf]	Shear Strength [psf]	Base Normal Stress [psf]	Pore Pressure [psf]	Effective Normal Stress [psf]	Base Vertical Stress [psf]	Effective Vertical Stress [psf]
1	0.968283	200.759	-77.0742	Terrace (Qoa)	100	31	71.3919	37.6721	-103.731	0	-103.731	207.34	207.34
2	0.968225	601.991	-77.0742	Terrace (Qoa)	100	31	150.548	79.4411	-34.2157	0	-34.2157	621.755	621.755
3	0.367096	331.669	-77.0742	Terrace (Qoa)	100	31	204.364	107.839	13.0459	0	13.0459	903.506	903.506

4	0.601113	671.286	-77.0742	Anisotropic Bedrock (Tm) Peak	720	41	391.806	206.748	-590.43	0	-590.43	1116.76	1116.76
5	0.968199	1426.95	-77.0742	Anisotropic Bedrock (Tm) Peak	720	41	463.737	244.705	-546.764	0	-546.764	1473.84	1473.84
6	0.968192	1853.58	-77.0742	Anisotropic Bedrock (Tm) Peak	720	41	552.503	291.545	-492.881	0	-492.881	1914.5	1914.5
7	1.00847	2340.72	-74.7406	Anisotropic Bedrock (Tm) Peak	720	41	737.1	388.953	-380.826	0	-380.826	2321.08	2321.08
8	2.07868	5181.63	-29.85	Anisotropic Bedrock (Tm) Peak	200	16	1321.5	697.329	1734.39	0	1734.39	2492.76	2492.76
9	2.07868	5121.12	-29.85	Anisotropic Bedrock (Tm) Peak	200	16	1309.44	690.967	1712.2	0	1712.2	2463.65	2463.65
10	2.08227	5059.24	-29.85	Anisotropic Bedrock (Tm) Peak	200	16	1295.37	683.543	1686.32	0	1686.32	2429.68	2429.68
11	2.08227	4952.07	-29.85	Anisotropic Bedrock (Tm) Peak	200	16	1274.05	672.293	1647.08	0	1647.08	2378.22	2378.22
12	2.08228	4844.31	-29.85	Anisotropic Bedrock (Tm) Peak	200	16	1252.62	660.98	1607.63	0	1607.63	2326.46	2326.46
13	2.08228	4753.32	-29.85	Anisotropic Bedrock (Tm) Peak	200	16	1234.51	651.428	1574.32	0	1574.32	2282.76	2282.76
14	2.08438	4729.05	-29.85	Anisotropic Bedrock (Tm) Peak	200	16	1228.74	648.379	1563.68	0	1563.68	2268.81	2268.81
15	2.08438	4708.86	-29.85	Anisotropic Bedrock (Tm) Peak	200	16	1224.72	646.261	1556.29	0	1556.29	2259.12	2259.12
16	2.07985	4678.47	-29.85	Anisotropic Bedrock (Tm) Peak	200	16	1220.71	644.145	1548.92	0	1548.92	2249.44	2249.44
17	2.07985	4681	-29.85	Anisotropic Bedrock (Tm) Peak	200	16	1221.21	644.41	1549.84	0	1549.84	2250.65	2250.65
18	2.07985	4719.75	-29.5292	Anisotropic Bedrock (Tm) Peak	200	16	1232.72	650.482	1571.02	0	1571.02	2269.29	2269.29
19	2.07985	4757.13	-29.5292	Anisotropic Bedrock (Tm) Peak	200	16	1240.19	654.422	1584.76	0	1584.76	2287.26	2287.26
20	1.54606	3557.64	-28.7045	Anisotropic Bedrock (Tm) Peak	200	16	1255.79	662.653	1613.46	0	1613.46	2301.11	2301.11
21	1.54606	3572.7	-28.7045	Anisotropic Bedrock (Tm) Peak	200	16	1259.87	664.806	1620.97	0	1620.97	2310.86	2310.86
22	2.93365	6792.11	-28.0234	Anisotropic Bedrock (Tm) Peak	200	16	1269.87	670.085	1639.38	0	1639.38	2315.25	2315.25
23	2.93359	6741.76	-28.0234	Anisotropic Bedrock (Tm) Peak	200	16	1262.66	666.278	1626.1	0	1626.1	2298.13	2298.13
24	1.55862	3559.28	-28.0234	Anisotropic Bedrock (Tm) Peak	200	16	1256.54	663.049	1614.84	0	1614.84	2283.61	2283.61
25	1.55862	3542.04	-28.0234	Anisotropic Bedrock (Tm) Peak	200	16	1251.87	660.589	1606.26	0	1606.26	2272.55	2272.55
26	2.83999	6360.62	-26.7407	Anisotropic Bedrock (Tm) Peak	200	16	1253.01	661.19	1608.36	0	1608.36	2239.67	2239.67
27	2.83999	6208.2	-25.346	Anisotropic Bedrock (Tm) Peak	200	16	1246.15	657.568	1595.73	0	1595.73	2186	2186
28	1.78742	3821.42	-25.346	Anisotropic Bedrock (Tm) Peak	200	16	1225.38	646.611	1557.52	0	1557.52	2137.96	2137.96

29	1.78742	3734.23	-25.346	Anisotropic Bedrock (Tm) Peak	200	16	1204.3	635.487	1518.72	0	1518.72	2089.18	2089.18
30	1.78556	3613.6	-25.346	Anisotropic Bedrock (Tm) Peak	200	16	1176.05	620.577	1466.73	0	1466.73	2023.8	2023.8
31	1.78556	3496.69	-25.346	Anisotropic Bedrock (Tm) Peak	200	16	1147.75	605.646	1414.65	0	1414.65	1958.32	1958.32
32	1.7862	3381.48	-25.346	Anisotropic Bedrock (Tm) Peak	200	16	1119.57	590.777	1362.8	0	1362.8	1893.12	1893.12
33	1.7862	3275.94	-25.346	Anisotropic Bedrock (Tm) Peak	200	16	1094.04	577.303	1315.81	0	1315.81	1834.04	1834.04
34	1.78365	3164.11	-23.8456	Anisotropic Bedrock (Tm) Peak	200	16	1082.9	571.424	1295.31	0	1295.31	1773.95	1773.95
35	1.78365	3050.77	-23.8456	Anisotropic Bedrock (Tm) Peak	200	16	1055.06	556.732	1244.07	0	1244.07	1710.41	1710.41
36	2.54379	4106.49	-17.8237	Anisotropic Bedrock (Tm) Peak	200	16	1069.41	564.306	1270.49	0	1270.49	1614.32	1614.32
37	2.54379	3822.42	-17.8237	Anisotropic Bedrock (Tm) Peak	200	16	1017.75	537.047	1175.42	0	1175.42	1502.65	1502.65
38	1.75084	2483.03	-13.4793	Anisotropic Bedrock (Tm) Peak	200	16	1017.19	536.749	1174.38	0	1174.38	1418.2	1418.2
39	1.75084	2344.19	-13.4793	Anisotropic Bedrock (Tm) Peak	200	16	979.059	516.63	1104.22	0	1104.22	1338.9	1338.9
40	1.75084	2205.35	-13.4793	Anisotropic Bedrock (Tm) Peak	200	16	940.934	496.512	1034.06	0	1034.06	1259.6	1259.6
41	1.7513	2059.59	-11.3391	Anisotropic Bedrock (Tm) Peak	200	16	918.045	484.434	991.939	0	991.939	1176.03	1176.03
42	1.7513	1905.77	-11.3391	Anisotropic Bedrock (Tm) Peak	200	16	875.008	461.724	912.742	0	912.742	1088.21	1088.21
43	1.7513	1751.96	-11.3391	Anisotropic Bedrock (Tm) Peak	200	16	831.97	439.014	833.544	0	833.544	1000.38	1000.38
44	2.62694	2338.66	-11.3391	Anisotropic Bedrock (Tm) Peak	200	16	778.013	410.542	734.249	0	734.249	890.264	890.264
45	2.62694	1961.78	-11.3391	Anisotropic Bedrock (Tm) Peak	200	16	707.711	373.445	604.876	0	604.876	746.793	746.793
46	2.8602	1685.76	-10.8098	Anisotropic Bedrock (Tm) Peak	200	16	633.558	334.316	468.416	0	468.416	589.387	589.387
47	2.8602	1211.76	-10.8098	Anisotropic Bedrock (Tm) Peak	200	16	551.968	291.262	318.27	0	318.27	423.662	423.662
48	1.90827	541.945	-10.1001	Anisotropic Bedrock (Tm) Peak	200	16	486.275	256.598	197.38	0	197.38	283.999	283.999
49	1.90827	325.167	-10.1001	Anisotropic Bedrock (Tm) Peak	200	16	429.992	226.898	93.8056	0	93.8056	170.4	170.4
50	1.90827	108.389	-10.1001	Anisotropic Bedrock (Tm) Peak	200	16	373.71	197.199	-9.76811	0	-9.76811	56.8005	56.8005

Interslice Data

Global Minimum Query (bishop simplified) - Safety Factor: 0.52768

Slice Number	X coordinate [ft]	Y coordinate - Bottom [ft]	Interslice Normal Force [lbs]	Interslice Shear Force [lbs]	Interslice Force Angle [deg]
1	391.744	128.094	0	0	0
2	392.713	123.875	-436.505	0	0
3	393.681	119.656	-515.919	0	0
4	394.048	118.056	-453.988	0	0
5	394.649	115.437	-2001	0	0
6	395.617	111.218	-4257.17	0	0
7	396.586	107	-6222.62	0	0
8	397.594	103.303	-7554.49	0	0
9	399.673	102.11	-6418.93	0	0
10	401.751	100.917	-5305.97	0	0
11	403.834	99.7224	-4217.47	0	0
12	405.916	98.5274	-3168.97	0	0
13	407.998	97.3325	-2160.7	0	0
14	410.08	96.1376	-1186.38	0	0
15	412.165	94.9414	-221.925	0	0
16	414.249	93.7452	734.988	0	0
17	416.329	92.5517	1682.3	0	0
18	418.409	91.3581	2630.56	0	0
19	420.489	90.18	3569.48	0	0
20	422.569	89.0019	4522.14	0	0
21	424.115	88.1553	5191.78	0	0
22	425.661	87.3087	5866.75	0	0
23	428.594	85.7473	7078.38	0	0
24	431.528	84.186	8272.85	0	0
25	433.087	83.3564	8899.75	0	0
26	434.645	82.5269	9520.77	0	0
27	437.485	81.096	10489.9	0	0
28	440.325	79.7507	11270.4	0	0
29	442.113	78.9041	11736.3	0	0
30	443.9	78.0574	12176.6	0	0
31	445.686	77.2116	12582	0	0
32	447.471	76.3658	12953	0	0
33	449.257	75.5198	13289.8	0	0
34	451.044	74.6737	13595.5	0	0
35	452.827	73.8853	13792.7	0	0
36	454.611	73.0969	13959.4	0	0
37	457.155	72.279	13715.5	0	0
38	459.698	71.4611	13425.8	0	0
39	461.449	71.0415	13006.8	0	0
40	463.2	70.6218	12576.5	0	0
41	464.951	70.2021	12134.9	0	0
42	466.702	69.8509	11596.4	0	0
43	468.454	69.4997	11051.6	0	0
44	470.205	69.1486	10500.5	0	0
45	472.832	68.6218	9662.02	0	0
46	475.459	68.095	8808.19	0	0
47	478.319	67.5489	7841.93	0	0
48	481.179	67.0028	6861.14	0	0
49	483.087	66.6628	6189.99	0	0
50	484.996	66.3229	5515.15	0	0
51	486.904	65.983	0	0	0

Discharge Sections

Entity Information

Offsite Slope (Seismic)

Shared Entities

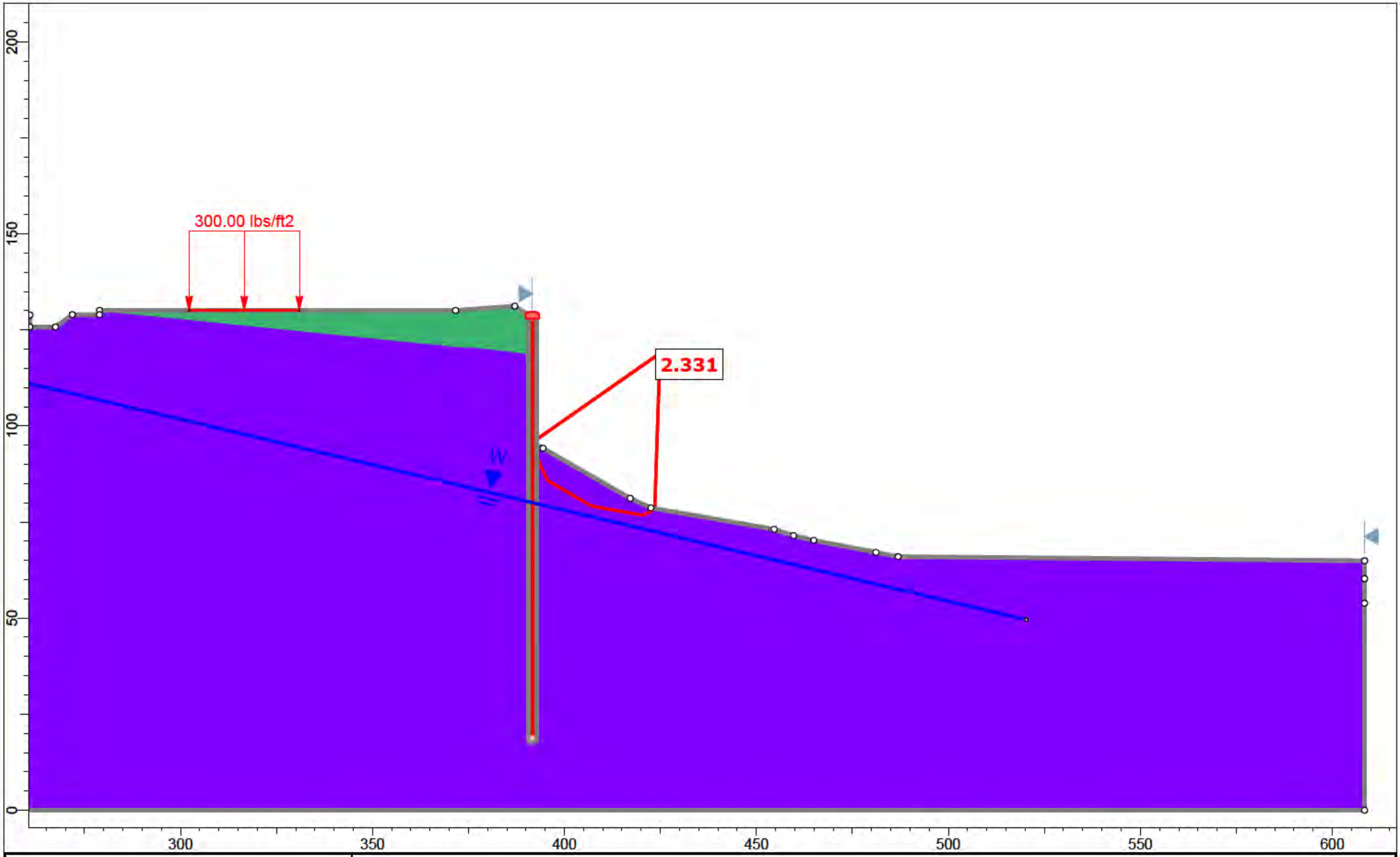
Type	Coordinates (x,y)

External Boundary	0.386, -0.037 608.423, -0.037 608.423, 53.854 608.423, 60.25 608.423, 64.917 486.904, 65.983 472.319, 75.583 457.333, 84.649 448.803, 90.87 442.281, 95.888 433.985, 101.207 426.659, 105.488 416.624, 110.473 408.964, 115.156 406.288, 117.203 402.474, 120.407 393.476, 126.997 391.679, 128.135 387.087, 131.212 371.662, 130.073 278.904, 130.073 278.904, 128.997 271.84, 128.997 267.423, 125.767 260.778, 125.767 260.778, 128.887 238.79, 128.887 238.79, 131.703 230.993, 131.919 212.872, 139.485 203.868, 143.139 194.712, 143.139 189.062, 140.22 175.096, 140.22 138.858, 142.078 111.823, 142.923 105.91, 144.524 93.371, 149.815 88.658, 151.594 78.564, 155.062 70.561, 158.308 62.068, 161.642 60.181, 161.869 57.907, 161.593 54.496, 160.921 53.083, 160.921 51.326, 161.645 47.382, 162.661 40.767, 164.59 36.375, 167.007 32.42, 169.373 29.924, 170.67 25.97, 172.42 20.427, 174.786 13.166, 179.259 10.217, 180.75 3.993, 183.376 1.367, 184.575 0.386, 185.129

Material Boundary	278.904, 130.073 374.457, 120.429 384.086, 119.333 390.302, 118.536 394.557, 117.991 402.113, 117.203 406.288, 117.203

Scenario-based Entities

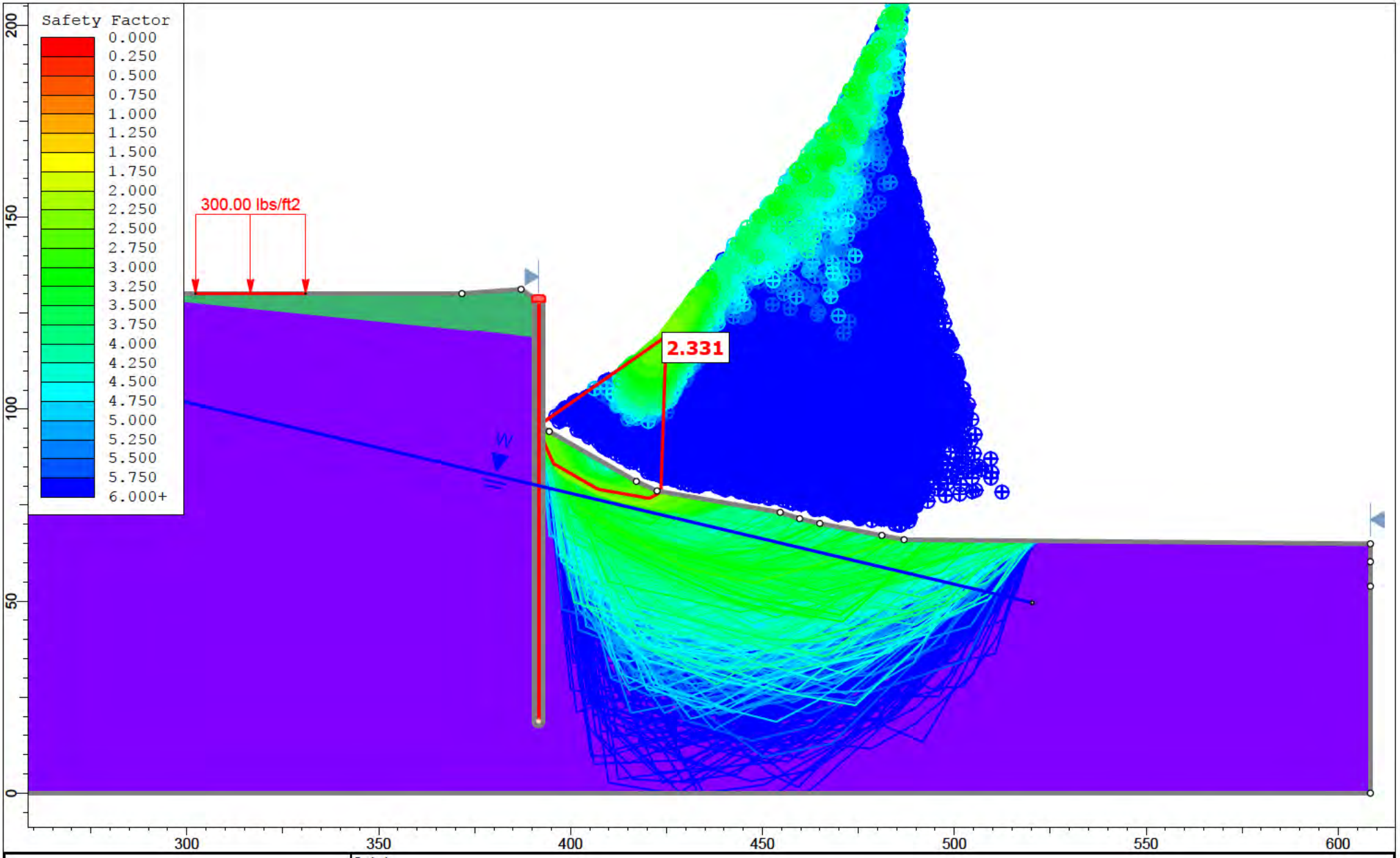
Type	Coordinates (x,y)	Master Scenario
Water Table	240.477, 115.859 520.344, 49.554	Not assigned to any materials
Distributed Load	330.957, 130.073 302.229, 130.073	Constant DistributionOrientation: Normal to boundaryMagnitude: 300 lbs/ft2Creates Excess Pore Pressure: No



rocscience

Project	Section 3-3'				
Analysis Description	Offiste Slope Removal (Static)				
Drawn By	A. Greene	Scale	1:415	Company	Feffer Geological Consulting
Date				File Name	Section 3-3' Translational Analysis_2.slmd

SLIDEINTERPRET 9.018



rocscience	Project	Section 3-3'		
	Analysis Description	Offiste Slope Removal (Static)		
	Drawn By	A. Greene	Scale 1:415	Company Feffer Geological Consulting
	Date			File Name Section 3-3' Translational Analysis_2.slmd

SLIDEINTERPRET 9.018

Slide Analysis Information

Section 3-3' Translational Analysis_2

Project Summary

File Name:	Section 3-3' Translational Analysis_2.slmd
Slide Modeler Version:	9.018
Compute Time:	00h:00m:06.465s
Project Title:	Section 3-3'
Analysis:	Offiste Slope Removal (Static)
Author:	A. Greene
Company:	Feffer Geological Consulting

General Settings

Units of Measurement:	Imperial Units
Time Units:	days
Permeability Units:	feet/second
Data Output:	Standard
Failure Direction:	Left to Right

Analysis Options

Slices Type:	Vertical
Analysis Methods Used	
	Bishop simplified
Number of slices:	50
Tolerance:	0.005
Maximum number of iterations:	75
Check malpha < 0.2:	Yes
Create Interslice boundaries at intersections with water tables and piezos:	Yes
Initial trial value of FS:	1
Steffensen Iteration:	Yes

Groundwater Analysis

Groundwater Method:	Water Surfaces
Pore Fluid Unit Weight [lbs/ft3]:	62.4
Use negative pore pressure cutoff:	Yes
Maximum negative pore pressure [psf]:	0
Advanced Groundwater Method:	None

Random Numbers

Pseudo-random Seed:	10116
Random Number Generation Method:	Park and Miller v.3

Surface Options

Search Method:	Cuckoo Search
Initial # of Surface Vertices:	8
Maximum Iterations:	500
Number of Nests:	50
Minimum Elevation:	Not Defined
Minimum Depth:	Not Defined
Minimum Area:	Not Defined
Minimum Weight:	Not Defined
Convex Surfaces Only:	Enabled

Seismic Loading

Advanced seismic analysis:	No
Staged pseudostatic analysis:	No

Loading

1 Distributed Load present

Distributed Load 1	
Distribution:	Constant
Magnitude [psf]:	300
Orientation:	Normal to boundary

Materials

Terrace (Qoa)	
Color	
Strength Type	Mohr-Coulomb
Unit Weight [lbs/ft3]	115
Cohesion [psf]	100
Friction Angle [deg]	31
Water Surface	None
Ru Value	0
Anisotropic Bedrock (Tm) Ultimate	
Color	
Strength Type	Anisotropic function
Unit Weight [lbs/ft3]	124
Water Surface	Water Table
Hu Value	1

Anisotropic Functions

Name: Anisotropic Bedrock (Tm) Ultimate

Angle From	Angle To	c	phi
-90	-30	520	34.5
-30	-10	200	16
-10	90	520	34.5

Support

Pile 1 (Static)	
Color	
Type	Pile/Micro Pile
Force Application	Active (Method A)
Force Orientation	Parallel to surface
Out-Of-Plane Spacing	10 ft
Failure Mode	Shear
Pile Shear Strength	345000 lbs

Global Minimums

Method: bishop simplified

FS	2.330700
Axis Location:	424.890, 118.938
Left Slip Surface Endpoint:	391.732, 95.767
Right Slip Surface Endpoint:	423.532, 78.509
Resisting Moment:	778357 lb-ft
Driving Moment:	333959 lb-ft
Total Slice Area:	179.612 ft2
Surface Horizontal Width:	31.8005 ft
Surface Average Height:	5.64809 ft

Global Minimum Coordinates

Method: bishop simplified

X	Y
391.732	95.7669
392.212	93.9137
392.693	92.4338
393.172	91.1898
393.651	90.0359
394.321	88.4822
394.989	87.0281
395.658	85.7336
396.606	85.1866
397.553	84.6395
398.776	83.9334
400.38	83.0078
401.982	82.0826
403.585	81.1577
404.557	80.597
405.529	80.0368
407.199	79.1083
408.541	78.8713
409.882	78.6343
411.574	78.3355
412.829	78.1138
413.665	77.9661
414.492	77.8201
415.319	77.674
417.069	77.3651
418.715	77.0748
420.506	76.7588
421.591	77.3434
422.575	77.9157
423.532	78.5086

Global Minimum Support Data

Method: bishop simplified

Number of Supports: 1

Pile 1 (Static)

Support Type: Pile/Micro Pile

Start (x, y)	Length (ft)	L Inside SS (ft)	L Outside SS (ft)	Li (ft)	Lo (ft)	Force (lb)
391.679, 128.135	109.404	Not Effective	Not Effective	Not Effective	Not Effective	0

Valid and Invalid Surfaces

Method: bishop simplified

Number of Valid Surfaces:	16243
Number of Invalid Surfaces:	8826

Error Codes

Error Code -106 reported for 30 surfaces
Error Code -108 reported for 44 surfaces
Error Code -110 reported for 541 surfaces
Error Code -111 reported for 307 surfaces
Error Code -112 reported for 347 surfaces
Error Code -121 reported for 78 surfaces
Error Code -145 reported for 28 surfaces
Error Code -1000 reported for 7451 surfaces

Error Code Descriptions

The following errors were encountered during the computation:

-106 = Average slice width is less than 0.0001 * (maximum horizontal extent of soil region). This limitation is imposed to avoid numerical errors which may result from too many slices, or too small a slip region.

-108 = Total driving moment or total driving force < 0.1. This is to limit the calculation of extremely high safety factors if the driving force is very small (0.1 is an arbitrary number).

-110 = The water table or a piezoline does not span the slip region for a given slip surface, when Water Surfaces is specified as the method of pore pressure calculation. If this error occurs, check that the water table or piezoline(s) span the appropriate soil cells.

-111 = Safety factor equation did not converge

-112 = The coefficient M-Alpha = cos(alpha)(1+tan(alpha)tan(phi)/F) < 0.2 for the final iteration of the safety factor calculation. This screens out some slip surfaces which may not be valid in the context of the analysis, in particular, deep seated slip surfaces with many high negative base angle slices in the passive zone.

-121 = Concave failure surface, only convex surfaces have been defined as being allowed.

-145 = Slip surface was clipped vertically by a weak layer in a region of compression. Such a surface cannot be evaluated using Limit Equilibrium. For more information, see Help Documentation on weak layers.

-1000 = No valid slip surface is generated

Slice Data

Global Minimum Query (bishop simplified) - Safety Factor: 2.3307

Slice Number	Width [ft]	Weight [lbs]	Angle of Slice Base [deg]	Base Material	Base Cohesion [psf]	Base Friction Angle [deg]	Shear Stress [psf]	Shear Strength [psf]	Base Normal Stress [psf]	Pore Pressure [psf]	Effective Normal Stress [psf]	Base Vertical Stress [psf]	Effective Vertical Stress [psf]
1	0.480805	46.788	-75.4557	Anisotropic Bedrock (Tm) Ultimate	520	34.5	117.853	274.68	-356.943	0	-356.943	97.3128	97.3128
2	0.480733	129.216	-72.0038	Anisotropic Bedrock (Tm) Ultimate	520	34.5	158.495	369.405	-219.117	0	-219.117	268.791	268.791
3	0.479099	192.866	-68.937	Anisotropic Bedrock (Tm) Ultimate	520	34.5	193.59	451.199	-100.105	0	-100.105	402.561	402.561

4	0.479105	247.303	-67.4512	Anisotropic Bedrock (Tm) Ultimate	520	34.5	219.461	511.497	-12.372	0	-12.372	516.178	516.178
5	0.669544	429.868	-66.6877	Anisotropic Bedrock (Tm) Ultimate	520	34.5	244.869	570.715	73.7908	0	73.7908	642.032	642.032
6	0.668166	521.201	-65.3217	Anisotropic Bedrock (Tm) Ultimate	520	34.5	276.003	643.281	179.375	0	179.375	780.049	780.049
7	0.668786	603.838	-62.6768	Anisotropic Bedrock (Tm) Ultimate	520	34.5	311.54	726.107	299.888	0	299.888	902.888	902.888
8	0.947604	909.286	-29.9966	Anisotropic Bedrock (Tm) Ultimate	200	16	190.347	443.642	849.682	0	849.682	959.564	959.564
9	0.473802	454.792	-29.9965	Anisotropic Bedrock (Tm) Ultimate	200	16	190.383	443.726	849.975	0	849.975	959.878	959.878
10	0.473802	454.891	-29.9965	Anisotropic Bedrock (Tm) Ultimate	200	16	190.407	443.782	850.169	0	850.169	960.085	960.085
11	0.611595	587.33	-29.9965	Anisotropic Bedrock (Tm) Ultimate	200	16	190.435	443.846	850.394	0	850.394	960.326	960.326
12	0.611595	587.495	-29.9965	Anisotropic Bedrock (Tm) Ultimate	200	16	190.466	443.919	850.646	0	850.646	960.596	960.596
13	0.534514	513.586	-29.9963	Anisotropic Bedrock (Tm) Ultimate	200	16	190.495	443.987	850.883	0	850.883	960.849	960.849
14	0.534514	513.712	-29.9963	Anisotropic Bedrock (Tm) Ultimate	200	16	190.522	444.05	851.102	0	851.102	961.083	961.083
15	0.534514	513.838	-29.9963	Anisotropic Bedrock (Tm) Ultimate	200	16	190.549	444.113	851.322	0	851.322	961.319	961.319
16	0.801318	770.558	-29.9963	Anisotropic Bedrock (Tm) Ultimate	200	16	190.583	444.191	851.597	0	851.597	961.613	961.613
17	0.801318	770.84	-29.9963	Anisotropic Bedrock (Tm) Ultimate	200	16	190.623	444.286	851.927	0	851.927	961.967	961.967
18	0.801318	771.117	-29.9891	Anisotropic Bedrock (Tm) Ultimate	200	16	190.667	444.387	852.278	0	852.278	962.311	962.311
19	0.801318	771.386	-29.9891	Anisotropic Bedrock (Tm) Ultimate	200	16	190.705	444.477	852.591	0	852.591	962.647	962.647
20	0.971868	935.918	-29.982	Anisotropic Bedrock (Tm) Ultimate	200	16	190.75	444.582	852.96	0	852.96	963.01	963.01
21	0.485934	468.093	-29.9606	Anisotropic Bedrock (Tm) Ultimate	200	16	190.793	444.682	853.306	0	853.306	963.286	963.286
22	0.485934	468.173	-29.9606	Anisotropic Bedrock (Tm) Ultimate	200	16	190.812	444.725	853.459	0	853.459	963.45	963.45

23	0.835151	803.924	-29.0695	Anisotropic Bedrock (Tm) Ultimate	200	16	191.167	445.552	856.341	0	856.341	962.609	962.609
24	0.835151	802.383	-29.0695	Anisotropic Bedrock (Tm) Ultimate	200	16	190.954	445.057	854.614	0	854.614	960.765	960.765
25	0.670806	632.79	-10.0178	Anisotropic Bedrock (Tm) Ultimate	200	16	197.575	460.487	908.426	0	908.426	943.327	943.327
26	0.670806	610.634	-10.0178	Anisotropic Bedrock (Tm) Ultimate	200	16	193.598	451.218	876.102	0	876.102	910.3	910.3
27	0.670752	588.433	-10.0178	Anisotropic Bedrock (Tm) Ultimate	200	16	189.621	441.949	843.778	0	843.778	877.274	877.274
28	0.670752	566.281	-10.0178	Anisotropic Bedrock (Tm) Ultimate	200	16	185.644	432.681	811.455	0	811.455	844.249	844.249
29	0.563995	459.008	-10.0178	Anisotropic Bedrock (Tm) Ultimate	200	16	181.984	424.15	781.705	0	781.705	813.851	813.851
30	0.563995	443.346	-10.0178	Anisotropic Bedrock (Tm) Ultimate	200	16	178.64	416.357	754.526	0	754.526	786.082	786.082
31	0.563995	427.685	-10.0178	Anisotropic Bedrock (Tm) Ultimate	200	16	175.297	408.564	727.349	0	727.349	758.314	758.314
32	0.62735	457.329	-10.0178	Anisotropic Bedrock (Tm) Ultimate	200	16	171.765	400.333	698.643	0	698.643	728.984	728.984
33	0.62735	437.951	-10.0178	Anisotropic Bedrock (Tm) Ultimate	200	16	168.046	391.664	668.412	0	668.412	698.096	698.096
34	0.836209	553.626	-10.0178	Anisotropic Bedrock (Tm) Ultimate	200	16	163.707	381.552	633.148	0	633.148	662.066	662.066
35	0.82671	513.494	-10.0178	Anisotropic Bedrock (Tm) Ultimate	200	16	158.778	370.063	593.082	0	593.082	621.13	621.13
36	0.826723	479.85	-10.0178	Anisotropic Bedrock (Tm) Ultimate	200	16	153.877	358.64	553.243	0	553.243	580.425	580.425
37	0.875415	471.421	-10.0075	Anisotropic Bedrock (Tm) Ultimate	200	16	148.833	346.885	512.248	0	512.248	538.512	538.512
38	0.875415	433.671	-10.0075	Anisotropic Bedrock (Tm) Ultimate	200	16	143.641	334.783	470.043	0	470.043	495.39	495.39
39	0.548458	254.158	-10.0067	Anisotropic Bedrock (Tm) Ultimate	200	16	139.789	325.807	438.741	0	438.741	463.406	463.406
40	0.548458	243.642	-10.0067	Anisotropic Bedrock (Tm) Ultimate	200	16	137.48	320.425	419.972	0	419.972	444.23	444.23
41	0.548458	233.154	-10.0067	Anisotropic Bedrock (Tm) Ultimate	200	16	135.177	315.058	401.257	0	401.257	425.109	425.109

42	0.596905	241.831	-10.0056	Anisotropic Bedrock (Tm) Ultimate	200	16	132.773	309.455	381.716	0	381.716	405.14	405.14
43	0.596905	229.407	-10.0056	Anisotropic Bedrock (Tm) Ultimate	200	16	130.267	303.614	361.345	0	361.345	384.328	384.328
44	0.596905	216.984	-10.0056	Anisotropic Bedrock (Tm) Ultimate	200	16	127.761	297.773	340.975	0	340.975	363.515	363.515
45	0.542765	173.46	28.3047	Anisotropic Bedrock (Tm) Ultimate	520	34.5	377.261	879.283	522.759	0	522.759	319.585	319.585
46	0.542765	137.07	28.3047	Anisotropic Bedrock (Tm) Ultimate	520	34.5	353.759	824.505	443.057	0	443.057	252.541	252.541
47	0.492027	92.1655	30.1793	Anisotropic Bedrock (Tm) Ultimate	520	34.5	335.956	783.013	382.687	0	382.687	187.318	187.318
48	0.492027	61.0262	30.1793	Anisotropic Bedrock (Tm) Ultimate	520	34.5	313.431	730.514	306.299	0	306.299	124.029	124.029
49	0.478533	33.8039	31.7791	Anisotropic Bedrock (Tm) Ultimate	520	34.5	298.465	695.632	255.546	0	255.546	70.6406	70.6406
50	0.478533	11.268	31.7791	Anisotropic Bedrock (Tm) Ultimate	520	34.5	281.473	656.03	197.926	0	197.926	23.5466	23.5466

Interslice Data

Global Minimum Query (bishop simplified) - Safety Factor: 2.3307

Slice Number	X coordinate [ft]	Y coordinate - Bottom [ft]	Interslice Normal Force [lbs]	Interslice Shear Force [lbs]	Interslice Force Angle [deg]
1	391.732	95.7669	0	0	0
2	392.212	93.9137	-718.16	0	0
3	392.693	92.4338	-1118.62	0	0
4	393.172	91.1898	-1335.9	0	0
5	393.651	90.0359	-1455.32	0	0
6	394.321	88.4822	-1504.62	0	0
7	394.989	87.0281	-1428.19	0	0
8	395.658	85.7336	-1248.35	0	0
9	396.606	85.1866	-963.931	0	0
10	397.079	84.913	-821.657	0	0
11	397.553	84.6395	-679.341	0	0
12	398.165	84.2865	-495.574	0	0
13	398.776	83.9334	-311.736	0	0
14	399.311	83.6249	-151.014	0	0
15	399.845	83.3163	9.76156	0	0
16	400.38	83.0078	170.591	0	0
17	401.181	82.5452	411.798	0	0
18	401.982	82.0826	653.126	0	0
19	402.784	81.6202	894.467	0	0
20	403.585	81.1577	1135.92	0	0
21	404.557	80.597	1428.79	0	0
22	405.043	80.3169	1575.1	0	0
23	405.529	80.0368	1721.44	0	0
24	406.364	79.5726	1959.35	0	0
25	407.199	79.1083	2196.64	0	0
26	407.87	78.9898	2171.75	0	0
27	408.541	78.8713	2145.69	0	0
28	409.212	78.7528	2118.48	0	0
29	409.882	78.6343	2090.11	0	0
30	410.446	78.5347	2065.35	0	0
31	411.01	78.4351	2039.77	0	0
32	411.574	78.3355	2013.37	0	0
33	412.202	78.2246	1983.03	0	0
34	412.829	78.1138	1951.68	0	0
35	413.665	77.9661	1908.31	0	0
36	414.492	77.8201	1863.66	0	0
37	415.319	77.674	1817.24	0	0
38	416.194	77.5196	1766.08	0	0
39	417.069	77.3651	1712.95	0	0
40	417.618	77.2683	1678.74	0	0
41	418.166	77.1715	1643.98	0	0
42	418.715	77.0748	1608.67	0	0
43	419.312	76.9694	1569.62	0	0
44	419.909	76.8641	1529.92	0	0
45	420.506	76.7588	1489.56	0	0
46	421.048	77.0511	1131.99	0	0
47	421.591	77.3434	810.477	0	0
48	422.083	77.6296	535.68	0	0
49	422.575	77.9157	293.823	0	0
50	423.054	78.2122	75.2384	0	0
51	423.532	78.5086	0	0	0

Discharge Sections

Entity Information

Offiste Slope Removal (Static)

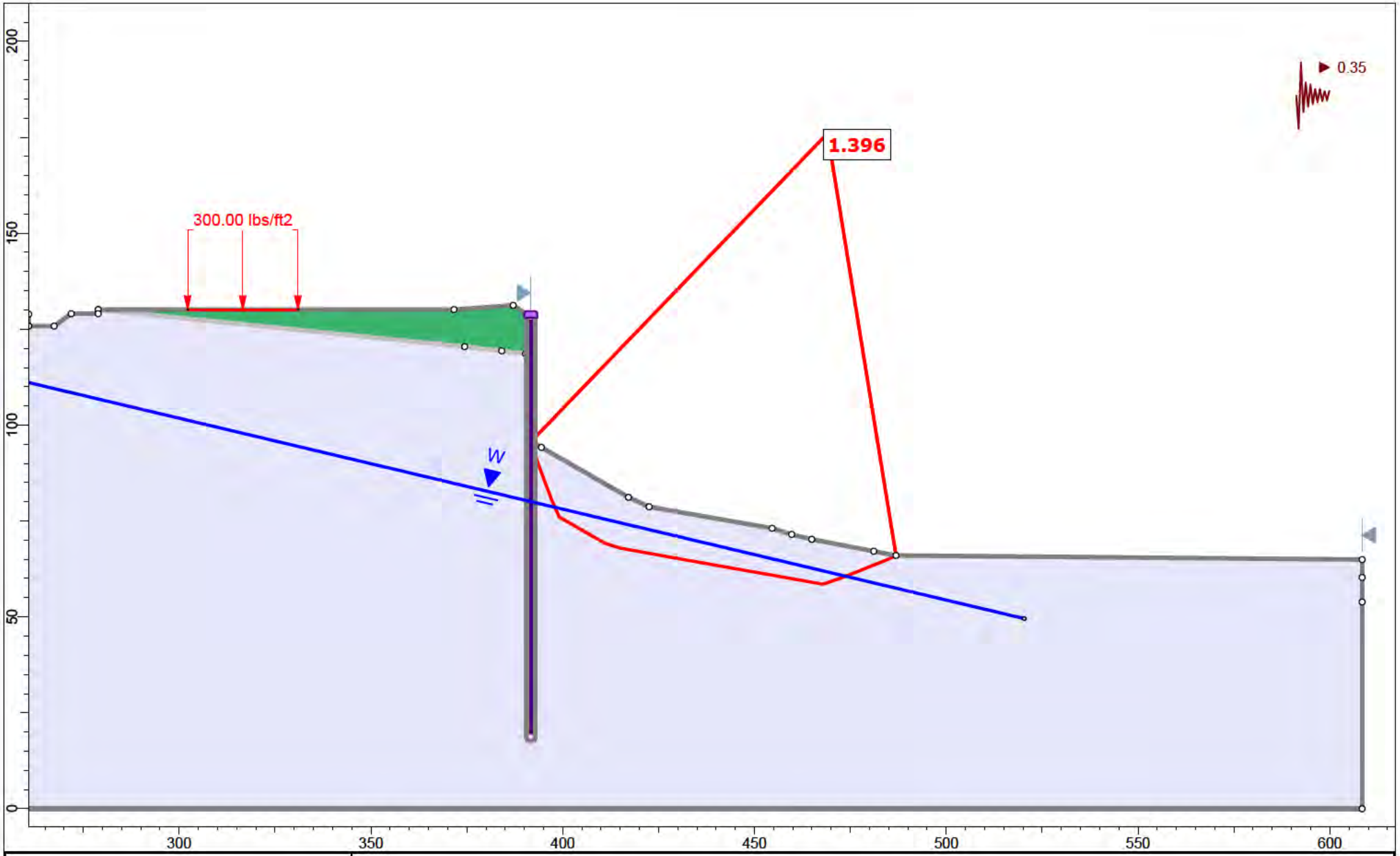
Shared Entities

Type	Coordinates (x,y)
External Boundary	0.386, -0.037 608.423, -0.037 608.423, 53.854 608.423, 60.25 608.423, 64.917 486.904, 65.983 481.115, 67.0957 464.951, 70.2021 459.698, 71.4611 454.611, 73.0969 422.519, 78.685 417.133, 81.1498 394.436, 94.1711 391.679, 95.798 391.679, 106.519 391.679, 118.36 391.679, 128.135 387.087, 131.212 371.662, 130.073 278.904, 130.073 278.904, 128.997 271.84, 128.997 267.423, 125.767 260.778, 125.767 260.778, 128.887 238.79, 128.887 238.79, 131.703 230.993, 131.919 212.872, 139.485 203.868, 143.139 194.712, 143.139 189.062, 140.22 175.096, 140.22 138.858, 142.078 111.823, 142.923 105.91, 144.524 93.371, 149.815 88.658, 151.594 78.564, 155.062 70.561, 158.308 62.068, 161.642 60.181, 161.869 57.907, 161.593 54.496, 160.921 53.083, 160.921 51.326, 161.645 47.382, 162.661 40.767, 164.59 36.375, 167.007 32.42, 169.373 29.924, 170.67 25.97, 172.42 20.427, 174.786 13.166, 179.259 10.217, 180.75 3.993, 183.376 1.367, 184.575 0.386, 185.129

Material Boundary	278.904, 130.073 374.457, 120.429 384.086, 119.333 390.302, 118.536 391.679, 118.36

Scenario-based Entities

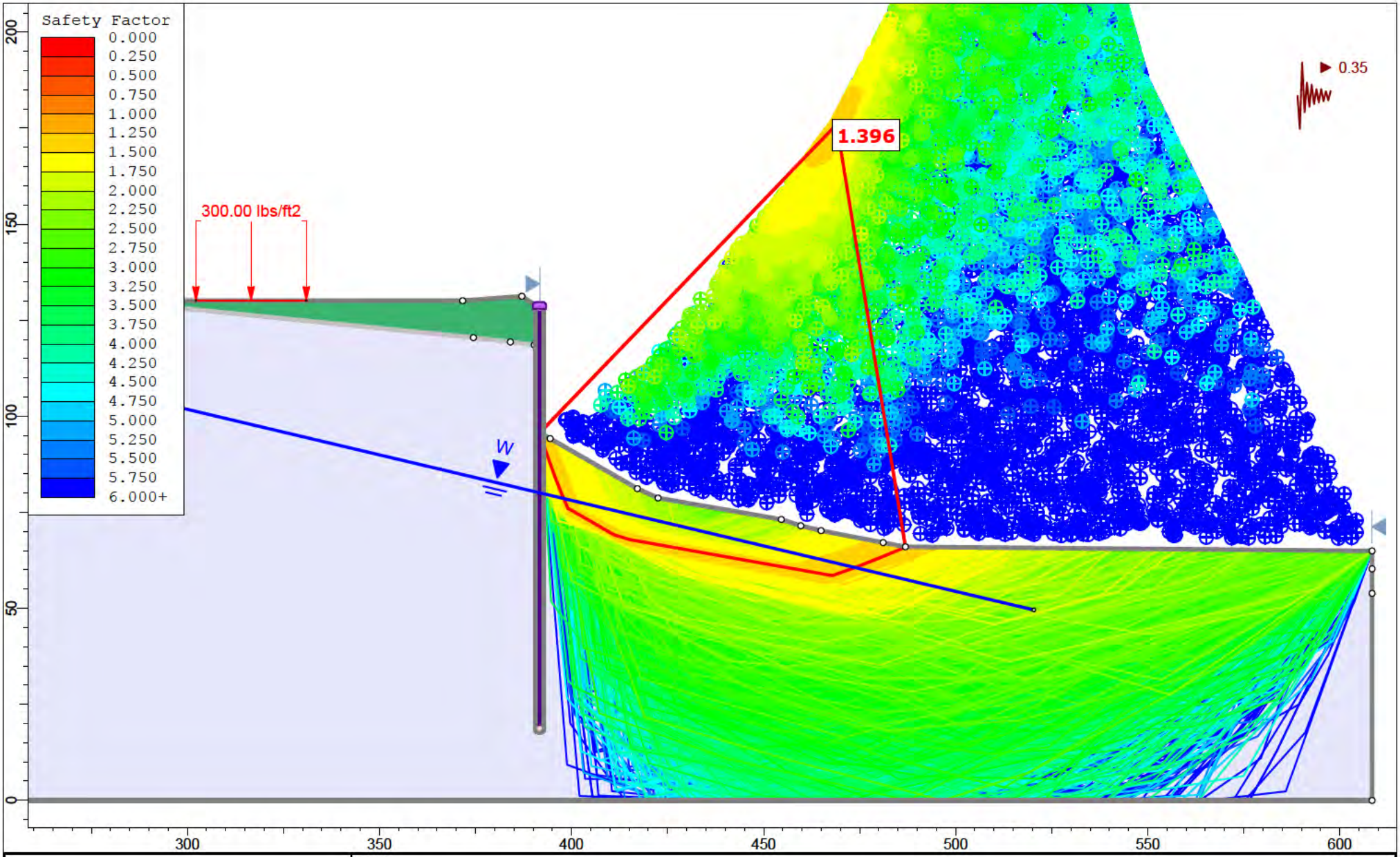
Type	Coordinates (x,y)	Master Scenario
Water Table	240.477, 115.859 520.344, 49.554	Assigned to:  Anisotropic Bedrock (Tm) Ultimate
Distributed Load	330.957, 130.073 302.229, 130.073	Constant DistributionOrientation: Normal to boundaryMagnitude: 300 lbs/ft2Creates Excess Pore Pressure: No



rocscience

SLIDEINTERPRET 9.018

Project	Section 3-3'		
Analysis Description	Offiste Slope Removal (Seismic)		
Drawn By	A. Greene	Scale 1:415	Company Feffer Geological Consulting
Date			File Name Section 3-3' Translational Analysis_2.slmd



rocscience

SLIDEINTERPRET 9.018

Project	Section 3-3'				
Analysis Description	Offiste Slope Removal (Seismic)				
Drawn By	A. Greene	Scale	1:415	Company	Feffer Geological Consulting
Date				File Name	Section 3-3' Translational Analysis_2.slmd

Slide Analysis Information

Section 3-3' Translational Analysis_2

Project Summary

File Name:	Section 3-3' Translational Analysis_2.slmd
Slide Modeler Version:	9.018
Compute Time:	00h:00m:03.96s
Project Title:	Section 3-3'
Analysis:	Offiste Slope Removal (Seismic)
Author:	A. Greene
Company:	Feffer Geological Consulting

General Settings

Units of Measurement:	Imperial Units
Time Units:	days
Permeability Units:	feet/second
Data Output:	Standard
Failure Direction:	Left to Right

Analysis Options

Slices Type:	Vertical
Analysis Methods Used	
	Bishop simplified
Number of slices:	50
Tolerance:	0.005
Maximum number of iterations:	75
Check malpha < 0.2:	Yes
Create Interslice boundaries at intersections with water tables and piezos:	Yes
Initial trial value of FS:	1
Steffensen Iteration:	Yes

Groundwater Analysis

Groundwater Method:	Water Surfaces
Pore Fluid Unit Weight [lbs/ft3]:	62.4
Use negative pore pressure cutoff:	Yes
Maximum negative pore pressure [psf]:	0
Advanced Groundwater Method:	None

Random Numbers

Pseudo-random Seed:	10116
Random Number Generation Method:	Park and Miller v.3

Surface Options

Search Method:	Cuckoo Search
Initial # of Surface Vertices:	8
Maximum Iterations:	500
Number of Nests:	50
Minimum Elevation:	Not Defined
Minimum Depth:	Not Defined
Minimum Area:	Not Defined
Minimum Weight:	Not Defined
Convex Surfaces Only:	Enabled

Seismic Loading

Advanced seismic analysis:	No
Staged pseudostatic analysis:	No
Seismic Load Coefficient (Horizontal):	0.35

Loading

1 Distributed Load present

Distributed Load 1	
Distribution:	Constant
Magnitude [psf]:	300
Orientation:	Normal to boundary

Materials

Terrace (Qoa)	
Color	
Strength Type	Mohr-Coulomb
Unit Weight [lbs/ft3]	115
Cohesion [psf]	100
Friction Angle [deg]	31
Water Surface	None
Ru Value	0
Anisotropic Bedrock (Tm) Peak	
Color	
Strength Type	Anisotropic function
Unit Weight [lbs/ft3]	124
Water Surface	None
Ru Value	0

Anisotropic Functions

Name: Anisotropic Bedrock (Tm) Peak

Angle From	Angle To	c	phi
-90	-30	720	41
-30	-10	200	16
-10	90	720	41

Support

Pile 1 (Seismic)	
Color	
Type	Pile/Micro Pile
Force Application	Active (Method A)
Force Orientation	Parallel to surface
Out-Of-Plane Spacing	10 ft
Failure Mode	Shear
Pile Shear Strength	88500 lbs

Global Minimums

Method: bishop simplified

FS	1.395710
Axis Location:	469.038, 175.990
Left Slip Surface Endpoint:	391.752, 95.693
Right Slip Surface Endpoint:	486.904, 65.983
Resisting Moment:	1.04852e+07 lb-ft
Driving Moment:	7.51244e+06 lb-ft
Total Slice Area:	1058.74 ft2
Surface Horizontal Width:	95.1522 ft
Surface Average Height:	11.1268 ft

Global Minimum Coordinates

Method: bishop simplified

X	Y
391.752	95.6928
392.668	92.7259
393.584	90.0568
395.416	84.9491
397.249	80.22
399.081	76.0291
403.059	73.7362
407.046	71.4388
411.064	69.1236
415.081	67.8981
418.462	67.2861
421.892	66.6688
425.33	66.0501
428.768	65.4314
433.662	64.5507
438.555	63.6806
443.45	62.814
448.344	61.9509
453.239	61.0878
457.951	60.2569
462.821	59.3983
467.849	58.5117
471.374	59.7233
474.626	60.8843
477.878	62.1954
481.236	63.549
484.478	64.856
486.904	65.983

Global Minimum Support Data

Method: bishop simplified

Number of Supports: 1

Pile 1 (Seismic)

Support Type: Pile/Micro Pile

Start (x, y)	Length (ft)	L Inside SS (ft)	L Outside SS (ft)	Li (ft)	Lo (ft)	Force (lb)
391.679, 128.135	109.404	Not Effective	Not Effective	Not Effective	Not Effective	0

Valid and Invalid Surfaces

Method: bishop simplified

Number of Valid Surfaces:	16909
Number of Invalid Surfaces:	8150

Error Codes

Error Code -106 reported for 17 surfaces
Error Code -108 reported for 20 surfaces
Error Code -111 reported for 283 surfaces
Error Code -112 reported for 236 surfaces
Error Code -121 reported for 64 surfaces
Error Code -124 reported for 1 surface
Error Code -145 reported for 15 surfaces
Error Code -1000 reported for 7514 surfaces

Error Code Descriptions

The following errors were encountered during the computation:
-106 = Average slice width is less than 0.0001 * (maximum horizontal extent of soil region). This limitation is imposed to avoid numerical errors which may result from too many slices, or too small a slip region.
-108 = Total driving moment or total driving force < 0.1. This is to limit the calculation of extremely high safety factors if the driving force is very small (0.1 is an arbitrary number).
-111 = Safety factor equation did not converge
-112 = The coefficient M-Alpha = cos(alpha)(1+tan(alpha)tan(phi)/F) < 0.2 for the final iteration of the safety factor calculation. This screens out some slip surfaces which may not be valid in the context of the analysis, in particular, deep seated slip surfaces with many high negative base angle slices in the passive zone.
-121 = Concave failure surface, only convex surfaces have been defined as being allowed.
-124 = A slice has a width less than the minimum acceptable value.
-145 = Slip surface was clipped vertically by a weak layer in a region of compression. Such a surface cannot be evaluated using Limit Equilibrium. For more information, see Help Documentation on weak layers.
-1000 = No valid slip surface is generated

Slice Data

Global Minimum Query (bishop simplified) - Safety Factor: 1.39571

Slice Number	Width [ft]	Weight [lbs]	Angle of Slice Base [deg]	Base Material	Base Cohesion [psf]	Base Friction Angle [deg]	Shear Stress [psf]	Shear Strength [psf]	Base Normal Stress [psf]	Pore Pressure [psf]	Effective Normal Stress [psf]	Base Vertical Stress [psf]	Effective Vertical Stress [psf]
1	0.916136	139.023	-72.8398	Anisotropic Bedrock (Tm) Peak	720	41	202.315	282.373	-503.431	0	-503.431	151.752	151.752
2	0.916137	400.158	-71.0558	Anisotropic Bedrock (Tm) Peak	720	41	279.941	390.717	-378.796	0	-378.796	436.79	436.79
3	1.83229	1506.41	-70.2657	Anisotropic Bedrock (Tm) Peak	720	41	375.672	524.329	-225.093	0	-225.093	822.143	822.143
4	1.83228	2385.35	-68.8211	Anisotropic Bedrock (Tm) Peak	720	41	508.799	710.136	-11.3478	0	-11.3478	1301.85	1301.85
5	0.732895	1178.3	-66.3853	Anisotropic Bedrock (Tm) Peak	720	41	625.757	873.375	176.438	0	176.438	1607.74	1607.74
6	1.09937	1981.51	-66.3853	Anisotropic Bedrock (Tm) Peak	720	41	675.762	943.168	256.726	0	256.726	1802.41	1802.41

7	1.98929	3818.49	-29.955	Anisotropic Bedrock (Tm) Peak	200	16	480.739	670.972	1642.47	0	1642.47	1919.52	1919.52
8	1.98929	3819.76	-29.955	Anisotropic Bedrock (Tm) Peak	200	16	480.856	671.136	1643.05	0	1643.05	1920.17	1920.17
9	1.99321	3828.57	-29.9545	Anisotropic Bedrock (Tm) Peak	200	16	480.975	671.301	1643.62	0	1643.62	1920.8	1920.8
10	1.99321	3829.84	-29.9545	Anisotropic Bedrock (Tm) Peak	200	16	481.092	671.465	1644.19	0	1644.19	1921.44	1921.44
11	2.00888	3861.22	-29.9533	Anisotropic Bedrock (Tm) Peak	200	16	481.211	671.631	1644.77	0	1644.77	1922.08	1922.08
12	2.00888	3862.5	-29.9533	Anisotropic Bedrock (Tm) Peak	200	16	481.328	671.795	1645.34	0	1645.34	1922.72	1922.72
13	2.00886	3795.88	-16.9623	Anisotropic Bedrock (Tm) Peak	200	16	500.161	698.08	1737.01	0	1737.01	1889.57	1889.57
14	2.00886	3661.42	-16.9623	Anisotropic Bedrock (Tm) Peak	200	16	487.221	680.019	1674.03	0	1674.03	1822.64	1822.64
15	1.6905	2955.01	-10.2598	Anisotropic Bedrock (Tm) Peak	200	16	484.407	676.091	1660.33	0	1660.33	1748.01	1748.01
16	1.6905	2828.56	-10.2598	Anisotropic Bedrock (Tm) Peak	200	16	469.591	655.413	1588.21	0	1588.21	1673.21	1673.21
17	1.71501	2768.27	-10.2025	Anisotropic Bedrock (Tm) Peak	200	16	457.984	639.213	1531.72	0	1531.72	1614.14	1614.14
18	1.71501	2667.01	-10.2025	Anisotropic Bedrock (Tm) Peak	200	16	446.286	622.886	1474.78	0	1474.78	1555.1	1555.1
19	1.71887	2592.38	-10.2025	Anisotropic Bedrock (Tm) Peak	200	16	436.991	609.913	1429.54	0	1429.54	1508.18	1508.18
20	1.71887	2587.61	-10.2025	Anisotropic Bedrock (Tm) Peak	200	16	436.442	609.147	1426.86	0	1426.86	1505.41	1505.41
21	1.71887	2589.76	-10.2025	Anisotropic Bedrock (Tm) Peak	200	16	436.689	609.491	1428.07	0	1428.07	1506.66	1506.66
22	1.71887	2591.9	-10.2025	Anisotropic Bedrock (Tm) Peak	200	16	436.936	609.836	1429.27	0	1429.27	1507.9	1507.9
23	2.44685	3693.31	-10.2025	Anisotropic Bedrock (Tm) Peak	200	16	437.235	610.253	1430.72	0	1430.72	1509.42	1509.42
24	2.44685	3697.65	-10.2025	Anisotropic Bedrock (Tm) Peak	200	16	437.587	610.744	1432.43	0	1432.43	1511.19	1511.19
25	2.44685	3701.17	-10.0809	Anisotropic Bedrock (Tm) Peak	200	16	438.062	611.408	1434.75	0	1434.75	1512.63	1512.63
26	2.44685	3703.89	-10.0809	Anisotropic Bedrock (Tm) Peak	200	16	438.282	611.714	1435.82	0	1435.82	1513.74	1513.74
27	2.44719	3706.86	-10.0417	Anisotropic Bedrock (Tm) Peak	200	16	438.542	612.077	1437.08	0	1437.08	1514.74	1514.74
28	2.44719	3709.05	-10.0417	Anisotropic Bedrock (Tm) Peak	200	16	438.719	612.325	1437.95	0	1437.95	1515.64	1515.64
29	2.44719	3710.96	-10	Anisotropic Bedrock (Tm) Peak	200	16	438.939	612.632	1439.02	0	1439.02	1516.42	1516.42
30	2.44719	3712.59	-10	Anisotropic Bedrock (Tm) Peak	200	16	439.071	612.816	1439.66	0	1439.66	1517.08	1517.08
31	2.44754	3714.75	-10	Anisotropic Bedrock (Tm) Peak	200	16	439.204	613.001	1440.31	0	1440.31	1517.75	1517.75

32	2.44754	3716.38	-10	Anisotropic Bedrock (Tm) Peak	200	16	439.336	613.185	1440.95	0	1440.95	1518.42	1518.42
33	2.35616	3570.32	-10	Anisotropic Bedrock (Tm) Peak	200	16	438.721	612.327	1437.95	0	1437.95	1515.31	1515.31
34	2.35616	3487.57	-10	Anisotropic Bedrock (Tm) Peak	200	16	431.757	602.608	1404.06	0	1404.06	1480.19	1480.19
35	2.4347	3501.21	-10	Anisotropic Bedrock (Tm) Peak	200	16	423.402	590.946	1363.39	0	1363.39	1438.05	1438.05
36	2.4347	3439.15	-10	Anisotropic Bedrock (Tm) Peak	200	16	418.348	583.892	1338.79	0	1338.79	1412.56	1412.56
37	1.67606	2340.46	-10	Anisotropic Bedrock (Tm) Peak	200	16	415.146	579.423	1323.2	0	1323.2	1396.4	1396.4
38	1.67606	2322.78	-10	Anisotropic Bedrock (Tm) Peak	200	16	413.054	576.504	1313.03	0	1313.03	1385.86	1385.86
39	1.67606	2316.65	-10	Anisotropic Bedrock (Tm) Peak	200	16	412.329	575.492	1309.49	0	1309.49	1382.2	1382.2
40	1.76241	2329.9	18.9703	Anisotropic Bedrock (Tm) Peak	720	41	1704.07	2378.39	1907.76	0	1907.76	1321.99	1321.99
41	1.76241	2123.48	18.9703	Anisotropic Bedrock (Tm) Peak	720	41	1611.25	2248.84	1758.73	0	1758.73	1204.87	1204.87
42	2.41198	2566.78	19.6464	Anisotropic Bedrock (Tm) Peak	720	41	1515.67	2115.44	1605.27	0	1605.27	1064.18	1064.18
43	0.839961	800.863	19.6464	Anisotropic Bedrock (Tm) Peak	720	41	1426.99	1991.67	1462.89	0	1462.89	953.454	953.454
44	1.6262	1406.39	21.9561	Anisotropic Bedrock (Tm) Peak	720	41	1408.04	1965.22	1432.46	0	1432.46	864.828	864.828
45	1.6262	1211.17	21.9561	Anisotropic Bedrock (Tm) Peak	720	41	1308.21	1825.88	1272.17	0	1272.17	744.784	744.784
46	1.67882	1045.56	21.9561	Anisotropic Bedrock (Tm) Peak	720	41	1206.76	1684.28	1109.28	0	1109.28	622.795	622.795
47	1.67882	837.501	21.9561	Anisotropic Bedrock (Tm) Peak	720	41	1103.69	1540.43	943.8	0	943.8	498.863	498.863
48	1.62107	611.245	21.9561	Anisotropic Bedrock (Tm) Peak	720	41	1002.4	1399.06	781.166	0	781.166	377.064	377.064
49	1.62107	417.256	21.9561	Anisotropic Bedrock (Tm) Peak	720	41	902.878	1260.16	621.38	0	621.38	257.397	257.397
50	2.42609	239.651	24.916	Anisotropic Bedrock (Tm) Peak	720	41	812.446	1133.94	476.183	0	476.183	98.7817	98.7817

Interslice Data

Global Minimum Query (bishop simplified) - Safety Factor: 1.39571

Slice Number	X coordinate [ft]	Y coordinate - Bottom [ft]	Interslice Normal Force [lbs]	Interslice Shear Force [lbs]	Interslice Force Angle [deg]
1	391.752	95.6928	0	0	0
2	392.668	92.7259	-1630.3	0	0
3	393.584	90.0568	-2757.75	0	0
4	395.416	84.9491	-4068.57	0	0
5	397.249	80.22	-4219.62	0	0
6	397.981	78.5436	-3970.06	0	0
7	399.081	76.0291	-3373.88	0	0
8	401.07	74.8826	-1110.75	0	0
9	403.059	73.7362	1153.25	0	0
10	405.053	72.5875	3422.55	0	0
11	407.046	71.4388	5692.72	0	0
12	409.055	70.2812	7981.51	0	0
13	411.064	69.1236	10271.2	0	0
14	413.072	68.5108	11659.3	0	0
15	415.081	67.8981	12987.8	0	0
16	416.772	67.5921	13711.2	0	0
17	418.462	67.2861	14393.3	0	0
18	420.177	66.9775	15049.5	0	0
19	421.892	66.6688	15672.8	0	0
20	423.611	66.3594	16271.2	0	0
21	425.33	66.0501	16868.1	0	0
22	427.049	65.7407	17465.7	0	0
23	428.768	65.4314	18064	0	0
24	431.215	64.991	18916.8	0	0
25	433.662	64.5507	19771.1	0	0
26	436.108	64.1156	20618.7	0	0
27	438.555	63.6806	21467.3	0	0
28	441.002	63.2473	22314.2	0	0
29	443.45	62.814	23161.9	0	0
30	445.897	62.3824	24007.5	0	0
31	448.344	61.9509	24853.7	0	0
32	450.792	61.5194	25700.4	0	0
33	453.239	61.0878	26547.7	0	0
34	455.595	60.6723	27361.1	0	0
35	457.951	60.2569	28147.8	0	0
36	460.386	59.8276	28927.6	0	0
37	462.821	59.3983	29687.5	0	0
38	464.497	59.1027	30201.9	0	0
39	466.173	58.8072	30710.7	0	0
40	467.849	58.5117	31217.4	0	0
41	469.611	59.1175	27873.8	0	0
42	471.374	59.7233	24711.8	0	0
43	473.786	60.5844	20572.2	0	0
44	474.626	60.8843	19215.2	0	0
45	476.252	61.5398	16478.6	0	0
46	477.878	62.1954	13941.1	0	0
47	479.557	62.8722	11530.3	0	0
48	481.236	63.549	9331.82	0	0
49	482.857	64.2025	7410.3	0	0
50	484.478	64.856	5686.64	0	0
51	486.904	65.983	0	0	0

Discharge Sections

Entity Information

Offsite Slope Removal (Seismic)

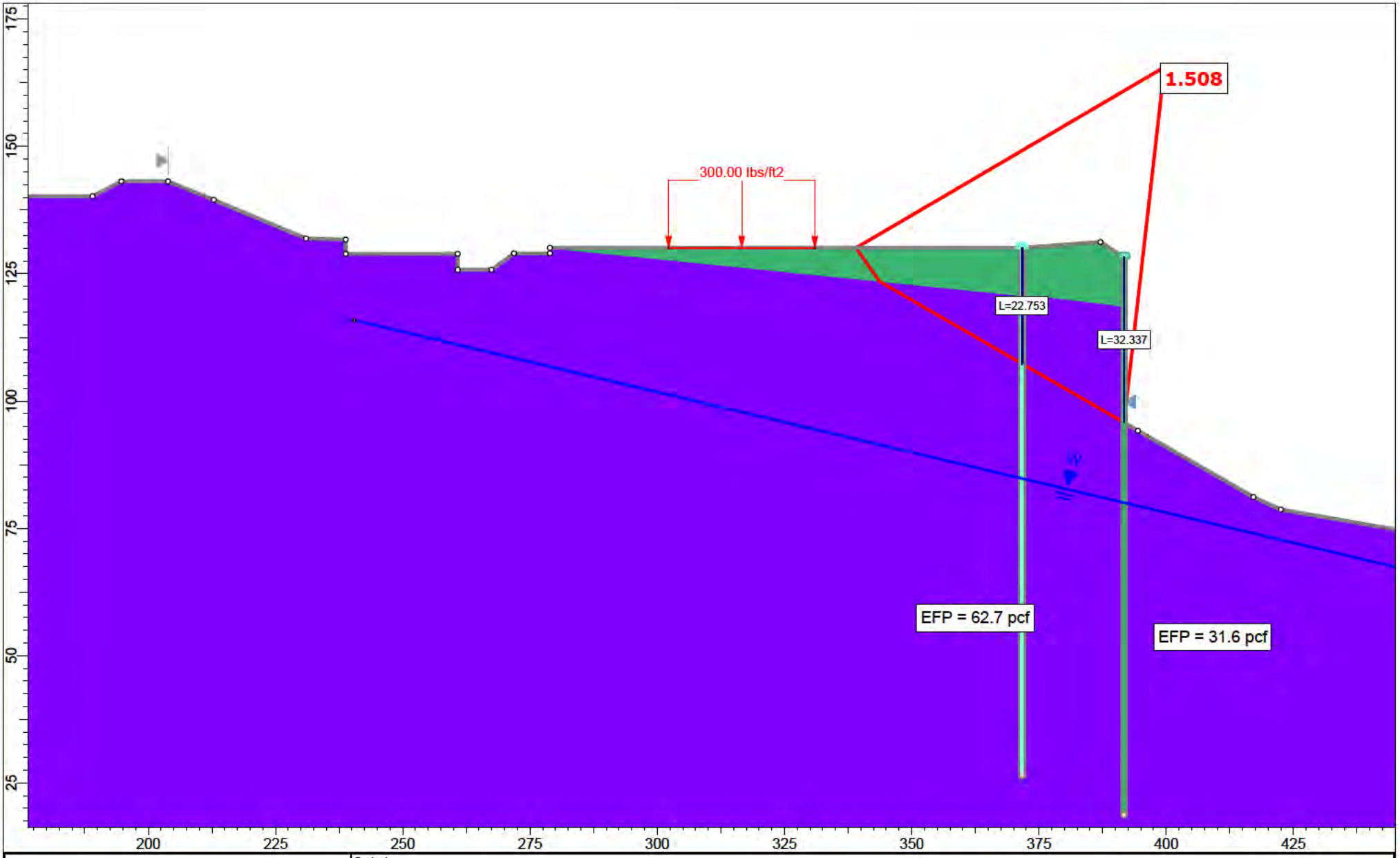
Shared Entities

Type	Coordinates (x,y)
External Boundary	0.386, -0.037 608.423, -0.037 608.423, 53.854 608.423, 60.25 608.423, 64.917 486.904, 65.983 481.115, 67.0957 464.951, 70.2021 459.698, 71.4611 454.611, 73.0969 422.519, 78.685 417.133, 81.1498 394.436, 94.1711 391.679, 95.734 391.679, 106.519 391.679, 118.36 391.679, 128.135 387.087, 131.212 371.662, 130.073 278.904, 130.073 278.904, 128.997 271.84, 128.997 267.423, 125.767 260.778, 125.767 260.778, 128.887 238.79, 128.887 238.79, 131.703 230.993, 131.919 212.872, 139.485 203.868, 143.139 194.712, 143.139 189.062, 140.22 175.096, 140.22 138.858, 142.078 111.823, 142.923 105.91, 144.524 93.371, 149.815 88.658, 151.594 78.564, 155.062 70.561, 158.308 62.068, 161.642 60.181, 161.869 57.907, 161.593 54.496, 160.921 53.083, 160.921 51.326, 161.645 47.382, 162.661 40.767, 164.59 36.375, 167.007 32.42, 169.373 29.924, 170.67 25.97, 172.42 20.427, 174.786 13.166, 179.259 10.217, 180.75 3.993, 183.376 1.367, 184.575 0.386, 185.129

Material Boundary	278.904, 130.073 374.457, 120.429 384.086, 119.333 390.302, 118.536 391.679, 118.36

Scenario-based Entities

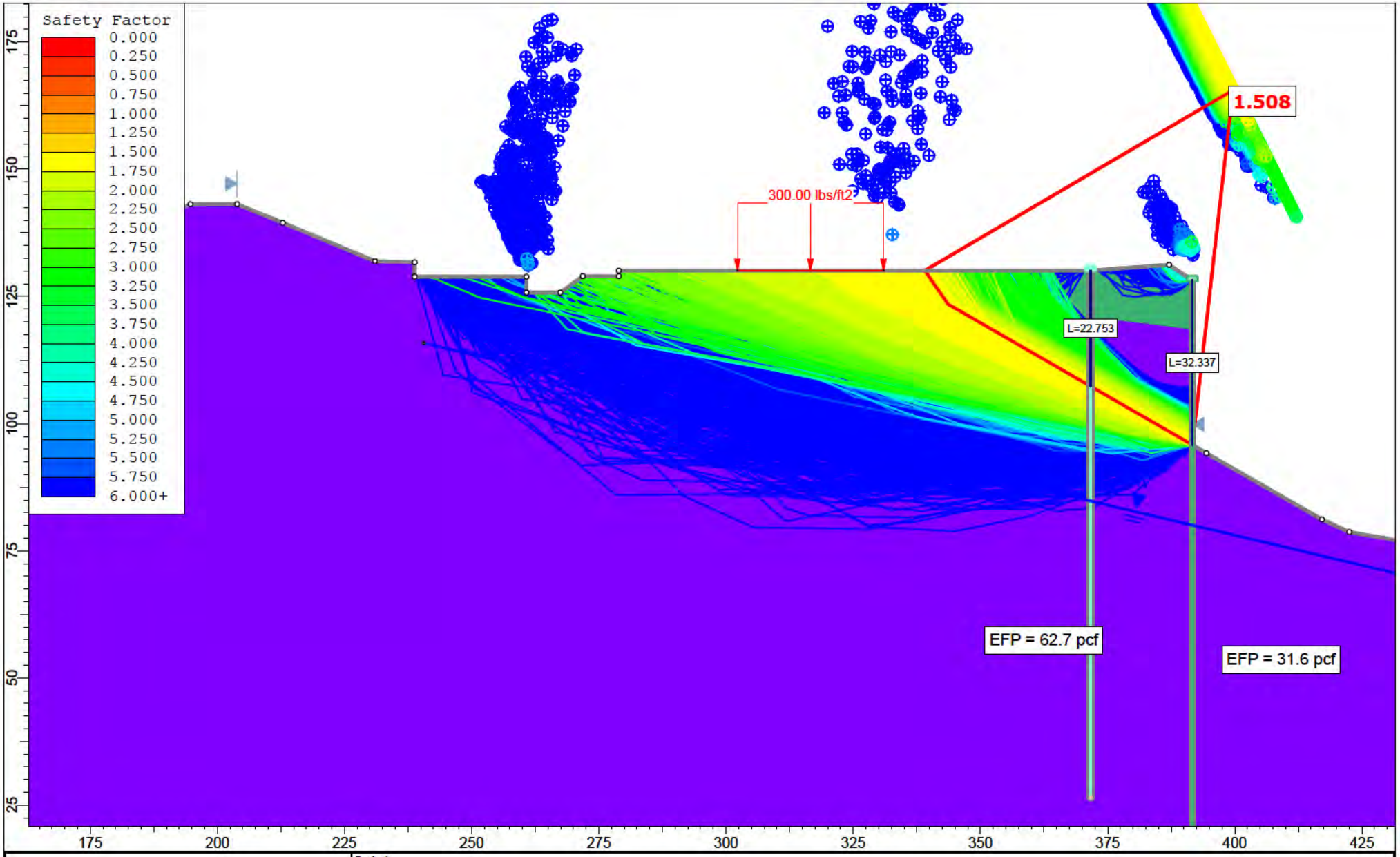
Type	Coordinates (x,y)	Master Scenario
Water Table	240.477, 115.859 520.344, 49.554	Not assigned to any materials
Distributed Load	330.957, 130.073 302.229, 130.073	Constant DistributionOrientation: Normal to boundaryMagnitude: 300 lbs/ft2Creates Excess Pore Pressure: No



rocscience

SLIDEINTERPRET 9.018

Project	Section 3-3'			
Analysis Description	Upper Slope (Static)			
Drawn By	A. Greene	Scale	1:313	Company: Feffer Geological Consulting
Date				File Name: Section 3-3' Translational Analysis_2.slmd



rocscience

SLIDEINTERPRET 9.018

Project	Section 3-3'		
Analysis Description	Upper Slope (Static)		
Drawn By	A. Greene	Scale 1:313	Company Feffer Geological Consulting
Date			File Name Section 3-3' Translational Analysis_2.slmd

Slide Analysis Information

Section 3-3' Translational Analysis_2

Project Summary

File Name:	Section 3-3' Translational Analysis_2.slmd
Slide Modeler Version:	9.018
Compute Time:	00h:00m:15.832s
Project Title:	Section 3-3'
Analysis:	Upper Slope (Static)
Author:	A. Greene
Company:	Feffer Geological Consulting

General Settings

Units of Measurement:	Imperial Units
Time Units:	days
Permeability Units:	feet/second
Data Output:	Standard
Failure Direction:	Left to Right

Analysis Options

Slices Type:	Vertical
Analysis Methods Used	
	Spencer
Number of slices:	50
Tolerance:	0.005
Maximum number of iterations:	75
Check malpha < 0.2:	Yes
Create Interslice boundaries at intersections with water tables and piezos:	Yes
Initial trial value of FS:	1
Steffensen Iteration:	Yes

Groundwater Analysis

Groundwater Method:	Water Surfaces
Pore Fluid Unit Weight [lbs/ft3]:	62.4
Use negative pore pressure cutoff:	Yes
Maximum negative pore pressure [psf]:	0
Advanced Groundwater Method:	None

Random Numbers

Pseudo-random Seed:	10116
Random Number Generation Method:	Park and Miller v.3

Surface Options

Search Method:	Cuckoo Search
Initial # of Surface Vertices:	8
Maximum Iterations:	500
Number of Nests:	50
Minimum Elevation:	Not Defined
Minimum Depth:	Not Defined
Minimum Area:	Not Defined
Minimum Weight:	Not Defined
Convex Surfaces Only:	Enabled

Seismic Loading

Advanced seismic analysis:	No
Staged pseudostatic analysis:	No

Loading

1 Distributed Load present

Distributed Load 1	
Distribution:	Constant
Magnitude [psf]:	300
Orientation:	Normal to boundary

Materials

Terrace (Qoa)	
Color	
Strength Type	Mohr-Coulomb
Unit Weight [lbs/ft3]	115
Cohesion [psf]	100
Friction Angle [deg]	31
Water Surface	None
Ru Value	0
Anisotropic Bedrock (Tm) Ultimate	
Color	
Strength Type	Anisotropic function
Unit Weight [lbs/ft3]	124
Water Surface	Water Table
Hu Value	1

Anisotropic Functions

Name: Anisotropic Bedrock (Tm) Ultimate

Angle From	Angle To	c	phi
-90	-30	520	34.5
-30	-10	200	16
-10	90	520	34.5

Support

Upper Slope Pile 1 (Static)	
Color	
Type	Pile/Micro Pile
Force Application	Active (Method A)
Force Orientation	Parallel to surface
Out-Of-Plane Spacing	10 ft
Failure Mode	Shear
Pile Shear Strength	165000 lbs

Upper Slope Pile 2 (Static)	
Color	
Type	Pile/Micro Pile
Force Application	Active (Method A)
Force Orientation	Parallel to surface
Out-Of-Plane Spacing	10 ft
Failure Mode	Shear
Pile Shear Strength	163000 lbs

Global Minimums

Method: spencer

FS	1.507980
Axis Location:	399.643, 165.558
Left Slip Surface Endpoint:	339.056, 130.073
Right Slip Surface Endpoint:	391.679, 95.798
Left Slope Intercept:	339.056 130.073
Right Slope Intercept:	391.679 128.135
Resisting Moment:	2.71968e+06 lb-ft
Driving Moment:	1.80353e+06 lb-ft
Resisting Horizontal Force:	36038.3 lb
Driving Horizontal Force:	23898.5 lb
Active Support Moment:	-2.11299e+06 lb-ft
Active Horizontal Support Force:	-28420.1 lb
Maximum Single Support Force:	16500 lb
Total Support Force:	32800 lb
Total Slice Area:	1003.7 ft2
Surface Horizontal Width:	52.6225 ft
Surface Average Height:	19.0735 ft

Global Minimum Coordinates

Method: spencer

X	Y
339.056	130.073
343.651	123.479
351.645	118.865
364.092	111.693
365.517	110.872
380.398	102.298
387.688	98.0975
391.679	95.798
391.68	128.135

Global Minimum Support Data

Method: spencer

Number of Supports: 2

Upper Slope Pile 1 (Static)

Support Type: Pile/Micro Pile

Start (x, y)	Length (ft)	L Inside SS (ft)	L Outside SS (ft)	Li (ft)	Lo (ft)	Force (lb)
391.679, 128.135	109.404	32.337	77.067	32.337	77.067	16500

Upper Slope Pile 2 (Static)

Support Type: Pile/Micro Pile

Start (x, y)	Length (ft)	L Inside SS (ft)	L Outside SS (ft)	Li (ft)	Lo (ft)	Force (lb)
371.662, 130.073	103.574	22.7417	80.8323	22.7417	80.8323	16300

Valid and Invalid Surfaces

Method: spencer

Number of Valid Surfaces:	14023
Number of Invalid Surfaces:	11031

Error Codes

Error Code -106 reported for 17 surfaces
Error Code -108 reported for 149 surfaces
Error Code -109 reported for 5 surfaces
Error Code -110 reported for 109 surfaces
Error Code -111 reported for 4304 surfaces
Error Code -112 reported for 55 surfaces
Error Code -121 reported for 581 surfaces
Error Code -145 reported for 31 surfaces
Error Code -1000 reported for 5780 surfaces

Error Code Descriptions

The following errors were encountered during the computation:

-106 = Average slice width is less than 0.0001 * (maximum horizontal extent of soil region). This limitation is imposed to avoid numerical errors which may result from too many slices, or too small a slip region.

-108 = Total driving moment or total driving force < 0.1. This is to limit the calculation of extremely high safety factors if the driving force is very small (0.1 is an arbitrary number).

-109 = Soiltype for slice base not located. This error should occur very rarely, if at all. It may occur if a very low number of slices is combined with certain soil geometries, such that the midpoint of a slice base is actually outside the soil region,even though the slip surface is wholly within the soil region.

-110 = The water table or a piezoline does not span the slip region for a given slip surface, when Water Surfaces is specified as the method of pore pressure calculation. If this error occurs, check that the water table or piezoline(s) span the appropriate soil cells.

-111 = Safety factor equation did not converge

-112 = The coefficient M-Alpha = cos(alpha)(1+tan(alpha)tan(phi)/F) < 0.2 for the final iteration of the safety factor calculation. This screens out some slip surfaces which may not be valid in the context of the analysis, in particular, deep seated slip surfaces with many high negative base angle slices in the passive zone.

-121 = Concave failure surface, only convex surfaces have been defined as being allowed.

-145 = Slip surface was clipped vertically by a weak layer in a region of compression. Such a surface cannot be evaluated using Limit Equilibrium. For more information, see Help Documentation on weak layers.

-1000 = No valid slip surface is generated

Slice Data

Global Minimum Query (spencer) - Safety Factor: 1.50798

Slice Number	Width [ft]	Weight [lbs]	Angle of Slice Base [deg]	Base Material	Base Cohesion [psf]	Base Friction Angle [deg]	Shear Stress [psf]	Shear Strength [psf]	Base Normal Stress [psf]	Pore Pressure [psf]	Effective Normal Stress [psf]	Base Vertical Stress [psf]	Effective Vertical Stress [psf]
1	1.13753	106.784	-55.1324	Terrace (Qoa)	100	31	72.458	109.265	15.42	0	15.42	119.411	119.411
2	1.13753	320.352	-55.1324	Terrace (Qoa)	100	31	109.204	164.677	107.641	0	107.641	264.37	264.37
3	1.13753	533.919	-55.1324	Terrace (Qoa)	100	31	145.95	220.09	199.863	0	199.863	409.33	409.33
4	1.13753	747.487	-55.1324	Terrace (Qoa)	100	31	182.696	275.502	292.084	0	292.084	554.289	554.289
5	0.0445419	33.626	-55.1324	Anisotropic Bedrock (Tm) Ultimate	520	34.5	438.823	661.737	206.228	0	206.228	836.026	836.026
6	1.14201	912.72	-29.9938	Anisotropic Bedrock (Tm) Ultimate	200	16	247.462	373.167	603.906	0	603.906	746.742	746.742
7	1.14201	1004.88	-29.9938	Anisotropic Bedrock (Tm) Ultimate	200	16	259.109	390.731	665.159	0	665.159	814.718	814.718
8	1.14201	1097.04	-29.9938	Anisotropic Bedrock (Tm) Ultimate	200	16	270.756	408.295	726.413	0	726.413	882.695	882.695
9	1.14201	1189.2	-29.9938	Anisotropic Bedrock (Tm) Ultimate	200	16	282.404	425.859	787.664	0	787.664	950.669	950.669
10	1.14201	1281.36	-29.9938	Anisotropic Bedrock (Tm) Ultimate	200	16	294.052	443.424	848.918	0	848.918	1018.65	1018.65

11	1.14201	1373.52	-29.9938	Anisotropic Bedrock (Tm) Ultimate	200	16	305.699	460.988	910.173	0	910.173	1086.62	1086.62
12	1.14201	1465.68	-29.9938	Anisotropic Bedrock (Tm) Ultimate	200	16	317.346	478.552	971.427	0	971.427	1154.6	1154.6
13	1.03719	1410.95	-29.9496	Anisotropic Bedrock (Tm) Ultimate	200	16	328.574	495.483	1030.47	0	1030.47	1219.79	1219.79
14	1.03719	1486.84	-29.9496	Anisotropic Bedrock (Tm) Ultimate	200	16	339.139	511.415	1086.03	0	1086.03	1281.43	1281.43
15	1.03719	1562.72	-29.9496	Anisotropic Bedrock (Tm) Ultimate	200	16	349.704	527.346	1141.59	0	1141.59	1343.08	1343.08
16	1.03719	1638.6	-29.9496	Anisotropic Bedrock (Tm) Ultimate	200	16	360.269	543.278	1197.15	0	1197.15	1404.73	1404.73
17	1.03719	1714.48	-29.9496	Anisotropic Bedrock (Tm) Ultimate	200	16	370.833	559.209	1252.71	0	1252.71	1466.38	1466.38
18	1.03719	1790.37	-29.9496	Anisotropic Bedrock (Tm) Ultimate	200	16	381.398	575.141	1308.27	0	1308.27	1528.02	1528.02
19	1.03719	1866.25	-29.9496	Anisotropic Bedrock (Tm) Ultimate	200	16	391.963	591.072	1363.83	0	1363.83	1589.67	1589.67
20	1.03719	1942.13	-29.9496	Anisotropic Bedrock (Tm) Ultimate	200	16	402.528	607.004	1419.39	0	1419.39	1651.32	1651.32
21	1.03719	2018.01	-29.9496	Anisotropic Bedrock (Tm) Ultimate	200	16	413.092	622.935	1474.95	0	1474.95	1712.97	1712.97
22	1.03719	2093.89	-29.9496	Anisotropic Bedrock (Tm) Ultimate	200	16	423.657	638.867	1530.51	0	1530.51	1774.61	1774.61
23	1.03719	2169.78	-29.9496	Anisotropic Bedrock (Tm) Ultimate	200	16	434.222	654.798	1586.07	0	1586.07	1836.26	1836.26
24	1.03719	2245.66	-29.9496	Anisotropic Bedrock (Tm) Ultimate	200	16	444.787	670.73	1641.63	0	1641.63	1897.91	1897.91
25	1.42526	3209.66	-29.9496	Anisotropic Bedrock (Tm) Ultimate	200	16	457.328	689.642	1707.59	0	1707.59	1971.09	1971.09
26	1.06298	2487.09	-29.9495	Anisotropic Bedrock (Tm) Ultimate	200	16	470.001	708.752	1774.23	0	1774.23	2045.03	2045.03
27	1.06298	2566.79	-29.9495	Anisotropic Bedrock (Tm) Ultimate	200	16	480.829	725.08	1831.17	0	1831.17	2108.22	2108.22
28	1.06298	2646.49	-29.9495	Anisotropic Bedrock (Tm) Ultimate	200	16	491.656	741.407	1888.11	0	1888.11	2171.39	2171.39
29	1.06298	2726.19	-29.9495	Anisotropic Bedrock (Tm) Ultimate	200	16	502.483	757.735	1945.06	0	1945.06	2234.57	2234.57

30	1.06298	2805.89	-29.9495	Anisotropic Bedrock (Tm) Ultimate	200	16	513.311	774.063	2001.99	0	2001.99	2297.75	2297.75
31	1.06298	2885.83	-29.9495	Anisotropic Bedrock (Tm) Ultimate	200	16	439.516	662.781	1613.91	0	1613.91	1867.15	1867.15
32	1.06298	2972.2	-29.9495	Anisotropic Bedrock (Tm) Ultimate	200	16	535.903	808.131	2120.81	0	2120.81	2429.58	2429.58
33	1.06298	3061.49	-29.9495	Anisotropic Bedrock (Tm) Ultimate	200	16	548.034	826.424	2184.6	0	2184.6	2500.36	2500.36
34	1.06298	3150.77	-29.9495	Anisotropic Bedrock (Tm) Ultimate	200	16	560.161	844.712	2248.38	0	2248.38	2571.13	2571.13
35	1.06298	3239.94	-29.9495	Anisotropic Bedrock (Tm) Ultimate	200	16	572.276	862.981	2312.09	0	2312.09	2641.82	2641.82
36	1.06298	3329.11	-29.9495	Anisotropic Bedrock (Tm) Ultimate	200	16	584.389	881.247	2375.79	0	2375.79	2712.51	2712.51
37	1.06298	3418.28	-29.9495	Anisotropic Bedrock (Tm) Ultimate	200	16	596.503	899.514	2439.5	0	2439.5	2783.19	2783.19
38	1.06298	3507.44	-29.9495	Anisotropic Bedrock (Tm) Ultimate	200	16	608.615	917.78	2503.2	0	2503.2	2853.87	2853.87
39	1.06298	3596.61	-29.9495	Anisotropic Bedrock (Tm) Ultimate	200	16	620.728	936.046	2566.9	0	2566.9	2924.55	2924.55
40	1.04136	3609.93	-29.9495	Anisotropic Bedrock (Tm) Ultimate	200	16	632.719	954.127	2629.96	0	2629.96	2994.51	2994.51
41	1.04136	3695.5	-29.9495	Anisotropic Bedrock (Tm) Ultimate	200	16	644.585	972.022	2692.36	0	2692.36	3063.75	3063.75
42	1.04136	3781.08	-29.9495	Anisotropic Bedrock (Tm) Ultimate	200	16	656.452	989.917	2754.76	0	2754.76	3133	3133
43	1.04136	3866.64	-29.9495	Anisotropic Bedrock (Tm) Ultimate	200	16	668.317	1007.81	2817.16	0	2817.16	3202.23	3202.23
44	1.04136	3952.1	-29.9495	Anisotropic Bedrock (Tm) Ultimate	200	16	680.167	1025.68	2879.48	0	2879.48	3271.38	3271.38
45	1.04136	4037.53	-29.9495	Anisotropic Bedrock (Tm) Ultimate	200	16	692.014	1043.54	2941.78	0	2941.78	3340.51	3340.51
46	1.04136	4107.52	-29.9495	Anisotropic Bedrock (Tm) Ultimate	200	16	701.719	1058.18	2992.82	0	2992.82	3397.14	3397.14
47	0.997748	3936.56	-29.9495	Anisotropic Bedrock (Tm) Ultimate	200	16	701.873	1058.41	2993.63	0	2993.63	3398.03	3398.03
48	0.997748	3929.82	-29.9495	Anisotropic Bedrock (Tm) Ultimate	200	16	700.898	1056.94	2988.51	0	2988.51	3392.35	3392.35

49	0.997748	3923.08	-29.9495	Anisotropic Bedrock (Tm) Ultimate	200	16	699.923	1055.47	2983.38	0	2983.38	3386.65	3386.65
50	0.997748	3916.35	-29.9495	Anisotropic Bedrock (Tm) Ultimate	200	16	612.001	922.885	2521	0	2521	2873.62	2873.62

Interslice Data

Global Minimum Query (spencer) - Safety Factor: 1.50798

Slice Number	X coordinate [ft]	Y coordinate - Bottom [ft]	Interslice Normal Force [lbs]	Interslice Shear Force [lbs]	Interslice Force Angle [deg]
1	339.056	130.073	0	0	0
2	340.194	128.44	-57.0681	-32.4526	29.6254
3	341.332	126.808	-5.28531	-3.00557	29.6254
4	342.469	125.175	155.348	88.3411	29.6254
5	343.607	123.543	424.833	241.588	29.6254
6	343.651	123.479	418.513	237.994	29.6254
7	344.793	122.82	534.61	304.014	29.6254
8	345.935	122.16	677.81	385.447	29.6254
9	347.077	121.501	848.115	482.293	29.6254
10	348.219	120.842	1045.52	594.553	29.6255
11	349.361	120.183	1270.04	722.226	29.6253
12	350.503	119.524	1521.66	865.312	29.6253
13	351.645	118.865	1800.38	1023.81	29.6253
14	352.682	118.267	2076.15	1180.63	29.6253
15	353.72	117.669	2374.19	1350.12	29.6254
16	354.757	117.072	2694.5	1532.27	29.6254
17	355.794	116.474	3037.08	1727.08	29.6254
18	356.831	115.876	3401.92	1934.55	29.6253
19	357.868	115.279	3789.04	2154.69	29.6253
20	358.906	114.681	4198.43	2387.5	29.6254
21	359.943	114.084	4630.08	2632.96	29.6253
22	360.98	113.486	5084.01	2891.1	29.6254
23	362.017	112.888	5560.2	3161.89	29.6254
24	363.054	112.291	6058.66	3445.35	29.6254
25	364.092	111.693	6579.4	3741.47	29.6253
26	365.517	110.872	7331.29	4169.05	29.6254
27	366.58	110.26	7919.43	4503.5	29.6254
28	367.643	109.647	8530.97	4851.26	29.6254
29	368.706	109.035	9165.89	5212.32	29.6254
30	369.769	108.422	9824.21	5586.68	29.6254
31	370.832	107.81	10505.9	5974.34	29.6254
32	371.895	107.197	-3095.19	-1760.13	29.6254
33	372.958	106.585	-2364.68	-1344.71	29.6254
34	374.021	105.972	-1607.97	-914.394	29.6253
35	375.084	105.36	-825.052	-469.178	29.6254
36	376.147	104.747	-15.9669	-9.0798	29.6253
37	377.21	104.135	819.286	465.899	29.6254
38	378.273	103.522	1680.71	955.759	29.6253
39	379.336	102.91	2568.29	1460.5	29.6254
40	380.398	102.298	3482.05	1980.12	29.6254
41	381.44	101.698	4402.6	2503.6	29.6253
42	382.481	101.098	5348.26	3041.37	29.6254
43	383.523	100.498	6319.03	3593.41	29.6254
44	384.564	99.8975	7314.92	4159.74	29.6254
45	385.605	99.2975	8335.88	4740.32	29.6254
46	386.647	98.6975	9381.92	5335.17	29.6254
47	387.688	98.0975	10448.5	5941.69	29.6253
48	388.686	97.5226	11470.7	6522.99	29.6254
49	389.684	96.9478	12491	7103.17	29.6253
50	390.681	96.3729	13509.2	7682.22	29.6254
51	391.679	95.798	0	0	0

Discharge Sections

Entity Information

Upper Slope (Static)

Shared Entities

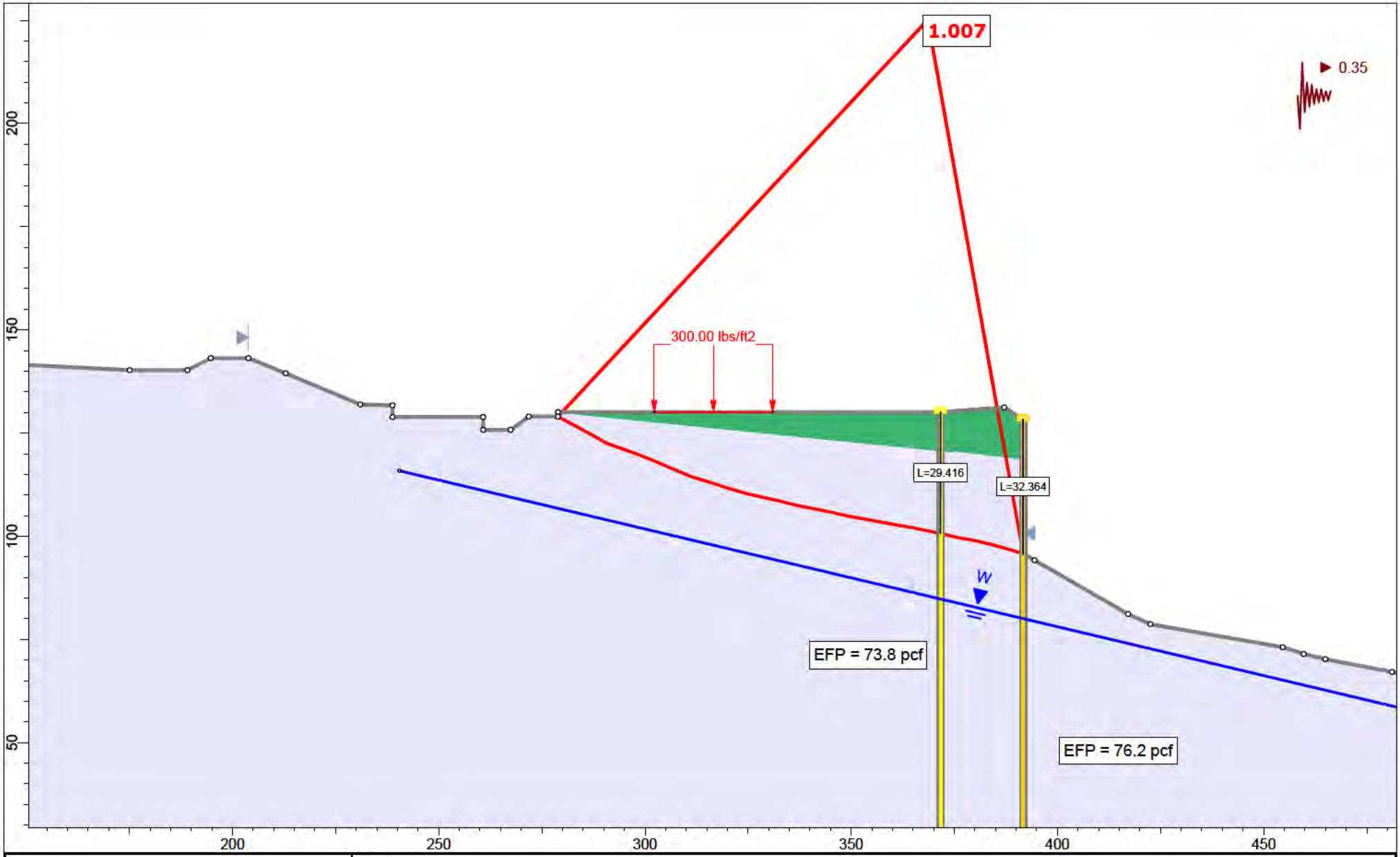
Type	Coordinates (x,y)

External Boundary	0.386, -0.037 608.423, -0.037 608.423, 53.854 608.423, 60.25 608.423, 64.917 486.904, 65.983 481.115, 67.0957 464.951, 70.2021 459.698, 71.4611 454.611, 73.0969 422.519, 78.685 417.133, 81.1498 394.436, 94.1711 391.679, 95.798 391.679, 106.519 391.679, 118.36 391.679, 128.135 387.087, 131.212 371.662, 130.073 278.904, 130.073 278.904, 128.997 271.84, 128.997 267.423, 125.767 260.778, 125.767 260.778, 128.887 238.79, 128.887 238.79, 131.703 230.993, 131.919 212.872, 139.485 203.868, 143.139 194.712, 143.139 189.062, 140.22 175.096, 140.22 138.858, 142.078 111.823, 142.923 105.91, 144.524 93.371, 149.815 88.658, 151.594 78.564, 155.062 70.561, 158.308 62.068, 161.642 60.181, 161.869 57.907, 161.593 54.496, 160.921 53.083, 160.921 51.326, 161.645 47.382, 162.661 40.767, 164.59 36.375, 167.007 32.42, 169.373 29.924, 170.67 25.97, 172.42 20.427, 174.786 13.166, 179.259 10.217, 180.75 3.993, 183.376 1.367, 184.575 0.386, 185.129

Material Boundary	278.904, 130.073 374.457, 120.429 384.086, 119.333 390.302, 118.536 391.679, 118.36

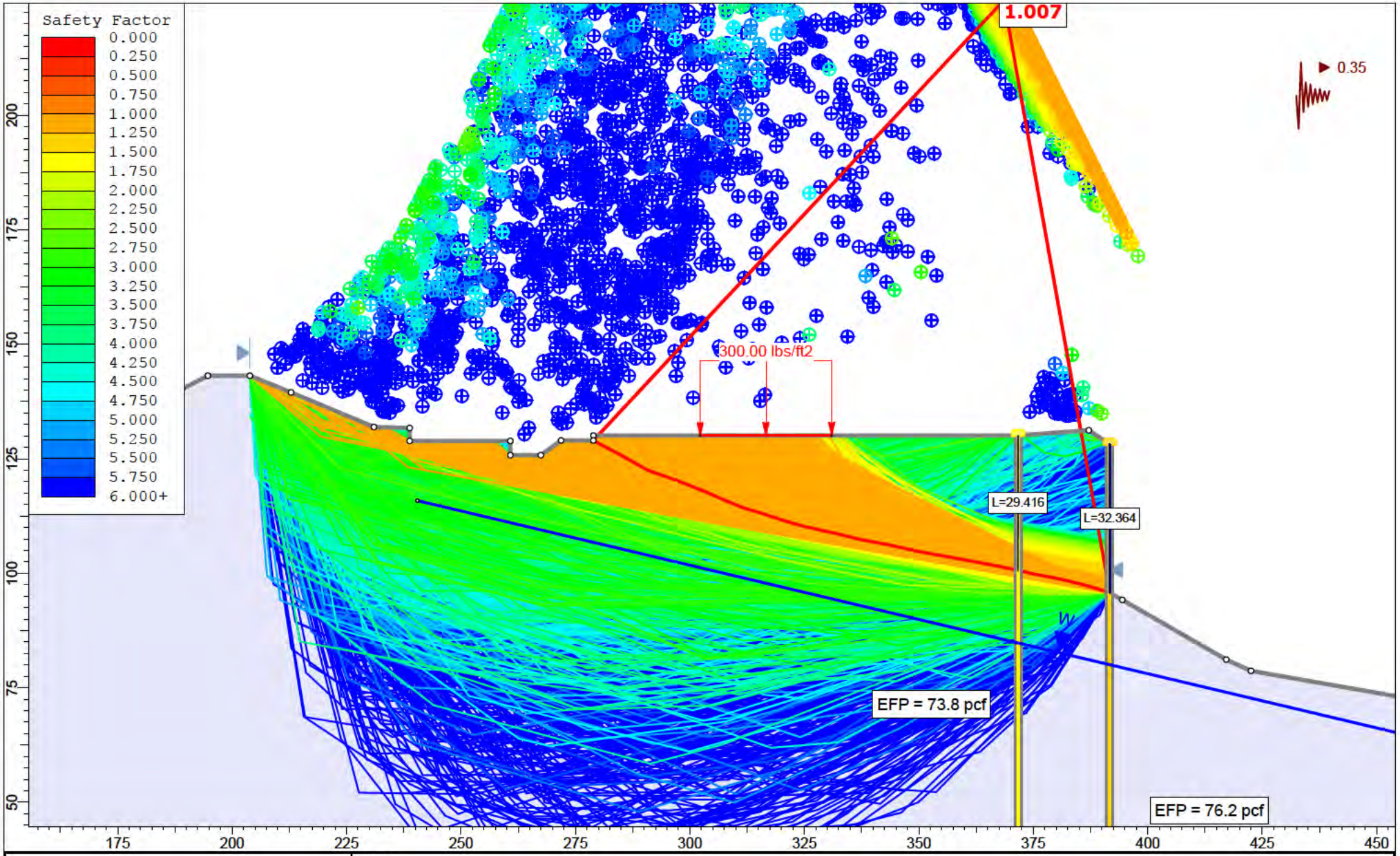
Scenario-based Entities

Type	Coordinates (x,y)	Master Scenario
Water Table	240.477, 115.859 520.344, 49.554	Assigned to:  Anisotropic Bedrock (Tm) Ultimate
Distributed Load	330.957, 130.073 302.229, 130.073	Constant DistributionOrientation: Normal to boundaryMagnitude: 300 lbs/ft2Creates Excess Pore Pressure: No



rocscience	Project	Section 3-3'		
	Analysis Description	Upper Slope (Seismic)		
	Drawn By	A. Greene	Scale 1:386	Company Feffer Geological Consulting
	Date			File Name Section 3-3' Translational Analysis_2.slmd

SLIDEINTERPRET 9.018



rocscience

SLIDEINTERPRET 9.018

Project	Section 3-3'		
Analysis Description	Upper Slope (Seismic)		
Drawn By	A. Greene	Scale 1:348	Company Feffer Geological Consulting
Date			File Name Section 3-3' Translational Analysis_2.slmd

Slide Analysis Information

Section 3-3' Translational Analysis_2

Project Summary

File Name:	Section 3-3' Translational Analysis_2.slmd
Slide Modeler Version:	9.018
Compute Time:	00h:00m:09.876s
Project Title:	Section 3-3'
Analysis:	Upper Slope (Seismic)
Author:	A. Greene
Company:	Feffer Geological Consulting

General Settings

Units of Measurement:	Imperial Units
Time Units:	days
Permeability Units:	feet/second
Data Output:	Standard
Failure Direction:	Left to Right

Analysis Options

Slices Type:	Vertical
Analysis Methods Used	
	Spencer
Number of slices:	50
Tolerance:	0.005
Maximum number of iterations:	75
Check malpha < 0.2:	Yes
Create Interslice boundaries at intersections with water tables and piezos:	Yes
Initial trial value of FS:	1
Steffensen Iteration:	Yes

Groundwater Analysis

Groundwater Method:	Water Surfaces
Pore Fluid Unit Weight [lbs/ft3]:	62.4
Use negative pore pressure cutoff:	Yes
Maximum negative pore pressure [psf]:	0
Advanced Groundwater Method:	None

Random Numbers

Pseudo-random Seed:	10116
Random Number Generation Method:	Park and Miller v.3

Surface Options

Search Method:	Cuckoo Search
Initial # of Surface Vertices:	8
Maximum Iterations:	500
Number of Nests:	50
Minimum Elevation:	Not Defined
Minimum Depth:	Not Defined
Minimum Area:	Not Defined
Minimum Weight:	Not Defined
Convex Surfaces Only:	Enabled

Seismic Loading

Advanced seismic analysis:	No
Staged pseudostatic analysis:	No
Seismic Load Coefficient (Horizontal):	0.35

Loading

1 Distributed Load present

Distributed Load 1	
Distribution:	Constant
Magnitude [psf]:	300
Orientation:	Normal to boundary

Materials

Terrace (Qoa)	
Color	
Strength Type	Mohr-Coulomb
Unit Weight [lbs/ft3]	115
Cohesion [psf]	100
Friction Angle [deg]	31
Water Surface	None
Ru Value	0
Anisotropic Bedrock (Tm) Peak	
Color	
Strength Type	Anisotropic function
Unit Weight [lbs/ft3]	124
Water Surface	None
Ru Value	0

Anisotropic Functions

Name: Anisotropic Bedrock (Tm) Peak

Angle From	Angle To	c	phi
-90	-30	720	41
-30	-10	200	16
-10	90	720	41

Support

Upper Slope Pile 1 (Seismic)	
Color	
Type	Pile/Micro Pile
Force Application	Active (Method A)
Force Orientation	Parallel to surface
Out-Of-Plane Spacing	10 ft
Failure Mode	Shear
Pile Shear Strength	400000 lbs

Upper Slope Pile 2 (Seismic)	
Color	
Type	Pile/Micro Pile
Force Application	Active (Method A)
Force Orientation	Parallel to surface
Out-Of-Plane Spacing	10 ft
Failure Mode	Shear
Pile Shear Strength	319000 lbs

Global Minimums

Method: spencer

FS	1.007250
Axis Location:	368.555, 225.141
Left Slip Surface Endpoint:	278.904, 128.997
Right Slip Surface Endpoint:	391.679, 95.734
Left Slope Intercept:	278.904 130.073
Right Slope Intercept:	391.679 128.135
Resisting Moment:	1.17834e+07 lb-ft
Driving Moment:	1.16987e+07 lb-ft
Resisting Horizontal Force:	93518.8 lb
Driving Horizontal Force:	92846.9 lb
Active Support Moment:	-8.48825e+06 lb-ft
Active Horizontal Support Force:	-69123.5 lb
Maximum Single Support Force:	40000 lb
Total Support Force:	71900 lb
Total Slice Area:	2329.14 ft2
Surface Horizontal Width:	112.775 ft
Surface Average Height:	20.653 ft

Global Minimum Coordinates

Method: spencer

X	Y
278.904	128.997
281.775	127.431
284.762	125.862
287.748	124.198
290.735	122.5
294.855	121.061
298.974	119.551
303.157	117.872
307.34	116.047
311.523	114.33
315.706	113.087
320.5	111.495
324.589	110.322
328.678	109.397
332.768	108.487
336.857	107.435
340.946	106.676
345.036	105.856
349.125	104.892
353.214	104.151
357.304	103.417
360.628	102.787
363.952	102.195
367.786	101.444
371.62	100.657
375.384	99.7527
379.148	99.0769
382.281	98.4053
385.414	97.6243
388.546	96.7338
391.679	95.734
391.68	128.135

Global Minimum Support Data

Method: spencer

Number of Supports: 2

Upper Slope Pile 1 (Seismic)

Support Type: Pile/Micro Pile

Start (x, y)	Length (ft)	L Inside SS (ft)	L Outside SS (ft)	Li (ft)	Lo (ft)	Force (lb)
391.679, 128.135	109.404	32.401	77.003	32.401	77.003	40000

Upper Slope Pile 2 (Seismic)

Support Type: Pile/Micro Pile

Start (x, y)	Length (ft)	L Inside SS (ft)	L Outside SS (ft)	Li (ft)	Lo (ft)	Force (lb)
371.662, 130.073	101.11	29.426	71.684	29.426	71.684	31900

Valid and Invalid Surfaces

Method: spencer

Number of Valid Surfaces:	14724
Number of Invalid Surfaces:	10337

Error Codes

Error Code -106 reported for 33 surfaces
Error Code -108 reported for 103 surfaces
Error Code -109 reported for 2 surfaces
Error Code -111 reported for 2593 surfaces
Error Code -112 reported for 152 surfaces
Error Code -121 reported for 1084 surfaces
Error Code -124 reported for 1 surface
Error Code -145 reported for 21 surfaces
Error Code -1000 reported for 6348 surfaces

Error Code Descriptions

The following errors were encountered during the computation:
-106 = Average slice width is less than 0.0001 * (maximum horizontal extent of soil region). This limitation is imposed to avoid numerical errors which may result from too many slices, or too small a slip region.
-108 = Total driving moment or total driving force < 0.1. This is to limit the calculation of extremely high safety factors if the driving force is very small (0.1 is an arbitrary number).
-109 = Soiltype for slice base not located. This error should occur very rarely, if at all. It may occur if a very low number of slices is combined with certain soil geometries, such that the midpoint of a slice base is actually outside the soil region,even though the slip surface is wholly within the soil region.
-111 = Safety factor equation did not converge
-112 = The coefficient M-Alpha = cos(alpha)(1+tan(alpha)tan(phi)/F) < 0.2 for the final iteration of the safety factor calculation. This screens out some slip surfaces which may not be valid in the context of the analysis, in particular, deep seated slip surfaces with many high negative base angle slices in the passive zone.
-121 = Concave failure surface, only convex surfaces have been defined as being allowed.
-124 = A slice has a width less than the minimum acceptable value.
-145 = Slip surface was clipped vertically by a weak layer in a region of compression. Such a surface cannot be evaluated using Limit Equilibrium. For more information, see Help Documentation on weak layers.
-1000 = No valid slip surface is generated

Slice Data

Global Minimum Query (spencer) - Safety Factor: 1.00725

Slice Number	Width [ft]	Weight [lbs]	Angle of Slice Base [deg]	Base Material	Base Cohesion [psf]	Base Friction Angle [deg]	Shear Stress [psf]	Shear Strength [psf]	Base Normal Stress [psf]	Pore Pressure [psf]	Effective Normal Stress [psf]	Base Vertical Stress [psf]	Effective Vertical Stress [psf]
1	2.87131	658.202	-28.6134	Anisotropic Bedrock (Tm) Peak	200	16	242.42	244.177	154.065	0	154.065	286.31	286.31

2	2.98652	1257.14	-27.7087	Anisotropic Bedrock (Tm) Peak	200	16	274.703	276.694	267.465	0	267.465	411.741	411.741
3	2.98652	1847.64	-29.1295	Anisotropic Bedrock (Tm) Peak	200	16	302.602	304.796	365.467	0	365.467	534.097	534.097
4	2.98652	2462.03	-29.614	Anisotropic Bedrock (Tm) Peak	200	16	333.408	335.825	473.68	0	473.68	663.19	663.19
5	2.05988	2002.12	-19.2595	Anisotropic Bedrock (Tm) Peak	200	16	396.027	398.898	693.639	0	693.639	832.012	832.012
6	2.05988	2182.1	-19.2595	Anisotropic Bedrock (Tm) Peak	200	16	412.008	414.995	749.776	0	749.776	893.732	893.732
7	2.05988	2366.58	-20.1282	Anisotropic Bedrock (Tm) Peak	200	16	424.148	427.223	792.421	0	792.421	947.874	947.874
8	2.05988	2555.57	-20.1282	Anisotropic Bedrock (Tm) Peak	200	16	440.683	443.878	850.505	0	850.505	1012.02	1012.02
9	2.09141	2797.5	-21.8718	Anisotropic Bedrock (Tm) Peak	200	16	448.985	452.24	879.665	0	879.665	1059.9	1059.9
10	2.09141	3011.25	-21.8718	Anisotropic Bedrock (Tm) Peak	200	16	498.448	502.062	1053.42	0	1053.42	1253.51	1253.51
11	4.18283	6701.63	-23.5739	Anisotropic Bedrock (Tm) Peak	200	16	554.591	558.612	1250.63	0	1250.63	1492.62	1492.62
12	2.09141	3692.84	-22.3179	Anisotropic Bedrock (Tm) Peak	200	16	591.675	595.965	1380.89	0	1380.89	1623.77	1623.77
13	2.09141	3911.51	-22.3179	Anisotropic Bedrock (Tm) Peak	200	16	609.85	614.271	1444.73	0	1444.73	1695.07	1695.07
14	4.18283	8356.01	-16.5456	Anisotropic Bedrock (Tm) Peak	200	16	683.175	688.128	1702.3	0	1702.3	1905.26	1905.26
15	2.39697	5084.19	-18.3662	Anisotropic Bedrock (Tm) Peak	200	16	689.002	693.997	1722.77	0	1722.77	1951.52	1951.52
16	2.39697	5315.51	-18.3662	Anisotropic Bedrock (Tm) Peak	200	16	706.926	712.051	1785.74	0	1785.74	2020.44	2020.44
17	2.04468	4705.38	-16.0073	Anisotropic Bedrock (Tm) Peak	200	16	747.196	752.613	1927.19	0	1927.19	2141.55	2141.55
18	2.04468	4850.3	-16.0073	Anisotropic Bedrock (Tm) Peak	200	16	760.921	766.438	1975.4	0	1975.4	2193.7	2193.7
19	2.04468	4979.51	-12.7483	Anisotropic Bedrock (Tm) Peak	200	16	811.945	817.832	2154.64	0	2154.64	2338.33	2338.33
20	2.04468	5093	-12.7483	Anisotropic Bedrock (Tm) Peak	200	16	823.359	829.328	2194.73	0	2194.73	2381.01	2381.01
21	2.04468	5205.5	-12.5414	Anisotropic Bedrock (Tm) Peak	200	16	837.358	843.429	2243.9	0	2243.9	2430.18	2430.18
22	2.04468	5317.03	-12.5414	Anisotropic Bedrock (Tm) Peak	200	16	774.269	779.882	2022.29	0	2022.29	2194.53	2194.53
23	2.04468	5437.6	-14.4332	Anisotropic Bedrock (Tm) Peak	200	16	754.958	760.431	1954.46	0	1954.46	2148.76	2148.76
24	2.04468	5567.23	-14.4332	Anisotropic Bedrock (Tm) Peak	200	16	767.591	773.156	1998.83	0	1998.83	2196.39	2196.39
25	2.04468	5678.22	-10.5066	Anisotropic Bedrock (Tm) Peak	200	16	827.083	833.079	2207.81	0	2207.81	2361.2	2361.2
26	2.04468	5770.56	-10.5066	Anisotropic Bedrock (Tm) Peak	200	16	836.777	842.844	2241.86	0	2241.86	2397.05	2397.05

27	2.04468	5866.87	-11.3502	Anisotropic Bedrock (Tm) Peak	200	16	835.596	841.654	2237.71	0	2237.71	2405.44	2405.44
28	2.04468	5967.13	-11.3502	Anisotropic Bedrock (Tm) Peak	200	16	845.952	852.085	2274.09	0	2274.09	2443.9	2443.9
29	2.04468	6076.44	-13.26	Anisotropic Bedrock (Tm) Peak	200	16	831.995	838.027	2225.06	0	2225.06	2421.12	2421.12
30	2.04468	6194.81	-13.26	Anisotropic Bedrock (Tm) Peak	200	16	843.786	849.903	2266.48	0	2266.48	2465.32	2465.32
31	2.04468	6299.04	-10.2665	Anisotropic Bedrock (Tm) Peak	200	16	895.744	902.238	2449	0	2449	2611.24	2611.24
32	2.04468	6389.14	-10.2665	Anisotropic Bedrock (Tm) Peak	200	16	905.247	911.81	2482.38	0	2482.38	2646.34	2646.34
33	2.04468	6478.84	-10.1804	Anisotropic Bedrock (Tm) Peak	200	16	915.995	922.636	2520.13	0	2520.13	2684.62	2684.62
34	2.04468	6568.14	-10.1804	Anisotropic Bedrock (Tm) Peak	200	16	925.43	932.139	2553.27	0	2553.27	2719.46	2719.46
35	1.66192	5406.09	-10.73	Anisotropic Bedrock (Tm) Peak	200	16	925.852	932.564	2554.76	0	2554.76	2730.2	2730.2
36	1.66192	5468.48	-10.73	Anisotropic Bedrock (Tm) Peak	200	16	933.875	940.646	2582.94	0	2582.94	2759.9	2759.9
37	1.66192	5528.94	-10.1061	Anisotropic Bedrock (Tm) Peak	200	16	951.336	958.233	2644.27	0	2644.27	2813.84	2813.84
38	1.66192	5587.48	-10.1061	Anisotropic Bedrock (Tm) Peak	200	16	958.956	965.908	2671.04	0	2671.04	2841.96	2841.96
39	1.91714	6522.2	-11.07	Anisotropic Bedrock (Tm) Peak	200	16	952.425	959.33	2648.1	0	2648.1	2834.44	2834.44
40	1.91714	6608.03	-11.07	Anisotropic Bedrock (Tm) Peak	200	16	961.931	968.905	2681.49	0	2681.49	2869.69	2869.69
41	1.91714	6696.07	-11.6037	Anisotropic Bedrock (Tm) Peak	200	16	963.277	970.261	2686.22	0	2686.22	2884.02	2884.02
42	1.91714	6786.31	-11.6037	Anisotropic Bedrock (Tm) Peak	200	16	973.171	980.226	2720.97	0	2720.97	2920.8	2920.8
43	1.8821	6772.12	-13.5098	Anisotropic Bedrock (Tm) Peak	200	16	3268.47	3292.17	10783.7	0	10783.7	11569	11569
44	1.8821	6904.45	-13.5098	Anisotropic Bedrock (Tm) Peak	200	16	970.026	977.059	2709.93	0	2709.93	2942.99	2942.99
45	1.8821	7023.15	-10.1777	Anisotropic Bedrock (Tm) Peak	200	16	1037.65	1045.17	2947.47	0	2947.47	3133.76	3133.76
46	1.8821	7128.46	-10.1777	Anisotropic Bedrock (Tm) Peak	200	16	1049.74	1057.35	2989.94	0	2989.94	3178.39	3178.39
47	3.13264	12119.6	-12.1011	Anisotropic Bedrock (Tm) Peak	200	16	1033.86	1041.36	2934.16	0	2934.16	3155.82	3155.82
48	3.13264	12474.9	-13.9997	Anisotropic Bedrock (Tm) Peak	200	16	1025.58	1033.02	2905.09	0	2905.09	3160.79	3160.79
49	3.13264	12780.7	-15.8674	Anisotropic Bedrock (Tm) Peak	200	16	1014.98	1022.34	2867.83	0	2867.83	3156.33	3156.33
50	3.13264	12500	-17.7012	Anisotropic Bedrock (Tm) Peak	200	16	2308.35	2325.09	7411.05	0	7411.05	8147.79	8147.79

Interslice Data

Global Minimum Query (spencer) - Safety Factor: 1.00725

Slice Number	X coordinate [ft]	Y coordinate - Bottom [ft]	Interslice Normal Force [lbs]	Interslice Shear Force [lbs]	Interslice Force Angle [deg]
1	278.904	128.997	0	0	0
2	281.775	127.431	-223.125	-167.631	36.9171
3	284.762	125.862	-182.534	-137.136	36.9172
4	287.748	124.198	170.273	127.924	36.9171
5	290.735	122.5	842.127	632.681	36.9171
6	292.795	121.781	1227.79	922.427	36.9172
7	294.855	121.061	1683.99	1265.17	36.9173
8	296.915	120.306	2238.41	1681.7	36.9173
9	298.974	119.551	2868.83	2155.32	36.9171
10	301.066	118.711	3649.14	2741.56	36.9171
11	303.157	117.872	4546.88	3416.02	36.9171
12	307.34	116.047	6859.45	5153.43	36.9171
13	309.431	115.188	8102.24	6087.12	36.9171
14	311.523	114.33	9438.43	7090.99	36.9171
15	315.706	113.087	11625.9	8734.4	36.9171
16	318.103	112.291	13127.8	9862.75	36.9171
17	320.5	111.495	14717.8	11057.3	36.9171
18	322.544	110.909	15970.1	11998.2	36.9172
19	324.589	110.322	17273.4	12977.3	36.9171
20	326.634	109.86	18355.8	13790.5	36.9171
21	328.678	109.397	19473.1	14630	36.9173
22	330.723	108.942	20606.6	15481.5	36.9171
23	332.768	108.487	21807.1	16383.4	36.9171
24	334.812	107.961	23197.9	17428.3	36.9171
25	336.857	107.435	24631.7	18505.5	36.9171
26	338.902	107.056	25768.2	19359.3	36.917
27	340.946	106.676	26930.1	20232.3	36.9172
28	342.991	106.266	28196.5	21183.7	36.9171
29	345.036	105.856	29491.7	22156.8	36.9171
30	347.08	105.374	30992.5	23284.3	36.9171
31	349.125	104.892	32530.5	24439.8	36.9171
32	351.17	104.522	33813.9	25404	36.9171
33	353.214	104.151	35121.9	26386.7	36.9171
34	355.259	103.784	36445.2	27380.9	36.9172
35	357.304	103.417	37792.8	28393.3	36.9171
36	358.966	103.102	38953.5	29265.3	36.9171
37	360.628	102.787	40131.7	30150.5	36.9171
38	362.29	102.491	41271.9	31007.1	36.9171
39	363.952	102.195	42427.8	31875.6	36.9172
40	365.869	101.819	43881.2	32967.5	36.9172
41	367.786	101.444	45358.9	34077.7	36.9172
42	369.703	101.051	46916.6	35247.9	36.9171
43	371.62	100.657	48500.6	36438	36.9172
44	373.502	100.205	18589.2	13965.9	36.9172
45	375.384	99.7527	20408.8	15332.9	36.9171
46	377.266	99.4148	21913.3	16463.2	36.9171
47	379.148	99.0769	23446.4	17615	36.9171
48	382.281	98.4053	26426	19853.6	36.9172
49	385.414	97.6243	29854.2	22429.1	36.9171
50	388.546	96.7338	33707.2	25323.8	36.9171
51	391.679	95.734	0	0	0

Discharge Sections

Entity Information

Upper Slope (Seismic)

Shared Entities

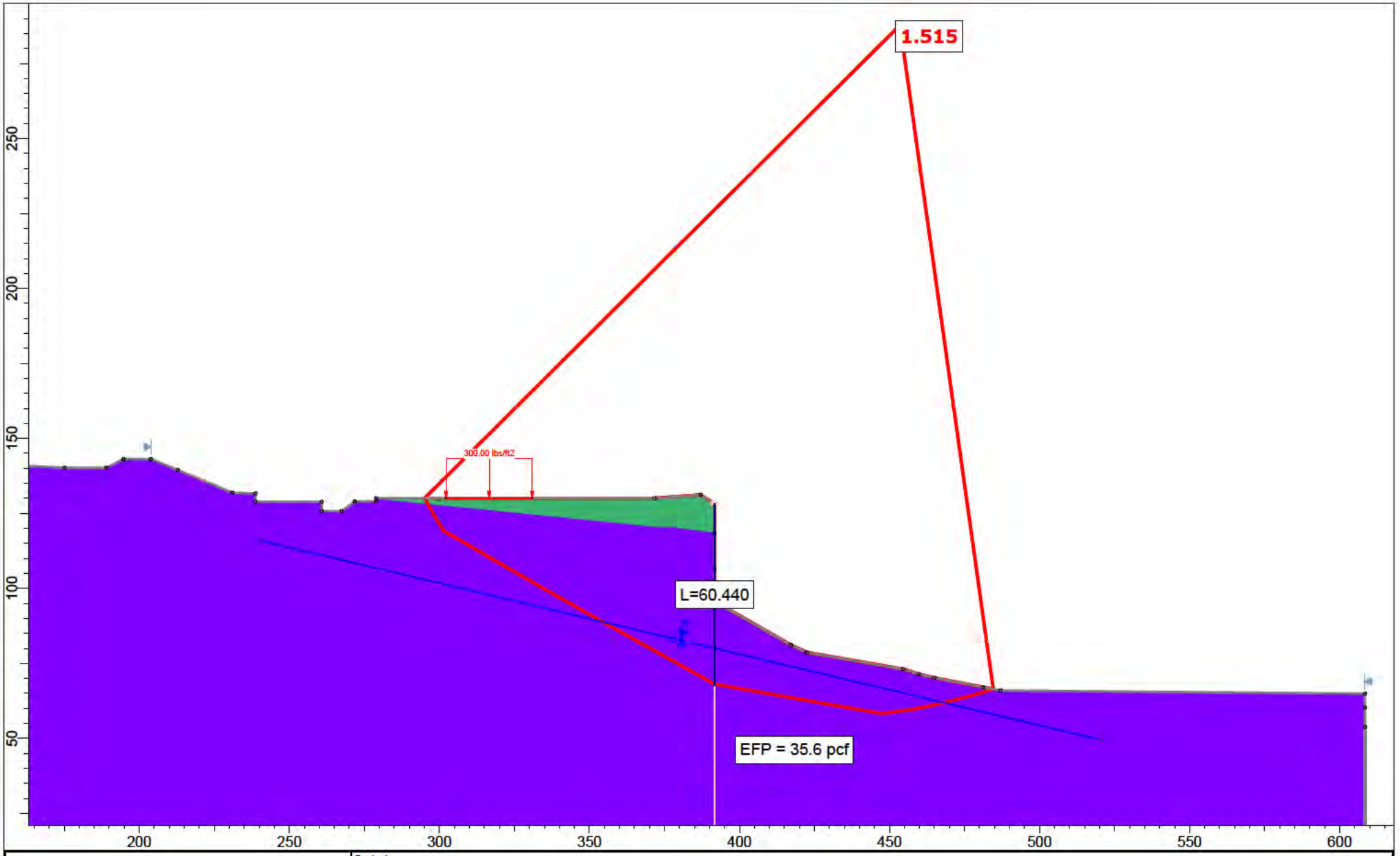
Type	Coordinates (x,y)

External Boundary	0.386, -0.037 608.423, -0.037 608.423, 53.854 608.423, 60.25 608.423, 64.917 486.904, 65.983 481.115, 67.0957 464.951, 70.2021 459.698, 71.4611 454.611, 73.0969 422.519, 78.685 417.133, 81.1498 394.436, 94.1711 391.679, 95.734 391.679, 106.519 391.679, 118.36 391.679, 128.135 387.087, 131.212 371.662, 130.073 278.904, 130.073 278.904, 128.997 271.84, 128.997 267.423, 125.767 260.778, 125.767 260.778, 128.887 238.79, 128.887 238.79, 131.703 230.993, 131.919 212.872, 139.485 203.868, 143.139 194.712, 143.139 189.062, 140.22 175.096, 140.22 138.858, 142.078 111.823, 142.923 105.91, 144.524 93.371, 149.815 88.658, 151.594 78.564, 155.062 70.561, 158.308 62.068, 161.642 60.181, 161.869 57.907, 161.593 54.496, 160.921 53.083, 160.921 51.326, 161.645 47.382, 162.661 40.767, 164.59 36.375, 167.007 32.42, 169.373 29.924, 170.67 25.97, 172.42 20.427, 174.786 13.166, 179.259 10.217, 180.75 3.993, 183.376 1.367, 184.575 0.386, 185.129

Material Boundary	278.904, 130.073 374.457, 120.429 384.086, 119.333 390.302, 118.536 391.679, 118.36

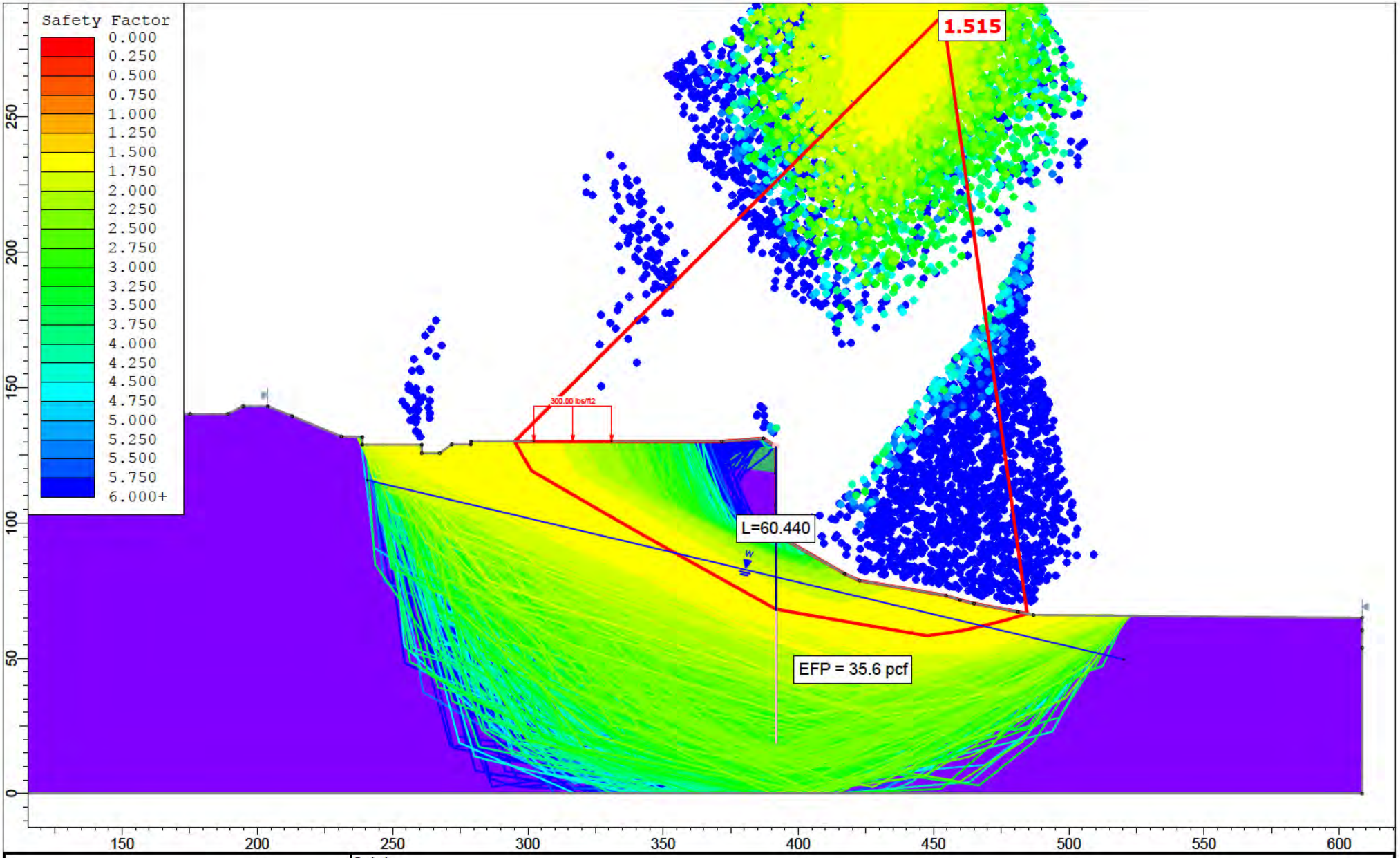
Scenario-based Entities

Type	Coordinates (x,y)	Master Scenario
Water Table	240.477, 115.859 520.344, 49.554	Not assigned to any materials
Distributed Load	330.957, 130.073 302.229, 130.073	Constant DistributionOrientation: Normal to boundaryMagnitude: 300 lbs/ft2Creates Excess Pore Pressure: No



rocscience	Project	Section 3-3'		
	Analysis Description	Entire Slope (Static)		
	Drawn By	A. Greene	Scale 1:530	Company Feffer Geological Consulting
	Date			File Name Section 3-3' Translational Analysis_2.slmd

SLIDEINTERPRET 9.018



rocscience

SLIDEINTERPRET 9.018

Project	Section 3-3'				
Analysis Description	Entire Slope (Static)				
Drawn By	A. Greene	Scale	1:589	Company	Feffer Geological Consulting
Date				File Name	Section 3-3' Translational Analysis_2.slmd

Slide Analysis Information

Section 3-3' Translational Analysis_2

Project Summary

File Name:	Section 3-3' Translational Analysis_2.slmd
Slide Modeler Version:	9.018
Compute Time:	00h:00m:10.837s
Project Title:	Section 3-3'
Analysis:	Entire Slope (Static)
Author:	A. Greene
Company:	Feffer Geological Consulting

General Settings

Units of Measurement:	Imperial Units
Time Units:	days
Permeability Units:	feet/second
Data Output:	Standard
Failure Direction:	Left to Right

Analysis Options

Slices Type:	Vertical
Analysis Methods Used	
	Spencer
Number of slices:	50
Tolerance:	0.005
Maximum number of iterations:	75
Check malpha < 0.2:	Yes
Create Interslice boundaries at intersections with water tables and piezos:	Yes
Initial trial value of FS:	1
Steffensen Iteration:	Yes

Groundwater Analysis

Groundwater Method:	Water Surfaces
Pore Fluid Unit Weight [lbs/ft3]:	62.4
Use negative pore pressure cutoff:	Yes
Maximum negative pore pressure [psf]:	0
Advanced Groundwater Method:	None

Random Numbers

Pseudo-random Seed:	10116
Random Number Generation Method:	Park and Miller v.3

Surface Options

Search Method:	Cuckoo Search
Initial # of Surface Vertices:	8
Maximum Iterations:	500
Number of Nests:	50
Minimum Elevation:	Not Defined
Minimum Depth:	Not Defined
Minimum Area:	Not Defined
Minimum Weight:	Not Defined
Convex Surfaces Only:	Enabled

Seismic Loading

Advanced seismic analysis:	No
Staged pseudostatic analysis:	No

Loading

1 Distributed Load present

Distributed Load 1	
Distribution:	Constant
Magnitude [psf]:	300
Orientation:	Normal to boundary

Materials

Terrace (Qoa)	
Color	
Strength Type	Mohr-Coulomb
Unit Weight [lbs/ft3]	115
Cohesion [psf]	100
Friction Angle [deg]	31
Water Surface	None
Ru Value	0
Anisotropic Bedrock (Tm) Ultimate	
Color	
Strength Type	Anisotropic function
Unit Weight [lbs/ft3]	124
Water Surface	Water Table
Hu Value	1

Anisotropic Functions

Name: Anisotropic Bedrock (Tm) Ultimate

Angle From	Angle To	c	phi
-90	-30	520	34.5
-30	-10	200	16
-10	90	520	34.5

Support

Entire Slope Pile 1 (Static)	
Color	
Type	Pile/Micro Pile
Force Application	Active (Method A)
Force Orientation	Parallel to surface
Out-Of-Plane Spacing	10 ft
Failure Mode	Shear
Pile Shear Strength	648500 lbs

Global Minimums

Method: spencer

FS	1.515010
Axis Location:	453.480, 287.743
Left Slip Surface Endpoint:	295.090, 130.073
Right Slip Surface Endpoint:	484.582, 66.429
Resisting Moment:	5.11255e+07 lb-ft
Driving Moment:	3.37467e+07 lb-ft
Resisting Horizontal Force:	207840 lb
Driving Horizontal Force:	137190 lb
Active Support Moment:	-1.43946e+07 lb-ft
Active Horizontal Support Force:	-56667.8 lb
Maximum Single Support Force:	64850 lb
Total Support Force:	64850 lb
Total Slice Area:	4730.82 ft2
Surface Horizontal Width:	189.492 ft
Surface Average Height:	24.9659 ft

Global Minimum Coordinates

Method: spencer

X	Y
295.09	130.073
298.234	124.419
301.378	119.229
309.569	114.502
317.759	109.775
325.954	105.045
334.197	100.287
341.188	96.3114
348.176	92.3642
355.399	88.3012
362.656	84.2634
369.912	80.2256
377.169	76.1878
384.425	72.1499
391.682	68.1121
398.693	66.8633
405.713	65.6253
414.909	64.0034
420.711	62.9801
426.354	61.9849
431.991	60.9908
437.578	60.0055
447.347	58.2826
454.692	59.2374
461.504	60.3881
468.317	61.9648
476.45	64.0426
484.582	66.4293

Global Minimum Support Data

Method: spencer

Number of Supports: 1

Entire Slope Pile 1 (Static)

Support Type: Pile/Micro Pile

Start (x, y)	Length (ft)	L Inside SS (ft)	L Outside SS (ft)	Li (ft)	Lo (ft)	Force (lb)
391.679, 128.135	109.404	60.0213	49.3827	60.0213	49.3827	64850

Valid and Invalid Surfaces

Method: spencer

Number of Valid Surfaces:	17289
Number of Invalid Surfaces:	7769

Error Codes

Error Code -106 reported for 7 surfaces
Error Code -108 reported for 143 surfaces
Error Code -110 reported for 2622 surfaces
Error Code -111 reported for 1567 surfaces
Error Code -112 reported for 220 surfaces
Error Code -121 reported for 606 surfaces
Error Code -124 reported for 4 surfaces
Error Code -145 reported for 61 surfaces
Error Code -1000 reported for 2539 surfaces

Error Code Descriptions

The following errors were encountered during the computation:

-106 = Average slice width is less than 0.0001 * (maximum horizontal extent of soil region). This limitation is imposed to avoid numerical errors which may result from too many slices, or too small a slip region.

-108 = Total driving moment or total driving force < 0.1. This is to limit the calculation of extremely high safety factors if the driving force is very small (0.1 is an arbitrary number).

-110 = The water table or a piezoline does not span the slip region for a given slip surface, when Water Surfaces is specified as the method of pore pressure calculation. If this error occurs, check that the water table or piezoline(s) span the appropriate soil cells.

-111 = Safety factor equation did not converge

-112 = The coefficient M-Alpha = cos(alpha)(1+tan(alpha)tan(phi)/F) < 0.2 for the final iteration of the safety factor calculation. This screens out some slip surfaces which may not be valid in the context of the analysis, in particular, deep seated slip surfaces with many high negative base angle slices in the passive zone.

-121 = Concave failure surface, only convex surfaces have been defined as being allowed.

-124 = A slice has a width less than the minimum acceptable value.

-145 = Slip surface was clipped vertically by a weak layer in a region of compression. Such a surface cannot be evaluated using Limit Equilibrium. For more information, see Help Documentation on weak layers.

-1000 = No valid slip surface is generated

Slice Data

Global Minimum Query (spencer) - Safety Factor: 1.51501

Slice Number	Width [ft]	Weight [lbs]	Angle of Slice Base [deg]	Base Material	Base Cohesion [psf]	Base Friction Angle [deg]	Shear Stress [psf]	Shear Strength [psf]	Base Normal Stress [psf]	Pore Pressure [psf]	Effective Normal Stress [psf]	Base Vertical Stress [psf]	Effective Vertical Stress [psf]
1	0.962443	95.7837	-60.9231	Terrace (Qoa)	100	31	66.4443	100.664	1.1046	0	1.1046	120.595	120.595
2	2.18152	962.676	-60.9231	Anisotropic Bedrock (Tm) Ultimate	520	34.5	330.241	500.318	-28.6379	0	-28.6379	565.25	565.25
3	3.14397	3156.11	-58.7919	Anisotropic Bedrock (Tm) Ultimate	520	34.5	459.243	695.757	255.729	0	255.729	1013.79	1013.79
4	4.09525	6015.45	-29.9929	Anisotropic Bedrock (Tm) Ultimate	200	16	388.306	588.287	1354.12	0	1354.12	1578.24	1578.24
5	4.09525	7200.54	-29.9929	Anisotropic Bedrock (Tm) Ultimate	200	16	442.178	669.904	1638.75	0	1638.75	1893.97	1893.97
6	4.09525	8385.62	-29.9929	Anisotropic Bedrock (Tm) Ultimate	200	16	486.51	737.068	1872.98	0	1872.98	2153.78	2153.78
7	4.09525	9570.71	-29.9929	Anisotropic Bedrock (Tm) Ultimate	200	16	530.843	804.232	2107.21	0	2107.21	2413.6	2413.6
8	4.09706	10760.8	-29.9929	Anisotropic Bedrock (Tm) Ultimate	200	16	575.184	871.41	2341.49	0	2341.49	2673.48	2673.48
9	4.09706	11946.9	-29.9929	Anisotropic Bedrock (Tm) Ultimate	200	16	619.537	938.604	2575.82	0	2575.82	2933.41	2933.41
10	4.12161	13215.3	-29.9913	Anisotropic Bedrock (Tm) Ultimate	200	16	664.029	1006.01	2810.89	0	2810.89	3194.14	3194.14
11	4.12161	14415.6	-29.9913	Anisotropic Bedrock (Tm) Ultimate	200	16	672.522	1018.88	2855.78	0	2855.78	3243.92	3243.92
12	3.49569	13160.8	-29.6275	Anisotropic Bedrock (Tm) Ultimate	200	16	705.822	1069.33	3031.7	0	3031.7	3433.12	3433.12
13	3.49569	14011.4	-29.6275	Anisotropic Bedrock (Tm) Ultimate	200	16	743.233	1126.01	3229.37	0	3229.37	3652.06	3652.06
14	3.49379	14850.9	-29.4614	Anisotropic Bedrock (Tm) Ultimate	200	16	781.627	1184.17	3432.22	0	3432.22	3873.74	3873.74
15	3.49379	15694.8	-29.4614	Anisotropic Bedrock (Tm) Ultimate	200	16	818.826	1240.53	3628.74	0	3628.74	4091.28	4091.28
16	3.10351	14647.9	-29.3567	Anisotropic Bedrock (Tm) Ultimate	200	16	854.648	1294.8	3818.02	0	3818.02	4298.74	4298.74
17	3.10351	15311	-29.3567	Anisotropic Bedrock (Tm) Ultimate	200	16	887.578	1344.69	3992.03	0	3992.03	4491.27	4491.27

18	1.0164	5158.46	-29.3567	Anisotropic Bedrock (Tm) Ultimate	200	16	907.558	1374.96	4107.89	10.3183	4097.57	4618.37	4608.05
19	3.62827	18989.4	-29.0933	Anisotropic Bedrock (Tm) Ultimate	200	16	925.67	1402.4	4250.07	56.8129	4193.26	4765.15	4708.34
20	3.62827	19885.8	-29.0933	Anisotropic Bedrock (Tm) Ultimate	200	16	950.647	1440.24	4454.4	129.154	4325.24	4983.37	4854.22
21	3.62826	20782.1	-29.0933	Anisotropic Bedrock (Tm) Ultimate	200	16	975.631	1478.09	4658.73	201.495	4457.23	5201.61	5000.11
22	3.62826	21678.5	-29.0933	Anisotropic Bedrock (Tm) Ultimate	200	16	1000.61	1515.93	4863.03	273.836	4589.2	5419.81	5145.97
23	3.62826	22589.8	-29.0933	Anisotropic Bedrock (Tm) Ultimate	200	16	1026.23	1554.75	5070.76	346.177	4724.58	5641.79	5295.61
24	3.62826	23584.5	-29.0933	Anisotropic Bedrock (Tm) Ultimate	200	16	1055.4	1598.94	5297.22	418.518	4878.7	5884.48	5465.96
25	3.62826	24591.2	-29.0933	Anisotropic Bedrock (Tm) Ultimate	200	16	1085.08	1643.9	5526.35	490.86	5035.49	6130.13	5639.27
26	3.62826	25597.8	-29.0933	Anisotropic Bedrock (Tm) Ultimate	200	16	1114.76	1688.87	5755.49	563.201	5192.29	6375.78	5812.58
27	3.62826	26563.5	-29.0933	Anisotropic Bedrock (Tm) Ultimate	200	16	1142.69	1731.18	5975.42	635.542	5339.88	6611.26	5975.71
28	3.62826	26734.4	-29.0933	Anisotropic Bedrock (Tm) Ultimate	200	16	576.749	873.781	3057.63	707.883	2349.74	3378.55	2670.67
29	3.50553	11720.7	-10.0996	Anisotropic Bedrock (Tm) Ultimate	200	16	606.489	918.837	3244.5	737.623	2506.88	3352.53	2614.9
30	3.50553	11110.2	-10.0996	Anisotropic Bedrock (Tm) Ultimate	200	16	576.994	874.151	3075.8	724.761	2351.04	3178.57	2453.81
31	3.50991	10518.8	-10.0019	Anisotropic Bedrock (Tm) Ultimate	200	16	548.331	830.727	2911.3	711.699	2199.6	3008.01	2296.31
32	3.50991	9911.83	-10.0019	Anisotropic Bedrock (Tm) Ultimate	200	16	519.107	786.453	2743.64	698.437	2045.21	2835.19	2136.76
33	9.19617	23091	-10.0019	Anisotropic Bedrock (Tm) Ultimate	200	16	466.213	706.317	2440.17	674.431	1765.74	2522.39	1847.96
34	5.8025	12517.8	-10.0019	Anisotropic Bedrock (Tm) Ultimate	200	16	406.695	616.147	2097.37	646.094	1451.28	2169.1	1523
35	5.64316	11271.7	-10.0019	Anisotropic Bedrock (Tm) Ultimate	200	16	381.493	577.966	1942.59	624.47	1318.12	2009.87	1385.4
36	5.63632	11209.4	-10.0019	Anisotropic Bedrock (Tm) Ultimate	200	16	384.051	581.841	1934.79	603.16	1331.63	2002.52	1399.36

37	5.58684	11119.7	-10.0019	Anisotropic Bedrock (Tm) Ultimate	200	16	388.458	588.518	1936.88	581.956	1354.92	2005.38	1423.43
38	4.88478	9729.44	-10.0019	Anisotropic Bedrock (Tm) Ultimate	200	16	392.571	594.749	1938.82	562.172	1376.65	2008.06	1445.89
39	4.88478	9736.05	-10.0019	Anisotropic Bedrock (Tm) Ultimate	200	16	396.407	600.561	1940.64	543.714	1396.92	2010.55	1466.84
40	3.67218	7067.37	7.40732	Anisotropic Bedrock (Tm) Ultimate	520	34.5	1313.55	1990.04	2631.36	492.446	2138.92	2460.59	1968.14
41	3.67218	6558.76	7.40732	Anisotropic Bedrock (Tm) Ultimate	520	34.5	1278.6	1937.09	2470.24	408.368	2061.87	2304.01	1895.65
42	3.40642	5490.43	9.58673	Anisotropic Bedrock (Tm) Ultimate	520	34.5	1270.08	1924.19	2366.31	323.199	2043.11	2151.79	1828.59
43	3.40642	4801.33	9.58673	Anisotropic Bedrock (Tm) Ultimate	520	34.5	1194.25	1809.3	2112.88	236.939	1875.94	1911.18	1674.24
44	3.31583	4053.7	13.0313	Anisotropic Bedrock (Tm) Ultimate	520	34.5	1203.6	1823.47	2041.91	145.355	1896.56	1763.34	1617.99
45	3.31583	3441.25	13.0313	Anisotropic Bedrock (Tm) Ultimate	520	34.5	1139.69	1726.64	1804.12	48.4479	1755.67	1540.35	1491.9
46	0.181174	171.383	13.0313	Anisotropic Bedrock (Tm) Ultimate	520	34.5	1108.06	1678.72	1685.95	0	1685.95	1429.49	1429.49
47	4.0662	3368.19	14.3321	Anisotropic Bedrock (Tm) Ultimate	520	34.5	1053.78	1596.48	1566.29	0	1566.29	1297.06	1297.06
48	4.0662	2450.35	14.3321	Anisotropic Bedrock (Tm) Ultimate	520	34.5	897.618	1359.9	1222.06	0	1222.06	992.726	992.726
49	4.06621	1493.57	16.3555	Anisotropic Bedrock (Tm) Ultimate	520	34.5	762.219	1154.77	923.597	0	923.597	699.907	699.907
50	4.06621	497.855	16.3555	Anisotropic Bedrock (Tm) Ultimate	520	34.5	602.067	912.137	570.563	0	570.563	393.874	393.874

Interslice Data

Global Minimum Query (spencer) - Safety Factor: 1.51501

Slice Number	X coordinate [ft]	Y coordinate - Bottom [ft]	Interslice Normal Force [lbs]	Interslice Shear Force [lbs]	Interslice Force Angle [deg]
1	295.09	130.073	0	0	0
2	296.053	128.342	-62.2483	-20.1629	17.9477
3	298.234	124.419	-897.407	-290.679	17.9477
4	301.378	119.229	-1018.88	-330.026	17.9477
5	305.474	116.866	586.4	189.941	17.9477
6	309.569	114.502	2643.12	856.136	17.9477
7	313.664	112.138	5071.35	1642.66	17.9476
8	317.759	109.775	7871.06	2549.52	17.9477
9	321.856	107.41	11043.8	3577.19	17.9476
10	325.954	105.045	14588.3	4725.29	17.9476
11	330.075	102.666	18528.8	6001.68	17.9477
12	334.197	100.287	22541	7301.27	17.9477
13	337.692	98.2994	26092.7	8451.7	17.9477
14	341.188	96.3114	29906.2	9686.92	17.9477
15	344.682	94.3378	33940.1	10993.5	17.9476
16	348.176	92.3642	38231.4	12383.6	17.9477
17	351.279	90.6185	42235.2	13680.4	17.9477
18	354.383	88.8729	46440.1	15042.4	17.9476
19	355.399	88.3012	47863.1	15503.4	17.9477
20	359.027	86.2823	53073.9	17191.2	17.9477
21	362.656	84.2634	58606.3	18983.2	17.9477
22	366.284	82.2445	64460.3	20879.4	17.9477
23	369.912	80.2256	70635.8	22879.7	17.9477
24	373.54	78.2067	77137.5	24985.6	17.9477
25	377.169	76.1878	83990.1	27205.3	17.9477
26	380.797	74.1689	91197.3	29539.8	17.9477
27	384.425	72.1499	98759.1	31989.1	17.9477
28	388.053	70.131	106663	34549.4	17.9477
29	391.682	68.1121	54069	17513.5	17.9477
30	395.187	67.4877	53961.8	17478.8	17.9477
31	398.693	66.8633	53853	17443.5	17.9476
32	402.203	66.2443	53724.2	17401.8	17.9477
33	405.713	65.6253	53594.5	17359.8	17.9477
34	414.909	64.0034	53250.5	17248.4	17.9477
35	420.711	62.9801	53029.2	17176.7	17.9477
36	426.354	61.9849	52802.6	17103.3	17.9477
37	431.991	60.9908	52554	17022.8	17.9477
38	437.578	60.0055	52285	16935.7	17.9477
39	442.462	59.144	52031.3	16853.5	17.9477
40	447.347	58.2826	51760.4	16765.7	17.9476
41	451.019	58.76	45664.7	14791.3	17.9477
42	454.692	59.2374	39774.6	12883.4	17.9477
43	458.098	59.8127	34072.4	11036.4	17.9477
44	461.504	60.3881	28775.2	9320.61	17.9477
45	464.82	61.1555	23204.1	7516.05	17.9477
46	468.136	61.9229	18028.1	5839.48	17.9477
47	468.317	61.9648	17756	5751.34	17.9476
48	472.383	63.0037	11829.7	3831.77	17.9477
49	476.45	64.0426	6898.16	2234.39	17.9477
50	480.516	65.2359	2686.43	870.162	17.9477
51	484.582	66.4293	0	0	0

Discharge Sections

Entity Information

Entire Slope (Static)

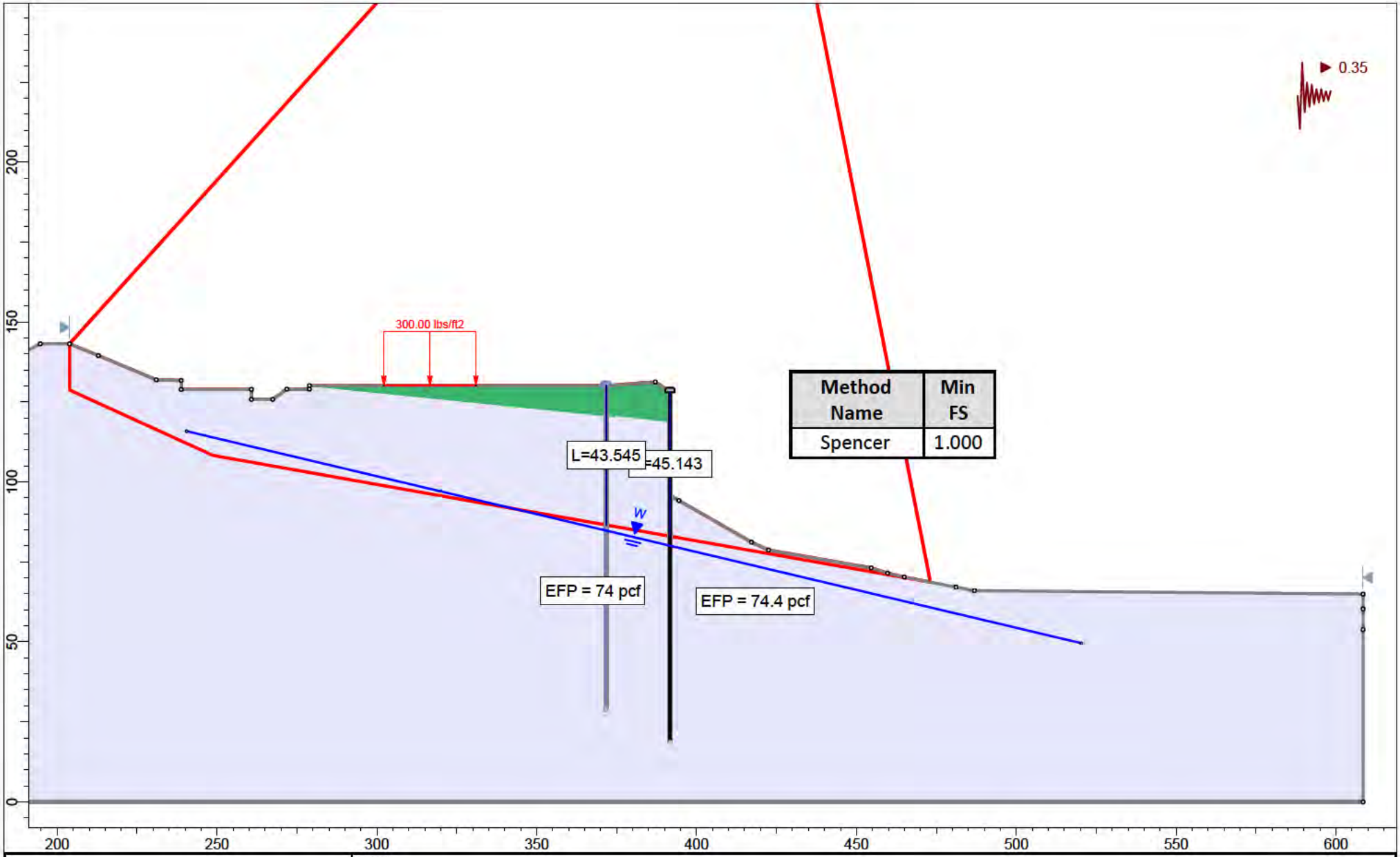
Shared Entities

Type	Coordinates (x,y)
External Boundary	0.386, -0.037 608.423, -0.037 608.423, 53.854 608.423, 60.25 608.423, 64.917 486.904, 65.983 481.115, 67.0957 464.951, 70.2021 459.698, 71.4611 454.611, 73.0969 422.519, 78.685 417.133, 81.1498 394.436, 94.1711 391.679, 95.798 391.679, 106.519 391.679, 118.36 391.679, 128.135 387.087, 131.212 371.662, 130.073 278.904, 130.073 278.904, 128.997 271.84, 128.997 267.423, 125.767 260.778, 125.767 260.778, 128.887 238.79, 128.887 238.79, 131.703 230.993, 131.919 212.872, 139.485 203.868, 143.139 194.712, 143.139 189.062, 140.22 175.096, 140.22 138.858, 142.078 111.823, 142.923 105.91, 144.524 93.371, 149.815 88.658, 151.594 78.564, 155.062 70.561, 158.308 62.068, 161.642 60.181, 161.869 57.907, 161.593 54.496, 160.921 53.083, 160.921 51.326, 161.645 47.382, 162.661 40.767, 164.59 36.375, 167.007 32.42, 169.373 29.924, 170.67 25.97, 172.42 20.427, 174.786 13.166, 179.259 10.217, 180.75 3.993, 183.376 1.367, 184.575 0.386, 185.129

Material Boundary	278.904, 130.073 374.457, 120.429 384.086, 119.333 390.302, 118.536 391.679, 118.36

Scenario-based Entities

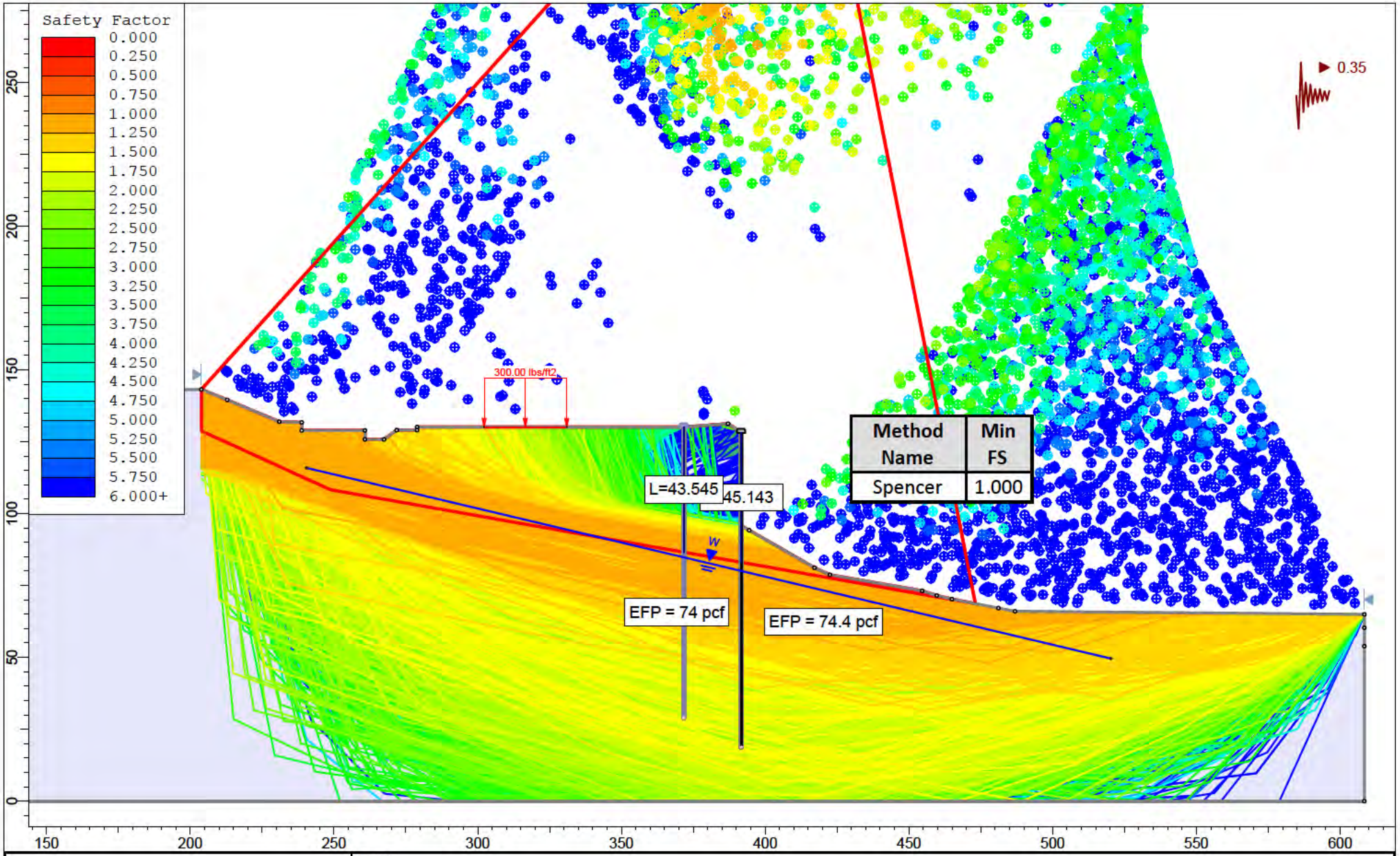
Type	Coordinates (x,y)	Master Scenario
Water Table	240.477, 115.859 520.344, 49.554	Assigned to:  Anisotropic Bedrock (Tm) Ultimate
Distributed Load	330.957, 130.073 302.229, 130.073	Constant DistributionOrientation: Normal to boundaryMagnitude: 300 lbs/ft2Creates Excess Pore Pressure: No



rocscience

SLIDEINTERPRET 9.018

Project	Section 3-3'		
Analysis Description	Entire Slope (Seismic)		
Drawn By	A. Greene	Scale 1:498	Company Feffer Geological Consulting
Date			File Name Section 3-3' Translational Analysis_2.slmd



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SLIDEINTERPRET 9.018

Project	Section 3-3'		
Analysis Description	Entire Slope (Seismic)		
Drawn By	A. Greene	Scale 1:554	Company Feffer Geological Consulting
Date			File Name Section 3-3' Translational Analysis_2.slmd

Slide Analysis Information

Section 3-3' Translational Analysis_2

Project Summary

File Name:	Section 3-3' Translational Analysis_2.slmd
Slide Modeler Version:	9.018
Compute Time:	00h:00m:12.454s
Project Title:	Section 3-3'
Analysis:	Entire Slope (Seismic)
Author:	A. Greene
Company:	Feffer Geological Consulting

General Settings

Units of Measurement:	Imperial Units
Time Units:	days
Permeability Units:	feet/second
Data Output:	Standard
Failure Direction:	Left to Right

Analysis Options

Slices Type:	Vertical
Analysis Methods Used	
	Spencer
Number of slices:	50
Tolerance:	0.005
Maximum number of iterations:	75
Check malpha < 0.2:	Yes
Create Interslice boundaries at intersections with water tables and piezos:	Yes
Initial trial value of FS:	1
Steffensen Iteration:	Yes

Groundwater Analysis

Groundwater Method:	Water Surfaces
Pore Fluid Unit Weight [lbs/ft3]:	62.4
Use negative pore pressure cutoff:	Yes
Maximum negative pore pressure [psf]:	0
Advanced Groundwater Method:	None

Random Numbers

Pseudo-random Seed:	10116
Random Number Generation Method:	Park and Miller v.3

Surface Options

Search Method:	Cuckoo Search
Initial # of Surface Vertices:	8
Maximum Iterations:	500
Number of Nests:	50
Minimum Elevation:	Not Defined
Minimum Depth:	Not Defined
Minimum Area:	Not Defined
Minimum Weight:	Not Defined
Convex Surfaces Only:	Enabled

Seismic Loading

Advanced seismic analysis:	No
Staged pseudostatic analysis:	No
Seismic Load Coefficient (Horizontal):	0.35

Loading

1 Distributed Load present

Distributed Load 1	
Distribution:	Constant
Magnitude [psf]:	300
Orientation:	Normal to boundary

Materials

Terrace (Qoa)	
Color	
Strength Type	Mohr-Coulomb
Unit Weight [lbs/ft3]	115
Cohesion [psf]	100
Friction Angle [deg]	31
Water Surface	None
Ru Value	0
Anisotropic Bedrock (Tm) Peak	
Color	
Strength Type	Anisotropic function
Unit Weight [lbs/ft3]	124
Water Surface	None
Ru Value	0

Anisotropic Functions

Name: Anisotropic Bedrock (Tm) Peak

Angle From	Angle To	c	phi
-90	-30	720	41
-30	-10	200	16
-10	90	720	41

Support

Enitre Slope Pile 1 (Seismic)	
Color	
Type	Pile/Micro Pile
Force Application	Active (Method A)
Force Orientation	Parallel to surface
Out-Of-Plane Spacing	10 ft
Failure Mode	Shear
Pile Shear Strength	753000 lbs

Entire Slope Pile 2 (Seismic)	
Color	
Type	Pile/Micro Pile
Force Application	Active (Method A)
Force Orientation	Parallel to surface
Out-Of-Plane Spacing	10 ft
Failure Mode	Shear
Pile Shear Strength	700000 lbs

Global Minimums

Method: spencer

FS	1.000330
Axis Location:	412.999, 375.135
Left Slip Surface Endpoint:	203.868, 143.139
Right Slip Surface Endpoint:	473.117, 68.633
Resisting Moment:	7.21736e+07 lb-ft
Driving Moment:	7.21497e+07 lb-ft
Resisting Horizontal Force:	240833 lb
Driving Horizontal Force:	240753 lb
Active Support Moment:	-4.23389e+07 lb-ft
Active Horizontal Support Force:	-143089 lb
Maximum Single Support Force:	75300 lb
Total Support Force:	145300 lb
Total Slice Area:	5842.51 ft2
Surface Horizontal Width:	269.249 ft
Surface Average Height:	21.6993 ft

Global Minimum Coordinates

Method: spencer

X	Y
203.868	128.713
248.743	108.263
327.831	94.2721
348.841	90.5645
404.944	80.6637
457.478	71.3927
473.117	68.6328

Global Minimum Support Data

Method: spencer

Number of Supports: 2

Enitre Slope Pile 1 (Seismic)

Support Type: Pile/Micro Pile

Start (x, y)	Length (ft)	L Inside SS (ft)	L Outside SS (ft)	Li (ft)	Lo (ft)	Force (lb)
391.679, 128.135	109.404	45.1304	64.2736	45.1304	64.2736	75300

Entire Slope Pile 2 (Seismic)

Support Type: Pile/Micro Pile

Start (x, y)	Length (ft)	L Inside SS (ft)	L Outside SS (ft)	Li (ft)	Lo (ft)	Force (lb)
371.662, 130.073	101.11	43.5359	57.5741	43.5359	57.5741	70000

Valid and Invalid Surfaces

Method: spencer

Number of Valid Surfaces:	13586
Number of Invalid Surfaces:	11476

Error Codes

Error Code -106 reported for 9 surfaces
Error Code -108 reported for 95 surfaces
Error Code -109 reported for 4 surfaces
Error Code -111 reported for 3335 surfaces
Error Code -112 reported for 259 surfaces
Error Code -121 reported for 2385 surfaces
Error Code -124 reported for 20 surfaces
Error Code -145 reported for 15 surfaces
Error Code -1000 reported for 5354 surfaces

Error Code Descriptions

The following errors were encountered during the computation:
-106 = Average slice width is less than 0.0001 * (maximum horizontal extent of soil region). This limitation is imposed to avoid numerical errors which may result from too many slices, or too small a slip region.
-108 = Total driving moment or total driving force < 0.1. This is to limit the calculation of extremely high safety factors if the driving force is very small (0.1 is an arbitrary number).
-109 = Soiltype for slice base not located. This error should occur very rarely, if at all. It may occur if a very low number of slices is combined with certain soil geometries, such that the midpoint of a slice base is actually outside the soil region,even though the slip surface is wholly within the soil region.
-111 = Safety factor equation did not converge
-112 = The coefficient M-Alpha = cos(alpha)(1+tan(alpha)tan(phi)/F) < 0.2 for the final iteration of the safety factor calculation. This screens out some slip surfaces which may not be valid in the context of the analysis, in particular, deep seated slip surfaces with many high negative base angle slices in the passive zone.
-121 = Concave failure surface, only convex surfaces have been defined as being allowed.
-124 = A slice has a width less than the minimum acceptable value.
-145 = Slip surface was clipped vertically by a weak layer in a region of compression. Such a surface cannot be evaluated using Limit Equilibrium. For more information, see Help Documentation on weak layers.
-1000 = No valid slip surface is generated

Slice Data

Global Minimum Query (spencer) - Safety Factor: 1.00033

Slice Number	Width [ft]	Weight [lbs]	Angle of Slice Base [deg]	Base Material	Base Cohesion [psf]	Base Friction Angle [deg]	Shear Stress [psf]	Shear Strength [psf]	Base Normal Stress [psf]	Pore Pressure [psf]	Effective Normal Stress [psf]	Base Vertical Stress [psf]	Effective Vertical Stress [psf]
1	5.60935	10131.6	-24.4986	Anisotropic Bedrock (Tm) Peak	200	16	553.882	554.065	1234.77	0	1234.77	1487.17	1487.17
2	5.60935	10322.7	-24.4986	Anisotropic Bedrock (Tm) Peak	200	16	560.52	560.705	1257.93	0	1257.93	1513.35	1513.35

3	5.60935	10479.9	-24.4986	Anisotropic Bedrock (Tm) Peak	200	16	565.985	566.172	1276.99	0	1276.99	1534.91	1534.91
4	5.60935	10628.9	-24.4986	Anisotropic Bedrock (Tm) Peak	200	16	571.16	571.348	1295.05	0	1295.05	1555.32	1555.32
5	5.60935	10798.3	-24.4986	Anisotropic Bedrock (Tm) Peak	200	16	577.048	577.238	1315.59	0	1315.59	1578.55	1578.55
6	5.60935	11937.1	-24.4986	Anisotropic Bedrock (Tm) Peak	200	16	616.617	616.82	1453.62	0	1453.62	1734.61	1734.61
7	5.60935	12122.7	-24.4986	Anisotropic Bedrock (Tm) Peak	200	16	623.065	623.271	1476.12	0	1476.12	1760.05	1760.05
8	5.60935	13455.9	-24.4986	Anisotropic Bedrock (Tm) Peak	200	16	669.388	669.609	1637.72	0	1637.72	1942.76	1942.76
9	5.27257	13788.6	-10.0322	Anisotropic Bedrock (Tm) Peak	200	16	839.789	840.066	2232.18	0	2232.18	2380.75	2380.75
10	5.27257	14398.4	-10.0322	Anisotropic Bedrock (Tm) Peak	200	16	867.269	867.555	2328.05	0	2328.05	2481.47	2481.47
11	5.27257	13544.9	-10.0322	Anisotropic Bedrock (Tm) Peak	200	16	828.807	829.081	2193.86	0	2193.86	2340.48	2340.48
12	5.27257	13841.6	-10.0322	Anisotropic Bedrock (Tm) Peak	200	16	842.177	842.455	2240.51	0	2240.51	2389.5	2389.5
13	5.27257	16117.2	-10.0322	Anisotropic Bedrock (Tm) Peak	200	16	944.72	945.032	2598.23	0	2598.23	2765.36	2765.36
14	5.27257	17105.4	-10.0322	Anisotropic Bedrock (Tm) Peak	200	16	989.248	989.574	2753.56	0	2753.56	2928.57	2928.57
15	5.27257	18203.3	-10.0322	Anisotropic Bedrock (Tm) Peak	200	16	1038.72	1039.06	2926.17	0	2926.17	3109.92	3109.92
16	5.27257	18787.9	-10.0322	Anisotropic Bedrock (Tm) Peak	200	16	1065.06	1065.41	3018.05	0	3018.05	3206.47	3206.47
17	5.27257	19372.5	-10.0322	Anisotropic Bedrock (Tm) Peak	200	16	1091.4	1091.76	3109.96	0	3109.96	3303.04	3303.04
18	5.27257	19957.1	-10.0322	Anisotropic Bedrock (Tm) Peak	200	16	1117.75	1118.12	3201.84	0	3201.84	3399.58	3399.58
19	5.27257	20541.6	-10.0322	Anisotropic Bedrock (Tm) Peak	200	16	1217.99	1218.39	3551.55	0	3551.55	3767.02	3767.02
20	5.27257	21126.2	-10.0322	Anisotropic Bedrock (Tm) Peak	200	16	1256.78	1257.19	3686.86	0	3686.86	3909.19	3909.19
21	5.27257	21710.8	-10.0322	Anisotropic Bedrock (Tm) Peak	200	16	1283.12	1283.54	3778.77	0	3778.77	4005.76	4005.76
22	5.27257	22295.4	-10.0322	Anisotropic Bedrock (Tm) Peak	200	16	1309.46	1309.89	3870.65	0	3870.65	4102.31	4102.31
23	5.27257	22880	-10.0322	Anisotropic Bedrock (Tm) Peak	200	16	1335.8	1336.24	3962.56	0	3962.56	4198.87	4198.87
24	4.91516	21854.8	-10.0083	Anisotropic Bedrock (Tm) Peak	200	16	1330.2	1330.64	3943.01	0	3943.01	4177.76	4177.76
25	4.91516	22361.6	-10.0083	Anisotropic Bedrock (Tm) Peak	200	16	1299.77	1300.2	3836.86	0	3836.86	4066.24	4066.24
26	4.91516	22868.3	-10.0083	Anisotropic Bedrock (Tm) Peak	200	16	1324.27	1324.71	3922.33	0	3922.33	4156.03	4156.03
27	6.26391	29877.8	-10.0083	Anisotropic Bedrock (Tm) Peak	200	16	1352.13	1352.58	4019.54	0	4019.54	4258.16	4258.16

28	5.61027	27458.7	-10.0083	Anisotropic Bedrock (Tm) Peak	200	16	1381.73	1382.19	4122.79	0	4122.79	4366.63	4366.63
29	5.61027	28118.9	-10.0083	Anisotropic Bedrock (Tm) Peak	200	16	1409.7	1410.17	4220.35	0	4220.35	4469.13	4469.13
30	5.61027	28779.1	-10.0083	Anisotropic Bedrock (Tm) Peak	200	16	1437.67	1438.14	4317.91	0	4317.91	4571.63	4571.63
31	5.61027	29439.3	-10.0083	Anisotropic Bedrock (Tm) Peak	200	16	1465.64	1466.12	4415.49	0	4415.49	4674.14	4674.14
32	5.61027	30215.3	-10.0083	Anisotropic Bedrock (Tm) Peak	200	16	2638.25	2639.12	8506.21	0	8506.21	8971.8	8971.8
33	5.61027	31139	-10.0083	Anisotropic Bedrock (Tm) Peak	200	16	1537.64	1538.15	4666.7	0	4666.7	4938.05	4938.05
34	5.61027	32016.8	-10.0083	Anisotropic Bedrock (Tm) Peak	200	16	1574.83	1575.35	4796.41	0	4796.41	5074.33	5074.33
35	5.61027	23127.2	-10.0083	Anisotropic Bedrock (Tm) Peak	200	16	2424.27	2425.07	7759.75	0	7759.75	8187.57	8187.57
36	5.61027	7528.54	-10.0083	Anisotropic Bedrock (Tm) Peak	200	16	537.425	537.602	1177.36	0	1177.36	1272.2	1272.2
37	5.61027	5978.38	-10.0083	Anisotropic Bedrock (Tm) Peak	200	16	471.754	471.91	948.263	0	948.263	1031.52	1031.52
38	5.25341	4192.52	-10.0083	Anisotropic Bedrock (Tm) Peak	200	16	408.164	408.299	726.425	0	726.425	798.456	798.456
39	5.25341	2833.1	-10.0083	Anisotropic Bedrock (Tm) Peak	200	16	346.663	346.777	511.872	0	511.872	573.05	573.05
40	5.25341	1565.46	-10.0083	Anisotropic Bedrock (Tm) Peak	200	16	289.313	289.409	311.805	0	311.805	362.861	362.861
41	5.25341	790.712	-10.0083	Anisotropic Bedrock (Tm) Peak	200	16	254.263	254.347	189.529	0	189.529	234.4	234.4
42	5.25341	740.822	-10.0083	Anisotropic Bedrock (Tm) Peak	200	16	252.006	252.089	181.656	0	181.656	226.128	226.128
43	5.25341	748.853	-10.0083	Anisotropic Bedrock (Tm) Peak	200	16	252.369	252.452	182.923	0	182.923	227.46	227.46
44	5.25341	756.883	-10.0083	Anisotropic Bedrock (Tm) Peak	200	16	252.732	252.816	184.19	0	184.19	228.791	228.791
45	5.25341	764.913	-10.0083	Anisotropic Bedrock (Tm) Peak	200	16	253.096	253.179	185.458	0	185.458	230.123	230.123
46	5.25341	772.943	-10.0083	Anisotropic Bedrock (Tm) Peak	200	16	253.459	253.543	186.725	0	186.725	231.454	231.454
47	5.25341	705.872	-10.0083	Anisotropic Bedrock (Tm) Peak	200	16	250.425	250.507	176.139	0	176.139	220.333	220.333
48	5.21302	306.854	-10.0083	Anisotropic Bedrock (Tm) Peak	200	16	232.48	232.557	113.539	0	113.539	154.566	154.566
49	5.21302	94.4729	-10.0083	Anisotropic Bedrock (Tm) Peak	200	16	222.797	222.871	79.7601	0	79.7601	119.078	119.078
50	5.21302	26.4747	-10.0083	Anisotropic Bedrock (Tm) Peak	200	16	218.703	218.775	65.4766	0	65.4766	104.072	104.072

Interslice Data

Global Minimum Query (spencer) - Safety Factor: 1.00033

Slice Number	X coordinate [ft]	Y coordinate - Bottom [ft]	Interslice Normal Force [lbs]	Interslice Shear Force [lbs]	Interslice Force Angle [deg]
1	203.868	128.713	0	0	0
2	209.477	126.157	3598.7	1799.35	26.5651
3	215.087	123.6	7286.26	3643.13	26.5651
4	220.696	121.044	11047	5523.49	26.565
5	226.305	118.488	14877	7438.49	26.565
6	231.915	115.932	18785.8	9392.9	26.5651
7	237.524	113.376	23224.3	11612.2	26.5651
8	243.133	110.82	27749.2	13874.6	26.5651
9	248.743	108.263	32894.2	16447.1	26.5651
10	254.015	107.331	35379.1	17689.5	26.565
11	259.288	106.398	38022.1	19011	26.565
12	264.561	105.465	40443.8	20221.9	26.5651
13	269.833	104.532	42942.4	21471.2	26.5651
14	275.106	103.6	46031.1	23015.6	26.5651
15	280.378	102.667	49376	24688	26.5651
16	285.651	101.734	53005.6	26502.8	26.5651
17	290.923	100.801	56786.8	28393.4	26.5651
18	296.196	99.8686	60719.5	30359.8	26.5651
19	301.469	98.9359	64803.8	32401.9	26.5651
20	306.741	98.0031	68890.9	34445.5	26.5651
21	312.014	97.0704	73104.6	36552.3	26.5651
22	317.286	96.1376	77469.8	38734.9	26.5651
23	322.559	95.2049	81986.6	40993.3	26.5651
24	327.831	94.2721	86655	43327.5	26.5651
25	332.747	93.4047	91193.1	45596.6	26.5651
26	337.662	92.5373	95966	47983	26.5651
27	342.577	91.6699	100870	50435	26.5651
28	348.841	90.5645	107310	53654.9	26.565
29	354.451	89.5744	113259	56629.3	26.565
30	360.061	88.5843	119378	59689.1	26.5651
31	365.672	87.5942	125669	62834.3	26.565
32	371.282	86.6041	132130	66065.1	26.5651
33	376.892	85.6141	67406.8	33703.4	26.5651
34	382.502	84.624	74308.4	37154.2	26.5651
35	388.113	83.6339	81437.1	40718.6	26.5651
36	393.723	82.6438	9473.8	4736.9	26.5651
37	399.333	81.6538	10262.5	5131.27	26.5651
38	404.944	80.6637	10650	5324.98	26.565
39	410.197	79.7366	10648.8	5324.41	26.5651
40	415.45	78.8095	10295.7	5147.86	26.5651
41	420.704	77.8824	9614.42	4807.21	26.5651
42	425.957	76.9553	8732.54	4366.27	26.5651
43	431.211	76.0282	7837.74	3918.87	26.5651
44	436.464	75.1011	6945.03	3472.51	26.565
45	441.717	74.174	6054.39	3027.2	26.5651
46	446.971	73.2469	5165.84	2582.92	26.5651
47	452.224	72.3198	4279.36	2139.68	26.5651
48	457.478	71.3927	3375.51	1687.76	26.5651
49	462.691	70.4727	2376.72	1188.36	26.5651
50	467.904	69.5527	1322.94	661.47	26.5651
51	473.117	68.6328	0	0	0

Discharge Sections

Entity Information

Entire Slope (Seismic)

Shared Entities

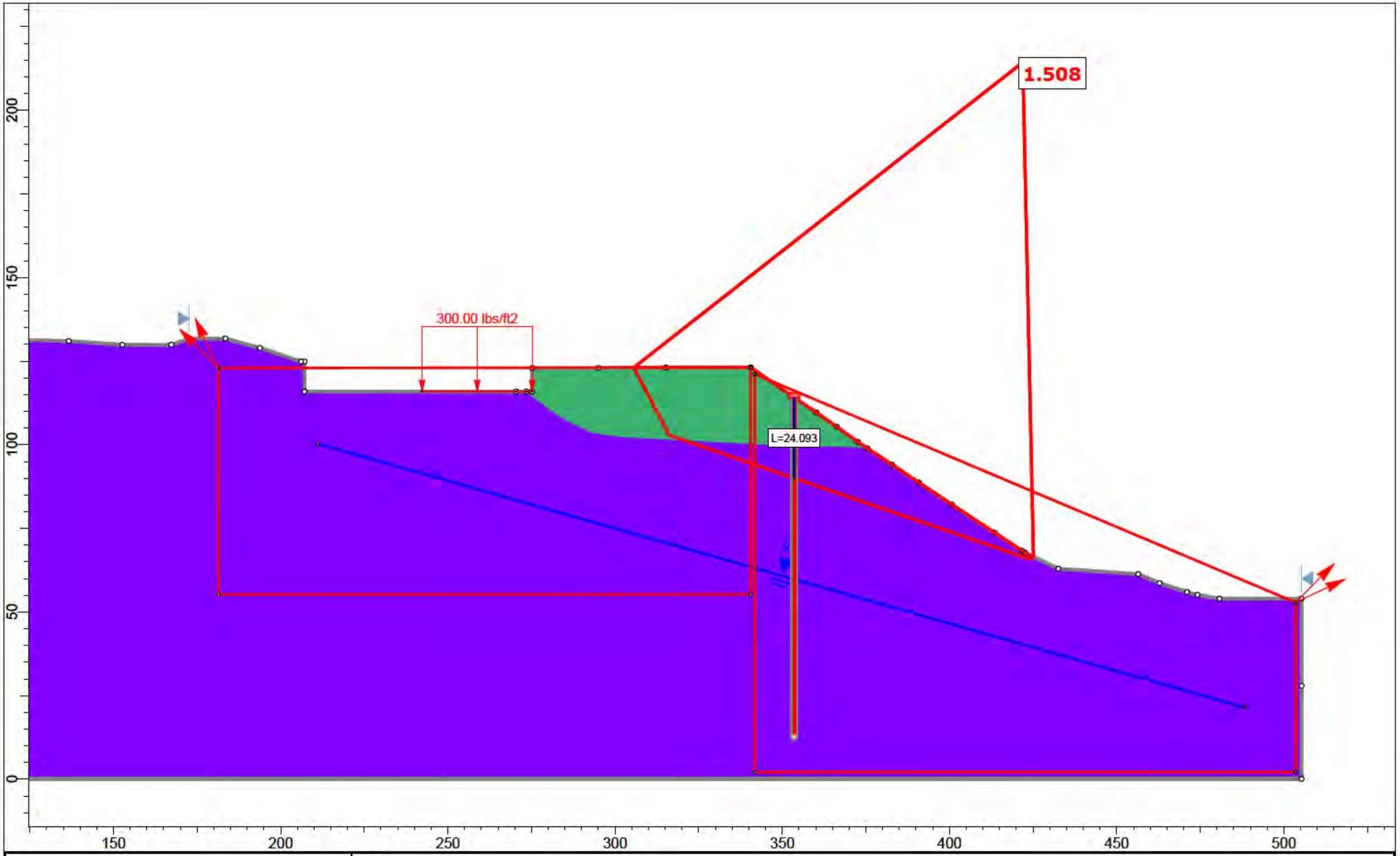
Type	Coordinates (x,y)

External Boundary	0.386, -0.037 608.423, -0.037 608.423, 53.854 608.423, 60.25 608.423, 64.917 486.904, 65.983 481.115, 67.0957 464.951, 70.2021 459.698, 71.4611 454.611, 73.0969 422.519, 78.685 417.133, 81.1498 394.436, 94.1711 391.679, 95.734 391.679, 106.519 391.679, 118.36 391.679, 128.135 387.087, 131.212 371.662, 130.073 278.904, 130.073 278.904, 128.997 271.84, 128.997 267.423, 125.767 260.778, 125.767 260.778, 128.887 238.79, 128.887 238.79, 131.703 230.993, 131.919 212.872, 139.485 203.868, 143.139 194.712, 143.139 189.062, 140.22 175.096, 140.22 138.858, 142.078 111.823, 142.923 105.91, 144.524 93.371, 149.815 88.658, 151.594 78.564, 155.062 70.561, 158.308 62.068, 161.642 60.181, 161.869 57.907, 161.593 54.496, 160.921 53.083, 160.921 51.326, 161.645 47.382, 162.661 40.767, 164.59 36.375, 167.007 32.42, 169.373 29.924, 170.67 25.97, 172.42 20.427, 174.786 13.166, 179.259 10.217, 180.75 3.993, 183.376 1.367, 184.575 0.386, 185.129

Material Boundary	278.904, 130.073 374.457, 120.429 384.086, 119.333 390.302, 118.536 391.679, 118.36

Scenario-based Entities

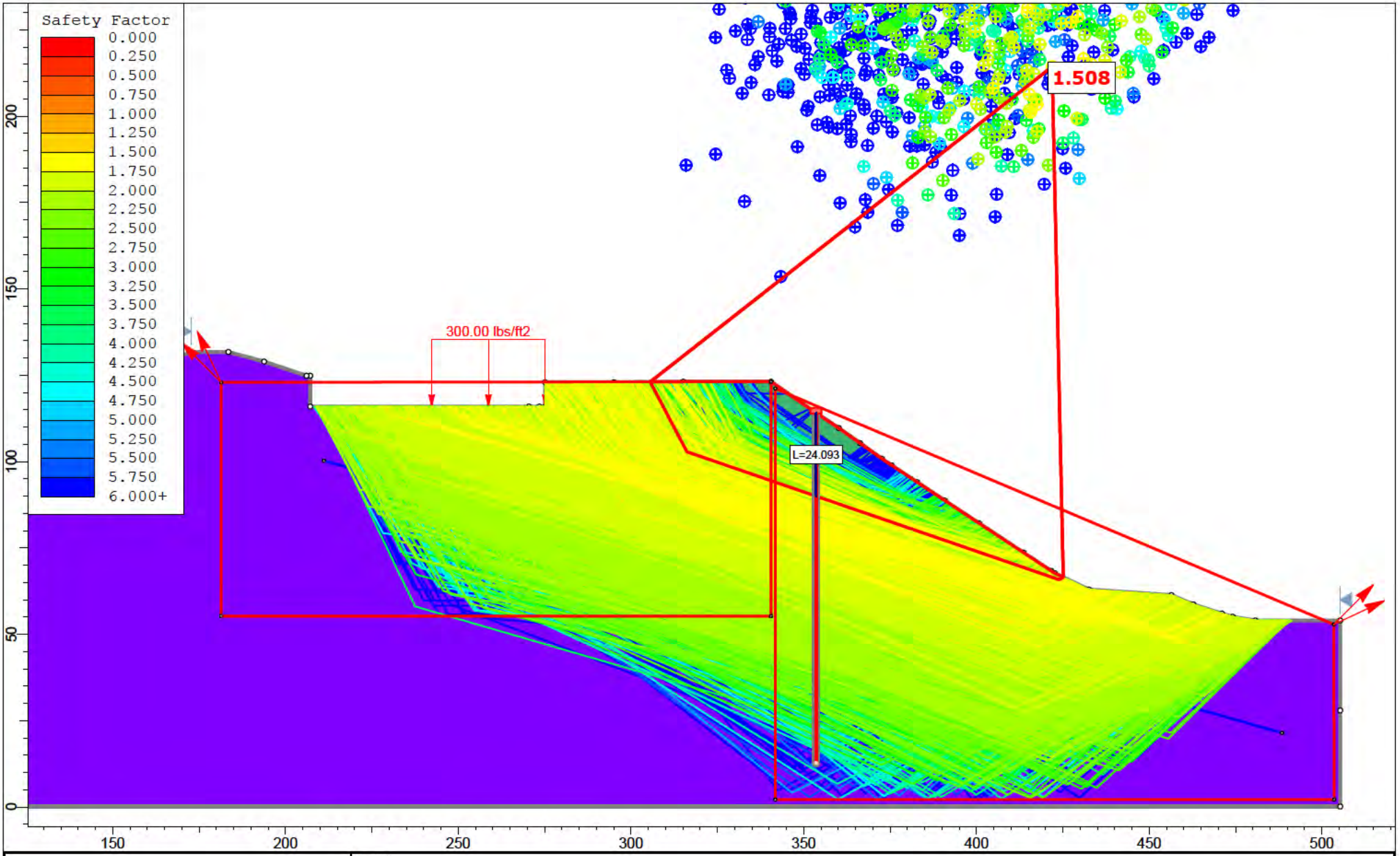
Type	Coordinates (x,y)	Master Scenario
Water Table	240.477, 115.859 520.344, 49.554	Not assigned to any materials
Distributed Load	330.957, 130.073 302.229, 130.073	Constant DistributionOrientation: Normal to boundaryMagnitude: 300 lbs/ft2Creates Excess Pore Pressure: No



rocscience

SLIDEINTERPRET 9.018

Project	Section 4-4'		
Analysis Description	Translational (Static)		
Drawn By	A. Greene	Scale 1:476	Company Feffer Geological Consulting
Date			File Name Section 4-4' Translational Analysis_2.slmd



rocscience

SLIDEINTERPRET 9.018

Project	Section 4-4'		
Analysis Description	Translational (Static)		
Drawn By	A. Greene	Scale 1:461	Company Feffer Geological Consulting
Date			File Name Section 4-4' Translational Analysis_2.slmd

Slide Analysis Information

Section 4-4' Translational Analysis_2

Project Summary

File Name:	Section 4-4' Translational Analysis_2.slmd
Slide Modeler Version:	9.018
Compute Time:	00h:00m:00.548s
Project Title:	Section 4-4'
Analysis:	Translational (Static)
Author:	A. Greene
Company:	Feffer Geological Consulting

General Settings

Units of Measurement:	Imperial Units
Time Units:	days
Permeability Units:	feet/second
Data Output:	Standard
Failure Direction:	Left to Right

Analysis Options

Slices Type:	Vertical
Analysis Methods Used	
	Spencer
Number of slices:	50
Tolerance:	0.005
Maximum number of iterations:	75
Check malpha < 0.2:	Yes
Create Interslice boundaries at intersections with water tables and piezos:	Yes
Initial trial value of FS:	1
Steffensen Iteration:	Yes

Groundwater Analysis

Groundwater Method:	Water Surfaces
Pore Fluid Unit Weight [lbs/ft3]:	62.4
Use negative pore pressure cutoff:	Yes
Maximum negative pore pressure [psf]:	0
Advanced Groundwater Method:	None

Random Numbers

Pseudo-random Seed:	10116
Random Number Generation Method:	Park and Miller v.3

Surface Options

Surface Type:	Non-Circular Block Search
Number of Surfaces:	5000
Multiple Groups:	Disabled
Pseudo-Random Surfaces:	Enabled
Convex Surfaces Only:	Disabled
Left Projection Angle (Start Angle) [deg]:	115
Left Projection Angle (End Angle) [deg]:	135
Right Projection Angle (Start Angle) [deg]:	45
Right Projection Angle (End Angle) [deg]:	25
Minimum Elevation:	Not Defined
Minimum Depth:	Not Defined
Minimum Area:	Not Defined
Minimum Weight:	Not Defined

Seismic Loading

Advanced seismic analysis:	No
Staged pseudostatic analysis:	No

Loading

1 Distributed Load present

Distributed Load 1	
Distribution:	Constant
Magnitude [psf]:	300
Orientation:	Normal to boundary

Materials

Terrace (Qoa)	
Color	
Strength Type	Mohr-Coulomb
Unit Weight [lbs/ft3]	115
Cohesion [psf]	100
Friction Angle [deg]	31
Water Surface	None
Ru Value	0
Anisotropic Bedrock (Tm) Ultimate	
Color	
Strength Type	Anisotropic function
Unit Weight [lbs/ft3]	124
Water Surface	Water Table
Hu Value	1

Anisotropic Functions

Name: Anisotropic Bedrock (Tm) Ultimate

Angle From	Angle To	c	phi
-90	-30	520	34.5
-30	-10	200	16
-10	90	520	34.5

Support

Pile1 (Static)	
Color	
Type	Pile/Micro Pile
Force Application	Active (Method A)
Force Orientation	Parallel to surface
Out-Of-Plane Spacing	10 ft
Failure Mode	Shear
Pile Shear Strength	190000 lbs

Global Minimums

Method: spencer

FS	1.507900
Axis Location:	421.904, 214.335
Left Slip Surface Endpoint:	305.562, 123.040
Right Slip Surface Endpoint:	425.134, 66.484
Resisting Moment:	1.32778e+07 lb-ft
Driving Moment:	8.80551e+06 lb-ft
Resisting Horizontal Force:	85492.5 lb
Driving Horizontal Force:	56696.3 lb
Active Support Moment:	-2.65646e+06 lb-ft
Active Horizontal Support Force:	-17969.7 lb
Maximum Single Support Force:	19000 lb
Total Support Force:	19000 lb
Total Slice Area:	1915.99 ft2
Surface Horizontal Width:	119.573 ft
Surface Average Height:	16.0237 ft

Global Minimum Coordinates

Method: spencer

X	Y
305.562	123.04
316.184	102.815
423.954	65.8004
425.134	66.484

Global Minimum Support Data

Method: spencer

Number of Supports: 1

Pile1 (Static)

Support Type: Pile/Micro Pile

Start (x, y)	Length (ft)	L Inside SS (ft)	L Outside SS (ft)	Li (ft)	Lo (ft)	Force (lb)
353.562, 114.069	101.374	24.0924	77.2816	24.0924	77.2816	19000

Valid and Invalid Surfaces

Method: spencer

Number of Valid Surfaces:	2814
Number of Invalid Surfaces:	2186

Error Codes

Error Code -105 reported for 147 surfaces
Error Code -108 reported for 46 surfaces
Error Code -110 reported for 1308 surfaces
Error Code -111 reported for 681 surfaces
Error Code -112 reported for 4 surfaces

Error Code Descriptions

The following errors were encountered during the computation:
-105 = More than two surface / slope intersections with no valid slip surface.
-108 = Total driving moment or total driving force < 0.1. This is to limit the calculation of extremely high safety factors if the driving force is very small (0.1 is an arbitrary number).
-110 = The water table or a piezoline does not span the slip region for a given slip surface, when Water Surfaces is specified as the method of pore pressure calculation. If this error occurs, check that the water table or piezoline(s) span the appropriate soil cells.
-111 = Safety factor equation did not converge
-112 = The coefficient M-Alpha = cos(alpha)(1+tan(alpha)tan(phi)/F) < 0.2 for the final iteration of the safety factor calculation. This screens out some slip surfaces which may not be valid in the context of the analysis, in particular, deep seated slip surfaces with many high negative base angle slices in the passive zone.

Slice Data

Global Minimum Query (spencer) - Safety Factor: 1.5079

Slice Number	Width [ft]	Weight [lbs]	Angle of Slice Base [deg]	Base Material	Base Cohesion [psf]	Base Friction Angle [deg]	Shear Stress [psf]	Shear Strength [psf]	Base Normal Stress [psf]	Pore Pressure [psf]	Effective Normal Stress [psf]	Base Vertical Stress [psf]	Effective Vertical Stress [psf]
1	2.65558	775.083	-62.2916	Terrace (Qoa)	100	31	98.7193	148.859	81.3149	0	81.3149	269.281	269.281
2	2.65558	2325.25	-62.2916	Terrace (Qoa)	100	31	197.819	298.292	330.014	0	330.014	706.671	706.671
3	2.65558	3875.41	-62.2916	Terrace (Qoa)	100	31	296.92	447.726	578.712	0	578.712	1144.06	1144.06
4	2.65558	5425.1	-62.2916	Terrace (Qoa)	100	31	395.99	597.113	827.335	0	827.335	1581.32	1581.32
5	2.58257	6159.59	-18.9555	Terrace (Qoa)	100	31	919.776	1386.93	2141.81	0	2141.81	2457.72	2457.72
6	2.58257	6423.03	-18.9555	Terrace (Qoa)	100	31	956.224	1441.89	2233.28	0	2233.28	2561.71	2561.71
7	2.38616	6176.15	-18.9555	Anisotropic Bedrock (Tm) Ultimate	200	16	570.908	860.872	2304.74	0	2304.74	2500.82	2500.82
8	2.38616	6416	-18.9555	Anisotropic Bedrock (Tm) Ultimate	200	16	587.884	886.47	2394	0	2394	2595.92	2595.92
9	2.38616	6655.85	-18.9555	Anisotropic Bedrock (Tm) Ultimate	200	16	604.859	912.067	2483.27	0	2483.27	2691.02	2691.02
10	2.38616	6895.71	-18.9555	Anisotropic Bedrock (Tm) Ultimate	200	16	621.834	937.664	2572.54	0	2572.54	2786.11	2786.11

11	2.38616	7135.56	-18.9555	Anisotropic Bedrock (Tm) Ultimate	200	16	638.81	963.262	2661.81	0	2661.81	2881.22	2881.22
12	2.38616	7375.41	-18.9555	Anisotropic Bedrock (Tm) Ultimate	200	16	655.786	988.859	2751.08	0	2751.08	2976.31	2976.31
13	2.38616	7615.26	-18.9555	Anisotropic Bedrock (Tm) Ultimate	200	16	672.761	1014.46	2840.35	0	2840.35	3071.41	3071.41
14	2.38616	7855.11	-18.9555	Anisotropic Bedrock (Tm) Ultimate	200	16	689.737	1040.05	2929.61	0	2929.61	3166.51	3166.51
15	2.38616	7885.98	-18.9555	Anisotropic Bedrock (Tm) Ultimate	200	16	691.921	1043.35	2941.1	0	2941.1	3178.75	3178.75
16	2.38616	7672.57	-18.9555	Anisotropic Bedrock (Tm) Ultimate	200	16	676.817	1020.57	2861.68	0	2861.68	3094.14	3094.14
17	2.38616	7458.96	-18.9555	Anisotropic Bedrock (Tm) Ultimate	200	16	661.699	997.776	2782.17	0	2782.17	3009.44	3009.44
18	2.38616	7246.19	-18.9555	Anisotropic Bedrock (Tm) Ultimate	200	16	646.64	975.069	2702.99	0	2702.99	2925.08	2925.08
19	2.38616	7033.54	-18.9555	Anisotropic Bedrock (Tm) Ultimate	200	16	631.59	952.375	2623.84	0	2623.84	2840.77	2840.77
20	2.38616	6822.19	-18.9555	Anisotropic Bedrock (Tm) Ultimate	200	16	682.774	1029.55	2893	0	2893	3127.51	3127.51
21	2.38616	6622.87	-18.9555	Anisotropic Bedrock (Tm) Ultimate	200	16	602.524	908.546	2470.99	0	2470.99	2677.94	2677.94
22	2.38616	6426.47	-18.9555	Anisotropic Bedrock (Tm) Ultimate	200	16	588.625	887.587	2397.9	0	2397.9	2600.07	2600.07
23	2.38616	6223.46	-18.9555	Anisotropic Bedrock (Tm) Ultimate	200	16	574.256	865.921	2322.34	0	2322.34	2519.58	2519.58
24	2.38616	6002.99	-18.9555	Anisotropic Bedrock (Tm) Ultimate	200	16	558.652	842.392	2240.28	0	2240.28	2432.16	2432.16
25	2.38616	5781.49	-18.9555	Anisotropic Bedrock (Tm) Ultimate	200	16	542.976	818.753	2157.85	0	2157.85	2344.34	2344.34
26	2.38616	5555.62	-18.9555	Anisotropic Bedrock (Tm) Ultimate	200	16	526.99	794.648	2073.78	0	2073.78	2254.78	2254.78
27	2.38616	5327.4	-18.9555	Anisotropic Bedrock (Tm) Ultimate	200	16	510.838	770.292	1988.84	0	1988.84	2164.3	2164.3
28	2.38616	5103.71	-18.9555	Anisotropic Bedrock (Tm) Ultimate	200	16	495.006	746.419	1905.59	0	1905.59	2075.6	2075.6
29	2.38616	4903.62	-18.9555	Anisotropic Bedrock (Tm) Ultimate	200	16	480.844	725.065	1831.12	0	1831.12	1996.27	1996.27

30	2.38616	4684.17	-18.9555	Anisotropic Bedrock (Tm) Ultimate	200	16	465.313	701.645	1749.44	0	1749.44	1909.26	1909.26
31	2.38616	4456.92	-18.9555	Anisotropic Bedrock (Tm) Ultimate	200	16	449.229	677.393	1664.87	0	1664.87	1819.16	1819.16
32	2.38616	4229.71	-18.9555	Anisotropic Bedrock (Tm) Ultimate	200	16	433.149	653.145	1580.31	0	1580.31	1729.07	1729.07
33	2.38616	4003.42	-18.9555	Anisotropic Bedrock (Tm) Ultimate	200	16	417.133	628.995	1496.08	0	1496.08	1639.35	1639.35
34	2.38616	3777.52	-18.9555	Anisotropic Bedrock (Tm) Ultimate	200	16	401.145	604.886	1412	0	1412	1549.78	1549.78
35	2.38616	3551.62	-18.9555	Anisotropic Bedrock (Tm) Ultimate	200	16	385.157	580.778	1327.93	0	1327.93	1460.21	1460.21
36	2.38616	3325.19	-18.9555	Anisotropic Bedrock (Tm) Ultimate	200	16	369.131	556.613	1243.66	0	1243.66	1370.44	1370.44
37	2.38616	3097.94	-18.9555	Anisotropic Bedrock (Tm) Ultimate	200	16	353.047	532.36	1159.08	0	1159.08	1280.33	1280.33
38	2.38616	2870.68	-18.9555	Anisotropic Bedrock (Tm) Ultimate	200	16	336.963	508.106	1074.49	0	1074.49	1190.23	1190.23
39	2.38616	2643.41	-18.9555	Anisotropic Bedrock (Tm) Ultimate	200	16	320.878	483.852	989.911	0	989.911	1100.12	1100.12
40	2.38616	2417.43	-18.9555	Anisotropic Bedrock (Tm) Ultimate	200	16	304.884	459.735	905.804	0	905.804	1010.52	1010.52
41	2.38616	2194.61	-18.9555	Anisotropic Bedrock (Tm) Ultimate	200	16	289.114	435.955	822.874	0	822.874	922.173	922.173
42	2.38616	1971.94	-18.9555	Anisotropic Bedrock (Tm) Ultimate	200	16	273.355	412.192	740	0	740	833.886	833.886
43	2.38616	1749.28	-18.9555	Anisotropic Bedrock (Tm) Ultimate	200	16	257.595	388.428	657.129	0	657.129	745.603	745.603
44	2.38616	1526.61	-18.9555	Anisotropic Bedrock (Tm) Ultimate	200	16	241.836	364.665	574.255	0	574.255	657.316	657.316
45	2.38616	1303.94	-18.9555	Anisotropic Bedrock (Tm) Ultimate	200	16	226.077	340.902	491.384	0	491.384	569.033	569.033
46	2.38616	1081.3	-18.9555	Anisotropic Bedrock (Tm) Ultimate	200	16	210.32	317.141	408.518	0	408.518	480.754	480.754
47	2.38616	858.66	-18.9555	Anisotropic Bedrock (Tm) Ultimate	200	16	194.562	293.38	325.655	0	325.655	392.479	392.479
48	2.38616	636.02	-18.9555	Anisotropic Bedrock (Tm) Ultimate	200	16	178.805	269.62	242.792	0	242.792	304.205	304.205

49	2.38616	430.76	-18.9555	Anisotropic Bedrock (Tm) Ultimate	200	16	164.277	247.714	166.398	0	166.398	222.821	222.821
50	1.18058	91.4223	30.073	Anisotropic Bedrock (Tm) Ultimate	520	34.5	893.893	1347.9	1204.6	0	1204.6	686.994	686.994

Interslice Data

Global Minimum Query (spencer) - Safety Factor: 1.5079

Slice Number	X coordinate [ft]	Y coordinate - Bottom [ft]	Interslice Normal Force [lbs]	Interslice Shear Force [lbs]	Interslice Force Angle [deg]
1	305.562	123.04	0	0	0
2	308.217	117.984	148.752	58.8271	21.5774
3	310.873	112.928	1291.59	510.787	21.5774
4	313.528	107.871	3428.53	1355.88	21.5773
5	316.184	102.815	6559.24	2593.98	21.5773
6	318.766	101.928	6081.43	2405.02	21.5773
7	321.349	101.041	5590.53	2210.89	21.5773
8	323.735	100.221	6115.82	2418.62	21.5773
9	326.121	99.4018	6673.72	2639.25	21.5773
10	328.507	98.5822	7264.24	2872.79	21.5773
11	330.894	97.7627	7887.37	3119.22	21.5773
12	333.28	96.9431	8543.11	3378.54	21.5773
13	335.666	96.1236	9231.48	3650.77	21.5773
14	338.052	95.304	9952.46	3935.9	21.5773
15	340.438	94.4845	10706.1	4233.92	21.5772
16	342.824	93.6649	11463.8	4533.6	21.5774
17	345.211	92.8454	12192.6	4821.81	21.5773
18	347.597	92.0258	12892.3	5098.53	21.5774
19	349.983	91.2063	13563.1	5363.81	21.5774
20	352.369	90.3867	14205	5617.65	21.5773
21	354.755	89.5672	-3024.43	-1196.07	21.5773
22	357.141	88.7477	-2438.4	-964.313	21.5773
23	359.528	87.9281	-1879.08	-743.118	21.5773
24	361.914	87.1086	-1347.36	-532.839	21.5773
25	364.3	86.289	-845.62	-334.417	21.5773
26	366.686	85.4695	-374.003	-147.907	21.5773
27	369.072	84.6499	66.9005	26.4571	21.5773
28	371.458	83.8304	476.771	188.548	21.5772
29	373.844	83.0108	856.222	338.61	21.5773
30	376.231	82.1913	1208.46	477.911	21.5774
31	378.617	81.3717	1530.87	605.411	21.5772
32	381.003	80.5522	1822.37	720.691	21.5773
33	383.389	79.7326	2082.97	823.752	21.5773
34	385.775	78.9131	2312.8	914.643	21.5773
35	388.161	78.0936	2511.92	993.387	21.5773
36	390.548	77.274	2680.31	1059.98	21.5773
37	392.934	76.4545	2817.91	1114.4	21.5773
38	395.32	75.6349	2924.62	1156.6	21.5773
39	397.706	74.8154	3000.41	1186.57	21.5773
40	400.092	73.9958	3045.31	1204.33	21.5773
41	402.478	73.1763	3059.47	1209.93	21.5773
42	404.864	72.3567	3043.34	1203.55	21.5773
43	407.251	71.5372	2996.93	1185.19	21.5772
44	409.637	70.7176	2920.23	1154.86	21.5773
45	412.023	69.8981	2813.26	1112.56	21.5773
46	414.409	69.0785	2676.01	1058.28	21.5773
47	416.795	68.259	2508.49	992.03	21.5773
48	419.181	67.4395	2310.68	913.806	21.5773
49	421.568	66.6199	2082.61	823.609	21.5773
50	423.954	65.8004	1826.62	722.373	21.5773
51	425.134	66.484	0	0	0

Discharge Sections

Entity Information

Translational (Static)

Shared Entities

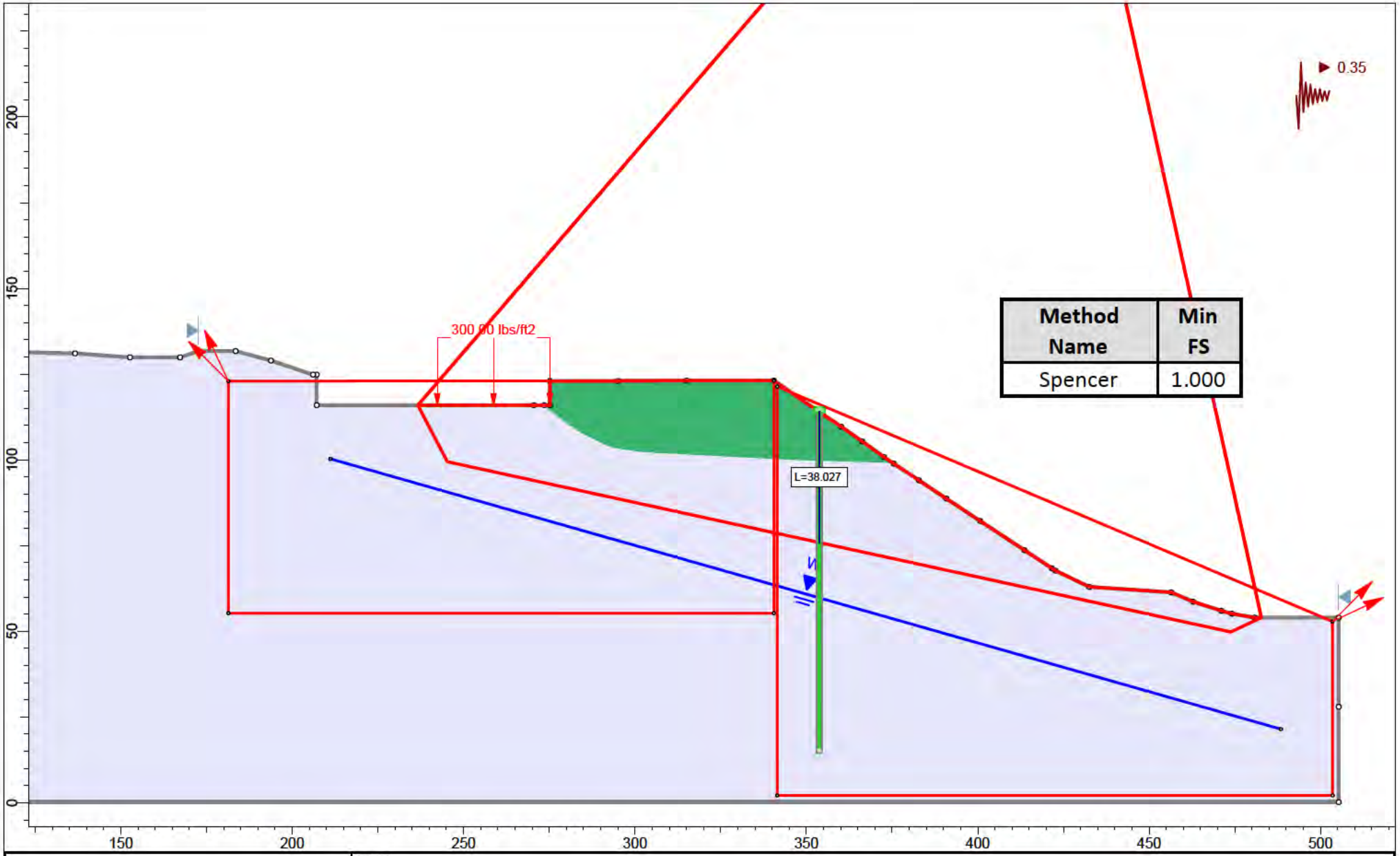
Type	Coordinates (x,y)

External Boundary	0.235, 184.951 -0.154, 0.116 505.309, 0.116 505.309, 27.9488 505.309, 53.989 480.732, 53.989 474.165, 55.09 471.052, 55.963 462.815, 58.621 456.446, 61.31 432.547, 62.934 422.639, 67.679 421.615, 68.362 413.605, 73.639 400.699, 82.142 390.829, 88.709 382.819, 94.023 375.496, 98.8954 372.606, 100.818 366.28, 105.351 360.178, 109.66 353.802, 113.919 340.534, 123.111 315.124, 123.111 295.004, 122.962 275.174, 122.962 275.174, 115.923 273.496, 115.923 270.47, 115.923 207.15, 115.923 207.15, 124.855 206.075, 124.855 193.797, 128.929 183.475, 131.724 172.683, 131.724 167.29, 129.885 152.655, 129.885 136.627, 131.024 91.465, 132.01 88.851, 133.732 86.883, 134.993 83.317, 137.453 79.022, 140.415 75.503, 142.704 71.745, 145.027 69.115, 146.598 63.546, 149.605 55.105, 154.376 47.248, 159.056 40.176, 163.054 30.945, 168.401 27.756, 170.147 20.658, 173.791 13.825, 177.283 8.283, 180.054 4.107, 182.75

Material Boundary	273.496, 115.923 280.901, 110.275 284.962, 107.671 288.66, 105.849 291.522, 104.48 292.252, 104.13 295.897, 102.933 302.146, 102.048 320.006, 101.11 346.302, 99.756 353.802, 99.5349 375.496, 98.8954

Scenario-based Entities

Type	Coordinates (x,y)	Master Scenario
Water Table	211.127, 100.268 488.448, 21.436	Assigned to:  Anisotropic Bedrock (Tm) Ultimate
Distributed Load	275.174, 115.923 273.496, 115.923 270.47, 115.923 242.316, 115.923	Constant DistributionOrientation: Normal to boundaryMagnitude: 300 lbs/ft2Creates Excess Pore Pressure: No
Block Search Window	181.353, 122.927 181.353, 55.248 340.534, 55.248 340.534, 123.111	
Block Search Window	503.462, 52.845 341.763, 121.119 341.763, 2.112 503.552, 2.112	



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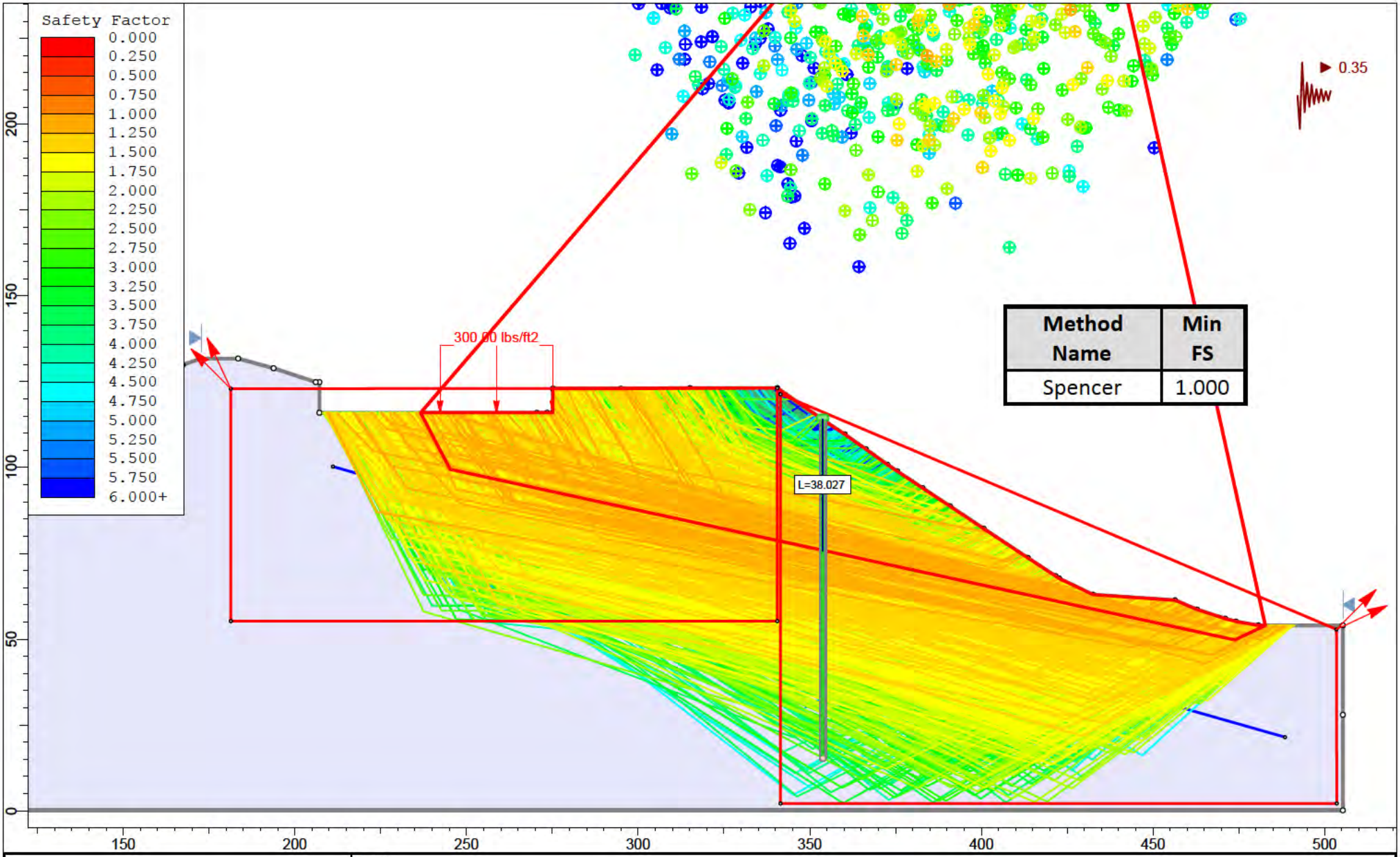
SLIDEINTERPRET 9.018

Project	Section 4-4'				
Analysis Description	Translational (Seismic)				
Drawn By	A. Greene	Scale	1:464	Company	Feffer Geological Consulting
Date				File Name	Section 4-4' Translational Analysis_2.slmd



rocscience

SLIDEINTERPRET 9.018

Project	Section 4-4'				
Analysis Description	Translational (Seismic)				
Drawn By	A. Greene	*Scale*	1:464	*Company*	Feffer Geological Consulting
Date				*File Name*	Section 4-4' Translational Analysis_2.slmd

Slide Analysis Information

Section 4-4' Translational Analysis_2

Project Summary

File Name:	Section 4-4' Translational Analysis_2.slmd
Slide Modeler Version:	9.018
Compute Time:	00h:00m:00.645s
Project Title:	Section 4-4'
Analysis:	Translational (Seismic)
Author:	A. Greene
Company:	Feffer Geological Consulting

General Settings

Units of Measurement:	Imperial Units
Time Units:	days
Permeability Units:	feet/second
Data Output:	Standard
Failure Direction:	Left to Right

Analysis Options

Slices Type:	Vertical
Analysis Methods Used	
	Spencer
Number of slices:	50
Tolerance:	0.005
Maximum number of iterations:	75
Check malpha < 0.2:	Yes
Create Interslice boundaries at intersections with water tables and piezos:	Yes
Initial trial value of FS:	1
Steffensen Iteration:	Yes

Groundwater Analysis

Groundwater Method:	Water Surfaces
Pore Fluid Unit Weight [lbs/ft3]:	62.4
Use negative pore pressure cutoff:	Yes
Maximum negative pore pressure [psf]:	0
Advanced Groundwater Method:	None

Random Numbers

Pseudo-random Seed:	10116
Random Number Generation Method:	Park and Miller v.3

Surface Options

Surface Type:	Non-Circular Block Search
Number of Surfaces:	5000
Multiple Groups:	Disabled
Pseudo-Random Surfaces:	Enabled
Convex Surfaces Only:	Disabled
Left Projection Angle (Start Angle) [deg]:	115
Left Projection Angle (End Angle) [deg]:	135
Right Projection Angle (Start Angle) [deg]:	45
Right Projection Angle (End Angle) [deg]:	25
Minimum Elevation:	Not Defined
Minimum Depth:	Not Defined
Minimum Area:	Not Defined
Minimum Weight:	Not Defined

Seismic Loading

Advanced seismic analysis:	No
Staged pseudostatic analysis:	No
Seismic Load Coefficient (Horizontal):	0.35

Loading

1 Distributed Load present

Distributed Load 1	
Distribution:	Constant
Magnitude [psf]:	300
Orientation:	Normal to boundary

Materials

Terrace (Qoa)	
Color	
Strength Type	Mohr-Coulomb
Unit Weight [lbs/ft3]	115
Cohesion [psf]	100
Friction Angle [deg]	31
Water Surface	None
Ru Value	0
Anisotropic Bedrock (Tm) Peak	
Color	
Strength Type	Anisotropic function
Unit Weight [lbs/ft3]	124
Water Surface	Water Table
Hu Value	1

Anisotropic Functions

Name: Anisotropic Bedrock (Tm) Peak

Angle From	Angle To	c	phi
-90	-30	720	41
-30	-10	200	16
-10	90	720	41

Support

Pile 1 (Seismic)	
Color	
Type	Pile/Micro Pile
Force Application	Active (Method A)
Force Orientation	Parallel to surface
Out-Of-Plane Spacing	10 ft
Failure Mode	Shear
Pile Shear Strength	200000 lbs

Global Minimums

Method: spencer

FS	0.999995
Axis Location:	421.629, 331.029
Left Slip Surface Endpoint:	236.659, 115.923
Right Slip Surface Endpoint:	482.732, 53.989
Resisting Moment:	8.42383e+07 lb-ft
Driving Moment:	8.42387e+07 lb-ft
Resisting Horizontal Force:	295772 lb
Driving Horizontal Force:	295774 lb
Active Support Moment:	-5.27517e+06 lb-ft
Active Horizontal Support Force:	-19543.9 lb
Maximum Single Support Force:	20000 lb
Total Support Force:	20000 lb
Total Slice Area:	5497.68 ft2
Surface Horizontal Width:	246.073 ft
Surface Average Height:	22.3417 ft

Global Minimum Coordinates

Method: spencer

X	Y
236.659	115.923
245.238	99.445
473.81	49.7762
478.271	51.8826
482.732	53.989

Global Minimum Support Data

Method: spencer

Number of Supports: 1

Pile 1 (Seismic)

Support Type: Pile/Micro Pile

Start (x, y)	Length (ft)	L Inside SS (ft)	L Outside SS (ft)	Li (ft)	Lo (ft)	Force (lb)
353.802, 113.919	98.5544	38.065	60.4894	38.065	60.4894	20000

Valid and Invalid Surfaces

Method: spencer

Number of Valid Surfaces:	1959
Number of Invalid Surfaces:	3041

Error Codes

Error Code -105 reported for 148 surfaces
Error Code -108 reported for 29 surfaces
Error Code -110 reported for 1310 surfaces
Error Code -111 reported for 1344 surfaces
Error Code -112 reported for 210 surfaces

Error Code Descriptions

The following errors were encountered during the computation:
-105 = More than two surface / slope intersections with no valid slip surface.
-108 = Total driving moment or total driving force < 0.1. This is to limit the calculation of extremely high safety factors if the driving force is very small (0.1 is an arbitrary number).
-110 = The water table or a piezoline does not span the slip region for a given slip surface, when Water Surfaces is specified as the method of pore pressure calculation. If this error occurs, check that the water table or piezoline(s) span the appropriate soil cells.
-111 = Safety factor equation did not converge
-112 = The coefficient M-Alpha = cos(alpha)(1+tan(alpha)tan(phi)/F) < 0.2 for the final iteration of the safety factor calculation. This screens out some slip surfaces which may not be valid in the context of the analysis, in particular, deep seated slip surfaces with many high negative base angle slices in the passive zone.

Slice Data

Global Minimum Query (spencer) - Safety Factor: 0.999995

Slice Number	Width [ft]	Weight [lbs]	Angle of Slice Base [deg]	Base Material	Base Cohesion [psf]	Base Friction Angle [deg]	Shear Stress [psf]	Shear Strength [psf]	Base Normal Stress [psf]	Pore Pressure [psf]	Effective Normal Stress [psf]	Base Vertical Stress [psf]	Effective Vertical Stress [psf]
1	4.28966	2191.24	-62.4961	Anisotropic Bedrock (Tm) Peak	720	41	528.192	528.189	-220.654	0	-220.654	793.826	793.826
2	4.28966	6573.73	-62.4961	Anisotropic Bedrock (Tm) Peak	720	41	838.178	838.174	135.943	0	135.943	1745.8	1745.8
3	4.96897	10485.6	-12.2598	Anisotropic Bedrock (Tm) Peak	200	16	799.403	799.399	2090.35	0	2090.35	2264.06	2264.06
4	4.96897	11150.9	-12.2598	Anisotropic Bedrock (Tm) Peak	200	16	831.63	831.626	2202.74	0	2202.74	2383.46	2383.46
5	4.96897	11816.2	-12.2598	Anisotropic Bedrock (Tm) Peak	200	16	863.857	863.853	2315.13	0	2315.13	2502.85	2502.85
6	4.96897	12481.5	-12.2598	Anisotropic Bedrock (Tm) Peak	200	16	896.084	896.08	2427.53	0	2427.53	2622.24	2622.24
7	4.96897	13146.8	-12.2598	Anisotropic Bedrock (Tm) Peak	200	16	928.312	928.307	2539.92	0	2539.92	2741.64	2741.64
8	4.96897	13803.8	-12.2598	Anisotropic Bedrock (Tm) Peak	200	16	960.137	960.132	2650.89	0	2650.89	2859.53	2859.53
9	4.96897	18262.9	-12.2598	Anisotropic Bedrock (Tm) Peak	200	16	1095.2	1095.19	3121.89	0	3121.89	3359.88	3359.88
10	4.96897	18866.8	-12.2598	Anisotropic Bedrock (Tm) Peak	200	16	1122.41	1122.4	3216.8	0	3216.8	3460.7	3460.7

11	4.96897	19406	-12.2598	Anisotropic Bedrock (Tm) Peak	200	16	1148.53	1148.52	3307.89	0	3307.89	3557.47	3557.47
12	4.96897	19968.9	-12.2598	Anisotropic Bedrock (Tm) Peak	200	16	1175.79	1175.79	3402.98	0	3402.98	3658.48	3658.48
13	4.96897	20581.3	-12.2598	Anisotropic Bedrock (Tm) Peak	200	16	1205.46	1205.45	3506.44	0	3506.44	3768.38	3768.38
14	4.96897	21238.3	-12.2598	Anisotropic Bedrock (Tm) Peak	200	16	1237.29	1237.28	3617.43	0	3617.43	3886.3	3886.3
15	4.96897	21911	-12.2598	Anisotropic Bedrock (Tm) Peak	200	16	1269.87	1269.86	3731.04	0	3731.04	4006.99	4006.99
16	4.96897	22585.6	-12.2598	Anisotropic Bedrock (Tm) Peak	200	16	1302.55	1302.54	3845.03	0	3845.03	4128.07	4128.07
17	4.96897	23251.1	-12.2598	Anisotropic Bedrock (Tm) Peak	200	16	1334.79	1334.78	3957.44	0	3957.44	4247.49	4247.49
18	4.96897	23904.8	-12.2598	Anisotropic Bedrock (Tm) Peak	200	16	1366.46	1366.45	4067.88	0	4067.88	4364.81	4364.81
19	4.96897	24558.7	-12.2598	Anisotropic Bedrock (Tm) Peak	200	16	1398.13	1398.12	4178.33	0	4178.33	4482.14	4482.14
20	4.96897	25212.5	-12.2598	Anisotropic Bedrock (Tm) Peak	200	16	1429.8	1429.79	4288.79	0	4288.79	4599.48	4599.48
21	4.96897	25866.4	-12.2598	Anisotropic Bedrock (Tm) Peak	200	16	1461.47	1461.46	4399.25	0	4399.25	4716.83	4716.83
22	4.96897	25856.1	-12.2598	Anisotropic Bedrock (Tm) Peak	200	16	1460.97	1460.96	4397.5	0	4397.5	4714.97	4714.97
23	4.96897	24575.1	-12.2598	Anisotropic Bedrock (Tm) Peak	200	16	1398.92	1398.91	4181.1	0	4181.1	4485.08	4485.08
24	4.96897	23267.2	-12.2598	Anisotropic Bedrock (Tm) Peak	200	16	1502.78	1502.77	4543.29	0	4543.29	4869.84	4869.84
25	4.96897	22003.9	-12.2598	Anisotropic Bedrock (Tm) Peak	200	16	1274.38	1274.37	3746.76	0	3746.76	4023.68	4023.68
26	4.96897	20725.1	-12.2598	Anisotropic Bedrock (Tm) Peak	200	16	1212.43	1212.42	3530.73	0	3530.73	3794.19	3794.19
27	4.96897	19373.7	-12.2598	Anisotropic Bedrock (Tm) Peak	200	16	1146.96	1146.95	3302.42	0	3302.42	3551.66	3551.66
28	4.96897	18009.5	-12.2598	Anisotropic Bedrock (Tm) Peak	200	16	1080.88	1080.87	3071.98	0	3071.98	3306.85	3306.85
29	4.96897	16706.4	-12.2598	Anisotropic Bedrock (Tm) Peak	200	16	1017.75	1017.75	2851.84	0	2851.84	3073	3073
30	4.96897	15338.2	-12.2598	Anisotropic Bedrock (Tm) Peak	200	16	951.479	951.474	2620.7	0	2620.7	2827.46	2827.46
31	4.96897	13970.9	-12.2598	Anisotropic Bedrock (Tm) Peak	200	16	885.248	885.244	2389.73	0	2389.73	2582.09	2582.09
32	4.96897	12603.6	-12.2598	Anisotropic Bedrock (Tm) Peak	200	16	819.015	819.011	2158.75	0	2158.75	2336.72	2336.72
33	4.96897	11232.1	-12.2598	Anisotropic Bedrock (Tm) Peak	200	16	752.579	752.575	1927.06	0	1927.06	2090.59	2090.59
34	4.96897	9865.43	-12.2598	Anisotropic Bedrock (Tm) Peak	200	16	686.375	686.372	1696.18	0	1696.18	1845.33	1845.33
35	4.96897	8512.77	-12.2598	Anisotropic Bedrock (Tm) Peak	200	16	620.852	620.849	1467.68	0	1467.68	1602.59	1602.59

36	4.96897	7160.93	-12.2598	Anisotropic Bedrock (Tm) Peak	200	16	555.369	555.366	1239.31	0	1239.31	1359.99	1359.99
37	4.96897	5809.16	-12.2598	Anisotropic Bedrock (Tm) Peak	200	16	489.887	489.885	1010.95	0	1010.95	1117.4	1117.4
38	4.96897	4479.85	-12.2598	Anisotropic Bedrock (Tm) Peak	200	16	425.496	425.494	786.39	0	786.39	878.85	878.85
39	4.96897	3540.18	-12.2598	Anisotropic Bedrock (Tm) Peak	200	16	379.977	379.975	627.649	0	627.649	710.217	710.217
40	4.96897	2797.46	-12.2598	Anisotropic Bedrock (Tm) Peak	200	16	344	343.998	502.18	0	502.18	576.931	576.931
41	4.96897	2950.16	-12.2598	Anisotropic Bedrock (Tm) Peak	200	16	351.397	351.395	527.976	0	527.976	604.334	604.334
42	4.96897	3407.41	-12.2598	Anisotropic Bedrock (Tm) Peak	200	16	373.546	373.544	605.22	0	605.22	686.391	686.391
43	4.96897	3864.66	-12.2598	Anisotropic Bedrock (Tm) Peak	200	16	395.695	395.693	682.464	0	682.464	768.448	768.448
44	4.96897	4321.9	-12.2598	Anisotropic Bedrock (Tm) Peak	200	16	417.844	417.842	759.706	0	759.706	850.503	850.503
45	4.96897	4646.5	-12.2598	Anisotropic Bedrock (Tm) Peak	200	16	433.568	433.566	814.542	0	814.542	908.756	908.756
46	4.96897	4164.6	-12.2598	Anisotropic Bedrock (Tm) Peak	200	16	410.224	410.222	733.133	0	733.133	822.274	822.274
47	4.96897	3747.53	-12.2598	Anisotropic Bedrock (Tm) Peak	200	16	390.022	390.02	662.678	0	662.678	747.429	747.429
48	4.96897	3444.8	-12.2598	Anisotropic Bedrock (Tm) Peak	200	16	375.357	375.355	611.536	0	611.536	693.101	693.101
49	4.46059	2183.51	25.2776	Anisotropic Bedrock (Tm) Peak	720	41	10358.5	10358.4	11087.7	0	11087.7	6196.25	6196.25
50	4.46059	645.487	25.2776	Anisotropic Bedrock (Tm) Peak	720	41	7871.11	7871.07	8226.37	0	8226.37	4509.48	4509.48

Interslice Data

Global Minimum Query (spencer) - Safety Factor: 0.999995

Slice Number	X coordinate [ft]	Y coordinate - Bottom [ft]	Interslice Normal Force [lbs]	Interslice Shear Force [lbs]	Interslice Force Angle [deg]
1	236.659	115.923	0	0	0
2	240.948	107.684	-3324.79	-1233.45	20.3541
3	245.238	99.445	-3512.12	-1302.95	20.3542
4	250.207	98.3652	-1571.3	-582.931	20.3542
5	255.176	97.2855	563.021	208.873	20.3542
6	260.145	96.2057	2890.85	1072.46	20.3541
7	265.114	95.1259	5412.19	2007.84	20.3541
8	270.083	94.0462	8127.03	3015.01	20.3541
9	275.052	92.9664	11033	4093.07	20.3541
10	280.021	91.8867	15334.7	5688.94	20.3541
11	284.99	90.8069	19814.5	7350.9	20.3541
12	289.959	89.7272	24451.2	9071.05	20.3541
13	294.928	88.6474	29251.6	10851.9	20.3541
14	299.897	87.5677	34230.2	12698.9	20.3541
15	304.865	86.4879	39399.8	14616.8	20.3542
16	309.834	85.4082	44765.1	16607.2	20.3541
17	314.803	84.3284	50326.6	18670.4	20.3541
18	319.772	83.2486	56081.6	20805.5	20.3542
19	324.741	82.1689	62026.8	23011.1	20.3542
20	329.71	81.0891	68162.2	25287.2	20.3541
21	334.679	80.0094	74487.8	27633.9	20.3541
22	339.648	78.9296	81003.5	30051.1	20.3541
23	344.617	77.8499	87516.2	32467.3	20.3542
24	349.586	76.7701	93656.4	34745.2	20.3541
25	354.555	75.6904	79668.1	29555.7	20.3541
26	359.524	74.6106	85060.4	31556.2	20.3541
27	364.493	73.5309	90080.8	33418.7	20.3541
28	369.462	72.4511	94708.1	35135.3	20.3541
29	374.431	71.3713	98938.6	36704.8	20.3541
30	379.4	70.2916	102790	38133.6	20.3541
31	384.369	69.2118	106244	39414.8	20.354
32	389.338	68.1321	109299	40548.5	20.3542
33	394.307	67.0523	111958	41534.7	20.3541
34	399.276	65.9726	114217	42372.8	20.3541
35	404.245	64.8928	116079	43063.5	20.3541
36	409.214	63.8131	117547	43608.2	20.3541
37	414.183	62.7333	118622	44007.1	20.3541
38	419.152	61.6535	119304	44260.1	20.3541
39	424.121	60.5738	119599	44369.6	20.3542
40	429.09	59.494	119621	44377.8	20.3542
41	434.059	58.4143	119427	44305.8	20.3542
42	439.028	57.3345	119278	44250.3	20.3541
43	443.997	56.2548	119261	44244.2	20.3542
44	448.966	55.175	119378	44287.4	20.3541
45	453.935	54.0953	119627	44379.9	20.3541
46	458.904	53.0155	119971	44507.4	20.3541
47	463.873	51.9358	120174	44583	20.3542
48	468.841	50.856	120257	44613.5	20.3541
49	473.81	49.7762	120251	44611.4	20.3541
50	478.271	51.8826	51292.6	19028.8	20.3541
51	482.732	53.989	0	0	0

Discharge Sections

Entity Information

Translational (Seismic)

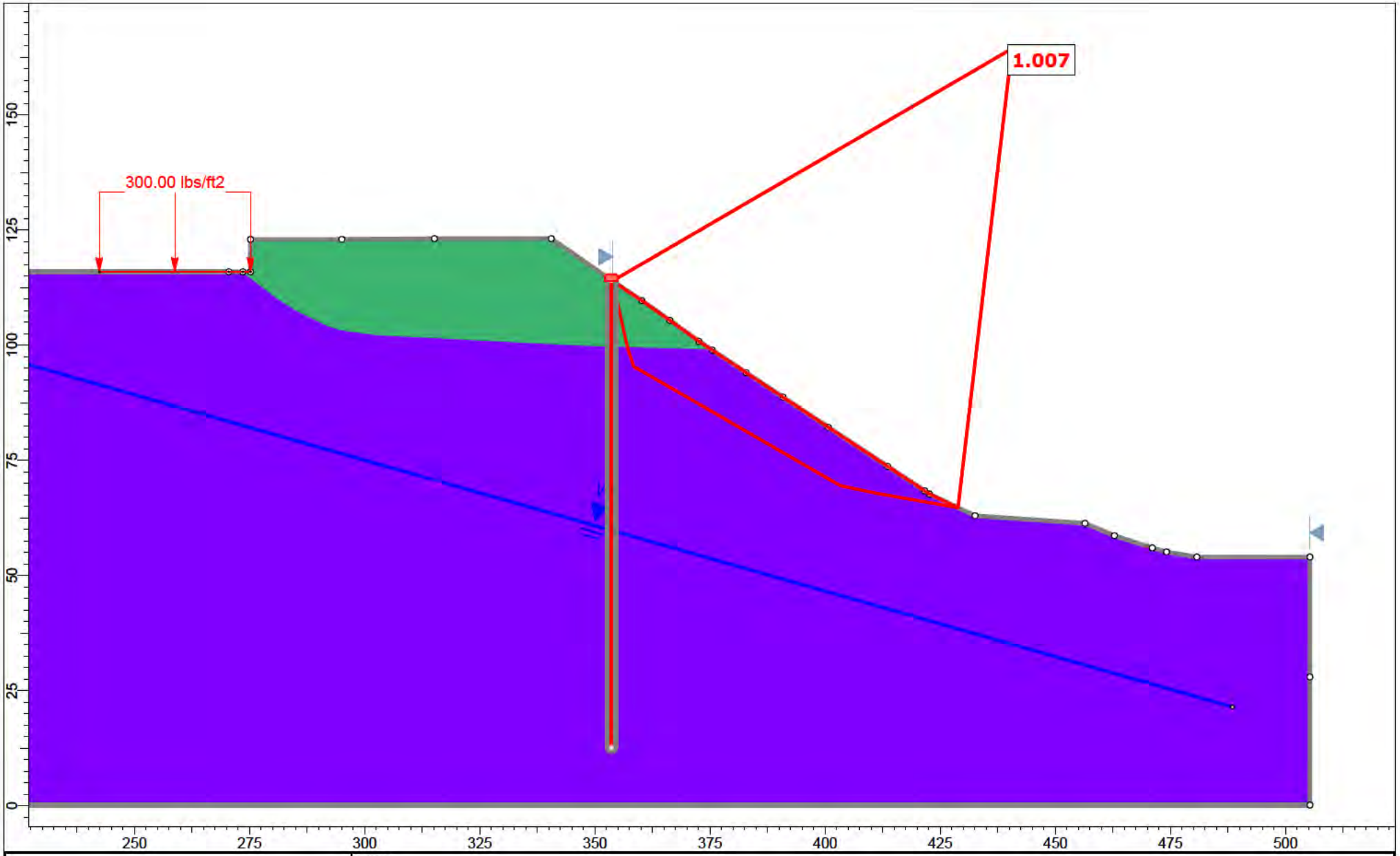
Shared Entities

Type	Coordinates (x,y)
External Boundary	0.235, 184.951 -0.154, 0.116 505.309, 0.116 505.309, 27.9488 505.309, 53.989 480.732, 53.989 474.165, 55.09 471.052, 55.963 462.815, 58.621 456.446, 61.31 432.547, 62.934 422.639, 67.679 421.615, 68.362 413.605, 73.639 400.699, 82.142 390.829, 88.709 382.819, 94.023 375.496, 98.8954 372.606, 100.818 366.28, 105.351 360.178, 109.66 353.802, 113.919 340.534, 123.111 315.124, 123.111 295.004, 122.962 275.174, 122.962 275.174, 115.923 273.496, 115.923 270.47, 115.923 207.15, 115.923 207.15, 124.855 206.075, 124.855 193.797, 128.929 183.475, 131.724 172.683, 131.724 167.29, 129.885 152.655, 129.885 136.627, 131.024 91.465, 132.01 88.851, 133.732 86.883, 134.993 83.317, 137.453 79.022, 140.415 75.503, 142.704 71.745, 145.027 69.115, 146.598 63.546, 149.605 55.105, 154.376 47.248, 159.056 40.176, 163.054 30.945, 168.401 27.756, 170.147 20.658, 173.791 13.825, 177.283 8.283, 180.054 4.107, 182.75

Material Boundary	273.496, 115.923 280.901, 110.275 284.962, 107.671 288.66, 105.849 291.522, 104.48 292.252, 104.13 295.897, 102.933 302.146, 102.048 320.006, 101.11 346.302, 99.756 353.802, 99.5349 375.496, 98.8954

Scenario-based Entities

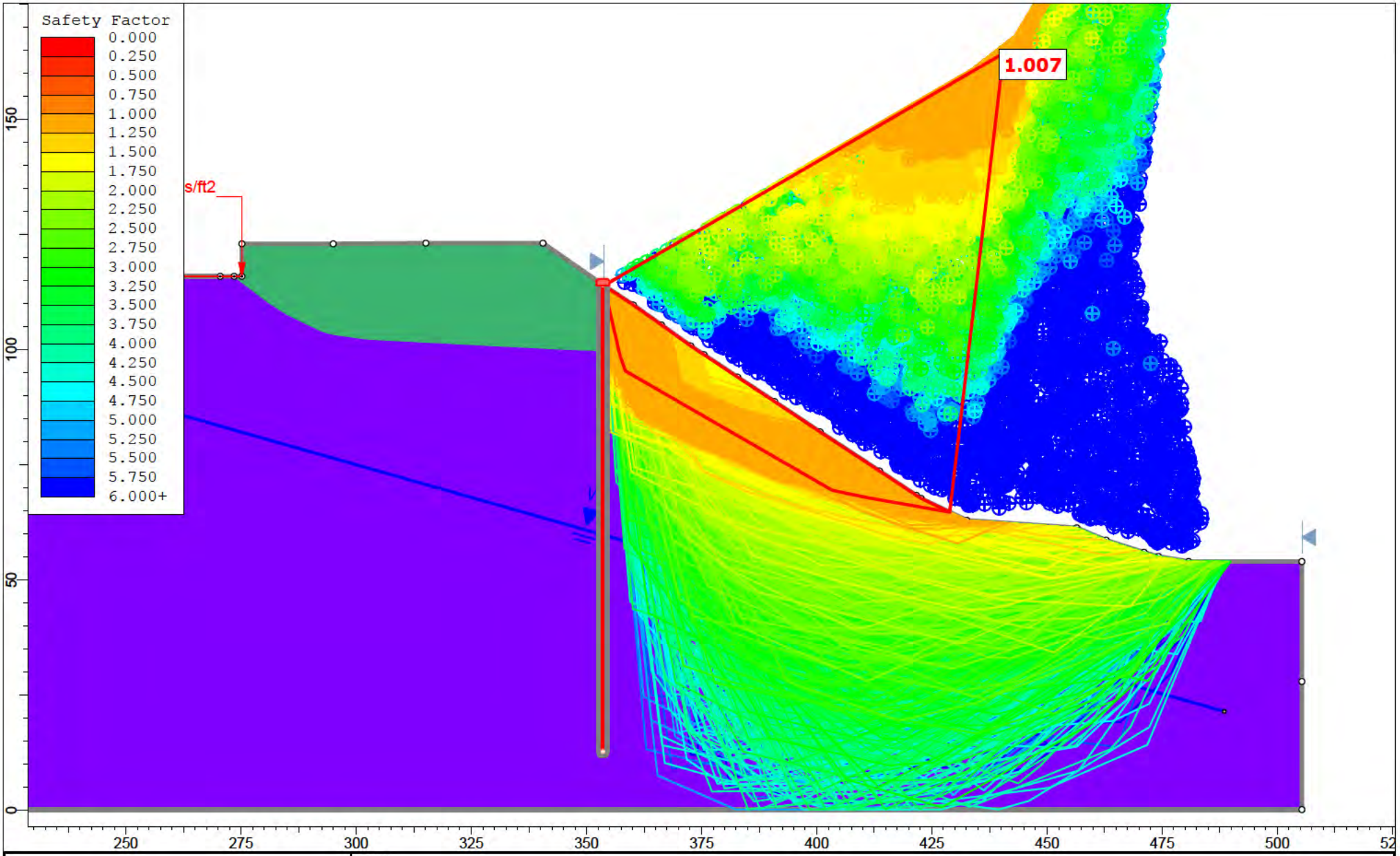
Type	Coordinates (x,y)	Master Scenario
Water Table	211.127, 100.268 488.448, 21.436	Assigned to: Anisotropic Bedrock (Tm) Peak
Distributed Load	275.174, 115.923 273.496, 115.923 270.47, 115.923 242.316, 115.923	Constant DistributionOrientation: Normal to boundaryMagnitude: 300 lbs/ft2Creates Excess Pore Pressure: No
Block Search Window	181.353, 122.927 181.353, 55.248 340.534, 55.248 340.534, 123.111	
Block Search Window	503.462, 52.845 341.501, 121.355 341.501, 2.112 503.552, 2.112	



rocscience

SLIDEINTERPRET 9.018

Project	Section 4-4'		
Analysis Description	Offsite Slope (Static)		
Drawn By	A. Greene	Scale 1:346	Company Feffer Geological Consulting
Date			File Name Section 4-4' Translational Analysis_2.slmd



rocscience	Project	Section 4-4'		
	Analysis Description	Offsite Slope (Static)		
	Drawn By	A. Greene	Scale 1:346	Company Feffer Geological Consulting
	Date			File Name Section 4-4' Translational Analysis_2.slmd

SLIDEINTERPRET 9.018

Slide Analysis Information

Section 4-4' Translational Analysis_2

Project Summary

File Name:	Section 4-4' Translational Analysis_2.slmd
Slide Modeler Version:	9.018
Compute Time:	00h:00m:02.973s
Project Title:	Section 4-4'
Analysis:	Offsite Slope (Static)
Author:	A. Greene
Company:	Feffer Geological Consulting

General Settings

Units of Measurement:	Imperial Units
Time Units:	days
Permeability Units:	feet/second
Data Output:	Standard
Failure Direction:	Left to Right

Analysis Options

Slices Type:	Vertical
Analysis Methods Used	
	Bishop simplified
Number of slices:	50
Tolerance:	0.005
Maximum number of iterations:	75
Check malpha < 0.2:	Yes
Create Interslice boundaries at intersections with water tables and piezos:	Yes
Initial trial value of FS:	1
Steffensen Iteration:	Yes

Groundwater Analysis

Groundwater Method:	Water Surfaces
Pore Fluid Unit Weight [lbs/ft3]:	62.4
Use negative pore pressure cutoff:	Yes
Maximum negative pore pressure [psf]:	0
Advanced Groundwater Method:	None

Random Numbers

Pseudo-random Seed:	10116
Random Number Generation Method:	Park and Miller v.3

Surface Options

Search Method:	Cuckoo Search
Initial # of Surface Vertices:	8
Maximum Iterations:	500
Number of Nests:	50
Minimum Elevation:	Not Defined
Minimum Depth:	Not Defined
Minimum Area:	Not Defined
Minimum Weight:	Not Defined
Convex Surfaces Only:	Enabled

Seismic Loading

Advanced seismic analysis:	No
Staged pseudostatic analysis:	No

Loading

1 Distributed Load present

Distributed Load 1	
Distribution:	Constant
Magnitude [psf]:	300
Orientation:	Normal to boundary

Materials

Terrace (Qoa)	
Color	
Strength Type	Mohr-Coulomb
Unit Weight [lbs/ft3]	115
Cohesion [psf]	100
Friction Angle [deg]	31
Water Surface	None
Ru Value	0
Anisotropic Bedrock (Tm) Ultimate	
Color	
Strength Type	Anisotropic function
Unit Weight [lbs/ft3]	124
Water Surface	Water Table
Hu Value	1

Anisotropic Functions

Name: Anisotropic Bedrock (Tm) Ultimate

Angle From	Angle To	c	phi
-90	-30	520	34.5
-30	-10	200	16
-10	90	520	34.5

Support

Pile1 (Static)	
Color	
Type	Pile/Micro Pile
Force Application	Active (Method A)
Force Orientation	Parallel to surface
Out-Of-Plane Spacing	10 ft
Failure Mode	Shear
Pile Shear Strength	190000 lbs

Global Minimums

Method: bishop simplified

FS	1.006700
Axis Location:	440.542, 164.361
Left Slip Surface Endpoint:	353.802, 113.919
Right Slip Surface Endpoint:	428.852, 64.704
Resisting Moment:	4.32556e+06 lb-ft
Driving Moment:	4.29766e+06 lb-ft
Total Slice Area:	754.067 ft2
Surface Horizontal Width:	75.0499 ft
Surface Average Height:	10.0475 ft

Global Minimum Coordinates

Method: bishop simplified

X	Y
353.802	113.919
354.355	111.486
354.909	109.054
355.462	106.621
356.015	104.188
356.569	101.755
357.192	99.0163
358.437	95.366
361.441	93.6321
364.444	91.8979
367.451	90.1621
370.458	88.4276
373.458	86.6972
376.458	84.9667
379.232	83.3672
382.005	81.7677
384.778	80.1681
387.551	78.5684
391.484	76.2997
395.419	74.0303
399.369	71.7516
403.32	69.4759
407.206	68.6559
411.09	67.8366
415.28	67.0973
419.471	66.358
424.161	65.5308
428.852	64.7036

Global Minimum Support Data

Method: bishop simplified

Number of Supports: 1

Pile1 (Static)

Support Type: Pile/Micro Pile

Start (x, y)	Length (ft)	L Inside SS (ft)	L Outside SS (ft)	Li (ft)	Lo (ft)	Force (lb)
353.562, 114.069	101.374	Not Effective	Not Effective	Not Effective	Not Effective	0

Valid and Invalid Surfaces

Method: bishop simplified

Number of Valid Surfaces:	19757
Number of Invalid Surfaces:	5299

Error Codes

Error Code -106 reported for 38 surfaces
Error Code -108 reported for 31 surfaces
Error Code -110 reported for 502 surfaces
Error Code -111 reported for 245 surfaces
Error Code -112 reported for 297 surfaces
Error Code -121 reported for 688 surfaces
Error Code -124 reported for 2 surfaces
Error Code -145 reported for 45 surfaces
Error Code -1000 reported for 3451 surfaces

Error Code Descriptions

The following errors were encountered during the computation:
-106 = Average slice width is less than 0.0001 * (maximum horizontal extent of soil region). This limitation is imposed to avoid numerical errors which may result from too many slices, or too small a slip region.
-108 = Total driving moment or total driving force < 0.1. This is to limit the calculation of extremely high safety factors if the driving force is very small (0.1 is an arbitrary number).
-110 = The water table or a piezoline does not span the slip region for a given slip surface, when Water Surfaces is specified as the method of pore pressure calculation. If this error occurs, check that the water table or piezoline(s) span the appropriate soil cells.
-111 = Safety factor equation did not converge
-112 = The coefficient M-Alpha = cos(alpha)(1+tan(alpha)tan(phi)/F) < 0.2 for the final iteration of the safety factor calculation. This screens out some slip surfaces which may not be valid in the context of the analysis, in particular, deep seated slip surfaces with many high negative base angle slices in the passive zone.
-121 = Concave failure surface, only convex surfaces have been defined as being allowed.
-124 = A slice has a width less than the minimum acceptable value.
-145 = Slip surface was clipped vertically by a weak layer in a region of compression. Such a surface cannot be evaluated using Limit Equilibrium. For more information, see Help Documentation on weak layers.
-1000 = No valid slip surface is generated

Slice Data

Global Minimum Query (bishop simplified) - Safety Factor: 1.0067

Slice Number	Width [ft]	Weight [lbs]	Angle of Slice Base [deg]	Base Material	Base Cohesion [psf]	Base Friction Angle [deg]	Shear Stress [psf]	Shear Strength [psf]	Base Normal Stress [psf]	Pore Pressure [psf]	Effective Normal Stress [psf]	Base Vertical Stress [psf]	Effective Vertical Stress [psf]
1	0.553306	65.6384	-77.1864	Terrace (Qoa)	100	31	46.9052	47.2195	-87.8416	0	-87.8416	118.386	118.386
2	0.553307	196.915	-77.1864	Terrace (Qoa)	100	31	85.9454	86.5212	-22.4325	0	-22.4325	355.442	355.442
3	0.553309	328.194	-77.1864	Terrace (Qoa)	100	31	124.986	125.823	42.9768	0	42.9768	592.5	592.5
4	0.553309	459.472	-77.1864	Terrace (Qoa)	100	31	164.026	165.125	108.386	0	108.386	829.557	829.557
5	0.55331	590.751	-77.1864	Terrace (Qoa)	100	31	203.066	204.427	173.796	0	173.796	1066.62	1066.62
6	0.527117	684.89	-77.1864	Terrace (Qoa)	100	31	241.183	242.799	237.657	0	237.657	1298.06	1298.06

7	0.0958657	137.545	-77.1864	Anisotropic Bedrock (Tm) Ultimate	520	34.5	373.531	376.034	-209.472	0	-209.472	1432.83	1432.83
8	1.2459	2037.68	-71.1544	Anisotropic Bedrock (Tm) Ultimate	520	34.5	543.902	547.546	40.0795	0	40.0795	1633.62	1633.62
9	1.50162	2717.44	-29.9998	Anisotropic Bedrock (Tm) Ultimate	200	16	613.177	617.285	1455.25	0	1455.25	1809.26	1809.26
10	1.50162	2701.56	-29.9998	Anisotropic Bedrock (Tm) Ultimate	200	16	610.59	614.681	1446.16	0	1446.16	1798.68	1798.68
11	1.50187	2679.86	-29.9997	Anisotropic Bedrock (Tm) Ultimate	200	16	606.98	611.047	1433.49	0	1433.49	1783.93	1783.93
12	1.50187	2657.56	-29.9997	Anisotropic Bedrock (Tm) Ultimate	200	16	603.351	607.393	1420.75	0	1420.75	1769.09	1769.09
13	1.50349	2638.09	-29.9971	Anisotropic Bedrock (Tm) Ultimate	200	16	599.726	603.744	1408.02	0	1408.02	1754.24	1754.24
14	1.50349	2614.91	-29.9971	Anisotropic Bedrock (Tm) Ultimate	200	16	595.955	599.948	1394.78	0	1394.78	1738.82	1738.82
15	1.50349	2589.85	-29.9765	Anisotropic Bedrock (Tm) Ultimate	200	16	591.947	595.913	1380.71	0	1380.71	1722.15	1722.15
16	1.50349	2564.65	-29.9765	Anisotropic Bedrock (Tm) Ultimate	200	16	587.847	591.786	1366.32	0	1366.32	1705.39	1705.39
17	1.50002	2533.62	-29.9765	Anisotropic Bedrock (Tm) Ultimate	200	16	583.753	587.664	1351.95	0	1351.95	1688.66	1688.66
18	1.50002	2510.68	-29.9765	Anisotropic Bedrock (Tm) Ultimate	200	16	580.013	583.899	1338.81	0	1338.81	1673.37	1673.37
19	1.50002	2497.62	-29.9765	Anisotropic Bedrock (Tm) Ultimate	200	16	577.883	581.755	1331.34	0	1331.34	1664.66	1664.66
20	1.50002	2483.15	-29.9765	Anisotropic Bedrock (Tm) Ultimate	200	16	575.523	579.379	1323.05	0	1323.05	1655.01	1655.01
21	1.38654	2274.09	-29.9765	Anisotropic Bedrock (Tm) Ultimate	200	16	571.782	575.613	1309.92	0	1309.92	1639.73	1639.73
22	1.38654	2252.99	-29.9765	Anisotropic Bedrock (Tm) Ultimate	200	16	568.059	571.865	1296.85	0	1296.85	1624.51	1624.51
23	1.38654	2231.88	-29.9765	Anisotropic Bedrock (Tm) Ultimate	200	16	564.337	568.118	1283.78	0	1283.78	1609.29	1609.29
24	1.38654	2210.78	-29.9765	Anisotropic Bedrock (Tm) Ultimate	200	16	560.614	564.37	1270.71	0	1270.71	1594.07	1594.07
25	1.38662	2189.84	-29.9765	Anisotropic Bedrock (Tm) Ultimate	200	16	556.898	560.629	1257.66	0	1257.66	1578.88	1578.88

26	1.38662	2169.11	-29.9765	Anisotropic Bedrock (Tm) Ultimate	200	16	553.24	556.947	1244.82	0	1244.82	1563.94	1563.94
27	1.38662	2148.46	-29.9765	Anisotropic Bedrock (Tm) Ultimate	200	16	549.598	553.28	1232.04	0	1232.04	1549.05	1549.05
28	1.38662	2127.81	-29.9765	Anisotropic Bedrock (Tm) Ultimate	200	16	545.955	549.613	1219.24	0	1219.24	1534.15	1534.15
29	1.96665	2982.46	-29.9765	Anisotropic Bedrock (Tm) Ultimate	200	16	541.551	545.179	1203.78	0	1203.78	1516.15	1516.15
30	1.96665	2940.87	-29.9765	Anisotropic Bedrock (Tm) Ultimate	200	16	536.377	539.971	1185.62	0	1185.62	1495.01	1495.01
31	1.96725	2899.49	-29.9765	Anisotropic Bedrock (Tm) Ultimate	200	16	531.12	534.679	1167.16	0	1167.16	1473.52	1473.52
32	1.96725	2857	-29.9765	Anisotropic Bedrock (Tm) Ultimate	200	16	525.837	529.36	1148.62	0	1148.62	1451.92	1451.92
33	1.97527	2825.88	-29.9765	Anisotropic Bedrock (Tm) Ultimate	200	16	520.543	524.031	1130.03	0	1130.03	1430.28	1430.28
34	1.97527	2783.04	-29.9765	Anisotropic Bedrock (Tm) Ultimate	200	16	515.238	518.69	1111.41	0	1111.41	1408.6	1408.6
35	1.97534	2740.28	-29.943	Anisotropic Bedrock (Tm) Ultimate	200	16	510.028	513.445	1093.11	0	1093.11	1386.9	1386.9
36	1.97534	2699.5	-29.943	Anisotropic Bedrock (Tm) Ultimate	200	16	504.977	508.36	1075.38	0	1075.38	1366.26	1366.26
37	1.94273	2530.44	-11.9166	Anisotropic Bedrock (Tm) Ultimate	200	16	537.338	540.938	1188.99	0	1188.99	1302.39	1302.39
38	1.94273	2320.87	-11.9166	Anisotropic Bedrock (Tm) Ultimate	200	16	508.355	511.761	1087.24	0	1087.24	1194.52	1194.52
39	1.94211	2110.64	-11.9116	Anisotropic Bedrock (Tm) Ultimate	200	16	479.385	482.597	985.532	0	985.532	1086.66	1086.66
40	1.94211	1901.16	-11.9116	Anisotropic Bedrock (Tm) Ultimate	200	16	450.405	453.423	883.791	0	883.791	978.802	978.802
41	2.09527	1806.78	-10.0051	Anisotropic Bedrock (Tm) Ultimate	200	16	423.006	425.84	787.597	0	787.597	862.223	862.223
42	2.09527	1544.16	-10.0051	Anisotropic Bedrock (Tm) Ultimate	200	16	389.016	391.622	668.266	0	668.266	736.896	736.896
43	2.09527	1281.57	-10.0051	Anisotropic Bedrock (Tm) Ultimate	200	16	355.027	357.406	548.941	0	548.941	611.575	611.575
44	2.09527	1018.97	-10.0051	Anisotropic Bedrock (Tm) Ultimate	200	16	321.039	323.19	429.614	0	429.614	486.251	486.251

45	1.5635	589.264	-10.0015	Anisotropic Bedrock (Tm) Ultimate	200	16	291.367	293.319	325.442	0	325.442	376.826	376.826
46	1.5635	442.532	-10.0015	Anisotropic Bedrock (Tm) Ultimate	200	16	265.915	267.697	236.088	0	236.088	282.983	282.983
47	1.5635	321.007	-10.0015	Anisotropic Bedrock (Tm) Ultimate	200	16	244.836	246.477	162.084	0	162.084	205.262	205.262
48	1.5635	229.277	-10.0015	Anisotropic Bedrock (Tm) Ultimate	200	16	228.925	230.459	106.223	0	106.223	146.595	146.595
49	1.5635	137.566	-10.0015	Anisotropic Bedrock (Tm) Ultimate	200	16	213.017	214.445	50.3748	0	50.3748	87.9413	87.9413
50	1.5635	45.8553	-10.0015	Anisotropic Bedrock (Tm) Ultimate	200	16	197.11	198.43	-5.47358	0	-5.47358	29.2875	29.2875

Interslice Data

Global Minimum Query (bishop simplified) - Safety Factor: 1.0067

Slice Number	X coordinate [ft]	Y coordinate - Bottom [ft]	Interslice Normal Force [lbs]	Interslice Shear Force [lbs]	Interslice Force Angle [deg]
1	353.802	113.919	0	0	0
2	354.355	111.486	-239.677	0	0
3	354.909	109.054	-341.859	0	0
4	355.462	106.621	-306.545	0	0
5	356.015	104.188	-133.736	0	0
6	356.569	101.755	176.571	0	0
7	357.096	99.4378	600.076	0	0
8	357.192	99.0163	475.934	0	0
9	358.437	95.366	-56.2128	0	0
10	359.939	94.4991	283.571	0	0
11	361.441	93.6321	619.371	0	0
12	362.943	92.765	949.663	0	0
13	364.444	91.8979	1274.36	0	0
14	365.948	91.03	1593.69	0	0
15	367.451	90.1621	1907.21	0	0
16	368.955	89.2948	2213.56	0	0
17	370.458	88.4276	2513.59	0	0
18	371.958	87.5624	2806.65	0	0
19	373.458	86.6972	3093.96	0	0
20	374.958	85.832	3378	0	0
21	376.458	84.9667	3658.41	0	0
22	377.845	84.167	3912.3	0	0
23	379.232	83.3672	4160.91	0	0
24	380.618	82.5674	4404.23	0	0
25	382.005	81.7677	4642.26	0	0
26	383.391	80.9679	4875.03	0	0
27	384.778	80.1681	5102.61	0	0
28	386.165	79.3683	5325.02	0	0
29	387.551	78.5684	5542.26	0	0
30	389.518	77.4341	5841.5	0	0
31	391.484	76.2997	6130.33	0	0
32	393.452	75.165	6408.65	0	0
33	395.419	74.0303	6676.33	0	0
34	397.394	72.8909	6934.4	0	0
35	399.369	71.7516	7181.73	0	0
36	401.345	70.6137	7416.86	0	0
37	403.32	69.4759	7641.8	0	0
38	405.263	69.0659	7084.13	0	0
39	407.206	68.6559	6541.12	0	0
40	409.148	68.2462	6012.76	0	0
41	411.09	67.8366	5499.06	0	0
42	413.185	67.4669	4902.84	0	0
43	415.28	67.0973	4333.8	0	0
44	417.376	66.7276	3791.96	0	0
45	419.471	66.358	3277.31	0	0
46	421.034	66.0822	2910.96	0	0
47	422.598	65.8065	2559.8	0	0
48	424.161	65.5308	2221.24	0	0
49	425.725	65.2551	1892.18	0	0
50	427.288	64.9793	1572.62	0	0
51	428.852	64.7036	0	0	0

Discharge Sections

Entity Information

Offsite Slope (Static)

Shared Entities

Type	Coordinates (x,y)
External Boundary	0.235, 184.951 -0.154, 0.116 505.309, 0.116 505.309, 27.9488 505.309, 53.989 480.732, 53.989 474.165, 55.09 471.052, 55.963 462.815, 58.621 456.446, 61.31 432.547, 62.934 422.639, 67.679 421.615, 68.362 413.605, 73.639 400.699, 82.142 390.829, 88.709 382.819, 94.023 375.496, 98.8954 372.606, 100.818 366.28, 105.351 360.178, 109.66 353.802, 113.919 340.534, 123.111 315.124, 123.111 295.004, 122.962 275.174, 122.962 275.174, 115.923 273.496, 115.923 270.47, 115.923 207.15, 115.923 207.15, 124.855 206.075, 124.855 193.797, 128.929 183.475, 131.724 172.683, 131.724 167.29, 129.885 152.655, 129.885 136.627, 131.024 91.465, 132.01 88.851, 133.732 86.883, 134.993 83.317, 137.453 79.022, 140.415 75.503, 142.704 71.745, 145.027 69.115, 146.598 63.546, 149.605 55.105, 154.376 47.248, 159.056 40.176, 163.054 30.945, 168.401 27.756, 170.147 20.658, 173.791 13.825, 177.283 8.283, 180.054 4.107, 182.75

Material Boundary	273.496, 115.923 280.901, 110.275 284.962, 107.671 288.66, 105.849 291.522, 104.48 292.252, 104.13 295.897, 102.933 302.146, 102.048 320.006, 101.11 346.302, 99.756 353.802, 99.5349 375.496, 98.8954

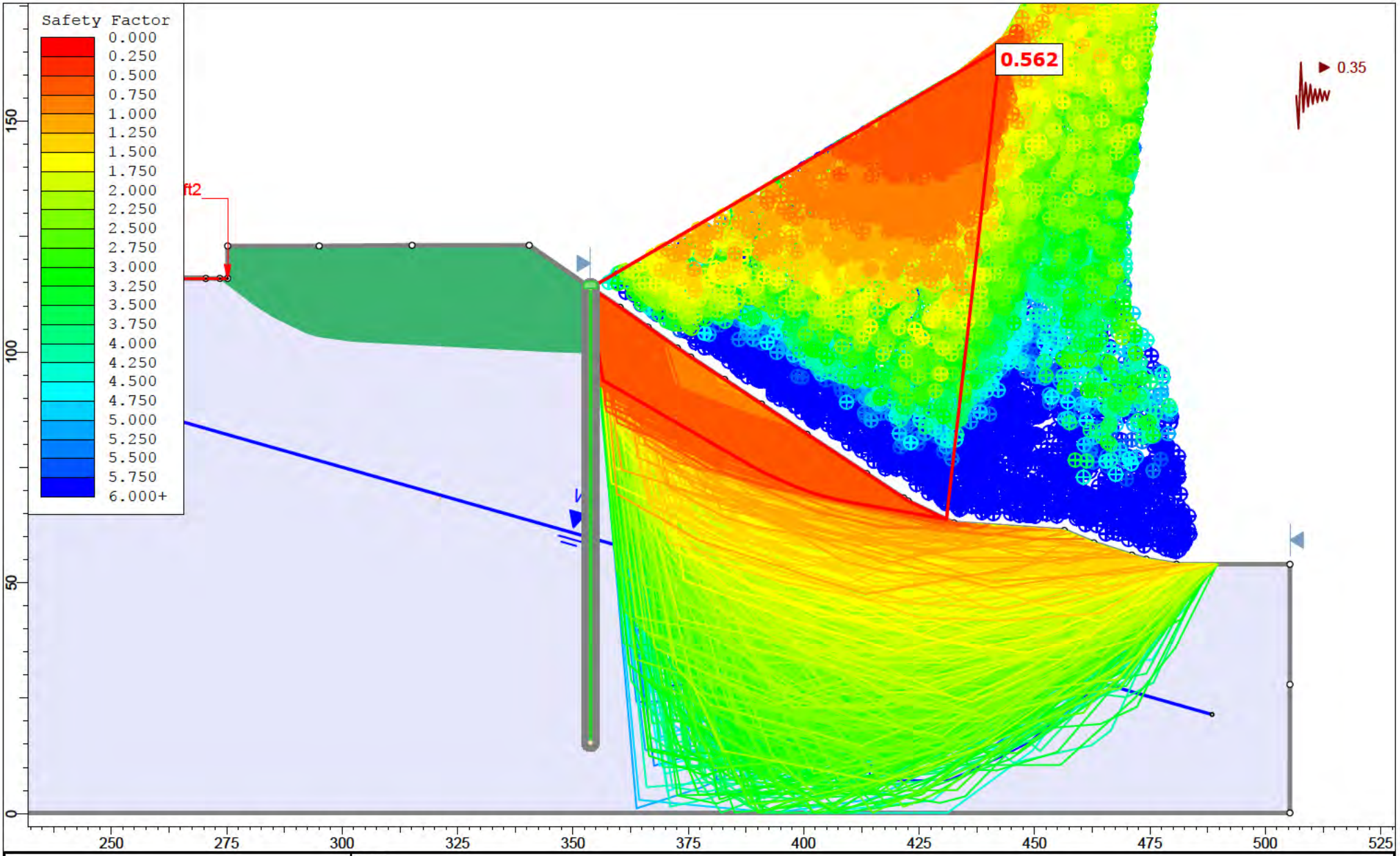
Scenario-based Entities

Type	Coordinates (x,y)	Master Scenario
Water Table	211.127, 100.268 488.448, 21.436	Assigned to: Anisotropic Bedrock (Tm) Ultimate
Distributed Load	275.174, 115.923 273.496, 115.923 270.47, 115.923 242.316, 115.923	Constant DistributionOrientation: Normal to boundaryMagnitude: 300 lbs/ft2Creates Excess Pore Pressure: No



rocscience	Project	Section 4-4'		
	Analysis Description	Offsite Slope (Seismic)		
	Drawn By	A. Greene	Scale 1:383	Company Feffer Geological Consulting
	Date			File Name Section 4-4' Translational Analysis_2.slmd

SLIDEINTERPRET 9.018



rocscience

SLIDEINTERPRET 9.018

Project	Section 4-4'				
Analysis Description	Offsite Slope (Seismic)				
Drawn By	A. Greene	Scale	1:345	Company	Feffer Geological Consulting
Date				File Name	Section 4-4' Translational Analysis_2.slmd

Slide Analysis Information

Section 4-4' Translational Analysis_2

Project Summary

File Name:	Section 4-4' Translational Analysis_2.slmd
Slide Modeler Version:	9.018
Compute Time:	00h:00m:02.827s
Project Title:	Section 4-4'
Analysis:	Offsite Slope (Seismic)
Author:	A. Greene
Company:	Feffer Geological Consulting

General Settings

Units of Measurement:	Imperial Units
Time Units:	days
Permeability Units:	feet/second
Data Output:	Standard
Failure Direction:	Left to Right

Analysis Options

Slices Type:	Vertical
Analysis Methods Used	
	Bishop simplified
Number of slices:	50
Tolerance:	0.005
Maximum number of iterations:	75
Check malpha < 0.2:	Yes
Create Interslice boundaries at intersections with water tables and piezos:	Yes
Initial trial value of FS:	1
Steffensen Iteration:	Yes

Groundwater Analysis

Groundwater Method:	Water Surfaces
Pore Fluid Unit Weight [lbs/ft3]:	62.4
Use negative pore pressure cutoff:	Yes
Maximum negative pore pressure [psf]:	0
Advanced Groundwater Method:	None

Random Numbers

Pseudo-random Seed:	10116
Random Number Generation Method:	Park and Miller v.3

Surface Options

Search Method:	Cuckoo Search
Initial # of Surface Vertices:	8
Maximum Iterations:	500
Number of Nests:	50
Minimum Elevation:	Not Defined
Minimum Depth:	Not Defined
Minimum Area:	Not Defined
Minimum Weight:	Not Defined
Convex Surfaces Only:	Enabled

Seismic Loading

Advanced seismic analysis:	No
Staged pseudostatic analysis:	No
Seismic Load Coefficient (Horizontal):	0.35

Loading

1 Distributed Load present

Distributed Load 1	
Distribution:	Constant
Magnitude [psf]:	300
Orientation:	Normal to boundary

Materials

Terrace (Qoa)	
Color	
Strength Type	Mohr-Coulomb
Unit Weight [lbs/ft3]	115
Cohesion [psf]	100
Friction Angle [deg]	31
Water Surface	None
Ru Value	0
Anisotropic Bedrock (Tm) Peak	
Color	
Strength Type	Anisotropic function
Unit Weight [lbs/ft3]	124
Water Surface	Water Table
Hu Value	1

Anisotropic Functions

Name: Anisotropic Bedrock (Tm) Peak

Angle From	Angle To	c	phi
-90	-30	720	41
-30	-10	200	16
-10	90	720	41

Support

Pile 1 (Seismic)	
Color	
Type	Pile/Micro Pile
Force Application	Active (Method A)
Force Orientation	Parallel to surface
Out-Of-Plane Spacing	10 ft
Failure Mode	Shear
Pile Shear Strength	200000 lbs

Global Minimums

Method: bishop simplified

FS	0.561902
Axis Location:	442.525, 165.841
Left Slip Surface Endpoint:	353.852, 113.886
Right Slip Surface Endpoint:	430.885, 63.730
Resisting Moment:	4.49741e+06 lb-ft
Driving Moment:	8.00391e+06 lb-ft
Total Slice Area:	899.301 ft2
Surface Horizontal Width:	77.0334 ft
Surface Average Height:	11.6742 ft

Global Minimum Coordinates

Method: bishop simplified

X	Y
353.852	113.886
354.264	110.411
354.676	106.936
355.088	103.461
355.5	100.072
356.005	96.8206
356.51	93.8384
360.251	91.6794
363.993	89.5203
367.72	87.3691
371.448	85.218
375.209	83.0475
378.971	80.877
381.961	79.151
384.952	77.4255
387.917	75.7141
390.883	74.1011
394.341	72.4609
397.786	70.9582
402.522	69.2089
407.288	67.9716
412.129	67.0391
416.969	66.1851
421.516	65.3828
426.063	64.5805
430.885	63.7297

Global Minimum Support Data

Method: bishop simplified

Number of Supports: 1

Pile 1 (Seismic)

Support Type: Pile/Micro Pile

Start (x, y)	Length (ft)	L Inside SS (ft)	L Outside SS (ft)	Li (ft)	Lo (ft)	Force (lb)
353.802, 113.919	98.5544	Not Effective	Not Effective	Not Effective	Not Effective	0

Valid and Invalid Surfaces

Method: bishop simplified

Number of Valid Surfaces:	16067
Number of Invalid Surfaces:	8989

Error Codes

Error Code -106 reported for 39 surfaces
Error Code -108 reported for 20 surfaces
Error Code -110 reported for 554 surfaces
Error Code -111 reported for 4343 surfaces
Error Code -112 reported for 277 surfaces
Error Code -121 reported for 832 surfaces
Error Code -124 reported for 2 surfaces
Error Code -145 reported for 20 surfaces
Error Code -1000 reported for 2902 surfaces

Error Code Descriptions

The following errors were encountered during the computation:
-106 = Average slice width is less than 0.0001 * (maximum horizontal extent of soil region). This limitation is imposed to avoid numerical errors which may result from too many slices, or too small a slip region.
-108 = Total driving moment or total driving force < 0.1. This is to limit the calculation of extremely high safety factors if the driving force is very small (0.1 is an arbitrary number).
-110 = The water table or a piezoline does not span the slip region for a given slip surface, when Water Surfaces is specified as the method of pore pressure calculation. If this error occurs, check that the water table or piezoline(s) span the appropriate soil cells.
-111 = Safety factor equation did not converge
-112 = The coefficient M-Alpha = cos(alpha)(1+tan(alpha)tan(phi)/F) < 0.2 for the final iteration of the safety factor calculation. This screens out some slip surfaces which may not be valid in the context of the analysis, in particular, deep seated slip surfaces with many high negative base angle slices in the passive zone.
-121 = Concave failure surface, only convex surfaces have been defined as being allowed.
-124 = A slice has a width less than the minimum acceptable value.
-145 = Slip surface was clipped vertically by a weak layer in a region of compression. Such a surface cannot be evaluated using Limit Equilibrium. For more information, see Help Documentation on weak layers.
-1000 = No valid slip surface is generated

Slice Data

Global Minimum Query (bishop simplified) - Safety Factor: 0.561902

Slice Number	Width [ft]	Weight [lbs]	Angle of Slice Base [deg]	Base Material	Base Cohesion [psf]	Base Friction Angle [deg]	Shear Stress [psf]	Shear Strength [psf]	Base Normal Stress [psf]	Pore Pressure [psf]	Effective Normal Stress [psf]	Base Vertical Stress [psf]	Effective Vertical Stress [psf]
1	0.411892	75.7824	-83.2401	Terrace (Qoa)	100	31	37.3914	21.0103	-131.461	0	-131.461	183.988	183.988
2	0.411878	227.337	-83.2401	Terrace (Qoa)	100	31	76.6555	43.0729	-94.7425	0	-94.7425	551.955	551.955
3	0.41185	378.861	-83.2401	Terrace (Qoa)	100	31	115.918	65.1345	-58.026	0	-58.026	919.905	919.905
4	0.411857	528.39	-83.0721	Terrace (Qoa)	100	31	158.142	88.8601	-18.5398	0	-18.5398	1282.95	1282.95
5	0.0917243	136.89	-81.158	Terrace (Qoa)	100	31	225.276	126.583	44.2416	0	44.2416	1492.42	1492.42
6	0.414023	692.183	-81.158	Anisotropic Bedrock (Tm) Peak	720	41	353.382	198.566	-599.84	0	-599.84	1671.86	1671.86

7	0.504507	1002.13	-80.3982	Anisotropic Bedrock (Tm) Peak	720	41	429.217	241.178	-550.822	0	-550.822	1986.37	1986.37
8	1.87069	4015.72	-29.9879	Anisotropic Bedrock (Tm) Peak	200	16	1121.22	630.013	1499.63	0	1499.63	2146.65	2146.65
9	1.87069	3996.37	-29.9879	Anisotropic Bedrock (Tm) Peak	200	16	1117.14	627.722	1491.64	0	1491.64	2136.31	2136.31
10	1.87069	3968.76	-29.9879	Anisotropic Bedrock (Tm) Peak	200	16	1111.32	624.452	1480.24	0	1480.24	2121.55	2121.55
11	1.87069	3934.05	-29.9879	Anisotropic Bedrock (Tm) Peak	200	16	1104.01	620.343	1465.91	0	1465.91	2103	2103
12	1.86388	3885.2	-29.9879	Anisotropic Bedrock (Tm) Peak	200	16	1096.7	616.24	1451.6	0	1451.6	2084.47	2084.47
13	1.86388	3849.5	-29.9879	Anisotropic Bedrock (Tm) Peak	200	16	1089.15	611.998	1436.81	0	1436.81	2065.33	2065.33
14	1.86388	3811.01	-29.9879	Anisotropic Bedrock (Tm) Peak	200	16	1081.01	607.422	1420.85	0	1420.85	2044.67	2044.67
15	1.86388	3772.4	-29.9879	Anisotropic Bedrock (Tm) Peak	200	16	1072.85	602.834	1404.85	0	1404.85	2023.95	2023.95
16	1.88061	3768.66	-29.9879	Anisotropic Bedrock (Tm) Peak	200	16	1064.97	598.406	1389.41	0	1389.41	2003.96	2003.96
17	1.88061	3746.25	-29.9879	Anisotropic Bedrock (Tm) Peak	200	16	1060.26	595.765	1380.2	0	1380.2	1992.05	1992.05
18	1.88061	3720.51	-29.9879	Anisotropic Bedrock (Tm) Peak	200	16	1054.87	592.734	1369.62	0	1369.62	1978.36	1978.36
19	1.88061	3682.03	-29.9879	Anisotropic Bedrock (Tm) Peak	200	16	1046.81	588.202	1353.82	0	1353.82	1957.9	1957.9
20	1.49546	2900.32	-29.9879	Anisotropic Bedrock (Tm) Peak	200	16	1039.52	584.11	1339.55	0	1339.55	1939.43	1939.43
21	1.49546	2875.85	-29.9879	Anisotropic Bedrock (Tm) Peak	200	16	1033.07	580.484	1326.91	0	1326.91	1923.06	1923.06
22	1.49511	2850.76	-29.9879	Anisotropic Bedrock (Tm) Peak	200	16	1026.63	576.867	1314.29	0	1314.29	1906.73	1906.73
23	1.49511	2826.74	-29.9879	Anisotropic Bedrock (Tm) Peak	200	16	1020.3	573.307	1301.87	0	1301.87	1890.66	1890.66
24	1.48287	2779.95	-29.9879	Anisotropic Bedrock (Tm) Peak	200	16	1014.01	569.776	1289.56	0	1289.56	1874.71	1874.71
25	1.48287	2756.4	-29.9879	Anisotropic Bedrock (Tm) Peak	200	16	1007.75	566.259	1277.29	0	1277.29	1858.84	1858.84
26	1.48288	2728.36	-28.5405	Anisotropic Bedrock (Tm) Peak	200	16	1013.56	569.519	1288.66	0	1288.66	1839.91	1839.91
27	1.48288	2695.76	-28.5405	Anisotropic Bedrock (Tm) Peak	200	16	1004.77	564.585	1271.46	0	1271.46	1817.93	1817.93
28	1.72871	3088.25	-25.3787	Anisotropic Bedrock (Tm) Peak	200	16	1020.53	573.438	1302.33	0	1302.33	1786.45	1786.45
29	1.72871	3017.49	-25.3787	Anisotropic Bedrock (Tm) Peak	200	16	1003.71	563.988	1269.37	0	1269.37	1745.52	1745.52
30	1.72291	2929.91	-23.5617	Anisotropic Bedrock (Tm) Peak	200	16	1000.99	562.456	1264.04	0	1264.04	1700.56	1700.56
31	1.72291	2845.52	-23.5617	Anisotropic Bedrock (Tm) Peak	200	16	980.541	550.968	1223.97	0	1223.97	1651.58	1651.58

32	1.57852	2522.67	-20.2739	Anisotropic Bedrock (Tm) Peak	200	16	985.672	553.851	1234.02	0	1234.02	1598.13	1598.13
33	1.57852	2431.25	-20.2739	Anisotropic Bedrock (Tm) Peak	200	16	960.805	539.878	1185.3	0	1185.3	1540.21	1540.21
34	1.57852	2341.1	-20.2739	Anisotropic Bedrock (Tm) Peak	200	16	936.284	526.1	1137.24	0	1137.24	1483.1	1483.1
35	2.38325	3326.49	-14.5525	Anisotropic Bedrock (Tm) Peak	200	16	943.259	530.019	1150.91	0	1150.91	1395.78	1395.78
36	2.38325	3045.3	-14.5525	Anisotropic Bedrock (Tm) Peak	200	16	890.093	500.145	1046.73	0	1046.73	1277.79	1277.79
37	1.61341	1891.19	-10.9049	Anisotropic Bedrock (Tm) Peak	200	16	868.7	488.124	1004.81	0	1004.81	1172.17	1172.17
38	1.61341	1740.71	-10.9049	Anisotropic Bedrock (Tm) Peak	200	16	825.365	463.774	919.889	0	919.889	1078.9	1078.9
39	1.61341	1590.23	-10.9049	Anisotropic Bedrock (Tm) Peak	200	16	782.03	439.424	834.975	0	834.975	985.639	985.639
40	2.41995	2097.19	-10.006	Anisotropic Bedrock (Tm) Peak	200	16	732.254	411.455	737.43	0	737.43	866.625	866.625
41	2.41995	1746.91	-10.006	Anisotropic Bedrock (Tm) Peak	200	16	664.488	373.377	604.64	0	604.64	721.878	721.878
42	1.51581	915.81	-10.006	Anisotropic Bedrock (Tm) Peak	200	16	609.382	342.413	496.655	0	496.655	604.17	604.17
43	1.51581	778.377	-10.006	Anisotropic Bedrock (Tm) Peak	200	16	566.937	318.563	413.478	0	413.478	513.505	513.505
44	1.51581	640.943	-10.006	Anisotropic Bedrock (Tm) Peak	200	16	524.49	294.712	330.3	0	330.3	422.838	422.838
45	1.51581	504.29	-10.006	Anisotropic Bedrock (Tm) Peak	200	16	482.285	270.997	247.595	0	247.595	332.687	332.687
46	1.51581	403.41	-10.006	Anisotropic Bedrock (Tm) Peak	200	16	451.128	253.49	186.54	0	186.54	266.135	266.135
47	1.51581	317.232	-10.006	Anisotropic Bedrock (Tm) Peak	200	16	424.512	238.534	134.384	0	134.384	209.282	209.282
48	1.60732	242.243	-10.006	Anisotropic Bedrock (Tm) Peak	200	16	397.092	223.127	80.6527	0	80.6527	150.713	150.713
49	1.60732	145.346	-10.006	Anisotropic Bedrock (Tm) Peak	200	16	368.869	207.268	25.3469	0	25.3469	90.4279	90.4279
50	1.60732	48.4487	-10.006	Anisotropic Bedrock (Tm) Peak	200	16	340.646	191.41	-29.9586	0	-29.9586	30.1429	30.1429

Interslice Data

Global Minimum Query (bishop simplified) - Safety Factor: 0.561902

Slice Number	X coordinate [ft]	Y coordinate - Bottom [ft]	Interslice Normal Force [lbs]	Interslice Shear Force [lbs]	Interslice Force Angle [deg]
1	353.852	113.886	0	0	0
2	354.264	110.411	-445.69	0	0
3	354.676	106.936	-726.903	0	0
4	355.088	103.461	-843.656	0	0
5	355.5	100.072	-786.692	0	0
6	355.591	99.4822	-733.357	0	0
7	356.005	96.8206	-2233.89	0	0
8	356.51	93.8384	-3742.37	0	0
9	358.38	92.7589	-2815.43	0	0
10	360.251	91.6794	-1896.25	0	0
11	362.122	90.5998	-988.161	0	0
12	363.993	89.5203	-94.0085	0	0
13	365.856	88.4447	783.024	0	0
14	367.72	87.3691	1645.72	0	0
15	369.584	86.2936	2492.96	0	0
16	371.448	85.218	3324.7	0	0
17	373.329	84.1327	4148.8	0	0
18	375.209	83.0475	4963.9	0	0
19	377.09	81.9623	5768.67	0	0
20	378.971	80.877	6557.98	0	0
21	380.466	80.014	7174.55	0	0
22	381.961	79.151	7781.29	0	0
23	383.457	78.2883	8378.08	0	0
24	384.952	77.4255	8965.23	0	0
25	386.435	76.5698	9538.08	0	0
26	387.917	75.7141	10101.5	0	0
27	389.4	74.9076	10592.7	0	0
28	390.883	74.1011	11071.7	0	0
29	392.612	73.281	11456.4	0	0
30	394.341	72.4609	11818.4	0	0
31	396.063	71.7096	12069	0	0
32	397.786	70.9582	12295.2	0	0
33	399.365	70.3751	12341.8	0	0
34	400.943	69.792	12367.2	0	0
35	402.522	69.2089	12371.8	0	0
36	404.905	68.5903	12000.1	0	0
37	407.288	67.9716	11592.2	0	0
38	408.902	67.6607	11164.9	0	0
39	410.515	67.3499	10728.5	0	0
40	412.129	67.0391	10282.9	0	0
41	414.549	66.6121	9559.72	0	0
42	416.969	66.1851	8821.27	0	0
43	418.484	65.9177	8350.93	0	0
44	420	65.6503	7874.57	0	0
45	421.516	65.3828	7392.21	0	0
46	423.032	65.1154	6903.88	0	0
47	424.548	64.8479	6411.14	0	0
48	426.063	64.5805	5914.64	0	0
49	427.671	64.2969	5384.04	0	0
50	429.278	64.0133	4849.22	0	0
51	430.885	63.7297	0	0	0

Discharge Sections

Entity Information

Offiste Slope (Seismic)

Shared Entities

Type	Coordinates (x,y)
External Boundary	0.235, 184.951 -0.154, 0.116 505.309, 0.116 505.309, 27.9488 505.309, 53.989 480.732, 53.989 474.165, 55.09 471.052, 55.963 462.815, 58.621 456.446, 61.31 432.547, 62.934 422.639, 67.679 421.615, 68.362 413.605, 73.639 400.699, 82.142 390.829, 88.709 382.819, 94.023 375.496, 98.8954 372.606, 100.818 366.28, 105.351 360.178, 109.66 353.802, 113.919 340.534, 123.111 315.124, 123.111 295.004, 122.962 275.174, 122.962 275.174, 115.923 273.496, 115.923 270.47, 115.923 207.15, 115.923 207.15, 124.855 206.075, 124.855 193.797, 128.929 183.475, 131.724 172.683, 131.724 167.29, 129.885 152.655, 129.885 136.627, 131.024 91.465, 132.01 88.851, 133.732 86.883, 134.993 83.317, 137.453 79.022, 140.415 75.503, 142.704 71.745, 145.027 69.115, 146.598 63.546, 149.605 55.105, 154.376 47.248, 159.056 40.176, 163.054 30.945, 168.401 27.756, 170.147 20.658, 173.791 13.825, 177.283 8.283, 180.054 4.107, 182.75

Material Boundary	273.496, 115.923 280.901, 110.275 284.962, 107.671 288.66, 105.849 291.522, 104.48 292.252, 104.13 295.897, 102.933 302.146, 102.048 320.006, 101.11 346.302, 99.756 353.802, 99.5349 375.496, 98.8954

Scenario-based Entities

Type	Coordinates (x,y)	Master Scenario
Water Table	211.127, 100.268 488.448, 21.436	Assigned to: Anisotropic Bedrock (Tm) Peak
Distributed Load	275.174, 115.923 273.496, 115.923 270.47, 115.923 242.316, 115.923	Constant DistributionOrientation: Normal to boundaryMagnitude: 300 lbs/ft2Creates Excess Pore Pressure: No



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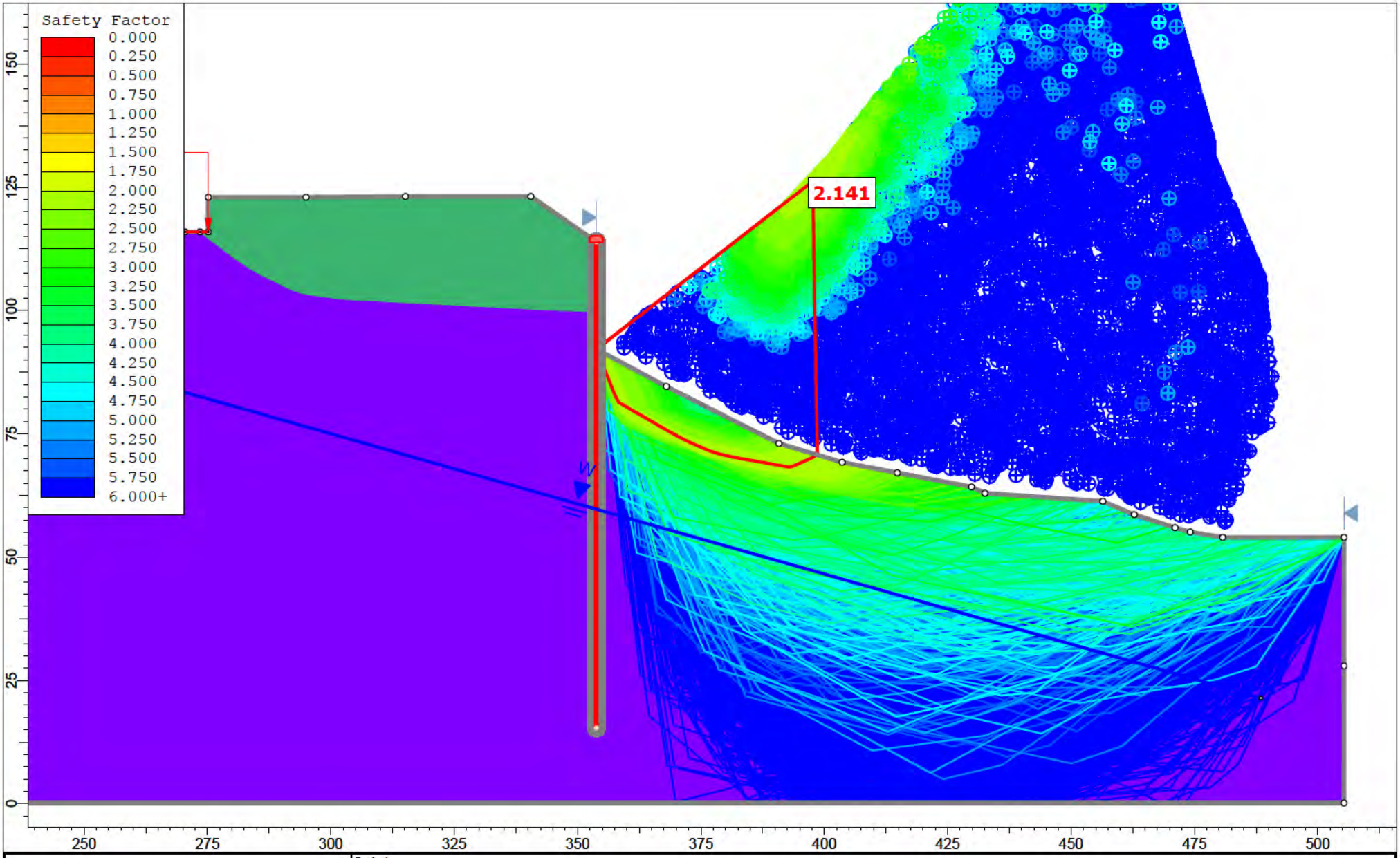
SLIDEINTERPRET 9.018

Project	Section 4-4'		
Analysis Description	Offsite Slope Removal (Static)		
Drawn By	A. Greene	Scale 1:291	Company Feffer Geological Consulting
Date			File Name Section 4-4' Translational Analysis_2.slmd



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SLIDEINTERPRET 9.018

Project	Section 4-4'				
Analysis Description	Offsite Slope Removal (Static)				
Drawn By	A. Greene	*Scale*	1:323	*Company*	Feffer Geological Consulting
Date				*File Name*	Section 4-4' Translational Analysis_2.slmd

Slide Analysis Information

Section 4-4' Translational Analysis_2

Project Summary

File Name:	Section 4-4' Translational Analysis_2.slmd
Slide Modeler Version:	9.018
Compute Time:	00h:00m:04.929s
Project Title:	Section 4-4'
Analysis:	Offsite Slope Removal (Static)
Author:	A. Greene
Company:	Feffer Geological Consulting

General Settings

Units of Measurement:	Imperial Units
Time Units:	days
Permeability Units:	feet/second
Data Output:	Standard
Failure Direction:	Left to Right

Analysis Options

Slices Type:	Vertical
Analysis Methods Used	
	Bishop simplified
Number of slices:	50
Tolerance:	0.005
Maximum number of iterations:	75
Check malpha < 0.2:	Yes
Create Interslice boundaries at intersections with water tables and piezos:	Yes
Initial trial value of FS:	1
Steffensen Iteration:	Yes

Groundwater Analysis

Groundwater Method:	Water Surfaces
Pore Fluid Unit Weight [lbs/ft3]:	9.81
Use negative pore pressure cutoff:	Yes
Maximum negative pore pressure [psf]:	0
Advanced Groundwater Method:	None

Random Numbers

Pseudo-random Seed:	10116
Random Number Generation Method:	Park and Miller v.3

Surface Options

Search Method:	Cuckoo Search
Initial # of Surface Vertices:	8
Maximum Iterations:	500
Number of Nests:	50
Minimum Elevation:	Not Defined
Minimum Depth:	Not Defined
Minimum Area:	Not Defined
Minimum Weight:	Not Defined
Convex Surfaces Only:	Enabled

Seismic Loading

Advanced seismic analysis:	No
Staged pseudostatic analysis:	No

Loading

1 Distributed Load present

Distributed Load 1	
Distribution:	Constant
Magnitude [psf]:	300
Orientation:	Normal to boundary

Materials

Terrace (Qoa)	
Color	
Strength Type	Mohr-Coulomb
Unit Weight [lbs/ft3]	115
Cohesion [psf]	100
Friction Angle [deg]	31
Water Surface	None
Ru Value	0
Anisotropic Bedrock (Tm) Ultimate	
Color	
Strength Type	Anisotropic function
Unit Weight [lbs/ft3]	124
Water Surface	None
Ru Value	0

Anisotropic Functions

Name: Anisotropic Bedrock (Tm) Ultimate

Angle From	Angle To	c	phi
-90	-30	520	34.5
-30	-10	200	16
-10	90	520	34.5

Support

Pile1 (Static)	
Color	
Type	Pile/Micro Pile
Force Application	Active (Method A)
Force Orientation	Parallel to surface
Out-Of-Plane Spacing	10 ft
Failure Mode	Shear
Pile Shear Strength	190000 lbs

Global Minimums

Method: bishop simplified

FS	2.140590
Axis Location:	397.633, 126.160
Left Slip Surface Endpoint:	353.849, 92.140
Right Slip Surface Endpoint:	398.579, 70.720
Resisting Moment:	1.54875e+06 lb-ft
Driving Moment:	723518 lb-ft
Total Slice Area:	295.304 ft2
Surface Horizontal Width:	44.7299 ft
Surface Average Height:	6.60193 ft

Global Minimum Coordinates

Method: bishop simplified

X	Y
353.849	92.1401
354.598	90.2552
355.347	88.3712
356.096	86.4875
356.844	84.604
357.593	82.8165
358.344	81.3418
359.886	80.4525
361.424	79.5651
362.964	78.6769
364.511	77.7845
365.881	76.9943
367.251	76.2042
368.621	75.418
369.999	74.644
372.411	73.4108
373.744	72.8212
375.076	72.2533
376.436	71.6903
377.797	71.1802
379.159	70.8069
380.521	70.4645
382.587	70.0662
384.642	69.6985
386.692	69.3367
388.737	68.976
390.861	68.6012
393.094	68.2073
394.753	68.9145
396.128	69.5069
397.391	70.093
398.579	70.7202

Global Minimum Support Data

Method: bishop simplified

Number of Supports: 1

Pile1 (Static)

Support Type: Pile/Micro Pile

Start (x, y)	Length (ft)	L Inside SS (ft)	L Outside SS (ft)	Li (ft)	Lo (ft)	Force (lb)
353.802, 113.919	98.5544	Not Effective	Not Effective	Not Effective	Not Effective	0

Valid and Invalid Surfaces

Method: bishop simplified

Number of Valid Surfaces:	16876
Number of Invalid Surfaces:	8193

Error Codes

Error Code -106 reported for 24 surfaces
Error Code -108 reported for 46 surfaces
Error Code -111 reported for 261 surfaces
Error Code -112 reported for 335 surfaces
Error Code -121 reported for 110 surfaces
Error Code -145 reported for 16 surfaces
Error Code -1000 reported for 7401 surfaces

Error Code Descriptions

The following errors were encountered during the computation:
-106 = Average slice width is less than 0.0001 * (maximum horizontal extent of soil region). This limitation is imposed to avoid numerical errors which may result from too many slices, or too small a slip region.
-108 = Total driving moment or total driving force < 0.1. This is to limit the calculation of extremely high safety factors if the driving force is very small (0.1 is an arbitrary number).
-111 = Safety factor equation did not converge
-112 = The coefficient M-Alpha = cos(alpha)(1+tan(alpha)tan(phi)/F) < 0.2 for the final iteration of the safety factor calculation. This screens out some slip surfaces which may not be valid in the context of the analysis, in particular, deep seated slip surfaces with many high negative base angle slices in the passive zone.
-121 = Concave failure surface, only convex surfaces have been defined as being allowed.
-145 = Slip surface was clipped vertically by a weak layer in a region of compression. Such a surface cannot be evaluated using Limit Equilibrium. For more information, see Help Documentation on weak layers.
-1000 = No valid slip surface is generated

Slice Data

Global Minimum Query (bishop simplified) - Safety Factor: 2.14059

Slice Number	Width [ft]	Weight [lbs]	Angle of Slice Base [deg]	Base Material	Base Cohesion [psf]	Base Friction Angle [deg]	Shear Stress [psf]	Shear Strength [psf]	Base Normal Stress [psf]	Pore Pressure [psf]	Effective Normal Stress [psf]	Base Vertical Stress [psf]	Effective Vertical Stress [psf]
1	0.749279	68.9397	-68.3206	Anisotropic Bedrock (Tm) Ultimate	520	34.5	150.728	322.647	-287.151	0	-287.151	92.0081	92.0081
2	0.748978	206.708	-68.3206	Anisotropic Bedrock (Tm) Ultimate	520	34.5	183.406	392.597	-185.373	0	-185.373	275.987	275.987
3	0.748837	344.399	-68.3206	Anisotropic Bedrock (Tm) Ultimate	520	34.5	216.074	462.526	-83.626	0	-83.626	459.911	459.911

4	0.748758	482.058	-68.3206	Anisotropic Bedrock (Tm) Ultimate	520	34.5	248.737	532.444	18.1068	0	18.1068	643.809	643.809
5	0.748798	615.316	-67.2698	Anisotropic Bedrock (Tm) Ultimate	520	34.5	286.887	614.107	136.926	0	136.926	821.738	821.738
6	0.750353	731.045	-63.0324	Anisotropic Bedrock (Tm) Ultimate	520	34.5	340.727	729.357	304.617	0	304.617	974.267	974.267
7	0.770963	803.971	-29.9762	Anisotropic Bedrock (Tm) Ultimate	200	16	216.403	463.23	917.994	0	917.994	1042.81	1042.81
8	0.770963	807.056	-29.9762	Anisotropic Bedrock (Tm) Ultimate	200	16	216.9	464.295	921.707	0	921.707	1046.81	1046.81
9	0.769183	808.266	-29.9762	Anisotropic Bedrock (Tm) Ultimate	200	16	217.398	465.359	925.417	0	925.417	1050.81	1050.81
10	0.769183	811.337	-29.9762	Anisotropic Bedrock (Tm) Ultimate	200	16	217.894	466.422	929.123	0	929.123	1054.8	1054.8
11	0.769988	815.261	-29.9762	Anisotropic Bedrock (Tm) Ultimate	200	16	218.391	467.485	932.83	0	932.83	1058.8	1058.8
12	0.769988	818.338	-29.9762	Anisotropic Bedrock (Tm) Ultimate	200	16	218.887	468.548	936.539	0	936.539	1062.79	1062.79
13	0.773589	825.264	-29.9762	Anisotropic Bedrock (Tm) Ultimate	200	16	219.386	469.615	940.258	0	940.258	1066.8	1066.8
14	0.773589	828.369	-29.9762	Anisotropic Bedrock (Tm) Ultimate	200	16	219.885	470.683	943.985	0	943.985	1070.81	1070.81
15	0.684927	736.021	-29.9762	Anisotropic Bedrock (Tm) Ultimate	200	16	220.356	471.691	947.497	0	947.497	1074.6	1074.6
16	0.684927	738.455	-29.9762	Anisotropic Bedrock (Tm) Ultimate	200	16	220.798	472.637	950.797	0	950.797	1078.15	1078.15
17	1.36986	1484.22	-29.9762	Anisotropic Bedrock (Tm) Ultimate	200	16	221.46	474.056	955.75	0	955.75	1083.49	1083.49
18	0.684929	745.68	-29.8546	Anisotropic Bedrock (Tm) Ultimate	200	16	222.186	475.61	961.168	0	961.168	1088.7	1088.7
19	0.684929	748.663	-29.8546	Anisotropic Bedrock (Tm) Ultimate	200	16	222.728	476.77	965.212	0	965.212	1093.05	1093.05
20	1.3781	1516.84	-29.3175	Anisotropic Bedrock (Tm) Ultimate	200	16	224.023	479.541	974.875	0	974.875	1100.68	1100.68
21	0.804253	889.252	-27.0734	Anisotropic Bedrock (Tm) Ultimate	200	16	226.067	483.917	990.134	0	990.134	1105.69	1105.69
22	0.804253	889.666	-27.0734	Anisotropic Bedrock (Tm) Ultimate	200	16	226.132	484.055	990.616	0	990.616	1106.2	1106.2

23	0.804253	890.079	-27.0734	Anisotropic Bedrock (Tm) Ultimate	200	16	226.196	484.192	991.097	0	991.097	1106.71	1106.71
24	1.33236	1467.89	-23.8688	Anisotropic Bedrock (Tm) Ultimate	200	16	227.529	487.046	1001.05	0	1001.05	1101.72	1101.72
25	1.33238	1452.15	-23.0869	Anisotropic Bedrock (Tm) Ultimate	200	16	226.497	484.838	993.346	0	993.346	1089.89	1089.89
26	0.680021	734.035	-22.4862	Anisotropic Bedrock (Tm) Ultimate	200	16	225.523	482.753	986.077	0	986.077	1079.43	1079.43
27	0.680021	728.756	-22.4862	Anisotropic Bedrock (Tm) Ultimate	200	16	224.538	480.644	978.722	0	978.722	1071.67	1071.67
28	0.680174	722.522	-20.5559	Anisotropic Bedrock (Tm) Ultimate	200	16	224.454	480.463	978.092	0	978.092	1062.26	1062.26
29	0.680174	715.008	-20.5559	Anisotropic Bedrock (Tm) Ultimate	200	16	223.045	477.447	967.572	0	967.572	1051.21	1051.21
30	0.680988	705.434	-15.3258	Anisotropic Bedrock (Tm) Ultimate	200	16	223.975	479.438	974.516	0	974.516	1035.9	1035.9
31	0.680988	692.097	-15.3258	Anisotropic Bedrock (Tm) Ultimate	200	16	221.444	474.021	955.625	0	955.625	1016.31	1016.31
32	1.36198	1341.58	-14.1125	Anisotropic Bedrock (Tm) Ultimate	200	16	218.039	466.732	930.202	0	930.202	985.02	985.02
33	1.03306	974.655	-10.9112	Anisotropic Bedrock (Tm) Ultimate	200	16	214.282	458.689	902.157	0	902.157	943.464	943.464
34	1.03306	933.206	-10.9112	Anisotropic Bedrock (Tm) Ultimate	200	16	209.042	447.474	863.045	0	863.045	903.342	903.342
35	1.02748	886.145	-10.1469	Anisotropic Bedrock (Tm) Ultimate	200	16	204.07	436.831	825.926	0	825.926	862.449	862.449
36	1.02748	843.336	-10.1469	Anisotropic Bedrock (Tm) Ultimate	200	16	198.62	425.163	785.238	0	785.238	820.785	820.785
37	1.02515	798.598	-10.0053	Anisotropic Bedrock (Tm) Ultimate	200	16	193.219	413.602	744.918	0	744.918	779.006	779.006
38	1.02515	755.651	-10.0053	Anisotropic Bedrock (Tm) Ultimate	200	16	187.736	401.866	703.991	0	703.991	737.112	737.112
39	1.02237	710.832	-10.0053	Anisotropic Bedrock (Tm) Ultimate	200	16	182.261	390.147	663.121	0	663.121	695.276	695.276
40	1.02237	668.116	-10.0053	Anisotropic Bedrock (Tm) Ultimate	200	16	176.794	378.443	622.305	0	622.305	653.496	653.496
41	1.0621	648.84	-10.0053	Anisotropic Bedrock (Tm) Ultimate	200	16	171.22	366.512	580.697	0	580.697	610.904	610.904

42	1.0621	602.778	-10.0053	Anisotropic Bedrock (Tm) Ultimate	200	16	165.545	354.363	538.329	0	538.329	567.534	567.534
43	1.11644	601.565	-10.0053	Anisotropic Bedrock (Tm) Ultimate	200	16	161.788	346.321	510.283	0	510.283	538.826	538.826
44	1.11644	582.896	-10.0053	Anisotropic Bedrock (Tm) Ultimate	200	16	159.599	341.637	493.947	0	493.947	522.103	522.103
45	0.829605	395.334	23.0836	Anisotropic Bedrock (Tm) Ultimate	520	34.5	458.692	981.871	672.026	0	672.026	476.533	476.533
46	0.829605	333.596	23.0836	Anisotropic Bedrock (Tm) Ultimate	520	34.5	431.01	922.616	585.81	0	585.81	402.115	402.115
47	0.687714	229.606	23.3016	Anisotropic Bedrock (Tm) Ultimate	520	34.5	406.305	869.733	508.865	0	508.865	333.869	333.869
48	0.687714	186.917	23.3016	Anisotropic Bedrock (Tm) Ultimate	520	34.5	383.177	820.224	436.83	0	436.83	271.795	271.795
49	1.26284	228.76	24.8973	Anisotropic Bedrock (Tm) Ultimate	520	34.5	353.809	757.359	345.36	0	345.36	181.148	181.148
50	1.18727	72.1492	27.8485	Anisotropic Bedrock (Tm) Ultimate	520	34.5	316.045	676.523	227.743	0	227.743	60.7692	60.7692

Interslice Data

Global Minimum Query (bishop simplified) - Safety Factor: 2.14059

Slice Number	X coordinate [ft]	Y coordinate - Bottom [ft]	Interslice Normal Force [lbs]	Interslice Shear Force [lbs]	Interslice Force Angle [deg]
1	353.849	92.1401	0	0	0
2	354.598	90.2552	-654.166	0	0
3	355.347	88.3712	-1140.79	0	0
4	356.096	86.4875	-1460.12	0	0
5	356.844	84.604	-1612.26	0	0
6	357.593	82.8165	-1582.33	0	0
7	358.344	81.3418	-1388.78	0	0
8	359.115	80.8971	-1147.4	0	0
9	359.886	80.4525	-904.746	0	0
10	360.655	80.0088	-661.392	0	0
11	361.424	79.5651	-416.776	0	0
12	362.194	79.121	-170.639	0	0
13	362.964	78.6769	76.7623	0	0
14	363.737	78.2307	326.594	0	0
15	364.511	77.7845	577.703	0	0
16	365.196	77.3894	801.097	0	0
17	365.881	76.9943	1025.49	0	0
18	367.251	76.2042	1477.29	0	0
19	367.936	75.8111	1702.97	0	0
20	368.621	75.418	1929.87	0	0
21	369.999	74.644	2375.6	0	0
22	370.803	74.233	2600.82	0	0
23	371.607	73.8219	2826.18	0	0
24	372.411	73.4108	3051.69	0	0
25	373.744	72.8212	3338.7	0	0
26	375.076	72.2533	3601.09	0	0
27	375.756	71.9718	3725.3	0	0
28	376.436	71.6903	3848.1	0	0
29	377.116	71.4353	3944.91	0	0
30	377.797	71.1802	4039.99	0	0
31	378.478	70.9936	4069.34	0	0
32	379.159	70.8069	4096.88	0	0
33	380.521	70.4645	4118.44	0	0
34	381.554	70.2654	4076.73	0	0
35	382.587	70.0662	4032.65	0	0
36	383.614	69.8823	3974.85	0	0
37	384.642	69.6985	3915.17	0	0
38	385.667	69.5176	3851.82	0	0
39	386.692	69.3367	3786.69	0	0
40	387.714	69.1564	3719.96	0	0
41	388.737	68.976	3651.45	0	0
42	389.799	68.7886	3578.41	0	0
43	390.861	68.6012	3503.45	0	0
44	391.977	68.4043	3423.34	0	0
45	393.094	68.2073	3342.44	0	0
46	393.923	68.5609	2724.3	0	0
47	394.753	68.9145	2159.6	0	0
48	395.441	69.2107	1729.45	0	0
49	396.128	69.5069	1336.55	0	0
50	397.391	70.093	687.326	0	0
51	398.579	70.7202	0	0	0

Discharge Sections

Entity Information

Offsite Slope Removal (Static)

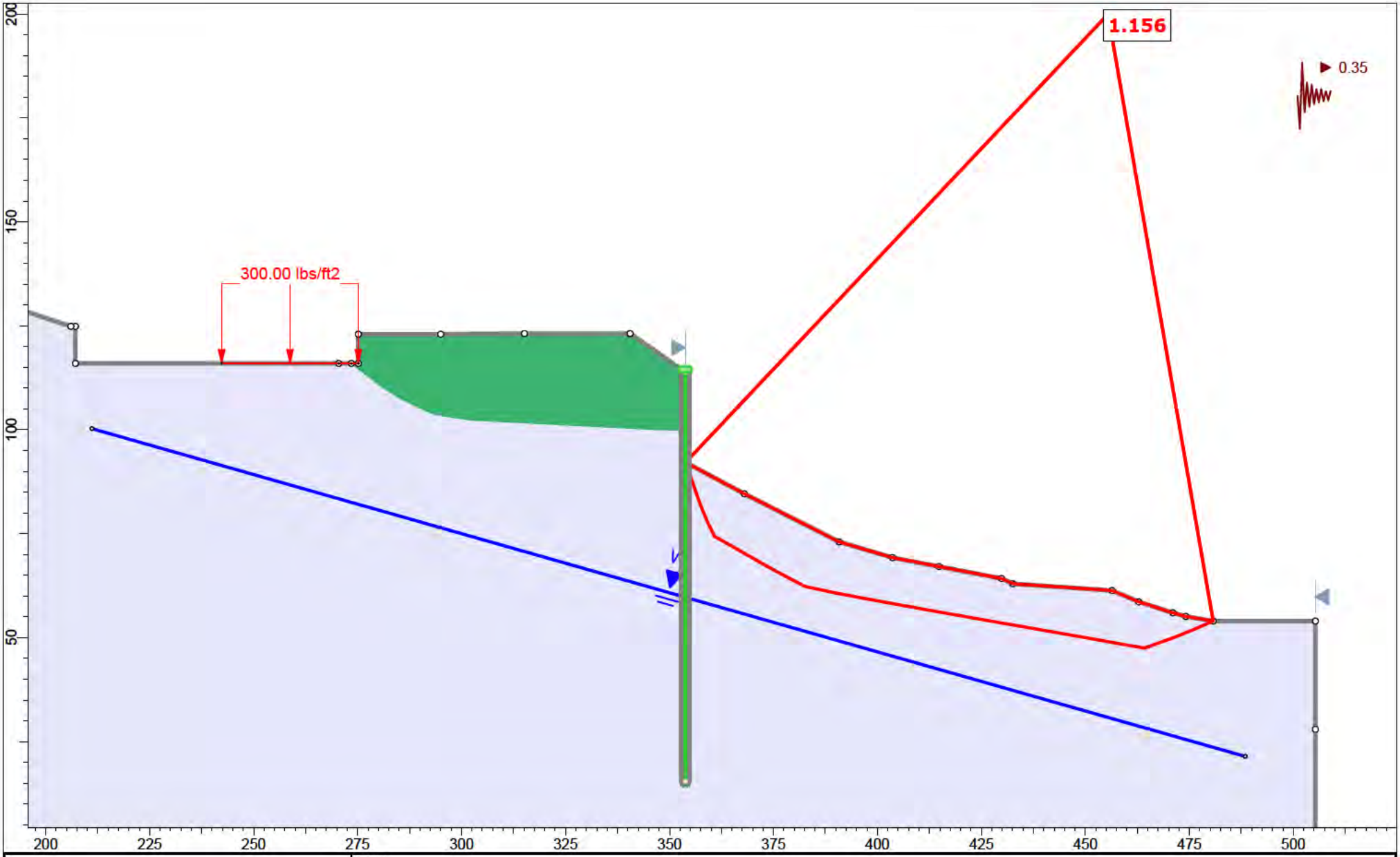
Shared Entities

Type	Coordinates (x,y)
External Boundary	0.235, 184.951 -0.154, 0.116 505.309, 0.116 505.309, 27.9488 505.309, 53.989 480.732, 53.989 474.165, 55.09 471.052, 55.963 462.815, 58.621 456.446, 61.31 432.547, 62.934 429.844, 64.2283 414.791, 67.0937 403.63, 69.219 390.807, 73.03 367.99, 84.5749 353.802, 92.165 353.802, 99.5349 353.802, 113.919 340.534, 123.111 315.124, 123.111 295.004, 122.962 275.174, 122.962 275.174, 115.923 273.496, 115.923 270.47, 115.923 207.15, 115.923 207.15, 124.855 206.075, 124.855 193.797, 128.929 183.475, 131.724 172.683, 131.724 167.29, 129.885 152.655, 129.885 136.627, 131.024 91.465, 132.01 88.851, 133.732 86.883, 134.993 83.317, 137.453 79.022, 140.415 75.503, 142.704 71.745, 145.027 69.115, 146.598 63.546, 149.605 55.105, 154.376 47.248, 159.056 40.176, 163.054 30.945, 168.401 27.756, 170.147 20.658, 173.791 13.825, 177.283 8.283, 180.054 4.107, 182.75

Material Boundary	273.496, 115.923 280.901, 110.275 284.962, 107.671 288.66, 105.849 291.522, 104.48 292.252, 104.13 295.897, 102.933 302.146, 102.048 320.006, 101.11 346.302, 99.756 353.802, 99.5349

Scenario-based Entities

Type	Coordinates (x,y)	Master Scenario
Water Table	211.127, 100.268 488.448, 21.436	Not assigned to any materials
Distributed Load	275.174, 115.923 273.496, 115.923 270.47, 115.923 242.316, 115.923	Constant DistributionOrientation: Normal to boundaryMagnitude: 300 lbs/ft2Creates Excess Pore Pressure: No
Non-Circular Failure Surface	367.99, 84.5749 390.807, 73.03	



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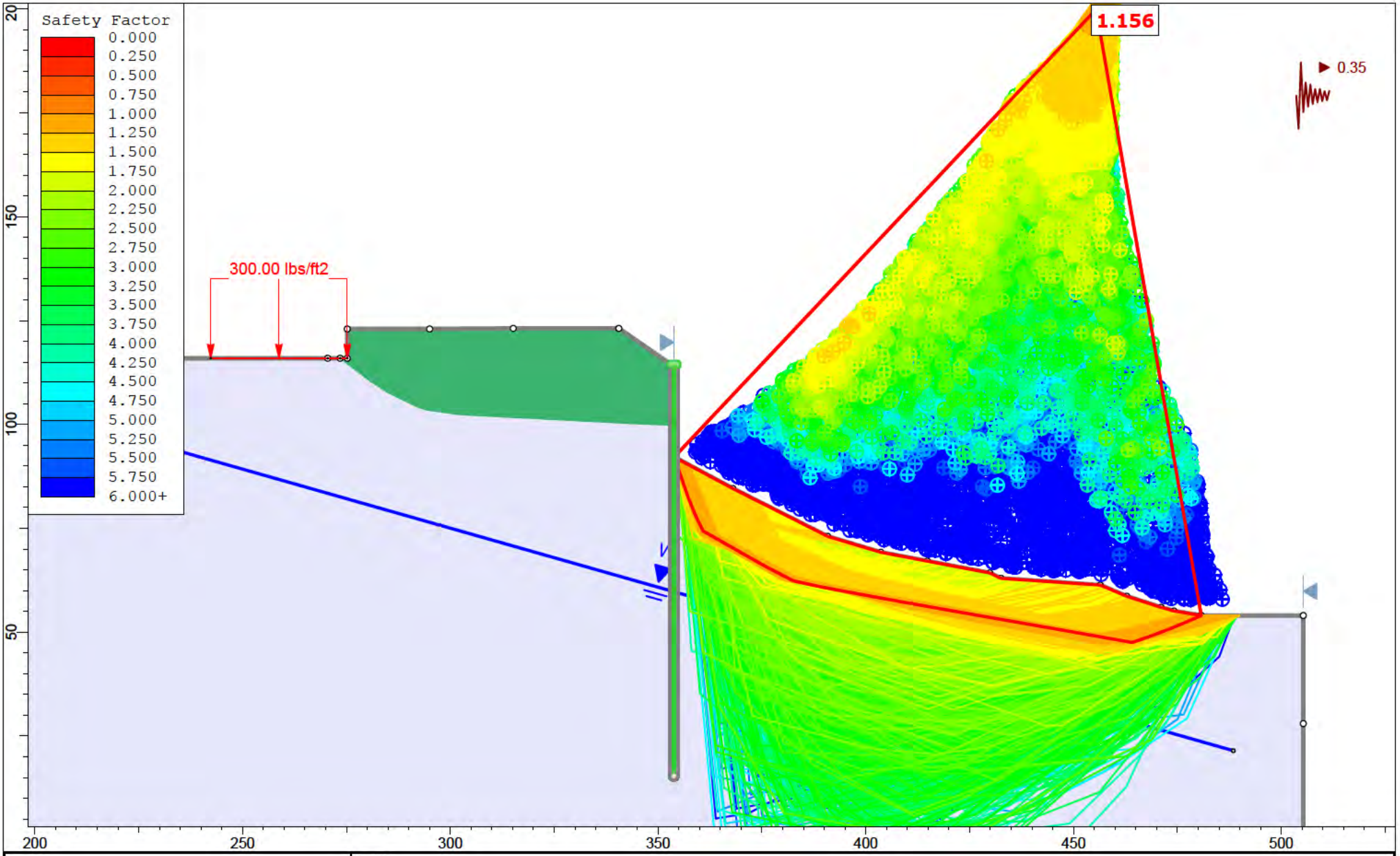
SLIDEINTERPRET 9.018

Project	Section 4-4'		
Analysis Description	Offsite Slope Removal (Seismic)		
Drawn By	A. Greene	Scale 1:383	Company Feffer Geological Consulting
Date			File Name Section 4-4' Translational Analysis_2.slmd



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SLIDEINTERPRET 9.018

Project	Section 4-4'		
Analysis Description	Offsite Slope Removal (Seismic)		
Drawn By	A. Greene	Scale 1:383	Company Feffer Geological Consulting
Date			File Name Section 4-4' Translational Analysis_2.slmd

Slide Analysis Information

Section 4-4' Translational Analysis_2

Project Summary

File Name:	Section 4-4' Translational Analysis_2.slmd
Slide Modeler Version:	9.018
Compute Time:	00h:00m:03.328s
Project Title:	Section 4-4'
Analysis:	Offsite Slope Removal (Seismic)
Author:	A. Greene
Company:	Feffer Geological Consulting

General Settings

Units of Measurement:	Imperial Units
Time Units:	days
Permeability Units:	feet/second
Data Output:	Standard
Failure Direction:	Left to Right

Analysis Options

Slices Type:	Vertical
Analysis Methods Used	
	Bishop simplified
Number of slices:	50
Tolerance:	0.005
Maximum number of iterations:	75
Check malpha < 0.2:	Yes
Create Interslice boundaries at intersections with water tables and piezos:	Yes
Initial trial value of FS:	1
Steffensen Iteration:	Yes

Groundwater Analysis

Groundwater Method:	Water Surfaces
Pore Fluid Unit Weight [lbs/ft3]:	62.4
Use negative pore pressure cutoff:	Yes
Maximum negative pore pressure [psf]:	0
Advanced Groundwater Method:	None

Random Numbers

Pseudo-random Seed:	10116
Random Number Generation Method:	Park and Miller v.3

Surface Options

Search Method:	Cuckoo Search
Initial # of Surface Vertices:	8
Maximum Iterations:	500
Number of Nests:	50
Minimum Elevation:	Not Defined
Minimum Depth:	Not Defined
Minimum Area:	Not Defined
Minimum Weight:	Not Defined
Convex Surfaces Only:	Enabled

Seismic Loading

Advanced seismic analysis:	No
Staged pseudostatic analysis:	No
Seismic Load Coefficient (Horizontal):	0.35

Loading

1 Distributed Load present

Distributed Load 1	
Distribution:	Constant
Magnitude [psf]:	300
Orientation:	Normal to boundary

Materials

Terrace (Qoa)	
Color	
Strength Type	Mohr-Coulomb
Unit Weight [lbs/ft3]	115
Cohesion [psf]	100
Friction Angle [deg]	31
Water Surface	None
Ru Value	0
Anisotropic Bedrock (Tm) Peak	
Color	
Strength Type	Anisotropic function
Unit Weight [lbs/ft3]	124
Water Surface	Water Table
Hu Value	1

Anisotropic Functions

Name: Anisotropic Bedrock (Tm) Peak

Angle From	Angle To	c	phi
-90	-30	720	41
-30	-10	200	16
-10	90	720	41

Support

Pile 1 (Seismic)	
Color	
Type	Pile/Micro Pile
Force Application	Active (Method A)
Force Orientation	Parallel to surface
Out-Of-Plane Spacing	10 ft
Failure Mode	Shear
Pile Shear Strength	200000 lbs

Global Minimums

Method: bishop simplified

FS	1.156440
Axis Location:	455.441, 199.920
Left Slip Surface Endpoint:	353.870, 92.128
Right Slip Surface Endpoint:	480.732, 53.989
Resisting Moment:	1.56185e+07 lb-ft
Driving Moment:	1.35064e+07 lb-ft
Total Slice Area:	1387.71 ft2
Surface Horizontal Width:	126.862 ft
Surface Average Height:	10.9388 ft

Global Minimum Coordinates

Method: bishop simplified

X	Y
353.87	92.1284
355.611	87.1378
357.351	82.1473
359.091	77.8791
360.827	74.3589
365.812	71.5091
370.98	68.5541
376.159	65.6577
382.508	62.3382
388.949	60.9231
394.204	59.9113
399.487	58.9337
404.77	57.956
410.053	57.0238
415.336	56.0916
420.204	55.2326
425.072	54.3736
429.94	53.5145
434.809	52.6555
440.27	51.6918
445.72	50.7309
451.169	49.7699
456.618	48.8092
460.632	48.1013
464.146	47.4817
468.343	48.9496
472.284	50.422
476.73	52.239
480.732	53.989

Global Minimum Support Data

Method: bishop simplified

Number of Supports: 1

Pile 1 (Seismic)

Support Type: Pile/Micro Pile

Start (x, y)	Length (ft)	L Inside SS (ft)	L Outside SS (ft)	Li (ft)	Lo (ft)	Force (lb)
353.802, 113.919	98.5544	Not Effective	Not Effective	Not Effective	Not Effective	0

Valid and Invalid Surfaces

Method: bishop simplified

Number of Valid Surfaces:	14586
Number of Invalid Surfaces:	10473

Error Codes

Error Code -106 reported for 28 surfaces
Error Code -108 reported for 25 surfaces
Error Code -109 reported for 1 surface
Error Code -110 reported for 2839 surfaces
Error Code -111 reported for 227 surfaces
Error Code -112 reported for 167 surfaces
Error Code -121 reported for 159 surfaces
Error Code -145 reported for 18 surfaces
Error Code -1000 reported for 7009 surfaces

Error Code Descriptions

The following errors were encountered during the computation:
-106 = Average slice width is less than 0.0001 * (maximum horizontal extent of soil region). This limitation is imposed to avoid numerical errors which may result from too many slices, or too small a slip region.
-108 = Total driving moment or total driving force < 0.1. This is to limit the calculation of extremely high safety factors if the driving force is very small (0.1 is an arbitrary number).
-109 = Soiltype for slice base not located. This error should occur very rarely, if at all. It may occur if a very low number of slices is combined with certain soil geometries, such that the midpoint of a slice base is actually outside the soil region,even though the slip surface is wholly within the soil region.
-110 = The water table or a piezoline does not span the slip region for a given slip surface, when Water Surfaces is specified as the method of pore pressure calculation. If this error occurs, check that the water table or piezoline(s) span the appropriate soil cells.
-111 = Safety factor equation did not converge
-112 = The coefficient M-Alpha = cos(alpha)(1+tan(alpha)tan(phi)/F) < 0.2 for the final iteration of the safety factor calculation. This screens out some slip surfaces which may not be valid in the context of the analysis, in particular, deep seated slip surfaces with many high negative base angle slices in the passive zone.
-121 = Concave failure surface, only convex surfaces have been defined as being allowed.
-145 = Slip surface was clipped vertically by a weak layer in a region of compression. Such a surface cannot be evaluated using Limit Equilibrium. For more information, see Help Documentation on weak layers.
-1000 = No valid slip surface is generated

Slice Data

Global Minimum Query (bishop simplified) - Safety Factor: 1.15644

Slice Number	Width [ft]	Weight [lbs]	Angle of Slice Base [deg]	Base Material	Base Cohesion [psf]	Base Friction Angle [deg]	Shear Stress [psf]	Shear Strength [psf]	Base Normal Stress [psf]	Pore Pressure [psf]	Effective Normal Stress [psf]	Base Vertical Stress [psf]	Effective Vertical Stress [psf]
1	1.74007	437.98	-70.7777	Anisotropic Bedrock (Tm) Peak	720	41	257.329	297.585	-485.933	0	-485.933	252.089	252.089

2	1.74007	1313.94	-70.7777	Anisotropic Bedrock (Tm) Peak	720	41	377.277	436.298	-326.362	0	-326.362	755.673	755.673
3	1.74001	2111.89	-67.8205	Anisotropic Bedrock (Tm) Peak	720	41	539.926	624.391	-109.985	0	-109.985	1214.42	1214.42
4	1.73681	2746.39	-63.7388	Anisotropic Bedrock (Tm) Peak	720	41	717.968	830.287	126.871	0	126.871	1582.05	1582.05
5	2.49207	4355.2	-29.7599	Anisotropic Bedrock (Tm) Peak	200	16	531.029	614.103	1444.15	0	1444.15	1747.78	1747.78
6	2.49207	4383.56	-29.7599	Anisotropic Bedrock (Tm) Peak	200	16	533.501	616.962	1454.12	0	1454.12	1759.16	1759.16
7	2.5841	4575.68	-29.7599	Anisotropic Bedrock (Tm) Peak	200	16	536.043	619.902	1464.37	0	1464.37	1770.87	1770.87
8	2.5841	4621.63	-29.7599	Anisotropic Bedrock (Tm) Peak	200	16	539.905	624.368	1479.95	0	1479.95	1788.65	1788.65
9	2.58951	4680.75	-29.216	Anisotropic Bedrock (Tm) Peak	200	16	545.535	630.879	1502.65	0	1502.65	1807.74	1807.74
10	2.58951	4725.04	-29.216	Anisotropic Bedrock (Tm) Peak	200	16	549.26	635.186	1517.67	0	1517.67	1824.85	1824.85
11	3.17462	5830.35	-27.6014	Anisotropic Bedrock (Tm) Peak	200	16	556.255	643.275	1545.88	0	1545.88	1836.7	1836.7
12	3.17462	5851.39	-27.6014	Anisotropic Bedrock (Tm) Peak	200	16	557.708	644.956	1551.75	0	1551.75	1843.33	1843.33
13	3.22065	5762.78	-12.3905	Anisotropic Bedrock (Tm) Peak	200	16	584.777	676.26	1660.92	0	1660.92	1789.39	1789.39
14	3.22065	5394.54	-12.3905	Anisotropic Bedrock (Tm) Peak	200	16	557.891	645.168	1552.48	0	1552.48	1675.05	1675.05
15	2.62735	4124.08	-10.8989	Anisotropic Bedrock (Tm) Peak	200	16	536.55	620.488	1466.42	0	1466.42	1569.73	1569.73
16	2.62735	3989.81	-10.8989	Anisotropic Bedrock (Tm) Peak	200	16	524.456	606.502	1417.64	0	1417.64	1518.62	1518.62
17	2.64152	3917.77	-10.4844	Anisotropic Bedrock (Tm) Peak	200	16	516.99	597.868	1387.53	0	1387.53	1483.2	1483.2
18	2.64152	3820.73	-10.4844	Anisotropic Bedrock (Tm) Peak	200	16	508.281	587.796	1352.4	0	1352.4	1446.46	1446.46
19	2.64152	3723.69	-10.4844	Anisotropic Bedrock (Tm) Peak	200	16	499.57	577.723	1317.28	0	1317.28	1409.73	1409.73
20	2.64152	3635.26	-10.4844	Anisotropic Bedrock (Tm) Peak	200	16	491.634	568.545	1285.27	0	1285.27	1376.25	1376.25
21	2.64142	3611.85	-10.0073	Anisotropic Bedrock (Tm) Peak	200	16	490.544	567.285	1280.88	0	1280.88	1367.44	1367.44
22	2.64142	3599.77	-10.0073	Anisotropic Bedrock (Tm) Peak	200	16	489.458	566.029	1276.49	0	1276.49	1362.86	1362.86
23	2.64142	3587.69	-10.0073	Anisotropic Bedrock (Tm) Peak	200	16	488.371	564.772	1272.11	0	1272.11	1358.29	1358.29
24	2.64142	3575.62	-10.0073	Anisotropic Bedrock (Tm) Peak	200	16	487.285	563.516	1267.73	0	1267.73	1353.72	1353.72
25	2.43411	3284.34	-10.0073	Anisotropic Bedrock (Tm) Peak	200	16	486.246	562.314	1263.54	0	1263.54	1349.34	1349.34
26	2.43411	3274.13	-10.0073	Anisotropic Bedrock (Tm) Peak	200	16	485.25	561.162	1259.52	0	1259.52	1345.15	1345.15

27	2.43411	3263.93	-10.0073	Anisotropic Bedrock (Tm) Peak	200	16	484.254	560.011	1255.51	0	1255.51	1340.96	1340.96
28	2.43411	3253.73	-10.0073	Anisotropic Bedrock (Tm) Peak	200	16	483.258	558.859	1251.49	0	1251.49	1336.76	1336.76
29	2.43411	3243.53	-10.0073	Anisotropic Bedrock (Tm) Peak	200	16	482.263	557.708	1247.48	0	1247.48	1332.58	1332.58
30	2.43411	3233.16	-10.0073	Anisotropic Bedrock (Tm) Peak	200	16	481.251	556.538	1243.39	0	1243.39	1328.31	1328.31
31	2.43411	3108.75	-10.0073	Anisotropic Bedrock (Tm) Peak	200	16	469.108	542.495	1194.42	0	1194.42	1277.2	1277.2
32	2.43411	3016.88	-10.0073	Anisotropic Bedrock (Tm) Peak	200	16	460.141	532.126	1158.26	0	1158.26	1239.46	1239.46
33	5.46104	7056.85	-10.0073	Anisotropic Bedrock (Tm) Peak	200	16	472.686	546.633	1208.85	0	1208.85	1292.26	1292.26
34	2.7249	3671.17	-10.0002	Anisotropic Bedrock (Tm) Peak	200	16	485.778	561.773	1261.65	0	1261.65	1347.31	1347.31
35	2.7249	3770.95	-10.0002	Anisotropic Bedrock (Tm) Peak	200	16	494.478	571.834	1296.74	0	1296.74	1383.93	1383.93
36	2.7249	3870.74	-10.0002	Anisotropic Bedrock (Tm) Peak	200	16	503.178	581.895	1331.82	0	1331.82	1420.55	1420.55
37	2.7249	3970.52	-10.0002	Anisotropic Bedrock (Tm) Peak	200	16	511.878	591.956	1366.91	0	1366.91	1457.17	1457.17
38	2.72417	4069.19	-10.0002	Anisotropic Bedrock (Tm) Peak	200	16	520.576	602.015	1401.99	0	1401.99	1493.79	1493.79
39	2.72417	4168.27	-10.0002	Anisotropic Bedrock (Tm) Peak	200	16	529.217	612.008	1436.84	0	1436.84	1530.16	1530.16
40	2.00724	3031.96	-10.0002	Anisotropic Bedrock (Tm) Peak	200	16	524.561	606.623	1418.06	0	1418.06	1510.56	1510.56
41	2.00724	2909.13	-10.0002	Anisotropic Bedrock (Tm) Peak	200	16	510.022	589.81	1359.43	0	1359.43	1449.36	1449.36
42	3.51377	4807.76	-10.0002	Anisotropic Bedrock (Tm) Peak	200	16	490.766	567.542	1281.77	0	1281.77	1368.31	1368.31
43	2.09834	2603.05	19.2777	Anisotropic Bedrock (Tm) Peak	720	41	2109.38	2439.37	1977.91	0	1977.91	1240.14	1240.14
44	2.09834	2235.91	19.2777	Anisotropic Bedrock (Tm) Peak	720	41	1930.99	2233.07	1740.58	0	1740.58	1065.21	1065.21
45	1.97065	1759.8	20.4858	Anisotropic Bedrock (Tm) Peak	720	41	1798.75	2080.15	1564.67	0	1564.67	892.65	892.65
46	1.97065	1428.48	20.4858	Anisotropic Bedrock (Tm) Peak	720	41	1623.05	1876.96	1330.94	0	1330.94	724.561	724.561
47	2.22318	1221.92	22.2273	Anisotropic Bedrock (Tm) Peak	720	41	1494.63	1728.45	1160.08	0	1160.08	549.304	549.304
48	2.22318	843.974	22.2273	Anisotropic Bedrock (Tm) Peak	720	41	1310.22	1515.19	914.765	0	914.765	379.343	379.343
49	2.00085	450.475	23.62	Anisotropic Bedrock (Tm) Peak	720	41	1179.29	1363.77	740.579	0	740.579	224.872	224.872
50	2.00085	150.158	23.62	Anisotropic Bedrock (Tm) Peak	720	41	1011.26	1169.46	517.043	0	517.043	74.8156	74.8156

Interslice Data

Global Minimum Query (bishop simplified) - Safety Factor: 1.15644

Slice Number	X coordinate [ft]	Y coordinate - Bottom [ft]	Interslice Normal Force [lbs]	Interslice Shear Force [lbs]	Interslice Force Angle [deg]
1	353.87	92.1284	0	0	0
2	355.611	87.1378	-2719.32	0	0
3	357.351	82.1473	-4544.31	0	0
4	359.091	77.8791	-5213.56	0	0
5	360.827	74.3589	-5052.04	0	0
6	363.32	72.934	-2792.6	0	0
7	365.812	71.5091	-515.193	0	0
8	368.396	70.0316	1865.48	0	0
9	370.98	68.5541	4275.28	0	0
10	373.569	67.1059	6677.73	0	0
11	376.159	65.6577	9107.79	0	0
12	379.333	63.998	11949.2	0	0
13	382.508	62.3382	14803.1	0	0
14	385.729	61.6307	16112.9	0	0
15	388.949	60.9231	17303.6	0	0
16	391.577	60.4172	18079.9	0	0
17	394.204	59.9113	18816.3	0	0
18	396.846	59.4225	19500.9	0	0
19	399.487	58.9337	20157.3	0	0
20	402.129	58.4449	20785.6	0	0
21	404.77	57.956	21388.2	0	0
22	407.412	57.4899	21954.4	0	0
23	410.053	57.0238	22517.1	0	0
24	412.694	56.5577	23076.4	0	0
25	415.336	56.0916	23632.3	0	0
26	417.77	55.6621	24141.6	0	0
27	420.204	55.2326	24648	0	0
28	422.638	54.8031	25151.5	0	0
29	425.072	54.3736	25652.1	0	0
30	427.506	53.944	26149.9	0	0
31	429.94	53.5145	26644.8	0	0
32	432.375	53.085	27104.6	0	0
33	434.809	52.6555	27538.6	0	0
34	440.27	51.6918	28593.4	0	0
35	442.995	51.2114	29161.5	0	0
36	445.72	50.7309	29757.7	0	0
37	448.444	50.2504	30382	0	0
38	451.169	49.7699	31034.3	0	0
39	453.894	49.2896	31714.6	0	0
40	456.618	48.8092	32422.8	0	0
41	458.625	48.4553	32933.5	0	0
42	460.632	48.1013	33409.6	0	0
43	464.146	47.4817	34163	0	0
44	466.244	48.2156	29198.6	0	0
45	468.343	48.9496	24654	0	0
46	470.313	49.6858	20575.1	0	0
47	472.284	50.422	16898.4	0	0
48	474.507	51.3305	12951	0	0
49	476.73	52.239	9504.05	0	0
50	478.731	53.114	6655.38	0	0
51	480.732	53.989	0	0	0

Discharge Sections

Entity Information

Offsite Slope Removal (Seismic)

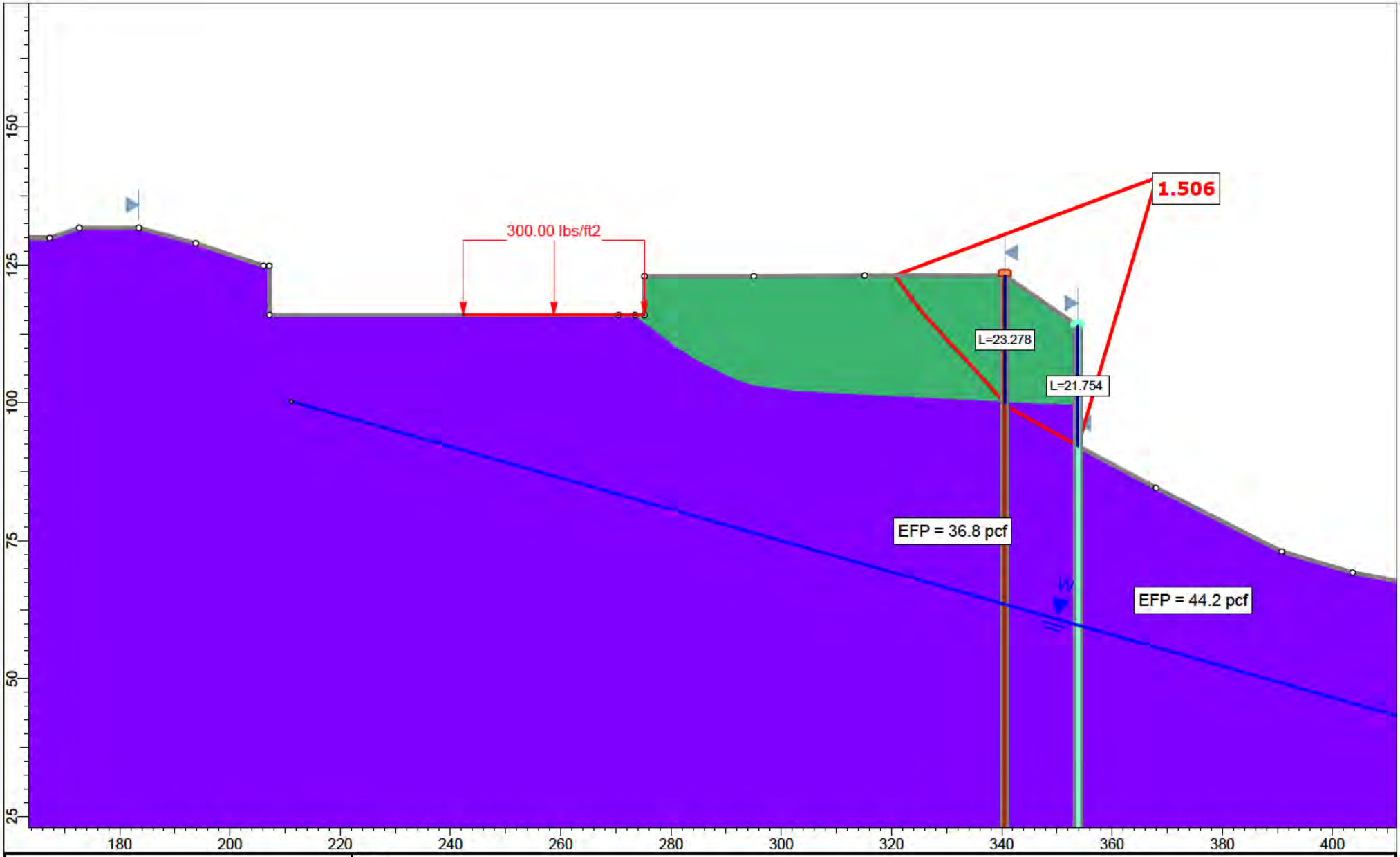
Shared Entities

Type	Coordinates (x,y)
External Boundary	0.235, 184.951 -0.154, 0.116 505.309, 0.116 505.309, 27.9488 505.309, 53.989 480.732, 53.989 474.165, 55.09 471.052, 55.963 462.815, 58.621 456.446, 61.31 432.547, 62.934 429.844, 64.2283 414.791, 67.0937 403.63, 69.219 390.807, 73.03 367.99, 84.5749 353.802, 92.165 353.802, 99.5349 353.802, 113.919 340.534, 123.111 315.124, 123.111 295.004, 122.962 275.174, 122.962 275.174, 115.923 273.496, 115.923 270.47, 115.923 207.15, 115.923 207.15, 124.855 206.075, 124.855 193.797, 128.929 183.475, 131.724 172.683, 131.724 167.29, 129.885 152.655, 129.885 136.627, 131.024 91.465, 132.01 88.851, 133.732 86.883, 134.993 83.317, 137.453 79.022, 140.415 75.503, 142.704 71.745, 145.027 69.115, 146.598 63.546, 149.605 55.105, 154.376 47.248, 159.056 40.176, 163.054 30.945, 168.401 27.756, 170.147 20.658, 173.791 13.825, 177.283 8.283, 180.054 4.107, 182.75

Material Boundary	273.496, 115.923 280.901, 110.275 284.962, 107.671 288.66, 105.849 291.522, 104.48 292.252, 104.13 295.897, 102.933 302.146, 102.048 320.006, 101.11 346.302, 99.756 353.802, 99.5349

Scenario-based Entities

Type	Coordinates (x,y)	Master Scenario
Water Table	211.127, 100.268 488.448, 21.436	Assigned to: Anisotropic Bedrock (Tm) Peak
Distributed Load	275.174, 115.923 273.496, 115.923 270.47, 115.923 242.316, 115.923	Constant DistributionOrientation: Normal to boundaryMagnitude: 300 lbs/ft2Creates Excess Pore Pressure: No
Non-Circular Failure Surface	367.99, 84.5749 390.807, 73.03	



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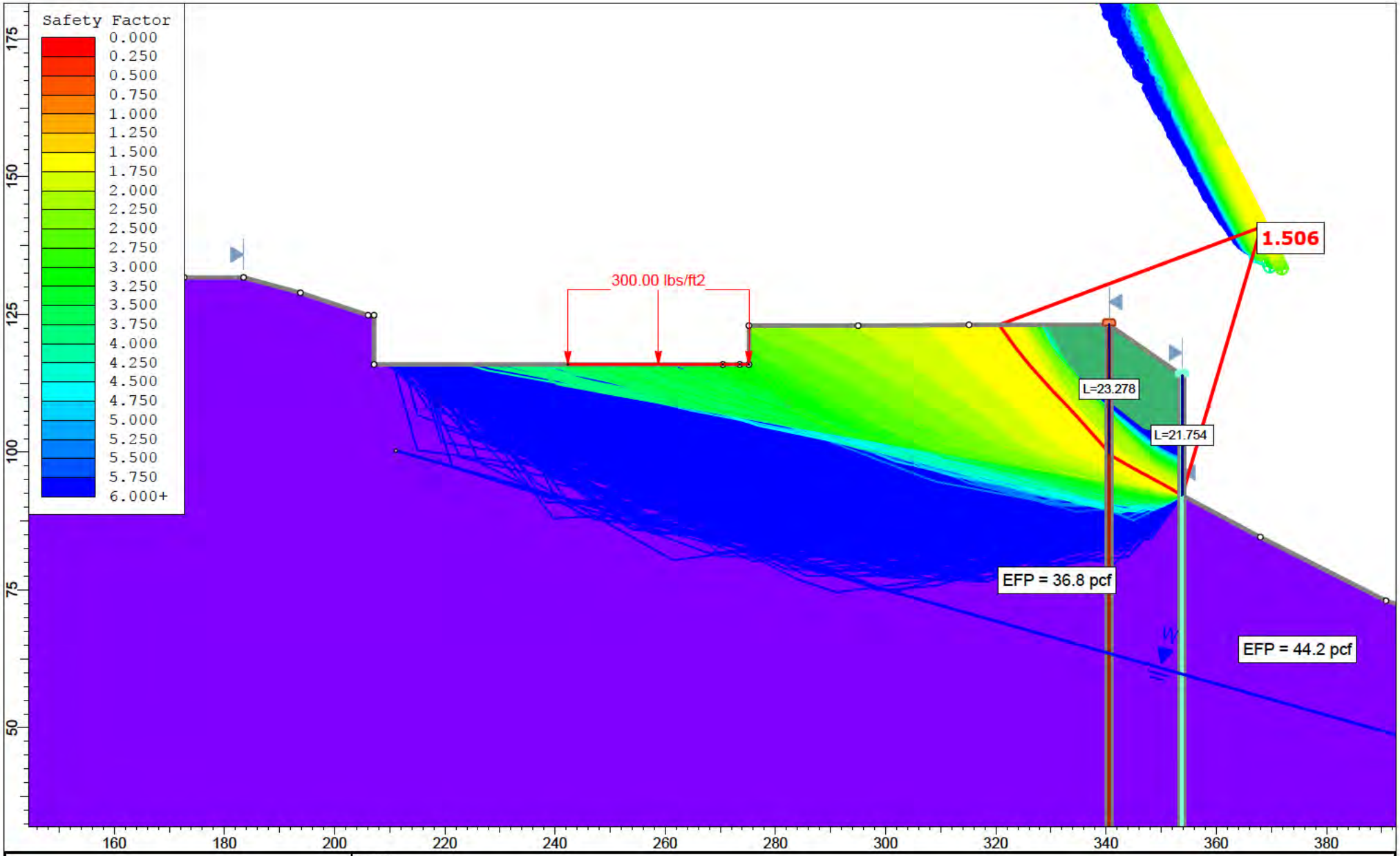
SLIDEINTERPRET 9.018

Project	Section 4-4'				
Analysis Description	Upper Slope (Static)				
Drawn By	A. Greene	Scale	1:289	Company	Feffer Geological Consulting
Date				File Name	Section 4-4' Translational Analysis_2.slmd



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SLIDEINTERPRET 9.018

Project	Section 4-4'				
Analysis Description	Upper Slope (Static)				
Drawn By	A. Greene	Scale	1:289	Company	Feffer Geological Consulting
Date				File Name	Section 4-4' Translational Analysis_2.slmd

Slide Analysis Information

Section 4-4' Translational Analysis_2

Project Summary

File Name:	Section 4-4' Translational Analysis_2.slmd
Slide Modeler Version:	9.018
Compute Time:	00h:00m:28.226s
Project Title:	Section 4-4'
Analysis:	Upper Slope (Static)
Author:	A. Greene
Company:	Feffer Geological Consulting

General Settings

Units of Measurement:	Imperial Units
Time Units:	days
Permeability Units:	feet/second
Data Output:	Standard
Failure Direction:	Left to Right

Analysis Options

Slices Type:	Vertical
Analysis Methods Used	
	Spencer
Number of slices:	50
Tolerance:	0.005
Maximum number of iterations:	75
Check malpha < 0.2:	Yes
Create Interslice boundaries at intersections with water tables and piezos:	Yes
Initial trial value of FS:	1
Steffensen Iteration:	Yes

Groundwater Analysis

Groundwater Method:	Water Surfaces
Pore Fluid Unit Weight [lbs/ft3]:	62.4
Use negative pore pressure cutoff:	Yes
Maximum negative pore pressure [psf]:	0
Advanced Groundwater Method:	None

Random Numbers

Pseudo-random Seed:	10116
Random Number Generation Method:	Park and Miller v.3

Surface Options

Search Method:	Cuckoo Search
Initial # of Surface Vertices:	8
Maximum Iterations:	500
Number of Nests:	50
Minimum Elevation:	Not Defined
Minimum Depth:	Not Defined
Minimum Area:	Not Defined
Minimum Weight:	Not Defined
Convex Surfaces Only:	Enabled

Seismic Loading

Advanced seismic analysis:	No
Staged pseudostatic analysis:	No

Loading

1 Distributed Load present

Distributed Load 1	
Distribution:	Constant
Magnitude [psf]:	300
Orientation:	Normal to boundary

Materials

Terrace (Qoa)	
Color	
Strength Type	Mohr-Coulomb
Unit Weight [lbs/ft3]	115
Cohesion [psf]	100
Friction Angle [deg]	31
Water Surface	None
Ru Value	0
Anisotropic Bedrock (Tm) Ultimate	
Color	
Strength Type	Anisotropic function
Unit Weight [lbs/ft3]	124
Water Surface	Water Table
Hu Value	1

Anisotropic Functions

Name: Anisotropic Bedrock (Tm) Ultimate

Angle From	Angle To	c	phi
-90	-30	520	34.5
-30	-10	200	16
-10	90	520	34.5

Support

Upper Slope Pile 1 (Static)	
Color	
Type	Pile/Micro Pile
Force Application	Active (Method A)
Force Orientation	Parallel to surface
Out-Of-Plane Spacing	10 ft
Failure Mode	Shear
Pile Shear Strength	105000 lbs

Upper Slope Pile 2 (Static)	
Color	
Type	Pile/Micro Pile
Force Application	Active (Method A)
Force Orientation	Parallel to surface
Out-Of-Plane Spacing	10 ft
Failure Mode	Shear
Pile Shear Strength	100000 lbs

Global Minimums

Method: spencer

FS	1.506350
Axis Location:	368.138, 140.858
Left Slip Surface Endpoint:	320.582, 123.111
Right Slip Surface Endpoint:	353.802, 92.165
Left Slope Intercept:	320.582 123.111
Right Slope Intercept:	353.802 113.919
Resisting Moment:	1.28414e+06 lb-ft
Driving Moment:	852486 lb-ft
Resisting Horizontal Force:	19896.4 lb
Driving Horizontal Force:	13208.3 lb
Active Support Moment:	-993911 lb-ft
Active Horizontal Support Force:	-15570.9 lb
Maximum Single Support Force:	10500 lb
Total Support Force:	20500 lb
Total Slice Area:	540.652 ft2
Surface Horizontal Width:	33.2204 ft
Surface Average Height:	16.2747 ft

Global Minimum Coordinates

Method: spencer

X	Y
320.582	123.111
321.689	121.566
322.797	120.02
323.905	118.526
325.122	117.032
326.338	115.536
327.304	114.48
328.458	113.179
329.391	112.137
330.483	110.903
332.065	109.289
333.352	107.932
334.64	106.529
335.897	105.122
337.154	103.705
338.411	102.314
339.668	100.88
340.949	99.3721
342.231	98.632
343.514	97.8928
344.798	97.1583
345.917	96.5405
347.036	95.9205
348.157	95.3295
349.279	94.7396
350.41	94.1057
351.54	93.47
352.671	92.8179
353.802	92.165
353.803	113.919

Global Minimum Support Data

Method: spencer

Number of Supports: 2

Upper Slope Pile 1 (Static)

Support Type: Pile/Micro Pile

Start (x, y)	Length (ft)	L Inside SS (ft)	L Outside SS (ft)	Li (ft)	Lo (ft)	Force (lb)
353.802, 113.919	98.5544	21.754	76.8004	21.754	76.8004	10500

Upper Slope Pile 2 (Static)

Support Type: Pile/Micro Pile

Start (x, y)	Length (ft)	L Inside SS (ft)	L Outside SS (ft)	Li (ft)	Lo (ft)	Force (lb)
340.534, 123.111	103.212	23.2503	79.9617	23.2503	79.9617	10000

Valid and Invalid Surfaces

Method: spencer

Number of Valid Surfaces:	16159
Number of Invalid Surfaces:	8900

Error Codes

Error Code -108 reported for 211 surfaces
Error Code -110 reported for 78 surfaces
Error Code -111 reported for 7512 surfaces
Error Code -112 reported for 75 surfaces
Error Code -113 reported for 1 surface
Error Code -121 reported for 702 surfaces
Error Code -124 reported for 1 surface
Error Code -145 reported for 5 surfaces
Error Code -1000 reported for 315 surfaces

Error Code Descriptions

The following errors were encountered during the computation:
-108 = Total driving moment or total driving force < 0.1. This is to limit the calculation of extremely high safety factors if the driving force is very small (0.1 is an arbitrary number).
-110 = The water table or a piezoline does not span the slip region for a given slip surface, when Water Surfaces is specified as the method of pore pressure calculation. If this error occurs, check that the water table or piezoline(s) span the appropriate soil cells.
-111 = Safety factor equation did not converge
-112 = The coefficient M-Alpha = cos(alpha)(1+tan(alpha)tan(phi)/F) < 0.2 for the final iteration of the safety factor calculation. This screens out some slip surfaces which may not be valid in the context of the analysis, in particular, deep seated slip surfaces with many high negative base angle slices in the passive zone.
-113 = Surface intersects outside slope limits.
-121 = Concave failure surface, only convex surfaces have been defined as being allowed.
-124 = A slice has a width less than the minimum acceptable value.
-145 = Slip surface was clipped vertically by a weak layer in a region of compression. Such a surface cannot be evaluated using Limit Equilibrium. For more information, see Help Documentation on weak layers.
-1000 = No valid slip surface is generated

Slice Data

Global Minimum Query (spencer) - Safety Factor: 1.50635

Slice Number	Width [ft]	Weight [lbs]	Angle of Slice Base [deg]	Base Material	Base Cohesion [psf]	Base Friction Angle [deg]	Shear Stress [psf]	Shear Strength [psf]	Base Normal Stress [psf]	Pore Pressure [psf]	Effective Normal Stress [psf]	Base Vertical Stress [psf]	Effective Vertical Stress [psf]
1	0.553878	24.6105	-54.3684	Terrace (Qoa)	100	31	67.468	101.63	2.71343	0	2.71343	96.8421	96.8421
2	0.553878	73.8316	-54.3684	Terrace (Qoa)	100	31	82.3895	124.107	40.1213	0	40.1213	155.068	155.068
3	0.553878	123.053	-54.3692	Terrace (Qoa)	100	31	97.3101	146.583	77.5273	0	77.5273	213.294	213.294
4	0.553878	172.276	-54.3692	Terrace (Qoa)	100	31	112.232	169.06	114.936	0	114.936	271.521	271.521
5	0.553878	220.681	-53.4487	Terrace (Qoa)	100	31	128.905	194.175	156.734	0	156.734	330.613	330.613

6	0.553878	268.27	-53.4487	Terrace (Qoa)	100	31	143.682	216.435	193.781	0	193.781	387.593	387.593
7	0.6084	346.947	-50.8393	Terrace (Qoa)	100	31	166.193	250.345	250.216	0	250.216	454.274	454.274
8	0.6084	399.213	-50.8393	Terrace (Qoa)	100	31	181.972	274.114	289.775	0	289.775	513.208	513.208
9	0.6084	451.511	-50.8731	Terrace (Qoa)	100	31	197.635	297.707	329.04	0	329.04	571.996	571.996
10	0.6084	503.839	-50.8731	Terrace (Qoa)	100	31	213.421	321.486	368.614	0	368.614	630.976	630.976
11	0.965695	899.88	-47.5498	Terrace (Qoa)	100	31	247.999	373.573	455.302	0	455.302	726.418	726.418
12	0.576922	594.201	-48.4269	Terrace (Qoa)	100	31	262.956	396.104	492.799	0	492.799	789.254	789.254
13	0.576922	637.354	-48.4269	Terrace (Qoa)	100	31	277.517	418.038	529.305	0	529.305	842.176	842.176
14	0.932697	1121.2	-48.1886	Terrace (Qoa)	100	31	297.89	448.726	580.377	0	580.377	913.416	913.416
15	0.545971	708.406	-48.4753	Terrace (Qoa)	100	31	314.736	474.103	622.612	0	622.612	978.048	978.048
16	0.545971	747.119	-48.4753	Terrace (Qoa)	100	31	328.524	494.872	657.178	0	657.178	1028.18	1028.18
17	0.791346	1147.67	-45.5608	Terrace (Qoa)	100	31	365.355	550.352	749.512	0	749.512	1122.09	1122.09
18	0.791346	1221.11	-45.5608	Terrace (Qoa)	100	31	384.66	579.433	797.91	0	797.91	1190.17	1190.17
19	0.643563	1048.05	-46.5247	Terrace (Qoa)	100	31	394.648	594.478	822.95	0	822.95	1239.18	1239.18
20	0.643563	1098.28	-46.5247	Terrace (Qoa)	100	31	410.533	618.406	862.772	0	862.772	1295.76	1295.76
21	1.28713	2350.6	-47.4555	Terrace (Qoa)	100	31	426.576	642.573	902.994	0	902.994	1367.8	1367.8
22	0.628487	1223.88	-48.2269	Terrace (Qoa)	100	31	443.428	667.958	945.242	0	945.242	1441.66	1441.66
23	0.628487	1274.73	-48.2269	Terrace (Qoa)	100	31	459.255	691.799	984.919	0	984.919	1499.05	1499.05
24	1.25697	2702.75	-48.4328	Terrace (Qoa)	100	31	480.986	724.533	1039.4	0	1039.4	1581.77	1581.77
25	0.628487	1427.72	-47.8885	Terrace (Qoa)	100	31	510.559	769.08	1113.54	0	1113.54	1678.36	1678.36
26	0.628487	1477.98	-47.8885	Terrace (Qoa)	100	31	526.323	792.827	1153.06	0	1153.06	1735.32	1735.32
27	1.25697	3109.88	-48.7728	Terrace (Qoa)	100	31	540.027	813.469	1187.41	0	1187.41	1803.69	1803.69
28	0.695539	1810.92	-49.627	Terrace (Qoa)	100	31	554.513	835.29	1223.73	0	1223.73	1875.9	1875.9
29	0.586424	1572.53	-49.627	Anisotropic Bedrock (Tm) Ultimate	520	34.5	56.6555	85.343	-632.43	0	-632.43	-565.796	-565.796
30	0.640979	1730.69	-29.9999	Anisotropic Bedrock (Tm) Ultimate	200	16	496.981	748.627	1913.29	0	1913.29	2200.22	2200.22
31	0.640979	1727.18	-29.9999	Anisotropic Bedrock (Tm) Ultimate	200	16	496.251	747.528	1909.45	0	1909.45	2195.97	2195.97
32	0.641298	1724.5	-29.9544	Anisotropic Bedrock (Tm) Ultimate	200	16	495.807	746.859	1907.12	0	1907.12	2192.85	2192.85
33	0.641298	1720.93	-29.9544	Anisotropic Bedrock (Tm) Ultimate	200	16	495.065	745.741	1903.22	0	1903.22	2188.52	2188.52
34	1.28446	3435.68	-29.7642	Anisotropic Bedrock (Tm) Ultimate	200	16	495.117	745.82	1903.5	0	1903.5	2186.65	2186.65
35	0.559212	1490.65	-28.9152	Anisotropic Bedrock (Tm) Ultimate	200	16	499.325	752.158	1925.61	0	1925.61	2201.42	2201.42

36	0.559212	1487.01	-28.9152	Anisotropic Bedrock (Tm) Ultimate	200	16	498.442	750.828	1920.96	0	1920.96	2196.28	2196.28
37	0.559396	1483.9	-28.9943	Anisotropic Bedrock (Tm) Ultimate	200	16	497.06	748.747	1913.71	0	1913.71	2189.17	2189.17
38	0.559396	1480.37	-28.9943	Anisotropic Bedrock (Tm) Ultimate	200	16	496.207	747.461	1909.23	0	1909.23	2184.21	2184.21
39	0.560408	1479.01	-27.8014	Anisotropic Bedrock (Tm) Ultimate	200	16	502.894	757.535	1944.35	0	1944.35	2209.52	2209.52
40	0.560408	1474.43	-27.8014	Anisotropic Bedrock (Tm) Ultimate	200	16	501.767	755.837	1938.43	0	1938.43	2203	2203
41	0.56115	1471.78	-27.727	Anisotropic Bedrock (Tm) Ultimate	200	16	501.111	754.848	1934.98	0	1934.98	2198.37	2198.37
42	0.56115	1467.13	-27.727	Anisotropic Bedrock (Tm) Ultimate	200	16	499.965	753.122	1928.96	0	1928.96	2191.75	2191.75
43	0.565399	1474.23	-29.2721	Anisotropic Bedrock (Tm) Ultimate	200	16	489.179	736.875	1872.3	0	1872.3	2146.5	2146.5
44	0.565399	1470.89	-29.2721	Anisotropic Bedrock (Tm) Ultimate	200	16	488.383	735.676	1868.12	0	1868.12	2141.88	2141.88
45	0.565399	1467.59	-29.3435	Anisotropic Bedrock (Tm) Ultimate	200	16	487.15	733.818	1861.65	0	1861.65	2135.51	2135.51
46	0.565399	1464.32	-29.3435	Anisotropic Bedrock (Tm) Ultimate	200	16	486.37	732.644	1857.55	0	1857.55	2130.97	2130.97
47	0.565399	1461.34	-29.9742	Anisotropic Bedrock (Tm) Ultimate	200	16	481.753	725.688	1833.29	0	1833.29	2111.14	2111.14
48	0.565399	1458.65	-29.9742	Anisotropic Bedrock (Tm) Ultimate	200	16	481.118	724.732	1829.96	0	1829.96	2107.45	2107.45
49	0.565399	1455.97	-29.9995	Anisotropic Bedrock (Tm) Ultimate	200	16	480.33	723.545	1825.82	0	1825.82	2103.13	2103.13
50	0.565399	1453.3	-29.9995	Anisotropic Bedrock (Tm) Ultimate	200	16	1005.4	1514.49	4584.18	0	4584.18	5164.64	5164.64

Interslice Data

Global Minimum Query (spencer) - Safety Factor: 1.50635

Slice Number	X coordinate [ft]	Y coordinate - Bottom [ft]	Interslice Normal Force [lbs]	Interslice Shear Force [lbs]	Interslice Force Angle [deg]
1	320.582	123.111	0	0	0
2	321.135	122.338	-35.2721	-29.0139	39.4398
3	321.689	121.566	-49.9019	-41.048	39.4398
4	322.243	120.793	-43.8888	-36.1018	39.4398
5	322.797	120.02	-17.2324	-14.1749	39.4398
6	323.351	119.273	28.4705	23.4191	39.4398
7	323.905	118.526	93.6667	77.0478	39.4398
8	324.513	117.779	179.471	147.628	39.4398
9	325.122	117.032	285.227	234.62	39.4398
10	325.73	116.284	411.081	338.145	39.4399
11	326.338	115.536	556.93	458.116	39.4398
12	327.304	114.48	798.107	656.502	39.4398
13	327.881	113.83	966.928	795.37	39.4398
14	328.458	113.179	1151.09	946.858	39.4399
15	329.391	112.137	1478.44	1216.13	39.4399
16	329.937	111.52	1690.49	1390.55	39.4398
17	330.483	110.903	1916.32	1576.32	39.4399
18	331.274	110.096	2232.05	1836.03	39.4399
19	332.065	109.289	2571.56	2115.3	39.4398
20	332.709	108.611	2876.16	2365.86	39.4399
21	333.352	107.932	3197.58	2630.24	39.4398
22	334.64	106.529	3914.94	3220.33	39.4398
23	335.268	105.826	4301.31	3538.15	39.4399
24	335.897	105.122	4705.66	3870.75	39.4398
25	337.154	103.705	5574.31	4585.28	39.4398
26	337.782	103.01	6027.65	4958.19	39.4398
27	338.411	102.314	6498.57	5345.55	39.4398
28	339.668	100.88	7523.06	6188.27	39.4398
29	340.363	100.062	8138.43	6694.46	39.4398
30	340.949	99.3721	1191.41	980.022	39.4398
31	341.59	99.002	1580.9	1300.41	39.4399
32	342.231	98.632	1969.45	1620.02	39.4399
33	342.873	98.2624	2356.31	1938.24	39.4398
34	343.514	97.8928	2742.21	2255.67	39.4398
35	344.798	97.1583	3504.47	2882.69	39.4399
36	345.358	96.8494	3820.06	3142.28	39.4398
37	345.917	96.5405	4134.7	3401.09	39.4398
38	346.476	96.2305	4449.91	3660.38	39.4398
39	347.036	95.9205	4764.2	3918.91	39.4398
40	347.596	95.625	5056.91	4159.68	39.4398
41	348.157	95.3295	5348.5	4399.53	39.4398
42	348.718	95.0345	5638.02	4637.69	39.4398
43	349.279	94.7396	5926.41	4874.91	39.4398
44	349.844	94.4227	6243.21	5135.5	39.4398
45	350.41	94.1057	6559.14	5395.37	39.4398
46	350.975	93.7879	6875.43	5655.55	39.4398
47	351.54	93.47	7190.86	5915.02	39.4399
48	352.106	93.1439	7516.31	6182.72	39.4398
49	352.671	92.8179	7841.02	6449.82	39.4398
50	353.237	92.4914	8165.44	6716.68	39.4398
51	353.802	92.165	0	0	0

Discharge Sections

Entity Information

Upper Slope (Static)

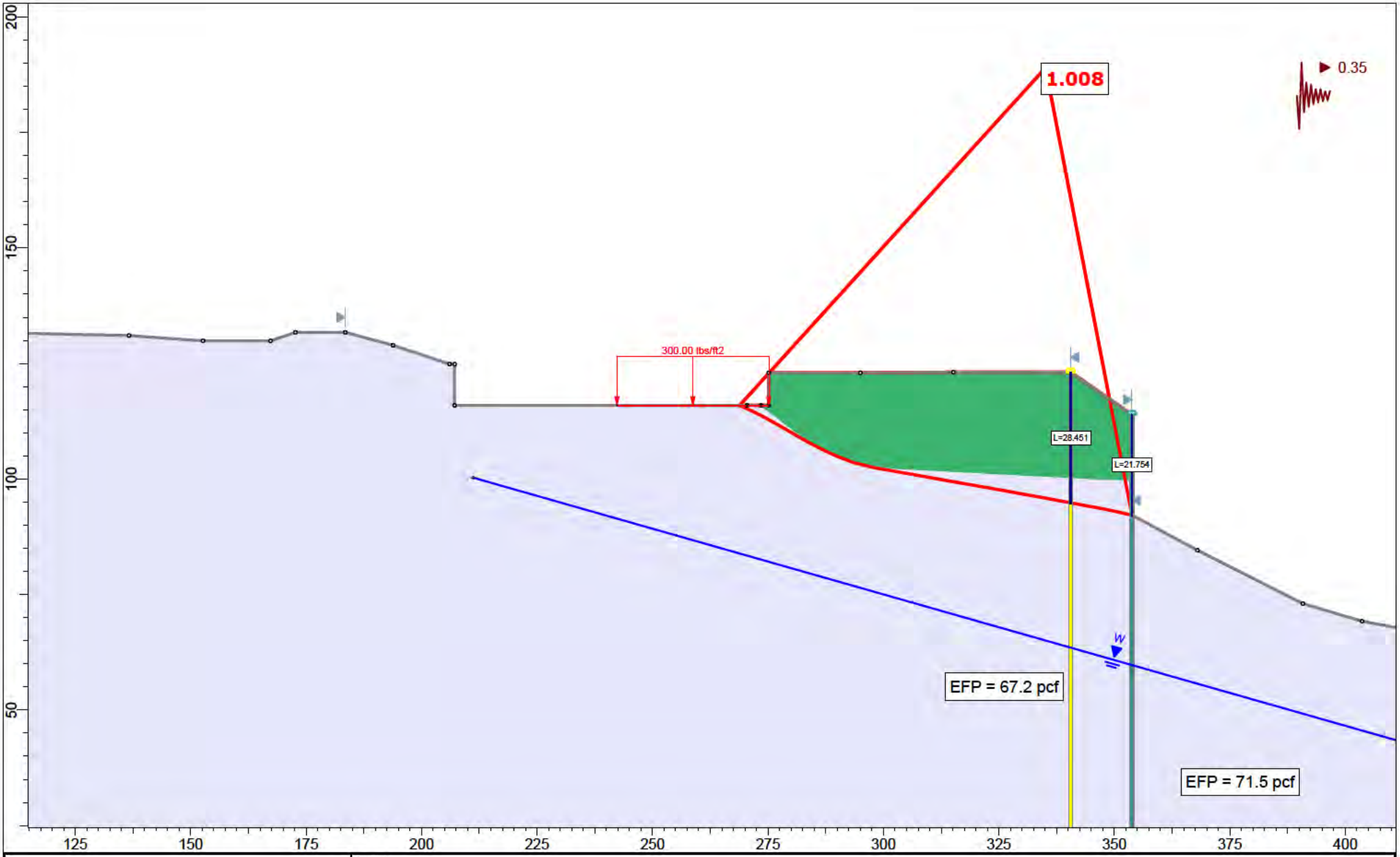
Shared Entities

Type	Coordinates (x,y)
External Boundary	0.235, 184.951 -0.154, 0.116 505.309, 0.116 505.309, 27.9488 505.309, 53.989 480.732, 53.989 474.165, 55.09 471.052, 55.963 462.815, 58.621 456.446, 61.31 432.547, 62.934 429.844, 64.2283 414.791, 67.0937 403.63, 69.219 390.807, 73.03 367.99, 84.5749 353.802, 92.165 353.802, 99.5349 353.802, 113.919 340.534, 123.111 315.124, 123.111 295.004, 122.962 275.174, 122.962 275.174, 115.923 273.496, 115.923 270.47, 115.923 207.15, 115.923 207.15, 124.855 206.075, 124.855 193.797, 128.929 183.475, 131.724 172.683, 131.724 167.29, 129.885 152.655, 129.885 136.627, 131.024 91.465, 132.01 88.851, 133.732 86.883, 134.993 83.317, 137.453 79.022, 140.415 75.503, 142.704 71.745, 145.027 69.115, 146.598 63.546, 149.605 55.105, 154.376 47.248, 159.056 40.176, 163.054 30.945, 168.401 27.756, 170.147 20.658, 173.791 13.825, 177.283 8.283, 180.054 4.107, 182.75

Material Boundary	273.496, 115.923 280.901, 110.275 284.962, 107.671 288.66, 105.849 291.522, 104.48 292.252, 104.13 295.897, 102.933 302.146, 102.048 320.006, 101.11 346.302, 99.756 353.802, 99.5349

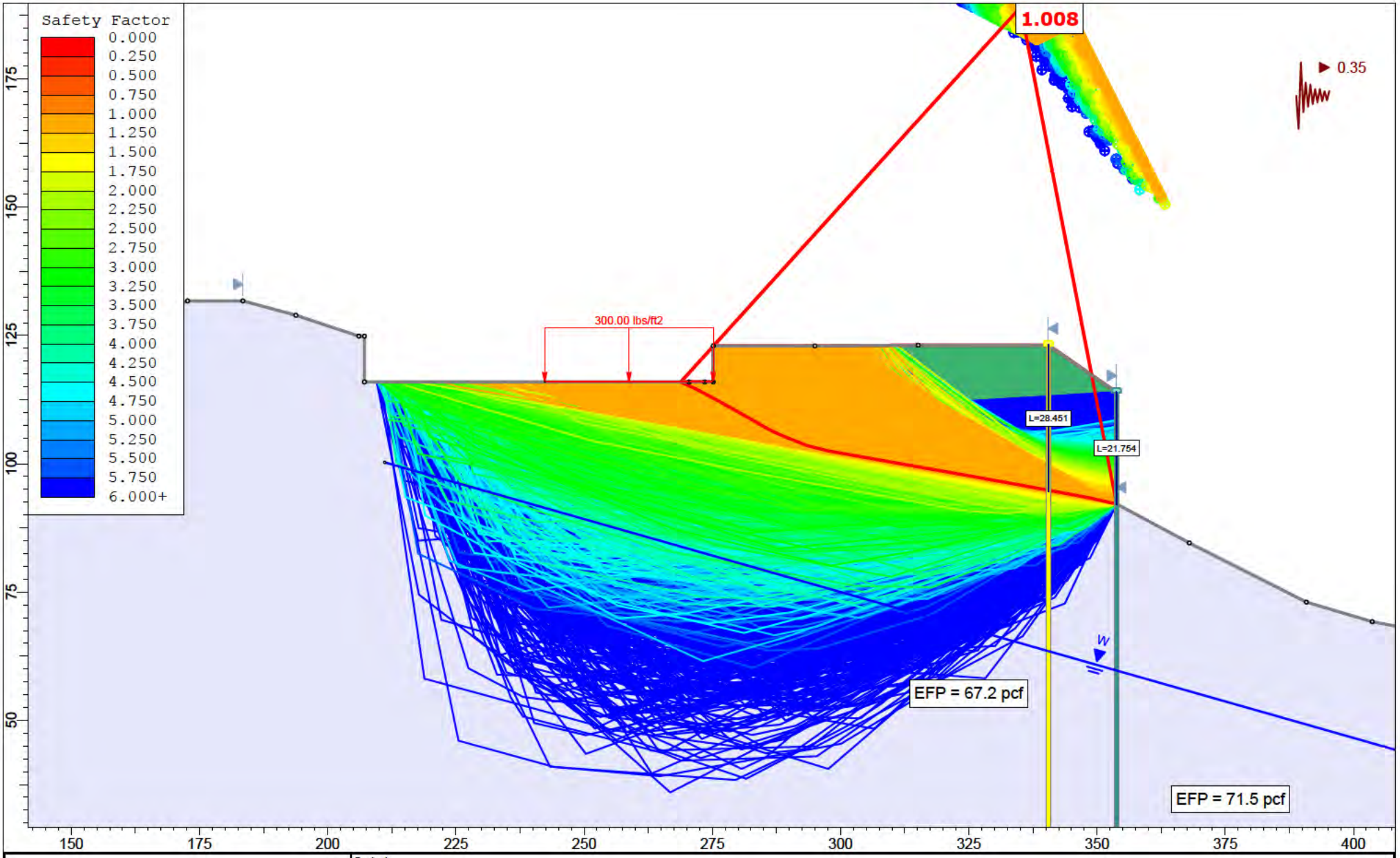
Scenario-based Entities

Type	Coordinates (x,y)	Master Scenario
Water Table	211.127, 100.268 488.448, 21.436	Assigned to:  Anisotropic Bedrock (Tm) Ultimate
Distributed Load	275.174, 115.923 273.496, 115.923 270.47, 115.923 242.316, 115.923	Constant DistributionOrientation: Normal to boundaryMagnitude: 300 lbs/ft2Creates Excess Pore Pressure: No
Non-Circular Failure Surface	367.99, 84.5749 390.807, 73.03	



rocscience	Project	Section 4-4'		
	Analysis Description	Upper Slope (Seismic)		
	Drawn By	A. Greene	Scale 1:345	Company Feffer Geological Consulting
	Date			File Name Section 4-4' Translational Analysis_2.slmd

SLIDEINTERPRET 9.018



rocscience	Project	Section 4-4'		
	Analysis Description	Upper Slope (Seismic)		
	Drawn By	A. Greene	Scale 1:310	Company Feffer Geological Consulting
	Date			File Name Section 4-4' Translational Analysis_2.slmd

SLIDEINTERPRET 9.018

Slide Analysis Information

Section 4-4' Translational Analysis_2

Project Summary

File Name:	Section 4-4' Translational Analysis_2.slmd
Slide Modeler Version:	9.018
Compute Time:	00h:00m:12.252s
Project Title:	Section 4-4'
Analysis:	Upper Slope (Seismic)
Author:	A. Greene
Company:	Feffer Geological Consulting

General Settings

Units of Measurement:	Imperial Units
Time Units:	days
Permeability Units:	feet/second
Data Output:	Standard
Failure Direction:	Left to Right

Analysis Options

Slices Type:	Vertical
Analysis Methods Used	
	Spencer
Number of slices:	50
Tolerance:	0.005
Maximum number of iterations:	75
Check malpha < 0.2:	Yes
Create Interslice boundaries at intersections with water tables and piezos:	Yes
Initial trial value of FS:	1
Steffensen Iteration:	Yes

Groundwater Analysis

Groundwater Method:	Water Surfaces
Pore Fluid Unit Weight [lbs/ft3]:	62.4
Use negative pore pressure cutoff:	Yes
Maximum negative pore pressure [psf]:	0
Advanced Groundwater Method:	None

Random Numbers

Pseudo-random Seed:	10116
Random Number Generation Method:	Park and Miller v.3

Surface Options

Search Method:	Cuckoo Search
Initial # of Surface Vertices:	8
Maximum Iterations:	500
Number of Nests:	50
Minimum Elevation:	Not Defined
Minimum Depth:	Not Defined
Minimum Area:	Not Defined
Minimum Weight:	Not Defined
Convex Surfaces Only:	Enabled

Seismic Loading

Advanced seismic analysis:	No
Staged pseudostatic analysis:	No
Seismic Load Coefficient (Horizontal):	0.35

Loading

1 Distributed Load present

Distributed Load 1	
Distribution:	Constant
Magnitude [psf]:	300
Orientation:	Normal to boundary

Materials

Terrace (Qoa)	
Color	
Strength Type	Mohr-Coulomb
Unit Weight [lbs/ft3]	115
Cohesion [psf]	100
Friction Angle [deg]	31
Water Surface	None
Ru Value	0
Anisotropic Bedrock (Tm) Peak	
Color	
Strength Type	Anisotropic function
Unit Weight [lbs/ft3]	124
Water Surface	Water Table
Hu Value	1

Anisotropic Functions

Name: Anisotropic Bedrock (Tm) Peak

Angle From	Angle To	c	phi
-90	-30	720	41
-30	-10	200	16
-10	90	720	41

Support

Upper Slope Pile 1 (Seismic)	
Color	
Type	Pile/Micro Pile
Force Application	Active (Method A)
Force Orientation	Parallel to surface
Out-Of-Plane Spacing	10 ft
Failure Mode	Shear
Pile Shear Strength	170000 lbs

Upper Slope Pile 2 (Seismic)	
Color	
Type	Pile/Micro Pile
Force Application	Active (Method A)
Force Orientation	Parallel to surface
Out-Of-Plane Spacing	10 ft
Failure Mode	Shear
Pile Shear Strength	273000 lbs

Global Minimums

Method: spencer

FS	1.008040
Axis Location:	335.088, 188.988
Left Slip Surface Endpoint:	268.858, 115.923
Right Slip Surface Endpoint:	353.802, 92.165
Left Slope Intercept:	268.858 115.923
Right Slope Intercept:	353.802 113.919
Resisting Moment:	6.52114e+06 lb-ft
Driving Moment:	6.46994e+06 lb-ft
Resisting Horizontal Force:	68506.1 lb
Driving Horizontal Force:	67968.2 lb
Active Support Moment:	-4.03429e+06 lb-ft
Active Horizontal Support Force:	-43406.9 lb
Maximum Single Support Force:	27300 lb
Total Support Force:	44300 lb
Total Slice Area:	1747.1 ft2
Surface Horizontal Width:	84.944 ft
Surface Average Height:	20.5677 ft

Global Minimum Coordinates

Method: spencer

X	Y
268.858	115.923
271.834	114.541
274.81	112.974
278.049	111.194
281.288	109.374
284.528	107.524
286.873	106.258
289.201	105.215
291.403	104.354
293.605	103.497
297.784	102.469
301.016	101.895
304.249	101.323
307.481	100.751
310.714	100.181
314.624	99.4899
318.534	98.7999
322.445	98.1092
326.355	97.4194
329.287	96.8828
332.221	96.3557
335.156	95.8209
338.508	95.2162
342.257	94.4985
345.353	93.9351
348.45	93.3554
351.126	92.7608
353.802	92.165
353.803	113.919

Global Minimum Support Data

Method: spencer

Number of Supports: 2

Upper Slope Pile 1 (Seismic)

Support Type: Pile/Micro Pile

Start (x, y)	Length (ft)	L Inside SS (ft)	L Outside SS (ft)	Li (ft)	Lo (ft)	Force (lb)
353.802, 113.919	98.5544	21.754	76.8004	21.754	76.8004	17000

Upper Slope Pile 2 (Seismic)

Support Type: Pile/Micro Pile

Start (x, y)	Length (ft)	L Inside SS (ft)	L Outside SS (ft)	Li (ft)	Lo (ft)	Force (lb)
340.534, 123.111	102.063	28.2827	73.7803	28.2827	73.7803	27300

Valid and Invalid Surfaces

Method: spencer

Number of Valid Surfaces:	17244
Number of Invalid Surfaces:	7816

Error Codes

Error Code -108 reported for 150 surfaces
Error Code -110 reported for 405 surfaces
Error Code -111 reported for 5339 surfaces
Error Code -112 reported for 195 surfaces
Error Code -113 reported for 1 surface
Error Code -121 reported for 813 surfaces
Error Code -124 reported for 1 surface
Error Code -145 reported for 9 surfaces
Error Code -1000 reported for 903 surfaces

Error Code Descriptions

The following errors were encountered during the computation:
-108 = Total driving moment or total driving force < 0.1. This is to limit the calculation of extremely high safety factors if the driving force is very small (0.1 is an arbitrary number).
-110 = The water table or a piezoline does not span the slip region for a given slip surface, when Water Surfaces is specified as the method of pore pressure calculation. If this error occurs, check that the water table or piezoline(s) span the appropriate soil cells.
-111 = Safety factor equation did not converge
-112 = The coefficient M-Alpha = cos(alpha)(1+tan(alpha)tan(phi)/F) < 0.2 for the final iteration of the safety factor calculation. This screens out some slip surfaces which may not be valid in the context of the analysis, in particular, deep seated slip surfaces with many high negative base angle slices in the passive zone.
-113 = Surface intersects outside slope limits.
-121 = Concave failure surface, only convex surfaces have been defined as being allowed.
-124 = A slice has a width less than the minimum acceptable value.
-145 = Slip surface was clipped vertically by a weak layer in a region of compression. Such a surface cannot be evaluated using Limit Equilibrium. For more information, see Help Documentation on weak layers.
-1000 = No valid slip surface is generated

Slice Data

Global Minimum Query (spencer) - Safety Factor: 1.00804

Slice Number	Width [ft]	Weight [lbs]	Angle of Slice Base [deg]	Base Material	Base Cohesion [psf]	Base Friction Angle [deg]	Shear Stress [psf]	Shear Strength [psf]	Base Normal Stress [psf]	Pore Pressure [psf]	Effective Normal Stress [psf]	Base Vertical Stress [psf]	Effective Vertical Stress [psf]
1	1.4879	63.7383	-24.9087	Anisotropic Bedrock (Tm) Peak	200	16	286.826	289.132	310.841	0	310.841	444.035	444.035
2	1.4879	191.215	-24.9087	Anisotropic Bedrock (Tm) Peak	200	16	300.662	303.079	359.477	0	359.477	499.095	499.095
3	1.4879	327.257	-27.7789	Anisotropic Bedrock (Tm) Peak	200	16	306.999	309.467	381.756	0	381.756	543.474	543.474

4	1.4879	465.942	-27.7789	Anisotropic Bedrock (Tm) Peak	200	16	321.276	323.859	431.946	0	431.946	601.185	601.185
5	1.61963	1674.16	-28.7887	Anisotropic Bedrock (Tm) Peak	200	16	378.038	381.077	631.488	0	631.488	839.219	839.219
6	1.61963	2129.91	-28.7887	Anisotropic Bedrock (Tm) Peak	200	16	406.278	409.544	730.766	0	730.766	954.014	954.014
7	1.61963	2292.64	-29.3275	Anisotropic Bedrock (Tm) Peak	200	16	418.661	422.027	774.3	0	774.3	1009.51	1009.51
8	1.61963	2457.46	-29.3275	Anisotropic Bedrock (Tm) Peak	200	16	433.802	437.29	827.527	0	827.527	1071.24	1071.24
9	1.62017	2626.62	-29.7224	Anisotropic Bedrock (Tm) Peak	200	16	447.049	450.643	874.096	0	874.096	1129.32	1129.32
10	1.62017	2797.3	-29.7224	Anisotropic Bedrock (Tm) Peak	200	16	462.606	466.325	928.786	0	928.786	1192.89	1192.89
11	2.34482	4342.61	-28.3698	Anisotropic Bedrock (Tm) Peak	200	16	489.625	493.562	1023.77	0	1023.77	1288.18	1288.18
12	2.32819	4620.92	-24.1326	Anisotropic Bedrock (Tm) Peak	200	16	538.902	543.235	1197	0	1197	1438.43	1438.43
13	2.20173	4608.09	-21.3454	Anisotropic Bedrock (Tm) Peak	200	16	577.85	582.496	1333.92	0	1333.92	1559.74	1559.74
14	2.20173	4822.91	-21.2718	Anisotropic Bedrock (Tm) Peak	200	16	595.259	600.045	1395.12	0	1395.12	1626.87	1626.87
15	2.0893	4740.78	-13.8267	Anisotropic Bedrock (Tm) Peak	200	16	677.262	682.707	1683.4	0	1683.4	1850.09	1850.09
16	2.0893	4866.97	-13.8267	Anisotropic Bedrock (Tm) Peak	200	16	689.223	694.764	1725.45	0	1725.45	1895.08	1895.08
17	1.61627	3843.99	-10.0544	Anisotropic Bedrock (Tm) Peak	200	16	741.243	747.203	1908.32	0	1908.32	2039.75	2039.75
18	1.61627	3900.32	-10.0544	Anisotropic Bedrock (Tm) Peak	200	16	748.674	754.693	1934.44	0	1934.44	2067.19	2067.19
19	1.61627	3956.71	-10.0413	Anisotropic Bedrock (Tm) Peak	200	16	756.272	762.352	1961.16	0	1961.16	2095.07	2095.07
20	1.61627	4014.55	-10.0413	Anisotropic Bedrock (Tm) Peak	200	16	763.903	770.045	1987.98	0	1987.98	2123.25	2123.25
21	1.61627	4072.86	-10.0297	Anisotropic Bedrock (Tm) Peak	200	16	771.744	777.949	2015.55	0	2015.55	2152.04	2152.04
22	1.61627	4131.14	-10.0297	Anisotropic Bedrock (Tm) Peak	200	16	779.436	785.703	2042.59	0	2042.59	2180.44	2180.44
23	1.61627	4189.34	-10.0016	Anisotropic Bedrock (Tm) Peak	200	16	787.478	793.809	2070.86	0	2070.86	2209.74	2209.74
24	1.61627	4247.45	-10.0016	Anisotropic Bedrock (Tm) Peak	200	16	795.153	801.546	2097.84	0	2097.84	2238.07	2238.07
25	1.95517	5215.86	-10.0249	Anisotropic Bedrock (Tm) Peak	200	16	803.336	809.795	2126.61	0	2126.61	2268.62	2268.62
26	1.95517	5301.1	-10.0249	Anisotropic Bedrock (Tm) Peak	200	16	812.637	819.171	2159.3	0	2159.3	2302.96	2302.96
27	1.95517	5385.37	-10.008	Anisotropic Bedrock (Tm) Peak	200	16	822.062	828.671	2192.44	0	2192.44	2337.51	2337.51
28	1.95517	5467.32	-10.008	Anisotropic Bedrock (Tm) Peak	200	16	831.007	837.688	2223.88	0	2223.88	2370.53	2370.53

29	1.95517	5549.2	-10.0172	Anisotropic Bedrock (Tm) Peak	200	16	839.817	846.569	2254.86	0	2254.86	2403.2	2403.2
30	1.95517	5631.15	-10.0172	Anisotropic Bedrock (Tm) Peak	200	16	848.76	855.584	2286.29	0	2286.29	2436.22	2436.22
31	1.95517	5713.05	-10.0042	Anisotropic Bedrock (Tm) Peak	200	16	857.884	864.781	2318.36	0	2318.36	2469.7	2469.7
32	1.95517	5794.9	-10.0042	Anisotropic Bedrock (Tm) Peak	200	16	866.818	873.787	2349.77	0	2349.77	2502.68	2502.68
33	1.4662	4400.21	-10.3699	Anisotropic Bedrock (Tm) Peak	200	16	869.448	876.438	2359.02	0	2359.02	2518.12	2518.12
34	1.4662	4447.99	-10.3699	Anisotropic Bedrock (Tm) Peak	200	16	876.352	883.398	2383.29	0	2383.29	2543.66	2543.66
35	1.46696	4497.67	-10.1845	Anisotropic Bedrock (Tm) Peak	200	16	885.932	893.055	2416.97	0	2416.97	2576.13	2576.13
36	1.46696	4544.62	-10.1845	Anisotropic Bedrock (Tm) Peak	200	16	892.736	899.914	2440.89	0	2440.89	2601.27	2601.27
37	1.46734	4593.1	-10.3285	Anisotropic Bedrock (Tm) Peak	200	16	897.425	904.64	2457.37	0	2457.37	2620.92	2620.92
38	1.46734	4640.76	-10.3285	Anisotropic Bedrock (Tm) Peak	200	16	904.312	911.583	2481.58	0	2481.58	2646.39	2646.39
39	1.67595	5358.54	-10.2265	Anisotropic Bedrock (Tm) Peak	200	16	913.212	920.554	2512.87	0	2512.87	2677.62	2677.62
40	1.67595	5420.07	-10.2265	Anisotropic Bedrock (Tm) Peak	200	16	921.013	928.418	2540.3	0	2540.3	2706.45	2706.45
41	1.87449	6137.44	-10.8367	Anisotropic Bedrock (Tm) Peak	200	16	920.08	927.477	2537.02	0	2537.02	2713.14	2713.14
42	1.87449	6100.97	-10.8367	Anisotropic Bedrock (Tm) Peak	200	16	3394.1	3421.39	11234.3	0	11234.3	11884	11884
43	1.54818	4888.85	-10.312	Anisotropic Bedrock (Tm) Peak	200	16	903.521	910.785	2478.8	0	2478.8	2643.2	2643.2
44	1.54818	4750.85	-10.312	Anisotropic Bedrock (Tm) Peak	200	16	884.614	891.726	2412.34	0	2412.34	2573.29	2573.29
45	1.54818	4613.68	-10.6055	Anisotropic Bedrock (Tm) Peak	200	16	861.62	868.547	2331.5	0	2331.5	2492.83	2492.83
46	1.54818	4477.65	-10.6055	Anisotropic Bedrock (Tm) Peak	200	16	843.09	849.868	2266.36	0	2266.36	2424.22	2424.22
47	1.33809	3764.37	-12.5257	Anisotropic Bedrock (Tm) Peak	200	16	801.244	807.686	2119.25	0	2119.25	2297.26	2297.26
48	1.33809	3670.57	-12.5257	Anisotropic Bedrock (Tm) Peak	200	16	787.008	793.336	2069.21	0	2069.21	2244.05	2244.05
49	1.33809	3576.82	-12.5512	Anisotropic Bedrock (Tm) Peak	200	16	772.471	778.682	2018.1	0	2018.1	2190.08	2190.08
50	1.33809	3483.12	-12.5512	Anisotropic Bedrock (Tm) Peak	200	16	2727.81	2749.74	8891.98	0	8891.98	9499.28	9499.28

Interslice Data

Global Minimum Query (spencer) - Safety Factor: 1.00804

Slice Number	X coordinate [ft]	Y coordinate - Bottom [ft]	Interslice Normal Force [lbs]	Interslice Shear Force [lbs]	Interslice Force Angle [deg]
1	268.858	115.923	0	0	0
2	270.346	115.232	-190.011	-149.944	38.2781
3	271.834	114.541	-322.401	-254.418	38.2782
4	273.322	113.757	-365.776	-288.646	38.2781
5	274.81	112.974	-342.531	-270.303	38.2782
6	276.429	112.084	192.695	152.062	38.2781
7	278.049	111.194	930.015	733.907	38.2782
8	279.668	110.284	1758.4	1387.61	38.2781
9	281.288	109.374	2668.36	2105.69	38.2781
10	282.908	108.449	3671.35	2897.19	38.2782
11	284.528	107.524	4759.44	3755.83	38.2781
12	286.873	106.258	6426.74	5071.56	38.2782
13	289.201	105.215	8036.97	6342.25	38.2782
14	291.403	104.354	9524.32	7515.96	38.2782
15	293.605	103.497	11096.6	8756.71	38.2782
16	295.694	102.983	12205.4	9631.72	38.2782
17	297.784	102.469	13355	10538.9	38.2782
18	299.4	102.182	14048.4	11086	38.278
19	301.016	101.895	14756.9	11645.1	38.278
20	302.632	101.609	15479.7	12215.6	38.2783
21	304.249	101.323	16218.2	12798.3	38.2781
22	305.865	101.037	16971.5	13392.8	38.2782
23	307.481	100.751	17740.6	13999.7	38.2782
24	309.097	100.466	18523.4	14617.4	38.2781
25	310.714	100.181	19321.8	15247.5	38.2782
26	312.669	99.8356	20310.5	16027.7	38.2782
27	314.624	99.4899	21322.2	16826.1	38.2782
28	316.579	99.1449	22355	17641.1	38.2782
29	318.534	98.7999	23409.9	18473.6	38.2782
30	320.489	98.4545	24487.6	19324	38.2782
31	322.445	98.1092	25587.4	20191.9	38.2782
32	324.4	97.7643	26708	21076.2	38.2782
33	326.355	97.4194	27850.6	21977.8	38.2781
34	327.821	97.1511	28747.8	22685.9	38.2782
35	329.287	96.8828	29658.2	23404.3	38.2782
36	330.754	96.6192	30568.7	24122.8	38.2782
37	332.221	96.3557	31492	24851.4	38.2782
38	333.689	96.0883	32438.9	25598.7	38.2782
39	335.156	95.8209	33398.9	26356.2	38.2782
40	336.832	95.5185	34502.5	27227.1	38.2782
41	338.508	95.2162	35622.8	28111.2	38.2782
42	340.382	94.8573	36955.3	29162.7	38.2782
43	342.257	94.4985	9941.59	7845.24	38.2781
44	343.805	94.2168	10951.1	8641.86	38.2781
45	345.353	93.9351	11922.8	9408.7	38.2782
46	346.901	93.6452	12878.5	10162.9	38.2783
47	348.45	93.3554	13796.4	10887.2	38.2782
48	349.788	93.0581	14671	11577.4	38.2782
49	351.126	92.7608	15517	12245	38.2782
50	352.464	92.4629	16335.6	12891	38.2782
51	353.802	92.165	0	0	0

Discharge Sections

Entity Information

Upper Slope (Seismic)

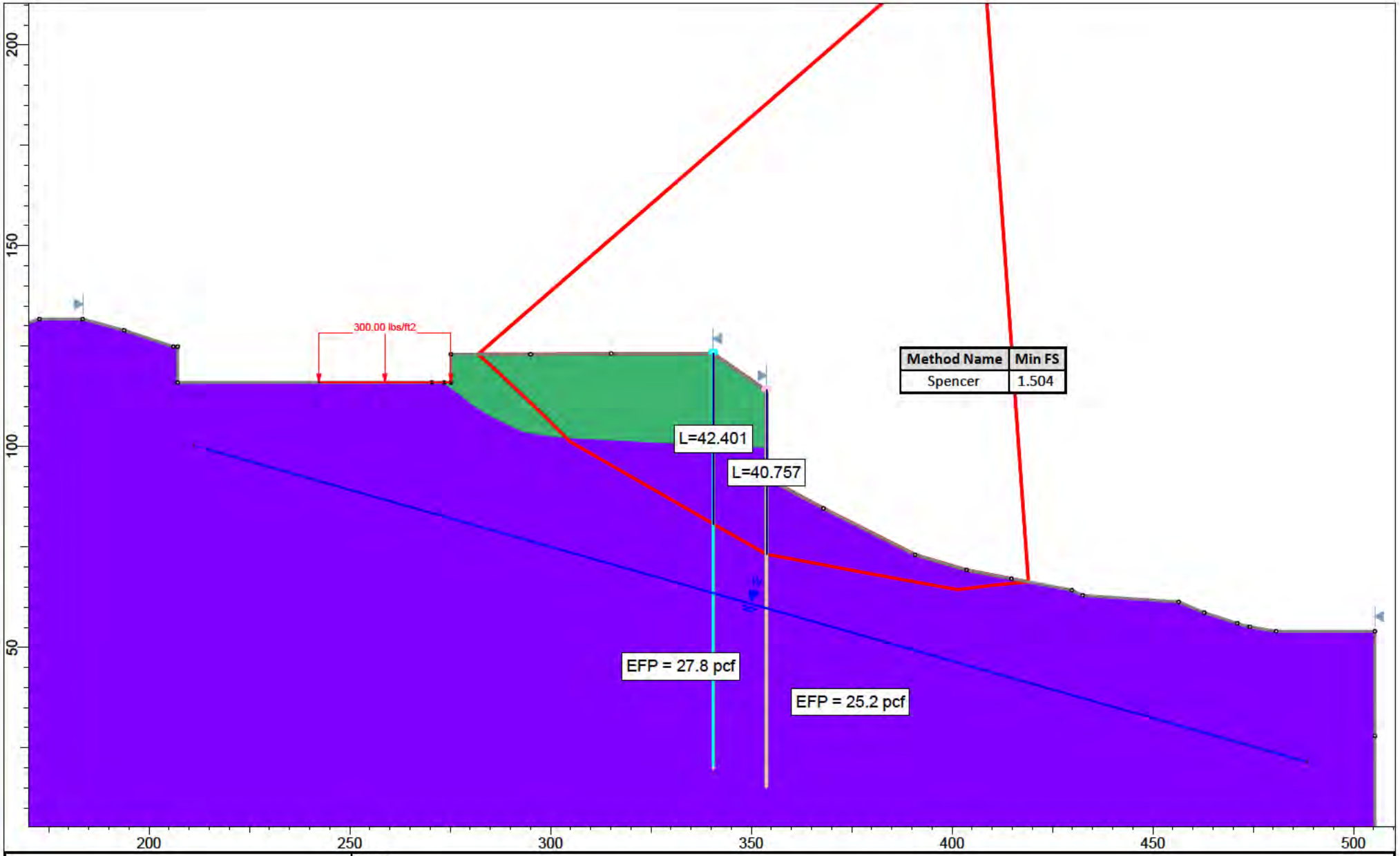
Shared Entities

Type	Coordinates (x,y)
External Boundary	0.235, 184.951 -0.154, 0.116 505.309, 0.116 505.309, 27.9488 505.309, 53.989 480.732, 53.989 474.165, 55.09 471.052, 55.963 462.815, 58.621 456.446, 61.31 432.547, 62.934 429.844, 64.2283 414.791, 67.0937 403.63, 69.219 390.807, 73.03 367.99, 84.5749 353.802, 92.165 353.802, 99.5349 353.802, 113.919 340.534, 123.111 315.124, 123.111 295.004, 122.962 275.174, 122.962 275.174, 115.923 273.496, 115.923 270.47, 115.923 207.15, 115.923 207.15, 124.855 206.075, 124.855 193.797, 128.929 183.475, 131.724 172.683, 131.724 167.29, 129.885 152.655, 129.885 136.627, 131.024 91.465, 132.01 88.851, 133.732 86.883, 134.993 83.317, 137.453 79.022, 140.415 75.503, 142.704 71.745, 145.027 69.115, 146.598 63.546, 149.605 55.105, 154.376 47.248, 159.056 40.176, 163.054 30.945, 168.401 27.756, 170.147 20.658, 173.791 13.825, 177.283 8.283, 180.054 4.107, 182.75

Material Boundary	273.496, 115.923 280.901, 110.275 284.962, 107.671 288.66, 105.849 291.522, 104.48 292.252, 104.13 295.897, 102.933 302.146, 102.048 320.006, 101.11 346.302, 99.756 353.802, 99.5349

Scenario-based Entities

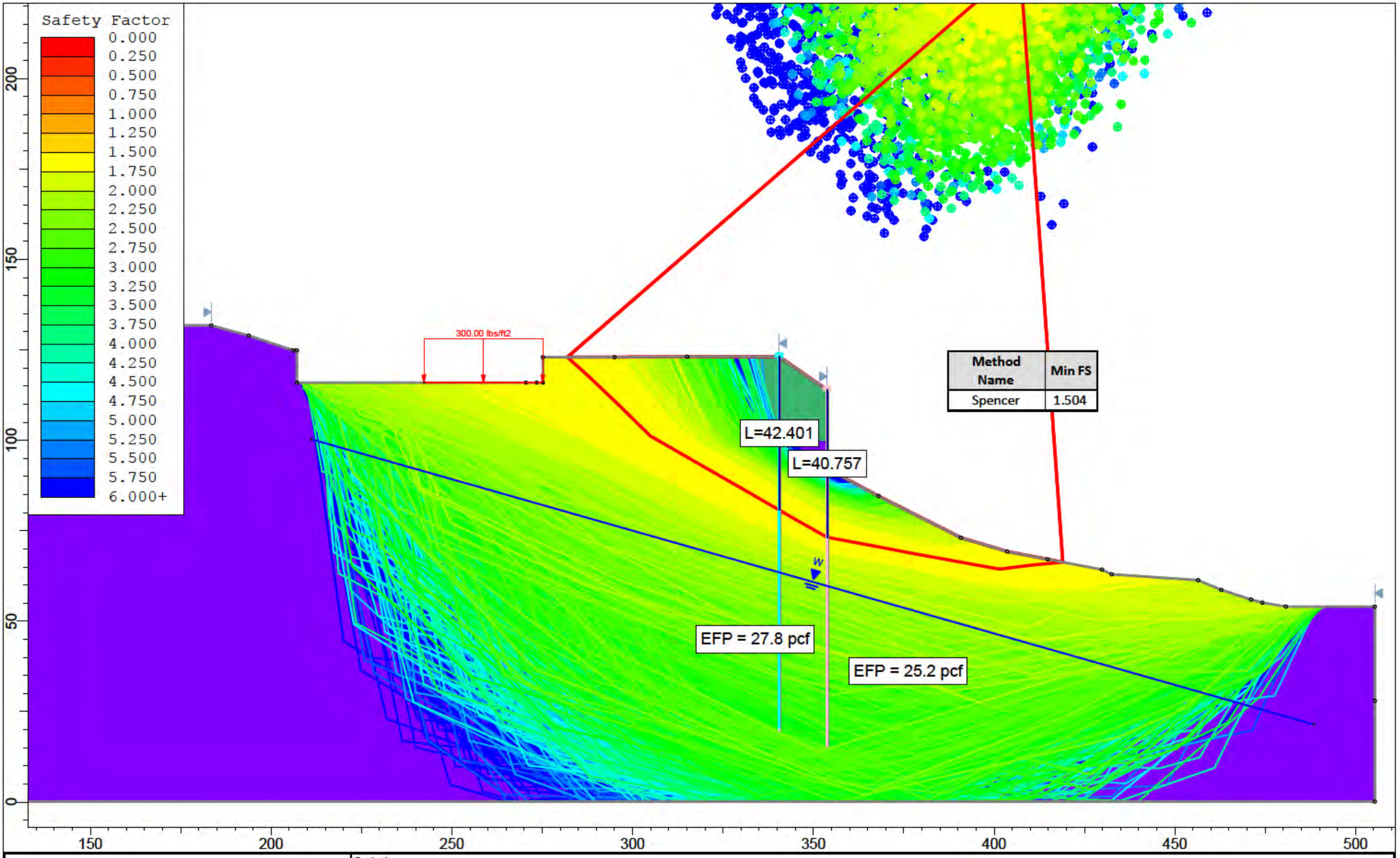
Type	Coordinates (x,y)	Master Scenario
Water Table	211.127, 100.268 488.448, 21.436	Assigned to: Anisotropic Bedrock (Tm) Peak
Distributed Load	275.174, 115.923 273.496, 115.923 270.47, 115.923 242.316, 115.923	Constant DistributionOrientation: Normal to boundaryMagnitude: 300 lbs/ft2Creates Excess Pore Pressure: No
Non-Circular Failure Surface	367.99, 84.5749 390.807, 73.03	



rocscience

SLIDEINTERPRET 9.018

Project	Section 4-4'		
Analysis Description	Entire Slope (Static)		
Drawn By	A. Greene	Scale 1:396	Company Feffer Geological Consulting
Date			File Name Section 4-4' Translational Analysis_2.slmd



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SLIDEINTERPRET 9.018

Project	Section 4-4'		
Analysis Description	Entire Slope (Static)		
Drawn By	A. Greene	Scale 1:440	Company Feffer Geological Consulting
Date			File Name Section 4-4' Translational Analysis_2.slmd

Slide Analysis Information

Section 4-4' Translational Analysis_2

Project Summary

File Name:	Section 4-4' Translational Analysis_2.slmd
Slide Modeler Version:	9.018
Compute Time:	00h:00m:10.827s
Project Title:	Section 4-4'
Analysis:	Entire Slope (Static)
Author:	A. Greene
Company:	Feffer Geological Consulting

General Settings

Units of Measurement:	Imperial Units
Time Units:	days
Permeability Units:	feet/second
Data Output:	Standard
Failure Direction:	Left to Right

Analysis Options

Slices Type:	Vertical
Analysis Methods Used	
	Spencer
Number of slices:	50
Tolerance:	0.005
Maximum number of iterations:	75
Check malpha < 0.2:	Yes
Create Interslice boundaries at intersections with water tables and piezos:	Yes
Initial trial value of FS:	1
Steffensen Iteration:	Yes

Groundwater Analysis

Groundwater Method:	Water Surfaces
Pore Fluid Unit Weight [lbs/ft3]:	62.4
Use negative pore pressure cutoff:	Yes
Maximum negative pore pressure [psf]:	0
Advanced Groundwater Method:	None

Random Numbers

Pseudo-random Seed:	10116
Random Number Generation Method:	Park and Miller v.3

Surface Options

Search Method:	Cuckoo Search
Initial # of Surface Vertices:	8
Maximum Iterations:	500
Number of Nests:	50
Minimum Elevation:	Not Defined
Minimum Depth:	Not Defined
Minimum Area:	Not Defined
Minimum Weight:	Not Defined
Convex Surfaces Only:	Enabled

Seismic Loading

Advanced seismic analysis:	No
Staged pseudostatic analysis:	No

Loading

1 Distributed Load present

Distributed Load 1	
Distribution:	Constant
Magnitude [psf]:	300
Orientation:	Normal to boundary

Materials

Terrace (Qoa)	
Color	
Strength Type	Mohr-Coulomb
Unit Weight [lbs/ft3]	115
Cohesion [psf]	100
Friction Angle [deg]	31
Water Surface	None
Ru Value	0
Anisotropic Bedrock (Tm) Ultimate	
Color	
Strength Type	Anisotropic function
Unit Weight [lbs/ft3]	124
Water Surface	Water Table
Hu Value	1

Anisotropic Functions

Name: Anisotropic Bedrock (Tm) Ultimate

Angle From	Angle To	c	phi
-90	-30	520	34.5
-30	-10	200	16
-10	90	520	34.5

Support

Entire Slope Pile 1 (Static)	
Color	
Type	Pile/Micro Pile
Force Application	Active (Method A)
Force Orientation	Parallel to surface
Out-Of-Plane Spacing	10 ft
Failure Mode	Shear
Pile Shear Strength	210000 lbs

Entire Slope Pile 2 (Static)	
Color	
Type	Pile/Micro Pile
Force Application	Active (Method A)
Force Orientation	Parallel to surface
Out-Of-Plane Spacing	10 ft
Failure Mode	Shear
Pile Shear Strength	250000 lbs

Global Minimums

Method: spencer

FS	1.504370
Axis Location:	407.159, 231.690
Left Slip Surface Endpoint:	281.954, 122.962
Right Slip Surface Endpoint:	419.019, 66.289
Resisting Moment:	2.07968e+07 lb-ft
Driving Moment:	1.38289e+07 lb-ft
Resisting Horizontal Force:	112445 lb
Driving Horizontal Force:	74770.8 lb
Active Support Moment:	-7.55096e+06 lb-ft
Active Horizontal Support Force:	-39937.5 lb
Maximum Single Support Force:	25000 lb
Total Support Force:	46000 lb
Total Slice Area:	2525.78 ft2
Surface Horizontal Width:	137.064 ft
Surface Average Height:	18.4277 ft

Global Minimum Coordinates

Method: spencer

X	Y
281.954	122.962
287.731	117.78
296.32	109.63
304.91	101.179
318.101	93.6079
331.293	86.0355
344.484	78.4399
353.803	73.1617
365.813	70.9266
377.823	68.6522
389.833	66.4552
401.457	64.3493
410.238	65.4608
419.019	66.2889

Global Minimum Support Data

Method: spencer

Number of Supports: 2

Entire Slope Pile 1 (Static)

Support Type: Pile/Micro Pile

Start (x, y)	Length (ft)	L Inside SS (ft)	L Outside SS (ft)	Li (ft)	Lo (ft)	Force (lb)
353.802, 113.919	98.5544	40.757	57.7974	40.757	57.7974	21000

Entire Slope Pile 2 (Static)

Support Type: Pile/Micro Pile

Start (x, y)	Length (ft)	L Inside SS (ft)	L Outside SS (ft)	Li (ft)	Lo (ft)	Force (lb)
340.534, 123.111	103.212	42.3965	60.8155	42.3965	60.8155	25000

Valid and Invalid Surfaces

Method: spencer

Number of Valid Surfaces: 18811
Number of Invalid Surfaces: 6250

Error Codes

Error Code -108 reported for 130 surfaces
Error Code -110 reported for 1730 surfaces
Error Code -111 reported for 1813 surfaces
Error Code -112 reported for 225 surfaces
Error Code -113 reported for 1 surface
Error Code -121 reported for 654 surfaces
Error Code -124 reported for 1 surface
Error Code -145 reported for 22 surfaces
Error Code -1000 reported for 1674 surfaces

Error Code Descriptions

The following errors were encountered during the computation:

-108 = Total driving moment or total driving force < 0.1. This is to limit the calculation of extremely high safety factors if the driving force is very small (0.1 is an arbitrary number).

-110 = The water table or a piezoline does not span the slip region for a given slip surface, when Water Surfaces is specified as the method of pore pressure calculation. If this error occurs, check that the water table or piezoline(s) span the appropriate soil cells.

-111 = Safety factor equation did not converge

-112 = The coefficient M-Alpha = cos(alpha)(1+tan(alpha)tan(phi)/F) < 0.2 for the final iteration of the safety factor calculation. This screens out some slip surfaces which may not be valid in the context of the analysis, in particular, deep seated slip surfaces with many high negative base angle slices in the passive zone.

-113 = Surface intersects outside slope limits.

-121 = Concave failure surface, only convex surfaces have been defined as being allowed.

-124 = A slice has a width less than the minimum acceptable value.

-145 = Slip surface was clipped vertically by a weak layer in a region of compression. Such a surface cannot be evaluated using Limit Equilibrium. For more information, see Help Documentation on weak layers.

-1000 = No valid slip surface is generated

Slice Data

Global Minimum Query (spencer) - Safety Factor: 1.50437

Slice Number	Width [ft]	Weight [lbs]	Angle of Slice Base [deg]	Base Material	Base Cohesion [psf]	Base Friction Angle [deg]	Shear Stress [psf]	Shear Strength [psf]	Base Normal Stress [psf]	Pore Pressure [psf]	Effective Normal Stress [psf]	Base Vertical Stress [psf]	Effective Vertical Stress [psf]
1	2.88842	430.307	-41.8919	Terrace (Qoa)	100	31	96.2193	144.75	74.4758	0	74.4758	160.784	160.784
2	2.88842	1290.92	-41.8919	Terrace (Qoa)	100	31	172.43	259.398	265.282	0	265.282	419.951	419.951
3	2.86313	2153.44	-43.4986	Terrace (Qoa)	100	31	244.806	368.279	446.489	0	446.489	678.79	678.79
4	2.86313	3047.99	-43.4986	Terrace (Qoa)	100	31	322.623	485.344	641.32	0	641.32	947.463	947.463
5	2.86313	3943.29	-43.4986	Terrace (Qoa)	100	31	400.503	602.505	836.308	0	836.308	1216.35	1216.35
6	2.60406	4382.04	-44.5332	Terrace (Qoa)	100	31	468.899	705.398	1007.55	0	1007.55	1468.87	1468.87
7	2.60406	5155.04	-44.5332	Terrace (Qoa)	100	31	541.546	814.686	1189.44	0	1189.44	1722.23	1722.23
8	2.60406	5928.04	-44.5332	Terrace (Qoa)	100	31	614.193	923.974	1371.32	0	1371.32	1975.59	1975.59
9	0.777214	1921.61	-44.5332	Anisotropic Bedrock (Tm) Ultimate	520	34.5	969.208	1458.05	1364.87	0	1364.87	2318.42	2318.42
10	2.63831	6897.52	-29.853	Anisotropic Bedrock (Tm) Ultimate	200	16	523.344	787.303	2048.17	0	2048.17	2348.54	2348.54
11	2.63831	7395.54	-29.853	Anisotropic Bedrock (Tm) Ultimate	200	16	551.774	830.073	2197.32	0	2197.32	2514.01	2514.01
12	2.63831	7893.55	-29.853	Anisotropic Bedrock (Tm) Ultimate	200	16	580.204	872.842	2346.48	0	2346.48	2679.48	2679.48
13	2.63831	8391.52	-29.853	Anisotropic Bedrock (Tm) Ultimate	200	16	608.632	915.608	2495.62	0	2495.62	2844.94	2844.94
14	2.63831	8885.85	-29.853	Anisotropic Bedrock (Tm) Ultimate	200	16	636.852	958.061	2643.67	0	2643.67	3009.19	3009.19
15	2.63831	9377.99	-29.8575	Anisotropic Bedrock (Tm) Ultimate	200	16	664.918	1000.28	2790.92	0	2790.92	3172.61	3172.61
16	2.63831	9870.21	-29.8575	Anisotropic Bedrock (Tm) Ultimate	200	16	693.016	1042.55	2938.33	0	2938.33	3336.15	3336.15
17	2.63831	10362.5	-29.8575	Anisotropic Bedrock (Tm) Ultimate	200	16	721.116	1084.83	3085.75	0	3085.75	3499.7	3499.7
18	2.63831	10854.7	-29.8575	Anisotropic Bedrock (Tm) Ultimate	200	16	749.215	1127.1	3233.17	0	3233.17	3663.25	3663.25
19	2.63831	11346.9	-29.8575	Anisotropic Bedrock (Tm) Ultimate	200	16	777.314	1169.37	3380.6	0	3380.6	3826.8	3826.8
20	2.63831	11839.9	-29.9329	Anisotropic Bedrock (Tm) Ultimate	200	16	804.862	1210.81	3525.13	0	3525.13	3988.56	3988.56

21	2.63831	12333.7	-29.9329	Anisotropic Bedrock (Tm) Ultimate	200	16	833.026	1253.18	3672.88	0	3672.88	4152.53	4152.53
22	2.63831	12827.4	-29.9329	Anisotropic Bedrock (Tm) Ultimate	200	16	861.184	1295.54	3820.62	0	3820.62	4316.49	4316.49
23	2.63831	13252.6	-29.9329	Anisotropic Bedrock (Tm) Ultimate	200	16	676.794	1018.15	2853.22	0	2853.22	3242.92	3242.92
24	2.63831	13261.9	-29.9329	Anisotropic Bedrock (Tm) Ultimate	200	16	885.966	1332.82	3950.6	0	3950.6	4460.73	4460.73
25	3.10606	15529.7	-29.529	Anisotropic Bedrock (Tm) Ultimate	200	16	885.447	1332.04	3947.92	0	3947.92	4449.48	4449.48
26	3.10606	15435.8	-29.529	Anisotropic Bedrock (Tm) Ultimate	200	16	880.88	1325.17	3923.94	0	3923.94	4422.91	4422.91
27	3.10606	15340.9	-29.529	Anisotropic Bedrock (Tm) Ultimate	200	16	734.363	1104.75	3155.26	0	3155.26	3571.24	3571.24
28	3.00257	6880.18	-10.5422	Anisotropic Bedrock (Tm) Ultimate	200	16	560.894	843.792	2245.17	0	2245.17	2349.55	2349.55
29	3.00257	6490.21	-10.5422	Anisotropic Bedrock (Tm) Ultimate	200	16	536.942	807.76	2119.51	0	2119.51	2219.44	2219.44
30	3.00257	6100.23	-10.5422	Anisotropic Bedrock (Tm) Ultimate	200	16	512.991	771.729	1993.85	0	1993.85	2089.32	2089.32
31	3.00257	5710.25	-10.5422	Anisotropic Bedrock (Tm) Ultimate	200	16	489.04	735.697	1868.2	0	1868.2	1959.21	1959.21
32	2.40206	4288.68	-10.7233	Anisotropic Bedrock (Tm) Ultimate	200	16	466.869	702.343	1751.88	0	1751.88	1840.29	1840.29
33	2.40206	4053.64	-10.7233	Anisotropic Bedrock (Tm) Ultimate	200	16	448.858	675.249	1657.39	0	1657.39	1742.39	1742.39
34	2.40206	3827.11	-10.7233	Anisotropic Bedrock (Tm) Ultimate	200	16	431.5	649.136	1566.32	0	1566.32	1648.04	1648.04
35	2.40206	3600.59	-10.7233	Anisotropic Bedrock (Tm) Ultimate	200	16	414.143	623.024	1475.26	0	1475.26	1553.69	1553.69
36	2.40206	3374.06	-10.7233	Anisotropic Bedrock (Tm) Ultimate	200	16	396.785	596.911	1384.2	0	1384.2	1459.34	1459.34
37	3.00257	3895.42	-10.3664	Anisotropic Bedrock (Tm) Ultimate	200	16	378.106	568.811	1286.2	0	1286.2	1355.36	1355.36
38	3.00257	3534.27	-10.3664	Anisotropic Bedrock (Tm) Ultimate	200	16	355.885	535.382	1169.62	0	1169.62	1234.72	1234.72
39	3.00257	3173.12	-10.3664	Anisotropic Bedrock (Tm) Ultimate	200	16	333.663	501.953	1053.03	0	1053.03	1114.07	1114.07

40	3.00257	2811.97	-10.3664	Anisotropic Bedrock (Tm) Ultimate	200	16	311.441	468.523	936.452	0	936.452	993.423	993.423
41	2.90584	2424.89	-10.2689	Anisotropic Bedrock (Tm) Ultimate	200	16	292.797	440.475	838.635	0	838.635	891.681	891.681
42	2.90584	2291.11	-10.2689	Anisotropic Bedrock (Tm) Ultimate	200	16	284.282	427.666	793.967	0	793.967	845.471	845.471
43	2.90584	2169.6	-10.2689	Anisotropic Bedrock (Tm) Ultimate	200	16	276.55	416.033	753.397	0	753.397	803.499	803.499
44	2.90584	2048.1	-10.2689	Anisotropic Bedrock (Tm) Ultimate	200	16	268.817	404.4	712.83	0	712.83	761.531	761.531
45	2.92697	1780.46	7.21379	Anisotropic Bedrock (Tm) Ultimate	520	34.5	857.126	1289.43	1119.53	0	1119.53	1011.04	1011.04
46	2.92697	1412.45	7.21379	Anisotropic Bedrock (Tm) Ultimate	520	34.5	775.886	1167.22	941.711	0	941.711	843.504	843.504
47	2.92697	1075.7	7.21379	Anisotropic Bedrock (Tm) Ultimate	520	34.5	701.548	1055.39	778.993	0	778.993	690.195	690.195
48	2.92697	756.085	5.3879	Anisotropic Bedrock (Tm) Ultimate	520	34.5	613.568	923.034	586.42	0	586.42	528.551	528.551
49	2.92697	453.612	5.3879	Anisotropic Bedrock (Tm) Ultimate	520	34.5	549.28	826.32	445.7	0	445.7	393.895	393.895
50	2.92697	151.2	5.3879	Anisotropic Bedrock (Tm) Ultimate	520	34.5	490.823	738.379	317.743	0	317.743	271.451	271.451

Interslice Data

Global Minimum Query (spencer) - Safety Factor: 1.50437

Slice Number	X coordinate [ft]	Y coordinate - Bottom [ft]	Interslice Normal Force [lbs]	Interslice Shear Force [lbs]	Interslice Force Angle [deg]
1	281.954	122.962	0	0	0
2	284.843	120.371	-85.7306	-34.7824	22.0833
3	287.731	117.78	102.166	41.4505	22.0832
4	290.594	115.063	612.378	248.452	22.0832
5	293.457	112.346	1428.5	579.567	22.0832
6	296.32	109.63	2550.79	1034.9	22.0833
7	298.924	107.068	3907.69	1585.42	22.0833
8	301.528	104.506	5540.88	2248.03	22.0832
9	304.133	101.944	7450.36	3022.74	22.0832
10	304.91	101.179	7738.65	3139.7	22.0832
11	307.548	99.6648	9455.47	3836.25	22.0833
12	310.186	98.1506	11322.9	4593.91	22.0833
13	312.825	96.6364	13341	5412.68	22.0833
14	315.463	95.1221	15509.7	6292.57	22.0833
15	318.101	93.6079	17828	7233.12	22.0832
16	320.74	92.0934	20295.7	8234.32	22.0833
17	323.378	90.5789	22912.3	9295.94	22.0833
18	326.016	89.0645	25677.9	10418	22.0833
19	328.655	87.55	28592.4	11600.4	22.0832
20	331.293	86.0355	31655.8	12843.3	22.0832
21	333.931	84.5164	34881.5	14152	22.0832
22	336.569	82.9973	38257.2	15521.6	22.0832
23	339.208	81.4781	41782.8	16952	22.0832
24	341.846	79.959	22661.3	9194.09	22.0833
25	344.484	78.4399	26318.8	10678	22.0833
26	347.59	76.6805	30506.9	12377.2	22.0833
27	350.696	74.9211	34667.1	14065	22.0832
28	353.803	73.1617	19659	7975.98	22.0832
29	356.805	72.6029	19224.7	7799.81	22.0833
30	359.808	72.0442	18792.4	7624.41	22.0833
31	362.81	71.4854	18362	7449.78	22.0832
32	365.813	70.9266	17933.5	7275.92	22.0832
33	368.215	70.4717	17605.8	7142.99	22.0833
34	370.617	70.0168	17278.6	7010.23	22.0833
35	373.019	69.5619	16951.7	6877.62	22.0833
36	375.421	69.1071	16625.3	6745.17	22.0832
37	377.823	68.6522	16299.2	6612.87	22.0833
38	380.826	68.1029	15867.2	6437.61	22.0833
39	383.828	67.5537	15438.1	6263.51	22.0833
40	386.831	67.0044	15011.9	6090.59	22.0833
41	389.833	66.4552	14588.5	5918.82	22.0833
42	392.739	65.9287	14176.9	5751.8	22.0832
43	395.645	65.4022	13766.5	5585.3	22.0832
44	398.551	64.8758	13357.3	5419.28	22.0832
45	401.457	64.3493	12949.3	5253.74	22.0832
46	404.384	64.7198	10018.8	4064.8	22.0832
47	407.311	65.0903	7392.64	2999.32	22.0832
48	410.238	65.4608	5044.96	2046.83	22.0833
49	413.165	65.7368	3082.22	1250.51	22.0832
50	416.092	66.0129	1347.02	546.509	22.0832
51	419.019	66.2889	0	0	0

Discharge Sections

Entity Information

Entire Slope (Static)

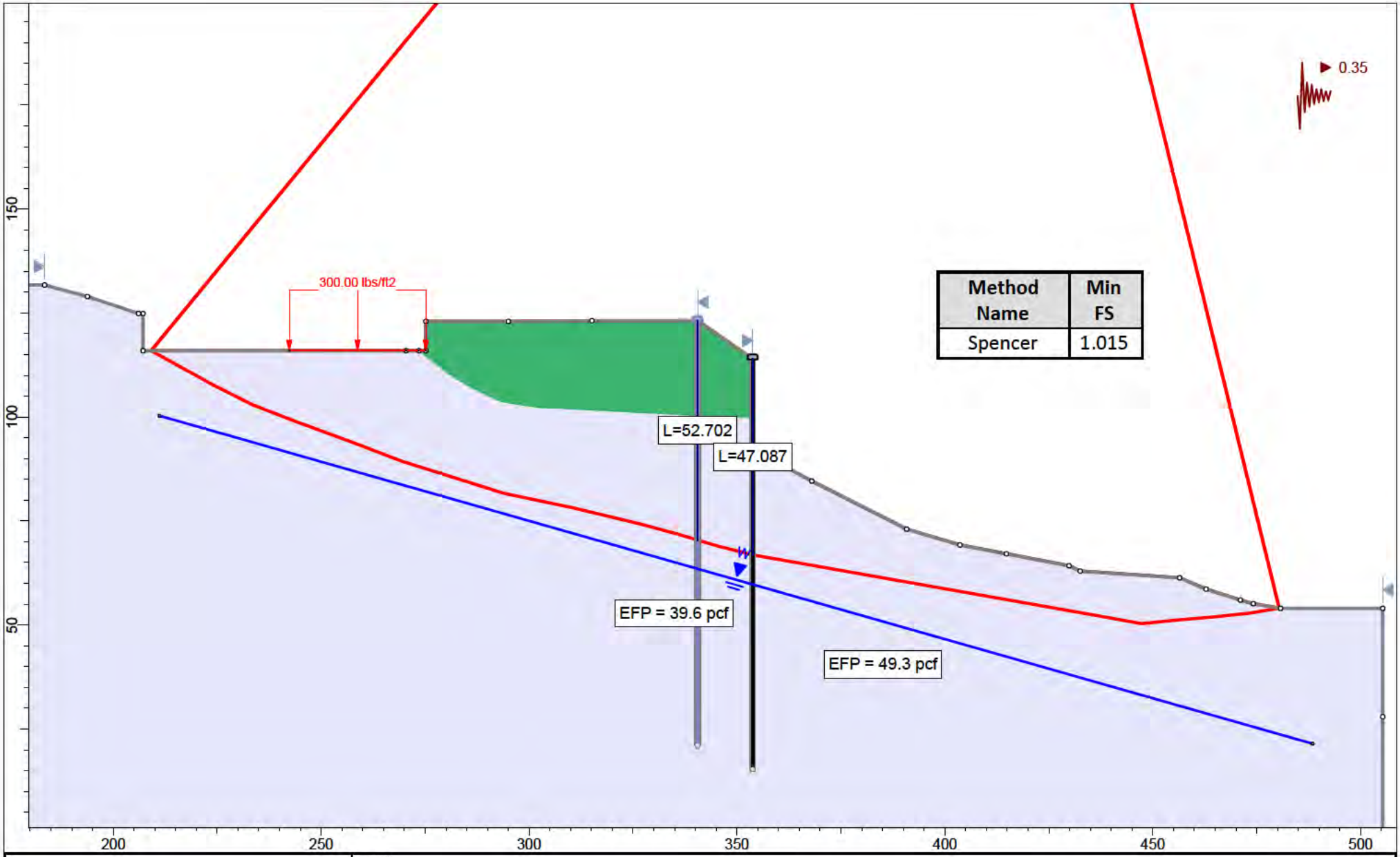
Shared Entities

Type	Coordinates (x,y)
External Boundary	0.235, 184.951 -0.154, 0.116 505.309, 0.116 505.309, 27.9488 505.309, 53.989 480.732, 53.989 474.165, 55.09 471.052, 55.963 462.815, 58.621 456.446, 61.31 432.547, 62.934 429.844, 64.2283 414.791, 67.0937 403.63, 69.219 390.807, 73.03 367.99, 84.5749 353.802, 92.165 353.802, 99.5349 353.802, 113.919 340.534, 123.111 315.124, 123.111 295.004, 122.962 275.174, 122.962 275.174, 115.923 273.496, 115.923 270.47, 115.923 207.15, 115.923 207.15, 124.855 206.075, 124.855 193.797, 128.929 183.475, 131.724 172.683, 131.724 167.29, 129.885 152.655, 129.885 136.627, 131.024 91.465, 132.01 88.851, 133.732 86.883, 134.993 83.317, 137.453 79.022, 140.415 75.503, 142.704 71.745, 145.027 69.115, 146.598 63.546, 149.605 55.105, 154.376 47.248, 159.056 40.176, 163.054 30.945, 168.401 27.756, 170.147 20.658, 173.791 13.825, 177.283 8.283, 180.054 4.107, 182.75

Material Boundary	273.496, 115.923 280.901, 110.275 284.962, 107.671 288.66, 105.849 291.522, 104.48 292.252, 104.13 295.897, 102.933 302.146, 102.048 320.006, 101.11 346.302, 99.756 353.802, 99.5349

Scenario-based Entities

Type	Coordinates (x,y)	Master Scenario
Water Table	211.127, 100.268 488.448, 21.436	Assigned to:  Anisotropic Bedrock (Tm) Ultimate
Distributed Load	275.174, 115.923 273.496, 115.923 270.47, 115.923 242.316, 115.923	Constant DistributionOrientation: Normal to boundaryMagnitude: 300 lbs/ft2Creates Excess Pore Pressure: No
Non-Circular Failure Surface	367.99, 84.5749 390.807, 73.03	



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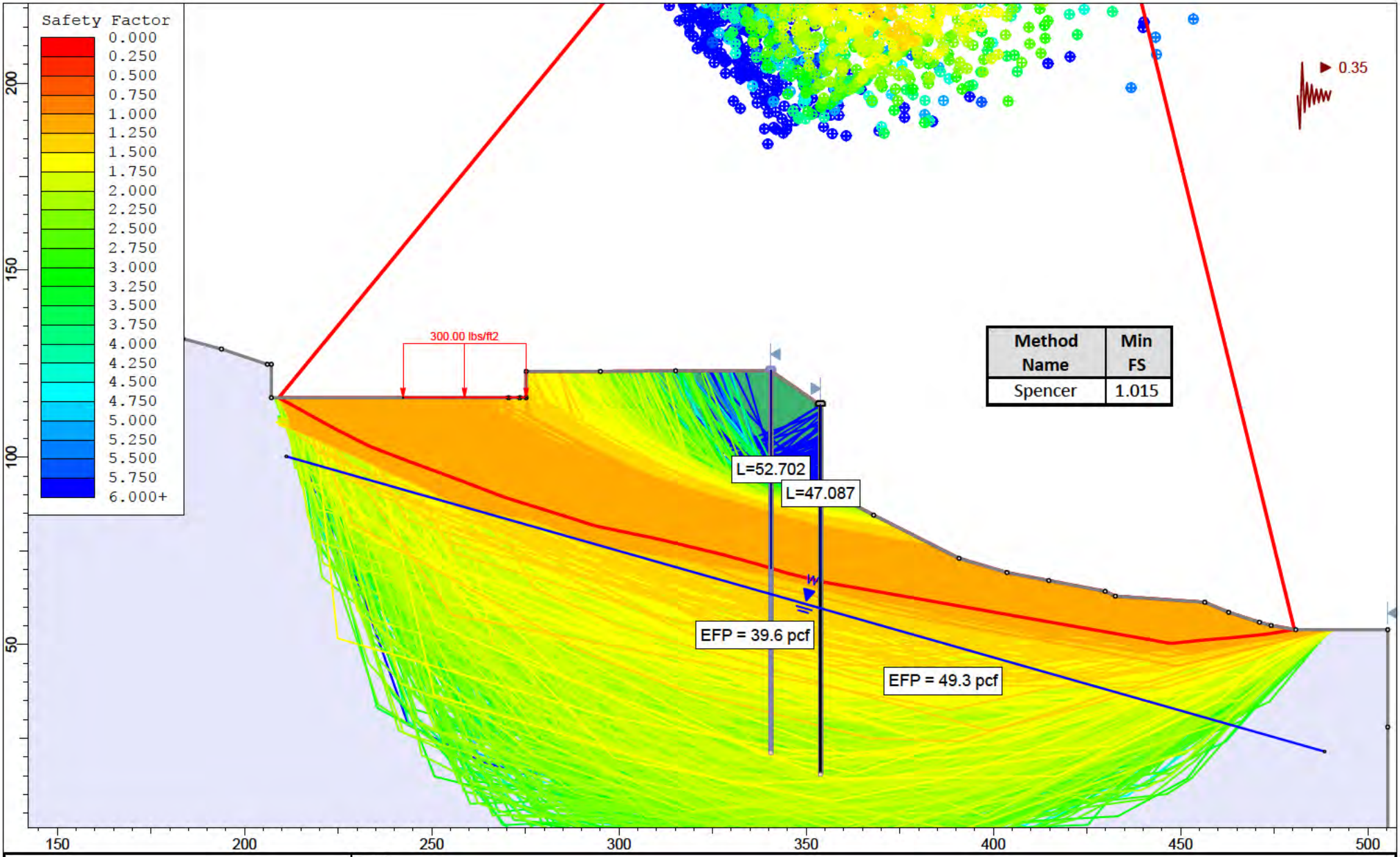
SLIDEINTERPRET 9.018

Project	Section 4-4'		
Analysis Description	Entire Slope (Seismic)		
Drawn By	A. Greene	Scale 1:383	Company Feffer Geological Consulting
Date			File Name Section 4-4' Translational Analysis_2.slmd



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SLIDEINTERPRET 9.018

Project	Section 4-4'		
Analysis Description	Entire Slope (Seismic)		
Drawn By	A. Greene	Scale 1:426	Company Feffer Geological Consulting
Date			File Name Section 4-4' Translational Analysis_2.slmd

Slide Analysis Information

Section 4-4' Translational Analysis_2

Project Summary

File Name:	Section 4-4' Translational Analysis_2.slmd
Slide Modeler Version:	9.018
Compute Time:	00h:00m:15.113s
Project Title:	Section 4-4'
Analysis:	Entire Slope (Seismic)
Author:	A. Greene
Company:	Feffer Geological Consulting

General Settings

Units of Measurement:	Imperial Units
Time Units:	days
Permeability Units:	feet/second
Data Output:	Standard
Failure Direction:	Left to Right

Analysis Options

Slices Type:	Vertical
Analysis Methods Used	
	Spencer
Number of slices:	50
Tolerance:	0.005
Maximum number of iterations:	75
Check malpha < 0.2:	Yes
Create Interslice boundaries at intersections with water tables and piezos:	Yes
Initial trial value of FS:	1
Steffensen Iteration:	Yes

Groundwater Analysis

Groundwater Method:	Water Surfaces
Pore Fluid Unit Weight [lbs/ft3]:	62.4
Use negative pore pressure cutoff:	Yes
Maximum negative pore pressure [psf]:	0
Advanced Groundwater Method:	None

Random Numbers

Pseudo-random Seed:	10116
Random Number Generation Method:	Park and Miller v.3

Surface Options

Search Method:	Cuckoo Search
Initial # of Surface Vertices:	8
Maximum Iterations:	500
Number of Nests:	50
Minimum Elevation:	Not Defined
Minimum Depth:	Not Defined
Minimum Area:	Not Defined
Minimum Weight:	Not Defined
Convex Surfaces Only:	Enabled

Seismic Loading

Advanced seismic analysis:	No
Staged pseudostatic analysis:	No
Seismic Load Coefficient (Horizontal):	0.35

Loading

1 Distributed Load present

Distributed Load 1	
Distribution:	Constant
Magnitude [psf]:	300
Orientation:	Normal to boundary

Materials

Terrace (Qoa)	
Color	
Strength Type	Mohr-Coulomb
Unit Weight [lbs/ft3]	115
Cohesion [psf]	100
Friction Angle [deg]	31
Water Surface	None
Ru Value	0
Anisotropic Bedrock (Tm) Peak	
Color	
Strength Type	Anisotropic function
Unit Weight [lbs/ft3]	124
Water Surface	Water Table
Hu Value	1

Anisotropic Functions

Name: Anisotropic Bedrock (Tm) Peak

Angle From	Angle To	c	phi
-90	-30	720	41
-30	-10	200	16
-10	90	720	41

Support

Entire Slope Pile 1 (Seismic)	
Color	
Type	Pile/Micro Pile
Force Application	Active (Method A)
Force Orientation	Parallel to surface
Out-Of-Plane Spacing	10 ft
Failure Mode	Shear
Pile Shear Strength	545000 lbs

Entire Slope Pile 2 (Seismic)	
Color	
Type	Pile/Micro Pile
Force Application	Active (Method A)
Force Orientation	Parallel to surface
Out-Of-Plane Spacing	10 ft
Failure Mode	Shear
Pile Shear Strength	550000 lbs

Global Minimums

Method: spencer

FS	1.014560
Axis Location:	406.633, 356.269
Left Slip Surface Endpoint:	209.112, 115.923
Right Slip Surface Endpoint:	480.397, 54.045
Resisting Moment:	9.53246e+07 lb-ft
Driving Moment:	9.3957e+07 lb-ft
Resisting Horizontal Force:	310217 lb
Driving Horizontal Force:	305766 lb
Active Support Moment:	-3.21077e+07 lb-ft
Active Horizontal Support Force:	-105599 lb
Maximum Single Support Force:	55000 lb
Total Support Force:	109500 lb
Total Slice Area:	6128.85 ft2
Surface Horizontal Width:	271.285 ft
Surface Average Height:	22.592 ft

Global Minimum Coordinates

Method: spencer

X	Y
209.112	115.923
216.587	111.795
224.062	107.667
233.541	102.899
243.842	98.922
250.587	96.4468
257.306	93.9716
269.527	89.2998
281.732	85.4708
293.894	81.6418
302.262	79.895
310.606	78.1483
318.949	76.1349
327.292	74.1215
336.268	71.6686
345.244	68.9906
354.22	66.7627
366.54	64.5884
378.86	62.4141
389.949	60.4585
401.038	58.5028
412.263	56.5221
423.488	54.5413
435.406	52.4285
447.326	50.3154
455.725	51.1674
464.501	51.9072
473.227	52.8227
480.397	54.0451

Global Minimum Support Data

Method: spencer

Number of Supports: 2

Entire Slope Pile 1 (Seismic)

Support Type: Pile/Micro Pile

Start (x, y)	Length (ft)	L Inside SS (ft)	L Outside SS (ft)	Li (ft)	Lo (ft)	Force (lb)
353.802, 113.919	98.5544	47.0525	51.5019	47.0525	51.5019	54500

Entire Slope Pile 2 (Seismic)

Support Type: Pile/Micro Pile

Start (x, y)	Length (ft)	L Inside SS (ft)	L Outside SS (ft)	Li (ft)	Lo (ft)	Force (lb)
340.534, 123.111	102.063	52.7151	49.3479	52.7151	49.3479	55000

Valid and Invalid Surfaces

Method: spencer

Number of Valid Surfaces:	10744
Number of Invalid Surfaces:	14315

Error Codes

Error Code -108 reported for 50 surfaces
Error Code -110 reported for 2755 surfaces
Error Code -111 reported for 2551 surfaces
Error Code -112 reported for 186 surfaces
Error Code -113 reported for 1 surface
Error Code -121 reported for 1755 surfaces
Error Code -124 reported for 4 surfaces
Error Code -145 reported for 21 surfaces
Error Code -1000 reported for 6992 surfaces

Error Code Descriptions

The following errors were encountered during the computation:

-108 = Total driving moment or total driving force < 0.1. This is to limit the calculation of extremely high safety factors if the driving force is very small (0.1 is an arbitrary number).

-110 = The water table or a piezoline does not span the slip region for a given slip surface, when Water Surfaces is specified as the method of pore pressure calculation. If this error occurs, check that the water table or piezoline(s) span the appropriate soil cells.

-111 = Safety factor equation did not converge

-112 = The coefficient M-Alpha = cos(alpha)(1+tan(alpha)tan(phi)/F) < 0.2 for the final iteration of the safety factor calculation. This screens out some slip surfaces which may not be valid in the context of the analysis, in particular, deep seated slip surfaces with many high negative base angle slices in the passive zone.

-113 = Surface intersects outside slope limits.

-121 = Concave failure surface, only convex surfaces have been defined as being allowed.

-124 = A slice has a width less than the minimum acceptable value.

-145 = Slip surface was clipped vertically by a weak layer in a region of compression. Such a surface cannot be evaluated using Limit Equilibrium. For more information, see Help Documentation on weak layers.

-1000 = No valid slip surface is generated

Slice Data

Global Minimum Query (spencer) - Safety Factor: 1.01456

Slice Number	Width [ft]	Weight [lbs]	Angle of Slice Base [deg]	Base Material	Base Cohesion [psf]	Base Friction Angle [deg]	Shear Stress [psf]	Shear Strength [psf]	Base Normal Stress [psf]	Pore Pressure [psf]	Effective Normal Stress [psf]	Base Vertical Stress [psf]	Effective Vertical Stress [psf]
1	7.47489	1913.05	-28.9091	Anisotropic Bedrock (Tm) Peak	200	16	240.499	244	153.447	0	153.447	286.26	286.26
2	7.47489	5739.16	-28.9091	Anisotropic Bedrock (Tm) Peak	200	16	335.419	340.303	489.296	0	489.296	674.526	674.526
3	4.73925	5552.22	-26.7058	Anisotropic Bedrock (Tm) Peak	200	16	418.741	424.838	784.103	0	784.103	994.761	994.761
4	4.73925	6953.33	-26.7058	Anisotropic Bedrock (Tm) Peak	200	16	475.172	482.09	983.765	0	983.765	1222.81	1222.81
5	5.15038	8952.81	-21.11	Anisotropic Bedrock (Tm) Peak	200	16	557.275	565.389	1274.26	0	1274.26	1489.41	1489.41
6	5.15038	10222.7	-21.11	Anisotropic Bedrock (Tm) Peak	200	16	629.579	638.746	1530.09	0	1530.09	1773.15	1773.15
7	6.74565	15255.9	-20.1498	Anisotropic Bedrock (Tm) Peak	200	16	745.608	756.464	1940.62	0	1940.62	2214.21	2214.21
8	6.71837	17256.2	-20.225	Anisotropic Bedrock (Tm) Peak	200	16	808.702	820.477	2163.86	0	2163.86	2461.81	2461.81
9	6.11047	17517.5	-20.9208	Anisotropic Bedrock (Tm) Peak	200	16	863.944	876.523	2359.31	0	2359.31	2689.58	2689.58
10	6.11047	19287.4	-20.9208	Anisotropic Bedrock (Tm) Peak	200	16	923.521	936.967	2570.11	0	2570.11	2923.15	2923.15
11	6.10253	21223.2	-17.4178	Anisotropic Bedrock (Tm) Peak	200	16	1023.84	1038.75	2925.06	0	2925.06	3246.26	3246.26
12	6.10253	27042.4	-17.4178	Anisotropic Bedrock (Tm) Peak	200	16	1157.86	1174.72	3399.23	0	3399.23	3762.48	3762.48

13	6.08102	28167.2	-17.4757	Anisotropic Bedrock (Tm) Peak	200	16	1200.22	1217.7	3549.13	0	3549.13	3927	3927
14	6.08102	29443.4	-17.4757	Anisotropic Bedrock (Tm) Peak	200	16	1245.35	1263.48	3708.78	0	3708.78	4100.86	4100.86
15	4.18438	20918.7	-11.7897	Anisotropic Bedrock (Tm) Peak	200	16	1367.93	1387.85	4142.54	0	4142.54	4428.06	4428.06
16	4.18438	21360.6	-11.7897	Anisotropic Bedrock (Tm) Peak	200	16	1392.38	1412.65	4229.03	0	4229.03	4519.65	4519.65
17	4.17162	21747.3	-11.8247	Anisotropic Bedrock (Tm) Peak	200	16	1416.85	1437.48	4315.6	0	4315.6	4612.24	4612.24
18	4.17162	22205.7	-11.8247	Anisotropic Bedrock (Tm) Peak	200	16	1442.27	1463.27	4405.56	0	4405.56	4707.51	4707.51
19	4.17162	22698.5	-13.5671	Anisotropic Bedrock (Tm) Peak	200	16	1439.2	1460.15	4394.68	0	4394.68	4741.98	4741.98
20	4.17162	23219.6	-13.5671	Anisotropic Bedrock (Tm) Peak	200	16	1467.45	1488.82	4494.63	0	4494.63	4848.75	4848.75
21	4.17162	23732.2	-13.5671	Anisotropic Bedrock (Tm) Peak	200	16	1495.24	1517.01	4592.96	0	4592.96	4953.79	4953.79
22	4.17162	24244.9	-13.5671	Anisotropic Bedrock (Tm) Peak	200	16	1523.03	1545.21	4691.3	0	4691.3	5058.84	5058.84
23	4.48803	26696.2	-15.2844	Anisotropic Bedrock (Tm) Peak	200	16	1522.3	1544.46	4688.67	0	4688.67	5104.68	5104.68
24	4.48803	27369.4	-15.2844	Anisotropic Bedrock (Tm) Peak	200	16	1555.46	1578.11	4806.07	0	4806.07	5231.14	5231.14
25	4.48803	28072	-16.6123	Anisotropic Bedrock (Tm) Peak	200	16	2051.37	2081.24	6560.67	0	6560.67	7172.69	7172.69
26	4.48803	27928	-16.6123	Anisotropic Bedrock (Tm) Peak	200	16	1558.12	1580.81	4815.46	0	4815.46	5280.32	5280.32
27	4.48804	26997.6	-13.9394	Anisotropic Bedrock (Tm) Peak	200	16	1562.08	1584.82	4829.43	0	4829.43	5217.14	5217.14
28	4.48804	24934.2	-13.9394	Anisotropic Bedrock (Tm) Peak	200	16	2122.24	2153.14	6811.41	0	6811.41	7338.16	7338.16
29	6.15985	18388.6	-10.0091	Anisotropic Bedrock (Tm) Peak	200	16	920.324	933.724	2558.8	0	2558.8	2721.22	2721.22
30	6.15985	16702.1	-10.0091	Anisotropic Bedrock (Tm) Peak	200	16	855.434	867.889	2329.21	0	2329.21	2480.18	2480.18
31	12.3197	28556.7	-10.0091	Anisotropic Bedrock (Tm) Peak	200	16	762.179	773.276	1999.25	0	1999.25	2133.77	2133.77
32	5.54469	10826.9	-10.0013	Anisotropic Bedrock (Tm) Peak	200	16	675.657	685.495	1693.12	0	1693.12	1812.28	1812.28
33	5.54469	9570.3	-10.0013	Anisotropic Bedrock (Tm) Peak	200	16	621.938	630.993	1503.05	0	1503.05	1612.73	1612.73
34	5.54469	8597.96	-10.0013	Anisotropic Bedrock (Tm) Peak	200	16	580.372	588.822	1355.98	0	1355.98	1458.33	1458.33
35	5.54469	8127.66	-10.0013	Anisotropic Bedrock (Tm) Peak	200	16	560.267	568.424	1284.85	0	1284.85	1383.65	1383.65
36	5.61228	7818.19	-10.0078	Anisotropic Bedrock (Tm) Peak	200	16	542.975	550.881	1223.67	0	1223.67	1319.49	1319.49
37	5.61228	7719.25	-10.0078	Anisotropic Bedrock (Tm) Peak	200	16	538.797	546.642	1208.88	0	1208.88	1303.96	1303.96

38	5.61228	7664.8	-10.0078	Anisotropic Bedrock (Tm) Peak	200	16	536.498	544.309	1200.75	0	1200.75	1295.42	1295.42
39	5.61228	7610.57	-10.0078	Anisotropic Bedrock (Tm) Peak	200	16	534.208	541.986	1192.65	0	1192.65	1286.92	1286.92
40	5.95935	8023.64	-10.0522	Anisotropic Bedrock (Tm) Peak	200	16	531.676	539.417	1183.69	0	1183.69	1277.94	1277.94
41	5.95935	7620.9	-10.0522	Anisotropic Bedrock (Tm) Peak	200	16	515.668	523.176	1127.05	0	1127.05	1218.46	1218.46
42	5.95988	7860.99	-10.0526	Anisotropic Bedrock (Tm) Peak	200	16	525.181	532.828	1160.71	0	1160.71	1253.81	1253.81
43	5.95988	8342.49	-10.0526	Anisotropic Bedrock (Tm) Peak	200	16	544.318	552.243	1228.42	0	1228.42	1324.91	1324.91
44	4.19925	5862.43	5.79252	Anisotropic Bedrock (Tm) Peak	720	41	3546.9	3598.54	3311.39	0	3311.39	2951.57	2951.57
45	4.19925	5492.03	5.79252	Anisotropic Bedrock (Tm) Peak	720	41	3413.01	3462.7	3155.11	0	3155.11	2808.88	2808.88
46	4.38843	5068.79	4.81815	Anisotropic Bedrock (Tm) Peak	720	41	3047.76	3092.14	2728.84	0	2728.84	2471.94	2471.94
47	4.38843	3888.25	4.81815	Anisotropic Bedrock (Tm) Peak	720	41	2657.97	2696.67	2273.91	0	2273.91	2049.87	2049.87
48	4.36286	2833.06	5.98952	Anisotropic Bedrock (Tm) Peak	720	41	2434.52	2469.97	2013.12	0	2013.12	1757.69	1757.69
49	4.36286	1836.18	5.98952	Anisotropic Bedrock (Tm) Peak	720	41	2084.31	2114.66	1604.38	0	1604.38	1385.69	1385.69
50	7.17021	1083.97	9.6747	Anisotropic Bedrock (Tm) Peak	720	41	1990.84	2019.83	1495.29	0	1495.29	1155.89	1155.89

Interslice Data

Global Minimum Query (spencer) - Safety Factor: 1.01456

Slice Number	X coordinate [ft]	Y coordinate - Bottom [ft]	Interslice Normal Force [lbs]	Interslice Shear Force [lbs]	Interslice Force Angle [deg]
1	209.112	115.923	0	0	0
2	216.587	111.795	-494.734	-226.72	24.6204
3	224.062	107.667	1026.49	470.405	24.6204
4	228.802	105.283	2854.68	1308.2	24.6203
5	233.541	102.899	5381.85	2466.32	24.6204
6	238.691	100.91	8178.87	3748.1	24.6204
7	243.842	98.922	11556.6	5296.02	24.6205
8	250.587	96.4468	16670	7639.28	24.6203
9	257.306	93.9716	22632.4	10371.7	24.6205
10	263.416	91.6357	28995.5	13287.7	24.6205
11	269.527	89.2998	36106.4	16546.4	24.6205
12	275.629	87.3853	42886.5	19653.5	24.6205
13	281.732	85.4708	51793.3	23735.1	24.6204
14	287.813	83.5563	61148	28022	24.6203
15	293.894	81.6418	70980.6	32528	24.6204
16	298.078	80.7684	76196.1	34918.1	24.6204
17	302.262	79.895	81539.6	37366.8	24.6204
18	306.434	79.0217	87009.7	39873.6	24.6204
19	310.606	78.1483	92612.7	42441.2	24.6204
20	314.777	77.1416	98977.3	45358	24.6204
21	318.949	76.1349	105507	48350.4	24.6204
22	323.12	75.1282	112200	51417.2	24.6203
23	327.292	74.1215	119054	54558.6	24.6205
24	331.78	72.8951	127316	58344.8	24.6205
25	336.268	71.6686	135809	62236.7	24.6204
26	340.756	70.3296	92507.9	42393.2	24.6204
27	345.244	68.9906	101738	46622.9	24.6203
28	349.732	67.8766	109556	50205.7	24.6203
29	354.22	66.7627	63450.5	29077.2	24.6204
30	360.38	65.6755	66999.2	30703.5	24.6204
31	366.54	64.5884	70107.8	32128	24.6204
32	378.86	62.4141	75059.7	34397.3	24.6204
33	384.404	61.4363	76758.3	35175.7	24.6204
34	389.949	60.4585	78129.2	35803.9	24.6203
35	395.494	59.4806	79246.3	36315.9	24.6204
36	401.038	58.5028	80240.8	36771.6	24.6204
37	406.651	57.5124	81141.7	37184.5	24.6204
38	412.263	56.5221	82016.8	37585.5	24.6204
39	417.875	55.5317	82877.7	37980	24.6204
40	423.488	54.5413	83724.4	38368.1	24.6204
41	429.447	53.4849	84614.6	38776	24.6204
42	435.406	52.4285	85399.5	39135.7	24.6204
43	441.366	51.372	86247.1	39524.1	24.6204
44	447.326	50.3154	87220.7	39970.3	24.6204
45	451.525	50.7414	72967.6	33438.6	24.6204
46	455.725	51.1674	59213.5	27135.6	24.6204
47	460.113	51.5373	46603.2	21356.7	24.6204
48	464.501	51.9072	35458.5	16249.4	24.6203
49	468.864	52.365	24906.9	11414	24.6204
50	473.227	52.8227	15721.5	7204.65	24.6204
51	480.397	54.0451	0	0	0

Discharge Sections

Entity Information

Entire Slope (Seismic)

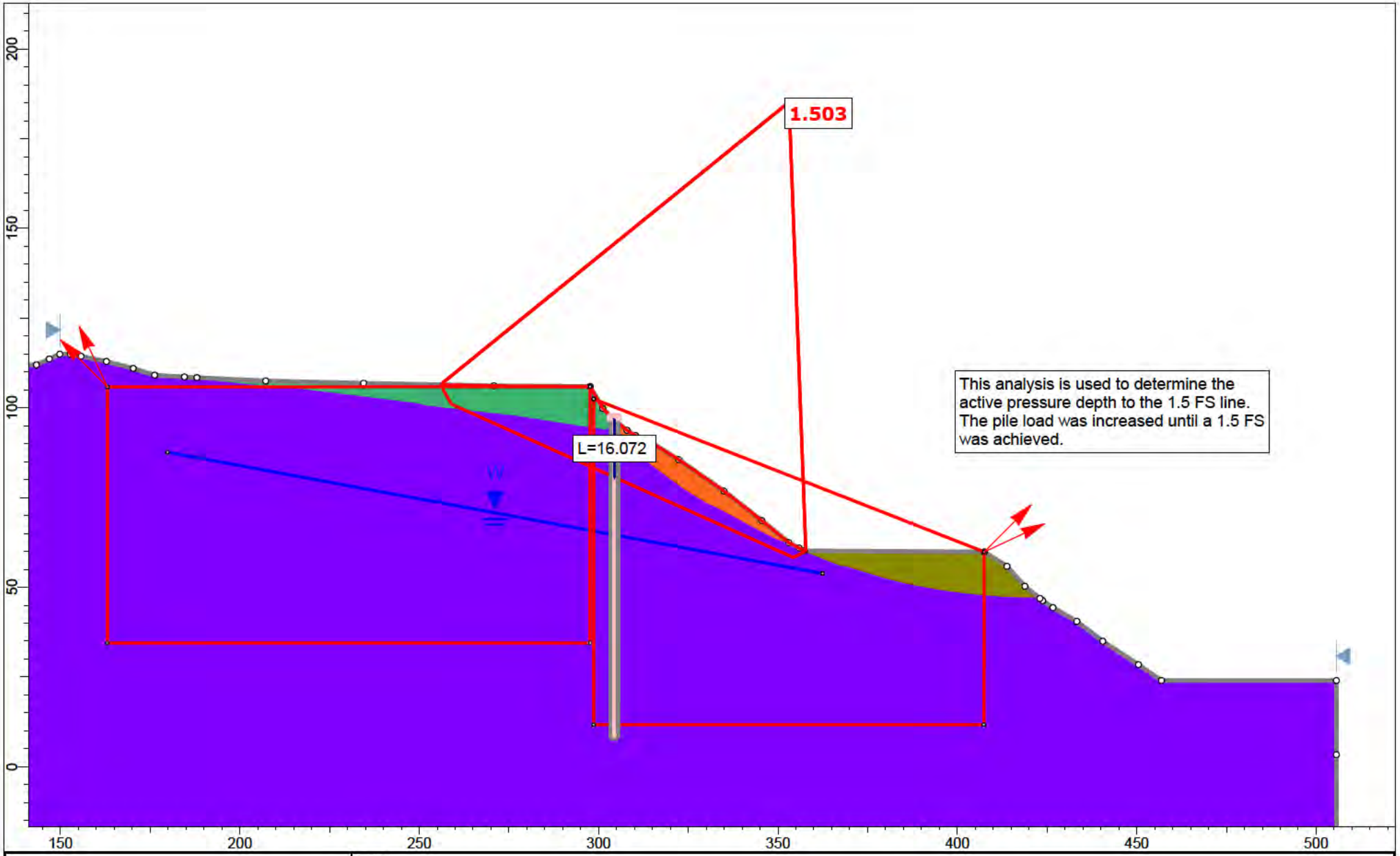
Shared Entities

Type	Coordinates (x,y)
External Boundary	0.235, 184.951 -0.154, 0.116 505.309, 0.116 505.309, 27.9488 505.309, 53.989 480.732, 53.989 474.165, 55.09 471.052, 55.963 462.815, 58.621 456.446, 61.31 432.547, 62.934 429.844, 64.2283 414.791, 67.0937 403.63, 69.219 390.807, 73.03 367.99, 84.5749 353.802, 92.165 353.802, 99.5349 353.802, 113.919 340.534, 123.111 315.124, 123.111 295.004, 122.962 275.174, 122.962 275.174, 115.923 273.496, 115.923 270.47, 115.923 207.15, 115.923 207.15, 124.855 206.075, 124.855 193.797, 128.929 183.475, 131.724 172.683, 131.724 167.29, 129.885 152.655, 129.885 136.627, 131.024 91.465, 132.01 88.851, 133.732 86.883, 134.993 83.317, 137.453 79.022, 140.415 75.503, 142.704 71.745, 145.027 69.115, 146.598 63.546, 149.605 55.105, 154.376 47.248, 159.056 40.176, 163.054 30.945, 168.401 27.756, 170.147 20.658, 173.791 13.825, 177.283 8.283, 180.054 4.107, 182.75

Material Boundary	273.496, 115.923 280.901, 110.275 284.962, 107.671 288.66, 105.849 291.522, 104.48 292.252, 104.13 295.897, 102.933 302.146, 102.048 320.006, 101.11 346.302, 99.756 353.802, 99.5349

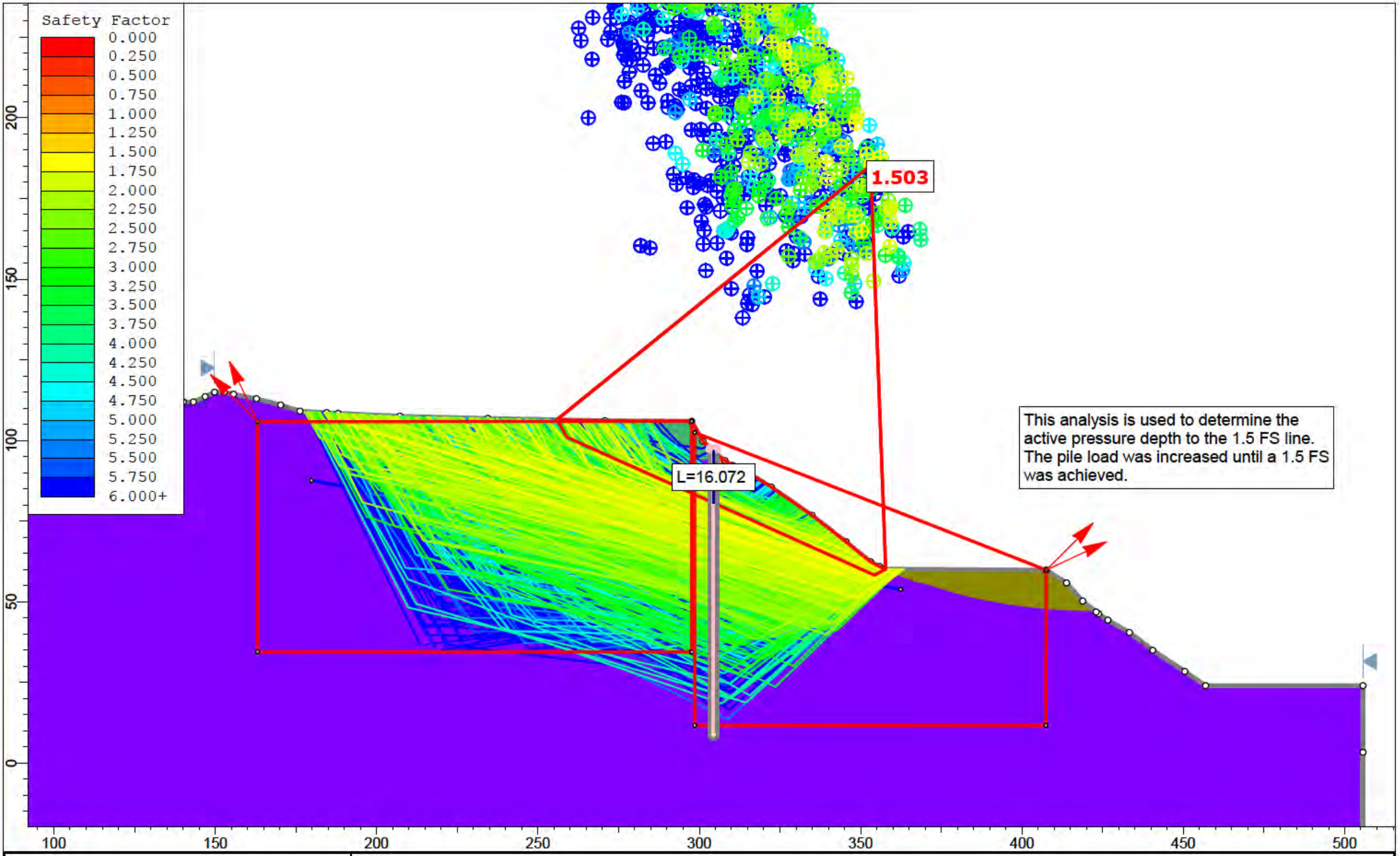
Scenario-based Entities

Type	Coordinates (x,y)	Master Scenario
Water Table	211.127, 100.268 488.448, 21.436	Assigned to: Anisotropic Bedrock (Tm) Peak
Distributed Load	275.174, 115.923 273.496, 115.923 270.47, 115.923 242.316, 115.923	Constant DistributionOrientation: Normal to boundaryMagnitude: 300 lbs/ft2Creates Excess Pore Pressure: No
Non-Circular Failure Surface	367.99, 84.5749 390.807, 73.03	



rocscience	Project	Section 5-5'		
	Analysis Description	Translational (Static)		
	Drawn By	A. Greene	Scale 1:444	Company Feffer Geological Consulting
	Date			File Name Section 5-5' Translational Analysis_2.slmd

SLIDEINTERPRET 9.018



rocscience

SLIDEINTERPRET 9.018

Project	Section 5-5'			
Analysis Description	Translational (Static)			
Drawn By	A. Greene	Scale	1:493	Company: Feffer Geological Consulting
Date				File Name: Section 5-5' Translational Analysis_2.slmd

Slide Analysis Information

Section 5-5' Translational Analysis_2

Project Summary

File Name:	Section 5-5' Translational Analysis_2.slmd
Slide Modeler Version:	9.018
Compute Time:	00h:00m:01.884s
Project Title:	Section 5-5'
Analysis:	Translational (Static)
Author:	A. Greene
Company:	Feffer Geological Consulting

General Settings

Units of Measurement:	Imperial Units
Time Units:	days
Permeability Units:	feet/second
Data Output:	Standard
Failure Direction:	Left to Right

Analysis Options

Slices Type:	Vertical
Analysis Methods Used	
	Spencer
Number of slices:	50
Tolerance:	0.005
Maximum number of iterations:	75
Check malpha < 0.2:	Yes
Create Interslice boundaries at intersections with water tables and piezos:	Yes
Initial trial value of FS:	1
Steffensen Iteration:	Yes

Groundwater Analysis

Groundwater Method:	Water Surfaces
Pore Fluid Unit Weight [lbs/ft3]:	62.4
Use negative pore pressure cutoff:	Yes
Maximum negative pore pressure [psf]:	0
Advanced Groundwater Method:	None

Random Numbers

Pseudo-random Seed:	10116
Random Number Generation Method:	Park and Miller v.3

Surface Options

Surface Type:	Non-Circular Block Search
Number of Surfaces:	5000
Multiple Groups:	Disabled
Pseudo-Random Surfaces:	Enabled
Convex Surfaces Only:	Disabled
Left Projection Angle (Start Angle) [deg]:	115
Left Projection Angle (End Angle) [deg]:	135
Right Projection Angle (Start Angle) [deg]:	45
Right Projection Angle (End Angle) [deg]:	25
Minimum Elevation:	Not Defined
Minimum Depth:	Not Defined
Minimum Area:	Not Defined
Minimum Weight:	Not Defined

Seismic Loading

Advanced seismic analysis:	No
Staged pseudostatic analysis:	No

Materials

Terrace (Qoa)	
Color	
Strength Type	Mohr-Coulomb
Unit Weight [lbs/ft3]	115
Cohesion [psf]	100
Friction Angle [deg]	31
Water Surface	Water Table
Hu Value	1
Qlsr	
Color	
Strength Type	Mohr-Coulomb
Unit Weight [lbs/ft3]	115
Cohesion [psf]	200
Friction Angle [deg]	12
Water Surface	Water Table
Hu Value	1
Fill (Af)	
Color	
Strength Type	Mohr-Coulomb
Unit Weight [lbs/ft3]	120
Cohesion [psf]	120
Friction Angle [deg]	31
Water Surface	Water Table
Hu Value	1
Anisotropic Bedrock (Tm) Ultimate	
Color	
Strength Type	Anisotropic function
Unit Weight [lbs/ft3]	124
Water Surface	Water Table
Hu Value	1

Anisotropic Functions

Name: Anisotropic Bedrock (Tm) Ultimate

Angle From	Angle To	c	phi
-90	-30	520	34.5
-30	-10	200	16
-10	90	520	34.5

Support

Pile 1 (Static)	
Color	
Type	Pile/Micro Pile
Force Application	Active (Method A)
Force Orientation	Parallel to surface
Out-Of-Plane Spacing	10 ft
Failure Mode	Shear
Pile Shear Strength	125000 lbs

Global Minimums

Method: spencer

FS	1.502680
Axis Location:	353.084, 185.164
Left Slip Surface Endpoint:	255.860, 106.419
Right Slip Surface Endpoint:	357.746, 60.137
Resisting Moment:	7.49027e+06 lb-ft
Driving Moment:	4.98462e+06 lb-ft
Resisting Horizontal Force:	58806.9 lb
Driving Horizontal Force:	39134.8 lb
Active Support Moment:	-1.44124e+06 lb-ft
Active Horizontal Support Force:	-11405.7 lb
Maximum Single Support Force:	12500 lb
Total Support Force:	12500 lb
Total Slice Area:	1196.63 ft2
Surface Horizontal Width:	101.886 ft
Surface Average Height:	11.7448 ft

Global Minimum Coordinates

Method: spencer

X	Y
255.86	106.419
258.993	100.996
354.302	58.2568
357.746	60.1375

Global Minimum Support Data

Method: spencer

Number of Supports: 1

Pile 1 (Static)

Support Type: Pile/Micro Pile

Start (x, y)	Length (ft)	L Inside SS (ft)	L Outside SS (ft)	Li (ft)	Lo (ft)	Force (lb)
304.345, 96.688	87.876	16.0293	71.8467	16.0293	71.8467	12500

Valid and Invalid Surfaces

Method: spencer

Number of Valid Surfaces:	1033
Number of Invalid Surfaces:	3967

Error Codes

Error Code -105 reported for 167 surfaces
Error Code -108 reported for 28 surfaces
Error Code -110 reported for 3408 surfaces
Error Code -111 reported for 362 surfaces
Error Code -112 reported for 2 surfaces

Error Code Descriptions

The following errors were encountered during the computation:
-105 = More than two surface / slope intersections with no valid slip surface.
-108 = Total driving moment or total driving force < 0.1. This is to limit the calculation of extremely high safety factors if the driving force is very small (0.1 is an arbitrary number).
-110 = The water table or a piezoline does not span the slip region for a given slip surface, when Water Surfaces is specified as the method of pore pressure calculation. If this error occurs, check that the water table or piezoline(s) span the appropriate soil cells.
-111 = Safety factor equation did not converge
-112 = The coefficient M-Alpha = cos(alpha)(1+tan(alpha)tan(phi)/F) < 0.2 for the final iteration of the safety factor calculation. This screens out some slip surfaces which may not be valid in the context of the analysis, in particular, deep seated slip surfaces with many high negative base angle slices in the passive zone.

Slice Data

Global Minimum Query (spencer) - Safety Factor: 1.50268

Slice Number	Width [ft]	Weight [lbs]	Angle of Slice Base [deg]	Base Material	Base Cohesion [psf]	Base Friction Angle [deg]	Shear Stress [psf]	Shear Strength [psf]	Base Normal Stress [psf]	Pore Pressure [psf]	Effective Normal Stress [psf]	Base Vertical Stress [psf]	Effective Vertical Stress [psf]
1	1.56638	241.437	-59.9852	Terrace (Qoa)	100	31	78.2777	117.626	29.3351	0	29.3351	164.835	164.835
2	1.56638	724.31	-59.9852	Terrace (Qoa)	100	31	133.491	200.594	167.416	0	167.416	398.491	398.491
3	3.03807	2100.65	-24.1527	Terrace (Qoa)	100	31	296.086	444.923	574.049	0	574.049	706.822	706.822
4	2.09707	1722.11	-24.1527	Anisotropic Bedrock (Tm) Ultimate	200	16	263.841	396.469	685.169	0	685.169	803.482	803.482
5	2.09707	1952.24	-24.1527	Anisotropic Bedrock (Tm) Ultimate	200	16	281.446	422.924	777.426	0	777.426	903.634	903.634
6	2.09707	2182.46	-24.1527	Anisotropic Bedrock (Tm) Ultimate	200	16	299.057	449.387	869.717	0	869.717	1003.82	1003.82
7	2.09707	2412.67	-24.1527	Anisotropic Bedrock (Tm) Ultimate	200	16	316.668	475.851	962.009	0	962.009	1104.01	1104.01
8	2.09707	2644.95	-24.1527	Anisotropic Bedrock (Tm) Ultimate	200	16	334.437	502.552	1055.12	0	1055.12	1205.09	1205.09
9	2.09707	2881.19	-24.1527	Anisotropic Bedrock (Tm) Ultimate	200	16	352.51	529.709	1149.83	0	1149.83	1307.9	1307.9

10	2.09707	3117.53	-24.1527	Anisotropic Bedrock (Tm) Ultimate	200	16	370.589	556.876	1244.57	0	1244.57	1410.76	1410.76
11	2.09707	3352.88	-24.1527	Anisotropic Bedrock (Tm) Ultimate	200	16	388.593	583.931	1338.92	0	1338.92	1513.18	1513.18
12	2.09707	3587.31	-24.1527	Anisotropic Bedrock (Tm) Ultimate	200	16	406.526	610.878	1432.9	0	1432.9	1615.2	1615.2
13	2.09707	3821.73	-24.1527	Anisotropic Bedrock (Tm) Ultimate	200	16	424.458	637.825	1526.88	0	1526.88	1717.22	1717.22
14	2.09707	4056.15	-24.1527	Anisotropic Bedrock (Tm) Ultimate	200	16	442.392	664.773	1620.85	0	1620.85	1819.23	1819.23
15	2.09707	4290.57	-24.1527	Anisotropic Bedrock (Tm) Ultimate	200	16	460.324	691.72	1714.83	0	1714.83	1921.25	1921.25
16	2.09707	4525	-24.1527	Anisotropic Bedrock (Tm) Ultimate	200	16	478.258	718.668	1808.81	0	1808.81	2023.28	2023.28
17	2.09707	4759.58	-24.1527	Anisotropic Bedrock (Tm) Ultimate	200	16	496.202	745.633	1902.85	0	1902.85	2125.36	2125.36
18	2.09707	4994.2	-24.1527	Anisotropic Bedrock (Tm) Ultimate	200	16	514.151	772.604	1996.91	0	1996.91	2227.47	2227.47
19	2.09707	5228.83	-24.1527	Anisotropic Bedrock (Tm) Ultimate	200	16	532.099	799.574	2090.96	0	2090.96	2329.57	2329.57
20	2.09707	5463.33	-24.1527	Anisotropic Bedrock (Tm) Ultimate	200	16	550.037	826.53	2184.97	0	2184.97	2431.62	2431.62
21	2.09707	5242.26	-24.1527	Anisotropic Bedrock (Tm) Ultimate	200	16	533.127	801.119	2096.35	0	2096.35	2335.42	2335.42
22	2.09707	4619.93	-24.1527	Anisotropic Bedrock (Tm) Ultimate	200	16	485.519	729.58	1846.87	0	1846.87	2064.59	2064.59
23	2.09707	4284.93	-24.1527	Anisotropic Bedrock (Tm) Ultimate	200	16	459.892	691.071	1712.57	0	1712.57	1918.79	1918.79
24	2.09707	4055.74	-24.1527	Anisotropic Bedrock (Tm) Ultimate	200	16	402.579	604.948	1412.22	0	1412.22	1592.75	1592.75
25	2.09707	3845.03	-24.1527	Anisotropic Bedrock (Tm) Ultimate	200	16	426.24	640.503	1536.22	0	1536.22	1727.36	1727.36
26	2.09707	3691.86	-24.1527	Anisotropic Bedrock (Tm) Ultimate	200	16	414.523	622.896	1474.81	0	1474.81	1660.7	1660.7
27	2.09707	3629.15	-24.1527	Anisotropic Bedrock (Tm) Ultimate	200	16	409.727	615.688	1449.68	0	1449.68	1633.41	1633.41
28	2.09707	3615.83	-24.1527	Anisotropic Bedrock (Tm) Ultimate	200	16	408.708	614.157	1444.34	0	1444.34	1627.61	1627.61

29	2.09707	3553.26	-24.1527	Anisotropic Bedrock (Tm) Ultimate	200	16	403.921	606.964	1419.25	0	1419.25	1600.38	1600.38
30	2.09707	3453.84	-24.1527	Anisotropic Bedrock (Tm) Ultimate	200	16	396.315	595.535	1379.39	0	1379.39	1557.11	1557.11
31	2.09707	3355.07	-24.1527	Anisotropic Bedrock (Tm) Ultimate	200	16	388.76	584.182	1339.8	0	1339.8	1514.13	1514.13
32	2.09707	3255.72	-24.1527	Anisotropic Bedrock (Tm) Ultimate	200	16	381.16	572.761	1299.97	0	1299.97	1470.89	1470.89
33	2.09707	3131.63	-24.1527	Anisotropic Bedrock (Tm) Ultimate	200	16	371.667	558.497	1250.23	0	1250.23	1416.9	1416.9
34	2.09707	3001.12	-24.1527	Anisotropic Bedrock (Tm) Ultimate	200	16	361.684	543.495	1197.91	0	1197.91	1360.1	1360.1
35	2.09707	2871.25	-24.1527	Anisotropic Bedrock (Tm) Ultimate	200	16	351.749	528.566	1145.85	0	1145.85	1303.58	1303.58
36	2.09707	2741.38	-24.1527	Anisotropic Bedrock (Tm) Ultimate	200	16	341.814	513.637	1093.78	0	1093.78	1247.06	1247.06
37	2.09707	2611.79	-24.1527	Anisotropic Bedrock (Tm) Ultimate	200	16	331.901	498.741	1041.83	0	1041.83	1190.67	1190.67
38	2.09707	2483.08	-24.1527	Anisotropic Bedrock (Tm) Ultimate	200	16	322.055	483.945	990.234	0	990.234	1134.65	1134.65
39	2.09707	2325.06	-24.1527	Anisotropic Bedrock (Tm) Ultimate	200	16	309.966	465.78	926.886	0	926.886	1065.88	1065.88
40	2.09707	2154	-24.1527	Anisotropic Bedrock (Tm) Ultimate	200	16	296.881	446.117	858.313	0	858.313	991.442	991.442
41	2.09707	1982.92	-24.1527	Anisotropic Bedrock (Tm) Ultimate	200	16	283.793	426.45	789.726	0	789.726	916.986	916.986
42	2.09707	1811.86	-24.1527	Anisotropic Bedrock (Tm) Ultimate	200	16	270.707	406.786	721.149	0	721.149	842.541	842.541
43	2.09707	1641.16	-24.1527	Anisotropic Bedrock (Tm) Ultimate	200	16	257.649	387.164	652.719	0	652.719	768.255	768.255
44	2.09707	1457.85	-24.1527	Anisotropic Bedrock (Tm) Ultimate	200	16	243.626	366.092	579.233	0	579.233	688.481	688.481
45	2.09707	1268.53	-24.1527	Anisotropic Bedrock (Tm) Ultimate	200	16	229.144	344.33	503.336	0	503.336	606.09	606.09
46	2.09707	1083.41	-24.1527	Anisotropic Bedrock (Tm) Ultimate	200	16	214.982	323.049	429.124	0	429.124	525.528	525.528
47	2.09707	927.625	-24.1527	Anisotropic Bedrock (Tm) Ultimate	200	16	203.065	305.142	366.673	0	366.673	457.733	457.733

48	1.63569	525.342	28.6367	Anisotropic Bedrock (Tm) Ultimate	520	34.5	1191.07	1789.79	1847.56	0	1847.56	1197.18	1197.18
49	1.63569	173.446	28.6367	Anisotropic Bedrock (Tm) Ultimate	520	34.5	911.139	1369.15	1235.52	0	1235.52	737.993	737.993
50	0.172754	0.988731	28.6367	Fill (Af)	120	31	267.613	402.137	469.555	0	469.555	323.425	323.425

Interslice Data

Global Minimum Query (spencer) - Safety Factor: 1.50268

Slice Number	X coordinate [ft]	Y coordinate - Bottom [ft]	Interslice Normal Force [lbs]	Interslice Shear Force [lbs]	Interslice Force Angle [deg]
1	255.86	106.419	0	0	0
2	257.426	103.707	-43.4269	-17.4937	21.9411
3	258.993	100.996	200.81	80.8925	21.9411
4	262.031	99.6335	80.7338	32.522	21.9411
5	264.128	98.6932	170.161	68.546	21.9411
6	266.225	97.7528	309.32	124.603	21.941
7	268.322	96.8124	498.228	200.702	21.9411
8	270.419	95.872	736.886	296.84	21.9411
9	272.516	94.9316	1025.74	413.199	21.9411
10	274.613	93.9913	1365.65	550.124	21.941
11	276.71	93.0509	1756.62	707.622	21.9411
12	278.807	92.1105	2198.46	885.607	21.9411
13	280.904	91.1701	2690.96	1084	21.9411
14	283.001	90.2297	3234.11	1302.8	21.9411
15	285.099	89.2894	3827.93	1542.01	21.9411
16	287.196	88.349	4472.4	1801.62	21.9411
17	289.293	87.4086	5167.53	2081.64	21.9411
18	291.39	86.4682	5913.35	2382.08	21.9411
19	293.487	85.5278	6709.88	2702.94	21.941
20	295.584	84.5875	7557.11	3044.23	21.9411
21	297.681	83.6471	8455.01	3405.94	21.9411
22	299.778	82.7067	9305.15	3748.4	21.9411
23	301.875	81.7663	10020.8	4036.68	21.9411
24	303.972	80.8259	10664	4295.8	21.9412
25	306.069	79.8855	-260.335	-104.871	21.9411
26	308.166	78.9452	287.855	115.957	21.9411
27	310.263	78.0048	802.944	323.451	21.9411
28	312.36	77.0644	1304.48	525.486	21.9411
29	314.457	76.124	1803.14	726.361	21.9411
30	316.555	75.1836	2288.28	921.789	21.9411
31	318.652	74.2433	2751.93	1108.56	21.9411
32	320.749	73.3029	3194.25	1286.74	21.9411
33	322.846	72.3625	3615.09	1456.27	21.9411
34	324.943	71.4221	4009.11	1614.99	21.9411
35	327.04	70.4817	4374.93	1762.36	21.9411
36	329.137	69.5414	4712.69	1898.42	21.9411
37	331.234	68.601	5022.38	2023.17	21.9411
38	333.331	67.6606	5304.07	2136.64	21.9411
39	335.428	66.7202	5557.95	2238.91	21.9411
40	337.525	65.7798	5777.67	2327.42	21.9411
41	339.622	64.8395	5960.43	2401.04	21.9411
42	341.719	63.8991	6106.22	2459.77	21.9411
43	343.816	62.9587	6215.04	2503.61	21.9411
44	345.914	62.0183	6286.98	2532.59	21.9411
45	348.011	61.0779	6319.3	2545.61	21.9411
46	350.108	60.1376	6310.71	2542.15	21.9411
47	352.205	59.1972	6262.11	2522.57	21.9411
48	354.302	58.2568	6179.85	2489.43	21.9411
49	355.938	59.15	2575.82	1037.62	21.9411
50	357.573	60.0431	-22.3545	-9.00507	21.9411
51	357.746	60.1375	0	0	0

Discharge Sections

Entity Information

Translational (Static)

Shared Entities

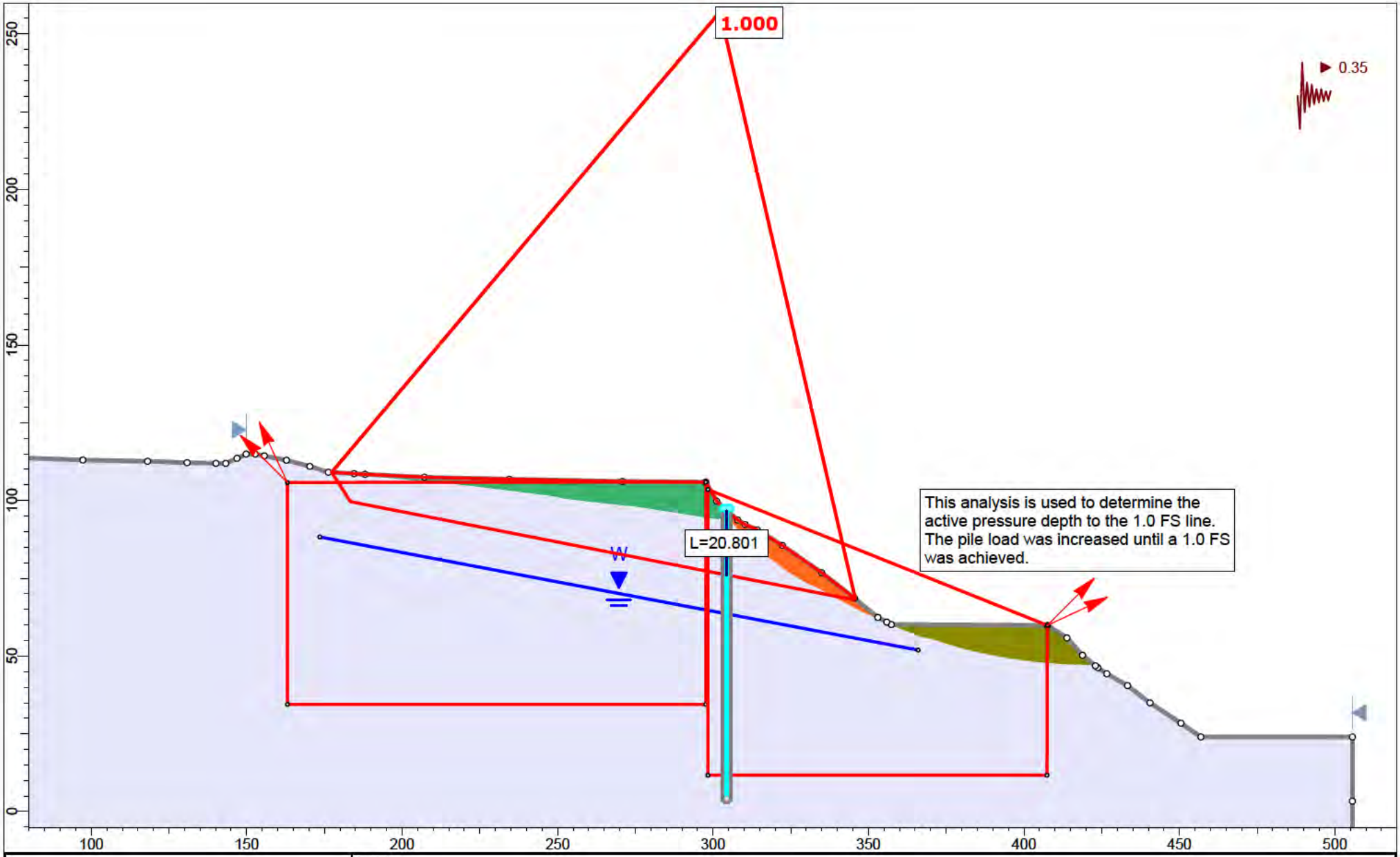
Type	Coordinates (x,y)

External Boundary	-0.069, -51.999 505.65, -51.999 505.65, 3.34239 505.65, 23.996 456.88, 23.996 450.477, 28.41 440.53, 34.944 433.29, 40.476 426.639, 44.302 423.755, 46.244 423.004, 46.8517 418.811, 50.247 413.808, 55.838 407.518, 59.833 357.331, 60.14 355.869, 60.9087 353.009, 62.412 345.503, 68.556 334.945, 76.785 322.305, 85.54 314.226, 90.551 310.313, 92.24 307.92, 93.704 304.345, 96.688 301.135, 99.813 297.645, 105.922 270.795, 106.125 234.496, 106.839 207.178, 107.499 188.028, 108.403 184.544, 108.609 176.246, 109.098 170.303, 110.975 162.796, 112.921 155.706, 114.346 152.752, 114.937 149.812, 114.937 146.89, 113.576 143.281, 111.947 140.125, 111.947 130.834, 112.148 118.104, 112.62 97.314, 112.989 77.715, 113.708 63.815, 113.708 59.431, 115.65 51.517, 120.438 43.992, 124.971 35.344, 130.477 26.443, 135.548 16.015, 142.086 4.531, 149.145 2.684, 150.314 -0.069, 152.158

Material Boundary	184.544, 108.609 208.27, 106.116 233.606, 103.075 237.006, 102.646 249.906, 101.02 264.178, 99.388 276.678, 98.008 288.727, 96.094 301.732, 94.095 305.589, 93.701
Material Boundary	301.135, 99.813 303.849, 95.803 305.589, 93.701 309.204, 89.597 313.229, 85.453 318.629, 81.323 323.923, 77.446 332.383, 72.293 337.24, 69.67 343.446, 66.308 349.32, 63.298 352.681, 62.06 355.869, 60.9087
Material Boundary	357.331, 60.14 367.577, 56.042 379.845, 52.288 386.066, 50.724 395.033, 49.056 403.096, 47.979 412.862, 47.144 423.004, 46.8517

Scenario-based Entities

Type	Coordinates (x,y)	Master Scenario
Water Table	179.814, 87.618 362.413, 53.827	Assigned to: Terrace (Qoa) Qlsr Fill (Af) Anisotropic Bedrock (Tm) Ultimate
Block Search Window	163.091, 105.792 163.091, 34.454 297.645, 34.454 297.645, 105.922	
Block Search Window	407.518, 59.833 298.605, 102.451 298.605, 11.678 407.41, 11.678	



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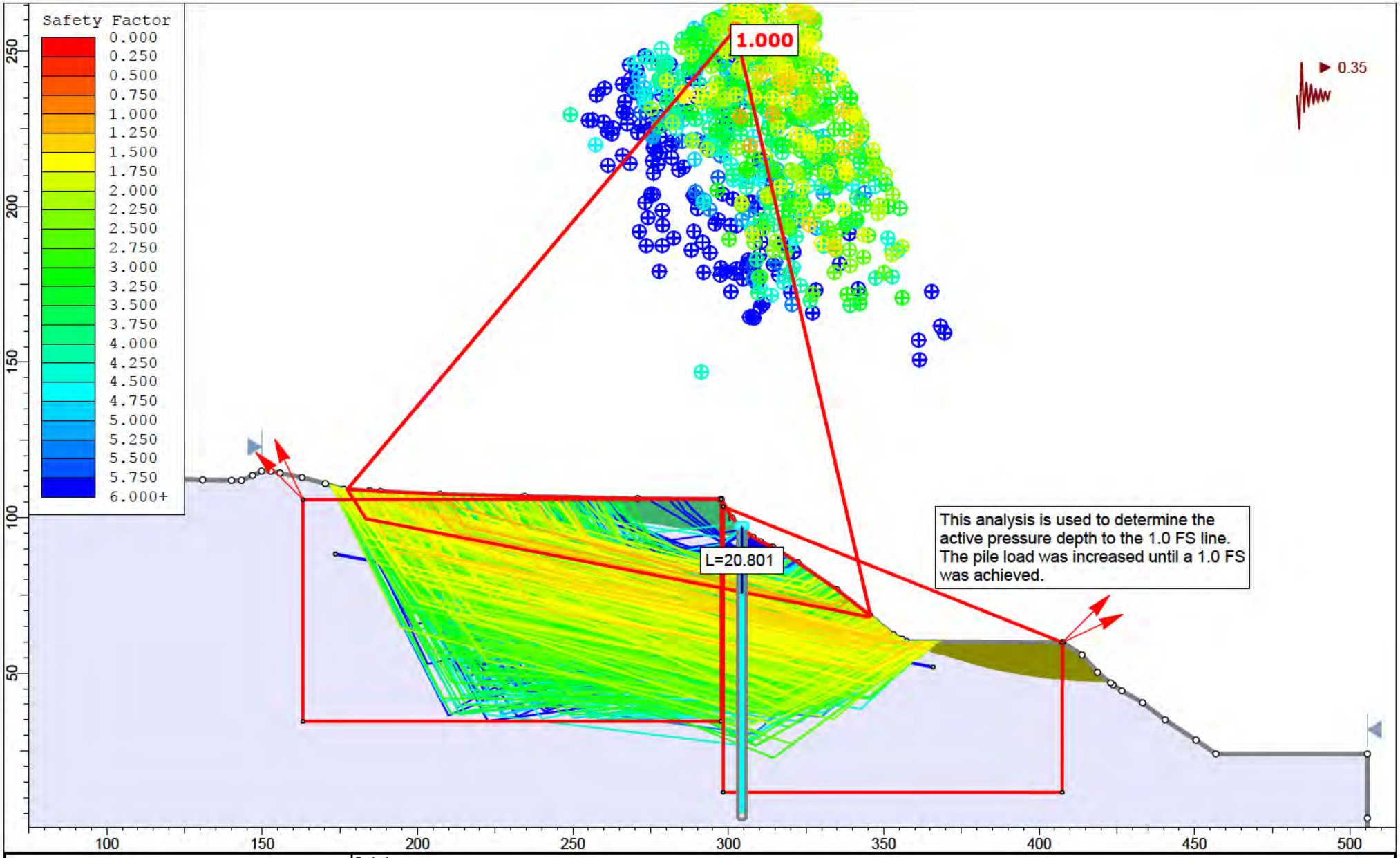
SLIDEINTERPRET 9.018

Project	Section 5-5'		
Analysis Description	Translational (Seismic)		
Drawn By	A. Greene	Scale 1:512	Company Feffer Geological Consulting
Date			File Name Section 5-5' Translational Analysis_2.slmd



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SLIDEINTERPRET 9.018

Project	Section 5-5'		
Analysis Description	Translational (Seismic)		
Drawn By	A. Greene	Scale 1:512	Company Feffer Geological Consulting
Date			File Name Section 5-5' Translational Analysis_2.slmd

Slide Analysis Information

Section 5-5' Translational Analysis_2

Project Summary

File Name:	Section 5-5' Translational Analysis_2.slmd
Slide Modeler Version:	9.018
Compute Time:	00h:00m:00.506s
Project Title:	Section 5-5'
Analysis:	Translational (Seismic)
Author:	A. Greene
Company:	Feffer Geological Consulting

General Settings

Units of Measurement:	Imperial Units
Time Units:	days
Permeability Units:	feet/second
Data Output:	Standard
Failure Direction:	Left to Right

Analysis Options

Slices Type:	Vertical
Analysis Methods Used	
	Spencer
Number of slices:	50
Tolerance:	0.005
Maximum number of iterations:	75
Check malpha < 0.2:	Yes
Create Interslice boundaries at intersections with water tables and piezos:	Yes
Initial trial value of FS:	1
Steffensen Iteration:	Yes

Groundwater Analysis

Groundwater Method:	Water Surfaces
Pore Fluid Unit Weight [lbs/ft3]:	62.4
Use negative pore pressure cutoff:	Yes
Maximum negative pore pressure [psf]:	0
Advanced Groundwater Method:	None

Random Numbers

Pseudo-random Seed:	10116
Random Number Generation Method:	Park and Miller v.3

Surface Options

Surface Type:	Non-Circular Block Search
Number of Surfaces:	5000
Multiple Groups:	Disabled
Pseudo-Random Surfaces:	Enabled
Convex Surfaces Only:	Disabled
Left Projection Angle (Start Angle) [deg]:	115
Left Projection Angle (End Angle) [deg]:	135
Right Projection Angle (Start Angle) [deg]:	45
Right Projection Angle (End Angle) [deg]:	25
Minimum Elevation:	Not Defined
Minimum Depth:	Not Defined
Minimum Area:	Not Defined
Minimum Weight:	Not Defined

Seismic Loading

Advanced seismic analysis:	No
Staged pseudostatic analysis:	No
Seismic Load Coefficient (Horizontal):	0.35

Materials

Terrace (Qoa)	
Color	
Strength Type	Mohr-Coulomb
Unit Weight [lbs/ft3]	115
Cohesion [psf]	100
Friction Angle [deg]	31
Water Surface	Water Table
Hu Value	1
Qlsr	
Color	
Strength Type	Mohr-Coulomb
Unit Weight [lbs/ft3]	115
Cohesion [psf]	200
Friction Angle [deg]	12
Water Surface	Water Table
Hu Value	1
Fill (Af)	
Color	
Strength Type	Mohr-Coulomb
Unit Weight [lbs/ft3]	120
Cohesion [psf]	120
Friction Angle [deg]	31
Water Surface	Water Table
Hu Value	1
Anisotropic Bedrock (Tm) Peak	
Color	
Strength Type	Anisotropic function
Unit Weight [lbs/ft3]	124
Water Surface	Water Table
Hu Value	1

Anisotropic Functions

Name: Anisotropic Bedrock (Tm) Peak

Angle From	Angle To	c	phi
-90	-30	720	41
-30	-10	200	16
-10	90	720	41

Support

Pile 1 (Seismic)	
Color	
Type	Pile/Micro Pile
Force Application	Active (Method A)
Force Orientation	Parallel to surface
Out-Of-Plane Spacing	10 ft
Failure Mode	Shear
Pile Shear Strength	535000 lbs

Global Minimums

Method: spencer

FS	0.999853
Axis Location:	302.220, 257.128
Left Slip Surface Endpoint:	177.319, 109.035
Right Slip Surface Endpoint:	345.754, 68.351
Resisting Moment:	2.25088e+07 lb-ft
Driving Moment:	2.25122e+07 lb-ft
Resisting Horizontal Force:	120864 lb
Driving Horizontal Force:	120882 lb
Active Support Moment:	-9.48764e+06 lb-ft
Active Horizontal Support Force:	-52512.7 lb
Maximum Single Support Force:	53500 lb
Total Support Force:	53500 lb
Total Slice Area:	2749.95 ft2
Surface Horizontal Width:	168.435 ft
Surface Average Height:	16.3265 ft

Global Minimum Coordinates

Method: spencer

X	Y
177.319	109.035
183.364	99.6099
345.349	68.0522
345.754	68.3509

Global Minimum Support Data

Method: spencer

Number of Supports: 1

Pile 1 (Seismic)

Support Type: Pile/Micro Pile

Start (x, y)	Length (ft)	L Inside SS (ft)	L Outside SS (ft)	Li (ft)	Lo (ft)	Force (lb)
304.345, 96.688	92.486	20.6474	71.8386	20.6474	71.8386	53500

Valid and Invalid Surfaces

Method: spencer

Number of Valid Surfaces:	762
Number of Invalid Surfaces:	4238

Error Codes

Error Code -105 reported for 170 surfaces
Error Code -108 reported for 15 surfaces
Error Code -110 reported for 3211 surfaces
Error Code -111 reported for 819 surfaces
Error Code -112 reported for 23 surfaces

Error Code Descriptions

The following errors were encountered during the computation:
-105 = More than two surface / slope intersections with no valid slip surface.
-108 = Total driving moment or total driving force < 0.1. This is to limit the calculation of extremely high safety factors if the driving force is very small (0.1 is an arbitrary number).
-110 = The water table or a piezoline does not span the slip region for a given slip surface, when Water Surfaces is specified as the method of pore pressure calculation. If this error occurs, check that the water table or piezoline(s) span the appropriate soil cells.
-111 = Safety factor equation did not converge
-112 = The coefficient M-Alpha = cos(alpha)(1+tan(alpha)tan(phi)/F) < 0.2 for the final iteration of the safety factor calculation. This screens out some slip surfaces which may not be valid in the context of the analysis, in particular, deep seated slip surfaces with many high negative base angle slices in the passive zone.

Slice Data

Global Minimum Query (spencer) - Safety Factor: 0.999853

Slice Number	Width [ft]	Weight [lbs]	Angle of Slice Base [deg]	Base Material	Base Cohesion [psf]	Base Friction Angle [deg]	Shear Stress [psf]	Shear Strength [psf]	Base Normal Stress [psf]	Pore Pressure [psf]	Effective Normal Stress [psf]	Base Vertical Stress [psf]	Effective Vertical Stress [psf]
1	3.02251	849.676	-57.3241	Anisotropic Bedrock (Tm) Peak	720	41	597.521	597.433	-140.997	0	-140.997	790.6	790.6
2	3.02251	2549.03	-57.3241	Anisotropic Bedrock (Tm) Peak	720	41	726.774	726.667	7.66947	0	7.66947	1140.79	1140.79
3	3.4219	3945.37	-11.0241	Anisotropic Bedrock (Tm) Peak	200	16	479.572	479.502	974.74	0	974.74	1068.17	1068.17
4	3.4219	4141.24	-11.0241	Anisotropic Bedrock (Tm) Peak	200	16	491.845	491.773	1017.53	0	1017.53	1113.35	1113.35
5	3.4219	4348.42	-11.0241	Anisotropic Bedrock (Tm) Peak	200	16	504.826	504.752	1062.8	0	1062.8	1161.15	1161.15
6	3.4219	4556.65	-11.0241	Anisotropic Bedrock (Tm) Peak	200	16	517.873	517.797	1108.29	0	1108.29	1209.18	1209.18
7	3.4219	4764.89	-11.0241	Anisotropic Bedrock (Tm) Peak	200	16	530.92	530.842	1153.78	0	1153.78	1257.22	1257.22
8	3.4219	4973.12	-11.0241	Anisotropic Bedrock (Tm) Peak	200	16	543.967	543.887	1199.28	0	1199.28	1305.25	1305.25
9	3.4219	5181.37	-11.0241	Anisotropic Bedrock (Tm) Peak	200	16	557.015	556.933	1244.78	0	1244.78	1353.29	1353.29
10	3.4219	5405.94	-11.0241	Anisotropic Bedrock (Tm) Peak	200	16	571.086	571.002	1293.84	0	1293.84	1405.1	1405.1

11	3.4219	5643.69	-11.0241	Anisotropic Bedrock (Tm) Peak	200	16	585.982	585.896	1345.78	0	1345.78	1459.94	1459.94
12	3.4219	5881.38	-11.0241	Anisotropic Bedrock (Tm) Peak	200	16	600.874	600.786	1397.71	0	1397.71	1514.77	1514.77
13	3.4219	6119.06	-11.0241	Anisotropic Bedrock (Tm) Peak	200	16	615.767	615.676	1449.64	0	1449.64	1569.6	1569.6
14	3.4219	6356.75	-11.0241	Anisotropic Bedrock (Tm) Peak	200	16	630.66	630.567	1501.56	0	1501.56	1624.43	1624.43
15	3.4219	6594.44	-11.0241	Anisotropic Bedrock (Tm) Peak	200	16	645.552	645.457	1553.49	0	1553.49	1679.26	1679.26
16	3.4219	6832.12	-11.0241	Anisotropic Bedrock (Tm) Peak	200	16	660.444	660.347	1605.42	0	1605.42	1734.09	1734.09
17	3.4219	7069.79	-11.0241	Anisotropic Bedrock (Tm) Peak	200	16	675.335	675.236	1657.34	0	1657.34	1788.91	1788.91
18	3.4219	7310.35	-11.0241	Anisotropic Bedrock (Tm) Peak	200	16	690.407	690.306	1709.9	0	1709.9	1844.4	1844.4
19	3.4219	7553.44	-11.0241	Anisotropic Bedrock (Tm) Peak	200	16	705.639	705.535	1763.01	0	1763.01	1900.48	1900.48
20	3.4219	7796.54	-11.0241	Anisotropic Bedrock (Tm) Peak	200	16	720.87	720.764	1816.12	0	1816.12	1956.56	1956.56
21	3.4219	8039.63	-11.0241	Anisotropic Bedrock (Tm) Peak	200	16	736.101	735.993	1869.23	0	1869.23	2012.63	2012.63
22	3.4219	8282.92	-11.0241	Anisotropic Bedrock (Tm) Peak	200	16	751.344	751.234	1922.38	0	1922.38	2068.75	2068.75
23	3.4219	8527.12	-11.0241	Anisotropic Bedrock (Tm) Peak	200	16	766.645	766.532	1975.73	0	1975.73	2125.09	2125.09
24	3.4219	8771.45	-11.0241	Anisotropic Bedrock (Tm) Peak	200	16	781.954	781.839	2029.11	0	2029.11	2181.45	2181.45
25	3.4219	9015.79	-11.0241	Anisotropic Bedrock (Tm) Peak	200	16	797.262	797.145	2082.49	0	2082.49	2237.81	2237.81
26	3.4219	9260.15	-11.0241	Anisotropic Bedrock (Tm) Peak	200	16	812.572	812.453	2135.88	0	2135.88	2294.18	2294.18
27	3.4219	9504.81	-11.0241	Anisotropic Bedrock (Tm) Peak	200	16	827.903	827.781	2189.33	0	2189.33	2350.62	2350.62
28	3.4219	9751.21	-11.0241	Anisotropic Bedrock (Tm) Peak	200	16	843.341	843.217	2243.16	0	2243.16	2407.46	2407.46
29	3.4219	10009.8	-11.0241	Anisotropic Bedrock (Tm) Peak	200	16	859.542	859.416	2299.66	0	2299.66	2467.11	2467.11
30	3.4219	10269.5	-11.0241	Anisotropic Bedrock (Tm) Peak	200	16	875.813	875.684	2356.39	0	2356.39	2527.01	2527.01
31	3.4219	10525.6	-11.0241	Anisotropic Bedrock (Tm) Peak	200	16	891.861	891.73	2412.35	0	2412.35	2586.1	2586.1
32	3.4219	10781.6	-11.0241	Anisotropic Bedrock (Tm) Peak	200	16	907.897	907.764	2468.27	0	2468.27	2645.14	2645.14
33	3.4219	11037.5	-11.0241	Anisotropic Bedrock (Tm) Peak	200	16	923.935	923.799	2524.19	0	2524.19	2704.19	2704.19
34	3.4219	11293.8	-11.0241	Anisotropic Bedrock (Tm) Peak	200	16	939.995	939.857	2580.19	0	2580.19	2763.31	2763.31
35	3.4219	11550.3	-11.0241	Anisotropic Bedrock (Tm) Peak	200	16	956.066	955.925	2636.22	0	2636.22	2822.48	2822.48

36	3.4219	11380.1	-11.0241	Anisotropic Bedrock (Tm) Peak	200	16	945.402	945.263	2599.04	0	2599.04	2783.22	2783.22
37	3.4219	9652.98	-11.0241	Anisotropic Bedrock (Tm) Peak	200	16	837.186	837.063	2221.7	0	2221.7	2384.8	2384.8
38	3.4219	8556.86	-11.0241	Anisotropic Bedrock (Tm) Peak	200	16	3244.6	3244.12	10616.1	0	10616.1	11248.2	11248.2
39	3.4219	7666.81	-11.0241	Anisotropic Bedrock (Tm) Peak	200	16	712.742	712.637	1787.78	0	1787.78	1926.63	1926.63
40	3.4219	7088.52	-11.0241	Anisotropic Bedrock (Tm) Peak	200	16	676.508	676.409	1661.43	0	1661.43	1793.23	1793.23
41	3.4219	6622.89	-11.0241	Anisotropic Bedrock (Tm) Peak	200	16	647.334	647.239	1559.71	0	1559.71	1685.82	1685.82
42	3.4219	5997.79	-11.0241	Anisotropic Bedrock (Tm) Peak	200	16	608.168	608.079	1423.14	0	1423.14	1541.62	1541.62
43	3.4219	5360.12	-11.0241	Anisotropic Bedrock (Tm) Peak	200	16	568.215	568.131	1283.83	0	1283.83	1394.53	1394.53
44	3.4219	4656.41	-11.0241	Anisotropic Bedrock (Tm) Peak	200	16	524.123	524.046	1130.08	0	1130.08	1232.19	1232.19
45	3.4219	3942.35	-11.0241	Anisotropic Bedrock (Tm) Peak	200	16	479.383	479.313	974.08	0	974.08	1067.47	1067.47
46	3.4219	3229.07	-11.0241	Anisotropic Bedrock (Tm) Peak	200	16	434.693	434.629	818.25	0	818.25	902.936	902.936
47	3.4219	2492.39	-11.0241	Anisotropic Bedrock (Tm) Peak	200	16	388.536	388.479	657.303	0	657.303	732.996	732.996
48	4.0001	1900.34	-11.0241	Qlsr	200	12	295.559	295.516	449.366	0	449.366	506.946	506.946
49	4.0001	824.637	-11.0241	Qlsr	200	12	254.588	254.55	256.639	0	256.639	306.237	306.237
50	0.404109	14.5728	36.4664	Qlsr	200	12	383.945	383.889	865.129	0	865.129	581.372	581.372

Interslice Data

Global Minimum Query (spencer) - Safety Factor: 0.999853

Slice Number	X coordinate [ft]	Y coordinate - Bottom [ft]	Interslice Normal Force [lbs]	Interslice Shear Force [lbs]	Interslice Force Angle [deg]
1	177.319	109.035	0	0	0
2	180.341	104.322	-2178.33	-1639.98	36.9747
3	183.364	99.6099	-3453.11	-2599.71	36.9746
4	186.786	98.9432	-3068.25	-2309.97	36.9747
5	190.208	98.2766	-2628.43	-1978.84	36.9746
6	193.629	97.6099	-2130.47	-1603.95	36.9747
7	197.051	96.9433	-1574.08	-1185.06	36.9746
8	200.473	96.2767	-959.249	-722.181	36.9747
9	203.895	95.61	-285.988	-215.309	36.9746
10	207.317	94.9434	445.715	335.561	36.9746
11	210.739	94.2767	1240.44	933.876	36.9746
12	214.161	93.6101	2101.87	1582.42	36.9747
13	217.583	92.9434	3030.01	2281.18	36.9747
14	221.005	92.2768	4024.85	3030.15	36.9746
15	224.427	91.6101	5086.38	3829.34	36.9747
16	227.848	90.9435	6214.62	4678.75	36.9747
17	231.27	90.2768	7409.56	5578.37	36.9747
18	234.692	89.6102	8671.18	6528.2	36.9747
19	238.114	88.9435	10000.3	7528.85	36.9747
20	241.536	88.2769	11397.7	8580.86	36.9746
21	244.958	87.6102	12863.2	9684.23	36.9747
22	248.38	86.9436	14397	10839	36.9748
23	251.802	86.277	15999.1	12045.1	36.9747
24	255.224	85.6103	17669.7	13302.8	36.9746
25	258.646	84.9437	19408.8	14612.1	36.9746
26	262.067	84.277	21216.5	15973.1	36.9747
27	265.489	83.6104	23092.8	17385.7	36.9747
28	268.911	82.9437	25037.8	18849.9	36.9745
29	272.333	82.2771	27051.8	20366.3	36.9747
30	275.755	81.6104	29138.5	21937.2	36.9746
31	279.177	80.9438	31298	23563.1	36.9747
32	282.599	80.2771	33529.4	25243	36.9747
33	286.021	79.6105	35832.6	26977	36.9747
34	289.443	78.9438	38207.7	28765.1	36.9747
35	292.865	78.2772	40654.7	30607.3	36.9746
36	296.286	77.6105	43173.6	32503.7	36.9746
37	299.708	76.9439	45644.8	34364.2	36.9747
38	303.13	76.2773	47631.3	35859.8	36.9747
39	306.552	75.6106	-5944.33	-4475.26	36.9747
40	309.974	74.944	-4515.17	-3399.29	36.9746
41	313.396	74.2773	-3248.28	-2445.51	36.9747
42	316.818	73.6107	-2112.06	-1590.09	36.9747
43	320.24	72.944	-1151.26	-866.739	36.9747
44	323.662	72.2774	-369.398	-278.105	36.9746
45	327.084	71.6107	214.988	161.856	36.9747
46	330.505	70.9441	598.996	450.961	36.9747
47	333.927	70.2774	782.844	589.373	36.9747
48	337.349	69.6108	759.965	572.148	36.9747
49	341.349	68.8315	589.561	443.857	36.9746
50	345.349	68.0522	56.8374	42.7906	36.9746
51	345.754	68.3509	0	0	0

Discharge Sections

Entity Information

Translational (Seismic)

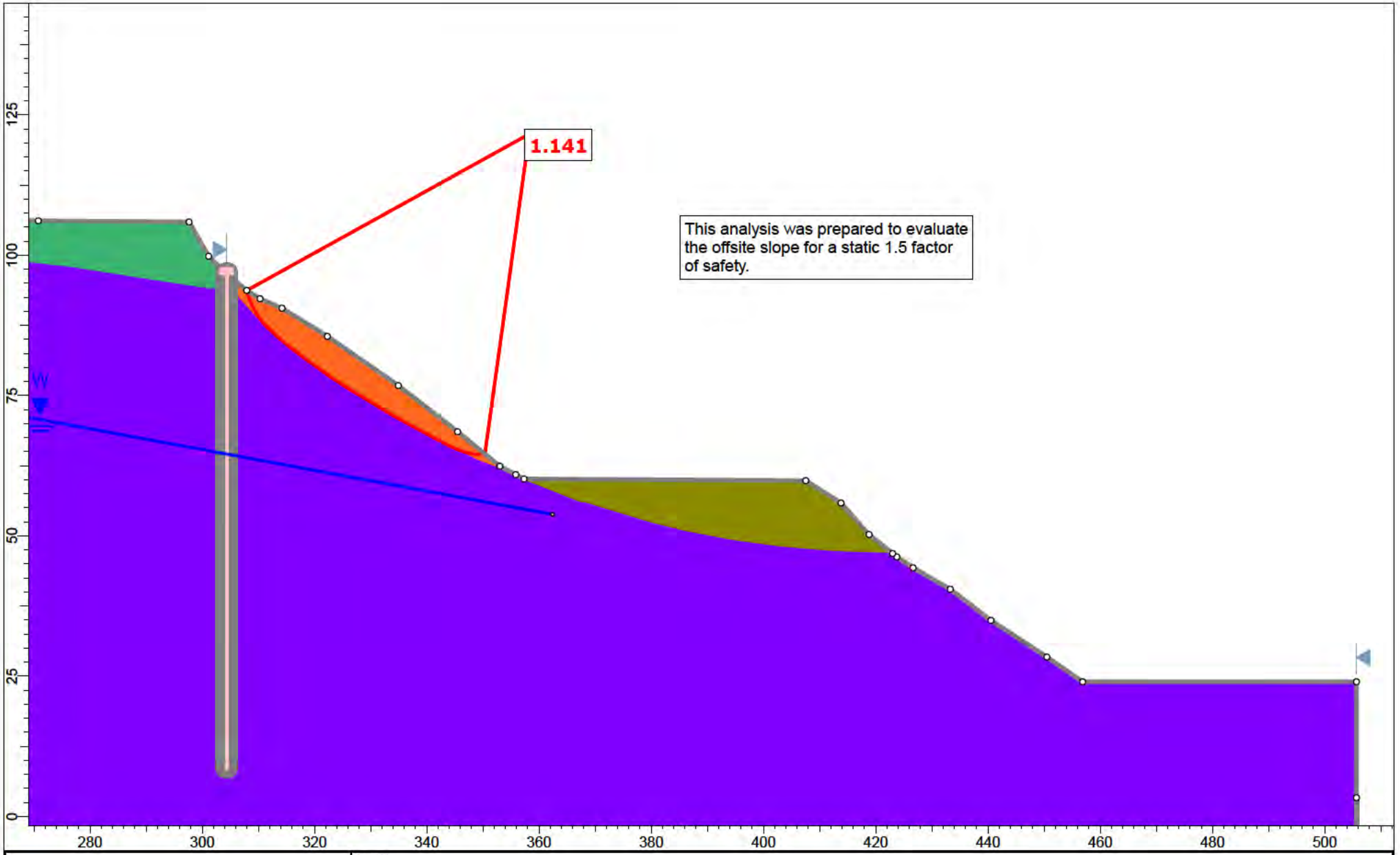
Shared Entities

Type	Coordinates (x,y)
External Boundary	-0.069, -51.999 505.65, -51.999 505.65, 3.34239 505.65, 23.996 456.88, 23.996 450.477, 28.41 440.53, 34.944 433.29, 40.476 426.639, 44.302 423.755, 46.244 423.004, 46.8517 418.811, 50.247 413.808, 55.838 407.518, 59.833 357.331, 60.14 355.869, 60.9087 353.009, 62.412 345.503, 68.556 334.945, 76.785 322.305, 85.54 314.226, 90.551 310.313, 92.24 307.92, 93.704 304.345, 96.688 301.135, 99.813 297.645, 105.922 270.795, 106.125 234.496, 106.839 207.178, 107.499 188.028, 108.403 184.544, 108.609 176.246, 109.098 170.303, 110.975 162.796, 112.921 155.706, 114.346 152.752, 114.937 149.812, 114.937 146.89, 113.576 143.281, 111.947 140.125, 111.947 130.834, 112.148 118.104, 112.62 97.314, 112.989 77.715, 113.708 63.815, 113.708 59.431, 115.65 51.517, 120.438 43.992, 124.971 35.344, 130.477 26.443, 135.548 16.015, 142.086 4.531, 149.145 2.684, 150.314 -0.069, 152.158

Material Boundary	184.544, 108.609 208.27, 106.116 233.606, 103.075 237.006, 102.646 249.906, 101.02 264.178, 99.388 276.678, 98.008 288.727, 96.094 301.732, 94.095 305.589, 93.701
Material Boundary	301.135, 99.813 303.849, 95.803 305.589, 93.701 309.204, 89.597 313.229, 85.453 318.629, 81.323 323.923, 77.446 332.383, 72.293 337.24, 69.67 343.446, 66.308 349.32, 63.298 352.681, 62.06 355.869, 60.9087
Material Boundary	357.331, 60.14 367.577, 56.042 379.845, 52.288 386.066, 50.724 395.033, 49.056 403.096, 47.979 412.862, 47.144 423.004, 46.8517

Scenario-based Entities

Type	Coordinates (x,y)	Master Scenario
Water Table	173.517, 88.262 365.949, 51.915	Assigned to: Terrace (Qoa) Qlsr Fill (Af) Anisotropic Bedrock (Tm) Peak
Block Search Window	163.091, 105.792 163.091, 34.454 297.645, 34.454 297.645, 105.922	
Block Search Window	407.518, 59.833 298.33, 103.539 298.33, 11.678 407.41, 11.678	



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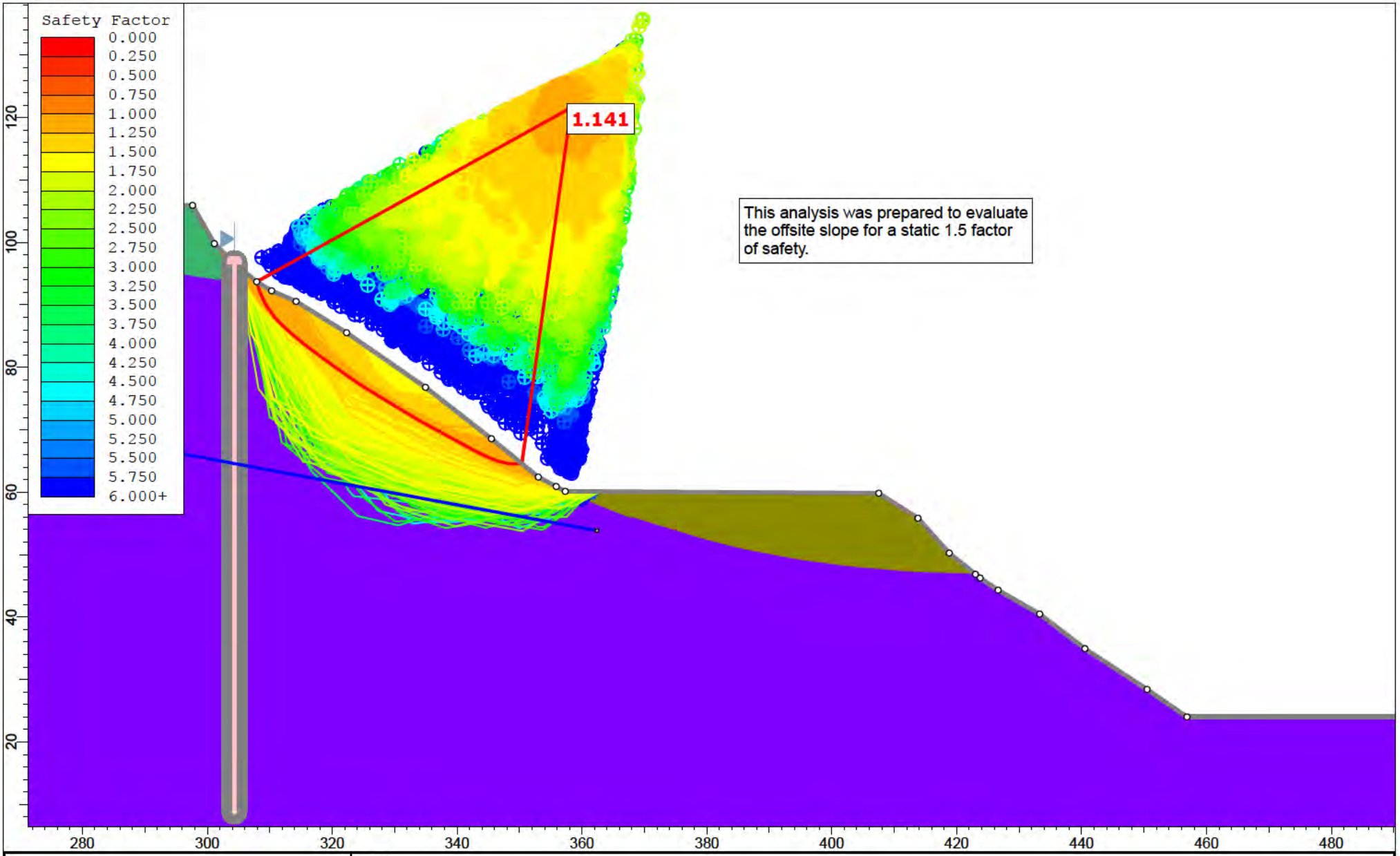
SLIDEINTERPRET 9.018

Project	Section 5-5'		
Analysis Description	Offsite Slope (Static)		
Drawn By	A. Greene	Scale 1:283	Company Feffer Geological Consulting
Date			File Name Section 5-5' Translational Analysis_2.slmd



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SLIDEINTERPRET 9.018

Project	Section 5-5'				
Analysis Description	Offsite Slope (Static)				
Drawn By	A. Greene	Scale	1:255	Company	Feffer Geological Consulting
Date				File Name	Section 5-5' Translational Analysis_2.slmd

Slide Analysis Information

Section 5-5' Translational Analysis_2

Project Summary

File Name:	Section 5-5' Translational Analysis_2.slmd
Slide Modeler Version:	9.018
Compute Time:	00h:00m:32.457s
Project Title:	Section 5-5'
Analysis:	Offsite Slope (Static)
Author:	A. Greene
Company:	Feffer Geological Consulting

General Settings

Units of Measurement:	Imperial Units
Time Units:	days
Permeability Units:	feet/second
Data Output:	Standard
Failure Direction:	Left to Right

Analysis Options

Slices Type:	Vertical
Analysis Methods Used	
	Spencer
Number of slices:	50
Tolerance:	0.005
Maximum number of iterations:	75
Check malpha < 0.2:	Yes
Create Interslice boundaries at intersections with water tables and piezos:	Yes
Initial trial value of FS:	1
Steffensen Iteration:	Yes

Groundwater Analysis

Groundwater Method:	Water Surfaces
Pore Fluid Unit Weight [lbs/ft3]:	62.4
Use negative pore pressure cutoff:	Yes
Maximum negative pore pressure [psf]:	0
Advanced Groundwater Method:	None

Random Numbers

Pseudo-random Seed:	10116
Random Number Generation Method:	Park and Miller v.3

Surface Options

Search Method:	Cuckoo Search
Initial # of Surface Vertices:	8
Maximum Iterations:	500
Number of Nests:	50
Minimum Elevation:	Not Defined
Minimum Depth:	Not Defined
Minimum Area:	Not Defined
Minimum Weight:	Not Defined
Convex Surfaces Only:	Enabled

Seismic Loading

Advanced seismic analysis:	No
Staged pseudostatic analysis:	No

Materials

Terrace (Qoa)	
Color	
Strength Type	Mohr-Coulomb
Unit Weight [lbs/ft3]	115
Cohesion [psf]	100
Friction Angle [deg]	31
Water Surface	Water Table
Hu Value	1
Qlsr	
Color	
Strength Type	Mohr-Coulomb
Unit Weight [lbs/ft3]	115
Cohesion [psf]	200
Friction Angle [deg]	12
Water Surface	Water Table
Hu Value	1
Fill (Af)	
Color	
Strength Type	Mohr-Coulomb
Unit Weight [lbs/ft3]	120
Cohesion [psf]	120
Friction Angle [deg]	31
Water Surface	Water Table
Hu Value	1
Anisotropic Bedrock (Tm) Ultimate	
Color	
Strength Type	Anisotropic function
Unit Weight [lbs/ft3]	124
Water Surface	Water Table
Hu Value	1

Anisotropic Functions

Name: Anisotropic Bedrock (Tm) Ultimate

Angle From	Angle To	c	phi
-90	-30	520	34.5
-30	-10	200	16
-10	90	520	34.5

Support

Pile 1 (Static)	
Color	
Type	Pile/Micro Pile
Force Application	Active (Method A)
Force Orientation	Parallel to surface
Out-Of-Plane Spacing	10 ft
Failure Mode	Shear
Pile Shear Strength	125000 lbs

Global Minimums

Method: spencer

FS	1.140530
Axis Location:	358.269, 121.585
Left Slip Surface Endpoint:	307.920, 93.704
Right Slip Surface Endpoint:	350.364, 64.577
Resisting Moment:	842115 lb-ft
Driving Moment:	738356 lb-ft
Resisting Horizontal Force:	12222.7 lb
Driving Horizontal Force:	10716.7 lb
Total Slice Area:	214.533 ft2
Surface Horizontal Width:	42.4444 ft
Surface Average Height:	5.05445 ft

Global Minimum Coordinates

Method: spencer

X	Y
307.92	93.704
308.383	92.1557
309.239	90.2588
310.085	88.9744
310.868	87.9232
311.918	86.8552
313.094	85.7671
314.068	84.8652
315.038	84.1046
316.122	83.2678
317.207	82.431
318.283	81.6182
319.36	80.8233
320.437	80.0558
321.513	79.2883
322.589	78.5312
323.666	77.7759
325.736	76.4332
327.807	75.1815
329.877	73.9298
331.948	72.6781
334.132	71.3573
336.092	70.291
337.698	69.4221
339.31	68.5509
340.896	67.6933
342.106	67.039
343.536	66.2656
345.069	65.5537
346.603	64.9545
348.484	64.519
350.364	64.5768

Global Minimum Support Data

Method: spencer

Number of Supports: 1

Pile 1 (Static)

Support Type: Pile/Micro Pile

Start (x, y)	Length (ft)	L Inside SS (ft)	L Outside SS (ft)	Li (ft)	Lo (ft)	Force (lb)
304.345, 96.688	87.876	Not Effective	Not Effective	Not Effective	Not Effective	0

Valid and Invalid Surfaces

Method: spencer

Number of Valid Surfaces:	18408
Number of Invalid Surfaces:	6652

Error Codes

Error Code -106 reported for 52 surfaces
Error Code -108 reported for 77 surfaces
Error Code -109 reported for 1 surface
Error Code -110 reported for 172 surfaces
Error Code -111 reported for 4478 surfaces
Error Code -112 reported for 118 surfaces
Error Code -121 reported for 831 surfaces
Error Code -124 reported for 1 surface
Error Code -145 reported for 30 surfaces
Error Code -1000 reported for 892 surfaces

Error Code Descriptions

The following errors were encountered during the computation:

-106 = Average slice width is less than 0.0001 * (maximum horizontal extent of soil region). This limitation is imposed to avoid numerical errors which may result from too many slices, or too small a slip region.

-108 = Total driving moment or total driving force < 0.1. This is to limit the calculation of extremely high safety factors if the driving force is very small (0.1 is an arbitrary number).

-109 = Soiltype for slice base not located. This error should occur very rarely, if at all. It may occur if a very low number of slices is combined with certain soil geometries, such that the midpoint of a slice base is actually outside the soil region,even though the slip surface is wholly within the soil region.

-110 = The water table or a piezoline does not span the slip region for a given slip surface, when Water Surfaces is specified as the method of pore pressure calculation. If this error occurs, check that the water table or piezoline(s) span the appropriate soil cells.

-111 = Safety factor equation did not converge

-112 = The coefficient M-Alpha = cos(alpha)(1+tan(alpha)tan(phi)/F) < 0.2 for the final iteration of the safety factor calculation. This screens out some slip surfaces which may not be valid in the context of the analysis, in particular, deep seated slip surfaces with many high negative base angle slices in the passive zone.

-121 = Concave failure surface, only convex surfaces have been defined as being allowed.

-124 = A slice has a width less than the minimum acceptable value.

-145 = Slip surface was clipped vertically by a weak layer in a region of compression. Such a surface cannot be evaluated using Limit Equilibrium. For more information, see Help Documentation on weak layers.

-1000 = No valid slip surface is generated

Slice Data

Global Minimum Query (spencer) - Safety Factor: 1.14053

Slice Number	Width [ft]	Weight [lbs]	Angle of Slice Base [deg]	Base Material	Base Cohesion [psf]	Base Friction Angle [deg]	Shear Stress [psf]	Shear Strength [psf]	Base Normal Stress [psf]	Pore Pressure [psf]	Effective Normal Stress [psf]	Base Vertical Stress [psf]	Effective Vertical Stress [psf]
1	0.462884	33.6726	-73.3555	Qlsr	200	12	148.588	169.469	-143.638	0	-143.638	353.378	353.378
2	0.856339	192.193	-65.7031	Qlsr	200	12	168.47	192.146	-36.9518	0	-36.9518	336.223	336.223
3	0.845488	293.804	-56.6455	Qlsr	200	12	191.173	218.039	84.8656	0	84.8656	375.297	375.297
4	0.783577	335.813	-53.2977	Qlsr	200	12	204.026	232.697	153.83	0	153.83	427.528	427.528
5	1.05001	529.436	-45.4876	Qlsr	200	12	223.624	255.049	258.988	0	258.988	486.45	486.45
6	1.17532	673.422	-42.7931	Qlsr	200	12	235.995	269.159	325.368	0	325.368	543.848	543.848
7	0.974133	617.641	-42.7931	Qlsr	200	12	243.569	277.798	366.01	0	366.01	591.504	591.504
8	0.969872	653.71	-38.105	Qlsr	200	12	256.439	292.476	435.067	0	435.067	636.177	636.177
9	1.08454	751.454	-37.6523	Qlsr	200	12	259.699	296.194	452.558	0	452.558	652.931	652.931
10	1.08454	771.921	-37.6523	Qlsr	200	12	262.202	299.049	465.989	0	465.989	668.293	668.293
11	1.0767	785.481	-37.0502	Qlsr	200	12	265.622	302.95	484.343	0	484.343	684.868	684.868
12	1.0767	802.324	-36.436	Qlsr	200	12	268.812	306.588	501.457	0	501.457	699.903	699.903
13	1.0764	816.141	-35.4902	Qlsr	200	12	272.28	310.544	520.07	0	520.07	714.216	714.216
14	1.0764	828.503	-35.4902	Qlsr	200	12	273.845	312.329	528.466	0	528.466	723.727	723.727
15	1.07638	839.874	-35.1211	Qlsr	200	12	275.967	314.749	539.85	0	539.85	733.955	733.955
16	1.07638	843.807	-35.0596	Qlsr	200	12	276.581	315.449	543.144	0	543.144	737.238	737.238
17	1.03524	809.416	-32.962	Qlsr	200	12	280.176	319.549	562.433	0	562.433	744.117	744.117
18	1.03524	803.971	-32.962	Qlsr	200	12	279.437	318.706	558.47	0	558.47	739.675	739.675
19	0.690155	531.748	-31.1557	Qlsr	200	12	281.888	321.502	571.62	0	571.62	742.041	742.041
20	0.690155	526.924	-31.1557	Qlsr	200	12	280.885	320.358	566.241	0	566.241	736.055	736.055
21	0.690155	522.099	-31.1557	Qlsr	200	12	279.883	319.215	560.861	0	560.861	730.069	730.069
22	0.690145	517.268	-31.1557	Qlsr	200	12	278.88	318.071	555.481	0	555.481	724.082	724.082
23	0.690145	512.444	-31.1557	Qlsr	200	12	277.878	316.928	550.102	0	550.102	718.097	718.097
24	0.690145	507.619	-31.1557	Qlsr	200	12	276.875	315.784	544.722	0	544.722	712.111	712.111
25	1.03522	752.385	-31.1557	Qlsr	200	12	275.622	314.355	537.998	0	537.998	704.63	704.63
26	1.03522	741.531	-31.1557	Qlsr	200	12	274.118	312.64	529.928	0	529.928	695.651	695.651
27	0.728199	515.107	-31.1557	Qlsr	200	12	272.837	311.179	523.055	0	523.055	688.003	688.003
28	0.728199	509.736	-31.1557	Qlsr	200	12	271.779	309.972	517.379	0	517.379	681.687	681.687
29	0.728199	504.365	-31.1557	Qlsr	200	12	270.722	308.766	511.702	0	511.702	675.372	675.372
30	0.653242	446.395	-28.5515	Qlsr	200	12	273.81	312.289	528.281	0	528.281	677.267	677.267
31	0.653242	437.891	-28.5515	Qlsr	200	12	271.887	310.095	517.958	0	517.958	665.897	665.897
32	0.653242	426.472	-28.5515	Qlsr	200	12	269.304	307.149	504.097	0	504.097	650.631	650.631
33	0.803314	508.495	-28.4059	Qlsr	200	12	266.605	304.071	489.618	0	489.618	633.806	633.806
34	0.803314	490.79	-28.4059	Qlsr	200	12	263.342	300.35	472.111	0	472.111	614.535	614.535
35	0.805601	474.402	-28.401	Qlsr	200	12	260.083	296.632	454.618	0	454.618	595.25	595.25
36	0.805601	456.587	-28.401	Qlsr	200	12	256.809	292.899	437.054	0	437.054	575.916	575.916
37	0.792955	432.023	-28.401	Qlsr	200	12	253.562	289.195	419.628	0	419.628	556.734	556.734
38	0.792955	414.764	-28.401	Qlsr	200	12	250.34	285.52	402.339	0	402.339	537.703	537.703
39	0.605099	304.893	-28.401	Qlsr	200	12	247.499	282.28	387.098	0	387.098	520.926	520.926
40	0.605099	294.843	-28.401	Qlsr	200	12	245.041	279.476	373.905	0	373.905	506.404	506.404
41	0.715132	335.5	-28.401	Qlsr	200	12	242.358	276.417	359.514	0	359.514	490.562	490.562
42	0.715132	321.462	-28.401	Qlsr	200	12	239.453	273.103	343.922	0	343.922	473.399	473.399
43	0.76668	326.458	-24.9052	Qlsr	200	12	240.427	274.214	349.15	0	349.15	460.779	460.779
44	0.76668	305.158	-24.9052	Qlsr	200	12	236.15	269.336	326.201	0	326.201	435.844	435.844
45	0.766683	281.122	-21.3416	Qlsr	200	12	235.628	268.74	323.398	0	323.398	415.463	415.463
46	0.766683	252.625	-21.3416	Qlsr	200	12	229.677	261.954	291.469	0	291.469	381.209	381.209
47	0.940482	262.302	-13.0378	Qlsr	200	12	230.845	263.286	297.736	0	297.736	351.192	351.192
48	0.940482	202.595	-13.0378	Qlsr	200	12	219.718	250.595	238.032	0	238.032	288.91	288.91
49	0.940322	129.534	1.75944	Qlsr	200	12	221.347	252.453	246.771	0	246.771	239.972	239.972
50	0.940322	43.178	1.75944	Qlsr	200	12	202.27	230.695	144.407	0	144.407	138.194	138.194

Interslice Data

Global Minimum Query (spencer) - Safety Factor: 1.14053

Slice Number	X coordinate [ft]	Y coordinate - Bottom [ft]	Interslice Normal Force [lbs]	Interslice Shear Force [lbs]	Interslice Force Angle [deg]
1	307.92	93.704	0	0	0
2	308.383	92.1557	-291.177	-130.01	24.0607
3	309.239	90.2588	-505.537	-225.721	24.0606
4	310.085	88.9744	-558.165	-249.219	24.0606
5	310.868	87.9232	-556.335	-248.402	24.0606
6	311.918	86.8552	-514.534	-229.738	24.0606
7	313.094	85.7671	-437.872	-195.509	24.0607
8	314.068	84.8652	-345.058	-154.067	24.0606
9	315.038	84.1046	-262.853	-117.363	24.0606
10	316.122	83.2678	-165.812	-74.0347	24.0607
11	317.207	82.431	-60.2472	-26.9002	24.0606
12	318.283	81.6182	47.4462	21.1846	24.0606
13	319.36	80.8233	156.604	69.9233	24.0606
14	320.437	80.0558	262.68	117.286	24.0606
15	321.513	79.2883	373.516	166.774	24.0606
16	322.589	78.5312	485.184	216.633	24.0606
17	323.666	77.7759	597.748	266.893	24.0606
18	324.701	77.1046	685.269	305.971	24.0606
19	325.736	76.4332	770.895	344.203	24.0607
20	326.426	76.016	814.854	363.83	24.0606
21	327.116	75.5987	857.26	382.765	24.0607
22	327.807	75.1815	898.114	401.006	24.0607
23	328.497	74.7643	937.415	418.553	24.0606
24	329.187	74.347	975.163	435.408	24.0607
25	329.877	73.9298	1011.36	451.569	24.0606
26	330.912	73.3039	1062.74	474.511	24.0607
27	331.948	72.6781	1110.63	495.893	24.0606
28	332.676	72.2378	1142.22	509.999	24.0607
29	333.404	71.7976	1172.08	523.333	24.0607
30	334.132	71.3573	1200.22	535.895	24.0606
31	334.785	71.0019	1209.13	539.873	24.0606
32	335.439	70.6464	1215.62	542.774	24.0607
33	336.092	70.291	1218.88	544.228	24.0607
34	336.895	69.8566	1217.43	543.58	24.0607
35	337.698	69.4221	1211	540.707	24.0606
36	338.504	68.9865	1199.51	535.577	24.0606
37	339.31	68.5509	1183	528.209	24.0607
38	340.103	68.1221	1161.86	518.77	24.0607
39	340.896	67.6933	1135.87	507.162	24.0606
40	341.501	67.3662	1112.76	496.844	24.0606
41	342.106	67.039	1086.82	485.264	24.0607
42	342.821	66.6523	1052.52	469.95	24.0608
43	343.536	66.2656	1014.27	452.871	24.0607
44	344.303	65.9096	954.23	426.061	24.0606
45	345.069	65.5537	889.295	397.068	24.0606
46	345.836	65.2541	805.52	359.663	24.0607
47	346.603	64.9545	716.743	320.024	24.0606
48	347.543	64.7368	564.478	252.038	24.0606
49	348.484	64.519	409.676	182.919	24.0606
50	349.424	64.5479	194.411	86.8041	24.0607
51	350.364	64.5768	0	0	0

Discharge Sections

Entity Information

Offsite Slope (Static)

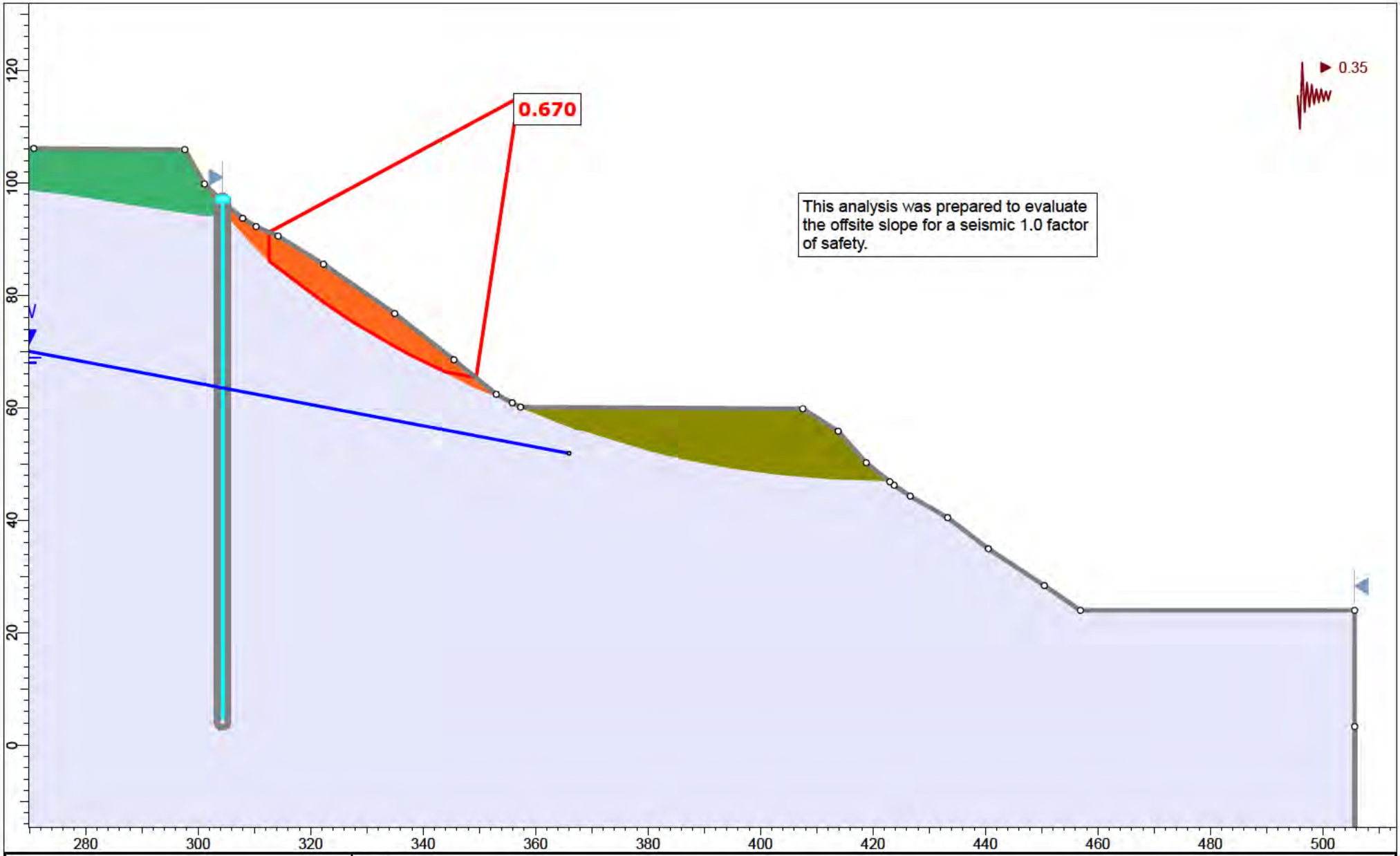
Shared Entities

Type	Coordinates (x,y)
External Boundary	-0.069, -51.999 505.65, -51.999 505.65, 3.34239 505.65, 23.996 456.88, 23.996 450.477, 28.41 440.53, 34.944 433.29, 40.476 426.639, 44.302 423.755, 46.244 423.004, 46.8517 418.811, 50.247 413.808, 55.838 407.518, 59.833 357.331, 60.14 355.869, 60.9087 353.009, 62.412 345.503, 68.556 334.945, 76.785 322.305, 85.54 314.226, 90.551 310.313, 92.24 307.92, 93.704 304.345, 96.688 301.135, 99.813 297.645, 105.922 270.795, 106.125 234.496, 106.839 207.178, 107.499 188.028, 108.403 184.544, 108.609 176.246, 109.098 170.303, 110.975 162.796, 112.921 155.706, 114.346 152.752, 114.937 149.812, 114.937 146.89, 113.576 143.281, 111.947 140.125, 111.947 130.834, 112.148 118.104, 112.62 97.314, 112.989 77.715, 113.708 63.815, 113.708 59.431, 115.65 51.517, 120.438 43.992, 124.971 35.344, 130.477 26.443, 135.548 16.015, 142.086 4.531, 149.145 2.684, 150.314 -0.069, 152.158

Material Boundary	184.544, 108.609 208.27, 106.116 233.606, 103.075 237.006, 102.646 249.906, 101.02 264.178, 99.388 276.678, 98.008 288.727, 96.094 301.732, 94.095 305.589, 93.701
Material Boundary	301.135, 99.813 303.849, 95.803 305.589, 93.701 309.204, 89.597 313.229, 85.453 318.629, 81.323 323.923, 77.446 332.383, 72.293 337.24, 69.67 343.446, 66.308 349.32, 63.298 352.681, 62.06 355.869, 60.9087
Material Boundary	357.331, 60.14 367.577, 56.042 379.845, 52.288 386.066, 50.724 395.033, 49.056 403.096, 47.979 412.862, 47.144 423.004, 46.8517

Scenario-based Entities

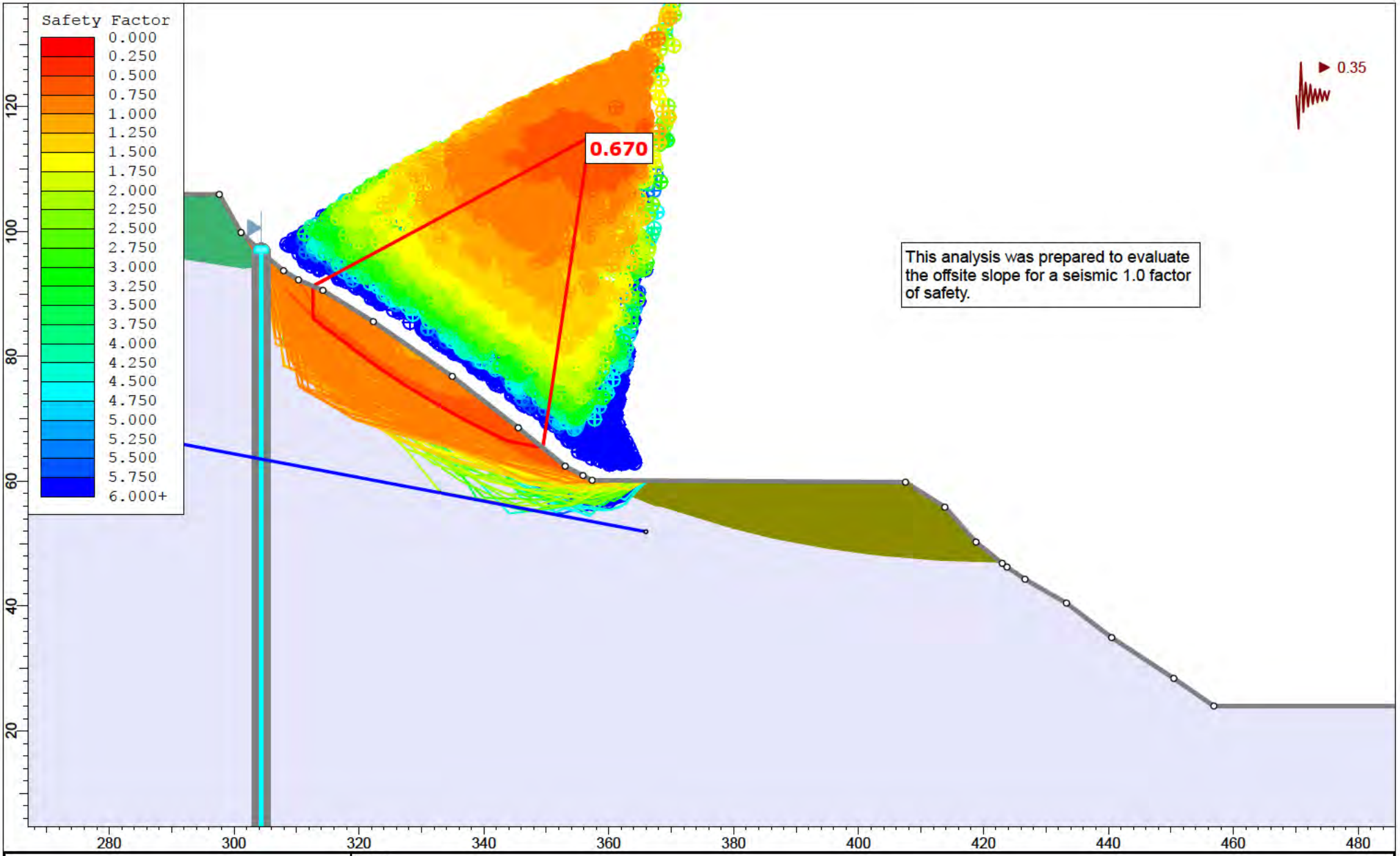
Type	Coordinates (x,y)	Master Scenario
Water Table	179.814, 87.618 362.413, 53.827	Assigned to: Terrace (Qoa) Qlsr Fill (Af) Anisotropic Bedrock (Tm) Ultimate



rocscience

SLIDEINTERPRET 9.018

Project	Section 5-5'				
Analysis Description	Offsite Slope (Seismic)				
Drawn By	A. Greene	Scale	1:283	Company	Feffer Geological Consulting
Date				File Name	Section 5-5' Translational Analysis_2.slmd



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SLIDEINTERPRET 9.018

Project	Section 5-5'		
Analysis Description	Offsite Slope (Seismic)		
Drawn By	A. Greene	Scale 1:255	Company Feffer Geological Consulting
Date			File Name Section 5-5' Translational Analysis_2.slmd

Slide Analysis Information

Section 5-5' Translational Analysis_2

Project Summary

File Name:	Section 5-5' Translational Analysis_2.slmd
Slide Modeler Version:	9.018
Compute Time:	00h:00m:45.49s
Project Title:	Section 5-5'
Analysis:	Offsite Slope (Seismic)
Author:	A. Greene
Company:	Feffer Geological Consulting

General Settings

Units of Measurement:	Imperial Units
Time Units:	days
Permeability Units:	feet/second
Data Output:	Standard
Failure Direction:	Left to Right

Analysis Options

Slices Type:	Vertical
Analysis Methods Used	
	Spencer
Number of slices:	50
Tolerance:	0.005
Maximum number of iterations:	75
Check malpha < 0.2:	Yes
Create Interslice boundaries at intersections with water tables and piezos:	Yes
Initial trial value of FS:	1
Steffensen Iteration:	Yes

Groundwater Analysis

Groundwater Method:	Water Surfaces
Pore Fluid Unit Weight [lbs/ft3]:	62.4
Use negative pore pressure cutoff:	Yes
Maximum negative pore pressure [psf]:	0
Advanced Groundwater Method:	None

Random Numbers

Pseudo-random Seed:	10116
Random Number Generation Method:	Park and Miller v.3

Surface Options

Search Method:	Cuckoo Search
Initial # of Surface Vertices:	8
Maximum Iterations:	500
Number of Nests:	50
Minimum Elevation:	Not Defined
Minimum Depth:	Not Defined
Minimum Area:	Not Defined
Minimum Weight:	Not Defined
Convex Surfaces Only:	Enabled

Seismic Loading

Advanced seismic analysis:	No
Staged pseudostatic analysis:	No
Seismic Load Coefficient (Horizontal):	0.35

Materials

Terrace (Qoa)	
Color	
Strength Type	Mohr-Coulomb
Unit Weight [lbs/ft3]	115
Cohesion [psf]	100
Friction Angle [deg]	31
Water Surface	Water Table
Hu Value	1
Qlsr	
Color	
Strength Type	Mohr-Coulomb
Unit Weight [lbs/ft3]	115
Cohesion [psf]	200
Friction Angle [deg]	12
Water Surface	Water Table
Hu Value	1
Fill (Af)	
Color	
Strength Type	Mohr-Coulomb
Unit Weight [lbs/ft3]	120
Cohesion [psf]	120
Friction Angle [deg]	31
Water Surface	Water Table
Hu Value	1
Anisotropic Bedrock (Tm) Peak	
Color	
Strength Type	Anisotropic function
Unit Weight [lbs/ft3]	124
Water Surface	Water Table
Hu Value	1

Anisotropic Functions

Name: Anisotropic Bedrock (Tm) Peak

Angle From	Angle To	c	phi
-90	-30	720	41
-30	-10	200	16
-10	90	720	41

Support

Pile 1 (Seismic)	
Color	
Type	Pile/Micro Pile
Force Application	Active (Method A)
Force Orientation	Parallel to surface
Out-Of-Plane Spacing	10 ft
Failure Mode	Shear
Pile Shear Strength	535000 lbs

Global Minimums

Method: spencer

FS	0.670329
Axis Location:	356.925, 115.091
Left Slip Surface Endpoint:	312.629, 91.240
Right Slip Surface Endpoint:	349.427, 65.344
Resisting Moment:	587344 lb-ft
Driving Moment:	876203 lb-ft
Resisting Horizontal Force:	10250 lb
Driving Horizontal Force:	15291 lb
Total Slice Area:	192.885 ft2
Surface Horizontal Width:	36.7985 ft
Surface Average Height:	5.24164 ft

Global Minimum Coordinates

Method: spencer

X	Y
312.629	86.0711
322.333	78.7655
327.151	75.5002
334.038	71.4222
337.772	69.3853
343.823	66.4517
349.427	65.3439

Global Minimum Support Data

Method: spencer

Number of Supports: 1

Pile 1 (Seismic)

Support Type: Pile/Micro Pile

Start (x, y)	Length (ft)	L Inside SS (ft)	L Outside SS (ft)	Li (ft)	Lo (ft)	Force (lb)
304.345, 96.688	92.486	Not Effective	Not Effective	Not Effective	Not Effective	0

Valid and Invalid Surfaces

Method: spencer

Number of Valid Surfaces:	13274
Number of Invalid Surfaces:	11785

Error Codes

Error Code -106 reported for 117 surfaces
Error Code -108 reported for 117 surfaces
Error Code -109 reported for 2 surfaces
Error Code -110 reported for 76 surfaces
Error Code -111 reported for 5545 surfaces
Error Code -112 reported for 3959 surfaces
Error Code -121 reported for 915 surfaces
Error Code -124 reported for 263 surfaces
Error Code -145 reported for 27 surfaces
Error Code -1000 reported for 764 surfaces

Error Code Descriptions

The following errors were encountered during the computation:

-106 = Average slice width is less than 0.0001 * (maximum horizontal extent of soil region). This limitation is imposed to avoid numerical errors which may result from too many slices, or too small a slip region.

-108 = Total driving moment or total driving force < 0.1. This is to limit the calculation of extremely high safety factors if the driving force is very small (0.1 is an arbitrary number).

-109 = Soiltype for slice base not located. This error should occur very rarely, if at all. It may occur if a very low number of slices is combined with certain soil geometries, such that the midpoint of a slice base is actually outside the soil region,even though the slip surface is wholly within the soil region.

-110 = The water table or a piezoline does not span the slip region for a given slip surface, when Water Surfaces is specified as the method of pore pressure calculation. If this error occurs, check that the water table or piezoline(s) span the appropriate soil cells.

-111 = Safety factor equation did not converge

-112 = The coefficient M-Alpha = cos(alpha)(1+tan(alpha)tan(phi)/F) < 0.2 for the final iteration of the safety factor calculation. This screens out some slip surfaces which may not be valid in the context of the analysis, in particular, deep seated slip surfaces with many high negative base angle slices in the passive zone.

-121 = Concave failure surface, only convex surfaces have been defined as being allowed.

-124 = A slice has a width less than the minimum acceptable value.

-145 = Slip surface was clipped vertically by a weak layer in a region of compression. Such a surface cannot be evaluated using Limit Equilibrium. For more information, see Help Documentation on weak layers.

-1000 = No valid slip surface is generated

Slice Data

Global Minimum Query (spencer) - Safety Factor: 0.670329

Slice Number	Width [ft]	Weight [lbs]	Angle of Slice Base [deg]	Base Material	Base Cohesion [psf]	Base Friction Angle [deg]	Shear Stress [psf]	Shear Strength [psf]	Base Normal Stress [psf]	Pore Pressure [psf]	Effective Normal Stress [psf]	Base Vertical Stress [psf]	Effective Vertical Stress [psf]
1	0.761073	464.176	-38.0962	Qlsr	200	12	382.7	256.535	265.975	0	265.975	566.01	566.01
2	0.761073	487.647	-38.0962	Qlsr	200	12	386.99	259.41	279.504	0	279.504	582.901	582.901
3	0.761073	506.017	-38.0962	Qlsr	200	12	390.347	261.661	290.091	0	290.091	596.12	596.12
4	0.761073	516.985	-38.0962	Qlsr	200	12	392.351	263.005	296.412	0	296.412	604.013	604.013
5	0.761073	527.892	-38.0962	Qlsr	200	12	394.345	264.341	302.699	0	302.699	611.863	611.863
6	0.761073	538.8	-38.0962	Qlsr	200	12	396.338	265.677	308.986	0	308.986	619.712	619.712
7	0.761073	549.707	-38.0962	Qlsr	200	12	398.331	267.013	315.272	0	315.272	627.561	627.561
8	0.761073	560.614	-38.0962	Qlsr	200	12	400.325	268.349	321.559	0	321.559	635.411	635.411
9	0.761073	571.521	-38.0962	Qlsr	200	12	402.318	269.686	327.845	0	327.845	643.26	643.26
10	0.71378	542.811	-34.1346	Qlsr	200	12	417.809	280.07	376.697	0	376.697	659.943	659.943
11	0.71378	546.191	-34.1346	Qlsr	200	12	418.488	280.525	378.839	0	378.839	662.545	662.545
12	0.71378	549.57	-34.1346	Qlsr	200	12	419.167	280.98	380.98	0	380.98	665.146	665.146
13	0.71378	552.947	-34.1346	Qlsr	200	12	419.845	281.434	383.119	0	383.119	667.745	667.745
14	0.688251	534.234	-34.1274	Qlsr	200	12	420.094	281.601	383.904	0	383.904	668.622	668.622
15	0.688251	533.423	-34.1274	Qlsr	200	12	419.925	281.488	383.371	0	383.371	667.975	667.975
16	0.688251	532.611	-34.1274	Qlsr	200	12	419.756	281.375	382.837	0	382.837	667.326	667.326
17	0.688251	531.8	-34.1274	Qlsr	200	12	419.587	281.261	382.304	0	382.304	666.679	666.679
18	0.688251	530.989	-34.1274	Qlsr	200	12	419.418	281.148	381.772	0	381.772	666.031	666.031
19	0.688251	530.177	-34.1274	Qlsr	200	12	419.249	281.035	381.237	0	381.237	665.383	665.383
20	0.688251	529.366	-34.1274	Qlsr	200	12	419.08	280.921	380.705	0	380.705	664.735	664.735
21	0.765215	584.727	-30.6312	Qlsr	200	12	432.258	289.755	422.264	0	422.264	678.219	678.219
22	0.765215	577.959	-30.6312	Qlsr	200	12	430.936	288.869	418.097	0	418.097	673.269	673.269
23	0.765215	571.191	-30.6312	Qlsr	200	12	429.615	287.983	413.929	0	413.929	668.319	668.319
24	0.765215	564.423	-30.6312	Qlsr	200	12	428.294	287.098	409.762	0	409.762	663.369	663.369
25	0.765215	557.655	-30.6312	Qlsr	200	12	426.972	286.212	405.595	0	405.595	658.42	658.42
26	0.765215	550.887	-30.6312	Qlsr	200	12	425.651	285.326	401.427	0	401.427	653.47	653.47
27	0.765215	544.119	-30.6312	Qlsr	200	12	424.329	284.44	397.26	0	397.26	648.52	648.52
28	0.765215	537.351	-30.6312	Qlsr	200	12	423.008	283.555	393.093	0	393.093	643.57	643.57
29	0.765215	530.583	-30.6312	Qlsr	200	12	421.687	282.669	388.925	0	388.925	638.621	638.621
30	0.746734	509.75	-28.6148	Qlsr	200	12	428.41	287.176	410.129	0	410.129	643.849	643.849
31	0.746734	498.602	-28.6148	Qlsr	200	12	426.114	285.637	402.888	0	402.888	635.356	635.356
32	0.746734	483.734	-28.6148	Qlsr	200	12	423.052	283.584	393.233	0	393.233	624.03	624.03
33	0.746734	468.738	-28.6148	Qlsr	200	12	419.964	281.514	383.494	0	383.494	612.607	612.607
34	0.746734	453.741	-28.6148	Qlsr	200	12	416.876	279.444	373.756	0	373.756	601.183	601.183
35	0.756374	442.314	-25.8651	Qlsr	200	12	424.814	284.765	398.79	0	398.79	604.749	604.749
36	0.756374	422.932	-25.8651	Qlsr	200	12	420.693	282.003	385.793	0	385.793	589.754	589.754
37	0.756374	403.551	-25.8651	Qlsr	200	12	416.572	279.24	372.796	0	372.796	574.759	574.759
38	0.756374	384.169	-25.8651	Qlsr	200	12	412.451	276.478	359.799	0	359.799	559.764	559.764
39	0.756374	364.788	-25.8651	Qlsr	200	12	408.329	273.715	346.802	0	346.802	544.769	544.769
40	0.756374	345.406	-25.8651	Qlsr	200	12	404.208	270.952	333.805	0	333.805	529.773	529.773
41	0.756374	326.025	-25.8651	Qlsr	200	12	400.087	268.19	320.808	0	320.808	514.778	514.778
42	0.756374	306.643	-25.8651	Qlsr	200	12	395.966	265.427	307.811	0	307.811	499.783	499.783
43	0.700551	258.62	-11.1812	Qlsr	200	12	456.139	305.763	497.578	0	497.578	587.74	587.74
44	0.700551	225.787	-11.1812	Qlsr	200	12	445.725	298.783	464.736	0	464.736	552.841	552.841
45	0.700551	192.554	-11.1812	Qlsr	200	12	435.185	291.717	431.493	0	431.493	517.514	517.514
46	0.700551	157.688	-11.1812	Qlsr	200	12	424.126	284.304	396.618	0	396.618	480.452	480.452
47	0.700551	122.646	-11.1812	Qlsr	200	12	413.011	276.853	361.567	0	361.567	443.205	443.205
48	0.700551	87.6043	-11.1812	Qlsr	200	12	401.897	269.403	326.516	0	326.516	405.957	405.957
49	0.700551	52.5626	-11.1812	Qlsr	200	12	390.782	261.953	291.464	0	291.464	368.708	368.708
50	0.700551	17.5209	-11.1812	Qlsr	200	12	421.505	282.547	388.351	0	388.351	471.668	471.668

Interslice Data

Global Minimum Query (spencer) - Safety Factor: 0.670329

Slice Number	X coordinate [ft]	Y coordinate - Bottom [ft]	Interslice Normal Force [lbs]	Interslice Shear Force [lbs]	Interslice Force Angle [deg]
1	312.629	86.0711	0	0	0
2	313.39	85.4744	29.4588	28.5503	44.1027
3	314.151	84.8778	71.9344	69.716	44.1028
4	314.912	84.2811	124.598	120.755	44.1026
5	315.673	83.6844	183.344	177.69	44.1028
6	316.434	83.0877	248.14	240.487	44.1027
7	317.195	82.4911	318.984	309.147	44.1028
8	317.956	81.8944	395.878	383.669	44.1027
9	318.717	81.2977	478.82	464.054	44.1028
10	319.478	80.701	567.812	550.301	44.1028
11	320.192	80.2171	641.402	621.621	44.1027
12	320.906	79.7332	716.725	694.621	44.1027
13	321.62	79.2493	793.781	769.301	44.1027
14	322.333	78.7655	872.57	845.66	44.1027
15	323.022	78.299	949.059	919.79	44.1027
16	323.71	77.8325	1025.13	993.517	44.1028
17	324.398	77.3661	1100.79	1066.84	44.1027
18	325.086	76.8996	1176.03	1139.76	44.1027
19	325.775	76.4332	1250.86	1212.28	44.1027
20	326.463	75.9667	1325.26	1284.39	44.1028
21	327.151	75.5002	1399.26	1356.1	44.1026
22	327.916	75.0471	1463.97	1418.82	44.1027
23	328.682	74.594	1525.44	1478.4	44.1028
24	329.447	74.1409	1583.67	1534.83	44.1027
25	330.212	73.6878	1638.65	1588.11	44.1027
26	330.977	73.2347	1690.39	1638.26	44.1028
27	331.742	72.7816	1738.88	1685.25	44.1027
28	332.508	72.3285	1784.13	1729.11	44.1028
29	333.273	71.8754	1826.13	1769.82	44.1029
30	334.038	71.4222	1864.89	1807.38	44.1028
31	334.785	71.0149	1889.99	1831.71	44.1028
32	335.532	70.6075	1909.96	1851.05	44.1026
33	336.278	70.2001	1923.07	1863.77	44.1029
34	337.025	69.7927	1929.28	1869.78	44.1027
35	337.772	69.3853	1928.59	1869.11	44.1027
36	338.528	69.0186	1907.83	1848.99	44.1027
37	339.285	68.6519	1878.64	1820.71	44.1028
38	340.041	68.2852	1841.03	1784.25	44.1027
39	340.797	67.9185	1794.99	1739.63	44.1027
40	341.554	67.5518	1740.52	1686.84	44.1027
41	342.31	67.1851	1677.63	1625.89	44.1027
42	343.066	66.8184	1606.3	1556.76	44.1027
43	343.823	66.4517	1526.55	1479.47	44.1027
44	344.523	66.3132	1365.94	1323.81	44.1026
45	345.224	66.1747	1196.59	1159.69	44.1028
46	345.924	66.0363	1018.4	986.994	44.1028
47	346.625	65.8978	830.942	805.315	44.1027
48	347.326	65.7593	634.161	614.604	44.1028
49	348.026	65.6208	428.061	414.859	44.1027
50	348.727	65.4824	212.64	206.082	44.1027
51	349.427	65.3439	0	0	0

Discharge Sections

Entity Information

Offiste Slope (Seismic)

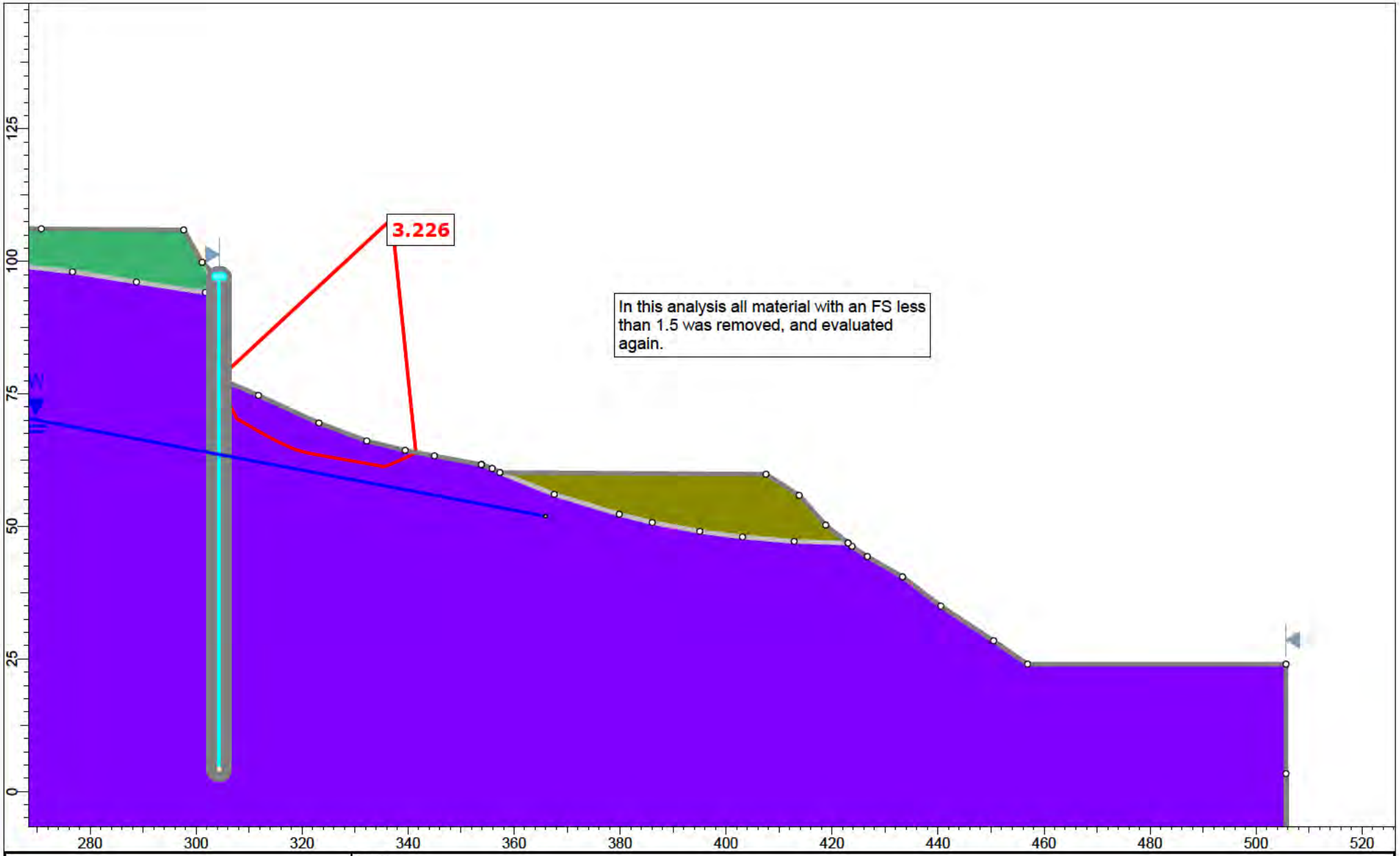
Shared Entities

Type	Coordinates (x,y)
External Boundary	-0.069, -51.999 505.65, -51.999 505.65, 3.34239 505.65, 23.996 456.88, 23.996 450.477, 28.41 440.53, 34.944 433.29, 40.476 426.639, 44.302 423.755, 46.244 423.004, 46.8517 418.811, 50.247 413.808, 55.838 407.518, 59.833 357.331, 60.14 355.869, 60.9087 353.009, 62.412 345.503, 68.556 334.945, 76.785 322.305, 85.54 314.226, 90.551 310.313, 92.24 307.92, 93.704 304.345, 96.688 301.135, 99.813 297.645, 105.922 270.795, 106.125 234.496, 106.839 207.178, 107.499 188.028, 108.403 184.544, 108.609 176.246, 109.098 170.303, 110.975 162.796, 112.921 155.706, 114.346 152.752, 114.937 149.812, 114.937 146.89, 113.576 143.281, 111.947 140.125, 111.947 130.834, 112.148 118.104, 112.62 97.314, 112.989 77.715, 113.708 63.815, 113.708 59.431, 115.65 51.517, 120.438 43.992, 124.971 35.344, 130.477 26.443, 135.548 16.015, 142.086 4.531, 149.145 2.684, 150.314 -0.069, 152.158

Material Boundary	184.544, 108.609 208.27, 106.116 233.606, 103.075 237.006, 102.646 249.906, 101.02 264.178, 99.388 276.678, 98.008 288.727, 96.094 301.732, 94.095 305.589, 93.701
Material Boundary	301.135, 99.813 303.849, 95.803 305.589, 93.701 309.204, 89.597 313.229, 85.453 318.629, 81.323 323.923, 77.446 332.383, 72.293 337.24, 69.67 343.446, 66.308 349.32, 63.298 352.681, 62.06 355.869, 60.9087
Material Boundary	357.331, 60.14 367.577, 56.042 379.845, 52.288 386.066, 50.724 395.033, 49.056 403.096, 47.979 412.862, 47.144 423.004, 46.8517

Scenario-based Entities

Type	Coordinates (x,y)	Master Scenario
Water Table	173.517, 88.262 365.949, 51.915	Assigned to: Terrace (Qoa) Qlsr Fill (Af) Anisotropic Bedrock (Tm) Peak



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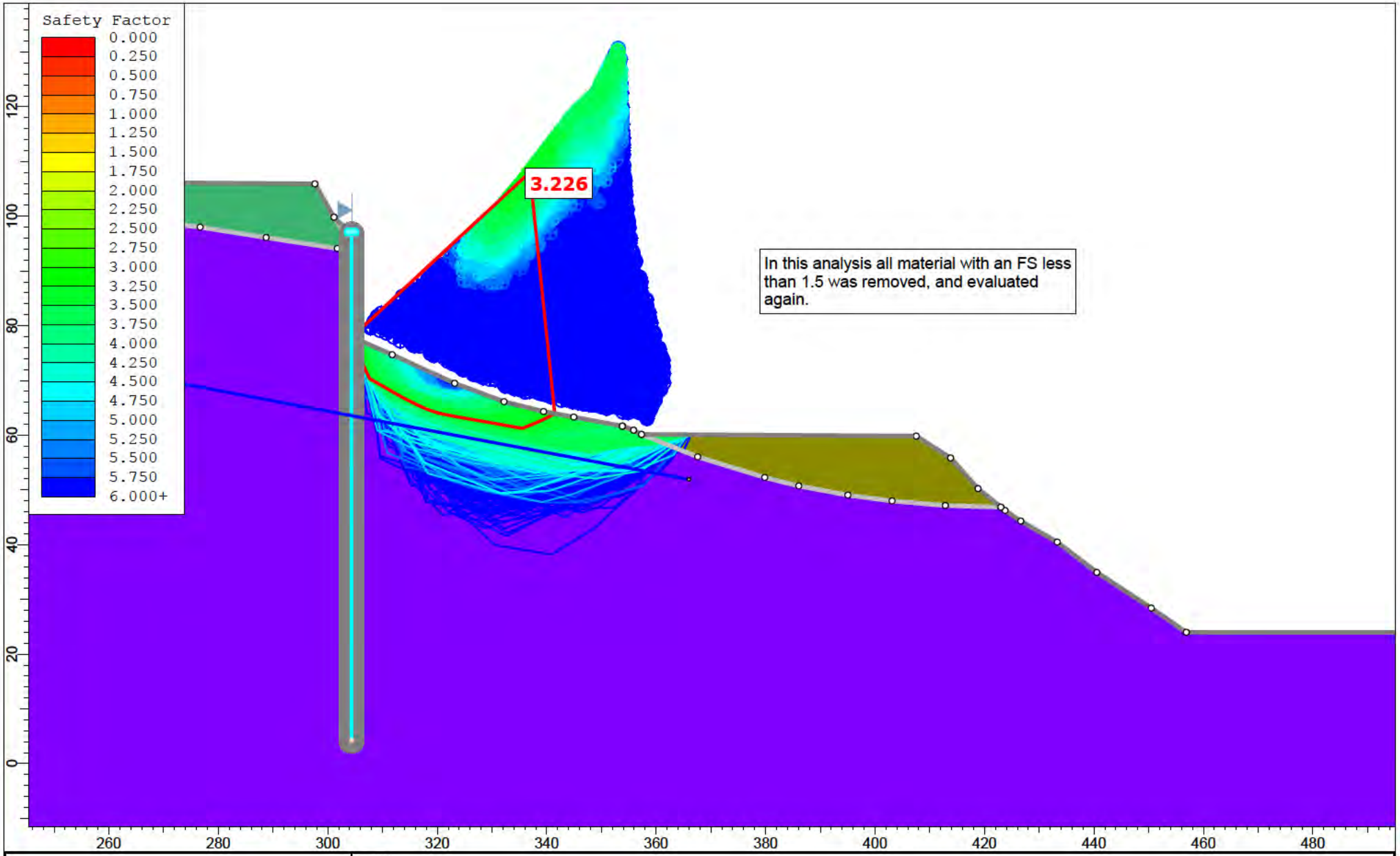
SLIDEINTERPRET 9.018

Project	Section 5-5'				
Analysis Description	Offsite Slope Removal (Static)				
Drawn By	A. Greene	Scale	1:300	Company	Feffer Geological Consulting
Date				File Name	Section 5-5' Translational Analysis_2.slmd



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SLIDEINTERPRET 9.018

Project	Section 5-5'				
Analysis Description	Offsite Slope Removal (Static)				
Drawn By	A. Greene	Scale	1:291	Company	Feffer Geological Consulting
Date				File Name	Section 5-5' Translational Analysis_2.slmd

Slide Analysis Information

Section 5-5' Translational Analysis_2

Project Summary

File Name:	Section 5-5' Translational Analysis_2.slmd
Slide Modeler Version:	9.018
Compute Time:	00h:00m:28.856s
Project Title:	Section 5-5'
Analysis:	Offsite Slope Removal (Static)
Author:	A. Greene
Company:	Feffer Geological Consulting

General Settings

Units of Measurement:	Imperial Units
Time Units:	days
Permeability Units:	feet/second
Data Output:	Standard
Failure Direction:	Left to Right

Analysis Options

Slices Type:	Vertical
Analysis Methods Used	
	Spencer
Number of slices:	50
Tolerance:	0.005
Maximum number of iterations:	75
Check malpha < 0.2:	Yes
Create Interslice boundaries at intersections with water tables and piezos:	Yes
Initial trial value of FS:	1
Steffensen Iteration:	Yes

Groundwater Analysis

Groundwater Method:	Water Surfaces
Pore Fluid Unit Weight [lbs/ft3]:	62.4
Use negative pore pressure cutoff:	Yes
Maximum negative pore pressure [psf]:	0
Advanced Groundwater Method:	None

Random Numbers

Pseudo-random Seed:	10116
Random Number Generation Method:	Park and Miller v.3

Surface Options

Search Method:	Cuckoo Search
Initial # of Surface Vertices:	8
Maximum Iterations:	500
Number of Nests:	50
Minimum Elevation:	Not Defined
Minimum Depth:	Not Defined
Minimum Area:	Not Defined
Minimum Weight:	Not Defined
Convex Surfaces Only:	Enabled

Seismic Loading

Advanced seismic analysis:	No
Staged pseudostatic analysis:	No

Materials

Terrace (Qoa)	
Color	
Strength Type	Mohr-Coulomb
Unit Weight [lbs/ft3]	115
Cohesion [psf]	100
Friction Angle [deg]	31
Water Surface	Water Table
Hu Value	1
Qlsr	
Color	
Strength Type	Mohr-Coulomb
Unit Weight [lbs/ft3]	115
Cohesion [psf]	200
Friction Angle [deg]	12
Water Surface	Water Table
Hu Value	1
Fill (Af)	
Color	
Strength Type	Mohr-Coulomb
Unit Weight [lbs/ft3]	120
Cohesion [psf]	120
Friction Angle [deg]	31
Water Surface	Water Table
Hu Value	1
Anisotropic Bedrock (Tm) Ultimate	
Color	
Strength Type	Anisotropic function
Unit Weight [lbs/ft3]	124
Water Surface	Water Table
Hu Value	1

Anisotropic Functions

Name: Anisotropic Bedrock (Tm) Ultimate

Angle From	Angle To	c	phi
-90	-30	520	34.5
-30	-10	200	16
-10	90	520	34.5

Support

Pile 1 (Seismic)	
Color	
Type	Pile/Micro Pile
Force Application	Active (Method A)
Force Orientation	Parallel to surface
Out-Of-Plane Spacing	10 ft
Failure Mode	Shear
Pile Shear Strength	535000 lbs

Global Minimums

Method: spencer

FS	3.225950
Axis Location:	336.909, 108.013
Left Slip Surface Endpoint:	304.391, 77.927
Right Slip Surface Endpoint:	341.467, 63.947
Resisting Moment:	958449 lb-ft
Driving Moment:	297106 lb-ft
Resisting Horizontal Force:	17609.4 lb
Driving Horizontal Force:	5458.69 lb
Total Slice Area:	187.508 ft2
Surface Horizontal Width:	37.0756 ft
Surface Average Height:	5.05746 ft

Global Minimum Coordinates

Method: spencer

X	Y
304.391	77.9272
304.942	76.5261
305.493	75.212
306.044	73.8979
306.871	71.9263
307.699	70.2999
309.147	69.464
310.588	68.632
312.085	67.7756
313.582	66.9206
314.673	66.3667
315.852	65.7689
317.327	65.0833
318.803	64.4812
320.532	63.951
322.262	63.6009
324.096	63.2763
325.929	62.9516
327.816	62.6175
329.703	62.2834
331.143	62.0289
332.584	61.7744
334.025	61.5199
335.53	61.2542
336.548	61.6512
337.566	62.0542
338.58	62.5059
339.594	62.9576
340.53	63.4187
341.467	63.9475

Global Minimum Support Data

Method: spencer

Number of Supports: 1

Pile 1 (Seismic)

Support Type: Pile/Micro Pile

Start (x, y)	Length (ft)	L Inside SS (ft)	L Outside SS (ft)	Li (ft)	Lo (ft)	Force (lb)
304.345, 96.688	92.486	Not Effective	Not Effective	Not Effective	Not Effective	0

Valid and Invalid Surfaces

Method: spencer

Number of Valid Surfaces:	15622
Number of Invalid Surfaces:	9450

Error Codes
Error Code -106 reported for 61 surfaces
Error Code -108 reported for 140 surfaces
Error Code -110 reported for 698 surfaces
Error Code -111 reported for 400 surfaces
Error Code -112 reported for 186 surfaces
Error Code -121 reported for 170 surfaces
Error Code -124 reported for 1 surface
Error Code -145 reported for 19 surfaces
Error Code -1000 reported for 7775 surfaces

Error Code Descriptions

The following errors were encountered during the computation:

-106 = Average slice width is less than 0.0001 * (maximum horizontal extent of soil region). This limitation is imposed to avoid numerical errors which may result from too many slices, or too small a slip region.

-108 = Total driving moment or total driving force < 0.1. This is to limit the calculation of extremely high safety factors if the driving force is very small (0.1 is an arbitrary number).

-110 = The water table or a piezoline does not span the slip region for a given slip surface, when Water Surfaces is specified as the method of pore pressure calculation. If this error occurs, check that the water table or piezoline(s) span the appropriate soil cells.

-111 = Safety factor equation did not converge

-112 = The coefficient M-Alpha = cos(alpha)(1+tan(alpha)tan(phi)/F) < 0.2 for the final iteration of the safety factor calculation. This screens out some slip surfaces which may not be valid in the context of the analysis, in particular, deep seated slip surfaces with many high negative base angle slices in the passive zone.

-121 = Concave failure surface, only convex surfaces have been defined as being allowed.

-124 = A slice has a width less than the minimum acceptable value.

-145 = Slip surface was clipped vertically by a weak layer in a region of compression. Such a surface cannot be evaluated using Limit Equilibrium. For more information, see Help Documentation on weak layers.

-1000 = No valid slip surface is generated

Slice Data

Global Minimum Query (spencer) - Safety Factor: 3.22595

Slice Number	Width [ft]	Weight [lbs]	Angle of Slice Base [deg]	Base Material	Base Cohesion [psf]	Base Friction Angle [deg]	Shear Stress [psf]	Shear Strength [psf]	Base Normal Stress [psf]	Pore Pressure [psf]	Effective Normal Stress [psf]	Base Vertical Stress [psf]	Effective Vertical Stress [psf]
1	0.550977	39.5962	-68.5323	Anisotropic Bedrock (Tm) Ultimate	520	34.5	124.789	402.562	-170.873	0	-170.873	146.445	146.445
2	0.551011	115.827	-67.2522	Anisotropic Bedrock (Tm) Ultimate	520	34.5	143.092	461.608	-84.9616	0	-84.9616	256.311	256.311
3	0.550998	189.08	-67.2522	Anisotropic Bedrock (Tm) Ultimate	520	34.5	158.848	512.435	-11.0064	0	-11.0064	367.844	367.844

4	0.826667	421.078	-67.2522	Anisotropic Bedrock (Tm) Ultimate	520	34.5	178.545	575.978	81.4478	0	81.4478	507.275	507.275
5	0.827654	568.933	-63.0283	Anisotropic Bedrock (Tm) Ultimate	520	34.5	211.758	683.121	237.343	0	237.343	653.45	653.45
6	0.723899	558.786	-30	Anisotropic Bedrock (Tm) Ultimate	200	16	121.262	391.184	666.737	0	666.737	736.748	736.748
7	0.723899	567.769	-30	Anisotropic Bedrock (Tm) Ultimate	200	16	122.25	394.371	677.852	0	677.852	748.433	748.433
8	0.720729	574.203	-29.9945	Anisotropic Bedrock (Tm) Ultimate	200	16	123.237	397.557	688.964	0	688.964	760.099	760.099
9	0.720729	583.101	-29.9945	Anisotropic Bedrock (Tm) Ultimate	200	16	124.22	400.728	700.02	0	700.02	771.723	771.723
10	0.748579	614.87	-29.7688	Anisotropic Bedrock (Tm) Ultimate	200	16	125.295	404.194	712.107	0	712.107	783.774	783.774
11	0.748579	623.994	-29.7688	Anisotropic Bedrock (Tm) Ultimate	200	16	126.266	407.328	723.037	0	723.037	795.259	795.259
12	0.74858	632.187	-29.7302	Anisotropic Bedrock (Tm) Ultimate	200	16	127.154	410.193	733.029	0	733.029	805.645	805.645
13	0.74858	640.147	-29.7302	Anisotropic Bedrock (Tm) Ultimate	200	16	128.002	412.927	742.566	0	742.566	815.666	815.666
14	0.545536	470.359	-26.9154	Anisotropic Bedrock (Tm) Ultimate	200	16	129.733	418.513	762.044	0	762.044	827.905	827.905
15	0.545536	472.246	-26.9154	Anisotropic Bedrock (Tm) Ultimate	200	16	130.012	419.413	765.185	0	765.185	831.188	831.188
16	0.589146	512.11	-26.9014	Anisotropic Bedrock (Tm) Ultimate	200	16	130.308	420.366	768.507	0	768.507	834.62	834.62
17	0.589146	514.297	-26.9014	Anisotropic Bedrock (Tm) Ultimate	200	16	130.607	421.333	771.88	0	771.88	838.145	838.145
18	0.737674	645.6	-24.9251	Anisotropic Bedrock (Tm) Ultimate	200	16	131.6	424.536	783.05	0	783.05	844.207	844.207
19	0.737674	646.153	-24.9251	Anisotropic Bedrock (Tm) Ultimate	200	16	131.661	424.733	783.736	0	783.736	844.921	844.921
20	0.737763	644.871	-22.1973	Anisotropic Bedrock (Tm) Ultimate	200	16	132.612	427.801	794.435	0	794.435	848.546	848.546
21	0.737763	641.598	-22.1973	Anisotropic Bedrock (Tm) Ultimate	200	16	132.247	426.621	790.322	0	790.322	844.284	844.284
22	0.86488	743.269	-17.0403	Anisotropic Bedrock (Tm) Ultimate	200	16	133.414	430.386	803.45	0	803.45	844.341	844.341

23	0.86488	729.353	-17.0403	Anisotropic Bedrock (Tm) Ultimate	200	16	132.06	426.018	788.218	0	788.218	828.694	828.694
24	0.865038	710.736	-11.4405	Anisotropic Bedrock (Tm) Ultimate	200	16	132.319	426.856	791.141	0	791.141	817.918	817.918
25	0.865038	687.153	-11.4405	Anisotropic Bedrock (Tm) Ultimate	200	16	129.974	419.289	764.752	0	764.752	791.055	791.055
26	0.611135	470.66	-10.0416	Anisotropic Bedrock (Tm) Ultimate	200	16	128.386	414.168	746.891	0	746.891	769.625	769.625
27	0.611135	458.203	-10.0416	Anisotropic Bedrock (Tm) Ultimate	200	16	126.623	408.479	727.052	0	727.052	749.474	749.474
28	0.611135	448.625	-10.0416	Anisotropic Bedrock (Tm) Ultimate	200	16	125.267	404.105	711.8	0	711.8	733.982	733.982
29	0.611127	439.518	-10.0416	Anisotropic Bedrock (Tm) Ultimate	200	16	123.979	399.949	697.305	0	697.305	719.259	719.259
30	0.611127	430.416	-10.0416	Anisotropic Bedrock (Tm) Ultimate	200	16	122.69	395.793	682.811	0	682.811	704.536	704.536
31	0.611127	421.314	-10.0416	Anisotropic Bedrock (Tm) Ultimate	200	16	121.402	391.636	668.316	0	668.316	689.813	689.813
32	0.628914	424.073	-10.0416	Anisotropic Bedrock (Tm) Ultimate	200	16	120.095	387.42	653.609	0	653.609	674.875	674.875
33	0.628914	414.434	-10.0416	Anisotropic Bedrock (Tm) Ultimate	200	16	118.769	383.142	638.693	0	638.693	659.724	659.724
34	0.628914	404.795	-10.0416	Anisotropic Bedrock (Tm) Ultimate	200	16	117.443	378.865	623.777	0	623.777	644.573	644.573
35	0.943367	589.116	-10.0416	Anisotropic Bedrock (Tm) Ultimate	200	16	115.785	373.518	605.13	0	605.13	625.633	625.633
36	0.943367	567.428	-10.0416	Anisotropic Bedrock (Tm) Ultimate	200	16	113.797	367.102	582.756	0	582.756	602.906	602.906
37	0.720379	418.685	-10.0187	Anisotropic Bedrock (Tm) Ultimate	200	16	112.048	361.461	563.082	0	563.082	582.877	582.877
38	0.720379	406.011	-10.0187	Anisotropic Bedrock (Tm) Ultimate	200	16	110.526	356.551	545.958	0	545.958	565.484	565.484
39	0.720379	393.338	-10.0187	Anisotropic Bedrock (Tm) Ultimate	200	16	109.004	351.641	528.835	0	528.835	548.092	548.092
40	0.720379	381.807	-10.0187	Anisotropic Bedrock (Tm) Ultimate	200	16	107.619	347.174	513.256	0	513.256	532.268	532.268
41	0.720336	376.39	-10.0187	Anisotropic Bedrock (Tm) Ultimate	200	16	106.971	345.084	505.967	0	505.967	524.865	524.865

42	0.720336	371.908	-10.0187	Anisotropic Bedrock (Tm) Ultimate	200	16	106.433	343.347	499.911	0	499.911	518.714	518.714
43	0.752409	383.676	-10.0106	Anisotropic Bedrock (Tm) Ultimate	200	16	105.884	341.577	493.738	0	493.738	512.428	512.428
44	0.752409	378.775	-10.0106	Anisotropic Bedrock (Tm) Ultimate	200	16	105.321	339.759	487.398	0	487.398	505.989	505.989
45	1.01808	468.317	21.3005	Anisotropic Bedrock (Tm) Ultimate	520	34.5	299.827	967.228	650.72	0	650.72	533.819	533.819
46	1.01808	386.163	21.5974	Anisotropic Bedrock (Tm) Ultimate	520	34.5	279.815	902.67	556.788	0	556.788	446.016	446.016
47	1.01378	299.353	24.0138	Anisotropic Bedrock (Tm) Ultimate	520	34.5	262.494	846.792	475.485	0	475.485	358.54	358.54
48	1.01395	211.306	24.0138	Anisotropic Bedrock (Tm) Ultimate	520	34.5	239.844	773.724	369.17	0	369.17	262.315	262.315
49	0.936589	118.565	26.2113	Anisotropic Bedrock (Tm) Ultimate	520	34.5	221.684	715.141	283.932	0	283.932	174.796	174.796
50	0.936872	40.8459	29.4421	Anisotropic Bedrock (Tm) Ultimate	520	34.5	204.04	658.222	201.114	0	201.114	85.9462	85.9462

Interslice Data

Global Minimum Query (spencer) - Safety Factor: 3.22595

Slice Number	X coordinate [ft]	Y coordinate - Bottom [ft]	Interslice Normal Force [lbs]	Interslice Shear Force [lbs]	Interslice Force Angle [deg]
1	304.391	77.9272	0	0	0
2	304.942	76.5261	-308.157	-41.0947	7.59594
3	305.493	75.212	-498.655	-66.4988	7.59594
4	306.044	73.8979	-600.644	-80.0996	7.59593
5	306.871	71.9263	-587.659	-78.368	7.59593
6	307.699	70.2999	-376.919	-50.2644	7.59592
7	308.423	69.882	-186.042	-24.8098	7.59591
8	309.147	69.464	8.76621	1.16903	7.59594
9	309.867	69.048	206.569	27.5473	7.59594
10	310.588	68.632	408.264	54.4445	7.59593
11	311.337	68.2038	619.378	82.5978	7.59592
12	312.085	67.7756	834.443	111.278	7.59592
13	312.834	67.3481	1052.63	140.375	7.59594
14	313.582	66.9206	1274.26	169.931	7.59595
15	314.128	66.6437	1414.54	188.637	7.5959
16	314.673	66.3667	1555.53	207.44	7.59595
17	315.263	66.0678	1708.47	227.836	7.59596
18	315.852	65.7689	1862.25	248.343	7.59594
19	316.589	65.4261	2033.61	271.194	7.59592
20	317.327	65.0833	2205.16	294.072	7.59594
21	318.065	64.7823	2346.48	312.917	7.59591
22	318.803	64.4812	2486.82	331.633	7.59593
23	319.667	64.2161	2584.42	344.648	7.59592
24	320.532	63.951	2679.15	357.281	7.59593
25	321.397	63.776	2703.18	360.486	7.59593
26	322.262	63.6009	2724.63	363.346	7.59592
27	322.874	63.4927	2726.99	363.661	7.59593
28	323.485	63.3845	2728.29	363.834	7.59592
29	324.096	63.2763	2728.76	363.898	7.59595
30	324.707	63.1681	2728.46	363.857	7.59593
31	325.318	63.0598	2727.37	363.712	7.59594
32	325.929	62.9516	2725.5	363.462	7.59592
33	326.558	62.8403	2722.76	363.097	7.59593
34	327.187	62.7289	2719.19	362.621	7.59593
35	327.816	62.6175	2714.8	362.035	7.59592
36	328.759	62.4505	2706.66	360.95	7.59593
37	329.703	62.2834	2696.65	359.615	7.59593
38	330.423	62.1562	2687.6	358.408	7.59593
39	331.143	62.0289	2677.46	357.056	7.59593
40	331.864	61.9016	2666.24	355.559	7.59592
41	332.584	61.7744	2654.03	353.931	7.59592
42	333.305	61.6471	2641.36	352.242	7.59594
43	334.025	61.5199	2628.31	350.502	7.59594
44	334.777	61.3871	2614.22	348.622	7.59592
45	335.53	61.2542	2599.71	346.687	7.59592
46	336.548	61.6512	2036.16	271.535	7.59594
47	337.566	62.0542	1526.88	203.62	7.59597
48	338.58	62.5059	1046.02	139.493	7.59592
49	339.594	62.9576	636.064	84.823	7.59592
50	340.53	63.4187	297.52	39.6761	7.59592
51	341.467	63.9475	0	0	0

Discharge Sections

Entity Information

Offsite Slope Removal (Static)

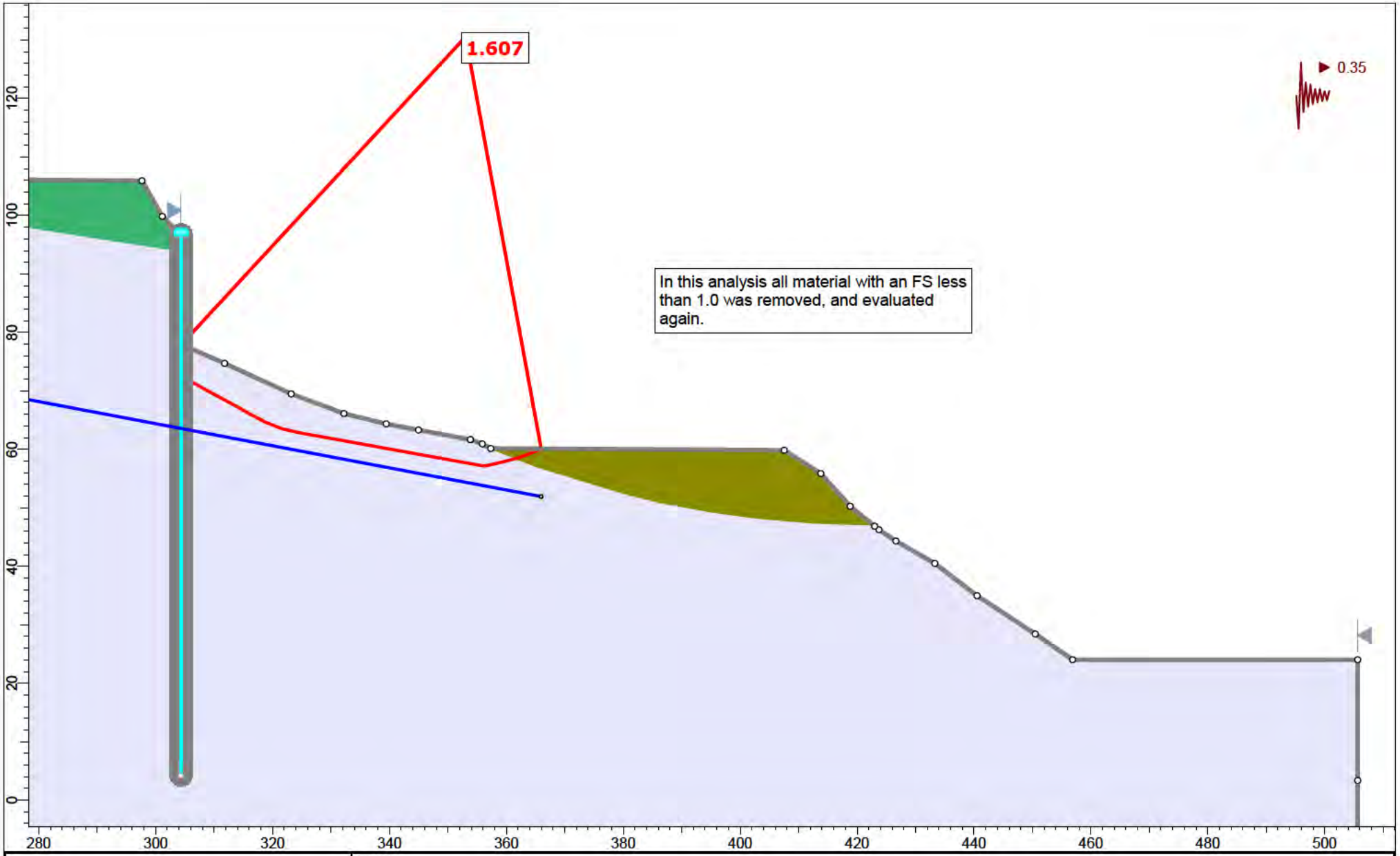
Shared Entities

Type	Coordinates (x,y)
External Boundary	-0.069, -51.999 505.65, -51.999 505.65, 3.34239 505.65, 23.996 456.88, 23.996 450.477, 28.41 440.53, 34.944 433.29, 40.476 426.639, 44.302 423.755, 46.244 423.004, 46.8517 418.811, 50.247 413.808, 55.838 407.518, 59.833 357.331, 60.14 355.869, 60.9087 353.86, 61.6416 353.818, 61.6494 344.956, 63.298 339.436, 64.3255 332.204, 66.1071 323.178, 69.4793 311.767, 74.6885 304.345, 77.9476 304.345, 93.826 304.345, 95.2038 304.345, 96.688 301.135, 99.813 297.645, 105.922 270.795, 106.125 234.496, 106.839 207.178, 107.499 188.028, 108.403 184.544, 108.609 176.246, 109.098 170.303, 110.975 162.796, 112.921 155.706, 114.346 152.752, 114.937 149.812, 114.937 146.89, 113.576 143.281, 111.947 140.125, 111.947 130.834, 112.148 118.104, 112.62 97.314, 112.989 77.715, 113.708 63.815, 113.708 59.431, 115.65 51.517, 120.438 43.992, 124.971 35.344, 130.477 26.443, 135.548 16.015, 142.086 4.531, 149.145 2.684, 150.314 -0.069, 152.158

Material Boundary	184.544, 108.609 208.27, 106.116 233.606, 103.075 237.006, 102.646 249.906, 101.02 264.178, 99.388 276.678, 98.008 288.727, 96.094 301.732, 94.095 304.345, 93.826
Material Boundary	301.135, 99.813 303.849, 95.803 304.345, 95.2038
Material Boundary	357.331, 60.14 367.577, 56.042 379.845, 52.288 386.066, 50.724 395.033, 49.056 403.096, 47.979 412.862, 47.144 423.004, 46.8517
Material Boundary	353.818, 61.6494 355.869, 60.9087

Scenario-based Entities

Type	Coordinates (x,y)	Master Scenario
Water Table	173.517, 88.262 365.949, 51.915	Assigned to: Terrace (Qoa) Qlsr Fill (Af) Anisotropic Bedrock (Tm) Ultimate



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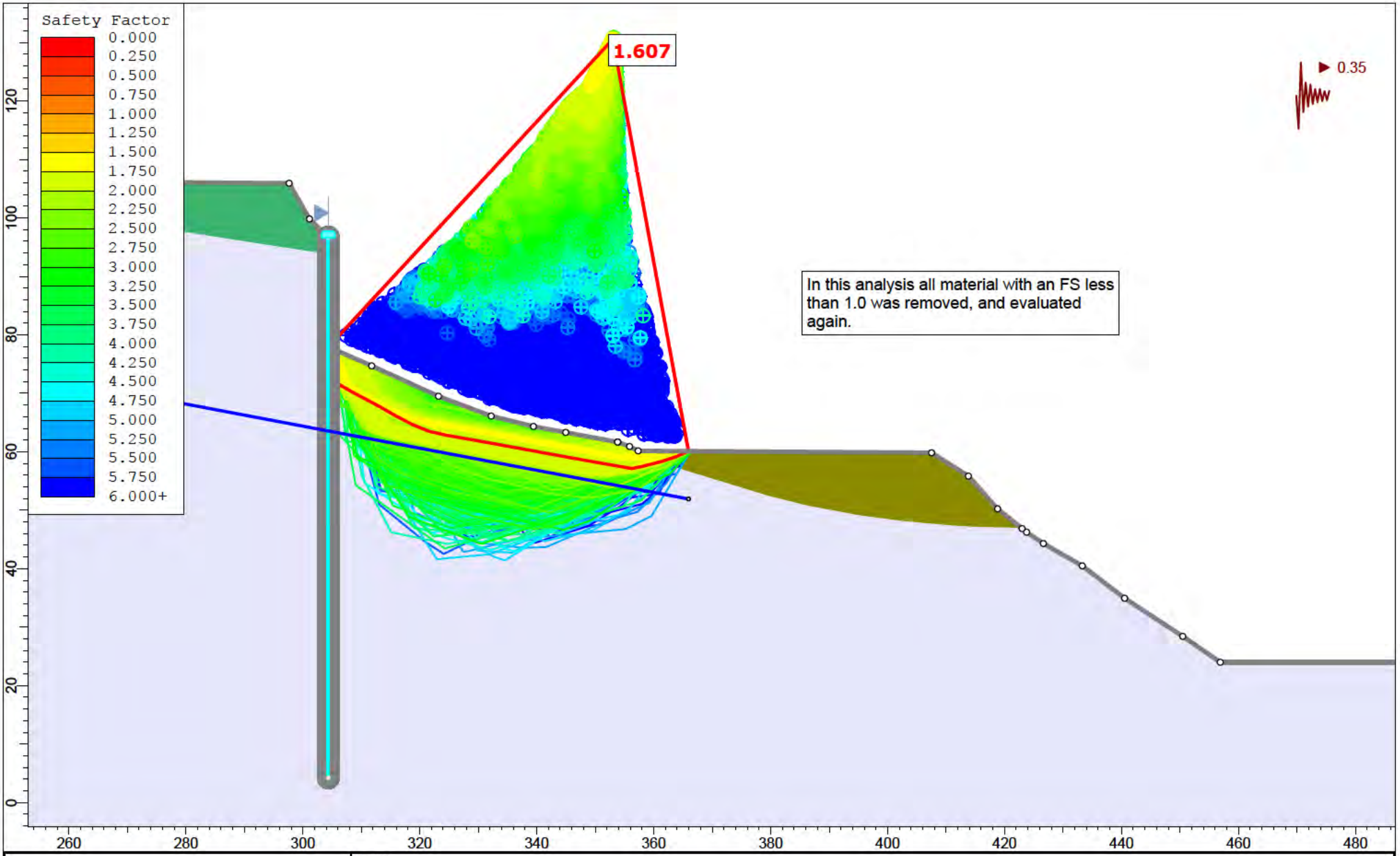
SLIDEINTERPRET 9.018

Project	Section 5-5'		
Analysis Description	Offsite Slope Removal (Seismic)		
Drawn By	A. Greene	Scale 1:272	Company Feffer Geological Consulting
Date			File Name Section 5-5' Translational Analysis_2.slmd



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SLIDEINTERPRET 9.018

Project	Section 5-5'				
Analysis Description	Offsite Slope Removal (Seismic)				
Drawn By	A. Greene	Scale	1:272	Company	Feffer Geological Consulting
Date				File Name	Section 5-5' Translational Analysis_2.slmd

Slide Analysis Information

Section 5-5' Translational Analysis_2

Project Summary

File Name:	Section 5-5' Translational Analysis_2.slmd
Slide Modeler Version:	9.018
Compute Time:	00h:00m:32.807s
Project Title:	Section 5-5'
Analysis:	Offsite Slope Removal (Seismic)
Author:	A. Greene
Company:	Feffer Geological Consulting

General Settings

Units of Measurement:	Imperial Units
Time Units:	days
Permeability Units:	feet/second
Data Output:	Standard
Failure Direction:	Left to Right

Analysis Options

Slices Type:	Vertical
Analysis Methods Used	
	Spencer
Number of slices:	50
Tolerance:	0.005
Maximum number of iterations:	75
Check malpha < 0.2:	Yes
Create Interslice boundaries at intersections with water tables and piezos:	Yes
Initial trial value of FS:	1
Steffensen Iteration:	Yes

Groundwater Analysis

Groundwater Method:	Water Surfaces
Pore Fluid Unit Weight [lbs/ft3]:	62.4
Use negative pore pressure cutoff:	Yes
Maximum negative pore pressure [psf]:	0
Advanced Groundwater Method:	None

Random Numbers

Pseudo-random Seed:	10116
Random Number Generation Method:	Park and Miller v.3

Surface Options

Search Method:	Cuckoo Search
Initial # of Surface Vertices:	8
Maximum Iterations:	500
Number of Nests:	50
Minimum Elevation:	Not Defined
Minimum Depth:	Not Defined
Minimum Area:	Not Defined
Minimum Weight:	Not Defined
Convex Surfaces Only:	Enabled

Seismic Loading

Advanced seismic analysis:	No
Staged pseudostatic analysis:	No
Seismic Load Coefficient (Horizontal):	0.35

Materials

Terrace (Qoa)	
Color	
Strength Type	Mohr-Coulomb
Unit Weight [lbs/ft3]	115
Cohesion [psf]	100
Friction Angle [deg]	31
Water Surface	Water Table
Hu Value	1
Qlsr	
Color	
Strength Type	Mohr-Coulomb
Unit Weight [lbs/ft3]	115
Cohesion [psf]	200
Friction Angle [deg]	12
Water Surface	Water Table
Hu Value	1
Fill (Af)	
Color	
Strength Type	Mohr-Coulomb
Unit Weight [lbs/ft3]	120
Cohesion [psf]	120
Friction Angle [deg]	31
Water Surface	Water Table
Hu Value	1
Anisotropic Bedrock (Tm) Peak	
Color	
Strength Type	Anisotropic function
Unit Weight [lbs/ft3]	124
Water Surface	Water Table
Hu Value	1

Anisotropic Functions

Name: Anisotropic Bedrock (Tm) Peak

Angle From	Angle To	c	phi
-90	-30	720	41
-30	-10	200	16
-10	90	720	41

Support

Pile 1 (Seismic)	
Color	
Type	Pile/Micro Pile
Force Application	Active (Method A)
Force Orientation	Parallel to surface
Out-Of-Plane Spacing	10 ft
Failure Mode	Shear
Pile Shear Strength	535000 lbs

Global Minimums

Method: spencer

FS	1.606770
Axis Location:	353.008, 130.550
Left Slip Surface Endpoint:	304.400, 77.924
Right Slip Surface Endpoint:	365.944, 60.087
Resisting Moment:	2.1617e+06 lb-ft
Driving Moment:	1.34537e+06 lb-ft
Resisting Horizontal Force:	26983.3 lb
Driving Horizontal Force:	16793.5 lb
Total Slice Area:	282.232 ft2
Surface Horizontal Width:	61.5442 ft
Surface Average Height:	4.58585 ft

Global Minimum Coordinates

Method: spencer

X	Y
304.4	77.9235
304.809	76.3234
305.217	74.709
305.651	72.9825
305.995	71.6137
308.2	70.3591
310.091	69.3387
311.982	68.3291
313.882	67.2986
315.783	66.2039
318.681	64.6731
321.579	63.4968
324.477	62.8305
327.375	62.3194
330.62	61.744
333.864	61.1603
337.108	60.559
340.352	59.9577
343.722	59.3563
347.038	58.7709
349.25	58.3693
351.427	57.9795
353.603	57.5901
356.216	57.1294
358.276	57.5645
361.323	58.3288
363.682	59.1051
365.944	60.0873

Global Minimum Support Data

Method: spencer

Number of Supports: 1

Pile 1 (Seismic)

Support Type: Pile/Micro Pile

Start (x, y)	Length (ft)	L Inside SS (ft)	L Outside SS (ft)	Li (ft)	Lo (ft)	Force (lb)
304.345, 96.688	92.486	Not Effective	Not Effective	Not Effective	Not Effective	0

Valid and Invalid Surfaces

Method: spencer

Number of Valid Surfaces:	14883
Number of Invalid Surfaces:	10196

Error Codes

Error Code -106 reported for 63 surfaces
Error Code -108 reported for 94 surfaces
Error Code -109 reported for 2 surfaces
Error Code -110 reported for 1478 surfaces
Error Code -111 reported for 812 surfaces
Error Code -112 reported for 104 surfaces
Error Code -121 reported for 477 surfaces
Error Code -145 reported for 20 surfaces
Error Code -1000 reported for 7146 surfaces

Error Code Descriptions

The following errors were encountered during the computation:

-106 = Average slice width is less than 0.0001 * (maximum horizontal extent of soil region). This limitation is imposed to avoid numerical errors which may result from too many slices, or too small a slip region.

-108 = Total driving moment or total driving force < 0.1. This is to limit the calculation of extremely high safety factors if the driving force is very small (0.1 is an arbitrary number).

-109 = Soiltype for slice base not located. This error should occur very rarely, if at all. It may occur if a very low number of slices is combined with certain soil geometries, such that the midpoint of a slice base is actually outside the soil region,even though the slip surface is wholly within the soil region.

-110 = The water table or a piezoline does not span the slip region for a given slip surface, when Water Surfaces is specified as the method of pore pressure calculation. If this error occurs, check that the water table or piezoline(s) span the appropriate soil cells.

-111 = Safety factor equation did not converge

-112 = The coefficient M-Alpha = cos(alpha)(1+tan(alpha)tan(phi)/F) < 0.2 for the final iteration of the safety factor calculation. This screens out some slip surfaces which may not be valid in the context of the analysis, in particular, deep seated slip surfaces with many high negative base angle slices in the passive zone.

-121 = Concave failure surface, only convex surfaces have been defined as being allowed.

-145 = Slip surface was clipped vertically by a weak layer in a region of compression. Such a surface cannot be evaluated using Limit Equilibrium. For more information, see Help Documentation on weak layers.

-1000 = No valid slip surface is generated

Slice Data

Global Minimum Query (spencer) - Safety Factor: 1.60677

Slice Number	Width [ft]	Weight [lbs]	Angle of Slice Base [deg]	Base Material	Base Cohesion [psf]	Base Friction Angle [deg]	Shear Stress [psf]	Shear Strength [psf]	Base Normal Stress [psf]	Pore Pressure [psf]	Effective Normal Stress [psf]	Base Vertical Stress [psf]	Effective Vertical Stress [psf]
1	0.40881	36.0087	-75.6688	Anisotropic Bedrock (Tm) Peak	720	41	239.113	384.199	-386.295	0	-386.295	549.65	549.65
2	0.408809	108.385	-75.7896	Anisotropic Bedrock (Tm) Peak	720	41	259.91	417.616	-347.853	0	-347.853	678.518	678.518
3	0.433409	194.745	-75.9084	Anisotropic Bedrock (Tm) Peak	720	41	281.282	451.956	-308.349	0	-308.349	812.179	812.179

4	0.344143	213.394	-75.8867	Anisotropic Bedrock (Tm) Peak	720	41	301.997	485.239	-270.061	0	-270.061	931.061	931.061
5	1.10249	776.644	-29.6389	Anisotropic Bedrock (Tm) Peak	200	16	213.365	342.828	498.099	0	498.099	619.499	619.499
6	1.10249	796.22	-29.6389	Anisotropic Bedrock (Tm) Peak	200	16	215.745	346.652	511.436	0	511.436	634.19	634.19
7	1.89084	1404.65	-28.3553	Anisotropic Bedrock (Tm) Peak	200	16	220.092	353.637	535.797	0	535.797	654.579	654.579
8	1.89084	1447.92	-28.0985	Anisotropic Bedrock (Tm) Peak	200	16	223.514	359.136	554.975	0	554.975	674.313	674.313
9	1.90054	1494.84	-28.4679	Anisotropic Bedrock (Tm) Peak	200	16	225.865	362.913	568.143	0	568.143	690.614	690.614
10	1.90054	1540.78	-29.9409	Anisotropic Bedrock (Tm) Peak	200	16	227.213	365.079	575.698	0	575.698	706.567	706.567
11	1.44909	1204.51	-27.8429	Anisotropic Bedrock (Tm) Peak	200	16	232.744	373.966	606.691	0	606.691	729.626	729.626
12	1.44909	1223.17	-27.8429	Anisotropic Bedrock (Tm) Peak	200	16	234.497	376.782	616.513	0	616.513	740.373	740.373
13	1.4491	1225.91	-22.0915	Anisotropic Bedrock (Tm) Peak	200	16	242.467	389.589	661.175	0	661.175	759.589	759.589
14	1.4491	1212.72	-22.0915	Anisotropic Bedrock (Tm) Peak	200	16	241.169	387.503	653.899	0	653.899	751.786	751.786
15	1.4491	1176.63	-12.9461	Anisotropic Bedrock (Tm) Peak	200	16	249.756	401.3	702.018	0	702.018	759.431	759.431
16	1.4491	1126.29	-12.9461	Anisotropic Bedrock (Tm) Peak	200	16	244.431	392.745	672.18	0	672.18	728.37	728.37
17	1.44911	1081.79	-10.0026	Anisotropic Bedrock (Tm) Peak	200	16	243.548	391.325	667.231	0	667.231	710.187	710.187
18	1.44911	1030.43	-10.0026	Anisotropic Bedrock (Tm) Peak	200	16	237.989	382.393	636.081	0	636.081	678.056	678.056
19	1.08142	735.578	-10.056	Anisotropic Bedrock (Tm) Peak	200	16	233.079	374.505	608.57	0	608.57	649.903	649.903
20	1.08142	707.115	-10.056	Anisotropic Bedrock (Tm) Peak	200	16	228.952	367.874	585.447	0	585.447	626.048	626.048
21	1.08142	678.652	-10.056	Anisotropic Bedrock (Tm) Peak	200	16	224.826	361.244	562.323	0	562.323	602.193	602.193
22	1.62213	965.042	-10.1993	Anisotropic Bedrock (Tm) Peak	200	16	219.547	352.762	532.745	0	532.745	572.245	572.245
23	1.62213	923.574	-10.1993	Anisotropic Bedrock (Tm) Peak	200	16	215.544	346.329	510.311	0	510.311	549.091	549.091
24	1.62213	902.793	-10.501	Anisotropic Bedrock (Tm) Peak	200	16	213.212	342.582	497.242	0	497.242	536.762	536.762
25	1.62213	882.9	-10.501	Anisotropic Bedrock (Tm) Peak	200	16	211.295	339.503	486.505	0	486.505	525.67	525.67
26	1.08142	577.548	-10.501	Anisotropic Bedrock (Tm) Peak	200	16	209.698	336.937	477.558	0	477.558	516.427	516.427
27	1.08142	568.707	-10.501	Anisotropic Bedrock (Tm) Peak	200	16	208.421	334.885	470.399	0	470.399	509.032	509.032
28	1.08142	562.999	-10.501	Anisotropic Bedrock (Tm) Peak	200	16	207.597	333.56	465.778	0	465.778	504.257	504.257

29	1.12304	583.905	-10.1194	Anisotropic Bedrock (Tm) Peak	200	16	207.885	334.024	467.399	0	467.399	504.502	504.502
30	1.12304	582.707	-10.1194	Anisotropic Bedrock (Tm) Peak	200	16	207.719	333.756	466.462	0	466.462	503.535	503.535
31	1.12304	581.508	-10.1194	Anisotropic Bedrock (Tm) Peak	200	16	207.551	333.487	465.525	0	465.525	502.568	502.568
32	1.65841	856.199	-10.0105	Anisotropic Bedrock (Tm) Peak	200	16	207.425	333.285	464.82	0	464.82	501.434	501.434
33	1.65841	852.942	-10.0105	Anisotropic Bedrock (Tm) Peak	200	16	207.117	332.79	463.093	0	463.093	499.653	499.653
34	1.10561	567.21	-10.294	Anisotropic Bedrock (Tm) Peak	200	16	206.624	331.998	460.332	0	460.332	497.859	497.859
35	1.10561	566.541	-10.294	Anisotropic Bedrock (Tm) Peak	200	16	206.53	331.846	459.8	0	459.8	497.311	497.311
36	1.0886	556.982	-10.15	Anisotropic Bedrock (Tm) Peak	200	16	206.556	331.888	459.948	0	459.948	496.927	496.927
37	1.0886	555.951	-10.15	Anisotropic Bedrock (Tm) Peak	200	16	206.408	331.65	459.117	0	459.117	496.07	496.07
38	1.08821	554.715	-10.1448	Anisotropic Bedrock (Tm) Peak	200	16	206.263	331.418	458.311	0	458.311	495.218	495.218
39	1.08821	553.671	-10.1448	Anisotropic Bedrock (Tm) Peak	200	16	206.114	331.177	457.469	0	457.469	494.349	494.349
40	1.30629	650.706	-10.0004	Anisotropic Bedrock (Tm) Peak	200	16	204.59	328.729	448.933	0	448.933	485.009	485.009
41	1.30629	610.385	-10.0004	Anisotropic Bedrock (Tm) Peak	200	16	199.749	320.95	421.803	0	421.803	457.026	457.026
42	1.02989	410.879	11.9272	Anisotropic Bedrock (Tm) Peak	720	41	904.067	1452.63	842.791	0	842.791	651.826	651.826
43	1.02989	341.999	11.9272	Anisotropic Bedrock (Tm) Peak	720	41	856.127	1375.6	754.18	0	754.18	573.341	573.341
44	1.5237	444.45	14.0804	Anisotropic Bedrock (Tm) Peak	720	41	860.536	1382.68	762.333	0	762.333	546.495	546.495
45	1.5237	366.824	14.0804	Anisotropic Bedrock (Tm) Peak	720	41	822.223	1321.12	691.514	0	691.514	485.285	485.285
46	0.294281	61.4823	18.2158	Anisotropic Bedrock (Tm) Peak	720	41	868.229	1395.04	776.55	0	776.55	490.825	490.825
47	1.03236	187.697	18.2158	Fill (Af)	120	31	188.428	302.76	304.163	0	304.163	242.154	242.154
48	1.03236	144.827	18.2158	Fill (Af)	120	31	167.985	269.913	249.497	0	249.497	194.215	194.215
49	1.13096	101.383	23.4719	Fill (Af)	120	31	155.221	249.404	215.365	0	215.365	147.964	147.964
50	1.13096	33.7942	23.4719	Fill (Af)	120	31	122.594	196.981	128.118	0	128.118	74.8842	74.8842

Interslice Data

Global Minimum Query (spencer) - Safety Factor: 1.60677

Slice Number	X coordinate [ft]	Y coordinate - Bottom [ft]	Interslice Normal Force [lbs]	Interslice Shear Force [lbs]	Interslice Force Angle [deg]
1	304.4	77.9235	0	0	0
2	304.809	76.3234	-703.29	-188.7	15.0193
3	305.217	74.709	-1333.17	-357.704	15.0193
4	305.651	72.9825	-1919.3	-514.969	15.0193
5	305.995	71.6137	-2318.19	-621.995	15.0193
6	307.097	70.9864	-1969.14	-528.343	15.0194
7	308.2	70.3591	-1607.5	-431.311	15.0194
8	310.091	69.3387	-985.273	-264.36	15.0194
9	311.982	68.3291	-340.859	-91.4561	15.0193
10	313.882	67.2986	338.557	90.8386	15.0193
11	315.783	66.2039	1076.2	288.756	15.0193
12	317.232	65.4385	1624.88	435.972	15.0193
13	318.681	64.6731	2185.06	586.276	15.0193
14	320.13	64.0849	2651.65	711.468	15.0194
15	321.579	63.4968	3111.23	834.778	15.0194
16	323.028	63.1636	3394.99	910.912	15.0193
17	324.477	62.8305	3658.9	981.722	15.0193
18	325.926	62.5749	3855.13	1034.37	15.0193
19	327.375	62.3194	4033.48	1082.23	15.0194
20	328.457	62.1276	4155.58	1114.99	15.0194
21	329.538	61.9358	4267.75	1145.08	15.0193
22	330.62	61.744	4369.99	1172.52	15.0194
23	332.242	61.4522	4507.1	1209.3	15.0193
24	333.864	61.1603	4629.64	1242.18	15.0193
25	335.486	60.8597	4749.27	1274.28	15.0193
26	337.108	60.559	4861.82	1304.48	15.0193
27	338.19	60.3586	4932.91	1323.55	15.0193
28	339.271	60.1581	5000.86	1341.79	15.0194
29	340.352	59.9577	5066.78	1359.47	15.0193
30	341.476	59.7572	5131.36	1376.8	15.0193
31	342.599	59.5568	5195.53	1394.02	15.0194
32	343.722	59.3563	5259.28	1411.12	15.0193
33	345.38	59.0636	5351.02	1435.74	15.0194
34	347.038	58.7709	5441.63	1460.05	15.0193
35	348.144	58.5701	5504.14	1476.82	15.0193
36	349.25	58.3693	5566.42	1493.53	15.0193
37	350.338	58.1744	5626.14	1509.56	15.0194
38	351.427	57.9795	5685.51	1525.48	15.0193
39	352.515	57.7848	5744.44	1541.3	15.0194
40	353.603	57.5901	5803.01	1557.01	15.0193
41	354.91	57.3597	5866.91	1574.16	15.0194
42	356.216	57.1294	5916.77	1587.53	15.0193
43	357.246	57.3469	4946.15	1327.11	15.0194
44	358.276	57.5645	4020.07	1078.63	15.0194
45	359.799	57.9466	2573.08	690.386	15.0193
46	361.323	58.3288	1184.37	317.778	15.0193
47	361.617	58.4256	875.178	234.82	15.0193
48	362.65	58.7654	643.01	172.527	15.0194
49	363.682	59.1051	435.514	116.853	15.0193
50	364.813	59.5962	189.684	50.8943	15.0193
51	365.944	60.0873	0	0	0

Discharge Sections

Entity Information

Offsite Slope Removal (Seismic)

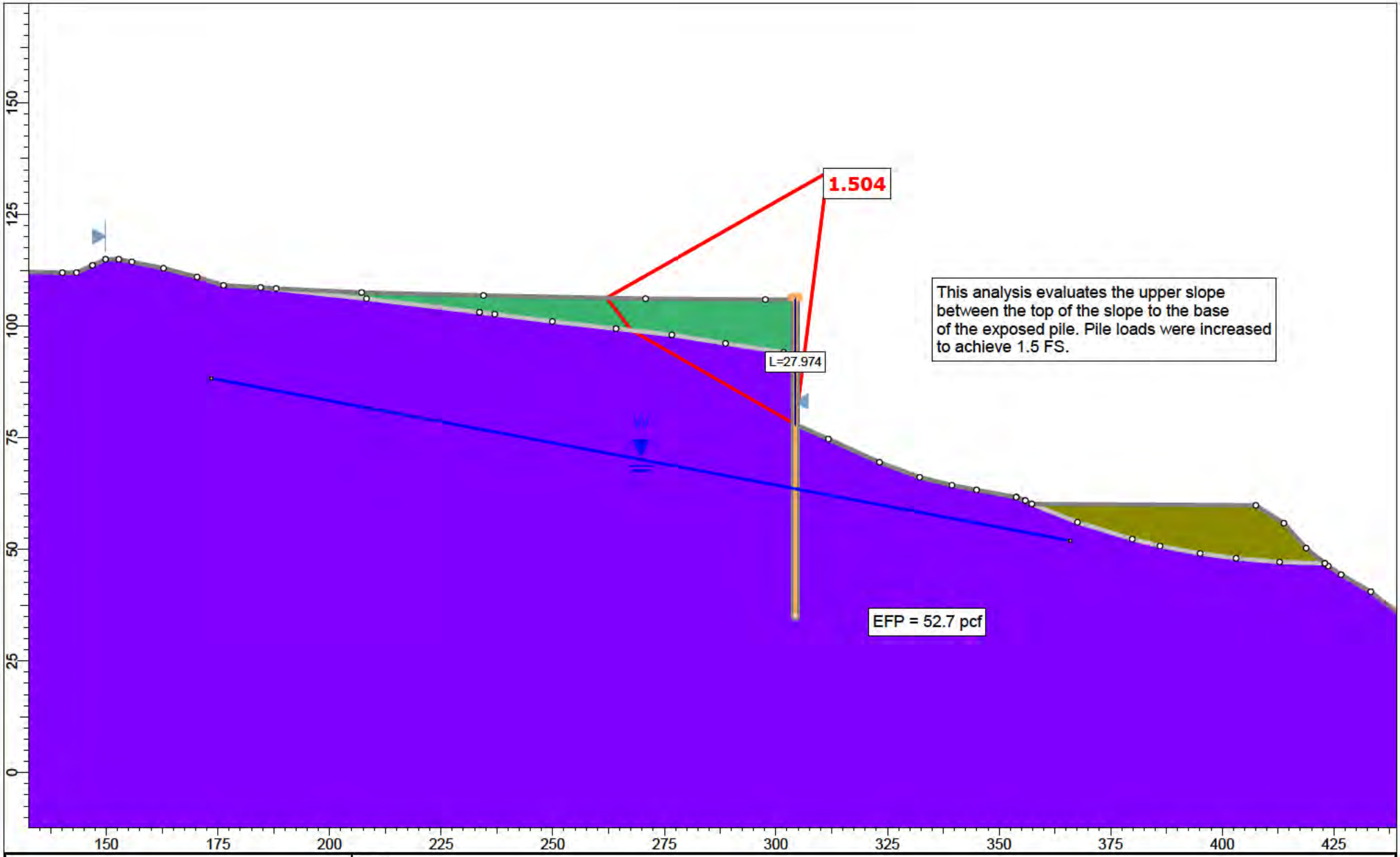
Shared Entities

Type	Coordinates (x,y)
External Boundary	-0.069, -51.999 505.65, -51.999 505.65, 3.34239 505.65, 23.996 456.88, 23.996 450.477, 28.41 440.53, 34.944 433.29, 40.476 426.639, 44.302 423.755, 46.244 423.004, 46.8517 418.811, 50.247 413.808, 55.838 407.518, 59.833 357.331, 60.14 355.869, 60.9087 353.86, 61.6416 353.818, 61.6494 344.956, 63.298 339.436, 64.3255 332.204, 66.1071 323.178, 69.4793 311.767, 74.6885 304.345, 77.9476 304.345, 93.826 304.345, 95.2038 304.345, 96.688 301.135, 99.813 297.645, 105.922 270.795, 106.125 234.496, 106.839 207.178, 107.499 188.028, 108.403 184.544, 108.609 176.246, 109.098 170.303, 110.975 162.796, 112.921 155.706, 114.346 152.752, 114.937 149.812, 114.937 146.89, 113.576 143.281, 111.947 140.125, 111.947 130.834, 112.148 118.104, 112.62 97.314, 112.989 77.715, 113.708 63.815, 113.708 59.431, 115.65 51.517, 120.438 43.992, 124.971 35.344, 130.477 26.443, 135.548 16.015, 142.086 4.531, 149.145 2.684, 150.314 -0.069, 152.158

Material Boundary	184.544, 108.609 208.27, 106.116 233.606, 103.075 237.006, 102.646 249.906, 101.02 264.178, 99.388 276.678, 98.008 288.727, 96.094 301.732, 94.095 304.345, 93.826
Material Boundary	301.135, 99.813 303.849, 95.803 304.345, 95.2038
Material Boundary	357.331, 60.14 367.577, 56.042 379.845, 52.288 386.066, 50.724 395.033, 49.056 403.096, 47.979 412.862, 47.144 423.004, 46.8517
Material Boundary	353.818, 61.6494 355.869, 60.9087

Scenario-based Entities

Type	Coordinates (x,y)	Master Scenario
Water Table	173.517, 88.262 365.949, 51.915	Assigned to: Terrace (Qoa) Qlsr Fill (Af) Anisotropic Bedrock (Tm) Peak



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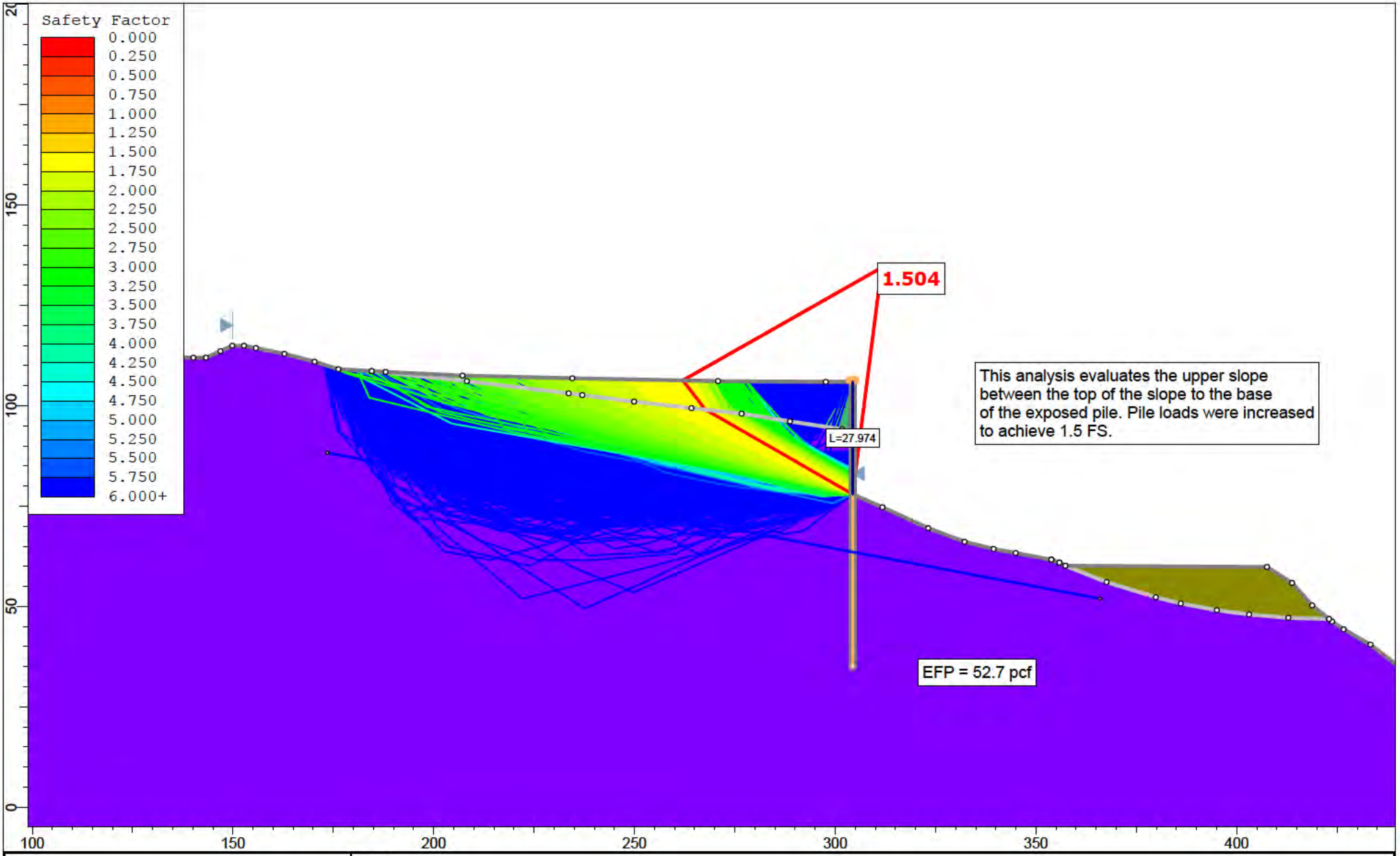
Project	Section 5-5'				
Analysis Description	Upper Slope (Static)				
Drawn By	A. Greene	Scale	1:357	Company	Feffer Geological Consulting
Date				File Name	Section 5-5' Translational Analysis_2.slmd

SLIDEINTERPRET 9.018



rocscience

SLIDEINTERPRET 9.018

Project	Section 5-5'				
Analysis Description	Upper Slope (Static)				
Drawn By	A. Greene	Scale	1:397	Company	Feffer Geological Consulting
Date				File Name	Section 5-5' Translational Analysis_2.slmd

Slide Analysis Information

Section 5-5' Translational Analysis_2

Project Summary

File Name:	Section 5-5' Translational Analysis_2.slmd
Slide Modeler Version:	9.018
Compute Time:	00h:00m:10.360s
Project Title:	Section 5-5'
Analysis:	Upper Slope (Static)
Author:	A. Greene
Company:	Feffer Geological Consulting

General Settings

Units of Measurement:	Imperial Units
Time Units:	days
Permeability Units:	feet/second
Data Output:	Standard
Failure Direction:	Left to Right

Analysis Options

Slices Type:	Vertical
Analysis Methods Used	
	Spencer
Number of slices:	50
Tolerance:	0.005
Maximum number of iterations:	75
Check malpha < 0.2:	Yes
Create Interslice boundaries at intersections with water tables and piezos:	Yes
Initial trial value of FS:	1
Steffensen Iteration:	Yes

Groundwater Analysis

Groundwater Method:	Water Surfaces
Pore Fluid Unit Weight [lbs/ft3]:	62.4
Use negative pore pressure cutoff:	Yes
Maximum negative pore pressure [psf]:	0
Advanced Groundwater Method:	None

Random Numbers

Pseudo-random Seed:	10116
Random Number Generation Method:	Park and Miller v.3

Surface Options

Search Method:	Cuckoo Search
Initial # of Surface Vertices:	8
Maximum Iterations:	500
Number of Nests:	50
Minimum Elevation:	Not Defined
Minimum Depth:	Not Defined
Minimum Area:	Not Defined
Minimum Weight:	Not Defined
Convex Surfaces Only:	Enabled

Seismic Loading

Advanced seismic analysis:	No
Staged pseudostatic analysis:	No

Materials

Terrace (Qoa)	
Color	
Strength Type	Mohr-Coulomb
Unit Weight [lbs/ft3]	115
Cohesion [psf]	100
Friction Angle [deg]	31
Water Surface	Water Table
Hu Value	1
Qlsr	
Color	
Strength Type	Mohr-Coulomb
Unit Weight [lbs/ft3]	115
Cohesion [psf]	200
Friction Angle [deg]	12
Water Surface	Water Table
Hu Value	1
Fill (Af)	
Color	
Strength Type	Mohr-Coulomb
Unit Weight [lbs/ft3]	120
Cohesion [psf]	120
Friction Angle [deg]	31
Water Surface	Water Table
Hu Value	1
Anisotropic Bedrock (Tm) Ultimate	
Color	
Strength Type	Anisotropic function
Unit Weight [lbs/ft3]	124
Water Surface	Water Table
Hu Value	1

Anisotropic Functions

Name: Anisotropic Bedrock (Tm) Ultimate

Angle From	Angle To	c	phi
-90	-30	520	34.5
-30	-10	200	16
-10	90	520	34.5

Support

Pile (Static)	
Color	
Type	Pile/Micro Pile
Force Application	Active (Method A)
Force Orientation	Parallel to surface
Out-Of-Plane Spacing	10 ft
Failure Mode	Shear
Pile Shear Strength	205000 lbs

Global Minimums

Method: spencer

FS	1.503950
Axis Location:	311.561, 134.387
Left Slip Surface Endpoint:	262.080, 106.296
Right Slip Surface Endpoint:	304.345, 77.948
Left Slope Intercept:	262.080 106.296
Right Slope Intercept:	304.345 105.922
Resisting Moment:	1.54947e+06 lb-ft
Driving Moment:	1.03027e+06 lb-ft
Resisting Horizontal Force:	25019.6 lb
Driving Horizontal Force:	16635.9 lb
Active Support Moment:	-1.07678e+06 lb-ft
Active Horizontal Support Force:	-17771.9 lb
Maximum Single Support Force:	20500 lb
Total Support Force:	20500 lb
Total Slice Area:	662.809 ft2
Surface Horizontal Width:	42.2653 ft
Surface Average Height:	15.6821 ft

Global Minimum Coordinates

Method: spencer

X	Y
262.08	106.296
267.611	99.0759
272.871	96.0441
276.281	94.0835
288.607	86.9964
290.446	85.939
300.121	80.3762
304.345	77.9476
304.346	105.922

Global Minimum Support Data

Method: spencer

Number of Supports: 1

Pile (Static)

Support Type: Pile/Micro Pile

Start (x, y)	Length (ft)	L Inside SS (ft)	L Outside SS (ft)	Li (ft)	Lo (ft)	Force (lb)
304.345, 105.922	70.888	27.9744	42.9136	27.9744	42.9136	20500

Valid and Invalid Surfaces

Method: spencer

Number of Valid Surfaces:	19241
Number of Invalid Surfaces:	5814

Error Codes

Error Code -106 reported for 13 surfaces
Error Code -108 reported for 363 surfaces
Error Code -109 reported for 1 surface
Error Code -110 reported for 444 surfaces
Error Code -111 reported for 4213 surfaces
Error Code -112 reported for 178 surfaces
Error Code -121 reported for 83 surfaces
Error Code -124 reported for 2 surfaces
Error Code -145 reported for 34 surfaces
Error Code -1000 reported for 483 surfaces

Error Code Descriptions

The following errors were encountered during the computation:

-106 = Average slice width is less than 0.0001 * (maximum horizontal extent of soil region). This limitation is imposed to avoid numerical errors which may result from too many slices, or too small a slip region.

-108 = Total driving moment or total driving force < 0.1. This is to limit the calculation of extremely high safety factors if the driving force is very small (0.1 is an arbitrary number).

-109 = Soiltype for slice base not located. This error should occur very rarely, if at all. It may occur if a very low number of slices is combined with certain soil geometries, such that the midpoint of a slice base is actually outside the soil region,even though the slip surface is wholly within the soil region.

-110 = The water table or a piezoline does not span the slip region for a given slip surface, when Water Surfaces is specified as the method of pore pressure calculation. If this error occurs, check that the water table or piezoline(s) span the appropriate soil cells.

-111 = Safety factor equation did not converge

-112 = The coefficient M-Alpha = cos(alpha)(1+tan(alpha)tan(phi)/F) < 0.2 for the final iteration of the safety factor calculation. This screens out some slip surfaces which may not be valid in the context of the analysis, in particular, deep seated slip surfaces with many high negative base angle slices in the passive zone.

-121 = Concave failure surface, only convex surfaces have been defined as being allowed.

-124 = A slice has a width less than the minimum acceptable value.

-145 = Slip surface was clipped vertically by a weak layer in a region of compression. Such a surface cannot be evaluated using Limit Equilibrium. For more information, see Help Documentation on weak layers.

-1000 = No valid slip surface is generated

Slice Data

Global Minimum Query (spencer) - Safety Factor: 1.50395

Slice Number	Width [ft]	Weight [lbs]	Angle of Slice Base [deg]	Base Material	Base Cohesion [psf]	Base Friction Angle [deg]	Shear Stress [psf]	Shear Strength [psf]	Base Normal Stress [psf]	Pore Pressure [psf]	Effective Normal Stress [psf]	Base Vertical Stress [psf]	Effective Vertical Stress [psf]
1	0.921904	62.8318	-52.5455	Terrace (Qoa)	100	31	69.6275	104.716	7.8492	0	7.8492	98.7389	98.7389
2	0.921904	188.495	-52.5455	Terrace (Qoa)	100	31	97.6629	146.88	78.0217	0	78.0217	205.508	205.508
3	0.921904	314.159	-52.5455	Terrace (Qoa)	100	31	125.698	189.044	148.194	0	148.194	312.276	312.276
4	0.921904	439.823	-52.5455	Terrace (Qoa)	100	31	153.734	231.208	218.366	0	218.366	419.046	419.046
5	0.921904	565.486	-52.5455	Terrace (Qoa)	100	31	181.769	273.371	288.539	0	288.539	525.814	525.814
6	0.921904	691.15	-52.5455	Terrace (Qoa)	100	31	209.804	315.535	358.711	0	358.711	632.583	632.583
7	0.143521	118.039	-29.9607	Terrace (Qoa)	100	31	313.663	471.733	618.67	0	618.67	799.476	799.476
8	0.852664	729.989	-29.9607	Anisotropic Bedrock (Tm) Ultimate	200	16	256.528	385.805	647.979	0	647.979	795.851	795.851
9	0.852664	779.589	-29.9607	Anisotropic Bedrock (Tm) Ultimate	200	16	264.959	398.485	692.2	0	692.2	844.932	844.932
10	0.852664	829.189	-29.9607	Anisotropic Bedrock (Tm) Ultimate	200	16	273.391	411.166	736.422	0	736.422	894.014	894.014
11	0.852664	878.884	-29.9607	Anisotropic Bedrock (Tm) Ultimate	200	16	281.838	423.87	780.728	0	780.728	943.189	943.189
12	0.852664	929.335	-29.9607	Anisotropic Bedrock (Tm) Ultimate	200	16	290.414	436.768	825.708	0	825.708	993.113	993.113
13	0.852664	979.947	-29.9607	Anisotropic Bedrock (Tm) Ultimate	200	16	299.017	449.707	870.832	0	870.832	1043.2	1043.2
14	0.8525	1030.29	-29.8973	Anisotropic Bedrock (Tm) Ultimate	200	16	307.771	462.872	916.743	0	916.743	1093.7	1093.7
15	0.8525	1080.75	-29.8973	Anisotropic Bedrock (Tm) Ultimate	200	16	316.356	475.784	961.774	0	961.774	1143.67	1143.67
16	0.8525	1131.21	-29.8973	Anisotropic Bedrock (Tm) Ultimate	200	16	324.942	488.697	1006.8	0	1006.8	1193.63	1193.63
17	0.8525	1181.67	-29.8973	Anisotropic Bedrock (Tm) Ultimate	200	16	333.528	501.609	1051.84	0	1051.84	1243.6	1243.6
18	0.821746	1186.77	-29.8972	Anisotropic Bedrock (Tm) Ultimate	200	16	341.952	514.278	1096.02	0	1096.02	1292.63	1292.63
19	0.821746	1233.39	-29.8972	Anisotropic Bedrock (Tm) Ultimate	200	16	350.182	526.656	1139.18	0	1139.18	1340.52	1340.52

20	0.821746	1279.98	-29.8972	Anisotropic Bedrock (Tm) Ultimate	200	16	358.406	539.024	1182.32	0	1182.32	1388.39	1388.39
21	0.821746	1326.57	-29.8972	Anisotropic Bedrock (Tm) Ultimate	200	16	366.63	551.393	1225.45	0	1225.45	1436.25	1436.25
22	0.821746	1373.16	-29.8972	Anisotropic Bedrock (Tm) Ultimate	200	16	374.854	563.761	1268.59	0	1268.59	1484.11	1484.11
23	0.821746	1419.75	-29.8972	Anisotropic Bedrock (Tm) Ultimate	200	16	383.077	576.129	1311.72	0	1311.72	1531.98	1531.98
24	0.821746	1466.34	-29.8972	Anisotropic Bedrock (Tm) Ultimate	200	16	391.302	588.498	1354.85	0	1354.85	1579.83	1579.83
25	0.821746	1512.93	-29.8972	Anisotropic Bedrock (Tm) Ultimate	200	16	399.525	600.866	1397.99	0	1397.99	1627.7	1627.7
26	0.821746	1559.53	-29.8972	Anisotropic Bedrock (Tm) Ultimate	200	16	407.749	613.234	1441.12	0	1441.12	1675.56	1675.56
27	0.821746	1606.12	-29.8972	Anisotropic Bedrock (Tm) Ultimate	200	16	415.973	625.603	1484.25	0	1484.25	1723.42	1723.42
28	0.821746	1652.71	-29.8972	Anisotropic Bedrock (Tm) Ultimate	200	16	424.197	637.971	1527.39	0	1527.39	1771.29	1771.29
29	0.821746	1699.3	-29.8972	Anisotropic Bedrock (Tm) Ultimate	200	16	432.421	650.34	1570.52	0	1570.52	1819.14	1819.14
30	0.821746	1745.89	-29.8972	Anisotropic Bedrock (Tm) Ultimate	200	16	440.645	662.708	1613.66	0	1613.66	1867.01	1867.01
31	0.821746	1792.48	-29.8972	Anisotropic Bedrock (Tm) Ultimate	200	16	448.869	675.076	1656.79	0	1656.79	1914.87	1914.87
32	0.821746	1839.07	-29.8972	Anisotropic Bedrock (Tm) Ultimate	200	16	457.093	687.445	1699.92	0	1699.92	1962.73	1962.73
33	0.919527	2113.15	-29.8972	Anisotropic Bedrock (Tm) Ultimate	200	16	465.808	700.552	1745.63	0	1745.63	2013.45	2013.45
34	0.919527	2171.53	-29.8972	Anisotropic Bedrock (Tm) Ultimate	200	16	475.017	714.402	1793.93	0	1793.93	2067.05	2067.05
35	0.879562	2131.78	-29.8972	Anisotropic Bedrock (Tm) Ultimate	200	16	484.025	727.95	1841.18	0	1841.18	2119.48	2119.48
36	0.879562	2185.19	-29.8972	Anisotropic Bedrock (Tm) Ultimate	200	16	492.834	741.198	1887.38	0	1887.38	2170.74	2170.74
37	0.879562	2238.6	-29.8972	Anisotropic Bedrock (Tm) Ultimate	200	16	501.642	754.445	1933.58	0	1933.58	2222	2222
38	0.879562	2292.02	-29.8972	Anisotropic Bedrock (Tm) Ultimate	200	16	510.451	767.693	1979.78	0	1979.78	2273.27	2273.27

39	0.879562	2345.43	-29.8972	Anisotropic Bedrock (Tm) Ultimate	200	16	519.259	780.94	2025.98	0	2025.98	2324.53	2324.53
40	0.879562	2398.84	-29.8972	Anisotropic Bedrock (Tm) Ultimate	200	16	528.068	794.188	2072.17	0	2072.17	2375.79	2375.79
41	0.879562	2452.26	-29.8972	Anisotropic Bedrock (Tm) Ultimate	200	16	536.876	807.435	2118.38	0	2118.38	2427.06	2427.06
42	0.879562	2505.67	-29.8972	Anisotropic Bedrock (Tm) Ultimate	200	16	545.685	820.683	2164.58	0	2164.58	2478.32	2478.32
43	0.879562	2559.31	-29.8972	Anisotropic Bedrock (Tm) Ultimate	200	16	554.53	833.985	2210.97	0	2210.97	2529.8	2529.8
44	0.879562	2613.38	-29.8972	Anisotropic Bedrock (Tm) Ultimate	200	16	563.448	847.397	2257.74	0	2257.74	2581.7	2581.7
45	0.879562	2667.47	-29.8972	Anisotropic Bedrock (Tm) Ultimate	200	16	572.367	860.811	2304.53	0	2304.53	2633.61	2633.61
46	0.844788	2612.93	-29.8972	Anisotropic Bedrock (Tm) Ultimate	200	16	581.11	873.96	2350.38	0	2350.38	2684.49	2684.49
47	0.844788	2662.82	-29.8972	Anisotropic Bedrock (Tm) Ultimate	200	16	589.677	886.845	2395.31	0	2395.31	2734.36	2734.36
48	0.844788	2712.91	-29.8972	Anisotropic Bedrock (Tm) Ultimate	200	16	598.277	899.778	2440.42	0	2440.42	2784.4	2784.4
49	0.844788	2763.13	-29.8972	Anisotropic Bedrock (Tm) Ultimate	200	16	606.899	912.746	2485.64	0	2485.64	2834.58	2834.58
50	0.844788	2813.35	-29.8972	Anisotropic Bedrock (Tm) Ultimate	200	16	470.599	707.757	1770.76	0	1770.76	2041.33	2041.33

Interslice Data

Global Minimum Query (spencer) - Safety Factor: 1.50395

Slice Number	X coordinate [ft]	Y coordinate - Bottom [ft]	Interslice Normal Force [lbs]	Interslice Shear Force [lbs]	Interslice Force Angle [deg]
1	262.08	106.296	0	0	0
2	263.002	105.093	-54.5481	-30.8091	29.458
3	263.924	103.89	-50.416	-28.4753	29.4581
4	264.845	102.686	12.3962	7.00147	29.4581
5	265.767	101.483	133.889	75.6212	29.458
6	266.689	100.279	314.061	177.384	29.4581
7	267.611	99.0759	552.914	312.289	29.458
8	267.755	98.9931	559.217	315.849	29.458
9	268.607	98.5016	659.637	372.567	29.458
10	269.46	98.0101	774.626	437.513	29.458
11	270.313	97.5186	904.182	510.688	29.458
12	271.165	97.0271	1048.33	592.106	29.4581
13	272.018	96.5356	1207.3	681.893	29.4581
14	272.871	96.0441	1381.14	780.076	29.458
15	273.723	95.554	1568.91	886.131	29.4581
16	274.576	95.0638	1771.46	1000.53	29.458
17	275.428	94.5736	1988.78	1123.28	29.4581
18	276.281	94.0835	2220.88	1254.37	29.4581
19	277.102	93.611	2458.58	1388.62	29.458
20	277.924	93.1385	2709.92	1530.58	29.458
21	278.746	92.6661	2974.92	1680.25	29.458
22	279.568	92.1936	3253.55	1837.62	29.458
23	280.389	91.7211	3545.82	2002.7	29.458
24	281.211	91.2487	3851.74	2175.49	29.4581
25	282.033	90.7762	4171.3	2355.98	29.4581
26	282.855	90.3037	4504.5	2544.17	29.458
27	283.676	89.8312	4851.35	2740.07	29.458
28	284.498	89.3588	5211.83	2943.67	29.458
29	285.32	88.8863	5585.96	3154.98	29.458
30	286.142	88.4138	5973.73	3374	29.458
31	286.963	87.9414	6375.14	3600.72	29.458
32	287.785	87.4689	6790.19	3835.14	29.458
33	288.607	86.9964	7218.89	4077.27	29.458
34	289.526	86.4677	7714.78	4357.35	29.458
35	290.446	85.939	8227.75	4647.09	29.4581
36	291.325	85.4333	8734.43	4933.26	29.458
37	292.205	84.9276	9256.75	5228.27	29.458
38	293.085	84.4219	9794.71	5532.11	29.458
39	293.964	83.9162	10348.3	5844.79	29.4581
40	294.844	83.4105	10917.5	6166.29	29.4581
41	295.723	82.9048	11502.4	6496.64	29.4581
42	296.603	82.399	12102.9	6835.81	29.4581
43	297.482	81.8933	12719.1	7183.82	29.458
44	298.362	81.3876	13351	7540.7	29.4579
45	299.241	80.8819	13998.6	7906.52	29.4581
46	300.121	80.3762	14662.2	8281.29	29.458
47	300.966	79.8905	15314.4	8649.66	29.458
48	301.811	79.4047	15981.2	9026.28	29.458
49	302.655	78.919	16662.7	9411.19	29.458
50	303.5	78.4333	17358.9	9804.4	29.458
51	304.345	77.9476	0	0	0

Discharge Sections

Entity Information

Upper Slope (Static)

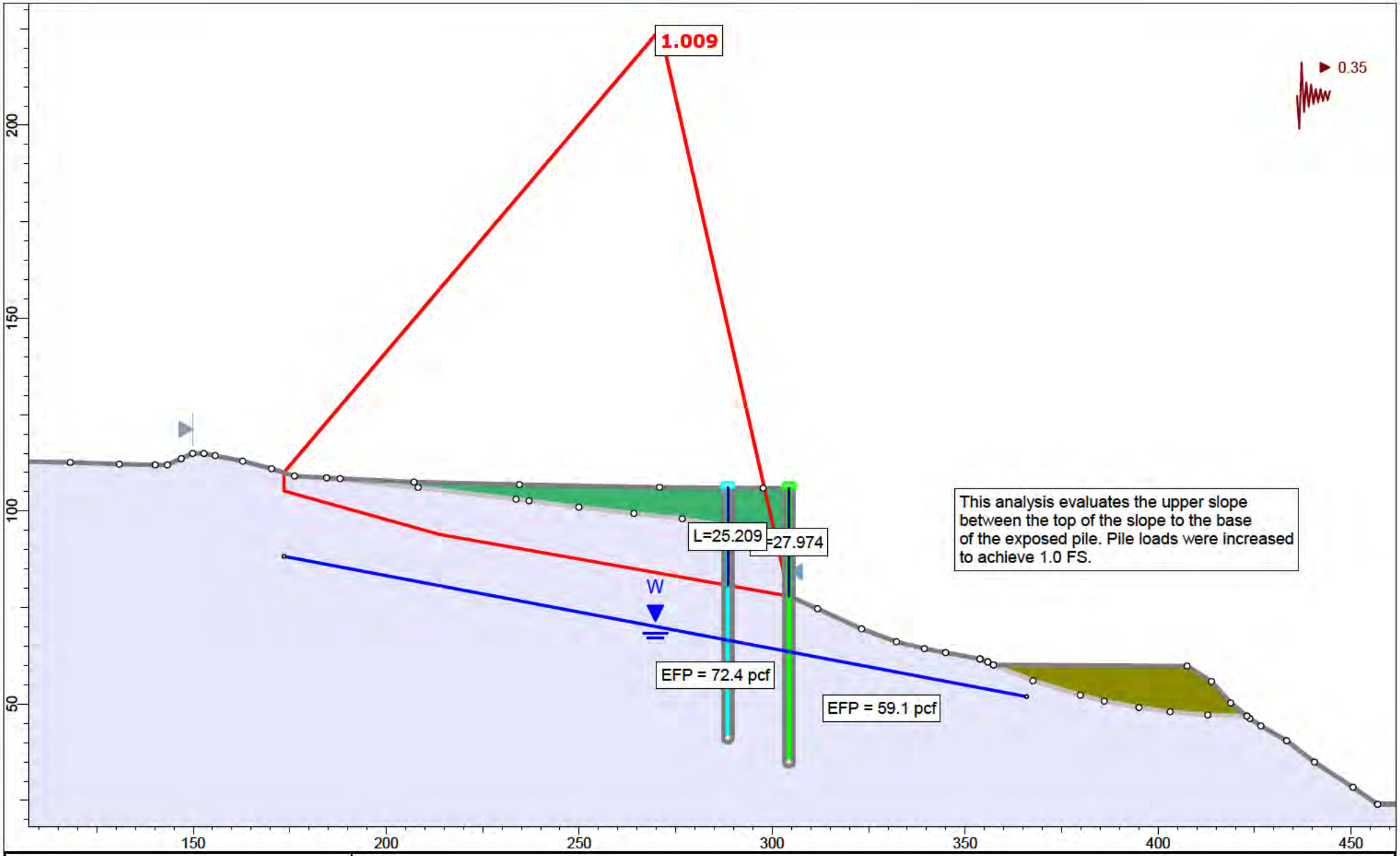
Shared Entities

Type	Coordinates (x,y)
External Boundary	-0.069, -51.999 505.65, -51.999 505.65, 3.34239 505.65, 23.996 456.88, 23.996 450.477, 28.41 440.53, 34.944 433.29, 40.476 426.639, 44.302 423.755, 46.244 423.004, 46.8517 418.811, 50.247 413.808, 55.838 407.518, 59.833 357.331, 60.14 355.869, 60.9087 353.86, 61.6416 353.818, 61.6494 344.956, 63.298 339.436, 64.3255 332.204, 66.1071 323.178, 69.4793 311.767, 74.6885 304.345, 77.9476 304.345, 93.826 304.345, 95.2038 304.345, 96.688 304.345, 105.922 297.645, 105.922 270.795, 106.125 234.496, 106.839 207.178, 107.499 188.028, 108.403 184.544, 108.609 176.246, 109.098 170.303, 110.975 162.796, 112.921 155.706, 114.346 152.752, 114.937 149.812, 114.937 146.89, 113.576 143.281, 111.947 140.125, 111.947 130.834, 112.148 118.104, 112.62 97.314, 112.989 77.715, 113.708 63.815, 113.708 59.431, 115.65 51.517, 120.438 43.992, 124.971 35.344, 130.477 26.443, 135.548 16.015, 142.086 4.531, 149.145 2.684, 150.314 -0.069, 152.158

Material Boundary	184.544, 108.609 208.27, 106.116 233.606, 103.075 237.006, 102.646 249.906, 101.02 264.178, 99.388 276.678, 98.008 288.727, 96.094 301.732, 94.095 304.345, 93.826
Material Boundary	357.331, 60.14 367.577, 56.042 379.845, 52.288 386.066, 50.724 395.033, 49.056 403.096, 47.979 412.862, 47.144 423.004, 46.8517
Material Boundary	353.818, 61.6494 355.869, 60.9087

Scenario-based Entities

Type	Coordinates (x,y)	Master Scenario
Water Table	173.517, 88.262 365.949, 51.915	Assigned to: Terrace (Qoa) Qlsr Fill (Af) Anisotropic Bedrock (Tm) Ultimate



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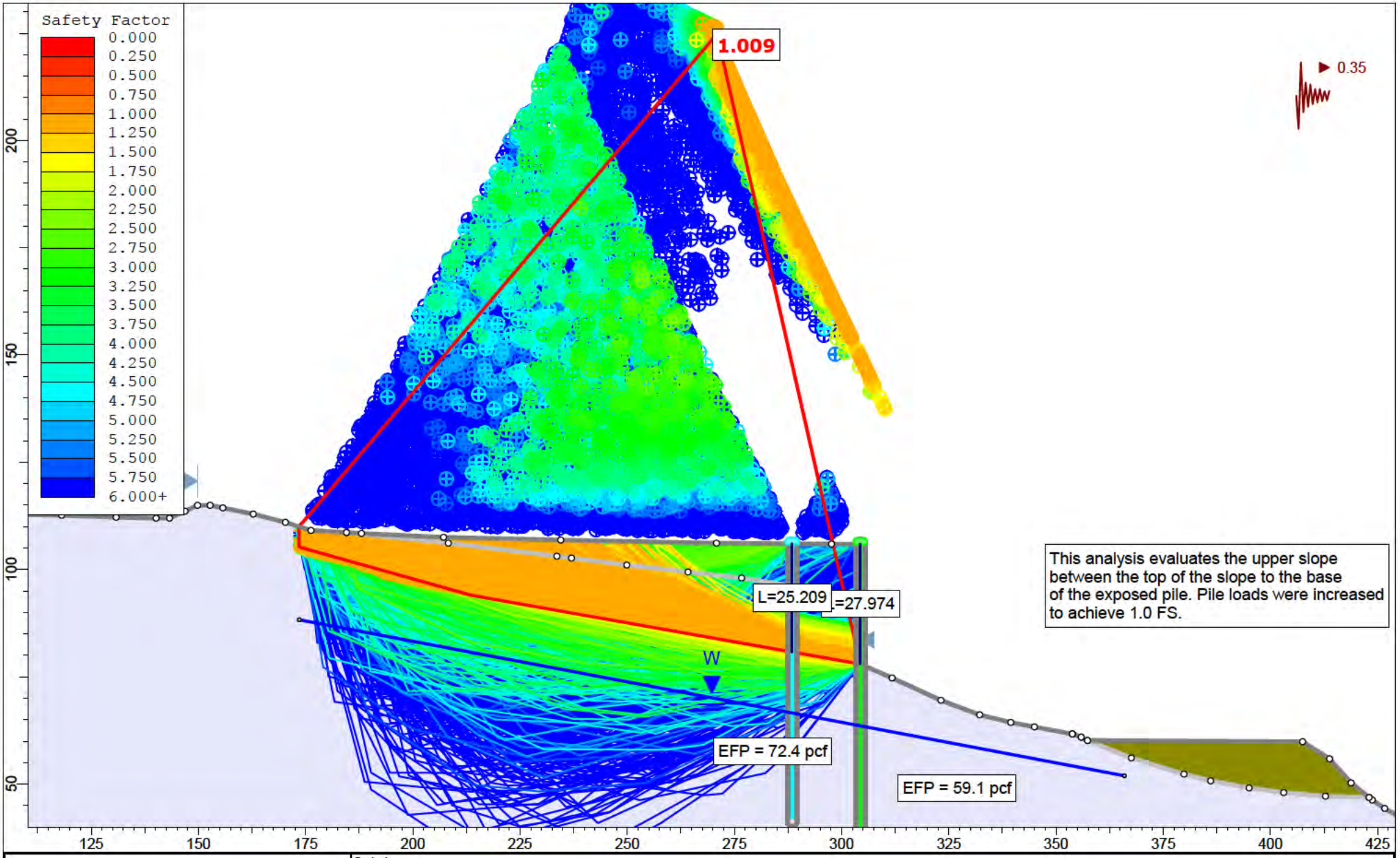
SLIDEINTERPRET 9.018

Project	Section 5-5'		
Analysis Description	Upper Slope (Seismic)		
Drawn By	A. Greene	Scale 1:413	Company Feffer Geological Consulting
Date			File Name Section 5-5' Translational Analysis_2.slmd



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SLIDEINTERPRET 9.018

Project	Section 5-5'				
Analysis Description	Upper Slope (Seismic)				
Drawn By	A. Greene	Scale	1:371	Company	Feffer Geological Consulting
Date				File Name	Section 5-5' Translational Analysis_2.slmd

Slide Analysis Information

Section 5-5' Translational Analysis_2

Project Summary

File Name:	Section 5-5' Translational Analysis_2.slmd
Slide Modeler Version:	9.018
Compute Time:	00h:00m:08.911s
Project Title:	Section 5-5'
Analysis:	Upper Slope (Seismic)
Author:	A. Greene
Company:	Feffer Geological Consulting

General Settings

Units of Measurement:	Imperial Units
Time Units:	days
Permeability Units:	feet/second
Data Output:	Standard
Failure Direction:	Left to Right

Analysis Options

Slices Type:	Vertical
Analysis Methods Used	
	Spencer
Number of slices:	50
Tolerance:	0.005
Maximum number of iterations:	75
Check malpha < 0.2:	Yes
Create Interslice boundaries at intersections with water tables and piezos:	Yes
Initial trial value of FS:	1
Steffensen Iteration:	Yes

Groundwater Analysis

Groundwater Method:	Water Surfaces
Pore Fluid Unit Weight [lbs/ft3]:	62.4
Use negative pore pressure cutoff:	Yes
Maximum negative pore pressure [psf]:	0
Advanced Groundwater Method:	None

Random Numbers

Pseudo-random Seed:	10116
Random Number Generation Method:	Park and Miller v.3

Surface Options

Search Method:	Cuckoo Search
Initial # of Surface Vertices:	8
Maximum Iterations:	500
Number of Nests:	50
Minimum Elevation:	Not Defined
Minimum Depth:	Not Defined
Minimum Area:	Not Defined
Minimum Weight:	Not Defined
Convex Surfaces Only:	Enabled

Seismic Loading

Advanced seismic analysis:	No
Staged pseudostatic analysis:	No
Seismic Load Coefficient (Horizontal):	0.35

Materials

Terrace (Qoa)	
Color	
Strength Type	Mohr-Coulomb
Unit Weight [lbs/ft3]	115
Cohesion [psf]	100
Friction Angle [deg]	31
Water Surface	Water Table
Hu Value	1
Qlsr	
Color	
Strength Type	Mohr-Coulomb
Unit Weight [lbs/ft3]	115
Cohesion [psf]	200
Friction Angle [deg]	12
Water Surface	Water Table
Hu Value	1
Fill (Af)	
Color	
Strength Type	Mohr-Coulomb
Unit Weight [lbs/ft3]	120
Cohesion [psf]	120
Friction Angle [deg]	31
Water Surface	Water Table
Hu Value	1
Anisotropic Bedrock (Tm) Peak	
Color	
Strength Type	Anisotropic function
Unit Weight [lbs/ft3]	124
Water Surface	Water Table
Hu Value	1

Anisotropic Functions

Name: Anisotropic Bedrock (Tm) Peak

Angle From	Angle To	c	phi
-90	-30	720	41
-30	-10	200	16
-10	90	720	41

Support

Pile (Seismic)	
Color	
Type	Pile/Micro Pile
Force Application	Active (Method A)
Force Orientation	Parallel to surface
Out-Of-Plane Spacing	10 ft
Failure Mode	Shear
Pile Shear Strength	230000 lbs

Pile 2 (Seismic)	
Color	
Type	Pile/Micro Pile
Force Application	Active (Method A)
Force Orientation	Parallel to surface
Out-Of-Plane Spacing	10 ft
Failure Mode	Shear
Pile Shear Strength	230000 lbs

Global Minimums

Method: spencer

FS	1.009250
Axis Location:	270.936, 224.826
Left Slip Surface Endpoint:	173.479, 109.972
Right Slip Surface Endpoint:	304.345, 77.948
Left Slope Intercept:	173.479 109.972
Right Slope Intercept:	304.345 105.922
Resisting Moment:	1.35434e+07 lb-ft
Driving Moment:	1.34193e+07 lb-ft
Resisting Horizontal Force:	95319.1 lb
Driving Horizontal Force:	94445.8 lb
Active Support Moment:	-6.38633e+06 lb-ft
Active Horizontal Support Force:	-45299.4 lb
Maximum Single Support Force:	23000 lb
Total Support Force:	46000 lb
Total Slice Area:	2203.86 ft2
Surface Horizontal Width:	130.866 ft
Surface Average Height:	16.8405 ft

Global Minimum Coordinates

Method: spencer

X	Y
173.479	105.22
213.834	93.9443
225.392	91.8868
257.027	86.3016
268.714	84.2383
282.613	81.7845
304.345	77.9476
304.346	105.922

Global Minimum Support Data

Method: spencer

Number of Supports: 2

Pile (Seismic)

Support Type: Pile/Micro Pile

Start (x, y)	Length (ft)	L Inside SS (ft)	L Outside SS (ft)	Li (ft)	Lo (ft)	Force (lb)
304.345, 105.922	70.888	27.9744	42.9136	27.9744	42.9136	23000

Pile 2 (Seismic)

Support Type: Pile/Micro Pile

Start (x, y)	Length (ft)	L Inside SS (ft)	L Outside SS (ft)	Li (ft)	Lo (ft)	Force (lb)
288.469, 105.991	64.7144	25.2409	39.4734	25.2409	39.4734	23000

Valid and Invalid Surfaces

Method: spencer

Number of Valid Surfaces:	13981
Number of Invalid Surfaces:	11076

Error Codes

Error Code -106 reported for 32 surfaces
Error Code -108 reported for 126 surfaces
Error Code -109 reported for 3 surfaces
Error Code -110 reported for 5331 surfaces
Error Code -111 reported for 3097 surfaces
Error Code -112 reported for 326 surfaces
Error Code -121 reported for 311 surfaces
Error Code -124 reported for 50 surfaces
Error Code -145 reported for 17 surfaces
Error Code -1000 reported for 1783 surfaces

Error Code Descriptions

The following errors were encountered during the computation:

-106 = Average slice width is less than 0.0001 * (maximum horizontal extent of soil region). This limitation is imposed to avoid numerical errors which may result from too many slices, or too small a slip region.

-108 = Total driving moment or total driving force < 0.1. This is to limit the calculation of extremely high safety factors if the driving force is very small (0.1 is an arbitrary number).

-109 = Soiltype for slice base not located. This error should occur very rarely, if at all. It may occur if a very low number of slices is combined with certain soil geometries, such that the midpoint of a slice base is actually outside the soil region,even though the slip surface is wholly within the soil region.

-110 = The water table or a piezoline does not span the slip region for a given slip surface, when Water Surfaces is specified as the method of pore pressure calculation. If this error occurs, check that the water table or piezoline(s) span the appropriate soil cells.

-111 = Safety factor equation did not converge

-112 = The coefficient M-Alpha = cos(alpha)(1+tan(alpha)tan(phi)/F) < 0.2 for the final iteration of the safety factor calculation. This screens out some slip surfaces which may not be valid in the context of the analysis, in particular, deep seated slip surfaces with many high negative base angle slices in the passive zone.

-121 = Concave failure surface, only convex surfaces have been defined as being allowed.

-124 = A slice has a width less than the minimum acceptable value.

-145 = Slip surface was clipped vertically by a weak layer in a region of compression. Such a surface cannot be evaluated using Limit Equilibrium. For more information, see Help Documentation on weak layers.

-1000 = No valid slip surface is generated

Slice Data

Global Minimum Query (spencer) - Safety Factor: 1.00925

Slice Number	Width [ft]	Weight [lbs]	Angle of Slice Base [deg]	Base Material	Base Cohesion [psf]	Base Friction Angle [deg]	Shear Stress [psf]	Shear Strength [psf]	Base Normal Stress [psf]	Pore Pressure [psf]	Effective Normal Stress [psf]	Base Vertical Stress [psf]	Effective Vertical Stress [psf]
1	2.52222	1471.76	-15.6113	Anisotropic Bedrock (Tm) Peak	200	16	336.952	340.069	488.482	0	488.482	582.632	582.632
2	2.52222	1525.61	-15.6113	Anisotropic Bedrock (Tm) Peak	200	16	341.27	344.427	503.679	0	503.679	599.036	599.036
3	2.52222	1698.53	-15.6113	Anisotropic Bedrock (Tm) Peak	200	16	355.139	358.424	552.491	0	552.491	651.723	651.723
4	2.52222	1872.41	-15.6113	Anisotropic Bedrock (Tm) Peak	200	16	369.084	372.498	601.571	0	601.571	704.699	704.699
5	2.52222	2045.8	-15.6113	Anisotropic Bedrock (Tm) Peak	200	16	382.989	386.532	650.512	0	650.512	757.526	757.526
6	2.52222	2217.48	-15.6113	Anisotropic Bedrock (Tm) Peak	200	16	396.757	400.427	698.973	0	698.973	809.834	809.834
7	2.52222	2394.79	-15.6113	Anisotropic Bedrock (Tm) Peak	200	16	410.977	414.779	749.022	0	749.022	863.856	863.856
8	2.52222	2574.66	-15.6113	Anisotropic Bedrock (Tm) Peak	200	16	425.402	429.337	799.793	0	799.793	918.658	918.658
9	2.52222	2754.52	-15.6113	Anisotropic Bedrock (Tm) Peak	200	16	439.827	443.895	850.564	0	850.564	973.459	973.459
10	2.52222	2934.39	-15.6113	Anisotropic Bedrock (Tm) Peak	200	16	454.252	458.454	901.334	0	901.334	1028.26	1028.26

11	2.52222	3114.25	-15.6113	Anisotropic Bedrock (Tm) Peak	200	16	468.677	473.012	952.105	0	952.105	1083.06	1083.06
12	2.52222	3294.12	-15.6113	Anisotropic Bedrock (Tm) Peak	200	16	483.101	487.57	1002.88	0	1002.88	1137.86	1137.86
13	2.52222	3473.98	-15.6113	Anisotropic Bedrock (Tm) Peak	200	16	497.526	502.128	1053.65	0	1053.65	1192.66	1192.66
14	2.52222	3657.27	-15.6113	Anisotropic Bedrock (Tm) Peak	200	16	512.225	516.963	1105.38	0	1105.38	1248.51	1248.51
15	2.52222	3852.31	-15.6113	Anisotropic Bedrock (Tm) Peak	200	16	527.867	532.75	1160.43	0	1160.43	1307.93	1307.93
16	2.52222	4048.18	-15.6113	Anisotropic Bedrock (Tm) Peak	200	16	543.575	548.603	1215.72	0	1215.72	1367.61	1367.61
17	2.88946	4825.84	-10.0937	Anisotropic Bedrock (Tm) Peak	200	16	600.902	606.46	1417.5	0	1417.5	1524.46	1524.46
18	2.88946	4977.92	-10.0937	Anisotropic Bedrock (Tm) Peak	200	16	612.768	618.436	1459.26	0	1459.26	1568.34	1568.34
19	2.88946	5130	-10.0937	Anisotropic Bedrock (Tm) Peak	200	16	624.634	630.412	1501.03	0	1501.03	1612.22	1612.22
20	2.88946	5282.08	-10.0937	Anisotropic Bedrock (Tm) Peak	200	16	636.5	642.388	1542.79	0	1542.79	1656.1	1656.1
21	2.63623	4951.2	-10.0125	Anisotropic Bedrock (Tm) Peak	200	16	648.537	654.536	1585.16	0	1585.16	1699.66	1699.66
22	2.63623	5076.53	-10.0125	Anisotropic Bedrock (Tm) Peak	200	16	659.272	665.37	1622.94	0	1622.94	1739.34	1739.34
23	2.63623	5201.86	-10.0125	Anisotropic Bedrock (Tm) Peak	200	16	670.007	676.205	1660.72	0	1660.72	1779.02	1779.02
24	2.63623	5327.58	-10.0125	Anisotropic Bedrock (Tm) Peak	200	16	680.776	687.073	1698.63	0	1698.63	1818.82	1818.82
25	2.63623	5455.76	-10.0125	Anisotropic Bedrock (Tm) Peak	200	16	691.755	698.154	1737.27	0	1737.27	1859.4	1859.4
26	2.63623	5584.3	-10.0125	Anisotropic Bedrock (Tm) Peak	200	16	702.765	709.266	1776.02	0	1776.02	1900.1	1900.1
27	2.63623	5712.84	-10.0125	Anisotropic Bedrock (Tm) Peak	200	16	713.776	720.378	1814.77	0	1814.77	1940.79	1940.79
28	2.63623	5841.38	-10.0125	Anisotropic Bedrock (Tm) Peak	200	16	724.786	731.49	1853.53	0	1853.53	1981.49	1981.49
29	2.63623	5969.92	-10.0125	Anisotropic Bedrock (Tm) Peak	200	16	735.796	742.602	1892.28	0	1892.28	2022.18	2022.18
30	2.63623	6098.64	-10.0125	Anisotropic Bedrock (Tm) Peak	200	16	746.822	753.73	1931.09	0	1931.09	2062.94	2062.94
31	2.63623	6227.88	-10.0125	Anisotropic Bedrock (Tm) Peak	200	16	757.892	764.903	1970.05	0	1970.05	2103.86	2103.86
32	2.63623	6357.15	-10.0125	Anisotropic Bedrock (Tm) Peak	200	16	768.965	776.078	2009.02	0	2009.02	2144.79	2144.79
33	2.33735	5744.53	-10.0124	Anisotropic Bedrock (Tm) Peak	200	16	779.412	786.622	2045.79	0	2045.79	2183.4	2183.4
34	2.33735	5846.15	-10.0124	Anisotropic Bedrock (Tm) Peak	200	16	789.23	796.53	2080.35	0	2080.35	2219.69	2219.69
35	2.33735	5947.77	-10.0124	Anisotropic Bedrock (Tm) Peak	200	16	799.048	806.439	2114.9	0	2114.9	2255.98	2255.98

36	2.33735	6049.48	-10.0124	Anisotropic Bedrock (Tm) Peak	200	16	808.873	816.355	2149.49	0	2149.49	2292.29	2292.29
37	2.33735	6151.29	-10.0124	Anisotropic Bedrock (Tm) Peak	200	16	818.71	826.283	2184.11	0	2184.11	2328.65	2328.65
38	2.7798	7448.58	-10.0124	Anisotropic Bedrock (Tm) Peak	200	16	829.504	837.177	2222.1	0	2222.1	2368.55	2368.55
39	2.7798	7600.33	-10.0124	Anisotropic Bedrock (Tm) Peak	200	16	841.832	849.619	2265.49	0	2265.49	2414.11	2414.11
40	2.7798	7755.07	-10.0124	Anisotropic Bedrock (Tm) Peak	200	16	854.402	862.305	2309.73	0	2309.73	2460.58	2460.58
41	2.7798	7907.73	-10.0124	Anisotropic Bedrock (Tm) Peak	200	16	866.803	874.821	2353.38	0	2353.38	2506.41	2506.41
42	2.7798	8059.13	-10.0124	Anisotropic Bedrock (Tm) Peak	200	16	879.101	887.233	2396.67	0	2396.67	2551.87	2551.87
43	2.71656	8022.08	-10.0124	Anisotropic Bedrock (Tm) Peak	200	16	891.261	899.505	2439.46	0	2439.46	2596.82	2596.82
44	2.71656	8166.67	-10.0124	Anisotropic Bedrock (Tm) Peak	200	16	903.28	911.635	2481.76	0	2481.76	2641.24	2641.24
45	2.71656	8311.36	-10.0124	Anisotropic Bedrock (Tm) Peak	200	16	2008.61	2027.19	6372.17	0	6372.17	6726.79	6726.79
46	2.71656	8456.28	-10.0124	Anisotropic Bedrock (Tm) Peak	200	16	927.353	935.931	2566.5	0	2566.5	2730.22	2730.22
47	2.71656	8601.21	-10.0124	Anisotropic Bedrock (Tm) Peak	200	16	939.401	948.09	2608.9	0	2608.9	2774.75	2774.75
48	2.71656	8746.84	-10.0124	Anisotropic Bedrock (Tm) Peak	200	16	951.506	960.307	2651.5	0	2651.5	2819.49	2819.49
49	2.71656	8897.28	-10.0124	Anisotropic Bedrock (Tm) Peak	200	16	964.01	972.927	2695.52	0	2695.52	2865.71	2865.71
50	2.71656	9050.19	-10.0124	Anisotropic Bedrock (Tm) Peak	200	16	2041.67	2060.56	6488.53	0	6488.53	6848.99	6848.99

Interslice Data

Global Minimum Query (spencer) - Safety Factor: 1.00925

Slice Number	X coordinate [ft]	Y coordinate - Bottom [ft]	Interslice Normal Force [lbs]	Interslice Shear Force [lbs]	Interslice Force Angle [deg]
1	173.479	105.22	0	0	0
2	176.001	104.516	5.45116	3.6731	33.9729
3	178.523	103.811	29.5148	19.8876	33.9728
4	181.045	103.106	113.357	76.3821	33.9728
5	183.567	102.401	257.308	173.38	33.973
6	186.09	101.697	461.198	310.765	33.9729
7	188.612	100.992	724.434	488.138	33.9729
8	191.134	100.287	1048.97	706.815	33.9728
9	193.656	99.5823	1435.68	967.388	33.9728
10	196.179	98.8775	1884.56	1269.86	33.973
11	198.701	98.1728	2395.63	1614.22	33.9728
12	201.223	97.468	2968.87	2000.49	33.973
13	203.745	96.7633	3604.29	2428.64	33.9728
14	206.267	96.0585	4301.89	2898.7	33.9729
15	208.79	95.3538	5062.85	3411.45	33.9729
16	211.312	94.649	5891.23	3969.63	33.9729
17	213.834	93.9443	6787.32	4573.43	33.9729
18	216.724	93.4299	7460.9	5027.3	33.9729
19	219.613	92.9155	8174.74	5508.31	33.9729
20	222.503	92.4012	8928.84	6016.43	33.9729
21	225.392	91.8868	9723.2	6551.69	33.9729
22	228.028	91.4214	10476.1	7058.97	33.9727
23	230.664	90.9559	11261.9	7588.51	33.9729
24	233.301	90.4905	12080.8	8140.29	33.9729
25	235.937	90.0251	12932.8	8714.38	33.9729
26	238.573	89.5596	13818.6	9311.23	33.9728
27	241.209	89.0942	14738.2	9930.89	33.9729
28	243.846	88.6288	15691.7	10573.4	33.9729
29	246.482	88.1633	16679	11238.7	33.973
30	249.118	87.6979	17700.2	11926.8	33.973
31	251.754	87.2325	18755.4	12637.7	33.9727
32	254.391	86.767	19844.5	13371.6	33.9728
33	257.027	86.3016	20967.8	14128.5	33.9728
34	259.364	85.889	21992.1	14818.7	33.9728
35	261.701	85.4763	23043.2	15527	33.9729
36	264.039	85.0636	24121.1	16253.3	33.9729
37	266.376	84.651	25225.8	16997.6	33.9728
38	268.714	84.2383	26357.3	17760.1	33.9729
39	271.493	83.7475	27738	18690.4	33.9729
40	274.273	83.2568	29158.6	19647.7	33.9729
41	277.053	82.766	30620.1	20632.4	33.9728
42	279.833	82.2752	32121.7	21644.3	33.9729
43	282.613	81.7845	33663.3	22683	33.9729
44	285.329	81.3049	35208.3	23724	33.9728
45	288.046	80.8252	36791.3	24790.7	33.9729
46	290.762	80.3456	14624.2	9854.08	33.9729
47	293.479	79.866	16283.6	10972.2	33.9728
48	296.195	79.3864	17981.1	12116	33.9728
49	298.912	78.9068	19717.1	13285.7	33.9727
50	301.628	78.4272	21492.6	14482.1	33.9728
51	304.345	77.9476	0	0	0

Discharge Sections

Entity Information

Upper Slope (Seismic)

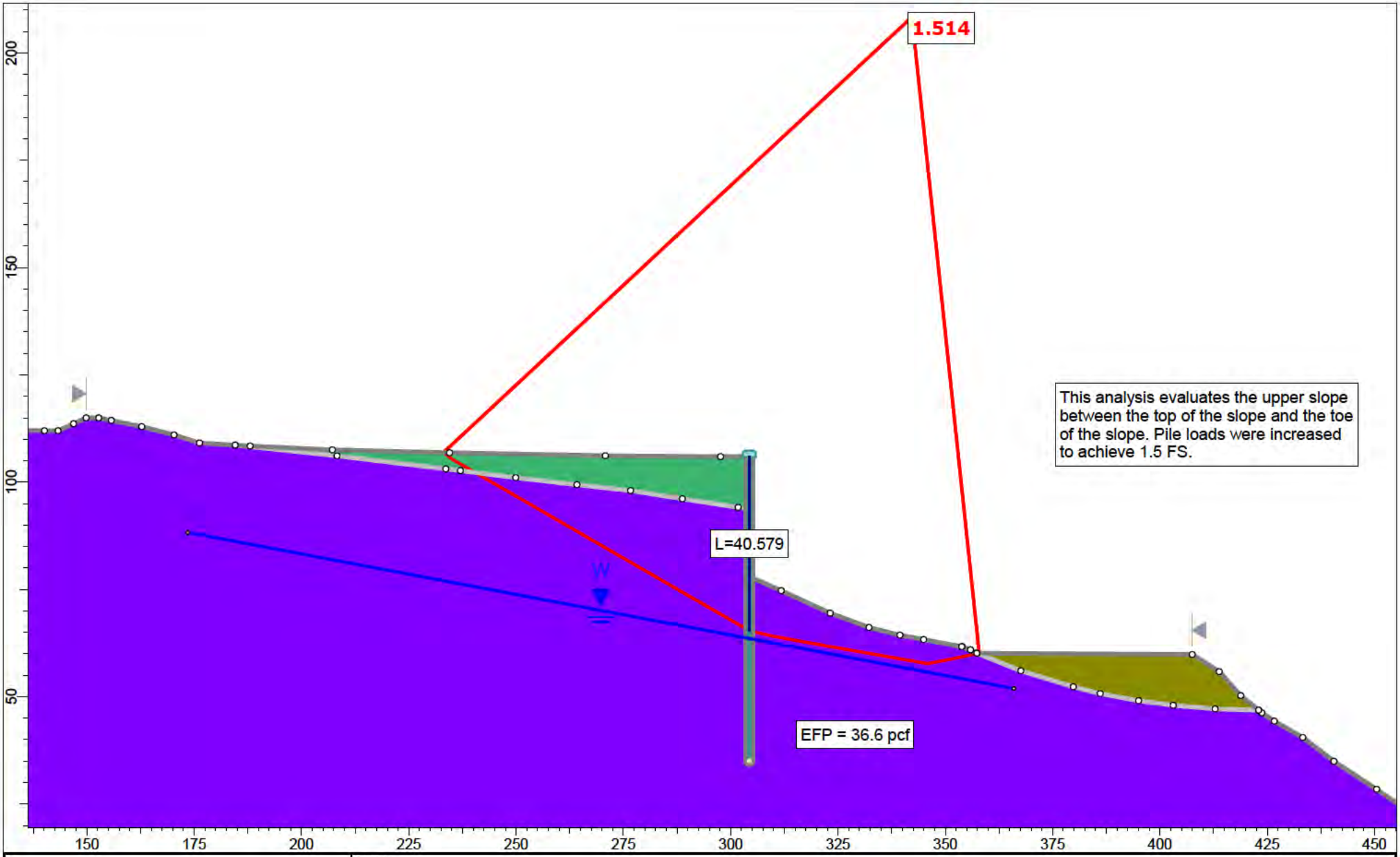
Shared Entities

Type	Coordinates (x,y)
External Boundary	-0.069, -51.999 505.65, -51.999 505.65, 3.34239 505.65, 23.996 456.88, 23.996 450.477, 28.41 440.53, 34.944 433.29, 40.476 426.639, 44.302 423.755, 46.244 423.004, 46.8517 418.811, 50.247 413.808, 55.838 407.518, 59.833 357.331, 60.14 355.869, 60.9087 353.86, 61.6416 353.818, 61.6494 344.956, 63.298 339.436, 64.3255 332.204, 66.1071 323.178, 69.4793 311.767, 74.6885 304.345, 77.9476 304.345, 93.826 304.345, 95.2038 304.345, 96.688 304.345, 105.922 297.645, 105.922 270.795, 106.125 234.496, 106.839 207.178, 107.499 188.028, 108.403 184.544, 108.609 176.246, 109.098 170.303, 110.975 162.796, 112.921 155.706, 114.346 152.752, 114.937 149.812, 114.937 146.89, 113.576 143.281, 111.947 140.125, 111.947 130.834, 112.148 118.104, 112.62 97.314, 112.989 77.715, 113.708 63.815, 113.708 59.431, 115.65 51.517, 120.438 43.992, 124.971 35.344, 130.477 26.443, 135.548 16.015, 142.086 4.531, 149.145 2.684, 150.314 -0.069, 152.158

Material Boundary	184.544, 108.609 208.27, 106.116 233.606, 103.075 237.006, 102.646 249.906, 101.02 264.178, 99.388 276.678, 98.008 288.727, 96.094 301.732, 94.095 304.345, 93.826
Material Boundary	357.331, 60.14 367.577, 56.042 379.845, 52.288 386.066, 50.724 395.033, 49.056 403.096, 47.979 412.862, 47.144 423.004, 46.8517
Material Boundary	353.818, 61.6494 355.869, 60.9087

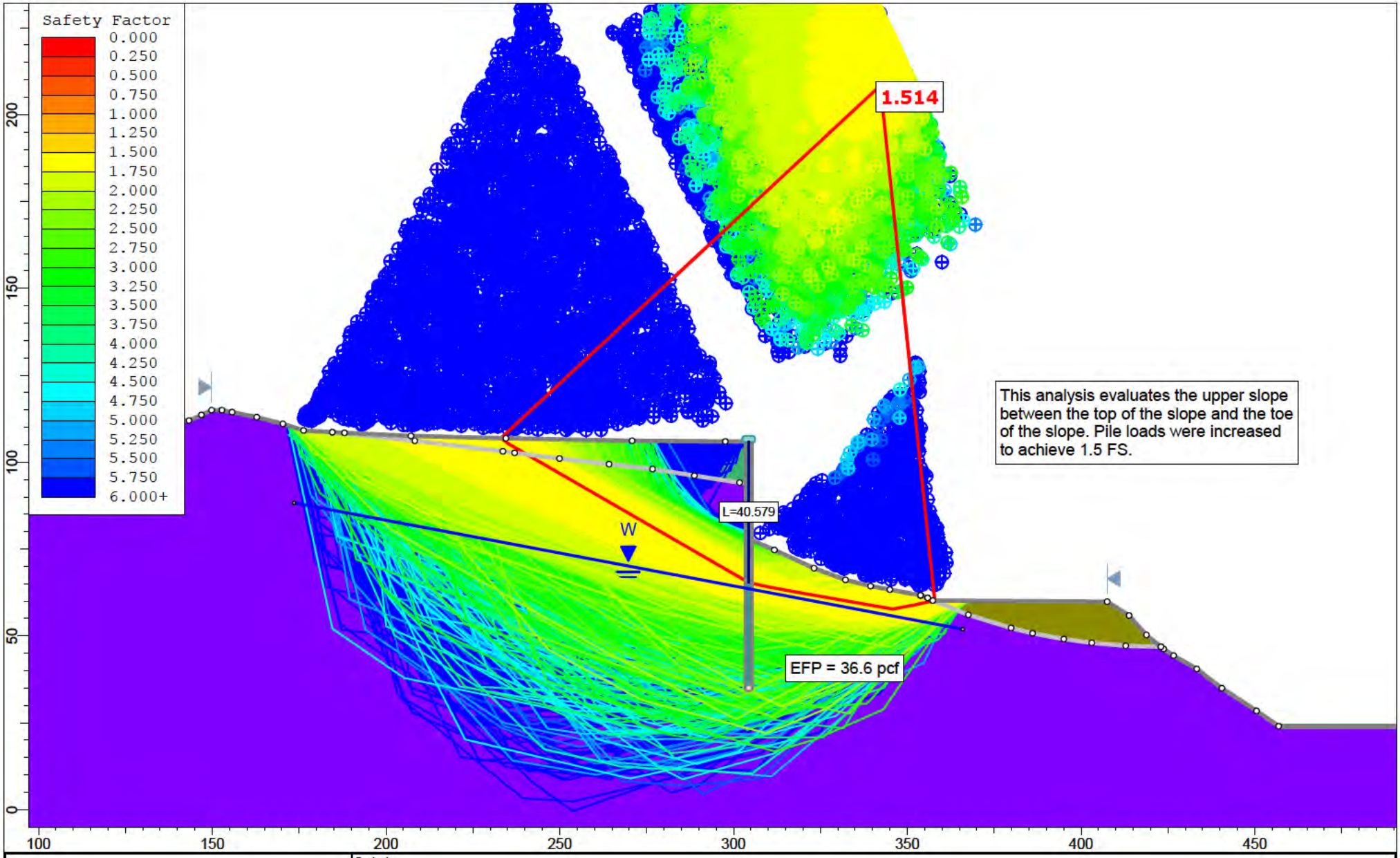
Scenario-based Entities

Type	Coordinates (x,y)	Master Scenario
Water Table	173.517, 88.262 365.949, 51.915	Assigned to: Terrace (Qoa) Qlsr Fill (Af) Anisotropic Bedrock (Tm) Peak



rocscience	Project	Section 5-5'		
	Analysis Description	Upper Slope (Static) 1		
	Drawn By	A. Greene	Scale 1:371	Company Feffer Geological Consulting
	Date			File Name Section 5-5' Translational Analysis_2.slmd

SLIDEINTERPRET 9.018



rocscience

SLIDEINTERPRET 9.018

Project	Section 5-5'				
Analysis Description	Upper Slope (Static) 1				
Drawn By	A. Greene	Scale	1:458	Company	Feffer Geological Consulting
Date				File Name	Section 5-5' Translational Analysis_2.slmd

Slide Analysis Information

Section 5-5' Translational Analysis_2

Project Summary

File Name:	Section 5-5' Translational Analysis_2.slmd
Slide Modeler Version:	9.018
Compute Time:	00h:00m:13.203s
Project Title:	Section 5-5'
Analysis:	Upper Slope (Static) 1
Author:	A. Greene
Company:	Feffer Geological Consulting

General Settings

Units of Measurement:	Imperial Units
Time Units:	days
Permeability Units:	feet/second
Data Output:	Standard
Failure Direction:	Left to Right

Analysis Options

Slices Type:	Vertical
Analysis Methods Used	
	Spencer
Number of slices:	50
Tolerance:	0.005
Maximum number of iterations:	75
Check malpha < 0.2:	Yes
Create Interslice boundaries at intersections with water tables and piezos:	Yes
Initial trial value of FS:	1
Steffensen Iteration:	Yes

Groundwater Analysis

Groundwater Method:	Water Surfaces
Pore Fluid Unit Weight [lbs/ft3]:	62.4
Use negative pore pressure cutoff:	Yes
Maximum negative pore pressure [psf]:	0
Advanced Groundwater Method:	None

Random Numbers

Pseudo-random Seed:	10116
Random Number Generation Method:	Park and Miller v.3

Surface Options

Search Method:	Cuckoo Search
Initial # of Surface Vertices:	8
Maximum Iterations:	500
Number of Nests:	50
Minimum Elevation:	Not Defined
Minimum Depth:	Not Defined
Minimum Area:	Not Defined
Minimum Weight:	Not Defined
Convex Surfaces Only:	Enabled

Seismic Loading

Advanced seismic analysis:	No
Staged pseudostatic analysis:	No

Materials

Terrace (Qoa)	
Color	
Strength Type	Mohr-Coulomb
Unit Weight [lbs/ft3]	115
Cohesion [psf]	100
Friction Angle [deg]	31
Water Surface	Water Table
Hu Value	1
Qlsr	
Color	
Strength Type	Mohr-Coulomb
Unit Weight [lbs/ft3]	115
Cohesion [psf]	200
Friction Angle [deg]	12
Water Surface	Water Table
Hu Value	1
Fill (Af)	
Color	
Strength Type	Mohr-Coulomb
Unit Weight [lbs/ft3]	120
Cohesion [psf]	120
Friction Angle [deg]	31
Water Surface	Water Table
Hu Value	1
Anisotropic Bedrock (Tm) Ultimate	
Color	
Strength Type	Anisotropic function
Unit Weight [lbs/ft3]	124
Water Surface	Water Table
Hu Value	1

Anisotropic Functions

Name: Anisotropic Bedrock (Tm) Ultimate

Angle From	Angle To	c	phi
-90	-30	520	34.5
-30	-10	200	16
-10	90	520	34.5

Support

Pile (Static)1	
Color	
Type	Pile/Micro Pile
Force Application	Active (Method A)
Force Orientation	Parallel to surface
Out-Of-Plane Spacing	10 ft
Failure Mode	Shear
Pile Shear Strength	300180 lbs

Global Minimums

Method: spencer

FS	1.514210
Axis Location:	342.223, 208.337
Left Slip Surface Endpoint:	233.071, 106.873
Right Slip Surface Endpoint:	357.903, 60.137
Resisting Moment:	1.36693e+07 lb-ft
Driving Moment:	9.03279e+06 lb-ft
Resisting Horizontal Force:	85781 lb
Driving Horizontal Force:	56684.8 lb
Active Support Moment:	-4.28627e+06 lb-ft
Active Horizontal Support Force:	-26002.6 lb
Maximum Single Support Force:	30018 lb
Total Support Force:	30018 lb
Total Slice Area:	1820.2 ft2
Surface Horizontal Width:	124.832 ft
Surface Average Height:	14.5812 ft

Global Minimum Coordinates

Method: spencer

X	Y
233.071	106.873
235.325	105.177
241.037	101.879
246.749	98.5816
252.469	95.2796
258.188	91.9777
263.669	88.8139
269.17	85.6378
274.675	82.4599
280.201	79.2711
285.698	76.1004
291.196	72.9297
294.484	71.0331
297.772	69.1365
301.06	67.2398
304.348	65.3432
309.547	64.1628
314.745	63.1779
320.044	62.2385
325.343	61.304
330.65	60.3682
335.958	59.4322
340.904	58.5601
345.849	57.688
351.876	58.8572
357.903	60.1365

Global Minimum Support Data

Method: spencer

Number of Supports: 1

Pile (Static)1

Support Type: Pile/Micro Pile

Start (x, y)	Length (ft)	L Inside SS (ft)	L Outside SS (ft)	Li (ft)	Lo (ft)	Force (lb)
304.345, 105.922	70.888	40.5768	30.3112	40.5768	30.3112	30018

Valid and Invalid Surfaces

Method: spencer

Number of Valid Surfaces:	17188
Number of Invalid Surfaces:	7871

Error Codes

Error Code -106 reported for 19 surfaces
Error Code -108 reported for 228 surfaces
Error Code -109 reported for 1 surface
Error Code -110 reported for 4209 surfaces
Error Code -111 reported for 1408 surfaces
Error Code -112 reported for 182 surfaces
Error Code -121 reported for 824 surfaces
Error Code -145 reported for 20 surfaces
Error Code -1000 reported for 980 surfaces

Error Code Descriptions

The following errors were encountered during the computation:
-106 = Average slice width is less than 0.0001 * (maximum horizontal extent of soil region). This limitation is imposed to avoid numerical errors which may result from too many slices, or too small a slip region.
-108 = Total driving moment or total driving force < 0.1. This is to limit the calculation of extremely high safety factors if the driving force is very small (0.1 is an arbitrary number).
-109 = Soiltype for slice base not located. This error should occur very rarely, if at all. It may occur if a very low number of slices is combined with certain soil geometries, such that the midpoint of a slice base is actually outside the soil region,even though the slip surface is wholly within the soil region.
-110 = The water table or a piezoline does not span the slip region for a given slip surface, when Water Surfaces is specified as the method of pore pressure calculation. If this error occurs, check that the water table or piezoline(s) span the appropriate soil cells.
-111 = Safety factor equation did not converge
-112 = The coefficient M-Alpha = cos(alpha)(1+tan(alpha)tan(phi)/F) < 0.2 for the final iteration of the safety factor calculation. This screens out some slip surfaces which may not be valid in the context of the analysis, in particular, deep seated slip surfaces with many high negative base angle slices in the passive zone.
-121 = Concave failure surface, only convex surfaces have been defined as being allowed.
-145 = Slip surface was clipped vertically by a weak layer in a region of compression. Such a surface cannot be evaluated using Limit Equilibrium. For more information, see Help Documentation on weak layers.
-1000 = No valid slip surface is generated

Slice Data

Global Minimum Query (spencer) - Safety Factor: 1.51421

Slice Number	Width [ft]	Weight [lbs]	Angle of Slice Base [deg]	Base Material	Base Cohesion [psf]	Base Friction Angle [deg]	Shear Stress [psf]	Shear Strength [psf]	Base Normal Stress [psf]	Pore Pressure [psf]	Effective Normal Stress [psf]	Base Vertical Stress [psf]	Effective Vertical Stress [psf]
1	2.25456	213.072	-36.9639	Terrace (Qoa)	100	31	85.6632	129.712	49.449	0	49.449	113.916	113.916
2	2.56905	697.906	-29.998	Terrace (Qoa)	100	31	145.329	220.058	199.811	0	199.811	283.709	283.709
3	2.56905	1121.15	-29.998	Terrace (Qoa)	100	31	195.585	296.157	326.461	0	326.461	439.373	439.373
4	0.573935	308.977	-29.998	Anisotropic Bedrock (Tm) Ultimate	200	16	209.227	316.814	407.378	0	407.378	528.165	528.165

5	2.85602	1871.52	-29.998	Anisotropic Bedrock (Tm) Ultimate	200	16	226.743	343.337	499.873	0	499.873	630.772	630.772
6	2.85602	2427.73	-29.998	Anisotropic Bedrock (Tm) Ultimate	200	16	255.913	387.506	653.913	0	653.913	801.652	801.652
7	1.90653	1930.21	-29.998	Anisotropic Bedrock (Tm) Ultimate	200	16	280.235	424.334	782.345	0	782.345	944.126	944.126
8	1.90653	2178.09	-29.998	Anisotropic Bedrock (Tm) Ultimate	200	16	299.709	453.822	885.183	0	885.183	1058.21	1058.21
9	1.90653	2426.25	-29.998	Anisotropic Bedrock (Tm) Ultimate	200	16	319.205	483.344	988.139	0	988.139	1172.42	1172.42
10	2.8598	4104.82	-29.998	Anisotropic Bedrock (Tm) Ultimate	200	16	343.584	520.258	1116.87	0	1116.87	1315.22	1315.22
11	2.8598	4663.37	-29.998	Anisotropic Bedrock (Tm) Ultimate	200	16	372.837	564.554	1271.35	0	1271.35	1486.59	1486.59
12	2.74017	4992.27	-29.998	Anisotropic Bedrock (Tm) Ultimate	200	16	401.479	607.924	1422.6	0	1422.6	1654.38	1654.38
13	2.74017	5505.06	-29.998	Anisotropic Bedrock (Tm) Ultimate	200	16	429.51	650.368	1570.62	0	1570.62	1818.58	1818.58
14	2.75075	6042.17	-29.998	Anisotropic Bedrock (Tm) Ultimate	200	16	457.599	692.901	1718.95	0	1718.95	1983.12	1983.12
15	2.75075	6559.2	-29.998	Anisotropic Bedrock (Tm) Ultimate	200	16	485.752	735.531	1867.62	0	1867.62	2148.04	2148.04
16	2.7524	7081.5	-29.998	Anisotropic Bedrock (Tm) Ultimate	200	16	513.962	778.246	2016.58	0	2016.58	2313.3	2313.3
17	2.7524	7607.86	-29.998	Anisotropic Bedrock (Tm) Ultimate	200	16	542.606	821.619	2167.84	0	2167.84	2481.09	2481.09
18	2.76313	8168.54	-29.986	Anisotropic Bedrock (Tm) Ultimate	200	16	571.454	865.302	2320.18	0	2320.18	2649.93	2649.93
19	2.76313	8698.15	-29.986	Anisotropic Bedrock (Tm) Ultimate	200	16	600.167	908.779	2471.81	0	2471.81	2818.12	2818.12
20	2.74858	9176.82	-29.976	Anisotropic Bedrock (Tm) Ultimate	200	16	628.81	952.15	2623.06	0	2623.06	2985.75	2985.75
21	2.74858	9699.78	-29.976	Anisotropic Bedrock (Tm) Ultimate	200	16	657.315	995.313	2773.59	0	2773.59	3152.72	3152.72
22	2.74858	10222.7	-29.976	Anisotropic Bedrock (Tm) Ultimate	200	16	685.821	1038.48	2924.11	0	2924.11	3319.69	3319.69
23	2.74858	10745.8	-29.976	Anisotropic Bedrock (Tm) Ultimate	200	16	714.334	1081.65	3074.68	0	3074.68	3486.71	3486.71

24	3.28821	13543.1	-29.976	Anisotropic Bedrock (Tm) Ultimate	200	16	745.658	1129.08	3240.11	0	3240.11	3670.2	3670.2
25	3.28821	14292	-29.976	Anisotropic Bedrock (Tm) Ultimate	200	16	779.784	1180.76	3420.3	0	3420.3	3870.07	3870.07
26	3.28821	15046	-29.976	Anisotropic Bedrock (Tm) Ultimate	200	16	814.141	1232.78	3601.71	0	3601.71	4071.3	4071.3
27	3.28821	15794.5	-29.976	Anisotropic Bedrock (Tm) Ultimate	200	16	638.683	967.1	2675.2	0	2675.2	3043.59	3043.59
28	2.59912	3972.98	-12.794	Anisotropic Bedrock (Tm) Ultimate	200	16	409.783	620.498	1466.45	0	1466.45	1559.51	1559.51
29	2.59912	3795.39	-12.794	Anisotropic Bedrock (Tm) Ultimate	200	16	397.553	601.978	1401.86	0	1401.86	1492.14	1492.14
30	2.59912	3601.89	-10.7286	Anisotropic Bedrock (Tm) Ultimate	200	16	390.523	591.334	1364.74	0	1364.74	1438.74	1438.74
31	2.59912	3383.51	-10.7286	Anisotropic Bedrock (Tm) Ultimate	200	16	375.161	568.073	1283.62	0	1283.62	1354.71	1354.71
32	2.64953	3213.56	-10.0525	Anisotropic Bedrock (Tm) Ultimate	200	16	360.786	546.306	1207.71	0	1207.71	1271.67	1271.67
33	2.64953	2970.47	-10.0525	Anisotropic Bedrock (Tm) Ultimate	200	16	343.894	520.728	1118.51	0	1118.51	1179.48	1179.48
34	2.64953	2726.98	-10.0012	Anisotropic Bedrock (Tm) Ultimate	200	16	327.101	495.299	1029.83	0	1029.83	1087.51	1087.51
35	2.64953	2507.19	-10.0012	Anisotropic Bedrock (Tm) Ultimate	200	16	311.82	472.161	949.14	0	949.14	1004.13	1004.13
36	2.65369	2337.8	-10.0006	Anisotropic Bedrock (Tm) Ultimate	200	16	299.79	453.945	885.611	0	885.611	938.476	938.476
37	2.65369	2165.53	-10.0006	Anisotropic Bedrock (Tm) Ultimate	200	16	287.832	435.838	822.468	0	822.468	873.223	873.223
38	2.65378	2002.89	-10.0006	Anisotropic Bedrock (Tm) Ultimate	200	16	276.538	418.736	762.824	0	762.824	811.588	811.588
39	2.65378	1922.73	-10.0006	Anisotropic Bedrock (Tm) Ultimate	200	16	270.974	410.311	733.44	0	733.44	781.223	781.223
40	2.47284	1736.62	-10.0006	Anisotropic Bedrock (Tm) Ultimate	200	16	266.876	404.106	711.803	0	711.803	758.863	758.863
41	2.47284	1691.58	-10.0006	Anisotropic Bedrock (Tm) Ultimate	200	16	263.522	399.027	694.089	0	694.089	740.558	740.558
42	2.47284	1680.38	-10.0006	Anisotropic Bedrock (Tm) Ultimate	200	16	262.687	397.763	689.68	0	689.68	736.002	736.002

43	2.47284	1672.96	-10.0006	Anisotropic Bedrock (Tm) Ultimate	200	16	262.133	396.925	686.761	0	686.761	732.985	732.985
44	2.00875	1260.9	10.9801	Anisotropic Bedrock (Tm) Ultimate	520	34.5	917.651	1389.52	1265.15	0	1265.15	1087.11	1087.11
45	2.00875	1070.74	10.9801	Anisotropic Bedrock (Tm) Ultimate	520	34.5	852.177	1290.38	1120.9	0	1120.9	955.562	955.562
46	2.00875	880.577	10.9801	Anisotropic Bedrock (Tm) Ultimate	520	34.5	786.703	1191.23	976.65	0	976.65	824.013	824.013
47	1.88644	649.79	11.9835	Anisotropic Bedrock (Tm) Ultimate	520	34.5	734.945	1112.86	862.617	0	862.617	706.621	706.621
48	1.88644	438.506	11.9835	Anisotropic Bedrock (Tm) Ultimate	520	34.5	655.664	992.813	687.95	0	687.95	548.781	548.781
49	1.88644	157.642	11.9835	Anisotropic Bedrock (Tm) Ultimate	520	34.5	550.274	833.231	455.754	0	455.754	338.955	338.955
50	0.367703	1.77151	11.9835	Fill (Af)	120	31	160.805	243.492	205.525	0	205.525	171.393	171.393

Interslice Data

Global Minimum Query (spencer) - Safety Factor: 1.51421

Slice Number	X coordinate [ft]	Y coordinate - Bottom [ft]	Interslice Normal Force [lbs]	Interslice Shear Force [lbs]	Interslice Force Angle [deg]
1	233.071	106.873	0	0	0
2	235.325	105.177	-109.25	-43.5639	21.7399
3	237.894	103.694	-186.298	-74.2873	21.7399
4	240.463	102.21	-204.633	-81.5983	21.7399
5	241.037	101.879	-189.748	-75.663	21.7399
6	243.893	100.23	-13.2036	-5.26501	21.7399
7	246.749	98.5816	333.999	133.184	21.7399
8	248.656	97.4809	660.761	263.482	21.7399
9	250.562	96.3803	1063.58	424.107	21.7398
10	252.469	95.2796	1542.54	615.094	21.7398
11	255.329	93.6287	2403.79	958.523	21.7399
12	258.188	91.9777	3436.42	1370.29	21.7399
13	260.929	90.3958	4586.62	1828.94	21.7399
14	263.669	88.8139	5894.16	2350.32	21.7398
15	266.419	87.2259	7365.02	2936.84	21.7399
16	269.17	85.6378	8994.52	3586.61	21.7399
17	271.923	84.0489	10784.1	4300.19	21.7398
18	274.675	82.4599	12735.1	5078.18	21.7399
19	277.438	80.8655	14855.2	5923.59	21.7399
20	280.201	79.2711	17137.8	6833.77	21.7399
21	282.95	77.6858	19567.8	7802.74	21.7398
22	285.698	76.1004	22158	8835.63	21.7399
23	288.447	74.515	24908.6	9932.43	21.7399
24	291.196	72.9297	27819.5	11093.2	21.74
25	294.484	71.0331	31512.6	12565.8	21.7399
26	297.772	69.1365	35435.2	14130	21.7399
27	301.06	67.2398	39589	15786.3	21.7399
28	304.348	65.3432	16559.8	6603.32	21.7399
29	306.948	64.753	16360.2	6523.71	21.7399
30	309.547	64.1628	16154.2	6441.57	21.7399
31	312.146	63.6703	15811.2	6304.78	21.7398
32	314.745	63.1779	15468.1	6167.99	21.7399
33	317.394	62.7082	15079.4	6012.97	21.7398
34	320.044	62.2385	14693.5	5859.09	21.7398
35	322.693	61.7713	14307.9	5705.35	21.7399
36	325.343	61.304	13925.1	5552.71	21.7399
37	327.997	60.8361	13543.9	5400.7	21.7399
38	330.65	60.3682	13164.9	5249.57	21.7399
39	333.304	59.9002	12787.9	5099.25	21.7399
40	335.958	59.4322	12412	4949.34	21.7399
41	338.431	58.9962	12062.4	4809.93	21.7398
42	340.904	58.5601	11713.3	4670.74	21.7399
43	343.376	58.1241	11364.4	4531.62	21.7399
44	345.849	57.688	11015.6	4392.53	21.7399
45	347.858	58.0778	8679.02	3460.8	21.7399
46	349.867	58.4675	6530.19	2603.95	21.7399
47	351.876	58.8572	4569.12	1821.96	21.7399
48	353.762	59.2576	2837.16	1131.33	21.7399
49	355.648	59.658	1324.71	528.235	21.7399
50	357.535	60.0585	104.065	41.4965	21.7399
51	357.903	60.1365	0	0	0

Discharge Sections

Entity Information

Upper Slope (Static) 1

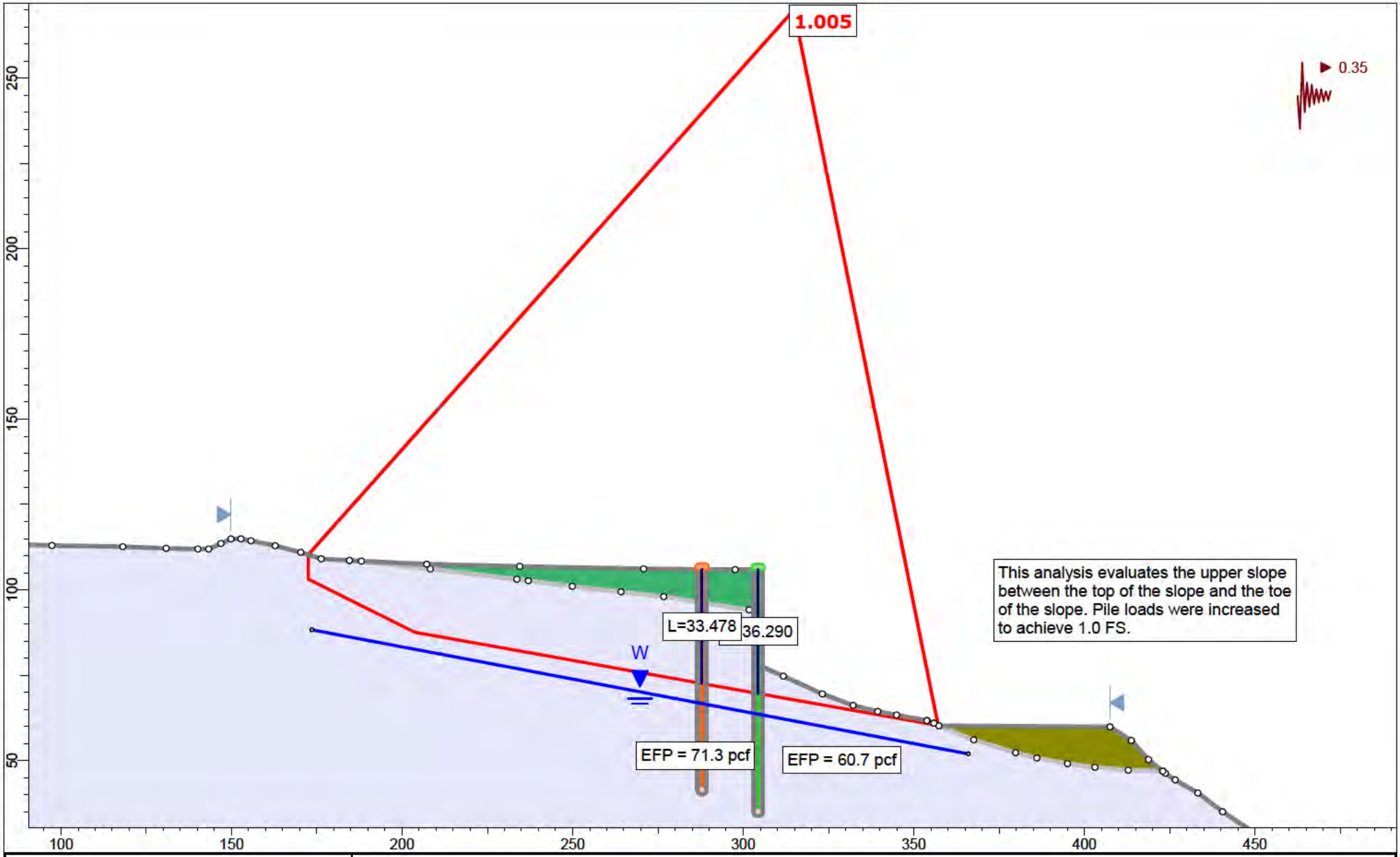
Shared Entities

Type	Coordinates (x,y)
External Boundary	-0.069, -51.999 505.65, -51.999 505.65, 3.34239 505.65, 23.996 456.88, 23.996 450.477, 28.41 440.53, 34.944 433.29, 40.476 426.639, 44.302 423.755, 46.244 423.004, 46.8517 418.811, 50.247 413.808, 55.838 407.518, 59.833 357.331, 60.14 355.869, 60.9087 353.86, 61.6416 353.818, 61.6494 344.956, 63.298 339.436, 64.3255 332.204, 66.1071 323.178, 69.4793 311.767, 74.6885 304.345, 77.9476 304.345, 93.826 304.345, 95.2038 304.345, 96.688 304.345, 105.922 297.645, 105.922 270.795, 106.125 234.496, 106.839 207.178, 107.499 188.028, 108.403 184.544, 108.609 176.246, 109.098 170.303, 110.975 162.796, 112.921 155.706, 114.346 152.752, 114.937 149.812, 114.937 146.89, 113.576 143.281, 111.947 140.125, 111.947 130.834, 112.148 118.104, 112.62 97.314, 112.989 77.715, 113.708 63.815, 113.708 59.431, 115.65 51.517, 120.438 43.992, 124.971 35.344, 130.477 26.443, 135.548 16.015, 142.086 4.531, 149.145 2.684, 150.314 -0.069, 152.158

Material Boundary	184.544, 108.609 208.27, 106.116 233.606, 103.075 237.006, 102.646 249.906, 101.02 264.178, 99.388 276.678, 98.008 288.727, 96.094 301.732, 94.095 304.345, 93.826
Material Boundary	357.331, 60.14 367.577, 56.042 379.845, 52.288 386.066, 50.724 395.033, 49.056 403.096, 47.979 412.862, 47.144 423.004, 46.8517
Material Boundary	353.818, 61.6494 355.869, 60.9087

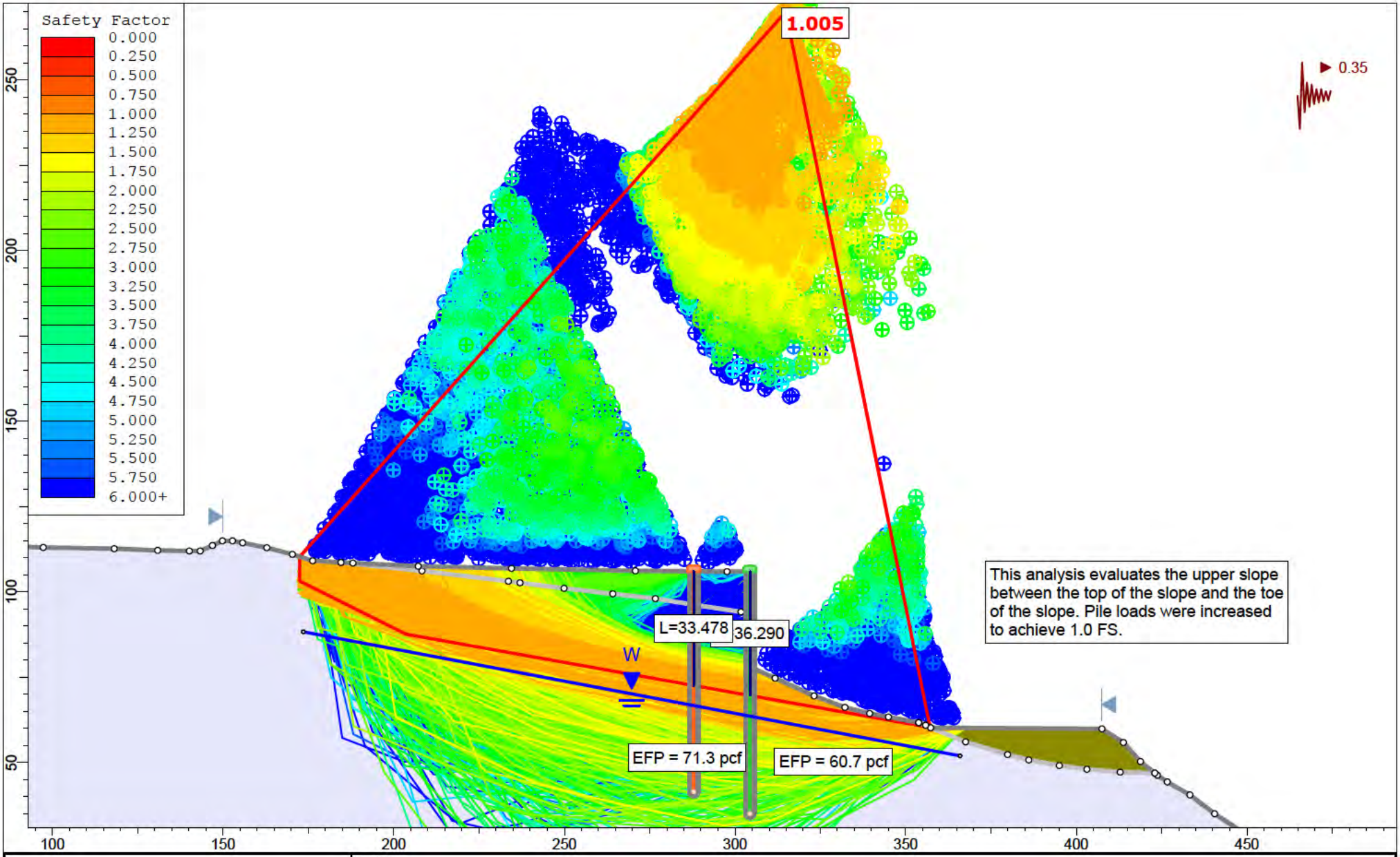
Scenario-based Entities

Type	Coordinates (x,y)	Master Scenario
Water Table	173.517, 88.262 365.949, 51.915	Assigned to: Terrace (Qoa) Qlsr Fill (Af) Anisotropic Bedrock (Tm) Ultimate



rocscience	Project	Section 5-5'		
	Analysis Description	Upper Slope (Seismic) 1		
	Drawn By	A. Greene	Scale 1:467	Company Feffer Geological Consulting
	Date			File Name Section 5-5' Translational Analysis_2.slmd

SLIDEINTERPRET 9.018



rocscience

SLIDEINTERPRET 9.018

Project	Section 5-5'		
Analysis Description	Upper Slope (Seismic) 1		
Drawn By	A. Greene	Scale 1:467	Company Feffer Geological Consulting
Date			File Name Section 5-5' Translational Analysis_2.slmd

Slide Analysis Information

Section 5-5' Translational Analysis_2

Project Summary

File Name:	Section 5-5' Translational Analysis_2.slmd
Slide Modeler Version:	9.018
Compute Time:	00h:00m:18.525s
Project Title:	Section 5-5'
Analysis:	Upper Slope (Seismic) 1
Author:	A. Greene
Company:	Feffer Geological Consulting

General Settings

Units of Measurement:	Imperial Units
Time Units:	days
Permeability Units:	feet/second
Data Output:	Standard
Failure Direction:	Left to Right

Analysis Options

Slices Type:	Vertical
Analysis Methods Used	
	Spencer
Number of slices:	50
Tolerance:	0.005
Maximum number of iterations:	75
Check malpha < 0.2:	Yes
Create Interslice boundaries at intersections with water tables and piezos:	Yes
Initial trial value of FS:	1
Steffensen Iteration:	Yes

Groundwater Analysis

Groundwater Method:	Water Surfaces
Pore Fluid Unit Weight [lbs/ft3]:	62.4
Use negative pore pressure cutoff:	Yes
Maximum negative pore pressure [psf]:	0
Advanced Groundwater Method:	None

Random Numbers

Pseudo-random Seed:	10116
Random Number Generation Method:	Park and Miller v.3

Surface Options

Search Method:	Cuckoo Search
Initial # of Surface Vertices:	8
Maximum Iterations:	500
Number of Nests:	50
Minimum Elevation:	Not Defined
Minimum Depth:	Not Defined
Minimum Area:	Not Defined
Minimum Weight:	Not Defined
Convex Surfaces Only:	Enabled

Seismic Loading

Advanced seismic analysis:	No
Staged pseudostatic analysis:	No
Seismic Load Coefficient (Horizontal):	0.35

Materials

Terrace (Qoa)	
Color	
Strength Type	Mohr-Coulomb
Unit Weight [lbs/ft3]	115
Cohesion [psf]	100
Friction Angle [deg]	31
Water Surface	Water Table
Hu Value	1
Qlsr	
Color	
Strength Type	Mohr-Coulomb
Unit Weight [lbs/ft3]	115
Cohesion [psf]	200
Friction Angle [deg]	12
Water Surface	Water Table
Hu Value	1
Fill (Af)	
Color	
Strength Type	Mohr-Coulomb
Unit Weight [lbs/ft3]	120
Cohesion [psf]	120
Friction Angle [deg]	31
Water Surface	Water Table
Hu Value	1
Anisotropic Bedrock (Tm) Peak	
Color	
Strength Type	Anisotropic function
Unit Weight [lbs/ft3]	124
Water Surface	Water Table
Hu Value	1

Anisotropic Functions

Name: Anisotropic Bedrock (Tm) Peak

Angle From	Angle To	c	phi
-90	-30	720	41
-30	-10	200	16
-10	90	720	41

Support

Pile (Seismic)1	
Color	
Type	Pile/Micro Pile
Force Application	Active (Method A)
Force Orientation	Parallel to surface
Out-Of-Plane Spacing	10 ft
Failure Mode	Shear
Pile Shear Strength	400000 lbs

Pile (Seismic) 2	
Color	
Type	Pile/Micro Pile
Force Application	Active (Method A)
Force Orientation	Parallel to surface
Out-Of-Plane Spacing	10 ft
Failure Mode	Shear
Pile Shear Strength	400000 lbs

Global Minimums

Method: spencer

FS	1.004880
Axis Location:	314.869, 269.934
Left Slip Surface Endpoint:	172.479, 110.288
Right Slip Surface Endpoint:	357.152, 60.234
Resisting Moment:	2.94248e+07 lb-ft
Driving Moment:	2.92818e+07 lb-ft
Resisting Horizontal Force:	142822 lb
Driving Horizontal Force:	142128 lb
Active Support Moment:	-1.59257e+07 lb-ft
Active Horizontal Support Force:	-78762.3 lb
Maximum Single Support Force:	40000 lb
Total Support Force:	80000 lb
Total Slice Area:	3379.54 ft2
Surface Horizontal Width:	184.673 ft
Surface Average Height:	18.3001 ft

Global Minimum Coordinates

Method: spencer

X	Y
172.479	103.12
203.67	87.5582
234.318	82.0922
291.64	71.8689
302.076	70.0156
344.53	62.4758
357.152	60.2342

Global Minimum Support Data

Method: spencer

Number of Supports: 2

Pile (Seismic)1

Support Type: Pile/Micro Pile

Start (x, y)	Length (ft)	L Inside SS (ft)	L Outside SS (ft)	Li (ft)	Lo (ft)	Force (lb)
304.345, 105.922	70.888	36.3095	34.5785	36.3095	34.5785	40000

Pile (Seismic) 2

Support Type: Pile/Micro Pile

Start (x, y)	Length (ft)	L Inside SS (ft)	L Outside SS (ft)	Li (ft)	Lo (ft)	Force (lb)
287.91, 105.996	64.5566	33.4614	31.0952	33.4614	31.0952	40000

Valid and Invalid Surfaces

Method: spencer

Number of Valid Surfaces: 11339
Number of Invalid Surfaces: 13726

Error Codes

Error Code -106 reported for 28 surfaces
Error Code -108 reported for 110 surfaces
Error Code -109 reported for 5 surfaces
Error Code -110 reported for 5235 surfaces
Error Code -111 reported for 2388 surfaces
Error Code -112 reported for 155 surfaces
Error Code -121 reported for 2199 surfaces
Error Code -124 reported for 115 surfaces
Error Code -145 reported for 35 surfaces
Error Code -1000 reported for 3456 surfaces

Error Code Descriptions

The following errors were encountered during the computation:

-106 = Average slice width is less than 0.0001 * (maximum horizontal extent of soil region). This limitation is imposed to avoid numerical errors which may result from too many slices, or too small a slip region.

-108 = Total driving moment or total driving force < 0.1. This is to limit the calculation of extremely high safety factors if the driving force is very small (0.1 is an arbitrary number).

-109 = Soiltype for slice base not located. This error should occur very rarely, if at all. It may occur if a very low number of slices is combined with certain soil geometries, such that the midpoint of a slice base is actually outside the soil region,even though the slip surface is wholly within the soil region.

-110 = The water table or a piezoline does not span the slip region for a given slip surface, when Water Surfaces is specified as the method of pore pressure calculation. If this error occurs, check that the water table or piezoline(s) span the appropriate soil cells.

-111 = Safety factor equation did not converge

-112 = The coefficient M-Alpha = cos(alpha)(1+tan(alpha)tan(phi)/F) < 0.2 for the final iteration of the safety factor calculation. This screens out some slip surfaces which may not be valid in the context of the analysis, in particular, deep seated slip surfaces with many high negative base angle slices in the passive zone.

-121 = Concave failure surface, only convex surfaces have been defined as being allowed.

-124 = A slice has a width less than the minimum acceptable value.

-145 = Slip surface was clipped vertically by a weak layer in a region of compression. Such a surface cannot be evaluated using Limit Equilibrium. For more information, see Help Documentation on weak layers.

-1000 = No valid slip surface is generated

Slice Data

Global Minimum Query (spencer) - Safety Factor: 1.00488

Slice Number	Width [ft]	Weight [lbs]	Angle of Slice Base [deg]	Base Material	Base Cohesion [psf]	Base Friction Angle [deg]	Shear Stress [psf]	Shear Strength [psf]	Base Normal Stress [psf]	Pore Pressure [psf]	Effective Normal Stress [psf]	Base Vertical Stress [psf]	Effective Vertical Stress [psf]
1	3.46572	3216.59	-26.5156	Anisotropic Bedrock (Tm) Peak	200	16	369.087	370.888	595.959	0	595.959	780.104	780.104
2	3.46572	3648.72	-26.5156	Anisotropic Bedrock (Tm) Peak	200	16	391.445	393.355	674.311	0	674.311	869.611	869.611
3	3.46572	4302.5	-26.5156	Anisotropic Bedrock (Tm) Peak	200	16	425.272	427.347	792.854	0	792.854	1005.03	1005.03
4	3.46572	4957.06	-26.5156	Anisotropic Bedrock (Tm) Peak	200	16	459.138	461.379	911.539	0	911.539	1140.61	1140.61
5	3.46572	5610.04	-26.5156	Anisotropic Bedrock (Tm) Peak	200	16	492.924	495.329	1029.93	0	1029.93	1275.86	1275.86
6	3.46572	6274.64	-26.5156	Anisotropic Bedrock (Tm) Peak	200	16	527.31	529.883	1150.44	0	1150.44	1413.52	1413.52
7	3.46572	6941.16	-26.5156	Anisotropic Bedrock (Tm) Peak	200	16	561.795	564.537	1271.29	0	1271.29	1551.58	1551.58
8	3.46572	7607.69	-26.5156	Anisotropic Bedrock (Tm) Peak	200	16	596.282	599.192	1392.15	0	1392.15	1689.64	1689.64
9	3.46572	8274.22	-26.5156	Anisotropic Bedrock (Tm) Peak	200	16	630.768	633.846	1513	0	1513	1827.71	1827.71
10	3.831	9630.34	-10.1123	Anisotropic Bedrock (Tm) Peak	200	16	799.268	803.168	2103.5	0	2103.5	2246.05	2246.05

11	3.831	9883.32	-10.1123	Anisotropic Bedrock (Tm) Peak	200	16	814.418	818.392	2156.59	0	2156.59	2301.84	2301.84
12	3.831	10151.3	-10.1123	Anisotropic Bedrock (Tm) Peak	200	16	830.466	834.519	2212.83	0	2212.83	2360.94	2360.94
13	3.831	10419.2	-10.1123	Anisotropic Bedrock (Tm) Peak	200	16	846.512	850.643	2269.06	0	2269.06	2420.04	2420.04
14	3.831	10687.2	-10.1123	Anisotropic Bedrock (Tm) Peak	200	16	862.558	866.767	2325.29	0	2325.29	2479.13	2479.13
15	3.831	10955.1	-10.1123	Anisotropic Bedrock (Tm) Peak	200	16	878.604	882.892	2381.53	0	2381.53	2538.23	2538.23
16	3.831	11223.1	-10.1123	Anisotropic Bedrock (Tm) Peak	200	16	894.65	899.016	2437.76	0	2437.76	2597.32	2597.32
17	3.831	11491	-10.1123	Anisotropic Bedrock (Tm) Peak	200	16	910.695	915.139	2493.99	0	2493.99	2656.41	2656.41
18	3.58263	10991	-10.1123	Anisotropic Bedrock (Tm) Peak	200	16	926.382	930.903	2548.96	0	2548.96	2714.18	2714.18
19	3.58263	11231.2	-10.1123	Anisotropic Bedrock (Tm) Peak	200	16	941.767	946.363	2602.88	0	2602.88	2770.84	2770.84
20	3.58263	11471.5	-10.1123	Anisotropic Bedrock (Tm) Peak	200	16	957.152	961.823	2656.79	0	2656.79	2827.5	2827.5
21	3.58263	11711.8	-10.1123	Anisotropic Bedrock (Tm) Peak	200	16	972.538	977.284	2710.71	0	2710.71	2884.16	2884.16
22	3.58263	11952.3	-10.1123	Anisotropic Bedrock (Tm) Peak	200	16	987.941	992.762	2764.7	0	2764.7	2940.9	2940.9
23	3.58263	12193.8	-10.1123	Anisotropic Bedrock (Tm) Peak	200	16	1003.41	1008.3	2818.89	0	2818.89	2997.85	2997.85
24	3.58263	12435.4	-10.1123	Anisotropic Bedrock (Tm) Peak	200	16	1018.88	1023.85	2873.11	0	2873.11	3054.82	3054.82
25	3.58263	12677.1	-10.1123	Anisotropic Bedrock (Tm) Peak	200	16	1034.35	1039.4	2927.32	0	2927.32	3111.8	3111.8
26	3.58263	12918.8	-10.1123	Anisotropic Bedrock (Tm) Peak	200	16	1049.83	1054.95	2981.57	0	2981.57	3168.8	3168.8
27	3.58263	13160.8	-10.1123	Anisotropic Bedrock (Tm) Peak	200	16	1065.33	1070.53	3035.89	0	3035.89	3225.89	3225.89
28	3.58263	13408.9	-10.1123	Anisotropic Bedrock (Tm) Peak	200	16	1081.21	1086.49	3091.56	0	3091.56	3284.4	3284.4
29	3.58263	13668.4	-10.1123	Anisotropic Bedrock (Tm) Peak	200	16	1097.84	1103.19	3149.82	0	3149.82	3345.62	3345.62
30	3.58263	13924.7	-10.1123	Anisotropic Bedrock (Tm) Peak	200	16	1114.24	1119.68	3207.31	0	3207.31	3406.03	3406.03
31	3.58263	14179	-10.1123	Anisotropic Bedrock (Tm) Peak	200	16	1130.53	1136.05	3264.38	0	3264.38	3466.01	3466.01
32	3.58263	14433.3	-10.1123	Anisotropic Bedrock (Tm) Peak	200	16	2445.85	2457.79	7873.85	0	7873.85	8310.06	8310.06
33	3.58263	14687.9	-10.1123	Anisotropic Bedrock (Tm) Peak	200	16	1163.12	1168.8	3378.58	0	3378.58	3586.02	3586.02
34	3.47842	14504	-10.0706	Anisotropic Bedrock (Tm) Peak	200	16	1179.87	1185.63	3437.31	0	3437.31	3646.85	3646.85
35	3.47842	14743.6	-10.0706	Anisotropic Bedrock (Tm) Peak	200	16	1195.69	1201.52	3492.7	0	3492.7	3705.05	3705.05

36	3.47842	14990.6	-10.0706	Anisotropic Bedrock (Tm) Peak	200	16	1211.99	1217.9	3549.82	0	3549.82	3765.07	3765.07
37	3.85947	11519	-10.0706	Anisotropic Bedrock (Tm) Peak	200	16	2116.74	2127.07	6720.49	0	6720.49	7096.42	7096.42
38	3.85947	3548.47	-10.0706	Anisotropic Bedrock (Tm) Peak	200	16	433.686	435.802	822.338	0	822.338	899.36	899.36
39	3.85947	3061.63	-10.0706	Anisotropic Bedrock (Tm) Peak	200	16	404.726	406.701	720.852	0	720.852	792.731	792.731
40	3.85947	2550.64	-10.0706	Anisotropic Bedrock (Tm) Peak	200	16	374.33	376.157	614.333	0	614.333	680.813	680.813
41	3.85947	2035.44	-10.0706	Anisotropic Bedrock (Tm) Peak	200	16	343.684	345.361	506.936	0	506.936	567.974	567.974
42	3.85947	1541.94	-10.0706	Anisotropic Bedrock (Tm) Peak	200	16	314.329	315.863	404.063	0	404.063	459.887	459.887
43	3.85947	1163.15	-10.0706	Anisotropic Bedrock (Tm) Peak	200	16	291.797	293.221	325.101	0	325.101	376.924	376.924
44	3.85947	805.512	-10.0706	Anisotropic Bedrock (Tm) Peak	200	16	270.524	271.844	250.549	0	250.549	298.594	298.594
45	3.85947	602.145	-10.0706	Anisotropic Bedrock (Tm) Peak	200	16	258.427	259.688	208.156	0	208.156	254.053	254.053
46	3.85947	480.883	-10.0706	Anisotropic Bedrock (Tm) Peak	200	16	251.214	252.44	182.878	0	182.878	227.494	227.494
47	3.85947	439.387	-10.0706	Anisotropic Bedrock (Tm) Peak	200	16	248.745	249.959	174.228	0	174.228	218.405	218.405
48	4.20741	461.112	-10.0704	Anisotropic Bedrock (Tm) Peak	200	16	247.77	248.979	170.809	0	170.809	214.812	214.812
49	4.20741	442.571	-10.0704	Anisotropic Bedrock (Tm) Peak	200	16	246.758	247.962	167.264	0	167.264	211.087	211.087
50	4.20741	287.411	-10.0704	Anisotropic Bedrock (Tm) Peak	200	16	237.514	238.673	134.868	0	134.868	177.049	177.049

Interslice Data

Global Minimum Query (spencer) - Safety Factor: 1.00488

Slice Number	X coordinate [ft]	Y coordinate - Bottom [ft]	Interslice Normal Force [lbs]	Interslice Shear Force [lbs]	Interslice Force Angle [deg]
1	172.479	103.12	0	0	0
2	175.944	101.391	879.809	518.788	30.5261
3	179.41	99.662	1969.02	1161.05	30.5261
4	182.876	97.9329	3375.04	1990.12	30.5261
5	186.342	96.2038	5098.24	3006.23	30.5262
6	189.807	94.4747	7137.87	4208.91	30.5261
7	193.273	92.7456	9499.55	5601.5	30.5261
8	196.739	91.0164	12184.2	7184.54	30.5262
9	200.205	89.2873	15191.9	8958.03	30.5261
10	203.67	87.5582	18522.5	10922	30.5262
11	207.501	86.8749	20274.7	11955.2	30.5262
12	211.332	86.1917	22093.9	13027.9	30.5262
13	215.163	85.5084	23983.9	14142.3	30.5261
14	218.994	84.8252	25944.8	15298.6	30.5261
15	222.825	84.1419	27976.5	16496.6	30.5261
16	226.656	83.4587	30079.1	17736.4	30.5261
17	230.487	82.7754	32252.5	19018	30.5261
18	234.318	82.0922	34496.8	20341.4	30.5262
19	237.901	81.4532	36660.4	21617.1	30.5261
20	241.483	80.8142	38887.5	22930.4	30.5261
21	245.066	80.1753	41178.1	24281.1	30.5262
22	248.649	79.5363	43532.3	25669.2	30.5261
23	252.231	78.8974	45950.1	27094.9	30.5261
24	255.814	78.2584	48431.7	28558.2	30.5261
25	259.397	77.6195	50977.3	30059.2	30.5261
26	262.979	76.9805	53586.7	31597.9	30.5261
27	266.562	76.3415	56260.1	33174.3	30.5261
28	270.144	75.7026	58997.5	34788.4	30.5261
29	273.727	75.0636	61800.4	36441.2	30.5261
30	277.31	74.4247	64672	38134.5	30.5262
31	280.892	73.7857	67611.4	39867.7	30.5261
32	284.475	73.1468	70618	41640.6	30.5261
33	288.058	72.5078	32577.8	19209.8	30.5261
34	291.64	71.8689	35719	21062.1	30.5262
35	295.119	71.2511	38823.4	22892.6	30.5261
36	298.597	70.6333	41990.9	24760.3	30.5261
37	302.076	70.0156	45223.5	26666.5	30.5262
38	305.935	69.3301	6325.49	3729.88	30.5261
39	309.794	68.6447	6460.81	3809.68	30.5261
40	313.654	67.9593	6467.71	3813.75	30.5262
41	317.513	67.2738	6339.82	3738.33	30.5261
42	321.373	66.5884	6076.02	3582.79	30.5262
43	325.232	65.903	5682.05	3350.48	30.5262
44	329.092	65.2175	5188.16	3059.25	30.5261
45	332.951	64.5321	4599.92	2712.39	30.5262
46	336.811	63.8467	3958.04	2333.9	30.5262
47	340.67	63.1612	3284.18	1936.55	30.5262
48	344.53	62.4758	2599.36	1532.74	30.5262
49	348.737	61.7286	1848.09	1089.74	30.526
50	352.944	60.9814	1091.93	643.864	30.526
51	357.152	60.2342	0	0	0

Discharge Sections

Entity Information

Upper Slope (Seismic) 1

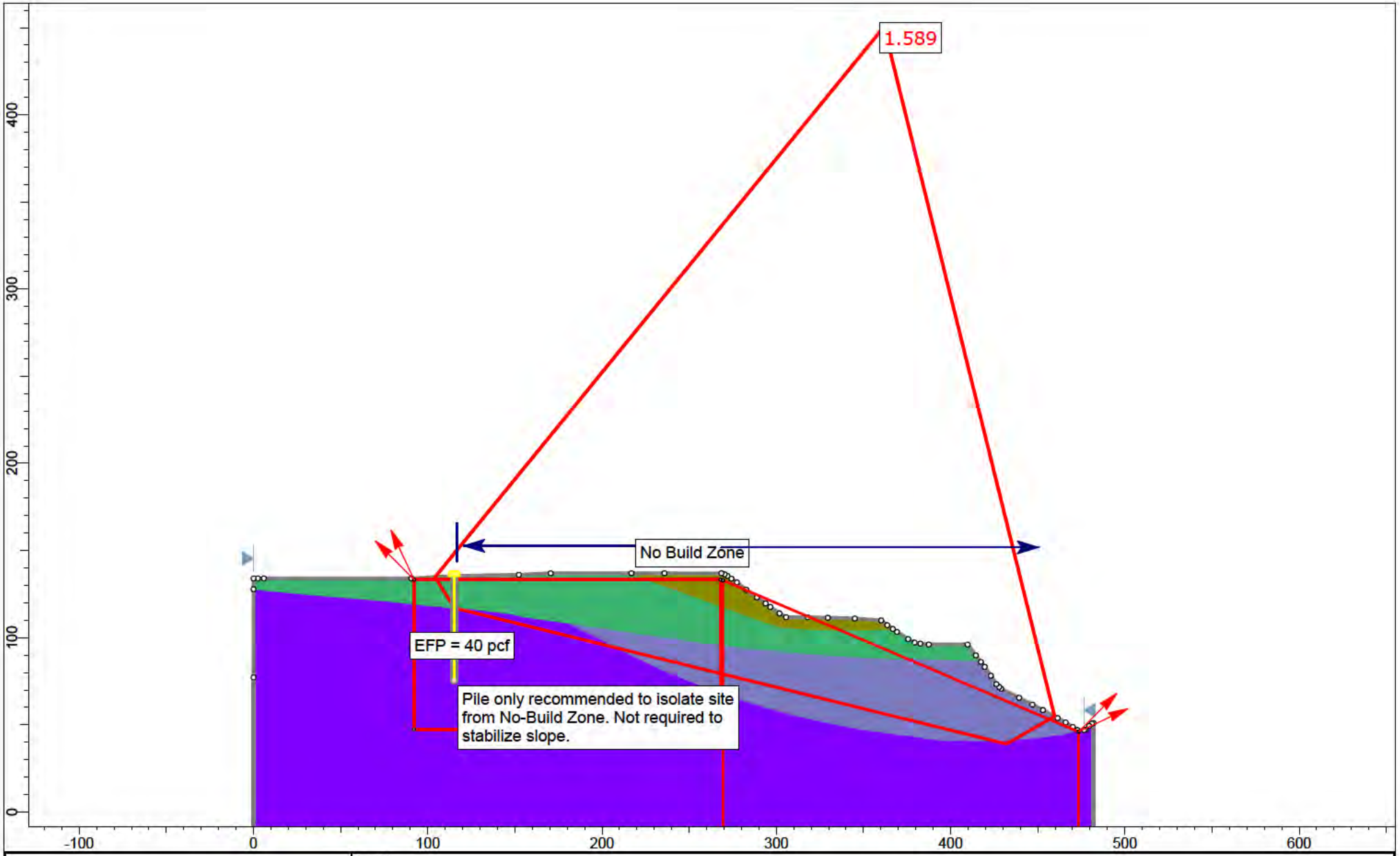
Shared Entities

Type	Coordinates (x,y)
External Boundary	-0.069, -51.999 505.65, -51.999 505.65, 3.34239 505.65, 23.996 456.88, 23.996 450.477, 28.41 440.53, 34.944 433.29, 40.476 426.639, 44.302 423.755, 46.244 423.004, 46.8517 418.811, 50.247 413.808, 55.838 407.518, 59.833 357.331, 60.14 355.869, 60.9087 353.86, 61.6416 353.818, 61.6494 344.956, 63.298 339.436, 64.3255 332.204, 66.1071 323.178, 69.4793 311.767, 74.6885 304.345, 77.9476 304.345, 93.826 304.345, 95.2038 304.345, 96.688 304.345, 105.922 297.645, 105.922 270.795, 106.125 234.496, 106.839 207.178, 107.499 188.028, 108.403 184.544, 108.609 176.246, 109.098 170.303, 110.975 162.796, 112.921 155.706, 114.346 152.752, 114.937 149.812, 114.937 146.89, 113.576 143.281, 111.947 140.125, 111.947 130.834, 112.148 118.104, 112.62 97.314, 112.989 77.715, 113.708 63.815, 113.708 59.431, 115.65 51.517, 120.438 43.992, 124.971 35.344, 130.477 26.443, 135.548 16.015, 142.086 4.531, 149.145 2.684, 150.314 -0.069, 152.158

Material Boundary	184.544, 108.609 208.27, 106.116 233.606, 103.075 237.006, 102.646 249.906, 101.02 264.178, 99.388 276.678, 98.008 288.727, 96.094 301.732, 94.095 304.345, 93.826
Material Boundary	357.331, 60.14 367.577, 56.042 379.845, 52.288 386.066, 50.724 395.033, 49.056 403.096, 47.979 412.862, 47.144 423.004, 46.8517
Material Boundary	353.818, 61.6494 355.869, 60.9087

Scenario-based Entities

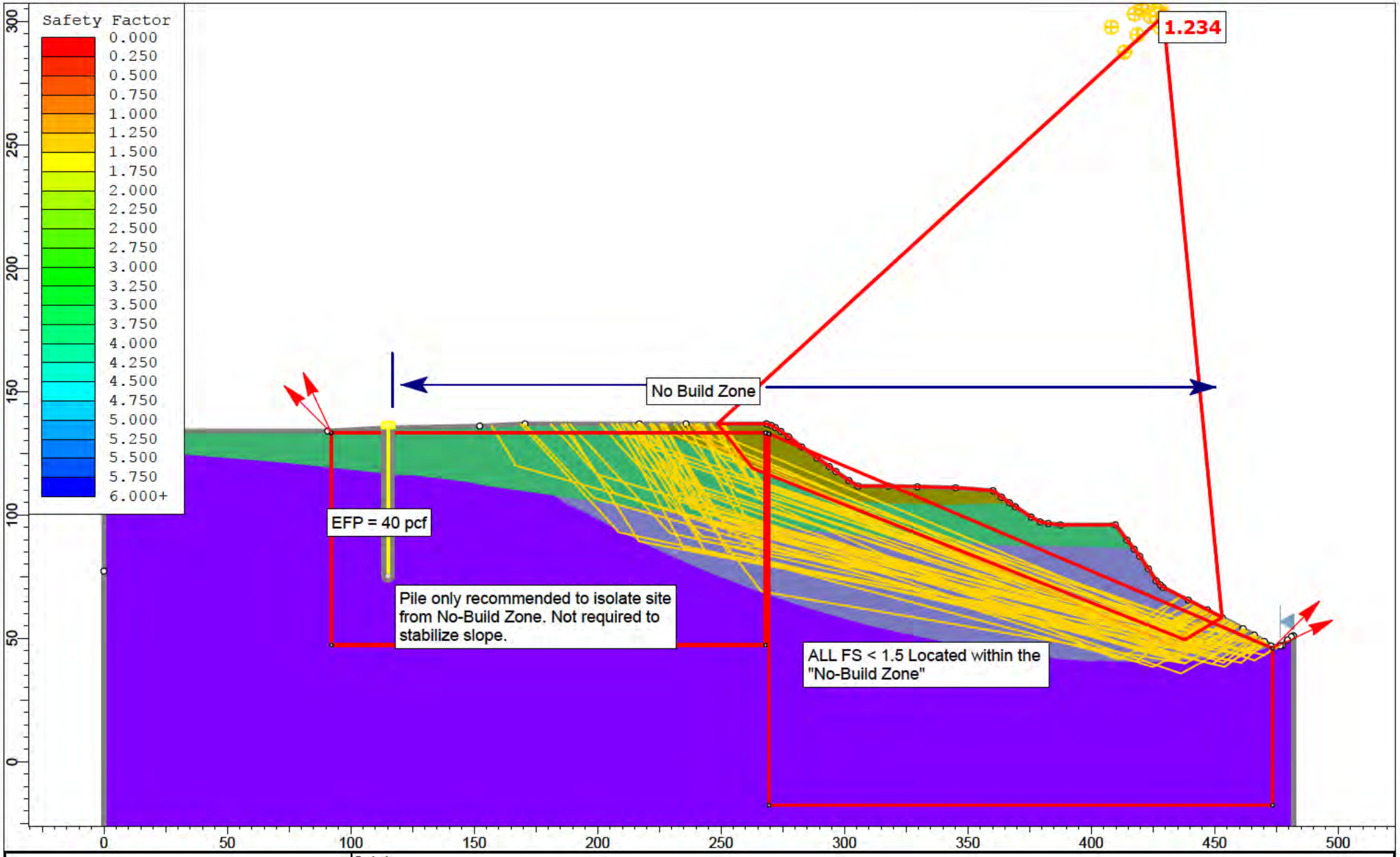
Type	Coordinates (x,y)	Master Scenario
Water Table	173.517, 88.262 365.949, 51.915	Assigned to: Terrace (Qoa) Qlsr Fill (Af) Anisotropic Bedrock (Tm) Peak



rocscience

SLIDEINTERPRET 9.018

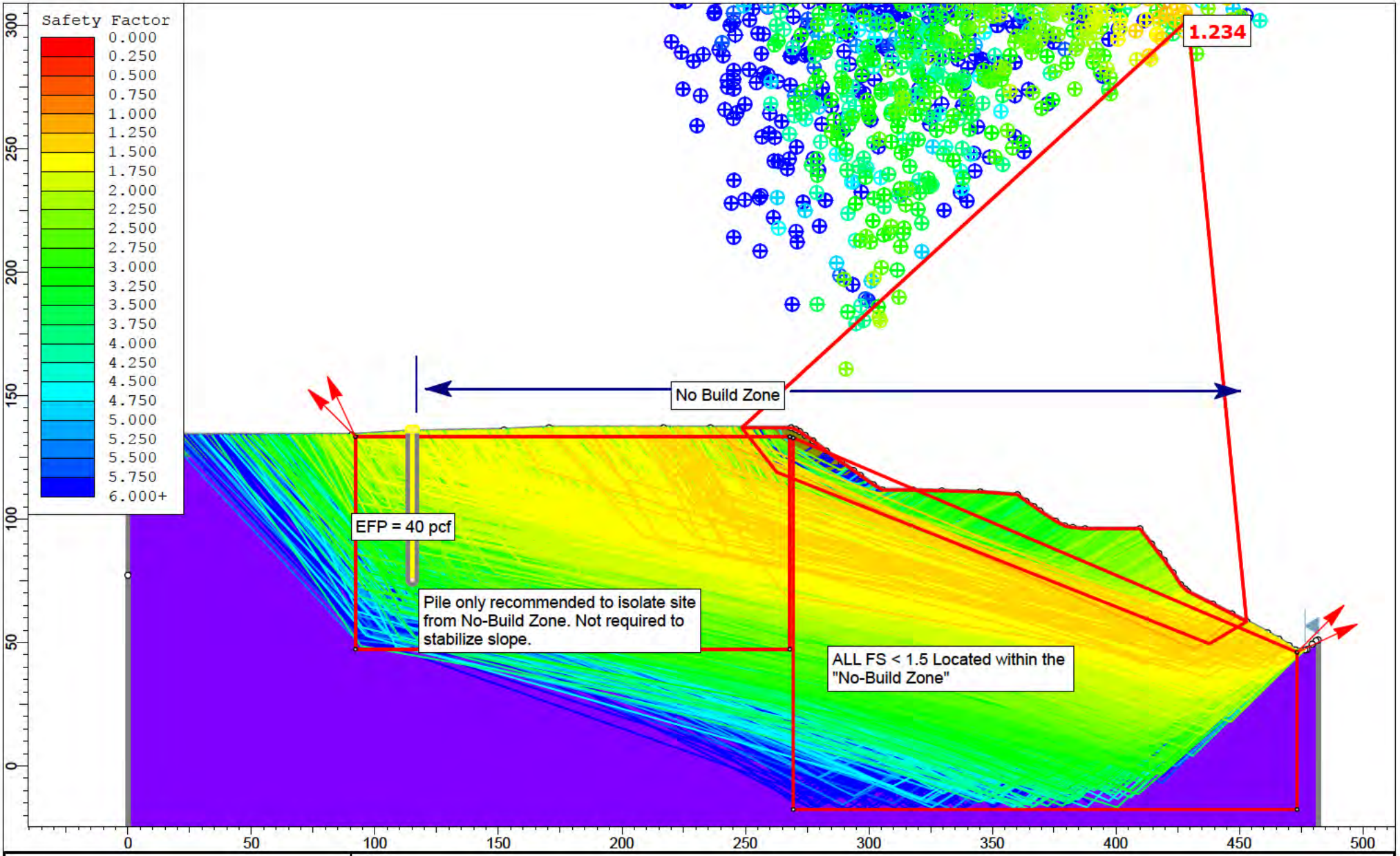
Project	Section 6-6'				
Analysis Description	Translational (Static)				
Drawn By	A. Greene	Scale	1:913	Company	Feffer Geological Consulting
Date				File Name	Section 6-6' Translational Analysis_2.slmd



rocscience

SLIDEINTERPRET 9.018

Project	Section 6-6'		
Analysis Description	Translational (Static)		
Drawn By	A. Greene	Scale 1:645	Company Feffer Geological Consulting
Date			File Name Section 6-6' Translational Analysis_2.slmd



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SLIDEINTERPRET 9.018

Project	Section 6-6'		
Analysis Description	Translational (Static)		
Drawn By	A. Greene	Scale 1:645	Company Feffer Geological Consulting
Date			File Name Section 6-6' Translational Analysis_2.slmd

Slide Analysis Information

Section 6-6' Translational Analysis_2

Project Summary

File Name:	Section 6-6' Translational Analysis_2.slmd
Slide Modeler Version:	9.018
Compute Time:	00h:00m:00.653s
Project Title:	Section 6-6'
Analysis:	Translational (Static)
Author:	A. Greene
Company:	Feffer Geological Consulting

General Settings

Units of Measurement:	Imperial Units
Time Units:	days
Permeability Units:	feet/second
Data Output:	Standard
Failure Direction:	Left to Right

Analysis Options

Slices Type:	Vertical
Analysis Methods Used	
	Spencer
Number of slices:	50
Tolerance:	0.005
Maximum number of iterations:	75
Check malpha < 0.2:	Yes
Create Interslice boundaries at intersections with water tables and piezos:	Yes
Initial trial value of FS:	1
Steffensen Iteration:	Yes

Groundwater Analysis

Groundwater Method:	Water Surfaces
Pore Fluid Unit Weight [lbs/ft3]:	62.4
Use negative pore pressure cutoff:	Yes
Maximum negative pore pressure [psf]:	0
Advanced Groundwater Method:	None

Random Numbers

Pseudo-random Seed:	10116
Random Number Generation Method:	Park and Miller v.3

Surface Options

Surface Type:	Non-Circular Block Search
Number of Surfaces:	5000
Multiple Groups:	Disabled
Pseudo-Random Surfaces:	Enabled
Convex Surfaces Only:	Disabled
Left Projection Angle (Start Angle) [deg]:	115
Left Projection Angle (End Angle) [deg]:	135
Right Projection Angle (Start Angle) [deg]:	45
Right Projection Angle (End Angle) [deg]:	25
Minimum Elevation:	Not Defined
Minimum Depth:	Not Defined
Minimum Area:	Not Defined
Minimum Weight:	Not Defined

Seismic Loading

Advanced seismic analysis:	No
Staged pseudostatic analysis:	No

Materials

Terrace (Qoa)	
Color	
Strength Type	Mohr-Coulomb
Unit Weight [lbs/ft3]	115
Cohesion [psf]	100
Friction Angle [deg]	31
Water Surface	None
Ru Value	0
Qlsa	
Color	
Strength Type	Mohr-Coulomb
Unit Weight [lbs/ft3]	115
Cohesion [psf]	200
Friction Angle [deg]	16
Water Surface	None
Ru Value	0
Fill (Af)	
Color	
Strength Type	Mohr-Coulomb
Unit Weight [lbs/ft3]	120
Cohesion [psf]	120
Friction Angle [deg]	31
Water Surface	None
Ru Value	0
Anisotropic Bedrock (Tm)	
Color	
Strength Type	Anisotropic function
Unit Weight [lbs/ft3]	124
Water Surface	None
Ru Value	0

Anisotropic Functions

Name: Anisotropic Bedrock (Tm) Ultimate

Angle From	Angle To	c	phi
-90	-30	520	34.5
-30	-10	200	16
-10	90	520	34.5

Support

Pile (Static)	
Color	
Type	Pile/Micro Pile
Force Application	Active (Method A)
Force Orientation	Parallel to surface
Out-Of-Plane Spacing	10 ft
Failure Mode	Shear
Pile Shear Strength	10000 lbs

Global Minimums

Method: spencer

FS	1.233810
Axis Location:	429.215, 302.103
Left Slip Surface Endpoint:	248.536, 136.912
Right Slip Surface Endpoint:	452.961, 58.446
Resisting Moment:	4.8391e+07 lb-ft
Driving Moment:	3.92208e+07 lb-ft
Resisting Horizontal Force:	190111 lb
Driving Horizontal Force:	154085 lb
Total Slice Area:	4090.15 ft2
Surface Horizontal Width:	204.425 ft
Surface Average Height:	20.0081 ft

Global Minimum Coordinates

Method: spencer

X	Y
248.536	136.912
262.73	118.947
437.915	49.437
452.961	58.4459

Global Minimum Support Data

Method: spencer

Number of Supports: 1

Pile (Static)

Support Type: Pile/Micro Pile

Start (x, y)	Length (ft)	L Inside SS (ft)	L Outside SS (ft)	Li (ft)	Lo (ft)	Force (lb)
115.177, 135.357	60	Not Effective	Not Effective	Not Effective	Not Effective	0

Valid and Invalid Surfaces

Method: spencer

Number of Valid Surfaces:	4484
Number of Invalid Surfaces:	516

Error Codes

Error Code -105 reported for 4 surfaces
Error Code -108 reported for 52 surfaces
Error Code -111 reported for 459 surfaces
Error Code -112 reported for 1 surface

Error Code Descriptions

The following errors were encountered during the computation:
-105 = More than two surface / slope intersections with no valid slip surface.
-108 = Total driving moment or total driving force < 0.1. This is to limit the calculation of extremely high safety factors if the driving force is very small (0.1 is an arbitrary number).
-111 = Safety factor equation did not converge
-112 = The coefficient M-Alpha = cos(alpha)(1+tan(alpha)tan(phi)/F) < 0.2 for the final iteration of the safety factor calculation. This screens out some slip surfaces which may not be valid in the context of the analysis, in particular, deep seated slip surfaces with many high negative base angle slices in the passive zone.

Slice Data

Global Minimum Query (spencer) - Safety Factor: 1.23381

Slice Number	Width [ft]	Weight [lbs]	Angle of Slice Base [deg]	Base Material	Base Cohesion [psf]	Base Friction Angle [deg]	Shear Stress [psf]	Shear Strength [psf]	Base Normal Stress [psf]	Pore Pressure [psf]	Effective Normal Stress [psf]	Base Vertical Stress [psf]	Effective Vertical Stress [psf]
1	4.27835	1390.08	-51.689	Fill (Af)	120	31	158.06	195.016	124.848	0	124.848	324.907	324.907
2	4.27835	4170.25	-51.689	Fill (Af)	120	31	353.84	436.571	526.863	0	526.863	974.725	974.725
3	4.27835	6950.41	-51.689	Fill (Af)	120	31	549.619	678.126	928.878	0	928.878	1624.54	1624.54
4	1.35814	2783.53	-51.689	Terrace (Qoa)	100	31	667.627	823.725	1204.48	0	1204.48	2049.51	2049.51
5	4.1138	9244.3	-21.6423	Terrace (Qoa)	100	31	985.054	1215.37	1856.28	0	1856.28	2247.13	2247.13
6	4.1138	9920.07	-21.6423	Terrace (Qoa)	100	31	1052.1	1298.09	1993.95	0	1993.95	2411.4	2411.4
7	4.1138	9739.97	-21.6423	Terrace (Qoa)	100	31	1034.23	1276.04	1957.26	0	1957.26	2367.62	2367.62
8	4.1138	9127.43	-21.6423	Terrace (Qoa)	100	31	973.456	1201.06	1832.47	0	1832.47	2218.72	2218.72
9	4.1138	8395.09	-21.6423	Terrace (Qoa)	100	31	900.803	1111.42	1683.28	0	1683.28	2040.71	2040.71
10	4.1138	7680.63	-21.6423	Terrace (Qoa)	100	31	829.92	1023.96	1537.73	0	1537.73	1867.03	1867.03
11	4.1138	7011.24	-21.6423	Terrace (Qoa)	100	31	763.511	942.027	1401.37	0	1401.37	1704.32	1704.32
12	4.1138	6397.91	-21.6423	Terrace (Qoa)	100	31	702.662	866.951	1276.42	0	1276.42	1555.23	1555.23
13	4.1138	5739.41	-21.6423	Terrace (Qoa)	100	31	637.332	786.346	1142.27	0	1142.27	1395.15	1395.15
14	4.1138	5128.05	-21.6423	Terrace (Qoa)	100	31	576.679	711.512	1017.73	0	1017.73	1246.54	1246.54
15	4.1138	4890.16	-21.6423	Terrace (Qoa)	100	31	553.077	682.392	969.264	0	969.264	1188.71	1188.71
16	4.1138	5564.27	-21.6423	Terrace (Qoa)	100	31	619.956	764.908	1106.59	0	1106.59	1352.58	1352.58
17	4.1138	6341.53	-21.6423	Terrace (Qoa)	100	31	697.068	860.05	1264.94	0	1264.94	1541.52	1541.52
18	4.1138	7110.53	-21.6423	Terrace (Qoa)	100	31	773.361	954.18	1421.6	0	1421.6	1728.45	1728.45
19	4.1138	7838.92	-21.6423	Terrace (Qoa)	100	31	845.625	1043.34	1569.98	0	1569.98	1905.51	1905.51
20	4.1138	8560.45	-21.6423	Terrace (Qoa)	100	31	917.208	1131.66	1716.97	0	1716.97	2080.9	2080.9
21	4.1138	9282.41	-21.6423	Terrace (Qoa)	100	31	988.831	1220.03	1864.05	0	1864.05	2256.4	2256.4
22	4.1138	10005.4	-21.6423	Terrace (Qoa)	100	31	1060.57	1308.54	2011.34	0	2011.34	2432.16	2432.16
23	4.21404	10998.9	-21.6423	Qlsa	200	16	703.792	868.345	2330.8	0	2330.8	2610.05	2610.05
24	4.21404	11755.1	-21.6423	Qlsa	200	16	741.976	915.458	2495.1	0	2495.1	2789.51	2789.51
25	4.21404	12453.2	-21.6423	Qlsa	200	16	777.227	958.95	2646.77	0	2646.77	2955.16	2955.16
26	4.21404	13100	-21.6423	Qlsa	200	16	809.885	999.244	2787.3	0	2787.3	3108.64	3108.64
27	4.21404	13746.7	-21.6423	Qlsa	200	16	842.542	1039.54	2927.82	0	2927.82	3262.13	3262.13
28	4.21404	14243.1	-21.6423	Qlsa	200	16	867.606	1070.46	3035.66	0	3035.66	3379.91	3379.91
29	4.21404	13667.1	-21.6423	Qlsa	200	16	838.521	1034.58	2910.51	0	2910.51	3243.22	3243.22
30	4.21404	13018.6	-21.6423	Qlsa	200	16	805.778	994.177	2769.63	0	2769.63	3089.35	3089.35
31	4.21404	12477.6	-21.6423	Qlsa	200	16	778.459	960.471	2652.08	0	2652.08	2960.96	2960.96
32	4.21404	12029	-21.6423	Qlsa	200	16	755.808	932.523	2554.61	0	2554.61	2854.5	2854.5
33	4.21404	12030	-21.6423	Qlsa	200	16	755.856	932.583	2554.81	0	2554.81	2854.72	2854.72
34	4.21404	12554.2	-21.6423	Qlsa	200	16	782.327	965.243	2668.72	0	2668.72	2979.13	2979.13
35	4.21404	13245.9	-21.6423	Qlsa	200	16	817.251	1008.33	2818.99	0	2818.99	3143.26	3143.26
36	4.21404	14056	-21.6423	Qlsa	200	16	858.156	1058.8	2994.99	0	2994.99	3335.49	3335.49
37	4.21404	14866.3	-21.6423	Qlsa	200	16	899.072	1109.28	3171.05	0	3171.05	3527.78	3527.78
38	4.21404	15676.6	-21.6423	Qlsa	200	16	939.988	1159.77	3347.11	0	3347.11	3720.08	3720.08
39	4.21404	16486.9	-21.6423	Qlsa	200	16	980.905	1210.25	3523.15	0	3523.15	3912.36	3912.36
40	4.21404	16676.6	-21.6423	Qlsa	200	16	990.485	1222.07	3564.38	0	3564.38	3957.38	3957.38
41	4.21404	14943.9	-21.6423	Qlsa	200	16	902.995	1114.12	3187.92	0	3187.92	3546.21	3546.21
42	4.21404	13114.9	-21.6423	Qlsa	200	16	810.637	1000.17	2790.54	0	2790.54	3112.18	3112.18
43	4.21404	11048.2	-21.6423	Qlsa	200	16	706.282	871.418	2341.52	0	2341.52	2621.76	2621.76
44	4.21404	9068.42	-21.6423	Qlsa	200	16	606.315	748.077	1911.37	0	1911.37	2151.95	2151.95
45	4.21404	8446.36	-21.6423	Qlsa	200	16	574.905	709.323	1776.22	0	1776.22	2004.33	2004.33
46	4.21404	8225.52	-21.6423	Qlsa	200	16	563.754	695.565	1728.24	0	1728.24	1951.93	1951.93
47	3.76148	6345.13	30.9113	Qlsa	200	16	643.717	794.225	2072.31	0	2072.31	1686.88	1686.88
48	3.76148	4546.65	30.9113	Qlsa	200	16	514.634	634.96	1516.89	0	1516.89	1208.75	1208.75
49	3.76148	2742.67	30.9113	Qlsa	200	16	385.156	475.209	959.766	0	959.766	729.152	729.152
50	3.76148	915.161	30.9113	Qlsa	200	16	253.988	313.373	395.377	0	395.377	243.3	243.3

Interslice Data

Global Minimum Query (spencer) - Safety Factor: 1.23381

Slice Number	X coordinate [ft]	Y coordinate - Bottom [ft]	Interslice Normal Force [lbs]	Interslice Shear Force [lbs]	Interslice Force Angle [deg]
1	248.536	136.912	0	0	0
2	252.815	131.497	-0.176427	0	0
3	257.093	126.082	1339	0	0
4	261.371	120.666	4017.54	0	0
5	262.73	118.947	5181.32	0	0
6	266.843	117.315	4158.9	0	0
7	270.957	115.683	3085.39	0	0
8	275.071	114.051	2025.49	0	0
9	279.185	112.418	1011.91	0	0
10	283.299	110.786	53.7103	0	0
11	287.412	109.154	-850.471	0	0
12	291.526	107.521	-1704.04	0	0
13	295.64	105.889	-2511.23	0	0
14	299.754	104.257	-3268.63	0	0
15	303.868	102.625	-3979.8	0	0
16	307.981	100.992	-4672.99	0	0
17	312.095	99.36	-5417.15	0	0
18	316.209	97.7278	-6220.07	0	0
19	320.323	96.0955	-7081.15	0	0
20	324.437	94.4632	-7997.3	0	0
21	328.55	92.8309	-8968.01	0	0
22	332.664	91.1986	-9993.31	0	0
23	336.778	89.5663	-11073.3	0	0
24	340.992	87.8943	-10141.9	0	0
25	345.206	86.2222	-9096.76	0	0
26	349.42	84.5502	-7946.54	0	0
27	353.634	82.8781	-6698.99	0	0
28	357.848	81.2061	-5354.11	0	0
29	362.062	79.534	-3934.52	0	0
30	366.276	77.862	-2601.62	0	0
31	370.49	76.1899	-1366.31	0	0
32	374.704	74.5179	-212.413	0	0
33	378.918	72.8458	873.967	0	0
34	383.132	71.1737	1960.49	0	0
35	387.346	69.5017	3125.91	0	0
36	391.56	67.8296	4395.42	0	0
37	395.775	66.1576	5786.84	0	0
38	399.989	64.4855	7300.21	0	0
39	404.203	62.8135	8935.52	0	0
40	408.417	61.1414	10692.8	0	0
41	412.631	59.4694	12478.6	0	0
42	416.845	57.7973	14003.6	0	0
43	421.059	56.1252	15253.4	0	0
44	425.273	54.4532	16192.2	0	0
45	429.487	52.7811	16833	0	0
46	433.701	51.1091	17380.3	0	0
47	437.915	49.437	17894.3	0	0
48	441.676	51.6892	10805.6	0	0
49	445.438	53.9414	5453.45	0	0
50	449.199	56.1936	1843.07	0	0
51	452.961	58.4459	0	0	0

Discharge Sections

Entity Information

Translational (Static)

Shared Entities

Type	Coordinates (x,y)

External Boundary	-0.034, -51.57 481.948, -51.57 481.948, 51.02 481.092, 50.668 479.528, 49.325 477.429, 47.109 476.594, 46.94 472.787, 46.94 470.167, 48.713 466.047, 51.346 461.484, 53.889 453.048, 58.4 447.023, 61.57 439.33, 65.468 429.071, 70.648 427.925, 71.684 426.263, 73.347 423.155, 78.171 419.612, 83.214 417.372, 86.0814 414.46, 89.81 409.771, 95.998 387.534, 95.998 382.632, 96.522 379.342, 97.14 375.659, 99.106 369.256, 103.279 366.85, 104.94 363.692, 107.121 360.16, 109.836 345.093, 110.98 329.558, 111.369 318.013, 111.667 305.59, 111.667 301.824, 113.888 296.56, 117.613 293.834, 119.603 288.819, 123.064 282.768, 127.508 277.371, 131.651 274.236, 133.831 272.001, 135.385 270.338, 136.285 268.512, 136.912 235.814, 136.912 216.897, 136.912 170.541, 136.912 152.242, 136.034 115.177, 135.357 90.64, 133.981 5.939, 133.981 2.46278, 133.981 -0.034, 133.981 -0.034, 127.759 -0.034, 77.2138

Material Boundary	216.897, 136.912 231.788, 131.267 249.597, 124.883 265.497, 119.189 278.833, 114.214 292.682, 109.239 303.555, 106.008 308.203, 105.548 320.543, 104.812 340.017, 104.415 366.85, 104.94
Material Boundary	-0.034, 127.759 15.148, 126.322 33.03, 124.659 73.309, 121.354 123.545, 116.007 148.663, 112.911 164.711, 110.623 182.223, 108.127 215.081, 103.343 248.712, 98.418 284.524, 93.985 322.799, 90.537 343.062, 89.13 372.613, 87.582 417.372, 86.0814
Material Boundary	182.223, 108.127 189.473, 103.531 197.92, 99.055 208.991, 93.234 218.212, 88.455 229.182, 83.407 237.225, 79.672 250.316, 74.321 261.758, 69.98 278.651, 64.057 292.684, 59.716 310.834, 54.682 331.977, 49.973 348.179, 46.88 369.968, 43.787 384.232, 42.126 400.989, 40.787 414.283, 40.141 431.086, 40.141 448.489, 41.756 464.831, 44.018 473.417, 46.003 477.429, 47.109

Scenario-based Entities

Type	Coordinates (x,y)	Master Scenario
Block Search Window	92.1164, 47.2577 268.03, 47.2577 268.03, 133.286 92.1164, 133.286	
Block Search Window	269.408, 132.863 269.408, -17.65 473.417, -17.65 473.417, 46.003	

Preliminary Stability Analysis

Letter

FEFFER
GEOLOGICAL CONSULTING

March 25, 2021 File No: 1992-75

City of Malibu
23285 Stuart Ranch Road
Malibu, CA 90265
Attn: Chris Dean & Ali Abdel-Haq

Subject: **PRELIMINARY SLOPE STABILITY ANALYSIS**
25200-25300 Pacific Coast Highway, Malibu, CA 90265
APN: 4459-013-021, 4459-014-018

Dear Mr. Dean and Mr. Abdel-Haq:

Feffer Geological Consulting has prepared this letter based on previous correspondence to provide a preliminary review of laboratory results and translational slope stability analysis for the referenced project. The primary purpose of this letter is to specifically address the selection of ultimate, peak, and residual bedrock shear values for use in additional translational slope stability analyses that have been requested as part of item 4 in the current geotechnical review sheet dated August 4, 2020 (Log Number 4165). The goal is to provide substantial evidence and reasoning for the selection of bedrock shear values based on laboratory testing conducted on additional bedrock samples and research, and to mutually agree on the selected values for use in the requested analysis.

If you have any questions, please feel free to call our office.

Respectfully submitted,

Joshua R. Feffer
Principal Engineering Geologist
C.E.G. 2138

BACKGROUND

This firm previously provided slope stability analyses in the reports dated 5/21/2018, 9/20/2018, 12/17/2019, and 6/18/2020 to assess the gross static and seismic stability per the City of Malibu Geotechnical Guidelines. Previous analyses utilized an ultimate bedrock shear strength of Phi = 23.5°, Cohesion = 640 psf and produced static factors of safety less than 1.0. Since the static factors of safety were less than 1.0, we noted that the selected shear values in the analyses were overly conservative in response to item #16 of the 9/20/2018 response letter.

Currently, the existing slope has not failed, meaning the site has at a minimum a static factor of safety greater than 1.0. Our basic assumption is that the resisting forces are currently greater than the driving forces resulting in a slope that is currently not failing. Therefore, we start with this basic assumption to help with the selection of bedrock shear values in additional analyses.

METHOD

An iterative process of elimination was implemented to select varying combinations of ultimate, peak, and residual bedrock values using an anisotropic function for potentially adverse bedding planes. This enabled us to derive a combination of values we believe are reasonable for use in analysis, but still conservative for the underlying bedrock. The basis for selecting the values discussed below is guided by our initial assumption that the slope should achieve at least a static factor of safety greater than 1.0.

LABORATORY TESTING

Laboratory testing was performed on selected bedrock samples at Soil Labworks, LLC. Bedrock samples were tested at varying depths ranging from 20 to 45 feet below the ground surface. Three samples were tested for ultimate and peak strength, and four samples were repeatedly sheared to determine residual strength. We have reviewed the tested values and agree with the provided results. A table summarizing the results is provided below, and the testing is attached at the back of this letter for review.

Material	Depth (ft.)	Phi Angle (°)	Cohesion (psf)	Type
Bedrock	30	32	580	Ultimate
		32	780	Peak
	40	40	160	Ultimate
		38	520	Peak
	45	34.5	520	Ultimate
		41	720	Peak
	20	35.5	500	Residual
	20	33.5	300	Residual
	30	34	720	Residual
	30	29	600	Residual

Based on the method used and testing summarized above we selected the highlighted values for use in subsequent stability analyses. The ultimate value shall be used to model static conditions, and the peak value shall be used to model seismic conditions that apply a 0.35g horizontal acceleration.

To provide a conservative analysis, we decided not to use any of the recently tested residual shear strength values shown above. Although we believe these values are reasonable, we have decided instead to adopt the back calculated slide plane value prepared by Leighton (1979) of phi = 16° and C = 200 psf. It should be noted that Leighton (1979) prepared this back calculated value for analysis since their tested value produced calculated static factors of safety less than 1.0. Leighton (1979) stated that their tested residual value was not representative of the underlying bedrock conditions.

To corroborate this back calculation, we are also providing a residual shear strength test obtained by GeoConcepts, Inc. (2006) and approved by the City (2006) of phi = 16° and C = 250psf for a bentonite lens found at a depth of 27.5 ft. for the site located at 25447 Malibu Road. This site is underlain by similar geologic conditions and located immediately west of the project site. However, no bentonite lenses were identified on the project site.

Furthermore, to model potential adverse bedding planes an anisotropic function shall be adopted for south dipping bedding planes ranging from 10 to 30 degrees and the selected residual value will be applied to this range of bedding planes for translational analysis.

PRELIMINARY STATIC ANALYSES

Using the selected values discussed above based on the iterative method of selection, we prepared a static translational analysis utilizing the Janbu Simplified method to determine if the selected values produce a static factor of safety that is slightly greater than 1.0. The results are summarized in the table below.

Cross Section	Static F.S.
Section 2-2’	1.186
Section 3-3’	1.136
Section 4-4’	1.234
Section 5-5’	1.076
Section 6-6’	1.094

CONCLUSION

It is our opinion that the selected and adopted values are reasonable for use in the additional translational analyses. This conclusion is based on and supported by 1) additional laboratory testing of select bedrock samples at varying depths, 2) back calculation of residual shear strength for adverse bedding supported by lab testing from a nearby site with similar geology, and 3) preliminary static analyses of translational stability achieving factors of safety slightly greater than 1.0 which verify that the selected values are at least in part reflective of actual site conditions.

REFERENCES

City of Malibu, 2006, Geotechnical Review Sheet, 25447 Malibu Road, dated December 27, 2006

City of Malibu, 2018, Geotechnical Review Sheet, 25200 Pacific Coast Highway, dated August 27, 2018

City of Malibu, 2019, Geotechnical Review Sheet, 25200 Pacific Coast Highway, dated January 14, 2019

City of Malibu, 2020, Geotechnical Review Sheet, 25200 Pacific Coast Highway, dated January 30, 2020

City of Malibu, 2020a, Geotechnical Review Sheet, 25200 Pacific Coast Highway, dated August 4, 2020

Feffer Geological Consulting, 2018, Preliminary Geotechnical Feasibility Investigation 23000-25200 Pacific Coast Highway, Malibu, CA 90265, dated May 21, 2018

Feffer Geological Consulting, 2018a, Response to City of Malibu 25200-25300 Pacific Coast Highway, Malibu, CA 90265, dated November 20, 2018

Feffer Geological Consulting, 2019, Response to City of Malibu 25200-25300 Pacific Coast Highway, Malibu, CA 90265, dated December 17, 2019

Feffer Geological Consulting, 2020, Response to City of Malibu 25200-25300 Pacific Coast Highway, Malibu, CA 90265, dated June 18, 2020

GeoConcepts, Inc., 2006, Addendum Report No. 3 25447 Malibu Road Malibu, California, dated December 4, 2006

Leighton and Associates, Inc., 1979, Final Report Geotechnical Investigation of Landslide Conditions Affecting Puerco West Area Malibu, California, dated September 4, 1979

SL17.2654
January 18, 2021

Feffer Geological Consulting
1990 S. Bundy Drive
4th Floor
Los Angeles, California 90025

Attn: Joshua R. Feffer

Subject: Laboratory Testing

Site: 25200-25300 Pacific Coast Higway
Malibu, California

Job: FEFFER/COLOREA – 1992-75

Reference: Laboratory Testing, Soil Labworks, LLC., December 27, 2017, June 28, 2019 and June 30, 2020

Laboratory testing for the subject property was performed by Soil Labworks, LLC., under the supervision of the undersigned Engineer. Previous work is presented in the referenced report. Samples of the earth materials were obtained from the subject property by personnel of Feffer Geological and transported to the laboratory of Soil Labworks for testing and analysis. The laboratory tests performed are described and results are attached.

Services performed by this facility for the subject property were conducted in a manner consistent with that level of care and skill ordinarily exercised by members of the profession currently practicing in the same locality under similar conditions.

Respectfully Submitted:

SOIL LABWORKS, LLC

REGISTERED PROFESSIONAL ENGINEER
JON ALAN IRVINE
GE 2891
Exp. 6-30-22
GEOTECHNICAL
STATE OF CALIFORNIA

JON A. IRVINE
G.E. 2891

Enc: Appendix

2500 Townsgate Road, Suite E, Westlake Village, California 91361
(805) 370-1338 FAX (805) 371-4693

APPENDIX

Laboratory Testing

Sample Retrieval - Drill Rig

Samples of earth materials were obtained at frequent intervals by driving a thick-walled steel sampler conforming to the most recent version of ASTM D 3550/D 3550M-17 with successive drops of a 140 pound hammer falling 30". The earth material was retained in brass rings of 2.416 inches inside diameter and 1.00 inch height. The central portion of the sample was stored in close-fitting, water-tight containers for transportation to the laboratory. Standard Penetration Tests (SPT) were performed at discrete intervals within the 8 inch

Moisture Density

The field moisture content and dry density were determined for each of the soil samples. The dry density was determined in pounds per cubic foot following ASTM 2937-17e2. The moisture content was determined as a percentage of the dry soil weight conforming to ASTM 2216-19. The results are presented below in the following table. The percent saturation was calculated on the basis of an estimated specific gravity. Description of earth materials used in this report and shown on the attached Plates were provided by the client.

Test Pit/Boring No.	Sample Depth (Feet)	Soil Type	Dry Density (pcf)	Moisture Content (percent)	Percent Saturation (G_s=2.65)
B10	10	Bedrock	79.7	29	71
B10	21	Bedrock	83.5	26.6	72
B10	30	Bedrock	82.7	28.7	76
B10	40	Bedrock	83.4	28.1	76
B10	50	Bedrock	88.9	28.2	87
B10	60	Bedrock	83.4	28.0	75
B10	70	Bedrock	82.5	28.6	76
B10	79.5	Bedrock	78.1	34.2	81
B11	10	Bedrock	70.3	43.6	85
B11	20	Bedrock	87.1	27.2	80
B11	30	Bedrock	83.5	26.2	71
B11	45	Bedrock	91.4	25.3	83
B12	10	Bedrock	104.2	13.6	61
B12	20	Bedrock	102.3	20.8	89
B12	30	Bedrock	107.6	5.4	27
B12	40	Bedrock	89.3	22.4	70

Shear Strength

The peak and ultimate shear strengths of the bedrock were determined by performing consolidated and drained direct shear tests in conformance with ASTM D3080/D3080M-11. The tests were performed in a strain-controlled machine manufactured by GeoMatic. The rate of deformation was 0.005 inches per minute. Samples were sheared under varying confining pressures, as shown on the "Shear Test Diagrams," B-Plates. The residual shear strength of the bedrock was determined by repeatedly shearing a sample under varying confining pressures in the direct shear machine. The rate of deformation for the last test at each confining pressure was 0.005 inches per minute. The moisture conditions during testing are shown on the following table and on the B-Plates. The samples indicated as saturated were artificially saturated in the laboratory. All saturated samples were sheared under submerged conditions.

Test Pit/ Boring No.	Sample Depth (Feet)	Dry Density (pcf)	As-Tested Moisture Content (percent)
B10	30	82.7	45.8
B10	40	83.4	44.3
B11	45	91.4	38.8
B11*	20	87.1	36.5
B12*	20	102.3	33.3
B11*	30	83.5	37.7
B12*	30	107.6	42.4

* Sample repeatedly sheared to determine residual strength.

SOIL LABWORKS LLC

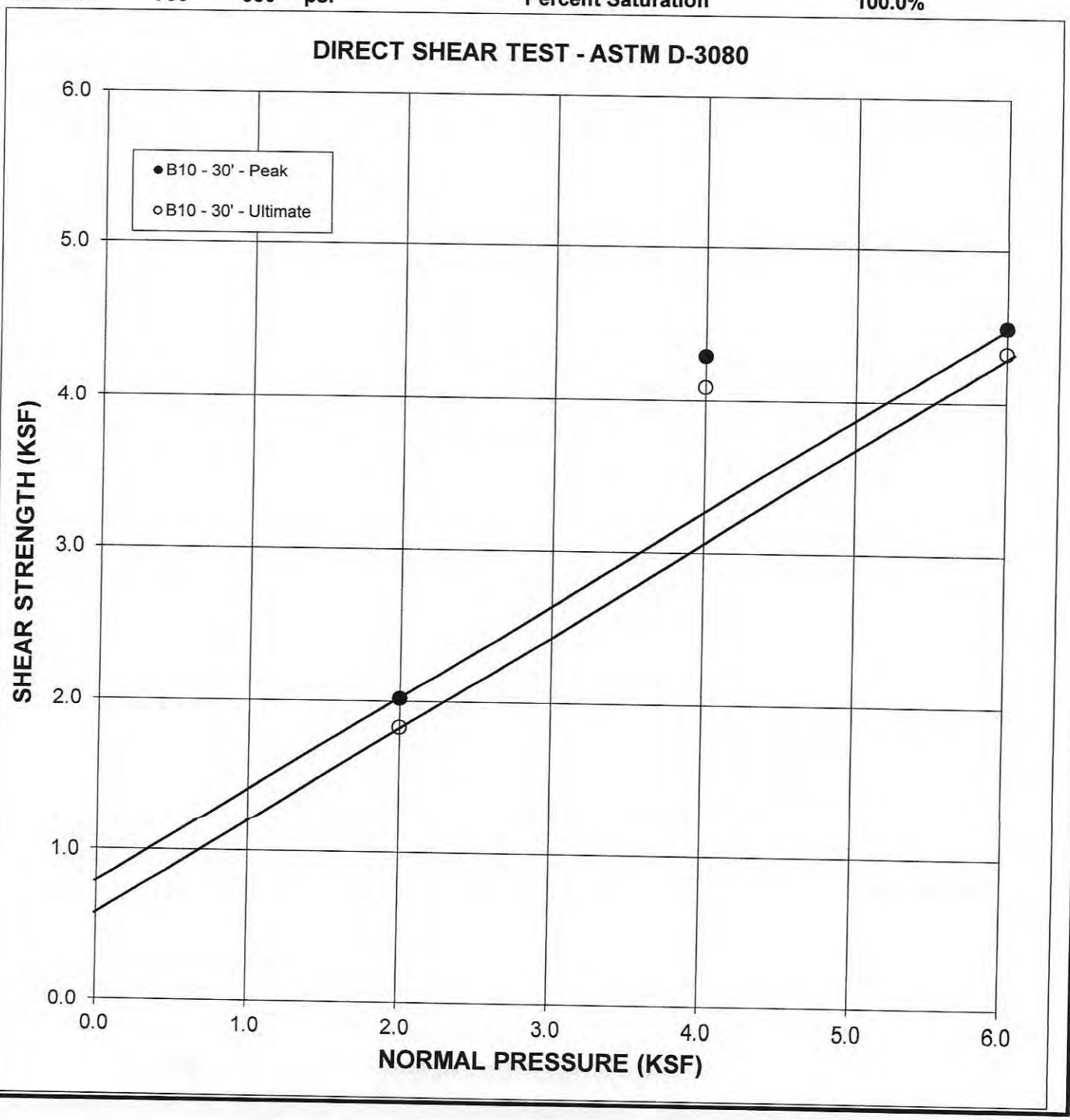
SHEAR DIAGRAM B-11

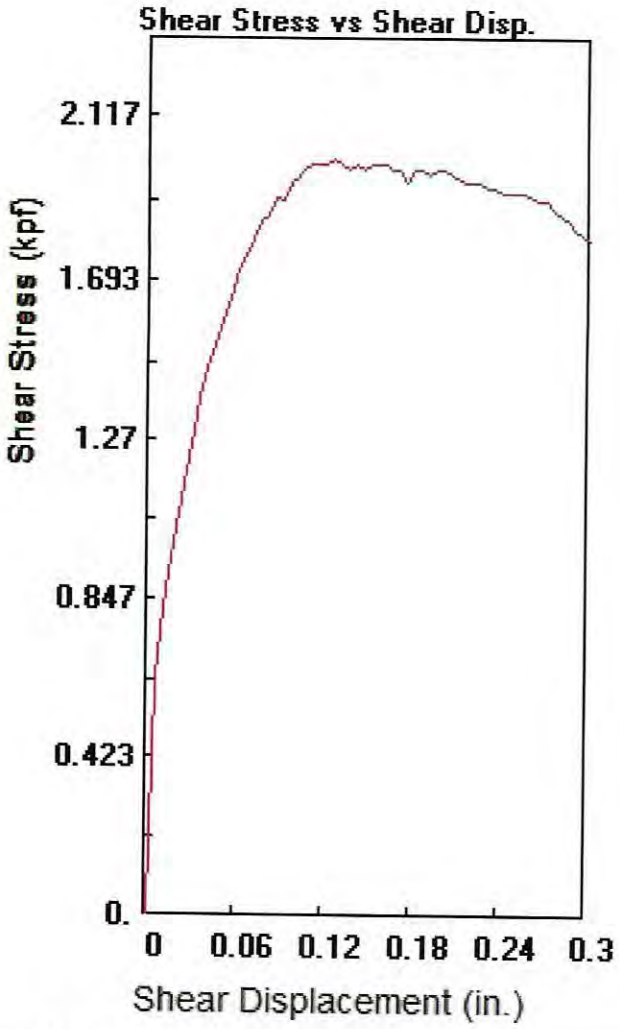
JN: SL17.2654 CONSULTANT JAI
CLIENT: Feffer/Colorea-25200-25300 Pacific Coast Wy

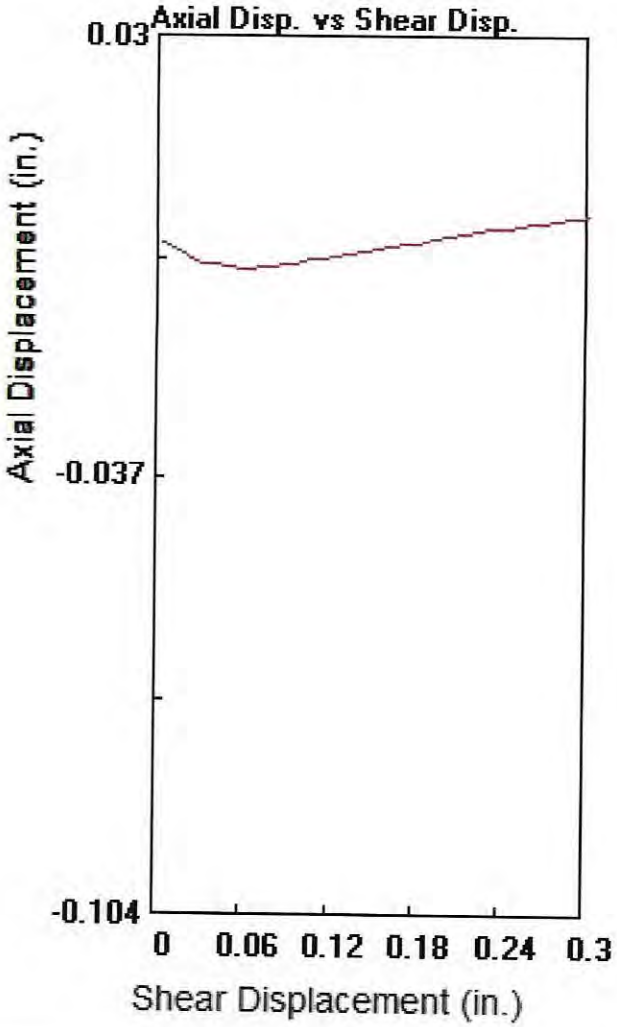
EARTH MATERIAL: BEDROCK

	PEAK	ULTIMATE	
Phi Angle	32	32	degrees
Cohesion	780	580	psf

Average Moisture Content	45.8%
Average Dry Density (pcf)	82.7
Percent Saturation	100.0%







Parameters

Client: FEFFER/COLOREA WEINTRAUB

Location: 25200-25300 PACIFIC COAST HIGHWAY

Job # 2654

Soil Type:BEDROCK

Sample: 1

Technician: BF

Boring: B10

Axial Load: 2000 psf

Depth: 30 ft.

Shear Rate: 0.005 in./sec.

File: 2654B10302 S.dat

Distance: 0.30 in.

Stress at Max Def
2016 0.125

Stress at Max Disp
0.295 1824

Maximum Load

2016 psf

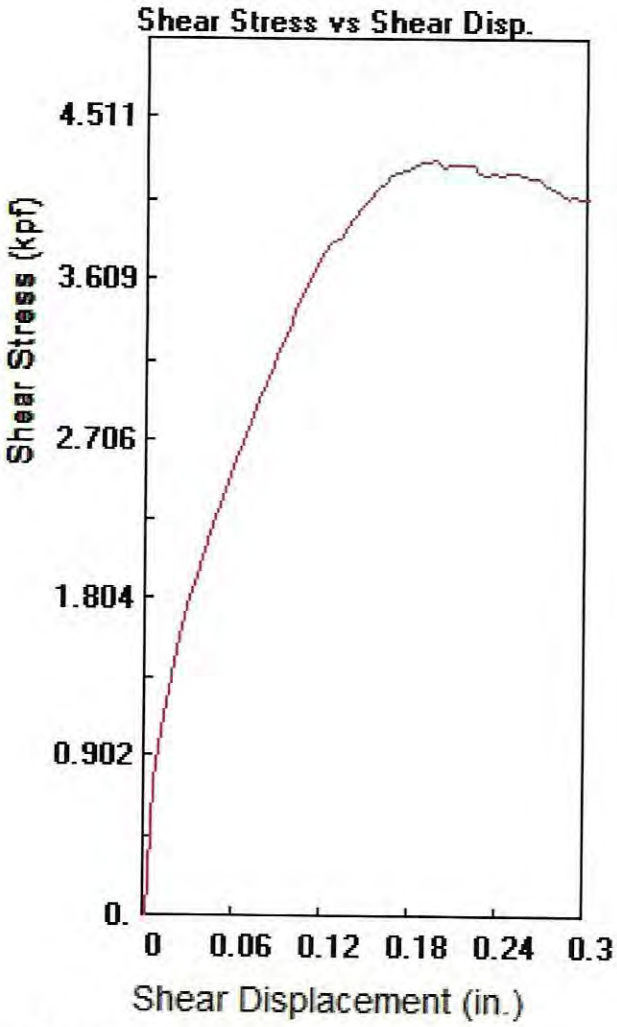
Shear Displacement at maximum Load

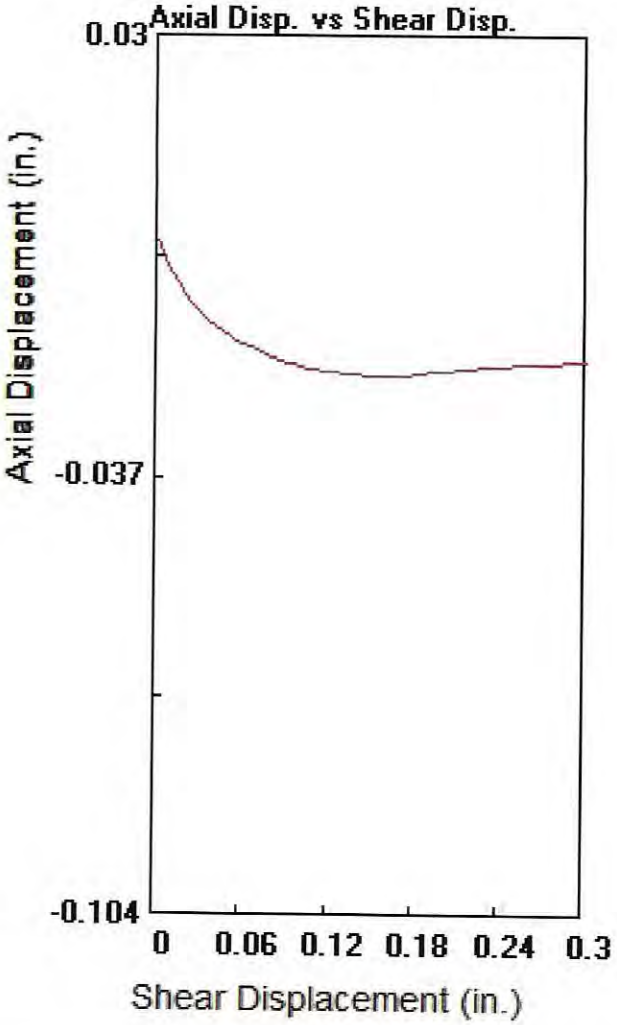
0.1252 in.

Date

1/4/2021

Soil Labworks





Parameters

Client: FEFFER/COLOREA WEINTRAUB

Location: 25200-25300 PACIFIC COAST HIGHWAY

Job # 2654

Soil Type:BEDROCK

Sample: 2

Technician: BF

Boring: B10

Axial Load: 4000 psf

Depth: 30 ft.

Shear Rate: 0.005 in./sec.

File: 2654B10304 S.dat

Distance: 0.30 in.

Stress at Max Def
4296 0.195

Stress at Max Disp
0.295 4092

Maximum Load

4296 psf

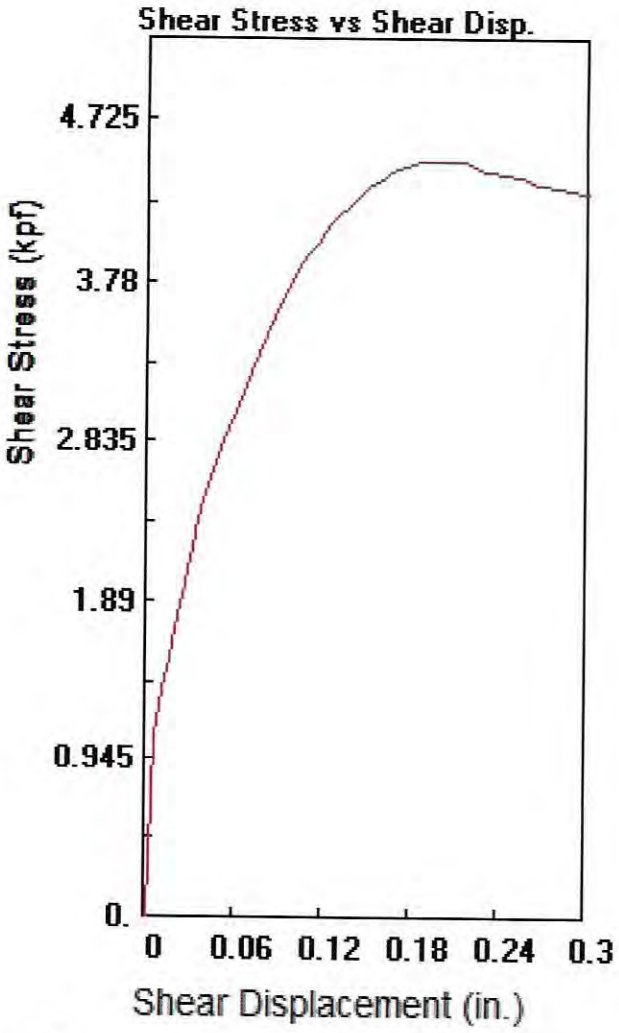
Shear Displacement at maximum Load

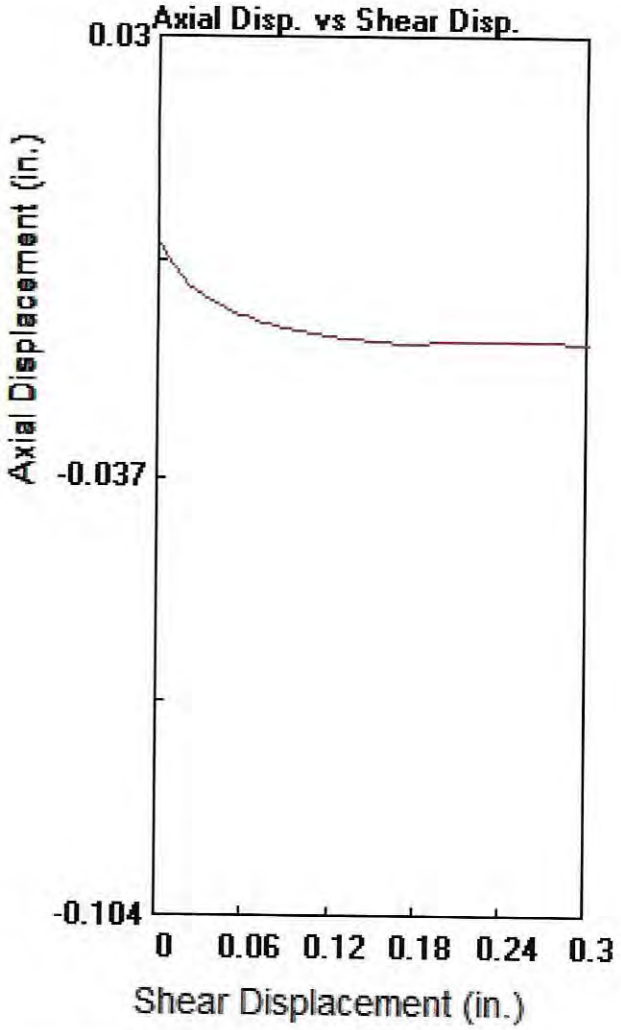
0.1952 in.

Date

1/4/2021

Soil Labworks





Parameters

Client: FEFFER/COLOREA WEINTRAUB

Location: 25200-25300 PACIFIC COAST HIGHWAY

Job # 2654

Soil Type:BEDROCK

Sample: 3

Technician: BF

Boring: B10

Axial Load: 6000 psf

Depth: 30 ft.

Shear Rate: 0.005 in./sec.

File: 2654B10306 S.dat

Distance: 0.30 in.

Stress at Max Def
4500 0.185

Stress at Max Disp
0.295 4332

Maximum Load

4500 psf

Shear Displacement at maximum Load

0.1853 in.

Date

1/4/2021

Soil Labworks

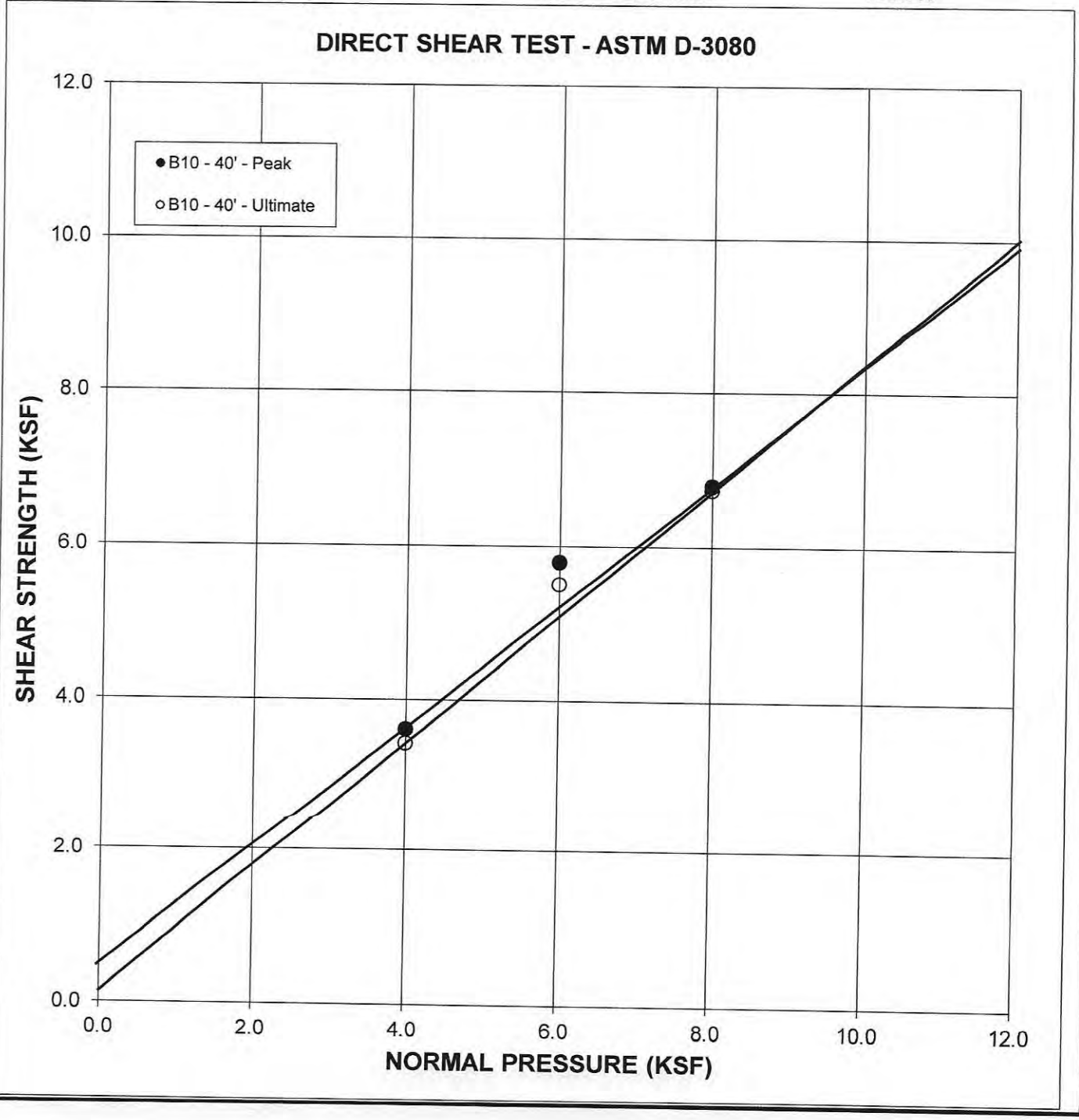
SHEAR DIAGRAM B-12

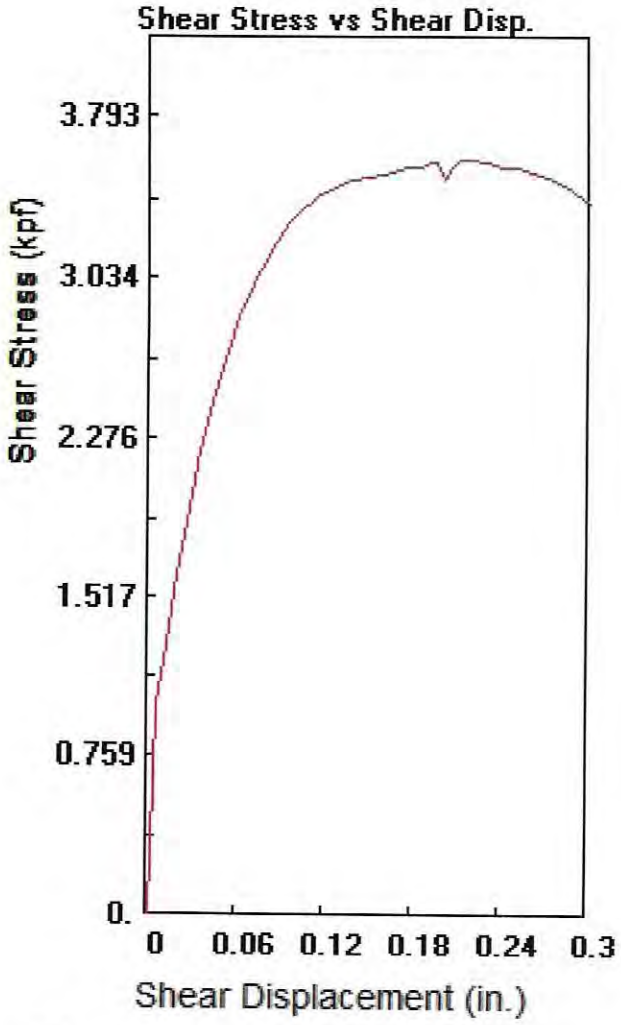
JN: **SL17.2654** CONSULTANT **JAI**
CLIENT: **Feffer/Colorea-25200-25300 Pacific Coast Wy**

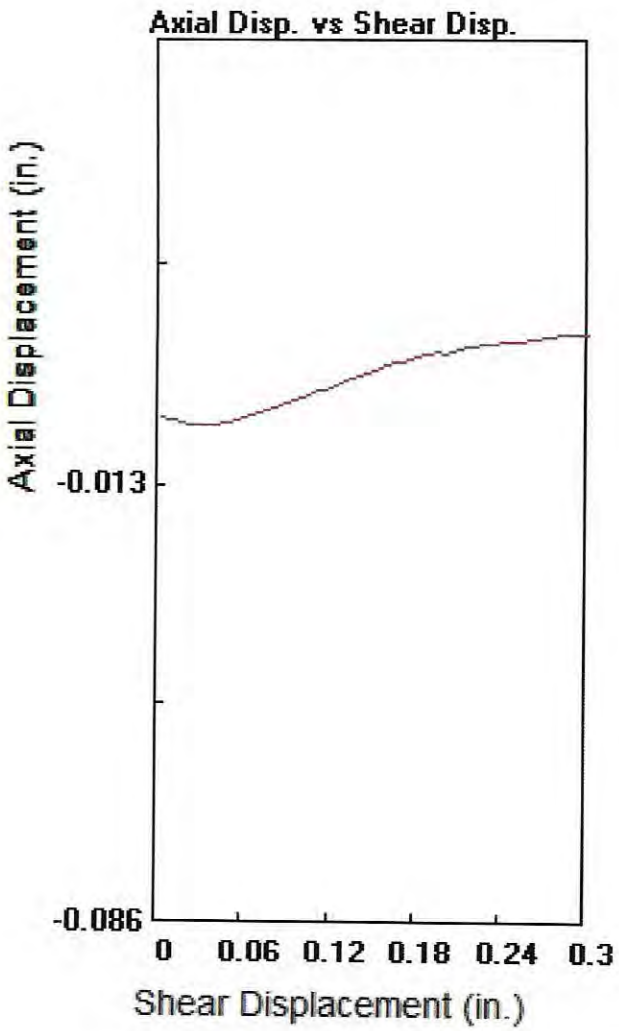
EARTH MATERIAL: **BEDROCK**

	PEAK	ULTIMATE	
Phi Angle	38	40	degrees
Cohesion	520	160	psf

Average Moisture Content	44.3%
Average Dry Density (pcf)	83.4
Percent Saturation	100.0%







Parameters

Client: FEFFER/COLOREA WEINTRAUB

Location: 25200-25300 PACIFIC COAST HWY

Job # 2654

Soil Type:BEDROCK

Sample: 1

Technician: BF

Boring: B10

Axial Load: 4000 psf

Depth: 40 ft.

Shear Rate: 0.005 in./sec.

File: 2654B10404.dat

Distance: 0.30 in.

Stress at Max Def
3612 0.21

Stress at Max Disp
0.295 3432

Maximum Load

3612 psf

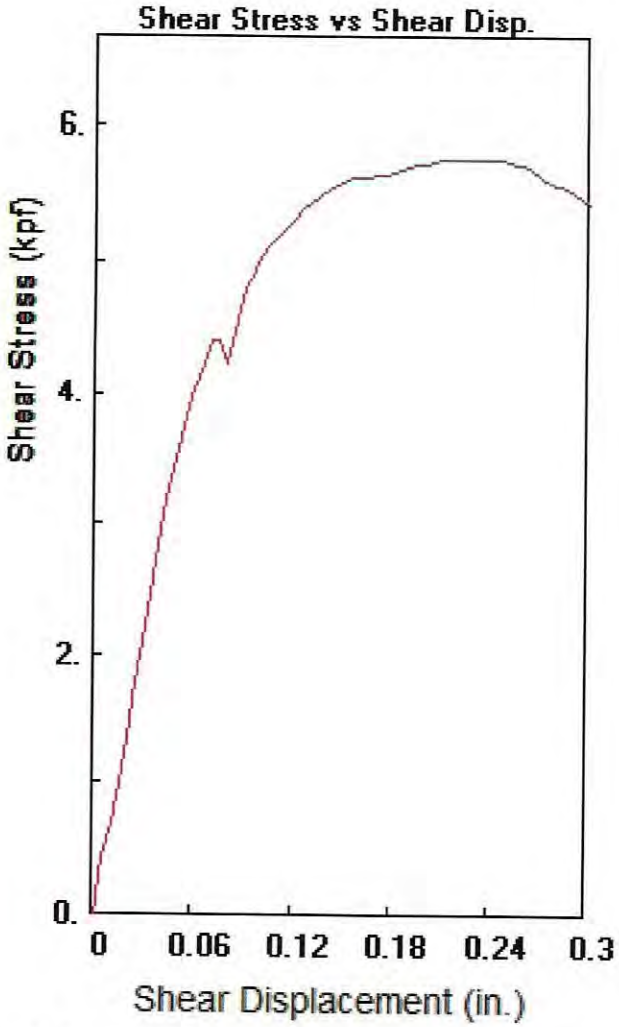
Shear Displacement at maximum Load

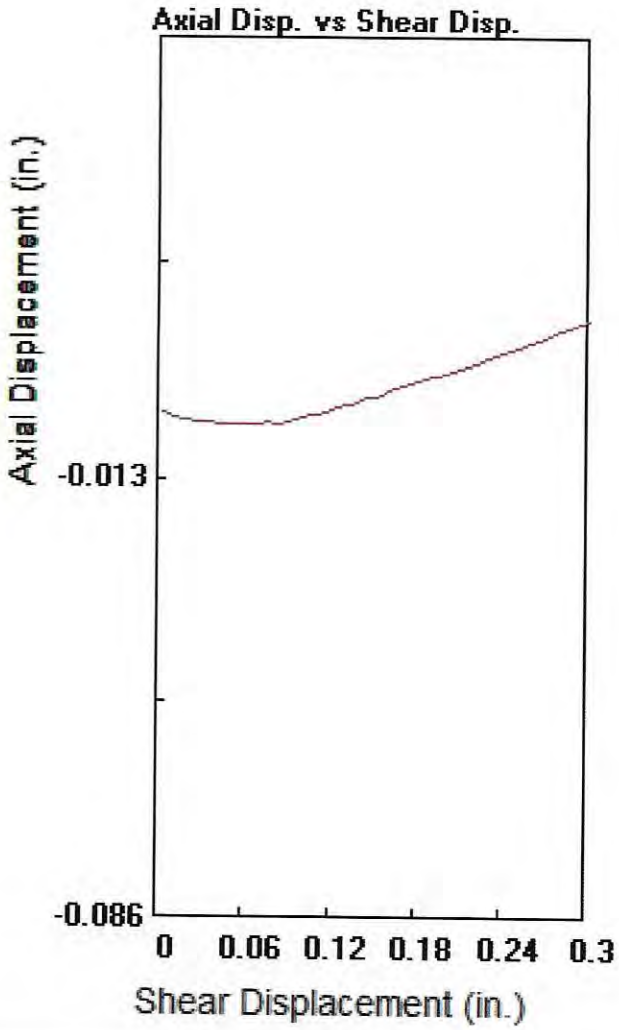
0.2103 in.

Date

1/6/2021

Soil Labworks





Parameters

Client: FEFFER/COLOREA WEINTRAUB

Location: 25200-25300 PACIFIC COAST HWY

Job # 2654

Soil Type:BEDROCK

Sample: 2

Technician: BF

Boring: B10

Axial Load: 6000 psf

Depth: 40 ft.

Shear Rate: 0.005 in./sec.

File: 2654B10406.dat

Distance: 0.30 in.

Stress at Max Def
5784 0.21

Stress at Max Disp
0.295 5496

Maximum Load

5784 psf

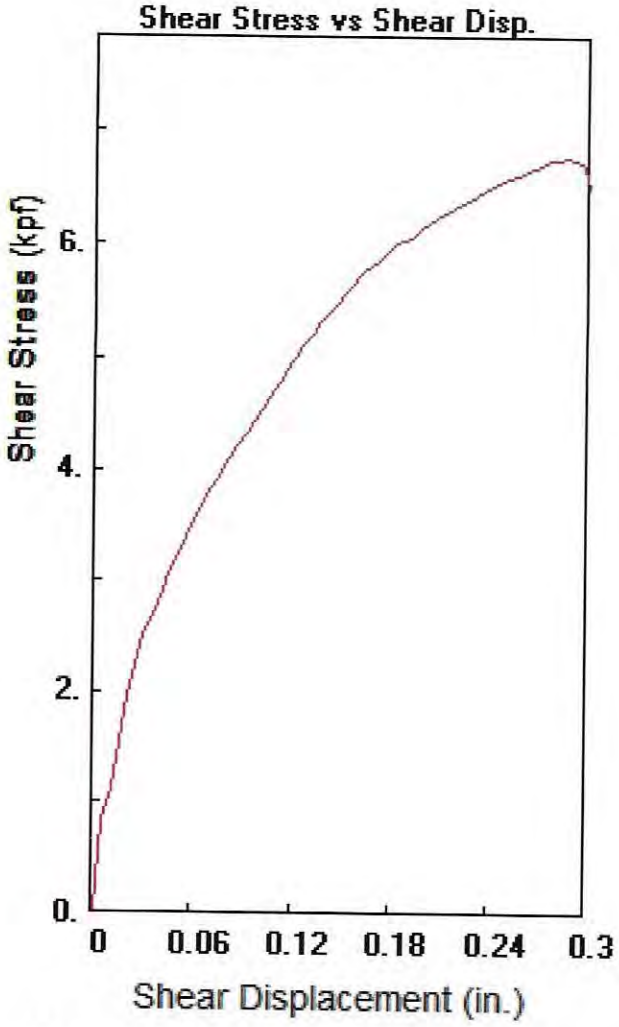
Shear Displacement at maximum Load

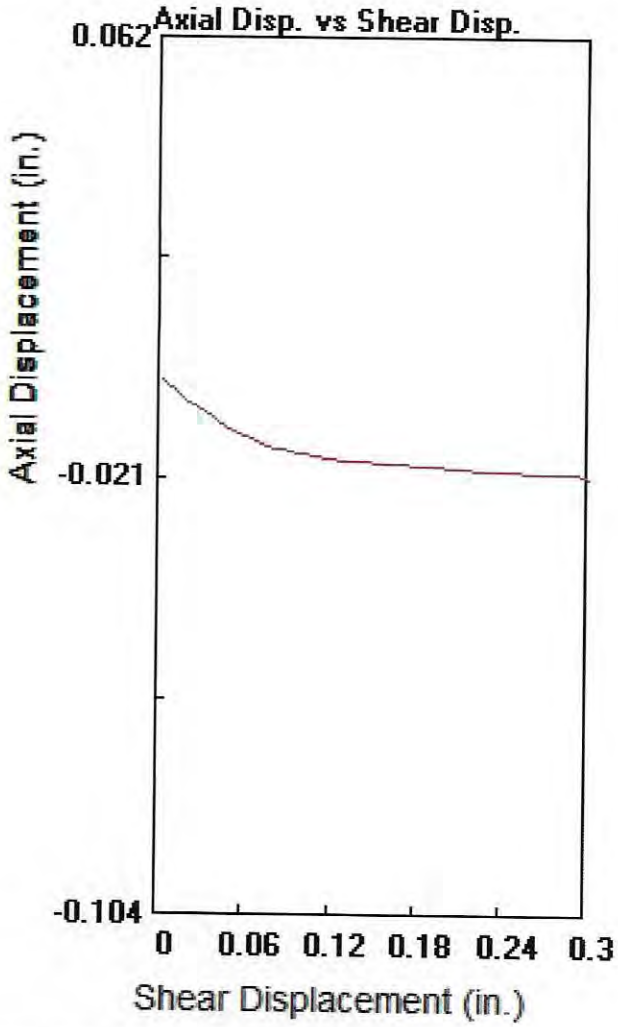
0.2104 in.

Date

1/6/2021

Soil Labworks





Parameters

Client: FEFFER/COLOREA WEINTRAUB

Location: 25200-25300 PACIFIC COAST HWY

Job # 2654

Soil Type:BEDROCK

Sample: 3

Technician: BF

Boring: B10

Axial Load: 8000 psf

Depth: 40 ft.

Shear Rate: 0.005 in./sec.

File: 2654B10408.dat

Distance: 0.30 in.

Stress at Max Def
6792 0.286

Stress at Max Disp
0.296 6744

Maximum Load

6792 psf

Shear Displacement at maximum Load

0.2856 in.

Date

1/6/2021

Soil Labworks

SOIL LABWORKS LLC

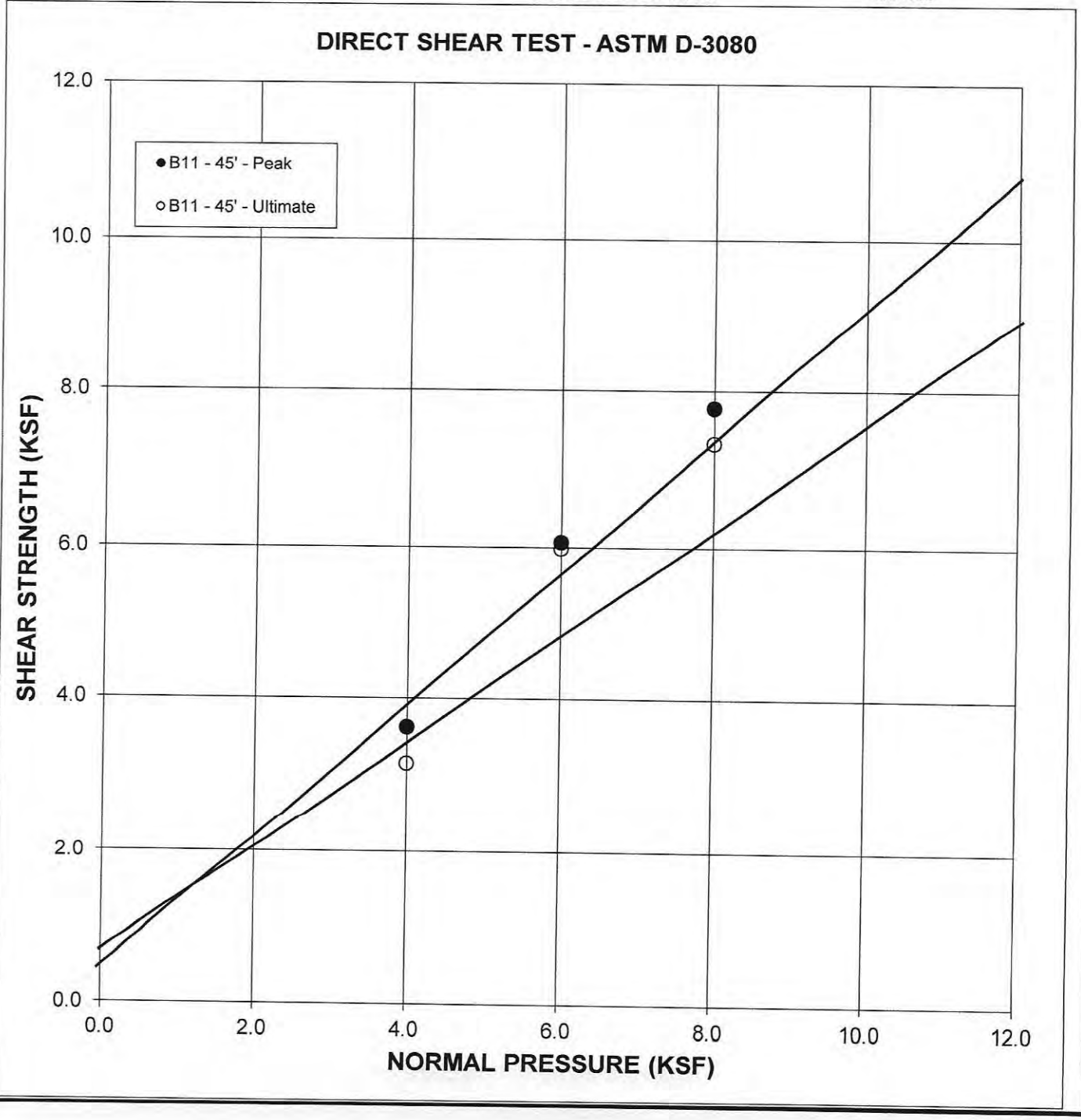
SHEAR DIAGRAM B-13

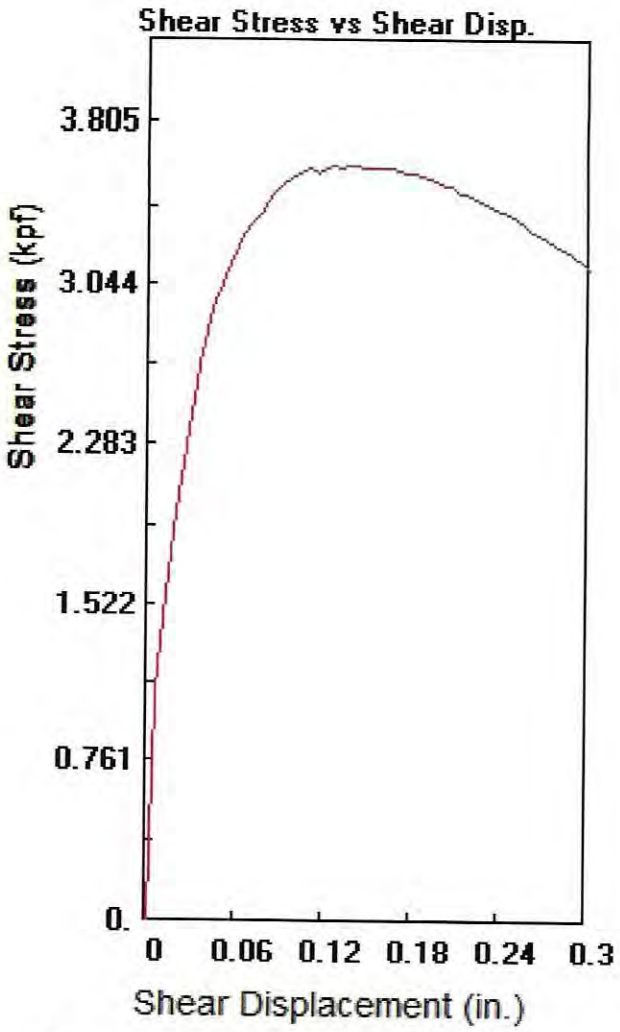
JN: **SL17.2654** CONSULTANT **JAI**
CLIENT: **Feffer/Colorea-25200-25300 Pacific Coast Wy**

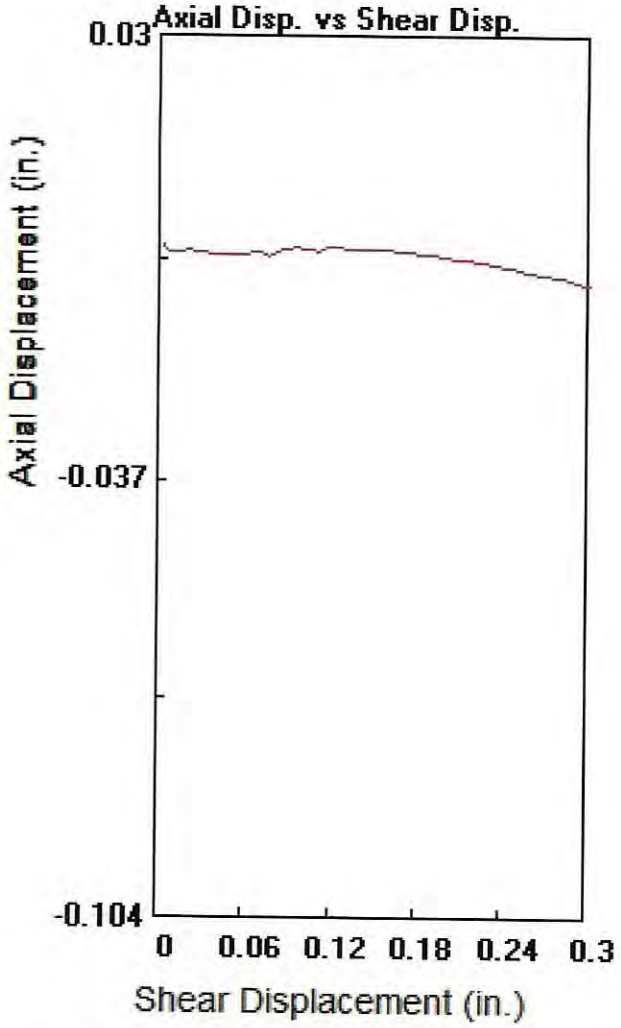
EARTH MATERIAL: **BEDROCK**

	PEAK	ULTIMATE	
Phi Angle	41	34.5	degrees
Cohesion	720	520	psf

Average Moisture Content	38.8%
Average Dry Density (pcf)	91.4
Percent Saturation	100.0%







Parameters

Client: FEFFER/COLOREA WEINTRAUB

Location: 25200-25300 PACIFIC COAST HIGHWAY

Job # 2654

Soil Type:BEDROCK

Sample: 1

Technician: BF

Boring: B11

Axial Load: 4000 psf

Depth: 45 ft.

Shear Rate: 0.005 in./sec.

File: 2654B11454.dat

Distance: 0.30 in.

Stress at Max Def
3624 0.125

Stress at Max Disp
0.295 3168

Maximum Load

3624 psf

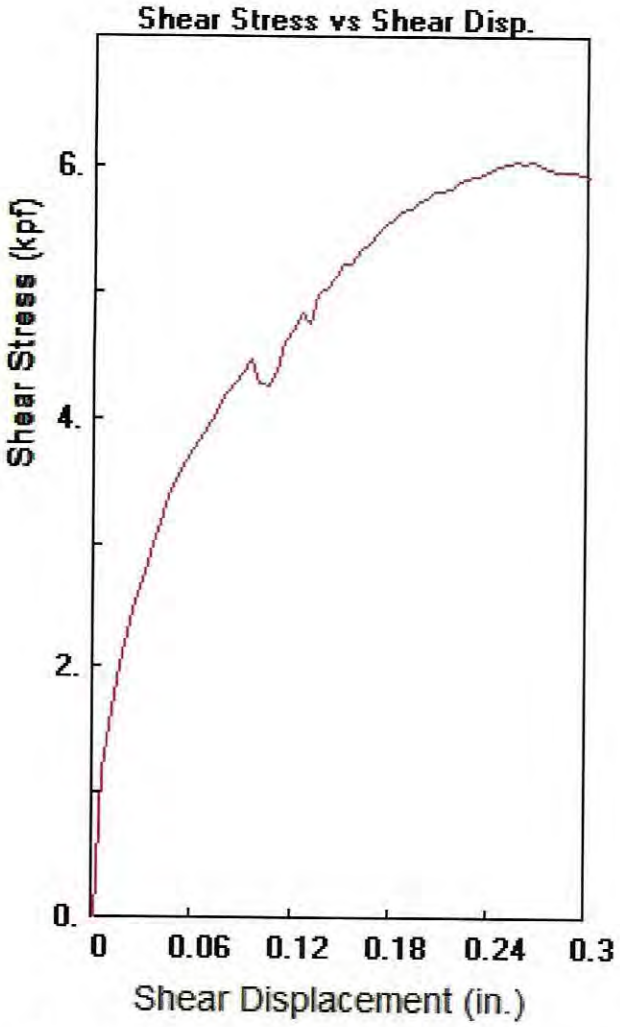
Shear Displacement at maximum Load

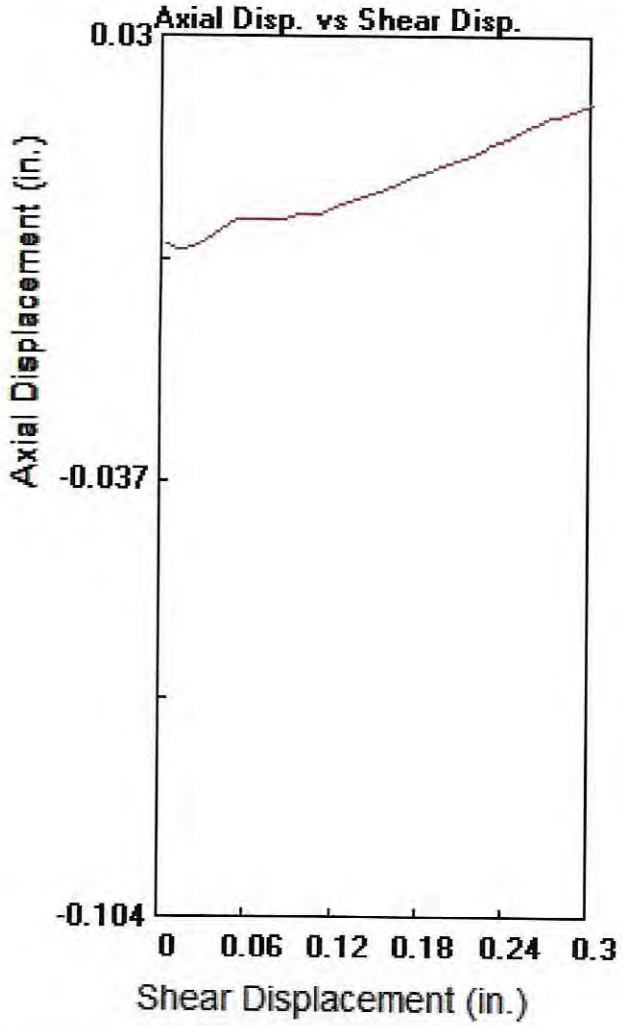
0.1253 in.

Date

1/4/2021

Soil Labworks





Parameters

Client: FEFFER/COLOREA WEINTRAUB

Location: 25200-25300 PACIFIC COAST HIGHWAY

Job # 2654

Soil Type:BEDROCK

Sample: 2

Technician: BF

Boring: B11

Axial Load: 6000 psf

Depth: 45 ft.

Shear Rate: 0.005 in./sec.

File: 2654B11456.dat

Distance: 0.30 in.

Stress at Max Def
6060 0.255

Stress at Max Disp
0.295 5976

Maximum Load

6060 psf

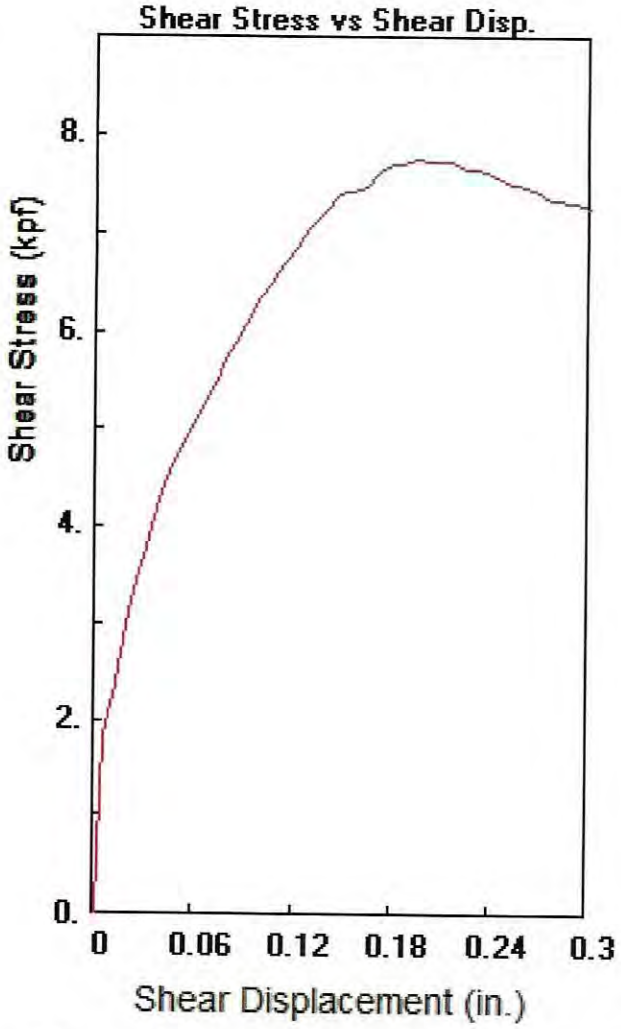
Shear Displacement at maximum Load

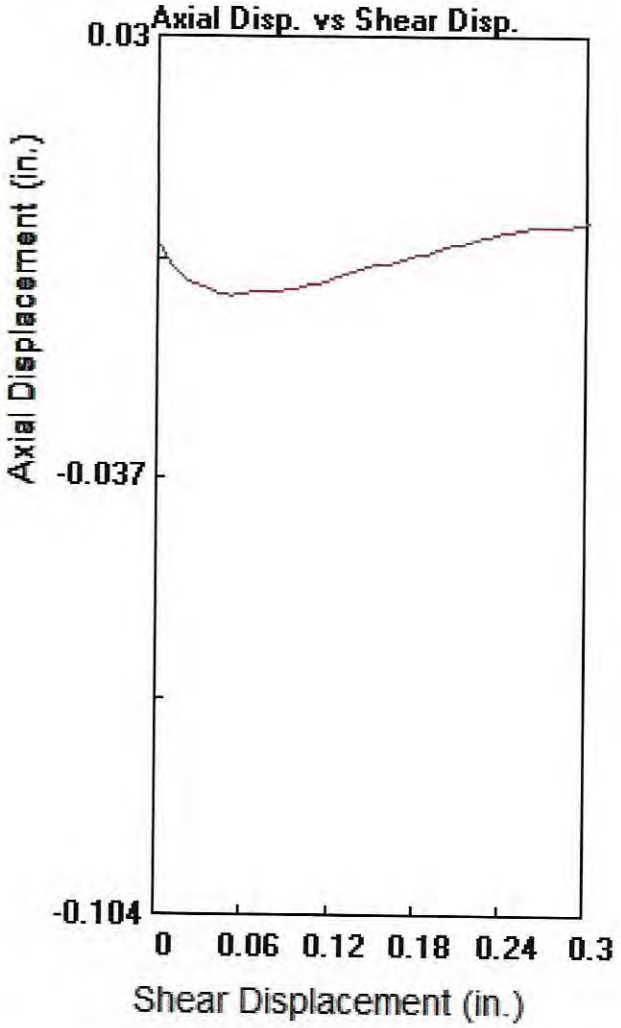
0.2552 in.

Date

1/4/2021

Soil Labworks





Parameters

Client: FEFFER/COLOREA WEINTRAUB

Location: 25200-25300 PACIFIC COAST HIGHWAY

Job # 2654

Soil Type:BEDROCK

Sample: 3

Technician: BF

Boring: B11

Axial Load: 8000 psf

Depth: 45 ft.

Shear Rate: 0.005 in./sec.

File: 2654B11458.dat

Distance: 0.30 in.

Stress at Max Def
7776 0.195

Stress at Max Disp
0.295 7332

Maximum Load

7776 psf

Shear Displacement at maximum Load

0.1953 in.

Date

1/4/2021

Soil Labworks

SOIL LABWORKS LLC

SHEAR DIAGRAM B-14

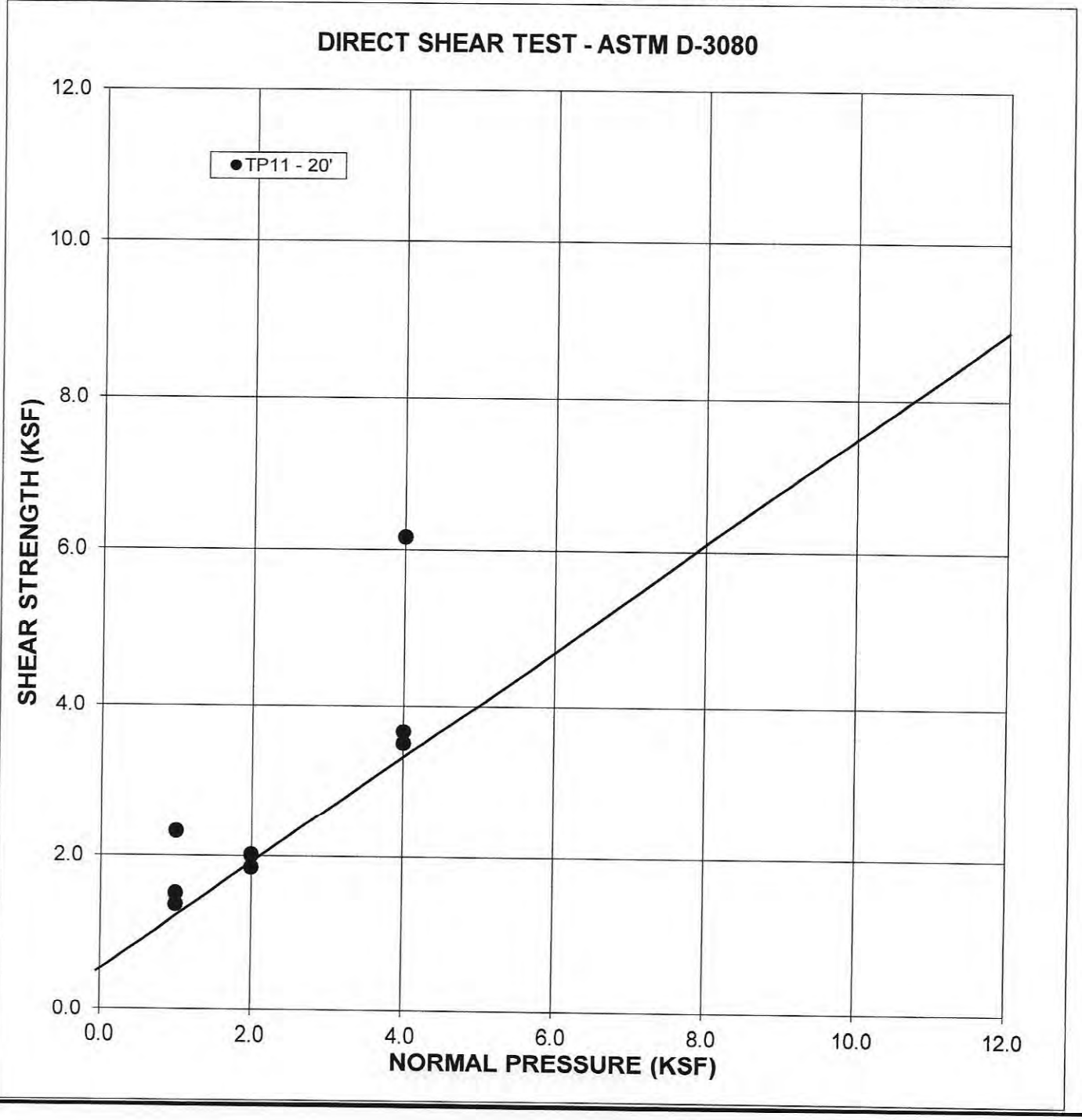
JN: **SL17.2654** CONSULTANT **JAI**
CLIENT: **Feffer/Colorea-25200-25300 Pacific Coast Hwy**

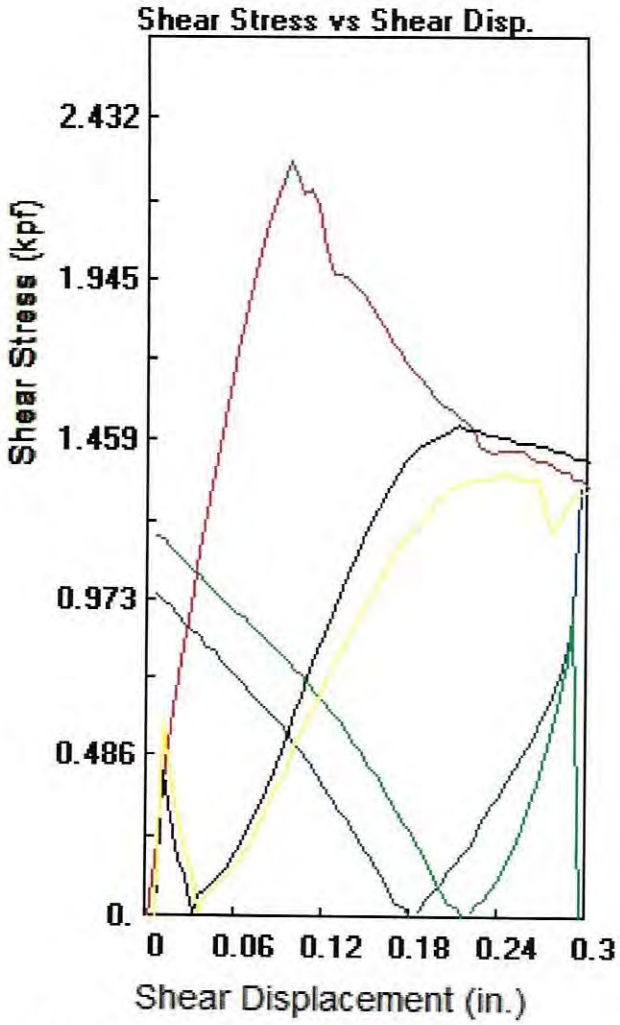
EARTH MATERIAL: **BEDROCK**

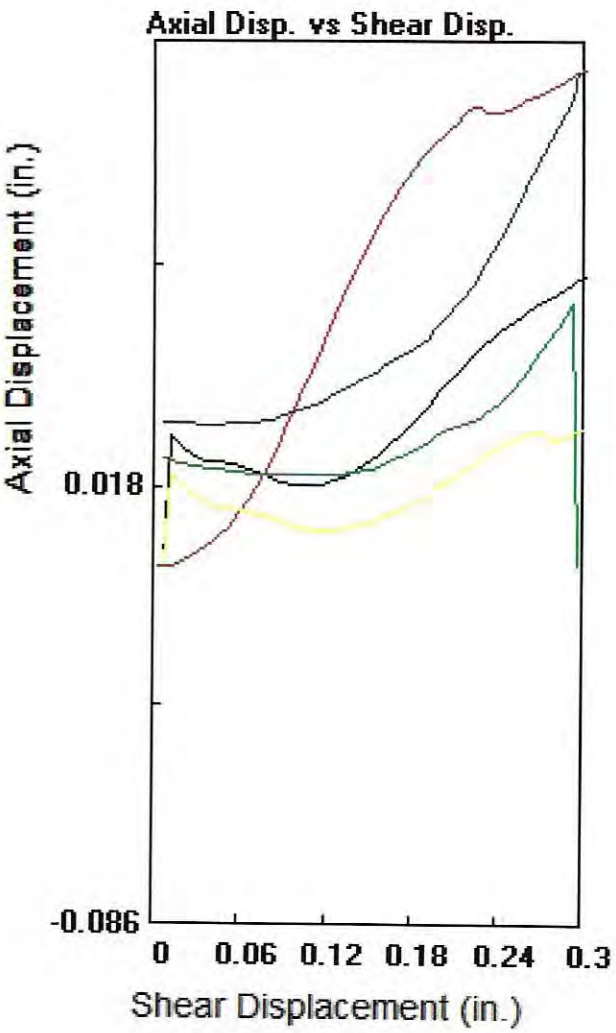
Sample repeatedly sheared to determine residual strength.

	RESIDUAL	
Phi Angle	35.5	degrees
Cohesion	500	psf

Average Moisture Content	36.5%
Average Dry Density (pcf)	87.1
Percent Saturation	100.0%







Parameters

Client: FEFFER/COLOREA WEINTRAUB

Location: 25200 25300 pACIFIC cOAST hWY

Job # 2654

Soil Type:BEDROCK

Sample: 1

Technician: BF

Boring: B11

Axial Load: 1000 psf

Depth: 20 ft.

Shear Rate: 0.005 in./sec.

File: 2654B11201 REPEAT.dat

Distance: 0.30 in.

Stress at Max Def
2316 0.095

Stress at Max Disp
0.295 1356

Maximum Load

2316 psf

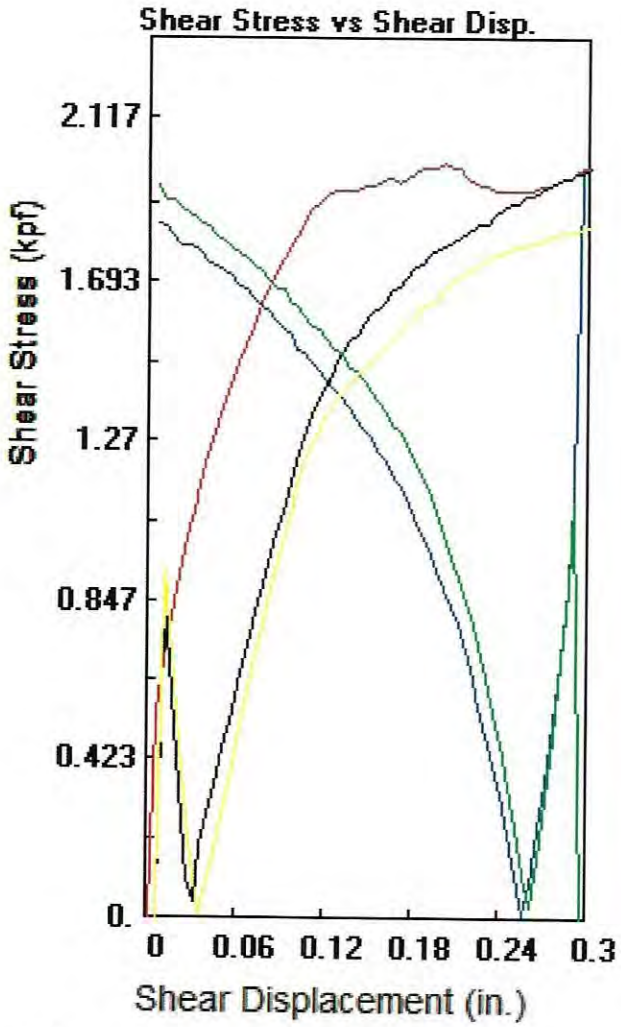
Shear Displacement at maximum Load

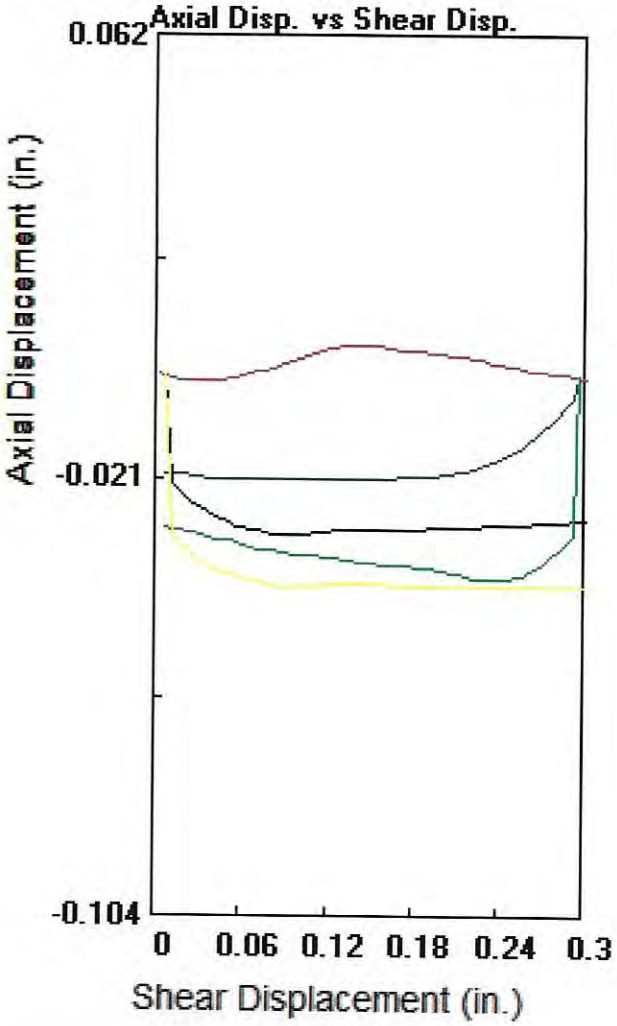
0.2403 in.

Date

1/12/2021

Soil Labworks





Parameters

Client: FEFFER/COLOREA WEINTRAUG

Location: 25200-25300 PACIFIC COAST HWY

Job # 2654

Soil Type:BEDROCK

Sample: 2

Technician: BF

Boring: B11

Axial Load: 2000 psf

Depth: 20 ft.

Shear Rate: 0.005 in./sec.

File: 2654B11202 REPEAT.dat

Distance: 0.30 in.

Stress at Max Def
2016 0.2

Stress at Max Disp
0.295 2004

Maximum Load

2016 psf

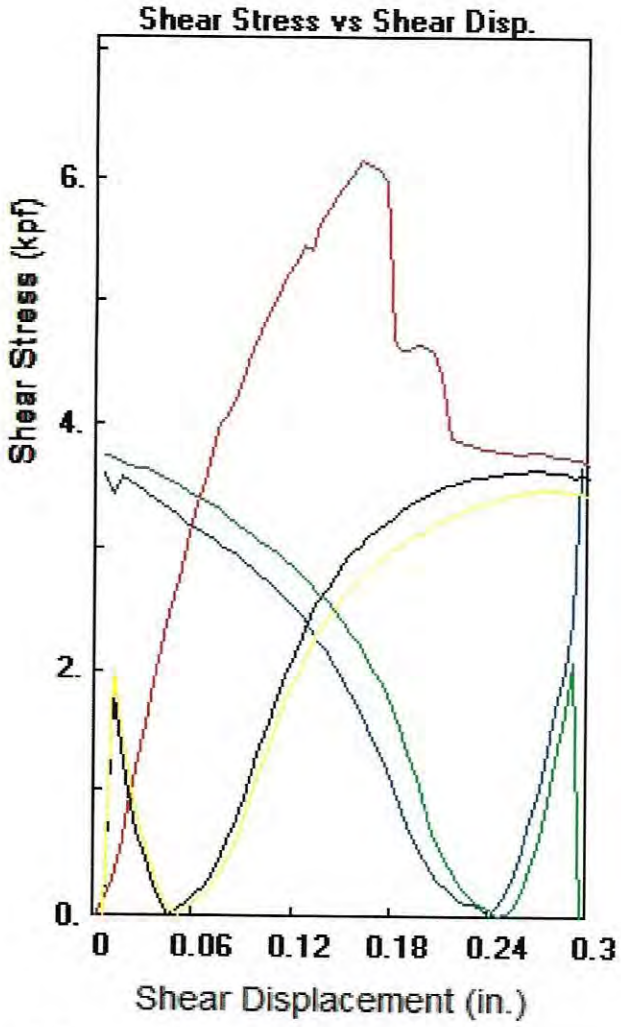
Shear Displacement at maximum Load

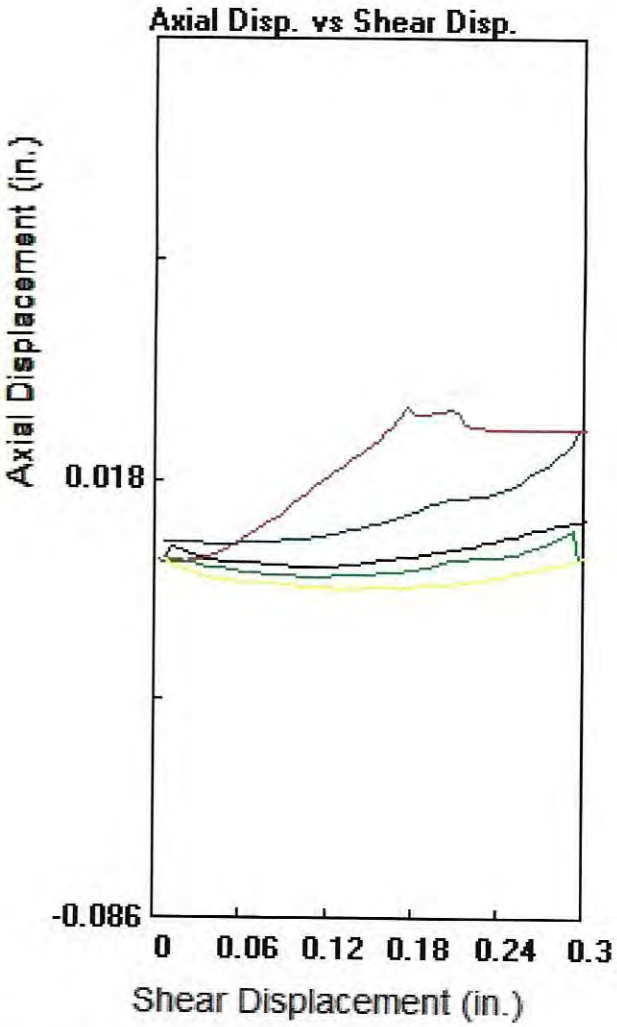
0.3002 in.

Date

1/12/2021

Soil Labworks





Parameters

Client: FEFFER/COLOREA WEINTRAUB

Location: 25200 25300 pACIFIC cOAST hWY

Job # 2654

Soil Type:BEDROCK

Sample: 3

Technician: BF

Boring: B11

Axial Load: 4000 psf

Depth: 20 ft.

Shear Rate: 0.005 in./sec.

File: 2654B11204 REPEAT.dat

Distance: 0.30 in.

Stress at Max Def
6156 0.16

Stress at Max Disp
0.295 3732

Maximum Load

6156 psf

Shear Displacement at maximum Load

0.1604 in.

Date
1/12/2021

Soil Labworks

SOIL LABWORKS LLC

SHEAR DIAGRAM B-15

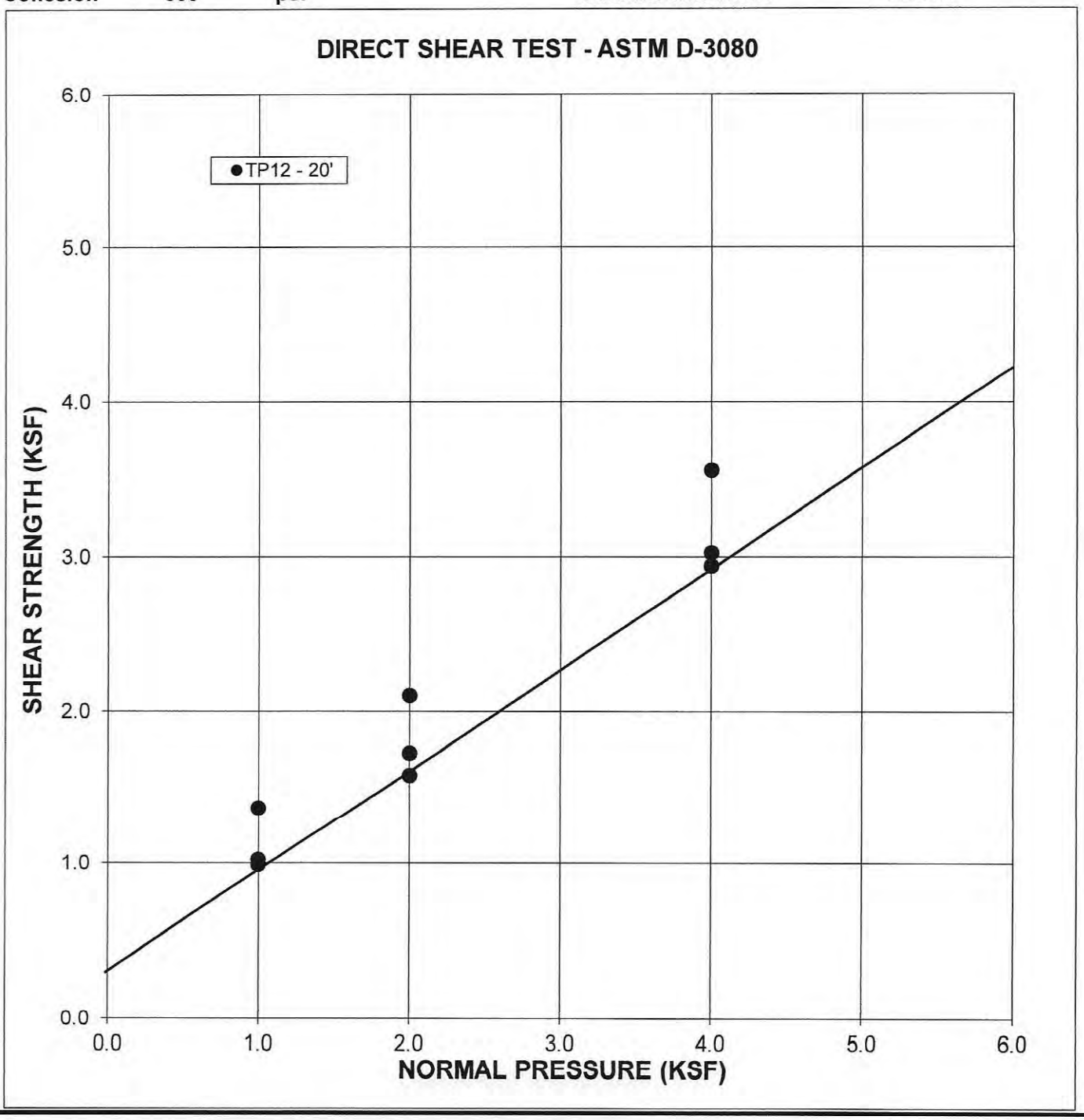
JN: **SL17.2654** CONSULTANT **JAI**
CLIENT: **Feffer/Colorea-25200-25300 Pacific Coast Hwy**

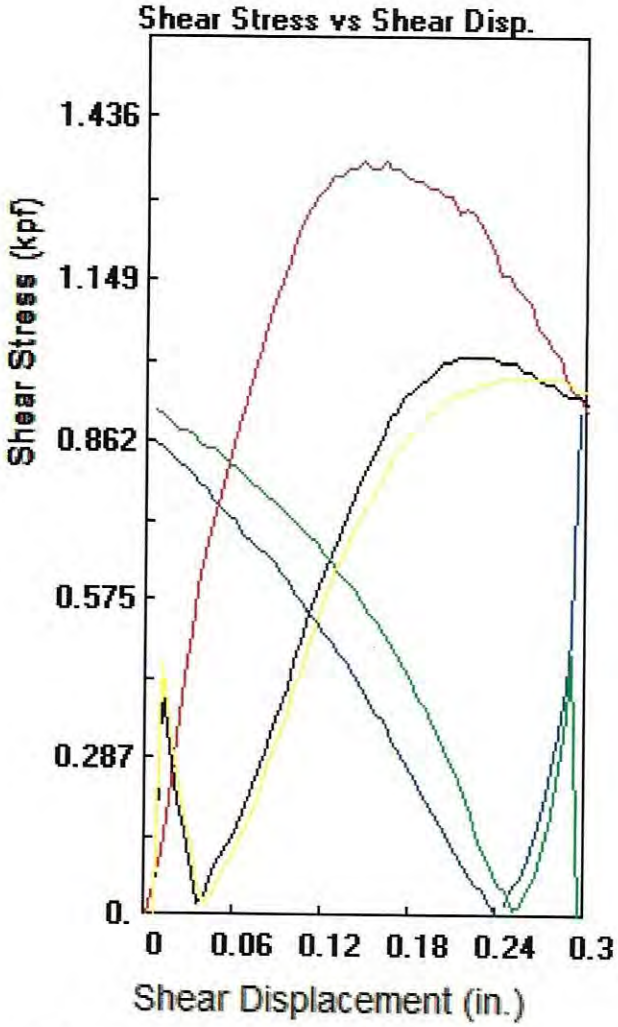
EARTH MATERIAL: **BEDROCK**

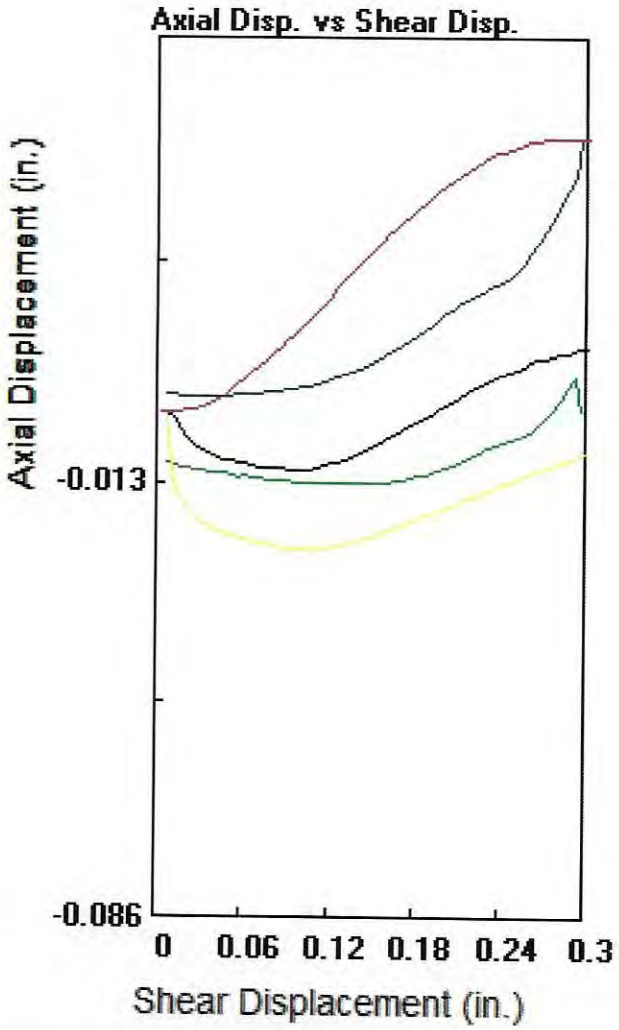
Sample repeatedly sheared to determine residual strength.

	RESIDUAL	
Phi Angle	33.5	degrees
Cohesion	300	psf

Average Moisture Content	33.3%
Average Dry Density (pcf)	102.3
Percent Saturation	100.0%







Parameters

Client: FEFFER/COLOREA WEINTRAUB

Location: 25200-25300 PACIFIC COAST HWY

Job # 2654

Soil Type:BEDROCK

Sample: 1

Technician: BF

Boring: B12

Axial Load: 1000 psf

Depth: 20 ft.

Shear Rate: 0.005 in./sec.

File: 2654B12201 REPEAT.dat

Distance: 0.30 in.

Stress at Max Def
1368 0.145

Stress at Max Disp
0.295 948

Maximum Load

1368 psf

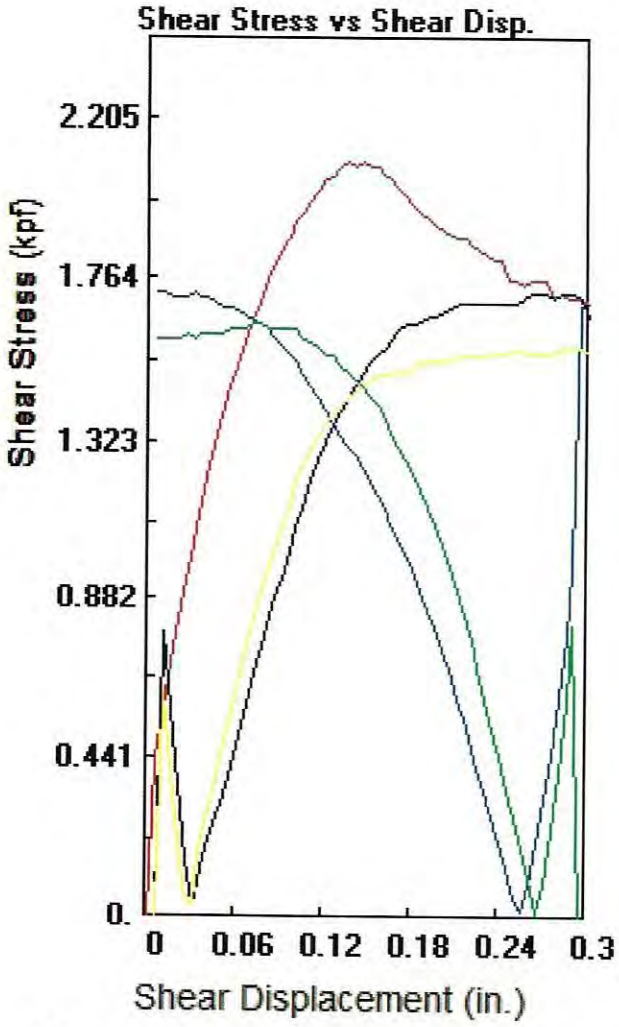
Shear Displacement at maximum Load

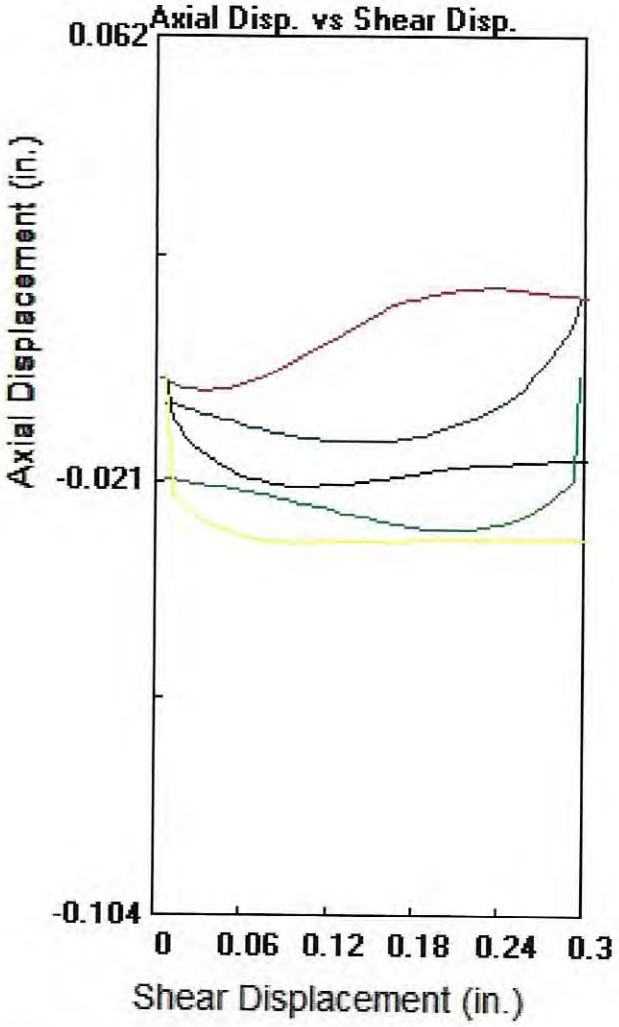
0.2402 in.

Date

1/6/2021

Soil Labworks





Parameters

Client: FEFFER/COLOREA WEINTRAUB

Location: 25200-25300 PACIFIC COAST HWY

Job # 2654

Soil Type:BEDROCK

Sample: 2

Technician: BF

Boring: B12

Axial Load: 2000 psf

Depth: 20 ft.

Shear Rate: 0.005 in./sec.

File: 2654B12202 REPEAT.dat

Distance: 0.30 in.

Stress at Max Def
2100 0.135

Stress at Max Disp
0.295 1716

Maximum Load

2100 psf

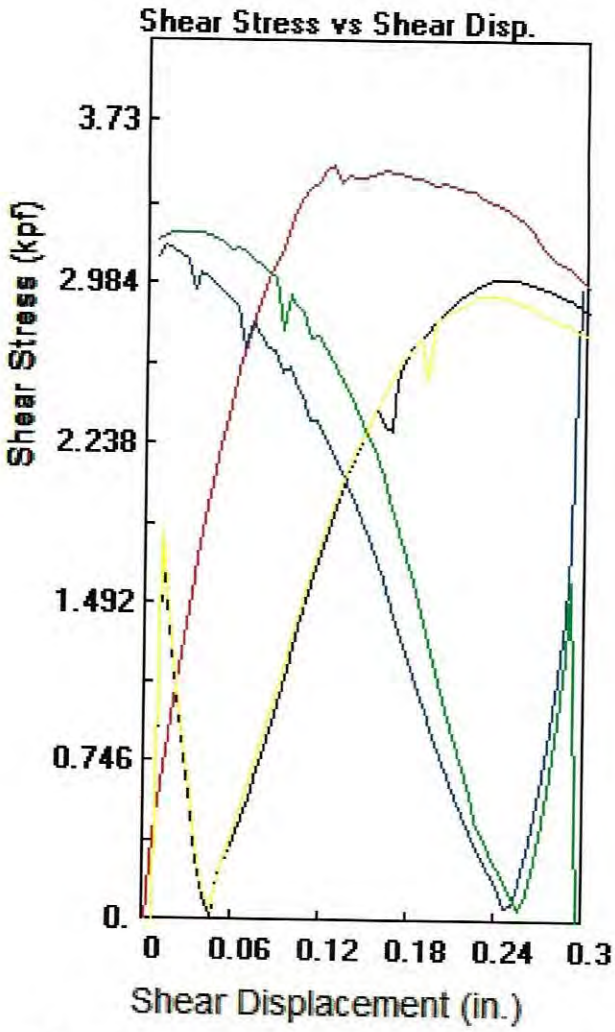
Shear Displacement at maximum Load

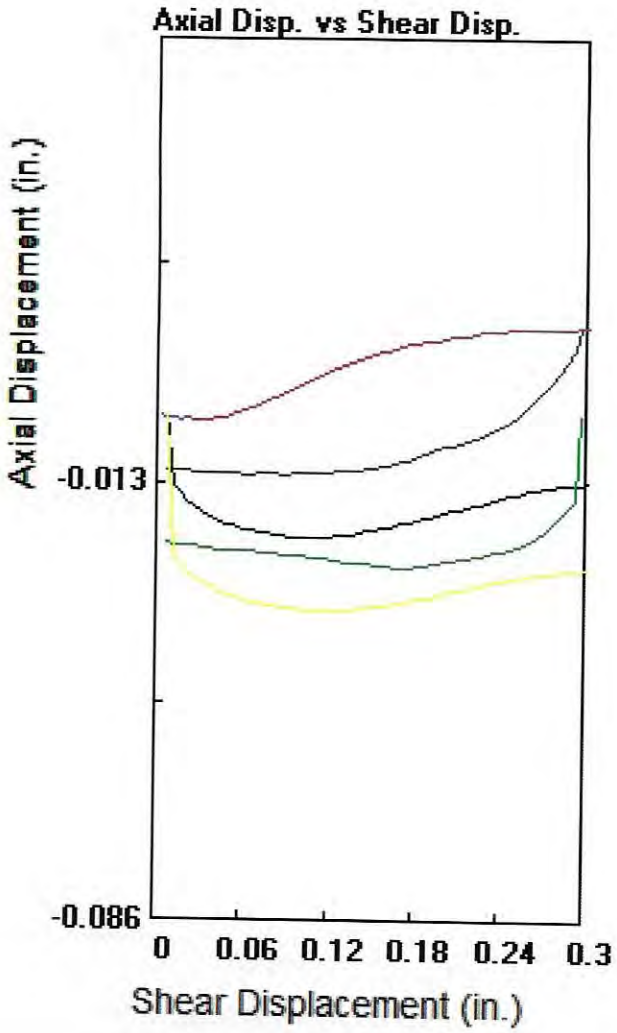
0.1352 in.

Date

1/6/2021

Soil Labworks





Parameters

Client: FEFFER/COLOREA WEINTRUB

Location: 25200 25300 PACIFIC COAST HWY

Job # 2654

Soil Type:BEDROCK

Sample: 3

Technician: BF

Boring: B12

Axial Load: 4000 psf

Depth: 20 ft.

Shear Rate: 0.005 in./sec.

File: 2654B12204 REPEAT.dat

Distance: 0.30 in.

Stress at Max Def
3552 0.125

Stress at Max Disp
0.295 3024

Maximum Load

3552 psf

Shear Displacement at maximum Load

0.1253 in.

Date

1/7/2021

Soil Labworks

SHEAR DIAGRAM B-16

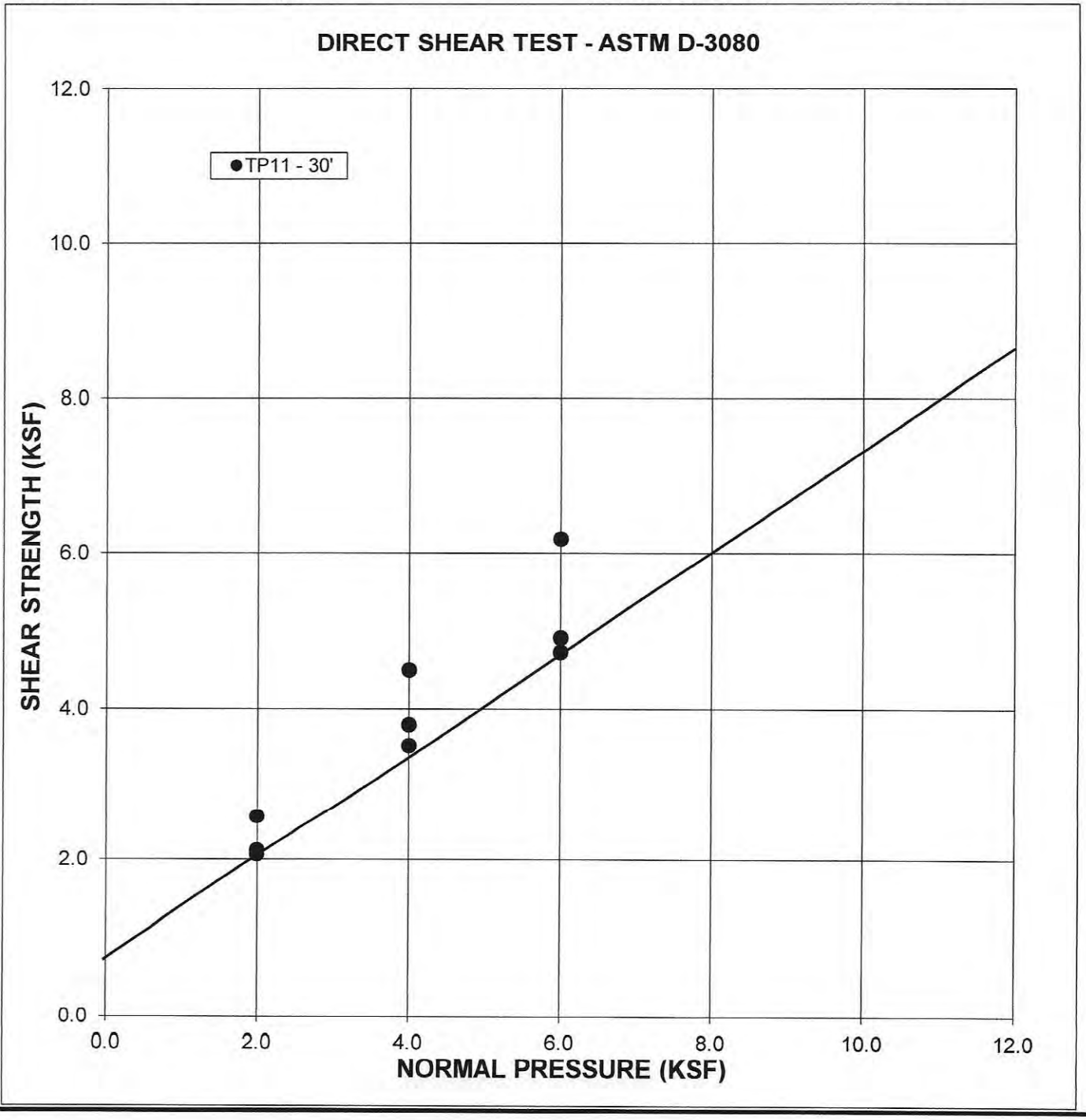
JN: **SL17.2654** CONSULTANT **JAI**
CLIENT: **Feffer/Colorea-25200-25300 Pacific Coast Hwy**

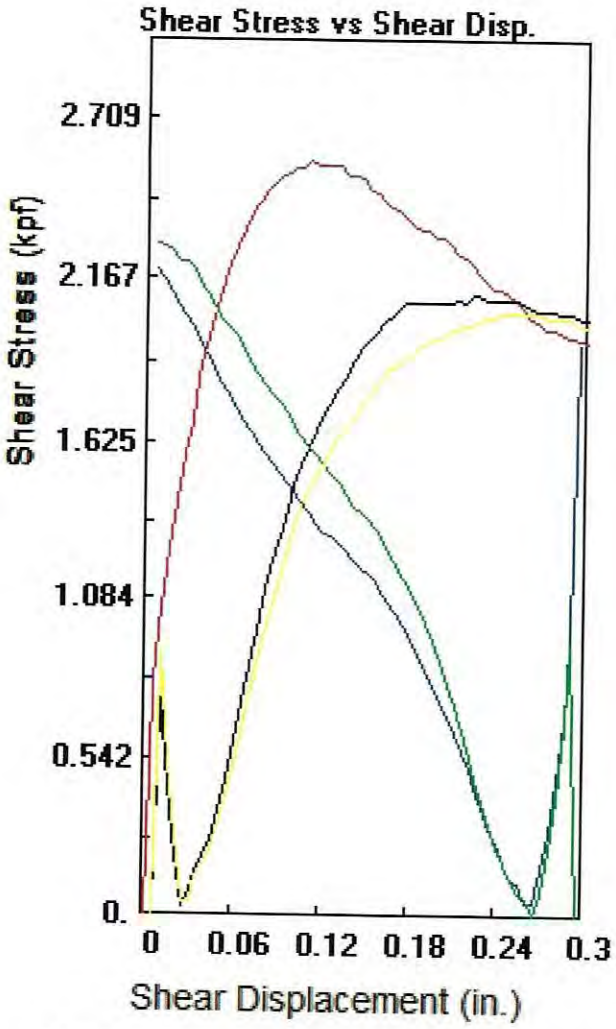
EARTH MATERIAL: **BEDROCK**

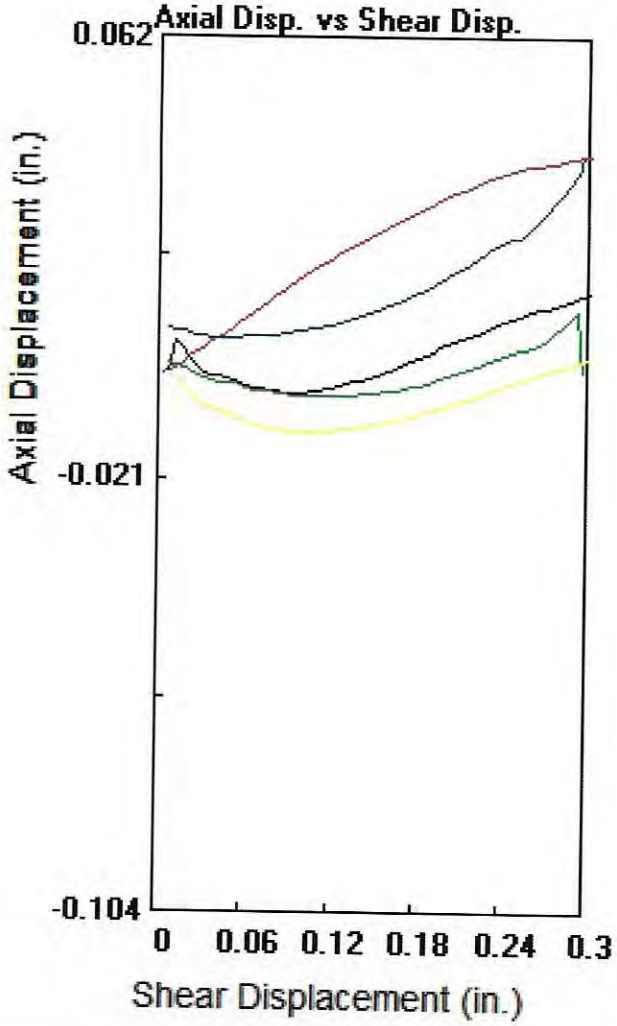
Sample repeatedly sheared to determine residual strength.

	RESIDUAL	
Phi Angle	34	degrees
Cohesion	720	psf

Average Moisture Content	37.7%
Average Dry Density (pcf)	83.5
Percent Saturation	100.0%







Parameters

Client: FEFFER/COLOREA WEINTRAUB

Location: 25200 25300 PACIFIC COAST HWY

Job # 2654

Soil Type:BEDROCK

Sample: 1

Technician: BF

Boring: B11

Axial Load: 2000 psf

Depth: 30 ft.

Shear Rate: 0.005 in./sec.

File: 2654B11302 REPEAT.dat

Distance: 0.30 in.

Stress at Max Def
2580 0.11

Stress at Max Disp
0.295 1980

Maximum Load

2580 psf

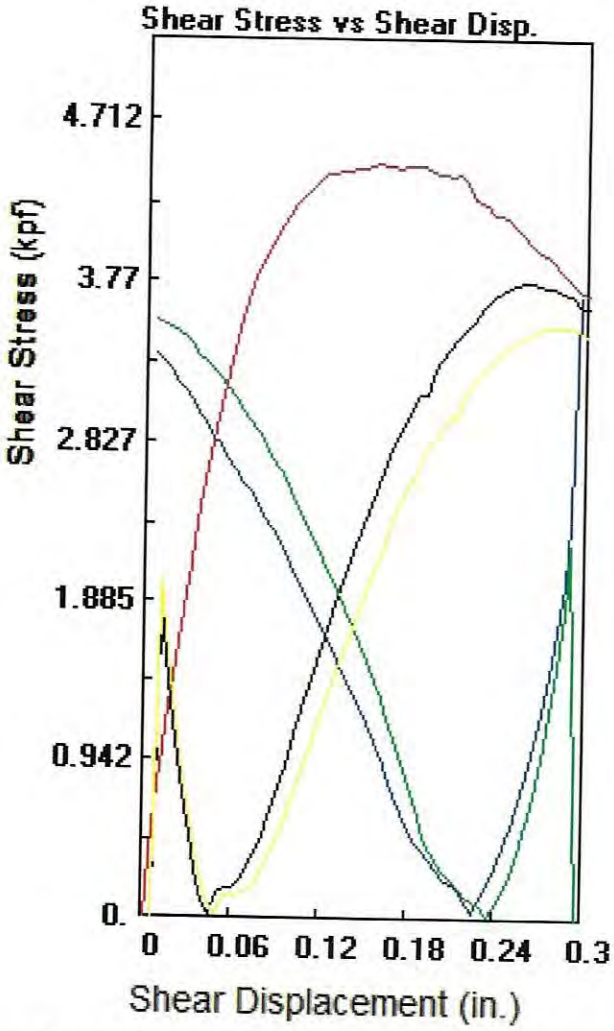
Shear Displacement at maximum Load

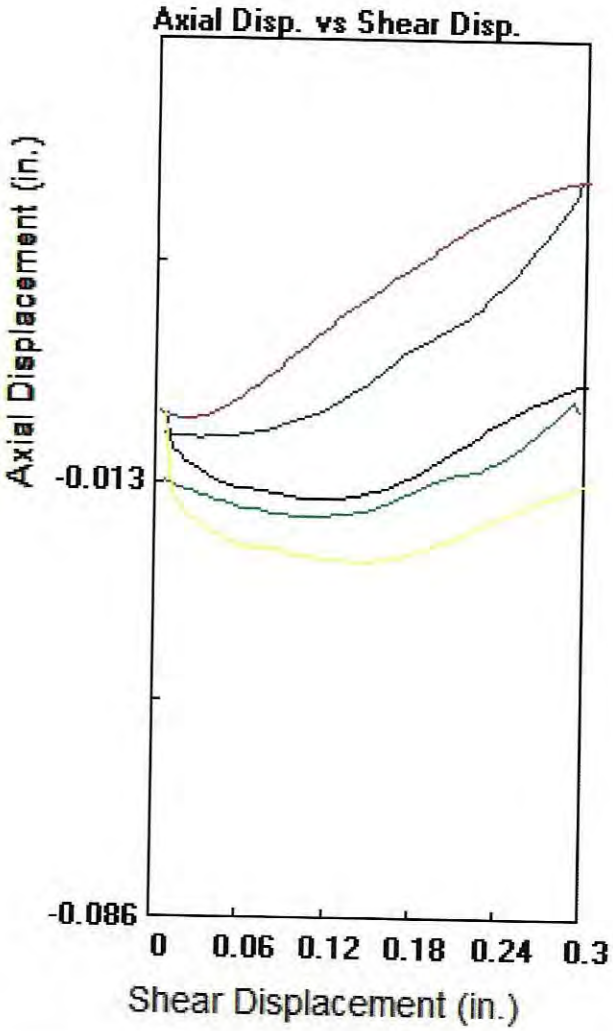
0.1102 in.

Date

1/7/2021

Soil Labworks





Parameters

Client: FEFFER/COLOREA WEINTRAUB

Location: 25200 25300 pACIFIC cOAST hWY

Job # 2654

Soil Type:BEDROCK

Sample: 2

Technician: BF

Boring: B11

Axial Load: 4000 psf

Depth: 30 ft.

Shear Rate: 0.005 in./sec.

File: 2654B11304 REPEAT.dat

Distance: 0.30 in.

Stress at Max Def
4488 0.155

Stress at Max Disp
0.295 3732

Maximum Load

4488 psf

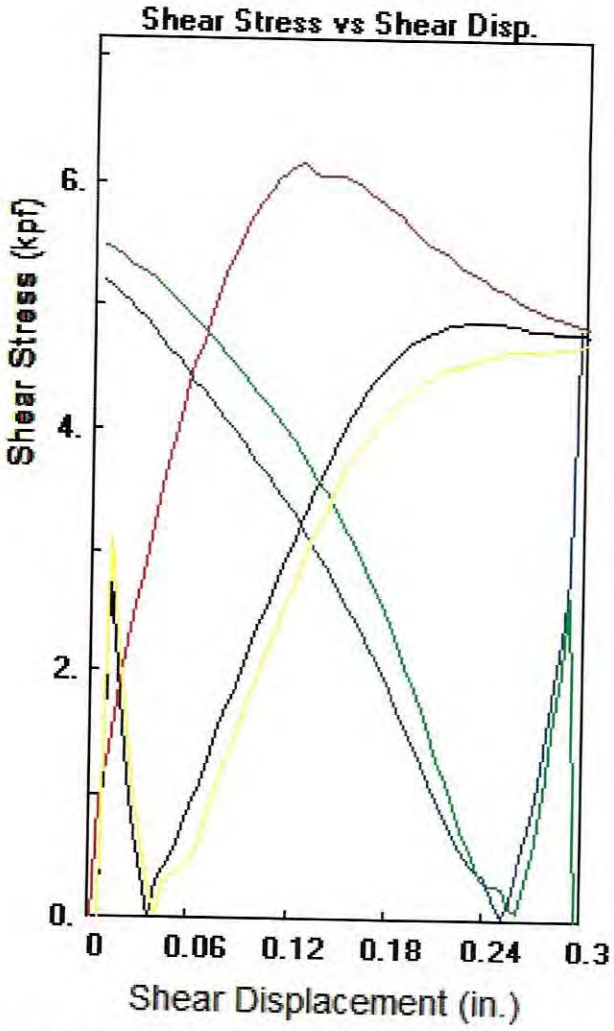
Shear Displacement at maximum Load

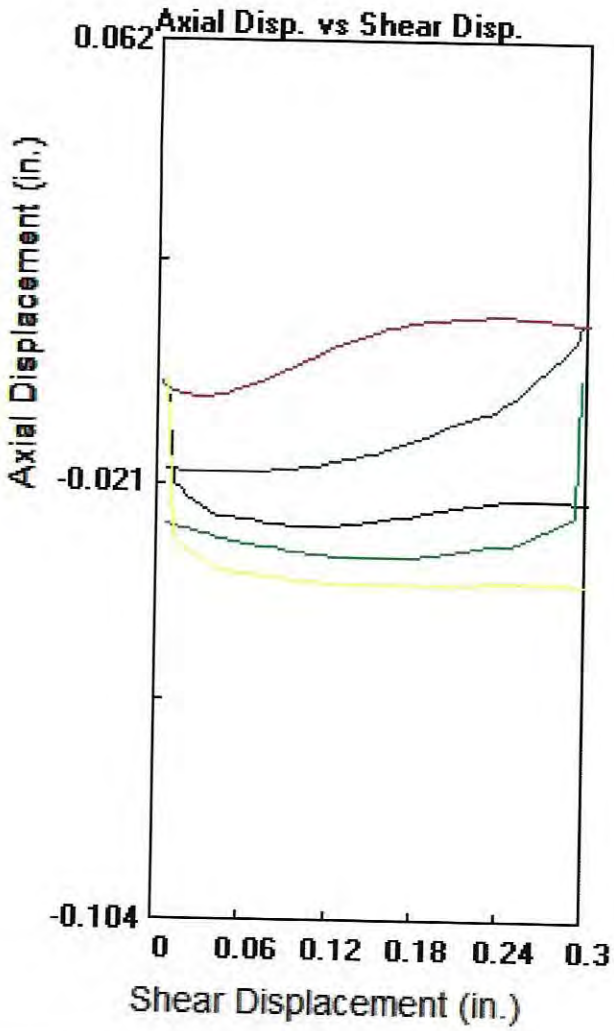
0.2554 in.

Date

1/11/2021

Soil Labworks





Parameters

Client: FEFFER/COLOREA WEINTRAUG

Location: 25200-25300 PACIFIC COAST HWY

Job # 2654

Soil Type:BEDROCK

Sample: 3

Technician: BF

Boring: B11

Axial Load: 6000 psf

Depth: 30 ft.

Shear Rate: 0.005 in./sec.

File: 2654B11306 REPEAT.dat

Distance: 0.30 in.

Stress at Max Def
6180 0.125

Stress at Max Disp
0.295 4872

Maximum Load

6180 psf

Shear Displacement at maximum Load

0.1252 in.

Date

1/11/2021

Soil Labworks

SOIL LABWORKS LLC

SHEAR DIAGRAM B-17

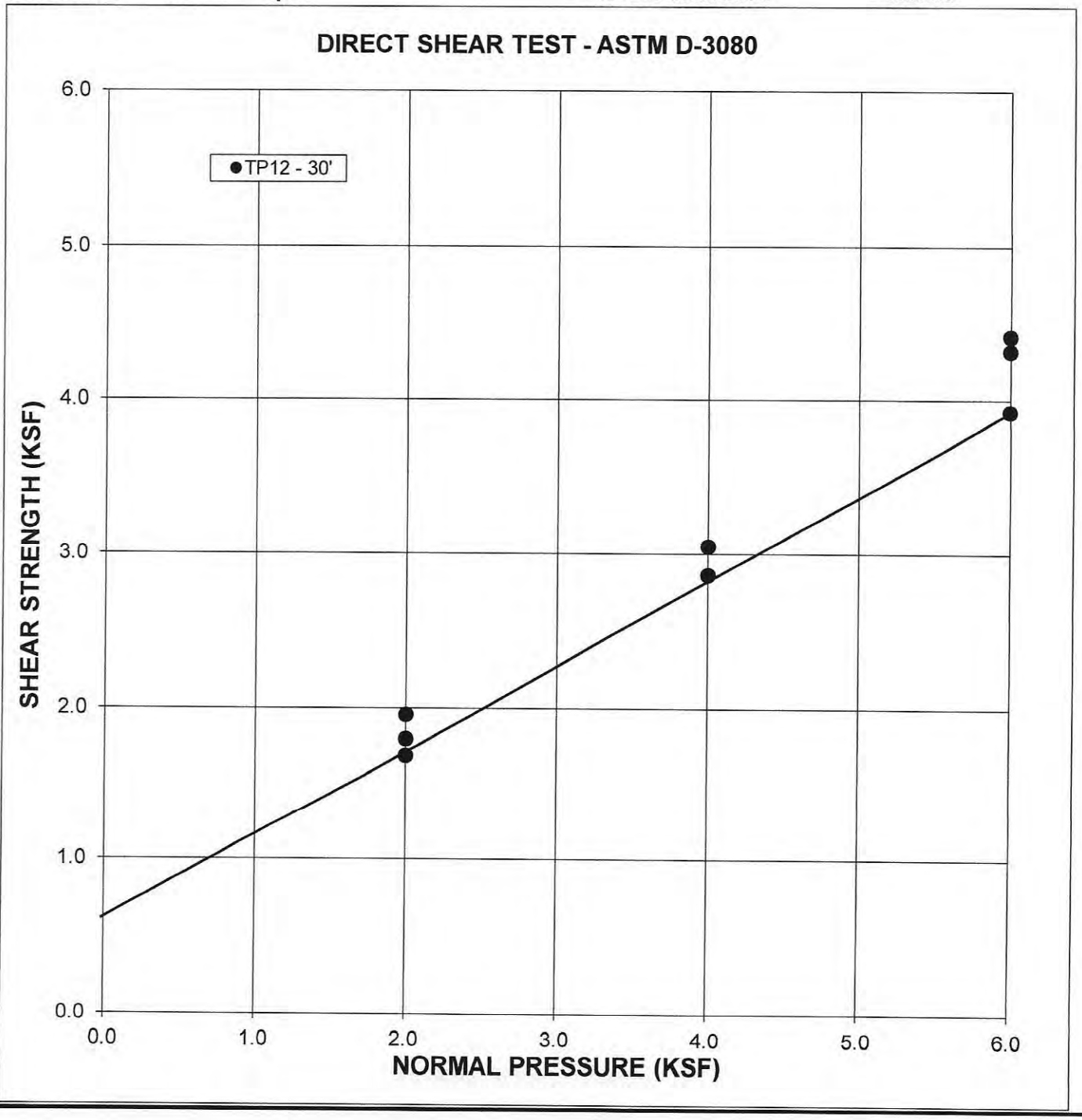
JN: **SL17.2654** CONSULTANT **JAI**
CLIENT: **Feffer/Colorea-25200-25300 Pacific Coast Hwy**

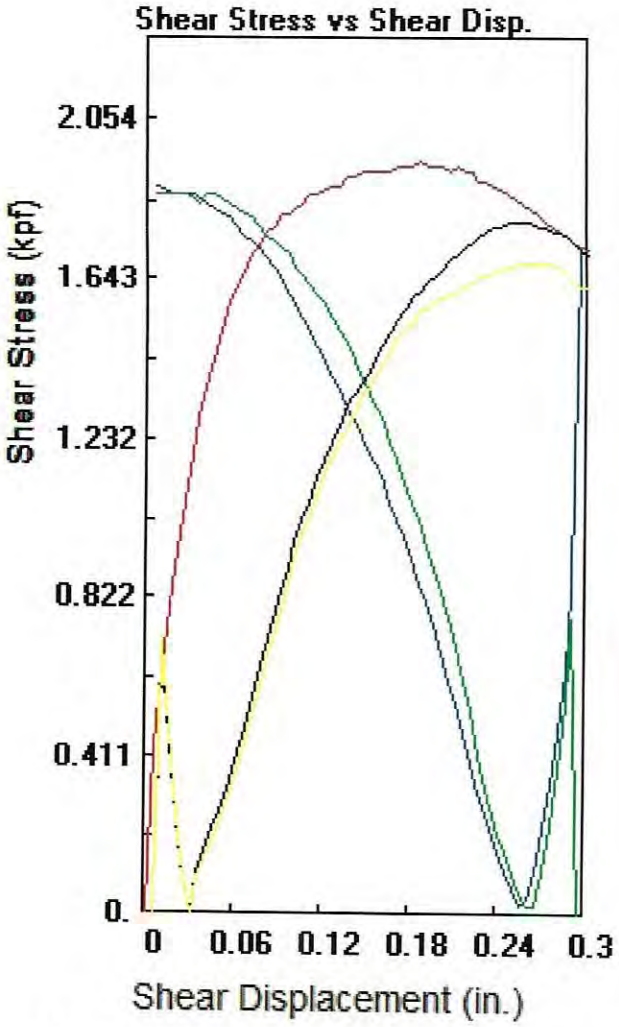
EARTH MATERIAL: **BEDROCK**

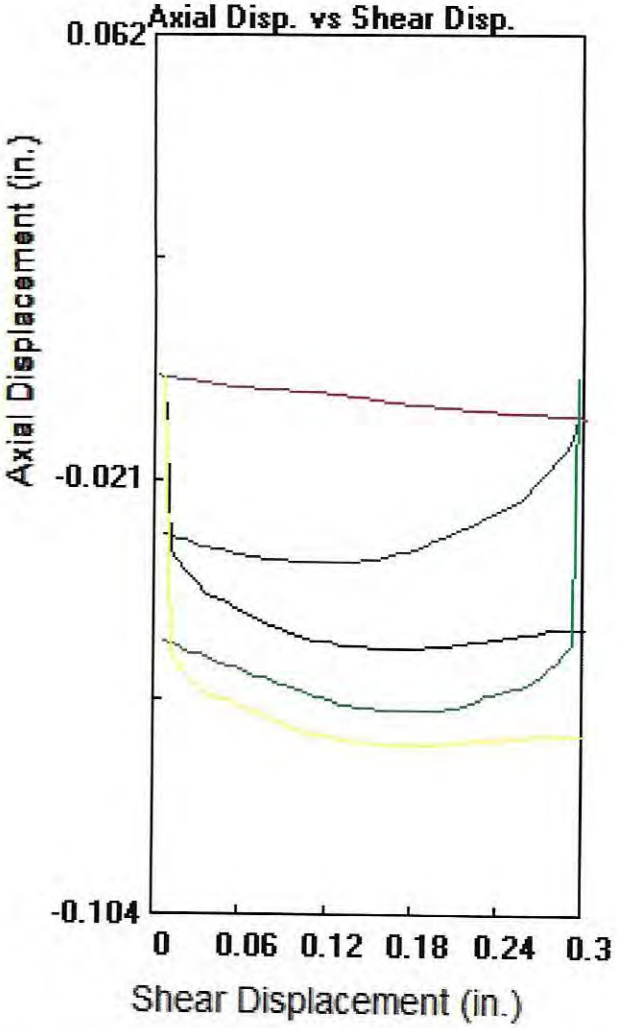
Sample repeatedly sheared to determine residual strength.

	RESIDUAL	
Phi Angle	29	degrees
Cohesion	600	psf

Average Moisture Content	42.4%
Average Dry Density (pcf)	107.6
Percent Saturation	100.0%







Parameters

Client: FEFFER/COLOREA WEINTRAUG

Location: 25200-25300 PACIFIC COAST HWY

Job # 2654

Soil Type:BEDROCK

Sample: 1

Technician: BF

Boring: B12

Axial Load: 2000 psf

Depth: 30 ft.

Shear Rate: 0.005 in./sec.

File: 2654B12302 REPEAT.dat

Distance: 0.30 in.

Stress at Max Def
1956 0.185

Stress at Max Disp
0.295 1740

Maximum Load

1956 psf

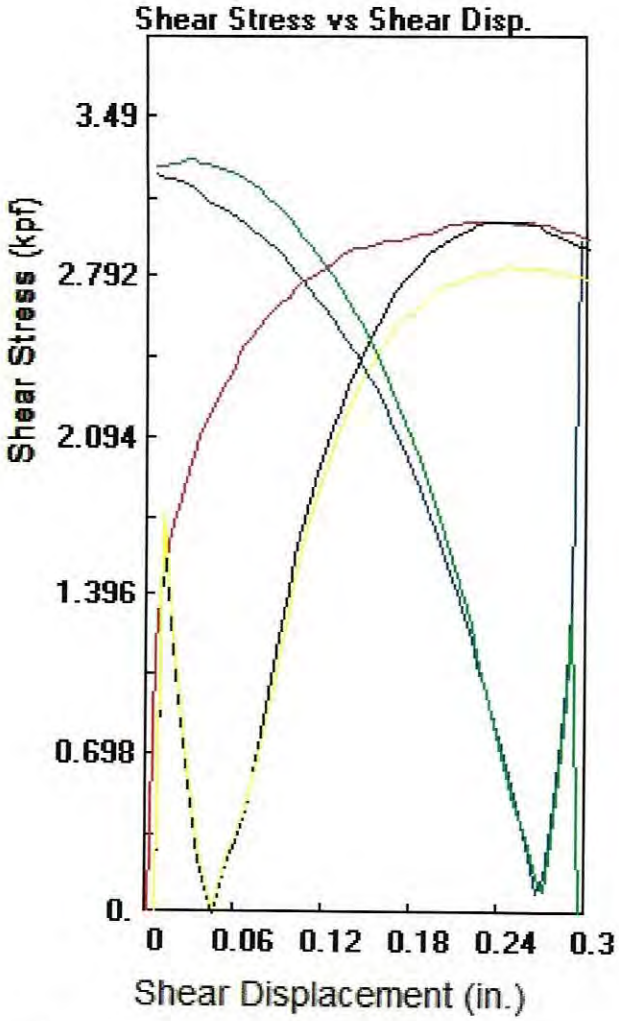
Shear Displacement at maximum Load

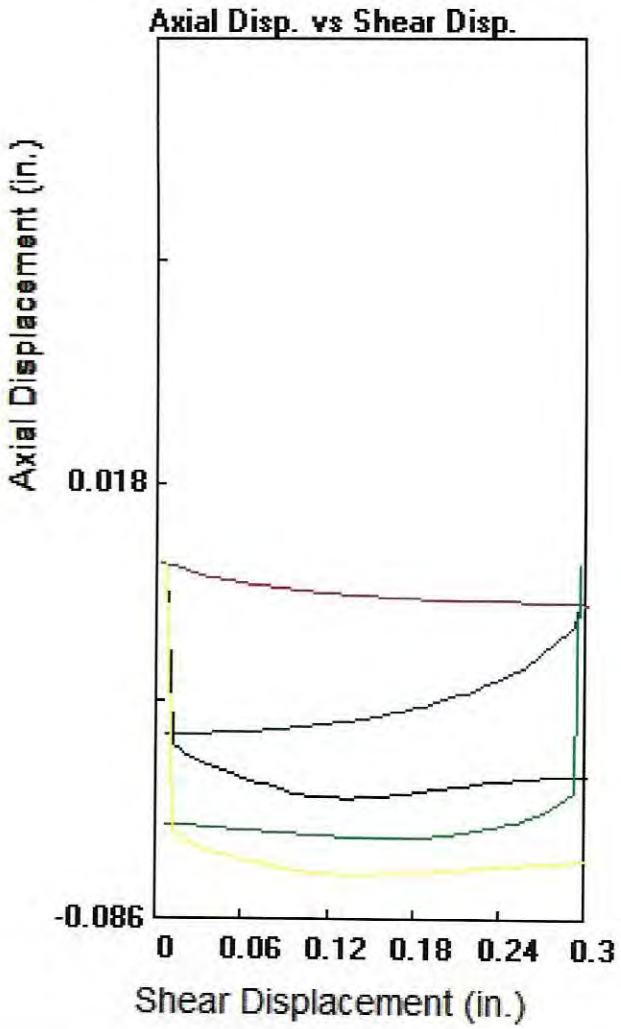
0.1853 in.

Date

1/12/2021

Soil Labworks





Parameters

Client: FEFFER/COLOREA WEINTRAUB

Location: 25200 25300 pACIFIC cOAST hWY

Job # 2654

Soil Type:BEDROCK

Sample: 2

Technician: BF

Boring: B12

Axial Load: 4000 psf

Depth: 30 ft.

Shear Rate: 0.005 in./sec.

File: 2654B12304 REPEAT.dat

Distance: 0.30 in.

Stress at Max Def
3324 0.03

Stress at Max Disp
0 3300

Maximum Load

3324 psf

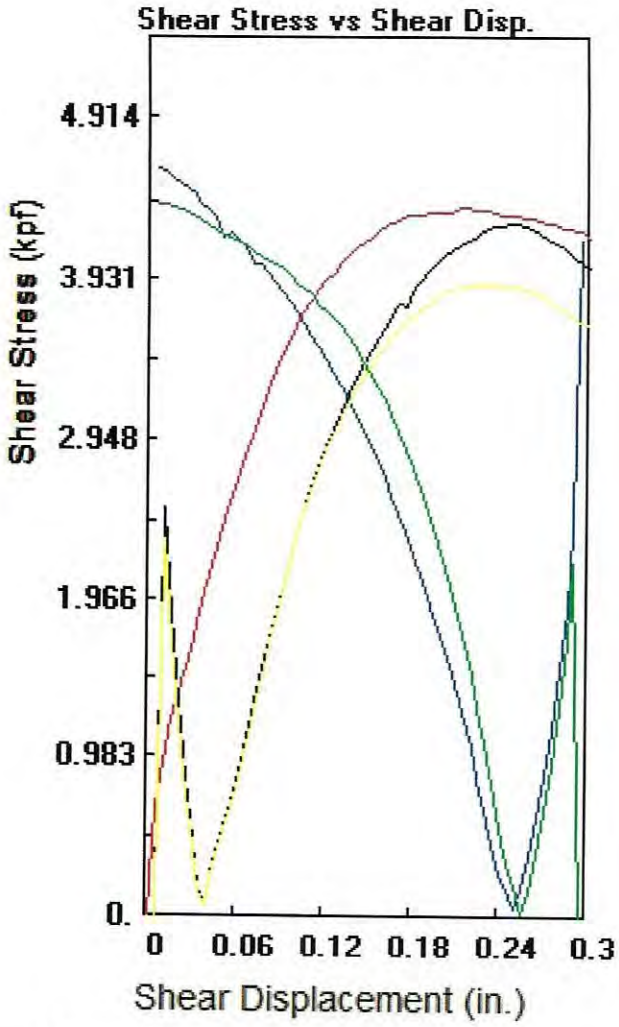
Shear Displacement at maximum Load

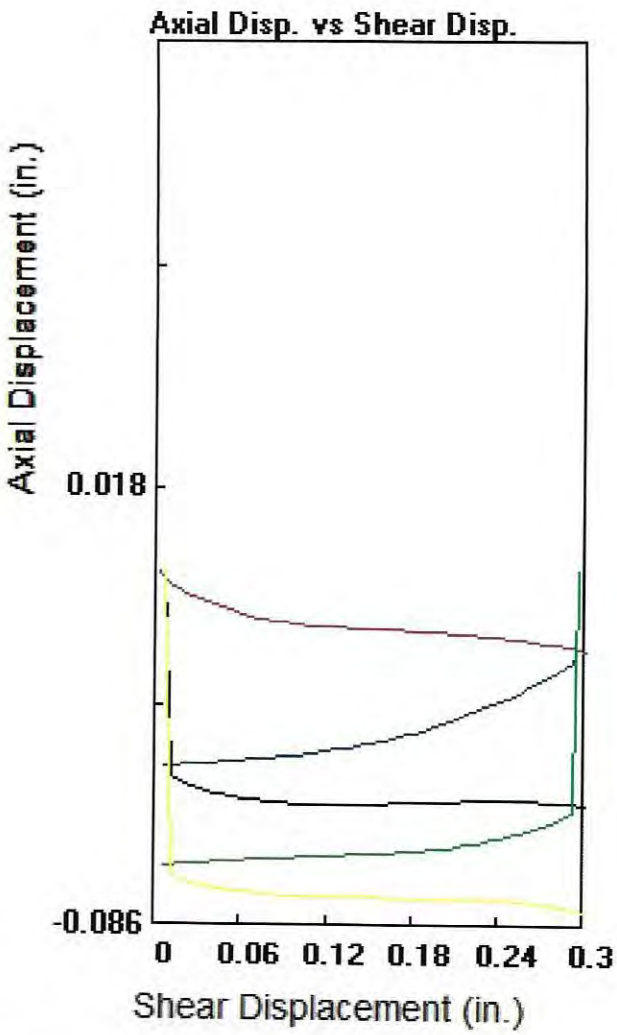
0.2153 in.

Date

1/13/2021

Soil Labworks





Parameters

Client: FEFFER/COLOREA WEINTRAUB

Location: 25200 25300 pACIFIC cOAST hWY

Job # 2654

Soil Type:BEDROCK

Sample: 3

Technician: BF

Boring: B12

Axial Load: 6000 psf

Depth: 30 ft.

Shear Rate: 0.005 in./sec.

File: 2654B12306 REPEAT.dat

Distance: 0.30 in.

Stress at Max Def
4644 0.005

Stress at Max Disp
0 4644

Maximum Load

4680 psf

Shear Displacement at maximum Load

0.2103 in.

Date

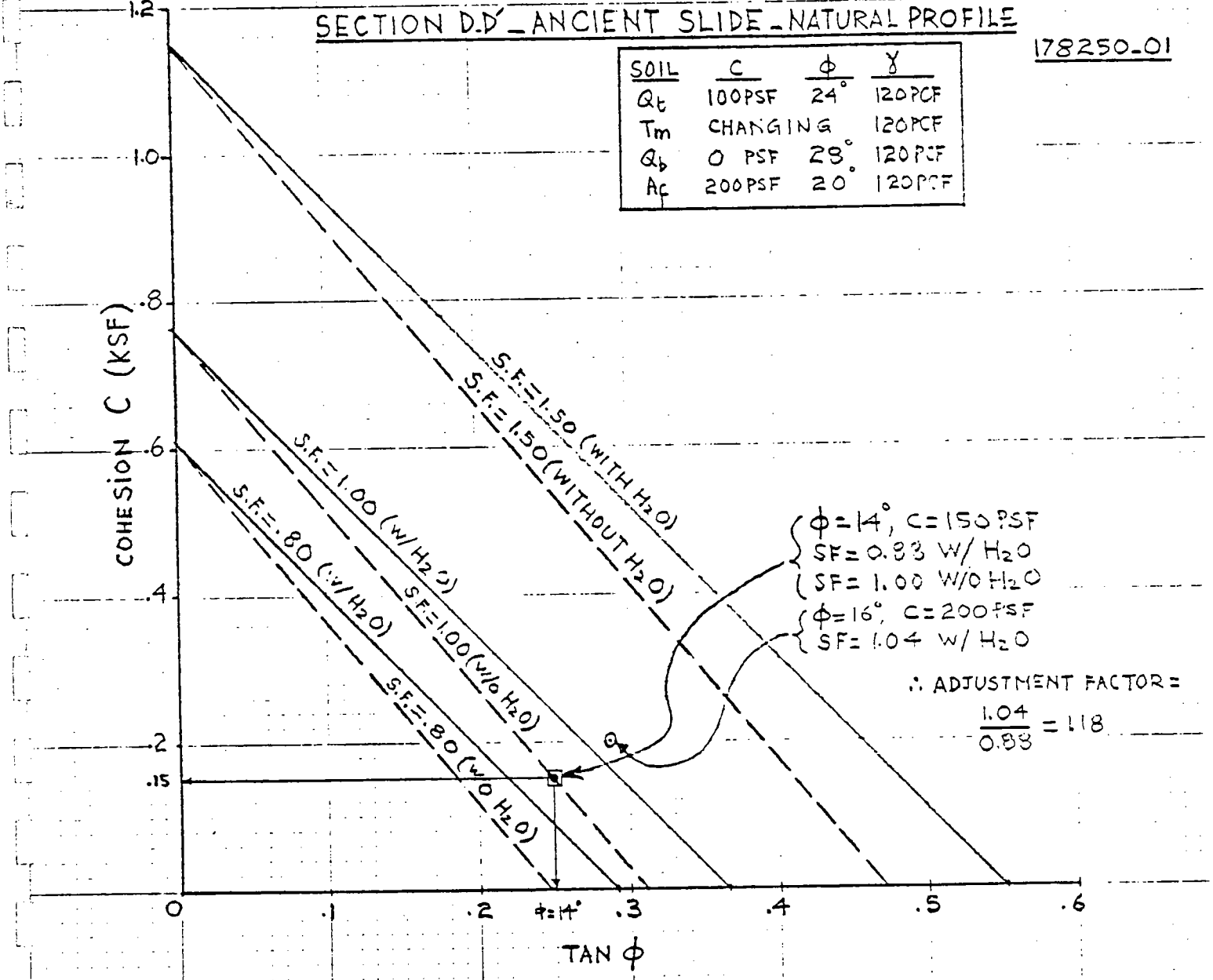
1/13/2021

Soil Labworks

SECTION D-D' _ ANCIENT SLIDE - NATURAL PROFILE

178250-01

SOIL	C	ϕ	γ
Q_t	100PSF	24°	120PCF
Tm	CHANGING		120PCF
Q_b	0 PSF	28°	120PCF
A_c	200PSF	20°	120PCF

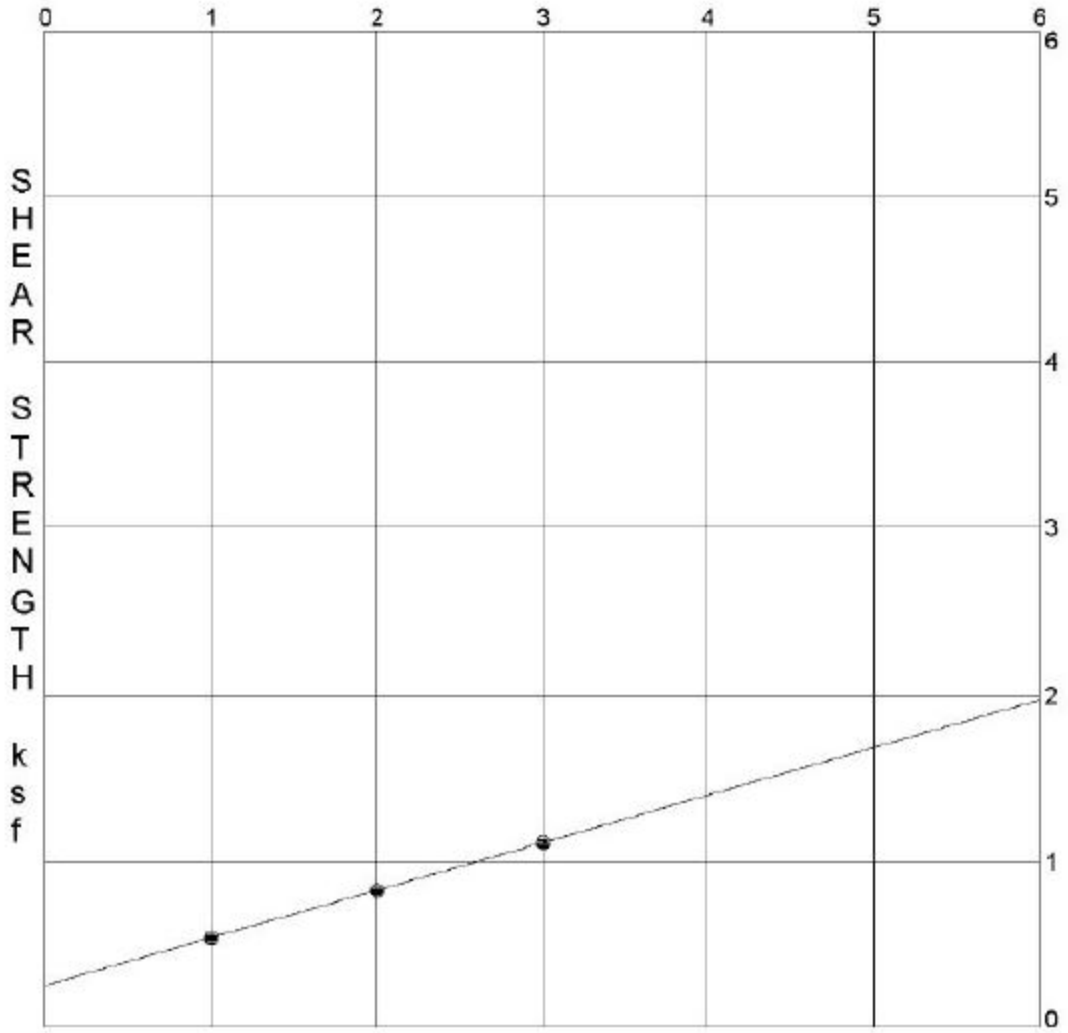


LABORATORY RECAPITULATION
PROJECT: 25447 Malibu Road
PROJECT NO.: 2684

Explor -ation	Depth (ft)	Mat'l	Dry Dens. In Situ (P.C.F.)	Moisture Content (%)	Cohesion (K.S.F)	Friction Angle (degree)
B 13	10.0	WTr	77.1	17.1		
B 13	20.0	WTr	79.9	16.0		
B 13	27.5	bentonite	81.9	50.0	0.250	16
B 13	29.0	Along-Bedding	100.7	15.0	0.250	22
B 13	40.0	Tr	102.4	16.1		
B 13	50.0	Tr	104.0	14.1		
B 14	20.0	WTr	80.8	14.8		
B 14	39.5	Tr	99.1	14.1		
B 14	59.5	Tr	99.1	15.2		

PROJECT LOCATION: 25447 Malibu Road | PROJECT NO.: 2684

SAMPLE LOCATION: B 13 @ 27.5 | DESCRIPTION: bentonite (B)

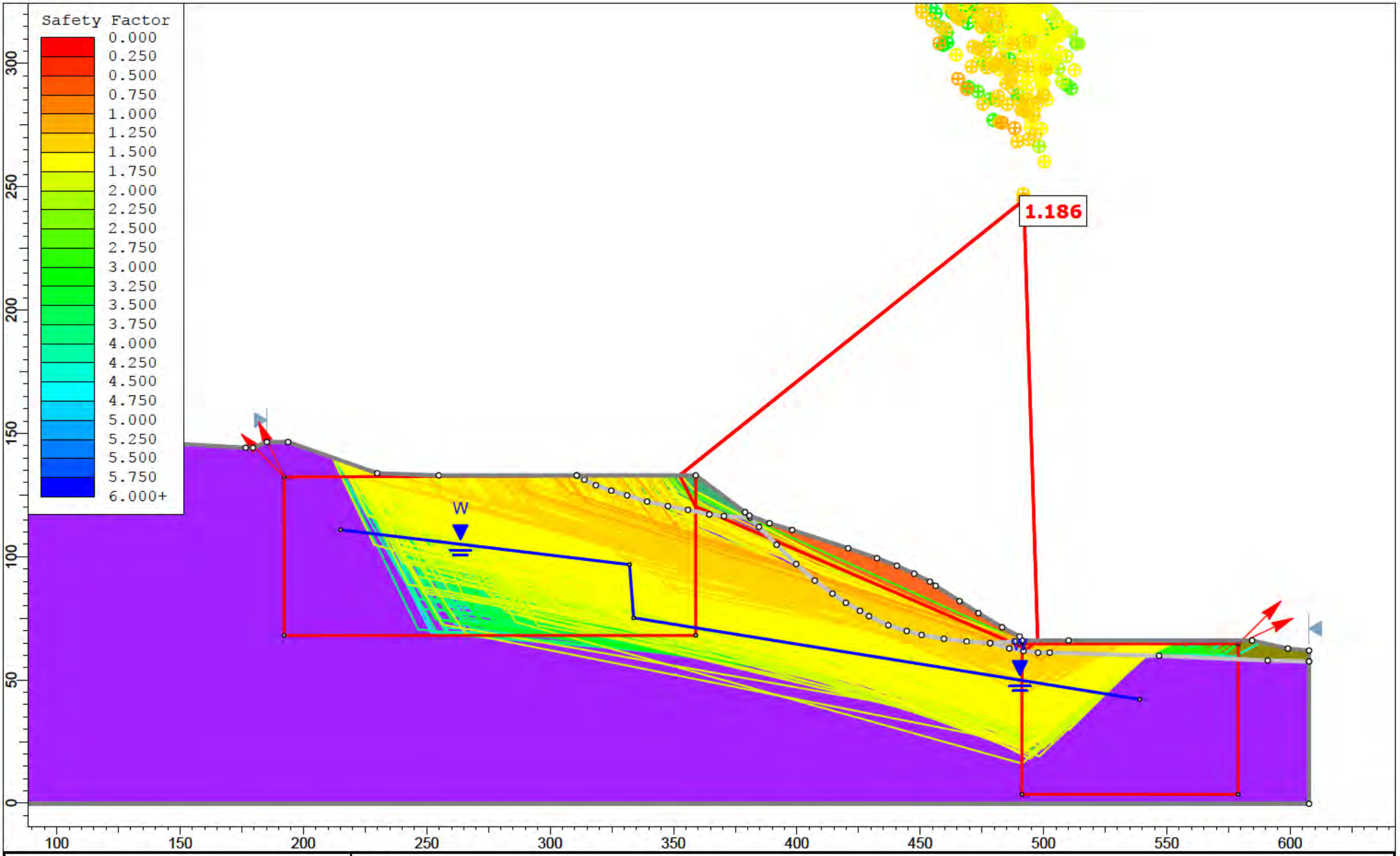


Test Results

Moisture Content (%)	Density (pcf)	Residual Strength
Insitu: 50.0	Dry Density: 81.9	Phi (deg): 16.0
Saturated: 38.9		Cohesion (ksf): 0.250

SHEAR TEST DIAGRAM

Figure S-1



FEFFER GEOLOGICAL CONSULTING

SLIDEINTERPRET 9.013

Project	Section 2-2'				
Analysis Description	Existing Slope (Static)				
Drawn By	A. Greene	Scale	1:645	Company	Feffer Geological Consulting
Date				File Name	Section 2-2' Translational Analysis 1.slmd

Slide Analysis Information

Section 2-2' Translational Analysis 1

Project Summary

File Name:	Section 2-2' Translational Analysis 1.slmd
Slide Modeler Version:	9.013
Compute Time:	00h:00m:00.363s
Project Title:	Section 2-2'
Analysis:	Existing Slope (Static)
Author:	A. Greene
Company:	Feffer Geological Consulting
Comments	
	Translational

General Settings

Units of Measurement:	Imperial Units
Time Units:	days
Permeability Units:	feet/second
Data Output:	Standard
Failure Direction:	Left to Right

Analysis Options

Slices Type:	Vertical
Analysis Methods Used	
	Janbu simplified
Number of slices:	50
Tolerance:	0.005
Maximum number of iterations:	75
Check malpha < 0.2:	Yes
Create Interslice boundaries at intersections with water tables and piezos:	Yes
Initial trial value of FS:	1
Steffensen Iteration:	Yes

Groundwater Analysis

Groundwater Method:	Water Surfaces
Pore Fluid Unit Weight [lbs/ft3]:	62.4
Use negative pore pressure cutoff:	Yes
Maximum negative pore pressure [psf]:	0
Advanced Groundwater Method:	None

Random Numbers

Pseudo-random Seed:	10116
Random Number Generation Method:	Park and Miller v.3

Surface Options

Surface Type:	Non-Circular Block Search
Number of Surfaces:	5000
Multiple Groups:	Disabled
Pseudo-Random Surfaces:	Enabled
Convex Surfaces Only:	Disabled
Left Projection Angle (Start Angle) [deg]:	115
Left Projection Angle (End Angle) [deg]:	135
Right Projection Angle (Start Angle) [deg]:	45
Right Projection Angle (End Angle) [deg]:	25
Minimum Elevation:	Not Defined
Minimum Depth:	Not Defined
Minimum Area:	Not Defined
Minimum Weight:	Not Defined

Seismic Loading

Advanced seismic analysis:	No
Staged pseudostatic analysis:	No

Materials

Terrace (Qoa)	
Color	
Strength Type	Mohr-Coulomb
Unit Weight [lbs/ft3]	115
Cohesion [psf]	100
Friction Angle [deg]	31
Water Surface	None
Ru Value	0
Qlsr	
Color	
Strength Type	Mohr-Coulomb
Unit Weight [lbs/ft3]	115
Cohesion [psf]	200
Friction Angle [deg]	12
Water Surface	None
Ru Value	0
Fill (Af)	
Color	
Strength Type	Mohr-Coulomb
Unit Weight [lbs/ft3]	120
Cohesion [psf]	120
Friction Angle [deg]	31
Water Surface	None
Ru Value	0
Anisotropic Bedrock (Tm) Ultimate	
Color	
Strength Type	Anisotropic function
Unit Weight [lbs/ft3]	124
Water Surface	Water Table
Hu Value	Automatically Calculated

Anisotropic Functions

Name: Anisotropic Bedrock (Tm) Ultimate

Angle From	Angle To	c	phi
-90	-30	520	34.5
-30	-10	200	16
-10	90	520	34.5

Global Minimums

Method: janbu simplified

FS	1.185640
Axis Location:	491.986, 244.581
Left Slip Surface Endpoint:	352.485, 132.901
Right Slip Surface Endpoint:	497.630, 65.972
Resisting Horizontal Force:	57471.7 lb
Driving Horizontal Force:	48473.2 lb
Total Slice Area:	1156.47 ft2
Surface Horizontal Width:	145.145 ft
Surface Average Height:	7.96769 ft

Global Minimum Coordinates

Method: janbu simplified

X	Y
352.485	132.901
358.799	120.377
493.256	62.4414
497.63	65.972

Global Minimum Support Data

No Supports Present

Valid and Invalid Surfaces

Method: janbu simplified

Number of Valid Surfaces:	989
Number of Invalid Surfaces:	4011

Error Codes
Error Code -105 reported for 682 surfaces
Error Code -110 reported for 3329 surfaces

Error Code Descriptions

The following errors were encountered during the computation:

-105 = More than two surface / slope intersections with no valid slip surface.

-110 = The water table or a piezoline does not span the slip region for a given slip surface, when Water Surfaces is specified as the method of pore pressure calculation. If this error occurs, check that the water table or piezoline(s) span the appropriate soil cells.

Slice Data

Global Minimum Query (janbu simplified) - Safety Factor: 1.18564

Slice Number	Width [ft]	Weight [lbs]	Angle of Slice Base [deg]	Base Material	Base Cohesion [psf]	Base Friction Angle [deg]	Shear Stress [psf]	Shear Strength [psf]	Base Normal Stress [psf]	Pore Pressure [psf]	Effective Normal Stress [psf]	Base Vertical Stress [psf]	Effective Vertical Stress [psf]
1	3.15709	1136.74	-63.2439	Terrace (Qoa)	100	31	133.161	157.881	96.3304	0	96.3304	360.447	360.447
2	3.15709	3410.21	-63.2439	Terrace (Qoa)	100	31	315.296	373.828	455.725	0	455.725	1081.1	1081.1
3	2.77455	3905.24	-23.3106	Terrace (Qoa)	100	31	654.86	776.428	1125.76	0	1125.76	1407.93	1407.93
4	2.77455	3626.56	-23.3106	Terrace (Qoa)	100	31	613.071	726.881	1043.3	0	1043.3	1307.47	1307.47
5	2.77455	3345.88	-23.3106	Terrace (Qoa)	100	31	570.98	676.977	960.25	0	960.25	1206.28	1206.28
6	2.79297	3095.87	-23.3106	Anisotropic Bedrock (Tm) Ultimate	200	16	395.598	469.037	938.244	0	938.244	1108.7	1108.7
7	2.79297	2835.32	-23.3106	Anisotropic Bedrock (Tm) Ultimate	200	16	375.164	444.809	853.748	0	853.748	1015.4	1015.4
8	2.79297	2577.36	-23.3106	Anisotropic Bedrock (Tm) Ultimate	200	16	354.932	420.821	770.094	0	770.094	923.03	923.03
9	2.79297	2319.47	-23.3106	Anisotropic Bedrock (Tm) Ultimate	200	16	334.704	396.839	686.46	0	686.46	830.68	830.68
10	2.79297	2063.84	-23.3106	Anisotropic Bedrock (Tm) Ultimate	200	16	314.655	373.068	603.562	0	603.562	739.143	739.143
11	2.79297	1968.89	-23.3106	Anisotropic Bedrock (Tm) Ultimate	200	16	307.208	364.238	572.768	0	572.768	705.141	705.141
12	2.79297	1968.45	-23.3106	Anisotropic Bedrock (Tm) Ultimate	200	16	307.173	364.197	572.624	0	572.624	704.981	704.981
13	2.79297	1970.57	-23.3106	Anisotropic Bedrock (Tm) Ultimate	200	16	307.34	364.395	573.314	0	573.314	705.743	705.743
14	2.93327	2148.52	-23.3106	Qlsr	200	12	278.516	330.22	612.633	0	612.633	732.642	732.642
15	2.93327	2276.77	-23.3106	Qlsr	200	12	285.792	338.847	653.225	0	653.225	776.37	776.37
16	2.93327	2404.97	-23.3106	Qlsr	200	12	293.067	347.472	693.801	0	693.801	820.08	820.08
17	2.93327	2520.22	-23.3106	Qlsr	200	12	299.606	355.225	730.276	0	730.276	859.373	859.373
18	2.93327	2625.34	-23.3106	Qlsr	200	12	305.571	362.297	763.548	0	763.548	895.215	895.215
19	2.93327	2730.46	-23.3106	Qlsr	200	12	311.536	369.369	796.82	0	796.82	931.057	931.057
20	2.93327	2835.58	-23.3106	Qlsr	200	12	317.5	376.441	830.089	0	830.089	966.896	966.896
21	2.93327	2940.7	-23.3106	Qlsr	200	12	323.465	383.513	863.361	0	863.361	1002.74	1002.74
22	2.93327	3045.82	-23.3106	Qlsr	200	12	329.43	390.585	896.633	0	896.633	1038.58	1038.58
23	2.93327	3150.94	-23.3106	Qlsr	200	12	335.394	397.657	929.905	0	929.905	1074.42	1074.42
24	2.93327	3254.86	-23.3106	Qlsr	200	12	341.291	404.648	962.795	0	962.795	1109.85	1109.85
25	2.93327	3342.95	-23.3106	Qlsr	200	12	346.289	410.574	990.675	0	990.675	1139.89	1139.89
26	2.93327	3426.14	-23.3106	Qlsr	200	12	351.01	416.171	1017.01	0	1017.01	1168.25	1168.25
27	2.93327	3509.34	-23.3106	Qlsr	200	12	355.73	421.768	1043.34	0	1043.34	1196.62	1196.62
28	2.93327	3590.72	-23.3106	Qlsr	200	12	360.348	427.243	1069.09	0	1069.09	1224.36	1224.36
29	2.93327	3648.76	-23.3106	Qlsr	200	12	363.642	431.148	1087.47	0	1087.47	1244.16	1244.16
30	2.93327	3699.65	-23.3106	Qlsr	200	12	366.529	434.571	1103.57	0	1103.57	1261.5	1261.5
31	2.93327	3738.04	-23.3106	Qlsr	200	12	368.707	437.154	1115.72	0	1115.72	1274.59	1274.59
32	2.93327	3721.72	-23.3106	Qlsr	200	12	367.781	436.056	1110.56	0	1110.56	1269.03	1269.03
33	2.93327	3697.98	-23.3106	Qlsr	200	12	366.434	434.459	1103.04	0	1103.04	1260.93	1260.93
34	2.93327	3638.35	-23.3106	Qlsr	200	12	363.05	430.447	1084.17	0	1084.17	1240.6	1240.6
35	2.93327	3560.81	-23.3106	Qlsr	200	12	358.651	425.231	1059.63	0	1059.63	1214.17	1214.17
36	2.93327	3373.65	-23.3106	Qlsr	200	12	348.031	412.64	1000.39	0	1000.39	1150.35	1150.35
37	2.93327	3140.95	-23.3106	Qlsr	200	12	334.828	396.985	926.739	0	926.739	1071.01	1071.01
38	2.93327	2933.8	-23.3106	Qlsr	200	12	323.074	383.049	861.179	0	861.179	1000.39	1000.39
39	2.93327	2726.65	-23.3106	Qlsr	200	12	311.32	369.113	795.615	0	795.615	929.759	929.759
40	2.93327	2518.16	-23.3106	Qlsr	200	12	299.49	355.087	729.625	0	729.625	858.672	858.672
41	2.93327	2307.87	-23.3106	Qlsr	200	12	287.558	340.94	663.069	0	663.069	786.974	786.974

42	2.93327	2100.46	-23.3106	Qlsr	200	12	275.789	326.986	597.423	0	597.423	716.257	716.257
43	2.93327	1930.23	-23.3106	Qlsr	200	12	266.13	315.534	543.544	0	543.544	658.216	658.216
44	2.93327	1771.37	-23.3106	Qlsr	200	12	257.116	304.847	493.265	0	493.265	604.053	604.053
45	2.93327	1612.58	-23.3106	Qlsr	200	12	248.105	294.164	443.005	0	443.005	549.911	549.911
46	2.93327	1489.18	-23.3106	Qlsr	200	12	241.104	285.862	403.95	0	403.95	507.839	507.839
47	3.4958	1668.68	-23.3106	Fill (Af)	120	31	281.695	333.989	356.137	0	356.137	477.516	477.516
48	3.4958	1361.01	-23.3106	Fill (Af)	120	31	245.077	290.573	283.882	0	283.882	389.483	389.483
49	2.18698	694.926	38.9102	Fill (Af)	120	31	443.33	525.63	675.081	0	675.081	317.229	317.229
50	2.18698	231.642	38.9102	Fill (Af)	120	31	261.843	310.452	316.966	0	316.966	105.608	105.608

Interslice Data

Global Minimum Query (janbu simplified) - Safety Factor: 1.18564

Slice Number	X coordinate [ft]	Y coordinate - Bottom [ft]	Interslice Normal Force [lbs]	Interslice Shear Force [lbs]	Interslice Force Angle [deg]
1	352.485	132.901	0	0	0
2	355.642	126.639	183.427	0	0
3	358.799	120.377	2043.18	0	0
4	361.573	119.182	1574.79	0	0
5	364.348	117.986	1123.59	0	0
6	367.123	116.791	689.702	0	0
7	369.915	115.587	715.57	0	0
8	372.708	114.384	696.742	0	0
9	375.501	113.18	633.663	0	0
10	378.294	111.977	526.344	0	0
11	381.087	110.773	375.173	0	0
12	383.88	109.57	207.714	0	0
13	386.673	108.366	40.1778	0	0
14	389.466	107.163	-126.993	0	0
15	392.4	105.899	-168.438	0	0
16	395.333	104.635	-179.892	0	0
17	398.266	103.371	-161.368	0	0
18	401.199	102.107	-115.896	0	0
19	404.133	100.843	-45.843	0	0
20	407.066	99.5795	48.7917	0	0
21	409.999	98.3156	168.008	0	0
22	412.932	97.0517	311.805	0	0
23	415.866	95.7878	480.184	0	0
24	418.799	94.5239	673.144	0	0
25	421.732	93.26	890.403	0	0
26	424.665	91.9961	1128.26	0	0
27	427.599	90.7322	1385.58	0	0
28	430.532	89.4683	1662.34	0	0
29	433.465	88.2044	1958.14	0	0
30	436.399	86.9404	2267.51	0	0
31	439.332	85.6765	2588.78	0	0
32	442.265	84.4126	2919.02	0	0
33	445.198	83.1487	3245.46	0	0
34	448.132	81.8848	3566.33	0	0
35	451.065	80.6209	3873.27	0	0
36	453.998	79.357	4162.07	0	0
37	456.931	78.0931	4407.11	0	0
38	459.865	76.8292	4597.73	0	0
39	462.798	75.5653	4739.92	0	0
40	465.731	74.3013	4833.66	0	0
41	468.664	73.0374	4878.65	0	0
42	471.598	71.7735	4874.47	0	0
43	474.531	70.5096	4821.79	0	0
44	477.464	69.2457	4729.3	0	0
45	480.398	67.9818	4599.66	0	0
46	483.331	66.7179	4432.89	0	0
47	486.264	65.454	4237.26	0	0
48	489.76	63.9477	3790.41	0	0
49	493.256	62.4414	3362.54	0	0
50	495.443	64.2067	1202.69	0	0
51	497.63	65.972	0	0	0

Entity Information

Existing Slope (Static)

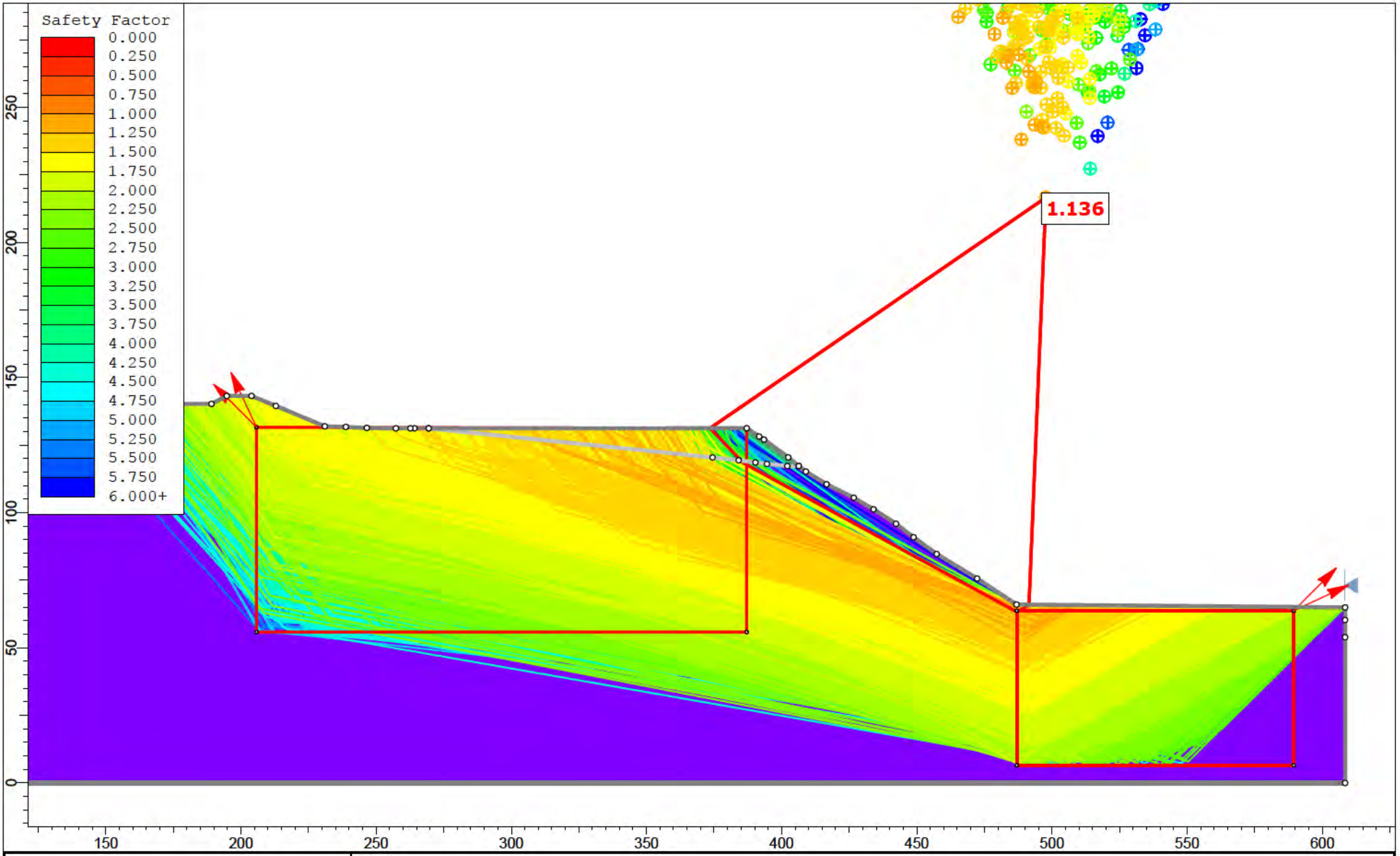
Shared Entities

Type	Coordinates (x,y)
External Boundary	0.036, 188.459 0.067, -0.196 607.643, -0.196 607.643, 57.4645 607.643, 61.847 599.042, 62.731 584.548, 65.972 510.136, 65.972 491.224, 65.972 490.282, 67.621 483.212, 71.333 473.549, 77.048 465.949, 81.938 456.287, 88.124 453.93, 89.833 447.567, 93.073 440.556, 96.255 432.484, 99.318 420.76, 103.384 398.077, 110.748 388.886, 113.517 380.756, 116.64 378.991, 117.96 359.015, 132.901 310.719, 132.901 254.792, 132.901 229.87, 133.785 193.754, 146.452 185.152, 146.452 179.496, 144.095 176.551, 144.095 138.196, 146.334 101.609, 147.689 80.752, 160.179 65.493, 169.901 57.598, 174.201 40.925, 182.509 36.741, 184.806

Material Boundary	378.991, 117.96 381.004, 115.867 384.655, 112.071 391.766, 104.817 399.736, 96.943 407.228, 90.261 414.434, 85.012 419.875, 81.29 425.554, 77.997 429.228, 75.849 437.102, 72.175 444.547, 69.789 450.56, 68.214 459.627, 66.639 468.838, 65.589 478.382, 64.921 488.261, 65.589 491.224, 65.972
Material Boundary	310.719, 132.901 313.871, 131.172 318.477, 128.909 324.781, 126.727 331.181, 124.794 339.312, 122.26 347.737, 120.434 355.808, 118.902 364.528, 117.076 370.42, 116.428 381.004, 115.867
Material Boundary	478.382, 64.921 486.105, 62.747 491.839, 61.736 497.757, 61.079 502.485, 61.079 546.833, 59.749 590.839, 57.858 607.643, 57.4645

Scenario-based Entities

Type	Coordinates (x,y)	Master Scenario
Water Table	215.049, 110.844 332.184, 96.728 333.801, 75.176 539.011, 42.086	Assigned to: Anisotropic Bedrock (Tm) Ultimate
Block Search Window	192.145, 132.266 192.145, 68.055 359.015, 68.055 359.015, 132.901	
Block Search Window	491.244, 3.61 578.886, 3.61 578.886, 64.613 491.257, 64.613	



FEFFER GEOLOGICAL CONSULTING

SLIDEINTERPRET 9.013

Project	Section 3-3'				
Analysis Description	Existing Slope (Static)				
Drawn By	A. Greene	Scale	1:589	Company	Feffer Geological Consulting
Date				File Name	Section 3-3' Translational Analysis 1.slmd

Slide Analysis Information

Section 3-3' Translational Analysis 1

Project Summary

File Name:	Section 3-3' Translational Analysis 1.slmd
Slide Modeler Version:	9.013
Compute Time:	00h:00m:00.391s
Project Title:	Section 3-3'
Analysis:	Existing Slope (Static)
Author:	A. Greene
Company:	Feffer Geological Consulting
Comments	
	Translational

General Settings

Units of Measurement:	Imperial Units
Time Units:	days
Permeability Units:	feet/second
Data Output:	Standard
Failure Direction:	Left to Right

Analysis Options

Slices Type:	Vertical
Analysis Methods Used	
	Janbu simplified
Number of slices:	50
Tolerance:	0.005
Maximum number of iterations:	75
Check malpha < 0.2:	Yes
Create Interslice boundaries at intersections with water tables and piezos:	Yes
Initial trial value of FS:	1
Steffensen Iteration:	Yes

Groundwater Analysis

Groundwater Method:	Water Surfaces
Pore Fluid Unit Weight [lbs/ft3]:	62.4
Use negative pore pressure cutoff:	Yes
Maximum negative pore pressure [psf]:	0
Advanced Groundwater Method:	None

Random Numbers

Pseudo-random Seed:	10116
Random Number Generation Method:	Park and Miller v.3

Surface Options

Surface Type:	Non-Circular Block Search
Number of Surfaces:	5000
Multiple Groups:	Disabled
Pseudo-Random Surfaces:	Enabled
Convex Surfaces Only:	Disabled
Left Projection Angle (Start Angle) [deg]:	115
Left Projection Angle (End Angle) [deg]:	135
Right Projection Angle (Start Angle) [deg]:	45
Right Projection Angle (End Angle) [deg]:	25
Minimum Elevation:	Not Defined
Minimum Depth:	Not Defined
Minimum Area:	Not Defined
Minimum Weight:	Not Defined

Seismic Loading

Advanced seismic analysis:	No
Staged pseudostatic analysis:	No

Materials

Terrace (Qoa)	
Color	
Strength Type	Mohr-Coulomb
Unit Weight [lbs/ft3]	115
Cohesion [psf]	100
Friction Angle [deg]	31
Water Surface	None
Ru Value	0
Anisotropic Bedrock (Tm) Ultimate	
Color	
Strength Type	Anisotropic function
Unit Weight [lbs/ft3]	124
Water Surface	None
Ru Value	0

Anisotropic Functions

Name: Anisotropic Bedrock (Tm) Ultimate

Angle From	Angle To	c	phi
-90	-30	520	34.5
-30	-10	200	16
-10	90	520	34.5

Global Minimums

Method: janbu simplified

FS	1.135900
Axis Location:	497.778, 216.562
Left Slip Surface Endpoint:	373.522, 131.205
Right Slip Surface Endpoint:	491.510, 65.943
Resisting Horizontal Force:	51512 lb
Driving Horizontal Force:	45349.2 lb
Total Slice Area:	884.143 ft2
Surface Horizontal Width:	117.988 ft
Surface Average Height:	7.49349 ft

Global Minimum Coordinates

Method: janbu simplified

X	Y
373.522	131.205
385.771	118.406
487.074	63.2092
491.51	65.9426

Global Minimum Support Data

No Supports Present

Valid and Invalid Surfaces

Method: janbu simplified

Number of Valid Surfaces:	4279
Number of Invalid Surfaces:	721

Error Codes

Error Code -105 reported for 717 surfaces
Error Code -108 reported for 3 surfaces
Error Code -111 reported for 1 surface

Error Code Descriptions

The following errors were encountered during the computation:
-105 = More than two surface / slope intersections with no valid slip surface.
-108 = Total driving moment or total driving force < 0.1. This is to limit the calculation of extremely high safety factors if the driving force is very small (0.1 is an arbitrary number).
-111 = Safety factor equation did not converge

Slice Data

Global Minimum Query (janbu simplified) - Safety Factor: 1.1359

Slice Number	Width [ft]	Weight [lbs]	Angle of Slice Base [deg]	Base Material	Base Cohesion [psf]	Base Friction Angle [deg]	Shear Stress [psf]	Shear Strength [psf]	Base Normal Stress [psf]	Pore Pressure [psf]	Effective Normal Stress [psf]	Base Vertical Stress [psf]	Effective Vertical Stress [psf]
1	2.29487	316.547	-46.2548	Terrace (Qoa)	100	31	103.761	117.862	29.7267	0	29.7267	138.135	138.135
2	2.29487	949.64	-46.2548	Terrace (Qoa)	100	31	197.808	224.69	207.52	0	207.52	414.187	414.187
3	2.29487	1582.73	-46.2548	Terrace (Qoa)	100	31	291.856	331.519	385.313	0	385.313	690.241	690.241
4	2.29487	2215.83	-46.2548	Terrace (Qoa)	100	31	385.904	438.348	563.107	0	563.107	966.295	966.295
5	2.29487	2848.92	-46.2548	Terrace (Qoa)	100	31	479.952	545.177	740.897	0	740.897	1242.35	1242.35
6	0.77527	1107.99	-46.2548	Anisotropic Bedrock (Tm) Ultimate	520	34.5	810.857	921.053	583.535	0	583.535	1430.71	1430.71
7	2.41197	3714.22	-28.5848	Anisotropic Bedrock (Tm) Ultimate	200	16	496.621	564.112	1269.81	0	1269.81	1540.4	1540.4
8	2.41197	3719.01	-28.5848	Anisotropic Bedrock (Tm) Ultimate	200	16	497.062	564.613	1271.56	0	1271.56	1542.39	1542.39
9	2.41197	3660.8	-28.5848	Anisotropic Bedrock (Tm) Ultimate	200	16	491.704	558.527	1250.33	0	1250.33	1518.25	1518.25

10	2.41197	3599.55	-28.5848	Anisotropic Bedrock (Tm) Ultimate	200	16	486.067	552.124	1228	0	1228	1492.85	1492.85
11	2.41197	3498.16	-28.5848	Anisotropic Bedrock (Tm) Ultimate	200	16	476.737	541.526	1191.04	0	1191.04	1450.8	1450.8
12	2.41197	3395.78	-28.5848	Anisotropic Bedrock (Tm) Ultimate	200	16	467.316	530.824	1153.72	0	1153.72	1408.35	1408.35
13	2.41197	3293.33	-28.5848	Anisotropic Bedrock (Tm) Ultimate	200	16	457.888	520.115	1116.37	0	1116.37	1365.86	1365.86
14	2.41197	3153.54	-28.5848	Anisotropic Bedrock (Tm) Ultimate	200	16	445.023	505.502	1065.41	0	1065.41	1307.89	1307.89
15	2.41197	2985.82	-28.5848	Anisotropic Bedrock (Tm) Ultimate	200	16	429.589	487.97	1004.27	0	1004.27	1238.34	1238.34
16	2.41197	2833.94	-28.5848	Anisotropic Bedrock (Tm) Ultimate	200	16	415.612	472.094	948.905	0	948.905	1175.36	1175.36
17	2.41197	2764.99	-28.5848	Anisotropic Bedrock (Tm) Ultimate	200	16	409.267	464.886	923.766	0	923.766	1146.76	1146.76
18	2.41197	2717.02	-28.5848	Anisotropic Bedrock (Tm) Ultimate	200	16	404.853	459.873	906.284	0	906.284	1126.88	1126.88
19	2.41197	2670.86	-28.5848	Anisotropic Bedrock (Tm) Ultimate	200	16	400.605	455.047	889.453	0	889.453	1107.73	1107.73
20	2.41197	2679.68	-28.5848	Anisotropic Bedrock (Tm) Ultimate	200	16	401.416	455.969	892.668	0	892.668	1111.39	1111.39
21	2.41197	2714.39	-28.5848	Anisotropic Bedrock (Tm) Ultimate	200	16	404.61	459.597	905.323	0	905.323	1125.78	1125.78
22	2.41197	2749.09	-28.5848	Anisotropic Bedrock (Tm) Ultimate	200	16	407.804	463.225	917.974	0	917.974	1140.18	1140.18
23	2.41197	2783.73	-28.5848	Anisotropic Bedrock (Tm) Ultimate	200	16	410.991	466.845	930.6	0	930.6	1154.54	1154.54
24	2.41197	2783.87	-28.5848	Anisotropic Bedrock (Tm) Ultimate	200	16	411.004	466.86	930.654	0	930.654	1154.6	1154.6
25	2.41197	2755.39	-28.5848	Anisotropic Bedrock (Tm) Ultimate	200	16	408.384	463.883	920.268	0	920.268	1142.78	1142.78
26	2.41197	2726.91	-28.5848	Anisotropic Bedrock (Tm) Ultimate	200	16	405.762	460.905	909.885	0	909.885	1130.97	1130.97
27	2.41197	2677.5	-28.5848	Anisotropic Bedrock (Tm) Ultimate	200	16	401.216	455.741	891.874	0	891.874	1110.49	1110.49
28	2.41197	2608.04	-28.5848	Anisotropic Bedrock (Tm) Ultimate	200	16	394.824	448.481	866.554	0	866.554	1081.68	1081.68

29	2.41197	2538.59	-28.5848	Anisotropic Bedrock (Tm) Ultimate	200	16	388.432	441.22	841.237	0	841.237	1052.88	1052.88
30	2.41197	2454.04	-28.5848	Anisotropic Bedrock (Tm) Ultimate	200	16	380.651	432.382	810.415	0	810.415	1017.82	1017.82
31	2.41197	2300.58	-28.5848	Anisotropic Bedrock (Tm) Ultimate	200	16	366.53	416.341	754.47	0	754.47	954.182	954.182
32	2.41197	2138.61	-28.5848	Anisotropic Bedrock (Tm) Ultimate	200	16	351.624	399.41	695.426	0	695.426	887.017	887.017
33	2.41197	1987.52	-28.5848	Anisotropic Bedrock (Tm) Ultimate	200	16	337.72	383.616	640.343	0	640.343	824.358	824.358
34	2.41197	1854.22	-28.5848	Anisotropic Bedrock (Tm) Ultimate	200	16	325.452	369.681	591.748	0	591.748	769.078	769.078
35	2.41197	1721.17	-28.5848	Anisotropic Bedrock (Tm) Ultimate	200	16	313.208	355.773	543.248	0	543.248	713.906	713.906
36	2.41197	1593.02	-28.5848	Anisotropic Bedrock (Tm) Ultimate	200	16	301.416	342.378	496.531	0	496.531	660.764	660.764
37	2.41197	1529.58	-28.5848	Anisotropic Bedrock (Tm) Ultimate	200	16	295.577	335.746	473.406	0	473.406	634.458	634.458
38	2.41197	1486.23	-28.5848	Anisotropic Bedrock (Tm) Ultimate	200	16	291.588	331.215	457.602	0	457.602	616.48	616.48
39	2.41197	1442.88	-28.5848	Anisotropic Bedrock (Tm) Ultimate	200	16	287.599	326.684	441.798	0	441.798	598.503	598.503
40	2.41197	1399.54	-28.5848	Anisotropic Bedrock (Tm) Ultimate	200	16	283.609	322.152	425.997	0	425.997	580.529	580.529
41	2.41197	1356.19	-28.5848	Anisotropic Bedrock (Tm) Ultimate	200	16	279.621	317.621	410.193	0	410.193	562.551	562.551
42	2.41197	1312.57	-28.5848	Anisotropic Bedrock (Tm) Ultimate	200	16	275.607	313.062	394.295	0	394.295	544.466	544.466
43	2.41197	1245.77	-28.5848	Anisotropic Bedrock (Tm) Ultimate	200	16	269.459	306.079	369.939	0	369.939	516.76	516.76
44	2.41197	1164.01	-28.5848	Anisotropic Bedrock (Tm) Ultimate	200	16	261.935	297.532	340.135	0	340.135	482.856	482.856
45	2.41197	1082.25	-28.5848	Anisotropic Bedrock (Tm) Ultimate	200	16	254.411	288.986	310.33	0	310.33	448.952	448.952
46	2.41197	1000.49	-28.5848	Anisotropic Bedrock (Tm) Ultimate	200	16	246.887	280.439	280.524	0	280.524	415.047	415.047
47	2.41197	918.729	-28.5848	Anisotropic Bedrock (Tm) Ultimate	200	16	239.363	271.893	250.719	0	250.719	381.142	381.142

48	2.41197	838.137	-28.5848	Anisotropic Bedrock (Tm) Ultimate	200	16	231.947	263.468	221.339	0	221.339	347.721	347.721
49	2.21781	571.814	31.6433	Anisotropic Bedrock (Tm) Ultimate	520	34.5	977.65	1110.51	859.203	0	859.203	256.731	256.731
50	2.21781	190.605	31.6433	Anisotropic Bedrock (Tm) Ultimate	520	34.5	811.998	922.348	585.419	0	585.419	85.0285	85.0285

Interslice Data

Global Minimum Query (janbu simplified) - Safety Factor: 1.1359

Slice Number	X coordinate [ft]	Y coordinate - Bottom [ft]	Interslice Normal Force [lbs]	Interslice Shear Force [lbs]	Interslice Force Angle [deg]
1	373.522	131.205	0	0	0
2	375.817	128.807	-166.408	0	0
3	378.112	126.409	-121.963	0	0
4	380.406	124.012	133.335	0	0
5	382.701	121.614	599.486	0	0
6	384.996	119.216	1276.49	0	0
7	385.771	118.406	1121.66	0	0
8	388.183	117.092	1594.82	0	0
9	390.595	115.778	2069.21	0	0
10	393.007	114.464	2528.61	0	0
11	395.419	113.149	2972.23	0	0
12	397.831	111.835	3389.74	0	0
13	400.243	110.521	3780.88	0	0
14	402.655	109.207	4145.65	0	0
15	405.067	107.893	4474.4	0	0
16	407.479	106.578	4759.97	0	0
17	409.891	105.264	5006.42	0	0
18	412.303	103.95	5235.12	0	0
19	414.715	102.636	5451.46	0	0
20	417.127	101.322	5655.91	0	0
21	419.539	100.007	5862.64	0	0
22	421.951	98.6931	6078.3	0	0
23	424.363	97.3789	6302.9	0	0
24	426.775	96.0646	6536.42	0	0
25	429.187	94.7504	6769.98	0	0
26	431.599	93.4362	6996.2	0	0
27	434.011	92.122	7215.08	0	0
28	436.423	90.8078	7421.25	0	0
29	438.835	89.4935	7609.52	0	0
30	441.247	88.1793	7779.91	0	0
31	443.659	86.8651	7928.53	0	0
32	446.071	85.5509	8037.62	0	0
33	448.483	84.2367	8105	0	0
34	450.895	82.9224	8133.47	0	0
35	453.307	81.6082	8127.6	0	0
36	455.719	80.294	8087.48	0	0
37	458.131	78.9798	8014.35	0	0
38	460.543	77.6656	7924.88	0	0
39	462.955	76.3514	7824.25	0	0
40	465.367	75.0371	7712.45	0	0
41	467.779	73.7229	7589.49	0	0
42	470.19	72.4087	7455.37	0	0
43	472.602	71.0945	7310.02	0	0
44	475.014	69.7803	7147.46	0	0
45	477.426	68.466	6963.84	0	0
46	479.838	67.1518	6759.17	0	0
47	482.25	65.8376	6533.44	0	0
48	484.662	64.5234	6286.66	0	0
49	487.074	63.2092	6019.12	0	0
50	489.292	64.5759	2680.54	0	0
51	491.51	65.9426	0	0	0

Entity Information

Existing Slope (Static)

Shared Entities

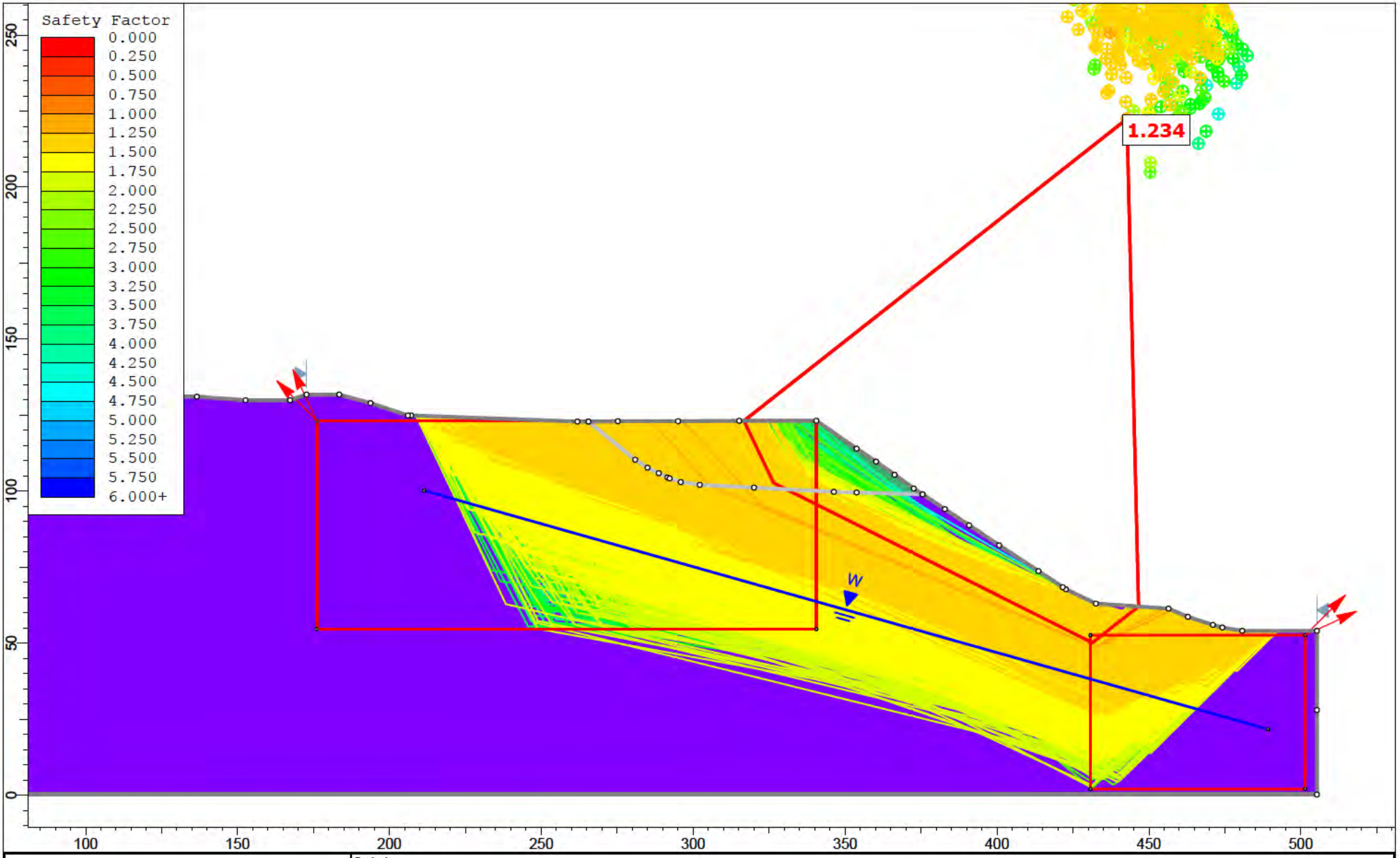
Type	Coordinates (x,y)

External Boundary	0.386, -0.037 608.423, -0.037 608.423, 53.854 608.423, 60.25 608.423, 64.917 486.904, 65.983 472.319, 75.583 457.333, 84.649 448.803, 90.87 442.281, 95.888 433.985, 101.207 426.659, 105.488 416.624, 110.473 408.964, 115.156 406.288, 117.203 402.474, 120.407 393.476, 126.997 391.679, 128.135 387.087, 131.212 269.447, 131.148 264.195, 131.148 262.656, 131.148 257.304, 131.148 246.533, 131.325 238.79, 131.703 230.993, 131.919 212.872, 139.485 203.868, 143.139 194.712, 143.139 189.062, 140.22 175.096, 140.22 138.858, 142.078 111.823, 142.923 105.91, 144.524 93.371, 149.815 88.658, 151.594 78.564, 155.062 70.561, 158.308 62.068, 161.642 60.181, 161.869 57.907, 161.593 54.496, 160.921 53.083, 160.921 51.326, 161.645 47.382, 162.661 40.767, 164.59 36.375, 167.007 32.42, 169.373 29.924, 170.67 25.97, 172.42 20.427, 174.786 13.166, 179.259 10.217, 180.75 3.993, 183.376 1.367, 184.575 0.386, 185.129

Material Boundary	269.447, 131.148 374.457, 120.429 384.086, 119.333 390.302, 118.536 394.557, 117.991 402.113, 117.203 406.288, 117.203

Scenario-based Entities

Type	Coordinates (x,y)	Master Scenario
Block Search Window	205.718, 131.596 205.718, 55.783 387.087, 55.783 387.087, 131.212	
Block Search Window	486.98, 6.518 589.476, 6.518 589.476, 63.683 486.98, 63.683	



FEFFER GEOLOGICAL CONSULTING

SLIDEINTERPRET 9.013

Project	Section 4-4'				
Analysis Description	Existing Slope (Static)				
Drawn By	A. Greene	Scale	1:524	Company	Feffer Geological Consulting
Date	6/10/2020			File Name	Section 4-4' Translational Analysis 1.slmd

Slide Analysis Information

Section 4-4' Translational Analysis 1

Project Summary

File Name:	Section 4-4' Translational Analysis 1.slmd
Slide Modeler Version:	9.013
Compute Time:	00h:00m:00.350s
Project Title:	Section 4-4'
Analysis:	Existing Slope (Static)
Author:	A. Greene
Company:	Feffer Geological Consulting
Comments	
	Translational

General Settings

Units of Measurement:	Imperial Units
Time Units:	days
Permeability Units:	feet/second
Data Output:	Standard
Failure Direction:	Left to Right

Analysis Options

Slices Type:	Vertical
Analysis Methods Used	
	Janbu simplified
Number of slices:	50
Tolerance:	0.005
Maximum number of iterations:	75
Check malpha < 0.2:	Yes
Create Interslice boundaries at intersections with water tables and piezos:	Yes
Initial trial value of FS:	1
Steffensen Iteration:	Yes

Groundwater Analysis

Groundwater Method:	Water Surfaces
Pore Fluid Unit Weight [lbs/ft3]:	62.4
Use negative pore pressure cutoff:	Yes
Maximum negative pore pressure [psf]:	0
Advanced Groundwater Method:	None

Random Numbers

Pseudo-random Seed:	10116
Random Number Generation Method:	Park and Miller v.3

Surface Options

Surface Type:	Non-Circular Block Search
Number of Surfaces:	5000
Multiple Groups:	Disabled
Pseudo-Random Surfaces:	Enabled
Convex Surfaces Only:	Disabled
Left Projection Angle (Start Angle) [deg]:	115
Left Projection Angle (End Angle) [deg]:	135
Right Projection Angle (Start Angle) [deg]:	45
Right Projection Angle (End Angle) [deg]:	25
Minimum Elevation:	Not Defined
Minimum Depth:	Not Defined
Minimum Area:	Not Defined
Minimum Weight:	Not Defined

Seismic Loading

Advanced seismic analysis:	No
Staged pseudostatic analysis:	No

Materials

Terrace (Qoa)	
Color	
Strength Type	Mohr-Coulomb
Unit Weight [lbs/ft3]	115
Cohesion [psf]	100
Friction Angle [deg]	31
Water Surface	None
Ru Value	0
Anisotropic Bedrock (Tm) Ultimate	
Color	
Strength Type	Anisotropic function
Unit Weight [lbs/ft3]	124
Water Surface	Water Table
Hu Value	1

Anisotropic Functions

Name: Anisotropic Bedrock (Tm) Ultimate

Angle From	Angle To	c	phi
-90	-30	520	34.5
-30	-10	200	16
-10	90	520	34.5

Global Minimums

Method: janbu simplified

FS	1.233960
Axis Location:	442.776, 222.406
Left Slip Surface Endpoint:	316.716, 123.111
Right Slip Surface Endpoint:	446.576, 61.981
Resisting Horizontal Force:	118647 lb
Driving Horizontal Force:	96151.2 lb
Total Slice Area:	2298.66 ft2
Surface Horizontal Width:	129.86 ft
Surface Average Height:	17.7011 ft

Global Minimum Coordinates

Method: janbu simplified

X	Y
316.716	123.111
326.445	102.638
431.363	50.1098
446.576	61.9807

Global Minimum Support Data

No Supports Present

Valid and Invalid Surfaces

Method: janbu simplified

Number of Valid Surfaces:	2496
Number of Invalid Surfaces:	2504

Error Codes

Error Code -105 reported for 182 surfaces
Error Code -110 reported for 2312 surfaces
Error Code -111 reported for 10 surfaces

Error Code Descriptions

The following errors were encountered during the computation:
-105 = More than two surface / slope intersections with no valid slip surface.
-110 = The water table or a piezoline does not span the slip region for a given slip surface, when Water Surfaces is specified as the method of pore pressure calculation. If this error occurs, check that the water table or piezoline(s) span the appropriate soil cells.
-111 = Safety factor equation did not converge

Slice Data

Global Minimum Query (janbu simplified) - Safety Factor: 1.23396

Slice Number	Width [ft]	Weight [lbs]	Angle of Slice Base [deg]	Base Material	Base Cohesion [psf]	Base Friction Angle [deg]	Shear Stress [psf]	Shear Strength [psf]	Base Normal Stress [psf]	Pore Pressure [psf]	Effective Normal Stress [psf]	Base Vertical Stress [psf]	Effective Vertical Stress [psf]
1	2.4322	715.791	-64.5828	Terrace (Qoa)	100	31	110.834	136.765	61.1873	0	61.1873	294.423	294.423
2	2.4322	2147.37	-64.5828	Terrace (Qoa)	100	31	252.43	311.488	351.975	0	351.975	883.179	883.179
3	2.4322	3578.96	-64.5828	Terrace (Qoa)	100	31	394.025	486.211	642.764	0	642.764	1471.94	1471.94
4	2.4322	5010.54	-64.5828	Terrace (Qoa)	100	31	535.62	660.934	933.55	0	933.55	2060.69	2060.69
5	2.07007	4997.1	-26.5952	Terrace (Qoa)	100	31	1010.32	1246.7	1908.42	0	1908.42	2414.25	2414.25
6	2.07007	5243.82	-26.5952	Terrace (Qoa)	100	31	1056.99	1304.28	2004.26	0	2004.26	2533.45	2533.45
7	2.65206	7092.85	-26.5952	Anisotropic Bedrock (Tm) Ultimate	200	16	701.945	866.172	2323.22	0	2323.22	2674.65	2674.65
8	2.65206	7526.24	-26.5952	Anisotropic Bedrock (Tm) Ultimate	200	16	735.964	908.15	2469.61	0	2469.61	2838.08	2838.08
9	2.65206	7959.62	-26.5952	Anisotropic Bedrock (Tm) Ultimate	200	16	769.982	950.127	2616.01	0	2616.01	3001.5	3001.5
10	2.65206	8375.7	-26.5952	Anisotropic Bedrock (Tm) Ultimate	200	16	802.642	990.428	2756.55	0	2756.55	3158.4	3158.4

11	2.65206	8406.95	-26.5952	Anisotropic Bedrock (Tm) Ultimate	200	16	805.094	993.454	2767.1	0	2767.1	3170.18	3170.18
12	2.65206	8279.98	-26.5952	Anisotropic Bedrock (Tm) Ultimate	200	16	795.128	981.156	2724.21	0	2724.21	3122.3	3122.3
13	2.65206	8153.79	-26.5952	Anisotropic Bedrock (Tm) Ultimate	200	16	785.223	968.934	2681.59	0	2681.59	3074.72	3074.72
14	2.65206	8028.21	-26.5952	Anisotropic Bedrock (Tm) Ultimate	200	16	775.365	956.77	2639.17	0	2639.17	3027.36	3027.36
15	2.65206	7903.23	-26.5952	Anisotropic Bedrock (Tm) Ultimate	200	16	765.556	944.665	2596.96	0	2596.96	2980.24	2980.24
16	2.65206	7792.01	-26.5952	Anisotropic Bedrock (Tm) Ultimate	200	16	756.826	933.893	2559.39	0	2559.39	2938.3	2938.3
17	2.65206	7686.51	-26.5952	Anisotropic Bedrock (Tm) Ultimate	200	16	748.544	923.673	2523.75	0	2523.75	2898.51	2898.51
18	2.65206	7570.07	-26.5952	Anisotropic Bedrock (Tm) Ultimate	200	16	739.404	912.395	2484.42	0	2484.42	2854.6	2854.6
19	2.65206	7434.06	-26.5952	Anisotropic Bedrock (Tm) Ultimate	200	16	728.728	899.221	2438.48	0	2438.48	2803.32	2803.32
20	2.65206	7296.43	-26.5952	Anisotropic Bedrock (Tm) Ultimate	200	16	717.925	885.891	2391.99	0	2391.99	2751.42	2751.42
21	2.65206	7152.51	-26.5952	Anisotropic Bedrock (Tm) Ultimate	200	16	706.628	871.951	2343.37	0	2343.37	2697.15	2697.15
22	2.65206	7008.2	-26.5952	Anisotropic Bedrock (Tm) Ultimate	200	16	695.3	857.973	2294.63	0	2294.63	2642.73	2642.73
23	2.65206	6889.96	-26.5952	Anisotropic Bedrock (Tm) Ultimate	200	16	686.02	846.521	2254.69	0	2254.69	2598.15	2598.15
24	2.65206	6763.91	-26.5952	Anisotropic Bedrock (Tm) Ultimate	200	16	676.126	834.312	2212.11	0	2212.11	2550.62	2550.62
25	2.65206	6620.29	-26.5952	Anisotropic Bedrock (Tm) Ultimate	200	16	664.852	820.401	2163.6	0	2163.6	2496.46	2496.46
26	2.65206	6476.76	-26.5952	Anisotropic Bedrock (Tm) Ultimate	200	16	653.585	806.498	2115.11	0	2115.11	2442.33	2442.33
27	2.65206	6334.4	-26.5952	Anisotropic Bedrock (Tm) Ultimate	200	16	642.411	792.71	2067.02	0	2067.02	2388.65	2388.65
28	2.65206	6192.45	-26.5952	Anisotropic Bedrock (Tm) Ultimate	200	16	631.268	778.96	2019.07	0	2019.07	2335.12	2335.12
29	2.65206	6050.43	-26.5952	Anisotropic Bedrock (Tm) Ultimate	200	16	620.121	765.204	1971.1	0	1971.1	2281.57	2281.57

30	2.65206	5907.22	-26.5952	Anisotropic Bedrock (Tm) Ultimate	200	16	608.88	751.334	1922.73	0	1922.73	2227.57	2227.57
31	2.65206	5763.59	-26.5952	Anisotropic Bedrock (Tm) Ultimate	200	16	597.605	737.421	1874.21	0	1874.21	2173.41	2173.41
32	2.65206	5619.95	-26.5952	Anisotropic Bedrock (Tm) Ultimate	200	16	586.331	723.509	1825.69	0	1825.69	2119.24	2119.24
33	2.65206	5477.21	-26.5952	Anisotropic Bedrock (Tm) Ultimate	200	16	575.126	709.683	1777.48	0	1777.48	2065.42	2065.42
34	2.65206	5338.71	-26.5952	Anisotropic Bedrock (Tm) Ultimate	200	16	564.255	696.268	1730.69	0	1730.69	2013.19	2013.19
35	2.65206	5200.75	-26.5952	Anisotropic Bedrock (Tm) Ultimate	200	16	553.426	682.906	1684.09	0	1684.09	1961.17	1961.17
36	2.65206	5062.79	-26.5952	Anisotropic Bedrock (Tm) Ultimate	200	16	542.597	669.543	1637.49	0	1637.49	1909.15	1909.15
37	2.65206	4924.83	-26.5952	Anisotropic Bedrock (Tm) Ultimate	200	16	531.768	656.181	1590.89	0	1590.89	1857.13	1857.13
38	2.65206	4786.88	-26.5952	Anisotropic Bedrock (Tm) Ultimate	200	16	520.94	642.819	1544.29	0	1544.29	1805.1	1805.1
39	2.65206	4648.96	-26.5952	Anisotropic Bedrock (Tm) Ultimate	200	16	510.114	629.46	1497.7	0	1497.7	1753.09	1753.09
40	2.65206	4511.03	-26.5952	Anisotropic Bedrock (Tm) Ultimate	200	16	499.287	616.1	1451.12	0	1451.12	1701.09	1701.09
41	2.65206	4378.36	-26.5952	Anisotropic Bedrock (Tm) Ultimate	200	16	488.872	603.249	1406.3	0	1406.3	1651.06	1651.06
42	2.65206	4356.31	-26.5952	Anisotropic Bedrock (Tm) Ultimate	200	16	487.142	601.114	1398.85	0	1398.85	1642.74	1642.74
43	2.65206	4375.28	-26.5952	Anisotropic Bedrock (Tm) Ultimate	200	16	488.632	602.952	1405.26	0	1405.26	1649.9	1649.9
44	2.65206	4394.25	-26.5952	Anisotropic Bedrock (Tm) Ultimate	200	16	490.12	604.789	1411.67	0	1411.67	1657.05	1657.05
45	2.5354	3754.69	37.9665	Anisotropic Bedrock (Tm) Ultimate	520	34.5	2203.37	2718.87	3199.38	0	3199.38	1479.99	1479.99
46	2.5354	3042.81	37.9665	Anisotropic Bedrock (Tm) Ultimate	520	34.5	1926.88	2377.69	2702.96	0	2702.96	1199.33	1199.33
47	2.5354	2366.63	37.9665	Anisotropic Bedrock (Tm) Ultimate	520	34.5	1664.25	2053.62	2231.43	0	2231.43	932.743	932.743
48	2.5354	1690.45	37.9665	Anisotropic Bedrock (Tm) Ultimate	520	34.5	1401.63	1729.55	1759.91	0	1759.91	666.155	666.155

49	2.5354	1014.27	37.9665	Anisotropic Bedrock (Tm) Ultimate	520	34.5	1139	1405.48	1288.38	0	1288.38	399.567	399.567
50	2.5354	338.09	37.9665	Anisotropic Bedrock (Tm) Ultimate	520	34.5	876.374	1081.41	816.857	0	816.857	132.983	132.983

Interslice Data

Global Minimum Query (janbu simplified) - Safety Factor: 1.23396

Slice Number	X coordinate [ft]	Y coordinate - Bottom [ft]	Interslice Normal Force [lbs]	Interslice Shear Force [lbs]	Interslice Force Angle [deg]
1	316.716	123.111	0	0	0
2	319.148	117.993	43.7439	0	0
3	321.58	112.875	1231.6	0	0
4	324.013	107.756	3563.58	0	0
5	326.445	102.638	7039.67	0	0
6	328.515	101.602	6927.23	0	0
7	330.585	100.565	6817.57	0	0
8	333.237	99.2375	8041.68	0	0
9	335.889	97.9097	9369.99	0	0
10	338.541	96.582	10802.5	0	0
11	341.193	95.2542	12335.1	0	0
12	343.845	93.9264	13875.1	0	0
13	346.497	92.5986	15384.7	0	0
14	349.149	91.2709	16863.9	0	0
15	351.801	89.9431	18312.9	0	0
16	354.453	88.6153	19731.9	0	0
17	357.106	87.2875	21124.1	0	0
18	359.758	85.9598	22490.9	0	0
19	362.41	84.632	23829.8	0	0
20	365.062	83.3042	25135.9	0	0
21	367.714	81.9764	26409	0	0
22	370.366	80.6486	27647.4	0	0
23	373.018	79.3209	28851.2	0	0
24	375.67	77.9931	30026.5	0	0
25	378.322	76.6653	31171.5	0	0
26	380.974	75.3375	32282	0	0
27	383.626	74.0098	33358	0	0
28	386.278	72.682	34399.7	0	0
29	388.93	71.3542	35407.3	0	0
30	391.582	70.0264	36380.8	0	0
31	394.234	68.6987	37319.8	0	0
32	396.886	67.3709	38224.3	0	0
33	399.539	66.0431	39094.3	0	0
34	402.191	64.7153	39929.9	0	0
35	404.843	63.3876	40732.2	0	0
36	407.495	62.0598	41501.4	0	0
37	410.147	60.732	42237.4	0	0
38	412.799	59.4042	42940.2	0	0
39	415.451	58.0765	43609.8	0	0
40	418.103	56.7487	44246.3	0	0
41	420.755	55.4209	44849.7	0	0
42	423.407	54.0931	45421.1	0	0
43	426.059	52.7654	45987.2	0	0
44	428.711	51.4376	46557.9	0	0
45	431.363	50.1098	47133.1	0	0
46	433.899	52.0883	35219.7	0	0
47	436.434	54.0668	24989.2	0	0
48	438.969	56.0453	16357	0	0
49	441.505	58.0237	9323.31	0	0
50	444.04	60.0022	3887.99	0	0
51	446.576	61.9807	0	0	0

Entity Information

Existing Slope (Static)

Shared Entities

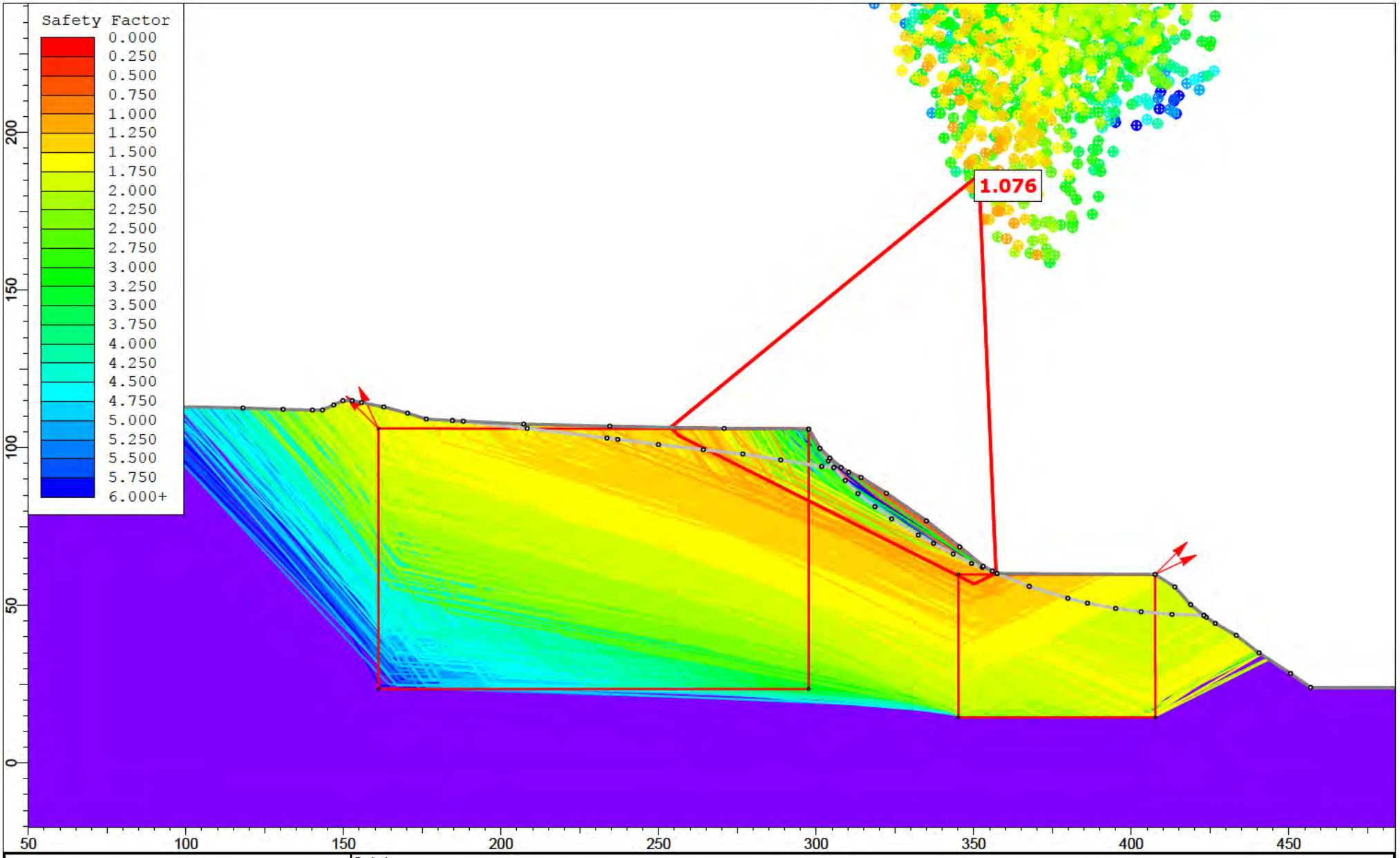
Type	Coordinates (x,y)

External Boundary	0.235, 184.951 -0.154, 0.116 505.309, 0.116 505.309, 27.9488 505.309, 53.989 480.732, 53.989 474.165, 55.09 471.052, 55.963 462.815, 58.621 456.446, 61.31 432.547, 62.934 422.639, 67.679 421.615, 68.362 413.605, 73.639 400.699, 82.142 390.829, 88.709 382.819, 94.023 375.496, 98.8954 372.606, 100.818 366.28, 105.351 360.178, 109.66 353.802, 113.919 340.534, 123.111 315.124, 123.111 295.004, 122.962 275.174, 122.962 265.485, 122.838 261.87, 122.838 207.15, 124.855 206.075, 124.855 193.797, 128.929 183.475, 131.724 172.683, 131.724 167.29, 129.885 152.655, 129.885 136.627, 131.024 91.465, 132.01 88.851, 133.732 86.883, 134.993 83.317, 137.453 79.022, 140.415 75.503, 142.704 71.745, 145.027 69.115, 146.598 63.546, 149.605 55.105, 154.376 47.248, 159.056 40.176, 163.054 30.945, 168.401 27.756, 170.147 20.658, 173.791 13.825, 177.283 8.283, 180.054 4.107, 182.75

Material Boundary	265.485, 122.838 280.901, 110.275 284.962, 107.671 288.66, 105.849 291.522, 104.48 292.252, 104.13 295.897, 102.933 302.146, 102.048 320.006, 101.11 346.302, 99.756 353.802, 99.5349 375.496, 98.8954

Scenario-based Entities

Type	Coordinates (x,y)	Master Scenario
Water Table	211.394, 100.156 489.223, 21.625	Assigned to: Anisotropic Bedrock (Tm) Ultimate
Block Search Window	176.063, 123.111 176.063, 54.59 340.534, 54.59 340.534, 123.111	
Block Search Window	501.522, 52.576 430.745, 52.576 430.745, 1.962 501.422, 1.962	



FEFFER GEOLOGICAL CONSULTING

SLIDEINTERPRET 9.013

Project	Section 5-5'				
Analysis Description	Existing Slope (Static)				
Drawn By	A. Greene	Scale	1:505	Company	Feffer Geological Consulting
Date				File Name	Section 5-5' Translational Analysis 1.slmd

Slide Analysis Information

Section 5-5' Translational Analysis 1

Project Summary

File Name:	Section 5-5' Translational Analysis 1.slmd
Slide Modeler Version:	9.013
Compute Time:	00h:00m:00.447s
Project Title:	Section 5-5'
Analysis:	Existing Slope (Static)
Author:	A. Greene
Company:	Feffer Geological Consulting
Comments	
	Translational

General Settings

Units of Measurement:	Imperial Units
Time Units:	days
Permeability Units:	feet/second
Data Output:	Standard
Failure Direction:	Left to Right

Analysis Options

Slices Type:	Vertical
Analysis Methods Used	
	Janbu simplified
Number of slices:	50
Tolerance:	0.005
Maximum number of iterations:	75
Check malpha < 0.2:	Yes
Create Interslice boundaries at intersections with water tables and piezos:	Yes
Initial trial value of FS:	1
Steffensen Iteration:	Yes

Groundwater Analysis

Groundwater Method:	Water Surfaces
Pore Fluid Unit Weight [lbs/ft3]:	62.4
Use negative pore pressure cutoff:	Yes
Maximum negative pore pressure [psf]:	0
Advanced Groundwater Method:	None

Random Numbers

Pseudo-random Seed:	10116
Random Number Generation Method:	Park and Miller v.3

Surface Options

Surface Type:	Non-Circular Block Search
Number of Surfaces:	5000
Multiple Groups:	Disabled
Pseudo-Random Surfaces:	Enabled
Convex Surfaces Only:	Disabled
Left Projection Angle (Start Angle) [deg]:	115
Left Projection Angle (End Angle) [deg]:	135
Right Projection Angle (Start Angle) [deg]:	45
Right Projection Angle (End Angle) [deg]:	25
Minimum Elevation:	Not Defined
Minimum Depth:	Not Defined
Minimum Area:	Not Defined
Minimum Weight:	Not Defined

Seismic Loading

Advanced seismic analysis:	No
Staged pseudostatic analysis:	No

Materials

Terrace (Qoa)	
Color	
Strength Type	Mohr-Coulomb
Unit Weight [lbs/ft3]	115
Cohesion [psf]	100
Friction Angle [deg]	31
Water Surface	None
Ru Value	0
Qlsr	
Color	
Strength Type	Mohr-Coulomb
Unit Weight [lbs/ft3]	115
Cohesion [psf]	200
Friction Angle [deg]	12
Water Surface	None
Ru Value	0
Fill (Af)	
Color	
Strength Type	Mohr-Coulomb
Unit Weight [lbs/ft3]	120
Cohesion [psf]	120
Friction Angle [deg]	31
Water Surface	None
Ru Value	0
Anisotropic Bedrock (Tm) Ultimate	
Color	
Strength Type	Anisotropic function
Unit Weight [lbs/ft3]	124
Water Surface	None
Ru Value	0

Anisotropic Functions

Name: Anisotropic Bedrock (Tm) Ultimate

Angle From	Angle To	c	phi
-90	-30	520	34.5
-30	-10	200	16
-10	90	520	34.5

Global Minimums

Method: janbu simplified

FS	1.076230
Axis Location:	351.621, 186.625
Left Slip Surface Endpoint:	253.812, 106.459
Right Slip Surface Endpoint:	357.068, 60.278
Resisting Horizontal Force:	63501 lb
Driving Horizontal Force:	59003.3 lb
Total Slice Area:	1283.25 ft2
Surface Horizontal Width:	103.257 ft
Surface Average Height:	12.4277 ft

Global Minimum Coordinates

Method: janbu simplified

X	Y
253.812	106.459
256.287	103.921
350.193	56.7865
357.068	60.278

Global Minimum Support Data

No Supports Present

Valid and Invalid Surfaces

Method: janbu simplified

Number of Valid Surfaces:	4738
Number of Invalid Surfaces:	262

Error Codes
Error Code -105 reported for 248 surfaces
Error Code -108 reported for 8 surfaces
Error Code -111 reported for 6 surfaces

Error Code Descriptions

The following errors were encountered during the computation:

-105 = More than two surface / slope intersections with no valid slip surface.

-108 = Total driving moment or total driving force < 0.1. This is to limit the calculation of extremely high safety factors if the driving force is very small (0.1 is an arbitrary number).

-111 = Safety factor equation did not converge

Slice Data

Global Minimum Query (janbu simplified) - Safety Factor: 1.07623

Slice Number	Width [ft]	Weight [lbs]	Angle of Slice Base [deg]	Base Material	Base Cohesion [psf]	Base Friction Angle [deg]	Shear Stress [psf]	Shear Strength [psf]	Base Normal Stress [psf]	Pore Pressure [psf]	Effective Normal Stress [psf]	Base Vertical Stress [psf]	Effective Vertical Stress [psf]
1	2.47522	354.28	-45.7165	Terrace (Qoa)	100	31	109.924	118.303	30.462	0	30.462	143.17	143.17
2	1.87058	632.505	-26.6535	Terrace (Qoa)	100	31	220.053	236.828	227.72	0	227.72	338.172	338.172
3	1.87058	826.565	-26.6535	Terrace (Qoa)	100	31	265.298	285.522	308.761	0	308.761	441.922	441.922
4	1.87058	1020.62	-26.6535	Terrace (Qoa)	100	31	310.543	334.216	389.801	0	389.801	545.673	545.673
5	1.87058	1214.68	-26.6535	Terrace (Qoa)	100	31	355.788	382.91	470.842	0	470.842	649.424	649.424
6	1.87058	1408.74	-26.6535	Terrace (Qoa)	100	31	401.034	431.605	551.884	0	551.884	753.176	753.176
7	2.06228	1785.52	-26.6535	Anisotropic Bedrock (Tm) Ultimate	200	16	367.396	395.403	681.451	0	681.451	865.859	865.859
8	2.06228	2036.37	-26.6535	Anisotropic Bedrock (Tm) Ultimate	200	16	395.984	426.17	788.75	0	788.75	987.507	987.507
9	2.06228	2287.97	-26.6535	Anisotropic Bedrock (Tm) Ultimate	200	16	424.656	457.028	896.365	0	896.365	1109.51	1109.51
10	2.06228	2544.02	-26.6535	Anisotropic Bedrock (Tm) Ultimate	200	16	453.835	488.431	1005.88	0	1005.88	1233.67	1233.67
11	2.06228	2800.8	-26.6535	Anisotropic Bedrock (Tm) Ultimate	200	16	483.097	519.924	1115.71	0	1115.71	1358.19	1358.19
12	2.06228	3057.19	-26.6535	Anisotropic Bedrock (Tm) Ultimate	200	16	512.316	551.37	1225.37	0	1225.37	1482.52	1482.52
13	2.06228	3312.23	-26.6535	Anisotropic Bedrock (Tm) Ultimate	200	16	541.381	582.65	1334.46	0	1334.46	1606.2	1606.2
14	2.06228	3567.16	-26.6535	Anisotropic Bedrock (Tm) Ultimate	200	16	570.432	613.916	1443.5	0	1443.5	1729.81	1729.81
15	2.06228	3822.09	-26.6535	Anisotropic Bedrock (Tm) Ultimate	200	16	599.483	645.182	1552.53	0	1552.53	1853.43	1853.43
16	2.06228	4077.02	-26.6535	Anisotropic Bedrock (Tm) Ultimate	200	16	628.535	676.448	1661.57	0	1661.57	1977.05	1977.05
17	2.06228	4331.94	-26.6535	Anisotropic Bedrock (Tm) Ultimate	200	16	657.586	707.714	1770.61	0	1770.61	2100.67	2100.67
18	2.06228	4586.93	-26.6535	Anisotropic Bedrock (Tm) Ultimate	200	16	686.645	738.988	1879.67	0	1879.67	2224.32	2224.32
19	2.06228	4842.05	-26.6535	Anisotropic Bedrock (Tm) Ultimate	200	16	715.719	770.278	1988.8	0	1988.8	2348.04	2348.04
20	2.06228	5097.18	-26.6535	Anisotropic Bedrock (Tm) Ultimate	200	16	744.792	801.568	2097.91	0	2097.91	2471.75	2471.75
21	2.06228	5352.3	-26.6535	Anisotropic Bedrock (Tm) Ultimate	200	16	773.866	832.858	2207.04	0	2207.04	2595.46	2595.46

22	2.06228	5508.95	-26.6535	Anisotropic Bedrock (Tm) Ultimate	200	16	791.717	852.07	2274.04	0	2274.04	2671.43	2671.43
23	2.06228	5026.6	-26.6535	Anisotropic Bedrock (Tm) Ultimate	200	16	736.749	792.911	2067.73	0	2067.73	2437.52	2437.52
24	2.06228	4547.62	-26.6535	Anisotropic Bedrock (Tm) Ultimate	200	16	682.165	734.166	1862.86	0	1862.86	2205.26	2205.26
25	2.06228	4325.34	-26.6535	Anisotropic Bedrock (Tm) Ultimate	200	16	656.834	706.904	1767.78	0	1767.78	2097.47	2097.47
26	2.06228	4150.04	-26.6535	Anisotropic Bedrock (Tm) Ultimate	200	16	636.857	685.405	1692.81	0	1692.81	2012.47	2012.47
27	2.06228	3979.32	-26.6535	Anisotropic Bedrock (Tm) Ultimate	200	16	617.401	664.466	1619.78	0	1619.78	1929.68	1929.68
28	2.06228	3894.21	-26.6535	Anisotropic Bedrock (Tm) Ultimate	200	16	607.703	654.028	1583.38	0	1583.38	1888.41	1888.41
29	2.06228	3889.05	-26.6535	Anisotropic Bedrock (Tm) Ultimate	200	16	607.115	653.395	1581.18	0	1581.18	1885.91	1885.91
30	2.06228	3898.61	-26.6535	Anisotropic Bedrock (Tm) Ultimate	200	16	608.205	654.568	1585.27	0	1585.27	1890.54	1890.54
31	2.06228	3845.09	-26.6535	Anisotropic Bedrock (Tm) Ultimate	200	16	602.105	648.003	1562.37	0	1562.37	1864.59	1864.59
32	2.06228	3777.21	-26.6535	Anisotropic Bedrock (Tm) Ultimate	200	16	594.369	639.678	1533.34	0	1533.34	1831.67	1831.67
33	2.06228	3710.23	-26.6535	Anisotropic Bedrock (Tm) Ultimate	200	16	586.735	631.462	1504.69	0	1504.69	1799.19	1799.19
34	2.06228	3638.69	-26.6535	Anisotropic Bedrock (Tm) Ultimate	200	16	578.584	622.689	1474.09	0	1474.09	1764.5	1764.5
35	2.06228	3541.91	-26.6535	Anisotropic Bedrock (Tm) Ultimate	200	16	567.554	610.819	1432.7	0	1432.7	1717.57	1717.57
36	2.06228	3444.37	-26.6535	Anisotropic Bedrock (Tm) Ultimate	200	16	556.439	598.856	1390.98	0	1390.98	1670.27	1670.27
37	2.06228	3346.99	-26.6535	Anisotropic Bedrock (Tm) Ultimate	200	16	545.342	586.913	1349.33	0	1349.33	1623.05	1623.05
38	2.06228	3249.62	-26.6535	Anisotropic Bedrock (Tm) Ultimate	200	16	534.245	574.97	1307.68	0	1307.68	1575.83	1575.83
39	2.06228	3152.77	-26.6535	Anisotropic Bedrock (Tm) Ultimate	200	16	523.209	563.093	1266.26	0	1266.26	1528.87	1528.87
40	2.06228	3054.57	-26.6535	Anisotropic Bedrock (Tm) Ultimate	200	16	512.018	551.049	1224.25	0	1224.25	1481.25	1481.25

41	2.06228	2925.19	-26.6535	Anisotropic Bedrock (Tm) Ultimate	200	16	497.273	535.18	1168.91	0	1168.91	1418.51	1418.51
42	2.06228	2787.97	-26.6535	Anisotropic Bedrock (Tm) Ultimate	200	16	481.636	518.351	1110.22	0	1110.22	1351.97	1351.97
43	2.06228	2650.73	-26.6535	Anisotropic Bedrock (Tm) Ultimate	200	16	465.996	501.519	1051.52	0	1051.52	1285.42	1285.42
44	2.06228	2513.54	-26.6535	Anisotropic Bedrock (Tm) Ultimate	200	16	450.362	484.693	992.842	0	992.842	1218.89	1218.89
45	2.06228	2376.4	-26.6535	Anisotropic Bedrock (Tm) Ultimate	200	16	434.734	467.874	934.185	0	934.185	1152.39	1152.39
46	2.06228	2226.19	-26.6535	Anisotropic Bedrock (Tm) Ultimate	200	16	417.615	449.45	869.938	0	869.938	1079.55	1079.55
47	2.06228	2071.42	-26.6535	Anisotropic Bedrock (Tm) Ultimate	200	16	399.979	430.469	803.74	0	803.74	1004.5	1004.5
48	2.29171	1796.39	26.9234	Anisotropic Bedrock (Tm) Ultimate	520	34.5	1455.66	1566.63	1522.85	0	1522.85	783.601	783.601
49	2.29171	1006.64	26.9234	Anisotropic Bedrock (Tm) Ultimate	520	34.5	1130.02	1216.16	1012.93	0	1012.93	439.051	439.051
50	2.29171	335.654	26.9234	Anisotropic Bedrock (Tm) Ultimate	520	34.5	853.353	918.404	579.68	0	579.68	146.31	146.31

Interslice Data

Global Minimum Query (janbu simplified) - Safety Factor: 1.07623

Slice Number	X coordinate [ft]	Y coordinate - Bottom [ft]	Interslice Normal Force [lbs]	Interslice Shear Force [lbs]	Interslice Force Angle [deg]
1	253.812	106.459	0	0	0
2	256.287	103.921	-194.68	0	0
3	258.157	102.982	-392.355	0	0
4	260.028	102.043	-598.547	0	0
5	261.899	101.104	-813.253	0	0
6	263.769	100.166	-1036.48	0	0
7	265.64	99.2266	-1268.21	0	0
8	267.702	98.1915	-1320.23	0	0
9	269.764	97.1564	-1320.12	0	0
10	271.827	96.1212	-1267.73	0	0
11	273.889	95.0861	-1162.13	0	0
12	275.951	94.051	-1003.16	0	0
13	278.013	93.0159	-790.915	0	0
14	280.076	91.9808	-525.67	0	0
15	282.138	90.9456	-207.448	0	0
16	284.2	89.9105	163.75	0	0
17	286.263	88.8754	587.924	0	0
18	288.325	87.8403	1065.07	0	0
19	290.387	86.8051	1595.21	0	0
20	292.449	85.77	2178.37	0	0
21	294.512	84.7349	2814.54	0	0
22	296.574	83.6998	3503.74	0	0
23	298.636	82.6646	4225.48	0	0
24	300.699	81.6295	4846.99	0	0
25	302.761	80.5944	5368.96	0	0
26	304.823	79.5593	5844.73	0	0
27	306.885	78.5241	6284.08	0	0
28	308.948	77.489	6687.96	0	0
29	311.01	76.4539	7074.14	0	0
30	313.072	75.4188	7459.25	0	0
31	315.135	74.3836	7846.36	0	0
32	317.197	73.3485	8222.33	0	0
33	319.259	72.3134	8584.21	0	0
34	321.321	71.2783	8932.16	0	0
35	323.384	70.2431	9265.24	0	0
36	325.446	69.208	9578.22	0	0
37	327.508	68.1729	9870.92	0	0
38	329.571	67.1378	10143.4	0	0
39	331.633	66.1026	10395.6	0	0
40	333.695	65.0675	10627.7	0	0
41	335.757	64.0324	10839.4	0	0
42	337.82	62.9973	11024.2	0	0
43	339.882	61.9621	11180.5	0	0
44	341.944	60.927	11308.3	0	0
45	344.007	59.8919	11407.6	0	0
46	346.069	58.8568	11478.4	0	0
47	348.131	57.8216	11517.9	0	0
48	350.193	56.7865	11525.3	0	0
49	352.485	57.9503	6418.19	0	0
50	354.777	59.1142	2650.55	0	0
51	357.068	60.278	0	0	0

Entity Information

Existing Slope (Static)

Shared Entities

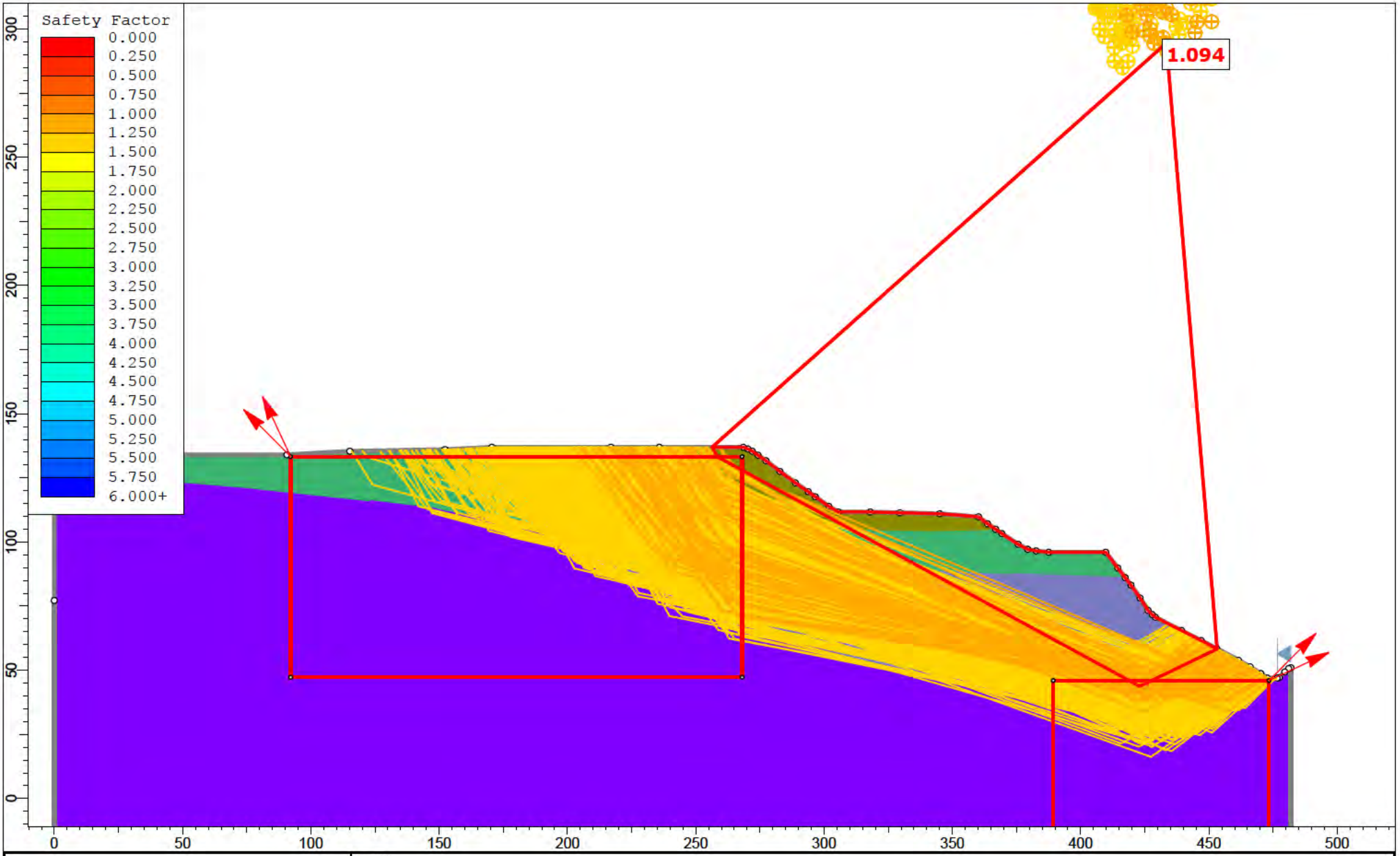
Type	Coordinates (x,y)

External Boundary	-0.069, -51.999 505.65, -51.999 505.65, 3.34239 505.65, 23.996 456.88, 23.996 450.477, 28.41 440.53, 34.944 433.29, 40.476 426.639, 44.302 423.755, 46.244 423.004, 46.8517 418.811, 50.247 413.808, 55.838 407.518, 59.833 357.331, 60.14 355.869, 60.9087 353.009, 62.412 345.503, 68.556 334.945, 76.785 322.305, 85.54 314.226, 90.551 310.313, 92.24 307.92, 93.704 304.345, 96.688 301.135, 99.813 297.645, 105.922 270.795, 106.125 234.496, 106.839 207.178, 107.499 188.028, 108.403 184.544, 108.609 176.246, 109.098 170.303, 110.975 162.796, 112.921 155.706, 114.346 152.752, 114.937 149.812, 114.937 146.89, 113.576 143.281, 111.947 140.125, 111.947 130.834, 112.148 118.104, 112.62 97.314, 112.989 77.715, 113.708 63.815, 113.708 59.431, 115.65 51.517, 120.438 43.992, 124.971 35.344, 130.477 26.443, 135.548 16.015, 142.086 4.531, 149.145 2.684, 150.314 -0.069, 152.158

Material Boundary	184.544, 108.609 208.27, 106.116 233.606, 103.075 237.006, 102.646 249.906, 101.02 264.178, 99.388 276.678, 98.008 288.727, 96.094 301.732, 94.095 305.589, 93.701
Material Boundary	301.135, 99.813 303.849, 95.803 305.589, 93.701 309.204, 89.597 313.229, 85.453 318.629, 81.323 323.923, 77.446 332.383, 72.293 337.24, 69.67 343.446, 66.308 349.32, 63.298 352.681, 62.06 355.869, 60.9087
Material Boundary	357.331, 60.14 367.577, 56.042 379.845, 52.288 386.066, 50.724 395.033, 49.056 403.096, 47.979 412.862, 47.144 423.004, 46.8517

Scenario-based Entities

Type	Coordinates (x,y)	Master Scenario
Block Search Window	407.518, 59.833 345.082, 59.833 345.082, 14.465 407.629, 14.465	
Block Search Window	161.04, 106.144 161.04, 23.477 297.645, 23.477 297.645, 105.922	



FEFFER GEOLOGICAL CONSULTING

SLIDEINTERPRET 9.013

Project	Section 6-6'				
Analysis Description	Existing Slope (Static)				
Drawn By	A. Greene	Scale	1:621	Company	Feffer Geological Consulting
Date				File Name	Section 6-6' Translational Analysis.slmd

Slide Analysis Information

Section 6-6' Translational Analysis

Project Summary

File Name:	Section 6-6' Translational Analysis.slmd
Slide Modeler Version:	9.013
Compute Time:	00h:00m:00.483s
Project Title:	Section 6-6'
Analysis:	Existing Slope (Static)
Author:	A. Greene
Company:	Feffer Geological Consulting
Comments	
	Translational

General Settings

Units of Measurement:	Imperial Units
Time Units:	days
Permeability Units:	feet/second
Data Output:	Standard
Failure Direction:	Left to Right

Analysis Options

Slices Type:	Vertical
Analysis Methods Used	
	Janbu simplified
Number of slices:	50
Tolerance:	0.005
Maximum number of iterations:	75
Check malpha < 0.2:	Yes
Create Interslice boundaries at intersections with water tables and piezos:	Yes
Initial trial value of FS:	1
Steffensen Iteration:	Yes

Groundwater Analysis

Groundwater Method:	Water Surfaces
Pore Fluid Unit Weight [lbs/ft3]:	62.4
Use negative pore pressure cutoff:	Yes
Maximum negative pore pressure [psf]:	0
Advanced Groundwater Method:	None

Random Numbers

Pseudo-random Seed:	10116
Random Number Generation Method:	Park and Miller v.3

Surface Options

Surface Type:	Non-Circular Block Search
Number of Surfaces:	5000
Multiple Groups:	Disabled
Pseudo-Random Surfaces:	Enabled
Convex Surfaces Only:	Disabled
Left Projection Angle (Start Angle) [deg]:	115
Left Projection Angle (End Angle) [deg]:	135
Right Projection Angle (Start Angle) [deg]:	45
Right Projection Angle (End Angle) [deg]:	25
Minimum Elevation:	Not Defined
Minimum Depth:	Not Defined
Minimum Area:	Not Defined
Minimum Weight:	Not Defined

Seismic Loading

Advanced seismic analysis:	No
Staged pseudostatic analysis:	No

Materials

Terrace (Qoa)	
Color	
Strength Type	Mohr-Coulomb
Unit Weight [lbs/ft3]	115
Cohesion [psf]	100
Friction Angle [deg]	31
Water Surface	None
Ru Value	0
Qlsa	
Color	
Strength Type	Mohr-Coulomb
Unit Weight [lbs/ft3]	115
Cohesion [psf]	200
Friction Angle [deg]	16
Water Surface	None
Ru Value	0
Fill (Af)	
Color	
Strength Type	Mohr-Coulomb
Unit Weight [lbs/ft3]	120
Cohesion [psf]	120
Friction Angle [deg]	31
Water Surface	None
Ru Value	0
Anisotropic Bedrock (Tm)	
Color	
Strength Type	Anisotropic function
Unit Weight [lbs/ft3]	124
Water Surface	None
Ru Value	0

Anisotropic Functions

Name: Anisotropic Bedrock (Tm) Ultimate

Angle From	Angle To	c	phi
-90	-30	520	34.5
-30	-10	200	16
-10	90	520	34.5

Global Minimums

Method: janbu simplified

FS	1.093900
Axis Location:	433.388, 294.483
Left Slip Surface Endpoint:	256.348, 136.912
Right Slip Surface Endpoint:	453.220, 58.308
Resisting Horizontal Force:	168797 lb
Driving Horizontal Force:	154308 lb
Total Slice Area:	4024.8 ft2
Surface Horizontal Width:	196.873 ft
Surface Average Height:	20.4436 ft

Global Minimum Coordinates

Method: janbu simplified

X	Y
256.348	136.912
258.499	133.185
423.003	43.7694
453.22	58.3078

Global Minimum Support Data

No Supports Present

Valid and Invalid Surfaces

Method: janbu simplified

Number of Valid Surfaces:	4995
Number of Invalid Surfaces:	5

Error Codes
Error Code -105 reported for 1 surface
Error Code -108 reported for 3 surfaces
Error Code -111 reported for 1 surface

Error Code Descriptions

The following errors were encountered during the computation:
-105 = More than two surface / slope intersections with no valid slip surface.
-108 = Total driving moment or total driving force < 0.1. This is to limit the calculation of extremely high safety factors if the driving force is very small (0.1 is an arbitrary number).
-111 = Safety factor equation did not converge

Slice Data

Global Minimum Query (janbu simplified) - Safety Factor: 1.0939

Slice Number	Width [ft]	Weight [lbs]	Angle of Slice Base [deg]	Base Material	Base Cohesion [psf]	Base Friction Angle [deg]	Shear Stress [psf]	Shear Strength [psf]	Base Normal Stress [psf]	Pore Pressure [psf]	Effective Normal Stress [psf]	Base Vertical Stress [psf]	Effective Vertical Stress [psf]
1	2.15157	481.158	-60.0036	Fill (Af)	120	31	119.168	130.358	17.2386	0	17.2386	223.674	223.674
2	3.922	2255.81	-28.5262	Fill (Af)	120	31	327.786	358.565	397.039	0	397.039	575.206	575.206
3	3.922	3259.12	-28.5262	Fill (Af)	120	31	436	476.94	594.047	0	594.047	831.033	831.033
4	3.922	4199.1	-28.5262	Fill (Af)	120	31	537.383	587.843	778.622	0	778.622	1070.72	1070.72
5	3.922	4445.47	-28.5262	Fill (Af)	120	31	563.956	616.911	826.999	0	826.999	1133.54	1133.54
6	3.922	4190.85	-28.5262	Fill (Af)	120	31	536.493	586.87	777.003	0	777.003	1068.61	1068.61
7	3.922	3821.15	-28.5262	Fill (Af)	120	31	496.619	543.251	704.407	0	704.407	974.343	974.343
8	3.922	3427.72	-28.5262	Fill (Af)	120	31	454.184	496.832	627.155	0	627.155	874.025	874.025
9	3.922	3077.27	-28.5262	Fill (Af)	120	31	416.386	455.485	558.341	0	558.341	784.666	784.666
10	3.922	2784.87	-28.5262	Fill (Af)	120	31	384.849	420.986	500.925	0	500.925	710.108	710.108
11	3.922	2479.99	-28.5262	Fill (Af)	120	31	351.965	385.015	441.058	0	441.058	632.368	632.368
12	3.922	2166.87	-28.5262	Fill (Af)	120	31	318.193	348.071	379.574	0	379.574	552.527	552.527
13	3.922	1962.87	-28.5262	Fill (Af)	120	31	296.191	324.003	339.517	0	339.517	500.511	500.511
14	3.922	2414.21	-28.5262	Fill (Af)	120	31	344.87	377.253	428.141	0	428.141	615.594	615.594
15	4.22146	3698.09	-28.5262	Terrace (Qoa)	100	31	440.971	482.378	636.384	0	636.384	876.072	876.072
16	4.22146	4817.34	-28.5262	Terrace (Qoa)	100	31	553.126	605.065	840.569	0	840.569	1141.22	1141.22
17	4.22146	5909.84	-28.5262	Terrace (Qoa)	100	31	662.601	724.819	1039.87	0	1039.87	1400.03	1400.03
18	4.22146	6971.08	-28.5262	Terrace (Qoa)	100	31	768.942	841.146	1233.47	0	1233.47	1651.43	1651.43
19	4.22146	8031.68	-28.5262	Terrace (Qoa)	100	31	875.221	957.404	1426.96	0	1426.96	1902.68	1902.68
20	4.22146	9093.41	-28.5262	Terrace (Qoa)	100	31	981.613	1073.79	1620.65	0	1620.65	2154.2	2154.2
21	4.22146	10155.6	-28.5262	Terrace (Qoa)	100	31	1088.05	1190.22	1814.43	0	1814.43	2405.84	2405.84
22	3.99844	10597.7	-28.5262	Qlsa	200	16	768.174	840.305	2233.02	0	2233.02	2650.56	2650.56
23	3.99844	11536.1	-28.5262	Qlsa	200	16	822.02	899.208	2438.43	0	2438.43	2885.23	2885.23
24	3.99844	12401.1	-28.5262	Qlsa	200	16	871.661	953.51	2627.79	0	2627.79	3101.58	3101.58
25	3.99844	13253.2	-28.5262	Qlsa	200	16	920.559	1007	2814.35	0	2814.35	3314.72	3314.72
26	3.99844	14105.4	-28.5262	Qlsa	200	16	969.456	1060.49	3000.88	0	3000.88	3527.83	3527.83
27	3.99844	14616.1	-28.5262	Qlsa	200	16	998.763	1092.55	3112.69	0	3112.69	3655.56	3655.56
28	3.99844	14244.6	-28.5262	Qlsa	200	16	977.445	1069.23	3031.36	0	3031.36	3562.65	3562.65
29	3.99844	13953.3	-28.5262	Qlsa	200	16	960.73	1050.94	2967.59	0	2967.59	3489.8	3489.8
30	3.99844	13743.3	-28.5262	Qlsa	200	16	948.679	1037.76	2921.63	0	2921.63	3437.28	3437.28
31	3.99844	13621	-28.5262	Qlsa	200	16	941.661	1030.08	2894.84	0	2894.84	3406.68	3406.68
32	3.99844	13905.7	-28.5262	Qlsa	200	16	957.997	1047.95	2957.16	0	2957.16	3477.87	3477.87
33	3.99844	14645.7	-28.5262	Qlsa	200	16	1000.46	1094.4	3119.17	0	3119.17	3662.97	3662.97
34	3.99844	15523	-28.5262	Qlsa	200	16	1050.8	1149.47	3311.22	0	3311.22	3882.38	3882.38
35	3.99844	16520.7	-28.5262	Qlsa	200	16	1108.05	1212.1	3529.61	0	3529.61	4131.89	4131.89
36	3.99844	17520	-28.5262	Qlsa	200	16	1165.4	1274.83	3748.4	0	3748.4	4381.85	4381.85
37	3.99844	18519.4	-28.5262	Qlsa	200	16	1222.75	1337.57	3967.17	0	3967.17	4631.79	4631.79
38	3.99844	19518.7	-28.5262	Qlsa	200	16	1280.1	1400.3	4185.94	0	4185.94	4881.73	4881.73
39	3.99844	20402.1	-28.5262	Qlsa	200	16	1330.79	1455.75	4379.31	0	4379.31	5102.65	5102.65
40	3.99844	19554.7	-28.5262	Qlsa	200	16	1282.16	1402.56	4193.83	0	4193.83	4890.74	4890.74
41	3.99844	18173.2	-28.5262	Qlsa	200	16	1202.89	1315.84	3891.38	0	3891.38	4545.21	4545.21
42	3.99844	16724.1	-28.5262	Qlsa	200	16	1119.73	1224.87	3574.15	0	3574.15	4182.78	4182.78
43	3.77724	13386.5	25.693	Qlsa	200	16	1272.24	1391.7	4155.96	0	4155.96	3543.86	3543.86
44	3.77724	10707.5	25.693	Qlsa	200	16	1059.5	1158.99	3344.4	0	3344.4	2834.65	2834.65
45	3.77724	8961.92	25.693	Qlsa	200	16	920.88	1007.35	2815.56	0	2815.56	2372.51	2372.51
46	3.77724	7344.06	25.693	Qlsa	200	16	792.405	866.812	2325.45	0	2325.45	1944.21	1944.21
47	3.77724	5725.53	25.693	Qlsa	200	16	663.878	726.216	1835.13	0	1835.13	1515.73	1515.73
48	3.77724	4104.91	25.693	Qlsa	200	16	535.184	585.438	1344.18	0	1344.18	1086.69	1086.69
49	3.77724	2477.6	25.693	Qlsa	200	16	405.958	444.078	851.2	0	851.2	655.887	655.887
50	3.77724	826.966	25.693	Qlsa	200	16	274.881	300.692	351.156	0	351.156	218.907	218.907

Interslice Data

Global Minimum Query (janbu simplified) - Safety Factor: 1.0939

Slice Number	X coordinate [ft]	Y coordinate - Bottom [ft]	Interslice Normal Force [lbs]	Interslice Shear Force [lbs]	Interslice Force Angle [deg]
1	256.348	136.912	0	0	0
2	258.499	133.185	-192.094	0	0
3	262.421	131.053	-630.997	0	0
4	266.343	128.921	-1074.24	0	0
5	270.265	126.789	-1521.56	0	0
6	274.187	124.658	-1969.94	0	0
7	278.109	122.526	-2417.22	0	0
8	282.031	120.394	-2862.9	0	0
9	285.953	118.262	-3306.87	0	0
10	289.875	116.13	-3749.33	0	0
11	293.797	113.999	-4190.53	0	0
12	297.719	111.867	-4630.4	0	0
13	301.641	109.735	-5068.92	0	0
14	305.563	107.603	-5506.55	0	0
15	309.485	105.472	-5946.14	0	0
16	313.707	103.177	-6347.07	0	0
17	317.928	100.882	-6752.84	0	0
18	322.149	98.5878	-7163.35	0	0
19	326.371	96.2933	-7578.44	0	0
20	330.592	93.9987	-7998.13	0	0
21	334.814	91.7042	-8422.41	0	0
22	339.035	89.4096	-8851.3	0	0
23	343.034	87.2363	-7069.06	0	0
24	347.032	85.0629	-5055.64	0	0
25	351.031	82.8896	-2829.09	0	0
26	355.029	80.7162	-392.595	0	0
27	359.028	78.5429	2253.84	0	0
28	363.026	76.3696	5026.09	0	0
29	367.024	74.1962	7706.82	0	0
30	371.023	72.0229	10315.8	0	0
31	375.021	69.8495	12873	0	0
32	379.02	67.6762	15400.1	0	0
33	383.018	65.5029	17997.3	0	0
34	387.017	63.3295	20776.9	0	0
35	391.015	61.1562	23772.6	0	0
36	395.013	58.9828	27014.1	0	0
37	399.012	56.8095	30501.8	0	0
38	403.01	54.6362	34235.7	0	0
39	407.009	52.4628	38215.9	0	0
40	411.007	50.2895	42413.7	0	0
41	415.006	48.1161	46402.7	0	0
42	419.004	45.9428	50051.3	0	0
43	423.003	43.7694	53342.9	0	0
44	426.78	45.5867	40985.8	0	0
45	430.557	47.404	30907	0	0
46	434.334	49.2213	22312.6	0	0
47	438.112	51.0386	15094.1	0	0
48	441.889	52.8559	9252.02	0	0
49	445.666	54.6732	4788.15	0	0
50	449.443	56.4905	1708.19	0	0
51	453.22	58.3078	0	0	0

Entity Information

Post Construction (Static)

Shared Entities

Type	Coordinates (x,y)

External Boundary	-0.034, -51.57 481.948, -51.57 481.948, 51.02 481.092, 50.668 479.528, 49.325 477.429, 47.109 476.594, 46.94 472.787, 46.94 470.167, 48.713 466.047, 51.346 461.484, 53.889 453.048, 58.4 447.023, 61.57 439.33, 65.468 429.071, 70.648 427.925, 71.684 426.263, 73.347 423.155, 78.171 419.612, 83.214 417.372, 86.0814 414.46, 89.81 409.771, 95.998 387.534, 95.998 382.632, 96.522 379.342, 97.14 375.659, 99.106 369.256, 103.279 366.85, 104.94 363.692, 107.121 360.16, 109.836 345.093, 110.98 329.558, 111.369 318.013, 111.667 305.59, 111.667 301.824, 113.888 296.56, 117.613 293.834, 119.603 288.819, 123.064 282.768, 127.508 277.371, 131.651 274.236, 133.831 272.001, 135.385 270.338, 136.285 268.512, 136.912 235.814, 136.912 216.897, 136.912 170.541, 136.912 152.242, 136.034 115.177, 135.357 90.64, 133.981 5.939, 133.981 2.46278, 133.981 -0.034, 133.981 -0.034, 127.759 -0.034, 77.2138

Material Boundary	216.897, 136.912 231.788, 131.267 249.597, 124.883 265.497, 119.189 278.833, 114.214 292.682, 109.239 303.555, 106.008 308.203, 105.548 320.543, 104.812 340.017, 104.415 366.85, 104.94
Material Boundary	-0.034, 127.759 15.148, 126.322 33.03, 124.659 73.309, 121.354 123.545, 116.007 148.663, 112.911 164.711, 110.623 182.223, 108.127 215.081, 103.343 248.712, 98.418 284.524, 93.985 322.799, 90.537 343.062, 89.13 372.613, 87.582 417.372, 86.0814
Material Boundary	182.223, 108.127 189.473, 103.531 197.92, 99.055 208.991, 93.234 218.212, 88.455 229.182, 83.407 237.225, 79.672 250.316, 74.321 261.758, 69.98 278.651, 64.057 292.684, 59.716 310.834, 54.682 331.977, 49.973 348.179, 46.88 369.968, 43.787 384.232, 42.126 400.989, 40.787 414.283, 40.141 431.086, 40.141 448.489, 41.756 464.831, 44.018 473.417, 46.003 477.429, 47.109

Scenario-based Entities

Type	Coordinates (x,y)	Master Scenario
Block Search Window	92.1164, 47.2577 268.03, 47.2577 268.03, 133.286 92.1164, 133.286	
Block Search Window	389.318, 46.003 389.318, -17.65 473.417, -17.65 473.417, 46.003	

OWTS Reporting

FEFFER
GEOLOGICAL CONSULTING

July 1, 2020 File No. 1992-75

Weintraub Real Estate Group
P.O. Box 6528
Malibu, CA 90264

Subject: **OWTS SUPPORTING GEOLOGY REPORT**
25200-25300 Pacific Coast Highway, Malibu, CA 90265
APN: 4459-013-021, 4459-014-018

References: **PRELMINARY GEOTECHNICAL FEASIBILITY INVESTIGATION**
23000-25200 Pacific Coast Highway, Malibu, CA 90265
By: Feffer Geological Consulting, Dated May 21, 2018

GEOTECHNICAL REVIEW SHEET
25200 Pacific Coast Highway, Malibu, CA 90265
By: City of Malibu Dated August 27, 2018
Response By: Feffer Geological, Dated November 20, 2018

GEOTECHNICAL REVIEW SHEET
25200 Pacific Coast Highway, Malibu, CA 90265
By: City of Malibu, Dated January 14, 2019
Response By: Feffer Geological, Dated December 17, 2019

GEOTECHNICAL REVIEW SHEET
25200 Pacific Coast Highway, Malibu, CA 90265
By: City of Malibu, Dated January 30, 2020
Response By: Feffer Geological, Dated June 18, 2020

Dear Mr. Weintraub:

As requested, Feffer Geological Consultants is providing this supporting geology report to accompany the "*Infiltration Test Report For A Subsurface Drip Disposal System*" provided by EPD Consultants.

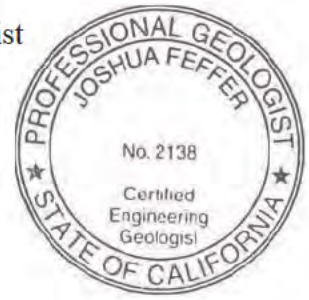
We appreciate the opportunity to be of service. Should you have any questions regarding the information contained in this report, please do not hesitate to contact us.

Sincerely,

FEFFER GEOLOGICAL CONSULTING, INC.

Joshua R. Feffer
Principal Engineering Geologist
C.E.G. 2138

Distribution: Addressee– (1)



INTRODUCTION

It is our understanding that a low-impact intermittently dosed Subsurface Wastewater Infiltration System (SWIS) is considered for use to protect surface water and ground water by limiting discharge into the underlying material and disposing of the wastewater to the atmosphere through evapotranspiration.

EPD Consultants was retained to test subsurface infiltration rates and provide recommendations for an intermittently dosed Subsurface Wastewater Infiltration System (SWIS). This report is provided to characterize the site geology utilizing United States Department of Agriculture (USDA) terminology and the soil texture triangle within the areas designated and tested by EPD Consultants.

SITE GEOLOGY

EPD Consultants tested the subsurface conditions by excavating eight hand-dug infiltration test pits on the subject property (ITP-1 through ITP-8) to a maximum depth of 6 feet below the existing ground surface. Each test pit was described and logged in detail by one of our field geologists on April 14, 2020. Bulk soil samples were collected and tested in the laboratory to accurately describe the encountered soils according to USDA terminology. Excavation logs and laboratory testing of select samples are provided in Appendix A.

The "Infiltration Test Plan" prepared by EPD is included which illustrates test pit locations (Appendix A). A brief description of the geologic materials encountered is included below.

Artificial Fill (Af)

The site is overlain by less than 1 foot of fill. The fill primarily consists of reworked alluvium and bedrock and was encountered in five of the eight infiltration test pits (ITP-1, 2, 4, 5, and 7). The fill typically consists of fine to medium grained silty sand with scattered gravels and bedrock fragments. The fill is poorly sorted, massive, slightly moist to dry.

Quaternary Older Alluvium (Qoa)

The older alluvium is part of wave cut terrace deposits that locally cap the bedrock on site. Older alluvium was encountered in five of the eight infiltration test pits (ITP-3, 5, 6, 7 and 8). The alluvium typically consists of fine to medium grained clayey sand and silty sand containing few fine scattered gravels. It was observed to be poorly sorted, massive to blocky, slightly moist, and brown to reddish brown in color.

Monterey Formation Bedrock (Tm)

Monterey formation is found at varying depths along the entire project site but is generally near the surface and crops out along the northern portion of the site. Weathered Monterey formation bedrock was encountered in six of the eight infiltration test pits (ITP-1, 2, 3, 4, 6, and 8). The weathered bedrock typically consists of fine-grained interbedded siltstone, sandstone, and claystone that is very weak to very hard. The bedrock was observed as moderately to very weathered and massive to bedded and platy with scattered gypsum infilled fractures. The color ranges from reddish brown to yellowish brown and is typically slightly moist to dry.

Groundwater

No groundwater was encountered within the infiltration test pits to the depth's explored. Based on previous work conducted by this firm, groundwater is anticipated to fluctuate between 40 to 50 feet below the existing ground surface. The annual average and seasonal high groundwaters levels are therefore estimated to be significantly deeper than the proposed SWIS depths. It is our opinion that the use of the proposed SWIS will have no impact on groundwater levels.

Slope Stability

The proposed SWIS will be designed such that effluent will be intermittently dosed over an entire 24-hour period to prevent hydraulic overloading. Given the low rates of infiltration (0.39 gallons per square foot per day) and the large dispersal area (5,100 square feet), no significant amount of effluent will permeate the subsurface. As such, it is our opinion that the use of the proposed SWIS will have no impact on the overall gross site stability.

USDA Classification

The following table identifies the observed soils based on the USDA soil classification from four representative test pits within the designated testing area. Results have been plotted on the USDA texture triangle based on the percent sand, clay, and silt derived from the laboratory testing (Appendix A).

USDA Soil Texture				
Test Pit	**Sand (%)**	**Clay (%)**	**Silt (%)**	**USDA Texture**
ITP-1	36.0	25.0	39.0	Loam
ITP-2	66.1	10.2	23.7	Sandy Loam
ITP-8	34.2	31.1	34.7	Clay Loam
ITP-5	50.8	16.3	32.9	Loam

CONCLUSIONS AND RECOMMENDATIONS

It is our opinion that the use of a SWIS will have very little to no impact on groundwater levels and gross site stability. The final OWTS design shall not exceed daily dosing rates recommended by EPD Consultants.

We do not recommend that effluent be directly infiltrated into the underlying bedrock below a depth of 10 feet from the existing ground surface to preserve site stability and natural groundwater levels. Should there be a change in the system design which would result in the excessive discharge of water into the underlying materials, updated design plans shall be sent to this office to evaluate the effects effluent may have on groundwater levels and site stability.

Additionally, should irrigation be considered for landscape maintenance, an irrigation/watering plan and system should be prepared, designed, and implemented accordingly by the appropriate consultant. Surface irrigation rates should not exceed daily infiltrations rates recommended by EPD Consultants, OR the acceptable rates determined by the appropriate consultant to prevent excessive infiltration into the underlying material. The irrigation system should be designed to incorporate an emergency shut-off to prevent excessive watering in the event of a system failure. The final system should be monitored annually for leaks, breaks, cracks, or other conditions which might inadvertently discharge water at a greater rate than prescribed. If a system malfunction is detected corrective actions should be taken immediately by the owner as determined by the appropriate consultant.

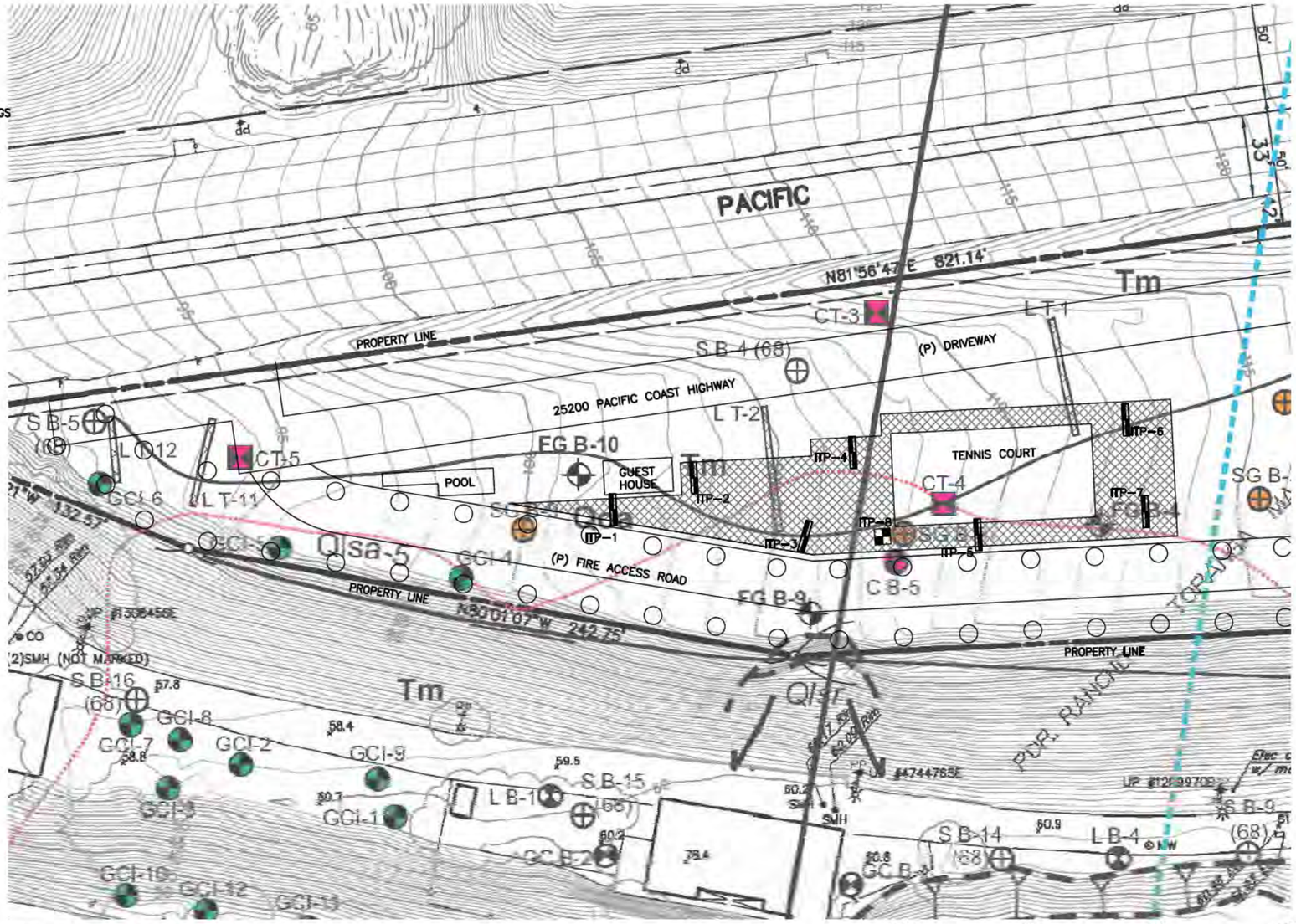
APPENDIX 'A'

KEY:

- BUILDING
- DRIVEWAY
- GEOFLOW
- INFILTRATION TEST PIT (ITP–X) 1–FT BGS (ENLARGED FOR REFERENCE)
- RYON'S TEST PIT (ITP–X) 6–FT BGS (ENLARGED FOR REFERENCE)
- LIMITS OF (P) GEOFLOW SDI DISPERSAL SYSTEM

ABBREVIATIONS:

(E)	EXISTING
EG	EXISTING GRADE
FF	FINISHED FLOOR
FG	FINISHED GRADE
ETA	EVAPOTRANSPIRATION ABSORPTION
FS	FINISHED SURFACE
ITP	INFILTRATION TEST PIT
MMC	MALIBU MUNICIPAL CODE
MPC	MALIBU PLUMBING CODE
OWS	ONSITE WASTEWATER SYSTEM
(P)	PROPOSED
SDI	SUBSURFACE DRIP IRRIGATION
SFR	SINGLE FAMILY RESIDENCE
SS	SANITARY SEWER
VIF	VERIFY IN FIELD



1 INFILTRATION TEST PLAN

Scale: 1"=50'

GRAPHIC SCALE: 1"=50'

NOTES:

1. THIS PLAN IS ACCURATE FOR INFILTRATION TESTING ONLY. GEOLOGIC MAP PROVIDED BY FEFFER GEOLOGICAL CONSULTING, DATED DECEMBER 17, 2019.
2. THE PROJECT GEOLOGIST SHALL LOG ALL TEST PITS AND PROVIDE SOIL TEXTURE & STRUCTURE DATA, PER USDA.
3. SUBSURFACE DRIP DISPERSAL FIELD (DISPOSAL FIELD) SHALL BE SITUATED SUCH THAT THE PERIMETER OF THE FULLY DEVELOPED DISPOSAL FIELD IS A MINIMUM OF:
   A. 5–FT FROM PROPERTY LINE ABUTTING PRIVATE PROPERTY;
   B. 8–FT FROM BUILDINGS OR STRUCTURES;
   C. 100–FT FROM THE EDGE OF ANY BODY OF WATER;
   D. 100–FT FROM ANY WATER SUPPLY WELL (UNLESS WELL IS TO BE ABANDONED PER UPC);
   E. 5–FT FROM THE EDGE OF SEEPAGE PITS;
   F. 5–FT FROM SEPTIC TANK & 4–FT (MIN) FROM OTHER DISPOSAL FIELDS;
   G. 10–FT FROM PRESSURE PUBLIC WATER MAIN;
   H. 5–FT FROM DISTRIBUTION BOX;
   I. 15–FT MINIMUM HORIZONTAL DISTANCE TO GROUND SURFACE; AND
   J. 5–FT FROM ON SITE DOMESTIC WATER SERVICE LINE.

   SETBACKS LISTED HERE ARE MINIMUM VALUES ONLY – CONSULT MPC FOR ADDITIONAL DETAILS AND CLARIFICATIONS REGARDING REQUIRED SETBACKS FOR DISPOSAL FIELDS.
4. SETBACKS ARE FROM EDGE OF FULLY DEVELOPED DISPOSAL FIELD.
5. PRIOR TO COMMENCEMENT OF EXCAVATION, AN EXCAVATION PERMIT SHALL BE OBTAINED BY OTHERS.

DIGALERT

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811
AT LEAST TWO DAYS
BEFORE YOU DIG
UNDERGROUND SERVICE ALERT (USA)
OF SOUTHERN CALIFORNIA

PRELIMINARY - NOT FOR CONSTRUCTION

EPD consultants
sustainable water systems & solutions
20722 MAIN STREET
CARSON, CA 90745
Phone (310) 241-6565
Fax (310) 241-6566

REGISTERED PROFESSIONAL ENGINEER
KEVIN L. POFFENBARGER
Exp 06-30-20
No. 69089
CIVIL
STATE OF CALIFORNIA

▽NO.	REVISIONS:	DATE:	BY:

ADDRESS:

25200 PACIFIC COAST HIGHWAY
MALIBU, CA 90265

SHEET TITLE:
INFILTRATION TEST PLAN

PROJECT:
25200 PACIFIC COAST HIGHWAY

DATE	SCALE	DRAWN BY
4/28/20	AS SHOWN	LJ

PROJECT NO.
D634

DRAWING NO.
W1.00

SHEET 1 OF 1 SHEETS

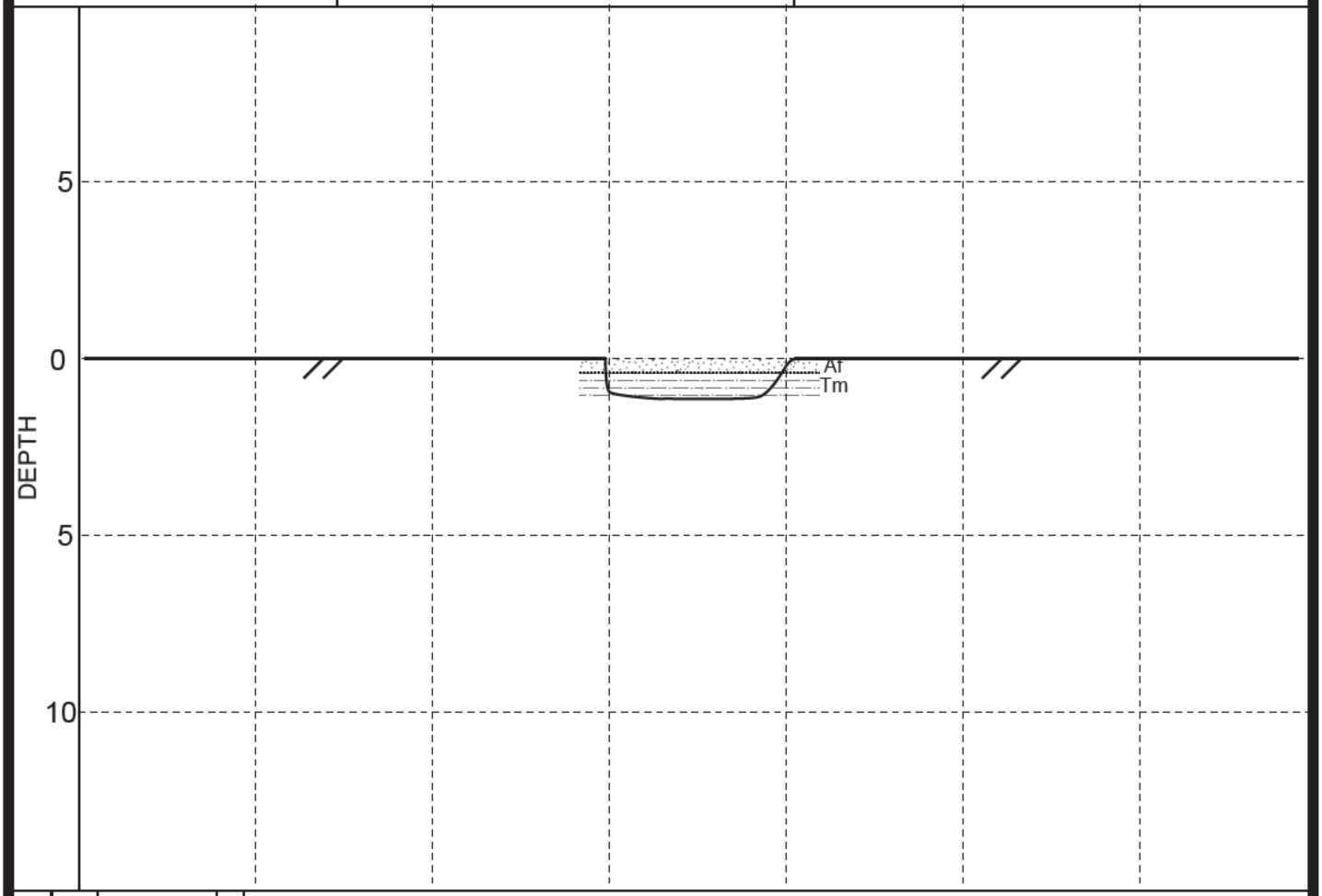
GRAPHIC LOG

APPROXIMATE SCALE : 1"=5'

DATE LOGGED : 4/14/20 BY : AG

TEST EXCAVATION : ITP-1

ADDRESS: 25200 Pacific Coast Highway



RING	BULK	SAMPLE DEPTH	Blows	LOCATION : See Site Map DESCRIPTION: Classification (USCS), color, moisture, consistency etc.
	■	1		**0-0.4' Fill (Af):** Fine to medium grained silty sand with scattered gravels, poorly sorted, slightly moist to dry, abundant rootlets **0.4' - 1.2' Weathered Monterey Formation (Tm):** Fine grained silty sandstone/ claystone, weak to friable, moderately fractured with scattered gypsum filled veins, reddish brown (7.5 YR 3/3, 3/4), blocky
		2		
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FEFFER GEO CONSULTING | F.N. 1992-75

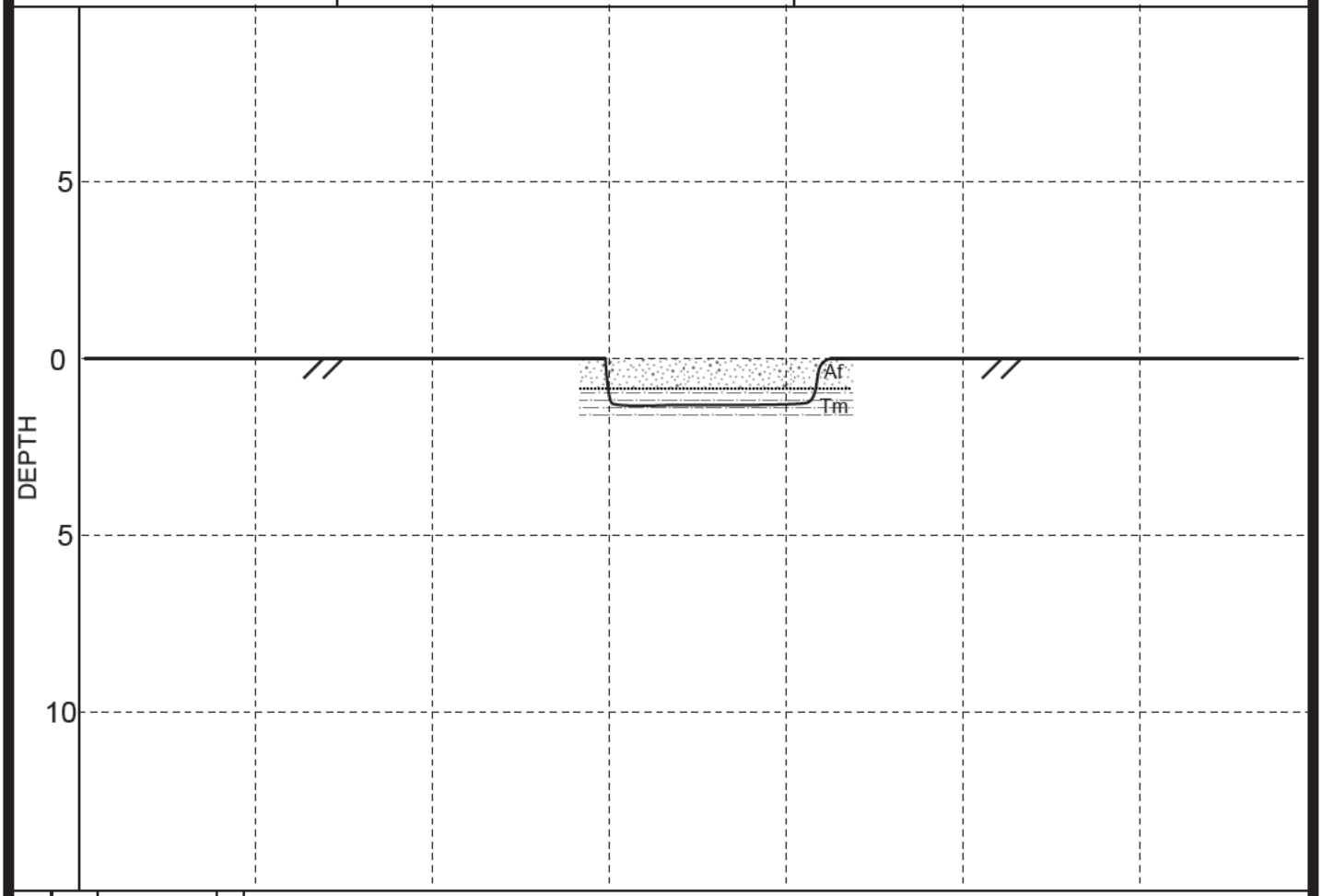
GRAPHIC LOG

APPROXIMATE SCALE : 1"=5'

DATE LOGGED : 4/14/20 BY : AG

TEST EXCAVATION : ITP-2

ADDRESS: 25200 Pacific Coast Highway



RING	BULK	SAMPLE DEPTH	Blows	LOCATION : See Site Map DESCRIPTION: Classification (USCS), color, moisture, consistency etc.
		1		**0-0.8' Fill (Af):** Fine to medium grained silty sand with scattered gravels, poorly sorted, slightly moist to dry, abundant rootlets **0.8' - 1.3' Weathered Monterey Formation (Tm):** Very fine grained silty sandstone, weak, massive, very weathered, abundant oxidation staining, yellowish brown (10 YR 5/8), blocky
		2		
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		14		

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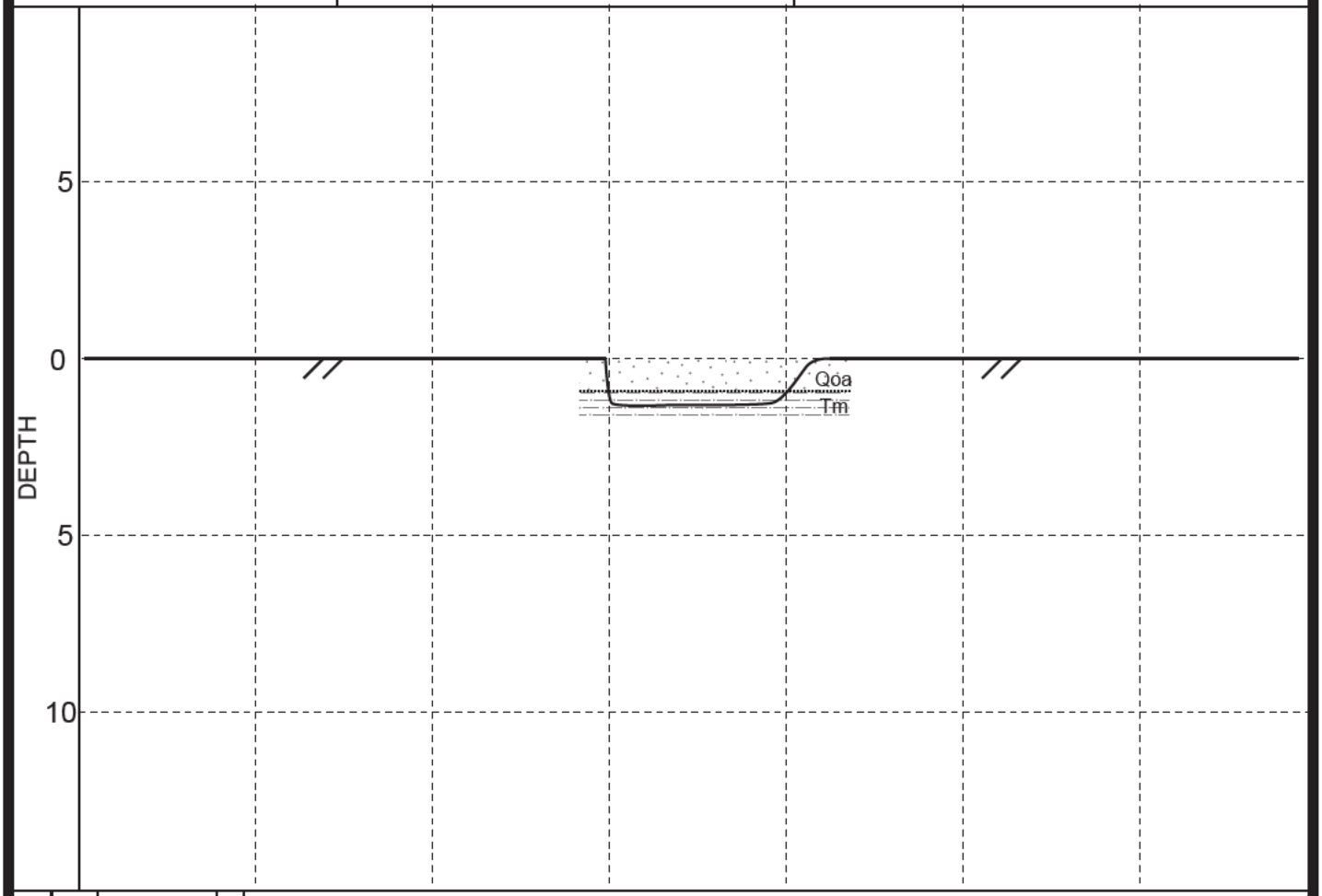
GRAPHIC LOG

APPROXIMATE SCALE : 1"=5'

DATE LOGGED : 4/14/20 BY : AG

TEST EXCAVATION : ITP-3

ADDRESS: 25200 Pacific Coast Highway



RING	BULK	SAMPLE DEPTH	Blows	LOCATION : See Site Map DESCRIPTION: Classification (USCS), color, moisture, consistency etc.
		1 2 3 4 5 6 7 8 9 10 11 12 13 14		**0-0.9' Alluvium (Qoa):** Fine to medium grained clayey sand with silt (terrace), few scattered gravels, poorly sorted, massive to blocky, slightly moist, reddish brown (7.5 YR 2.5/3, 3/3) **0.9' - 1.3' Weathered Monterey Formation (Tm):** Fine grained siltstone/ claystone, scattered gypsum infilled veins/fractures, weak, massive, moderately, weathered, reddish brown (5 YR 3/4), blocky to massive

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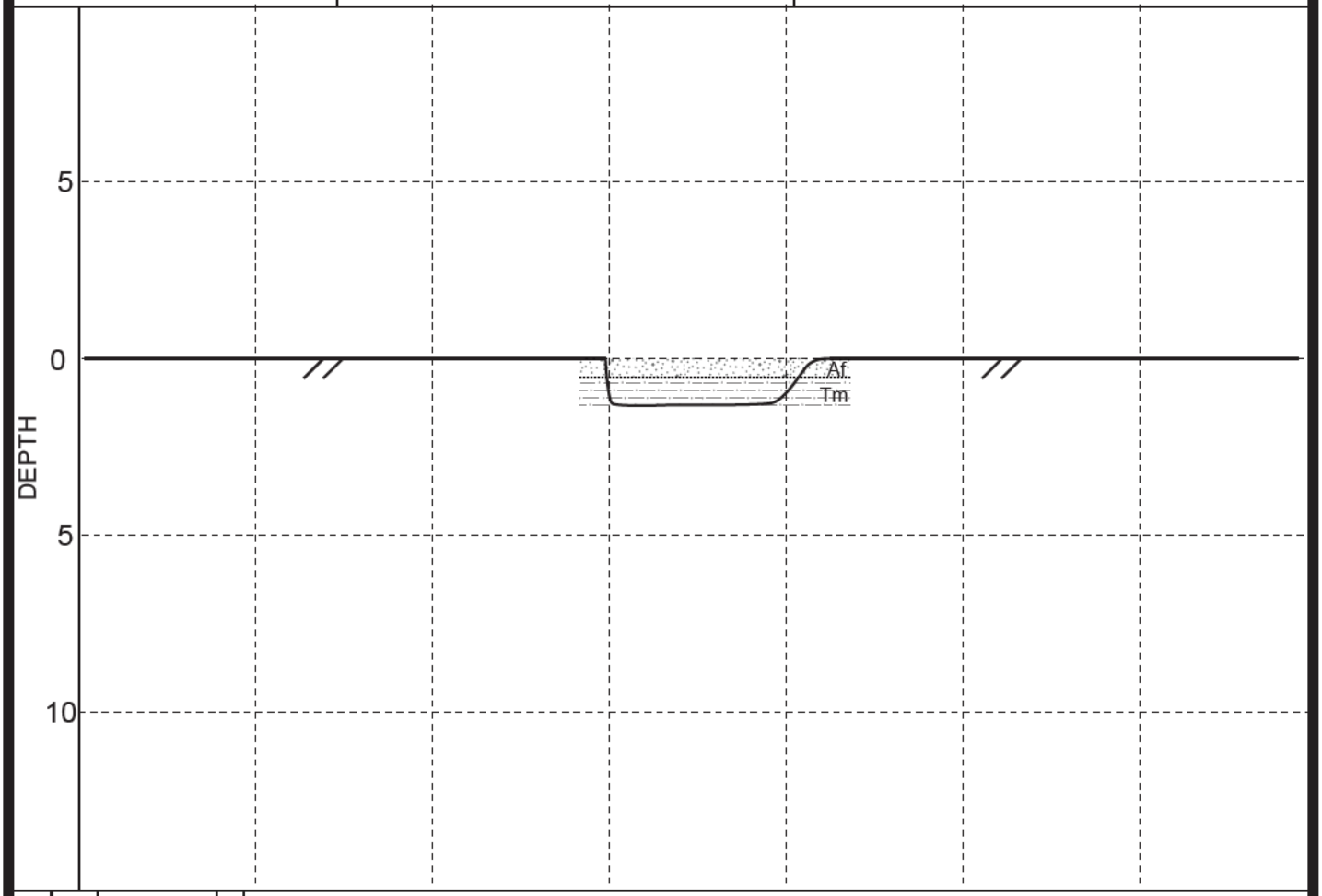
GRAPHIC LOG

APPROXIMATE SCALE : 1"=5'

DATE LOGGED : 4/14/20 BY : AG

TEST EXCAVATION : ITP-4

ADDRESS: 25200 Pacific Coast Highway



RING	BULK	SAMPLE DEPTH	Blows	LOCATION : See Site Map DESCRIPTION: Classification (USCS), color, moisture, consistency etc.
		1 2 3 4 5 6 7 8 9 10 11 12 13 14		**0-0.4' Fill (Af):** Fine to medium grained silty sand with scattered gravels, poorly sorted, slightly moist to dry, abundant rootlets **0.4' - 1.3' Weathered Monterey Formation (Tm):** Fine grained siltstone/ claystone, scattered gypsum infilled veins/fractures, weak, massive, moderately, weathered, reddish brown (5 YR 3/4), blocky to massive

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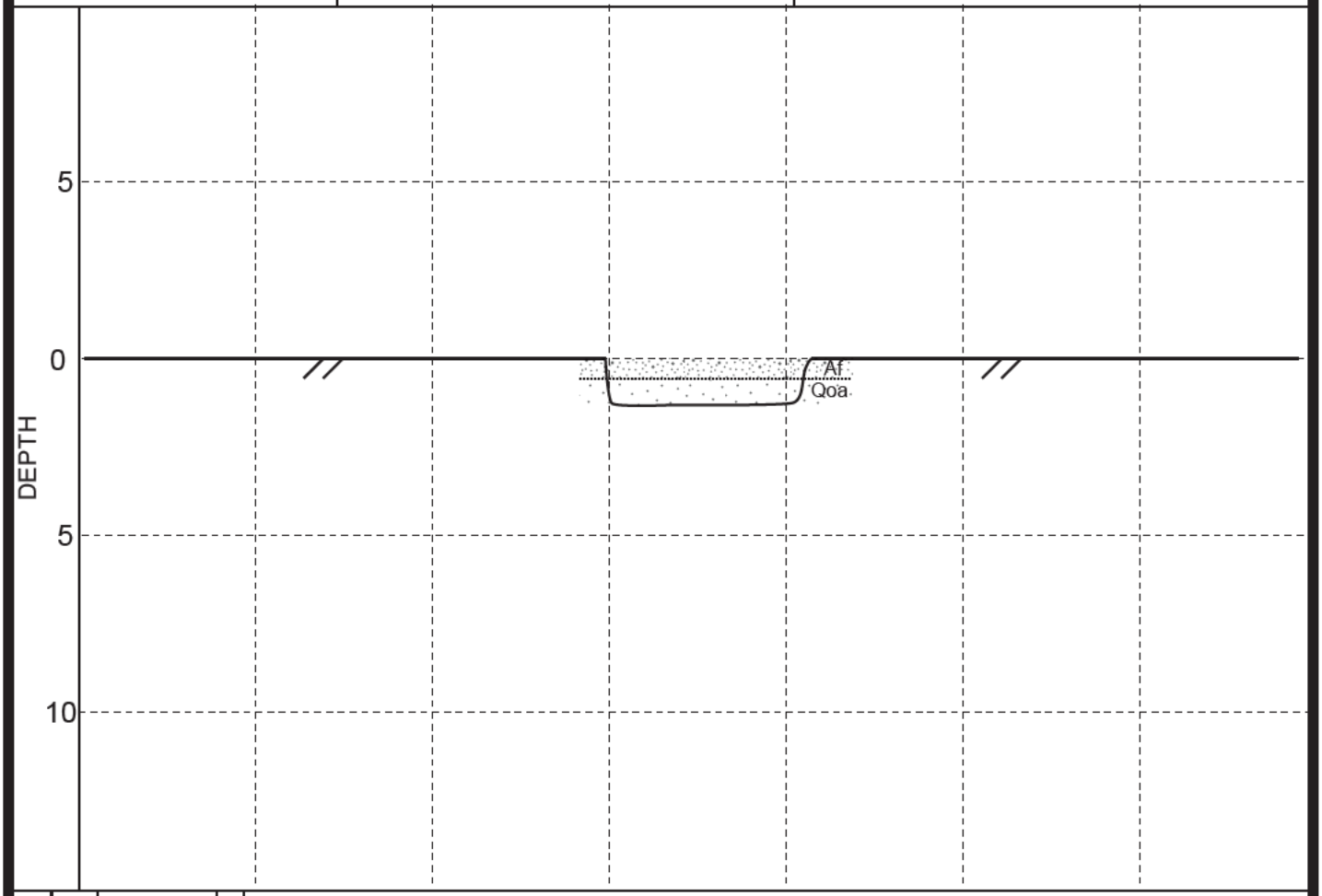
GRAPHIC LOG

APPROXIMATE SCALE : 1"=5'

DATE LOGGED : 4/14/20 BY : AG

TEST EXCAVATION : ITP-5

ADDRESS: 25200 Pacific Coast Highway



RING	BULK	SAMPLE DEPTH	Blows	LOCATION : See Site Map DESCRIPTION: Classification (USCS), color, moisture, consistency etc.
	■	1		**0-0.5' Fill (Af):** Fine to medium grained silty sand with scattered gravels, poorly sorted, slightly moist to dry, abundant rootlets **0.5-1.3' Alluvium (Qoa):** Fine to medium grained silty sand with clayey (terrace) few fine gravels, well sorted, weak to moderately hard, massive to blocky, slightly moist, brown (7.5 YR 4/4)
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F.N. 1992-75

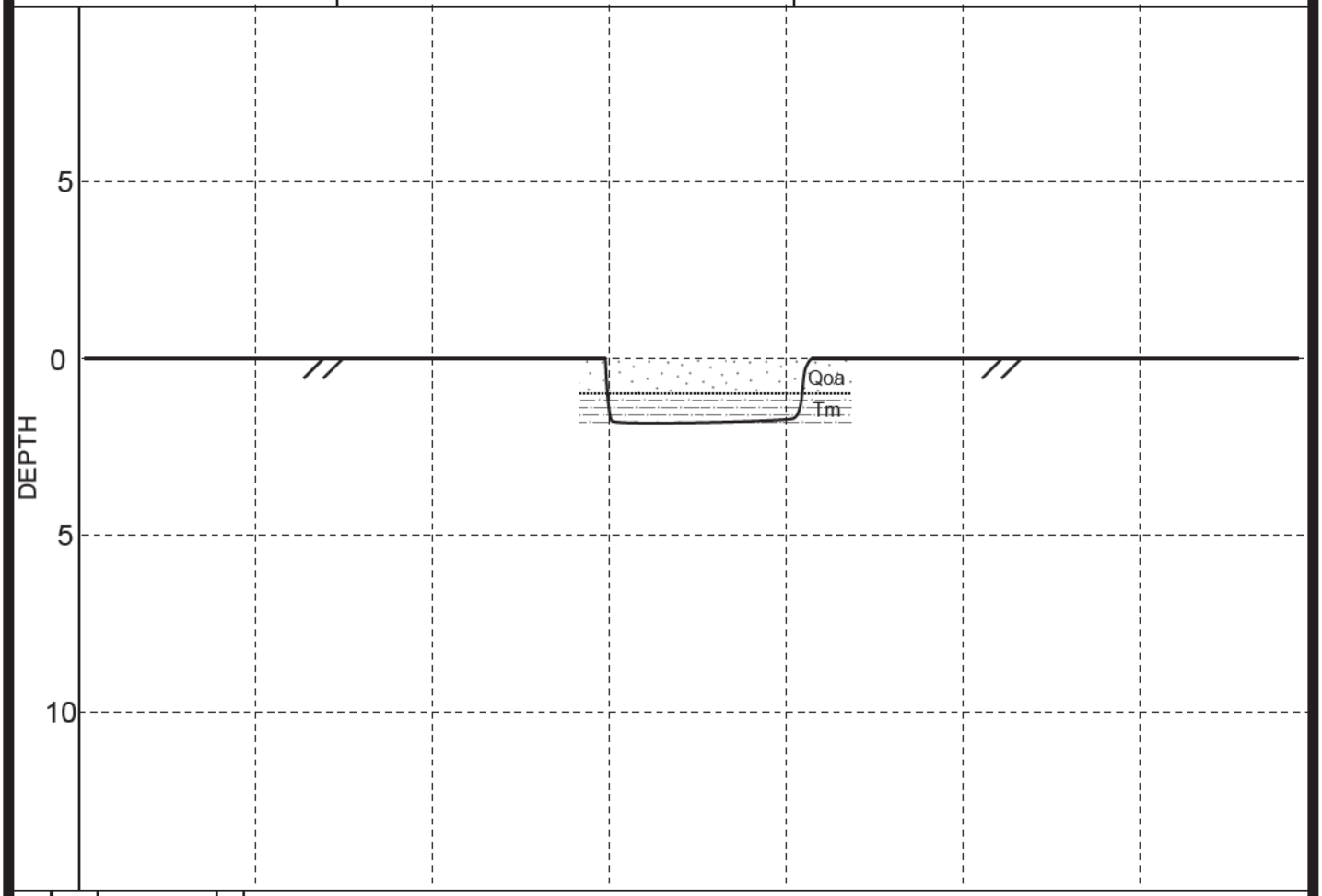
GRAPHIC LOG

APPROXIMATE SCALE : 1"=5'

DATE LOGGED : 4/14/20 BY : AG

TEST EXCAVATION : ITP-6

ADDRESS: 25200 Pacific Coast Highway



RING	BULK	SAMPLE DEPTH	Blows	LOCATION : See Site Map DESCRIPTION: Classification (USCS), color, moisture, consistency etc.
		1 2 3 4 5 6 7 8 9 10 11 12 13 14		**0-1.0' Alluvium (Qoa):** Fine to medium grained clayey sand with silt (terrace), few scattered gravels, poorly sorted, massive to blocky, slightly moist, reddish brown (7.5 YR 2.5/3, 3/3) **1.0' - 1.9' Weathered Monterey Formation (Tm):** Fine grained siltstone, scattered gypsum infilled veins/fractures, very weak, moderately, weathered, reddish brown (5 YR 3/4), platy

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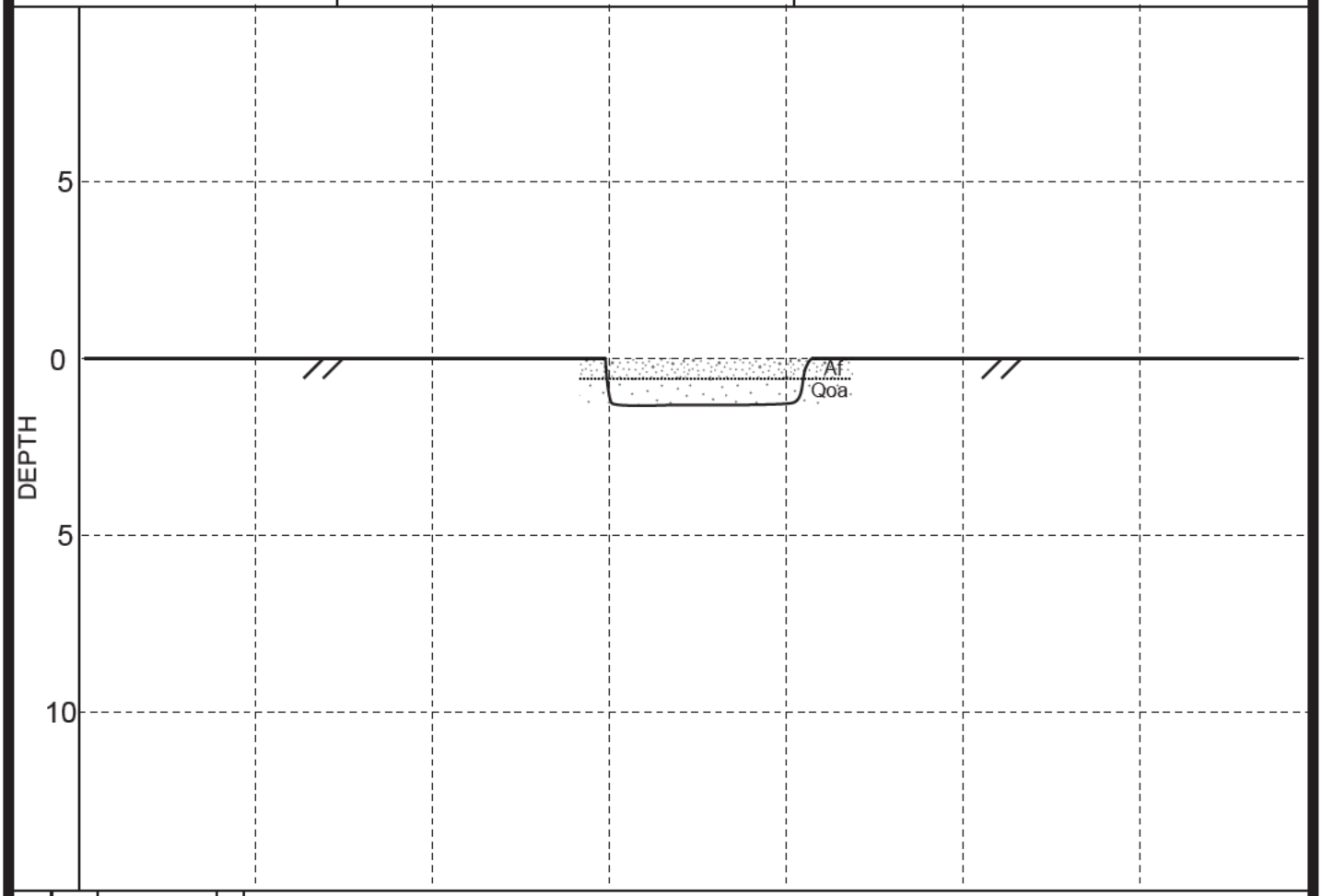
GRAPHIC LOG

APPROXIMATE SCALE : 1"=5'

DATE LOGGED : 4/14/20 BY : AG

TEST EXCAVATION : ITP-7

ADDRESS: 25200 Pacific Coast Highway



RING	BULK	SAMPLE DEPTH	Blows	LOCATION : See Site Map DESCRIPTION: Classification (USCS), color, moisture, consistency etc.
	■	1		**0-0.5' Fill (Af):** Fine to medium grained silty sand with scattered gravels, poorly sorted, slightly moist to dry, abundant rootlets **0.5-1.3' Alluvium (Qoa):** Fine to medium grained silty sand with clayey (terrace) few fine gravels, well sorted, weak to moderately hard, massive to blocky, slightly moist, brown (7.5 YR 4/4)
		2		
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FEFFER GEO CONSULTING | F.N. 1992-75

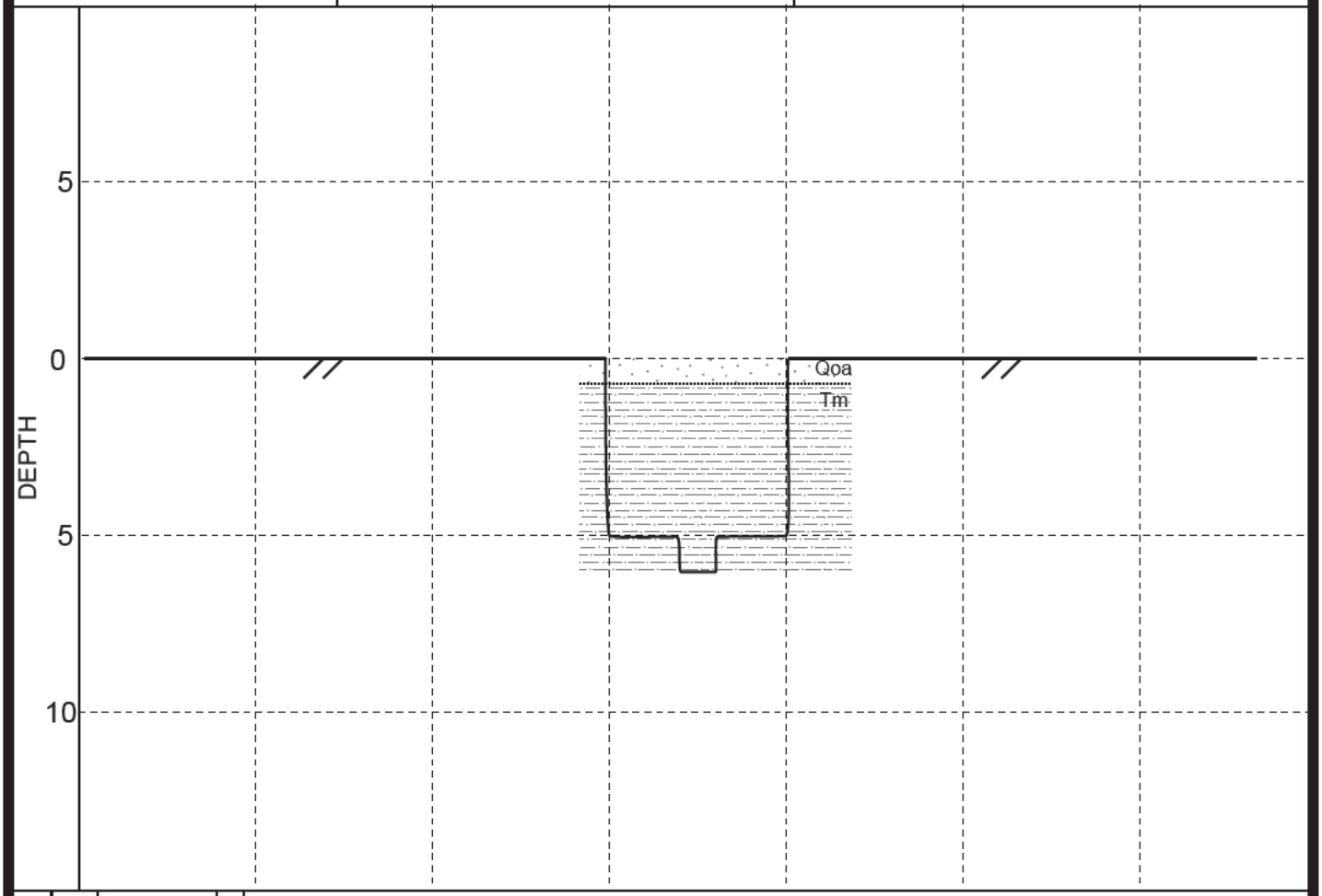
GRAPHIC LOG

APPROXIMATE SCALE : 1"=5'

DATE LOGGED : 4/14/20 BY : AG

TEST EXCAVATION : ITP-8

ADDRESS: 25200 Pacific Coast Highway



RING	BULK	SAMPLE DEPTH	Blows
		1	
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		3	
		4	
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		6	
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		11	
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		13	
		14	

LOCATION : See Site Map

DESCRIPTION: Classification (USCS), color, moisture, consistency etc.

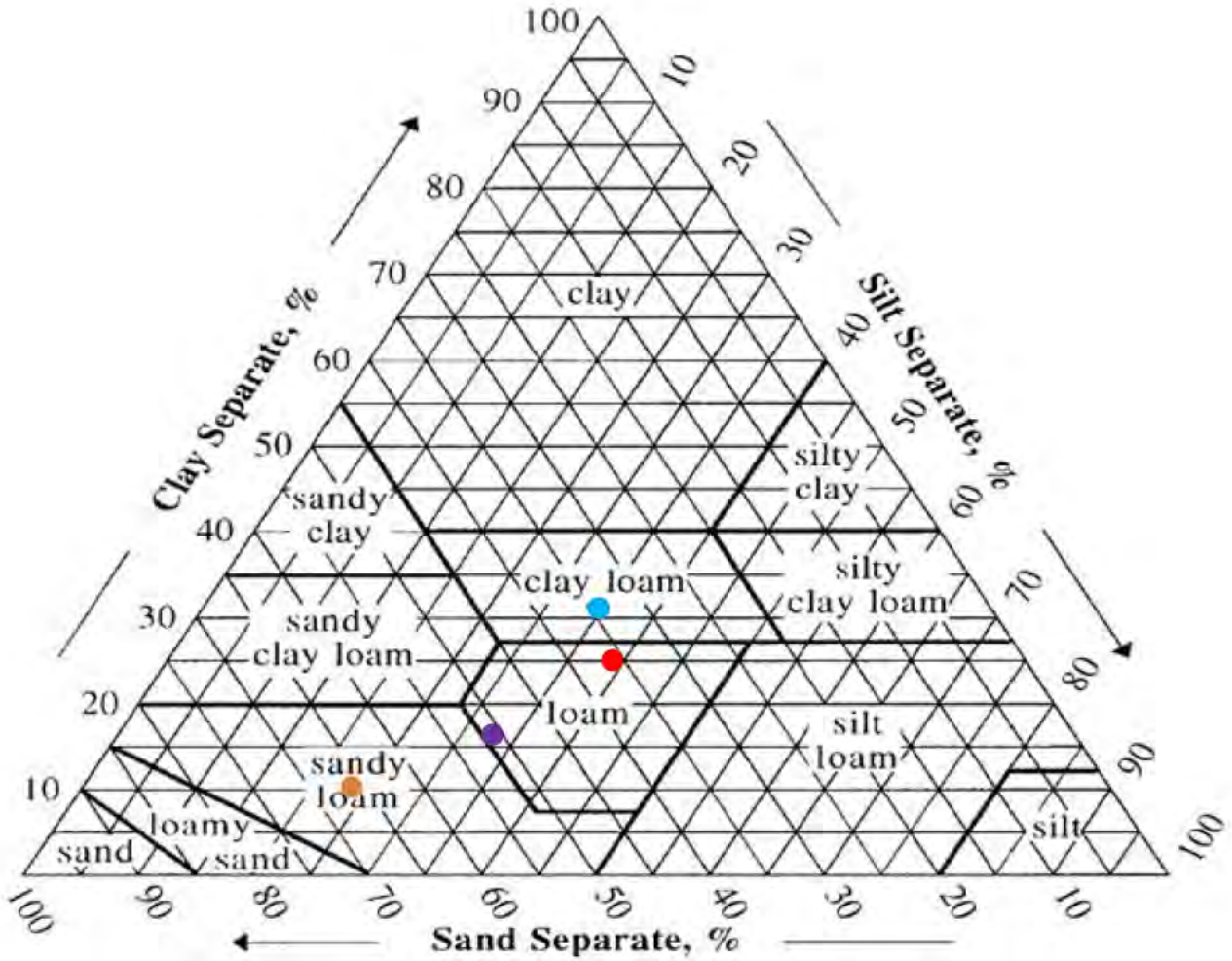
0-0.7' Alluvium (Qoa): Fine to medium grained clayey sand with silt (terrace), few scattered gravels, poorly sorted, massive to blocky, slightly moist, reddish brown (7.5 YR 2.5/3, 3/3)

0.7' - 6' Weathered Monterey Formation (Tm): Fine grained siltstone/ sandstone, bedded, beds ~1' thick, hard to very hard, platy, dry, moderately, weathered, reddish brown (7.5 YR 8/1) , (7.5 YR 6/8) on weathered surfaces, Bedding: N 71° E, 23° N, N 20° E, 18° NW

FEFFER GEO CONSULTING

F.N. 1992-75

Soil Texture Triangle



USDA Soil Texture				
Test Pit	**Sand (%)**	**Clay (%)**	**Silt (%)**	**USDA Texture**
ITP-1	36.0	25.0	39.0	Loam
ITP-2	66.1	10.2	23.7	Sandy Loam
ITP-8	34.2	31.1	34.7	Clay Loam
ITP-5	50.8	16.3	32.9	Loam

SL17.2654
June 30, 2020

Feffer Geological Consulting
1990 S. Bundy Drive
4th Floor
Los Angeles, California 90025

Attn: Joshua R. Feffer

Subject: Laboratory Testing

Site: 25200 Pacific Coast Highway
Malibu, California

Job: FEFFER/COLOREA – 1992-75

Reference: Laboratory Testing, Soil Labworks, LLC., December 27, 2017 and June 28, 2019

Laboratory testing for the subject property was performed by Soil Labworks, LLC., under the supervision of the undersigned Engineer. Previous work is presented in the referenced report. Samples of the earth materials were obtained from the subject property by personnel of Feffer Geological and transported to the laboratory of Soil Labworks for testing and analysis. The laboratory tests performed are described and results are attached.

Services performed by this facility for the subject property were conducted in a manner consistent with that level of care and skill ordinarily exercised by members of the profession currently practicing in the same locality under similar conditions.

Respectfully Submitted:

SOIL LABWORKS, LLC

REGISTERED PROFESSIONAL ENGINEER
JON ALAN IRVINE
GE 2891
Exp. 6-30-22
GEOTECHNICAL
STATE OF CALIFORNIA

JON A. IRVINE
G.E. 2891

Enc: Appendix

2500 Townsgate Road, Suite E, Westlake Village, California 91361
(805) 370-1338 FAX (805) 371-4693

APPENDIX

Laboratory Testing

Sample Retrieval - Hand Labor

Bulk bags sample of earth materials was obtained from a stockpile on site for transportation to the laboratory.

Grain Size Distribution

The grain size distribution of selected soil samples was determined using sieves and a hydrometer in conformance with the moist recent version of ASTM D4221-18. The distribution of soil particle size is shown on the Grain Size Distribution charts. The test results are also presented on the table below.

Test No.	Sample Depth (Ft)	Soil Type	Sand (%)	Silt (%)	Clay (%)
1TP-1	0.5-1.5	Weathered Bedrock	36.0	39.0	25.0
1TP-2	1-1.5	Bedrock	66.1	23.7	10.2
1TP-8	1-5	Bedrock	34.2	34.7	31.1
1TP-5	0.5-1.5	Alluvium	50.8	32.9	16.3

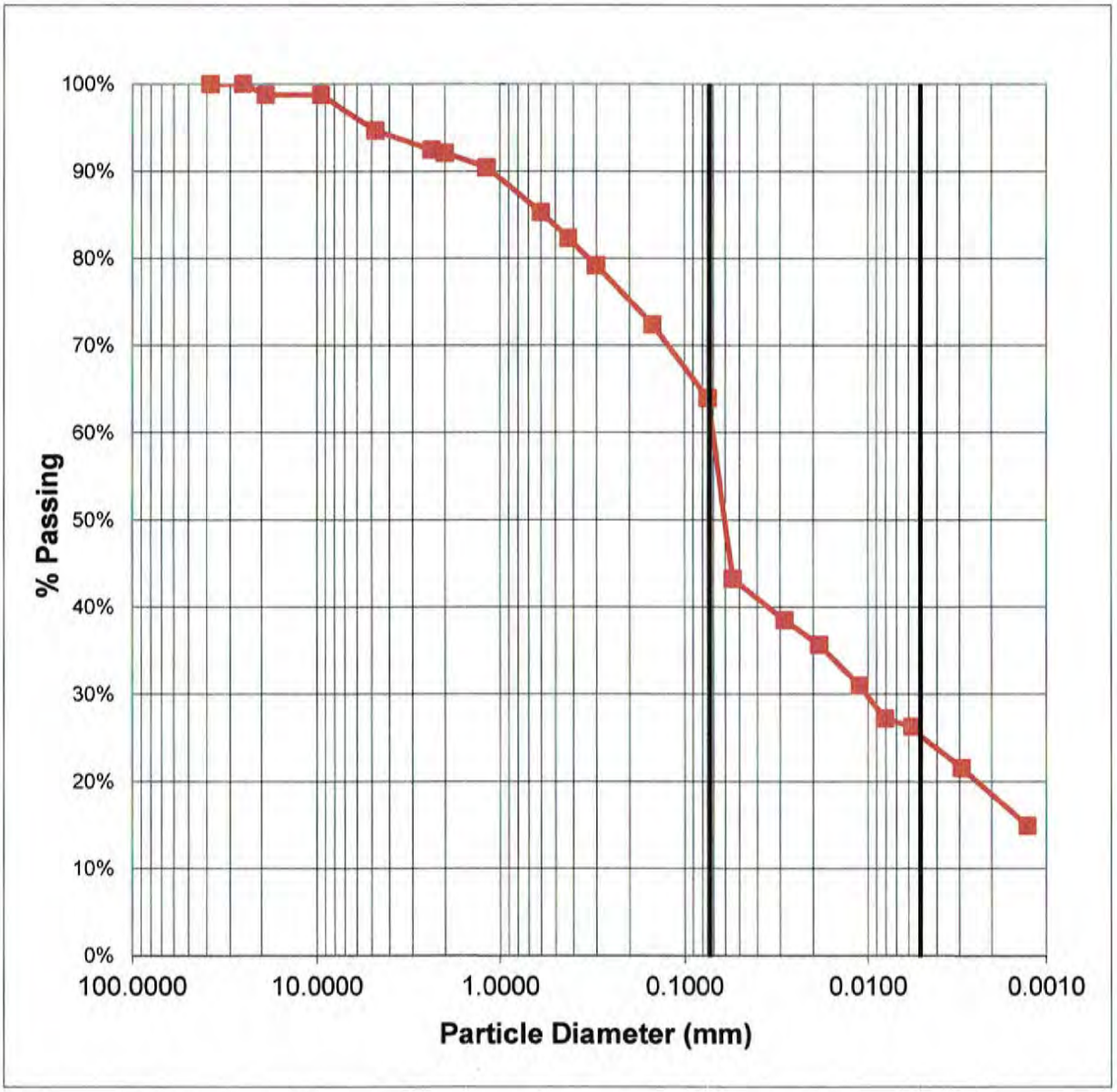
SOIL LABWORKS LLC

GRAIN SIZE ANALYSIS GRAPH

Job#: **SL17.2654** CONSULT: **JAI**
CLIENT: **Feffer/Colorea-25200 Pacific Coast Hwy**

GRAPH # **1**

Sample Location:	1TP-1	Percent Sand (%)	36.0%
Sample Depth (feet)	0.5-1.5	Percent Clay (%)	25.0%
Specific Gravity:	2.65	Percent Silt (%)	39.0%
Soil Classification:	LOAM		



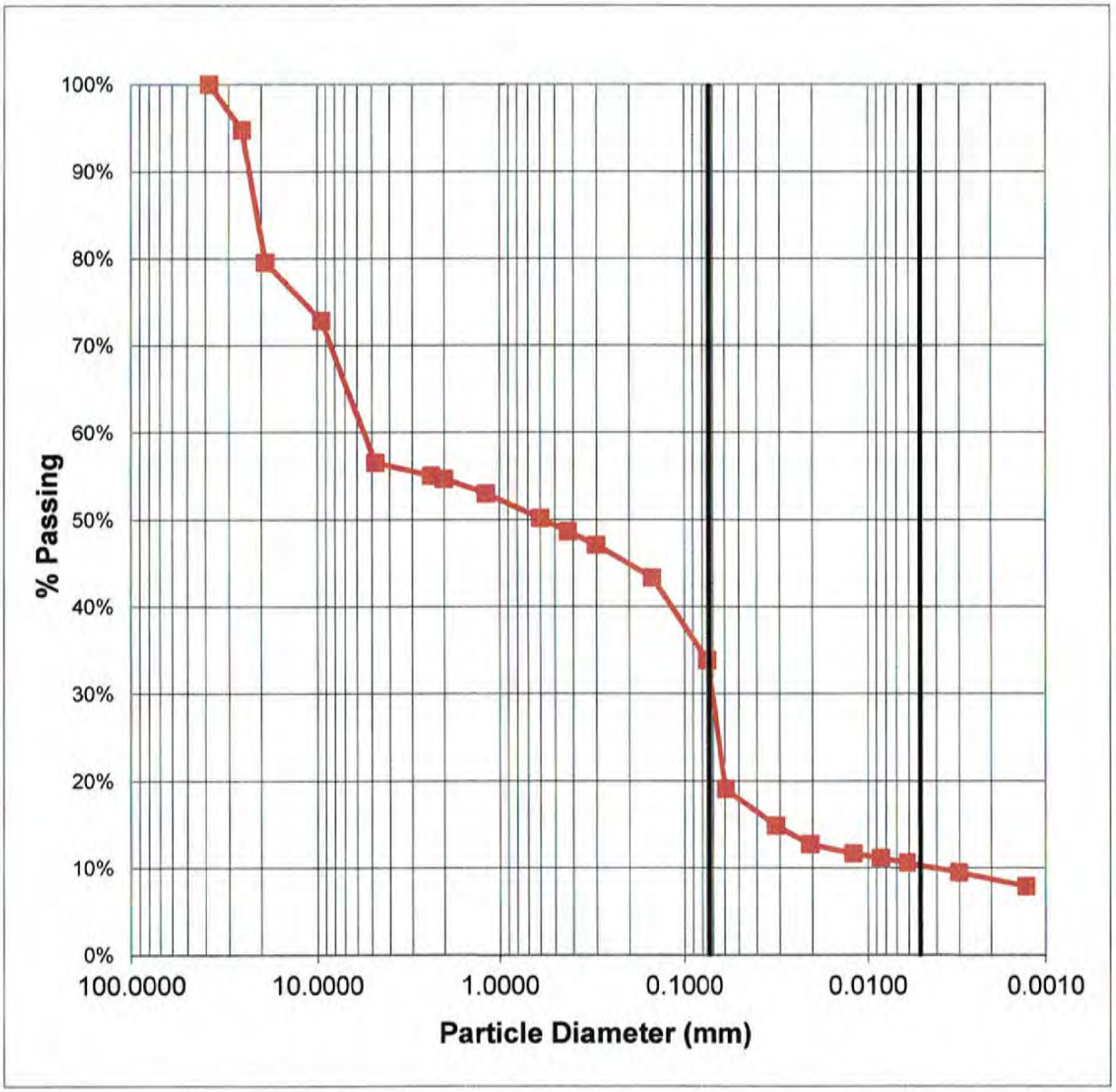
SOIL LABWORKS LLC

GRAIN SIZE ANALYSIS GRAPH

Job#: **SL17.2654** CONSULT: **JAI**
CLIENT: **Feffer/Colorea-25200 Pacific Coast Hwy**

GRAPH # **2**

Sample Location:	1TP-2	Percent Sand (%)	66.1%
Sample Depth (feet)	1-1.5	Percent Clay (%)	10.2%
Specific Gravity:	2.65	Percent Silt (%)	23.7%
Soil Classification:	SANDY LOAM		



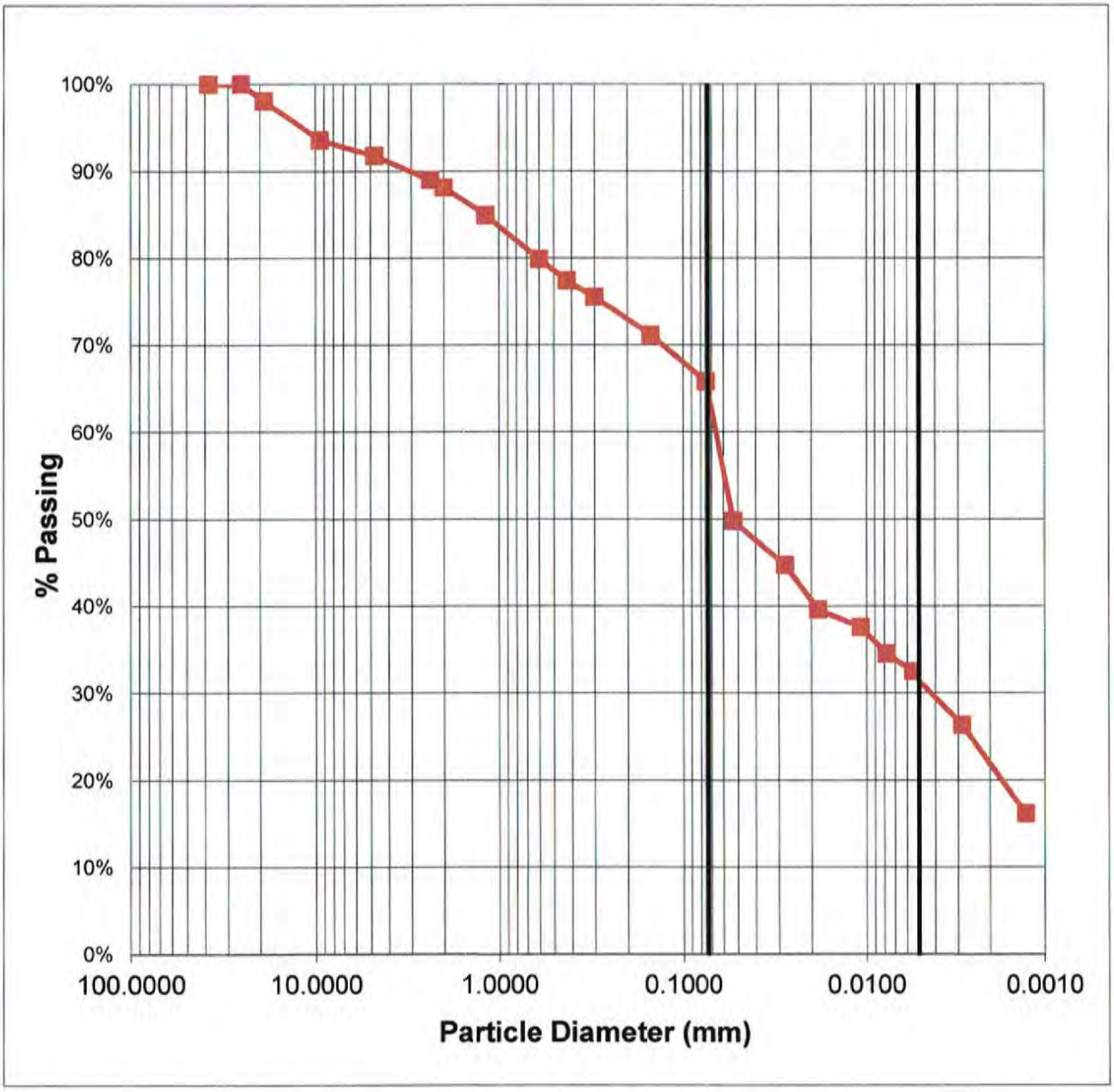
SOIL LABWORKS LLC

GRAIN SIZE ANALYSIS GRAPH

Job#: **SL17.2654** CONSULT: **JAI**
CLIENT: **Feffer/Colorea-25200 Pacific Coast Hwy**

GRAPH # **3**

Sample Location:	1TP-8	Percent Sand (%)	34.2%
Sample Depth (feet)	1-5'	Percent Clay (%)	31.1%
Specific Gravity:	2.65	Percent Silt (%)	34.7%
Soil Classification:	CLAY LOAM		



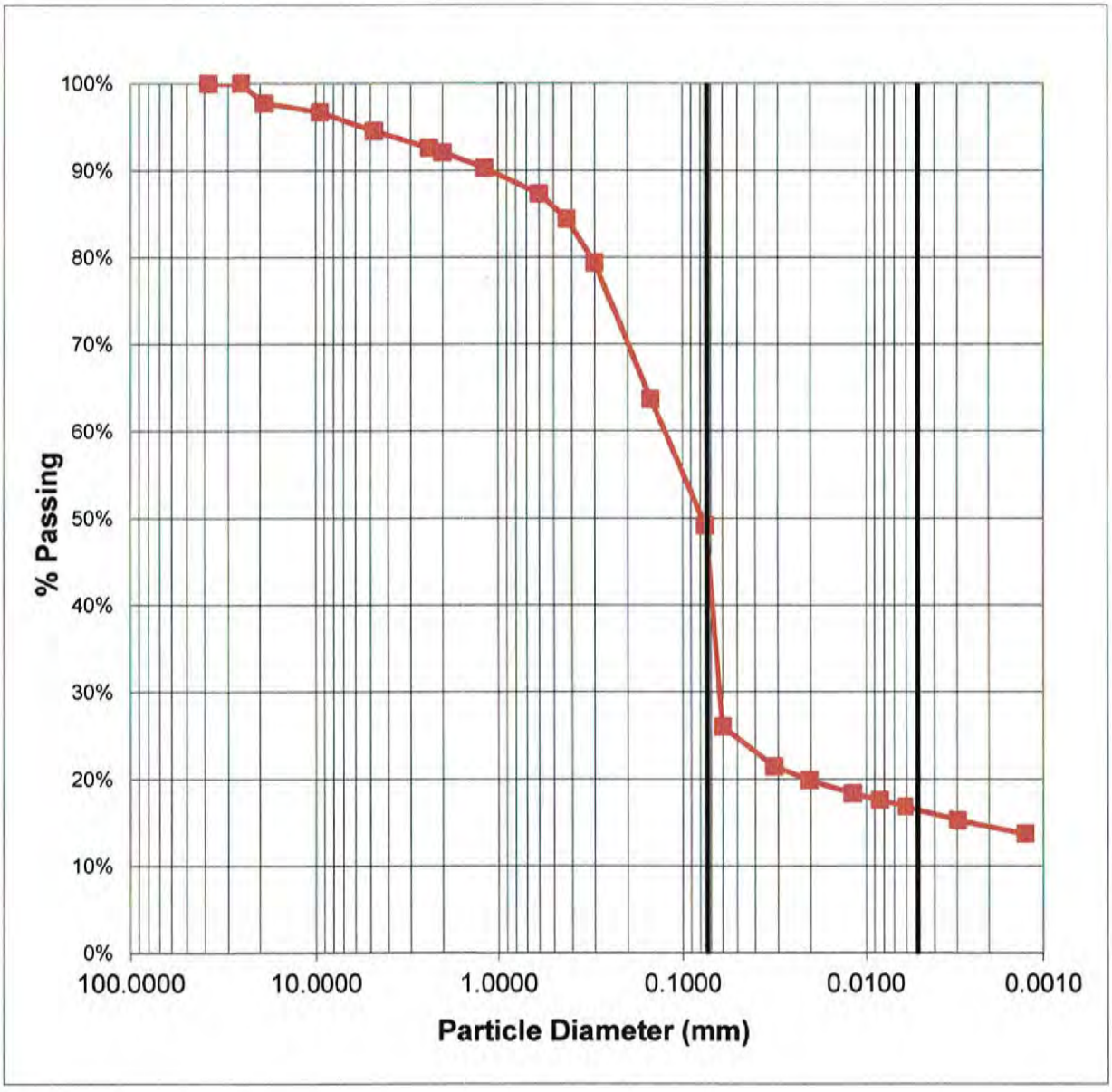
SOIL LABWORKS LLC

GRAIN SIZE ANALYSIS GRAPH

Job#: **SL17.2654** CONSULT: **JAI**
CLIENT: **Feffer/Colorea-25200 Pacific Coast Hwy**

GRAPH # **4**

Sample Location:	1TP-5	Percent Sand (%)	50.8%
Sample Depth (feet)	0.5-1.5	Percent Clay (%)	16.3%
Specific Gravity:	2.65	Percent Silt (%)	32.9%
Soil Classification:	LOAM		



City of Malibu

23825 Stuart Ranch Road · Malibu, California · 90265-4861
Phone (310) 456-2489 · Fax (310) 456-3356 · www.malibucity.org

ELECTRONIC ENVIRONMENTAL HEALTH SUBMITTAL SIGNATURE FORM

Project Address: 25200 Pacific Coast Highway

Property Owner(s) Name: Richard Weintraub

Environmental Health Applicant/Consultant:

	Applicant	Consultant
Name	Richard Weintraub	John N. Yaroslaski PE
Company	Weintraub Real Estate Group	Ensitu Engineering Inc
Address	PO Box 6528 Malibu, CA 90264	7475 Carmelita Ave Atascadero, CA 93422
Telephone		(805) 772-0150
E-Mail		jyaroslaski@ensitu.com

List of Documents Submitted:

Document Date	Document Description
05/29/2020	444-05.010 25200 Pacific Coast Highway ERCR-01 (OWTS Engineering Report)
05/08/2020	[1] 444-05.010 25200 Pacific Coast Highway PWCR-02-CR-SITE PLANS AND TABLES 11x17 (OWTS Plans and Tables)
05/07/2020	[2] 444-05.010 25200 Pacific Coast Highway Base Calculations ECCR-01 (OWTS Engineering Calculations)
05/08/2020	[3] 444-05.010 25200 Pacific Coast Highway PWCRFC-02-FC-FIXTURE UNIT SUMMARY AND TABLES-11x17 (OWTS Engineering Fixture Count)

Consultant License Stamp with wet signature (ifapplicable)

License Number: 60149

License Expiration Date: 06/2020

City Registration Number: DS-12015

Recycled Paper

John N. Yaroslaski PE 60149
Ensitu Engineering Inc.
7475 Carmelita Ave.
Atascadero, CA 93422

May 29, 2020

Richard Weintraub
Weintraub Real Estate Group
PO Box 6528
Malibu, CA 90264

Engineering Inc
7475 Carmelita Ave.
Atascadero, CA
93422

Tel: 805.772.0150
Fax: 805.772.0813

ensitu@ensitu.com

Subject: 444-05 25200 Pacific Coast Highway, Malibu, CA: Onsite Wastewater System Engineering Conformance Review Report and Calculations

Dear Mr. Weintraub,

PART 1 – SUMMARY TABLE

1) General Project information [1] [2] [3] [4] [5] [6] [7]

Table 1 General Project information

Project Title:	444-05 25200 Pacific Coast Highway
Project Number	444-05
Project Address:	25200 Pacific Coast Highway, Malibu CA
Project Engineer:	John N Yaroslaski PE 60149
Description:	AOWTS Engineering Design
Approving Agency:	City of Malibu
Architect [3]	
Company	Oppenheim Architecture
Report Title	Villa Coleava 25200 Pacific Coast Highway
Date	03/01/2019
Geologist [4]	
Company	Feffer Geological Consulting
Report Title	Preliminary Geotechnical Feasibility Investigation 23000-25200 Pacific Coast Highway, Malibu, CA
Date	05/21/2020
Percolation Testing [5] [4]	
Company	EPD Consultants, Inc.
Report Title	Infiltration Test report for a Subsurface Drip Dispersal System 25200 Malibu Road, Malibu, CA
Date	04/29/2020
Type of Test	Infiltration
Number of tests	7

Engineering Inc
7475 Carmelita Ave.
Atascadero, CA
93422

Tel: 805.772.0150
Fax: 805.772.0813

ensitu@ensitu.com

2) Project Design Parameters

a) Fixture Units and Bedrooms

Table 2 Fixture unit and Bedroom Worksheet [2] [3]

Project: 444-05 25200 Pacific Coast Highway — **Designed By:** KCY — **Des Date:** May 7, 2020
Address: 25200 Pacific Coast Highway — **Checked By** JNY — **Ch Date:** May 7, 2020

Type of Plumbing Fixture	First Floor	Basement	Guest House	Existing Fixtures	+	Proposed Fixtures	=	Total Fixtures	x	Unit Value	=	Total Existing Fixture Units	Total Proposed (Future) Fixture Units
	PRO	PRO	PRO	"A"	+	"B"	=	"(A + B)"	x	"C"	=	"A x C"	"(A + B) x C"
Bathtub or Combination Bath/Shower					+		=		x	2	=		
Bidet(s)					+		=		x	2	=		
Bar Sink	2				+	2	=	2	x	1	=		2
Clothes Washer		1			+	1	=	1	x	3	=		3
Dishwasher	2				+	2	=	2	x	2	=		4
Laundry Sink		1			+	1	=	1	x	2	=		2
Lavatory (Wash Basin)	9	4	1		+	14	=	14	x	1	=		14
Kitchen Sink	2				+	2	=	2	x	2	=		4
Shower (Single Head)	1	1	1		+	3	=	3	x	2	=		6
Water Closet (Flush Toilet)	9	4	1		+	14	=	14	x	6	=		84
Other Table 702.1 CPC)-Additional Shower Head		2			+	2	=	2	x	1	=		2
Bedrooms	3	2	1										

Fixture Units Summary		
Total Proposed Fixture Units	121	
Total Fixture Units	121	
Dwelling Units Summary		
Total Proposed Dwelling Units	1	
Proposed Bedroom Summary		
Total Proposed Bedrooms	6	bedrooms
Number of Proposed Master Bedrooms	1	bedrooms
Number of Proposed Standard	5	bedrooms

b) Flow

Table 3 Flow Calculation Summary [2] [3]

Flow Calculations (Q)		
Peak Flow per Master Bedroom	300	gpd
Peak Flow per Standard Bedroom	150	gpd
Average Flow per Master Bedroom	200	gpd
Average Flow per Standard Bedroom	100	gpd
Flow Calculations Proposed (Q)		
Peak Flow, Q_P	1050	gpd
Average Flow, Q_A	700	gpd
Leaching Field Design Flow, Q_P	1050	gpd

c) Constituents

Table 4 Wastewater Characteristics

Influent Characteristics		
BOD5 (mg/l)	220	
TSS (mg/l)	220	
TN (mg/l)	35	
Effluent Characteristics		
BOD5 (mg/l)	20	
TSS (mg/l)	20	
TN (mg/l)	17.5	

3) Project Design Summary

Table 5 Design Summary Table [1] [2]

OWTS Capacity (Design and Maximum)				
Component	Description	Size/Capacity	Design Capacity	Max Capacity
Treatment Volume (Fixture Unit Capacity)	1-MicroSepTec ES25	7,540 gallons	121 fixture units	261 fixture units
Treatment (Organic Capacity)	1-MicroSepTec ES25	4.17 lb BOD5/day	1050 gpd at 220mg/L BOD5	2500 gpd at 220mg/L BOD5
Disinfection	1-MicroSepTec ES25	2,500 gpd	1,050 gpd	2,500 gpd
Subsurface Irrigation Dispersal	Subsurface Irrigation	5100 square feet at 0.206 gallons per square foot per day	1,050 gpd	1,989 gpd

ENSITU
Engineering Inc
7475 Carmelita Ave.
Atascadero, CA
93422

Tel: 805.772.0150
Fax: 805.772.0813

ensitu@ensitu.com

a) Tankage

Table 6 Equipment Summary Table Tankage

Manufacturer	MicroSepTec
Model	ES25
Construction	Fiberglass
Required, gal	4,025
As-Designed, gal	7,540

b) Treatment System

Table 7 Equipment Summary Table Treatment Tank

Manufacturer	MicroSepTec
Model	ES25
Number of Units	1
Total Capacity, gpd	2,500

Table 8 MicroSepTec Design Table

MicroSepTec Design		
Design Flow	1,050	gpd
Design Influent BOD	220	mg/L
Design Effluent BOD	20	mg/L
Design Organic Loading BOD	1.75	lb BOD_5
MicroSepTec Model Specified	ES25	
MicroSepTec Tank Volume	7540	gal
MicroSepTec ES25 Base Organic Removal (1)	4.17	lb BOD_5
Minimum Number of MicroSepTec ES25 Required	1	units
Design Organic Removal	4.17	lb BOD_5
Design Tank Volume	7540	gal
Maximum Effluent Flow Based on Organic loading	2500	gpd
Maximum Effluent Flow Based on Hydraulic Loading	2500	gpd
Maximum Fixtures Based on Design Tank Volume	261	

c) Disinfection System

Table 9 Equipment Summary Table Disinfection System

Manufacturer	MicroSepTec
Model	ES25
Number of Units	1
Total Capacity, gpd	2,500

Engineering Inc
7475 Carmelita Ave.
Atascadero, CA
93422

Tel: 805.772.0150
Fax: 805.772.0813

ensitu@ensitu.com

d) Dispersal

Table 10 Subsurface Irrigation Dispersal Design Calculations [2] [1]

Leaching Field Calculations		
Max Subsurface Irrigation Loading Rate, L_M	0.390	gpsfd
Preferred Subsurface Irrigation Loading Rate Safety factor 10, L_P	0.39	gpsfd
Minimum Square Feet of Leaching Area Required, A_M	2693	ft^2
Preferred Square Feet of Leaching Area Required, A_P	2693	ft^2
Design Square Feet of leaching Area,A_F	5100	ft^2
Is Design Area Adequate (Is $A_F > A_P$)	Yes	
Actual Loading Rate, L_A	0.206	gpsfd
Maximum Allowable Flow Based on Design Field Area and Max Loading Rate	1989	gal

4) Percolation and Geology [4] [5]

a) Test Results

Table 11 Subsurface Irrigation Test Data [5] [2] [1]

Test Pit Number	Depth ft	Soil Type at Test Depth	Passing Loading Rate gpsfd
ITP-1	1	See Geo Report	5.2
ITP-2	1	See Geo Report	5.1
ITP-3	1	See Geo Report	5.2
ITP-4	1	See Geo Report	4.3
ITP-5	1	See Geo Report	3.9
ITP-6	1	See Geo Report	5
ITP-7	1	NOT USED 0.9 gpsfd	
		Average Passing Rate	4.79
		Minimum Passign Rate	3.9
		Design Safety Factor	10
		Design Application Rate	0.39
		Design Safety Factor	10.00

ENSITU
Engineering Inc
7475 Carmelita Ave.
Atascadero, CA
93422

Tel: 805.772.0150
Fax: 805.772.0813

ensitu@ensitu.com

5) Maximum AOWTS Design Capacity

Table 12 Maximum AOWTS Design Capacity

OWTS Capacity (Design and Maximum)				
Component	Description	Size/Capacity	Design Capacity	Max Capacity
Treatment Volume (Fixture Unit Capacity)	1-MicroSepTec ES25	7,540 gallons	121 fixture units	261 fixture units
Treatment (Organic Capacity)	1-MicroSepTec ES25	4.17 lb BOD5/day	1050 gpd at 220mg/L BOD5	2500 gpd at 220mg/L BOD5
Disinfection	1-MicroSepTec ES25	2,500 gpd	1,050 gpd	2,500 gpd
Subsurface Irrigation Dispersal	Subsurface Irrigation	5100 square feet at 0.206 gallons per square foot per day	1,050 gpd	1,989 gpd

6) Setback Reductions [1]

Table 13 Setback Reductions

SETBACK REDUCTIONS

	COMPONENT	SITE ELEMENT	CODE REQUIREMENT	ACTUAL
1	DISPERSAL FIELD	SITE WALL	8'	1'-0"
2	DISPERSAL FIELD	DECK	8'	1'-0"

PART 2 – INTRODUCTION

This report summarizes the results of the geologic investigation and provides engineering design for the onsite wastewater treatment/disposal system for the above noted site. The following work is to be performed on the subject site:

- Total six (6) bedrooms, including one (1) master bedroom, in two proposed structures with 121 total fixture units.

PART 3 – SCOPE OF WORK

We completed the following work for this study:

- Prepared this written report summarizing the soils engineering investigation.
- Provided engineering design criteria for the proposed onsite wastewater treatment/disposal system.

PART 4 – FINDINGS

1) Soils Testing [5] [4]

According to the referenced geology/percolation report [5] subsurface dispersal infiltration testing was performed on the subject site in the areas shown in the referenced plan [1]. Seven (7) infiltration test trenches were excavated on the subject site and testing was performed in seven (7) locations. These tests were conducted in general compliance with City of Malibu Soil Analysis/Infiltration Report Procedure [7, p. 15].

Engineering Inc
7475 Carmelita Ave.
Atascadero, CA
93422

Tel: 805.772.0150
Fax: 805.772.0813

ensitu@ensitu.com

2) Fixture Units [2] [3] [6] [7]

A Fixture Count was performed in accordance with the City of Malibu Fixture Unit Worksheet [7, p. 44] and Drainage Fixture Unit values in the current edition of the California Plumbing Code for the subject site. The subject property has 121 total fixture units.

3) Wastewater Flow [2]

a) Design/Peak Flow

The design/peak flow for a single-family residence in the City of Malibu is estimated using 300 gallons per day (gpd) for the first bedroom and 150 gpd for each additional bedroom. The subject project has a total of six (6) bedrooms, including one (1) master bedroom, in two proposed structures; therefore, the peak flow is 1050 gpd and the design flow is 1050 gpd.

b) Average Flow

The average flow for a single-family residence in the City of Malibu is estimated using 200 gpd for the first bedroom and 100 gpd for each additional bedroom. The average flow for the proposed house is estimated at 700 gpd.

PART 5 – PROPOSED DESIGN [2] [1]

1) Septic Tank

Septic tank sizing shall be based on the fixture unit count. The subject residence has a fixture count of 121; therefore, the minimum septic tank capacity required is 4,025 gallons. A MicroSepTec ES25 treatment tank is proposed with a capacity of 7,540 gallons.

Table 14 Required and Design Septic Tank Capacity

Septic Tank (ST) Calculations		
Total Existing Fixture Units		
Total Proposed Fixture Units	121	
Total Fixture Units	121	
Minimum Septic Tank Size based on Fixtures	4025	gal
Number of Dwelling Units	1	
Number of Bedrooms	6	bedrooms
Minimum Septic Tank Size based on Bedrooms	1500	gal
Design Septic Tank Size	7540	gal

Engineering Inc
7475 Carmelita Ave.
Atascadero, CA
93422

Tel: 805.772.0150
Fax: 805.772.0813

ensitu@ensitu.com

2) Treatment

A MicroSepTec ES25 treatment tank shall be used to treat the waste before being discharged to the disposal area. The proposed treatment tank has multiple compartments for primary settling, aerobic treatment, final clarification, and effluent storage.

Table 15 MicroSepTec Organic and Hydraulic Design

MicroSepTec Design		
Design Flow	1,050	gpd
Design Influent BOD	220	mg/L
Design Effluent BOD	20	mg/L
Design Organic Loading BOD	1.75	lb BOD_5
MicroSepTec Model Specified	ES25	
MicroSepTec Tank Volume	7540	gal
MicroSepTec ES25 Base Organic Removal (1)	4.17	lb BOD_5
Minimum Number of MicroSepTec ES25 Required	1	units
Design Organic Removal	4.17	lb BOD_5
Design Tank Volume	7540	gal
Maximum Effluent Flow Based on Organic loading	2500	gpd
Maximum Effluent Flow Based on Hydraulic Loading	2500	gpd
Maximum Fixtures Based on Design Tank Volume	261	

[1]MST Organic Removal Base				
Model	Waste Flow (gpd)	Waste Strength (mg/L BOD_5)		Organic Removal ($lbBOD_5$)
		influent	Effluent	
MicroSepTec ES6	600	220	20	1.00
MicroSepTec ES12	1200	220	20	2.00
MicroSepTec ES25	2500	220	20	4.17

3) Disinfection

Disinfection shall be performed using a gravity flow ultraviolet (UV) disinfection unit integrated within the MicroSepTec unit. The treated effluent shall then be pumped from the effluent storage compartment of the treatment tank to the disposal area.

4) Disposal

Dispersal shall be performed using a subsurface drip dispersal system.

The subsurface drip dispersal system shall use Geoflow Wasteflow Subsurface Drip Systems. The Wasteflow drip system disperses of effluent below the ground surface through ½ inch pressure compensating tubing. The treated wastewater shall be pumped from the dosing compartment to the dispersal area shown on the site plan.

The subsurface drip dispersal area shall be a total of 5,100 square feet in one (1) zone. According to the infiltration report the minimum passing infiltration rate for tests in the infiltrations area was 3.9 gallons per square foot per day (gpsfd) applying a safety factor of 10 the maximum field application rate should be 0.39 gpsfd.

Engineering Inc
7475 Carmelita Ave.
Atascadero, CA
93422

Tel: 805.772.0150
Fax: 805.772.0813

ensitu@ensitu.com

Table 16 Dispersal Design Summary [2]

Leaching Field Calculations		
Max Subsurface Irrigation Loading Rate, L_M	0.390	gpsfd
Preferred Subsurface Irrigation Loading Rate Safety factor 10, L_P	0.39	gpsfd
Minimum Square Feet of Leaching Area Required, A_M	2693	ft^2
Preferred Square Feet of Leaching Area Required, A_P	2693	ft^2
Design Square Feet of leaching Area,A_F	5100	ft^2
Is Design Area Adequate (Is $A_F > A_P$)	Yes	
Actual Loading Rate, L_A	0.206	gpsfd
Maximum Allowable Flow Based on Design Field Area and Max Loading Rate	1989	gal

PART 6 – EXISTING ONSITE SYSTEM

1) Existing OWTS Components

a) Contractor is responsible for locating all existing onsite wastewater treatment system (OWTS) components. The locations on the engineering plans, and indicated in this report, are based on permit information and/or survey information provided and may not include all components of the OWTS. Many items, such as tanks, piping, distribution devices, seepage pits, dispersal fields, and other appurtenances are buried and not locatable by the surveyor or utilities locator.

2) Abandonment of Existing System

a) Prior to commencing work to abandon, remove, or replace existing onsite wastewater treatment system (OWTS) components an "OWTS abandonment permit" shall be obtained from the city of Malibu. All work performed in the OWTS abandonment, removal, or replacement area shall be performed in strict accordance with all applicable federal, state, and local environmental and occupational safety and health regulatory requirements. The obtainment of any such required permits or approvals for this scope of work shall be the responsibility of the applicant and their agents.

b) Existing OWTS components shall be abandoned in accordance with title 28 of the Los Angeles County Code, incorporating the most current California Plumbing Code, local plumbing code, and policies. Method of abandonment shall be determined by the engineer and/or the owner's representative.

ENSITU
Engineering Inc
7475 Carmelita Ave.
Atascadero, CA
93422

Tel: 805.772.0150
Fax: 805.772.0813

ensitu@ensitu.com

PART 7 – SETBACK REDUCTIONS

Table 17 Setback Reductions [1]

SETBACK REDUCTIONS

	COMPONENT	SITE ELEMENT	CODE REQUIREMENT	ACTUAL
1	DISPERSAL FIELD	SITE WALL	8'	1'-0"
2	DISPERSAL FIELD	DECK	8'	1'-0"

1) Dispersal Field to Site Wall

Site wall foundation will need to be certified by structural engineer and geotechnical engineer during final plan check phase of the project. If current foundation cannot support the site wall with reduced setback additional foundation work will need to be designed by project consultants or the wall will need to be removed.

2) Dispersal Field to Deck

Deck foundation will need to be certified by structural engineer and geotechnical engineer during final plan check phase of the project. If current foundation cannot support the site wall with reduced setback additional foundation work will need to be designed by project consultants or the wall will need to be removed.

PART 8 – DISTRIBUTION

This report should be sent to all the design consultants for the above project including: architect; structural engineer; geologist; geotechnical engineer; coastal engineer; civil engineer; and others.

PART 9 – LIST OF TABLES

Table 1 General Project information 1
Table 2 Fixture unit and Bedroom Worksheet [2] [3] 2
Table 3 Flow Calculation Summary [2] [3] 2
Table 4 Wastewater Characteristics 2
Table 5 Design Summary Table [1] [2] 2
Table 6 Equipment Summary Table Tankage 3
Table 7 Equipment Summary Table Treatment Tank 3
Table 8 MicroSepTec Design Table 3
Table 9 Equipment Summary Table Disinfection System 3
Table 10 Subsurface Irrigation Dispersal Design Calculations [2] [1] 4
Table 11 Subsurface Irrigation Test Data [5] [2] [1] 4
Table 12 Maximum AOWTS Design Capacity 5
Table 13 Setback Reductions 5
Table 14 Required and Design Septic Tank Capacity 6
Table 15 MicroSepTec Organic and Hydraulic Design 7
Table 16 Dispersal Design Summary [2] 8
Table 17 Setback Reductions [1] 9

Engineering Inc
7475 Carmelita Ave.
Atascadero, CA
93422

Tel: 805.772.0150
Fax: 805.772.0813

ensitu@ensitu.com

PART 10 – WORK CITED

[1] Ensitu Engineering Inc, "444-05.010 25200 Pacific Coast Highway PWCR-02-CR-SITE PLANS AND TABLES 11x17," Ensitu Engineering Inc, Atascadero, CA, 05/08/2020.

[2] Ensitu Engineering Inc, "444-05.010 25200 Pacific Coast Highway Base Calculations ECCR-01," Ensitu Engineering Inc, Atascadero, CA, 05/07/2020.

[3] Ensitu Engineering Inc, "444-05.010 25200 Pacific Coast Highway PWCRFC-02-FC-FIXTURE UNIT SUMMARY AND TABLES-11x17," Ensitu Engineering Inc, Atascadero, CA, 05/08/2020.

[4] Feffer Geological Consulting, "Preliminary Geotechnical Feasibility Investigation 23000-25200 Pacific Coast Highway, Malibu, CA," Feffer Geological Consulting, Los Angeles, CA, 05/21/2020.

[5] GeoConcepts Inc, "Onsite Wastewater Treatment System Percolation Testing APN 4460-009-016 6453 Sycamore Meadows Drive Malibu, CA," GeoConcepts Inc, Van Nuys, CA, 08/31/2016.

[6] City of Malibu Environmental Sustainability Department, "Chapter 15.40, Regulation of Onsite Wastewater Treatment Systems, Chapter 15.42, Technical Standards For Onsite Wastewater Treatment Systems, And Chapter 15.44 Operating Permits for Onsite Wastewater Treatment Systems," City of Malibu, Malibu, CA, August 27, 2018.

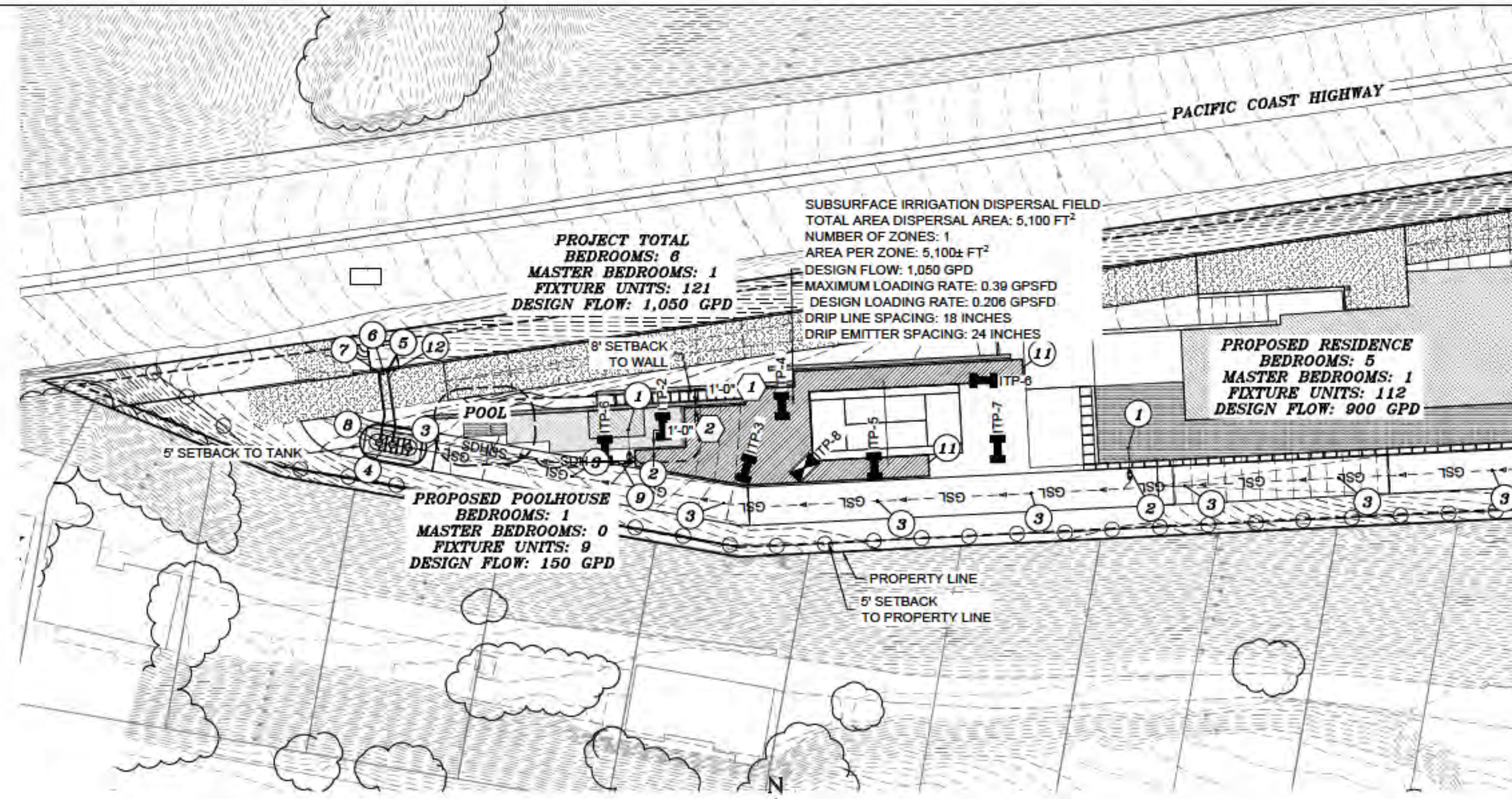
[7] City of Malibu Environmental Sustainability Department, "Onsite Wastewater Treatment System Manual; Siting, Design, Installation, and Operation Guidelines," City of Malibu Environmental Sustainability Department, Malibu, CA, 06/23/2018.

Any persons concerned with this project who observe conditions or features of the site or its surroundings that are different from those described in this report should notify EEI immediately for evaluation.

Thank you for the opportunity to have been of service. If you have any questions, or require additional assistance please feel free to contact me at (805) 772-0150.

Sincerely,

John N. Yaroslaski PE 60149
Ensitu Engineering Inc.
Project Engineer



1/1 OVERALL SITE PLAN

SCALE: 1" =100'-0"

N

ENSITU

GENERAL NOTES:

1. EXISTING OWTS COMPONENTS LOCATION AND ABANDONMENT:
   1.1. CONTRACTOR IS RESPONSIBLE FOR LOCATING ALL EXISTING ONSITE WASTEWATER TREATMENT SYSTEM (OWTS) COMPONENTS. THE LOCATIONS ON THE ENGINEERING PLANS ARE INFORMATIONAL AND MAY NOT INCLUDE ALL COMPONENTS OF THE OWTS. MANY ITEMS, SUCH AS TANKS, PIPING, DISTRIBUTION DEVICES, SEEPAGE PITS, DISPERSAL FIELDS, AND OTHER APPURTENANCES ARE BURIED AND NOT LOCATABLE BY THE SURVEYOR OR UTILITIES LOCATOR.
   1.2. PRIOR TO COMMENCING WORK TO ABANDON, REMOVE, OR REPLACE EXISTING ONSITE WASTEWATER TREATMENT SYSTEM (OWTS) COMPONENTS AN "OWTS ABANDONMENT PERMIT" SHALL BE OBTAINED FROM THE CITY OF MALIBU. ALL WORK PERFORMED IN THE OWTS ABANDONMENT, REMOVAL, OR REPLACEMENT AREA SHALL BE PERFORMED IN STRICT ACCORDANCE WITH ALL APPLICABLE FEDERAL, STATE, AND LOCAL ENVIRONMENTAL AND OCCUPATIONAL SAFETY AND HEALTH REGULATORY REQUIREMENTS. THE OBTAINMENT OF ANY SUCH REQUIRED PERMITS OR APPROVALS FOR THIS SCOPE OF WORK SHALL BE THE RESPONSIBILITY OF THE APPLICANT AND THEIR AGENTS.
   1.3. THE EXISTING OWTS COMPONENTS INCLUDING; SEPTIC TANK(S), PIPING, CLEANOUT(S) SEEPAGE PIT(S), DISPERSAL FIELD(S), AND ALL OTHER APPURTENANCES SHALL BE PROPERLY ABANDONED PURSUANT TO CITY OF MALIBU ORDINANCE 435, SECTION 15.40.170 C, AND SECTION 15.40.170 D, TITLE 28 OF THE LOS ANGELES COUNTY CODE, INCORPORATING THE MOST CURRENT CALIFORNIA PLUMBING CODE, LOCAL PLUMBING CODE, AND POLICIES. METHOD OF ABANDONMENT SHALL BE DETERMINED BY THE ENGINEER AND/OR THE OWNER'S REPRESENTATIVE
2. SEWER PIPE SHALL BE BEDDED IN ACCORDANCE WITH SPECIFICATIONS AND TITLE 28 OF THE LOS ANGELES COUNTY CODE, INCORPORATING THE MOST CURRENT CALIFORNIA PLUMBING CODE, LOCAL PLUMBING CODE, AND ORDINANCES.
3. SYSTEM COMPONENTS AND APPURTENANCES (INCLUDING CLEAN-OUTS, VENTS, BACKWATER VALVES, ETC.) SHALL BE INSTALLED IN ACCORDANCE WITH TITLE 28 OF THE LOS ANGELES COUNTY CODE, INCORPORATING THE MOST CURRENT CALIFORNIA PLUMBING CODE, LOCAL PLUMBING CODE, AND POLICIES.
4. ELECTRICAL COMPONENTS AND APPURTENANCES SHALL BE INSTALLED IN ACCORDANCE WITH TITLE 27 OF THE LOS ANGELES COUNTY CODE, INCORPORATING THE MOST CURRENT CALIFORNIA ELECTRICAL CODE, LOCAL ELECTRICAL CODE, AND ORDINANCES.
5. A REGISTERED GEOTECHNICAL ENGINEER, UNDER THE DIRECTION OF THE OWNER, SHALL DETERMINE IF THE WASTEWATER LOADING RATE WILL CAUSE THE EXISTING SLOPE TO BECOME UNSTABLE. ENSITU ENGINEERING INC., IS NOT A GEOTECHNICAL ENGINEERING FIRM, THEREFORE, WE CAN NOT PREDICT AND/OR DETERMINE THE STABILITY OF THE EXISTING SLOPE.
6. THE PROJECT ENGINEERING GEOLOGIST SHALL OBSERVE THE INSTALLATION OF THE TANK AND DISPERSAL SYSTEM COMPONENTS OF THE AOWTS (INCLUDING BUT NOT LIMITED TO; (A) TANK EXCAVATION, BEDDING, AND BACKFILL (B) SEEPAGE PITS EXCAVATION, CONSTRUCTION, AND BACKFILL (C) SUBSURFACE DISPERSAL SYSTEM BEDDING, FILL MATERIAL, CONSTRUCTION, AND BACKFILL) AND PROVIDE THE CITY INSPECTOR WITH A FIELD MEMORANDUM(S) DOCUMENTING AND VERIFYING THAT THE TANK AND DISPERSAL SYSTEM COMPONENTS WERE INSTALLED PER APPROVED AOWTS PLANS.
7. LEACH FIELDS AND DISPERSAL SYSTEMS DESIGNATED AS SAND CATEGORY: ANY REMAINING FILL MATERIAL AND ANY BEACH SAND SEDIMENT THAT MIGHT HAVE REDUCED PERMEABILITY FROM EXISTING LEACH FIELD OPERATIONS ENCOUNTERED BELOW THE BOTTOM OF THE PROPOSED LEACH FIELD OR ANY MATERIAL ENCOUNTERED IN THE CONSTRUCTION OF THE LEACH FIELD THAT IS NOT CATEGORIZED AS BEACH SAND DEPOSITS SHALL BE EXCAVATED TO THE LEVEL OF THE NATIVE BEACH SAND DEPOSITS AND REPLACED WITH DOUBLE- WASHED SAND. THE PROJECT ENGINEERING GEOLOGIST SHALL OBSERVE THE EXCAVATION OF THE LEACH FIELD AND CONFIRM IN WRITING THAT ALL THE DELETERIOUS FILL AND NON-BEACH SAND MATERIALS BELOW THE LEACH FIELD HAVE BEEN REMOVED AND REPLACED WITH CLEAN SAND AND THE LEACH FIELD WAS CONSTRUCTED IN ACCORDANCE WITH THE APPROVED OWTS PLANS.
8. SUBSURFACE DRIP LINE SHALL BE PLACED IN UNCOMPACTED NATIVE SOILS RIPPED AND TILLED A MINIMUM OF 18 INCHES. SOIL SHALL BE AMENDED TO BE 30% SAND, 30% MULCH, 40% NATIVE OR LANDSCAPE DESIGNER SHALL BE CONTACTED TO ADVISE CONTRACTOR ON TYPE OF TOPSOIL TO IMPORT FOR MINIMUM BURIAL DEPTH. DISPERSAL FIELD SHALL BE PLANTED AND ESTABLISHED PRIOR TO OCCUPANCY (ENGINEER TO VERIFY)
9. ALL DIMENSIONS AND GRADES SHALL BE VERIFIED BY CONTRACTOR PRIOR TO SYSTEM INSTALLATION, BUILDING SEWER DEPTH OR CONNECTION POINT WAS NOT PROVIDED AND SHALL BE DETERMINED BY CONTRACTOR PRIOR TO CONSTRUCTION
10. CONTRACTOR TO VERIFY DEPTH AND LOCATION OF BUILDING SEWER CONNECTION, MINIMUM 2% SLOPE FROM STRUCTURE TO CONNECTION POINT.
11. ONSITE WASTEWATER TREATMENT SYSTEM SHALL BE VENTED IN ACCORDANCE WITH TITLE 28 OF THE LOS ANGELES COUNTY CODE, INCORPORATING THE MOST CURRENT CALIFORNIA PLUMBING CODE, LOCAL PLUMBING CODE, AND POLICIES.

PIPING SCHEDULE

LINE	TAG	DESCRIPTION	SPECIFICATION
--- GSL ---	GSL	PROPOSED GRAVITY SEWER LINE	4" SCH40 PVC
--- PAL ---	PAL	PROPOSED AIR COMPRESSOR LINE	1" SCH80 PVC
--- PVL ---	PVL	PROPOSED AIR VENT LINE	4" SCH40 PVC
--- RCRC ---	RCRC	RECIRCULATION RETURN LINE	1½" SCH80 PVC
--- SDH ---	SDH	SUBSURFACE DISPERSAL HEADER	1½" SCH80 PVC
--- SDF ---	SDF	SUBSURFACE DISPERSAL FLUSH	1½" SCH80 PVC

SETBACK REDUCTIONS

	COMPONENT	SITE ELEMENT	CODE REQUIREMENT	ACTUAL
1	DISPERSAL FIELD	SITE WALL	8'	1'-0"
2	DISPERSAL FIELD	DECK	8'	1'-0"

LEGEND

ITL-X	INFILTRATION TEST LOCATION
ITP-X	INFILTRATION TEST PIT LOCATION
	PROPOSED DISPERSAL FIELD
	BUILDINGS AND STRUCTURES
	SITE WALL
	DRIVEWAY
	POOL

[illegible]				
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

Fixture Units Summary		
Total Proposed Fixture Units	121	
Total Fixture Units	121	
Dwelling Units Summary		
Total Proposed Dwelling Units	1	
Proposed Bedroom Summary		
Total Proposed Bedrooms	6	bedrooms
Number of Proposed Master Bedrooms	1	bedrooms
Number of Proposed Standard	5	bedrooms
Flow Calculations (Q)		
Peak Flow per Master Bedroom	300	gpd
Peak Flow per Standard Bedroom	150	gpd
Average Flow per Master Bedroom	200	gpd
Average Flow per Standard Bedroom	100	gpd
Flow Calculations Proposed (Q)		
Peak Flow, Q_P	1050	gpd
Average Flow, Q_A	700	gpd
Leaching Field Design Flow, Q_D	1050	gpd
Influent Characteristics		
BOD5 (mg/l)	220	
TSS (mg/l)	220	
TN (mg/l)	35	
Effluent Characteristics		
BOD5 (mg/l)	20	
TSS (mg/l)	20	
TN (mg/l)	17.5	

Test Pit Number	Depth ft	Soil Type at Test Depth	Passing Loading Rate gpd/sf
ITP-1	1	See Geo Report	5.2
ITP-3	1	See Geo Report	5.1
ITP-8	1	See Geo Report	5.1
ITP-4	1	See Geo Report	4.5
ITP-5	1	See Geo Report	3.9
ITP-6	1	See Geo Report	5
ITP-7	1	NOT USED 0.9 gpd/sf	
		Average Passing Rate	4.79
		Minimum Passing Rate	3.9
		Design Safety Factor	10
		Design Application Rate	0.39
		Design Safety Factor	10.00

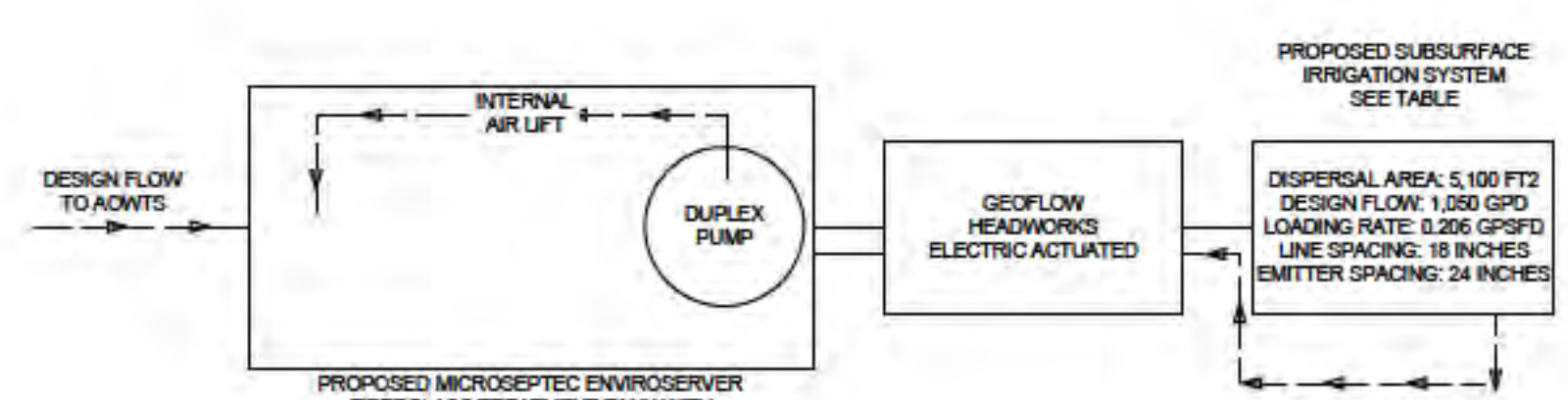
Leaching Field Calculations		
Max Subsurface Irrigation Loading Rate: L_M	0.390	gpd/sf
Preferred Subsurface Irrigation Loading Rate Safety Factor 10: L_P	0.39	gpd/sf
Minimum Square Feet of Leaching Area Required: A_M	2693	ft²
Preferred Square Feet of Leaching Area Required: A_P	2693	ft²
Design Square Feet of leaching Area A_D	5100	ft²
Is Design Area Adequate (Is A_D > A_P)	Yes	
Actual Loading Rate: L_A	0.206	gpd/sf

Septic Tank (ST) Calculations		
Total Existing Fixture Units		
Total Proposed Fixture Units	121	
Total Fixture Units	121	
Minimum Septic Tank Size based on Fixtures	4025	gal
Number of Dwelling Units	1	
Number of Bedrooms	6	bedrooms
Minimum Septic Tank Size based on Bedrooms	1500	gal
Design Septic Tank Size	2540	gal

MicroSepTec Design		
Design Flow	1,050	gpd
Design Influent BOD	220	mg/L
Design Effluent BOD	20	mg/L
Design Organic Loading BOD	1.75	lb BOD$_5$
MicroSepTec Model Specified	ES25	
MicroSepTec Tank Volume	2540	gal
MicroSepTec ES25 Base Organic Removal (1)	4.17	lb BOD$_5$
Minimum Number of MicroSepTec ES25 Required	1	units
Design Organic Removal	4.17	lb BOD$_5$
Design Tank Volume	2540	gal
Maximum Effluent Flow Based on Organic loading	2300	gpd
Maximum Effluent Flow Based on Hydraulic Loading	2500	gpd
Maximum Fixtures Based on Design Tank Volume	261	

EQUIPMENT SCHEDULE

ITEM	QTY	DESCRIPTION	MFG/PART NUMBER
1	4	CONNECTION TO BUILDING SEWER[1]	
2	4	GRAVITY CLEAN-OUT AND BACKWATER VALVE[1]	INDUSTRIAL BACKWATER VALVE (SPEARS MODEL S475P FOR 4") 8" I.D. VALVE BOX (CHRISTY MODEL F08)
3	11	GRAVITY CLEAN-OUT[1]	
4	1	TREATMENT TANK[1][2]	
5	2	AIR COMPRESSOR[1][2]	MICROSEPTEC
6	1	REMOTE TELEMETRY CONTROL UNIT DEDICATED COMMUNICATION AND POWER AS OUTLINED IN MANUFACTURER INSTALLATION GUIDELINES[1][2]	MICROSEPTEC
7	1	CONTROL UNIT DEDICATED COMMUNICATION AND POWER AS OUTLINED IN MANUFACTURER INSTALLATION GUIDELINES[1][2]	GEOFLOW
8	1	DUPLEX PUMP SYSTEM[1][2]	GEOFLOW
9	1	DISPERSAL FIELD HEADWORKS[1][2]	GEOFLOW
10	1	DISPERSAL FIELD ISOLATION CHECK VALVE ASSEMBLY[1][2]	SPEARS MODEL 2229 OR 2222
11	2	AIR VENT/VACUUM RELIEF ASSEMBLY[1]	GEOFLOW PART NUMBER APVBK
12	1	VENT ASSEMBLY[1][2]	ORENCO
[1]	ALL PLUMBING APPURTENANCES AND WORK SHALL COMPLY WITH CURRENT LOCAL, COUNTY, AND STATE PLUMBING CODES. APPURTENANCES AND WORK INCLUDE, BUT ARE NOT LIMITED TO; CONNECTION TO BUILDING PLUMBING, VENTILATION, ISOLATION, BACKWATER VALVES, CLEANOUTS, AND FITTINGS.		
[2]	ALL ELECTRICAL APPURTENANCES INCLUDING BUT NOT LIMITED TO; CONDUIT, CONDUCTOR, CONTROL PANELS, CONTACTORS, FLOATS, PUMPS, DISCONNECTS, AND COMMUNICATION DEVICES SHALL COMPLY WITH CURRENT LOCAL, COUNTY, AND STATE ELECTRICAL CODE AND CURRENT NATIONAL ELECTRIC CODE. CONDUIT AND CONDUCTOR RUNS AND SIZING SHOWN ON PLAN ARE FOR ALIGNMENT AND COST ESTIMATION. ELECTRICAL CONTRACTOR SHALL SPECIFY ALL ELECTRICAL APPURTENANCES. CONTROL AND POWER CONDUCTORS SHALL BE PLACED IN SEPARATE CONDUIT		



PROPOSED MICROSEPTEC ENVIROSERVER FIBERGLASS TREATMENT TANK WITH UV DISINFECTION
MICROSEPTEC ENVIROSERVER MODEL ES25

FINAL FOR APPROVAL
ISSUED
05/08/2020

JOHN N. YAROSLASKI
PRINCIPAL ENGINEER

Project Engineer: John N Yaroslaski PE # 60149
DWG NAME: P:\444-05 25200 Pacific Coast Highway\Engineering\Cad Design\444-05.010 25200 Pacific Coast Highway PWCR\444-05.010 25200 Pacific Coast Highway PWCR-02.dwg
CREATION TIME: Friday, May 8, 2020 12:42:58 PM
MOD. TIME: Friday, May 8, 2020 12:59:51 PM
PLOT TIME: Friday, May 8, 2020 1:00:20 PM

REVISIONS

NO.	REVISIONS	DATE	BY

ENSITU
ENSITU ENGINEERING, INC.
"Dedicated to achieving higher standards in onsite and decentralized wastewater systems."
7475 CARMELITA AVE
ATASCADERO, CA 93422
Tel: 805.772.0150
Fax: 805.772.0813
ENSITU@ensitu.com

444-05 25200 PACIFIC COAST HIGHWAY: AOWTS CONFORMANCE REVIEW
CR-SITE PLANS AND TABLES 11x17
MALIBU, CALIFORNIA

REGISTERED PROFESSIONAL ENGINEER
JOHN N. YAROSLASKI
60149
EXP 06-2020
CIVIL
STATE OF CALIFORNIA

DATE: 05/08/2020
DESIGNED BY: JNY
DRAWN BY: JNY
CHECKED BY: JNY

JOB NO. 444-05

SHEET 1 OF 1

Ensitu Engineering Inc.
7475 Carmelita Ave
Atascadero, CA 93422
tel: 805.772.0150
fax: 805.772.0813
www.ensitu.com

Project Data and Equations

Project: 444-05 25200 Pacific Coast Highway
Address: 25200 Pacific Coast Highway

Designed By: KCY **Des Date:** May 7, 2020
Checked By JNY **Ch Date:** May 7, 2020

Type of Plumbing Fixture	First Floor PRO	Basement PRO	Guest House PRO	Existing Fixtures "A"	+	Proposed Fixtures "B"	=	Total Fixtures "(A + B)"	x	Unit Value "C"	=	Total Existing Fixture Units "A x C"	Total Proposed (Future) Fixture Units "(A + B) x C"
Bathtub or Combination Bath/Shower					+		=		x	2	=		
Bidet(s)					+		=		x	2	=		
Bar Sink	2				+	2	=	2	x	1	=		2
Clothes Washer		1			+	1	=	1	x	3	=		3
Dishwasher	2				+	2	=	2	x	2	=		4
Laundry Sink		1			+	1	=	1	x	2	=		2
Lavatory (Wash Basin)	9	4	1		+	14	=	14	x	1	=		14
Kitchen Sink	2				+	2	=	2	x	2	=		4
Shower (Single Head)	1	1	1		+	3	=	3	x	2	=		6
Water Closet (Flush Toilet)	9	4	1		+	14	=	14	x	6	=		84
Other Table 702.1 CPC)-Additional Shower Head		2			+	2	=	2	x	1	=		2
Bedrooms	3	2	1										

Fixture Units Summary		
Total Proposed Fixture Units	121	
Total Fixture Units	121	
Dwelling Units Summary		
Total Proposed Dwelling Units	1	
Proposed Bedroom Summary		
Total Proposed Bedrooms	6	bedrooms
Number of Proposed Master Bedrooms	1	bedrooms
Number of Proposed Standard	5	bedrooms
Flow Calculations (Q)		
Peak Flow per Master Bedroom	300	gpd
Peak Flow per Standard Bedroom	150	gpd
Average Flow per Master Bedroom	200	gpd
Average Flow per Standard Bedroom	100	gpd
Flow Calculations Proposed (Q)		
Peak Flow, Q_P	1050	gpd
Average Flow, Q_A	700	gpd
Leaching Field Design Flow, Q_P	1050	gpd
Influent Characteristics		
BOD5 (mg/l)	220	
TSS (mg/l)	220	
TN (mg/l)	35	
Effluent Characteristics		
BOD5 (mg/l)	20	
TSS (mg/l)	20	
TN (mg/l)	17.5	

ENSITU ENGINEERING INC
www.ensitu.com
Ensitu Engineering Inc.
7475 Carmelita Ave
Atascadero, CA 93422
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MicroSepTec Tank Size and Fixtures

Project: 444-05 25200 Pacific Coast Highway
Address: 25200 Pacific Coast Highway

Designed By: KCY
Checked By: JNY

Design Date: May 7, 2020
Check Date: May 7, 2020

Description	Tank Size Gallons	Max Fixture Units	Min Tank Size Based on Fixtures Gallons
MicroSepTec ES6	2493	60	2500
MicroSepTec ES12	3634	105	3625
MicroSepTec ES25	7540	261	7525

Table 1: Tank Size Malibu Plumbing Code

Total Bedrooms	Total Fixture Units	Minimum Septic Tank Size (gal)
1 to 6	26 to 33	1500
	34 to 45	2000
	46 to 55	2250
	56 to 60	2500
	61 to 70	2750
	71 to 80	3000
	81 to 90	3250
	91 to 100	3500
For every one (1) FU greater than 100 total FUs, increase septic tank capacity by 25 gallons (Based on Table K-2, Malibu Plumbing Code)		

Iterations			
Treatment Unit	ES6	ES12	ES25
Fixture Units	60	105	261
Row 1			
Row 2			
Row 3			
Row 4			
Row 5			
Row 6			
Row 7	2500		
Row 8			
Row 9			
Row 10			
Row 11			
Tank Size	2500	3625	7525

Table 2: MicroSepTec MST Brocure downloaded August 28, 2015

Hydraulic Volume (gal)

Model	Primary Clarifier	1st Aeration Chamber	2nd Aeration Chamber	Final Clarifier	Effluent Chamber	Total Gallons
ES6	990	364	364	409	367	2493
ES12	1553	500	500	667	414	3634
ES25	3026	931	931	1432	1221	7540

Sizing

	ES6	ES12	ES25
Treatment Capacity* (gpd)	600	1,200	2,500
Length	180"	257"	298"
Diameter	72"	72"	96"

* based on typical household waste

Daily Power Consumption (kWh)

	ES6	ES12	ES25
Gravity Output	3.6	7.2	9.8
Low Pressure Discharge	4.0	7.9	11.2
High Pressure Discharge	4.9	9.7	15.2

115V / 15A service required for gravity discharge
115V / 30A service required for pumped discharge

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MicroSepTec Design

Project: 444-05 25200 Pacific Coast Highway
Address: 25200 Pacific Coast Highway

Designed By: KCY
Checked By: JNY

Design Date: May 7, 2020
Check Date: May 7, 2020

MicroSepTec Design		
Design Flow	1,050	gpd
Design Influent BOD	220	mg/L
Design Effluent BOD	20	mg/L
Design Organic Loading BOD	1.75	lb BOD_5
MicroSepTec Model Specified	ES25	
MicroSepTec Tank Volume	7540	gal
MicroSepTec ES25 Base Organic Removal (1)	4.17	lb BOD_5
Minimum Number of MicroSepTec ES25 Required	1	units
Design Organic Removal	4.17	lb BOD_5
Design Tank Volume	7540	gal
Maximum Effluent Flow Based on Organic loading	2500	gpd
Maximum Effluent Flow Based on Hydraulic Loading	2500	gpd
Maximum Fixtures Based on Design Tank Volume	261	

(1) MST Organic Removal Base				
Model	Waste Flow (gpd)	Waste Strength (mg/L BOD_5)		Organic Removal (lbBOD_5)
		influent	Effluent	
MicroSepTec ES6	600	220	20	1.00
MicroSepTec ES12	1200	220	20	2.00
MicroSepTec ES25	2500	220	20	4.17

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fax: 805.772.0813

Subsurface Irrigation Design Calculations

Project: 444-05 25200 Pacific Coast Highway | Designed By: KCY | Des Date: 5/7/2020
Address: 25200 Pacific Coast Highway | Checked By JNY | Ch Date: 5/7/2020

Type of Plumbing Fixture	Existing Fixtures	+	Proposed Fixtures	=	Total Fixtures	x	Unit Value	=	Total Existing Fixture Units	Total Proposed (Future) Fixture Units
	"A"	+	"B"	=	"(A + B)"	x	"C"	=	"A x C"	"(A + B) x C"
Bathtub or Combination Bath/Shower		+		=		x	2	=		
Bidet(s)		+		=		x	2	=		
Bar Sink		+	2	=	2	x	1	=		2
Clothes Washer		+	1	=	1	x	3	=		3
Dishwasher		+	2	=	2	x	2	=		4
Laundry Sink		+	1	=	1	x	2	=		2
Lavatory (Wash Basin)		+	14	=	14	x	1	=		14
Kitchen Sink		+	2	=	2	x	2	=		4
Shower (Single Head)		+	3	=	3	x	2	=		6
Water Closet (Flush Toilet)		+	14	=	14	x	6	=		84
Other Table 702.1 CPC Additional Shower Head		+	2	=	2	x	1	=		2
Other Table 702.1 CPC)		+		=		x		=		
Other Table 702.1 CPC)		+		=		x		=		
Other Table 702.1 CPC)		+		=		x		=		
Other Table 702.1 CPC)		+		=		x		=		

Total Bedrooms	Total Fixture Units	Minimum Septic Tank Size (gal)
1 to 6	33	1500
	34 to 45	2000
	46 to 55	2250
	56 to 60	2500
	61 to 70	2750
	71 to 80	3000
	81 to 90	3250
	91 to 100	3500

For extra bedroom, 150 gallons (568 liters) each.
For extra dwelling units over 10, 250 gallons (946 liters) each
For every one (1) FU greater than 100 total FUs, increase septic tank capacity by 25 gallons (Based on Table K-2, Malibu Plumbing Code)

Septic Tank (ST) Calculations		
Total Existing Fixture Units		
Total Proposed Fixture Units	121	
Total Fixture Units	121	
Minimum Septic Tank Size based on Fixtures	4025	gal
Number of Dwelling Units	1	
Number of Bedrooms	6	bedrooms
Minimum Septic Tank Size based on Bedrooms	1500	gal
Design Septic Tank Size	7540	gal
Flow Calculations (Q)		
Peak Flow, Q_P	1050	gpd
Average Flow, Q_A	700	gpd
Leaching Field Design Flow, Q_P	1050	gpd
Leaching Field Calculations		
Max Subsurface Irrigation Loading Rate, L_M	0.390	gpsfd
Preferred Subsurface Irrigation Loading Rate Safety factor 10, L_P	0.39	gpsfd
Minimum Square Feet of Leaching Area Required, A_M	2693	ft^2
Preferred Square Feet of Leaching Area Required, A_P	2693	ft^2
Design Square Feet of leaching Area,A_F	5100	ft^2
Is Design Area Adequate (Is $A_F > A_P$)	Yes	
Actual Loading Rate, L_A	0.206	gpsfd
Maximum Allowable Flow Based on Design Field Area and Max Loading Rate	1989	gal

Test Pit Number	Depth ft	Soil Type at Test Depth	Passing Loading Rate gpsfd
ITP-1	1	See Geo Report	5.2
ITP-2	1	See Geo Report	5.1
ITP-3	1	See Geo Report	5.2
ITP-4	1	See Geo Report	4.3
ITP-5	1	See Geo Report	3.9
ITP-6	1	See Geo Report	5
ITP-7	1	NOT USED 0.9 gpsfd	
		Average Passing Rate	4.79
		Minimum Passign Rate	3.9
		Design Safety Factor	10
		Design Application Rate	0.39
		Design Safety Factor	10.00

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Design Summary Table

Project: 444-05 25200 Pacific Coast Highway
Address: 25200 Pacific Coast Highway

Designed By: KCY
Checked By: JNY

Design Date: May 7, 2020
Check Date: May 7, 2020

OWTS Capacity (Design and Maximum)

Component	Description	Size/Capacity	Design Capacity	Max Capacity
Treatment Volume (Fixture Unit Capacity)	1-MicroSepTec ES25	7,540 gallons	121 fixture units	261 fixture units
Treatment (Organic Capacity)	1-MicroSepTec ES25	4.17 lb BOD5/day	1050 gpd at 220mg/L BOD5	2500 gpd at 220mg/L BOD5
Disinfection	1-MicroSepTec ES25	2,500 gpd	1,050 gpd	2,500 gpd
Subsurface Irrigation Dispersal	Subsurface Irrigation	5100 square feet at 0.206 gallons per square foot per day	1,050 gpd	1,989 gpd

Project: 444-05 25200 Pacific Coast Highway
Address: 25200 Pacific Coast Highway

Designed By: KCY **Des Date:** May 7, 2020
Checked By JNY **Ch Date:** May 7, 2020

Type of Plumbing Fixture	First Floor PRO	Basement PRO	Guest House PRO	Existing Fixtures "A"	+	Proposed Fixtures "B"	=	Total Fixtures "(A + B)"	x	Unit Value "C"	=	Total Existing Fixture Units "A x C"	Total Proposed (Future) Fixture Units "(A + B) x C"
Bathtub or Combination Bath/Shower					+		=		x	2	=		
Bidet(s)					+		=		x	2	=		
Bar Sink	2				+	2	=	2	x	1	=		2
Clothes Washer		1			+	1	=	1	x	3	=		3
Dishwasher	2				+	2	=	2	x	2	=		4
Laundry Sink		1			+	1	=	1	x	2	=		2
Lavatory (Wash Basin)	9	4	1		+	14	=	14	x	1	=		14
Kitchen Sink	2				+	2	=	2	x	2	=		4
Shower (Single Head)	1	1	1		+	3	=	3	x	2	=		6
Water Closet (Flush Toilet)	9	4	1		+	14	=	14	x	6	=		84
Other Table 702.1 CPC)-Additional Shower Head		2			+	2	=	2	x	1	=		2
Bedrooms	3	2	1										

Fixture Units Summary		
Total Proposed Fixture Units	121	
Total Fixture Units	121	
Dwelling Units Summary		
Total Proposed Dwelling Units	1	
Proposed Bedroom Summary		
Total Proposed Bedrooms	6	bedrooms
Number of Proposed Master Bedrooms	1	bedrooms
Number of Proposed Standard	5	bedrooms
Flow Calculations (Q)		
Peak Flow per Master Bedroom	300	gpd
Peak Flow per Standard Bedroom	150	gpd
Average Flow per Master Bedroom	200	gpd
Average Flow per Standard Bedroom	100	gpd
Flow Calculations Proposed (Q)		
Peak Flow, Q_P	1050	gpd
Average Flow, Q_A	700	gpd
Leaching Field Design Flow, Q_P	1050	gpd
Influent Characteristics		
BOD5 (mg/l)	220	
TSS (mg/l)	220	
TN (mg/l)	35	
Effluent Characteristics		
BOD5 (mg/l)	20	
TSS (mg/l)	20	
TN (mg/l)	17.5	

OWTS Capacity (Design and Maximum)				
Component	Description	Size/Capacity	Design Capacity	Max Capacity
Treatment Volume (Fixture Unit Capacity)	1-MicroSepTec ES25	7,540 gallons	121 fixture units	261 fixture units
Treatment (Organic Capacity)	1-MicroSepTec ES25	4.17 lb BOD5/day	1050 gpd at 220mg/L BOD5	2500 gpd at 220mg/L BOD5
Disinfection	1-MicroSepTec ES25	2,500 gpd	1,050 gpd	2,500 gpd
Subsurface Irrigation Dispersal	Subsurface Irrigation	5,698 square feet at 0.206 gallons per square foot per day	1,050 gpd	1,989 gpd

FIXTURE COUNT CERTIFICATION

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3. Fixture Count was performed in accordance with the City of Malibu Fixture Unit Worksheet and Table 702.1 of the California Plumbing Code.

REGISTERED PROFESSIONAL ENGINEER JOHN N. YAROSLASKI 60149 EXP 06-2020 CIVIL STATE OF CALIFORNIA

COUNT BY: John N. Yaroslaski PE
DATE: 05/08/2020

FINAL FOR APPROVAL
ISSUED
05/08/2020

JOHN N. YAROSLASKI
PRINCIPAL ENGINEER

ENSITU ENGINEERING, INC. 780 MONTEREY AVE., STE. B Moorpark, CA 93021 Tel: 805.772.0150 Fax: 805.772.0813 ENSITU@aol.com

ENSITU ENGINEERING, INC. "Dedicated to achieving higher standards in onsite and decentralized wastewater systems."

REVISIONS

NO.	DATE	BY

25200 PACIFIC COAST HIGHWAY; AOWTS
CONFORMANCE REVIEW FIXTURE COUNT
FC-FIXTURE UNIT SUMMARY AND TABLES-11x17
MALIBU, CALIFORNIA

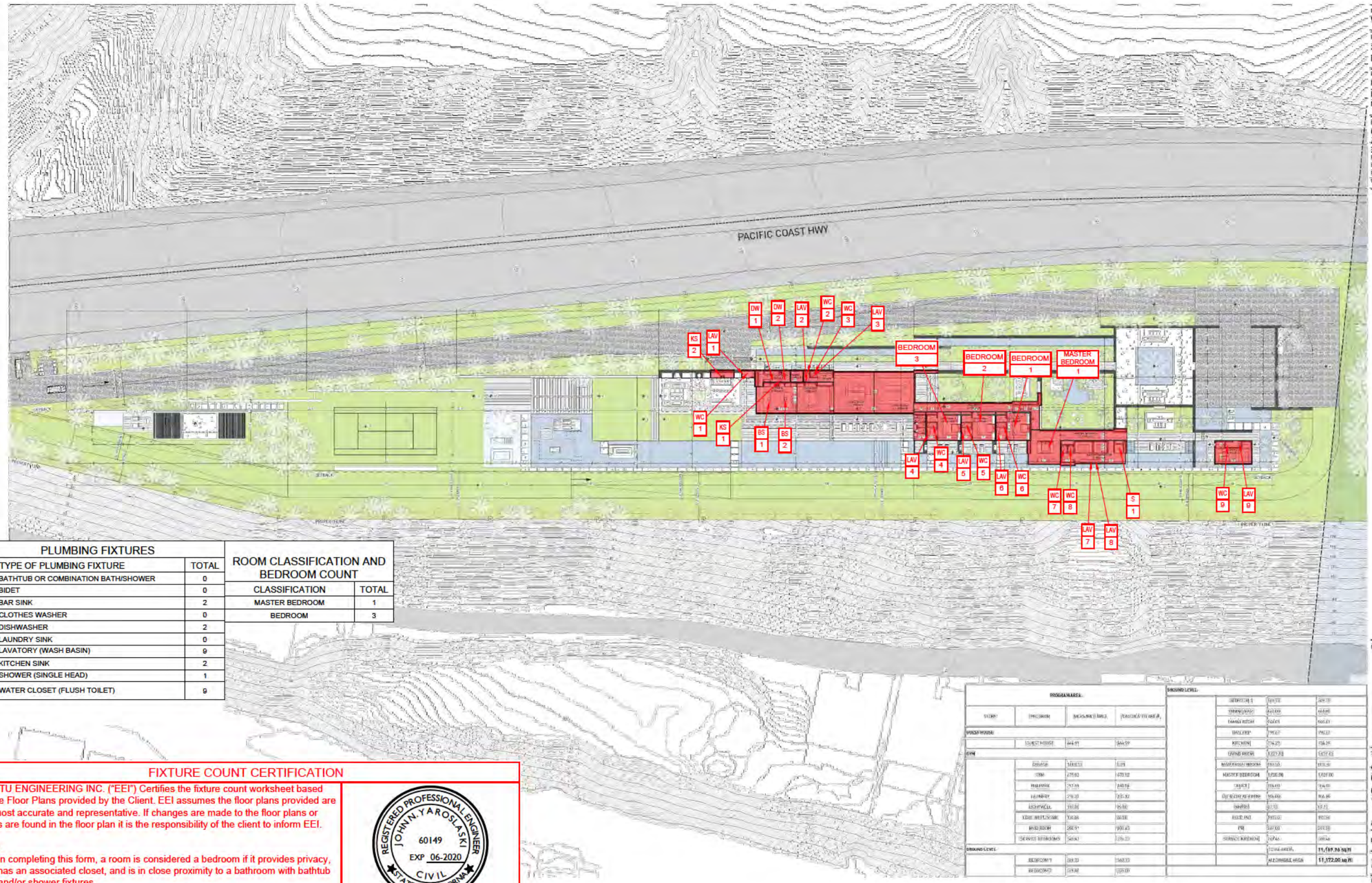
REGISTERED PROFESSIONAL ENGINEER JOHN N. YAROSLASKI 60149 EXP 06-2020 CIVIL STATE OF CALIFORNIA

DATE: 05/08/2020
DESIGNED BY: JNY
DRAWN BY: KCY
CHECKED BY: JNY

JOB NO. 444-05

SHEET 1 OF 4

Project Engineer: John N. Yaroslaski PE # 60149
Drawing Name: H:\Projects\444-05.010 25200 Pacific Coast Highway\Engineering\Cad Design\444-05.010 25200 Pacific Coast Highway PWCBPC\444-05.010 25200 Pacific Coast Highway PWCBPC-02.dwg
CREATION TIME: Friday, May 29, 2020 9:44:48 AM
MOD. TIME: Friday, May 29, 2020 4:39:59 PM
PLOT TIME: Friday, May 29, 2020 4:40:04 PM



PLUMBING FIXTURES		
	TYPE OF PLUMBING FIXTURE	TOTAL
TS	BATHTUB OR COMBINATION BATH/SHOWER	0
B	BIDET	0
BS	BAR SINK	2
CW	CLOTHES WASHER	0
DW	DISHWASHER	2
LS	LAUNDRY SINK	0
LAV	LAVATORY (WASH BASIN)	9
KS	KITCHEN SINK	2
S	SHOWER (SINGLE HEAD)	1
WC	WATER CLOSET (FLUSH TOILET)	9

ROOM CLASSIFICATION AND BEDROOM COUNT	
CLASSIFICATION	TOTAL
MASTER BEDROOM	1
BEDROOM	3

FIXTURE COUNT CERTIFICATION

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3. Fixture Count was performed in accordance with the City of Malibu Fixture Unit Worksheet and Table 702.1 of the California Plumbing Code.

REGISTERED PROFESSIONAL ENGINEER JOHN N. YAROSLASKI 60149 EXP 06-2020 CIVIL STATE OF CALIFORNIA

COUNT BY: John N. Yaroslaski PE
DATE: 05/08/2020

Project No: **1813**

Project name: VILLA COLEAVA

Project Address: 25200 Pacific Coast Hwy. Malibu, California, USA

Property owner: PAR PCH, LLC, PO Box 6528, Malibu, CA 90265

Design Architect: Oppenheim Architecture, 848 NE 37 Street, Miami FL 33137, P 305.574.8484, F 305.574.8439, W oppenoffice.com

Revisions:

Mark	Date	Description

Title: **AREA CALCULATION- GROUND LEVEL**
1/32" = 1'-0"
NOT FOR CONSTRUCTION
Design Development
1813 VILLA COLEAVA
Drawing issued on 03/01/19

Z103

ENSITU ENGINEERING, INC. 780 MONTEREY AVE., STE. B, Morro Bay, CA 93442, Tel: 805.772.0160, Fax: 805.772.0813, ENSITU@calinet.com

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ENSITU

REVISIONS

NO.	DATE	BY

25200 PACIFIC COAST HIGHWAY; AOWTS CONFORMANCE REVIEW FIXTURE COUNT FC-FLOOR PLAN-01-11x17 MALIBU, CALIFORNIA

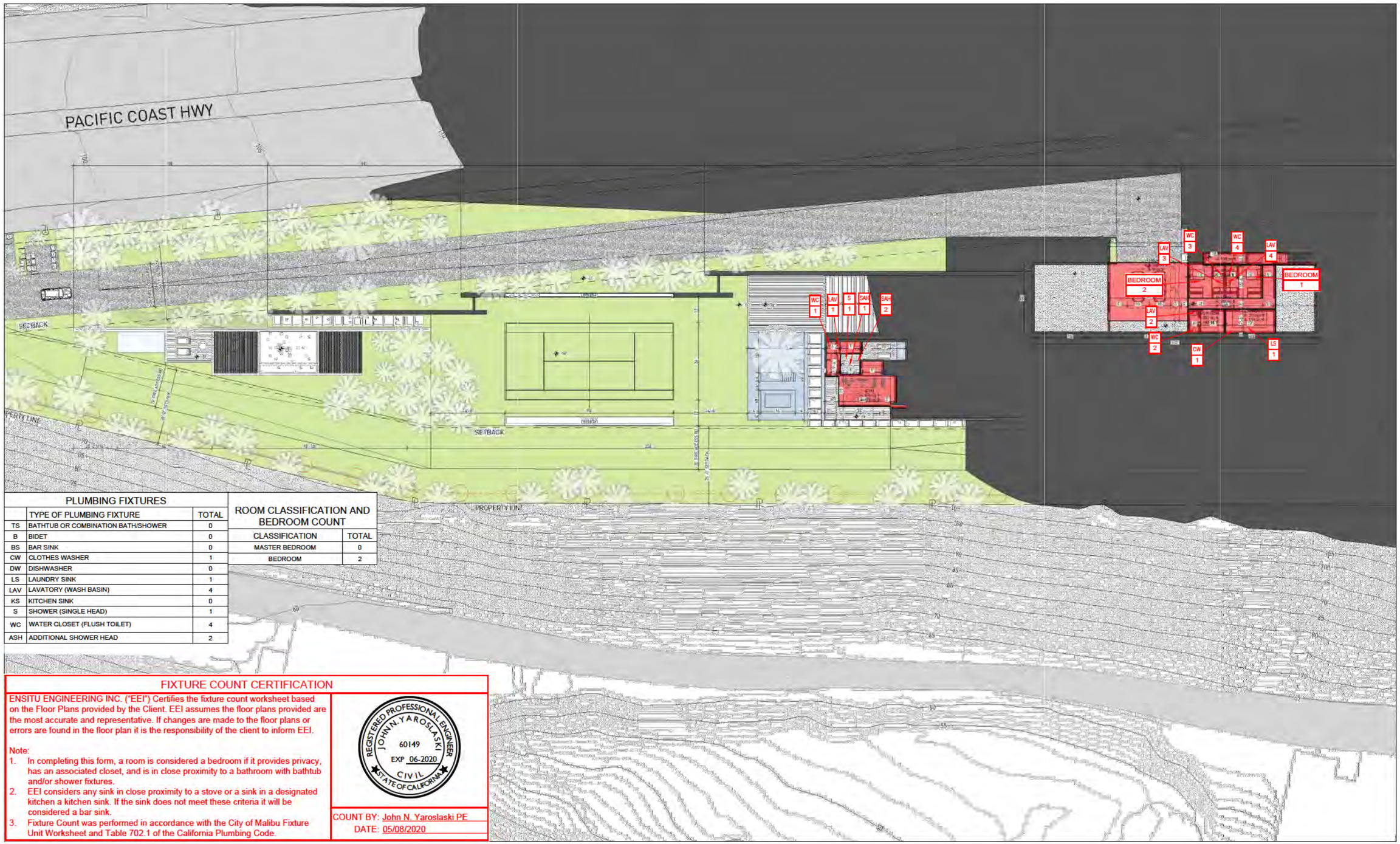
REGISTERED PROFESSIONAL ENGINEER JOHN N. YAROSLASKI 60149 EXP 06-2020 CIVIL STATE OF CALIFORNIA

DATE: 05/08/2020
DESIGNED BY: JNY
DRAWN BY: KCY
CHECKED BY: JNY

JOB NO. 444-05

SHEET 2 OF 4

Project Engineer: John N Yaroslaski PE # 60149
Drawn By: Kevin Yarosz (Kevin Yarosz) \Engineering\Cad Design\444-05.010 25200 Pacific Coast Highway PWCBPC\444-05.010 25200 Pacific Coast Highway PWCBPC-02.dwg
CREATION TIME: Friday, May 29, 2020 9:41:48 AM
MOD. TIME: Friday, May 29, 2020 4:39:59 PM
PLOT TIME: Friday, May 29, 2020 4:40:04 PM



PLUMBING FIXTURES		
	TYPE OF PLUMBING FIXTURE	TOTAL
TS	BATHTUB OR COMBINATION BATH/SHOWER	0
B	BIDET	0
BS	BAR SINK	0
CW	CLOTHES WASHER	1
DW	DISHWASHER	0
LS	LAUNDRY SINK	1
LAV	LAVATORY (WASH BASIN)	4
KS	KITCHEN SINK	0
S	SHOWER (SINGLE HEAD)	1
WC	WATER CLOSET (FLUSH TOILET)	4
ASH	ADDITIONAL SHOWER HEAD	2

ROOM CLASSIFICATION AND BEDROOM COUNT	
CLASSIFICATION	TOTAL
MASTER BEDROOM	0
BEDROOM	2

FIXTURE COUNT CERTIFICATION

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REGISTERED PROFESSIONAL ENGINEER
JOHN N. YAROSLASKI
60149
EXP 06-2020
CIVIL
STATE OF CALIFORNIA

COUNT BY: John N. Yaroslaski PE
DATE: 05/08/2020

Project Engineer: John N Yaroslaski PE # 60149
DWG NAME: P:\444-05 25200 Pacific Coast Highway\Engineering\Cad Design\444-05.010 25200 Pacific Coast Highway PWCRFC\444-05.010 25200 Pacific Coast Highway PWCRFC-02.dwg
CREATION TIME: Friday, May 29, 2020 9:44:46 AM
MOD. TIME: Friday, May 29, 2020 4:39:59 PM
PLOT TIME: Friday, May 29, 2020 4:40:40 PM

REVISIONS		
NO.	DATE	BY

ENSITU

ENSITU ENGINEERING, INC. 780 MONTEREY AVE., STE. B Morro Bay, CA 93442 Tel: 805.772.0150 Fax: 805.772.0813 ENSITU@ensitu.com

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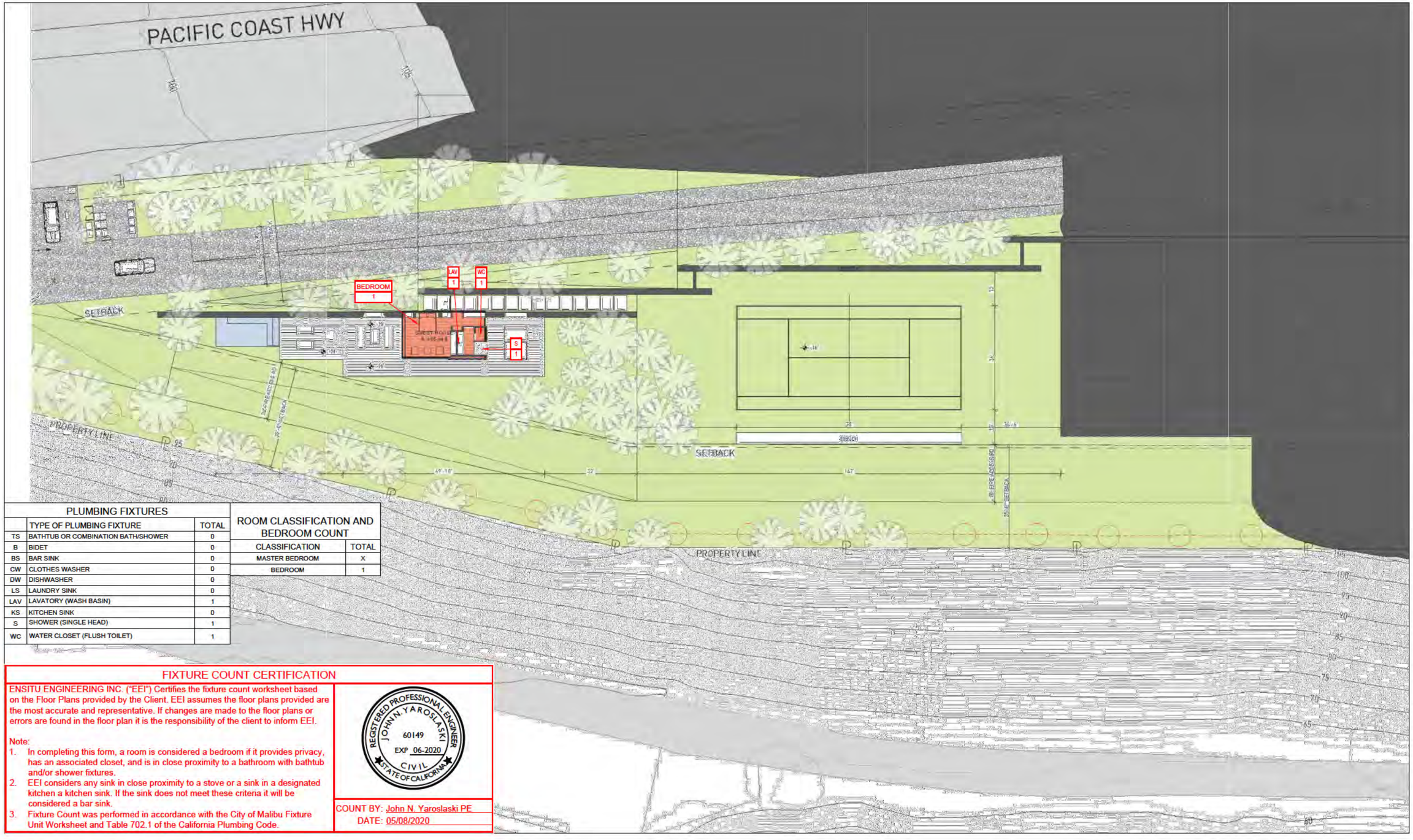
25200 PACIFIC COAST HIGHWAY; AOWTS CONFORMANCE REVIEW FIXTURE COUNT FC-FLOOR PLAN-02-11x17 MALIBU, CALIFORNIA

REGISTERED PROFESSIONAL ENGINEER
JOHN N. YAROSLASKI
60149
EXP 06-2020
CIVIL
STATE OF CALIFORNIA

DATE: 05/08/2020
DESIGNED BY: JNY
DRAWN BY: KCY
CHECKED BY: JNY

JOB NO. 444-05

SHEET 3 OF 4



PLUMBING FIXTURES

	TYPE OF PLUMBING FIXTURE	TOTAL
TS	BATHTUB OR COMBINATION BATH/SHOWER	0
B	BIDET	0
BS	BAR SINK	0
CW	CLOTHES WASHER	0
DW	DISHWASHER	0
LS	LAUNDRY SINK	0
LAV	LAVATORY (WASH BASIN)	1
KS	KITCHEN SINK	0
S	SHOWER (SINGLE HEAD)	1
WC	WATER CLOSET (FLUSH TOILET)	1

ROOM CLASSIFICATION AND BEDROOM COUNT

CLASSIFICATION	TOTAL
MASTER BEDROOM	X
BEDROOM	1

FIXTURE COUNT CERTIFICATION

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3. Fixture Count was performed in accordance with the City of Malibu Fixture Unit Worksheet and Table 702.1 of the California Plumbing Code.

REGISTERED PROFESSIONAL ENGINEER
JOHN N. YAROSLASKI
60149
EXP 06-2020
CIVIL
STATE OF CALIFORNIA

COUNT BY: John N. Yaroslaski PE
DATE: 05/08/2020

Project Engineer: John N Yaroslaski PE # 60149
DWG NAME: P:\444-05 25200 Pacific Coast Highway\Engineering\Cad Design\444-05.010 25200 Pacific Coast Highway PWCRFC\444-05.010 25200 Pacific Coast Highway PWCRFC-02.dwg
CREATION TIME: Friday, May 29, 2020 9:44:46 AM
MOD. TIME: Friday, May 29, 2020 4:39:59 PM
PLOT TIME: Friday, May 29, 2020 4:40:42 PM

REVISIONS

NO.	DATE	BY

ENSITU
ENSITU ENGINEERING, INC. 780 MONTEREY AVE., STE. B Morro Bay, CA 93442 Tel: 805.772.0150 Fax: 805.772.0813 ENSITU@ensitu.com

"Dedicated to achieving higher standards in onsite and decentralized wastewater systems."

25200 PACIFIC COAST HIGHWAY; AOWTS CONFORMANCE REVIEW FIXTURE COUNT FC-FLOOR PLAN-03-11x17 MALIBU, CALIFORNIA

REGISTERED PROFESSIONAL ENGINEER
JOHN N. YAROSLASKI
60149
EXP 06-2020
CIVIL
STATE OF CALIFORNIA

DATE: 05/08/2020
DESIGNED BY: JNY
DRAWN BY: KCY
CHECKED BY: JNY

JOB NO. 444-05

SHEET 4 OF 4

Received
12/16/25
Planning Div.

From: Malibu Township Council
To: Allison Cook; Yolanda Bundy; Tyler Eaton; Rob Duboux; Trevor Rusin; Kellan Martz
Cc: Frank Angel; Bill Sampson; Patt Healy; Jason Ernst; Gail Duncan; John Mazza; Skylar Peak; Elizabeth Riddick; Marni Kamins; Drew Leonard; Rebecca Evans; [redacted]; cvo@angellaw.com; sleonard@angellaw.com; Tiffany Murray; Jan Ravlich; Emily; R N; Bruce Silverstein; Haylynn Conrad; Charlotte Frieze; Danny; Kraig Hill; Hayley Mattson; Hans Laetz
Subject: Re: 25200 PCH - Weintraub property
Date: Tuesday, December 16, 2025 12:28:10 PM
Attachments: 25200 pch opposition revised comments.docx
Letterfromelkinskaltlackofstabilityanalysis.pdf

Please respond —

This project at **25200 Pacific Coast Highway** cannot lawfully proceed without a **variance for the factor of safety prior to any discretionary approval**. Under the Malibu Local Coastal Program and **LIP §9.4(D)**, new development proposed on landslides may be permitted **only where a factor of safety of 1.5 (static) and 1.1 (pseudostatic) can be demonstrated**, based on **worst-case geologic and slope gradient conditions**, examining both overall slope stability and surficial units.

Because mitigation and stabilization measures necessarily improve site conditions, the "worst-case" condition required by **LIP §9.4(D)** must reflect **existing, pre-mitigation site conditions**, unless deviations from those standards are expressly approved through a variance pursuant to **LIP §13.26**. Where a site cannot meet the required factor of safety under existing conditions, **LIP §13.26** provides the sole lawful mechanism through which proposed mitigation and construction measures may be evaluated and weighed against public safety, adjacent properties, and the public interest, as required by **LIP §13.26.5(B)** and **Coastal Act §30253**. Absent an approved variance, the City may not rely on assumed future stabilization or construction to make the findings required under the LCP.

Allowing mitigation measures to be incorporated into the baseline slope stability analysis would directly contradict the structure and purpose of the LCP. If mitigation were permitted in the baseline condition, there would be no meaningful "worst-case" analysis, **LIP §9.4(D) would be rendered meaningless**, and the variance provisions of **LIP §13.26** would never be triggered. The Coastal Commission has consistently rejected that interpretation. **LIP §13.26 exists precisely because some sites cannot meet the requirements of §9.4(D) under existing conditions.** If applicants were permitted to add piles, retaining walls, caissons, or other stabilization measures and then claim compliance without a variance, no variance would ever be required. **Such an interpretation would unlawfully allow applicants to bypass LIP §13.26, rendering the variance provisions meaningless and defeating the LCP's required framework for reviewing and approving deviations from slope stability standards.**

This site lies within the **Malibu Road Landslide Assessment District**, and even the applicant's own geotechnical consultants confirm that the **existing factor of safety is well below 1.5 prior to any mitigation or construction**. Those conditions constitute the **worst-case geologic scenario** required to be evaluated under **LIP §9.4(D)** and must be addressed **before approval**, not assumed away through future piles or construction that has not yet occurred. Where the existing factor of safety for the landslide mass is substandard, the **entire landslide area is constrained**, and any attempt to selectively redefine buildability through consultant-defined "no-build zones" is improper and cannot substitute for the findings required under a variance.

CC: Planning Commission, PD,

Recording Secretary, File

Date Received 12/16/25 Time 12:22 p.m.
Planning Commission meeting of 12/16/25
Agenda Item No. 5C
Total No. of Pages 11

Accordingly, a **variance is required before any planning approvals**, before reliance on piles or stabilization systems, and **before the project may proceed to the Planning Commission**. The City cannot lawfully make findings based on construction or mitigation that does not yet exist. Just as **Fire Rebuild Option 4** improperly relied on future construction to justify exemptions, this project improperly relies on future stabilization to justify safety findings—yet the law requires those findings to be based on **existing conditions or on mitigation and construction measures evaluated and approved through a duly granted variance**, not on hypothetical outcomes.

This is not a discretionary judgment call; it is a **threshold compliance requirement**. Proceeding without a variance wastes City staff time, Planning Commission time, and ultimately City Council time—while fire-affected residents wait for lawful rebuild approvals. This application should therefore be returned to Planning immediately for variance processing.

The City has already addressed this exact issue in **Big Rock at Piedra Chica Road**, where a significantly smaller project—an addition exceeding 10 percent but less than 50 percent of an existing residence—was nonetheless required to apply for a **factor-of-safety variance**. That application went to the Planning Commission multiple times, was appealed to the City Council, and could not be heard because the variance had not been processed. It was returned because, as a matter of law, **the project could not proceed without a variance**. That outcome followed the unnecessary expenditure of time and resources by staff, appellants, the Planning Commission, and the City Council.

Here, the proposal is not a modest addition—it is a **12,000-square-foot new construction project with multiple underground components on an active landslide**. The same legal requirement applies, with even greater force.

Specifically, the finding required under **LIP §13.26.5(B)**—that *"the granting of such variance will not be detrimental to the public interest, safety, health or welfare, nor injurious to property in the vicinity"*—**can only be made through the variance process**, not through standard project approval. Excavation alone on this site has the potential to impact adjacent properties and destabilize the landslide mass, which is precisely why the variance process exists.

For these reasons, this item should be **continued to a date uncertain** until the required variance is formally applied for, evaluated, and supported by findings. Your department was notified of this issue more than **three months ago**, yet the application continues to be processed in a manner inconsistent with the LCP.

Please remove this application from staff and Planning Commission consideration so limited City resources can be focused on **urgent fire rebuilds**, the majority of which are **modest homes averaging approximately 3,000 square feet**, not speculative **12,000-square-foot developments**.

Thank you,
Jo Drummond
On behalf of **Malibu Township Council**

On Dec 12, 2025, at 1:44 PM, Malibu Township Council [redacted] wrote:

2021.11.18 Final Geotechnical Report re PARPCH.pdf

Re: 25200 Pacific Coast Highway – Request for Nullification of Approvals Due to Non-Compliance with LCP, LIP §9.4(D), CEQA, and Building Code Requirements

Attention:
Alison Cook – Contract Planner
Trevor Rusin - Interim City Attorney
Yolanda Bundy – Building Official/Community Development Director
Tyler Eaton – Assistant Community Development Director
Rob DuBoux – Head of Public Works

Dear Staff,

Malibu Township Council writes to formally request that the City **nullify all approvals** associated with the proposed development at **25200 Pacific Coast Highway**, as the administrative record clearly demonstrates that the project **violates the Malibu LCP**, **fails to comply with LIP §9.4(D)**, **requires—but has not requested—a variance**, and **is not eligible for CEQA exemptions**.

We attach for reference the **April 26, 2021** letter from **Elkins Kalt**, which resulted in the indefinite continuance of a **770 sq ft addition** at **20238 Piedra Chica Road**—also in the Big Rock Landslide Assessment District. That project was halted because it:

1. did not conform to the LCP,
2. required a variance,
3. did not comply with applicable building code sections, and
4. was not exempt from CEQA.

The same facts—and in this case, far more severe ones—are present at 25200 PCH, where the proposal is not a minor addition but an entirely new **12,000-square-foot** development with a basement, underground garage, multiple pools, extensive grading, and substantial new loading on an active landslide.

---

1. The Project Cannot Lawfully Proceed Because It Does Not Meet the Required Factor of Safety Under LIP §9.4(D)

LIP §9.4(D) mandates:

> "New development proposed on landslides… shall be permitted **only <u>where</u> a factor of safety of 1.5 (static) and 1.1 (pseudostatic) can be provided**."
>
> "Analyses shall demonstrate a factor of safety ≥ 1.5 for static and ≥ 1.1 for seismic… **modeling <u>worst-case</u> geologic and slope gradient conditions**."

Critically, these analyses must evaluate **the natural, pre-construction slope condition**—**before** piles, grading, or stabilization.

The applicant's own geotechnical consultant explicitly admits that the site cannot meet the required factor of safety without major engineered stabilization.

In the March 25, 2021 translational stability analyses incorporated into the November 18, 2021 Feffer Report attached, the consultant concludes:

> **"Preliminary static analyses of translational stability [were] achieving factors of safety slightly greater than 1.0…"**
> (Feffer, 3/25/21, incorporated in 2021.11.18 report p 563)

These reported FS values (**1.094 – 1.186**) are **far below the required 1.5 threshold.**

Feffer then makes an unequivocal admission in the November 18, 2021 report on p 6:

> **"The analyses indicate that the existing slopes require a stabilization system to achieve a 1.5 and 1.0 factor of safety and to mitigate potential geologic instability."**

This statement is dispositive:

• The natural slope does not meet LIP §9.4(D).

• A stabilization system is required just to approach minimum safety.

• Therefore, a variance is legally required under LIP §13.26.

There is **no discretion** to avoid the variance. The LIP does not allow "mitigated compliance"—it requires **natural-condition compliance**.

Because the project fails this mandatory test, all project approvals must be nullified.

---

2. A Variance Is Required Under LIP §13.26 – and None Has Been Requested

LIP §13.26 states:

> "A variance shall not be granted which confers a special privilege… A variance is required for any deviation from the standards or requirements of the Malibu LIP."

This project deviates from the most fundamental geologic safety standard in the LCP.

The applicant:

- Cannot meet FS 1.5 (static) or 1.1 (seismic) in the actual landslide condition;
- Admits stabilization is required *before* compliance;

- Provides no natural-condition cross-sections achieving required safety levels;
- Attempts to substitute “post-construction” modeling for required baseline analyses.

Therefore:

A variance is legally required before any further review.

And critically:

This application cannot lawfully proceed to the Planning Commission because, under the LCP and LIP §13.26, and the City’s own geotechnical standards, a variance must be obtained before any further processing, and no such variance has been applied for or evaluated. The City has no authority to advance the project to public hearing without first satisfying this mandatory prerequisite.

---

3. The Project Is Not the Least Environmentally Damaging Alternative Required by LIP §9.4(E)

LIP §9.4(E) requires:

> “Measures to remediate or stabilize landslides… shall be designed to be the **least environmentally damaging alternative** and to minimize landform alteration.”

This project represents the **opposite**:

- Over **12,000 sq ft** of development
- A full basement and underground garage
- **12 bedrooms and bathrooms**
- Multiple pools and water features
- A septic system exceeding **7,500 gallons**, dispersing **over 1,000 gallons/day** into unstable soil

Former City Geologist **Donald B. Kowalewsky** warned in 2018 (20272 Inland Lane) included in the Elkins Kalt letter attached:

> **“The introduction of additional mass and water into the ground in Big Rock Mesa will result in a lower safety factor.”**

Yet this project dramatically **increases** both mass and water, directly contrary to expert guidance and LIP §9.4(E).

The Feffer report further acknowledges the extensive mitigation required simply to make the slope marginally stable:

> "**The existing slopes require a stabilization system to achieve a 1.5 and 1.0 factor of safety…**"

A development that **requires** massive stabilization on an **active landslide** cannot be considered the least environmentally damaging option.

---

4. Deep Pile Embedment (~100 ft) Into a Known Landslide Is Geologically Dangerous and Unsupported

The only numerical pile lengths disclosed anywhere in the Feffer report appear in the **Slide model output**, showing piles approximately **99–112 feet deep**.

Such extreme embedment:

- Penetrates directly into the landslide mass;
- Risks disturbing or reactivating shear zones;
- Alters stress conditions in very weak materials (residual $\varphi = 16°$, $c = 200$ psf);
- Creates new stress concentrations and potential slip surfaces;
- Redirects groundwater in ways that may further destabilize the slope.

Yet the report provides **no geologic justification** demonstrating these ~100-foot piles will not worsen slope instability. Despite this, the applicant relies on these same unverified piles to claim compliance with LIP §9.4(D)—which is impermissible.

This further reinforces the necessity of a **variance** and independent geotechnical review.

---

5. CEQA Exemptions Do Not Apply Due to Unusual Circumstances and the Probability of Significant Environmental Impacts

An active landslide, extensive subsurface disturbance, increased water load, and a known broken pipe beneath the property constitute **unusual circumstances** under CEQA Guidelines §15300.2(c).

There is a clear "**reasonable possibility of a significant effect**" due to:

- Instability of the landslide mass;
- Added mass and water;
- Deep pile installation;

Existing saturation from broken infrastructure.

Therefore, **categorical exemptions cannot apply.**

Conclusion

Because:

- The **natural slope fails** to meet LIP §9.4(D),
- The applicant's geotechnical consultant **admits stabilization is required** to reach minimum FOS,
- The project **requires—but has not applied for—a variance**,
- The proposal is **not** the least environmentally damaging alternative,
- Deep piles pose significant risk to the landslide mass, and
- CEQA exemptions **cannot lawfully be used**,

all project approvals must be nullified.

Furthermore, this application cannot lawfully move forward to the Planning Commission because, under the LCP, LIP §13.26, and the City's own geotechnical standards, a variance must be obtained before any further processing. No such variance has been submitted or evaluated. The City therefore has no authority to advance the project to public hearing until this mandatory prerequisite is satisfied.

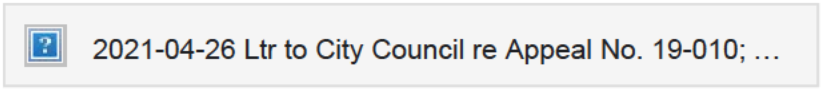
This is precisely the kind of egregious, non-compliant project that has contributed to Malibu's backlog and undermined public confidence during the city's rebuild recovery—just as occurred with the Malibu Inn Hotel, whose geotechnically unsound 55-foot retaining wall triggered extensive delays, appeals, and ultimately rejection by the City Council. That outcome could and should have been avoided entirely had Planning identified the non-compliance early, instead of forcing residents, the City Council, and City staff to expend hundreds of hours producing and reviewing voluminous, non-compliant staff reports that should never have been necessary at all, and were the direct result of avoidable failures in the early compliance review—failures that burdened staff, misled decision-makers, and forced residents to correct issues that should have been caught immediately.

Malibu Township Council urges the City to uphold the LCP, protect public safety, and halt all further action on this application unless and until it demonstrates full compliance with all applicable laws.

Sincerely,

Jo Drummond

Malibu Township Council


2021-04-26 Ltr to City Council re Appeal No. 19-010; …

https://cityofmalibuca.nextrequest.com/documents/55817576
---------- Forwarded message ---------
From: **Malibu Township Council** [redacted]
Date: Sat, Aug 16, 2025 at 3:33 PM
Subject: 25200 PCH - Weintraub property
To: John Mazza [redacted] Elizabeth Riddick [redacted] marni kamins [redacted], Yolanda Bundy <ybundy@malibucity.org>, Tyler Eaton <teaton@malibucity.org>, Trevor Rusin <trevor.rusin@bbklaw.com>, <kellan.martz@bbklaw.com>
Cc: Bruce Silverstein <bsilverstein@malibucity.org>, Bill Sampson [redacted], Sam Hall Kaplan [redacted], Dru Jacobson [redacted], Patt Healy [redacted], R N [redacted] Rob Duboux <rduboux@malibucity.org>, Ann Doneen [redacted] Mariela Guastavino [redacted], Jyoti Drummond [redacted], <cbond@malibucity.org>, <rrojas@malibucity.org>

Attention: Planning Commission, Yolanda Bundy, Tyler Eaton, and Trevor Rusin

The Malibu Township Council (MTC) previously submitted letters on July 21 and August 10 (both attached) regarding the Weintraub project. To date, those concerns have not been addressed. The most critical omission remains the failure to comply with **LIP §9.4D** (attached), which requires all new development in landslide areas to demonstrate a factor of safety of 1.5 (static) and 1.1 (pseudostatic). If those thresholds cannot be met, a variance must be obtained.

This project is a **brand-new, over 12,000 sq. ft. construction** in the Malibu Road Landslide Assessment District. Unlike routine fire rebuilds, this is a discretionary proposal on an undeveloped lot. In a past case at **20238 Piedra Chica Rd**, even a 25% addition had to be sent back after Planning Commission and City Council review when it was discovered no variance had been filed under §9.4D. That error wasted nearly three years of city resources. Approving this project without the variance requirement addressed risks repeating the same mistake.

Compounding the problem, there is a **broken and leaking Caltrans storm drain pipe under this property** that has caused multiple landslides in the past. The City's Public Works Director, Rob Duboux, has confirmed this on record. The applicant does not have the authority to repair this pipe, and the matter must be resolved by Caltrans **before any approvals can be considered**.

Beyond geotechnical hazards, the project would also cause **substantial obstruction of public scenic views**, contrary to the LCP.

MTC recognizes that Planning staff are managing hundreds of Woolsey and Palisades Fire

rebuilds—work that should be the City's top priority. **Oversights like the missing variance requirement reflect how stretched staff have become, and why their focus must remain on rebuilding Malibu rather than processing code-violating projects like this one.**

For efficiency, and to prevent further waste of time and resources, **MTC requests that this item be removed from the agenda until**:

1. The applicant files for the required variance under **LIP §13.26.5**,
2. All slope stability studies required by **LIP §9.4D** are completed,
3. The broken Caltrans storm drain pipe is repaired by the responsible agency, and
4. Public view obstruction impacts are fully mitigated.

Under **LIP §13.26.5**, a variance can only be approved if all of the following findings are made, supported by substantial evidence:

- **A.** Special circumstances exist such that strict application of the code would deprive the property of privileges enjoyed by others in the vicinity.
- **B.** The variance will not be detrimental to the public interest, safety, health or welfare, and will not be detrimental or injurious to the property or improvements in the same vicinity and zone(s) in which the property is located.
- **C.** The variance will not confer a special privilege.
- **D.** The variance will not conflict with the purposes and intent of the LCP.
- **E.** For variances to ESHA standards: no feasible alternative exists, and allowable development area is not exceeded.
- **F.** For variances to stringline standards: maximum feasible protection to public access is provided.
- **G.** The request is consistent with the purpose and intent of the zoning designation.
- **H.** The subject site is physically suitable for the variance.
- **I.** The variance complies with all requirements of state and local law.
- **J.** The variance does not reduce or eliminate public parking for beach, trail, or park access.

Given the project's size, location in a landslide district, unresolved infrastructure issues, and public view impacts, **most of these findings will be extremely difficult to satisfy.**

Thank you,

Jo Drummond
Malibu Township Council

See attached:

On Aug 10, 2025, at 12:19 PM, Malibu Township Council [redacted] wrote:

Urgent: Weintraub Application Missing Required LIP 9.4D Variance

Dear Yolanda,

The most critical omission in the Weintraub application is the required compliance with LIP 9.4D. Under this section, any new development in a landslide, steep slope, unstable soil, or other geologic hazard area must demonstrate, through slope stability analysis, a factor of safety of at least 1.5 (static) and 1.1 (pseudostatic). If this cannot be met, the applicant must obtain a variance and satisfy the ten findings in LIP 13.26.5 before moving forward. The Project is "new development" as defined by the LCP. It consists of land-disturbing activities including but not limited to, construction of a building or structure that will increase the floor area by more than ten percent. LCP, LIP §2.1.

We've been here before: in the Big Rock case at 20238 Piedra Chica Rd (CDP 18-002), the city had to send the project back to Planning for a variance application—after it had already gone through the Planning Commission and City Council (April 26, 2021) review —because no variance had been filed for the factor of safety. That error wasted nearly three years of staff, commission, and council time. The Weintraub property lies within the Malibu Road Landslide Assessment District, as noted in the latest staff report, yet none of the required 9.4D studies have been completed. Without those studies, the application cannot demonstrate the required factor of safety and is not eligible to proceed without a variance.

Such an attempt to sidestep the LCP is improper, and City Planning must deny the Project for its failure to conform with the LCP. As the LIP takes precedence over the City-adopted County and State Building Code, the City cannot discard development standards and variance requirements under the LCP. Especially where there are no noted impediments to complying with both the LCP and building codes. The Project applicant must file and process a variance to comply with the LCP.

For efficiency and to avoid repeating past mistakes, I request this item be removed from the agenda until the applicant applies for the variance and submits the required slope stability studies. Proceeding without these steps would not only repeat the Piedra Chica error but could also expose the city to significant legal and procedural risk.

Finally, LCP, LIP Section 9.4.M prohibits new development "on property or in areas where such development would present an extraordinary risk to life and property due to an existing or demonstrated potential public health and safety hazard."

I understand that many of these errors are due to the Palisades Fire and the need to rush applications already in planning but this needs to STOP and they all need to be put at the end of the line when there is more time to focus on HUGE code reaching projects. The focus NOW needs to be on the recovery of our community and rebuilding homes up to 10%.

Thank you,

Jo Drummond
Malibu Township Council

Received
12/16/25
Planning Div.

From:	Chris Deleau
To:	Allison Cook; Tyler Eaton
Cc:	Rebecca Evans; Patricia Salazar; Don Schmitz; Scott Hoeft; Schmitz and Associates; Catherine A. Lambert; Diana Springer; Planning Commission
Subject:	Applicant"s Response to Letter from Jo Drummond re Item 5.C. on tonight"s Planning Commission Agenda
Date:	Tuesday, December 16, 2025 4:13:17 PM
Attachments:	2025.12.16 Applicant ResponseTo Jo Drummond Letter - ITEM 5.C. December 16, 2025 PC Hearing - 25200 PCH.pdf
Importance:	High

Alllison, please find attached the applicant's response to Ms. Drummond's latest missive. If you could please forward this response to the Commissioners it would be most appreciated.

Best,

Chris Deleau, JD, AICP
Special Projects Manager, Schmitz and Associates

747.494.7293

schmitzandassociates.com

cdeleau@schmitzandassociates.net

28230 Agoura Rd. Suite 200, Agoura Hills, CA 91301

IMPORTANT: The contents of this email and any attachments are confidential. They are intended for the named recipient(s) only. If you have received this email by mistake, please notify the sender immediately and do not disclose the contents to anyone or make copies thereof.

CC: Planning Commission, PD,

Recording Secretary, File

Date Received 12/16/25 Time 4:10 p.m.
Planning Commission meeting of 12/16/25
Agenda Item No. 5C
Total No. of Pages 5

Schmitz & Associates, Inc.
28230 Agoura Road, Suite 100
Agoura Hills, CA 91301

December 16, 2025

Attn: Rebecca Evans, Senior Mgt. Analyst
Planning Department
23825 Stuart Ranch Road
Malibu, CA 90265

Cc: Planning Commission Chair Leonard and Commissioners
Allison Cook, Contract Planner
Tyler Eaton, Ast. Community Development Director

RE: Applicant's Response to Jo Drummond letter dated December 12, 2025, Re: CDP No. 19-012 Lot Merger 24-002, COC No. 19-009, for the property located at 25200 PCH, Malibu, CA 90265 (APNs: 4459-013-021; 4459-014-018) -- **ITEM 5.C. 2025.12.16 Planning Commission Hearing**

Honorable Chair Leonard and Commissioners,

Please find below the Applicant's responses to the comments submitted by Ms. Jo Drummond in the correspondence referenced above:

1. **Geology & Soils:**

Comment A: Ms. Drummond alleges that a Variance is required, pursuant to LIP Sec. 9.4(D), because the project site does not meet the static and pseudostatic factors of safety required by the LCP and City's Geotechnical Guidelines.

Applicant Response A: Nothing in any code requires that a site must meet the slope stability factors of safety *in its pre-development condition*. Ms. Drummond misinterprets the code. No Variance is required.

Comment B: Ms. Drummond provides extensive reference to a residential remodel project in Big Rock (East Malibu) in support of her request to stop review and processing of the applicant's project.

Applicant Response B: Ms. Drummond is not a geologist, nor does she have any expertise in the field. She offers her lay opinion on matters that are far beyond her knowledge or understanding. She attempts to analogize a residential remodel project in Big Rock several miles away from the 25200 property. The Big Rock project was located in a Massive landslide that encompasses the entire neighborhood. The applicant's proposed development is NOT located in a landslide but adjacent thereto. The Piedra Chica project in Big Rock could not meet the requisite factors of safety required by code, even with site stabilization efforts; whereas the applicant's project meets and exceeds the required factors of safety. Having said that, geology is a science, not part of the humanities. A property's geology is site specific and cannot be likened to another with completely different geology. The Piedra Chica project has no relevance or bearing on the geology of 25200 PCH or the applicant's project.

Comment C: Ms. Drummond argues that the project does not meet the requirements of LIP 9.4(E) which states in part, "Measures to remediate or stabilize landslides... shall be designed to be the least environmentally damaging alternative and to minimize landform alteration."

Applicant Response to Comment C: Ms. Drummond cites the correct code provision and then misapplies the facts to the rule. LIP Sec. 9.4(E) does not relate to the nature or scope of the residential development itself. This section requires that any remedial or preventative measures recommended by a soils or geotechnical engineer [related to landslide stabilization only] be most protective of views and seek to limit to the maximum extent feasible, landform alteration. The project's use of deepened foundations is consistent with this requirement. Also, the project does not propose ANY development within the landslides that abut the property/ development area.

Comment D: Ms. Drummond argues that deep pile embedment into a known landslide is geologically dangerous and unsupported.

Applicant Response to Comment D: No portion of the project, including the Piles, is proposed within a landslide; NONE. The piles are located to the north and to the west of the landslides which are largely located off property to the south and to the east. This comment is completely inaccurate. Her other comments regarding site stability and soils conditions

are lay opinion not based on science and the city has reviewed and dismissed these comments as inaccurate.

2. **California Environmental Quality Act (CEQA)**

Comment E: Ms. Drummond argues that various adverse geologic conditions on the property creates “unusual circumstances” that preclude the City from utilizing a Categorical Exemption from CEQA.

Applicant’s Response to Comment E: The project is categorically exempt from CEQA (Class 3). Ms. Drummond mischaracterizes and misinterprets the CEQA standard of review under the Berkley Hillside case [*Berkeley Hillside Preservation v. City of Berkeley* (2012) 203 Cal.App.4th 656.]. Ms. Drummond claims that the proximity of landslides near the project creates "unusual circumstances" that would exclude an otherwise categorically exempt project from a Class 3 CEQA exemption.

There were very similar facts in the Berkley Hillside case, where the city of Berkely approved a 10,000 sq. ft. single-family home within a mapped landslide and fault zone with remedial measures having been implemented to improve site stability. The City found that the mere presence of challenging geologic conditions on the property did not result in 'unusual circumstances' that would make the use of a Categorical CEQA exemption inappropriate. The Supreme Court of California upheld the City's decision to approve the CEQA Exemption, and the city's finding that the challenging geologic conditions did not constitute an unusual circumstance.

The applicant's project has an analogous fact set and an even stronger argument than the applicant in the Berkley Hillside case, because unlike the Berkely project, the applicant's project does not propose any development within a mapped landslide zone. The applicant's project proposes to significantly reduce the load on the adjacent landslides through the use of a pile and tieback system. This takes weight off the hillsides to the south and east of the project site, where the landslides are located, and provides improved stability to the existing homes located on Bayshore Dr. and Malibu Rd., which are located in the actual landslides. The project will have a net beneficial effect for the neighbors below.

Conclusion/ Comment F: Ms. Drummond refers to the project as "egregious…non-compliant…" She argues that the project is geotechnically unsound and its review is a waste of time and resources.

Applicant Response to Comment F: These comments contain only hyperbole, misstatement of fact, and lay opinion. They are not instructive to the Commission or relevant to the applicant's project. To the extent that Ms. Drummond does not want *any* new development in Malibu, message received.

Sincerely,

Chris Deleau, JD, AICP
Special Projects Manager, Schmitz and Associates

747.494.7293
schmitzandassociates.com
cdeleau@schmitzandassociates.net
28230 Agoura Rd. Suite 200, Agoura Hills, CA 91301

Received
12/8/25
Planning Div.

From: Beate
To: Planning Commission
Subject: Re: Tuesday, December 16, 2025 Adjourned Regular Planning Commission Meeting
Date: Saturday, December 6, 2025 8:09:34 AM
Attachments: image001.png
image002.png
image003.png
image004.png
image005.png
image006.png

On August 18, 2025, the Planning Commission continued the item to a date uncertain at the request of staff to allow additional time to address public correspondence related to geologic issues.

Was the "new" Kanan corridor seismic zone added in. You know we had many local earthquakes last year: quite the disruption for PTSD-effects.

FEBRUARY 9, 2024 3:06 PM

Seismologist Dr. Lucy Jones discusses 4.6-magnitude earthquake that hit Malibu

Sep 12, 2024, 9:20 AM

to Janice

[Magnitude 4.7 earthquake in Malibu rattles Southern California - AOL]

Today: The quake was centered in the Malibu hills off Kanan-Dume Road around Ramirez Canyon. It was 6.8 miles deep.

The earthquake epicenter was closest to the Malibu fault, said seismologist Lucy Jones, a Caltech research associate. The 4.7-magnitude earthquake was felt as far as San Diego and north into the coast of Bakersfield. Ten aftershocks were recorded within two hours of the initial event, though only one was above a magnitude 3.

Someone on Eric Pierson's FB posted a Surf Punks song, "Kanan is Doomed! "

But 4 days later:

https://telegraph247.com/news/**three-more-small-earthquakes**-shake-los-angeles-north-of-malibu/ September 16, 2024 first quake, a magnitude 3.76 temblor, was reported at 4:22 a.m. about a mile north of Malibu, just west of Kanan Dume Road, according to the U.S. Geological Survey.

https://laist.com/news/climate-environment/malibu-earthquake-southern-california

CC: Planning Commission, PD,

Recording Secretary, File

Date Received 12/8/25 Time 7:30 a.m.
Planning Commission meeting of 12/16/25
Agenda Item No. 5C
Total No. of Pages 2

Los Angeles Times
https://www.latimes.com › california › story › **2025-03-09 › malibu-earthquakes**-los-angeles-uptick-in-moderate-quakes

Malibu has become an earthquake hotbed as the L.A. area sees rise in ...

Mar 9, 2025 a magnitude **4.1 earthquake** struck near Malibu, marking the first magnitude 4 quake in Southern California for 2025. The recent earthquake's epicenter was located in the Santa Monica Mountains, approximately three miles northwest of El Matador State Beach. It was **followed by aftershocks** measuring 2.5, 3.0, and 2.8 in magnitude. Residents across the region, including Malibu, Agoura Hills, and Thousand Oaks, reported feeling light shaking, described as similar to a truck striking a building.

Just sayin! Kanan is only 6 miles from Puerco.

--

All the Best, Beate Nilsen
Malibu Rd [redacted]

On Fri, Dec 5, 2025 at 6:59 PM Planning Commission <planningcommission@malibucity.org> wrote:

> You are receiving this email because you are listed as an owner, applicant or interested party for an item agendized for the Tuesday, December 16, 2025 Adjourned Regular Planning Commission meeting.
>
> The December 16th agenda and reports are now available **online**.
>
> Regards,
>
> **Rebecca Evans**
>
> Senior Management Analyst | Community Development Department
>
> Office: (310) 456-2489 ext. 246
>
> 23825 Stuart Ranch Road | Malibu, CA 90265

Received
12/16/25
Planning Div.

July 26, 2023

Mr. Richard E. Weintraub

[redacted]

Malibu, CA 90264

Hello Richard,

We are the property owners at [redacted] and [redacted] Malibu Rd (Bayshore Drive) that have participated in the re-construction and sealing of the common driveway that runs from the bottom at Malibu Road to the top at 25253. We, jointly, would like to offer support of your proposed project above our properties.

As you are well aware, our neighborhood has had significant drainage and geological issues. We feel that the row of Caissons and soldier piles with the new project will significantly increase the stability of our neighborhood. This is obviously a tremendous benefit for us and for Pacific Coast Highway as well.

Another benefit is the project, as proposed, is currently one story. That helps reduce perspective from both Pacific Coast Highway and Bayshore Drive.

Thank you for your consideration.

Chris & Pat Reed
[redacted] Malibu Rd.

Tom & Holly Sawyer
[redacted] Malibu Rd.

Tricia Newman
[redacted] Malibu Rd.

Sandro Dazzan
Sandro Dazzan
[redacted] Malibu Rd

Taper Property
[redacted] Malibu Rd.

Haber Properties
West of [redacted] Malibu Rd.
East of [redacted] Malibu Rd

Edith Morgan
Edith Morgan
[redacted] Malibu Rd.

Date Received 12/16/25 Time 11:55 a.m.
Planning Commission meeting of 12/16/25
Agenda Item No. 5C
Total No. of Pages 1

CC: Planning Commission, PD,

Recording Secretary, File

Received
12/16/25
Planning Div.

From: Alex Hall
To: Planning Commission
Subject: Re: 25200 Pacific Coast Highway Comment
Date: Tuesday, December 16, 2025 12:57:36 PM
Attachments: 20251224_response_FINAL.pdf

Please find attached comments for 25200 Pacific Coast Highway
Thank you

On Mon, Aug 18, 2025 at 3:54 PM Alex Hall [redacted] wrote:

> Please find attached comments for 25200 Pacific Coast Highway
> Thank you,
> Alex Hall

CC: Planning Commission, PD,

Recording Secretary, File

Date Received 12/16/25 Time 12:57 p.m.
Planning Commission meeting of 12/16/25
Agenda Item No. 5C
Total No. of Pages 3

December 16, 2025

Subject: GEOTECHNICAL FINDINGS AND REQUEST FOR ADDITIONAL STUDY COASTAL DEVELOPMENT PERMIT NO. 19-012, CERTIFICATE OF COMPLIANCE NO. 21-004, LOT MERGER NO. 24-002, 25200 Pacific Coast Highway, APNs 4459-013-021 & 4459-014-018

We have serious reservations concerning slope stability with the water generated by the project proposed at 25200 Pacific Coast Highway, introduced into the adjacent hillside properties. A supplemental technical letter response prepared by Pacific Coast Land Consulting (PCLC), responding to Feffer Geological Consulting's August 20, 2025 response for the proposed development at 25200 Pacific Coast Highway. We are worried by the threat of the hill destabilizing and failing onto adjacent properties after introducing water and soil disturbance to a known Assessment District 98-3 Malibu Road. These are questions of life safety and property loss.

Long time residents remember the house next to 25325 Malibu Road completely washed away in a heavy rain, the large lot next to 25325 sank nearly ten feet. We do not want what happened in the Rappaport slide (25040 PCH) to happen to residents where the soil headed towards the houses. We heard that houses had the landslide mud and soil went into the inside of homes.

The original stabilization piles for 25200 PCH were on the slope but were moved to avoid a variance. It may be that stabilization piles (subject to easements) are required on the entire slope to support this expansive house and the water it is introducing into the soil. Please consider the life safety and loss of property of those below the slope. In other slides like **Big Rock, mere additions of bedrooms and bathrooms are prohibited because such new development alone may affect the slide below.**

- Malibu LIP § 9.3(A)(1) — requires that a project *"will neither be subject to nor increase instability of the site or structural integrity from geologic hazards due to project design, location, or other reasons."* And must consider "worst case" analysis per Malibu LIP § 9.3(D), and omitting specific data such as SI 5 and SI 6 does not achieve "worst case analysis". This finding is not backed up when landslide geometry and off-site impacts remain unresolved per PCLC's technical review.
- Malibu LIP § 9.4(A) — requires the consulting geologist or geotechnical engineer to certify that the proposed development *"will in no way contribute to instability on or off the subject site,"* including adjacent and downslope properties. Feffer's analysis for the project is limited to the project site and does not substantiate off-site stability and in fact acknowledges (Dec 17, 2019) that "**calculated failures occurred predominately <u>offsite on the property below</u>**", "All calculated **<u>seismic failures occurred offsite</u> and below the property line** " and indicating that**" <u>the site itself would remain grossly stable, even if the offsite portion of the slope were to fail away during a seismic event</u>."** (Feffer's Dec 17, 2019 report page 7.) A consultant cannot simultaneously acknowledge adjacent off-site failure and certify that the project "will in no way contribute to instability on or off the subject site." PCLC further recommends that the geometry using all data available must be utilized without leaving out datapoints that includes the introduction of water to the site and define limitations on water use in a known slide zone. The project must substantiate how the water is kept from destabilizing the slope with putting water into the toe of the slide. The Big Rock settlement included that the houses are not able to add bedrooms or restrooms for impact to the slide. The City is not able to make the findings required by LIP chapter 9 based on the current record.

- Malibu LIP § 9.4(D) — requires development in hazardous areas to be designed to ensure *long-term stability over the economic life of the development [100 years]*.
  Analyses limited to short-term or static conditions do not satisfy this requirement. The City is not able to make this finding based on the current record.

- Malibu LIP § 10.4 — requires that new development on oceanfront bluffs be sited outside areas subject to geologic hazards over a *minimum 100-year economic life*.
  The unresolved landslide geometry and groundwater conditions prevent this determination. The City is not able to make this finding based on the current record.

Accordingly, the proposed LIP findings and certifications are unsupported.

In addition, where parcels are legalized through a Conditional Certificate of Compliance No. 21-004, the State Subdivision Map Act (Government Code, § 66499.35) requires that conditions necessary to protect public health, safety, and adjacent properties be imposed. In a geologically sensitive area such as Malibu Road, those conditions necessarily require an understanding of downslope geology, groundwater conditions, and potential off-site impacts. Absent site-specific evaluation of adjoining properties, approval of proposed Lot Merger No. 24-002 is premature.

Upon reviewing the Staff Report, we object to reliance on outdated, inconsistent, and/or superseded information that does not accurately depict the current state of the project. Documentation in the Staff Report, including site plans, and other documentation are outdated or internally inconsistent; for example, the architectural site plan omits two stabilization piles shown in Feffer Geological Consulting's design, among other inconsistencies. We believe that all information in the Staff Report should be updated to reflect current conditions, and revised analyses, and current documentation rather than old/inconsistent information. Furthermore, the City should update inclinometer data to include all data in lieu of wiping out previous data and to show both Fugro and Ye Assessment inclinometer data on one graph.

We respectfully submit that additional geotechnical study is required, including installation of new inclinometers; monitoring through at least one wet season (think of increasingly more powerful atmospheric rivers climate change is bringing to the coast); recalculation of landslide geometry and failure surfaces to incorporate all available data; and evaluation of off-site conditions affecting adjacent and downslope properties, all as mandated by the Malibu LIP. We ask for further clarification and substantiation to feel comfortable with introducing water into the soil of the Assessment District 98-3 Malibu Road. In addition the new house would block path of travel in an emergency over this hill for those on foot. Please do not let the soil and mud come down to the residents' houses for the sake of life safety and protection of property.

Thank you for your consideration.

Respectfully submitted,

Concerned Citizens of Malibu Road

Received
12/16/25
Planning Div.

From: Alex Hall
To: Planning Commission
Subject: Re: 25200 Pacific Coast Highway Comment
Date: Tuesday, December 16, 2025 4:06:18 PM
Attachments: image001.png
image002.png
image003.png
image004.png
image005.png
image006.png
20251224_response_FINALrev.pdf
PCLCGeotech_technical letter 2025-12-16_.pdf

Please find attached letter revised with signature page and also please find attached geotechnical engineer's technical letter.
Thank you

On Tue, Dec 16, 2025 at 1:54 PM Planning Commission <planningcommission@malibucity.org> wrote:

> Hi Alex,
>
> Your correspondence has been distributed to the Planning Commissioners.
>
> Regards,
>
> **Gail Duncan** (She/Her)
> Administrative Assistant
> Community Development Department
> Office: 310.456.2489, ext. 309
> 23825 Stuart Ranch Road | Malibu, CA 90265
>
> **From:** Alex Hall [redacted]
> **Sent:** Tuesday, December 16, 2025 12:57 PM
> **To:** Planning Commission <planningcommission@malibucity.org>
> **Subject:** Re: 25200 Pacific Coast Highway Comment

CC: Planning Commission, PD,

Recording Secretary, File

Date Received 12/16/25 Time 4:06 p.m.
Planning Commission meeting of 12/16/25
Agenda Item No. 5C
Total No. of Pages 28

Please find attached comments for 25200 Pacific Coast Highway

Thank you

On Mon, Aug 18, 2025 at 3:54 PM Alex Hall [redacted] wrote:

> Please find attached comments for 25200 Pacific Coast Highway
>
> Thank you,
>
> Alex Hall

December 16, 2025

Subject: GEOTECHNICAL FINDINGS AND REQUEST FOR ADDITIONAL STUDY COASTAL DEVELOPMENT PERMIT NO. 19-012, CERTIFICATE OF COMPLIANCE NO. 21-004, LOT MERGER NO. 24-002, 25200 Pacific Coast Highway, APNs 4459-013-021 & 4459-014-018

We have serious reservations concerning slope stability with the water generated by the project proposed at 25200 Pacific Coast Highway, introduced into the adjacent hillside properties. A supplemental technical letter response prepared by Pacific Coast Land Consulting (PCLC), responding to Feffer Geological Consulting's August 20, 2025 response for the proposed development at 25200 Pacific Coast Highway. We are worried by the threat of the hill destabilizing and failing onto adjacent properties after introducing water and soil disturbance to a known Assessment District 98-3 Malibu Road. These are questions of life safety and property loss.

Long time residents remember the house next to 25325 Malibu Road completely washed away in a heavy rain, the large lot next to 25325 sank nearly ten feet. We do not want what happened in the Rappaport slide (25040 PCH) to happen to residents where the soil headed towards the houses. We heard that houses had the landslide mud and soil went into the inside of homes.

The original stabilization piles for 25200 PCH were on the slope but were moved to avoid a variance. It may be that stabilization piles (subject to easements) are required on the entire slope to support this expansive house and the water it is introducing into the soil. Please consider the life safety and loss of property of those below the slope. In other slides like **Big Rock, mere additions of bedrooms and bathrooms are prohibited because such new development alone may affect the slide below.**

- Malibu LIP § 9.3(A)(1) — requires that a project *"will neither be subject to nor increase instability of the site or structural integrity from geologic hazards due to project design, location, or other reasons."* And must consider "worst case" analysis per Malibu LIP § 9.3(D), and omitting specific data such as SI 5 and SI 6 does not achieve "worst case analysis". This finding is not backed up when landslide geometry and off-site impacts remain unresolved per PCLC's technical review.
- Malibu LIP § 9.4(A) — requires the consulting geologist or geotechnical engineer to certify that the proposed development *"will in no way contribute to instability on or off the subject site,"* including adjacent and downslope properties. Feffer's analysis for the project is limited to the project site and does not substantiate off-site stability and in fact acknowledges (Dec 17, 2019) that "**calculated failures occurred predominately <u>offsite on the property below</u>**", "All calculated **<u>seismic failures occurred offsite</u> and below the property line** " and indicating that**" <u>the site itself would remain grossly stable, even if the offsite portion of the slope were to fail away during a seismic event</u>."** (Feffer's Dec 17, 2019 report page 7.) A consultant cannot simultaneously acknowledge adjacent off-site failure and certify that the project "will in no way contribute to instability on or off the subject site." PCLC further recommends that the geometry using all data available must be utilized without leaving out datapoints that includes the introduction of water to the site and define limitations on water use in a known slide zone. The project must substantiate how the water is kept from destabilizing the slope with putting water into the toe of the slide. The Big Rock settlement included that the houses are not able to add bedrooms or restrooms for impact to the slide. The City is not able to make the findings required by LIP chapter 9 based on the current record.

- Malibu LIP § 9.4(D) — requires development in hazardous areas to be designed to ensure *long-term stability over the economic life of the development [100 years]*.
  Analyses limited to short-term or static conditions do not satisfy this requirement. The City is not able to make this finding based on the current record.

- Malibu LIP § 10.4 — requires that new development on oceanfront bluffs be sited outside areas subject to geologic hazards over a *minimum 100-year economic life*.
  The unresolved landslide geometry and groundwater conditions prevent this determination. The City is not able to make this finding based on the current record.

Accordingly, the proposed LIP findings and certifications are unsupported.

In addition, where parcels are legalized through a Conditional Certificate of Compliance No. 21-004, the State Subdivision Map Act (Government Code, § 66499.35) requires that conditions necessary to protect public health, safety, and adjacent properties be imposed. In a geologically sensitive area such as Malibu Road, those conditions necessarily require an understanding of downslope geology, groundwater conditions, and potential off-site impacts. Absent site-specific evaluation of adjoining properties, approval of proposed Lot Merger No. 24-002 is premature.

Upon reviewing the Staff Report, we object to reliance on outdated, inconsistent, and/or superseded information that does not accurately depict the current state of the project. Documentation in the Staff Report, including site plans, and other documentation are outdated or internally inconsistent; for example, the architectural site plan omits two stabilization piles shown in Feffer Geological Consulting's design, among other inconsistencies. We believe that all information in the Staff Report should be updated to reflect current conditions, and revised analyses, and current documentation rather than old/inconsistent information. Furthermore, the City should update inclinometer data to include all data in lieu of wiping out previous data and to show both Fugro and Ye Assessment inclinometer data on one graph.

We respectfully submit that additional geotechnical study is required, including installation of new inclinometers; monitoring through at least one wet season (think of increasingly more powerful atmospheric rivers climate change is bringing to the coast); recalculation of landslide geometry and failure surfaces to incorporate all available data; and evaluation of off-site conditions affecting adjacent and downslope properties, all as mandated by the Malibu LIP. We ask for further clarification and substantiation to feel comfortable with introducing water into the soil of the Assessment District 98-3 Malibu Road. In addition the new house would block path of travel in an emergency over this hill for those on foot. Please do not let the soil and mud come down to the residents' houses for the sake of life safety and protection of property.

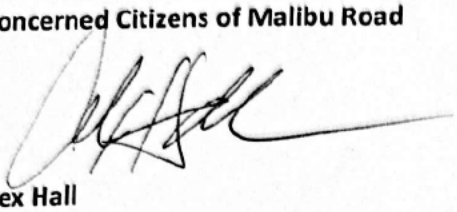
Thank you for your consideration.

Respectfully submitted,

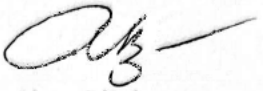
Concerned Citizens of Malibu Road

Respectfully Submitted,

Concerned Citizens of Malibu Road



Alex Hall
[redacted] Malibu Road



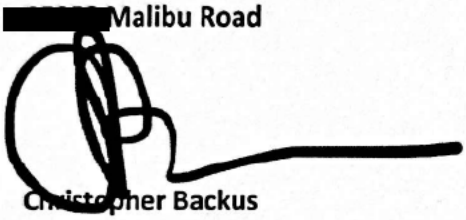
Alma Bliujus
[redacted] Malibu Rd.
Malibu, CA 90265



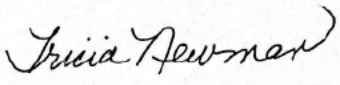
Mira Backus
[redacted] Malibu Road



Beatta Skulski
[redacted] Malibu Road



Christopher Backus
[redacted] Malibu Road



Tricia Newman
[redacted] Malibu Road

Pacific Coast Land Consulting
Engineering Geologic Services

RE: Remaining Unaddressed Items – Review of Feffer Geotechnical Report 25200 Pacific Coast Highway, Malibu, CA

December 12, 2025 FN 25200LS-25-100

1525 Pepper Tree Place, Fallbrook, CA 92028
TEL (760) 473-4117 Email Rnkjeffery@SBCGlobal.net

Pacific Coast Land Consulting
Engineering Geologic Services

December 12, 2025

FN: 25200LS-25-100

Ralph K. Jeffery, CEG 1183
1525 Pepper Tree Place
Fallbrook, CA 92028
(760) 473-4117
rnkjeffrey@SBCGlobal.net

Subject: RE: REMAINING UNADDRESSED ITEMS – REVIEW OF FEFFER GEOTECHNICAL REPORT
Project: 25200 Pacific Coast Highway, Malibu, California

1.0 INTRODUCTION

We have reviewed Feffer Geological Consulting's response titled "RESPONSE TO CITY OF MALIBU GEOTECHNICAL REVIEW COMMENTS," dated August 20, 2025, which was prepared in reply to concerns raised in Pacific Coast Land Consulting's original technical letter (Pacific Coast Land Consulting, PRELIMIARY REVIEW OF FEFFER REPORT AUGUST 15, 2025) authored previously. While the August 20, 2025 response summarizes selected data and provides additional narrative discussion, it does not address all of the technical concerns identified in the original PCLC letter, and several critical issues remain unresolved or only partially addressed.

These unresolved issues are fundamental to accurately characterizing site conditions, evaluating landslide hazards, and designing a stabilization system. Because the proposed development is located upslope of existing residences along Malibu Road, any remaining uncertainty regarding slope stability or groundwater conditions has the potential to adversely affect off-site properties. Accordingly, this letter provides clarification of the outstanding concerns that were not fully addressed in Feffer's August 20, 2025 response and explains why additional evaluation is warranted.

Geologic investigations are often challenging, it is rare situation where a site exists with so much data to evaluate and use as part of the investigation. As Mr. Feffer knows investigation on this

site go back into the 1960s, There have been numerous landslide events in this area. Enough so that lead to the establishment of the Malibu landslide Assessment District.

Malibu has an inordinate number of landslides, all of which are quite complex due the geologic conditions. These include Big Rock Mesa, Eagle Pass-Las Flores, Latigo Bay Villas and numerous others. All of these slides have at least one thing in common and that is the failure to build a correct and accurate geologic model for analysis. The issue here is not that this development should be built but that it needs to be built using the correct model. The residents below this proposed development are very concerned that the proposed work will have a negative impact on their homes. Their concerns are valid, for the reasons previously presented. Mr. Feffer's response only adds additional concern to the residents by not considering the geological questions previously presented.

2.0 REGULATORY AND PROFESSIONAL OBLIGATIONS

Further, the introduction of deep stabilization elements such as piles or caissons on the upper parcel may increase risk to downslope properties if slide geometry, depth, or continuity are not correctly defined. Partial stabilization of an upper portion of a landslide mass can create a false sense of stability, while transferring stresses to deeper or downslope portions of the slide mass that have not been analyzed. If deeper or secondary slide surfaces exist below the embedment depth of the piles, the added rigidity and disturbance associated with pile installation may redirect or concentrate movement downslope rather than arrest it.

Temporary construction effects also warrant consideration. Drilling disturbance, spoils handling, vibration, and short-term groundwater changes associated with pile installation were not evaluated, yet may be critical in an area with a history of slow landslide movement.

Analyses focused primarily on short-term or static factors of safety do not address the potential for long-term creep or progressive deformation, which is consistent with the documented inclinometer history at this site and must be evaluated over the projected economic life of development.

Additionally, any adverse consequence of a mischaracterized geologic or stability model would be asymmetrically borne by downslope properties, where even small increases in movement or groundwater pressure could result in structural damage or loss, as demonstrated by historic

landslide failures in this area. These considerations further underscore the necessity of fully evaluating off-site conditions before the required stability findings can be made.

3.0 STANDARD OF CARE FOR LANDSLIDE INVESTIGATION

The proper procedure for investigating any site is to gather all data and utilize it in a comprehensive analysis. This means paying attention to all data and not picking and choosing favorable data points while ignoring less favorable data. Neither I nor Mr. Feffer were present for any of the earlier work. We have to accept the observations and geologic data as they are presented in the logs. This means relying on observations locations depths orientations and descriptions.

Typically, it takes 3 things to confirm the presence of sliding ancient or active (with instrumentation).

1) Geomorphic evidence – the shape of landform, offset in stream beds, hummocky terrain etc. Landforms are often altered with time, as erosion occurs and man modifies the terrain, The result of this is obscure some features such as boundaries, stream beds and alignments.
2) Subsurface investigation- Borings are drilled and geologists go down into the borings and record their observations and collect data such as geologic attitudes on bedding, fractures clay seams and slide planes.

   Protocol for logging is to identify every single vertical inch of the column of rock exposed in the boring. Thus, logs are created with lines drawn to show where one lithology with a particular characteristic end and another begins. Stone logs from 1962 did this and Feffer's logs did not, neither did Cy logs.

   This data is then prepared in log format for others to review and analyze. One of the important observation a geologist makes while down hole is to note the character of the earth material. Words like smashed up, (a colloquial term) fractured pulverized re-worked

etc. are used to denote bedrock materials that have been disturbed by movement, usually landslide activation.

Often a geologist will identify a slide plane. These features can be very thin. 1/16" or less to several inches in thickness. Term like polished surfaces with striation surface, basal surface, slide or glide plane (glide is colloquial and not used much anymore but the descriptive nature of the word and meaning is clear: **movement along a discrete plane** .

Other terms in observations made by a. geologist when down hole include. Striations and slicks. These are synonyms, Striation or slicks (short for slickensides are. fine scratches or grooves cut into rock opposing rock faces as one block moves past another. This can be caused by faulting internal shifting of major blocks. But is most often associated with landslide movement and is often the signature of a landslide.

3) Instrumentation- The main instrument in analyzing a landslide are inclinometers. These are indexed pipes put into suspected active landslide and then monitored by comparing an initial or base reading to subsequent readings. The accuracy of this system is typically .1" over a length of 100'. Thus, repeatable movements however small mean that this is an active slide. Instrumentation is typically what you see is what is there type of data point. The only exception to this is by changing the initial reading. This resets the vertical baseline reading back to a straight line and eliminates evidence of previous movement.

4) Once the data is collected and assembled on map the next step is develop a structure contour map of a surface defined by an accumulation of all the datapoints, logs and instrumentation. This is done by plotting the elevation of the surface of interest at a particular location boring or inclinometer. It is done for all the borings and inclinometers. If this results in a chaotic mess where elevations **don't** project from one boring to another or a point on an inclinometer then it is likely that the feature investigated is not a slide, has other origins. Contrarily, if the data points do line up on an evaluation basis and spatial basis a map of slide plane has been created that relies on all data. This is called a

structure contour map. It is the standard of care in developing a model to be analyzed with slope stability programs. The detail and continual logging notes for the boring must be complete and detailed enough to complete this critical. Task. Feffer's work did not accomplish this.

5) Groundwater Modeling. The ground water table needs to be established with potential high levels to be used in the slope stability analysis.

3.1 GEOMORPHIC EVIDENCE

Surface features such as hummocky terrain, disrupted drainage, and slope breaks often indicate past or ongoing landslide activity. Although erosion and grading can obscure these features over time, their partial removal does not negate their original significance.

3.2 SUBSURFACE INVESTIGATION

The concerns regarding the characterization of subsurface materials in Feffer's borings remain unaddressed. Specifically:

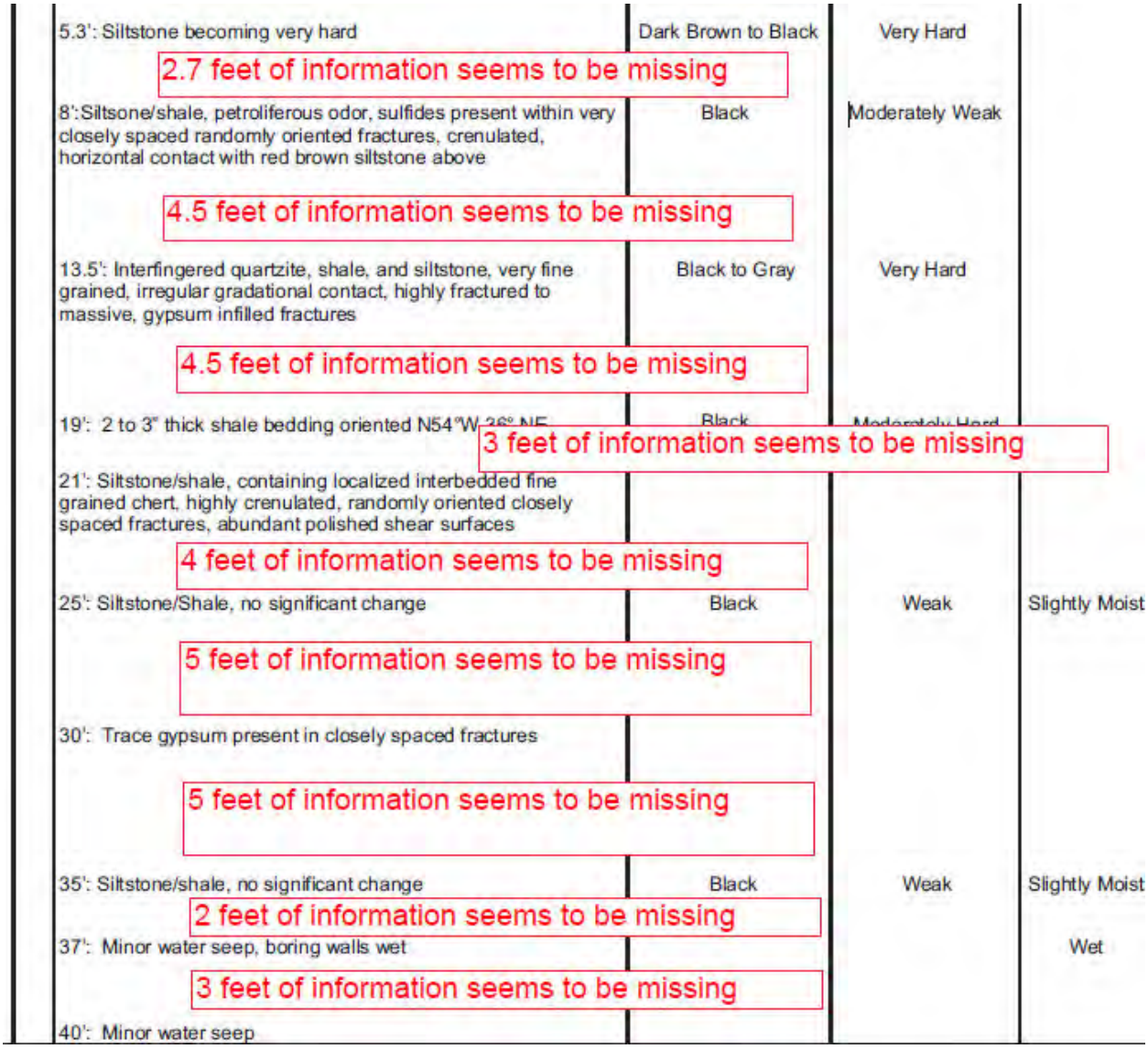
- Older consultants' reports documented crushed, disturbed, or sheared materials consistent with landslide deposits, while Feffer logs classify similar intervals as "bedrock" without explanation.
- Gaps in log descriptions at depth and a lack of detailed material characterization were not addressed and did not meet the industry standard of care.
- No explanation was provided for discrepancies between historic logs and Feffer's own interpretation.

As stated in the prior technical letter, continuous subsurface investigation is critical to defining landslide geometry and failure mechanisms. Continuous boring logs are essential. Industry standards require logging every vertical inch of the borehole and documenting lithology changes, shear zones, bedding attitudes, fractures, clay seams, and disturbed materials. Terms such as *smashed*, *jumbled*, *pulverized*, *reworked*, *slickensides*, and *polished shear surfaces* are commonly used to describe materials disturbed by landslide movement.

Historic logs prepared by STONE SUBSURFACE EXPLORATION LOGS, MALIBU ROAD AREA, MALIBU, CALIFORNIA. 1962. meet this standard. By contrast, Feffer's logs—and earlier CY logs—contain gaps and reduced descriptive detail, limiting their usefulness in defining slide geometry and does not meet the standard of care for geotechnical engineering. Feffer log **B-3** was only intermittently logged with notations every 5' that only denoted fracturing and gypsum in filled cracking (evidence of dilation - movement) A zone of interest, that would correlate with SG 6 and 7 would be from 25'-45' but there were not continuous observations

Feffer log **B-5** reads like landslide however the category description has been described as bedrock. The bedding orientations are southwards towards the beach. However, there are multiple gaps in the logs and the log appears biased towards a non-slide condition despite containing observations of shearing and clays tilted towards the south. The boring is well into the pad area and was previously identified as a slide.

1525 Pepper Tree Place, Fallbrook, CA 92028
TEL (760) 473-4117 Email Rnkjeffery@SBCGlobal.net



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40': Minor water seep		
~4 feet of information seems to be missing		
44.4-48': 2-3" thick clay bedding oriented N80°W 27°N, clay is very plastic, very sticky, abundant gravels and fractured bedrock at base of clay bed, continuous around boring	Gray to Light Gray	Soft
45.4-48': Quartzite/shale below clay bed, highly fractured, gypsum infilled fractures	Black	Very Hard
49-51': 1/4" Claystone beds within shale bedrock, bedding oriented N43°W 49°NE, bedding orientation continues below	Light Brown	Hard
51': Water seep		
7 feet of information seems to be missing		
58': Claystone, bedding oriented same as above to 65 ft.	Light Brown	Hard
7 feet of information seems to be missing		
65': Standing groundwater, logging stopped on 5/14/2019		
5 feet of information seems to be missing		
70': Shale, siltstone	Black to Dark Gray	Very Hard
5 feet of information seems to be missing		
75': Shale, siltstone, continues to bottom of boring	Black to Dark Gray	Very Hard

1525 Pepper Tree Place, Fallbrook, CA 92028
TEL (760) 473-4117 Email Rnkjeffery@SBCGlobal.net

Pacific Coast Land Consulting
Engineering Geologic Services

IN RED APPEARS TO BE MISSING INFORMATION?

LOG OF EXPLORATORY BORING

Sheet 1 of 2

Job Number: 1992-75
Project: 25200 Pacific Coast Highway

Boring No: 10
Boring Location: See Site Map.

Date Performed: 5/13/2019

Drill Type: 24" Bucket Auger

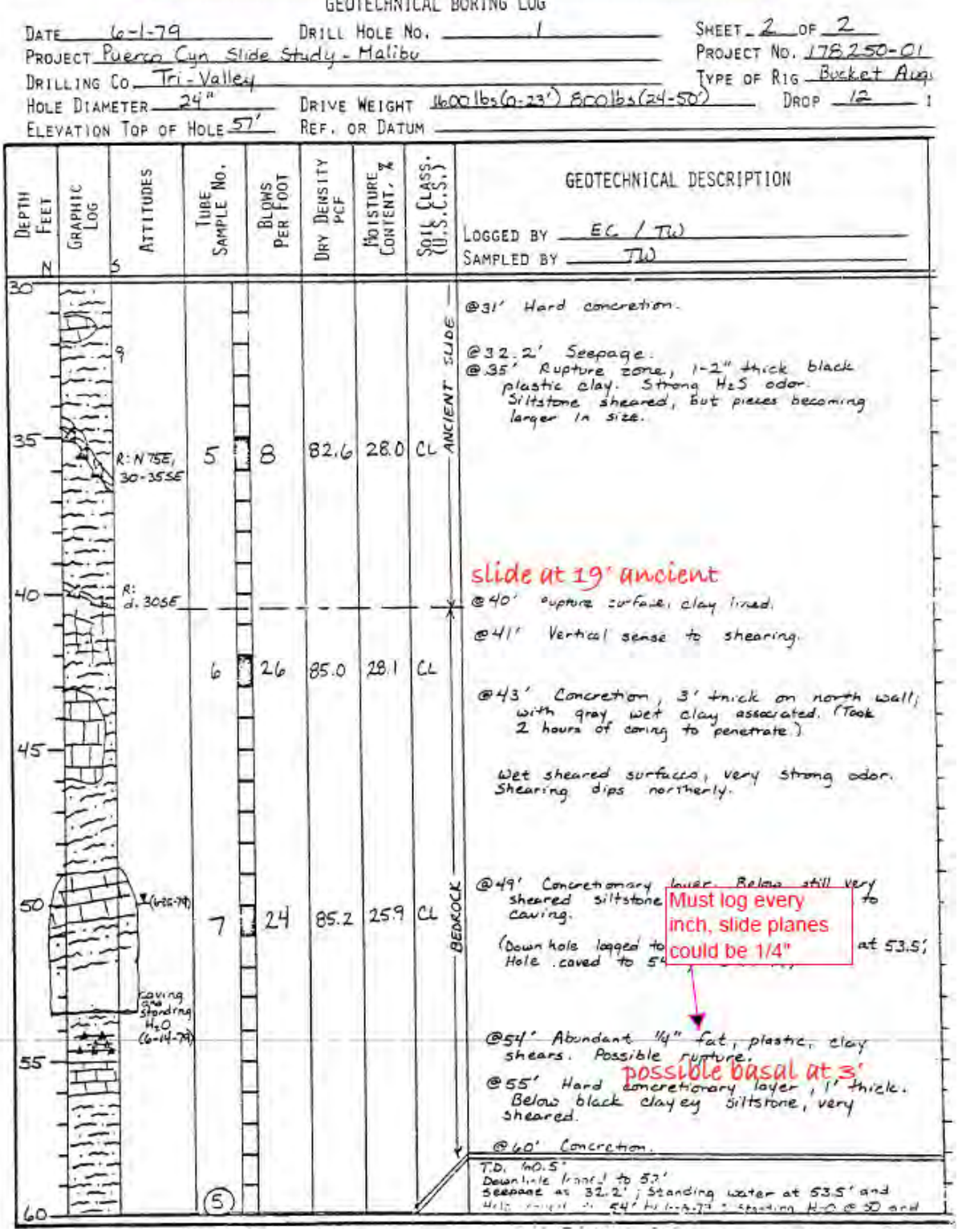
Depth in Feet	Blows per 6"	Sample Type: Undisturbed	Sample Type: Bulk	Bedrock/ Soil Description	Color	Density	Moisture
0				0-2.4': Steel casing in top of hole			
				Bedrock: Monterey Shale (Tm) 2.4': Siltstone, moderately fractured, 1/8" closely spaced fractures with gypsum infilling, randomly oriented fractures	Red Brown	Moderately Hard	Dry
				4.2': 1-2" thick horizontal bed			
5				5.3': Siltstone becoming very hard	Dark Brown to Black	Very Hard	
				2.7 feet of information seems to be missing			
				8': Siltsone/shale, petroliferous odor, sulfides present within very closely spaced randomly oriented fractures, crenulated, horizontal contact with red brown siltstone above	Black	Moderately Weak	
10	5/9	R		4.5 feet of information seems to be missing			
				13.5': Interfingered quartzite, shale, and siltstone, very fine grained, irregular gradational contact, highly fractured to massive, gypsum infilled fractures	Black to Gray	Very Hard	
15				4.5 feet of information seems to be missing			
				19': 2 to 3" thick shale bedding oriented N54°W, 36° NE	Black	Moderately Hard	
20				3 feet of information seems to be missing			
	6/13	R		21': Siltstone/shale, containing localized interbedded fine grained chert, highly crenulated, randomly oriented closely spaced fractures, abundant polished shear surfaces			
				4 feet of information seems to be missing			
25				25': Siltstone/Shale, no significant change	Black	Weak	Slightly Moist
				5 feet of information seems to be missing			
30	13/20	R		30': Trace gypsum present in closely spaced fractures			
				5 feet of information seems to be missing			
35				35': Siltstone/shale, no significant change	Black	Weak	Slightly Moist
				2 feet of information seems to be missing			
				37': Minor water seep, boring wells wet			Wet
				3 feet of information seems to be missing			
40	7/15	R		40': Minor water seep			

Feffer Geological Consulting

Figure

1525 Pepper Tree Place, Fallbrook, CA 92028
TEL (760) 473-4117 Email Rnkjeffery@SBCGlobal.net

Comment by PCLC The 1979 Leighton boring logs shows level of detail not shown on Feffer logs.



1525 Pepper Tree Place, Fallbrook, CA 92028
TEL (760) 473-4117 Email Rnkjeffery@SBCGlobal.net

3.3 INSTRUMENTATION AND SYSTEM RESET

The analysis of any slide is only as good as the model developed. And this. means that all data must be considered, for what it is and not subject to interpretation. Feffer's statement that both SI-5 and SI 6 conclude that no "significant movement" is wrong. If Feffer had taken a careful look at all the data in these 2 inclinometers he would have discovered that the appearance of no movement results from a change in the date of the base line readings. Inclinometers operate on a comparison basis. Subsequent readings are then recorded to that initial base line, and the resultant plot shows the depth and magnitude of the offset.

In this situation for SI-5 the initial reading was taken on 8-17-2004. This is the base line reading to which all future readings are to be compared. However, this was not used until the report of 2018-2019 by Fugro in the plots and it is at that time the offsets in SI-5 are clearly visible.

The rest of the readings arbitrarily use a later base line reading in this case the other "initial reading" were on May of 2005. This has the effect of straightening out the plots by eliminating readings between 2004 and 2005.
For SI-6 the earliest identifiable movement occurs at a depth of 38 feet in the 2008-09 report from Fugro.
Incremental displacements are continuously recorded in almost all Fugro report despite initial reading date being changed during plotting. Cumulative displacements plot as much as .2 inches as recently as June 2020.

What is meant by significant movement? How much movement is insignificant? The answer lies in the plots of the inclinometers. If it was, just one inclinometer that had some reading would be suspicious but to have 2 inclinometers show similar results over years of monitoring indicates that slow slide movement is continuing.
Therefore, this data. must be accounted for in the landslide and slope stability model. It wasn't even considered in more than a cursory brush over.

It has now been established that there exist in the body of data significant and numerous points representing the slide plane. The next step is to develop the structure contour and this is as simple as connecting the data points on the slide. If this can be done and it has then the slide is much larger than Feffer's analysis.

It is not the standard of care to just simply connect the dots. This approach leads to an inaccurate and incomplete analysis of the geometry of the slide. If the geometry of the slide is not accurate then subsequent engineering and slope stability, is based upon an inaccurate model and also incorrect.

These issues affect the reliability of the geologic model and the validity of later engineering analyses.

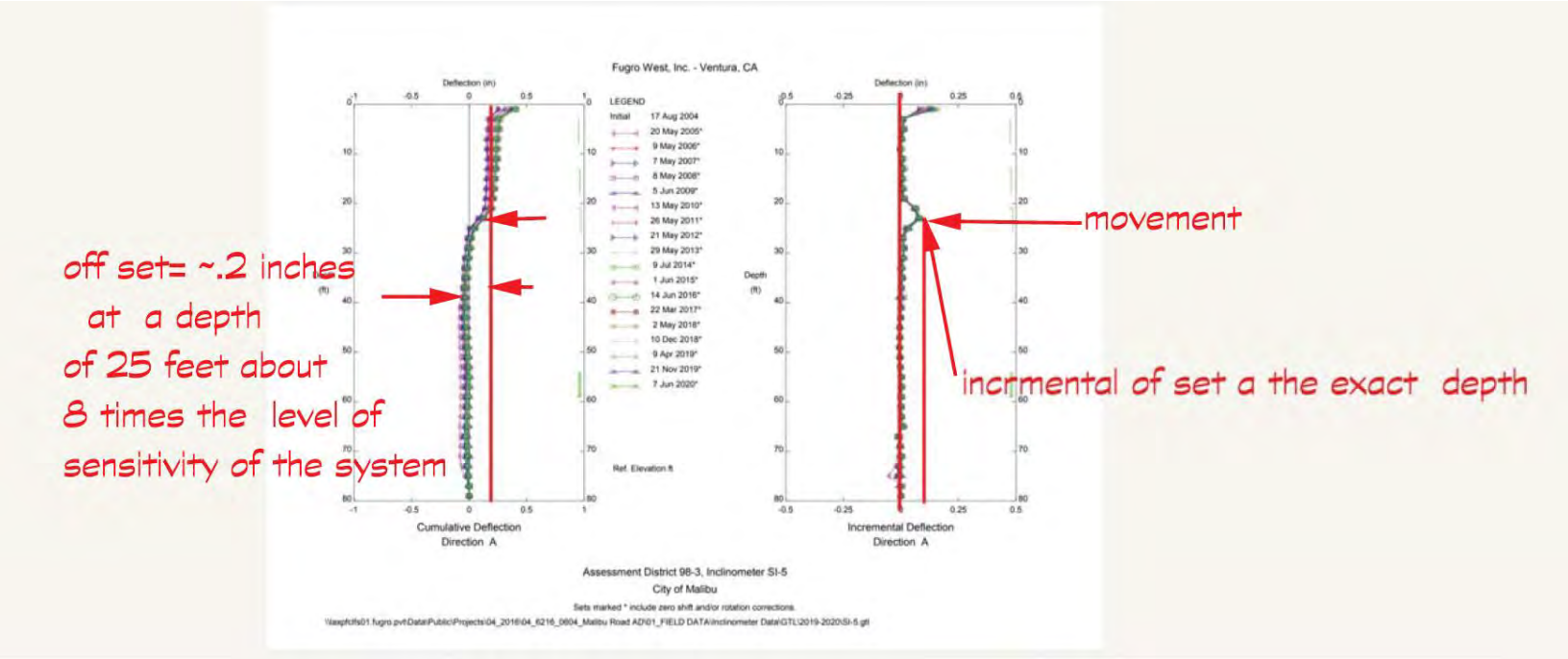
Feffer should address:

- Why are Feffer's own logs significantly less detailed than prior logs
- Feffer's logs contain "gaps in the observations"
- Feffer may have misclassified smashed, jumbled, crushed/chaotic materials as "bedrock"
- Feffer ignores identifications of slide surfaces
- Feffer's inclinometer analysis seems to have only consisted of reading the annual report and parroting that language
- In the section reviewed some groundwater profile have a vertical drop. There does not seem to be clear explanation of this phenomenon or what data was used to develop the profile.in one section it appears based on faulting but in other sections the water appears continuous. The review of the logs by CY (boring 2) does not show a fault, and it is shown on the section. It is unclear how this interpretation was achieved. Nor does it demonstrate a significant enough gouge zone to act as ground water barrier. The notation of a healed fault plane. @ 10' in Feffers boring B-2 has only a 31degree easterly dip with a north south strike (parallel to the section) which is at 90 degrees to the fault shown in section 2. No other faulting is found in the logs and it is not placed on the geologic map. The evidence for this. feature is questionable and needs additional supporting data.
- Without this data then the ground water table needs to be a continuous profile from the upper pad to the lower portions of the area. The ground water surface should be

subparallel to the slope of the land consequently is substantially higher, than that which was analyzed.

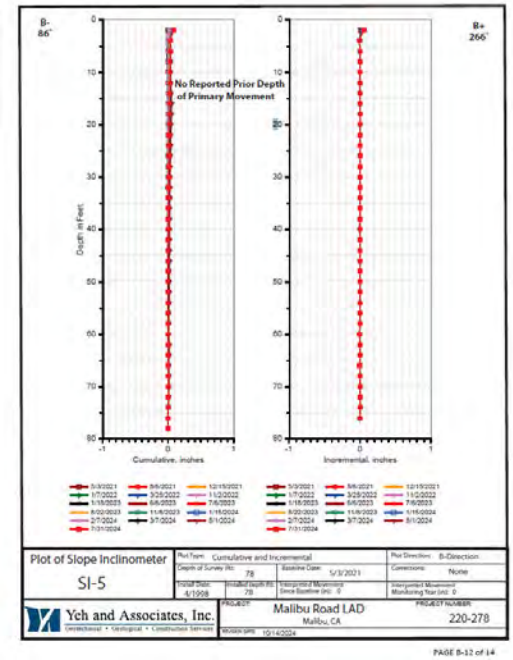
Inclinometers provide direct evidence of subsurface deformation. Movements as small as 0.1 inch over 100 feet are meaningful. Resetting baseline readings eliminates evidence of prior displacement and must be explicitly accounted for when interpreting results. The City should have Ye and Associates update the data to show cumulative data from the Fugro reports as this creates misleading design data by wiping out past data with a system reset and defeats the purpose of tracking this data.

Fugro 2019-202 dated August 2020 report (Fugro Consultants, Inc. ANNUAL REPORT JULY 2019 THROUGH 2020 MALIBU ROAD LANDSLIDE ASSESSMENT DISTRICT, MALIBU CA. August 2020, pg 48 of pdf) shows cumulative movement:



System reset wipes out previous data:

Yeh & Associates, Inc 2023-2024 Report dated March 20, 2025 (Ye & Associates Inc**.** FY23/24 MAINTENANCE AND MONITORING AD98-3, MALIBU ROAD CITY OF MALIBU, CALIFORNIA. March 20, 2025, Page B-11 of 14, Page 39 of pdf)



3.4 DEVELOPMENT OF A STRUCTURE CONTOUR MAP AND CITY OF MALIBU ASSESSMENT DISTRICT NO.98-3 MALIBU ROAD AND ASSESSMENT FEES

Once subsurface data are compiled, elevations of suspected slide planes must be plotted and evaluated spatially to determine whether a coherent failure surface exists. If data points correlate spatially and geometrically, a landslide surface has been defined. This step is fundamental and cannot be bypassed. Once this structure map is recalculated with all available data and additional data as recommended, 25200 PCH would likely be in the City of Malibu Assessment District No.98-3 Malibu Road and would be pay fees associated with being in the City of Malibu Assessment District No.98-3 Malibu Road.

3.5 GROUNDWATER MODELING

Slope stability analyses must incorporate realistic high-groundwater conditions, particularly where onsite wastewater disposal is proposed. Groundwater surfaces should generally be subparallel to topography unless well-supported geologic barriers are demonstrated.

4.0 INCOMPLETE OR NON-SPECIFIC LOGGING IN FEFFER BORINGS

Concerns regarding Feffer's subsurface characterization remain unresolved:

- Materials described by earlier consultants as crushed, sheared, or landslide debris are frequently classified by Feffer as "bedrock" without explanation.
- Numerous gaps in logging occur at critical depths.
- Discrepancies between historic logs and Feffer's interpretations are not reconciled.

Stone's SG-6 and SG-7 (STONE SUBSURFACE EXPLORATION LOGS, MALIBU ROAD AREA, MALIBU, CALIFORNIA. 1962), located within feet of Feffer borings, describe smashed, jumbled materials with slickensides between approximately 5 and 42 feet, indicative of landsliding beneath the central building pad. Feffer's nearby borings do not reflect these conditions, despite spatial proximity.

5.0 INCLINOMETER DATA INTERPRETATION

Feffer's response relies on the statement that the inclinometer reports indicate "no significant movement." This phrasing requires clarification in the context of the full inclinometer record. While Feffer cites the City's 2025 Assessment District Report. He merely restates the conclusion without doing any analysis. Feffer's response does not address:

- Why earlier inclinometer interpretations identified movement at 32–39 feet
- Records of data. recording goes back as far as 1989, yet no plots of this data was available or apparently reviewed
- Whether instrument noise, calibration, or reading intervals were evaluated
- Whether incremental and cumulative plots were reviewed in any detail
- Was any effort made to obtain the original data and plot the results independently standardizing the use of the initial readings to the earliest available data.
- There appears that pre 2004 inclinometer readings were taken, however no effort to obtain and review this data was made
- Whether deeper movement potential should be reexamined given historic slide mapping

These discrepancies should be resolved through direct comparison of data sets.

a. Later Assessment District reports (roughly mid-2010s onward)

These reports — especially those Feffer references — commonly state variations of:

- "No significant movement"

- "No shear-type movement"
- "Movement within instrument accuracy"

Important nuance:

- These statements are made after baseline resets, which is significant because a system-wide reset effectively re-zeroed the inclinometer profiles; the fact that all inclinometers were set to zero must be considered when interpreting subsequent plots
- They are typically referring to shear-type movement across a single, discrete plane
- They often do not deny incremental or cumulative displacement

Accordingly, when Feffer states that "the inclinometer reports say there is no significant movement," he is accurately quoting some report conclusions, but only in a narrow, technical sense.

b. Earlier reports (and raw plots within later reports)

Earlier Fugro reports — and the plots themselves even in later reports — show:

- Documented incremental displacement
- Cumulative movement on the order of approximately 0.1 to 0.2 inches
- Recurrent displacement at similar depths in:
    - SI-5
    - SI-6

In several reports (including Fugro's INCLINOMETER MONITORING REPORTS, CITY OF MALIBU ASSESSMENT DISTRICT NO. 98-3, MALIBU ROAD, MALIBU, CALIFORNIA. 2008–2009 and subsequent years):

- Movement is explicitly plotted
- The issue is how it is characterized, not whether it exists

These reports do not state that there is "no movement." Rather, they describe movement as:

- slow,
- incremental, or
- below a threshold the consultant defines as "significant."

c. What "no significant movement" actually means (technically)

In inclinometer practice:

- "Significant" is not a regulated term
- It is consultant-defined

It usually means:

- no abrupt shear plane,
- no accelerating displacement, or
- no emergency condition

It does not mean:

- no deformation,
- no landslide-related movement, or
- no relevance to long-term stability

Accordingly, Feffer's statement is technically incomplete, even if not outright false.

d. Assessment District (AD) data is for monitoring, not design

Assessment District (AD) reports are meant to:

- track long-term trends,
- support maintenance decisions,
- and observe known landslide behavior

AD data is not intended to:

- define landslide geometry,
- establish failure mechanisms, or
- justify new development without independent, site-specific geologic modeling

Reliance on AD summary language misapplies the purpose of those reports.

6. GROUNDWATER UNCERTAINTY

Groundwater profiles used in Feffer's analyses do not represent the highest reasonably anticipated conditions, particularly given the proposed onsite wastewater system. Absent clear evidence of a laterally continuous groundwater barrier, groundwater should be assumed to form a continuous, slope-parallel surface.

It is well established from the history of landsliding in the Malibu Road area that the introduction or increase of water within a landslide mass can be a primary triggering mechanism, and under adverse conditions can prove devastating. Residents along Malibu Road recall that, around 1978, a residence located at 25325 Pacific Coast Hwy was lost during landslide activity and a substantial section of Malibu Road reportedly subsided on the order of approximately ten feet, a condition that remains evident today. These events occurred within living memory and underscore the sensitivity of the landslide complex to groundwater conditions.

Given this history, any increase in groundwater—whether from rainfall, altered drainage, or onsite wastewater disposal—must be conservatively evaluated with respect to both on-site and downslope stability.

7. MISSING PACIFIC SOILS DATA

Our report noted that Pacific Soils previously identified landslide terrain, although their logs are unavailable. Feffer's response did not address:

- What effort was made to find these logs?
- How missing data was considered in Feffer's uncertainty analysis
- Why earlier conclusions regarding landsliding were not incorporated conservatively given the lack of confirmatory logs
- Whether additional subsurface exploration is warranted to resolve this documented data gap

This omission leaves an unresolved question regarding the completeness of the site characterization.

Feffer should address if data is missing, make every effort to find these logs, whether there could be an underestimate of the likelihood of landsliding.

8. LANDSLIDE GEOMETRY IMPLICATIONS AND FAILURE SURFACE DEFINITION

As discussed above, the definition of landslide geometry presented by Feffer relies on incomplete subsurface data and selective use of instrumentation. When combined with missing or non-continuously logged boring information and the selective omission of inclinometer data from SI-5 and SI-6, the interpreted slide plane is artificially shallow.

Based on the geometry shown in Feffer's analyses, the slide surface is depicted as terminating above the depths at which movement has been documented in SI-5 and SI-6. However, if the documented displacement depths from SI-5 and SI-6 are incorporated into the geologic model, the slide plane necessarily projects significantly deeper and extends beneath the proposed project site.

Accordingly, omission of SI-5 and SI-6 from the geometric model, together with incomplete boring logs, results in an underestimation of slide depth, extent, and continuity. This materially affects slope stability calculations, pile embedment assumptions, and conclusions regarding both on-site and off-site stability.

9.0 DISMISSAL OF OLDER LANDSLIDE CONCLUSIONS WITHOUT TECHNICAL BASIS

Feffer's letter asserts that earlier consultants relied heavily on aerial photographs, but does not address:

- Aerial photos are but 1 form of data that is useful. This type of data. is very subjective as it relies, heavily on the professionals' view the photos. It is however, only a first cursory step and should not under any circumstance be used as tool in the definition of the subsurface geometry.
- Why multiple independent consultants identified similar landslide features over several decades
- Why the conservative interpretations contained in prior reports were not incorporated into the current model as stated in older reports.
- How Feffer's interpretation differs mechanically from older mapped configurations

As a result, Feffer's response does not adequately justify the departure from historical conclusions.

10.0 SHEAR STRENGTH SELECTION AND UNUSED LOWER RESIDUAL VALUES

Although Feffer outlines the basis of the shear strengths used, Feffer did not address:

- If the geometry is wrong, then any back calculated values will also be wrong

- The concern that strength values were averaged across borings, potentially obscuring weaker intervals
- Why the lowest residual value (8.5°), included in Feffer's own data set, was not used in translational analyses
- Whether user-defined failure planes—consistent with historic slide mapping—were evaluated with appropriate residual strengths

These items remain unresolved and directly affect factor-of-safety outcomes.

11.0 NEED FOR ADDITIONAL INSTRUMENTATION

Feffer's response does not address the recommendation for:

- A new inclinometer on the upper pad
- Monitoring through at least one wet winter to capture potential delayed movement

This recommendation remains outstanding and is consistent with CBC 1704A monitoring requirements for slope stability concerns.

Feffer's letter says only that the existing data shows no movement, but does not address:

- Why new instruments are or are not warranted
- Whether seasonal monitoring could reveal movement not previously captured

12.0 CY & ASSOCIATES' GEOLOGIC MISCHARACTERIZATION

Our report noted that CY & Associates did not correctly identify site geology. Feffer's response references CY's lack of landslide evidence but does not explain:

- Whether their geologic mischaracterization was corrected
- Whether Feffer's interpretation relied on or contradicted CY's assumptions

This point remains unaddressed.

13.0 LACK OF ANALYSIS OF COMPLEX SLIDE GEOMETRY

Feffer's response references both circular and translational analyses, but does not address:

- The absence of modeled compound or multi-surface failure configurations
- The reviewer's request for user-specified failure geometries based on mapped geologic features

- Why deeper bedding-controlled surfaces suggested by previous investigations were not analyzed
- Most if not all of Stone sections show landsliding beneath the toe of slope and above the mapped active slide indicating that the slide is continuous through this area. Boring on the upper pad and below the pad shows. evidence of sliding. How is this explained given the depth involved.

This gap remains significant given the site's structural complexity.

14.0 PILE SYSTEM DEPTH AND ABILITY TO RESIST COMPLEX SLIDING

Although Feffer's letter reiterates support for the currently designed pile system, it does not respond to the specific concern that:

- The piles may not extend deep enough to intercept both upper and lower potential slide surfaces
- The design does not address compound or irregular failure geometries
- Revised pile embedment depths and tieback lengths may be required if lower residual strengths or deeper slide surfaces are considered

This remains a key unresolved engineering issue.

15.0 CONCLUSION

The geologic evaluation and the establishment of landslide geometry presented to date remain incomplete and do not adequately define the type, depth, continuity, or extent of landslide movement affecting the site and adjoining downslope properties. As a result, the slope stability analyses and subsequent engineering recommendations are based on an inaccurate or insufficient geological model and therefore cannot be reasonably relied upon. . The homeowners who are affected have good reasons to be concerned about the stability of the ground they are built on. This project represents an opportunity to enhance the stability of the slide complex and the lower homes, as well as providing a stable building site for the proposed development.

Given the potential for very heavy rains and subsequent increase in groundwater, utilizing an onsite wastewater system must be very carefully addressed. The above items represent significant technical questions that were not addressed or fully resolved in Feffer's response. We believe these issues warrant further evaluation, including additional subsurface exploration, review of inclinometer data, reevaluation of shear strengths, and reconsideration of the stabilization system's depth and configuration.

We remain available to discuss these matters and to review any supplemental analyses Feffer may wish to provide.



Ralph K. Jeffery
President CEG 1183
Pacific Coast Land Consulting

1525 Pepper Tree Place, Fallbrook, CA 92028
TEL (760) 473-4117 Email Rnkjeffery@SBCGlobal.net

Received
12/16/25
Planning Div.

From: K Hill
To: Planning Commission
Subject: Item 5A, Coastal Development Permit No. 19-012 / 25200 Pacific Coast Highway
Date: Tuesday, December 16, 2025 4:07:26 PM
Attachments: TogfbEfCWwhKUqid.png

The following is my letter of July 19 to the Planning Commission. I just noticed (I've been sick) that it's not included in the public correspondence.
– K

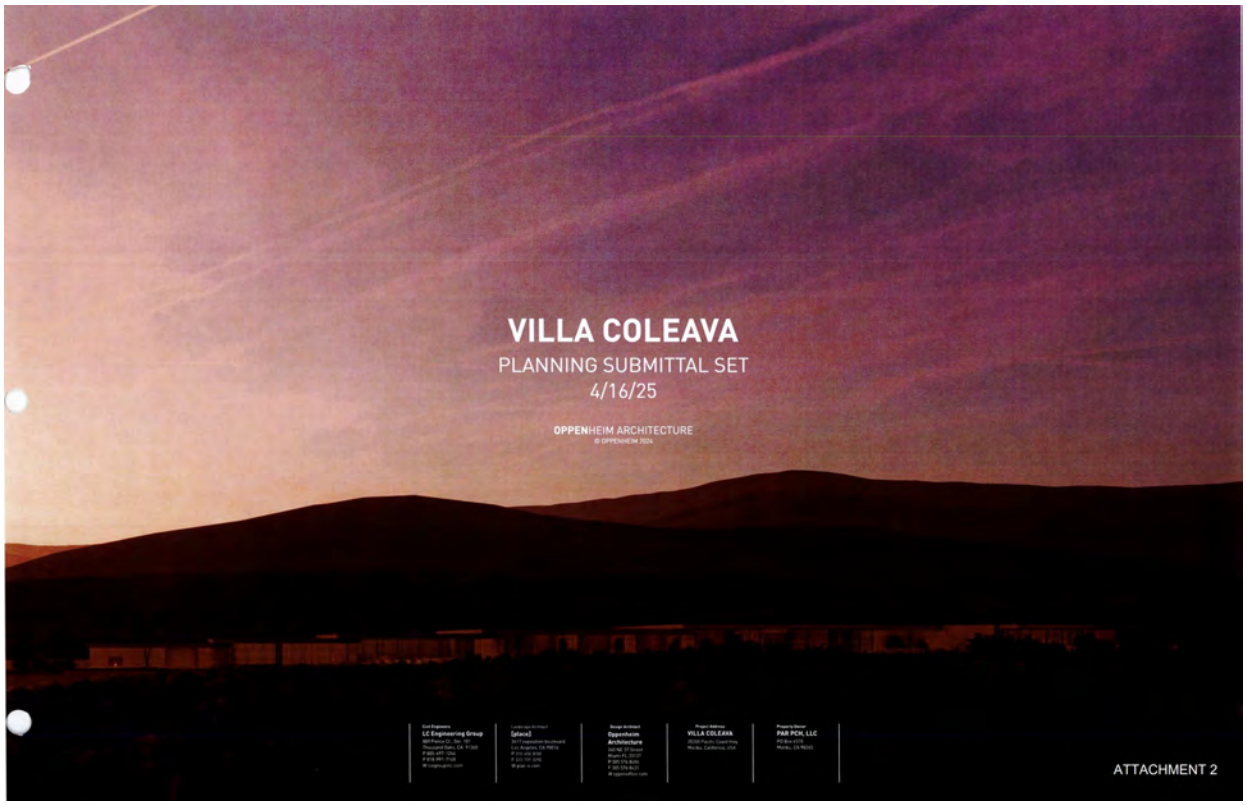
Hi Commissioners,

I haven't read the staff report closely this time – not to my usual standard – but I did walk the whole site not long before the Palisades Fire, when it appeared the project would be imminently in front of the Commission. I'm qualified to make a few limited observations.

Recently I was driving up the PCH with a friend who knows Malibu well but hadn't been in town for a while. When we got to this site, they saw the story poles and exclaimed,

> "Whoa, they're building a strip mall there?!"
> I said, "It's a house."
> "You mean condos, right?"
> "No, one house."

Therein lies at least one rub. In attempting to spread a house out so thin as to avoid two stories, they've affected the entire view along that area. What makes the blockage of a "visually impressive" view significant is not simply the proportion of ocean or mountains it blocks from a certain spot; a little bit of blockage across that wide span of view can and does affect the entire view. It's hard to hide a really big spec house, no matter how it's shaped. Even the cover sheet of the Planning Submittal (at PDF 52) is a rendering "at dusk," such that the full width of the proposal can scarcely be seen:



(I saw something similar in an ad for the struggling NEOM resort in Saudi Arabia.)

The way it's arrayed on the lot doesn't account for the fact that the public views from PCH feel more significant closer to the west end of the lot, where the beach and Point Dume are more of what you're looking at as you drive west. In effect, the view corridor is on the wrong end of the lot. I understand there are some private views from Puerco Cyn Rd. that would be affected, but all things considered, the public interest is to be preferenced. Anyway, it looks like Puerco houses would see the structure no matter where it is on the lot.

The report doesn't mention that the project would be in full view of the public trails on MRCA land on the other side of PCH, accessed via the Sara Wan trailhead at Corral beach. Tucking the project back further on the East side *might* also help those views.

Evidently in an attempt to sink the structure from view, large retaining walls have been proposed between the structure and PCH. Someone sent me a link to the website for this spec house; it shows an oversize retaining wall on the north side, not part of the building structure. The Wall and Fence Plan A (at PDF 61) show several lines of 12 ft "building walls" in addition to multiple retaining walls of unspec'd height. On that sheet to the left of the vertical "match line" there's an area where four walls are staggered, one above the other. Recall that retaining walls, unless they are integrated in the building, can be a max of two 6ft walls staggered at least 6ft apart. For a building wall, you get one wall of 12 ft max. So that one spot looks like it could be impermissibly stacking as much as (12+12+6+6) 36 ft of wall going up the slope between the structure and PCH.

Beyond that, as others will doubtless point out, this area has geological issues. The setting is right in or adjacent to a known active slide. That makes the over-height walls not only impermissible, but imprudent.

From a land use and traffic perspective, the analysis has not considered the small shopping area proposal that has been developed for the NE corner of PCH and

CC: Planning Commission, PD,

Recording Secretary, File

Date Received 12/16/25 Time 4:07 p.m.
Planning Commission meeting of 12/16/25
Agenda Item No. 5C
Total No. of Pages 2

Puerco Cyn. I don't know how active those plans are currently – the developer showed them to me some time before Covid hit – but there could be interactions associated with that intersection to be accounted for (recall that CEQA cares about *potential* impacts too). All traffic to the west from the current project site would first have to turn around at Puerco.

More generally, consider carefully the interactions with freeway-speed PCH traffic there. Those artificially high berms could block sightlines, making egress unsafe – especially because merging onto the PCH you'd be driving uphill, slow to accelerate to traffic speed (even if the owner drives race cars, their tradies will have trucks and panel vans).

Finally, this one feels like one that could get sent up to Council, no matter which way you decide it. So, when there's a debate about some aspect, there's little need to argue; just be sure to get all your thoughts in the record.

Best,
K

Received
12/16/25
Planning Div.

From: [redacted]
To: Planning Commission
Subject: 5C 25000 PCH 12-16-25
Date: Tuesday, December 16, 2025 3:34:26 PM

Commissioners, below are Slow Growth's comments on the above referenced project
.

Honorable Members of the Planning Commission,

Obstruction of Protected View

Over the years little by little, project by project, protected public views along PCH are being blocked by structures and/or by landscaping.

This project's height and its landscaping as currently proposed would block an important and a stunning ocean view from PCH, a designated scenic highway. This view needs to be protected and preserved.

Please do the right thing for Malibu Residents, commuters, and visitors alike who travel this portion of the highway by conditioning this project's development, including but not limited to , structures, retaining walls, fencing, the entrance gate be invisible from PCH.

This can perhaps be done by reducing the height of the structures or it can be accomplished by grading the site elevation low enough to prevent all structures from being seen from PCH.

It is more acceptable for the Commission to grant variances for higher retaining walls and for excessive grading to lower the elevation height of the site to prevent a PCH view obstruction than to allow a permanent view obstruction of the current view from PCH.

Berm

There is no guarantee that the existing Cal Trans berm will be kept in place. Please condition the project to require keeping the existing Cal Trans Berm in place or if over time the berm hasto be removed the property owner will have to replace it with landscaping to be maintained at the height of the existing berm. For if the berm is removed over time for some reason and there is no replacement landscaping the residence will once again be seen from the highway blocking the public view.

Landscaping

CC: Planning Commission, PD,

Recording Secretary, File

Date Received 12/16/25 Time 3:34pm
Planning Commission meeting of 12/16/25
Agenda Item No. 5C
Total No. of Pages 2

Condition *31 states: To minimize bluewater view obstruction from PCH, on-site vegetation, including trees, shall be selected and located to have a maximum growth height at maturity that will not extend above the PCH grade or Caltrans berms, whichever is higher, and be maintained at this height. The Final Landscape Plan submitted for plan check approval shall reflect this requirement.* The existing landscaping plan in the staff packet has vegetation that doesn't comply with this condition and it would be prudent before project approval to require the applicant to submit a new landscaping plan that conforms to this condition for review by the Commission and the public.

Public Views Protected

Let's be clear an applicant is not guaranteed the maximum TDSF or a desired height if public views are obstructed. A project can be denied or modified due to: visual impacts or a public view obstruction.

Findings

The following findings can't be made for the approval of a Coastal Development Permit:

Finding 1. That the project as described in the application and accompanying materials, as modified by any conditions of approval, conforms with the certified City of Malibu Local Coastal Program. Since this project will substantially block the public view, it doesn't meet the LCP requirement and this finding can't be made.

Finding 3. The project is the least environmentally damaging alternative. Our recommendation would be a less damaging alternative.

Conclusion

We respectfully request that the project be denied as designed and redesigned to eliminate the obstruction of public views as seen from PCH by either reducing the height of the structures and/or by granting a variance to allow higher retaining walls and excessive grading to lower the elevation height of the site.

Thank you for considering our comments.

Received
12/17/25
Planning Div.

From:	Lake McManus
To:	Planning Commission
Cc:	Yolanda Bundy; Allison Cook; Frank Angel; Cassandra Vo; Stephen Musashi Leonard
Subject:	Angel Law Comment Letter re Agenda Item 5C
Date:	Tuesday, December 16, 2025 5:33:29 PM
Attachments:	2025-12-16 Angel Law Comment Letter.pdf

Please see attached.

_____
Lake McManus | Practice Manager | (310) 314-6433
2601 Ocean Park Blvd., Suite 205, Santa Monica, CA 90405
Angel Law

CC: Planning Commission, PD,

Recording Secretary, File

Date Received 12/17/25 Time 7:30 a.m.
Planning Commission meeting of 12/16/25
Agenda Item No. 5C
Total No. of Pages 36

ANGEL LAW law offices of Frank P. Angel
2601 Ocean Park Blvd. • Suite 205 • Santa Monica, CA 90405
(310) 314-6433 • www.angellaw.com • fangel@angellaw.com

December 16, 2025

Chair Elizabeth Riddick
Vice Chair John Mazza
and Members of the Planning Commission of the City of Malibu
23825 Stuart Ranch Road
Malibu, CA 92065
Via Email to: planningcommission@malibucity.org

Re: **12-16-2025 Planning Commission of the City of Malibu Meeting (Agenda Item 5C; Project at 25200 Pacific Coast Highway)**

Dear Chair Riddick, Vice Chair Mazza, and Members of the Planning Commission:

Angel Law represents Concerned Citizens of Malibu Road, Inc. concerning the above-referenced agenda item. We write in opposition to the City of Malibu (**City**) Planning Commission's adoption of Resolution No. 25-05, which would approve Coastal Development Permit No. 19-012, Certificate of Compliance No. 21-004, Lot Merger No. 24-002, and the Class 3 categorical exemption from the California Environmental Quality Act (**CEQA**) for PAR PCH, LLC's (**Applicant**) proposed project at 25200 Pacific Coast Highway (**Project**).

Concerned Citizens of Malibu Road is an organization located within the City's Malibu Beach neighborhood that sits directly downslope of the Applicant's blufftop Project. The Applicant is seeking the following entitlements:

- A Coastal Development Permit (**CDP**) to allow for the construction of a new 9,219 square-foot, one-story, single-family residence, including a 1,000 square-foot subterranean two-car garage, a 1,523 square-foot basement, a 676 square-foot gym, a detached 465 square-foot guest house, swimming pools, a spa, driveways, decks, landscaping, water features, hardscape, grading, retaining walls, and an onsite wastewater treatment system (**OWTS**);

- A Certificate of Compliance (**COC**) to recognize an illegal created lot consisting of two Assessor Parcel Numbers (**APNs**) 4459-013-021 and 4459-014-018;

- A Lot Merger to consolidate two existing parcels into one, located in the Rural Residential, Two-Acre zoning district at 25200 Pacific Coast Highway; and

- A Class 3 categorical exemption from CEQA.

Recognizing the potential for serious public safety and scenic impacts upon local residents of and visitors to Malibu, we write on behalf of the Concerned Citizens of Malibu Road to ask the Planning Commission to deny the CDP, COC, Lot Merger, and Class 3 categorical exemption for the Project as proposed, and to order preparation of an initial environmental study as mandated by CEQA. We have carefully reviewed the staff report and other documents prepared for the consideration of this Project, including the response letter provided by Feffer Geological Consulting on August 20, 2025. In this letter and the attached letter from our geotechnical engineering expert, Pacific Coast Land Consulting, we rebut the conclusions those documents reach and also put forth additional arguments as to why the Commission should deny the Project as currently proposed.

The Planning Commission Should Deny the CDP for the Project as Proposed

The City's Certified Local Coastal Program (**LCP**) requires that four express findings be made and supported by substantial evidence. Two such findings include LCP Section 13.9(A), which mandates that the Project conforms with the entirety of the certified LCP, and Section 13.9(C), which mandates that the Project is the "*least* environmentally damaging alternative." (Italics added.) As we discuss below, the Project, as currently proposed and conditioned, fails to substantiate these findings.

1. Geotechnical Issues and Slope Stability

Section 30253 of the California Coastal Act, as described in Chapter 4(B) of the LCP's Land Use Plan (**LUP**), requires new development to "assure stability and structural integrity," and to neither "create nor contribute significantly to erosion, geologic instability, or destruction of the site or surrounding area." The LCP's Local Implementation Plan (**LIP**) regulations enforce this state mandate by requiring that specific findings be made relating to hazards. This includes that the Project "will neither be subject to nor increase instability of the site or structural integrity" from geologic and other hazards "due to project design, location on the site or other reasons";[1] and that the Project is the least environmentally damaging alternative.[2] These findings must be supported by substantial evidence in the record.[3]

[1] Malibu LIP, § 9.3(A)(1).
[2] *Id.* § 9.3(A)(3).
[3] *Id.* § 9.3(A).

First, proposed new developments subject to geological hazards must substantiate these findings by including a geotechnical report that adheres to the City of Malibu's "Guidelines for the Preparation of Engineering Geology and Geotechnical Engineering Reports" (**Geotechnical Report Guidelines** or **Guidelines**).[4] In doing so, the report must include the statement that the project is "suitable for the proposed development, that the development will be safe from geologic hazard, and that the development will in no way contribute to instability *on or off the subject site*."[5] (Italics added.) Likewise, the Geotechnical Report Guidelines require that slope stability reports in hillside areas "address the potential for surficial instability, debris/mudflow, rockfalls, and soil creep on *all slopes* that may affect the proposed development *or be affected by the proposed development*."[6] (Italics added.) The Guidelines require that applicants both "disclose and address any geologic hazards that are on or adjacent to the site and that affect the site," as well as "discuss and address the effects of the proposed development on adjacent properties" over time.[7]

The Project site, as well as other surrounding properties, are located in an area of great geological concern. The site falls within the City-designated Malibu Road Landslide Assessment District No. 98-3,[8] and within the Malibu Beach Quadrangle Landslide Zone[9] as designated by the state under the California Seismic Hazard Zone Mapping Act of 1990.[10] As described in the response letter from Pacific Coast Land Consulting (attached as Exhibit A), the reports completed by Feffer Geological Consulting fail to adequately reflect actual conditions at the Project site. Feffer's logs contain serious gaps and reduced descriptive detail. Lacking relevant data, they mislead and, as such, fall short of the standard of care for geotechnical engineering. They fail to adequately define the landslide movement affecting the site, as well as the adjoining downslope properties that will disproportionately bear the adverse consequences, like structural damage or loss, of future slope failure. Limited Project analyses have failed to demonstrate off-site stability for surrounding areas affected by the proposed development, yet also suggest the likelihood of off-site slope failures during seismic events. These reports' slope stability analyses have also not yet adequately resolved a variety of concerns described in Exhibit A, showing discussions insufficient to substantiate the key assumptions made for the Project. Geotechnical reports must incorporate "all" geotechnical data previously collected for both the subject site and adjacent sites.[11] It cannot be said that the Project, with its unresolved discrepancies with historic site reports and selective use of instrumentation, has done so in the

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[4] Malibu LIP § 9.4(A); City of Malibu, Guidelines for the Preparation of Engineering Geology and Geotechnical Engineering Reports and Procedures for Report Submittal (November 2013), https://www.malibucity.org/DocumentCenter/View/17515/Attachment-2_Geo-Guidelines.
[5] Malibu LIP § 9.4(A) (emphasis added).
[6] Geotechnical Report Guidelines, at p. 35.
[7] *Id.* at p. 27, 30.
[8] Commission Agenda Report, Item 4.A. (August 18, 2025), at p. 4.
[9] *Id.* at p. 23; see also the California Geological Survey's Seismic Hazards Zone Application, where the Project site can be publicly searched. https://maps.conservation.ca.gov/cgs/informationwarehouse/eqzapp/#data_s=id%3AdataSource_4-191d8e56eb9-layer-22%3A7961.
[10] Pub. Resources Code, § 2690 et seq.
[11] Geotechnical Report Guidelines, at p. 8, 19.

manner necessary to establish substantial evidence of stability or of the least environmentally damaging alternative.

Second, the LIP sets out specific development standards for the slope stability analyses provided in geotechnical engineering reports. Under Sections 9.4(D) and 10.4(D)(1), the Project must be located only where a static factor of safety of at least 1.5 and a pseudostatic factor of 1.0 can be ensured. For any new developments demonstrating a lesser factor of safety, the Geotechnical Report Guidelines require either necessary mitigation measures or a project redesign to bring the factor up to the minimum.[12]

Feffer's geotechnical reports (including the report dated November 18, 2021) reveal that the Project site, whose natural slopes only achieved static factors of safety between 1.076 to 1.234, could only achieve the minimum 1.5 standard after the addition of mitigation measures such as soldier piles, freestanding piles, iterative adjustment of pile loads, and a variety of other engineering techniques. These conditions echo those present in the Planning Commission's approval of CDP No. 24-014, heard only a few weeks ago at a public hearing on November 3, 2025, where the Commission determined that a proposed single-family residential development (similarly located on the Pacific Coast Highway only a few miles from the Project) was noncompliant with the Malibu LIP because the required 1.5 factor of safety was not met. Since the project there could only meet the minimum 1.5 static factor of safety after the inclusion of proper mitigation technics and design measures, the Commission required that the project apply for a variance from the applicable LIP.[13] The Commission's approval of that project only with a variance precludes approval of the Project as proposed. If CDP No. 24-014 was noncompliant for failing to achieve the minimum factor of safety absent mitigation measures, then it cannot be said that there exists substantial evidence to support this Project's total compliance with the Malibu LCP.

Third, even if new developments are considered permissible where the minimum factor of safety is provided only following proper engineering and mitigation measures, this stability must be achieved long-term. The Geotechnical Report Guidelines provide that the "minimum *long-term* factor of safety is 1.50 for all new construction of habitable structures," including single-family residences and guest houses.[14] The Malibu LIP adds on to this requirement in Section 10.4(B), by which new development on oceanfront bluffs must be sited outside areas subject to hazards "at any time during the full projected 100 year economic life of the development." This standard necessarily requires that development plans be designed to ensure long-term stability over a projected 100 year economic life of the new development, including by considering hazards that both currently affect the property "as well as hazards that can be anticipated over

[12] *Id.* at p. 37. The Guidelines also state that the site-specific conditions on "most" proposed development sites may necessitate that these minimum standards be exceeded. *Id.* at p. 7.
[13] Commission Agenda Report for CDP No. 24-014, Item 4.C. (November 3, 2025), at p. 10.
[14] Geotechnical Report Guidelines, at p. 37.

the life of the structure."[15] This includes, in some instances, the consideration of slope instability and expected erosion over 100 years.[16] Analyses solely limited to short-term periods or conditions are insufficient for these purposes.

In 2024, the Commission required a variance to approve a project whose design could not achieve a sufficient 100-year economic life elevation required by LIP Section 10.4(A).[17] So too here. The Applicant must demonstrate that its Project complies with the Malibu LIP provision and that the Project will remain the least environmentally damaging alternative considering this time period. It has not done so; its analyses, focused primarily on short-term or static factors of safety, do not address the potential for long-term creep or deformation identified in the site's report history. Consistently unresolved issues relating to Feffer's analyses of landslide geometry and groundwater conditions prevent a finding of long-term stability over the Project's lifetime, accounting for geologic hazards that may arise in that period.[18]

In sum, the Project lacks the substantial evidence necessary to support the Planning Commission's required geological findings under Chapters 9 and 10 of the Malibu LIP, and the CDP must therefore be denied.

2. Impacts on Scenic and Visual Resources

Under Section 30253(5) of the Coastal Act, as incorporated in Malibu LUP Chapter 4(B), new development must protect "special communities and neighborhoods which, because of their unique characteristics, are popular visitor destination points for recreational uses." The LIP implements this policy by requiring the Commission to make findings that, among other things, the proposed project "will have no significant adverse scenic or visual impacts due to project design, location on the site or other reasons"; that the project is "the least environmentally damaging alternative"; and that there are "no feasible alternatives to development that would avoid or substantially lessen any significant adverse impacts on scenic and visual resources."[19] Section 6.4(B) expressly provides that, if necessary to conform to development standards, the proposed development "shall be modified, by special condition, relative to height, size, design, or location on the site" to avoid or minimize the project's adverse scenic impacts.

Pacific Coast Highway, along which 1,692 linear feet of the Project fronts,[20] is designated as a Scenic Road under LUP Policy 6.3(a). The scenic views from PCH are accordingly protected under LIP Sections 6.5(E)

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[15] Malibu LUP, Policy 4.23.
[16] Malibu LIP § 10.4(D)(2).
[17] Commission Agenda Report for CDP No. 22-031, Item 5.C. (October 21, 2024), at p. 2.
[18] See, e.g., *Lindstrom v. California Coastal Com.* (2019) 40 Cal.App.5th 73, 97 [overturning a CDP approval where the project applicant could not demonstrate site safety under a similarly applicable 75-year lifetime requirement].
[19] Malibu LIP § 6.4(A)(1), (3), (4).
[20] Commission Agenda Report, Item 5.A. (July 21, 2025), at p. 19.

and 6.5(H). As a result, new development must be sited and designed to *minimize* adverse impacts on Scenic Areas visible from Scenic Roads "to the *maximum* feasible extent."[21] As stated in the LIP, this may be accomplished by methods like restricting the building maximum size or by reducing maximum height standards.[22]

The Project, as proposed and conditioned, will be visible from the Pacific Coast Highway at a height that partially obstructs bluewater views over the development.[23] Without evidence, the July 2025 staff report claims that this is nevertheless the least environmentally damaging alternative, and that reducing the Project's total development square-footage would not necessarily result in less view impacts because building heights could continue to be 18 feet; and that other project design alternatives would require substantially more retaining walls and grading in excess of LIP limits.[24]

These statements fail to consider the City's authority, under the above-referenced sections of the LIP, to reduce volumetric mass or maximum allowable height. Such mitigation would avoid any need for substantially more retaining walls and grading, further encroachment into slope stability, or relocation of the structures elsewhere on the parcels. The Planning Commission and City staff may not, by law, defer to an applicant's preferred project size and design, given that a CPD applicant is "not entitled to whatever project it desires." (*Charles A. Pratt Construction Co., Inc., v. California Coastal Com.* (2008) 162 Cal.App.4th 1068, 1082; see *Mein v. San Francisco Bay Conservation etc. Com.* (1990) 218 Cal.App.3d 727, 735 [statutory requirement that fill area be the "minimum necessary" to achieve the purpose of the fill cannot be evaded because a smaller house would not have accommodated the project's proposed design; " 'minimum necessary' does not mean the minimum necessary for the particular size or style desired by the applicant."].) No applicant has "a vested right to develop his property in a particular fashion."[25] To find otherwise would be a prejudicial abuse of discretion, and in this case, worse: potential damages liability for the City upon future slope failure. Ultimately, the Applicant has not demonstrated substantial evidence to support the findings required by Chapter 6 of the Malibu LIP. For that additional reason, the Project, as designed, cannot be approved.

<u>The Planning Commission Should Reject the Class 3 CEQA Exemption</u>

The California Legislature enacted CEQA to "protect, rehabilitate and enhance the environmental quality of the state."[26] This fundamental state policy demands that permitting agencies at the state and local levels enhance environmental quality, including by preserving enjoyment of aesthetic, natural, and scenic

[21] Malibu LUP Policy 6.5; Malibu LIP § 6.5(A)(1).
[22] Malibu LUP Policy 6.5; Malibu LIP § 6.5(A)(1).
[23] Commission Agenda Report, Item 5.A. (July 21, 2025), at p. 16.
[24] *Id.* at p. 18.
[25] *Paoli v. California Coastal Com.* (1986) 178 Cal.App.3d 544, 550-551.
[26] Public Resources Code § 21001, subd. (a).

environmental qualities.[27] To these ends, CEQA exemptions must be construed narrowly to afford the fullest possible environmental protection.[28] These exemptions are therefore reserved for projects which have been determined not to carry significant environmental effects.[29] In evaluating claims arising under CEQA, courts determine the existence of substantial evidence in the record as a matter of law.[30]

The Class 3 categorical exemption, relied upon here by the Applicant and City staff, is exempts the "New Construction or Conversion of *Small* Structures." (Italics added.)[31] Class 3 "consists of construction and location of limited numbers of new, small facilities or structures; installation of small new equipment and facilities in small structures; and the conversion of existing small structures from one use to another where only minor modifications are made in the exterior of the structure." The section then provides examples of this exemption. This Project specifically relies on the examples listed in subdivisions (a) and (e), which include:

(a) One single-family residence, or a second dwelling unit in a residential zone.[32]
(e) Accessory (appurtenant) structures including garages, carports, patios, swimming pools, and fences.[33]

As we show below, the Class 3 categorical exemption is inapplicable here, and even if this wasn't so, exceptions require that the Project undergo environmental review under CEQA.

1. The Proposed Project is Outside the Scope of the Exemption

The Project weighs far beyond the scope of the Class 3 categorical exemption. In 1991, the Court of Appeal determined that the "Secretary of Resources made the ultimate finding in determining that single-family residences *of the type there sought to be built* were categorically exempt from CEQA under the Class 3 exemption.[34] There, the proposed residence was a small structure: 2,700 square-feet.[35] In fact, of all 22 published court opinions involving a project that relied on the Class 3 exemption, every proposed single-family home measured less than 6,500 square-feet.[36] Here, however, the Project attempts to brute

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[27] Public Resources Code §§ 21000, subd. (f), 21001, subd. (b).
[28] *Save Our Carmel River v. Monterey Peninsula Water Management Dist.* (2006) 141 Cal.App.4th 677, 697.
[29] *County of Amador v. El Dorado County Water Agency* (1999) 76 Cal.App.4th 931, 966.
[30] *Western States Petroleum Assn. v. Superior Court* (1995) 9 Cal.4th 559, 571-572.
[31] 14 Cal. Code Regs., tit. 14, § 15303 (**CEQA Guidelines**).
[32] *Id.* § 15303, subd. (a).
[33] *Id.* § 15303, subd. (e).
[34] *Association for Protection etc. Values v. City of Ukiah* (1991) 2 Cal.App.4th 720, 731 (emphasis added).
[35] *Id.* at p. 736.
[36] See *Berkeley Hillside Preservation v. City of Berkeley* (2015) 60 Cal.4th 1086 [6,478 square-feet]; *Jenkins v. Brandt-Hawley* (2022) 86 Cal.App.5th 1357 [3227 square-feet]; *Canyon Crest Conservancy v. County of Los Angeles* (2020) 46 Cal.App.5th 398 [1,436 square-feet]; *Berkeley Hills Watershed Coalition v. City of Berkeley* (2019) 31 Cal.App.5th 880 [3,000 square-feet]; *Bottini v. City of San Diego* (2018) 27 Cal.App.5th 281 [3,062 square-feet]; *Hines v. California Coastal Com.* (2010) 186 Cal.App.4th

force a 9,218 square-foot "single-family" mansion through an exemption specifically designed for "small" new structures.[37] The Project in its entirety, with a total development square-footage (**TDSF**) of 11,121 square-feet, is large enough to take up *99.5 percent* of the City's maximum allowable TDSF for a given parcel.[38] Allowing a project so close to maximum allowable to be exempted from CEQA perverts the Class 3 categorical exemption, the required narrow interpretation of which should not allow this massive development to characterize itself as "small" in any sense -- especially in the site's nonurban setting. This is a project that must undergo CEQA review, at the minimum through the City's preparation of an initial study to determine whether a Negative Declaration or an Environmental Impact Report should be prepared. An initial study would facilitate public circulation of the Project to responsible and trustee agencies, as well as the public. That's called public accountability. The Commission lacks substantial evidence to approve the Class 3 categorical exemption for this Project and must instead mandate CEQA review.

2. Exceptions to the Exemption Justify Environmental Review

Even regardless of whether the Project is a "small" structure (and it is not), exceptions under Section 15300.2 of the CEQA Guidelines preclude use of the exemption recommended by staff. As detailed below, the unusual circumstances exception, the location exception, and the scenic highways exception each take the Project outside of the Class 3 exemption.

a. Unusual Circumstances Exception

The unusual circumstances exception precludes the use of a categorical exemption "for an activity where there is a reasonable possibility that the activity will have a significant effect on the environment due to unusual circumstances."[39] The California Supreme Court established the standards for this exception in *Berkeley Hillside Preservation v. City of Berkeley* (2015) 60 Cal.4th 1086, where it provided two alternative analyses in assessing whether the exception applies. We discuss each alternative in turn below.

i. First Alternative

Under the first alternative, a challenger must demonstrate that (1) no substantial evidence supports the conclusion that the project has some feature that distinguishes it from others in the exempt class, such as its size or location; and (2) there is a reasonable possibility of a significant effect on the environment due to that unusual circumstance.[40]

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830 [1,208 square-feet]; *Salmon Protection & Watershed Network v. County of Marin* (2004) 125 Cal.App.4th 1098 [3,649 square-feet]; *Association for Protection etc. Values*, *supra*, 2.Cal.App.4th 720 [2,700 square-feet].

[37] Commission Agenda Report, Item 5.A. (July 21, 2025), at p. 9.

[38] *Ibid.*

[39] CEQA Guidelines § 15300.2, subd. (c).

[40] *Bottini*, *supra*, 27 Cal.App.5th at p. 305.

First, the Project's size clearly distinguishes it from other projects that have relied upon the Class 3 categorical exemption. As mentioned above, in none of the 22 published court opinions has a Class 3 exemption ever been used to exempt a single-family home larger than 6,500 square-feet. The Project's unusual size, however, is not limited by comparisons to case law; it is also highly unusual when compared to single-family projects in the nearby vicinity. Out of all 272 publicly available Notices of Exemption (**NOEs**) filed by the City on California's CEQAnet Web Portal,[41] 176 projects have utilized the Class 3 categorical exemption. Of these 176 projects, 39 have specifically relied on Class 3, subdivision (a) to exempt the development of a single-family home, a second dwelling unit, or a home and its accessory structures. **Not even one** of these 39 projects has a TDSF as gigantic as the 11,121 square-feet proposed here. Indeed, as many as 90% of these projects proposed a TDSF lower than 7,500 square-feet (including 33% of projects with a TDSF less than 5,000 square-feet). Seven percent of these projects proposed a TDSF between 7,500 and 8,555 square-feet, and only one project proposed a TDSF greater than 8,555 square-feet. Square-footage for the vast majority of these projects range even smaller in size when looking at the single-family house alone. Accordingly, this Project's extremely large TDSF constitutes an unusual circumstance that sets it apart from other developments that have relied on the Class 3 categorical exemption not only under case law, but also relative to all other Class 3 projects listed in the City's publicly available NOEs.

The Project's location similarly constitutes an unusual circumstance compared to other Class 3 projects. As discussed above in our analysis of the Project's inconsistency with the Malibu LCP, the Project site is located within the city's Malibu Road Landslide Assessment Area 98-3, and within the state's Malibu Beach Quadrangle Landslide Hazard Zone. The Project's previously mentioned failures to establish a minimum static factor of safety of 1.5, and to demonstrate site stability and safety from hazards over its 100-year economic life, echo the Planning Commission's findings of LCP noncompliance in CDP Nos. 24-014 and 22-031: the only two projects—out of all 39 publicly available City NOEs—whose site conditions were so unstable as to require a variance to the factor of safety. The City, in recognition of these unusual conditions for developments proposing single-family residences, has highlighted in its own public handout that "*typical* residential projects which are *not categorically exempt* and require further environmental study" expressly includes projects "which contain severe geological hazards."[42] Accordingly, both the Project's size and its location are unusual features that distinguish it from other projects exempted under Class 3.

Second, these unusual circumstances create a reasonable possibility of significant effect on the environment. Please refer to our LCP discussion above regarding the significant impacts related to geotechnical hazards and scenic views that this Project, as proposed and conditioned, will produce as a

[41] California Governor's Office of Land Use & Climate Innovation, CEQAnet Web Portal, https://ceqanet.lci.ca.gov/.
[42] City of Malibu, Residential Development — Environmental Review Public Handout, https://www.malibucity.org/DocumentCenter/View/4617/PLN-Residential-CEQA-Exemptions_Public-Handout- (emphasis added).

result of its extremely large size and particular location. Accordingly, the unusual circumstances exception applies and the Project should not receive a Class 3 categorical exemption from CEQA.

ii. Second Alternative

Under the second alternative, a challenger may establish an unusual circumstance "with evidence that the project will have a significant environmental effect."[43] The Project here will have a significant environmental effect, given that Feffer Geological Consulting's reports, including its 2021 report mentioned above, admit the Project's inability to achieve the minimum factors of safety without subsequent engineering and other mitigation measures. These mitigation measures, while perhaps necessary to comply with the City's Geotechnical Report Guidelines and LUP Policy 4.5, constitute conditions of approval that are imposed to mitigate significant effects and make the Project qualify for an exemption in the first place. This is contrary to the Secretary of Resource's determination that projects receiving a categorical exemption are those "determined not to have a significant effect on the environment."[44] Conditions of approval, such as the Project's mitigation measures to achieve the minimum factor of safety, cannot be the basis for a categorical exemption; mitigation measures must instead be evaluated through proper environmental review. (*Salmon Protection & Watershed Network*, *supra*, 125 Cal.App.4th at 1106 ["an agency should decide whether a project is eligible for a categorical exemption as part of its preliminary review of the project without reference to or reliance upon any proposed mitigation measures." (internal citations omitted)].)

The Project will produce significant environmental effects due to its failure to achieve the factor of safety required by the City's Geotechnical Report Guidelines and the Malibu LCP. By requiring engineering techniques in the conditions of approval that subsequently allow the Project to achieve this standard, the Project explicitly relies on mitigation measures to achieve "no significant effect on the environment." These mitigation measures constitute an unusual circumstance that necessitates not a categorical exemption, but rather proper environmental evaluation under CEQA.

b. Location Exception

`The Class 3 exemption may not be used where a project "may impact on an environmental resource of hazardous or critical concern where designated, precisely mapped, and officially adopted pursuant to law by federal, state, or local agencies."[45] *Berkeley Hills Watershed Coalition* established two prongs of inquiry for this exception: (1) whether the project is located within an environmentally sensitive area, and (2)

[43] *Berkeley Hillside Preservation*, *supra*, 60 Cal.4th at p. 1105 (emphasis added).
[44] CEQA Guidelines § 15300.
[45] CEQA Guidelines § 15300.2, subd. (a).

whether substantial evidence supports a "fair argument" that the project "may impact" the mapped resource.[46]

Public views constitute an environmental resource. (See Public Resources Code Section 21060.5 [defining "environment" as including those physical conditions which will be affected by a proposed project, including land, air, water, and objects of aesthetic significance]; see also Malibu LUP Chapter 6(B), Coastal Act Section 30251 ["Scenic and visual qualities of coastal areas shall be considered and protected as a resource of public importance"].) As a result of this designation, Chapter 6 of the Malibu LUP and the sections of the Malibu LIP implementing Section 30251 require new developments to mitigate a project's adverse impacts on ocean views, "whether significant or not."

A substantial portion of the site fronts the Pacific Coast Highway, which has been designated as a protected Scenic Road pursuant to the Malibu LCP.[47] As described above in our analysis of the Project's consistency with Chapter 6 of the Malibu LIP, the project as proposed will adversely affect views of the Scenic Area ordinarily visible from the Pacific Coast Highway by residents and visitors. This stands contrary to the Court of Appeal's determination that a project in the coastal zone "must be developed in such fashion that the adverse impacts, *whether significant or not*, be sufficiently mitigated." (*Paoli v. California Coastal Com.* (1986) 178 Cal.App.3d 544, 551, italics added [construing Coastal Act Section 30251; rejecting a permittee's challenge to a Commission decision requiring an open-space easement condition to mitigate public view impacts].) *Paoli* makes clear that, under the Coastal Act, even a partially (not fully) impacted public view qualifies for permanent protection ("as a resource of public importance"), if not for restoration or enhancement. (*Id.*; see § 30001, subd. (b); Malibu LUP, Policy 6.1; Malibu LIP, Section 6.1.) Accordingly, the Project qualifies for the location exception to a categorical exemption because it is located along the Pacific Coast Highway, which has been mapped as a Scenic Road; and substantial evidence supports a fair argument that the Project will at least partially obscure public views as an environmental resource of public importance.

c. Scenic Highways Exception

The scenic highways exception applies to projects "which may result in damage to scenic resources, including but not limited to, trees, historic buildings, rock outcroppings, or similar resources, within a highway officially designated as a state scenic highway."[48] As mentioned in our discussion of Chapter 6 of the Malibu LCP and our discussion of the location exception, public ocean views -- by definition -- are scenic resources under CEQA and the Malibu LCP. The designation of the Pacific Coast Highway as a Scenic Road, and the Project's adverse effects on residents' and visitors' public views of Scenic Areas

[46] *Berkeley Hills Watershed Coalition*, *supra*, 31 Cal.App.5th at p. 894.
[47] Malibu LUP, Policy 6.3(a).
[48] CEQA Guidelines § 15300.2, subd. (d).

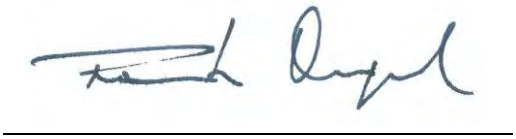
along the heavily traveled Pacific Coast Highway, renders this exception applicable. Thus, the Project may not be approved without proper environmental review under CEQA; the Planning Commission must deny the Project a Class 3 categorical exemption.

Conclusion

In sum, we respectfully submit that for the Planning Commission to approve a CDP and CEQA exemption for a project design so badly flouting the Malibu Local Coastal Program and circumventing CEQA review as this Project in this location will be a prejudicial abuse of discretion. The CDP and CEQA exemption must be denied. This will be without prejudice to the Applicant's ability to return with an LCP-compliant application.

Sincerely,

ANGEL LAW



Frank P. Angel



Cassandra D. Vo

CC:

Yolanda Bundy
Community Development Director
ybundy@malibucity.org

Allison Cook
Contract Planner
Capstonecityplan@gmail.com

Pacific Coast Land Consulting
Engineering Geologic Services

RE: Remaining Unaddressed Items – Review of Feffer Geotechnical Report 25200 Pacific Coast Highway, Malibu, CA

December 12, 2025 FN 25200LS-25-100

1525 Pepper Tree Place, Fallbrook, CA 92028
TEL (760) 473-4117 Email Rnkjeffery@SBCGlobal.net

EXHIBIT A

Pacific Coast Land Consulting
Engineering Geologic Services

December 12, 2025

FN: 25200LS-25-100

Ralph K. Jeffery, CEG 1183
1525 Pepper Tree Place
Fallbrook, CA 92028
(760) 473-4117
rnkjeffrey@SBCGlobal.net

Subject: RE: REMAINING UNADDRESSED ITEMS – REVIEW OF FEFFER GEOTECHNICAL REPORT
Project: 25200 Pacific Coast Highway, Malibu, California

1.0 INTRODUCTION

We have reviewed Feffer Geological Consulting's response titled "RESPONSE TO CITY OF MALIBU GEOTECHNICAL REVIEW COMMENTS," dated August 20, 2025, which was prepared in reply to concerns raised in Pacific Coast Land Consulting's original technical letter (Pacific Coast Land Consulting, PRELIMIARY REVIEW OF FEFFER REPORT AUGUST 15, 2025) authored previously. While the August 20, 2025 response summarizes selected data and provides additional narrative discussion, it does not address all of the technical concerns identified in the original PCLC letter, and several critical issues remain unresolved or only partially addressed.

These unresolved issues are fundamental to accurately characterizing site conditions, evaluating landslide hazards, and designing a stabilization system. Because the proposed development is located upslope of existing residences along Malibu Road, any remaining uncertainty regarding slope stability or groundwater conditions has the potential to adversely affect off-site properties. Accordingly, this letter provides clarification of the outstanding concerns that were not fully addressed in Feffer's August 20, 2025 response and explains why additional evaluation is warranted.

Geologic investigations are often challenging, it is rare situation where a site exists with so much data to evaluate and use as part of the investigation. As Mr. Feffer knows investigation on this

site go back into the 1960s, There have been numerous landslide events in this area. Enough so that lead to the establishment of the Malibu landslide Assessment District.

Malibu has an inordinate number of landslides, all of which are quite complex due the geologic conditions. These include Big Rock Mesa, Eagle Pass-Las Flores, Latigo Bay Villas and numerous others. All of these slides have at least one thing in common and that is the failure to build a correct and accurate geologic model for analysis. The issue here is not that this development should be built but that it needs to be built using the correct model. The residents below this proposed development are very concerned that the proposed work will have a negative impact on their homes. Their concerns are valid, for the reasons previously presented. Mr. Feffer's response only adds additional concern to the residents by not considering the geological questions previously presented.

2.0 REGULATORY AND PROFESSIONAL OBLIGATIONS

Further, the introduction of deep stabilization elements such as piles or caissons on the upper parcel may increase risk to downslope properties if slide geometry, depth, or continuity are not correctly defined. Partial stabilization of an upper portion of a landslide mass can create a false sense of stability, while transferring stresses to deeper or downslope portions of the slide mass that have not been analyzed. If deeper or secondary slide surfaces exist below the embedment depth of the piles, the added rigidity and disturbance associated with pile installation may redirect or concentrate movement downslope rather than arrest it.

Temporary construction effects also warrant consideration. Drilling disturbance, spoils handling, vibration, and short-term groundwater changes associated with pile installation were not evaluated, yet may be critical in an area with a history of slow landslide movement.

Analyses focused primarily on short-term or static factors of safety do not address the potential for long-term creep or progressive deformation, which is consistent with the documented inclinometer history at this site and must be evaluated over the projected economic life of development.

Additionally, any adverse consequence of a mischaracterized geologic or stability model would be asymmetrically borne by downslope properties, where even small increases in movement or groundwater pressure could result in structural damage or loss, as demonstrated by historic

landslide failures in this area. These considerations further underscore the necessity of fully evaluating off-site conditions before the required stability findings can be made.

3.0 STANDARD OF CARE FOR LANDSLIDE INVESTIGATION

The proper procedure for investigating any site is to gather all data and utilize it in a comprehensive analysis. This means paying attention to all data and not picking and choosing favorable data points while ignoring less favorable data. Neither I nor Mr. Feffer were present for any of the earlier work. We have to accept the observations and geologic data as they are presented in the logs. This means relying on observations locations depths orientations and descriptions.

Typically, it takes 3 things to confirm the presence of sliding ancient or active (with instrumentation).

1) Geomorphic evidence – the shape of landform, offset in stream beds, hummocky terrain etc. Landforms are often altered with time, as erosion occurs and man modifies the terrain, The result of this is obscure some features such as boundaries, stream beds and alignments.
2) Subsurface investigation- Borings are drilled and geologists go down into the borings and record their observations and collect data such as geologic attitudes on bedding, fractures clay seams and slide planes.

   Protocol for logging is to identify every single vertical inch of the column of rock exposed in the boring. Thus, logs are created with lines drawn to show where one lithology with a particular characteristic end and another begins. Stone logs from 1962 did this and Feffer's logs did not, neither did Cy logs.

   This data is then prepared in log format for others to review and analyze. One of the important observation a geologist makes while down hole is to note the character of the earth material. Words like smashed up, (a colloquial term) fractured pulverized re-worked

etc. are used to denote bedrock materials that have been disturbed by movement, usually landslide activation.

Often a geologist will identify a slide plane. These features can be very thin. 1/16" or less to several inches in thickness. Term like polished surfaces with striation surface, basal surface, slide or glide plane (glide is colloquial and not used much anymore but the descriptive nature of the word and meaning is clear: **movement along a discrete plane** .

Other terms in observations made by a. geologist when down hole include. Striations and slicks. These are synonyms, Striation or slicks (short for slickensides are. fine scratches or grooves cut into rock opposing rock faces as one block moves past another. This can be caused by faulting internal shifting of major blocks. But is most often associated with landslide movement and is often the signature of a landslide.

3) Instrumentation- The main instrument in analyzing a landslide are inclinometers. These are indexed pipes put into suspected active landslide and then monitored by comparing an initial or base reading to subsequent readings. The accuracy of this system is typically .1" over a length of 100'. Thus, repeatable movements however small mean that this is an active slide. Instrumentation is typically what you see is what is there type of data point. The only exception to this is by changing the initial reading. This resets the vertical baseline reading back to a straight line and eliminates evidence of previous movement.

4) Once the data is collected and assembled on map the next step is develop a structure contour map of a surface defined by an accumulation of all the datapoints, logs and instrumentation. This is done by plotting the elevation of the surface of interest at a particular location boring or inclinometer. It is done for all the borings and inclinometers. If this results in a chaotic mess where elevations **don't** project from one boring to another or a point on an inclinometer then it is likely that the feature investigated is not a slide, has other origins. Contrarily, if the data points do line up on an evaluation basis and spatial basis a map of slide plane has been created that relies on all data. This is called a

structure contour map. It is the standard of care in developing a model to be analyzed with slope stability programs. The detail and continual logging notes for the boring must be complete and detailed enough to complete this critical. Task. Feffer's work did not accomplish this.

5) Groundwater Modeling. The ground water table needs to be established with potential high levels to be used in the slope stability analysis.

3.1 GEOMORPHIC EVIDENCE

Surface features such as hummocky terrain, disrupted drainage, and slope breaks often indicate past or ongoing landslide activity. Although erosion and grading can obscure these features over time, their partial removal does not negate their original significance.

3.2 SUBSURFACE INVESTIGATION

The concerns regarding the characterization of subsurface materials in Feffer's borings remain unaddressed. Specifically:

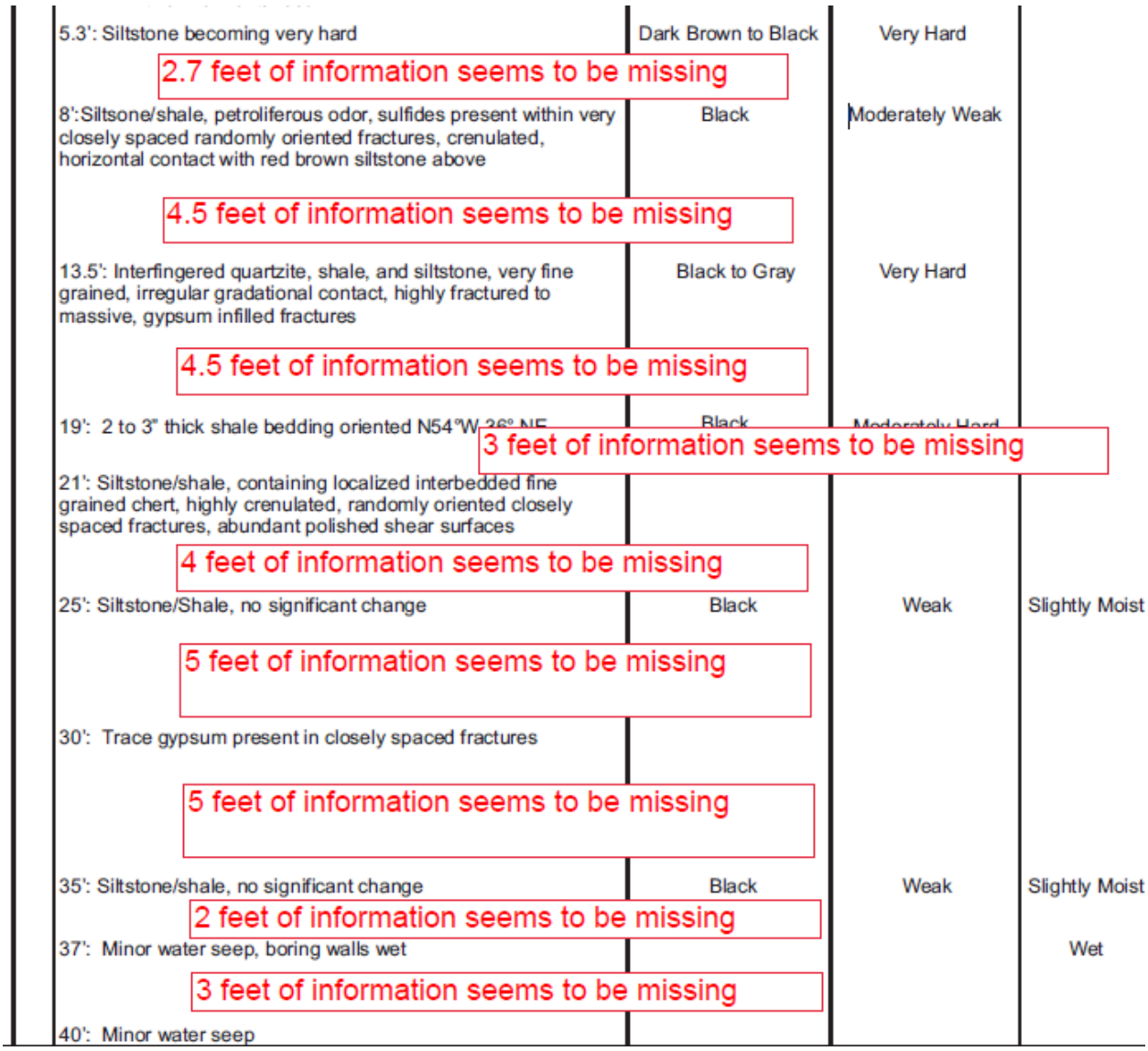
- Older consultants' reports documented crushed, disturbed, or sheared materials consistent with landslide deposits, while Feffer logs classify similar intervals as "bedrock" without explanation.
- Gaps in log descriptions at depth and a lack of detailed material characterization were not addressed and did not meet the industry standard of care.
- No explanation was provided for discrepancies between historic logs and Feffer's own interpretation.

As stated in the prior technical letter, continuous subsurface investigation is critical to defining landslide geometry and failure mechanisms. Continuous boring logs are essential. Industry standards require logging every vertical inch of the borehole and documenting lithology changes, shear zones, bedding attitudes, fractures, clay seams, and disturbed materials. Terms such as *smashed*, *jumbled*, *pulverized*, *reworked*, *slickensides*, and *polished shear surfaces* are commonly used to describe materials disturbed by landslide movement.

Historic logs prepared by STONE SUBSURFACE EXPLORATION LOGS, MALIBU ROAD AREA, MALIBU, CALIFORNIA. 1962. meet this standard. By contrast, Feffer's logs—and earlier CY logs—contain gaps and reduced descriptive detail, limiting their usefulness in defining slide geometry and does not meet the standard of care for geotechnical engineering. Feffer log **B-3** was only intermittently logged with notations every 5' that only denoted fracturing and gypsum in filled cracking (evidence of dilation - movement) A zone of interest, that would correlate with SG 6 and 7 would be from 25'-45' but there were not continuous observations

Feffer log **B-5** reads like landslide however the category description has been described as bedrock. The bedding orientations are southwards towards the beach. However, there are multiple gaps in the logs and the log appears biased towards a non-slide condition despite containing observations of shearing and clays tilted towards the south. The boring is well into the pad area and was previously identified as a slide.

1525 Pepper Tree Place, Fallbrook, CA 92028
TEL (760) 473-4117 Email Rnkjeffery@SBCGlobal.net



5.3': Siltstone becoming very hard	Dark Brown to Black	Very Hard	
2.7 feet of information seems to be missing			
8':Siltsone/shale, petroliferous odor, sulfides present within very closely spaced randomly oriented fractures, crenulated, horizontal contact with red brown siltstone above	Black	Moderately Weak	
4.5 feet of information seems to be missing			
13.5': Interfingered quartzite, shale, and siltstone, very fine grained, irregular gradational contact, highly fractured to massive, gypsum infilled fractures	Black to Gray	Very Hard	
4.5 feet of information seems to be missing			
19': 2 to 3" thick shale bedding oriented N54°W, 26° NE	Black	Moderately Hard	
3 feet of information seems to be missing			
21': Siltstone/shale, containing localized interbedded fine grained chert, highly crenulated, randomly oriented closely spaced fractures, abundant polished shear surfaces			
4 feet of information seems to be missing			
25': Siltstone/Shale, no significant change	Black	Weak	Slightly Moist
5 feet of information seems to be missing			
30': Trace gypsum present in closely spaced fractures			
5 feet of information seems to be missing			
35': Siltstone/shale, no significant change	Black	Weak	Slightly Moist
2 feet of information seems to be missing			
37': Minor water seep, boring walls wet			Wet
3 feet of information seems to be missing			
40': Minor water seep			

1525 Pepper Tree Place, Fallbrook, CA 92028
TEL (760) 473-4117 Email Rnkjeffery@SBCGlobal.net

EXHIBIT A

40': Minor water seep		
~4 feet of information seems to be missing		
44.4-48': 2-3" thick clay bedding oriented N80°W 27°N, clay is very plastic, very sticky, abundant gravels and fractured bedrock at base of clay bed, continuous around boring	Gray to Light Gray	Soft
45.4-48': Quartzite/shale below clay bed, highly fractured, gypsum infilled fractures	Black	Very Hard
49-51': 1/4" Claystone beds within shale bedrock, bedding oriented N43°W 49°NE, bedding orientation continues below	Light Brown	Hard
51': Water seep		
7 feet of information seems to be missing		
58': Claystone, bedding oriented same as above to 65 ft.	Light Brown	Hard
7 feet of information seems to be missing		
65': Standing groundwater, logging stopped on 5/14/2019		
5 feet of information seems to be missing		
70': Shale, siltstone	Black to Dark Gray	Very Hard
5 feet of information seems to be missing		
75': Shale, siltstone, continues to bottom of boring	Black to Dark Gray	Very Hard

1525 Pepper Tree Place, Fallbrook, CA 92028
TEL (760) 473-4117 Email Rnkjeffery@SBCGlobal.net

EXHIBIT A

Pacific Coast Land Consulting
Engineering Geologic Services

IN RED APPEARS TO BE MISSING INFORMATION?

LOG OF EXPLORATORY BORING

Sheet 1 of 2

Job Number: 1992-75
Project: 25200 Pacific Coast Highway

Boring No: 10
Boring Location: See Site Map.

Date Performed: 5/13/2019

Drill Type: 24" Bucket Auger

Depth in Feet	Blows per 6"	Sample Type: Undisturbed	Sample Type: Bulk	Bedrock/ Soil Description	Color	Density	Moisture
0				0-2.4': Steel casing in top of hole			
				Bedrock: Monterey Shale (Tm) 2.4': Siltstone, moderately fractured, 1/8" closely spaced fractures with gypsum infilling, randomly oriented fractures	Red Brown	Moderately Hard	Dry
				4.2': 1-2" thick horizontal bed			
5				5.3': Siltstone becoming very hard	Dark Brown to Black	Very Hard	
				2.7 feet of information seems to be missing			
				8': Siltsone/shale, petroliferous odor, sulfides present within very closely spaced randomly oriented fractures, crenulated, horizontal contact with red brown siltstone above	Black	Moderately Weak	
10	5/9	R		4.5 feet of information seems to be missing			
				13.5': Interfingered quartzite, shale, and siltstone, very fine grained, irregular gradational contact, highly fractured to massive, gypsum infilled fractures	Black to Gray	Very Hard	
15				4.5 feet of information seems to be missing			
				19': 2 to 3" thick shale bedding oriented N54°W, 36° NE	Black	Moderately Hard	
20				3 feet of information seems to be missing			
	6/13	R		21': Siltstone/shale, containing localized interbedded fine grained chert, highly crenulated, randomly oriented closely spaced fractures, abundant polished shear surfaces			
				4 feet of information seems to be missing			
25				25': Siltstone/Shale, no significant change	Black	Weak	Slightly Moist
				5 feet of information seems to be missing			
30	13/20	R		30': Trace gypsum present in closely spaced fractures			
				5 feet of information seems to be missing			
35				35': Siltstone/shale, no significant change	Black	Weak	Slightly Moist
				2 feet of information seems to be missing			
				37': Minor water seep, boring walls wet			Wet
				3 feet of information seems to be missing			
40	7/15	R		40': Minor water seep			

Feffer Geological Consulting

Figure

1525 Pepper Tree Place, Fallbrook, CA 92028
TEL (760) 473-4117 Email Rnkjeffery@SBCGlobal.net

EXHIBIT A

Comment by PCLC The 1979 Leighton boring logs shows level of detail not shown on Feffer logs.

GEOTECHNICAL BORING LOG

DATE 6-1-79 DRILL HOLE NO. 1 SHEET 2 OF 2
PROJECT Puerco Cyn. Slide Study - Malibu PROJECT NO. 178250-01
DRILLING CO. Tri-Valley TYPE OF RIG Bucket Auger
HOLE DIAMETER 24" DRIVE WEIGHT 1600 lbs (0-23') 800 lbs (24-50') DROP 12
ELEVATION TOP OF HOLE 57' REF. OR DATUM

LOGGED BY EC / TW
SAMPLED BY TW

DEPTH FEET	GRAPHIC LOG	ATTITUDES	TUBE SAMPLE NO.	BLOWS PER FOOT	DRY DENSITY PCF	MOISTURE CONTENT, %	SOIL CLASS. (U.S.C.S.)	GEOTECHNICAL DESCRIPTION
30								@31' Hard concretion.
								@32.2' Seepage.
								@35' Rupture zone, 1-2" thick black plastic clay. Strong H_2S odor. Siltstone sheared, but pieces becoming larger in size.
35		R: N75E, 30-35SE	5	8	82.6	28.0	CL	ANCIENT SLIDE
								slide at 19' ancient
40		R: d. 30SE						@40' Rupture surface, clay lined.
								@41' Vertical sense to shearing.
			6	26	85.0	28.1	CL	@43' Concretion, 3' thick on north wall; with gray wet clay associated. (Took 2 hours of coring to penetrate).
45								Wet sheared surface, very strong odor. Shearing dips northerly.
								@49' Concretionary layer. Below still very sheared siltstone to caving.
50		(6-12-79)	7	24	85.2	25.9	CL	BEDROCK
		caving and standing H_2O (6-14-79)						(Down hole logged to at 53.5'; Hole caved to 5[illegible]
								Must log every inch, slide planes could be 1/4"
55								@54' Abundant 1/4" fat, plastic, clay shears. Possible rupture.
								possible basal at 3'
								@55' Hard concretionary layer, 1' thick. Below black clayey siltstone, very sheared.
								@60' Concretion.
60			(5)					T.D. 60.5' Downhole logged to 57' Seepage at 32.2'; standing water at 53.5' and Hole caved to 54' [illegible] standing H_2O @ 50 and

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EXHIBIT A

3.3 INSTRUMENTATION AND SYSTEM RESET

The analysis of any slide is only as good as the model developed. And this. means that all data must be considered, for what it is and not subject to interpretation. Feffer's statement that both SI-5 and SI 6 conclude that no "significant movement" is wrong. If Feffer had taken a careful look at all the data in these 2 inclinometers he would have discovered that the appearance of no movement results from a change in the date of the base line readings. Inclinometers operate on a comparison basis. Subsequent readings are then recorded to that initial base line, and the resultant plot shows the depth and magnitude of the offset.

In this situation for SI-5 the initial reading was taken on 8-17-2004. This is the base line reading to which all future readings are to be compared. However, this was not used until the report of 2018-2019 by Fugro in the plots and it is at that time the offsets in SI-5 are clearly visible.

The rest of the readings arbitrarily use a later base line reading in this case the other "initial reading" were on May of 2005. This has the effect of straightening out the plots by eliminating readings between 2004 and 2005.
For SI-6 the earliest identifiable movement occurs at a depth of 38 feet in the 2008-09 report from Fugro.
Incremental displacements are continuously recorded in almost all Fugro report despite initial reading date being changed during plotting. Cumulative displacements plot as much as .2 inches as recently as June 2020.

What is meant by significant movement? How much movement is insignificant? The answer lies in the plots of the inclinometers. If it was, just one inclinometer that had some reading would be suspicious but to have 2 inclinometers show similar results over years of monitoring indicates that slow slide movement is continuing.
Therefore, this data. must be accounted for in the landslide and slope stability model. It wasn't even considered in more than a cursory brush over.

It has now been established that there exist in the body of data significant and numerous points representing the slide plane. The next step is to develop the structure contour and this is as simple as connecting the data points on the slide. If this can be done and it has then the slide is much larger than Feffer's analysis.

It is not the standard of care to just simply connect the dots. This approach leads to an inaccurate and incomplete analysis of the geometry of the slide. If the geometry of the slide is not accurate then subsequent engineering and slope stability, is based upon an inaccurate model and also incorrect.

These issues affect the reliability of the geologic model and the validity of later engineering analyses.

Feffer should address:

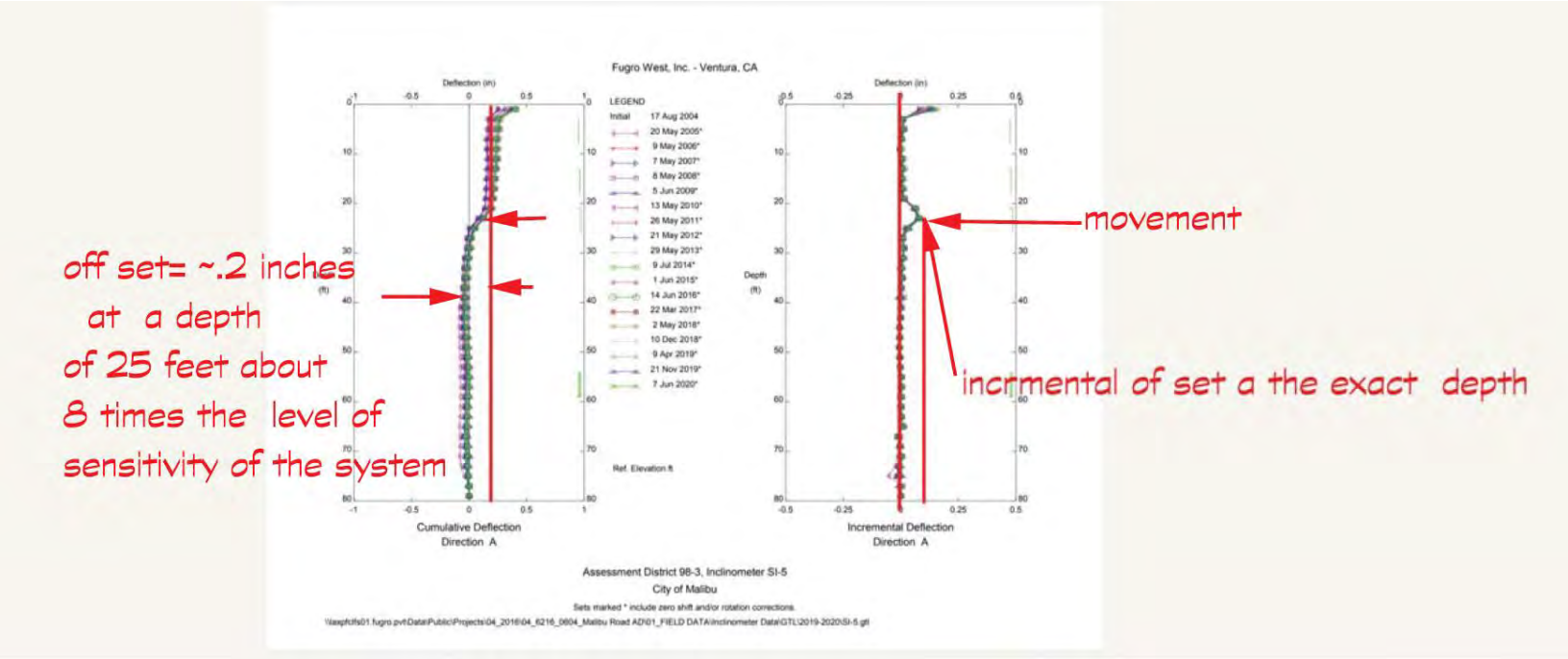
- Why are Feffer's own logs significantly less detailed than prior logs
- Feffer's logs contain "gaps in the observations"
- Feffer may have misclassified smashed, jumbled, crushed/chaotic materials as "bedrock"
- Feffer ignores identifications of slide surfaces
- Feffer's inclinometer analysis seems to have only consisted of reading the annual report and parroting that language
- In the section reviewed some groundwater profile have a vertical drop. There does not seem to be clear explanation of this phenomenon or what data was used to develop the profile.in one section it appears based on faulting but in other sections the water appears continuous. The review of the logs by CY (boring 2) does not show a fault, and it is shown on the section. It is unclear how this interpretation was achieved. Nor does it demonstrate a significant enough gouge zone to act as ground water barrier. The notation of a healed fault plane. @ 10' in Feffers boring B-2 has only a 31degree easterly dip with a north south strike (parallel to the section) which is at 90 degrees to the fault shown in section 2. No other faulting is found in the logs and it is not placed on the geologic map. The evidence for this. feature is questionable and needs additional supporting data.
- Without this data then the ground water table needs to be a continuous profile from the upper pad to the lower portions of the area. The ground water surface should be

1525 Pepper Tree Place, Fallbrook, CA 92028
TEL (760) 473-4117 Email Rnkjeffery@SBCGlobal.net

subparallel to the slope of the land consequently is substantially higher, than that which was analyzed.

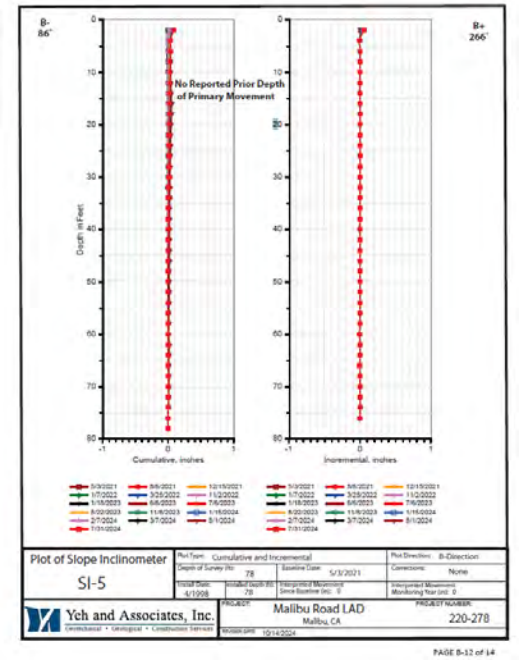
Inclinometers provide direct evidence of subsurface deformation. Movements as small as 0.1 inch over 100 feet are meaningful. Resetting baseline readings eliminates evidence of prior displacement and must be explicitly accounted for when interpreting results. The City should have Ye and Associates update the data to show cumulative data from the Fugro reports as this creates misleading design data by wiping out past data with a system reset and defeats the purpose of tracking this data.

Fugro 2019-202 dated August 2020 report (Fugro Consultants, Inc. ANNUAL REPORT JULY 2019 THROUGH 2020 MALIBU ROAD LANDSLIDE ASSESSMENT DISTRICT, MALIBU CA. August 2020, pg 48 of pdf) shows cumulative movement:



System reset wipes out previous data:

Yeh & Associates, Inc 2023-2024 Report dated March 20, 2025 (Ye & Associates Inc**.** FY23/24 MAINTENANCE AND MONITORING AD98-3, MALIBU ROAD CITY OF MALIBU, CALIFORNIA. March 20, 2025, Page B-11 of 14, Page 39 of pdf)



3.4 DEVELOPMENT OF A STRUCTURE CONTOUR MAP AND CITY OF MALIBU ASSESSMENT DISTRICT NO.98-3 MALIBU ROAD AND ASSESSMENT FEES

Once subsurface data are compiled, elevations of suspected slide planes must be plotted and evaluated spatially to determine whether a coherent failure surface exists. If data points correlate spatially and geometrically, a landslide surface has been defined. This step is fundamental and cannot be bypassed. Once this structure map is recalculated with all available data and additional data as recommended, 25200 PCH would likely be in the City of Malibu Assessment District No.98-3 Malibu Road and would be pay fees associated with being in the City of Malibu Assessment District No.98-3 Malibu Road.

3.5 GROUNDWATER MODELING

Slope stability analyses must incorporate realistic high-groundwater conditions, particularly where onsite wastewater disposal is proposed. Groundwater surfaces should generally be subparallel to topography unless well-supported geologic barriers are demonstrated.

4.0 INCOMPLETE OR NON-SPECIFIC LOGGING IN FEFFER BORINGS

Concerns regarding Feffer's subsurface characterization remain unresolved:

- Materials described by earlier consultants as crushed, sheared, or landslide debris are frequently classified by Feffer as "bedrock" without explanation.
- Numerous gaps in logging occur at critical depths.
- Discrepancies between historic logs and Feffer's interpretations are not reconciled.

Stone's SG-6 and SG-7 (STONE SUBSURFACE EXPLORATION LOGS, MALIBU ROAD AREA, MALIBU, CALIFORNIA. 1962), located within feet of Feffer borings, describe smashed, jumbled materials with slickensides between approximately 5 and 42 feet, indicative of landsliding beneath the central building pad. Feffer's nearby borings do not reflect these conditions, despite spatial proximity.

5.0 INCLINOMETER DATA INTERPRETATION

Feffer's response relies on the statement that the inclinometer reports indicate "no significant movement." This phrasing requires clarification in the context of the full inclinometer record. While Feffer cites the City's 2025 Assessment District Report. He merely restates the conclusion without doing any analysis. Feffer's response does not address:

- Why earlier inclinometer interpretations identified movement at 32–39 feet
- Records of data. recording goes back as far as 1989, yet no plots of this data was available or apparently reviewed
- Whether instrument noise, calibration, or reading intervals were evaluated
- Whether incremental and cumulative plots were reviewed in any detail
- Was any effort made to obtain the original data and plot the results independently standardizing the use of the initial readings to the earliest available data.
- There appears that pre 2004 inclinometer readings were taken, however no effort to obtain and review this data was made
- Whether deeper movement potential should be reexamined given historic slide mapping

These discrepancies should be resolved through direct comparison of data sets.

a. Later Assessment District reports (roughly mid-2010s onward)

These reports — especially those Feffer references — commonly state variations of:

- "No significant movement"

- "No shear-type movement"
- "Movement within instrument accuracy"

Important nuance:

- These statements are made after baseline resets, which is significant because a system-wide reset effectively re-zeroed the inclinometer profiles; the fact that all inclinometers were set to zero must be considered when interpreting subsequent plots
- They are typically referring to shear-type movement across a single, discrete plane
- They often do not deny incremental or cumulative displacement

Accordingly, when Feffer states that "the inclinometer reports say there is no significant movement," he is accurately quoting some report conclusions, but only in a narrow, technical sense.

b. Earlier reports (and raw plots within later reports)

Earlier Fugro reports — and the plots themselves even in later reports — show:

- Documented incremental displacement
- Cumulative movement on the order of approximately 0.1 to 0.2 inches
- Recurrent displacement at similar depths in:
    - SI-5
    - SI-6

In several reports (including Fugro's INCLINOMETER MONITORING REPORTS, CITY OF MALIBU ASSESSMENT DISTRICT NO. 98-3, MALIBU ROAD, MALIBU, CALIFORNIA. 2008–2009 and subsequent years):

- Movement is explicitly plotted
- The issue is how it is characterized, not whether it exists

These reports do not state that there is "no movement." Rather, they describe movement as:

- slow,
- incremental, or
- below a threshold the consultant defines as "significant."

c. What "no significant movement" actually means (technically)

In inclinometer practice:

- "Significant" is not a regulated term
- It is consultant-defined

It usually means:

- no abrupt shear plane,
- no accelerating displacement, or
- no emergency condition

It does not mean:

- no deformation,
- no landslide-related movement, or
- no relevance to long-term stability

Accordingly, Feffer's statement is technically incomplete, even if not outright false.

d. Assessment District (AD) data is for monitoring, not design

Assessment District (AD) reports are meant to:

- track long-term trends,
- support maintenance decisions,
- and observe known landslide behavior

AD data is not intended to:

- define landslide geometry,
- establish failure mechanisms, or
- justify new development without independent, site-specific geologic modeling

Reliance on AD summary language misapplies the purpose of those reports.

6. GROUNDWATER UNCERTAINTY

Groundwater profiles used in Feffer's analyses do not represent the highest reasonably anticipated conditions, particularly given the proposed onsite wastewater system. Absent clear evidence of a laterally continuous groundwater barrier, groundwater should be assumed to form a continuous, slope-parallel surface.

It is well established from the history of landsliding in the Malibu Road area that the introduction or increase of water within a landslide mass can be a primary triggering mechanism, and under adverse conditions can prove devastating. Residents along Malibu Road recall that, around 1978, a residence located at 25325 Pacific Coast Hwy was lost during landslide activity and a substantial section of Malibu Road reportedly subsided on the order of approximately ten feet, a condition that remains evident today. These events occurred within living memory and underscore the sensitivity of the landslide complex to groundwater conditions.

Given this history, any increase in groundwater—whether from rainfall, altered drainage, or onsite wastewater disposal—must be conservatively evaluated with respect to both on-site and downslope stability.

7. MISSING PACIFIC SOILS DATA

Our report noted that Pacific Soils previously identified landslide terrain, although their logs are unavailable. Feffer's response did not address:

- What effort was made to find these logs?
- How missing data was considered in Feffer's uncertainty analysis
- Why earlier conclusions regarding landsliding were not incorporated conservatively given the lack of confirmatory logs
- Whether additional subsurface exploration is warranted to resolve this documented data gap

This omission leaves an unresolved question regarding the completeness of the site characterization.

Feffer should address if data is missing, make every effort to find these logs, whether there could be an underestimate of the likelihood of landsliding.

8. LANDSLIDE GEOMETRY IMPLICATIONS AND FAILURE SURFACE DEFINITION

As discussed above, the definition of landslide geometry presented by Feffer relies on incomplete subsurface data and selective use of instrumentation. When combined with missing or non-continuously logged boring information and the selective omission of inclinometer data from SI-5 and SI-6, the interpreted slide plane is artificially shallow.

Based on the geometry shown in Feffer's analyses, the slide surface is depicted as terminating above the depths at which movement has been documented in SI-5 and SI-6. However, if the documented displacement depths from SI-5 and SI-6 are incorporated into the geologic model, the slide plane necessarily projects significantly deeper and extends beneath the proposed project site.

Accordingly, omission of SI-5 and SI-6 from the geometric model, together with incomplete boring logs, results in an underestimation of slide depth, extent, and continuity. This materially affects slope stability calculations, pile embedment assumptions, and conclusions regarding both on-site and off-site stability.

9.0 DISMISSAL OF OLDER LANDSLIDE CONCLUSIONS WITHOUT TECHNICAL BASIS

Feffer's letter asserts that earlier consultants relied heavily on aerial photographs, but does not address:

- Aerial photos are but 1 form of data that is useful. This type of data. is very subjective as it relies, heavily on the professionals' view the photos. It is however, only a first cursory step and should not under any circumstance be used as tool in the definition of the subsurface geometry.
- Why multiple independent consultants identified similar landslide features over several decades
- Why the conservative interpretations contained in prior reports were not incorporated into the current model as stated in older reports.
- How Feffer's interpretation differs mechanically from older mapped configurations

As a result, Feffer's response does not adequately justify the departure from historical conclusions.

10.0 SHEAR STRENGTH SELECTION AND UNUSED LOWER RESIDUAL VALUES

Although Feffer outlines the basis of the shear strengths used, Feffer did not address:

- If the geometry is wrong, then any back calculated values will also be wrong

- The concern that strength values were averaged across borings, potentially obscuring weaker intervals
- Why the lowest residual value (8.5°), included in Feffer's own data set, was not used in translational analyses
- Whether user-defined failure planes—consistent with historic slide mapping—were evaluated with appropriate residual strengths

These items remain unresolved and directly affect factor-of-safety outcomes.

11.0 NEED FOR ADDITIONAL INSTRUMENTATION

Feffer's response does not address the recommendation for:

- A new inclinometer on the upper pad
- Monitoring through at least one wet winter to capture potential delayed movement

This recommendation remains outstanding and is consistent with CBC 1704A monitoring requirements for slope stability concerns.

Feffer's letter says only that the existing data shows no movement, but does not address:

- Why new instruments are or are not warranted
- Whether seasonal monitoring could reveal movement not previously captured

12.0 CY & ASSOCIATES' GEOLOGIC MISCHARACTERIZATION

Our report noted that CY & Associates did not correctly identify site geology. Feffer's response references CY's lack of landslide evidence but does not explain:

- Whether their geologic mischaracterization was corrected
- Whether Feffer's interpretation relied on or contradicted CY's assumptions

This point remains unaddressed.

13.0 LACK OF ANALYSIS OF COMPLEX SLIDE GEOMETRY

Feffer's response references both circular and translational analyses, but does not address:

- The absence of modeled compound or multi-surface failure configurations
- The reviewer's request for user-specified failure geometries based on mapped geologic features

1525 Pepper Tree Place, Fallbrook, CA 92028
TEL (760) 473-4117 Email Rnkjeffery@SBCGlobal.net

- Why deeper bedding-controlled surfaces suggested by previous investigations were not analyzed
- Most if not all of Stone sections show landsliding beneath the toe of slope and above the mapped active slide indicating that the slide is continuous through this area. Boring on the upper pad and below the pad shows. evidence of sliding. How is this explained given the depth involved.

This gap remains significant given the site's structural complexity.

14.0 PILE SYSTEM DEPTH AND ABILITY TO RESIST COMPLEX SLIDING

Although Feffer's letter reiterates support for the currently designed pile system, it does not respond to the specific concern that:

- The piles may not extend deep enough to intercept both upper and lower potential slide surfaces
- The design does not address compound or irregular failure geometries
- Revised pile embedment depths and tieback lengths may be required if lower residual strengths or deeper slide surfaces are considered

This remains a key unresolved engineering issue.

15.0 CONCLUSION

The geologic evaluation and the establishment of landslide geometry presented to date remain incomplete and do not adequately define the type, depth, continuity, or extent of landslide movement affecting the site and adjoining downslope properties. As a result, the slope stability analyses and subsequent engineering recommendations are based on an inaccurate or insufficient geological model and therefore cannot be reasonably relied upon. . The homeowners who are affected have good reasons to be concerned about the stability of the ground they are built on. This project represents an opportunity to enhance the stability of the slide complex and the lower homes, as well as providing a stable building site for the proposed development.

Given the potential for very heavy rains and subsequent increase in groundwater, utilizing an onsite wastewater system must be very carefully addressed. The above items represent significant technical questions that were not addressed or fully resolved in Feffer's response. We believe these issues warrant further evaluation, including additional subsurface exploration, review of inclinometer data, reevaluation of shear strengths, and reconsideration of the stabilization system's depth and configuration.

We remain available to discuss these matters and to review any supplemental analyses Feffer may wish to provide.



Ralph K. Jeffery
President CEG 1183
Pacific Coast Land Consulting

EXHIBIT A

Commission Agenda Report

Planning Commission Meeting
01-20-26
Item 5.A.

To: Chair Riddick and Members of the Planning Commission

Prepared by: Richard Greenbauer, Contract Planner

Reviewed by: Joseph Smith, AICP, Contract Principal Planner

Approved by: Yolanda Bundy, MS, PE, CBO, CFCO, Community Development Director and Tyler Eaton, Assistant Community Development Director

Date prepared: January 8, 2026 Meeting date: January 20, 2026

Subject: Coastal Development Permit No. 25-032, Site Plan Review No. 25-039, and Demolition Permit No. 25-027 – An application to implement the Malibu Middle and High School (MMHS) Campus Specific Plan (Phases 2, 3a, and 4a) with the construction of a new two-story 18,911 square-foot middle school gym (Building D) and outdoor sports courts, one-story 9,243 square-foot middle school student activity, food service, and special education building with canopy (Building D/I), one-story 333 square foot broadcasting/media arts building (Building D), middle school quad and walkways, site improvements, landscaping, on-grade solar installation, grading, and underground utility work, including a site plan review for a height increase over 18 feet, not to exceed 36 feet as allowed in the MMHS Specific Plan and a demolition permit for the demolition of existing classroom Buildings K and I, seven portable classroom buildings, and one portable restroom building

Location: 30215 Morning View Drive, within the non-appealable coastal zone
APN: 4469-017-901
Owner: Santa Monica-Malibu Unified School District

RECOMMENDED ACTION: Adopt Planning Commission Resolution No. 26-04 (Attachment 1) certifying that the project is consistent with the Final Environmental Impact Report (EIR) (State Clearinghouse [SCH] No. 202008350), the Mitigation Monitoring and Reporting Program (MMRP), and the Statement of Overriding Considerations (SOC) adopted by the Santa Monica-Malibu Unified School District (SMMUSD) Board of

Education (Board) on January 26, 2022 and certified by the City Council on July 11, 2022 in Resolution No. 22-32, and approving Coastal Development Permit (CDP) No. 25-032, Site Plan Review (SPR) No. 25-039, and Demolition Permit (DP) No. 25-027 to implement the MMHS Campus Specific Plan (Specific Plan) (Phases 2, 3a, and 4a) with the construction of a new two-story 18,911 square-foot (sf) middle school gym (Building D) and outdoor sports courts, one-story 9,243 sf middle school student activity, food service, and special education building with canopy (Building D/I), one-story 333 sf broadcasting/media arts building (Building D), middle school quad and walkways, site improvements, landscaping, on-grade solar installation, grading, and underground utility work, including a site plan review for a height increase over 18 feet, not to exceed 36 feet as allowed in the MMHS Specific Plan and a demolition permit for the demolition of existing classroom Buildings K and I, seven portable classroom buildings, and one portable restroom building located in the Institutional Zone and MMHS Campus Specific Plan Overlay District at 30215 Morning View Drive (APN 4469-017-901) (SMMUSD).

DISCUSSION: This agenda report provides a project overview, a summary of the surrounding land uses and project setting, a description of the proposed project, the Planning Division's analysis of the proposed project's consistency with the Specific Plan, Local Coastal Program (LCP), Malibu Municipal Code (MMC), and environmental review pursuant to the California Environmental Quality Act (CEQA). The analysis and findings contained herein demonstrate the proposed project is consistent with the LCP and MMC.

Surrounding Land Uses and Project Setting

The MMHS campus includes 86.69 acres in the Malibu Park neighborhood of west Malibu and is comprised of a high school, middle school, several outdoor sports fields and courts, support facilities, infrastructure, the Boys and Girls Club, the Malibu Equestrian Center, and approximately ten acres of undeveloped land. The MMHS campus is located on Morning View Drive, approximately one-quarter mile northeast of both Pacific Coast Highway (PCH) and Zuma Beach and generally between Merritt Drive to the west, Via Cabrillo Street to the east, and Harvester Road to the north. Residential properties are located north and west of the MMHS campus. The Malibu Equestrian Center is located east of developed campus area behind a large berm separating the equestrian use from the MMHS's main sports field. The Malibu United Methodist Church/Nursery School and residences along Morning View Drive are located south of the MMHS Campus. Figure 1 provides a vicinity aerial of the MMHS campus.

Figure 1 – Vicinity Aerial



Source: City GIS

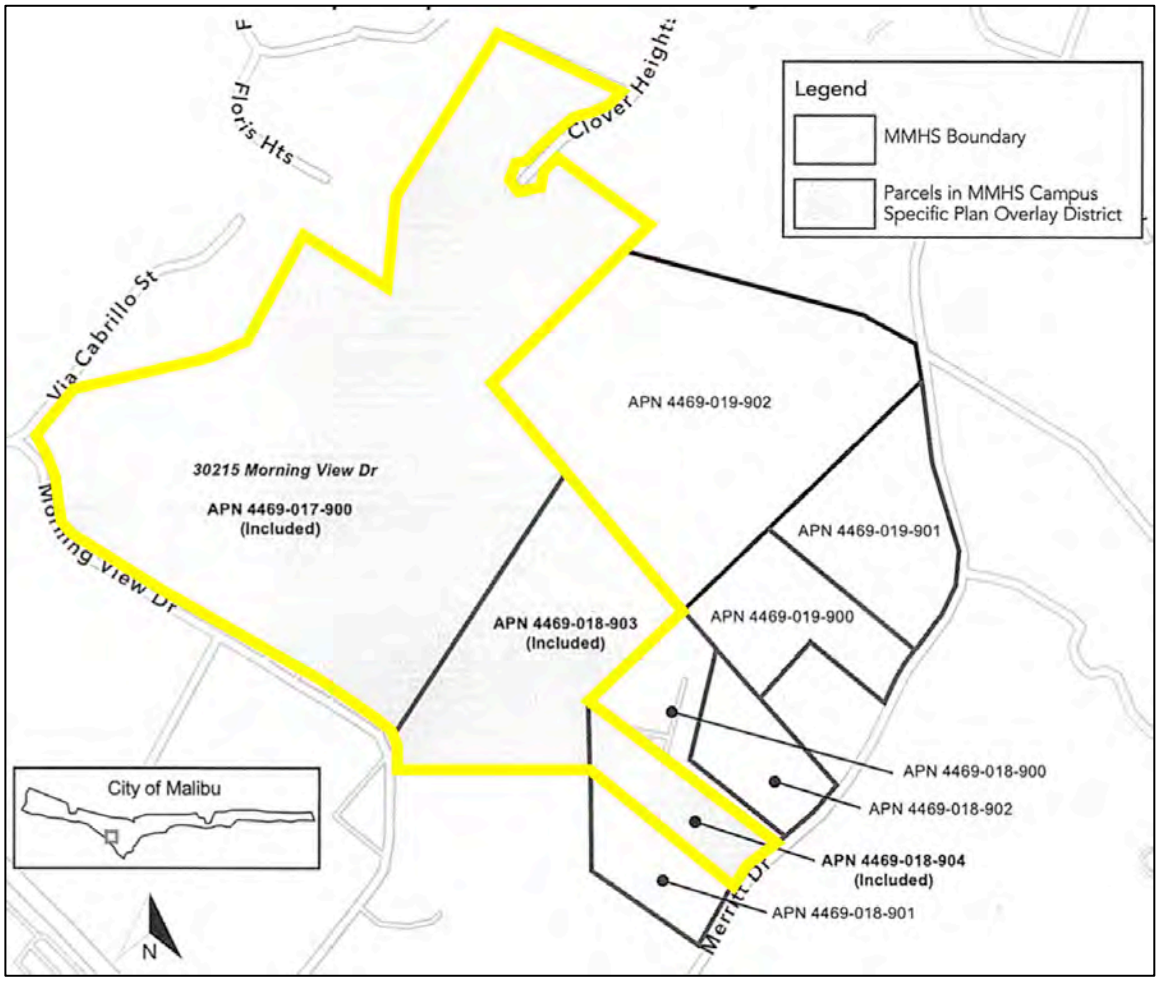
Maximum topographic relief across the MMHS campus is approximately 94 feet, with elevations ranging from 86 feet above mean sea level near Morning View Drive to 180 feet in the north. There is limited natural vegetation onsite consisting primarily of grasses, ivy, brush, shrubs, and scattered trees, with some patches of disturbed and isolated coastal sage scrub in and around the main sports field. A blueline stream enters the MMHS campus in the northwest and flows under the property in a drainage pipe from Clover Heights Avenue to the west/southwest property line where it daylights into a natural streambed. Drainage from the MMHS campus flows overland and along parking lots and driveways in a southerly direction to Morning View Drive, where it collects into existing storm drains. The Phase 2, 3a, and 4a development areas are well outside of the natural vegetation area, stream, and stream setback area and not located within the CCC appeal jurisdiction.

Background Overview

In 2019, the District launched the specific plan process with the purpose of defining long-range facility goals that support the District's educational goals. A specific plan enables the classification and development of a parcel(s) of land as a coordinated, comprehensive project. The intent is to achieve a more desirable development or physical environment than would be possible through the strict application of conventional zoning regulations

and standards. The Specific Plan was eventually developed and illustrates a strategic vision for the MMHS campus over the next 10 to 15 years. On January 26, 2022, the District approved the Specific Plan, which established development standards and provided a framework for a cohesive redevelopment of the MMHS campus. Figure 2 delineates the parcels that comprised the MMHS campus at that time, with a yellow outline of the parcels associated with the Specific Plan. The Specific Plan area represents 49.46 acres of the overall 86.69 acre MMHS campus. Phase 1 approvals merged Assessor Parcel Numbers (APNs) 4469-017-900 and 4469-018-903 into the current APN 4469-017-901, which now represents the bulk of the campus.

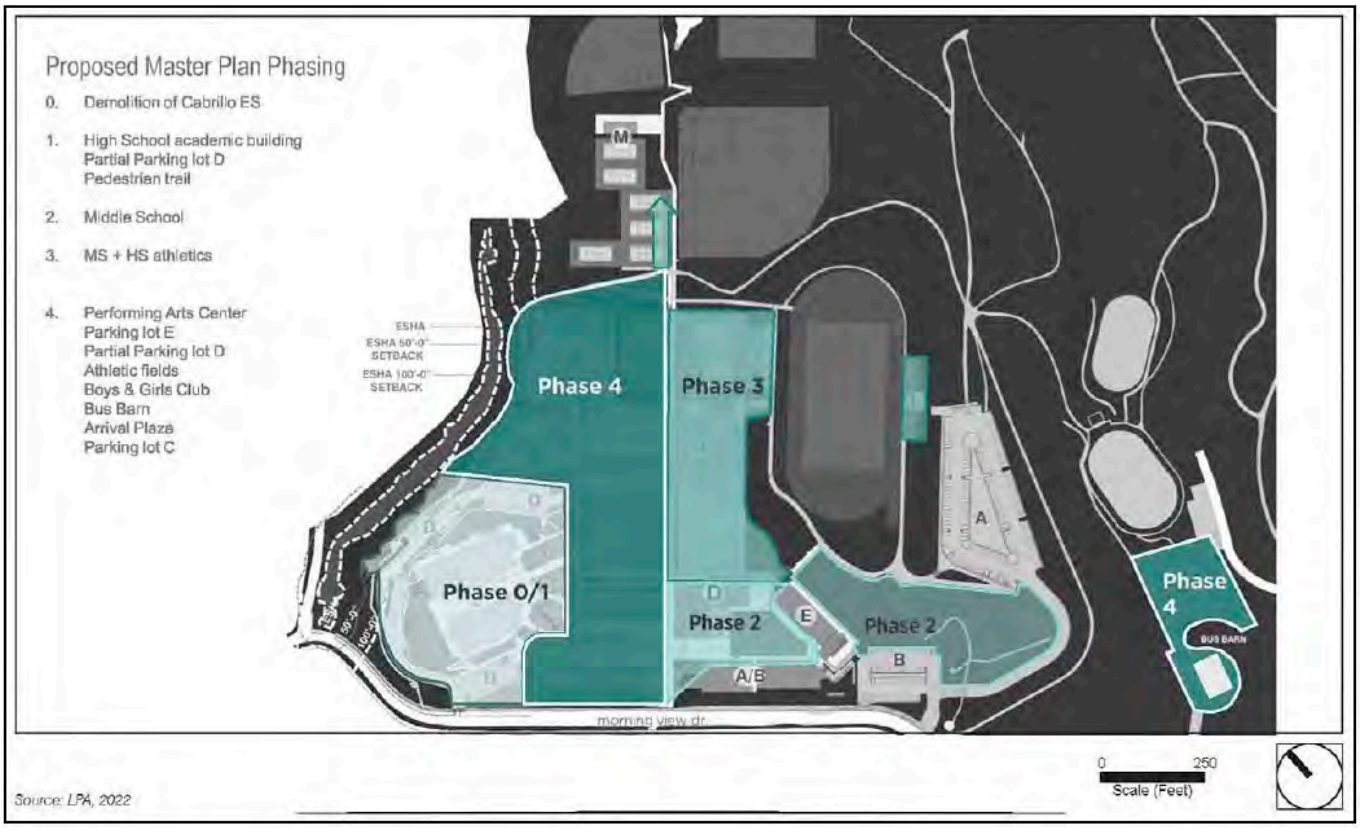
Figure 2 – Specific Plan



Source: City Ordinance 512

The Specific Plan includes four phases of development with completion anticipated in 2031. Figure 3 depicts the general area of each phase of development.

Figure 3 – Specific Plan Phasing



Source: Specific Plan

The following summarizes the main components of each phase. Due to construction efficiencies and logistics, the District may adjust some components with another phase.

- Phase 1 (Complete): Phase 1 included the demolition of all existing former Juan Cabrillo Elementary School (JCES) campus buildings, construction of Building C (high school classrooms, support services, and administration), Parking Lot C, Parking D, the Drop-off/Pick-up area, the after-the fact relocation of five portable buildings, restoration of Environmentally Sensitive Habitat Area (ESHA), and associated development.

- Phase 2 (Permitting): Phase 2 is the proposed scope of development as detailed under the Project Description section. Phase 2 includes the construction of Building D (middle school gym, student activities, and food services, as well as broadcast/media arts). Some components from Phases 3 and 4 were adjusted into Phase 2 by the District. This includes some grading, demolition of portable buildings, and the construction of a portion of planned Building I (special needs) into Building D. Construction is expected to occur over a two-year period.

- Phase 3 (Upcoming): Phase 3 would consist of the demolition of Buildings F and I, the existing field house, the construction of Buildings J (high school gym), L (shared aquatics center/field house), and M (shared upper field house), and Parking Lots E and F. Construction is expected to occur over a two-year period.

- Phase 4 (Upcoming): Phase 4 would involve the demolition of Buildings H, K, J, and J1, the pool and pool building, the bus barn, the demolition and/or relocation of the Boys & Girls Club, and construction of the new Building H (shared visual and performing arts) and the remaining portion of Building I (campus wellness). Construction is expected to occur over a one-year period.

This Specific Plan would result in the demolition of 18 existing buildings with only the existing athletic fields and recently completed Building A/B (Administration/Library) and Building E (middle school classrooms) to remain. Once completed, the Specific Plan would create dedicated spaces for Middle School and High School, resulting in a total of 54 classrooms, 12 labs, and 222,425 sf of building space at full Specific Plan buildout.

On August 8, 2022, the City Council approved the Specific Plan, which included an amendment to the LCP (LCPA). The LCPA was reviewed by the California Coastal Commission (CCC) on September 8, 2023 and conditionally certified with revisions. On October 23, 2023, the City Council adopted a revised LCP amendment. On November 17, 2023, the CCC Executive Director reported the City's adoption to the CCC and the City formally completed its final certification review of the LCPA. As of November 17, 2023, the Specific Plan is part of the City's LCP and used when conducting conformance reviews of all proposed development on the MMHS Campus. On September 5, 2023, the Planning Commission adopted Resolution No. 23-39 approving CDP No. 21-068 and implementing Phase 1.

Project Description

The District is proposing to move forward with Phase 2 which is focused on improvements to the middle school. To facilitate the development of Phase 2 and allow for efficiencies in construction, the District has included some demolition and development from later phases as part of the requested CDP. These components are referred to as Phases 3a and 4a. Figure 4 highlights the area of Phase 2, 3a, and 4a in red outline with green shading.

Figure 4 – Scope of Work Area



Source: City GIS

The proposed scope of work is described as follows:

Phase 2 scope:

- Two-story, 18,911 sf middle school gym (Building D) and reconfiguration of non-illuminated outdoor sports courts to meet emergency vehicle access (two full courts and two half courts);
- One-story 9,243 sf middle school student activity and food service building with a centralized steel canopy (Building D), referred to as the MS HUB. This building also integrates a special education component that was anticipated for Phase 4 as part of planned Building I;
- One-story 333 sf broadcasting/media arts building, referred to as the Main Distribution Framework (MDF) building (Building D);
- Middle school quad, walkways, stairways, and related site improvements;
- Fire lane for building access;
- Landscaping and fencing;
- On-grade solar installation with related components;
- Grading in the amount of 5,175 cubic yards (cy) of cut (including additional cut/fill

grading from the Phase 3a scope, total approximate grading for the proposed scope of work is 8,340 cy of cut, 4,303 cy of fill, and 4,037 cy designated for export).

- Underground utility work and connections to the wastewater treatment system.

Phase 3a scope:

- Demolition of a 4,561 sf classroom building (Building I);
- Demolition of seven 960 sf portable classrooms (6,720 sf total);
- Demolition of one 480 sf portable restroom; and
- Grading in the amount of approximately 3,165 cy cut and 4,303 cy fill (total grading reflected above in the Phase 2 scope).

Phase 4a scope:

- Demolition of a 12,698-sf classroom building (Building K);
- Construction of the special education component (Building I) as part of Phase 2 Building D.

The proposed project includes two discretionary requests as summarized below:

1. SPR No. 25-039 for construction over 18 feet, up to a maximum height not to exceed 36 feet from finished grade as allowed in the Specific Plan for Building D. Additional components such as chimneys, rooftop antennas, and light standards may extend to 40 feet. As proposed, the components of Building D is split into three buildings with the maximum heights provided below. Per the Specific Plan, all heights are measured from finished grade.
    a. Building D Gym: 35 feet to top of parapet (rooftop solar <35 feet)
    b. Building D MS HUB: 17 feet
    c. Building D Canopy: 21 feet, 7 inches
    d. Building D MDF: 13 feet, 4 inches

2. DP No. 25-027 for the demolition of existing classroom Buildings I (4,561 sf) and K (12,698 sf), seven 960 sf portable classroom buildings (6,720 sf), one 480 sf portable restroom, and associated site development.

Other Approvals

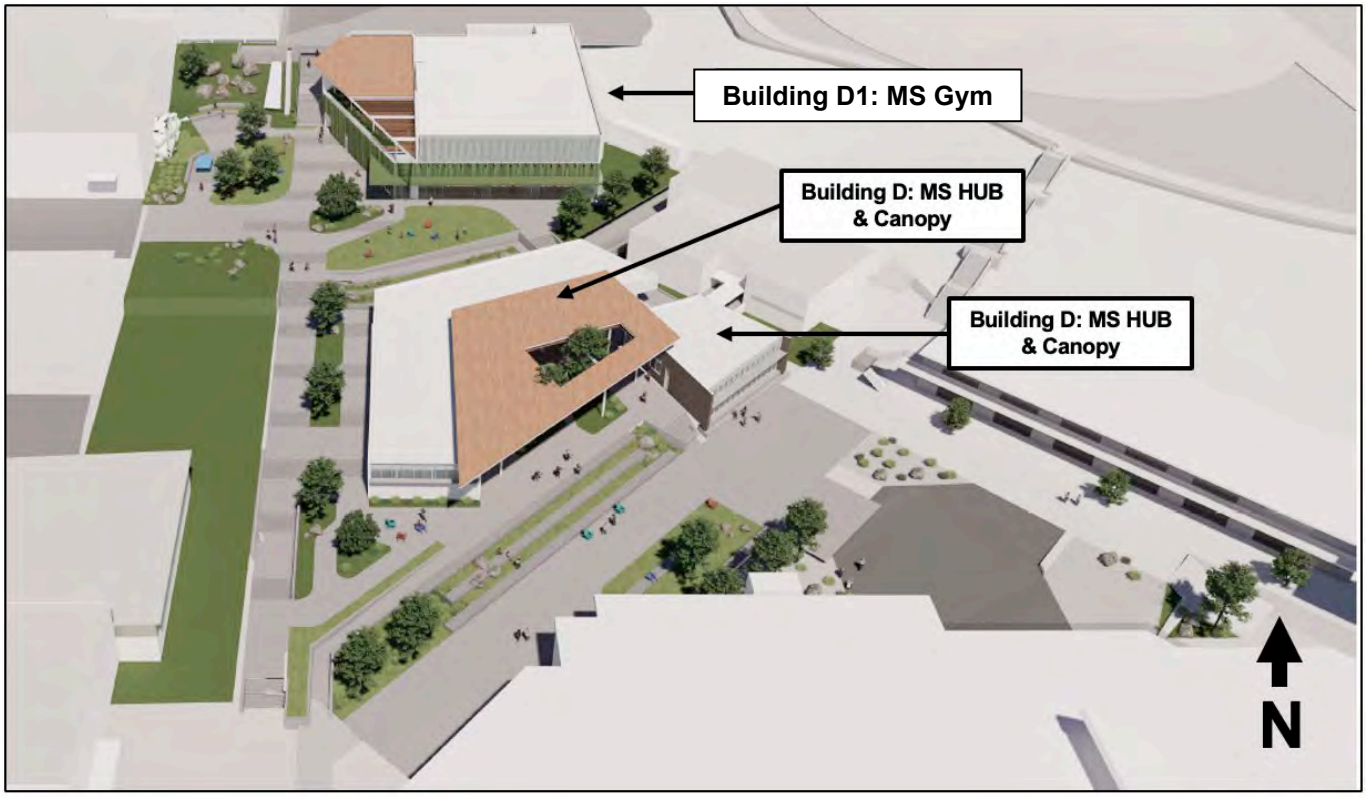
Additional approvals are also required from the following agencies:

1. County of Los Angeles
    - Fire Department *(fire access and fire flow approved)*

- Water District 29 *(water service)*

2. State of California
   - Division of State Architect (DSA) *(approval of construction drawings and grading and building permits)*

Figure 5 – Proposed Building D & Grounds



LIP Conformance Analysis

The City Planning Division, City Biologist, City Environmental Health Administrator, City geotechnical consultant reviewers, City Public Works Department, Los Angeles County Fire Department (LACFD), and Los Angeles County Waterworks District No. 29 (WD29) reviewed the proposed project (Attachment 4 – Department Review Sheets). These specialists found the proposed project, as conditioned, is consistent with all applicable LCP codes, standards, goals and policies, with the inclusion of the requested SPR and subject to approval of the requested DP.

The LCP consists of a Land Use Plan (LUP) and LIP. The LUP contains programs and policies to implement the Coastal Act in the City. The purpose of the LIP is to carry out the policies of the LUP. The LIP contains specific policies and regulations to which every project requiring a CDP must adhere.

There are 14 LIP chapters that potentially apply depending on the nature and location of the proposed project. Of these, five are for conformance review only and contain no findings: 1) Zoning, 2) Grading, 3) Archaeological/Cultural Resources, 4) Water Quality, and 5) Onsite Wastewater Treatment System (OWTS). These chapters are discussed in the LIP Conformance Analysis section.

The nine remaining LIP chapters contain the required findings: 1) CDP; 2) ESHA; 3) Native Tree Protection; 4) Scenic, Visual and Hillside Resource Protection; 5) Transfer of Development Credits; 6) Hazards; 7) Shoreline and Bluff Development; 8) Public Access; and 9) Land Division. For the reasons described in this report, including the project site, the scope of work, and substantial evidence in the record, only findings in the following chapters are applicable to the proposed project: CDP (including the required findings for the SPR), and Hazards[1]. LIP Section 13.27.5(A) requires that the City make four findings in consideration and approval of a SPR. Five additional findings are required pursuant to MMC Section 17.62.040(D). The findings in MMC Section 17.70.060 also apply for the requested DP. These chapters are discussed in the LIP Findings section of this report. Additionally, the proposed project is subject to the Landscape Water Conservation Ordinance in MMC Chapter 17.53 as the project is proposing a new landscape area of 2,500 square feet or more.

Zoning (LIP Chapter 3)

While the MMHS campus is in the Institutional zone, the applicable development standards are provided in LIP Section 3.4.7(B) (MMHS Campus Specific Plan Overlay District) and 3.5 (General to All). This section states that the Institutional development standards in LIP Section 3.9 shall not apply. The applicable grading standards for development are provided in LIP Section 3.4.7(B)(6). This section states that the grading requirements of LIP Section 8.3(B) shall not apply.

Table 1 provides a summary of the lot dimensions and lot area of the subject parcel.

Table 1 – Property Data	
Lot Depth	2,030 ft
Lot Width	1,055 ft
Gross Lot Area	2,154,477 sf (49.46 ac)
Street Easement	0 sf
Area Comprised of 1:1 Slopes	12,196 sf
Net Lot Area	**2,142,281 sf (49.18 ac)**

[1] The ESHA, Native Tree Protection, Scenic, Visual and Hillside Resource Protection, Transfer of Development Credits, Shoreline and Bluff Development, Public Access, and Land Division findings are neither applicable nor required for the proposed project.

*Net Lot Area = Gross Lot Area minus the area of street easements and 1 to 1 slopes.

Table 2 summarizes the Specific Plan development standards and the project's consistency with each. Inclusive of the SPR request, the project is consistent with the applicable development standards.

Table 2 – Zoning Conformance			
Development Standard	**Allowed/Required**	**Proposed**	**Conformance**
SETBACKS (ft)			
Front Yard (from street easement)	10 ft	177 ft	Complies
Rear Yard (abuts residential zone)	304 ft	>700 ft	Complies
Side Yard (abuts residential zone)	105 ft	250 ft	Complies
ESHA	50[2] ft	125 ft	Complies
PARKING SPACES	322	389	Complies
FLOOR AREA RATIO (FAR) (sf)	0.15 (321,342 sf)	0.108[3] (28,487 sf)	Complies
HEIGHT (ft)	18ft or 36 ft with SPR (40 ft rooftop items)	Gym: 35 ft (<40 ft rooftop solar) MS HUB: 17 ft Canopy: 21 ft, 7 in MDF: 13 ft, 4 in	*SPR No. 21-003 (Specific Plan)*
NUMBER OF STORIES	2	Gym: 2 MS HUB: 1 MDF: 1	Complies
LANDSCAPING	25 percent minimum 535,570 sf	77.2 percent 1,653,841 sf	Complies
SITE PERMEABILITY	30 percent 642,675 sf	78 percent 1,662,624 sf	Complies
TOTAL GRADING (cy)	Phase 2: 5,175 cy (Cut: 5,175 cy) (Fill: 0 cy) Phase 3: 39,300 cy (Cut: 25,300 cy) (Fill: 14,000 cy)	Phase 2: 5,175 cy (Cut: 5,175 cy) (Fill: 0 cy) Phase 3: 7,468 cy (Cut: 3,165 cy) (Fill: 4,303 cy)	Complies (Specific Plan)

[2] The Specific Plan allows limited development to encroach in the 100-foot ESHA setback, but in no case can be closer than 50 feet. These limited improvements include drive aisles, permeable parking areas, fuel modification,
[3] FAR inclusive of existing Phase 1 and proposed development for Phases 2, 3a and 4a.

FENCE/WALL HEIGHT			
Retaining Walls	6 ft max, 12 ft cumulative	6 ft max, 0 ft cumulative	Complies
Front Yard			
Impermeable	42 in	None Proposed	Complies
Permeable	6 ft	None Proposed	Complies
Rear & Side Yard	6 ft	None Proposed	Complies

Table 3 provides a summary of MMHS campus size and the existing and proposed floor area ratio (FAR) for Phase 1:

Table 3: Floor Area Ratio Calculations		
Item	**Square Feet**	**FAR**
Net Lot Area	2,142,280 sf	.15 (maximum)
Existing MMHS Campus w/Phase 1 Completed	229,449 sf	.101
Proposed MMHS Campus w/ Phases 2, 3a, 4a	28,487 sf	.007
Total FAR with Proposed	257,936 sf	.108

Table 4 provides a summary of required parking per the City's LCP. Table 5 provides a summary of the existing and proposed parking inventory for the MMHS campus as a whole.

Table 4 – MMHS Required Parking Calculations		
Location	**Teaching stations**	**Parking Phase 2**
Buildings D and D1 (Proposed)	3	**4**
Malibu High School (Existing)	38	**266**
Malibu Middle School (Existing)	26	**52**
Total	67	**322**

Table 5 –MMHS Onsite Parking Tabulation		
Location / Parking Lot	**Existing**	**Parking Phase2**
150-Space Parking Lot (E) to Remain	150	**150 - No Change**
Lower Parking Lot (D) to Remain	59	**59 - No Change**
Student Parking Lot (A) to Remain	119	**119 - No Change**
Service Lots to be Removed	7	**0**
Parking Lot D (PH1 HS)	61	**61 - No Change**
Total	**396**	**389**

Lighting

Proposed exterior lighting for Buildings D1 (MS Gym) & D (MS HUB) would consist of low-intensity, full cut-off shielded light fixtures that maintain safe light levels while avoiding off-site lighting and night sky pollution, as required by the Specific Plan and MMC Chapter 17.41 (Dark Sky Ordinance). There will be no new sports field lighting developed as part of Phase 2, and no changes to the existing sports field lighting will occur. Lastly, all new Phase 2 lighting delineated as "night lighting" shall be shut off automatically at 11:00 p.m. as required by the Specific Plan. Security lighting will include motion sensors that extinguish lighting ten minutes after activation as required by the Specific Plan.

Grading (LIP Section 3.4.7(B)(6) and LIP Chapter 8)

The project site has varied topography within which the Special Education and Campus Wellness Center (identified as Building I in the Specific Plan) proposed for Phase 3 is being incorporated into Phase 2. The Phase 2 Project design results in two separate structures originally identified as Building D and orients them to the existing topography - minimizing grading and creating nuanced and varied outdoor spaces. The Middle School HUB Building completes the middle school quad, while the gymnasium building D1 is pulled away from Morning View Drive and setback behind the MS HUB to better mitigate its height, placing it near the existing high school gym and tucked into the terraced portion of the site.

The Specific Plan limits grading per phase of development pursuant to LIP Section 3.4.7(6), versus by acre pursuant to the general grading requirements in LIP Section 8.3(B). Table 6 summarizes the grading allowances for MMHS development by phase and the proposed grading included in Phase 2 and 3a:

Table 6 – MMHS Specific Plan Grading		
Phase	**Allowance**	**Proposed**
Phase 1	35,200 cy (cut) 10,400 cy (fill)	**Completed**
Phase 2	5,175 cy (cut) 0 cy (fill)	**5,175 cy (cut)** **0 cy (fill)**
Phase 3	25,300 cy (cut) 14,000 cy (fill)	**3,165 cy (cut)** **4,303 cy (fill)**
Phase 4	10,000 cy (cut) 33,350 cy (fill)	**0 cy (cut)** **0 cy (fill)**

The MMRP contains several mitigation measures to minimize potential impacts to traffic, noise, and air quality (Exhibit A to Attachment 1).

Further, the LIP limits the maximum height of cuts and fills with retaining walls to 6 feet in height for each wall, or 12 feet for any combination of walls, where a minimum 3-foot

separation exists between walls, except single cuts up to 12 feet in height which are an integral part of the structure are permitted. All proposed cuts and fills with retaining walls will not exceed 6 feet in height for any one wall and all proposed retaining walls conform to the existing topography of the site. With the allowances in the Specific Plan, the project complies with grading requirements set forth under LIP Section 3.4.7(B)(6) and LIP Chapter 8 as applicable.

Archaeological / Cultural Resources (LIP Chapter 11)

LIP Chapter 11 requires certain procedures be followed to determine potential impacts on archaeological resources. A Phase I Archaeological Survey was prepared by ECORP Consulting, Inc. for the subject property in August 2021. No indication of prehistoric or historic archaeological resources was discovered in the project area. ECORP Consulting, Inc. determined that any proposed improvements should have no adverse impacts to known cultural resources. Nevertheless, a condition of approval is included in the resolution which states that in the event that potentially important cultural resources are found in the course of geologic testing or during construction, work shall immediately cease until a qualified archaeologist can provide an evaluation of the nature and significance of the resources, and until the Community Development Director can review this information.

Water Quality (LIP Chapter 17)

The City Public Works Department reviewed and approved the proposed project for conformance to LIP Chapter 17 requirements for water quality protection and requirements of the State Water Resources Control Board because the property is located in an Area of Special Biological Significance (ASBS). The ocean between Latigo Point and the west City limits has been established by the State Water Resources Control Board as an ASBS as part of the California Ocean Plan. Standard conditions of approval include the implementation of approved storm water management plans during construction activities and to manage runoff from the development, including recordation of a water quality mitigation plan, and best management practices in compliance with ASBS standards. With the implementation of these conditions, the proposed project conforms to the water quality protection standards of LIP Chapter 17.

Wastewater Treatment System Standards (LIP Chapter 18)

LIP Chapter 18 addresses OWTS. LIP Section 18.7 includes specific siting, design, and performance requirements. On November 17, 2025, the SMMUSD amended CDP No. 21-068 to relocate a previously approved replacement OWTS. The replacement OWTS will serve the new MMHS campus buildings and consist of a 20,000-gallon Xerxes primary tank, 20,000- gallon Xerxes equalization tank, 5,000-gallong Xerxes grease interceptor, and four MicroSepTec Enviroserver ES25 treatment tanks housed in fiber glass reinforced plastic (FRP) tanks with effluent filters and ultraviolet disinfection systems. Effluent will be

disposed in six existing seepage pits. The existing OWTS components that will not be re-used for the new OWTS will be properly abandoned in place. The project to develop Phase 2, 3a, and 4a of the MMHS SP only involves connecting to the previously approved OWTS (CDP Amendment No. 24-005, Resolution No. 25-72). A conformance review of the proposed connection to the previously approved OWTS was completed by the City's Environmental Health Administrator on November 19, 2025. As part of that review, it was determined that the proposed project and connection to the previously approved OWTS was in conformance with LIP Section 18.7.

LIP Findings

A. Coastal Development Permit (LIP Chapter 13)

LIP Section 13.9 requires that the following four findings be made for all CDPs:

Finding 1. That the project as described in the application and accompanying materials, as modified by any conditions of approval, conforms with the certified City of Malibu Local Coastal Program.

The project is located completely within the Specific Plan area. The Planning Division, City Biologist, City geotechnical consultant reviewers, City Environmental Health Administrator, City Public Works Department, along with the LACFD and WD29 reviewed the project for conformance with the LCP. As discussed herein, based on submitted reports, project plans, visual analysis and site investigation, the project, as conditioned, was found to conform to the LCP in that it meets all applicable MMHS Specific Plan development standards. The build-out of Phases 2, 3a, and 4a achieves LIP Sections 1.2(D) and (G) (guides future growth and development), LIP Section 1.2(F) (promotes public health, safety, and general welfare) and LIP Section 1.2(K) (assures adequate public uses, facilities, and improvements).

Finding 2. If the project is located between the first public road and the sea, that the project is in conformity to the public access and recreation policies of Chapter 3 of the Coastal Act of 1976 (commencing with Sections 30200 of the Public Resources Code).

The project is not located between the first public road and the sea. There are no known or LCP-designated planned trails onsite. Therefore, no potential project-related or cumulative impact on public access is anticipated to result from the project. The project conforms to the public access and recreation policies of Chapter 3 of the Coastal Act of 1976 (commencing with Section 30200 of the Public Resources Code).

Finding 3. The project is the least environmentally damaging alternative.

There is no evidence that an alternative project would substantially lessen any potential significant adverse impacts of the development on the environment. The proposed project

is within the scope of the adopted EIR for the Specific Plan and does not require further environmental analysis. Phase 2, 3a, and 4a development of the Specific Plan were analyzed for design and site location/orientation within the existing developed area. However, the proposed area and design were determined to be the most suitable based on the operational and functional characteristics of the components on an active combined high school and middle school campus. Additionally, the location would be within the already disturbed and developed larger site area and would be integrated into the site's topography so that all development is clustered within an already developed campus. This ensures that the extent of development needed is minimized and that any existing public views of the ocean from the vicinity would remain and not be impeded. As such, the project has been determined to be the least environmentally damaging alternative.

Finding 4. If the project is located in or adjacent to an environmentally sensitive habitat area pursuant to Chapter 4 of the Malibu LIP (ESHA Overlay), that the project conforms with the recommendations of the Environmental Review Board, or if it does not conform with the recommendations, findings explaining why it is not feasible to take the recommended action.

The project site includes limited natural vegetation consisting primarily of grasses, ivy, brush, shrubs, and scattered trees, with some patches of disturbed and isolated coastal sage scrub in and around the main sports field (outside of the Phase 2, 3a, and 4a areas, including the location for the on-grade solar installation). A blueline stream enters the MMHS campus in the northwest and flows under the property in a drainage pipe from Clover Heights Avenue to the west/southwest property line where it daylights into a natural streambed. Drainage from the MMHS campus flows overland and along parking lots and driveways in a southerly direction to Morning View Drive, where it collects into existing storm drains. The Phase 2, 3a, and 4a development areas are well outside of the natural vegetation area, stream, and stream setback. Development is proposed approximately 125 feet at its closest point to ESHA and existing MMHS campus buildings serving the high school exist between the stream ESHA and proposed development area. Furthermore, Phases 2, 3a, and 4a components would be located within a previously disturbed and developed area of the MMHS campus. Utilization of the sloped area to the east of the middle school for the proposed on-grade solar installation is devoid of any sensitive habitat and would not result in any impacts to vegetation ESHA on or adjacent to the project site. Accordingly, the City Biologist determined on November 25, 2025 that review by the Environmental Review Board (ERB) is not required for the project.

B. Site Plan Review – Construction in Excess of 18 Feet in Height [LIP Section 13.27]

LIP Section 3.4.7.B.1 requires an SPR for height of structures over 18 feet, not to exceed 36 feet from finished grade as allowed in the Specific Plan for Building D. Additional components such as chimneys, rooftop antennas, and light standards may extend to 40 feet. Per the Specific Plan, all heights are measured from finished grade. As proposed,

the components of Building D are split into three buildings with the maximum heights provided as follows: Building D Gym: 35 feet (rooftop solar <40 feet), Building D MS HUB: 17 feet, Building D Canopy: 21 feet, 7 inches, and Building D MDF: 13 feet, 4 inches. LIP Section 13.27.5(A) requires that the City make four findings in consideration and approval of an SPR. Four additional findings are required pursuant to MMC Section 17.62.040(D) when a project exceeds 18 feet. Based on the foregoing evidence contained in the record, the required findings for SPR No. 25-039 are made as follows:

Finding 1. The project is consistent with policies and provisions of the Malibu LCP.

The Planning Division, City Biologist, City Environmental Health Administrator, City Public Works Department, City geotechnical consultant reviewers, WD29, and the LACFD reviewed the project for conformance with the LCP and found it to be consistent with the LCP, inclusive of the SPR.

Finding 2. The project does not adversely affect neighborhood character.

In October SMMUSD submitted a memorandum to the Community Development Director requesting that the Story Poles required per the Specific Plan be waived. After consideration and direction from staff, the request was modified to the use of balloons in lieu of Story Poles. Consistent with previous modifications to use balloons and to depict the proposed massing and bulk due to site constraints with existing site development and the fact that the campus is active with students and staff creating a potential hazard, the Community Development Director approved the use of balloons on November 10, 2025. This alternative to story poles was installed on December 19, 2025. Staff visited the project site on December 22, 2025, photo-documented the story pole balloons, and evaluated the project for conformance with City codes. (Attachment 5 – Modified Story Pole – Balloon Photos) The proposed Phase 2 buildings to replace existing buildings on site is consistent with the existing MMHS campus and surrounding developed neighborhoods as the proposed replacement structures are consistent with the Specific Plan and neighborhood properties in the vicinity will not be affected by the institutional development on the neighborhood character. The proposed placement of the new structures central to the larger campus and utilizing the angulating topography will result in a seamless integration into the site and will contribute to a decrease in building profile when viewed from offsite.

The proposed FAR of Phase 2, 3a, and 4a of .007 along with Phase 1 improvements would total 0.108 which does not exceed the maximum allowable FAR of 0.15 and has a design consistent with and compatible to the MMHS campus in regard to bulk and massing, and is consistent with the campus character envisioned in the Specific Plan. Based on the existing development pattern of the campus, the proposed project is expected to blend with the surrounding built environment. Therefore, the project will not adversely affect neighborhood character.

Finding 3. The project provides maximum feasible protection to significant public views as required by Chapter 6 of the Malibu LIP.

Staff visited the subject parcel after story pole balloons were installed. Based on staff's site visit, it was determined that the proposed Phase 2 structures would not be visible from public viewing areas as defined in the LIP and are appropriately embedded into the existing campus. Accordingly, the project is not expected to have significant impacts to scenic vistas and provides the maximum feasible protection to significant public views as required by LIP Chapter 6.

Finding 4. The proposed project complies with all applicable requirements of State and local law.

The project complies with all applicable requirements of the LCP. The Planning Division, City Biologist, City geotechnical consultant reviewers, City Environmental Health Administrator, City Public Works Department, along with the LACFD and WD29 reviewed the project for conformance with the LCP and it was found to be in conformance. The proposed project is regulated by the Division of State Architect-Structural Safety provisions within the current California Building Code (CCR Title 24, Part 2). Building plan check review and building permit issuance are not within the City's purview. Construction of the proposed improvements will comply with all building code requirements and will incorporate all recommendations from the Division of State Architect-Structural Safety.

Finding 5. The project is compatible with other development in the adjacent area in relation to size, bulk, and height.

The proposed two-story 35 foot tall Middle School Gym building D1 along with the single-story 17 foot tall Middle School Hub building D designed with two freestanding buildings connected via a 21 foot 7 inch tall steel canopy over the common area, are sited in the middle of the campus and utilize the existing terraced area to blend the proposed development into the larger school site. In addition, the proposed lower profile modern designed buildings bulk and massing would be screened by existing buildings on site as seen from off-site. The visual analysis provided by SMMUSD (Attachment 3 - MMHS Visual Analysis) indicate that although the proposed building would increase bulk and massing to this part of the campus, the development would be compatible with the existing development pattern in the area and consistent with the specific plan.

Finding 6. The portion of the project that is in excess of 18 feet in height does not obstruct visually impressive scenes of the Pacific Ocean, offshore islands, Santa Monica Mountains, canyons, valleys or ravines from the main viewing area of any affected principal residence as defined in MMC Section 17.40.040(A)(17).

Based on the visual impact analysis (aerial photographs, site visits and story pole balloon placement), staff has determined that the portions of the project above 18 feet in height

are not expected to obstruct visually impressive scenes of the Pacific Ocean, off-shore islands, Santa Monica Mountains, canyons, valleys, or ravines from the main viewing area of any affected principal residence as defined in MMC Section 17.40.040(A)(17). No nearby property owners have requested a primary view determination in response to the notice of application or story pole balloon installation. In addition, primary view determinations within the area were reviewed and are not expected to be impacted by the proposed development.

Finding 7. The project is consistent with the City's general plan, local coastal program, municipal code, and city standards.

The proposed project is consistent with the LCP in that the property is located in an area that has been identified and zoned for institutional uses, and in a location with a Specific Plan that was recently certified in 2023 by the CCC for inclusion in the City's LCP. The proposed project is also consistent with the City's General Plan. The goals and policies of the General Plan intend to maintain rural residential character in this area, and all components of the project are consistent with these goals. The proposed project is consistent with the LCP in that it conforms to the institutional land use designation and all applicable development standards contained within the Specific Plan inclusive of the SPR. In addition, proposed exterior lighting for the Middle School Hub and Middle School Gym would consist of low-intensity, full cut-off shielded light fixtures that maintain safe light levels while avoiding off-site lighting and night sky pollution, as required by the Specific Plan and the City of Malibu Dark Sky Ordinance.

Finding 8: The project does not affect solar access, as defined by staff.

Based on the visual impact analysis (aerial photographs, site visits and alternative story pole balloon placement), staff has determined that the portions of the proposed project in excess of 18 feet in height, coupled with the location central to the larger 49.6 acre site would not impact solar access to any properties off-site.

Finding 9: The project will not have a significant adverse impact on natural resources and makes suitable provisions for the preservation of natural hydrology, native plant materials, wooded areas, visually significant rock outcroppings, rough terrain, coastal bluffs and similar natural features.

The proposed Phase 2, 3a, and 4a project is located within the central portion of the MMHS campus in an area previously developed with temporary and permanent structures and the and demolition of existing buildings and construction of a new Middle School Gym, HUB, and MDF buildings along with the fact that no new development is planned within 125 feet of the ESHA on site, the project will not have a significant adverse impact on natural resources.

C. Environmentally Sensitive Habitat Area Overlay (LIP Chapter 4)

A biological assessment was prepared for the MMHS SP Phase 1 project by Psomas dated October 2021, due to the proximity and location of Phase 1 within and adjacent to ESHA. The Phase 2 development components were determined at that time to be substantially setback from the designated ESHA on site and all activities to construct Phases 2, 3a, and 4a would be over 627 feet away from vegetated ESHA and 125 feet from stream ESHA. Development would not encroach into any ESHA or the required 100-foot buffer. Therefore, the findings of LIP Chapter 4 are not applicable.

D. Native Tree Protection (LIP Chapter 5)

The provisions of the Native Tree Protection Chapter apply to those areas containing one or more native Oak, California Walnut, Western Sycamore, Alder or Toyon trees that have at least one trunk measuring six inches or more in diameter, or a combination of any two trunks measuring a total of eight inches or more in diameter, measured at 54 inches from the ground.

According to the Native Tree Report prepared for the Specific Plan area (Psomas 2021), the MMHS campus contains several native trees that require protection by the LCP's Native Tree Protection Ordinance. However, no protected trees are present in the Phase 2, 3a, and 4a project area. Nonetheless, the project has been conditioned to require the submittal of a construction management plan to ensure construction activities and staging avoid encroachment into the protected zones of protected trees. Therefore, the findings of LIP Chapter 5 are not applicable.

E. Scenic, Visual and Hillside Resource Protection (LIP Chapter 6)

The Scenic, Visual and Hillside Resource Protection Chapter governs those CDP applications concerning any parcel of land that is located along, within, provides views to or is visible from any scenic area, scenic road or public viewing area. Pursuant to LIP Section 6.4(A), written findings of fact, analysis and conclusions addressing scenic or visual resources must be included in support of all approvals, denials or conditional approvals of development located on a site or in an area where it is determined that the proposed project causes the potential to create adverse impacts upon scenic areas from or along scenic roads and public viewing areas. Staff analyzed potential view impacts associated with Phases 2, 3a, and 4a of the Specific Plan area via submitted view analysis photo documentation overlain with proposed and existing development on the MMHS site along with site visits and made the following determination. Phases 2, 3a, and 4a project components are all within a previously developed area and coupled with the topographic characteristics of the site, the proposed new structures are not anticipated to create visual impacts to visual resources. In addition, an alternative to story pole implementation utilizing balloons to establish the massing and height of the proposed development were

installed and staff further determined that no impacts to visual resources would occur. Therefore, the findings of LIP Chapter 7 are not applicable.

F. Transfer of Development Credit (LIP Chapter 7)

The project does not include a land division or multi-family development. Therefore, the findings of LIP Chapter 7 are not applicable.

G. Hazards (LIP Chapter 9)

Pursuant to LIP Section 9.3, written findings of fact, analysis and conclusions addressing geologic, flood and fire hazards, structural integrity or other potential hazards listed in LIP Sections 9.2(A)(1-7) must be included in support of all approvals, denials or conditional approvals of development located on a site or in an area where it is determined that the project causes the potential to create adverse impacts upon site stability or structural integrity.

The proposed development has been analyzed for the hazards listed in LIP Chapter 9 by the City Planning Division, City Biologist, City Environmental Health Administrator, City geotechnical consultant reviewers, City Public Works Department, the LACFD, and WD29. The geotechnical review conducted by the City for Phases 2, 3a, and 4a was for the planning-stage only to determine LCP conformance. The proposed project is regulated by the Division of State Architect-Structural Safety provisions within the current California Building Code (CCR Title 24, Part 2). Building plan check review and building permit issuance are not within the City's purview. The required findings are made as follows:

Finding 1. The project, as proposed will neither be subject to nor increase instability of the site or structural integrity from geologic, flood, or fire hazards due to project design, location on the site or other reasons.

A geotechnical report, OWTS design report, and civil plans were reviewed by the City's consultants from a geotechnical perspective. These reports are on file at City Hall. The reports evaluate site-specific conditions and recommendations are provided to address any pertinent issues. Potential hazards analyzed include geologic, seismic and fault rupture, liquefaction, landslide, groundwater, tsunami, and flood and fire hazards. It has been determined that the project is not located in a hazard zone, except that the project site is located within an extreme fire hazard area. Based on review of the project plans and associated geotechnical reports by the City Environmental Health Administrator, City Public Works Department, City geotechnical consultant reviewers, and the LACFD, these specialists determined that adverse impacts to the project site related to the proposed development are not expected. The proposed project will neither be subject to nor increase the instability from geologic, flood, or fire hazards. In summary, the proposed development is suitable for the intended use provided that the certified engineering geologist and/or geotechnical engineer's recommendations and governing agency's building codes are

followed. As such, the proposed project will not increase instability of the site or structural integrity from geologic, flood, or any other hazards.

Fire Hazard

The entire City of Malibu is designated as a Very High Fire Hazard Severity Zone, a zone defined by a more destructive behavior of fire and a greater probability of flames and embers threatening buildings. The subject property is currently subject to wildfire hazards. The scope of work proposed as part of this application is not expected to have an adverse impact on wildfire hazards. The proposed development may actually decrease the site's susceptibility to wildfire through compliance with fuel modification requirements and the use of appropriate building materials will be utilized during construction.

The City is served by the LACFD, as well as the California Department of Forestry, if needed. In the event of major fires, the County has "mutual aid agreements" with cities and counties throughout the State so that additional personnel and firefighting equipment can augment the LACFD. Conditions of approval have been included in the resolution to require compliance with all LACFD development standards. As such, the proposed project, as designed, constructed, and conditioned, will not be subject to nor increase the instability of the site or structural integrity involving wildfire hazards.

Finding 2. The project, as conditioned, will not have significant adverse impacts on site stability or structural integrity from geologic, flood or fire hazards due to required project modifications, landscaping or other conditions.

As stated in Finding 1, the project, as designed, conditioned and approved by the applicable departments and agencies, will not have any significant adverse impacts on the site stability or structural integrity from geologic or flood hazards due to project modifications, landscaping or other conditions.

Finding 3. The project, as proposed or as conditioned, is the least environmentally damaging alternative.

As previously stated in Section A, Finding 3, the project, as designed and conditioned, is the least environmentally damaging alternative.

Finding 4. There are no alternatives to development that would avoid or substantially lessen impacts on site stability or structural integrity.

The proposed development has been analyzed for the hazards listed in LIP Chapter 9 by the Planning Division, City Biologist, City geotechnical consultant reviewers, and the City Environmental Health Administrator. It has been determined that the project does not impact site stability or structural integrity. As previously discussed in Section A, Finding 3,

there are no feasible alternatives to development that would avoid or substantially lessen impacts on site stability or structural integrity beyond the proposed project.

Finding 5. Development in a specific location on the site may have adverse impacts but will eliminate, minimize or otherwise contribute to conformance to sensitive resource protection policies contained in the certified Malibu LCP.

As discussed in Section A, Finding 3, the project, as designed and conditioned, is the least environmentally damaging alternative and no adverse impacts to sensitive resources are anticipated.

H. Shoreline and Bluff Development (LIP Chapter 10)

The project site is not located on or along the shoreline, a coastal bluff or bluff top fronting the shoreline. Therefore, the findings of LIP Chapter 10 are not applicable.

I. Public Access (LIP Chapter 12)

LIP Section 12.4 requires public access for lateral, bluff-top, and vertical access near the ocean, trails, and recreational access for the following cases:

A. New development on any parcel or location specifically identified in the LUP or in the LCP zoning districts as appropriate for or containing a historically used or suitable public access trail or pathway.
B. New development between the nearest public roadway and the sea.
C. New development on any site where there is substantial evidence of a public right of access to or along the sea or public tidelands, a blufftop trail or an inland trail acquired through use or a public right of access through legislative authorization.
D. New development on any site where a trail, bluff top access or other recreational access is necessary to mitigate impacts of the development on public access where there is no feasible, less environmentally damaging, project alternative that would avoid impacts to public access.

As described herein, the subject property and the project do not meet any of these criteria in that no trails are identified on the LCP Park Lands Map on or adjacent to the property, and the property is not located between the first public road and the sea, or on a bluff or near a recreational area. The requirement for public access in LIP Section 12.4 does not apply and further findings are not required.

J. Land Division (LIP Chapter 15)

This project does not include the division of land. Therefore, the findings of LIP Chapter 15 are not applicable.

K. Demolition Permit (MMC Section 17.70)

MMC Section 17.70 states that a demolition permit shall be required for the demolition of any building or structure, or for a substantial remodel, except for a demolition initiated by the City and ordered or authorized under the provisions of the building code. The proposed project includes the demolition of existing classroom Buildings K and I, seven portable classrooms, one portable restroom, and associated development. The findings for DP No. 25-027 are made as follows.

Finding 1. The demolition permit is conditioned to assure that it will be conducted in a manner that will not create significant adverse environmental impacts.

Conditions of approval included for this application ensure that the project will not create significant adverse environmental impacts.

Finding 2. A development plan has been approved or the requirement waived by the city.

A CDP application is being processed concurrently with DP No. 25-027. Therefore, approval of the demolition permit is subject to the approval of CDP No. 25-032.

ENVIRONMENTAL REVIEW: In accordance with CEQA and CEQA Guidelines Section 15051 (SCH No. 202008350), the Board adopted a Final EIR for the MMHS Campus Specific Plan on January 26, 2022, which included all phases of development including the scope of work proposed in CDP No. 25-032. The EIR identified potential significant environmental impacts from the MMHS Campus Specific Plan but found that mitigation measures would reduce most impacts to less-than-significant levels. An MMRP was adopted for the project. The EIR also identified significant and unavoidable impacts on aesthetics (light and glare) and noise (sensitive receptors). The Board weighed the benefits of the project against the unavoidable impacts and determined that the benefits outweigh them. An SOC was adopted as part of the Final EIR. The Board, acting as the lead agency for the proposed project, consulted with responsible agencies, including the City, during the preparation of the EIR. On July 11, 2022, the City Council adopted Resolution No. 22-32 certifying the adequacy of the Final EIR. The Final EIR, MMRP, SOC, and accompanying materials are available on the City's website at: https://www.malibucity.org/397/Malibu-Middle-High-School-Improvements. As the decision-making body for CDP No. 25-032, the Planning Commission must review and consider the Final EIR before acting upon or approving the proposed Project.

The proposed scope of development was vetted for compliance with the Final EIR by the District, as lead agency, as part of its ongoing implementation of phase MMHS development. The District provided an overview of the environmental consistency it conducted (Attachment 6) wherein it was found that the proposed scope is within the parameters of the Final EIR as adopted by the Board on January 26, 2022. Pursuant to CEQA Guidelines Section, the District determined that no subsequent EIR was required

because the circumstances under which the scope of development will be undertaken would not substantially change such that new or more severe impacts would occur with implementing the proposed scope of development. Additionally, the District determined that no new initial study would be required per CEQA Guidelines section 15168(c)(1) because the scope of development would not have effects that were not otherwise examined in the Final EIR.

Pursuant to CEQA Guidelines Section 15162 and 15163, and based on the review of the entire record, including without limitation, the Final EIR, the Community Development Director finds that the proposed Project does not require further environmental review as: 1) no substantial changes are proposed to the Project and no substantial changes have occurred that require major revisions to the Final EIR due to the involvement of new significant environmental effects or an increase in severity of previously identified significant effects; and 2) no new information of substantial important has come to light that (a) shows the Project will have one or more significant effects not discussed in the Final EIR, (b) identifies significant impacts would not be more severe than those analyzed in the Final EIR, (c) shows that mitigation measures or alternatives are now feasible that were identified as infeasible and those mitigation measures or alternatives would reduce significant impacts, and (d) no changes or mitigation measures or alternatives have been identified or required. Pursuant to CEQA Guidelines Sections 15050(c), 15162(b), and 15163, the Community Development Director finds and recommends that no further environmental analysis or environmental documentation is necessary. Accordingly, the proposed Project is merely a step in furtherance of the MMHS Campus Specific Plan for which environmental review was performed and adopted by the Board, as lead agency, and further found that no supplemental or subsequent CEQA has been triggered for the proposed Project requiring additional environmental review.

PUBLIC NOTICE: Staff published a Notice of Public Hearing in a newspaper of general circulation within the City of Malibu on December 25, 2025, and mailed the notice to all property owners and occupants within a 500-foot radius of both subject properties (Attachment 7 – Public Hearing Notice).

CORRESPONDENCE: To date, the Planning Division has not received public comments regarding this application.

SUMMARY: The required findings can be made that the proposed project complies with the LCP including the Specific Plan and MMC. Further, the Planning Division's findings of fact are supported by substantial evidence in the record. Based on the analysis contained in this report and the accompanying resolution, the Planning Division recommends approval of this project, subject to the conditions of approval contained in Section 5 (Conditions of Approval) of Planning Commission Resolution No. 26-04. The proposed project has been reviewed and conditionally approved for conformance with the LCP by the Planning Division and appropriate City and County departments.

ATTACHMENTS:

1. Planning Commission Resolution No. 26-04, including Exhibit A (MMRP)
2. Project Plans
3. Visual Analysis
4. Department Review Sheets
5. Modified Story Pole - Balloon Photos
6. District CEQA Determination
7. Public Hearing Notice

CITY OF MALIBU PLANNING COMMISSION
RESOLUTION NO. 26-04

A RESOLUTION OF THE PLANNING COMMISSION OF THE CITY OF MALIBU CERTIFYING THAT THE PROJECT IS CONSISTENT WITH THE FINAL ENVIRONMENTAL IMPACT REPORT (STATE CLEARINGHOUSE NO. 202008350), THE MITIGATION MONITORING AND REPORTING PROGRAM, AND THE STATEMENT OF OVERRIDING CONSIDERATIONS ADOPTED BY THE SANTA MONICA-MALIBU UNIFIED SCHOOL DISTRICT (SMMUSD) BOARD OF EDUCATION ON JANUARY 26, 2022 AND CERTIFIED BY THE MALIBU CITY COUNCIL ON JULY 11, 2022 IN RESOLUTION NO. 22-32, AND APPROVING COASTAL DEVELOPMENT PERMIT NO. 25-032, SITE PLAN REVIEW NO. 25-039, AND DEMOLITION PERMIT NO. 25-027 TO IMPLEMENT THE MALIBU MIDDLE AND HIGH SCHOOL (MMHS) CAMPUS SPECIFIC PLAN (PHASES 2, 3A, AND 4A) WITH THE CONSTRUCTION OF A NEW TWO-STORY 18,911 SQUARE-FOOT MIDDLE SCHOOL GYM (BUILDING D) AND OUTDOOR SPORTS COURTS, ONE-STORY 9,243 SQUARE-FOOT MIDDLE SCHOOL STUDENT ACTIVITY, FOOD SERVICE, AND SPECIAL EDUCATION BUILDING WITH CANOPY (BUILDING D/I), ONE-STORY 333 SQUARE FOOT BROADCASTING/MEDIA ARTS BUILDING (BUILDING D), MIDDLE SCHOOL QUAD AND WALKWAYS, SITE IMPROVEMENTS, LANDSCAPING, ON-GRADE SOLAR INSTALLATION, GRADING, AND UNDERGROUND UTILITY WORK, INCLUDING A SITE PLAN REVIEW FOR A HEIGHT INCREASE OVER 18 FEET, NOT TO EXCEED 36 FEET AS ALLOWED IN THE MMHS SPECIFIC PLAN AND A DEMOLITION PERMIT FOR THE DEMOLITION OF EXISTING CLASSROOM BUILDINGS K AND I, SEVEN PORTABLE CLASSROOM BUILDINGS, AND ONE PORTABLE RESTROOM BUILDING LOCATED IN THE INSTITUTIONAL ZONE AND MMHS CAMPUS SPECIFIC PLAN OVERLAY DISTRICT AT 30215 MORNING VIEW DRIVE (APN 4469-017-901) (SMMUSD)

The Planning Commission of the City of Malibu does hereby find, order and resolve as follows:

SECTION 1. Recitals.

A. On August 5, 2025, the Santa Monica-Malibu Unified School District (SMMUSD) submitted an application for a Coastal Development Permit (CDP) No. 25-032, Site Plan Review (SPR) No. 25-039, and Demolition Permit (DP) No. 25-027 to allow for the development of Phases 2, 3a, and 4a of the Malibu Middle and High School (MMHS) Campus Specific Plan (Specific Plan) which includes the following components: the construction of a new two-story 18,911 square-foot (sf) middle school gym (Building D) and outdoor sports courts, one-story 9,243 sf middle school student activity, food service, and special education building with canopy (Building D/I), one-story 333 sf broadcasting/media arts building (Building D), middle school quad and walkways, site improvements, landscaping, on-grade solar installation, grading, and underground utility work, including a site plan review for a height increase over 18 feet, not to exceed 36 feet as allowed in the Specific Plan and a demolition permit for the demolition of existing classroom Buildings K and I, seven portable classroom buildings, and one portable restroom building on the MMHS campus. The application was routed to the City Biologist, City Environmental Health Administrator, City geotechnical consultant reviewers, the City Public Works Department, Los Angeles County Fire Department (LACFD), and Los Angeles County Waterworks District No. 29 (WD29) for review.

B. On November 23, 2025, a Notice of Coastal Development Permit Application (CDP) was posted on the subject property.

C. On December 15, 2025 the application was deemed complete.

D. On December 22, 2025, Planning Division staff conducted a site visit to inspect the installed story poles as modified with balloons and representing the location, height, and bulk of the proposed buildings.

E. On December 25, 2025, a Notice of Planning Commission Public Hearing was published in a newspaper of general circulation within the City of Malibu and was mailed to all property owners and occupants within a 500-foot radius of the subject property.

F. On January 20, 2026, the Planning Commission held a duly noticed public hearing on the subject application, reviewed and considered the staff report, reviewed and considered written reports, public testimony, and other information in the record.

SECTION 2. Environmental Review.

In accordance with the California Environmental Quality Act (CEQA) and CEQA Guidelines Section 15051 (SCH No. 202008350), the SMMUSD Board of Education (Board), as Lead Agency, adopted a Final Environmental Impact Report (EIR) for the Specific Plan on January 26, 2022, which included all phases of development including the scope of work proposed in CDP No. 25-032. The Final EIR identified potential significant environmental impacts from the Specific Plan but found that mitigation measures would reduce most impacts to less-than-significant levels. A Mitigation Monitoring and Reporting Program (MMRP) was adopted for the project. The Final EIR also identified significant and unavoidable impacts on aesthetics (light and glare) and noise (sensitive receptors). The Board weighed the benefits of the project against the unavoidable impacts and determined that the benefits outweigh them. A Statement of Overriding Considerations (SOC) was adopted as part of the Final EIR. The Board, acting as the lead agency for the proposed project, consulted with responsible agencies, including the City, during the preparation of the EIR. On July 11, 2022, the City Council adopted Resolution No. 22-32 certifying the adequacy of the Final EIR. The Final EIR, MMRP, SOC, and accompanying materials are available on the City's website at: https://www.malibucity.org/397/Malibu-Middle-High-School-Improvements. As the decision-making body for CDP No. 25-032, the Planning Commission reviewed and considered the Final EIR before acting upon or approving the proposed Project.

The proposed scope of development was vetted for compliance with the Final EIR by the District, as lead agency, as part of its ongoing implementation of phase MMHS development. The District provided an overview of the environmental consistency it conducted (Attachment 6) wherein it was found that the proposed scope is within the parameters of the Final EIR as adopted by the Board on January 26, 2022. Pursuant to CEQA Guidelines Section, the District determined that no subsequent EIR was required because the circumstances under which the scope of development will be undertaken would not substantially change such that new or more severe impacts would occur with implementing the proposed scope of development. Additionally, the District determined that no new initial study would be required per CEQA Guidelines section 15168(c)(1) because the scope of development would not have effects that were not otherwise examined in the Final EIR.

Pursuant to CEQA Guidelines Section 15162 and 15163, and based on the review of the entire record, including without limitation, the Final EIR, the Planning Commission finds that the proposed Project does not require further environmental review as: 1) no substantial changes are proposed to the Project and no substantial changes have occurred that require major revisions to the Final EIR due to the involvement of new significant environmental effects or an increase in severity of previously identified significant effects; and 2) no new information of substantial important has come to light that (a) shows the Project will have one or more significant effects not discussed in the Final EIR, (b) identifies significant impacts would not be more severe than those analyzed in the Final EIR, (c) shows that mitigation measures or alternatives are now feasible that were identified as infeasible and those mitigation measures or alternatives would reduce significant impacts, and (d) no changes or mitigation measures or alternatives have been identified or required. Pursuant to CEQA Guidelines Sections 15050(c), 15162(b), and 15163, the Planning Commission finds and recommends that no further environmental analysis or environmental documentation is necessary. Accordingly, the proposed Project is merely a step in furtherance of the Specific Plan for which environmental review was performed and adopted by the Board, as lead agency, and further found that no supplemental or subsequent CEQA has been triggered for the proposed Project requiring additional environmental review.

SECTION 3. Coastal Development Permit Findings.

Based on evidence contained within the record, including the agenda report for the project and hearing on January 20, 2026, and pursuant to Local Coastal Program (LCP) Local Implementation Plan (LIP) including LIP Sections 13.7(B) and 13.9, and Malibu Municipal Code (MMC), the Planning Commission hereby adopts the findings in the agenda report and approves CDP No. 25-032, SPR No. 25-039, and DP No. 25-027 to allow the construction of a new two-story 18,911 sf middle school gym (Building D) and outdoor sports courts, one-story 9,243 sf middle school student activity, food service, and special education building with canopy (Building D/I), one-story 333 sf broadcasting/media arts building (Building D), middle school quad and walkways, site improvements, landscaping, on-grade solar installation, grading, and underground utility work, including an SPR for a height increase over 18 feet, not to exceed 36 feet as allowed in the Specific Plan and a DP for the demolition of existing classroom Buildings K and I, seven portable classroom buildings, and one portable restroom building on the MMHS campus.

The project is consistent with the LCP's zoning, grading, cultural resources, water quality, and wastewater treatment system standards requirements. With the inclusion of the SPR, the project, as conditioned, has been determined to be consistent with all applicable LCP and MMC codes, standards, goals, and policies. The required findings are made herein.

A. General Coastal Development Permit (LIP Chapter 13)

1. The project is located completely within the Specific Plan area. The Planning Division, City Biologist, City geotechnical consultant reviewers, City Environmental Health Administrator, City Public Works Department, along with the LACFD and WD29 reviewed the project for conformance with the LCP. As discussed herein, based on submitted reports, project plans, visual analysis and site investigation, the project, as conditioned, was found to conform to the LCP in that it meets all applicable MMHS Specific Plan development standards. The build-out of Phases 2, 3a, and 4a achieves LIP Sections 1.2(D) and (G) (guides future growth and development), LIP Section 1.2(F) (promotes public health, safety, and general welfare) and LIP Section 1.2(K) (assures adequate public uses, facilities, and improvements).

2. The project is not located between the first public road and the sea. There are no known or LCP-designated planned trails onsite. Therefore, no potential project-related or cumulative impact on public access is anticipated to result from the project. The project conforms to the public access and recreation policies of Chapter 3 of the Coastal Act of 1976 (commencing with Section 30200 of the Public Resources Code).

3. There is no evidence that an alternative project would substantially lessen any potential significant adverse impacts of the development on the environment. The proposed project is within the scope of the adopted EIR for the Specific Plan and does not require further environmental analysis. Phase 2, 3a, and 4a development of the Specific Plan were analyzed for design and site location/orientation within the existing developed area. However, the proposed area and design were determined to be the most suitable based on the operational and functional characteristics of the components on an active combined high school and middle school campus. Additionally, the location would be within the already disturbed and developed larger site area and would be integrated into the site's topography so that all development is clustered within an already development campus. This ensures that the extent of development needed is minimized and that any existing public views of the ocean from the vicinity would remain and not be impeded. As such, the project has been determined to be the least environmentally damaging alternative.

4. The project site includes limited natural vegetation consisting primarily of grasses, ivy, brush, shrubs, and scattered trees, with some patches of disturbed and isolated coastal sage scrub in and around the main sports field (outside of the Phases 2, 3a, and 4a areas, including the location for the on-grade solar installation). A blueline stream enters the MMHS campus in the northwest and flows under the property in a drainage pipe from Clover Heights Avenue to the west/southwest property line where it daylights into a natural streambed. Drainage from the MMHS campus flows overland and along parking lots and driveways in a southerly direction to Morning View Drive, where it collects into existing storm drains. The Phase 2, 3a, and 4a development area are well outside of the natural vegetation area, stream, and stream setback area. Development is proposed approximately 125 feet at its closest point to ESHA and existing MMHS campus buildings serving the high school exist between the stream ESHA and proposed development area. Furthermore, Phases 2, 3a, and 4a components would be located within a previously disturbed and developed area of the MMHS campus. Utilization of the sloped area to the east of the middle school for the proposed on-grade solar installation is devoid of any sensitive habitat and would not result in any impacts to vegetation ESHA on or adjacent to the project site. Accordingly, the City Biologist determined on November 25, 2025 that review by the Environmental Review Board (ERB) is not required for the project.

B. Site Plan Review – Construction in Excess of 18 Feet in Height [LIP Section 13.27]

1. The Planning Division, City Biologist, City Environmental Health Administrator, City Public Works Department, City geotechnical consultant reviewers, WD29, and the LACFD reviewed the project for conformance with the LCP and was found to be consistent with the LCP, inclusive of the SPR.

2. In October SMMUSD submitted a memorandum to the Community Development Director requesting that the Story Poles required per the Specific Plan be waived. After consideration and direction from staff, the request was modified to the use of balloons in lieu of Story Poles. Consistent with previous modifications to use balloons and to depict the proposed massing and bulk due to site constraints with existing site development and the fact that the campus is active with students and staff creating a potential hazard, the Community Development Director approved the use of balloons on November 10, 2025. This alternative to story poles was installed on December 19, 2025. Staff visited the project site on December 22, 2025, photo-documented the story pole balloons, and evaluated the project for conformance with City codes. The proposed Phase 2 buildings to replace existing buildings on site is consistent with the existing MMHS campus and surrounding developed neighborhoods as the proposed replacement structures are consistent with the Specific Plan and neighborhood properties in the vicinity will not be affected by the institutional development on the neighborhood character. The proposed placement of the new structures central to the larger campus and utilizing the angulating topography will result in a seamless integration into the site and will contribute to a decrease in building profile when viewed from offsite.

The proposed FAR of Phase 2, 3a, and 4a of .007 along with Phase 1 improvements would total 0.108 which does not exceed the maximum allowable FAR of 0.15 and has a design consistent with and compatible to the MMHS campus in regard to bulk and massing, and is consistent with the campus character envisioned in the Specific Plan. Based on the existing development pattern of the campus, the proposed project is expected to blend with the surrounding built environment. Therefore, the project will not adversely affect neighborhood character.

3. Staff visited the subject parcel after story pole balloons were installed. Based on staff's site visit, it was determined that the proposed Phase 2 structures would not be visible from public viewing areas as defined in the LIP and are appropriately embedded into the existing campus. Accordingly, the project is not expected to have significant impacts to scenic vistas and provides the maximum feasible protection to significant public views as required by LIP Chapter 6.

4. The project complies with all applicable requirements of the LCP. The Planning Division, City Biologist, City geotechnical consultant reviewers, City Environmental Health Administrator, City Public Works Department, along with the LACFD and WD29 reviewed the project for conformance with the LCP it was found to be in conformance. The proposed project is regulated by the Division of State Architect-Structural Safety provisions within the current California Building Code (CCR Title 24, Part 2). Building plan check review and building permit issuance are not within the City's purview. Construction of the proposed improvements will comply with all building code requirements and will incorporate all recommendations from the Division of State Architect-Structural Safety.

5. The proposed two-story 35 foot tall Middle School Gym building D1 along with the single-story 17 foot tall Middle School Hub building D designed with two freestanding buildings connected via a 21 foot 7 inch tall steel canopy over the common area are sited in the middle of the campus and utilize the existing terraced area to blend the proposed development into the larger school site. In addition, the proposed lower profile modern designed buildings bulk and massing would be screened by existing buildings on site as seen from off-site. The visual analysis provided by SMMUSD indicate that although the proposed building would increase bulk and massing to this part of the campus, the development would be compatible with the existing development pattern in the area and consistent with the specific plan.

6. Based on the visual impact analysis (aerial photographs, site visits and story pole balloon placement), staff has determined that the portions of the project above 18 feet in height are not expected to obstruct visually impressive scenes of the Pacific Ocean, off-shore islands, Santa Monica Mountains, canyons, valleys, or ravines from the main viewing area of any affected principal residence as defined in MMC Section 17.40.040(A)(17). No nearby property owners have requested a primary view determination in response to the notice of application or story pole balloon installation. In addition, primary view determinations within the area were reviewed and are not expected to be impacted by the proposed development.

7. The proposed project is consistent with the LCP in that the property is located in an area that has been identified and zoned for institutional uses, and in a location with a Specific Plan that was recently certified in 2023 by the CCC for inclusion in the City's LCP. The proposed project is also consistent with the City's General Plan. The goals and policies of the General Plan intend to maintain rural residential character in this area, and all components of the project are consistent with these goals. The proposed project is consistent with the LCP in that it conforms to the institutional land use designation and all applicable development standards contained within the Specific Plan inclusive of the SPR. In addition, proposed exterior lighting for the Middle School Hub and Middle School Gym would consist of low-intensity, full cut-off shielded light fixtures that maintain safe light levels while avoiding off-site lighting and night sky pollution, as required by the Specific Plan and the City of Malibu Dark Sky Ordinance.

8. Based on the visual impact analysis (aerial photographs, site visits and alternative story pole balloon placement), staff has determined that the portions of the proposed project in excess of 18 feet in height, coupled with the location central to the larger 49.6 acre site would not impact solar access to any properties off-site.

9. The proposed Phase 2, 3a, and 4a project is located within the central portion of the MMHS campus in an area previously developed with temporary and permanent structures and the and demolition of existing buildings and construction of a new Middle School Gym, HUB, and MDF buildings along with the fact that no new development is planned within 125 feet of the ESHA on site, the project will not have a significant adverse impact on natural resources.

C. Environmentally Sensitive Habitat Area Overlay (LIP Chapter 4)

1. The proposed project is consistent with all applicable provisions of the LCP in that the development is proposed outside of Environmentally Sensitive Habitat Areas. This project has been reviewed and approved by the City Biologist.

D. Hazards (LIP Chapter 9)

1. The record demonstrates that the project, as proposed and conditioned, the development will not adversely affect stability of the site or structural integrity from geologic, flood, or fire hazards in that the project complies with the recommended use of a pile foundation, is consistent with the recommended finish floor elevation, and requires that the certified engineering geologist and/or geotechnical engineer's recommendations and governing agency's building codes are followed.

2. The project as designed, conditioned, and approved by the City Geologist does not have any significant adverse impacts on the site stability or structural integrity from geologic, hazards due to the project design.

3. As previously discussed, the project, as proposed and conditioned, is the least environmentally damaging alternative as no significant impacts are expected.

4. There are no alternatives that would avoid or substantially lessen impacts on site stability or structural integrity.

5. No adverse impacts to sensitive resources are expected as the project complies with all development standards.

E. Demolition Permit Findings (MMC Chapter 17.70)

1. Conditions of approval, including the recycling of demolished materials, have been included to ensure that the proposed project will not create significant adverse environmental impacts.

2. Approval of the demolition permit is subject to the approval of CDP No. 25-032**.**

SECTION 4. Planning Commission Action.

Based on the foregoing findings and evidence contained within the record, the Planning Commission hereby approves CDP No. 25-032, SPR No. 25-039, and DP No. 25-027, subject to the following conditions.

SECTION 5. Conditions of Approval.

1. The property owners, and their successors in interest, shall indemnify and defend the City of Malibu and its officers, employees and agents from and against all liability and costs relating to the City's actions concerning this project, including (without limitation) any award of litigation expenses in favor of any person or entity who seeks to challenge the validity of any of the City's actions or decisions in connection with this project. The City shall have the sole right to choose its counsel and property owners shall reimburse the City's expenses incurred in its defense of any lawsuit challenging the City's actions concerning this project.

2. Approval of this application is to allow for the project described herein. The scope of work approved includes:

   Phase 2 scope:

   a. Two-story, 18,911 sf middle school gym (Building D) and outdoor sports courts (two full courts and two half courts);
   b. One-story 9,243 sf middle school student activity and food service building with a centralized steel canopy (Building D), referred to as the MS HUB. This building also integrates a special education component that was anticipated for Phase 4 as part of planned Building I;
   c. One-story 333 sf broadcasting/media arts building, referred to as the Main Distribution Framework (MDF) building (Building D);

d. Middle school quad, walkways, stairways, and related site improvements;
e. Fire lane for building access;
f. Landscaping and fencing;
g. On-grade solar installation with related components;
h. Grading in the amount of 5,175 cubic yards (cy) of cut (including additional cut/fill grading from the Phase 3a scope, total approximate grading for the proposed scope of work is 8,340 cy of cut, 4,303 cy of fill, and 3,837 cy designated for export).
i. Underground utility work and connections to the wastewater treatment system.

Phase 3a scope:

j. Demolition of a 4,561 sf classroom building (Building I);
k. Demolition of seven 960 sf portable classrooms (6,720 sf total);
l. Demolition of one 480 sf portable restroom; and
m. Grading in the amount of approximately 3,165 cy cut and 4,303 cy fill (total grading reflected above in the Phase 2 scope).

Phase 4a scope:

n. Demolition of a 12,698-sf classroom building (Building K);
o. Construction of the special education component (Building I) as part of Phase 2 Building D.

Discretionary Requests:

a. SPR No. 25-039 for construction over 18 feet up to a maximum height, not to exceed 36 feet from finished grade as allowed in the Specific Plan for Building D. Additional components such as chimneys, rooftop antennas, and light standards may extend to 40 feet. As proposed, the components of Building D is split into three buildings with the maximum heights provided below. Per the Specific Plan, all heights are measured from finished grade.
    i. Building D Gym: 35 feet (rooftop solar <40 feet)
    ii. Building D MS HUB: 17 feet
    iii. Building D Canopy: 21 feet, 7 inches
    iv. Building D MDF: 13 feet, 4 inches

b. DP No. 25-027 for the demolition of existing classroom Buildings I (4,561 sf) and K (12,698 sf), seven 960 sf portable classroom buildings (6,720 sf), one 480 sf portable restroom, and associated site development.

3. Except as specifically changed by conditions of approval, the proposed development shall be constructed in substantial conformance with the approved scope of work, as described in Condition No. 2 and depicted on the architectural and grading plans on file with the Planning Division date stamped **October 7, 2025**. The proposed development shall further comply with all conditions of approval stipulated in this resolution and Department Review Sheets attached hereto. In the event project plans conflict with any condition of approval, the condition shall take precedence.

4. Pursuant to LIP Section 13.18.2, this permit and rights conferred in this approval shall not be effective until the property owner signs, notarizes and returns the Acceptance of Conditions Affidavit accepting the conditions of approval set forth herein. The applicant

shall file this form with the Planning Division prior to the issuance of any development permits.

5. The applicant shall digitally submit a complete set of plans to the Planning Division for consistency review and approval prior to plan check and again prior to the issuance of any building or development permits.

6. The CDP shall expire if the project has not commenced within three (3) years after issuance of the permit, unless a time extension has been granted. Extension of the permit may be granted by the approving authority for due cause. Extensions shall be requested in writing by the applicant or authorized agent prior to expiration of the three-year period and shall set forth the reasons for the request. In the event of an appeal, the CDP shall expire if the project has not commenced within three years from the date the appeal is decided by the decision-making body or withdrawn by the appellant.

7. Any questions of intent or interpretation of any condition of approval will be resolved by the Community Development Director upon written request of such interpretation.

8. All development shall conform to requirements of the City Biologist, City Environmental Health Administrator, City geotechnical consultant reviewers, City Public Works Department, Los Angeles County Waterworks District No. 29 and LACFD, as applicable. Notwithstanding this review, all required permits shall be secured.

9. Minor changes to the approved plans or the conditions of approval may be approved by the Community Development Director, provided such changes achieve substantially the same results and the project is still in compliance with the Specific Plan, MMC, and the LCP. Revised plans reflecting the minor changes and additional fees shall be required.

10. Pursuant to LIP Section 13.20, development pursuant to an approved CDP shall not commence until the CDP is effective. The CDP is not effective until all appeals have been exhausted.

11. The property owner must submit payment for all outstanding fees payable to the City prior to issuance of any building permit, including grading or demolition.

Site Specific Conditions – MMRP Compliance

12. The project shall comply with all recommended mitigation measures listed in the Mitigation Monitoring and Reporting Program (MMRP) associated with the Final EIR, attached hereto as Exhibit A.

13. Prior to the commencement of work, a construction management plan, including a traffic control plan and construction parking plan, shall be submitted for review and approval by the Public Works Department and the Planning Division. The dedicated parking location for construction workers is prohibited within the public right of way.

Cultural Resources

14. In the event that potentially important cultural resources are found in the course of geologic testing or during construction, work shall immediately cease until a qualified archaeologist can provide an evaluation of the nature and significance of the resources and until the Community Development Director can review this information. Thereafter, the procedures contained in LIP Chapter 11 and those in MMC Section 17.54.040(D)(4)(b) shall be followed.

15. If human bone is discovered during geologic testing or during construction, work shall immediately cease and the procedures described in Section 7050.5 of the California Health and Safety Code shall be followed. Section 7050.5 requires notification of the coroner. If the coroner determines that the remains are those of a Native American, the applicant shall notify the Native American Heritage Commission by phone within 24 hours. Following notification of the Native American Heritage Commission, the procedures described in Section 5097.94 and Section 5097.98 of the California Public Resources Code shall be followed.

Lighting

16. Exterior lighting must comply with the Dark Sky Ordinance and shall be minimized, shielded, or concealed and restricted to low intensity features, so that no light source is directly visible from public view. Permitted lighting shall conform to the following standards:
    a. Lighting for walkways shall be limited to fixtures that do not exceed two feet in height and are directed downward, and limited to 850 lumens (equivalent to a 60-watt incandescent bulb);
    b. Security lighting controlled by motion detectors may be attached to the structure provided it is directed downward and is limited to 850 lumens;
    c. Driveway lighting shall be limited to the minimum lighting necessary for safe vehicular use. The lighting shall be limited to 850 lumens;
    d. Lights at entrances as required by the Building Code shall be permitted provided that such lighting does not exceed 850 lumens;
    e. Site perimeter lighting shall be prohibited; and
    f. Outdoor decorative lighting for aesthetic purposes is prohibited.

17. No permanently installed lighting shall blink, flash, or be of unusually high intensity or brightness. Lighting levels on any nearby property from artificial light sources on the subject property(ies) shall not produce an illumination level greater than one foot-candle.

18. Night lighting from exterior and interior sources shall be minimized. All exterior lighting shall be low intensity and shielded directed downward and inward so there is no offsite glare or lighting of natural habitat areas.

19. Motion sensor lights shall be programmed to extinguish ten minutes after activation.

20. Three violations of the conditions by the same property owner will result in a requirement to permanently remove the outdoor light fixture(s) from the site.

Demolition/Solid Waste

21. Prior to demolition activities, the applicant shall receive Planning Division approval for compliance with conditions of approval.

22. The applicant/property owner shall contract with a City approved hauler to facilitate the recycling of all recoverable/recyclable material. Recoverable material shall include but shall not be limited to: asphalt, dirt and earthen material, lumber, concrete, glass, metals, and drywall.

23. Prior to the issuance of a building/demolition permit, an Affidavit and Certification to implement waste reduction and recycling shall be signed by the Owner or Contractor and submitted to the Environmental Sustainability Division. The Affidavit shall indicate the agreement of the applicant to divert at least 65 percent (in accordance with CalGreen) of all construction waste from the landfill.

24. Dust control measures must be in place after the demolition is complete.

25. The project developer shall utilize licensed subcontractors and ensure that all asbestos-containing materials and lead-based paints encountered during demolition activities are removed, transported, and disposed of in full compliance with all applicable federal, state and local regulations.

26. Upon completion of demolition activities, the applicant shall request a final inspection by the Building Safety Division and the Planning Division.

Construction

27. Prior to the commencement of work, the applicant shall submit a copy of their Construction Management Plan to the Planning Division. The Construction Management Plan shall include a dedicated parking location for construction workers and storage of construction material, not within the public right of way. Prior to permit issuance, the Construction Management Plan must be acceptable to the Community Development Director and, if applicable, to the Building Official and Public Works Director.

28. A construction staging plan shall be reviewed and approved by the Community Development Director prior to plan check submittal.

29. Construction hours shall be limited to Monday through Friday from 7:00 a.m. to 7:00 p.m. and Saturdays from 8:00 a.m. to 5:00 p.m. No construction activities shall be permitted on Sundays or City-designated holidays.

30. For the transportation of heavy construction equipment and/or material, which requires the use of oversized-transport vehicles on State highways, the applicant / property owner is required to obtain a transportation permit from the California Department of Transportation.

Biology/Landscaping

31. Prior to installation of any landscaping, the applicant shall obtain a plumbing permit for the proposed irrigation system and provide a copy to the City Biologist.

32. Prior to or at the time of a Planning final inspection, the property owner/applicant shall submit to the case planner a copy of the plumbing permit for the irrigation system installation that has been signed off by the permitting agency.

33. Prior to final Planning inspection or other final project sign off (as applicable), the applicant shall submit to the Community Development Director for review and approval a certificate of completion in accordance with the Landscape Water Conservation Ordinance (MMC 17.53). The certificate shall include the property owner's signed acceptance of responsibility for maintaining the landscaping and irrigation in accordance with the approved plans and MMC 17.53. (form attached)

34. Prior to Final Plan Check Approval, if your property is serviced by the Los Angeles County Waterworks District No. 29, please provide a landscape water use approval from that department. For approval contact:

    LA County Waterworks District 29, 23533 Civic Center Way, Malibu, CA 90265, Phone: (310) 317-0209

    Note: submit plans through EPIC-LA using the "Waterworks Division Landscape Water Efficiency Approval" application. This action may require several weeks. As such, the applicant should submit their approved landscape plans as soon as feasible in order to avoid a delay at plan check.

35. Vegetation forming a view impermeable condition (hedge), serving the same function as a fence or wall, occurring within the side or rear yard setback shall be maintained at or below six feet in height. View impermeable hedges occurring within the front yard setback serving the same function as a fence or wall shall be maintained at or below 42 inches in height. Three sequential violations of this condition will result in a requirement to permanently remove the vegetation from the site.

36. Vegetation shall be situated on the property so as not to obstruct the primary view from private property at any given time (given consideration of its future growth).

37. Invasive plant species, as determined by the City of Malibu, are prohibited.

38. No vegetation is permitted within 5 feet of any structure.

39. No non-native plant species shall be approved greater than 50 feet from a structure.

40. The landscape plan shall prohibit the use of building materials treated with toxic compounds such as creosote and copper arsenate.

41. Grading/excavation/vegetation removal scheduled between February 1 - September 15 will require nesting bird surveys by a qualified biologist prior to initiation of such activities. Surveys shall be completed no more than five days from proposed initiation of site preparation activities. Should active nests be identified, a buffer area no less than 150 feet (300 feet for raptors) shall be fenced off until it is determined by a qualified biologist that the nest is no longer active. A report discussing the results of nesting bird surveys shall be submitted to the City within two business days of completing the surveys.

42. Night lighting from exterior and interior sources shall be minimized. All exterior lighting shall be low intensity and shielded so it is directed downward and inward so that there is no offsite glare or lighting of natural habitat areas. Up-lighting is prohibited.

43. Except as permitted pursuant to the provisions in LUP policies 3.18 and 3.20, throughout the City of Malibu, development that involves the use of pesticides, including insecticides, herbicides, rodenticides or any other similar toxic chemical substances, shall be prohibited in cases where the application of such substances would have the potential to significantly degrade Environmentally Sensitive Habitat Areas or coastal water quality or harm wildlife. Herbicides may be used for the eradication of invasive plant species or habitat restoration, but only if the use of non-chemical methods for prevention and management such as physical, mechanical, cultural, and biological controls are infeasible. Herbicides shall be restricted to the least toxic product and method, and to the maximum extent feasible, shall be biodegradable, derived from natural sources, and used for a limited time.

44. Demolition shall be scheduled only during the dry season from April 1 through October 31. If it becomes necessary to conduct earthmoving activities from November 1 through March 31, a comprehensive erosion control plan shall be submitted to the City Biologist for approval prior to the issuance of a grading permit and implemented prior to initiation of vegetation removal and/or earthmoving activities.

45. Prior to issuing a Certificate of Occupancy, the City Biologist shall inspect the project site and determine that all Planning conditions to protect natural resources are in compliance with the approved plans.

Grading/Drainage/Hydrology (Public Works)

46. Clearing and grading during the rainy season (extending from November 1 to March 31) shall be prohibited for development LIP Section 17.3.1 that:
    - Is located within or adjacent to ESHA, or
    - Includes grading on slopes greater than 4:1, or
    - Approved grading for development that is located within or adjacent to ESHA or on slopes greater than 4:1 shall not be undertaken unless there is sufficient time to complete grading operations before the rainy season. If grading operations are not completed before the rainy season begins, grading shall be halted and temporary erosion control measures shall be put into place to minimize erosion until grading resumes after March 31, unless the City determines that completion of grading would be more protective of resources.

47. Exported soil from a site shall be taken to the County Landfill or to a site with an active grading permit and the ability to accept the material in compliance with the City's LIP Section 8.3. A note shall be placed on the project that addresses this condition.

48. A grading and drainage plan shall be approved containing the following information prior to the issuance of grading permits for the project.
- Public Works Department general notes;
- The existing and proposed square footage of impervious coverage on the property shall be shown on the grading plan (including separate areas for buildings, driveways, walkways, parking, sports courts and pool decks);
- The limits of land to be disturbed during project development shall be delineated on the grading plan and a total area shall be shown on the plan. Areas disturbed by grading equipment beyond the limits of grading, areas disturbed for the installation of the septic system, and areas disturbed for the installation of the detention system shall be included within the area delineated;
- The grading limits shall include the temporary cuts made for retaining walls, buttresses, and over excavations for fill slopes and shall be shown on the grading plan;
- If the property contains trees that are to be protected they shall be highlighted on the grading plan.
- If the property contains rare and endangered species as identified in the resources study the grading plan shall contain a prominent note identifying the areas to be protected (to be left undisturbed). Fencing of these areas shall be delineated on the grading plan if required by the City Biologist.
- Private storm drain systems shall be shown on the grading plan. Systems greater than 12-inch diameter shall also have a plan and profile for the system included with the grading plan.
- Public storm drain modifications shown on the grading plan shall be approved by the Public Works Department prior to the issuance of the grading permit.

49. The ocean between Latigo Point and the west City limits has been established by the State Water Resources Control Board as an Area of Special Biological Significance (ASBS) as part of the California Ocean Plan. This designation prohibits the discharge of any waste, including stormwater runoff, directly into the ASBS. The applicant shall provide a drainage system that accomplishes the following:
- Installation of BMPs that are designed to treat the potential pollutants in the stormwater runoff so that it does not alter the natural ocean water quality. These pollutants include trash, oil and grease, metals, bacteria, nutrients, pesticides, herbicides and sediment.
- Prohibits the discharge of trash.
- Only discharges from existing storm drain outfalls are allowed. No new outfalls will be allowed. Any proposed or new storm water discharged shall be routed to existing storm drain outfalls and shall not result in any new contribution of waste to the ASBS (i.e., no additional pollutant loading).
- Elimination of non-storm water discharges.

50. A Local Storm Water Pollution Prevention Plan (LSWPPP) shall be provided prior to issuance of grading/building permits. This plan shall include and Erosion and Sediment Control Plan (ESCP) that includes, but not limited to:

Erosion Controls Scheduling	Hydraulic Mulch

	Hydroseeding
	Soil Binders
	Straw Mulch
	Geotextiles and Mats
	Wood Mulching
Sediment Controls	Fiber Rolls
	Gravel Bag Berm
	Street Sweeping and/or Vacuum
	Storm Drain Inlet Protection
	Scheduling
	Entrance/Exit Tire Wash
Non-Storm Water Management	Vehicle and Equipment Washing
	Vehicle and Equipment Fueling
	Vehicle and Equipment Maintenance
Waste Management	Material Delivery and Storage
	Spill Prevention and Control
	Solid Waste Management

All Best Management Practices (BMP) shall be in accordance to the latest version of the California Stormwater Quality Association (CASQA) BMP Handbook. Designated areas for the storage of construction materials, solid waste management, and portable toilets must not disrupt drainage patterns or subject the material to erosion by site runoff.

51. Prior to the approval of any permits and prior to the submittal of the required construction general permit document to the State Water Quality Control Board, the property owner / applicant shall submit the Public Works Department an Erosion and Sediment Control Plan (ESCP) for review. The ESCP shall contain appropriate site-specific construction site BMPs prepared and certified by a qualified SWPPP developer (QWD). All structural BMPs must be designed by a licensed California civil engineer. The ESCP must address the following elements:
    a. Methods to minimize the footprint of the disturbed area and to prevent soil compaction outside the disturbed area
    b. Methods used to protect native vegetation and trees
    c. Sediment / erosion control
    d. Controls to prevent tracking on- and off-site
    e. Non-stormwater control
    f. Material management (delivery and storage)
    g. Spill prevention and control
    h. Waste management
    i. Identification of site risk level as identified per the requirements in Appendix 1 of the Construction General Permit
    j. Landowner must sign the following statement on the ESCP:

    "I certify that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to ensure that quality personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system or those persons directly responsible for gathering the information, to the best of my knowledge and belief, the information

submitted is true, accurate and complete. I am aware that submitting false and/or inaccurate information, failing to properly and/or adequately implement the ESCP may result in revocation of grading and/or other permits or other sanctions provided by law."

52. A State Construction activity permit is required for this project due to the disturbance of more than one acre of land for development. Provide a copy of the letter from the State Water Quality Control Board containing the WDID number prior to the issuance of grading or building permits.

53. Waste Discharge Requirements: Monitoring and reporting parameters required under MRP No. CI-10846 of the Waste Discharge Requirements by the Regional Water Quality Control Board (RWQCB) shall be submitted to the Los Angeles RWQCB on the effective date of coverage under the General WDRs.

54. A Storm Water Management Plan (SWMP) is required for this project. Storm drainage improvements are required to mitigate increased runoff generated by property development. The applicant shall have the choice of one method specified within the City's Local Implementation Plan Section 17.3.2.B.2. The SWMP shall be supported by a hydrology and hydraulic study that identifies all areas contributory to the property and an analysis of the predevelopment and post development drainage of the site. The SWMP shall identify the Site design and Source control Best Management Practices (BMP's) that have been implemented in the design of the project (See LIP Chapter 17 Appendix A). The SWMP shall be reviewed and approved by the Public Works Department prior to the issuance of the grading/building permits for this project.

55. A Water Quality Mitigation Plan (WQMP) is required for this project. The WQMP shall be supported by a hydrology and hydraulic study that identifies all areas contributory to the property and an analysis of the predevelopment and post development drainage of the site. The WQMP shall meet all the requirements of the City's current Municipal Separate Stormwater Sewer System (MS4) permit. The following elements shall be included within the WQMP:
    - Site Design Best Management Practices (BMP's)
    - Source Control BMP's
    - Treatment Control BMP's that retains on-site the Stormwater Quality Design Volume (SWQDv). Or where it is technical infeasible to retain on-site, the project must biofiltrate 1.5 times the SWQDv that is not retained on-site.
    - Drainage Improvements
    - A plan for the maintenance and monitoring of the proposed treatment BMPs for the expected life of the structure.
    - A copy of the WQMP shall be filed against the property to provide constructive notice to future property owners of their obligation to maintain the water quality measures installed during construction prior to the issuance of grading or building permits.
    - The WQMP shall be submitted to Public Works Department and the fee applicable at time of submittal for the review of the WQMP shall be paid prior to the start of the technical review. The WQMP shall be approved prior to the Public Works Department's approval of the grading and drainage plan and or building plans. The Public Works Department will tentatively approve the plan and will keep a copy until the completion of the project. Once the project is completed, the applicant shall verify the installation

of the BMP's, make any revisions to the WQMP, and resubmit to the Public Works Department for approval. The original signed and notarized document shall be recorded with the County Recorder. A copy of the WQMP shall be submitted to the Public Works Department prior to the certificate of occupancy.

56. The developer's consulting engineer shall sign the final plans prior to the issuance of permits.

57. The Division of State Architect may approve grading during the rainy season to remediate hazardous geologic conditions that endanger public health and safety.

Geology

58. All recommendations of the consulting certified engineering geologist or geotechnical engineer and/or the City geotechnical staff shall be incorporated into all final design and construction including foundations, grading, sewage disposal, and drainage. Final plans shall be reviewed and approved by the City geotechnical staff prior to the issuance of a grading permit.

59. Final plans approved by the City geotechnical staff shall be in substantial conformance with the approved CDP relative to construction, grading, sewage disposal and drainage. Any substantial changes may require a CDP amendment or a new CDP.

60. Plans should be revised to clarify whether the proposed grading is engineered grading, and appropriate grading specifications should be added to the plans.

61. If the proposed grading is engineered grading, then the updated grading plan shall be reviewed, signed and stamped by the Project Geotechnical Consultant as verification that the plan incorporates their grading and erosion control recommendations prepared for the overall project.

62. If engineered fills are placed during grading, an as-built compaction report documenting the limits of fill and test results should be prepared by the Project Geotechnical Consultant. Add the following note to the grading plans. "Prior to final approval of the project, an as-built compaction report prepared by the Project Geotechnical Consultant must be submitted to the City for review. The report must include the results of all density tests, a dry density and optimum moisture maximum curve(s), and a map depicting the limits of fill, locations of all density tests, locations and elevations of all removal bottoms. Geologic conditions exposed during grading must be depicted on an as-built geologic map."

Prior to Final Sign-Off

63. The applicant shall request a final Planning Division inspection prior to final inspection by the State Building Official. In addition, prior to the final inspection by the Planning Division, the applicant shall submit a copy of the final project plans demonstrating State approval. A final approval shall not be issued until the Planning Division has determined that the project complies with this CDP.

64. Any construction trailer, storage equipment or similar temporary equipment not permitted as part of the approved scope of work shall be removed prior to final inspection and approval by the Planning Division.

Deed Restriction

65. The property owner is required to execute and record a deed restriction which shall indemnify and hold harmless the City, its officers, agents, and employees against any and all claims, demands, damages, costs and expenses of liability arising out of the acquisition, design, construction, operation, maintenance, existence or failure of the permitted project in an area where an extraordinary potential for damage or destruction from wildfire exists as an inherent risk to life and property. The property owner shall provide a copy of the recorded document to the Planning Division prior to final planning approval. If this deed restriction was already recorded as part of a prior permit condition, evidence of the recorded document shall be provided to the Planning Division to satisfy this condition.

Fixed Conditions

66. This CDP shall run with the land and bind all future owners of the property.

67. Violation of any of the conditions of this approval may be cause for revocation of this permit and termination of all rights granted there under.

SECTION 6. The Planning Commission shall certify the adoption of this resolution.

PASSED, APPROVED AND ADOPTED this 20th day of January 2026.

_____
ELIZABETH RIDDICK, Planning Commission Chair

ATTEST:

_____
REBECCA EVANS, Recording Secretary

LOCAL APPEAL Pursuant to Local Coastal Program Local Implementation Plan (LIP) Section 13.20.1 (Local Appeals) a decision made by the Planning Commission may be appealed to the City Council by an aggrieved person by written statement setting forth the grounds for appeal. An appeal shall be filed with the City Clerk within 10 days and shall be accompanied by an appeal form and filing fee, as specified by the City Council. Appeal forms may be found online at www.malibucity.org, in person at City Hall, or by calling (310) 456-2489, ext. 246.

Any action challenging the final decision of the City made as a result of the public hearing on this application must be filed within the time limits set forth in Section 1.12.010 of the MMC and Code of Civil Procedure. Any person wishing to challenge the above action in Superior Court may be limited to raising only those issues they or someone else raised at the public hearing, or in written correspondence delivered to the City of Malibu at or prior to the public hearing.

I CERTIFY THAT THE FOREGOING RESOLUTION NO. 26-04 was passed and adopted by the Planning Commission of the City of Malibu at the Regular meeting held on the 20th day of January 2026 by the following vote:

AYES:
NOES:
ABSTAIN:
ABSENT:

_____
REBECCA EVANS, Recording Secretary

Exhibit A: Mitigation Monitoring and Reporting Program

January 2022 | Mitigation Monitoring and Reporting Program

State Clearinghouse No. 2020080350

MALIBU MIDDLE AND HIGH SCHOOL CAMPUS SPECIFIC PLAN PROJECT

for Santa Monica-Malibu Unified School District

Prepared for:

Santa Monica-Malibu Unified School District
Contact: Carey Upton, Chief Operations Officer
1651 16th Street
Santa Monica, California 90404
310.450.8338

Prepared by:

PlaceWorks
Contact: Addie Farrell
700 S. Flower Street, Suite 600
Los Angeles, California 90017
213.623.1443
info@placeworks.com
www.placeworks.com

PLACEWORKS

EXHIBIT A

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1. Introduction

1.1 PURPOSE OF MITIGATION MONITORING PROGRAM

This Mitigation Monitoring Program has been developed to provide a vehicle by which to monitor mitigation measures and conditions of approval outlined in the Draft Environmental Impact Report (DEIR), State Clearinghouse No. 2020080350. The Mitigation Monitoring Program has been prepared in conformance with Section 21081.6 of the Public Resources Code and Santa Monica-Malibu Unified School District (SMMUSD or District) Monitoring Requirements. Section 21081.6 states:

> (a) When making findings required by paragraph (1) of subdivision (a) of Section 21081 or when adopting a mitigated negative declaration pursuant to paragraph (2) of subdivision (c) of Section 21080, the following requirements shall apply:
>
> (1) The public agency shall adopt a reporting or monitoring program for the changes made to the project or conditions of project approval, adopted in order to mitigate or avoid significant effects on the environment. The reporting or monitoring program shall be designed to ensure compliance during project implementation. For those changes which have been required or incorporated into the project at the request of a responsible agency or a public agency having jurisdiction by law over natural resources affected by the project, that agency shall, if so requested by the lead or responsible agency, prepare and submit a proposed reporting or monitoring program.
>
> (b) The lead agency shall specify the location and custodian of the documents or other material which constitute the record of proceedings upon which its decision is based. A public agency shall provide that measures to mitigate or avoid significant effects on the environment are fully enforceable through permit conditions, agreements, or other measures. Conditions of project approval may be set forth in referenced documents which address required mitigation measures or, in the case of the adoption of a plan, policy, regulation, or other public project, by incorporating the mitigation measures into the plan, policy, regulation, or project design.
>
> (c) Prior to the close of the public review period for a draft environmental impact report or mitigated negative declaration, a responsible agency, or a public agency

2. Mitigation Monitoring Process

> having jurisdiction over natural resources affected by the project, shall either submit to the lead agency complete and detailed performance objectives for mitigation measures which would address the significant effects on the environment identified by the responsible agency or agency having jurisdiction over natural resources affected by the project, or refer the lead agency to appropriate, readily available guidelines or reference documents. Any mitigation measures submitted to a lead agency by a responsible agency or an agency having jurisdiction over natural resources affected by the project shall be limited to measures which mitigate impacts to resources which are subject to the statutory authority of, and definitions applicable to, that agency. Compliance or noncompliance by a responsible agency or agency having jurisdiction over natural resources affected by a project with that requirement shall not limit the authority of the responsible agency or agency having jurisdiction over natural resources affected by a project, or the authority of the lead agency, to approve, condition, or deny projects as provided by this division or any other provision of law.

The Mitigation Monitoring and Reporting Program (MMRP) will serve to document compliance with adopted/certified mitigation measures that are formulated to minimize impacts associated with development under the Malibu Middle and High School Campus Specific Plan Project (Proposed Project).

1.2 PROJECT LOCATION

The Santa Monica–Malibu Unified School District (SMMUSD or District) property is located at 30215 Morning View Drive (Assessor's Parcel Map Numbers (APN) 4469-017-900, 4469-018-900, 4469-018-901, 4469-018- 902, 4469-018-903, 4469-018-904, 4469-019-900, 4469-019-901, 4469-019-902) in the city of Malibu, Los Angeles County, California. The SMMUSD property consists of approximately 87 acres over nine parcels that includes the existing Malibu Equestrian Park in the eastern part of the property, the existing Malibu Middle and High School (MMHS) campus in the center, and the former Juan Cabrillo Elementary School (JCES) campus in the west (Project Site). The Project Site is situated on three of nine parcels: APN 4469-017-900 (40.06 acres), 4469-018-900 (9.4 acres), and 4459-018-904 (2.57 acres). The total acreage of the Project Site is 52.03 acres. The majority of the Malibu Middle and High School Campus Specific Plan Project (Proposed Project) would be developed within the existing MMHS campus and the former JCES campus, with one component of the Proposed Project in the Malibu Equestrian Park. The Project Site is set amid rolling hills, and its buildings and athletic fields are terraced into the hillside setting. The Project Site is in the City of Malibu Institutional (I) Zoning District that authorizes public educational institutions with a conditional use permit.

The Project Site is approximately 0.25-mile northeast of the Pacific Coast Highway (PCH) and Zuma Beach, and is bounded by Merritt Drive to the east, Via Cabrillo Street to the west, and Morning View Drive to the south. Single-family homes border the Project Site to the north.

2. Mitigation Monitoring Process

1.3 PROJECT SUMMARY

The Proposed Project would redevelop and modernize the existing MMHS campus and former JCES campus to create generally three separate and distinct areas: Middle School Core, High School Core, and shared facilities. Implementation of the Proposed Project would result in demolition of all 7 buildings and 9 portables on the former JCES campus and 6 buildings and associated amenities on the MMHS campus, totaling 154,904 square feet of demolition. The existing 25-meter lighted, outdoor pool complex would be demolished, and new 50- meter lighted, outdoor pool complex would be developed. The existing Building E and Buildings A/B at the Project Site would remain, and all other structures would be removed. No changes to the existing main football/track sports field, baseball, or softball fields would be made with the exception of minor improvements, including the development of new field houses and additional parking adjacent to the softball field. The Proposed Project would relocate the existing on-campus Bus Barn to a disturbed location on the adjacent, District-owned Malibu Equestrian Park. It would also include restoration in the campus-adjacent Environmentally Sensitive Habitat Area (ESHA) and establishment of a new trail along the ESHA that would connect to the existing, larger trail network around the campus. The Proposed Project would result in 32 classrooms, 8 labs and maker spaces, and support spaces—a total of 173,595 square feet of building space, providing the middle/high school campus with a total of 51 classrooms and 12 labs and a total of 222,425 square feet of building space.

1.1 ENVIRONMENTAL IMPACTS

1.1.1 Impacts Considered Less Than Significant

During preparation of the Initial Study, SMMUSD determined that four environmental impact categories would not be significantly affected by the proposed Malibu Middle and High School Campus Specific Plan Project. These categories are not discussed in detail in this DEIR.

- Agriculture and Forestry Resources
- Mineral Resources
- Population and Housing
- Tribal Cultural Resources

The DEIR determined that eight environmental factors would have less than significant impacts if the Proposed Project is implemented.

- Aesthetics
- Air Quality
- Biological Resources
- Cultural Resources
- Energy
- Geology and Soils
- Greenhouse Gas Emissions
- Hazards and Hazardous Materials

2. Mitigation Monitoring Process

- Hydrology and Water Quality
- Land Use and Planning
- Noise
- Public Services
- Recreation
- Transportation
- Utilities and Service System
- Wildfire

1.1.2 Potentially Significant Adverse Impacts That Can Be Mitigated

The DEIR determined that seven environmental factors would have potentially significant impacts without mitigation.

- Air Quality
  - Construction-related pollutants
- Biological Resources
  - Impact to sensitive species
  - Loss of sensitive habitat types
  - Impact approximately 0.033 acres of USACE, RWQCB and CDFW Jurisdiction
  - Require compliance with the local tree ordinance
- Cultural Resources
  - Impacts on archaeological resources
- Geology and Soils
  - Hazards arising from off-site landslide, lateral spreading, subsidence, collapsible soils, or expansive soils
  - Impact to paleontological resources or unique geologic feature
- Noise
  - Permanent operation-related noise
- Transportation

2. Mitigation Monitoring Process

- Potentially hazardous conditions and potential conflicting uses

- Wildfire
  - Exacerbate wildfire risks
  - Exposure to risks, including downslope or downstream flooding or landslides

1.1.3 Unavoidable Significant Adverse Impacts

This DEIR identifies one significant and unavoidable adverse impacts, as defined by CEQA, that would result from implementation of the Proposed Project. Unavoidable adverse impacts may be considered significant on a project-specific, cumulatively significant, and/or potentially significant basis. If a project is determined to have a significant impact, the District must prepare a "statement of overriding considerations" before it can approve the project, where in the decision-making body must find and determine whether the benefits of the Proposed Project were balanced against the project's unavoidable significant environmental effects outweigh the adverse effects, and therefore the adverse effects are considered acceptable. The impact that was found in the DEIR to be significant and unavoidable is:

- Noise
  - Construction-generated noise

2. Monitoring and Reporting Requirements

2.1 MITIGATION MONITORING PROGRAM ORGANIZATION

CEQA requires that a reporting or monitoring program be adopted for the conditions of project approval that are necessary to mitigate or avoid significant effects on the environment (Pub. Resources Code, § 21081.6). The mitigation monitoring and reporting program is designed to ensure compliance with adopted mitigation measures during project implementation. For each mitigation measure recommended in the DEIR, specifications are made herein that identify the action required and the monitoring and reporting that must occur. In addition, a responsible agency is identified for verifying compliance with individual conditions of approval contained in the Mitigation Monitoring and Reporting Program. To effectively track and document the status of mitigation measures, a mitigation matrix has been prepared (see Table 2-1, *Mitigation Monitoring Requirements*).

2. Mitigation Monitoring Process

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Table 2-1 Mitigation Monitoring Requirements

	Mitigation Measure	Responsibility for Implementation	Timing	Responsibility for Monitoring	Monitor (Signature Required) (Date of Compliance)
5.1 AESTHETICS					
AES-1	To minimize spill lighting and glare impacts, all lighting from the Proposed Project, including from pool lighting, shall be LED, have full-cutoff shielding, be aimed specifically to direct areas.	Construction Contractor, Santa Monica-Malibu Unified School District	During design of each phase of the Project	Santa Monica-Malibu Unified School District City of Malibu	
AES-2	Atmospheric lighting pollution shall be reduced by using full cut-off shielded lighting fixtures that eliminate light directed to the sky. Marquee sign lighting shall be dimmable in the evenings when not required for student/community communication.	Construction Contractor, Santa Monica-Malibu Unified School District	During design of each phase of the Project	Santa Monica-Malibu Unified School District City of Malibu	
AES-3	Santa Monica-Malibu Unified School District (SMMUSD) shall minimize the effects of new sources of night lighting. Such measures, which may include the following and/or other measures, will be incorporated into each phase of the Proposed Project's design and operation: • All exterior lighting shall be delineated as either "night lighting" or "security lighting" and controlled by separate automatic timers. Lights delineated as security lighting shall be determined by the campus principal, security, and facility manager. • All lighting delineated as "night lighting" shall be shut off automatically at 10:00 p.m. on school nights. This includes pool lights. • When operation of "night lighting" is necessary after 10:00 p.m., SMMUSD as operator of the Project Site shall provide notice to the community by posting such notice on the campus website and the school message board and marquee. • When school is not in session (such as summer and winter break and weekends), "night lighting" shall not be permitted, and only required security lighting shall be illuminated.	Construction Contractor, Santa Monica-Malibu Unified School District	During design of each phase of the Project	Santa Monica-Malibu Unified School District City of Malibu	
AES-4	All structures shall incorporate nonreflective exterior building materials in their designs, and the use of reflective glass shall be prohibited.	Construction Contractor, Santa Monica-Malibu Unified School District	During design of each phase of the Project	Santa Monica-Malibu Unified School District City of Malibu	

Table 2-1 Mitigation Monitoring Requirements

	Mitigation Measure	Responsibility for Implementation	Timing	Responsibility for Monitoring	Monitor (Signature Required) (Date of Compliance)
AES-5	Pool and deck lighting shall comply with Malibu Dark Sky Ordinance. Pool lighting shall be turned off within ½ hour of aquatic use and the 2-foot candle safety perimeter lighting shall be turned off with all other automatic campus lighting.	Construction Contractor, Santa Monica-Malibu Unified School District	During design of the pool phase (before construction and operation)	Santa Monica-Malibu Unified School District City of Malibu	
5.2 AIR QUALITY					
AQ-1	Construction bids for Phase 1 through 4 activities at the Project Site shall specify use of offroad equipment that meets the United States Environmental Protection Agency (US EPA) Tier 4 interim emissions standards for off-road diesel-powered construction equipment with more than 50 horsepower, unless it can be demonstrated that such equipment is not available. In the event the equipment is not available, as demonstrated by the contractor, Tier 3 equipment retrofitted with a California Air Resources Board's Level 3 Verified Diesel Emissions Control Strategy (VDECS) shall be used. The following shall be specified in the construction bid: • Construction contractors shall use engines that meet US EPA Tier 4 Interim emission standards for equipment over 50 horsepower. • Construction contractors shall maintain a list of all operating equipment in use on the Project Site in use for more than 20 hours for verification by the District. The construction equipment list shall state the makes, models, and number of construction equipment on-site. • Construction contractors shall ensure that all equipment shall be properly serviced and maintained in accordance with the manufacturer's recommendations. • Construction contractors shall communicate with all sub-contractors in contracts and construction documents that all non-essential idling of construction equipment is restricted to five minutes or less in compliance with CARB Rule 2449. Construction contractors shall be responsible for	Construction Contractor, Santa Monica-Malibu Unified School District	Prior to construction of each phase of Project	Santa Monica-Malibu Unified School District City of Malibu	

Table 2-1 Mitigation Monitoring Requirements

	Mitigation Measure	Responsibility for Implementation	Timing	Responsibility for Monitoring	Monitor (Signature Required) (Date of Compliance)
	ensuring that this requirement is met.				
5.3 BIOLOGICAL RESOURCES					
BIO-1	**Pre-Construction Burrowing Owl Surveys and Avoidance:** In the year prior to initiation of Proposed Project activities in Phase 4, and/or before recommencing construction activities if suspended/delayed for six months or more, a qualified biologist shall conduct pre-construction burrowing owl surveys in accordance with the 2012 CDFW Burrowing Owl Consortium Survey Protocol and Mitigation Guidelines (CDFW 2012). If wintering or breeding burrowing owl are observed adjacent to the impact area, mitigation shall be conducted in accordance with the CDFW guidelines (CDFW 2012).	Construction Contractor, Santa Monica-Malibu Unified School District	Prior to construction of Phase 4 of the Project	Santa Monica-Malibu Unified School District City of Malibu	
BIO-2	**Pre-Construction Nesting Bird Surveys:** To the extent possible, vegetation removal shall be conducted during the non-breeding season (i.e., September 1 to January 31) in order to minimize direct impacts on nesting birds and raptors. If construction activities would be initiated during the breeding season for nesting birds/raptors (i.e., February 1–August 31), a pre-construction survey will be conducted by a qualified Biologist within three days prior to the initiation of construction (including demolition of structures). If construction activities are delayed or suspended for more than 7 days during the breeding season, nesting bird surveys shall be repeated before construction activities can begin or restart. In addition, nesting bird surveys shall be conducted prior to starting phased Project construction and activities. The absence of nesting birds and raptors shall be considered valid only until the following breeding season. The area will be surveyed for 2 hours between dawn and 10:00 AM on five occasions with at least one week between surveys. If there is appropriate habitat for owls on site, on at least three of the surveys, surveys will also be conducted during the period immediately before nightfall. The nesting bird/raptor	Construction Contractor, Santa Monica-Malibu Unified School District	Prior to construction of each phase of Project	Santa Monica-Malibu Unified School District City of Malibu	

Table 2-1 Mitigation Monitoring Requirements

	Mitigation Measure	Responsibility for Implementation	Timing	Responsibility for Monitoring	Monitor (Signature Required) (Date of Compliance)
	Survey Area will include a buffer of 300 feet around the work area for nesting birds and a buffer of 500 feet around the work area for nesting raptors (including burrowing owl). If the Biologist does not find any active nests in or immediately adjacent to the impact area, construction activities can proceed. If the Biologist detects an active nest within or immediately adjacent to the construction area and determines that the nest may be impacted or breeding activities substantially disrupted by increased activity around the nest, the Biologist shall determine an appropriate protective buffer around the nest depending on the sensitivity of the species and the nature of the construction activity. The protective buffer shall be between 25 to 300 feet for nesting birds; 300 to 500 feet for nesting raptors. The active nest will be protected within the designated buffer until nesting activity has ended. Any protective buffers will be mapped on construction plans and designated as "Environmentally Sensitive Areas". Construction can proceed within the protective buffer when the qualified Biologist has determined that the nest is no longer active (i.e., fledglings have left the nest or the nest has failed).				
BIO-3	**Vegetation Assessments:** Vegetation types shall be verified prior to work activities occurring in Phases 2 and 4 if seven years have elapsed from the latest point in time the vegetation mapping described in this Biological Assessment was conducted (April 15, 2021). Vegetation types in the BSA shall be assessed during a field visit and compared to the vegetation types mapped and described herein. Any changes shall be documented in a revised vegetation map and provided to the City of Malibu and the District. Special status vegetation types shall be identified, and if impacts are anticipated, the Proposed Project shall comply with Mitigation Measure, BIO-4.	Construction Contractor, Santa Monica-Malibu Unified School District	Prior to construction of Phases 2 and 4 of Project	Santa Monica-Malibu Unified School District City of Malibu	

Table 2-1 Mitigation Monitoring Requirements

	Mitigation Measure	Responsibility for Implementation	Timing	Responsibility for Monitoring	Monitor (Signature Required) (Date of Compliance)
BIO-4	**Special Status Vegetation Types:** The loss of special status vegetation types within the impact area is considered a significant impact. These vegetation types will be restored onsite or, if appropriate, offsite at a ratio of not less than 1:1, as agreed to by the City of Malibu and the District. A revegetation program shall be implemented in accordance with a City-approved landscape palette on all graded areas not utilized for improvements or structures. The revegetation program will be submitted to the City of Malibu for review and approval by a qualified biologist prior to issuance of grading permits. Restoration will consist of seeding and container planting of appropriate species. Impacts are considered less than significant after implementation of the following measures: A detailed restoration program will be developed prior to map recordation and implemented, and will contain the following items: • *Responsibilities and qualifications of the personnel to implement and supervise the plan.* The responsibilities of the landowner, specialists, and maintenance personnel that will supervise and implement the plan will be specified. • *Site selection.* The site(s) for mitigation will be determined in coordination with the District and the City of Malibu. The site will be located in a dedicated open space area and will be contiguous with other natural open space areas. • *Site preparation and planting implementation.* The site preparation will include the following: 1) protection of existing native species, 2) trash and weed removal, 3) native species salvage and reuse (i.e., duff), 4) soil treatments (i.e., imprinting, decompacting), 5) erosion control measures (i.e., rice or willow	Construction Contractor, Santa Monica-Malibu Unified School District	Prior to construction of each phase of Project	Santa Monica-Malibu Unified School District City of Malibu	

Table 2-1 Mitigation Monitoring Requirements

Mitigation Measure	Responsibility for Implementation	Timing	Responsibility for Monitoring	Monitor (Signature Required) (Date of Compliance)
wattles), and 6) native seed mix application. • *Schedule.* Establishment of restoration/revegetation sites will be conducted between October 1 and January 30. Seeding and planting of container plants will take place immediately after preparation of the restoration sites. • *Maintenance plan/guidelines*. The maintenance plan will include the following: 1) weed control, 2) herbivory control, 3) trash removal, 4) irrigation system maintenance, 5) maintenance training, and 6) replacement planting. • *Monitoring Plan.* The monitoring plan will include the following: 1) qualitative monitoring (i.e., photographs and general observations), 2) quantitative monitoring (i.e., randomly placed transects), 3) performance criteria as approved by the City, 4) monthly reports for the first year and bimonthly reports thereafter, and 5) annual reports which will be submitted to the City for three to five years. The monitoring will be conducted for three to five years, depending upon the performance of the mitigation site. • *Long-term preservation.* Long-term preservation of the site will be outlined in the conceptual mitigation plan to ensure the mitigation site is not impacted by future development. • *Performance standards will be identified and will apply for the revegetation of special status vegetation types.* Revegetation will be considered successful at three years if the percent cover and species diversity of the restored and/or created habitat areas are similar to percent cover and species diversity of adjacent existing habitats, as determined by quantitative testing of existing, restored, and created habitat areas.				

Table 2-1 Mitigation Monitoring Requirements

	Mitigation Measure	Responsibility for Implementation	Timing	Responsibility for Monitoring	Monitor (Signature Required) (Date of Compliance)
	In addition, earth-moving equipment will avoid maneuvering in areas outside the identified limits of grading in order to avoid disturbing open space areas that will remain undeveloped. Prior to grading, the construction boundary limits will be marked by the construction supervisor and the Project biologist. These limits will be identified on the grading plan. The District will submit a letter to the City of Malibu verifying that construction limits have been flagged in the field. No earth-moving equipment will be allowed outside of the construction boundary.				
BIO-5	**RWQCB and CDFW Jurisdiction Areas:** Upon completion of construction activities, impacts to approximately 0.033 acre of non-wetland RWQCB and CDFW jurisdictional waters will be mitigated within the Proposed Project boundaries at a minimum ratio (i.e., no less than) of 1:1 through the creation of 0.033 acre of non-wetland jurisdictional waters. Acquisition of a § 1602 "lake or streambed alteration" agreement from the CDFW and waste discharge requirements from the RWQCB would be required. Prior to the final submittal of a Report of Waste Discharge from the RWQCB, and/or CDFW notification of lake or streambed alteration, the District will develop a mitigation plan for the RWQCB, CDFW, and City of Malibu. The objective of the mitigation is to ensure no net loss of habitat values as a result of the Proposed Project. The detailed restoration program shall contain the following items: • *Responsibilities and qualifications of the personnel to implement and supervise the plan*. The responsibilities of the landowner, specialists and maintenance personnel that would supervise and implement the plan will be specified and shall include the demonstration of having successfully completed at least 3 mitigation projects of similar size and scope within the last 5 years including the design and implementation of an irrigation	Construction Contractor, Santa Monica-Malibu Unified School District	Prior to construction of each phase of Project	Santa Monica-Malibu Unified School District City of Malibu	

Table 2-1 Mitigation Monitoring Requirements

Mitigation Measure	Responsibility for Implementation	Timing	Responsibility for Monitoring	Monitor (Signature Required) (Date of Compliance)
system to ensure that the plantings and seeds are irrigated during periods of below average rainfall. The specialists that would supervise and implement the plan would include habitat restoration specialists, wildlife biologists, arborists, botanists, landscape contractor, and irrigation specialists. • *Site selection.* The site(s) for the mitigation will be determined in coordination with the Project Applicant and resource agencies. The site will be located in a dedicated open space area and will be contiguous with other natural open space. • *Site preparation and planting implementation.* The site preparation will include the following: 1) protection of existing native species, 2) trash and weed removal, 3) native species salvage and reuse (i.e., duff), 4) soil treatments (i.e., imprinting, decompacting), 5) temporary irrigation installation, 6) erosion control measures (i.e., rice or willow wattles), 7) native seed mix application, and 8) native container species. • *Schedule. A* schedule will be developed which includes planting and seeding to occur in late fall and early winter, between October 1 and January 30 in order to optimize the successful establishment and germination of native plants and seeds. • *Maintenance plan/guidelines.* The maintenance plan will include the following: 1) weed control, 2) herbivory control, 3) trash removal, 4) irrigation system maintenance, 5) maintenance training, and 6) replacement planting. • *Monitoring Plan.* The monitoring plan will include the following: 1) qualitative monitoring (i.e., photographs and general observations), 2) quantitative				

Table 2-1 Mitigation Monitoring Requirements

	Mitigation Measure	Responsibility for Implementation	Timing	Responsibility for Monitoring	Monitor (Signature Required) (Date of Compliance)
	monitoring (i.e., randomly placed transects), 3) performance criteria as approved by the resource agencies, 4) monthly reports for the first year and bimonthly reports thereafter, and 5) annual reports which will be submitted to the resource agencies for three to five years. Coordination will take place on a regular basis between the biological monitor, landscape contractor and irrigation specialist with regard to non-native species targeted for removal as well as irrigation schedule to ensure that the restoration in on track for achievement of performance criteria. In addition, remedial as well as contingency measures shall also be specified should the site not meet specified performance standards. The site will be monitored and maintained for five years to ensure successful establishment of riparian habitat within the restored and created areas; however, if there is successful coverage prior to five years, the District may request from RWQCB and CDFW to be released from monitoring requirements. • *Long-Term Preservation.* Long-term preservation of the site will be outlined in the conceptual mitigation plan to ensure the mitigation site is not impacted by future development. • Performance standards will be identified and will apply for the restoration of riparian habitat. Revegetation will be considered successful at three years if the percent cover and species diversity of the restored and/or created habitat areas are similar to percent cover and species diversity of adjacent existing habitats, as determined by quantitative testing of existing and restored and/or created habitat areas. The qualifications of the personnel to implement and supervise the plan				

Table 2-1 Mitigation Monitoring Requirements

	Mitigation Measure	Responsibility for Implementation	Timing	Responsibility for Monitoring	Monitor (Signature Required) (Date of Compliance)
	would include the demonstration of having successfully completed at least 3 mitigation projects of similar size and scope within the last 5 years including the design and implementation of an irrigation system to ensure that the plantings and seeds are irrigated during periods of below average rainfall. The specialists that would supervise and implement the plan would include habitat restoration specialists, wildlife biologists, arborists, botanists, landscape contractor, and irrigation specialists.				
BIO-6	**Adherence to City of Malibu Tree Protection Ordinance:** Prior to initiation of Proposed Project activities in each Phase of the Proposed Project, the tree survey map created for the Proposed Project (Appendix C) shall be consulted and if impacts to any protected trees are anticipated, the Proposed Project shall comply with mitigation included in the Malibu Local Coastal Program Native Tree Protection Ordinance.	Construction Contractor, Santa Monica-Malibu Unified School District	Prior to construction of each phase of Project	Santa Monica-Malibu Unified School District City of Malibu	
5.4. CULTURAL RESOURCES					
CUL-1	Prior to issuance of any permits allowing ground-disturbing activities for the Proposed Project (for each individual phase of the Project), the District shall ensure that an archaeologist who meets the Secretary of the Interior's standards for professional archaeology and a Qualified Paleontologist (or someone cross-trained in both areas) has been retained for the Project and will be on-call during all grading and other significant ground-disturbing activities. The Qualified Archaeologist and Paleontologist shall ensure that the following measures are followed for the Project: • Prior to any ground disturbance, the Qualified Archaeologist/Paleontologist, or their designee, shall provide worker environmental awareness protection training to construction personnel regarding regulatory requirements for the protection of	Construction Contractor, Santa Monica-Malibu Unified School District	Prior to construction of each phase of Project	Santa Monica-Malibu Unified School District City of Malibu	

Table 2-1 Mitigation Monitoring Requirements

Mitigation Measure	Responsibility for Implementation	Timing	Responsibility for Monitoring	Monitor (Signature Required) (Date of Compliance)

cultural (prehistoric and historic) and paleontological resources. As part of this training, construction personnel shall be briefed on proper procedures to follow should unanticipated cultural or paleontological resources be made during construction.
• In the event that unanticipated cultural or fossil-bearing material is encountered during any phase of project construction, all construction work within 100 feet of the find shall cease and the Qualified Archaeologist/Paleontologist shall assess the find for importance. Construction activities may continue in other areas. If the discovery is determined to not be important by the Qualified Archaeologist/Paleontologist, work will be permitted to continue in the area.
  ◦ If a find is determined to be important by the Qualified Archaeologist/Paleontologist, he or she shall immediately notify the District. The District shall consult on a finding of eligibility and implement appropriate treatment measures if the find is determined to be eligible for inclusion in the California Register of Historical Resources (CRHR). Work may not resume within the no-work radius until the lead agencies, through consultation as appropriate, determine that the site either: (1) is not eligible for the CRHR; or (2) that the treatment measures have been completed to their satisfaction.
  ◦ If the find includes human remains, or remains that are potentially human, he or she shall ensure reasonable protection measures are taken to protect the discovery				

Table 2-1 Mitigation Monitoring Requirements

Mitigation Measure	Responsibility for Implementation	Timing	Responsibility for Monitoring	Monitor (Signature Required) (Date of Compliance)
from disturbance (Assembly Bill [AB] 2641). The archaeologist shall notify the Los Angeles County Medical Examiner-Coroner (as per § 7050.5 of the California Health and Safety Code). The provisions of § 7050.5 of the California Health and Safety Code, § 5097.98 of the California Public Resources Code (PRC), and AB 2641 will be implemented. If the Medical Examiner-Coroner determines the remains are Native American and not the result of a crime scene, the Medical Examiner-Coroner will notify the Native American Heritage Commission (NAHC), which then will designate a Native American Most Likely Descendant (MLD) for the Project (§ 5097.98 of the PRC). The designated MLD will have 48 hours from the time access to the property is granted to make recommendations concerning treatment of the remains. If the landowner does not agree with the recommendations of the MLD, the NAHC can mediate (§ 5097.94 of the PRC). If no agreement is reached, the landowner must rebury the remains where they will not be further disturbed (§ 5097.98 of the PRC). This will also include either recording the site with the NAHC or the appropriate information center; using an open space or conservation zoning designation or easement; or recording a reinternment document with the county in which the property is located (AB 2641). Work may not resume within the no-work radius until				

Table 2-1 Mitigation Monitoring Requirements

	Mitigation Measure	Responsibility for Implementation	Timing	Responsibility for Monitoring	Monitor (Signature Required) (Date of Compliance)
	the lead agencies, through consultation as appropriate, determine that the treatment measures have been completed to their satisfaction.				
5.6 GEOLOGY AND SOILS					
GEO-1	Design recommendations listed in the Geotechnical Report prepared for the Proposed Project shall be followed. These include, but are not limited to, seismic design parameters, foundation design, retaining wall, grading, trenching, etc. Details of these recommendations are included in Appendix H.	Construction Contractor, Santa Monica-Malibu Unified School District	Prior to construction of each phase of Project	Santa Monica-Malibu Unified School District City of Malibu	
GEO-2	Design recommendations regarding future irrigation systems identified in the Geotechnical Report shall be followed to ensure that irrigation shall not be allowed within at least 10-feet-horizontally around structures supported on shallow spread footings and/or with slabs-on-grade. Details of these recommendations are included in Appendix H.	Construction Contractor, Santa Monica-Malibu Unified School District	Prior to construction of each phase of Project	Santa Monica-Malibu Unified School District City of Malibu	
5.11 NOISE					
N-1	Construction contractors shall implement the following measures for construction activities conducted at the Project Site during each phase of construction. Construction plans submitted to the District shall identify these measures on demolition, grading, and construction plans. The District shall verify that grading, demolition, and/or construction plans submitted include these notations prior to demolition, grading, and/or building construction. • During the active construction period, equipment and trucks used for project construction shall utilize the best available noise control techniques (e.g., improved mufflers, intake silencers, ducts, engine enclosures, acoustically attenuating shields or shrouds) wherever feasible. • Impact tools (e.g., jack hammers and hoe rams) shall be hydraulic- or electric-powered wherever	Construction Contractor, Santa Monica-Malibu Unified School District	Prior to construction of each phase of Project	Santa Monica-Malibu Unified School District City of Malibu	

Table 2-1 Mitigation Monitoring Requirements

Mitigation Measure	Responsibility for Implementation	Timing	Responsibility for Monitoring	Monitor (Signature Required) (Date of Compliance)
feasible. Where the use of pneumatic tools is unavoidable, an exhaust muffler on the compressed air exhaust shall be used along with external noise jackets on the tools. • Stationary equipment such as generators and air compressors shall be located as far as feasible from noise-sensitive uses. • The District's construction contractors and subcontractors shall be required through contract specifications to locate construction staging areas, construction worker parking, and material stockpiling as far away from vibration- and noise-sensitive sites as possible. Additionally, these activities shall be located away from occupied buildings on campus, occupied residential dwellings adjacent to the campus, and other sensitive receptors, where feasible. Prior to the start of construction activities, a sign shall be posted at the entrance(s) to the job site, clearly visible to the public, that includes permitted construction days and hours as well as the contact information of the District's and contractor's representatives who are authorized to respond in the event of a noise or vibration complaint. If the contractor's authorized representative receives a complaint, they shall investigate, take appropriate corrective action, and report the action to the District. • Signs shall be posted at the job site entrance(s), within the on-site construction zones, and along queueing lanes (if any) to reinforce the prohibition of unnecessary engine idling. All equipment shall be turned off if not in use for more than 5 minutes. • During the entire active construction period and to the extent feasible, the use of noise producing signals, including horns, whistles, alarms, and bells, shall				

Table 2-1 Mitigation Monitoring Requirements

Mitigation Measure	Responsibility for Implementation	Timing	Responsibility for Monitoring	Monitor (Signature Required) (Date of Compliance)
be for safety warning purposes only. The construction manager shall be responsible for adjusting alarms based on the background noise level, or to utilize human spotters when feasible and in compliance with all safety requirements and laws. • Notification shall be mailed to owners and occupants of all developed land uses immediately bordering or directly across the street from the Proposed Project Site providing a schedule for major construction activities through the duration of the construction period. When construction activity would occur within 100 feet of nearby receptor property lines, contractors shall erect temporary noise barriers where feasible. The temporary noise barrier shall have a minimum height of 12 feet and be free of gaps and holes. The barrier can be (a) a ¾-inch-thick plywood wall OR (b) a hanging acoustical blanket/curtain with a surface density or at least 1.5 pounds per square foot. • Prior to construction, the contractor shall submit to the District a list of equipment and activities required during construction to ensure proper planning of the most intense construction activities during time periods that would least impact campus operations. When construction activity would occur within 150 feet of active classrooms, contractors shall ensure that interior classroom noise levels do not exceed 50 dBA Leq. Feasible methods to achieve this include those listed above, scheduling work during less sensitive time periods when the classroom is not in use, and classroom use rescheduling to move active classes away from high noise construction activities, as necessary. Construction activities within 50 feet of occupied classrooms would be prohibited				

Table 2-1 Mitigation Monitoring Requirements

	Mitigation Measure	Responsibility for Implementation	Timing	Responsibility for Monitoring	Monitor (Signature Required) (Date of Compliance)
	during preparation and testing for National Standardized testing days of students at MMHS.				
N-2	The proposed bus barn shall be an enclosed structure constructed of wood, masonry, concrete, or other similar solid material (e.g., not corrugated metal). The structure will have no gaps and minimal window area. All bus testing shall be conducted inside the enclosed bus barn.	Construction Contractor, Santa Monica-Malibu Unified School District	During design of the relocated bus barn	Santa Monica-Malibu Unified School District City of Malibu	
5.14 TRANSPORTATION					
T-1	During each phase of construction activity, SMMUSD shall work with the City of Malibu Public Works Department to develop and implement a Construction Traffic Mitigation Plan that is specific to the needs of each phase and shall include the following: • Haul trucks and vendor truck traffic ingress and egress to/from the construction area shall not occur 30 minutes before or after student arrival and dismissal times—8:30 am Monday through Friday, 1 pm to 3 pm Monday through Thursday, and 12 pm to 1:30 pm on Friday. • The plan shall eliminate curbside parking on the south side of Morning View Drive south of the construction staging area to provide adequate turn radius and site distance to access for trucks entering and leaving work sites. This would apply to construction Phases 1, 2, and 3 only, which would have access via the segment of Morning View Drive adjacent to the school frontage. • The plan shall include a Traffic Education Program to assist in educating parents, students, and staff on drop-off/pick-up procedures specific to each phase of construction. Informational materials shall be disseminated regarding student drop-off and pick-up procedures via regular parent/school communication methods and shall be posted on the school website.	Construction Contractor, Santa Monica-Malibu Unified School District	Prior to construction of each phase of Project	Santa Monica-Malibu Unified School District City of Malibu	

Table 2-1 Mitigation Monitoring Requirements

	Mitigation Measure	Responsibility for Implementation	Timing	Responsibility for Monitoring	Monitor (Signature Required) (Date of Compliance)
	• The use of portable message signs and information signs at construction sites shall be employed as needed. • Construction activities for each phase shall be coordinated with the responsible agency departments, including the City of Malibu Public Works and Planning Departments, and the Los Angeles County Sheriff and Fire Departments no less than 10 days prior to the start of the work for each phase. Notification shall specify whether any temporary vehicle, pedestrian, or bicycle construction detours are needed, if construction work would encroach into the public right-of-way, or if temporary use of public streets surrounding the Project Site is needed.				
T-2	To facilitate safe and efficient vehicular and pedestrian circulation during student drop-off and pickup, times during Phase 1, prior to initiation of construction activities, SMMUSD shall work with the City of Malibu Public Works Department to develop and implement a Traffic and Parking C Plan to include the following: • Designation of vehicular drop-off and pick-up areas outside Morning View Drive at off-street Parking Lots A, D, and E. Vehicular access to these lots shall allow vehicles to enter and return from the area from the intersection of Morning View Drive at PCH. • Student drop-off and pick-up shall be implemented in a counterclockwise circulation pattern. Figure 7 (see Appendix L) depicts vehicular circulation patterns that shall be used in Parking Lots A, D, and E during Phase 1 construction. • If needed, construction traffic can be restricted to ensure that most construction trips occur outside of the drop-off and pick-up periods.	Construction Contractor, Santa Monica-Malibu Unified School District	Prior to construction of each phase of Project	Santa Monica-Malibu Unified School District City of Malibu	

Table 2-1 Mitigation Monitoring Requirements

	Mitigation Measure	Responsibility for Implementation	Timing	Responsibility for Monitoring	Monitor (Signature Required) (Date of Compliance)
	• The school shall educate students and parents on drop-off and pick-up routes and procedures. This may be achieved with a combination of information bulletins shared with students and parents.				
T-3	Construction scheduling during Phases 2 to 4 shall be scheduled such that any activities that would result in potential lane closures along Morning View Drive, including, but not limited to, reconstruction of the student drop-off/pick-up area and sidewalks along Morning View Drive, shall be limited to summer months when school is not in session to eliminate conflicts with local traffic and pedestrian activities.	Construction Contractor, Santa Monica-Malibu Unified School District	Prior to construction of Phases 2 and 4 of Project	Santa Monica-Malibu Unified School District City of Malibu	
T-4	The SMMUSD shall coordinate with the City of Malibu Public Works Department to relocate crosswalks and school-area signage in relation to the proposed access driveways according to City of Malibu and applicable State criteria. Crossing guards shall be relocated as necessary, based on the ultimate location of crosswalks.	Construction Contractor, Santa Monica-Malibu Unified School District	Prior to construction of each phase of Project	Santa Monica-Malibu Unified School District	
T-5	Drop-off and pick-up during Phases 2 to 4 can take place in the newly constructed drop-off and pick-up areas in Parking Lots C and D. The school can continue to use Parking Lots B and the Parking Lots D and E that will be implemented in Phase 1. During Phases 2 to 4, the following mitigation measures would be required to ensure proper circulation is provided: o Haul trucks and vendor truck traffic ingress and egress to/from the construction area shall not occur during the drop-off/pick-up hours of 7:00 to 9:00 AM and 2:30 to 4:30 PM.	Construction Contractor, Santa Monica-Malibu Unified School District	Prior to construction of each phase of Project	Santa Monica-Malibu Unified School District City of Malibu	
T-6	Each coastal development permit application required to implement Phases 2 – 4 must include traffic impact analyses to reflect the most recent student population projections. In the event the student population projection exceeds 1,000 students, at least one of the following mitigation measures must be implemented:	Construction Contractor, Santa Monica-Malibu Unified School District	Prior to construction of each phase of Project	Santa Monica-Malibu Unified School District City of Malibu	

Table 2-1 Mitigation Monitoring Requirements

Mitigation Measure	Responsibility for Implementation	Timing	Responsibility for Monitoring	Monitor (Signature Required) (Date of Compliance)
• **Intersection 1 - Morning View Drive and Pacific Coast Highway:** o Restripe the westbound approach to PCH to have two 12-foot lanes: a left turn lane and a shared left/right-turn lane. Given the curb-to-curb width of approximately 38 feet, the centerline would need to be moved to accommodate the two westbound lanes. Therefore, the eastbound lane would need to be modified with a width of 14 feet. The restriping and left turn pocket would have a minimum length of 200 feet to accommodate the anticipated queue. o Extend the northbound right turn pocket to a total length of 250 feet o Optimize the signal timing • **Intersection 2 – Morning View Drive and Merritt Drive:** o Repaint the pavement markings indicating vehicles to "KEEP CLEAR" and add "KEEP CLEAR" signage on the eastbound and westbound approaches at Morning View Drive per MUTCD standards. The KEEP CLEAR marking should also be shifted east and west prior to the respective approaches to be more visible for drivers so the intersection is not blocked. • **Intersection 4 – Guernsey Avenue and Pacific Coast Highway:** o Option 1: Install a traffic signal at Guernsey & PCH o Option 2: Modify the signal timing at the signalized intersection to the north at Trancas Canyon to increase traffic gaps to reduce the westbound approach traffic delays at Guernsey Avenue. The modifications at PCH & Morning View, PCH & Guernsey, and PCH & Trancas would require approval from				

Table 2-1 Mitigation Monitoring Requirements

	Mitigation Measure	Responsibility for Implementation	Timing	Responsibility for Monitoring	Monitor (Signature Required) (Date of Compliance)
	Caltrans. If enrollment is projected to increase over 1,000 students based on the annual reporting the District will send to the City, the District would be required to coordinate with the City and Caltrans to implement these improvements. The District would be responsible for providing permits and engineering studies such as a signal warrants study at the intersection of PCH & Guernsey per the MUTCD, under consultation with Caltrans.				
5.16 WILDFIRE					
W-1	The District and its general contractor will prepare a Construction Fire Protection Plan (CFPP) that shall be implemented during all phases of construction activity. The CFPP will be approved by the County of Los Angeles Fire Department (LACoFD) prior to building construction and may also be reviewed and approved in phases based on the phased development of the Proposed Project. The CFPP shall include, but not be limited to, guidance for: • Prevention, control, and extinguishment of fires during construction activities. • Smoking- and fire-related rules, storage, and parking area. • Delineating work areas from natural/open space areas and establishing sufficient setbacks. • Vegetation management prior to and during construction activity, consistent with LACoFD protocols. • Requirement to use spark arrestors on construction equipment. • Limiting the type and duration of construction activities during red flag warning events issued by the National Weather Service covering the project area.	Construction Contractor, Santa Monica-Malibu Unified School District	Prior to construction of each phase of Project	Santa Monica-Malibu Unified School District City of Malibu	
GEO-1	Design recommendations listed in the Geotechnical Report prepared for the Proposed Project shall be followed. These include, but are not limited to, seismic design parameters, foundation design, retaining wall, grading, trenching, etc. Details of these	Construction Contractor, Santa Monica-Malibu Unified School District	Prior to construction of each phase of Project	Santa Monica-Malibu Unified School District City of Malibu	

Table 2-1 Mitigation Monitoring Requirements

Mitigation Measure	Responsibility for Implementation	Timing	Responsibility for Monitoring	Monitor (Signature Required) (Date of Compliance)
recommendations are included in Appendix H.				

MALIBU HIGH SCHOOL INCREMENT 02

30215 MORNING VIEW DR.,
MALIBU, CA 90265

APN: 4469-017-900

A# 03-125562
FILE #19-H24



PROJECT NUMBER
31722

Received
10/7/2025
Planning Dept.

Submittal	Date
SCHEMATIC DESIGN	09/04/2024
50% DESIGN DEVELOPMENT	12/13/2024
100% DESIGN DEVELOPMENT	02/21/2025
CDP SUBMITTAL	06/16/2025
50% CONSTRUCTION DOCS	06/27/2025
DSA SUBMITTAL	09/08/2025

ATTACHMENT 2

LPA
ARCHITECTURE ENGINEERING INTERIOR DESIGN
LANDSCAPE ARCHITECTURE PLANNING
949-261-1001 Office
LPADesignStudios.com
5301 California Avenue, Suite 100
Irvine, California 92617

LICENSED ARCHITECT
RICHARD MUSTO
No. C16639
REN 12/31/2026
STATE OF CALIFORNIA

COVER SHEET

2-G0.00

CONSTRUCTION NOTES

1. ALL CONSTRUCTION & MATERIALS SHALL BE AS SPECIFIED & IN ACCORDANCE WITH ALL APPLICABLE CODES, ORDINANCES, LAWS, PERMITS & THE CONTRACT DOCUMENTS.
2. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE ACCURATE PLACEMENT OF ALL NEW CONSTRUCTION ON THE SITE.
3. THE CONTRACTOR IS RESPONSIBLE FOR ALL EXG SURVEY MONUMENTS WHICH MAY BE DISTURBED THROUGH CONSTRUCTION ACTIVITIES DEEMED NECESSARY FOR PRESERVATION BY THE CIVIL ENGINEER. IF SUCH MONUMENTS WERE DISTURBED, THE APPLICANT SHALL HAVE A LICENSED LAND SURVEYOR QUALIFIED CIVIL ENGINEER REESTABLISH ANY SUCH MONUMENTATION DAMAGED OR DESTROYED DURING THE CONSTRUCTION OF THE PROJECT & SUBMIT "PRELIMINARY CORNER RECORDS" TO THE CIVIL ENGINEER AFTER REPLACEMENT. AFTER APPROVAL BY THE CIVIL ENGINEER, THE APPLICANT SHALL FILE THE CORNER RECORDS WITH THE COUNTY SURVEYOR. PRIOR TO THE EXONERATION OF ANY SECURITY, EVIDENCE OF SUCH FILING SHALL BE FURNISHED TO THE CIVIL ENGINEER.
4. THE CONTRACTOR IS RESPONSIBLE TO INSURE THAT TRUCK ROUTES SHALL BE STEERED AWAY FROM RESIDENTIAL AREAS.
5. THE CONTRACTOR SHALL ENSURE THAT TRUCKS HAULING DIRT ON PUBLIC ROADS TO & FROM THE SITE SHALL BE COVERED OR WILL MAINTAIN A 6" DIFFERENTIAL BETWEEN THE MAX HGT OF ANY HAULED MATERIAL & THE TOP OF THE HAUL TRAILER. HAUL TRUCK DRIVERS SHALL WATER THE LOAD PRIOR TO LEAVING THE SITE TO PREVENT SOIL LOSS DURING TRANSPORT.
6. THE CONTRACTOR SHALL ENSURE THAT GRADED SURFACES USED FOR OFF ROAD PARKING, MATERIALS LAY-DOWN, OR AWAITING FUTURE CONSTRUCTION SHALL BE STABILIZED FOR DUST CONTROL AS NEEDED. FREQUENTLY ACCESSED UNPAVED AREAS SHALL BE PAVED AS EARLY AS POSSIBLE TO MINIMIZE DIRT TRACKOUT TO PUBLIC RIGHTS-OF-WAY.
7. THE CONTRACTOR SHALL COORDINATE ANY LANE CLOSURES OR DETOURS WITH THE CITY/COUNTY. FLAG PERSONS & APPROPRIATE TRAFFIC CONTROL DEVICES SHALL BE USED AS NEEDED TO MINIMIZE CONSTRUCTION ACTIVITY INTERFERENCE WITH OFF-SITE-TRAFFIC.
8. THE CONTRACTOR SHALL VERIFY ALL DIMENSIONS & SITE CONDITIONS BEFORE STARTING WORK. SHOULD A DISCREPANCY APPEAR IN THE CONTRACT DOCUMENTS OR BETWEEN THE CONTRACT DOCUMENTS & EXISTING CONDITIONS, NOTIFY THE ARCHITECT AT ONCE FOR INSTRUCTION ON HOW TO PROCEED.
9. SHOULD A CONFLICT OCCUR BETWEEN DWGS & SPECIFICATIONS, THE MORE COSTLY CONDITION SHALL TAKE PRECEDENCE; UNLESS A WRITTEN DECISION FROM THE ARCHITECT HAS BEEN OBTAINED WHICH DESCRIBES A CLARIFICATION OR ALTERNATE METHOD AND/OR MATERIALS.
10. THE CONTRACTOR SHALL CONFINE HIS OPERATION ON THE SITE TO AREAS PERMITTED BY OWNER.
11. THE JOBSITE SHALL BE MAINTAINED IN A CLEAN, ORDERLY CONDITION FREE OF DEBRIS & LITTER & SHALL NOT BE UNREASONABLY ENCUMBERED WITH ANY MATERIALS OR EQUIPMENT. EACH SUBCONTRACTOR IMMEDIATELY UPON COMPLETION OF EACH PHASE OF HIS WORK SHALL REMOVE ALL TRASH & DEBRIS AS A RESULT OF HIS OPERATION.
12. ALL MATERIAL STORED ON THE SITE SHALL BE PROPERLY STACKED & PROTECTED TO PREVENT DAMAGE & DETERIORATION. FAILURE TO PROTECT MATERIALS MAY BE CAUSE FOR REJECTION OF WORK.
13. THE CONTRACTOR SHALL DO ALL CUTTING, FITTING, AND/OR PATCHING OF HIS WORK THAT MAY BE REQ TO MAKE ELEVERYTHING FIT TOGETHER PROPERLY & SHALL NOT ENDANGER ANY OTHER WORK BY CUTTING, EXCAVATING, OR OTHERWISE ALTERING THE TOTAL WORK OR ANY PART OF IT. ALL PATCHING, REPAIRING AND REPLACING OF MATERIALS AND SURFACES, CUT OR DAMAGED IN EXECUTION OF WORK, SHALL BE DONE WITH APPLICABLE MATERIALS SO THAT SURFACES REPLACED WILL, UPON COMPLETION, MATCH SURROUNDING SIMILAR SURFACES.
14. STRUCTURAL OBSERVATION WILL BE PERFORMED BY THE STRUCTURAL ENGINEER, WHEN REQ, A STATEMENT IN WRITING SHALL BE GIVEN TO THE BUILDING OFFICIAL, STATING THAT THE SITE VISITS HAVE BEEN MADE & WHETHER OR NOT ANY OBSERVED DEFICIENCIES HAVE BEEN CORRECTED TO CONFORM TO THE APPROVED PLANS & SPECIFICATIONS.
15. SUBMITTAL DOCUMENTS FOR DEFERRED SUBMITAL ITEMS SHALL BE SUBMITTED TO THE ARCHITECT OR ENGINEER OF RECORD, WHO SHALL REVIEW THEM & RETURN THEM TO THE CONTRACTOR (WITH A NOTIFICATION INDICATING THAT THE DEFERRED SUBMITTAL DOCUMENTS HAVE BEEN REVIEWED & THAT THEY HAVE BEEN FOUND TO BE IN GENERAL CONFORMANCE WITH THE DESIGN OF THE BUILDING) FOR PLAN CHECK APPROVAL. THE DEFERRED SUBMITTAL ITEMS SHALL NOT BE INSTALLED UNTIL THEIR DESIGN & SUBMITTAL DOCUMENTS HAVE BEEN APPROVED BY THE AUTHORITY HAVING JURISDICTION.
16. PROVIDE ALL ACCESS PANELS AS REQ BY GOVERNING CODES TO ALL CONCEALED SPACES, VOIDS, ATTICS, ETC. VERIFY TYPE REQ WITH ARCHITECT PRIOR TO INSTALLATION.
17. NO PORTION OF WORK REQ A SHOP DWG OR SAMPLE SUBMISSION SHALL BE COMMENCED UNTIL THE SUBMISSION HAS BEEN REVIEWED BY THE ARCHITECT. ALL SUCH PORTIONS OF THE WORK SHALL BE IN ACCORDANCE WITH CORRECTED SHOP DWGS. AND SAMPLES.
18. DIMENSIONS:
    A. ALL DIMS SHALL TAKE PRECEDENCE OVER SCALE.
    B. ALL DIMS ARE TO FACE OF STUD / CONCRETE / MASONRY UNO
    C. CLG HGT DIMS ARE FROM FACE OF SLAB TO FACE OF FIN CLG MATERIAL UNO
19. DO NOT SCALE DRAWINGS
20. PROVIDE ALL NECESSARY BLOCKING, BACKING, & FRAMING FOR LIGHT FIXTURES, ELECTRIC UNITS, AC EQUIP, RECESSED ITEMS, AND ALL OTHER ITEMS AS REQ.
21. WHERE LARGER STUDS OR FURRING ARE REQ TO COVER PIPING AND CONDUITS, THE LARGER STUD SIZE OR FURRING SHALL EXTEND THE FULL SURFACE OF THE WALL WIDTH AND LENGTH WHERE THE FURRING OCCURS, UNO.
22. ALL DOORS SHALL BE OPERABLE FROM THE INSIDE W/O THE USE OF A KEY OR SPECIAL KNOWLEDGE OF EFFORT. EXIT SIGNS SHALL BE PROVIDED AT ALL EXITS AS REQ BY THE APPLICABLE CODES. ALL DOOR SWINGS SERVING AN OCCUPANT LOAD OF 50 OR GREATER SHALL SWING IN THE DIRECTION OF TRAVEL.
23. ALL GLASS AND GLAZING SHALL COMPLY WITH THE APPLICABLE CODES.
24. WALL AND CLG MATERIALS SHALL NOT EXCEED THE FLAME SPREAD CLASSIFICATIONS IN THE APPLICABLE CODES.
25. SURVEYORS CERTIFICATE REQ PRIOR TO FINAL COMPLETION.
26. THE CONTRACTOR SHALL COMPLY WITH THE APPLICABLE CODES FOR FIRE SAFETY DURING CONSTRUCTION AND DEMOLITION.
27. A DSA CERTIFIED CLASS 1 PROJECT INSPECTOR EMPLOYED BY THE DISTRICT (OWNER) AND APPROVED BY THE DIVISION OF THE STATE ARCHITECT (DSA) SHALL PROVIDE CONTINUOUS INSPECTION OF THE WORK. THE DUTIES OF THE INSPECTOR ARE DEFINED IN SECTION 4-342, CALIFORNIA BUILDING STANDARDS ADMINISTRAIVE CODE (PART 1, TITLE 24, CCR)
28. A DSA ACCEPTED TESTING LABORATORY DIRECTLY EMPLOYED BY THE DISTRICT (OWNER) SHALL CONDUCT ALL THE REQ TESTS AND INSPECTIONS FOR THE PROJECT.
29. CHANGE TO THE APPROVED DRAWINGS AND SPECIFICATIONS SHALL BE MADE BY ADDENDA OR CONSTRUCTION CHANGE DOCUMENT (CCD) APPROVED BY DSA, AS REQ BY SECTION 4-338, PART 1, TITLE 24, CCR.
30. THE INTENT OF THESE DWGS AND SPECIFICATIONS IS THAT THE WORK OF THE ALTERATION, REHABILITATION OR RECONSTRUCTION IS TO BE IN ACCORDANCE WITH TITLE 24, CCR. SHOULD ANY EXG CONDITIONS SUCH AS DETERIORATION OR NON-COMPLYING CONSTRUCTION BE DISCOVERED WHICH IS NOT COVERED BY THE CONTRACT DOCUMENTS WHEREIN THE FINISHED WORK WILL NOT COMPLY WITH TITLE 24, CCR, A CONSTRUCTION CHANGE DOCUMENT (CCD), OR A SEPARATE SET OF PLANS AND SPECIFICATIONS, DETAILING AND SPECIFYING THE REQ WORK SHALL BE SUBMITTED TO AND APPROVED BY DSA BEFORE PROCEEDING WITH THE WORK. (SECTION 4-317(c), PART 1, TITLE 24, CCR)
31. CONTRACTOR SHALL BE RESPONSIBLE FOR ALL PHASED CONSTRUCTION. THIS INCLUDES ALL PARTIAL DEMO, INSTALL AND COORDINATION OF SYSTEMS THAT MAY HAVE TO BE PARTIALLY BUILT WHILE RUNNING IN CONJUNCTION WITH EXISTING SYSTEMS. LIQUIDATED DAMAGES WILL APPLY FOR ANY DELAYS CAUSED BY THE CONTRACTOR. NO DEMOLITION SHALL BEGIN UNTIL THE PLANS HAVE BEEN APPROVED BY DSA.

DEFERRED APPROVALS

DEFERRED APPROVALS:

NOTE: THE CONTRACTOR TO PROVIDE ALL DEFERRED APPROVALS WITHIN 2 MONTHS OF THE NOTICE TO PROCEED IN ORDER NOT TO DELAY THE CONSTRUCTION SCHEDULE, INSTALLATION OF THE FOLLOWING LISTED ITEMS SHALL NOT BE STARTED UNTIL DETAILED PLANS AND SPECIFICATIONS ARE APPROVED BY THE DIVISION OF THE STATE ARCHITECT (DSA). THE PLANS AND SPECIFICATIONS SHALL BE STAMPED AND SIGNED BY THE ARCHITECT AND ENGINEER OF RECORD PRIOR TO SUBMITTING TO DSA

1. ALUMINUM CURTAINWALL AND STOREFRONT SYSTEMS.
2. HORIZONTAL SOLAR SHADING DEVICES.
3. ELEVATOR GUIDE RAILS, SUPPORT BRACKETS AND ANCHORAGE.
4. MEP DISTIBUTION SYSTEM SUPPORT AND BRACING.

THE ITEMS LISTED ABOVE SHALL BE SIGNED AND CALCULATED BY THE CONTRACTOR AND BE SUBMITTED TO DSA FOR APPROVAL. ALL ITEMS LISTED SHALL NOT BE FABRICATED OR PLACED ON THE JOBSITE PRIOR TO DSA APPROVAL AND ARCHITECTS REVIEW

FIRE AND LIFE SAFETY NOTES

1. PLANS FOR THE FIRE SPRINKLER SYSTEMS MUST BE APPROVED BY THE AUTHORITY HAVING JURISDICTION (AHJ) PRIOR TO INSTALLATION. SUBMIT PLANS IN A MANNER WHICH WILL NOT IMPEDE THE PROGRESS OF CONSTRUCTION.
2. FIRE SPRINKLER SYSTEMS & INSTALLATION SHALL CONFORM W/ THE APPLICABLE STANDARDS AND CODES.
3. FIRE SPRINKLER SYSTEMS TO BE TIED INTO THE ALARM SYSTEM PER THE APPLICABLE CODES.
4. AUTOMATIC SPRINKLER SYSTEM(S) SHALL BE SUPERVISED BY AN APPROVED CENTRAL OR REMOTE STATION SERVICE, AND/OR SHALL BE PROVIDED W/ A LOCAL ALARM WHICH WILL GIVE AN AUDIBLE SIGNAL.
5. FIRE SPRINKLER SYSTEM(S) & ALL CONTROL VALVES SHALL BE SUPERVISED BY A U.L. LISTED CENTRAL ALARM STATION OR PER THE APPLICABLE CODES.
6. FIRE HYDRANT & FIRE SPRINKLER SYSTEM(S) SHALL BE FLUSHED THOROUGHLY BEFORE CONNECTION IS MADE TO EXISTING SYSTEM STUBOUTS & WITNESSED BY THE PROJECT INSPECTOR.
7. A HYDROSTATIC TEST (200 PSI PRESSURE FOR 2 HRS. OR @ 50 PSI IN EXCESS OF THE MIN. STATIC PRESSURE WHEN IT IS IN EXCESS OF 150 PSI) SHALL BE WITNESSED BY THE PROJECT INSPECTOR PRIOR TO COVERING PIPING JOINTS.
8. A 3' CLR SPACE SHALL BE MAINTAINED AROUND THE CIRCUMFERENCE OF FIRE HYDRANTS EXCEPT AS OTHERWISE REQ OR APPROVED PER THE APPLICABLE CODES.
9. THRUST BLOCKS SHALL BE PROVIDED WHEREVER PIPE CHANGES DIRECTION.
10. ALL PIPE SHALL BE UL LISTED FOR FIRE SERVICE SYSTEMS, CLASS 200 MIN.
11. FIRE DEPARTMENT CONNECTIONS SHALL BE LOCATED W/I 100' FROM A PUBLIC FIRE HYDRANT PER THE APPLICABLE STANDARDS AND CODES.
12. FIRE SPRINKLER RISER SHALL BE LOCATED WITHIN 5 FT OF THE EXT WALL (OR AS REQ BY THE AHJ) AND TERMINATE 6" ABV FF
13. AN ALL-WEATHER FIRE ACCESS ROAD SHALL BE IN PLACE BEFORE ANY COMBUSTIBLE MATERIALS ARE PLACED ON THE SITE OR AS REQ BY THE AHJ.
14. STORAGE, DISPENSING, OR USE OF ANY FLAMMABLE & COMBUSTIBLE LIQUIDS, FLAMMABLE & COMPRESSED GASES & OTHER HAZARDOUS MATERIALS SHALL COMPLY W/ THE APPLICABLE CODES.
15. EXIT SIGNS SHALL BE POSTED OVER EXIT DOORS & DIRECTIONAL EXIT SIGNS SHALL BE LOCATED TO DIRECT PERSONS TOWARD EXIT DOORS.
16. EXIT SIGNS SHALL BE SELF-LUMINOUS TYPE OR ELECTRONICALLY ILLUMINATED & ENERGIZED FROM SEPARATE CIRCUITS, ONE OF WHICH SHALL BE FROM STORAGE BATTERIES OR AN ON-SITE GENERATOR, FOR A DURATION OF 90 MINUTES PER THE APPLICABLE CODES.
17. EXIT DOORS SHALL BE OPENABLE FROM THE INSIDE WITHOUT THE USE OF A KEY OR ANY SPECIAL KNOWLEDGE OR EFFORT.
18. ACCESS GATE(S) SHALL BE OPENABLE W/ FIRE DEPT MASTER KEY FROM THE EXTERIOR.
19. CURBS ALONG FIRE LANES SHALL BE PAINTED SAFETY RED & MARKED "FIRE LANE NO PARKING" W/ 3" WHITE LETTERS ON THE TOP OF CURBING EVERY 30' AS INDICATED ON THE APPROVED DRAWINGS.
20. APPROVED NUMBERS OR ADDRESSES SHALL BE PROVIDED FOR ALL NEW & EXG BLDGS IN SUCH A POSITION AS TO BE PLAINLY VISIBLE & LEGIBLE FROM THE STREET OR ROAD FRONTING THE PROPERTY PER THE APPLICABLE CODES.
21. PROVIDE PERMANENT OR TEMPORARY STANDPIPES WHILE BUILDING IS UNDER CONSTRUCTION PER THE APPLICABLE CODES.
22. PROVIDE FIRE EXTINGUISHERS PER THE REQ THE APPLICABLE STANDARDS AND CODES.

ENERGY CODE NOTES

THE CALIFORNIA ENERGY CODE SECTION 10-103 REQUIRES ACCEPTANCE TESTING ON ALL NEWLY INSTALLED LIGHTING CONTROLS, MECHANICAL SYSTEMS, ENVELOPES, AND PROCESS EQUIPMENT AFTER INSTALLATION AND BEFORE PROJECT COMPLETION. AN ACCEPTANCE TEST IS A FUNCTIONAL PERFORMANCE TEST TO HELP ENSURE THAT NEWLY INSTALLED EQUIPMENT IS OPERATING AND IN COMPLIANCE WITH THE ENERGY CODE.

LIGHTING CONTROLS ACCEPTANCE TESTS MUST BE PERFORMED BY A CERTIFIED LIGHTING CONTROLS ACCEPTANCE TEST TECHNICIAN (ATT).

MECHANICAL SYSTEM ACCEPTANCE TESTS MUST BE PERFORMED BY A CERTIFIED MECHANICAL ATT FOR PROJECTS SUBMITTED ON OR AFTER OCTOBER 1, 2021.

ENVELOPE AND PROCESS EQUIPMENT ACCEPTANCE TESTS SHALL BE PERFORMED BY THE INSTALLING CONTRACTOR, ENGINEER/ARCHITECT OF RECORD OR THE OWNER'S AGENT.

A LISTING OF CERTIFIED ATT CAN BE FOUND AT: HTTPS://WWW.ENERGY.CA.GOV/PROGRAMS-AND-TOPICS/PROGRAMS/ACCEPTANCE-TEST-TECHNICIAN-CERTIFICATION-PROVIDER-PROGRAM/ACCEPTANCE.

THE ACCEPTANCE TESTING PROCEDURES MUST BE REPEATED, AND DEFICIENCIES MUST BE CORRECTED BY THE BUILDER OR INSTALLING CONTRACTOR UNTIL THE CONSTRUCTION/INSTALLATION OF THE SPECIFIED SYSTEMS CONFORM AND PASS THE REQUIRED ACCEPTANCE CRITERIA.

PROJECT INSPECTORS WILL COLLECT THE FORMS TO CONFIRM THAT THE REQUIRED ACCEPTANCE TESTS HAVE BEEN COMPLETED.

RESPONSIBILITY FOR JOB SITE SAFETY

NOTICE TO PERSONS PERFORMING WORK ON JOB SITE, INCLUDING CONTRACTORS, SUBCONTRACTORS, MATERIAL SUPPLIERS AND ANY AGENTS OR EMPLOYEES THEREOF

THESE PLANS AND SPECIFICATIONS DO NOT PROVIDE ANY DIRECTION OR INSTRUCTIONS TO CONTRACTORS, SUBCONTRACTORS, MATERIAL SUPPLIERS OR THEIR EMPLOYEES OR AGENTS RELATED TO CONSTRUCTION MEANS, METHODS, TECHNIQUES, SEQUENCES OR PROCEDURES, SAFETY PRECAUTIONS, MANNERS OR METHODS OF EGRESS OR INGRESS, INCLUDING BUT NOT LIMITED TO JOB SITE SAFETY, THE PHYSICAL CONDITION OF THE JOB SITE, THE MANNER OR METHOD IN WHICH THE AREA WHERE WORK IS PERFORMED IS ACCESSED BY WORKERS, AND SAFETY PROGRAMS OR SAFETY PROTOCOLS OF ANY KIND IN CONNECTION WITH THE WORK. ALL OF THE FOREGOING ARE SOLELY AND EXCLUSIVELY THE RESPONSIBILITY OF THE CONTRACTOR, SUBCONTRACTOR, MATERIAL SUPPLIERS, OR ANY AGENTS OR EMPLOYEES THEREOF.

THE ARCHITECT EXPRESSLY DISCLAIMS ANY CONTROL OVER AND RESPONSIBILITY FOR CONSTRUCTION MEANS, METHODS, TECHNIQUES, SEQUENCES OR PROCEDURES, SAFETY PRECAUTIONS, MANNERS OR METHODS OF EGRESS OR INGRESS, INCLUDING BUT NOT LIMITED TO JOB SITE SAFETY, THE PHYSICAL CONDITION OF THE JOB SITE, THE MANNER OR METHOD IN WHICH THE AREA WHERE WORK IS PERFORMED IS ACCESSED BY WORKERS, AND SAFETY PROGRAMS OR SAFETY PROTOCOLS OF ANY KIND IN CONNECTION WITH THE WORK.

THE ARCHITECT HAS NOT CONDUCTED AN EVALUATION OR ANALYSIS OF SAFETY PROCEDURES OR APPLICABLE LAW REGARDING OR RELATING TO ACCESSING THE JOB SITE OR AREAS OF THE WORK DURING THE COURSE OF CONSTRUCTION.

THE ARCHITECT, THE ARCHITECT'S DESIGNS, AND ANY OTHER WORK PERFORMED BY THE ARCHITECT DO NOT ADDRESS, ANALYZE OR PROVIDE ANY DIRECTION OR ADVICE TO ANY PERSON OR ENTITY ON WHETHER OR NOT THE USE OF EXISTING LADDERS, DOORS, RAILINGS, INGRESS AND INGRESS ROUTES OR THE LIKE ARE IN COMPLIANCE OR NON-COMPLIANCE WITH OSHA, CAL-OSHA(CALIFORNIA ONLY), OR ANY OTHER APPLICABLE STATUTE, REGULATION, OR STANDARD RELATED TO JOB SITE SAFETY DURING THE COURSE OF CONSTRUCTION OF THE IMPROVEMENTS.

VICINITY MAP



PROPOSED SITE
MALIBU MIDDLE & HIGH SCHOOL

ADDRESS:
30215 MORNING VIEW DR.
MALIBU, CA 90265

N

PROJECT NORTH

PROJECT SCOPE

THIS PROJECT INCLUDES THE CONSTRUCTION OF A NEW SPECIAL EDUCATION AND CAMPUS WELLNESS CENTER BUILDING, NEW GYMNASIUM BUILDING - INCLUDING FITNESS, NEW FIRELANE FOR NEW BUILDING ACCESS, NEW WASTEWATER SYSTEM, ASSOCIATED GRADING AND UNDERGROUND UTILITY WORK, AND ASSOCIATED SITE IMPROVEMENTS.

LIMIT OF WORK

THE INTENT OF THE LIMIT OF WORK LINE IS TO DESCRIBE IN GENERAL THE AREAS AFFECTED BY PROJECT CONSTRUCTION. IT IS NOT INTENDED TO BE AN EXACT INDICATION OR EDGE OF THE CONSTRUCTION AREA. THE CONTRACTOR SHOULD VISIT THE SITE AND BECOME FAMILIAR WITH EXISTING CONDITIONS AND THEIR RELATIONSHIP TO THE WORK PROPOSED IN THE CONTRACT DOCUMENTS. ALL ITEMS NECESSARY FOR THE PROPER EXECUTION AND COMPLETION OF THE WORK SHALL BE INCLUDED. THE CONTRACT DOCUMENTS ARE COMPLEMENTARY AND WHAT IS REQUIRED BY ONE SHALL BE BINDING AS IF REQUIRED BY ALL TO THE EXTENT THAT IT IS REASONABLY INFERABLE FROM THEM AS BEING NECESSARY TO PRODUCE THE INTENDED RESULTS.

APPLICABLE CODES

LIST OF APPLICABLE CODES

2022 CALIFORNIA ADMINISTRATIVE CODE (CAC), PART 1, TITLE 24 CCR
2022 CALIFORNIA BUILDING CODE (CBC), PART 2, TITLE 24 CCR
2022 CALIFORNIA ELECTRICAL CODE (CEC), PART 3, TITLE 24 CCR
2022 CALIFORNIA MECHANICAL CODE (CMC), PART 4, TITLE 24 CCR
2022 CALIFORNIA PLUMBING CODE (CPC), PART 5, TITLE 24 CCR
2022 CALIFORNIA ENERGY CODE, PART 6, TITLE 24 CCR
2022 CALIFORNIA FIRE CODE (CFC), PART 9, TITLE 24 CCR
2022 CALIFORNIA EXISTING BUILDING CODE (CEBC), PART 10, TITLE 24 CCR
2022 CALIFORNIA GREEN BUILDING STANDARDS CODE (CALGREEN), PART 11, TITLE 24 CCR
2022 CALIFORNIA REFERENCED STANDARDS CODE, PART 12, TITLE 24 CCR
TITLE 19 CCR, PUBLIC SAFETY, STATE FIRE MARSHAL REGULATIONS

APPLICABLE STANDARDS

FOR A LIST OF APPLICABLE STANDARDS, INCLUDING CALIFORNIA AMENDMENTS TO THE NFPA STANDARDS, REFER TO CBC CHAPTER 35 AND CFC CHAPTER 80.

ACCESSIBLE CONSTRUCTION SUPPORT FACILITIES

11B-201.4 CONSTRUCTION SUPPORT FACILITIES. These requirements shall apply to temporary or permanent construction support facilities for uses and activities not directly associated with the actual processes of construction, including but not limited to offices, meeting rooms, plan rooms, other administrative or support functions. When provided, toilet and bathing facilities serving construction support facilities shall comply with 11B-213. When toilet and bathing facilities serving construction support facilities are provided by portable units, at least one of each type shall be accessible and connected to the construction support facilities it serves by an accessible route.

EXCEPTION: During construction an accessible route shall not be required between site arrival points or the boundary of the area of construction and the entrance to the construction support facilities if the only means of access between them is a vehicular way not providing pedestrian access.

ZONING

ASSESSOR'S PARCEL NUMBER(S) (APN):
4469-017-900

MALIBU MUNICIPAL CODE (MMC) ZONING DESIGNATION: I (INSTITUTIONAL)

GENERAL PLAN LAND USE DESIGNATION: INSTITUTIONAL DISTRICT ZONE

SETBACKS:
FRONT:
REQUIRED: 10 FT
PROPOSED: 140 FT
SIDES:
REQUIRED: 100 FT WHEN ADJACENT TO ESHA
PROPOSED: 125 FT
SIDE YARD SETBACKS:
REQUIRED: 5 FT, 10% OF LOT WIDTH OR 10 FT (WHICHEVER IS GREATER) WHEN ADJACENT TO A RESDENTIALLY-ZONED PARCEL
PROPOSED: XX FT
REAR:
REQUIRED: 5 FT, 15 FT WHEN ADJACENT TO RESIDENTIAL
PROPOSED: 600+ FT

IMPERMEABLE LOT COVERAGE:

TOTAL LOT AREA: 49.46 ACRES

PROPOSED PERMEABLE AREA: 38.17 ACRES

PROPOSED IMPERMEABLE AREA: 11.28 ACRES

ALLOWABLE:25%
PROPOSED: 22.8%

PROJECT DIRECTORY

CLIENT INFORMATION

NAME: SANTA MONICA-MALIBU UNIFIED SCHOOL DISTRICT
ADDRESS: 2828 4TH STREET
CITY,STATE, ZIP: SANTA MONICA, CA 90405
DIRECTOR OF FACILITY
TEL: 310-395-3204
CONTACT: CAREY UPTON E-MAIL: cupton@smmusd.org

ARCHITECT

NAME: LPA, INC.
ADDRESS: 5301 CALIFORNIA AVE, SUITE 100
CITY,STATE, ZIP: IRVINE, CA 92617
TEL: 949/769-6286
CONTACT: RICK MUSTO E-MAIL: rmusto@lpadesignstudios.com

LANDSCAPE ARCHITECT

NAME: LPA, INC.
ADDRESS: 5301 CALIFORNIA AVE, SUITE 100
CITY,STATE, ZIP: IRVINE, CA 92617
TEL: 949/701-4080
CONTACT: ANH-THY TOBIN E-MAIL: atobin@lpadesignstudios.com

CIVIL ENGINEER

NAME: LPA, INC.
ADDRESS: 5301 CALIFORNIA AVE, SUITE 100
CITY,STATE, ZIP: IRVINE, CA 92617
TEL: 949/701-4033
CONTACT: ROBERT RICHARDSON E-MAIL: rrichardson@lpadesignstudios.com

STRUCTURAL ENGINEER

NAME: LPA, INC.
ADDRESS: 5301 CALIFORNIA AVE, SUITE 100
CITY,STATE, ZIP: IRVINE, CA 92617
TEL: (949)769-6201
CONTACT: HARSHDA PRASAD E-MAIL: hprasad@lpadesignstudios.com

MECHANICAL ENGINEER

NAME: LPA, INC.
ADDRESS: 5301 CALIFORNIA AVE, SUITE 100
CITY,STATE, ZIP: IRVINE, CA 92617
TEL: (949)701-4092
CONTACT: DOUG SEAMARK E-MAIL: dseamark@lpadesignstudios.com

ELECTRICAL ENGINEER

NAME: P2S, INC.
ADDRESS: 5000 EAST SPRING ST., 8TH FL
CITY,STATE, ZIP: LONG BEACH, CA 90815
TEL: 562/497-2999
CONTACT: KATHY OLAIS E-MAIL: Kathy.Olais@p2sinc.com

PLUMBING ENGINEER

NAME: LPA, INC.
ADDRESS: 5301 CALIFORNIA AVE, SUITE 100
CITY,STATE, ZIP: IRVINE, CA 92617
TEL: 949/701-4172
CONTACT: GREG WEBB E-MAIL: gwebb@lpadesignstudios.com

FOOD SERVICE

NAME: RICCA DESIGN STUDIOS
ADDRESS: 5613 DTC PARKWAY, SUITE 100
CITY,STATE, ZIP: GREENWOOD VILLAGE, CO 80111
TEL: 213/915-8783
CONTACT: JEREMY CARVER E-MAIL: jcarver@ricca.com
LAURA MUELLER lmueller@ricca.com

SUPPORT OF EXCAVATION

NAME: CEFALI & ASSOCIATES, INC.
ADDRESS: 4344 LAUREL CANYON BLVD, SUITE 3
CITY,STATE, ZIP: STUDIO CITY, CA 91604
TEL: (818)752-1812
CONTACT: DAVID CEFALI E-MAIL: engineering@cefali.com

WASTEWATER DESIGN

NAME: ENSITU ENGINEERING, INC.
ADDRESS: 7475 CARMELITA AVE.
CITY,STATE, ZIP: ATASCADERO, CA 93422
TEL: (805)772-0150
CONTACT: JOHN YAROSLASKI E-MAIL: ensitu@ensitu.com

STATEMENT OF GENERAL CONFORMANCE

Application No.: 03-125562

File No.: 19-H24

The drawings identified as follows:

☒ All drawing sheets included in this set not bearing my stamp and signature.
☐ Drawing sheets denoted in the sheet index as follows: _____
☐ Drawing sheets included under the following PC approval(s): _____

have been prepared by other design professionals or consultants who are licensed and authorized to prepare such drawings (plans) in this state. They have been examined by me for:

1) Design intent and appear to meet the appropriate requirements of Title 24, California Code of Regulations and the project specifications prepared by me, and
2) Coordination with my drawings (plans) and specifications and are acceptable for incorporation into the construction of this project.

Per Title 24, Part 1, Section 4-316(b): This Statement of General Conformance shall not be construed as relieving me of my rights, duties, and responsibilities under Sections 17302 and 81138 of the Education Code and Sections 4-336, 4-341 and 4-344 of Title 24, Part 1.

Signature 09/15/25 Date

RICHARD MUSTO C19639 12/31/2025
Printed Name License Number Expiration Date

LPA
ARCHITECTURE ENGINEERING INTERIOR DESIGN
LANDSCAPE ARCHITECTURE PLANNING
949-261-1001 Office
LPADesignStudios.com
5301 California Avenue, Suite 100
Irvine, California 92617

LICENSED ARCHITECT RICHARD MUSTO No. C19639 REN 12/31/2025 STATE OF CALIFORNIA

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MALIBU HIGH SCHOOL INCREMENT 02

30215 MORNING VIEW DR.,
MALIBU, CA 90265
APN: 4469-017-900

Developed for
SANTA MONICA - MALIBU UNIFIED SCHOOL DISTRICT

Revision	Date

Submittal	Date
SCHEMATIC DESIGN	09/04/2024
50% DESIGN DEVELOPMENT	12/13/2024
100% DESIGN DEVELOPMENT	02/21/2025
DSA SUBMITTAL	05/16/2025
50% CONSTRUCTION DOCS	06/27/2025
DSA SUBMITTAL	09/09/2025

Job Number	31722
Checked By	Checker
Scale	As indicated

GENERAL PROJECT INFORMATION

2-G0.21

SYMBOLS

COLUMN LINES

SURFACE DRAINAGE ARROW INDICATES DIRECTION OF FLOW

NORTH ARROW

TRUE NORTH PROJECT NORTH

BUILDING SECTION
SECTION ID
SHEET NUMBER

WALL SECTION
SECTION ID
SHEET NUMBER

DETAIL CALLOUTS
DETAIL ID
SHEET NUMBER

DETAIL SECTION
DETAIL ID
SHEET NUMBER

DETAIL REFERENCE
DETAIL ID
SHEET NUMBER

INTERIOR ELEVATIONS
DETAIL ID
SHEET NUMBER

ROOM DESIGNATION
ROOM NUMBER
ROOM AREA

REVISION CLOUD & TAG (OPTIONAL)

SHADED PORTION POINTS TO SIDE REFERENCED

MATCH LINE
SEE SHEET A101

DATUM POINT

KEYNOTE

WALL TYPE

DOOR DESIGNATION

OPENING DESIGNATION

EQUIPMENT TAG

FINISH TAG

LEVEL LINE, CONTROL POINT
EL: 12'-8" = ELEVATION/SECTION

STAIR DIRECTION

CENTER LINES, LEVEL LINES

HIDDEN CONSTRUCTION FEATURE

BREAK LINE

EXTERIOR ASSEMBLY
REFER TO A8.11

ABBREVIATIONS

&	AND	ID	INSIDE DIAMETER
∠	ANGLE	INSUL	INSULATION
@	AT	INT	INTERIOR
℄	CENTERLINE		
∅	DIAMETER OR ROUND	JAN	JANITOR
#	POUND OR NUMBER	JT	JOINT
(E)	EXISTING		
(P)	PAINT	KIT	KITCHEN
(R)	REMOVE		
+/-	DIM TOLERANCE	LAB	LABORATORY
		LAM	LAMINATE
AC	ASPHALTIC CONCRETE	LAND ARCH	LANDSCAPE ARCHITECT
ACC	ACCESSIBLE	LAV	LAVATORY
ACOUS	ACOUSTICAL	LKR	LOCKER
ACM	ALUM COMPOSITE MATERIAL	LT	LIGHT
ACT	ACOUS CLG TILE		
AD	AREA DRAIN	MATL	MATERIAL
AED	AUTO EXT DEFIBRILLATOR	MAX	MAXIMUM
ADJ	ADJUSTABLE	MC	MEDICINE CABINET
AFF	ABOVE FINISH FLOOR	MECH	MECHANICAL
AGGR	AGGREGATE	MEMB	MEMBRANE
AHJ	AUTHORITY HAVING JURISDICTION	MET	METAL
		MFR	MANUFACTURER
ALUM	ALUMINUM	MH	MANHOLE
APPROX	APPROXIMATE	MIN	MINIMUM
ARCH	ARCHITECTURAL	MIR	MIRROR
ASF	ASSIGNABLE SF	MISC	MISCELLANEOUS
ASPH	ASPHALT	MO	MASONRY OPENING
		MTD	MOUNTED
BD	BOARD	MUL	MULLION
BITUM	BITUMINOUS		
BLDG	BUILDING	N	NORTH
BLK	BLOCK	NIC	NOT IN CONTRACT
BLK'G	BLOCKING	NO/#	NUMBER
BM	BEAM	NOM	NOMINAL
BOC	BACK OF CURB	NTS	NOT TO SCALE
BOT	BOTTOM		
BO	BOTTOM OF	OA	OVERALL
BOC	BACK OF CURB	OA	OUTSIDE AIR
BOW	BOTTOM OF WALL	OBS	OBSCURE
BS	BOTTOM OF SLOPE	OC	ON CENTER
		OD	OUTSIDE DIAMETER
CAB	CABINET	OFF	OFFICE
CB	CATCH BASIN	OPNG	OPENING
CEM	CEMENT	OPP	OPPOSITE
CER	CERAMIC	OSA	OUTSIDE AIR
CI	CAST IRON	PA	PLANTING AREA
CIP	CAST IN PLACE	PRCST	PRECAST
CIV ENG	CIVIL ENGINEER	PH	PANIC HARDWARE
CG	CORNER GUARD	PL	PLATE
CJ	CONTROL JOINT	P LAM	PLASTIC LAMINATE
CLG	CEILING	PLAS	PLASTER
CLKG	CAULKING	PLYWD	PLYWOOD
CLO	CLOSET	POT	PATH OF TRAVEL
CLR	CLEAR	PR	PAIR
CNTR	COUNTER	PT	PAINT
CO	CASED OPENING	PTD	PAPER TOWEL DISPENSER
COL	COLUMN		
CONC	CONCRETE	PTD/R	COMBINATION PAPER TOWEL DISPENSER & RECEPTACLE
CONN	CONNECTION		
CONSTR	CONSTRUCTION		
CONT	CONTINUOUS	PTN	PARTITION
CORR	CORRIDOR	PTR	PAPER TOWEL RECEPTACLE
CT	CERAMIC TILE		
CTR	CENTER		
CTSK	COUNTERSUNK	QT	QUARRY TILE
DA	DISABLED ACCESS	R	RISER
DBL	DOUBLE	RAD	RADIUS
DEPT.	DEPARTMENT	RD	ROOF DRAIN
DESC	DESCRIPTION	REF	REFERENCE
DF	DRINKING FOUNTAIN	REFR	REFRIGERATOR
DET	DETAIL	RGTR	REGISTER
DIA	DIAMETER	REINF	REINFORCED
DIM	DIMENSION	REQD	REQUIRED
DISP	DISPENSER	RESIL	RESILIENT
DN	DOWN	RM	ROOM
DO	DOOR OPENING	RO	ROUGH OPENING
DR	DOOR	ROW	RIGHT OF WAY
DWR	DRAWER	RWD	REDWOOD
DS	DOWNSPOUT	RWL	RAIN WATER LEADER
DSP	DRY STANDPIPE		
DWG	DRAWING	S	SOUTH
		SC	SOLID CORE
E	EAST	SCD	SEAT COVER DISPENSER
EA	EACH		
EJ	EXPANSION JOINT	SCHED	SCHEDULE
EL	ELEVATION	SD	SOAP DISPENSER
ELEC	ELECTRICAL	SECT	SECTION
ELEV	ELEVATOR	SF	SQUARE FEET
EMER	EMERGENCY	SH	SHELF
ENCL	ENCLOSURE	SHR	SHOWER
EP	ELECTRICAL PANELBOARD	SHT	SHEET
EQ	EQUAL	SIM	SIMILAR
EQUIP	EQUIPMENT	SND	SANITARY NAPKIN DISPENSER
EWC	ELECTRIC WATER COOLER		
EXIST	EXISTING	SNR	SANITARY NAPKIN RECEPTACLE
EXPO	EXPOSED		
EXP	EXPANSION	SPEC	SPECIFICATION(S)
EXT	EXTERIOR	SQ	SQUARE
		SS	STAINLESS STEEL
FA	FIRE ALARM	S SK	SERVICE SINK
FB	FLAT BAR	STA	STATION
FD	FLOOR DRAIN	STD	STANDARD
FDN	FOUNDATION	STL	STEEL
FE	FIRE EXTINGUISHER	STOR	STORAGE
FEC	FIRE EXTINGUISHER CABINET	STR	STRUCTURAL
		SUSP	SUSPENDED
FHC	FIRE HOSE CABINET	SYM	SYMMETRICAL
FIN	FINISH		
FLR	FLOOR	T	TREAD
FLASH	FLASHING	TB	TOWEL BAR
FLUOR	FLUORESCENT	TC	TOP OF CURB
FOC	FACE OF CONCRETE	TEL	TELEPHONE
FOF	FACE OF FINISH	TER	TERRAZZO
FOM	FACE OF MASONRY	T&G	TONGUE & GROOVE
FOS	FACE OF STUD	THK	THICK
FOV	FACE OF VENEER (BRICK OR PRECAST)	TOB	TOP OF BEAM
		TOC	TOP OF CONCRETE
FOW	FACE OF WALL	TOW	TOP OF WALL
FR	FIRE RETARDANT	TOP	TOP OF PARAPET
FPRF	FIREPROOF	TPD	TOILET PAPER DISPENSER
FS	FINISH SURFACE		
FT	FOOT OR FEET	TS	TOP OF SLOPE
FTG	FOOTING	TV	TELEVISION
FURR	FURRING	TYP	TYPICAL
FUT	FUTURE		
		UNF	UNFINISHED
GA	GAUGE	UNO	UNLESS NOTED OTHERWISE
GALV	GALVANIZED		
GB	GRAB BAR	UR	URINAL
GC	GENERAL CONTRACTOR		
GI	GALVANIZED IRON	VCT	VINYL COMPOSITION TILE
GL	GLASS		
GND	GROUND	VERT	VERTICAL
GR	GRADE	VEST	VESTIBULE
GYP	GYPSUM		
		W	WEST
HB	HOSE BIB	W/	WITH
HC	HOLLOW CORE	WC	WATER CLOSET
HDWD	HARDWOOD	WD	WOOD
HDW	HARDWARE	W/O	WITHOUT
HM	HOLLOW METAL	WP	WATERPROOF
HORIZ	HORIZONTAL	WR	WATER RESISTANT
HR	HOUR	WSCT	WAINSCOT
HGT/HT	HEIGHT	WT	WEIGHT
		WWF	WELDED WIRE FABRIC

FAR TABLE 1 UPDATE

SITE	ACRES	(E) BUILDING(S) AREA	(E) FAR	(N) BLDG AREA	(N) TOTAL BLDG(S) AREA	(N) FAR
EXISTING MERGED SITE (W/ JCES)	49.46	203,734 SF	0.095	N/A	N/A	N/A
PHASE 0: DEMO JCES (36,544 SF)	49.46	167,190 SF	0.074	N/A	N/A	N/A
PHASE 1 + REMAINING EXISTING SITE	49.46	229,449 SF	0.101	N/A	N/A	N/A
PHASE 2 + REMAINING EXISTING SITE	49.46	204,765 SF*	N/A	28,487 SF	233,252 SF	0.108
MAXIMUM ALLOWABLE FAR			**0.150**			**0.150**

* INCLUDES PREVIOUS PHASE TOTAL SF MINUS DEMOLITION REQUIRED FOR THIS PHASE

229,449 SF - 24,684 SF** = 204,765 SF

** SEE "PH 2 DEMO" UNDER PROPOSED PH2 COMPONENTS HEADING

EXISTING + PHASE 1 PARKING

EXISTING PARKING LOT	EXISTING SPACES	PROPOSED CHANGES	PARKING PHASE 2
150-SPACE PARKING LOT (E)	150	REMAINS	150
LOWER PARKING LOT (D)	59	REMAINS	59
STUDENT PARKING LOT A	119	REMAINS	119
SERVICE LOTS	7	REMOVED	0
PARKING LOT D (PH1 HS)	61	REMAINS	61
		PARKING LOT D	61
TOTAL PROVIDED	**396**		**389**
TOTAL REQUIRED PER LIP			324
		SURPLUS:	65

PARKING REQUIRED (MALIBU LIP)

BUILDING	PROPOSED CHANGES	CLASSROOM / LAB / TEACHING STATION	PARKING PHASE 2
EXISTING HIGH SCHOOL			
BUILDING C (PH1 HS BUILDING)	REMAINS	31	217
BUILDING F (300 BLDG): MUSIC BUILDING	REMAINS	3	21
BUILDING H (600 BLDG): CAFETORIUM	REMAINS	2	14
BUILDING I (400 BLDG): GRAPHIC ARTS	REMOVED	0	0
BUILDING J (700 BLDG): GYMNASIUM	REMAINS	2	14
BUILDING J1 GYMNASIUM	REMAINS	0	0
BUILDING K: CLASSROOM BUILDING/VACANT	REMOVED	0	0
EXISTING CLASSROOM PORTABLES- (2) IN USE, REMAINGING VACANT	REMOVED	0	0
SUBTOTAL - HIGH SCHOOL		38	266
EXISTING MIDDLE SCHOOL			
BUILDING A/B: ADMIN/LIBRARY	REMAINS	11	22
BUILDING E: CLASSROOM BUILDING	REMAINS	15	30
MIDDLE SCHOOL (N) CONSTRUCTION			
BUILDING D (NEW MS HUB BUILDING)		1	2
BUILDING D1 (NEW MS GYM BUILDING)		0	0
SUBTOTAL - MIDDLE SCHOOL		27	54
TOTAL		**65**	**320**

PROPOSED PH 2 COMPONENTNS AND SPECIFIC PLAN QUANTITIES

PH 2 NEW CONSTRUCTION	PROPOSED AREA	SPECIFIC PLAN AREA (TABLE 10)	PROPOSED HEIGHT	SPECIFIC PLAN MAXIMUM HEIGHT
PH 2 NEW GYMNASIUM/FITNESS BUILDING (BUILDING D1)	18,911 SF	22,376 SF	36 FT	36 FT
PH 2 NEW MIDDLE SCHOOL HUB STUDENT ACTIVITIES AND FOOD SERVICES (BUILDING D)	9,243 SF		17 FT (BUILDING) 22 FT 8 IN (CANOPY)	28 FT
PH 2 NEW MDF BUILDING	333 SF			
PH2 BUILDING TOTAL	28,487 SF	22,376 SF		

PH 2 DEMO	AREA	SPECIFIC PLAN AREA (TABLE 3)	REMARKS
(E) 8 PORTABLE BUILDINGS	7,200 SF	7,200 SF	1 RR @ 480 SF, 7 CLASSROOMS @ 960 SF PORTABLES G1, G2, G3, G4, 511, 512, 513 AND RR BUILDING
(E) MDF BUILDING	225 SF		
(E) BUILDING K	12,698 SF	12,698 SF	
(E) BUILDING I	4,561 SF	4,561 SF	
PH 2 DEMO TOTAL	24,684 SF	24,459 SF	

EARTHWORK (FOR CDP USE ONLY)	PROPOSED	SPECIFIC PLAN (TABLE 11)	REMARKS
APPROXIMATE CUT	8,140 CY	5,175 CY	
APPROXIMATE FILL	4,303 CY	-	
NET (EXPORT) / PROJECT PHASE TOTAL	3,827 CY*	5,175 CY	

NOTE:
1. EARTHWORK QUANTITIES INDICATED ARE FOR REFERENCE ONLY (NOT FOR BID OR PAYMENT). THE CONTRACTOR IS RESPONSIBLE FOR ACTUAL QUANTITIES
* NET EXPORT = SOIL LEAVING THE SITE, AS DEFINED BY THE CITY OF MALIBU TOTAL GRADING YARDAGE VERIFICATION CERTIFICATE. PROPOSED QUANTITY NOTED ABOVE DOES NOT EXCEED THE PH.2 QUANTITY LISTED IN THE SPECIFIC PLAN.

OTHER PH2 COMPONENTS:

1. CONSTRUCTION OF FIRE LANE FOR NEW BUILDING ACCESS
   A. REFER TO SHEETS 2-G1.10 AND 2-G1.11.
1. WASTEWATER SYSTEM FOR PH. 2 BUILDINGS AND EXISTING CAMPUS BUILDING TIE-IN TO THE PH.1 SYSTEM
   A. REFER TO PW SHEETS
1. NEW SOLAR FARM
   A. REFER TO "SCHNEIDER ELECTRIC ENERGY SERVICES PROJECT" DRAWINGS.
1. ACCESSIBLE STUDENT DROP-OFF IMPROVEMENTS
   A. REFER TO SHEETS G1.20 AND C2.01.
2. ASSOCIATED GRADING AND UNDERGROUND UTILITY WORK AND SITE IMPROVEMENTS.

LPA
ARCHITECTURE ENGINEERING INTERIOR DESIGN
LANDSCAPE ARCHITECTURE PLANNING
949-261-1001 Office
LPADesignStudios.com
5301 California Avenue, Suite 100
Irvine, California 92617

LICENSED ARCHITECT RICHARD MILVO No. C16639 REN 12/31/2025 STATE OF CALIFORNIA

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MALIBU HIGH SCHOOL INCREMENT 02

30215 MORNING VIEW DR.,
MALIBU, CA 90265
APN: 4469-017-900

Developed for
SANTA MONICA - MALIBU UNIFIED SCHOOL DISTRICT

Revision	Date

Submittal	Date
SCHEMATIC DESIGN	09/04/2024
50% DESIGN DEVELOPMENT	12/13/2024
100% DESIGN DEVELOPMENT	02/21/2025
CDP SUBMITTAL	06/27/2025
50% CONSTRUCTION DOCS	06/27/2025
DSA SUBMITTAL	09/08/2025

Job Number	31722
Checked By	Checker
Scale	1/8" = 1'-0"

GENERAL PROJECT INFORMATION

2-G0.22

GENERAL NOTES

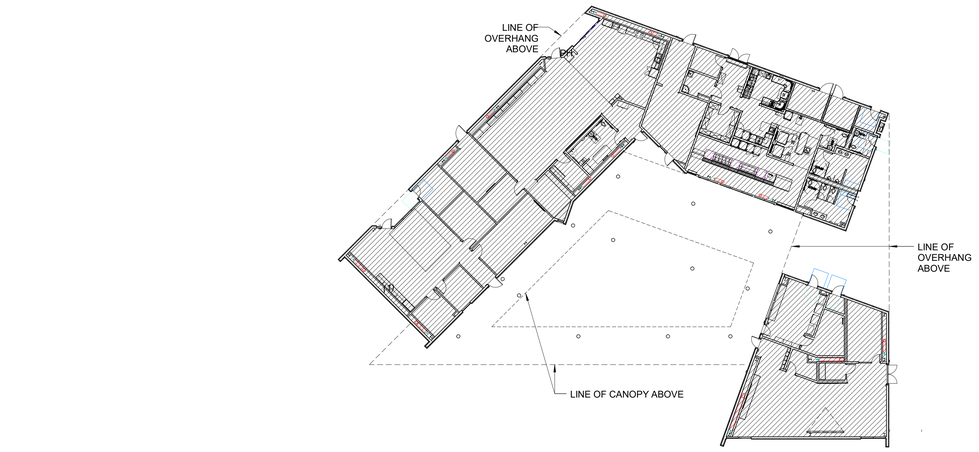
1. GROSS AREA MEASURED FROM THE INTERIOR FACE OF EXTERIOR WALLS, OR FROM THE CENTERLINE OF A WALL SEPARATING TWO BUILDINGS, BUT NOT INCLUDING INTERIOR PARKING SPACES, LOADING SPACE FOR MOTOR VEHICLES, VEHICULAR MANEUVERING AREAS, OR ANY SPACE WHERE THE FLOOR-TO-CEILING HEIGHT IS LESS THAN SIX FEET (PER CITY OF MALIBU LIP).

LEGEND

CALCULATED GROSS AREA

GROSS AREA TOTALS

PH 2 MIDDLE SCHOOL HUB STUDENT ACTIVITIES AND FOOD SERVICES (BUILDING D):	9,243 SF
PH 2 NEW GYMNASIUM / FITNESSS BUILDING (BUILDING D1):	
LOWER LEVEL:	17,665 SF
UPPER LEVEL:	1,246 SF
PH 2 NEW MDF BUILDING:	333 SF
TOTAL:	**28,487 SF**



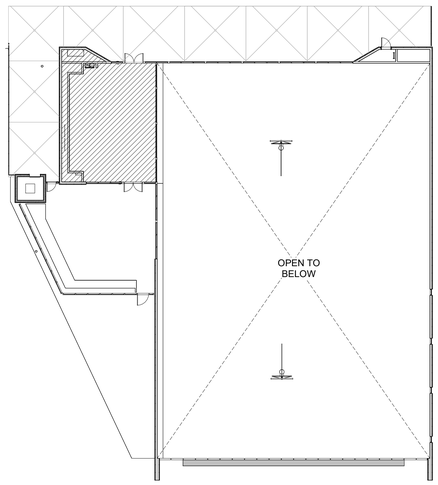


GSF: 333 SF

MDF GROSS FLOOR AREA 1" = 20'-0" 15

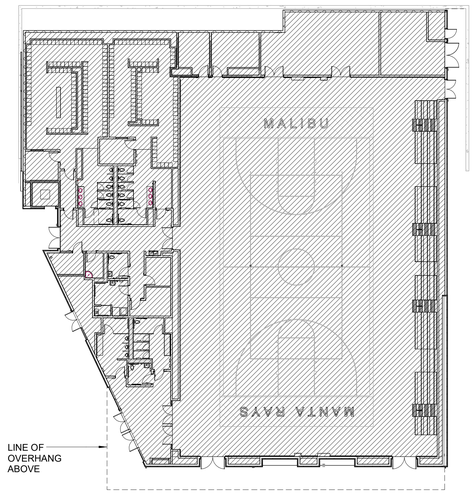
GSF: 9,243 SF

MS HUB GROSS FLOOR AREA 1" = 20'-0" 07



GSF: 1,246 SF

GYM UPPER LEVEL GROSS FLOOR AREA 1" = 20'-0" 13



GSF: 17,665 SF

GYM LOWER LEVEL GROSS FLOOR AREA 1" = 20'-0" 05

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ARCHITECTURE ENGINEERING INTERIOR DESIGN
LANDSCAPE ARCHITECTURE PLANNING
949-261-1001 Office
LPADesignStudios.com
5301 California Avenue, Suite 100
Irvine, California 92617

LICENSED ARCHITECT RICHARD MISYO No. C-10639 REN 12/31/2025 STATE OF CALIFORNIA

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MALIBU HIGH SCHOOL INCREMENT 02

30215 Morning View Dr.,
Malibu, CA 90265
APN: 4469-017-900

Developed for
SANTA MONICA - MALIBU UNIFIED SCHOOL DISTRICT

Revision	Date
Submittal	Date
SCHEMATIC DESIGN	09/04/2024

Job Number	31722
Checked By	Checker
Scale	As indicated

PH 2
BUILDING
AREAS

2-G0.31

LEGEND

- EXISTING BUILDING
- PROPOSED BUILDING
- EXISTING FIRE LANE
- (N) FIRE LANE
- FIRE HYDRANT
- X'-XX" HOSE PULL LENGTH



SITE FIRE ACCESS PLAN | 1" = 60'-0" | 2-G1.10 | 05

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No. C16639
REN 12/31/2025
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50% CONSTRUCTION DOCS	06/27/2025
DSA SUBMITTAL	09/08/2025

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Scale	As indicated

SITE FIRE ACCESS PLAN

2-G1.10

DSA 810

FIRE & LIFE SAFETY SITE CONDITIONS SUBMITTAL

Division of the State Architect (DSA) documents referenced within this publication are available on the DSA Forms or DSA Publications webpages.

To facilitate the Division of the State Architect's (DSA) fire and life safety plan review of project site conditions, DSA requires the design professional to provide the following information at time of project submittal for projects consisting of construction of a new campus, construction of new building(s), additions to existing buildings, and for site alternate design means for fire department emergency vehicle access, and fire suppression water supply.

Information associated with compliance items 1 through 3 below is to be provided for all project types indicated above. Information associated with items 4 through 7 is to be completed when an alternate means is utilized. Acknowledgement by the school district and signature from the Local Fire Authority (LFA) is only required when an alternate design means is being requested.

The Project Information and Fire & Life Safety Information sections are to be completed for all projects and imaged onto the fire access site plan. When an alternate design/means is proposed, all sections on pages 1 and 2 are to be completed and imaged on the fire access site plan.

For additional information refer to the instructions at the end of this form and DSA Policy *PL 09-01: Fire Flow for Buildings.*

PROJECT INFORMATION	
School District/Owner:	SANTA MONICA-MALIBU UNIFIED SCHOOL DISTRICT
Project Name/School:	Malibu MS/HS PH2: Hub and Gym
Project Address:	30215 Morning View Dr, Malibu, CA 90265

FIRE & LIFE SAFETY INFORMATION				
1.	Has a fire hydrant flow test been performed within the past 12 months? *(If yes, provide a copy of the test data.)*	Yes ☑		No ☐
2.	Was the fire hydrant water flow test performed as part of this LFA review?	Yes ☑		No ☐
3.	Is the project located within a designated fire hazard severity zone (FHSZ) as established by Cal-Fire? *(If yes, indicate FHSZ classification below.)*	Yes ☑		No ☐
	Refer to the following website for FHSZ locations: Fire Hazard Severity Zones in State Responsibility Area	Moderate ☐	High ☐	Very High ☑
	Wildland Interface Area (WIFA) *(If any designations are checked, project design must meet the requirements of CBC Chapter 7A.)*			WIFA ☑

CONDITION MEANS AND METHODS RESOLUTION		ALTERNATE ACCEPTED			
		Yes	No	N/A	N/R
4.	Emergency vehicle access roadways do not meet CFC requirements.				
4a.	**Acceptable Alternate:** Emergency vehicle and personnel access as proposed by the project architect is acceptable for providing fire suppression and protection of life and property.				
5.	**Fire Hydrants:** Number and spacing does not meet CFC requirements.				
5a.	**Acceptable Alternate:** Number of fire hydrants and spacing as proposed by the project architect is acceptable for fire suppression and protection of life and property.				
6.	**Fire Hydrants:** Water flow and pressure are less than CFC minimum.				
6a.	**Acceptable Alternate:** The available flow and pressure is acceptable for providing fire suppression and protection of life and property.				
7.	Location of fire department connection(s) serving fire sprinkler systems or standpipe systems does not meet CFC requirements.				
7a.	**Acceptable Alternate:** The location of fire department connection serving the fire sprinkler system and/or standpipe system is acceptable for providing fire suppression and protection of life and property.				

School District Acceptance of Acceptable Design Alternates

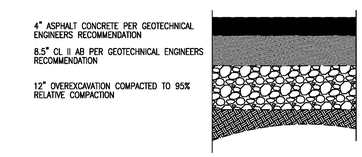
By signing this form, the school district acknowledges and accepts the proposed design as an alternative to California Building Code (CBC) and California Fire Code (CFC) minimum requirements, as indicated by one or more of the conditions indicated at items 4a, 5a, 6a or 7a, for providing fire and life safety protection of life and property.

Accepted by: CAREY UPTON Title: CHIEF OPERATIONS OFFICER

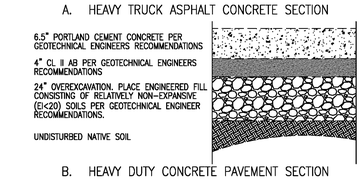
Signature: Date: 7/24/25

LOCAL FIRE AUTHORITY (LFA) INFORMATION	
LFA Agency Name:	
LFA Review Official:	
Title:	Work Phone:
Work Email:	

LFA Reviewer's Signature: Date:



A. HEAVY TRUCK ASPHALT CONCRETE SECTION

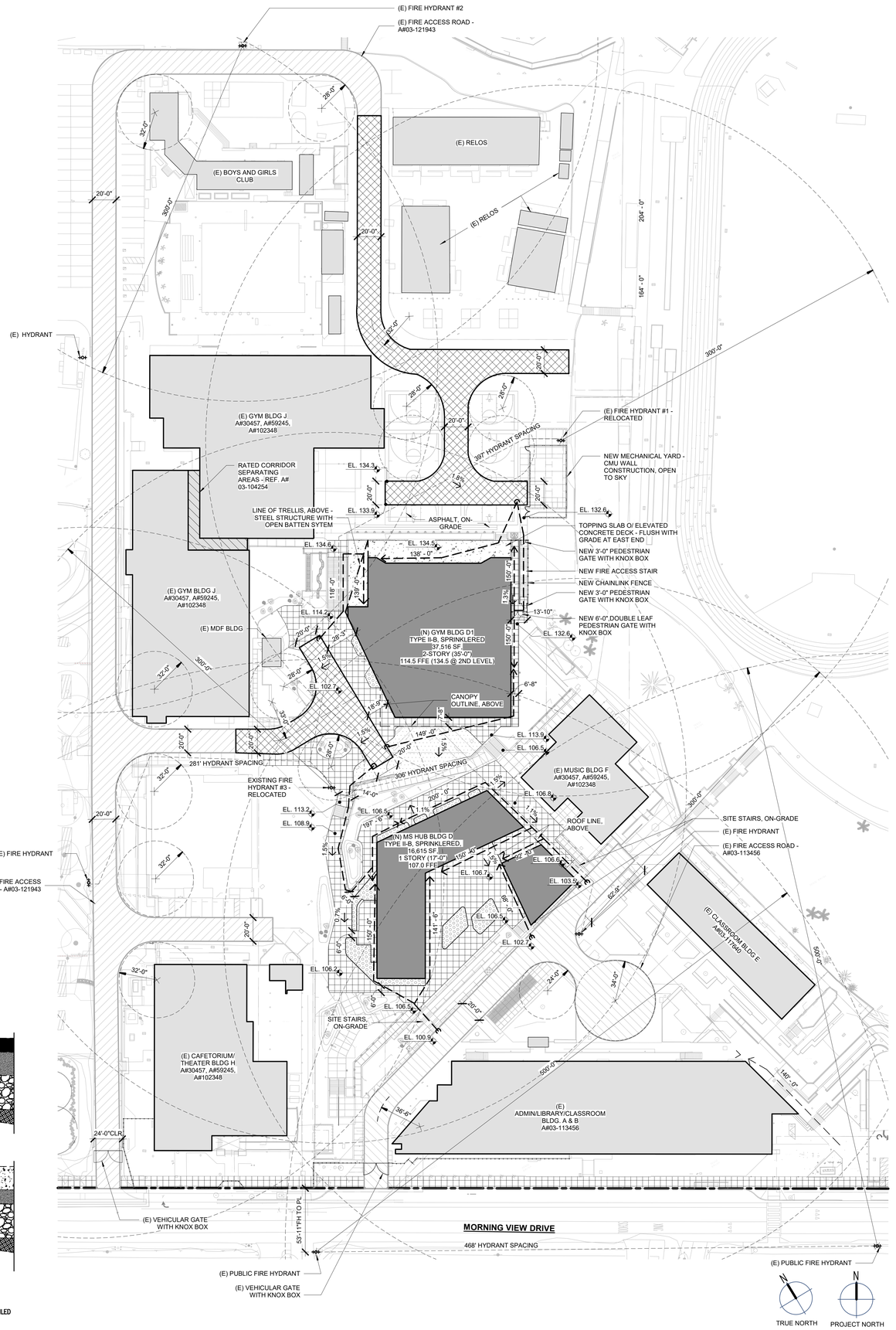


B. HEAVY DUTY CONCRETE PAVEMENT SECTION

NOTES:

1. REFER TO GEOTECHNICAL EXPLORATION REPORT BY LEIGHTON A VERANDAS COMPANY DATED OCTOBER 16, 2024 & REVISED MAY 23, 2025 FOR DETAILED DESIGN RECOMMENDATIONS
2. SEE LANDSCAPE CONSTRUCTION PLANS FOR CONCRETE TYPES AND JOINT LOCATIONS.

FIRE LANE PAVEMENT DETAILS | NTS | 17



SITE FIRE ACCESS PLAN - ENLARGED | 1" = 40'-0" 2-G1.11 | 05

LEGEND

- PROPERTY LINE
- EXISTING BUILDING
- (N) BUILDING
- EXISTING FIRE LANE
- (N) FIRE LANE PER 17/G1.11; REF: CIVIL DWGS FOR EXTENT OF AC AND CONCRETE
- CONCRETE PAVING
- PLANTING AREAS, ON-GRADE
- CONCRETE DECK TOPPING SLAB
- ARTIFICIAL TURF
- FIRE HYDRANT
- X'-XX" HOSE PULL LENGTH

FIRE FLOW & HYDRANT REQUIREMENTS

2022 CALIFORNIA FIRE CODE, APPENDIX BB105.1 (FIRE FLOW REQUIREMENTS FOR BUILDINGS) & APPENDIX CC, TABLE CC105.1 (NUMBER AND DISTRIBUTION OF FIRE HYDRANTS)

MS HUB (BUILDING D):
(TYPE II-B, 1 STORY, 16,615 SF, FULLY SPRINKLERED)
FIRE FLOW PER TABLE BB105.1: 2,000 GPM FOR 2 HR DURATION

REDUCTION IN REQUIRED FIRE-FLOW UP TO 75%, WITH A MINIMUM FIRE-FLOW RATE OF 1,500 GPM, FOR THE PRESCRIBED DURATION IN TABLE BB105.1 PER 2022 CFC SECTION BB105.1 & DSA POLICY PL 09-01

REDUCED BY 75% FOR APPROVED AUTOMATIC FIRE SPRINKLER SYSTEM.
REQUIRED FIRE FLOW: 2,750 X 25% = 688 GPM < 1,500 GPM CODE REQUIRED MINIMUM

MIN REQUIRED FLOW = 1,500 GPM
1,500 GPM FOR 2 HR DURATION @ 20 PSI

REQUIRED HYDRANTS (CC105.1):
1 HYDRANTS REQUIRED AT 500 FT SPACING, 250 FT MAX. DISTANCE FROM ANY POINT ON THE STREET OR ROAD FRONTAGE TO A HYDRANT.

GYM (BUILDING D1):
(TYPE II-B, 2 STORY, 37,516 SF, FULLY SPRINKLERED)
FIRE FLOW PER TABLE BB105.1: 2,000 GPM FOR 2 HR DURATION

REDUCTION IN REQUIRED FIRE-FLOW UP TO 75%, WITH A MINIMUM FIRE-FLOW RATE OF 1,500 GPM, FOR THE PRESCRIBED DURATION IN TABLE BB105.1 PER 2022 CFC SECTION BB105.1 & DSA POLICY PL 09-01

REDUCED BY 75% FOR APPROVED AUTOMATIC FIRE SPRINKLER SYSTEM.
REQUIRED FIRE FLOW: 4,000 X 25% = 1,000 GPM < 1,500 GPM CODE REQUIRED MINIMUM

MIN REQUIRED FLOW = 1,500 GPM
1,500 GPM FOR 2 HR DURATION @ 20 PSI

REQUIRED HYDRANTS (CC105.1):
1 HYDRANTS REQUIRED AT 500 FT SPACING, 250 FT MAX. DISTANCE FROM ANY POINT ON THE STREET OR ROAD FRONTAGE TO A HYDRANT

FIRE FLOW TEST RESULTS - ON-SITE HYDRANTS

(E) HYDRANT #1:
STATIC PRESSURE: 70 PSI
RESIDUAL PRESSURE: 47 PSI
OBSERVED FLOW: 1,110 GPM
FLOW CALCULATED AT 20 PSI (RES): 1,688 GPM

(E) HYDRANT #2:
STATIC PRESSURE: 73 PSI
RESIDUAL PRESSURE: 49 PSI
OBSERVED FLOW: 1,060 GPM
FLOW CALCULATED AT 20 PSI (RES): 1,626 GPM

(E) HYDRANT #3:
STATIC PRESSURE: 90 PSI
RESIDUAL PRESSURE: 75 PSI
OBSERVED FLOW: 1,320 GPM
FLOW CALCULATED AT 20 PSI (RES): 3,033 GPM

FIRE ACCESS NOTES

1. PROVIDE APPROVED SIGNS OR OTHER APPROVED NOTICES OR MARKINGS THAT INCLUDE THE WORDS "NO PARKING - FIRE LANE." SIGNS SHALL HAVE A MINIMUM DIMENSION OF 12 INCHES WIDE BY 18 INCHES HIGH AND HAVE RED LETTERS ON A WHITE REFLECTIVE BACKGROUND. SIGNS SHALL BE PROVIDED FOR FIRE APPARATUS ACCESS ROADS, TO CLEARLY INDICATE THE ENTRANCE TO SUCH ROAD, OR PROHIBIT THE OBSTRUCTION THEREOF AND AT INTERVALS, AS REQUIRED BY THE FIRE INSPECTOR. FIRE CODE 503.3.
2. WHEN SECURITY GATES ARE PROVIDED, MAINTAIN A MINIMUM ACCESS WIDTH OF 20 FEET. THE SECURITY GATE SHALL BE PROVIDED WITH AN APPROVED MEANS OF EMERGENCY OPERATION AND SHALL BE MAINTAINED OPERATIONAL AT ALL TIMES AND REPLACED OR REPAIRED WHEN DEFECTIVE. ELECTRIC GATE OPERATORS, WHERE PROVIDED, SHALL BE LISTED IN ACCORDANCE WITH UL 325. GATES INTENDED FOR AUTOMATIC OPERATION SHALL BE DESIGNED, CONSTRUCTED, AND INSTALLED TO COMPLY WITH THE REQUIREMENTS OF ASTM F2200. GATES SHALL BE OF THE SWINGING OR SLIDING TYPE. CONSTRUCTION OF GATES SHALL BE OF MATERIALS THAT ALLOW MANUAL OPERATION BT ONE PERSON. FIRE CODE 503.6.
3. APPROVED BUILDING ADDRESS NUMBERS, BUILDING NUMBERS, OR APPROVED BUILDING IDENTIFICATION SHALL BE PROVIDED AND MAINTAINED SO AS TO BE PLAINLY VISIBLE AND LEGIBLE FROM THE STREET FRONTING THE PROPERTY. THE NUMBERS SHALL CONTRAST WITH THEIR BACKGROUND, BE ARABIC NUMERALS OR ALPHABET LETTERS, AND BE A MINIMUM OF FOUR INCHES HIGH WITH A MINIMUM STROKE WIDTH OF 0.5 INCH. FIRE CODE 505.1.
4. FIRE APPARATUS ACCESS ROADS SHALL BE IDENTIFIED WITH APPROVED SIGNS. TEMPORARY SIGNS SHALL BE INSTALLED AT EACH STREET INTERSECTION WHEN CONSTRUCTION OF NEW ROADWAYS ALLOWS PASSAGE BY VEHICLES. SIGNS SHALL BE OF AN APPROVED SIZE, WEATHER RESISTANT AND BE MAINTAINED UNTIL REPLACED BY PERMANENT SIGNS. FIRE CODE 505.2.
5. AN APPROVED KEY BOX, LISTED IN ACCORDANCE WITH UL 1037 SHALL BE PROVIDED AS REQUIRED BY FIRE CODE 506. THE LOCATION OF EACH KEY BOX SHALL BE DETERMINED BY THE FIRE INSPECTOR.
6. WHEN ANY PORTION OF A PROPOSED STRUCTURE EXCEEDS THE ALLOWABLE DISTANCE FROM A PUBLIC FIRE HYDRANT, VIA FIRE APPARATUS ACCESS, ON-SITE HYDRANTS SHALL BE PROVIDED. THE SPACING DISTANCE BETWEEN ON-SITE HYDRANTS SHALL BE 300 TO 400 FEET. ALL ON-SITE FIRE HYDRANTS SHALL HAVE A MINIMUM FIRE-FLOW OF 1,250 GALLONS PER MINUTE AT 20 PSI FOR A DURATION OF 2 HOURS. IF MORE THAN ONE ON-SITE FIRE HYDRANT IS REQUIRED, THE FIRE FLOW SHALL BE LESSER OF EITHER THE REQUIRED FIRE FLOW OF THE BUILDING, OR 2,500 GALLONS PER MINUTE AT 20 PSI FOR A DURATION OF 2 HOURS. ALL ON-SITE HYDRANTS SHALL BE INSTALLED A MINIMUM OF 25 FEET FROM A STRUCTURE OF PROTECTED BY A 2-HOUR FIRE WALL, IN ACCORDANCE WITH APPENDIX TABLE B105.1. FIRE CODE C106.1
7. ALL FIRE HYDRANTS SHALL MEASURE 6" X 4" X 2-2/2", BRASS OR BRONZE, CONFORMING TO AMERICAN WATER WORKS ASSOCIATION STANDARD C503, OR APPROVED EQUAL.
8. REFERENCE SHEET 2-2-A2-6.11 FOR ADDITIONAL INFORMATION REGARDING SITE PEDESTRIAN GATES.

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30215 MORNING VIEW DR., MALIBU, CA 90265
APN: 4469-017-900
Developed for SANTA MONICA - MALIBU UNIFIED SCHOOL DISTRICT

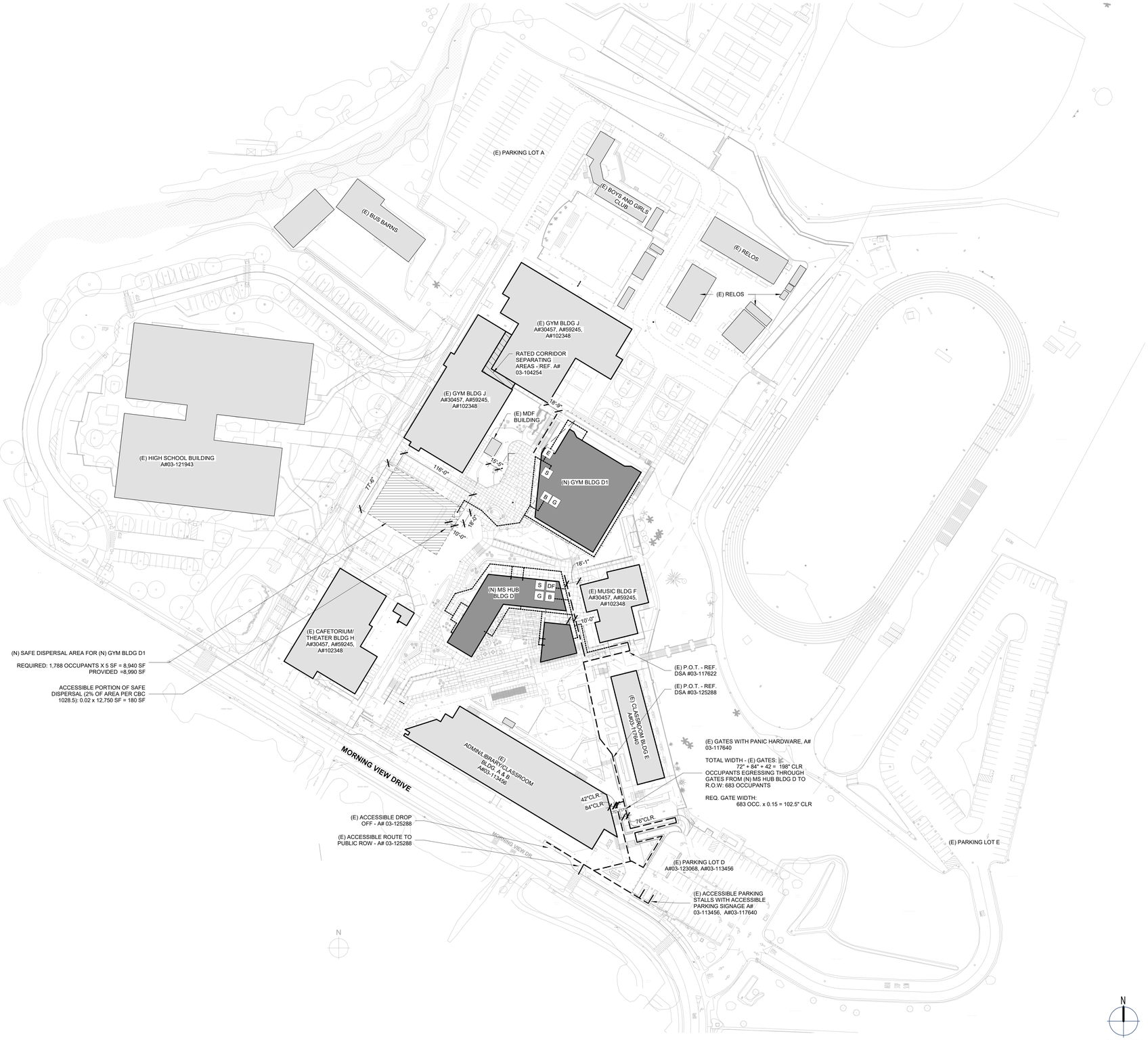
Revision	Date

Submittal	Date
SCHEMATIC DESIGN	08/04/2024
50% DESIGN DEVELOPMENT	12/13/2024
100% DESIGN DEVELOPMENT	02/21/2025
CDE SUBMITTAL	05/16/2025
50% CONSTRUCTION DOCS	06/27/2025
DSA SUBMITTAL	09/08/2025

Job Number	31722
Checked By	MP
Scale	As indicated

SITE FIRE ACCESS PLA - ENLARGED

2-G1.11



TRUE NORTH

SITE ACCESSIBILITY PLAN | 1" = 60'-0" (2-G1.20) | 05

LEGEND

- EXISTING BUILDING
- PROPOSED BUILDING
- (E) SAFE DISPERSAL AREA - REF. DSA A#117640
- (N) SAFE DISPERSAL AREA
- (N) ACCESSIBLE PORTION OF SAFE DISPERSAL AREA
- G B GN S — ACCESSIBLE RESTROOM
  - G - GIRLS
  - B - BOYS
  - GN - GENDER NEUTRAL
  - S - STAFF
- DF — ACCESSIBLE DRINKING FOUNTAIN
- E — ELEVATOR
- PROPERTY LINE
- ASSUMED PROPERTY LINE
- EXISTING PATH OF TRAVEL (P.O.T.) - REFERENCE DSA A# 03-117640
- PROPOSED PATH OF TRAVEL (P.O.T.)

PARKING CALCULATIONS

(E) PARKING LOT D
61 SPACES TOTAL
REQUIRED ACCESSIBLE SPACES: 3
PROVIDED ACCESSIBLE SPACES: 3 (INC. 1 VAN ACCESSIBLE)

GENERAL NOTES

P.O.T. AS INDICATED IS A BARRIER FREE ACCESS ROUTE WITHOUT ANY ABRUPT VERTICAL CHANGES EXCEEDING 1/2" BEVELED @ 1:2 MAXIMUM SLOPE, EXCEPT THAT LEVEL CHANGES DO NOT EXCEED 1/4" VERTICAL & IS AT LEAST 48" WIDE; SURFACE IS SLIP RESISTANT, STABLE, FIRM, & SMOOTH; CROSS-SLOPE DOES NOT EXCEED 2% & SLOPE IN THE DIRECTION OF TRAEL IS LESS THAN 5% UNLESS OTHERWISE INDICATED; P.O.T. SHALL REMAIN FREE OF OF OVERHANGING OBSTRUCTIONS TO 80" MINIMUM (11B-307.4); & PROTRUDING OBJECTS GREATER THAN 4" PROJECTION FROM WALL AND ABOVE 27" 7 LESS THAN 80" (11B-307.2). REFER TO CIVIL DWGS FOR COMPLIANCE DOCUMENTATION AND/OR AREAS REQUIRING REMEDIATION.

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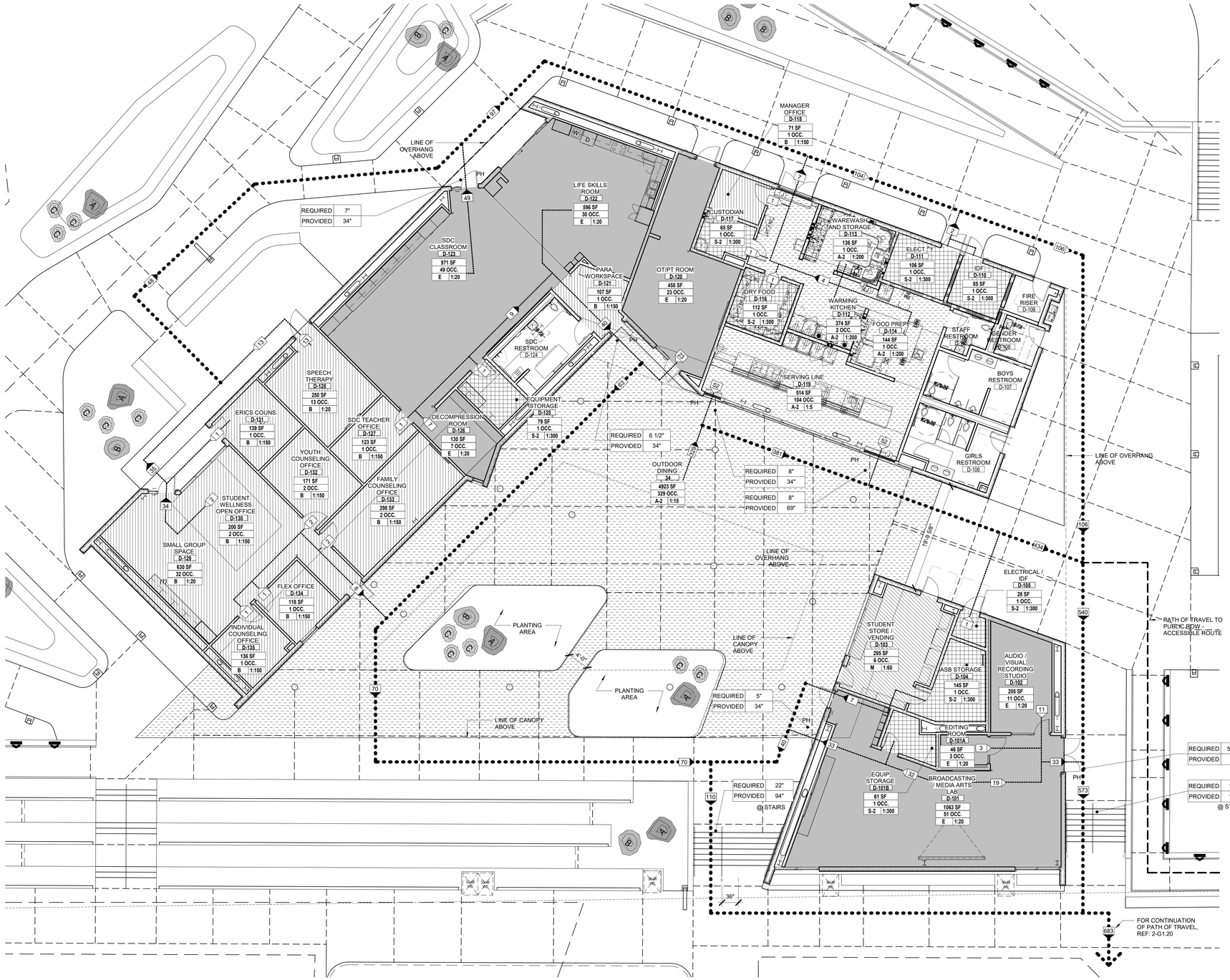
SITE ACCESSIBILITY PLAN

2-G1.20



MS HUB - FLOOR EGRESS | 1/8" = 1'-0" | 2-G2-1.11 | 05

LEGEND

Room Name ### — ROOM NUMBER
SF — SQUARE FOOTAGE
Occ-Load OCC. # 1:OLF — OCCUPANT LOAD / OCCUPANCY LOAD FACTOR
OCCUPANCY GROUP
1 HOUR FIRE BARRIER CONSTRUCTION IN ACCORDANCE WITH CBC SECTION 707
2 HOUR FIRE BARRIER CONSTRUCTION IN ACCORDANCE WITH CBC SECTION 707

REQUIRED 0" — EGRESS WIDTH REQUIRED
PROVIDED 0" — EGRESS WIDTH PROVIDED
* *OCCUPANT LOAD x 0.2" @ STAIRS*
OCCUPANT LOAD x 0.15" @ ALL OTHER EGRESS COMPONENTS

FE — FIRE EXTINGUISHER CABINET
PH — INDICATES PANIC HARDWARE REQUIRED
0 — INDIVIDUAL ROOM OCCUPANCY LOAD
0 — COMBINED ROOM OCCUPANCY LOAD
PATH OF TRAVEL/TRAVEL DISTANCE

A-2 OCCUPANCY
B OCCUPANCY
E OCCUPANCY
S-2 OCCUPANCY
UNOCCUPIED - AREA NOT INCLUDED IN EGRESS CALCULATION

CODE ANALYSIS

BUILDING CLASSIFICATION:

BUILDING NAME:	MS HUB
BUILDING USE:	CLASSROOMS, OFFICES, & ASSEMBLY
OCCUPANCY*:	A-2, B, E, & S-2 (NON-SEPARATED)
ACCESSORY OCCUPANCIES:	N/A

* *PER DSA IR 10-2, KITCHEN IS ACCESSORY TO A-2 OCCUPANCY*

CONSTRUCTION TYPE:	TYPE II-B
FIRE PROTECTION:	FULLY SPRINKLERED

BASIC ALLOWABLE AREA AND HEIGHT (CBC 504):

AREA PER STORY*:	38,000 SF
NUMBER OF STORIES*:	1
HEIGHT:	55 FT

PROPOSED BUILDING AREA AND HEIGHT:

OVERALL BUILDING AREA*:	16,615 SF < 38,000 - OK
ACTUAL BUILDING AREA:	9,952 SF
BUILDING OVERHANG AREA:	1,057 SF
CANOPY AREA:	5,606 SF
NUMBER OF STORIES:	1
HEIGHT:	22 FT < 55 FT - OK

* *OVERALL BUILDING AREA INCLUDES HORIZONTAL PROJECTIONS OF THE ROOF OR FLOOR ABOVE BUT EXCLUDE VENT SHAFTS AND COURTS (CBC 202).*

FIRE-RESISTANCE RATING REQ FOR BLDG ELEMENTS (CBC TABLE 601):

STRUCTURAL FRAME:	0 HOUR
EXTERIOR BEARING WALLS:	0 HOUR
INTERIOR BEARING WALLS:	0 HOUR
EXTERIOR NONBEARING WALLS:	REVER TO RATING REQ. BELOW
INTERIOR NONBEARING WALLS:	0 HOUR
FLOOR CONSTRUCTION:	0 HOUR
ROOF CONSTRUCTION:	0 HOUR**

** *FIRE PROTECTION OF MEMBERS OTHER THAN THE PRIMARY STRUCTURAL FRAME SHALL NOT BE REQ, INCLUDING PROTECTION OF THE ROOF FRAMING & DECKING WHERE EVERY PART OF CONSTRUCTION IS 20 FT OR MORE ABOVE ANY FLOOR IMMEDIATELY BELOW (CBC 601 EXCEPTION B)*

FIRE-RESISTANCE RATING REQ FOR EXTERIOR WALLS (CBC TABLE 705.5):

1-HOUR PROTECTION*:	X < 10
NO PROTECTION REQUIRED:	X ≥ 10

* *X REFERS TO FIRE SEPARATION DISTANCE*

MINIMUM NUMBER OF REQUIRED PLUMBING FIXTURES (CPC TABLE 4-1)

A-2 OCCUPANCY:	1,312 SF ** / 30	=	44 OCCUPANTS
B OCCUPANCY:	2,323 SF / 150	=	16 OCCUPANTS
E OCCUPANCY:	3,898 SF / 30	=	130 OCCUPANTS

TOTAL OCCUPANCY: 370 OCCUPANTS = 185 MALES, 185 FEMALES

REQUIRED FIXTURES

	WATER CLOSET	URINALS	LAVATORIES	DRINKING FOUNTAIN	SERVICE SINK
MEN	4	3	4	3	1
WOMEN	5	-	4		

**PER CPC 2022, TABLE 422.1, NOTE 3, THE TOTAL NUMBER OF REQUIRED WATER CLOSETS FOR FEMALES SHALL BE NOT LESS THAN THE TOTAL NUMBER OF REQUIRED WATER CLOSETS AND URINALS FOR MALES. THIS REQUIREMENT SHALL NOT APPLY WHEN SINGLE OCCUPANCY TOILET FACILITIES ARE PROVIDED FOR EACH SEX IN AN A OR E OCCUPANCY WITH AN OCCUPANT LOAD OF LESS THAN 50, EITHER THE REQUIRED URINAL SHALL BE PERMITTED TO BE OMITTED, OR IF INSTALLED, THE URINAL SHALL NOT REQUIRE A SECOND WATER CLOSET TO BE PROVIDED FOR THE FEMALE.*

PROVIDED FIXTURES

	WATER CLOSET	URINALS	LAVATORIES	DRINKING FOUNTAIN	SERVICE SINK
MEN	2	2	4	3	1
WOMEN	5	-	4		

NOTES:
(1) PER CBC 2022, 303.1.2.1. A ROOM OR SPACE USED FOR ASSEMBLY PURPOSES WITH AN OCCUPANT LOAD OF LESS THAN 50 PERSONS AND ACCESSORY TO ANOTHER OCCUPANCY SHALL BE CLASSIFIED AS A GROUP B OCCUPANCY OR AS PART OF THAT OCCUPANCY.

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ARCHITECTURE ENGINEERING INTERIOR DESIGN
LANDSCAPE ARCHITECTURE PLANNING
949-261-1001 Office
LPADesignStudios.com
5301 California Avenue, Suite 100
Irvine, California 92617
LICENSED ARCHITECT RICHARD MISTO No. C16639 REN 12/31/2025 STATE OF CALIFORNIA

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MALIBU HIGH SCHOOL INCREMENT 02

30215 Morning View Dr.,
Malibu, CA 90265
APN: 4469-017-900

Developed for
SANTA MONICA - MALIBU UNIFIED SCHOOL DISTRICT

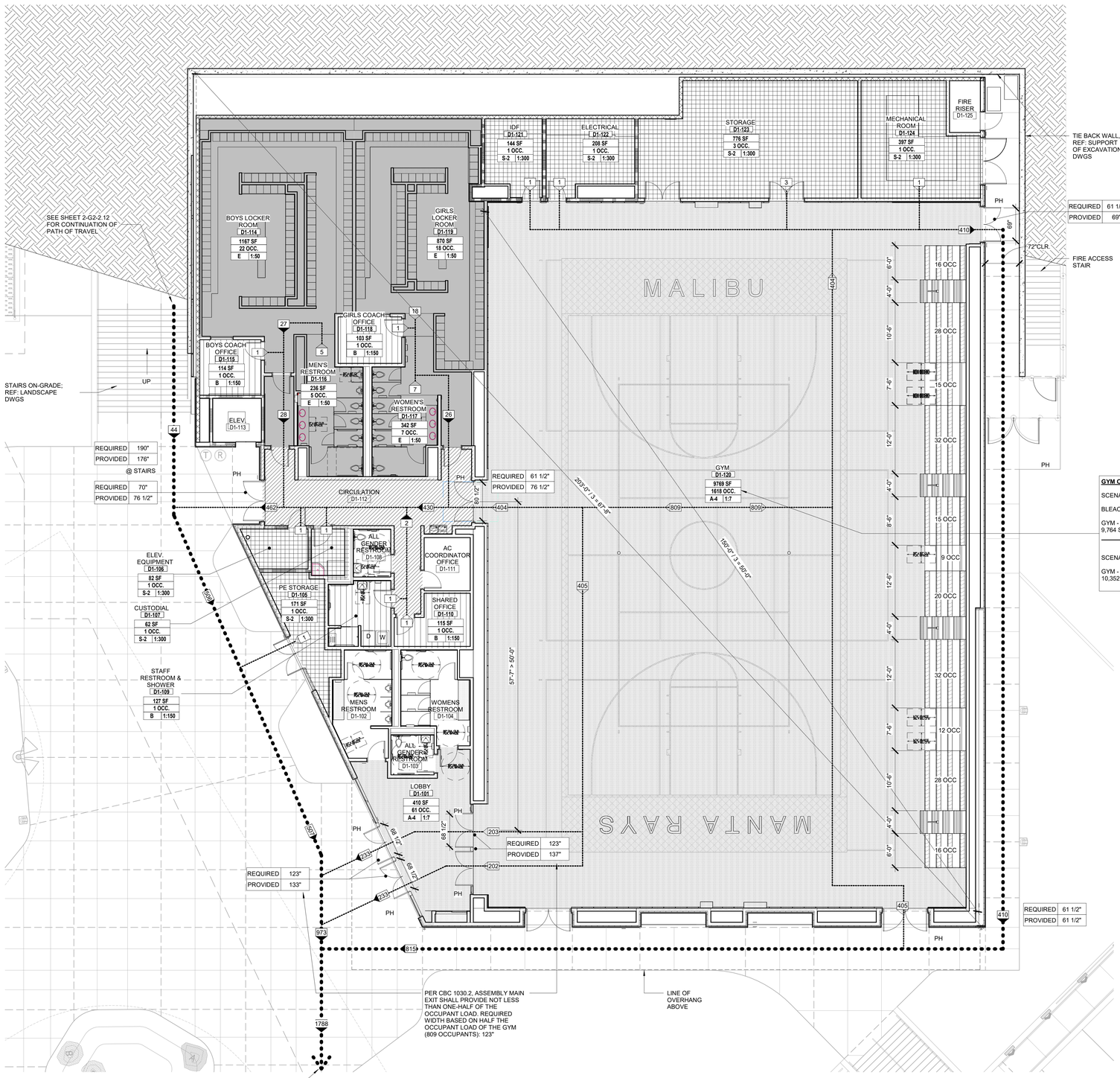
Revision	Date

Submittal	Date
SCHEMATIC DESIGN	09/04/2024
50% DESIGN DEVELOPMENT	12/13/2024
100% DESIGN DEVELOPMENT	02/21/2025
DSA SUBMITTAL	06/06/2025
50% CONSTRUCTION DOCS	06/27/2025
DSA SUBMITTAL	09/08/2025

Job Number	31722
Checked By	Checker
Scale	1/8" = 1'-0"

MS HUB - CODE ANALYSIS

2-G2-1.11



GYM BLEACHER SEATING ANALYSIS:

BLEACHER SEATING (MAX TOTAL): 223

WHEELCHAIR SPACES (CBC 2022, TABLE 11B-221.2.1.1):
WHEELCHAIR SPACES REQUIRED: 5
WHEELCHAIR SPACES PROVIDED: 6

COMPANION SEATING (CBC 2022, 221.3):
AT LEAST 1 SEAT IMMEDIATELY ADJACENT TO WHEELCHAIR SPACE

COMPANION SEATING REQUIRED: 5
COMPANION SEATING PROVIDED: 6

SEMI-AMBULANT SEATS (CBC 2022, 11B-221.6):
1% OF TOTAL SEATS, BUT NO FEWER THAN 2

SEMI-AMBULANT SEATING REQUIRED: 3
SEMI-AMBULANT SEATING PROVIDED: 3

DESIGNATED AISLE SEATS (CBC 2022 11B-221.4):
5% OF AISLE SEATS
TOTAL AISLE SEATS: 32

DESIGNATED AISLE SEATS REQUIRED: 2
DESIGNATED AISLE SEATS PROVIDED: 2

GYM OCCUPANCY (PER DSA IR 10-2):

SCENARIO 1 - OPEN BLEACHERS:

BLEACHERS - FIXED SEATING (CBC 1004.6) = 223 OCCUPANTS

GYM - ASSEMBLY (A-4):
9,764 SF (NOT INC. BLEACHERS) / 7 SF = 1,395 OCCUPANTS
TOTAL = 1,618 OCCUPANTS

SCENARIO 2 - CLOSED BLEACHERS:

GYM - ASSEMBLY (A-4):
10,352 SF (NOT INC. BLEACHERS) / 7 SF = **1,479 OCCUPANTS**

TRUE NORTH PROJECT NORTH

GYM - FIRST FLOOR EGRESS | 1/8" = 1'-0" | 2-G2-2.11 | 05

LEGEND

Room Name ### — ROOM NUMBER
SF — SQUARE FOOTAGE
Occ-Load OCC — OCCUPANT LOAD
1:0LF — OCCUPANCY LOAD FACTOR
OCCUPANCY GROUP
1 HOUR FIRE BARRIER CONSTRUCTION IN ACCORDANCE WITH CBC SECTION 707
2 HOUR FIRE BARRIER CONSTRUCTION IN ACCORDANCE WITH CBC SECTION 707

REQUIRED 0" — EGRESS WIDTH REQUIRED
PROVIDED 0" — EGRESS WIDTH PROVIDED
* *OCCUPANT LOAD x 0.2" @ STAIRS*
OCCUPANT LOAD x 0.15" @ ALL OTHER EGRESS COMPONENTS

FE — FIRE EXTINGUISHER CABINET
PH — INDICATES PANIC HARDWARE REQUIRED
0 — INDIVIDUAL ROOM OCCUPANCY LOAD
0 — COMBINED ROOM OCCUPANCY LOAD
PATH OF TRAVEL/TRAVEL DISTANCE
COMMON PATH OF TRAVEL/TRAVEL DISTANCE FROM ELEVATOR

A-4 OCCUPANCY
B OCCUPANCY
E OCCUPANCY
S-2 OCCUPANCY
UNOCCUPIED - AREA NOT INCLUDED IN EGRESS CALCULATION
CIRCULATION - AREA NOT INCLUDED IN EGRESS CALCULATION

CODE ANALYSIS

BUILDING CLASSIFICATION:

BUILDING NAME:	GYM
BUILDING USE:	GYMNASIUM, OFFICES, LOCKER & EXERCISE ROOMS & STORAGE
OCCUPANCY*:	A-4, B, E, & S-2 (NON-SEPARATED)
ACCESSORY OCCUPANCIES:	N/A

* *PER DSA IR 10-2, EXERCISE & LOCKER ROOMS ARE E OCCUPANCY WITH OCCUPANT LOAD OF 50 (GROSS)*

CONSTRUCTION TYPE:	TYPE II-B
FIRE PROTECTION:	FULLY SPRINKLERED

BASIC ALLOWABLE AREA AND HEIGHT (CBC 504):

AREA PER STORY*:	28,500 SF
NUMBER OF STORIES*:	3
HEIGHT:	55 FT

* *A-4 OCCUPANCY USED AS MOST RESTRICTIVE.*

PROPOSED BUILDING AREA AND HEIGHT:

FIRST FLOOR AREA*:	19,881 SF < 28,500 - OK
SECOND FLOOR AREA* :	17,635 SF < 28,500 - OK
OVERALL BUILDING AREA*:	37,516 SF < 57,000 - OK
ACTUAL BUILDING AREA:	17,902 SF + 13,944 SF = 31,846 SF
FIRST FLOOR OVERHANG AREA:	1,979 SF
SECOND FLOOR OVERHANG AREA:	793 SF
SECOND FLOOR TRELLIS AREA:	2,898 SF
NUMBER OF STORIES:	2
HEIGHT:	35 FT < 55 FT - OK

* *OVERALL BUILDING AREA INCLUDES HORIZONTAL PROJECTIONS OF THE ROOF OR FLOOR ABOVE BUT EXCLUDES VENT SHAFTS AND COURTS (CBC 202).*

FIRE-RESISTANCE RATING REQ FOR BLDG ELEMENTS (CBC TABLE 601):

STRUCTURAL FRAME:	0 HOUR
EXTERIOR BEARING WALLS:	0 HOUR
INTERIOR BEARING WALLS:	0 HOUR
EXTERIOR NONBEARING WALLS:	REVER TO RATING REQ. BELOW
INTERIOR NONBEARING WALLS:	0 HOUR
FLOOR CONSTRUCTION:	0 HOUR
ROOF CONSTRUCTION:	0 HOUR**

** *FIRE PROTECTION OF MEMBERS OTHER THAN THE PRIMARY STRUCTURAL FRAME SHALL NOT BE REQ. INCLUDING PROTECTION OF THE ROOF FRAMING & DECKING WHERE EVERY PART OF CONSTRUCTION IS 20 FT OR MORE ABOVE ANY FLOOR IMMEDIATELY BELOW (CBC 601 EXCEPTION B)*

FIRE-RESISTANCE RATING REQ FOR EXTERIOR WALLS (CBC TABLE 705.5):

1-HOUR PROTECTION*:	X < 10
NO PROTECTION REQUIRED:	X ≥ 10

* *X REFERS TO FIRE SEPARATION DISTANCE*

MINIMUM NUMBER OF REQUIRED PLUMBING FIXTURES (CPC TABLE 4-1)

A-4 OCCUPANCY: (AREA WITHOUT FIXED SEATS):	10,293 SF / 11	=	936 OCCUPANTS
A-4 OCCUPANCY: (FIXED SEATS)	245 / 2	=	123 OCCUPANTS
A-4 OCCUPANCY TOTAL:			1,060 OCCUPANTS
B OCCUPANCY:	451 SF / 150	=	4 OCCUPANTS
E OCCUPANCY: (FITNESS)	5,267 SF / 50	=	106 OCCUPANTS
TOTAL OCCUPANCY:			1,173 OCCUPANTS = 585 MALES, 585 FEMALES

REQUIRED FIXTURES

	WATER CLOSET	URINALS	LAVATORIES	DRINKING FOUNTAIN	SERVICE SINK
MEN	7	6	6	5	1
WOMEN	13	-	9		

**PER CPC 2022, TABLE 422.1, NOTE 3, THE TOTAL NUMBER OF REQUIRED WATER CLOSETS FOR FEMALES SHALL BE NOT LESS THAN THE TOTAL NUMBER OF REQUIRED WATER CLOSETS AND URINALS FOR MALES. THIS REQUIREMENT SHALL NOT APPLY WHEN SINGLE OCCUPANCY TOILET FACILITIES ARE PROVIDED FOR EACH SEX IN AN A OR E OCCUPANCY WITH AN OCCUPANT LOAD OF LESS THAN 50, EITHER THE REQUIRED URINAL SHALL BE PERMITTED TO BE OMITTED, OR IF INSTALLED, THE URINAL SHALL NOT REQUIRE A SECOND WATER CLOSET TO BE PROVIDED FOR THE FEMALE.*

PROVIDED FIXTURES

	WATER CLOSET	URINALS	LAVATORIES	DRINKING FOUNTAIN	SERVICE SINK
MEN	7	5	6	4	1
WOMEN	11	-	9		

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LANDSCAPE ARCHITECTURE PLANNING
949-261-1001 Office
LPADesignStudios.com
5301 California Avenue, Suite 100
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MALIBU MIDDLE SCHOOL INCREMENT 02

30215 MORNING VIEW DR., MALIBU, CA 90265
APN: 4469-017-900

Developed for SANTA MONICA - MALIBU UNIFIED SCHOOL DISTRICT

Revision	Date

Submittal	Date
SCHEMATIC DESIGN	09/04/2024
50% DESIGN DEVELOPMENT	12/13/2024
DSA SUBMITTAL	06/16/2025
90% DESIGN DEVELOPMENT	06/16/2025
90% CONSTRUCTION DOCS	06/27/2025
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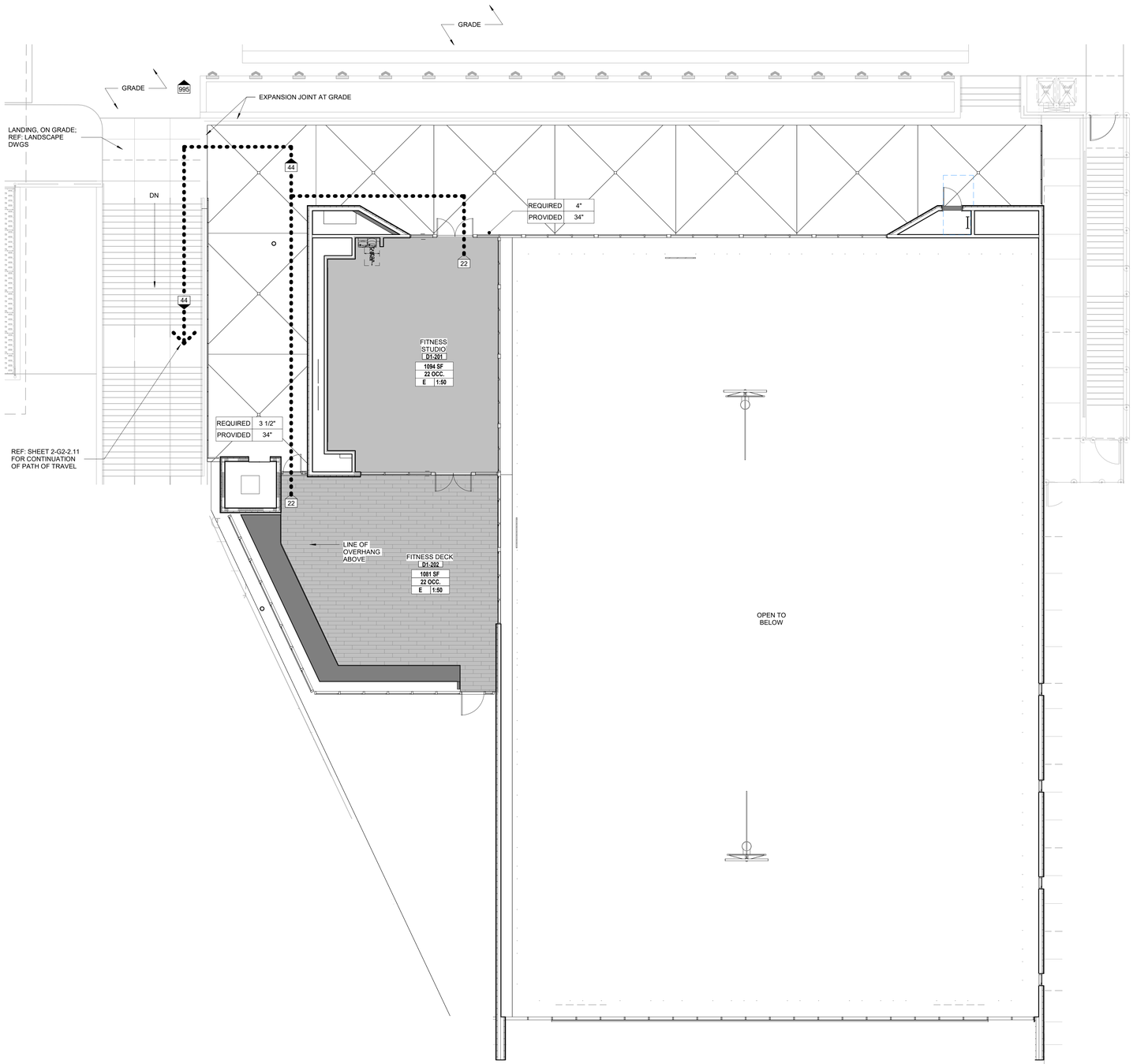
Job Number	31722
Checked By	Checker
Scale	1/8" = 1'-0"

GYM - LOWER LEVEL CODE ANALYSIS

2-G2-2.11



TRUE NORTH PROJECT NORTH

GYM - SECOND FLOOR EGRESS | 1/8" = 1'-0" | 2-G2-2.12 | 05

LEGEND

- Room Name / ### — ROOM NUMBER
- ### SF — SQUARE FOOTAGE
- Occ-Load OCC. — OCCUPANT LOAD
- # 1:OLF — OCCUPANCY LOAD FACTOR
- OCCUPANCY GROUP
- 1 HOUR FIRE BARRIER CONSTRUCTION IN ACCORDANCE WITH CBC SECTION 707
- 2 HOUR FIRE BARRIER CONSTRUCTION IN ACCORDANCE WITH CBC SECTION 707
- REQUIRED 0" — EGRESS WIDTH REQUIRED
- PROVIDED 0" — EGRESS WIDTH PROVIDED
- * *OCCUPANT LOAD x 0.2" @ STAIRS*
  OCCUPANT LOAD x 0.15" @ ALL OTHER EGRESS COMPONENTS
- FE — FIRE EXTINGUISHER CABINET
- PH — INDICATES PANIC HARDWARE REQUIRED
- 0 — INDIVIDUAL ROOM OCCUPANCY LOAD
- 0 — COMBINED ROOM OCCUPANCY LOAD
- PATH OF TRAVEL/TRAVEL DISTANCE
- COMMON PATH OF TRAVEL/TRAVEL DISTANCE FROM ELEVATOR

- A-4 OCCUPANCY
- B OCCUPANCY
- E OCCUPANCY
- S-2 OCCUPANCY
- UNOCCUPIED - AREA NOT INCLUDED IN EGRESS CALCULATION
- CIRCULATION - AREA NOT INCLUDED IN EGRESS CALCULATION

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LANDSCAPE ARCHITECTURE PLANNING
949-261-1001 Office
LPADesignStudios.com
5301 California Avenue, Suite 100
Irvine, California 92617

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APN: 4469-017-900

Developed for
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Revision	Date

Submittal	Date
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50% CONSTRUCTION DOCS	09/27/2025
DSA SUBMITTAL	09/08/2025

Job Number	31722
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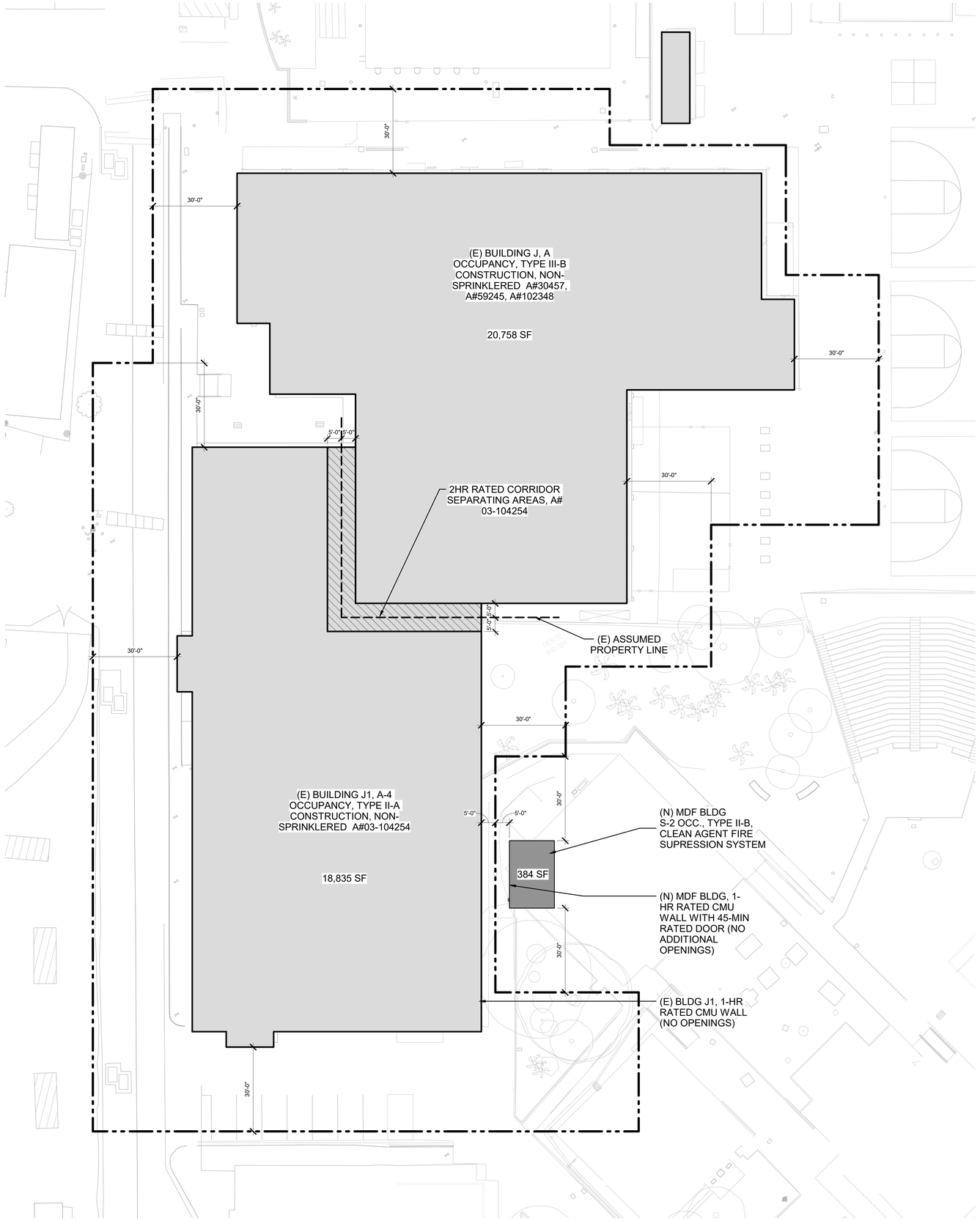
Scale	1/8" = 1'-0"

GYM - UPPER LEVEL CODE ANALYSIS

2-G2-2.12



LEGEND

ASSUMED PROPERTY LINE

EXISTING BUILDING

(N) BUILDING

CODE ANALYSIS

BUILDING CLASSIFICATION:

BUILDING NAME:	MDF BUILDING
BUILDING USE:	CENTRAL CONNECTION FOR CAMPUS TELECOM AND NETWORKING
OCCUPANCY:	S-2
OCCUPANCY CLASSIFICATION:	N/A
CONSTRUCTION TYPE:	TYPE II-B
FIRE PROTECTION:	CLEAN AGENT SYSTEM

BASIC ALLOWABLE AREA AND HEIGHT (CBC 504):

AREA PER STORY*:	26,000 SF
NUMBER OF STORIES	3
HEIGHT:	55 FT

PROPOSED BUILDING AREA AND HEIGHT:

ACTUAL BUILDING AREA*:	384 SF < 26,000 SF
NUMBER OF STORIES	1
HEIGHT:	13'-4" < 55 FT

** OVERALL BUILDING AREAS INCLUDE HORIZONTAL PROJECTIONS OF THE ROOF OR FLOOR ABOVE BUT EXCLUDE VENT SHAFTS & COURTS. (CBC 202)*

FIRE-RESISTANCE RATING REQ FOR BLDG ELEMENTS (CBC TABLE 601):

STRUCTURAL FRAME:	0 HOUR
EXTERIOR BEARING WALLS:	0 HOUR
INTERIOR BEARING WALLS:	0 HOUR
EXTERIOR NONBEARING WALLS:	REFER TO RATING REQ BELOW
INTERIOR NONBEARING WALLS:	0 HOUR
FLOOR CONSTRUCTION:	0 HOUR
ROOF CONSTRUCTION:	0 HOUR **

***FIRE PROTECTION OF MEMBERS OTHER THAN THE PRIMARY STRUCTURAL FRAME SHALL NOT BE REQ, INCLUDING PROTECTION OF THE ROOF FRAMING & DECKING WHERE EVERY PART OF CONSTRUCTION IS 20 FT OR MORE ABOVE ANY FLOOR IMMEDIATELY BELOW (CBC 601 EXCEPTION B)*

MDF BLDG (II-B, S-2) - FIRE-RESISTANCE RATING REQ FOR EXTERIOR WALLS (CBC TABLE 705.5):

1-HR PROTECTION:	5 ≤ X < 10
NO PROTECTION REQ:	X ≥ 10

(E) BLDG J1, GYM (II-A, A-4) - FIRE-RESISTANCE RATING REQ FOR EXTERIOR WALLS (CBC TABLE 705.5):

1-HR PROTECTION:	5 ≤ X < 10
NO PROTECTION REQ:	X ≥ 10

**X REFERS TO FIRE SEPARATION DISTANCE*

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LANDSCAPE ARCHITECTURE PLANNING

949-261-1001 Office

LPADesignStudios.com

5301 California Avenue, Suite 100
Irvine, California 92617

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MALIBU HIGH SCHOOL INCREMENT 01

30215 MORNING VIEW DR.
MALIBU, CA 90265
APN: 4469-017-900

Developed for
SANTA MONICA - MALIBU UNIFIED SCHOOL DISTRICT

Revision	Date

Submittal	Date
SCHEMATIC DESIGN	09/04/2024
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100% DESIGN DEVELOPMENT	02/21/2025
CDP SUBMITTAL	05/16/2025
DSA SUBMITTAL	09/09/2025

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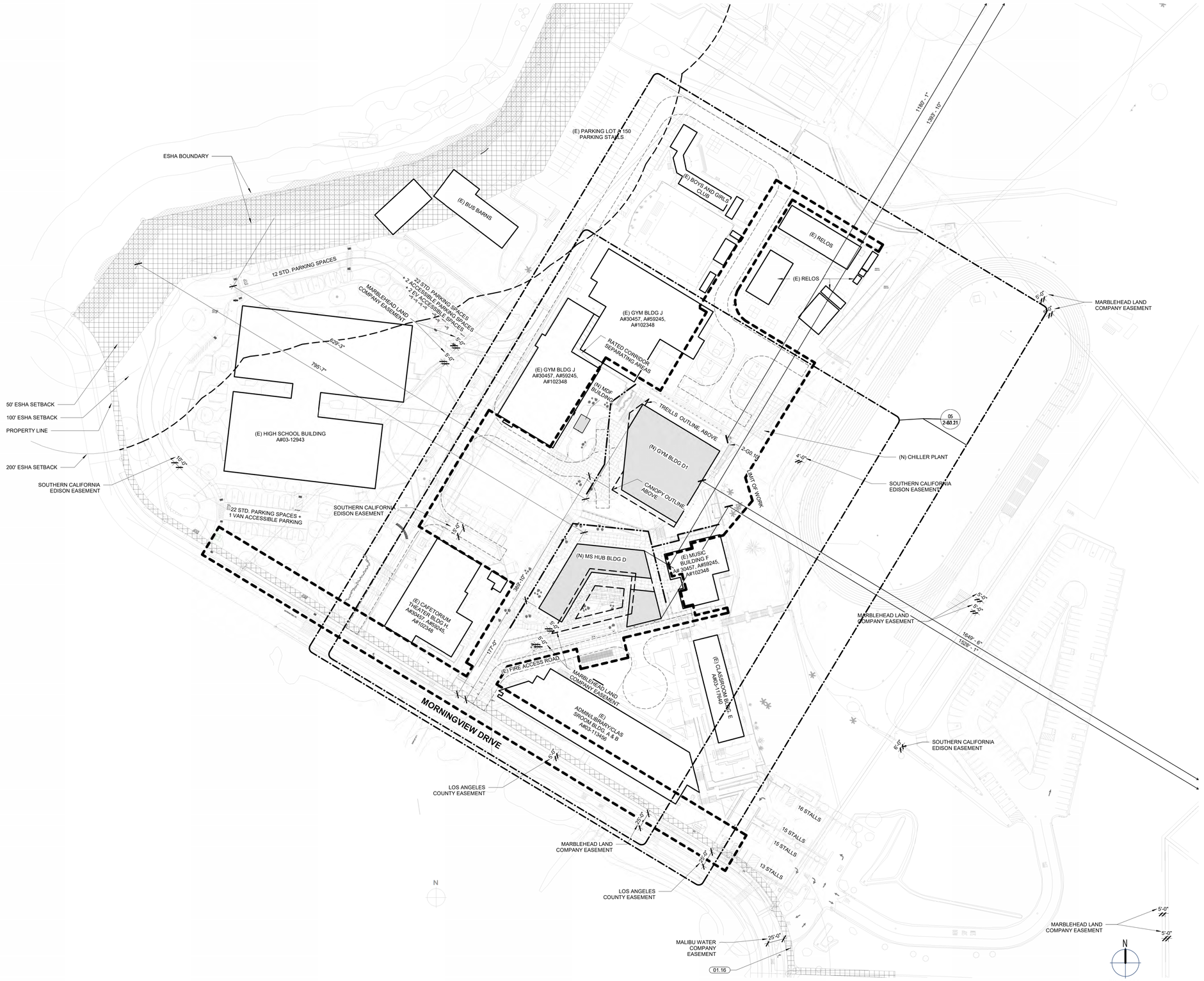
Checked By	Checker
Scale	

CODE ANALYSIS

1-G2.11



SITE PLAN | 1" = 60'-0" | 2-A0.01 | 05

KEYNOTES

01.16 (E) TOW-AWAY SIGNAGE PER A#03-125288

LEGEND

- LIMIT OF WORK (L.O.W.)
- PROPERTY LINE
- ASSUMED PROPERTY LINE
- EXISTING BUILDING
- PROPOSED BUILDING
- BUILDING SETBACK

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LANDSCAPE ARCHITECTURE PLANNING
949-261-1001 Office
LPADesignStudios.com
5301 California Avenue, Suite 100
Irvine, California 92617

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Job Number	31722
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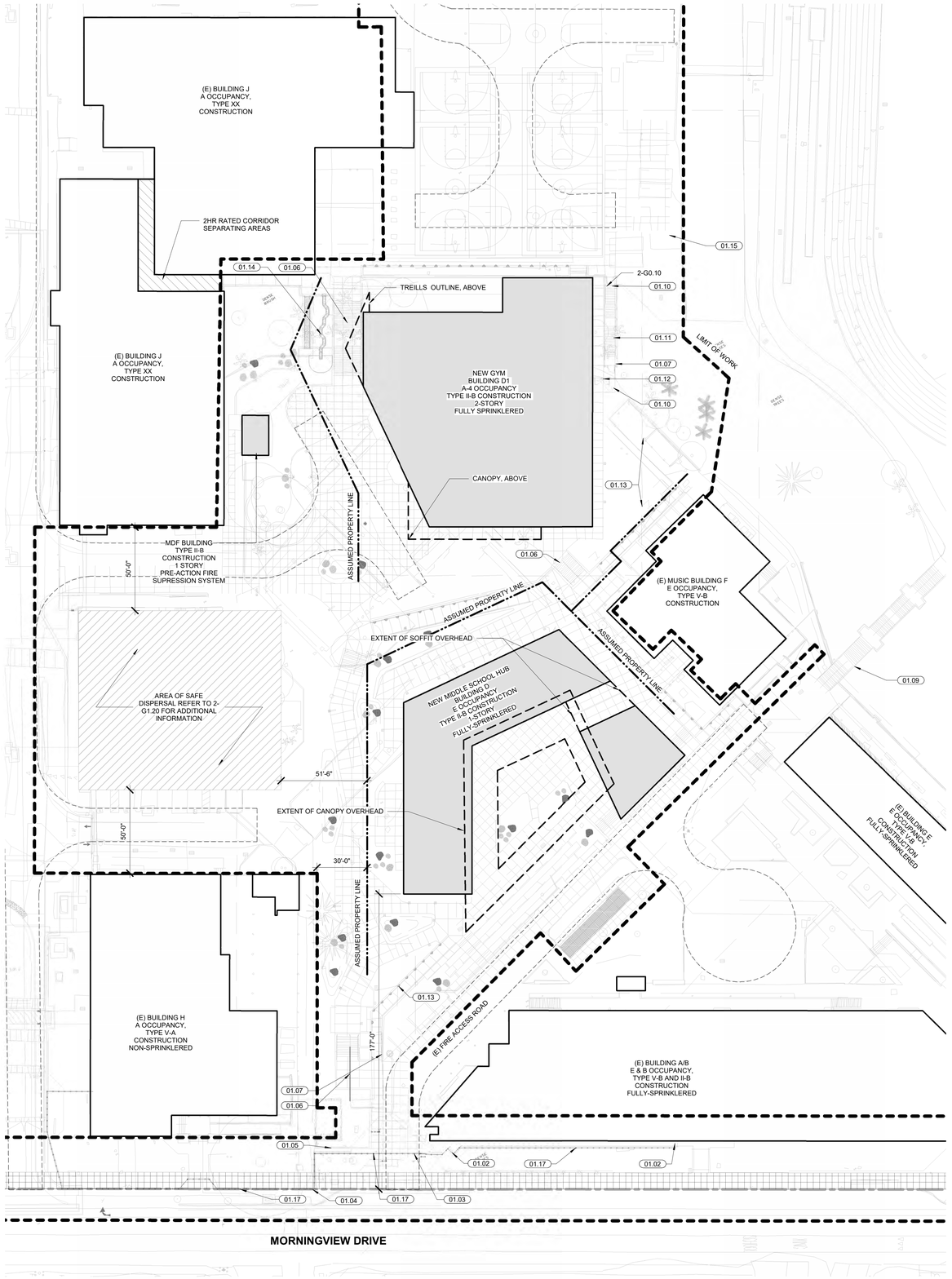
Scale	As indicated

CAMPUS PLAN

2-A0.01



TRUE NORTH

PROJECT NORTH

SITE PLAN | 1" = 30'-0" | 2-A0.21 | 05

KEYNOTES

01.02	(E) 3' WIDE PEDESTRIAN GATE WITH PANIC HARDWARE
01.03	(E) 20' WIDE VEHICULAR GATE
01.04	(E) 6' WIDE PEDESTRIAN GATE
01.05	(E) SITE RETAINING WALL
01.06	SITE STAIR
01.07	SITE RETAINING WALL
01.09	(E) SITE STAIR
01.10	WIDE FIRE ACCESS GATE
01.11	FIRE STAIR
01.12	FENCE
01.13	RAMP
01.14	SLIDE, RE: LANDSCAPE DRAWINGS
01.15	CHILLER YARD, RE: LANDSCAPE DRAWINGS
01.17	(E) FENCE

LEGEND

- LIMIT OF WORK (L.O.W.)
- PROPERTY LINE
- ASSUMED PROPERTY LINE
- EXISTING BUILDING
- PROPOSED BUILDING
- FIRE ACCESS LANE

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949-261-1001 Office

LPADesignStudios.com

5301 California Avenue, Suite 100
Irvine, California 92617

LICENSED ARCHITECT
RICHARD MUSTO
No. C-10639
REN 12/31/2025
STATE OF CALIFORNIA

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Developed for
SANTA MONICA - MALIBU UNIFIED SCHOOL DISTRICT

Revision	Date

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50% DESIGN DEVELOPMENT	12/13/2024
100% DESIGN DEVELOPMENT	02/21/2025
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50% CONSTRUCTION DOCS	06/27/2025
DSA SUBMITTAL	09/08/2025

Job Number	31722
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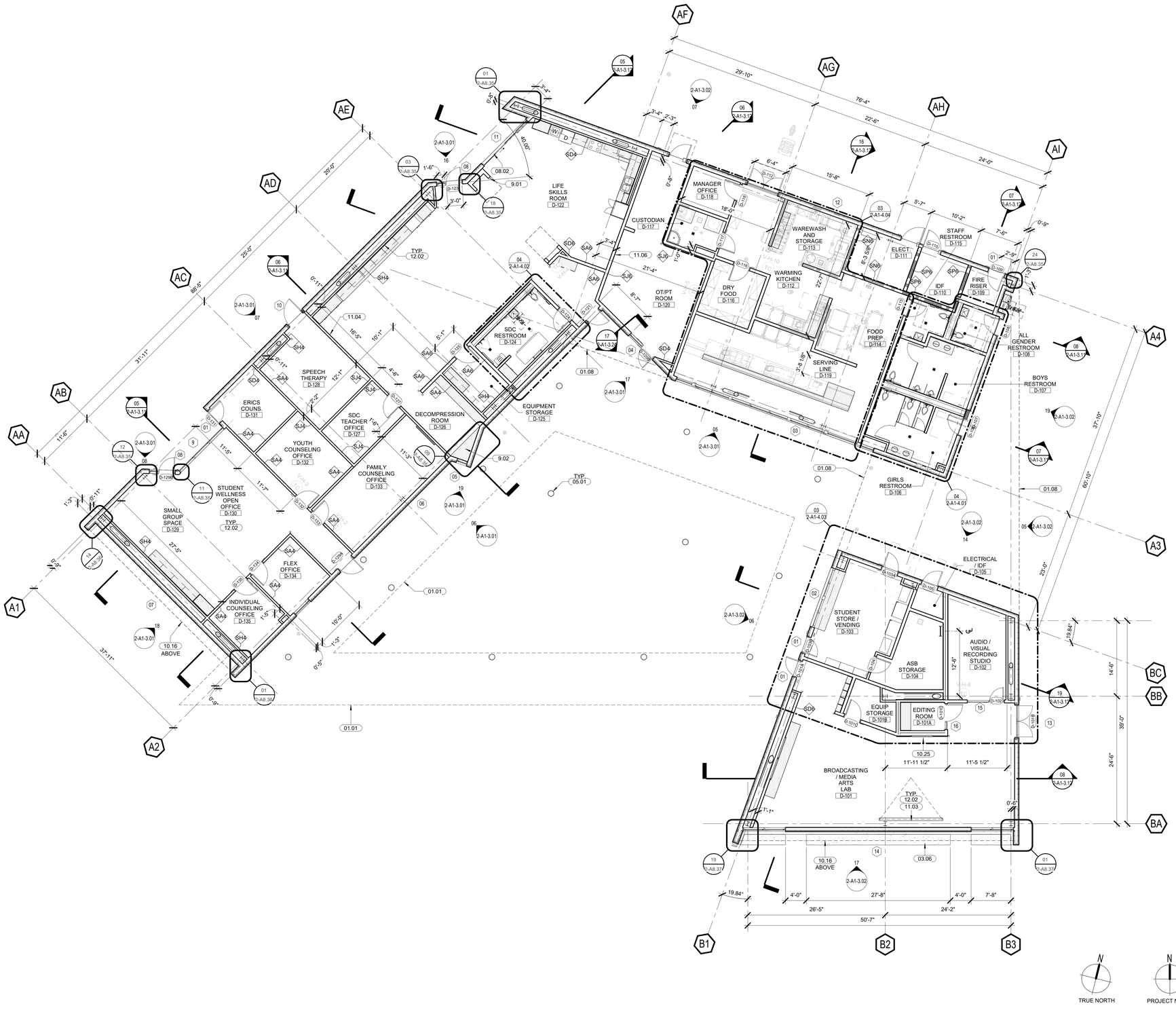
Scale	As indicated

SITE PLAN

2-A0.21



KEYNOTES

01.01	CANOPY OVERHANG ABOVE, REF: SHEET 05/2-A1-2.03
01.08	LINE OF OVERHANG ABOVE
03.06	CAST IN PLACE CONCRETE SEAT WALL, COLOR TO MATCH DAVIS COLOR MOCHA, TOP CAST #3, ETCH RE: LANDSCAPE DRAWINGS
05.01	STRUCTURAL STEEL COLUMN, PRIMED AND PAINTED WITH HIGH PERFORMANCE PAINT TO MATCH _____, TYP.
08.02	ALUMINUM SLIDING GLASS SYSTEM WITH VISION GLAZING AND LOW-E COATING
9.01	ANGLED BIRCH PLYWOOD DIVIDING WALL WITH NICHE AT EITHER END WITH CUSHIONED SEAT AND BACK. CORK FINISH WALLCOVERING TO BE FRAMED AND APPLIED OVER DRYWALL. REF SHEET 2-A9.31
9.02	WINDOW SEAT NICHE WITH BIRCH PLYWOOD SURROUND AND CUSHIONED SEAT AND BACK
10.16	ALUMINUM, FIXED HORIZONTAL SUN SCREEN, RE: 09/2-A8.13
10.25	FLAT SCREEN TV, PROVIDE MOUNTING BRACKET AND BACKING, RE: 07/2-A9.60
11.03	65"H X 104"W PROJECTION SCREEN ATTACHED TO UNISTRUT, RE: 12/2-A9.60
11.04	PROJECTABLE WHITE BOARD, REFER TO INTERIOR ELEVATIONS
11.06	MIRROR, RE: INTERIOR ELEVATIONS
12.02	CEILING-MOUNTED MOTORIZED WINDOW ROLLER SHADE, RE: 22/2-A9.20

LEGEND

- NEW MILLWORK / CASEWORK
- SA2U — **WALL TYPE.** LETTER INDICATES WALL TYPE. SEE 2-A9.0X SERIES.
- **STUD SIZE.** NUMBER INDICATES STUD SIZE. SEE 2-A9.0X SERIES. REFER TO S6.71 FOR INTERIOR STUD WALL SCHEDULE
- XX — OPENING TYPE, REFER TO SHEETS 2-A1-6.21 AND A2-6.22
- 101 — DENOTES DOOR NUMBER, REFER TO DOOR SCHEDULE ON SHEET 2-A1-6.11
- DOOR: SEE DOOR SCHEDULE ON SHEET 2-A1-6.11
- METAL STUD WALL CONSTRUCTION
- 1-HR INTERIOR FIRE RATED METAL STUD PARTITION
- 2-HR INTERIOR FIRE RATED METAL STUD PARTITION
- MASONRY WALL CONSTRUCTION
- EXTENT OF ELEMENT OVERHEAD
- FEC — SEMI-RECESSED FIRE EXTINGUISHER CABINET; REF: 02/2-A9.60
- ALIGN SURFACE

GENERAL NOTES

1. ALL INTERIOR PARTITIONS TO BE WALL TYPE "SA", U.N.O. FOR ALL PARTITION TYPES REFER TO SHEETS 2-A9.01 AND 2-A9.02.
2. PROVIDE 6" HIGH CONCRETE CURBS AT ALL RESTROOMS, CUSTODIAL CLOSETS, WATER HEATER CLOSETS, & SHOWER COMPARTMENTS, U.N.O. REFER TO EDGE OF SLAB PLAN
3. PROVIDE MOISTURE RESISTANT GYP. BD. IN ALL WET LOCATIONS, U.N.O.
4. PROVIDE CEMENTITIOUS BACKER BOARD AT ALL TILE WALL LOCATIONS, U.N.O.
5. PROVIDE HIGH IMPACT GYP BOARD AT CORRIDORS TO A HEIGHT OF 8'-0" A.F.F. U.N.O.
6. PROVIDE ACOUSTIC BATT INSULATION FULL HEIGHT AT ALL INTERIOR PARTITIONS.
7. REFER TO 2-G0.32 FOR TYPICAL CLEARANCES AT DOORS.
8. FOR TYPICAL SWITCH & DEVICE ALIGNMENTS, RE: 04/2-A9.60
9. REFER TO SHEET 2-A9.11 FOR PENETRATIONS THROUGH RATED WALL CONDITIONS. FOR ALL RATED WALLS, PROVIDE THE FOLLOWING MARKINGS & IDENTIFICATIONS PER THE APPLICABLE CODES:
   A. BE LOCATED WITHIN 15 FT OF THE END OF EA WALL & @ INTERVALS NOT EXCEEDING 30 FT MEASURED HORIZ ALONG THE WALL OR PARTITION.
   B. INCLUDE LETTERING NOT LESS THAN 3" IN HEIGHT WITH A MIN 3/8" STROKE IN A CONTRASTING COLOR INCORPORATING THE SUGGESTED WORDING, "FIRE &/OR SMOKE BARRIER - PROTECT ALL OPENINGS", OR OTHER WORDING.
10. PROVIDE FIRE EXTINGUISHERS PER TITLE 19, ARTICLE 3-29, FINAL LOCATIONS TO BE COORDINATED AND REVIEWED BY THE ARCHITECT AND FIRE INSPECTOR IN THE FIELD PRIOR TO INSTALLATION.
11. LOCATE DOORS MINIMUM 4 INCHES FROM ADJACENT WALL, TYP.
12. REFER TO REFLECTED CEILING PLAN FOR ILLUMINATED EXIT SIGN LOCATIONS.
13. REFER TO FINISH PLANS FOR INTERIOR ELEVATION REFERENCES.

LPA
ARCHITECTURE ENGINEERING INTERIOR DESIGN
LANDSCAPE ARCHITECTURE PLANNING
949-261-1001 Office
LPADesignStudios.com
5301 California Avenue, Suite 100
Irvine, California 92617

LICENSED ARCHITECT RICHARD MEYER No. C16639 REN 12/31/2025 STATE OF CALIFORNIA

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MALIBU HIGH SCHOOL
INCREMENT 02

30215 Morning View Dr.,
Malibu, CA 90265
APN: 4469-017-900

Developed for
SANTA MONICA - MALIBU UNIFIED SCHOOL DISTRICT

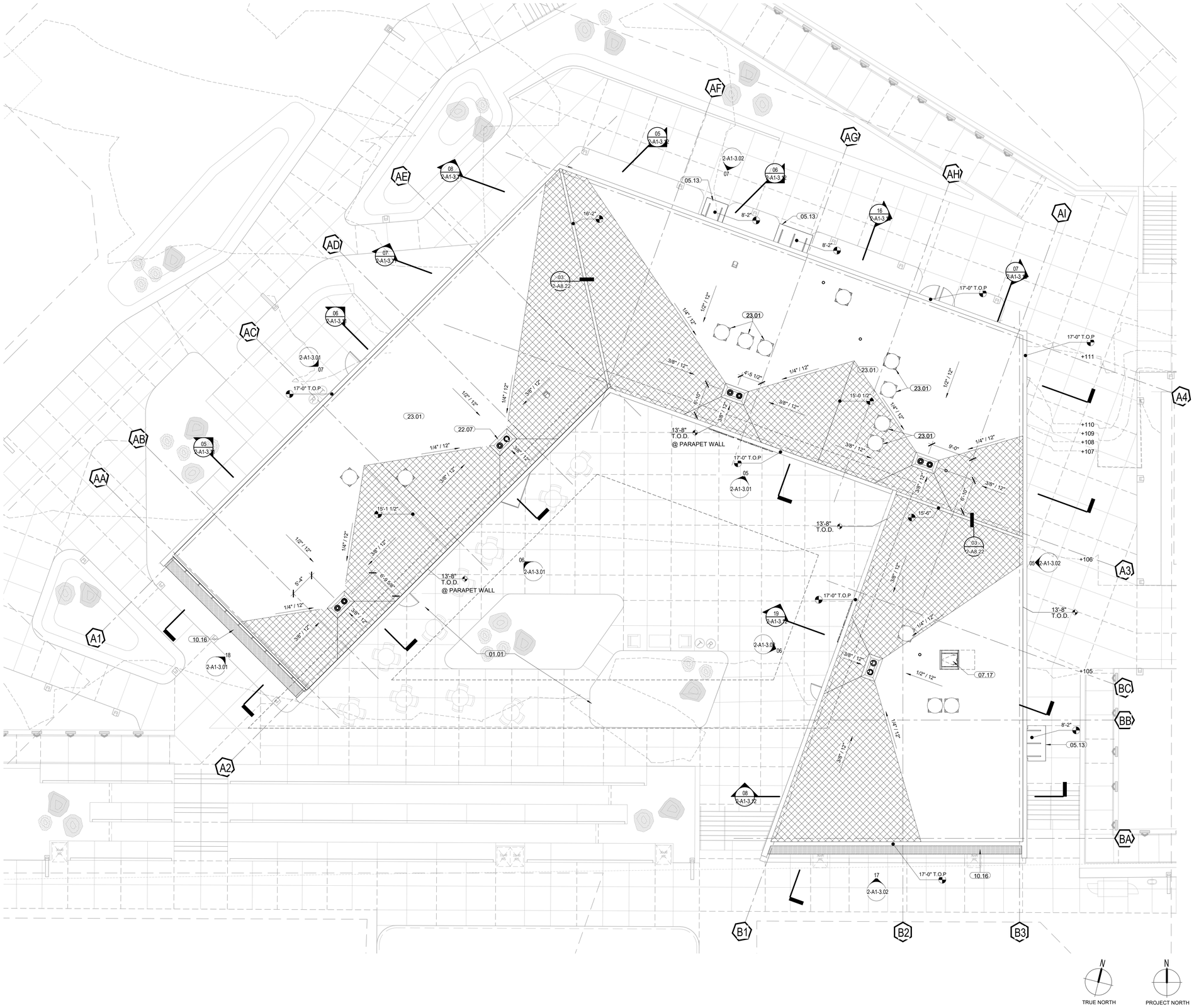
Revision	Date

Submittal	Date
SCHEMATIC DESIGN	09/04/2024
50% DESIGN DEVELOPMENT	12/13/2024
100% DESIGN DEVELOPMENT	02/21/2025
DSA SUBMITTAL	06/16/2025
50% CONSTRUCTION DOCS	06/27/2025
DSA SUBMITTAL	09/08/2025

Job Number	31722
Checked By	Checker
Scale	1/8" = 1'-0"

MS HUB - FLOOR PLAN

2-A1-2.01



KEYNOTES

01.01	CANOPY OVERHANG ABOVE, REF: SHEET 05/2-A1-2.03
05.13	STEEL PLATE, EYEBROW CANOPY OVER DOOR, RE: 13/2-A8.53
07.17	ROOF ACCESS HATCH WITH INTEGRATED ALUMINUM GUARDRAIL SYSTEM AND RETRACTABLE SAFETY POST, RE: 18/2-A8.21
10.16	ALUMINUM, FIXED HORIZONTAL SUN SCREEN, RE: 09/2-A8.13
22.07	ROOF AND OVERFLOW DRAIN ASSEMBLY, RE: 01 AND 13 ON A8.21 AND PLUMBING DRAWINGS
23.01	GRAVITY VENT, RE: MECHANICAL DRAWINGS

LEGEND

	SINGLE-PLY PVC ROOFING SYSTEM
	WALKWAY PROTECTION PAD FOR ROOFING ASSEMBLY
	1/2" COVER BOARD OVER TAPERED RIGID INSULATION CRICKET, SLOPE TO DRAIN PER PLAN (1/4" PER FOOT MIN. AT VALLEY WHERE CRICKET MEETS ROOF)
XX"	INDICATES ELEVATION (0'-0" DEFINED AS F.F.E. PER CIVIL)
XX" / XX"	INDICATES ROOF SLOPE
T.O.P.	TOP OF PARAPET
T.O.SH.	TOP OF SHEATHING
T.O.S.	TOP OF STEEL
T.O.D.	TOP OF STEEL DECK
	ROOF AND OVERFLOW DRAIN
	ROOF ACCESS HATCH

GENERAL NOTES

1. ROOF SYSTEM TO BE CLASS A RATED.
2. ROOF SYSTEM SHALL BE SLOPED A MINIMUM OF 1/4" IN 12 INCHES AT VALLEYS FOR DRAINAGE. VERIFY PRIOR TO CONSTRUCTION. NOTIFY ARCHITECT IMMEDIATELY IN CASE OF DISCREPANCIES.
3. PRIOR TO THE ISSUANCE OF USE AND OCCUPANCY, WRITTEN CERTIFICATION BY A CALIFORNIA REGISTERED ENGINEER THAT THE ROOF IS IN CONFORMANCE WITH THE APPROVED PLANS SHALL BE SUBMITTED TO THE PROJECT INSPECTOR.
4. INSTALLATION OF THE ROOFING SHALL BE IN STRICT ACCORDANCE WITH MANUFACTURERS SPECIFICATIONS AND PROCEDURES.
5. FOR TYPICAL ROOF PENETRATION SPACING, RE: 09/2-A8.21.
6. FOR TYPICAL ROOF PENETRATION RE:2-A8.21.
7. ALL PENETRATIONS THROUGH THE ROOF SHALL BE BY THE USE OF ROUND CONDUIT FOR PIPES, VENTS, RISERS AND EQUIPMENT SUPPORTS. THE USE OF CHANNELS, ANGLES, OR UNISTRUT THROUGH THE ROOF WITH PITCH POCKETS SHALL NOT BE ALLOWED.
8. REFER TO WALL SECTIONS FOR PARAPET DETAILS.
9. FOR TYPICAL CRICKET LAYOUT RE: 08/2-A8.21

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ARCHITECTURE ENGINEERING INTERIOR DESIGN
LANDSCAPE ARCHITECTURE PLANNING

949-261-1001 Office

LPADesignStudios.com

5301 California Avenue, Suite 100
Irvine, California 92617

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INCREMENT 02

30215 Morning View Dr.,
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APN: 4469-017-900

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SANTA MONICA - MALIBU UNIFIED SCHOOL DISTRICT

Revision	Date

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100% DESIGN DEVELOPMENT	02/21/2025
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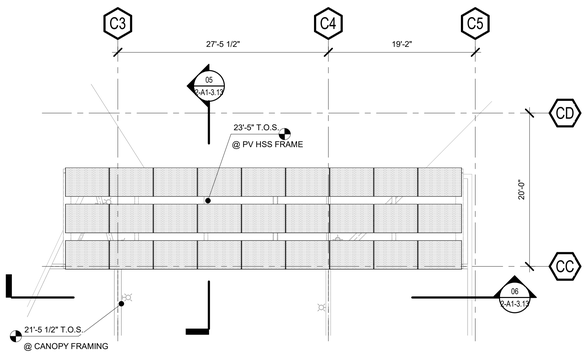
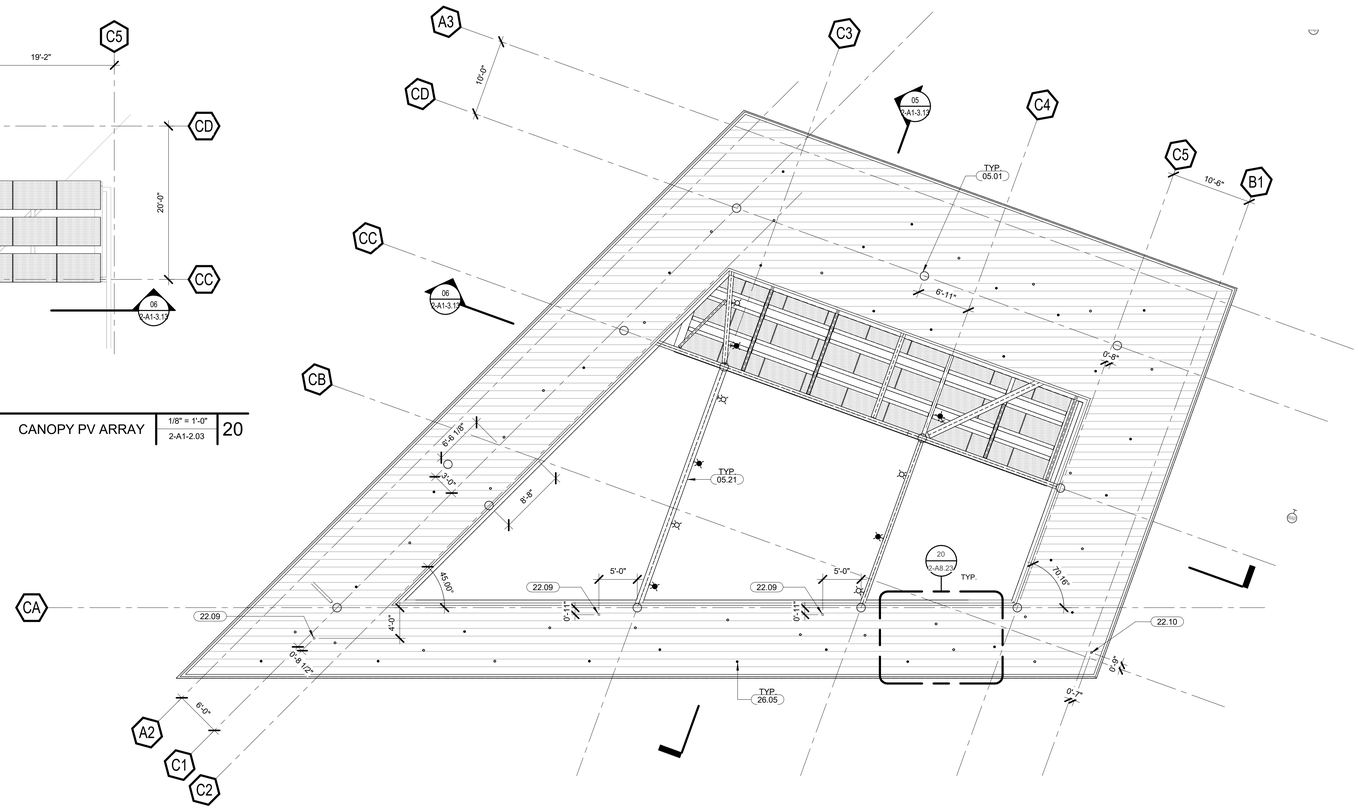
Job Number	31722
Checked By	Checker
Scale	1/8" = 1'-0"

MS HUB - ROOF PLAN

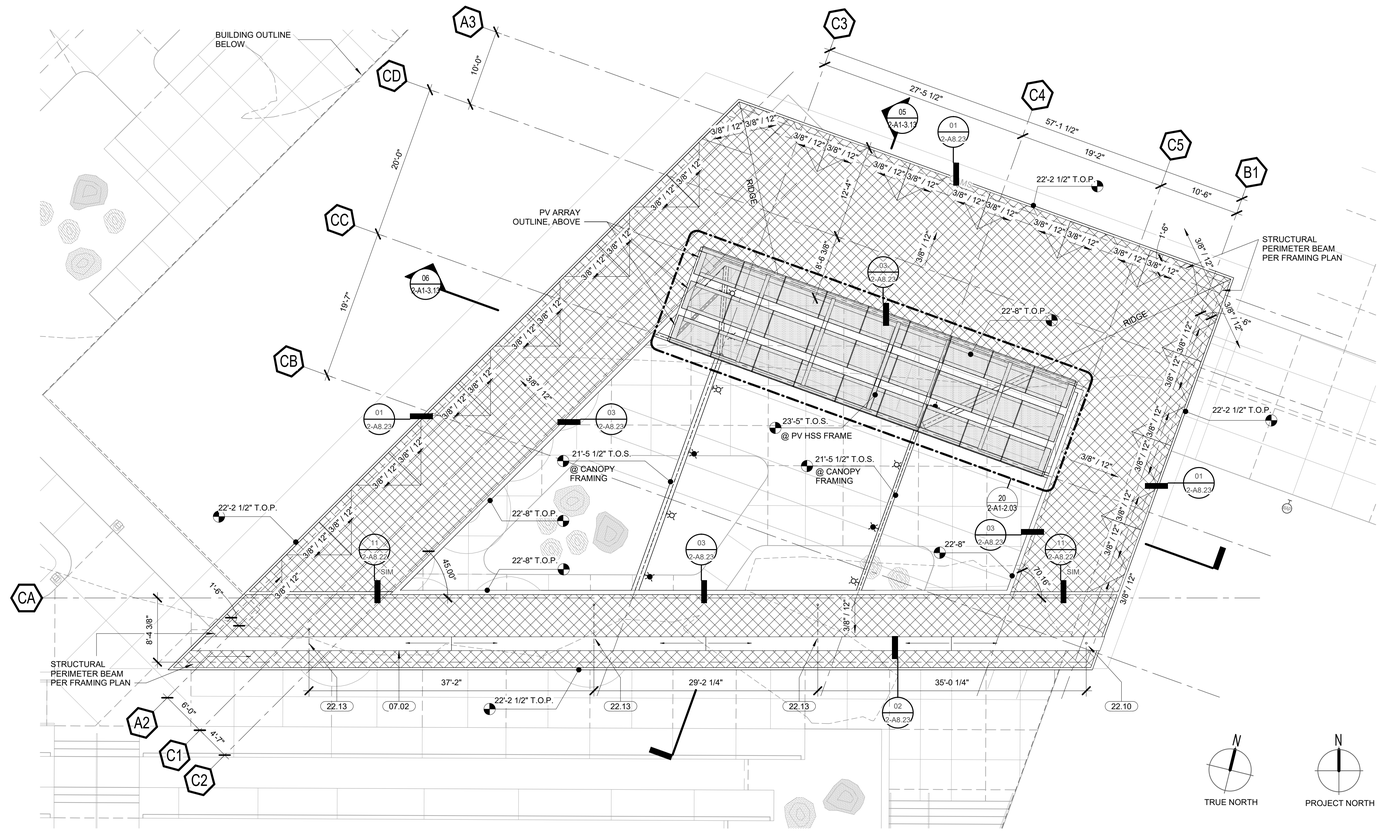
2-A1-2.02



CANOPY PV ARRAY | 1/8" = 1'-0" | 2-A1-2.03 | 20



MS HUB - REFLECTED CEILING PLAN - CANOPY | 1/8" = 1'-0" | 2-A1-2.03 | 07



MS HUB - ROOF PLAN - CANOPY | 1/8" = 1'-0" | 2-A1-2.03 | 05

KEYNOTES

05.01	STRUCTURAL STEEL COLUMN, PRIMED AND PAINTED WITH HIGH PERFORMANCE PAINT TO MATCH _____. TYP.
05.21	STRUCTURAL HSS BEAM, PRIMED AND PAINTED WITH HIGH PERFORMANCE PAINT, RE: STRUCTURAL DRAWINGS
07.02	CUSTOM PROFILE ALUMINUM GUTTER WITH INTEGRATED, INTERNAL SLOPE TO DRAIN, FACTORY FINISH TO MATCH ____.
22.09	INTEGRATED ROOF DRAIN OUTLET IN METAL PANEL SOFFIT. RE: 11/2-A8.23
22.10	INTEGRATED ROOF DRAIN GUTTER OUTLET IN METAL PANEL. RE: 14/2-A8.23
22.13	INTEGRATED ROOF DRAIN GUTTER LEADER TO DOWNSPOUT
26.05	LIGHT FIXTURE, RE: ELECTRICAL DRAWINGS

LEGEND

	SINGLE-PLY PVC ROOFING SYSTEM
	S2 - METAL PANEL SOFFIT, COLORS B & C, MIXED 50%. RE: 13/2-A8.23 FOR PATTERN LAYOUT.
	PHOTOVOLTAIC PANEL WITH HSS STRUCTURAL STEEL SUPPORT FRAME, RE: 21/2-A8.21 AND ELECTRICAL DRAWINGS
	1/2" COVER BOARD OVER TAPERED RIGID INSULATION CRICKET, SLOPE TO DRAIN PER PLAN (1/4" PER FOOT MIN. AT VALLEY WHERE CRICKET MEETS ROOF)
	INDICATES ELEVATION (0'-0" DEFINED AS F.F.E. PER CIVIL)
XX" / XX"	INDICATES ROOF SLOPE
T.O.P.	TOP OF PARAPET
T.O.SH.	TOP OF SHEATHING
T.O.S.	TOP OF STEEL
T.O.D.	TOP OF STEEL DECK
○	RECESSED LIGHTING FIXTURE. RE: 17/2-A8.33 & 18/2-A8.33

GENERAL NOTES

1. ROOFING SYSTEM TO BE CLASS A RATED.
2. ROOF SYSTEM SHALL BE SLOPED A MINUMUM OF 1/4" IN 12 INCHES AT VALLEYS FOR DRAINAGE. VERIFY PRIOR TO CONSTRUCTION. NOTIFY ARCHITECT IMMEDIATELY IN CASE OF DISCREPANCIES.
3. PRIOR TO THE ISSUANCE OF USE AND OCCUPANCY, WRITTEN CERTIFICATION BY A CALIFORNIA REGITERED ENGINEER THAT THE ROOF IS IN CONFORMANCE WITH THE APPROVED PLANS SHALL BE SUBMITTED TO THE PROJECT INSPECTOR.
4. INSTALLATION OF THE ROOFING SHALL BE IN STRICT ACCORDANCE WITH MANUFACTURERS SPECIFICATIONS AND PROCEDURES.
5. FOR TYPICAL ROOF PENETRATION SPACING, RE: 09/2-A8.21.
6. FOR TYPICAL ROOF PENETRATIONS RE: 2-A8.21.
7. ALL PENETRATIONS THROUGH THE ROOF SHALL BE BY THE USE OF ROUND CONDUIT FOR PIPES, VENTS, RISERS, AND EQUIPMENT SUPOORTS. THE USE OF CHANNELS, ANGLES, OR UNISTRUT THROUGH THE ROOF WITH PITCH POCKETS SHALL NOT BE ALLOWED.
8. REFER TO WALL SECTIONS FOR PARAPET DETAILS.
9. FOR TYPICAL CRICKET LAYOUT RE: 08/2-A8.21.

LPA
ARCHITECTURE ENGINEERING INTERIOR DESIGN
LANDSCAPE ARCHITECTURE PLANNING
949-261-1001 Office
LPADesignStudios.com
5301 California Avenue, Suite 100
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MALIBU HIGH SCHOOL
INCREMENT 02

30215 Morning View Dr.,
Malibu, CA 90265
APN: 4469-017-900

Developed for
SANTA MONICA - MALIBU UNIFIED SCHOOL DISTRICT

Revision	Date

Submittal	Date
SCHEMATIC DESIGN	09/04/2024
50% DESIGN DEVELOPMENT	12/13/2024
100% DESIGN DEVELOPMENT	02/21/2025
CDP SUBMITTAL	04/18/2025
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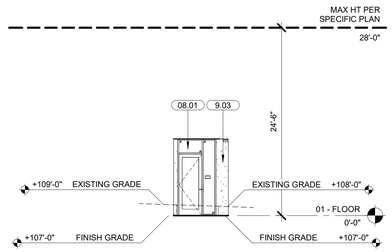
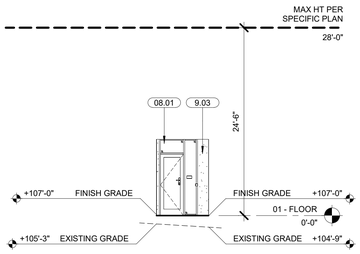
Job Number	31722
Checked By	Checker
Scale	1/8" = 1'-0"

MS HUB - CANOPY PLANS

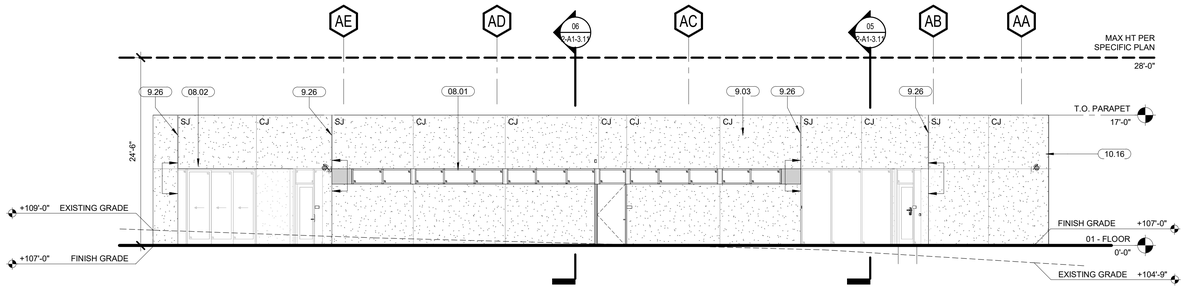
2-A1-2.03



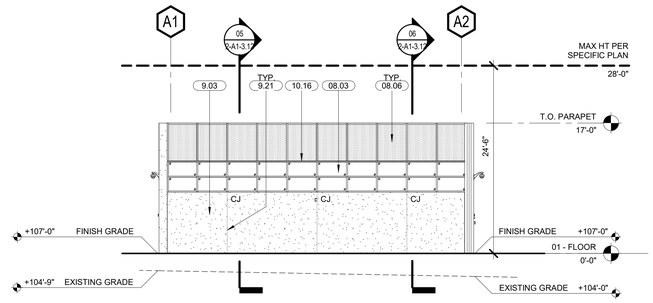
MS HUB - EXTERIOR ELEVATION -SDC CLASSROOM - WEST | 1/8" = 1'-0" | 2-A1-3.01 | 16



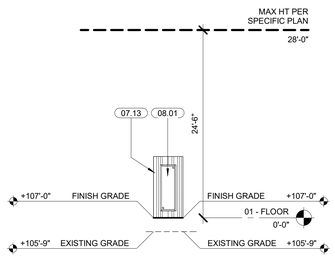
MS HUB - EXTERIOR ELEVATION - SMALL GROUP SPACE- WEST | 1/8" = 1'-0" | 2-A1-3.01 | 08



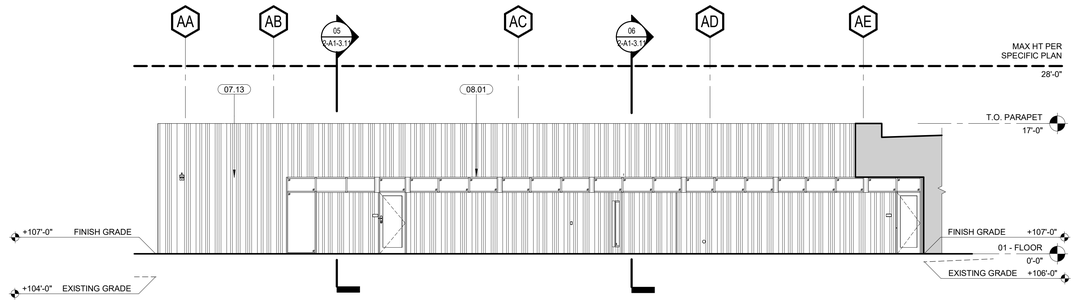
MS HUB - EXTERIOR ELEVATION - WEST 1 | 1/8" = 1'-0" | 2-A1-3.01 | 07



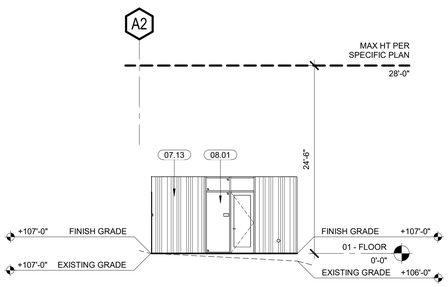
MS HUB - EXTERIOR ELEVATION - SOUTH 1 | 1/8" = 1'-0" | 2-A1-3.01 | 18



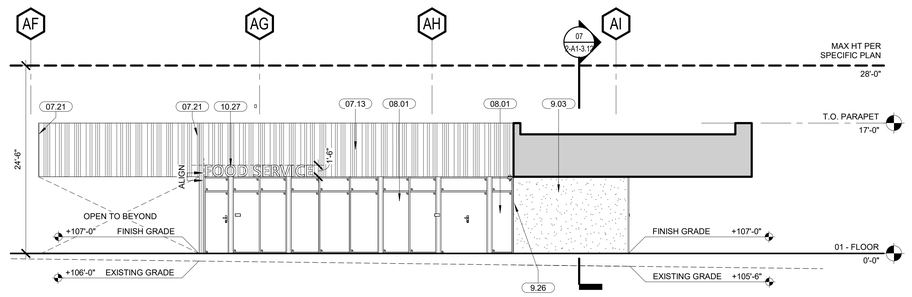
MS HUB - EXTERIOR ELEVATION - DECOMPRESSION ROOM - SOUTH | 1/8" = 1'-0" | 2-A1-3.01 | 19



MS HUB - EXTERIOR ELEVATION - EAST 1 | 1/8" = 1'-0" | 2-A1-3.01 | 06



MS HUB - EXTERIOR ELEVATION - SOUTH 2 | 1/8" = 1'-0" | 2-A1-3.01 | 17



MS HUB - EXTERIOR ELEVATION - SOUTH 3 | 1/8" = 1'-0" | 2-A1-3.01 | 05

KEYNOTES

07.13	RIBBED METAL WALL PANEL SYSTEM MP1, RE: 2-A8.11
07.21	MP1 SLIP JOINT, RE: 11/2-A8.34
08.01	1" INSULATED VISION GLAZING WITH LOW-E COATING, IN ALUMINUM STOREFRONT SYSTEM, SF1, RE: 2-A8.13
08.02	ALUMINUM SLIDING GLASS SYSTEM WITH VISION GLAZING AND LOW-E COATING
08.03	1" INSULATED VISION GLAZING WITH LOW-E COATING IN CURTAIN WALL SYSTEM, CW1, RE: 2-A8.13
08.06	ALUMINUM SHADOW BOX WITH 1-1/2" RIGID INSULATION BACKER, FINISH TO MATCH CURTAIN WALL SYSTEM
9.03	POLYMER MODIFIED FIBERGLASS REINFORCED PLASTER ASSEMBLY, PAINTED, RE: 2-A8.11
9.21	PLASTER CONTROL JOINT, RE: 03/2-A8.34
9.26	PLASTER SLIP JOINT, RE: 07/2-A8.34
10.16	ALUMINUM, FIXED HORIZONTAL SUN SCREEN, RE: 09/2-A8.13
10.27	PIN MOUNTED BRUSHED STAINLESS STEEL 18" TALL BUILDING DESIGNATION NUMBERS, FOR ATTACHMENT, RE: 05/2-A10.42

LEGEND

- RIBBED METAL WALL PANEL SYSTEM MP1
- POLYMER MODIFIED FIBERGLASS REINFORCED PLASTER; PAINTED
- IG-1 CLEAR GLAZING, FULLY TEMPERED
- IG-1 CLEAR GLAZING, FULLY TEMPERED WITH ALUMINUM SHADOW BOX BEYOND
- BRAKE METAL PANEL, FACTORY FINISH TO MATCH STOREFRONT SYSTEM
- HORIZONTAL ARCHITECTURAL LOUVER
- CJ — PLASTER CONTROL JOINT
- SJ — SLIP JOINT
- ALIGN

GENERAL NOTES

1. ALL STRUCTURAL STEEL VISIBLE TO VIEW SHALL BE SHOP PRIMED AND PAINTED WITH HIGH PERFORMANCE PAINT TO MATCH _____, U.N.O.
2. ALL DOWNSPOUTS TO BE FACTORY FINISHED TO MATCH METAL SOFFIT PANEL, U.N.O.
3. ALL STOREFRONT AND CURTAINWALL SYSTEMS TO BE FACTORY FINISHED, TO MATCH PPG DURANAR UC7009GF SUNSTORM SILVERSMITH.
4. ALL ARCHITECTURAL LOUVERS IN HOLLOW METAL FRAMES TO BE FACTORY FINISHED TO MATCH HOLLOW METAL FRAME FINISH.
5. ALL ARCHITECURAL LOUVERS IN STOREFRONT OR CURTAINWALL SYSTEMS TO BE FACTORY FINISHED TO MATCH STOREFRONT SYSTEM.
6. FOR OPENING TYPES, REFER TO SHEETS 2-A1-6.21 AND 2-A1-6.22.

LPA
ARCHITECTURE ENGINEERING INTERIOR DESIGN
LANDSCAPE ARCHITECTURE PLANNING
949-261-1001 Office
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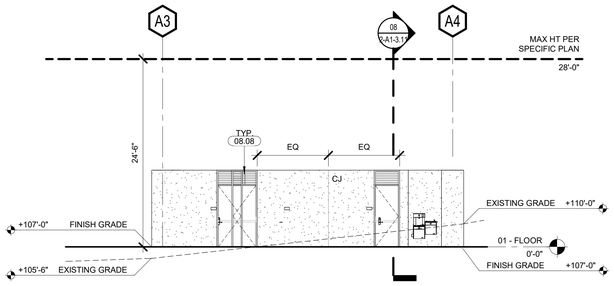
50% CONSTRUCTION DOCS	06/27/2025
DSA SUBMITTAL	08/08/2025

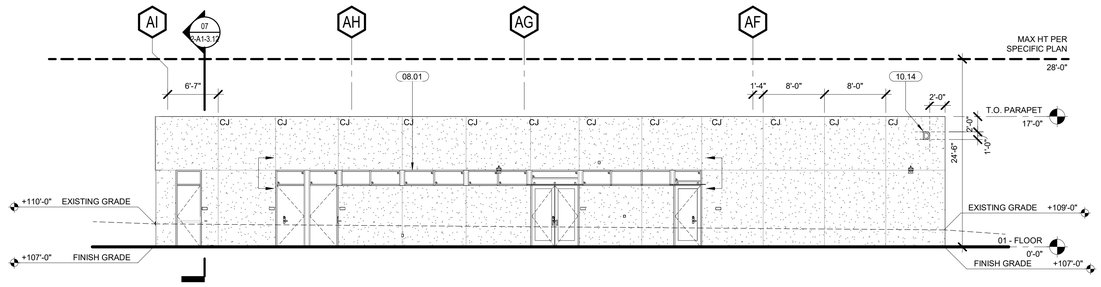
Job Number	31722
Checked By	Checker
Scale	1/8" = 1'-0"

MS HUB - EXTERIOR ELEVATIONS

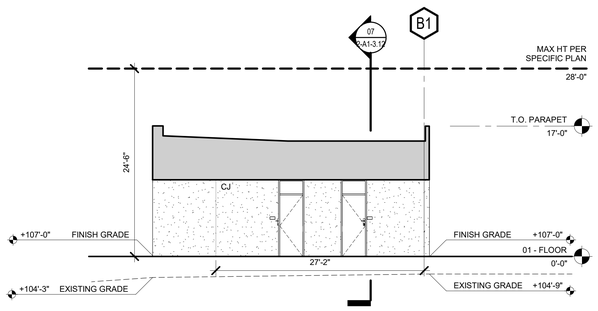
2-A1-3.01



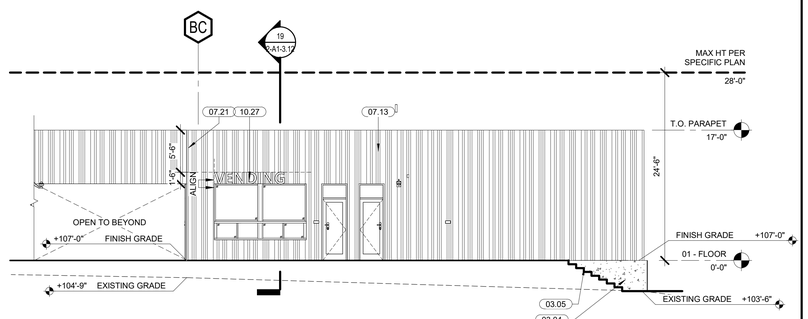
MS HUB - EXTERIOR ELEVATION - EAST 2 | 1/8" = 1'-0" | 2-A1-3.02 | 19



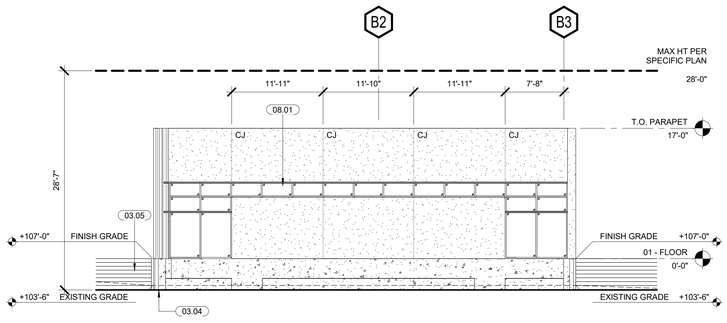
MS HUB - EXTERIOR ELEVATION - NORTH 1 | 1/8" = 1'-0" | 2-A1-3.02 | 07



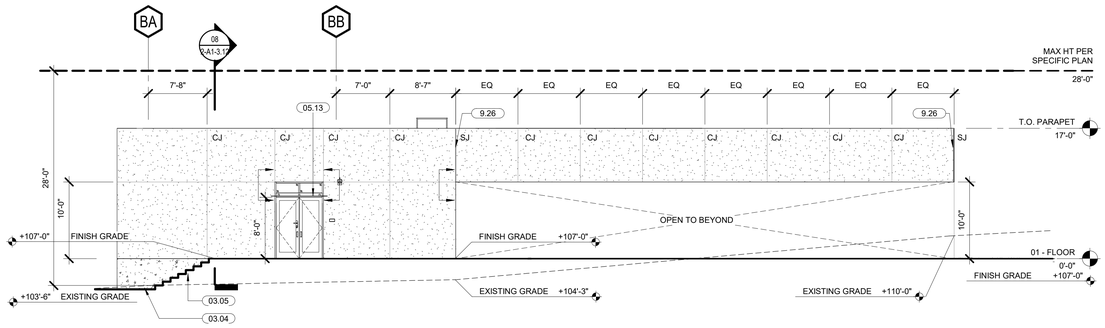
MS HUB - EXTERIOR ELEVATION - BROADCAST - NORTH 2 | 1/8" = 1'-0" | 2-A1-3.02 | 14



MS HUB - EXTERIOR ELEVATION - BROADCAST - WEST 2 | 1/8" = 1'-0" | 2-A1-3.02 | 06



MS HUB - EXTERIOR ELEVATION - BROADCAST - SOUTH 4 | 1/8" = 1'-0" | 2-A1-3.02 | 17



MS HUB - EXTERIOR ELEVATION - MS HUB - EAST 3 | 1/8" = 1'-0" | 2-A1-3.02 | 05

KEYNOTES

03.04	CAST IN PLACE STEM WALL, RE: STRUCTURAL DRAWINGS
03.05	CAST IN PLACE CONCRETE SEAT WALL, COLOR: NATURAL GRAY, TOP CAST #5, ETCH RE: LANDSCAPE DRAWINGS
05.13	STEEL PLATE, EYEBROW CANOPY OVER DOOR, RE: 13/2-A8.53
07.13	RIBBED METAL WALL PANEL SYSTEM MP1, RE: 2-A8.11
07.21	MP1 SLIP JOINT, RE: 11/2-A8.34
08.01	1" INSULATED VISION GLAZING WITH LOW-E COATING, IN ALUMINUM STOREFRONT SYSTEM, SF1, RE: 2-A8.13
08.08	HORIZONTAL ARCHITECTURAL LOUVER, FACTORY FINISH TO MATCH DOOR FRAME
9.26	PLASTER SLIP JOINT, RE: 07/2-A8.34
10.14	PIN MOUNTED BRUSHED STAINLESS STEEL 12" TALL BUILDING DESIGNATION NUMBERS, FOR ATTACHMENT, RE: 01/2-A10.42
10.27	PIN MOUNTED BRUSHED STAINLESS STEEL 18" TALL BUILDING DESIGNATION NUMBERS, FOR ATTACHMENT, RE: 05/2-A10.42

LEGEND

- RIBBED METAL WALL PANEL SYSTEM MP1
- POLYMER MODIFIED FIBERGLASS REINFORCED PLASTER; PAINTED
- IG-1 CLEAR GLAZING, FULLY TEMPERED
- IG-1 CLEAR GLAZING, FULLY TEMPERED WITH ALUMINUM SHADOW BOX BEYOND
- BRAKE METAL PANEL, FACTORY FINISH TO MATCH STOREFRONT SYSTEM
- HORIZONTAL ARCHITECTURAL LOUVER
- CJ — PLASTER CONTROL JOINT
- SJ — SLIP JOINT
- ALIGN

GENERAL NOTES

1. ALL STRUCTURAL STEEL VISIBLE TO VIEW SHALL BE SHOP PRIMED AND PAINTED WITH HIGH PERFORMANCE PAINT TO MATCH _____, U.N.O.
2. ALL DOWNSPOUTS TO BE FACTORY FINISHED TO MATCH METAL SOFFIT PANEL, U.N.O.
3. ALL STOREFRONT AND CURTAINWALL SYSTEMS TO BE FACTORY FINISHED, TO MATCH PPG DURANAR UC7009GF SUNSTORM SILVERSMITH.
4. ALL ARCHITECTURAL LOUVERS IN HOLLOW METAL FRAMES TO BE FACTORY FINISHED TO MATCH HOLLOW METAL FRAME FINISH.
5. ALL ARCHITECTURAL LOUVERS IN STOREFRONT OR CURTAINWALL SYSTEMS TO BE FACTORY FINISHED TO MATCH STOREFRONT SYSTEM.
6. FOR OPENING TYPES, REFER TO SHEETS 2-A1-6.21 AND 2-A1-6.22.

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949-261-1001 Office

LPADesignStudios.com

5301 California Avenue, Suite 100
Irvine, California 92617

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INCREMENT 02

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APN: 4469-017-900

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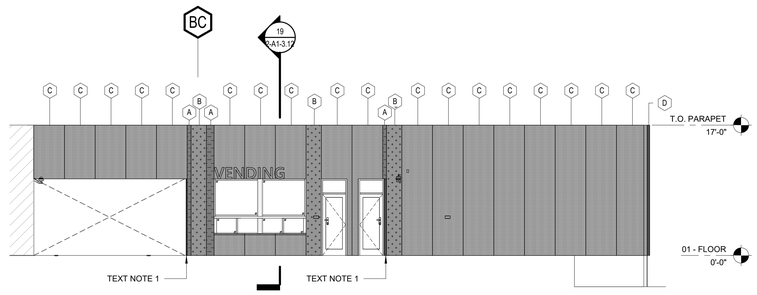
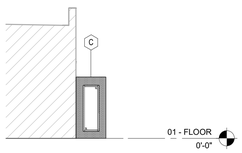
Job Number	31722
Checked By	Checker
Scale	1/8" = 1'-0"

MS HUB - EXTERIOR ELEVATIONS

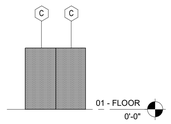
2-A1-3.02



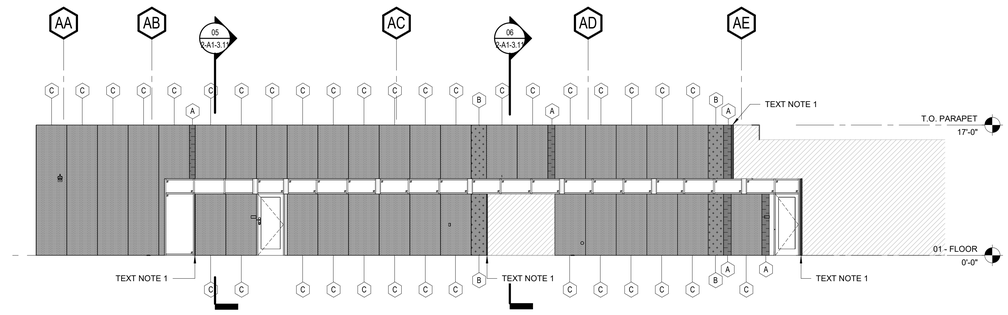
MS HUB - EXTERIOR ELEVATION - BROADCAST - WEST 2 - PANEL PATTERN | 1/8" = 1'-0" | 2-A1-3.03 | 07



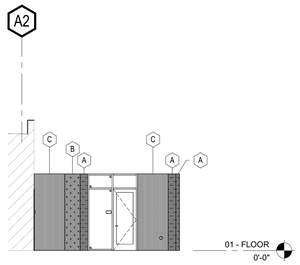
~~MS HUB - EXTERIOR ELEVATION - DECOMPRESSION ROOM - SOUTH - PANEL PATTERN~~ | 1/8" = 1'-0" | 2-A1-3.03 | 22



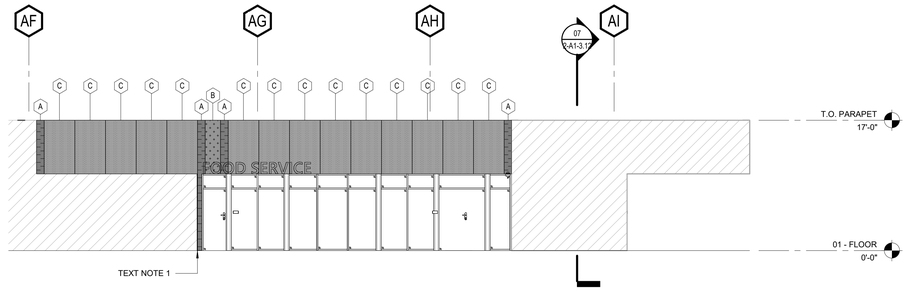
~~MS HUB - EXTERIOR ELEVATION - DECOMPRESSION ROOM - PANEL PATTERN~~ | 1/8" = 1'-0" | 2-A1-3.03 | 18



MS HUB - EXTERIOR ELEVATION - EAST 1 - PANEL PATTERN | 1/8" = 1'-0" | 2-A1-3.03 | 06



MS HUB - EXTERIOR ELEVATION - SOUTH 2 - PANEL PATTERN | 1/8" = 1'-0" | 2-A1-3.03 | 17



MS HUB - EXTERIOR ELEVATION - SOUTH 3 - PANEL PATTERN | 1/8" = 1'-0" | 2-A1-3.03 | 05

KEYNOTES

LEGEND

- MP MODULE TYPE A. RE: 05/2-A1-3.04
- MP MODULE TYPE B. RE: 09/2-A1-3.04
- MP MODULE TYPE C. RE: 13/2-A1-3.04
- MP MODULE TYPE D. RE: 17/-A1-3.04
- PORTION OF ELEVATION NOT APPLICABLE TO METAL PANEL PATTERN

TEXT NOTE 1: BRAKE METAL INFILL PANEL, FACTORY FINISH TO MATCH METAL PANEL SYSTEM

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LANDSCAPE ARCHITECTURE PLANNING
949-261-1001 Office
LPADesignStudios.com
5301 California Avenue, Suite 100
Irvine, California 92617

LICENSED ARCHITECT
RICHARD MUSTO
No. C-10639
REN 12/31/2026
STATE OF CALIFORNIA

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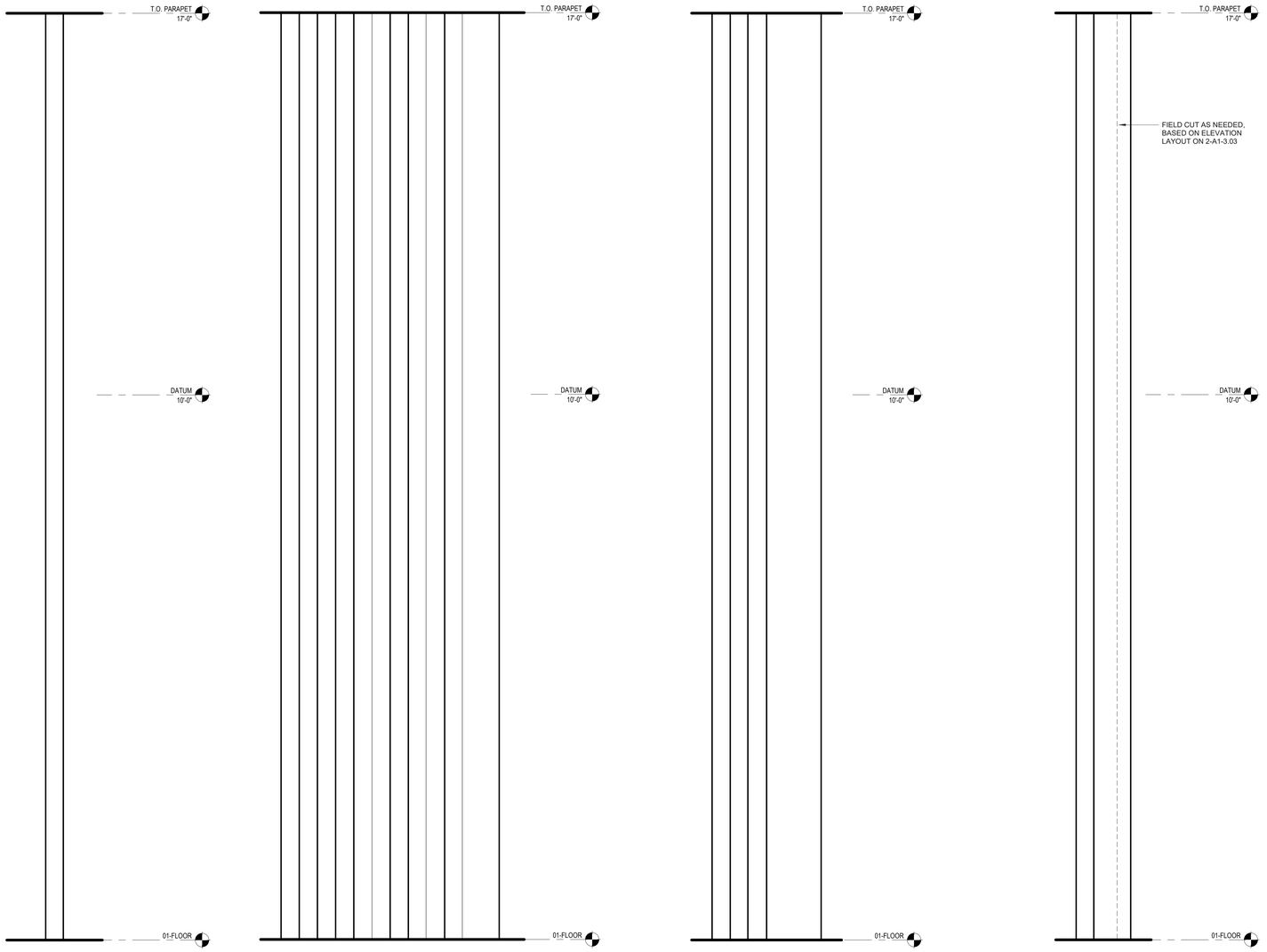
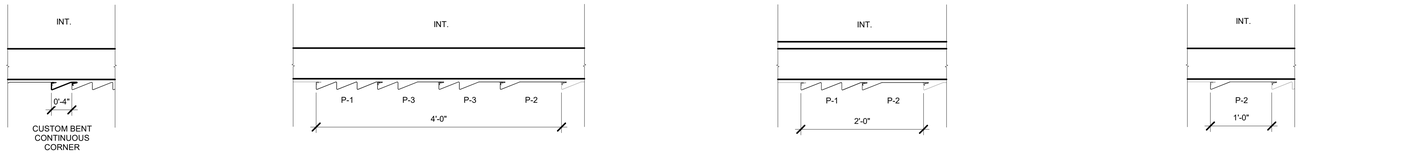
Job Number	31722
Checked By	Checker
Scale	1/8" = 1'-0"

MS HUB - EXTERIOR ELEVATIONS - METAL CLADDING PATTERN

2-A1-3.03





TYPE D 1" = 1'-0" 2-A1-3.04 17

TYPE C 1" = 1'-0" 2-A1-3.04 13

TYPE B 1" = 1'-0" 2-A1-3.04 09

TYPE A 1" = 1'-0" 2-A1-3.04 05

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949-261-1001 Office

LPADesignStudios.com

5301 California Avenue, Suite 100
Irvine, California 92617

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RICHARD MUSTO
No. C-10639
REN 12/31/2026
STATE OF CALIFORNIA

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Scale	1" = 1'-0"

MS HUB - EXTERIOR ELEVATIONS - METAL CLADDING PATTERN

2-A1-3.04



BIRD'S EYE VIEW FROM HIGH ENTRY NEAR PARKING LOT D, LOOKING NORTHWEST



BIRD'S EYE VIEW FROM CAMPUS ENTRY NEAR PARKING LOT D, LOOKING NORTHWEST



VIEW FROM BUILDING A/B LOOKING NORTH



VIEW FROM BUILDING E LOOKING NORTHWEST

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949-261-1001 Office

LPADesignStudios.com

5301 California Avenue, Suite 100
Irvine, California 92617

LICENSED ARCHITECT
RICHARD MIYO
No. C10639
REN 12/31/2026
STATE OF CALIFORNIA

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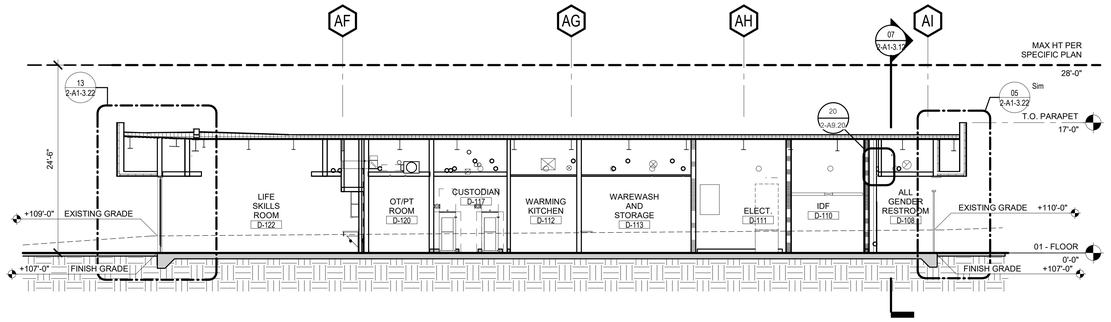
DSA SUBMITTAL	09/09/2025

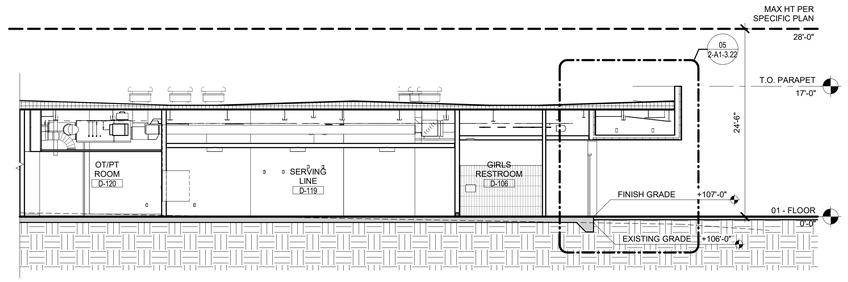
Job Number	31722
Checked By	Checker
Scale	

MS HUB - EXTERIOR VIEWS

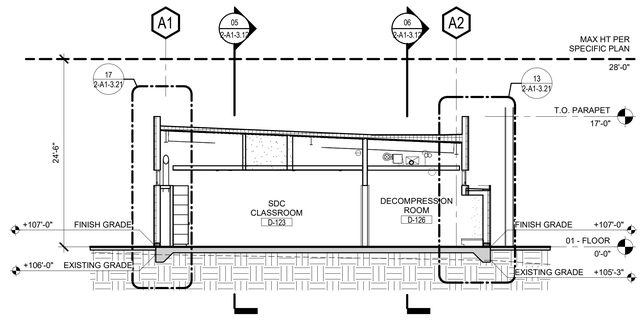
2-A1-3.05



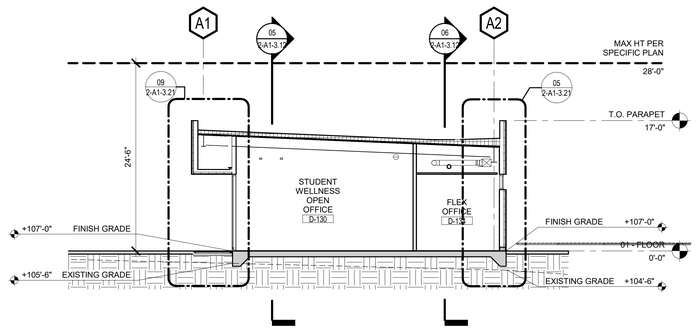
MS HUB - BUILDING SECTION - NORTH 4 | 1/8" = 1'-0" | 2-A1-3.11 | 08



MS HUB - BUILDING SECTION - NORTH 3 | 1/8" = 1'-0" | 2-A1-3.11 | 07



MS HUB - BUILDING SECTION - NORTH 2 | 1/8" = 1'-0" | 2-A1-3.11 | 06



MS HUB - BUILDING SECTION - NORTH 1 | 1/8" = 1'-0" | 2-A1-3.11 | 05

GENERAL NOTES

1. EXTERIOR WALL ASSEMBLY TO BE MIN R-12 CONTINUOUS & R-19 BATT.
2. ROOF ASSEMBLY TO BE MIN R-30.

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LANDSCAPE ARCHITECTURE PLANNING

949-261-1001 Office

LPADesignStudios.com

5301 California Avenue, Suite 100
Irvine, California 92617

LICENSED ARCHITECT
RICHARD MISTO
No. C16639
REN 12/31/2026
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DSA SUBMITTAL	08/08/2025

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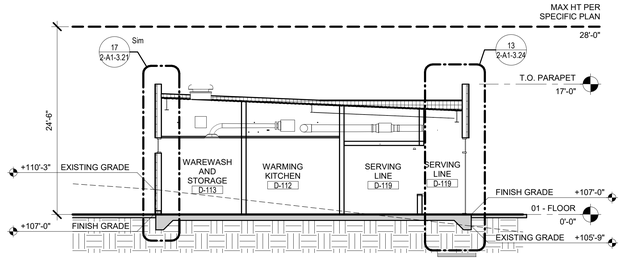
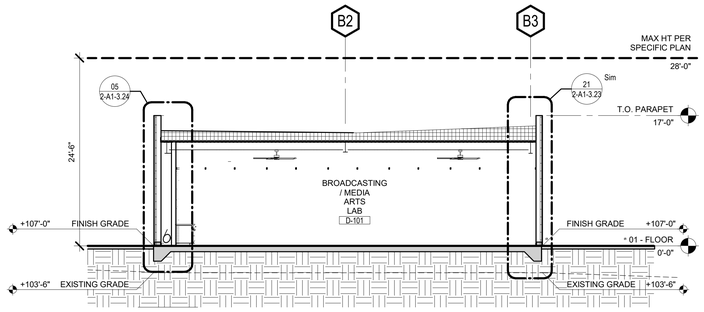
Scale	1/8" = 1'-0"

MS HUB - BUILDING SECTIONS

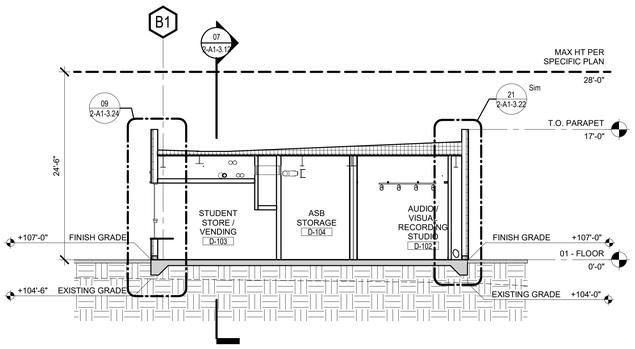
2-A1-3.11



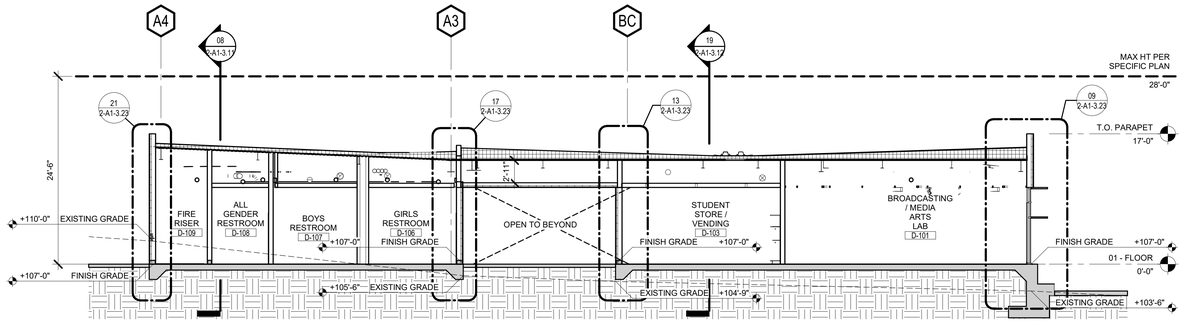
MS HUB - BUILDING SECTION - EAST 3 | 1/8" = 1'-0" | 2-A1-3.12 | 16



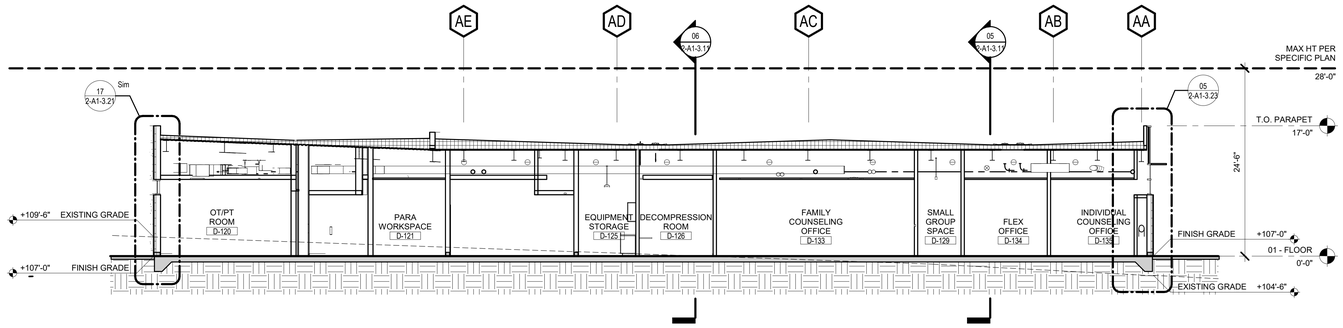
MS HUB - BUILDING SECTION - BROADCAST - NORTH 5 | 1/8" = 1'-0" | 2-A1-3.12 | 08



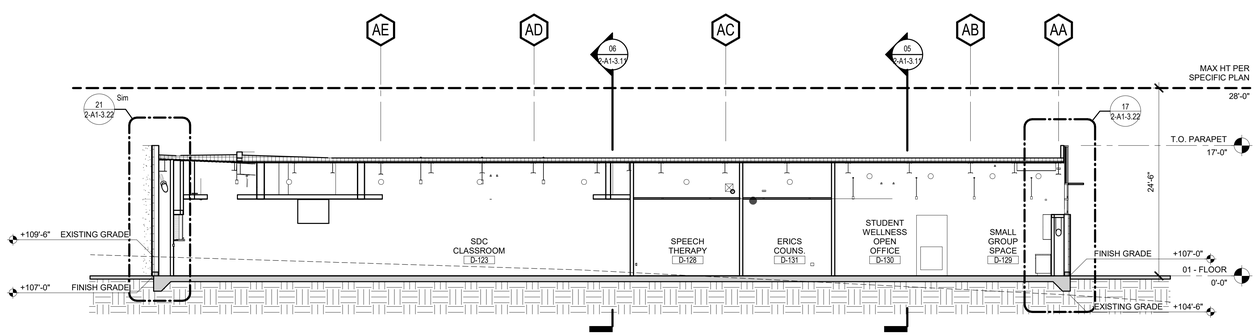
MS HUB - BUILDING SECTION - BROADCAST - NORTH 6 | 1/8" = 1'-0" | 2-A1-3.12 | 19



MS HUB - BUILDING SECTION - HUB - EAST 4 | 1/8" = 1'-0" | 2-A1-3.12 | 07



MS HUB - BUILDING SECTION - EAST 2 | 1/8" = 1'-0" | 2-A1-3.12 | 06



MS HUB - BUILDING SECTION - EAST 1 | 1/8" = 1'-0" | 2-A1-3.12 | 05

GENERAL NOTES

1. EXTERIOR WALL ASSEMBLY TO BE MIN R-12 CONTINUOUS & R-19 BATT.
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5301 California Avenue, Suite 100
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LICENSED ARCHITECT RICHARD MISYO No. C16639 REN 12/31/2025 STATE OF CALIFORNIA

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MALIBU HIGH SCHOOL
INCREMENT 02

30215 Morning View Dr.,
Malibu, CA 90265
APN: 4469-017-900

Developed for
SANTA MONICA - MALIBU UNIFIED SCHOOL DISTRICT

Revision	Date

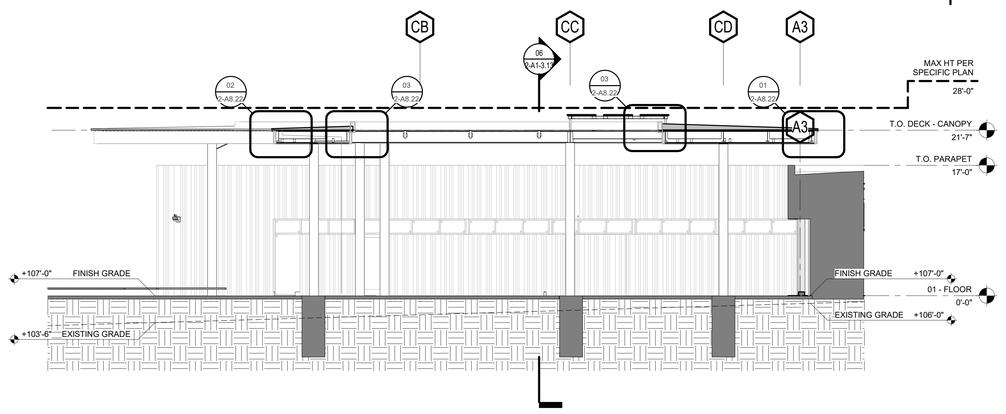
Submittal	Date
SCHEMATIC DESIGN	09/04/2024
50% DESIGN DEVELOPMENT	12/13/2024
100% DESIGN DEVELOPMENT	02/21/2025
DSA SUBMITTAL	06/27/2025
50% CONSTRUCTION DOCS	06/27/2025
DSA SUBMITTAL	09/08/2025

Job Number	31722
Checked By	Checker
Scale	1/8" = 1'-0"

MS HUB - BUILDING SECTIONS

2-A1-3.12

MS HUB - CANOPY - EAST/WEST | 1/8" = 1'-0" | 2-A1-3.13 | 06



MS HUB - CANOPY - NORTH/SOUTH | 1/8" = 1'-0" | 2-A1-3.13 | 05

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ARCHITECTURE ENGINEERING INTERIOR DESIGN
LANDSCAPE ARCHITECTURE PLANNING

949-261-1001 Office

LPADesignStudios.com

5301 California Avenue, Suite 100
Irvine, California 92617

LICENSED ARCHITECT
RICHARD MUSTO
No. C-10639
REN 12/31/2026
STATE OF CALIFORNIA

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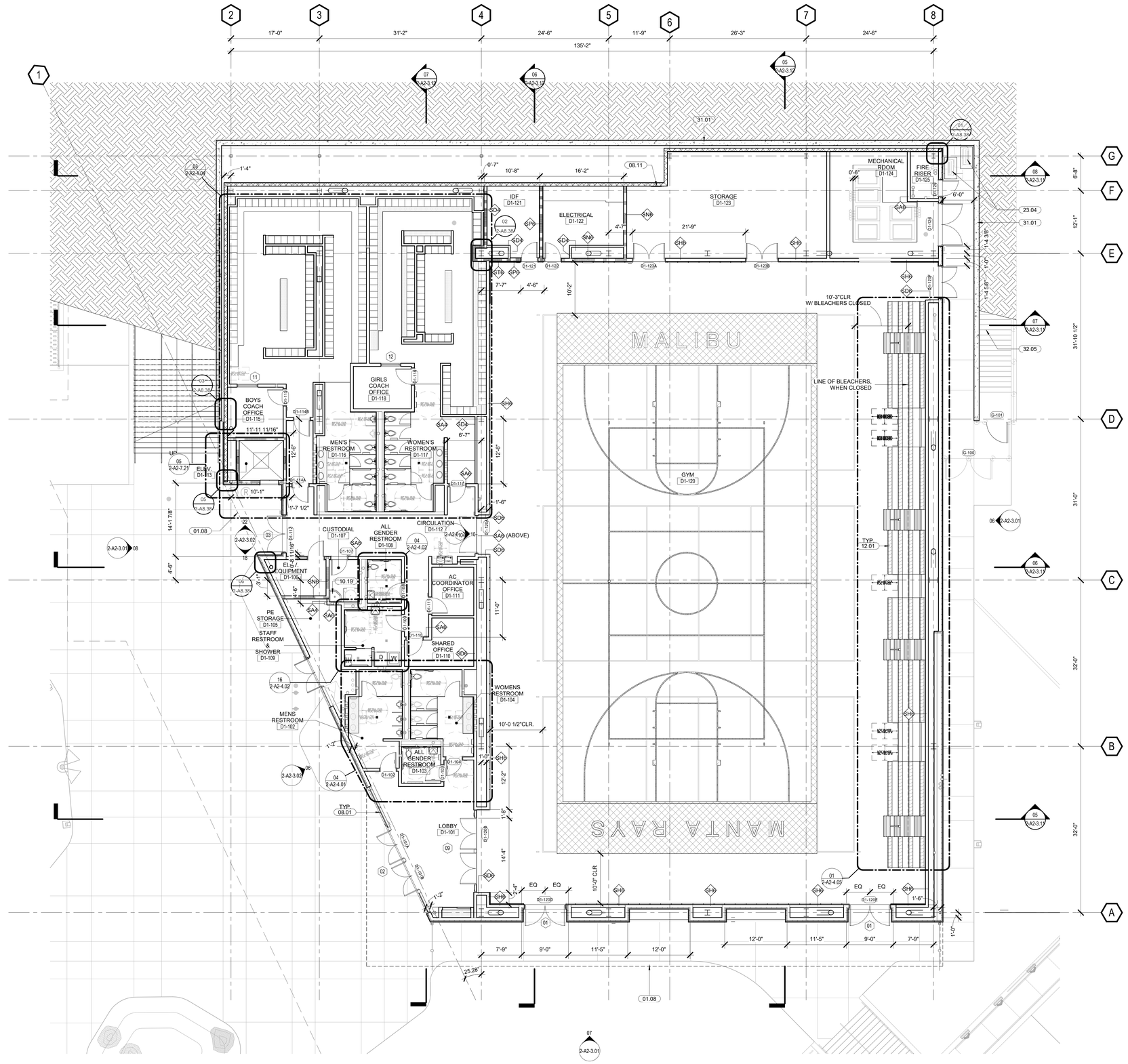
MS HUB - CANOPY SECTIONS

2-A1-3.13



KEYNOTES

01.08	LINE OF OVERHANG ABOVE
08.01	1" INSULATED VISION GLAZING WITH LOW-E COATING, IN ALUMINUM STOREFRONT SYSTEM, SF1, RE: 2-A8.13
08.11	24" X 24: ACCESS PANEL
10.19	MOP AND BROOM RACK, RE: 10/2-A9.40
12.01	MOTORIZED WINDOW ROLLER SHADE WITH FASCIA, RE: FINISH SCHEDULE FOR SHADE FABRIC, RE: XX/2-AX.XX
23.04	CONDENSING UNIT, RE: MECHANICAL DRAWINGS
31.01	TIE BACK RETAINING WALL, RE: SUPPORT OF EXCAVATION DRAWINGS
32.05	CONCRETE STAIRS ON-GRADE, RE: LANDSCAPE DRAWINGS

LEGEND

- NEW MILLWORK / CASEWORK
- **WALL TYPE.** LETTER INDICATES WALL TYPE. SEE A9.0X SERIES.
  STUD SIZE. NUMBER INDICATES STUD SIZE. SEE A9.0X SERIES. REFER TO S6.71 FOR INTERIOR STUD WALL SCHEDULE
- OPENING TYPE, REFER TO SHEETS 2-A2-6.21 AND 2-A2-6.22
- DENOTES DOOR NUMBER, REFER TO DOOR SCHEDULE ON SHEET 2-A2-6.11
- DOOR: SEE DOOR SCHEDULE ON SHEET 2-A2-6.11
- METAL STUD WALL CONSTRUCTION
- 1-HR INTERIOR FIRE RATED METAL STUD PARTITION
- 2-HR INTERIOR FIRE RATED METAL STUD PARTITION
- MASONRY WALL CONSTRUCTION
- EXTERIOR CANOPY OVERHEAD
- FEC — SEMI-RECESSED FIRE EXTINGUISHER CABINET; REF: 02/A9.60
- ALIGN SURFACE

GENERAL NOTES

1. ALL INTERIOR PARTITIONS TO BE WALL TYPE "SA", U.N.O. FOR ALL PARTITION TYPES REFER TO SHEETS 2-A9.01 AND 2-A9.02.
2. PROVIDE 6" HIGH CONCRETE CURBS AT ALL RESTROOMS, CUSTODIAL CLOSETS, WATER HEATER CLOSETS, & SHOWER COMPARTMENTS, U.N.O.
3. PROVIDE MOISTURE RESISTANT GYP. BD. IN ALL WET LOCATIONS, U.N.O.
4. PROVIDE CEMENTITIOUS BACKER BOARD @ ALL TILE WALL LOCATIONS, U.N.O.
5. PROVIDE HIGH IMPACT GYP BOARD AT CORRIDORS TO A HEIGHT OF 8'-0" A.F.F. U.N.O.
6. PROVIDE ACOUSTIC BATT INSULATION FULL HEIGHT AT ALL INTERIOR PARTITIONS.
7. REFER TO G0.32 FOR TYPICAL CLEARANCES AT DOORS.
8. FOR TYPICAL SWITCH & DEVICE ALIGNMENTS, RE: 04/2-A9.60
9. REFER TO SHEET 2-A9.11 FOR PENETRATIONS THROUGH RATED WALL CONDITIONS. FOR ALL RATED WALLS, PROVIDE THE FOLLOWING MARKINGS & IDENTIFICATIONS PER THE APPLICABLE CODES:
   A. LOCATE WITHIN 15 FT OF THE END OF EACH WALL & AT INTERVALS NOT EXCEEDING 30 FT MEASURED HORIZONTALLY ALONG THE WALL OR PARTITION.
   B. INCLUDE LETTERING NOT LESS THAN 3" IN HEIGHT WITH A MIN 3/8" STROKE IN A CONTRASTING COLOR INCORPORATING THE SUGGESTED WORDING, "FIRE &/OR SMOKE BARRIER - PROTECT ALL OPENINGS", OR OTHER WORDING.
10. PROVIDE FIRE EXTINGUISHERS PER TITLE 19, ARTICLE 3-29, FINAL LOCATIONS TO BE COORDINATED AND REVIEWED BY THE ARCHITECT AND FIRE INSPECTOR IN THE FIELD PRIOR TO INSTALLATION.
11. TO EDGE OF SLAB PLANS FOR FLOOR DRAIN LOCATIONS.
12. LOCATE DOORS MINIMUM 4 INCHES FROM ADJACENT WALL, TYP.
13. REFER TO REFLECTED CEILING PLAN FOR ILLUMINATED EXIT SIGN LOCATIONS.
14. REFER TO FINISH PLANS FOR INTERIOR ELEVATION REFERENCES.

TRUE NORTH PROJECT NORTH

GYM - FIRST FLOOR PLAN | 1/8" = 1'-0" | 2-A2-2.01 | 05

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ARCHITECTURE ENGINEERING INTERIOR DESIGN
LANDSCAPE ARCHITECTURE PLANNING
949-261-1001 Office
LPADesignStudios.com
5301 California Avenue, Suite 100
Irvine, California 92617
LICENSED ARCHITECT RICHARD MISTO No. C16639 REN 12/31/2025 STATE OF CALIFORNIA

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INCREMENT 02

30215 Morning View Dr.,
Malibu, CA 90265
APN: 4469-017-900

Developed for
SANTA MONICA - MALIBU UNIFIED SCHOOL DISTRICT

Revision	Date

Submittal	Date
SCHEMATIC DESIGN	08/04/2024
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Job Number	31722
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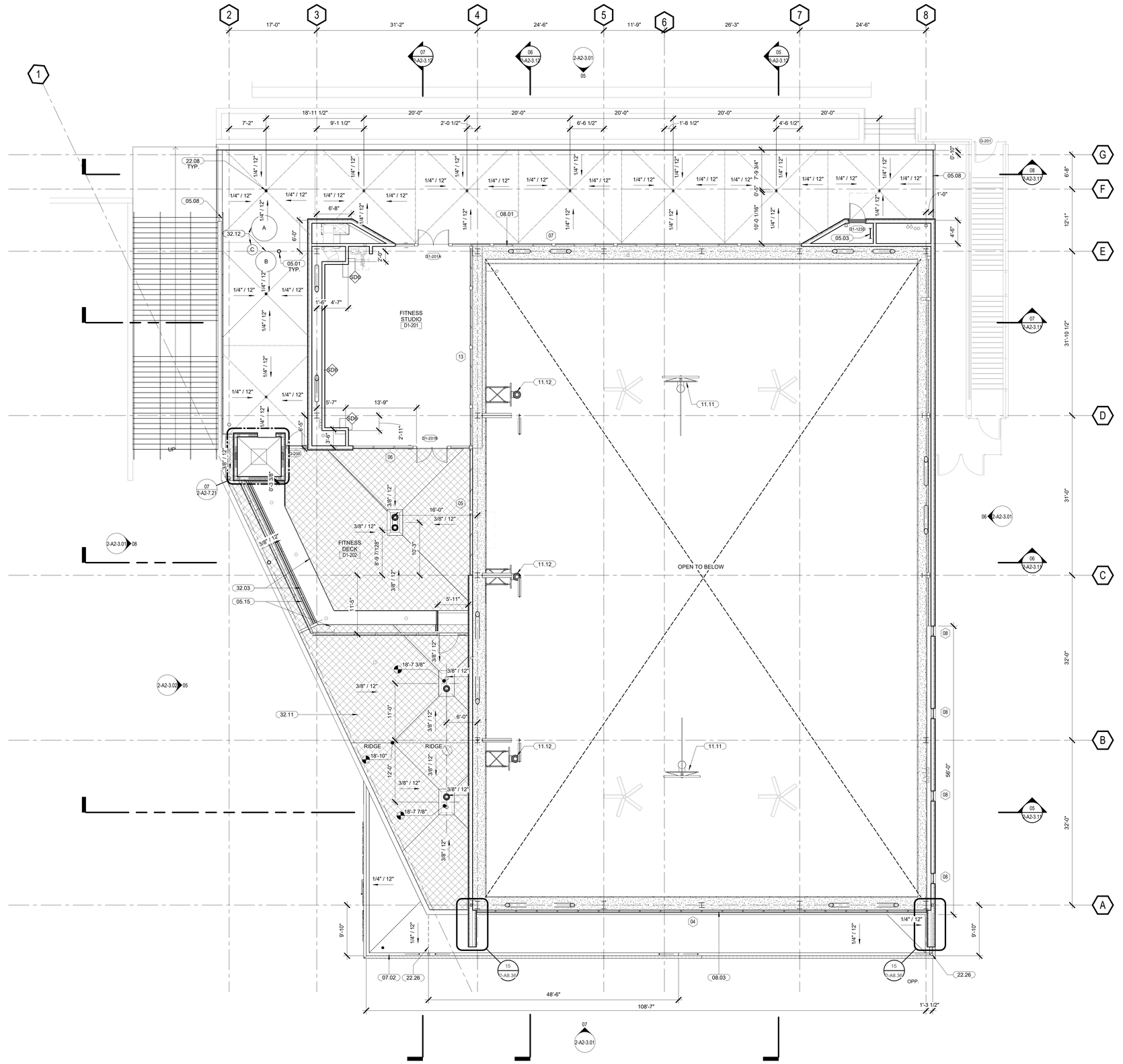
Scale	1/8" = 1'-0"

GYM - LOWER LEVEL FLOOR PLAN

2-A2-2.01



GYM - SECOND FLOOR PLAN | 1/8" = 1'-0" | 2-A2-2.02 | 05

KEYNOTES

05.01	STRUCTURAL STEEL COLUMN, PRIMED AND PAINTED WITH HIGH PERFORMANCE PAINT TO MATCH _____, TYP.
05.03	ROOF ACCESS LADDER, RE: 18/2-A8.21
05.08	STEEL GUARDRAIL SYSTEM; 2" X 3/4" FLAT BAR FRAME WITH 13 GA. 3/4" X 2" HOLLOW TUBE INFILL, PRIMED AND PAINTED WITH HIGH PERFORMANCE PAINT, RE: 02/2-A8.43
05.15	STEEL-FRAMED WINDSCREEN WITH HIGH PERFORMANCE COATING & GLASS PANELING; RE: 2-A2-7.31 AND 2-A8.42
07.02	CUSTOM PROFILE ALUMINUM GUTTER WITH INTEGRATED, INTERNAL SLOPE TO DRAIN. FACTORY FINISH TO MATCH _____.
08.01	1" INSULATED VISION GLAZING WITH LOW-E COATING, IN ALUMINUM STOREFRONT SYSTEM, SF1, RE: 2-A8.13
08.03	1" INSULATED VISION GLAZING WITH LOW-E COATING IN CURTAIN WALL SYSTEM, CW1. RE: 2-A8.13
11.11	FRONT FOLDING BACKSTOP, RE: 2-01/A9.61
11.12	FIXED BASKETBALL BACKBOARD, RE: 01/2-A9.62
22.08	AREA DRAIN, RE: 04/2-A8.01 AND PLUMBING DRAWINGS
22.26	INTEGRATED ROOF DRAIN GUTTER LEADER TO DOWNSPOUT, RE: 03/2-A8.24
32.03	MODULAR METAL PLANTER; RE: LANDSCAPE DWGS
32.11	REFER TO MATERIALS AND LAYOUT ENLARGEMENT PLAN, REF: LANDSCAPE DWGS
32.12	TOPANGA - BOULDER; RE LANDSCAPE DRAWINGS

LEGEND

	NEW MILLWORK / CASEWORK
	SINGLE-PLY ROOF MEMBRANE
SA2U	**WALL TYPE.** LETTER INDICATES WALL TYPE. SEE A9.0X SERIES.
	STUD SIZE. NUMBER INDICATES STUD SIZE. SEE A9.0X SERIES. REFER TO S6.71 FOR INTERIOR STUD WALL SCHEDULE
TYP. 7	KEYNOTE
101	DENOTES DOOR NUMBER - REFER TO DOOR SCHEDULE / DOOR TYPES, SHEET 2-A2-6.11
XX	FINISH TAG
	DOOR: SEE DOOR LEGEND SHEET 2-A2-6.11
	METAL STUD WALL CONSTRUCTION
	MASONRY WALL CONSTRUCTION
	EXTERIOR CANOPY OVERHEAD
FEC	SEMI-RECESSED FIRE EXTINGUISHER CABINET; REF: 02/A9.60
T.O.D.	TOP OF DRAIN

GENERAL NOTES

1. ALL INTERIOR PARTITIONS TO BE WALL TYPE "SA", U.N.O. FOR ALL PARTITION TYPES REFER TO SHEET A9.01
2. PROVIDE 6" HIGH CONCRETE CURBS @ ALL RESTROOMS, CUSTODIAL CLOSETS, WATER HEATER CLOSETS, & SHOWER COMPARTMENTS, U.N.O.
3. PROVIDE MOISTURE RESISTANT GYP. BD. IN ALL WET LOCATIONS, U.N.O.
4. PROVIDE CEMENTITIOUS BACKER BOARD @ ALL TILE WALL LOCATIONS, U.N.O.
5. REFER TO G0.32 FOR TYP CLEARANCE @ DOOR LOCATIONS.
6. FOR TYP SWITCH & DEVICE ALIGNMENTS, REF: 04/A9.60
7. REFER TO SHEET A9.06 FOR PENETRATIONS THROUGH RATED WALL CONDITIONS. FOR ALL RATED WALLS, PROVIDE THE FOLLOWING MARKINGS & IDENTIFICATIONS PER THE APPLICABLE CODES:
   A. BE LOCATED WITHIN 15 FT OF THE END OF EA WALL & @ INTERVALS NOT EXCEEDING 30 FT MEASURED HORIZ ALONG THE WALL OR PARTITION.
   B. INCLUDE LETTERING NOT LESS THAN 3" IN HEIGHT WITH A MIN 3/8" STROKE IN A CONTRASTING COLOR INCORPORATING THE SUGGESTED WORDING, "FIRE &/OR SMOKE BARRIER - PROTECT ALL OPENINGS", OR OTHER WORDING.
8. REFER TO EDGE OF SLAB PLANS FOR FLOOR DRAIN LOCATIONS.
9. PROVIDE FIRE EXTINGUISHERS PER TITLE 19, ARTICLE 3-29. FINAL LOCATIONS TO BE COORDINATED AND REVIEWED BY THE ARCHITECT AND FIRE INSPECTOR IN THE FIELD PRIOR TO INSTALLATION.
10. TO EDGE OF SLAB PLANS FOR FLOOR DRAIN LOCATIONS.
11. LOCATE DOORS MINIMUM 4 INCHES FROM ADJACENT WALL, TYP.
12. REFER TO REFLECTED CEILING PLAN FOR ILLUMINATED EXIT SIGN LOCATIONS.
13. REFER TO FINISH PLANS FOR INTERIOR ELEVATION REFERENCES.

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LANDSCAPE ARCHITECTURE PLANNING

949-261-1001 Office

LPADesignStudios.com

5301 California Avenue, Suite 100
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LICENSED ARCHITECT RICHARD MEYER No. C16639 REN 12/31/2025 STATE OF CALIFORNIA

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INCREMENT 02

30215 Morning View Dr.,
Malibu, CA 90265
APN: 4469-017-900

Developed for
SANTA MONICA - MALIBU UNIFIED SCHOOL DISTRICT

Revision	Date

Submittal	Date
SCHEMATIC DESIGN	09/04/2024
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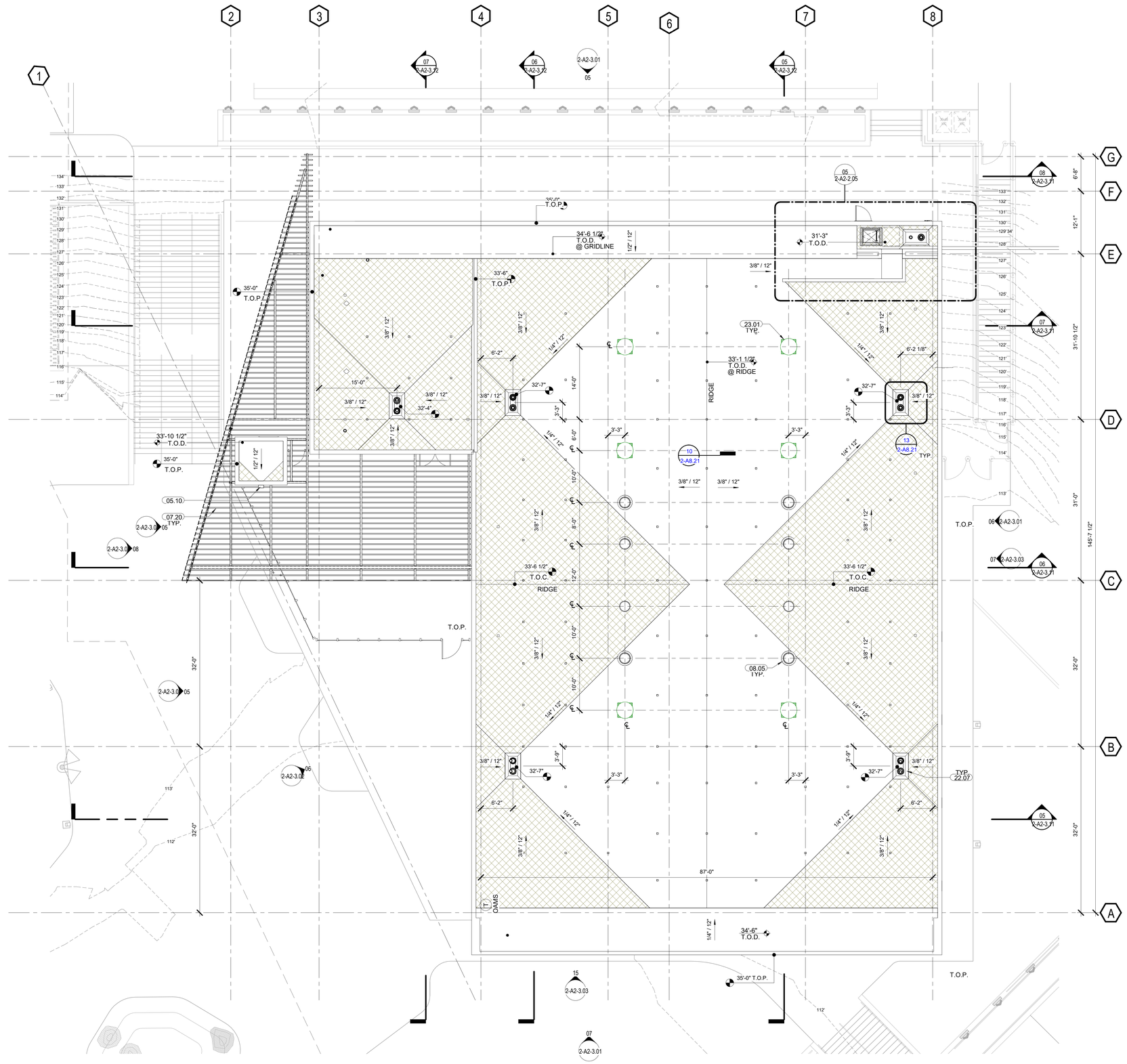
Job Number	31722
Checked By	Checker
Scale	1/8" = 1'-0"

GYM - UPPER LEVEL FLOOR PLAN

2-A2-2.02



GYM - ROOF PLAN | 1/8" = 1'-0" | 2-A2-2.03 | 05

KEYNOTES

05.10	CUSTOM STEEL PLATE SCUPPER, PRIMED AND PAINTED TO MATCH PLASTER SYSTEM, RE: 19 AND 20 ON SHEET 2-A8.22
07.20	ALUMINUM BATTEN TRELLIS ASSEMBLY SYSTEM, RE: S4/2-A8.12
08.05	TUBULAR SKYLIGHT NATURAL DAYLIGHT SYSTEM, RE: 17/2-A8.21
22.07	ROOF AND OVERFLOW DRAIN ASSEMBLY, RE: 01 AND 13 ON A8.21 AND PLUMBING DRAWINGS
23.01	GRAVITY VENT, RE: MECHANICAL DRAWINGS

LEGEND

	SINGLE-PLY PVC ROOFING SYSTEM
	WALKWAY PROTECTION PAD FOR ROOFING ASSEMBLY
	1/2" COVER BOARD OVER TAPERED RIGID INSULATION CRICKET, SLOPE TO DRAIN PER PLAN (1/4" PER FOOT MIN. AT VALLEY WHERE CRICKET MEETS ROOF)
	PHOTOVOLTAIC PANEL, RE: ELECTRICAL DRAWINGS
	INDICATES ELEVATION (0'-0" DEFINED AS F.F.E. PER CIVIL)
XX" / XX"	INDICATES ROOF SLOPE
T.O.P.	TOP OF PARAPET
T.O.SH.	TOP OF SHEATHING
T.O.S.	TOP OF STEEL
T.O.D.	TOP OF STEEL DECK
T.O.C.	TOP OF CRICKET
	ROOF AND OVERFLOW DRAIN
	ROOF ACCESS HATCH

GENERAL NOTES

1. ROOFING SYSTEM TO BE CLASS A RATED.
2. ROOF SYSTEM SHALL BE SLOPED A MINIMUM OF 1/4" IN 12 INCHES AT VALLEYS FOR DRAINAGE. VERIFY PRIOR TO CONSTRUCTION. NOTIFY ARCHITECT IMMEDIATELY IN CASE OF DISCREPANCIES.
3. PRIOR TO THE ISSUANCE OF USE AND OCCUPANCY, WRITTEN CERTIFICATION BY A CALIFORNIA REGISTERED ENGINEER THAT THE ROOF IS IN CONFORMANCE WITH THE APPROVED PLANS SHALL BE SUBMITTED TO THE PROJECT INSPECTOR.
4. INSTALLATION OF THE ROOFING SHALL BE IN STRICT ACCORDANCE WITH MANUFACTURERS SPECIFICATIONS AND PROCEDURES.
5. FOR TYPICAL ROOF PENETRATION SPACING, RE: 09/A8.21.
6. FOR TYPICAL ROOF PENETRATIONS RE: A8.21.
7. ALL PENETRATIONS THROUGH THE ROOF SHALL BE BY THE USE OF ROUND CONDUIT FOR PIPES, VENTS, RISERS AND EQUIPMENT SUPPORTS. THE USE OF CHANNELS, ANGLES, OR UNISTRUT THROUGH THE ROOF WITH PITCH POCKETS SHALL NOT BE ALLOWED.
8. REFER TO WALL SECTIONS FOR PARAPET DETAILS.
9. FOR TYPICAL CRICKET LAYOUT RE: XX/XXXX.

LPA
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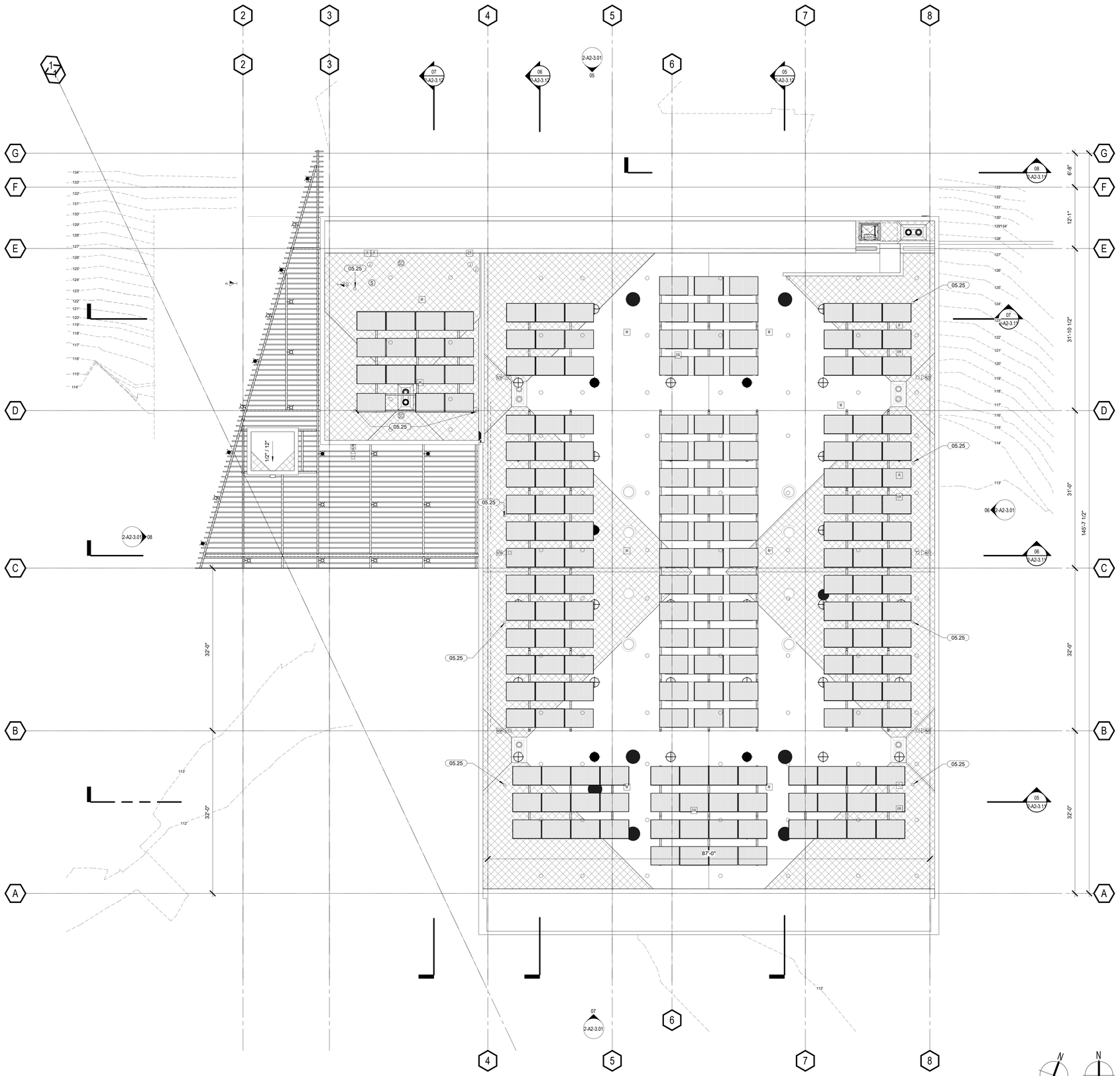
GYM - ROOF PLAN

2-A2-2.03



GYM - ROOF PLAN - PV LAYOUT | 1/8" = 1'-0" | 2-A2-2.04 | 05

KEYNOTES

05.25	SAFETY TIE OFF POST, RE: 23/2-A8.21

LEGEND

	SINGLE-PLY PVC ROOFING SYSTEM
	WALKWAY PROTECTION PAD FOR ROOFING ASSEMBLY
	1/2" COVER BOARD OVER TAPERED RIGID INSULATION CRICKET, SLOPE TO DRAIN PER PLAN (1/4" PER FOOT MIN. AT VALLEY WHERE CRICKET MEETS ROOF)
	PHOTOVOLTAIC PANEL. RE: ELECTRICAL DRAWINGS
	INDICATES ELEVATION (0'-0" DEFINED AS F.F.E. PER CIVIL)
XX" / XX"	INDICATES ROOF SLOPE
T.O.P.	TOP OF PARAPET
T.O.SH.	TOP OF SHEATHING
T.O.S.	TOP OF STEEL
T.O.D.	TOP OF STEEL DECK
T.O.C.	TOP OF CRICKET
	ROOF AND OVERFLOW DRAIN
	ROOF ACCESS HATCH

GENERAL NOTES

1. ROOFING SYSTEM TO BE CLASS A RATED.
2. ROOF SYSTEM SHALL BE SLOPED A MINIMUM OF 1/4" IN 12 INCHES AT VALLEYS FOR DRAINAGE. VERIFY PRIOR TO CONSTRUCTION. NOTIFY ARCHITECT IMMEDIATELY IN CASE OF DISCREPANCIES.
3. PRIOR TO THE ISSUANCE OF USE AND OCCUPANCY, WRITTEN CERTIFICATION BY A CALIFORNIA REGISTERED ENGINEER THAT THE ROOF IS IN CONFORMANCE WITH THE APPROVED PLANS SHALL BE SUBMITTED TO THE PROJECT INSPECTOR.
4. INSTALLATION OF THE ROOFING SHALL BE IN STRICT ACCORDANCE WITH MANUFACTURERS SPECIFICATIONS AND PROCEDURES.
5. FOR TYPICAL ROOF PENETRATION SPACING, RE: 09/A8.21.
6. FOR TYPICAL ROOF PENETRATIONS RE: A8.21.
7. ALL PENETRATIONS THROUGH THE ROOF SHALL BE BY THE USE OF ROUND CONDUIT FOR PIPES, VENTS, RISERS AND EQUIPMENT SUPPORTS. THE USE OF CHANNELS, ANGLES, OR UNISTRUT THROUGH THE ROOF WITH PITCH POCKETS SHALL NOT BE ALLOWED.
8. REFER TO WALL SECTIONS FOR PARAPET DETAILS.
9. FOR TYPICAL CRICKET LAYOUT RE: XX/XXXX.

LPA
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LPADesignStudios.com
5301 California Avenue, Suite 100
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LICENSED ARCHITECT RICHARD MUSTO No. C19639 REN:12/31/2025 STATE OF CALIFORNIA

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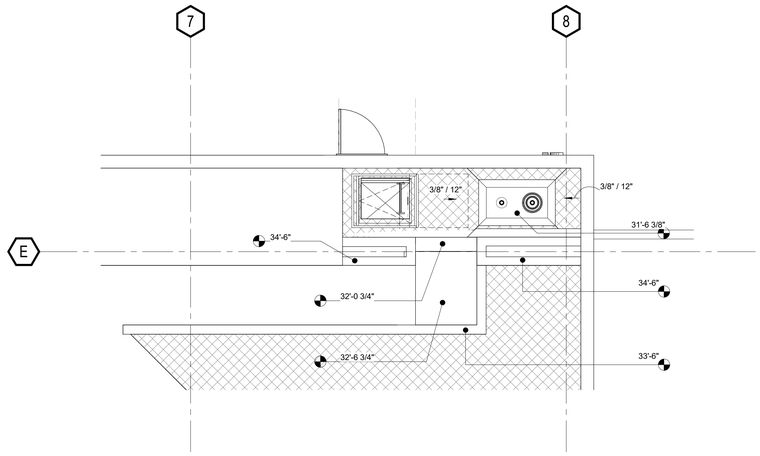
GYM - ROOF PLAN - PV LAYOUT

2-A2-2.04



TRUE NORTH PROJECT NORTH

ROOF PLAN - Callout 1 | 1/4" = 1'-0" | 2-A2-2.05 | 05

LEGEND

	SINGLE-PLY PVC ROOFING SYSTEM
	WALKWAY PROTECTION PAD FOR ROOFING ASSEMBLY
	1/2" COVER BOARD OVER TAPERED RIGID INSULATION CRICKET, SLOPE TO DRAIN PER PLAN (1/4" PER FOOT MIN. AT VALLEY WHERE CRICKET MEETS ROOF)
	PHOTOVOLTAIC PANEL, RE: ELECTRICAL DRAWINGS
	INDICATES ELEVATION (0'-0" DEFINED AS F.F.E. PER CIVIL)
XX" / XX"	INDICATES ROOF SLOPE
T.O.P.	TOP OF PARAPET
T.O.SH.	TOP OF SHEATHING
T.O.S.	TOP OF STEEL
T.O.D.	TOP OF STEEL DECK
T.O.C.	TOP OF CRICKET
	ROOF AND OVERFLOW DRAIN
	ROOF ACCESS HATCH

GENERAL NOTES

1. ROOFING SYSTEM TO BE CLASS A RATED.
2. ROOF SYSTEM SHALL BE SLOPED A MINIMUM OF 1/4" IN 12 INCHES AT VALLEYS FOR DRAINAGE. VERIFY PRIOR TO CONSTRUCTION. NOTIFY ARCHITECT IMMEDIATELY IN CASE OF DISCREPANCIES.
3. PRIOR TO THE ISSUANCE OF USE AND OCCUPANCY, WRITTEN CERTIFICATION BY A CALIFORNIA REGISTERED ENGINEER THAT THE ROOF IS IN CONFORMANCE WITH THE APPROVED PLANS SHALL BE SUBMITTED TO THE PROJECT INSPECTOR.
4. INSTALLATION OF THE ROOFING SHALL BE IN STRICT ACCORDANCE WITH MANUFACTURERS SPECIFICATIONS AND PROCEDURES.
5. FOR TYPICAL ROOF PENETRATION SPACING, RE: 09/A8.21.
6. FOR TYPICAL ROOF PENETRATIONS RE: A8.21.
7. ALL PENETRATIONS THROUGH THE ROOF SHALL BE BY THE USE OF ROUND CONDUIT FOR PIPES, VENTS, RISERS AND EQUIPMENT SUPPORTS. THE USE OF CHANNELS, ANGLES, OR UNISTRUT THROUGH THE ROOF WITH PITCH POCKETS SHALL NOT BE ALLOWED.
8. REFER TO WALL SECTIONS FOR PARAPET DETAILS.
9. FOR TYPICAL CRICKET LAYOUT RE: XX/XXXX.

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949-261-1001 Office

LPADesignStudios.com

5301 California Avenue, Suite 100
Irvine, California 92617

LICENSED ARCHITECT
RICHARD MUSTO
No. C-10639
REN 12/31/2026
STATE OF CALIFORNIA

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MALIBU HIGH SCHOOL
INCREMENT 02

30215 Morning View Dr.,
Malibu, CA 90265
APN: 4469-017-900

Developed for
SANTA MONICA - MALIBU UNIFIED SCHOOL DISTRICT

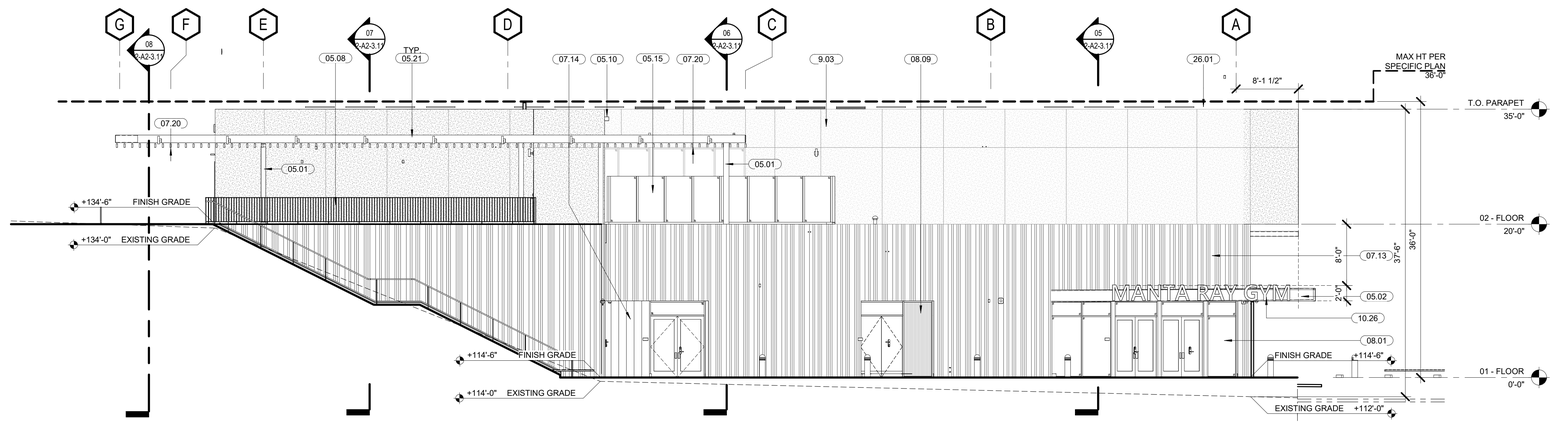
Revision	Date

Submittal	Date
SCHEMATIC DESIGN	09/04/2024
50% DESIGN DEVELOPMENT	12/13/2024
100% DESIGN DEVELOPMENT	02/21/2025
DSA SUBMITTAL	06/16/2025
50% CONSTRUCTION DOCS	06/27/2025
DSA SUBMITTAL	09/08/2025

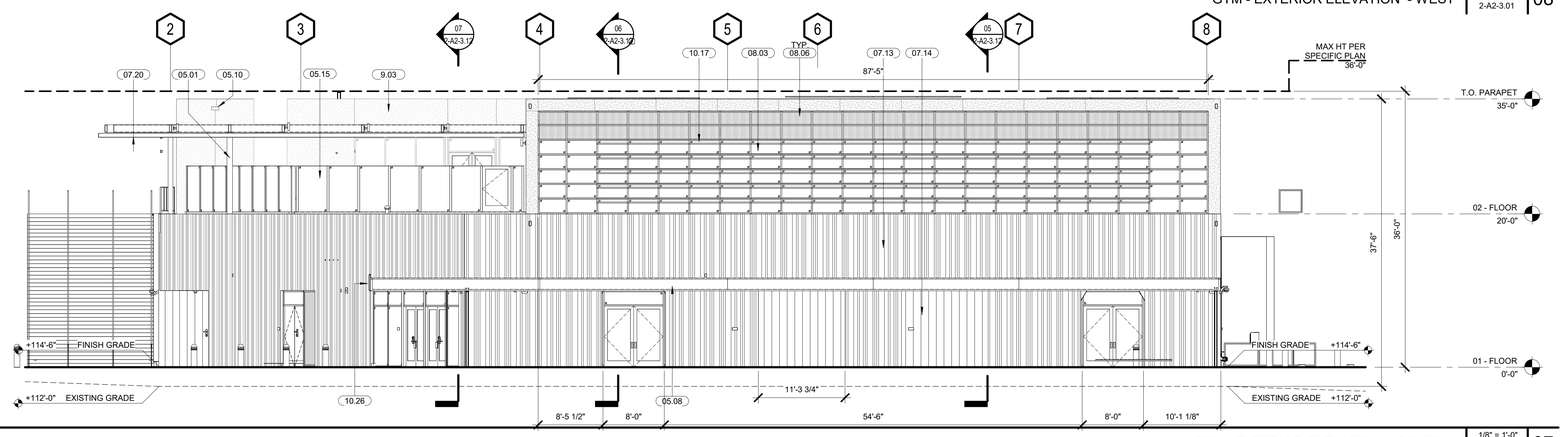
Job Number	31722
Checked By	Checker
Scale	As indicated

GYM - ROOF PLAN - ROOF ACCESS

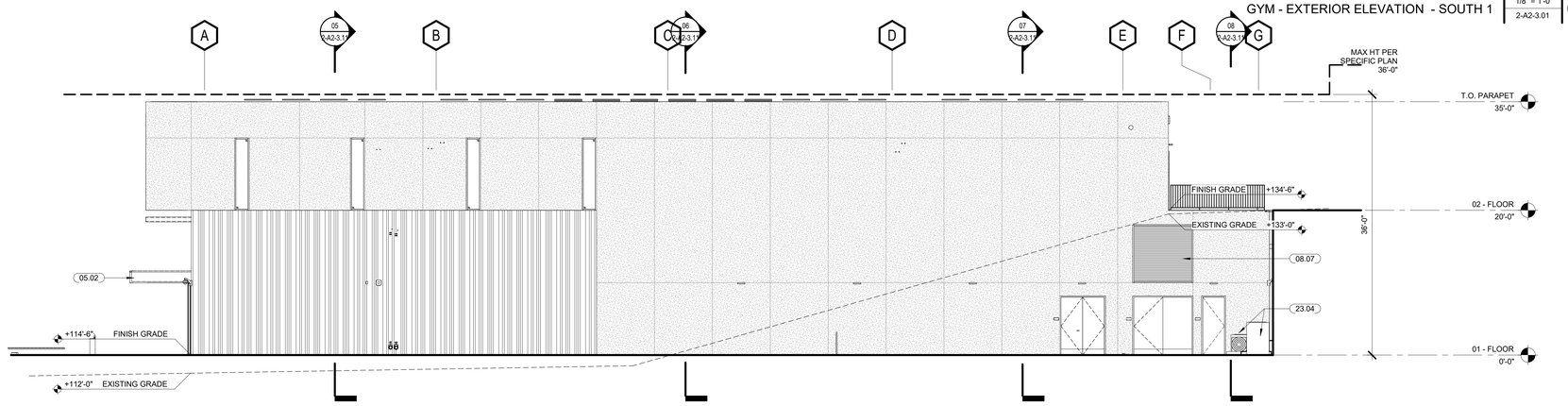
2-A2-2.05



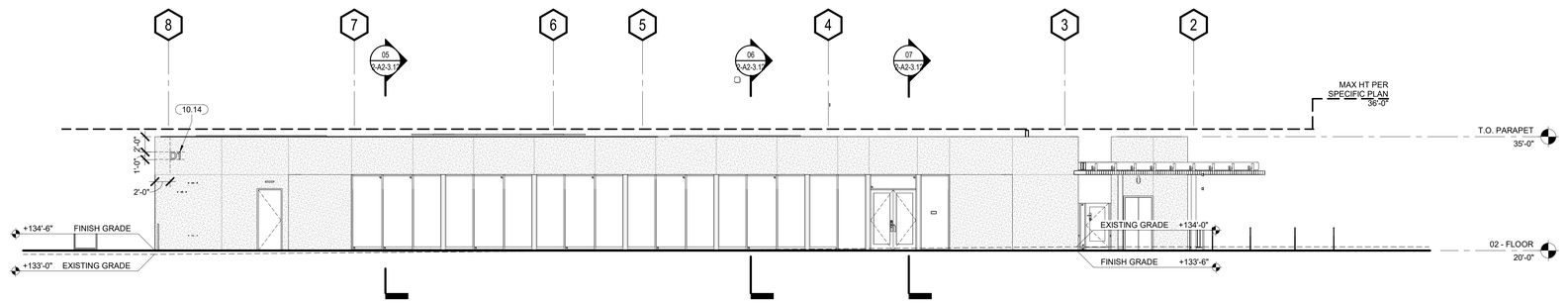
GYM - EXTERIOR ELEVATION - WEST | 1/8" = 1'-0" | 2-A2-3.01 | 08



GYM - EXTERIOR ELEVATION - SOUTH 1 | 1/8" = 1'-0" | 2-A2-3.01 | 07



GYM - EXTERIOR ELEVATION - EAST 1 | 1/8" = 1'-0" | 2-A2-3.01 | 06



GYM - EXTERIOR ELEVATION - NORTH 1 | 1/8" = 1'-0" | 2-A2-3.01 | 05

KEYNOTES

05.01	STRUCTURAL STEEL COLUMN, PRIMED AND PAINTED WITH HIGH PERFORMANCE PAINT TO MATCH _____, TYP.
05.02	STRUCTURAL STEEL BEAM, PRIMED AND PAINTED WITH HIGH PERFORMANCE PAINT TO MATCH _____ TYP.
05.08	STEEL GUARDRAIL SYSTEM, 2" X 3/4" FLAT BAR FRAME WITH 13 GA. 3/4" X 2" HOLLOW TUBE INFILL, PRIMED AND PAINTED WITH HIGH PERFORMANCE PAINT, RE: 02/2-A8.43
05.10	CUSTOM STEEL PLATE SCUPPER, PRIMED AND PAINTED TO MATCH PLASTER SYSTEM, RE: 19 AND 20 ON SHEET 2-A8.22
05.15	STEEL-FRAMED WINDSCREEN WITH HIGH PERFORMANCE COATING & GLASS PANELING; RE: 2-A2-7.31 AND 2-A8.42
05.21	STRUCTURAL HSS BEAM, PRIMED AND PAINTED WITH HIGH PERFORMANCE PAINT, RE: STRUCTURAL DRAWINGS
07.13	RIBBED METAL WALL PANEL SYSTEM MP1, RE: 2-A8.11
07.14	FLUSH METAL WALL PANEL SYSTEM, MP2, RE: 2-A8.11 AND 2-A8.12
07.20	ALUMINUM BATTEN TRELLIS ASSEMBLY SYSTEM, RE: S4/2-A8.12
08.01	1" INSULATED VISION GLAZING WITH LOW-E COATING, IN ALUMINUM STOREFRONT SYSTEM, SF1, RE: 2-A8.13
08.03	1" INSULATED VISION GLAZING WITH LOW-E COATING IN CURTAIN WALL SYSTEM, CW1, RE: 2-A8.13
08.06	ALUMINUM SHADOW BOX WITH 1-1/2" RIGID INSULATION BACKER, FINISH TO MATCH CURTAIN WALL SYSTEM
08.07	HORIZONTAL ARCHITECTURAL LOUVER, FACTORY FINISH TO MATCH ADJACENT PLASTER
08.09	VERTICAL ARCHITECTURAL LOUVER, FACTORY FINISH TO MATCH DOOR FRAME
9.03	POLYMER MODIFIED FIBERGLASS REINFORCED PLASTER ASSEMBLY, PAINTED, RE: 2-A8.11
10.14	PIN MOUNTED BRUSHED STAINLESS STEEL 12" TALL BUILDING DESIGNATION NUMBERS, FOR ATTACHMENT, RE: 01/2-A10.42
10.17	ALUMINUM, FIXED HORIZONTAL SUN SCREEN WITH 15 DEGREE TILT RE: XX/2-AX.XX
10.26	BRUSHED STAINLESS STEEL, 24" TALL BUILDING SIGNAGE, PIN MOUNTED TO STRUCTURAL STEEL FASCIA. FOR ATTACHMENT REFER TO XX/2-AX.XX
23.04	CONDENSING UNIT, RE: MECHANICAL DRAWINGS
26.01	PHOTOVOLTAIC PANELS AND RAIL SYSTEM, RE: 21/2-A8.21 AND ELECTRICAL DRAWINGS

LEGEND

POLYMER MODIFIED FIBERGLASS REINFORCED PLASTER; PAINTED

RIBBED METAL WALL PANEL - METALLIC PAINT FINISH; MORIN P SERIES, COLOR & PATTERN PER...

1" INSULATED GLAZING UNIT - CLEAR (VIRACON VNE 13-63)

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949-261-1001 Office

LPADesignStudios.com

5301 California Avenue, Suite 100
Irvine, California 92617

LICENSED ARCHITECT RICHARD MISYO No. C-10639 REN 12/31/2025 STATE OF CALIFORNIA

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INCREMENT 02

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Malibu, CA 90265
APN: 4469-017-900

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SANTA MONICA - MALIBU UNIFIED SCHOOL DISTRICT

Revision	Date

Submittal	Date
SCHEMATIC DESIGN	08/04/2024
50% DESIGN DEVELOPMENT	12/13/2024
100% DESIGN DEVELOPMENT	02/21/2025
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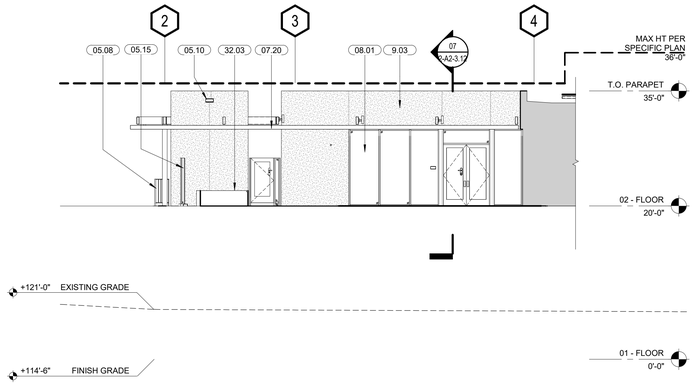
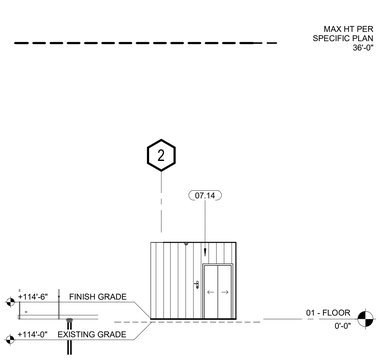
Job Number	31722
Checked By	Checker
Scale	1/8" = 1'-0"

GYM - EXTERIOR ELEVATIONS

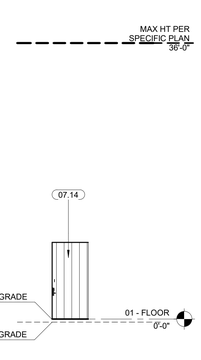
2-A2-3.01



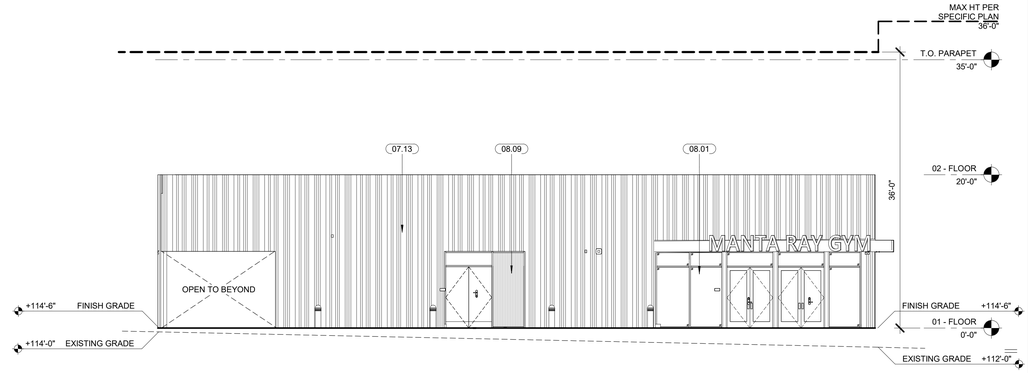
GYM - EXTERIOR ELEVATION - SOUTH 3 | 1/8" = 1'-0" | 2-A2-3.02 | 07



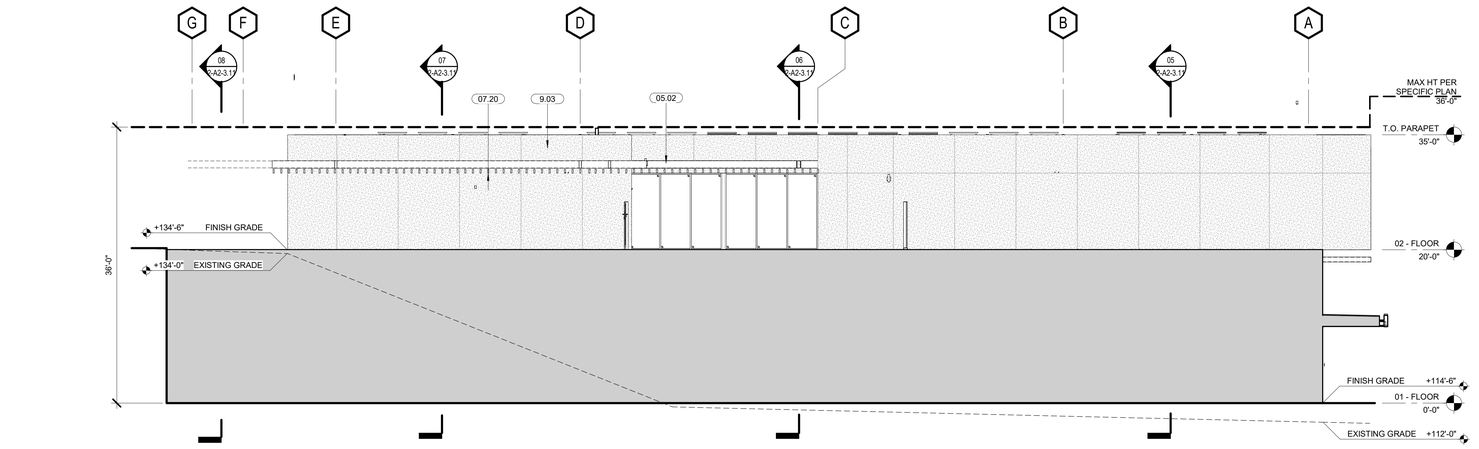
GYM - EXTERIOR ELEVATION - SOUTH 2 | 1/8" = 1'-0" | 2-A2-3.02 | 22



GYM - EXTERIOR ELEVATION - NORTH 2 | 1/8" = 1'-0" | 2-A2-3.02 | 18



GYM - EXTERIOR ELEVATION - WEST 2 | 1/8" = 1'-0" | 2-A2-3.02 | 06



GYM - EXTERIOR ELEVATION - WEST 3 | 1/8" = 1'-0" | 2-A2-3.02 | 05

KEYNOTES

05.02	STRUCTURAL STEEL BEAM, PRIMED AND PAINTED WITH HIGH PERFORMANCE PAINT TO MATCH _____, TYP.
05.08	STEEL GUARDRAIL SYSTEM; 2" X 3/4" FLAT BAR FRAME WITH 13 GA. 3/4" X 2" HOLLOW TUBE INFILL, PRIMED AND PAINTED WITH HIGH PERFORMANCE PAINT, RE: 02/2-A8.43
05.10	CUSTOM STEEL PLATE SCUPPER, PRIMED AND PAINTED TO MATCH PLASTER SYSTEM, RE: 19 AND 20 ON SHEET 2-A8.22
05.15	STEEL-FRAMED WINDSCREEN WITH HIGH PERFORMANCE COATING & GLASS PANELING; RE: 2-A2-7.31 AND 2-A8.42
07.13	RIBBED METAL WALL PANEL SYSTEM MP1, RE: 2-A8.11
07.14	FLUSH METAL WALL PANEL SYSTEM, MP2, RE: 2-A8.11 AND 2-A8.12
07.20	ALUMINUM BATTEN TRELLIS ASSEMBLY SYSTEM, RE: S4/2-A8.12
08.01	1" INSULATED VISION GLAZING WITH LOW-E COATING, IN ALUMINUM STOREFRONT SYSTEM, SF1, RE: 2-A8.13
08.09	VERTICAL ARCHITECTURAL LOUVER, FACTORY FINISH TO MATCH DOOR FRAME
9.03	POLYMER MODIFIED FIBERGLASS REINFORCED PLASTER ASSEMBLY, PAINTED, RE: 2-A8.11
32.03	MODULAR METAL PLANTER; RE: LANDSCAPE DWGS

LEGEND

POLYMER MODIFIED FIBERGLASS REINFORCED PLASTER; PAINTED

RIBBED METAL WALL PANEL - METALLIC PAINT FINISH; MORIN P SERIES, COLOR & PATTERN PER...

1" INSULATED GLAZING UNIT - CLEAR (VIRACON VNE 13-63)

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APN: 4469-017-900

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SANTA MONICA - MALIBU UNIFIED SCHOOL DISTRICT

Revision	Date

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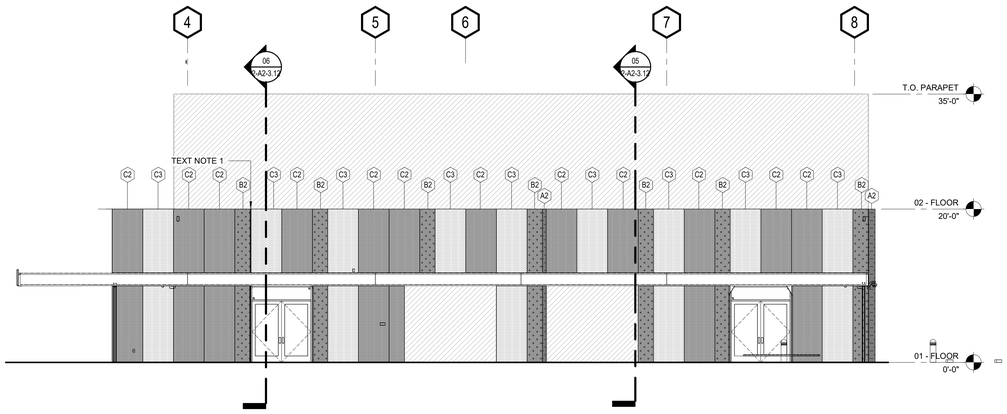
50% DESIGN DEVELOPMENT	12/13/2024
100% DESIGN DEVELOPMENT	02/12/2025
CDP SUBMITTAL	05/16/2025
50% CONSTRUCTION DOCS	09/27/2025
DSA SUBMITTAL	09/08/2025

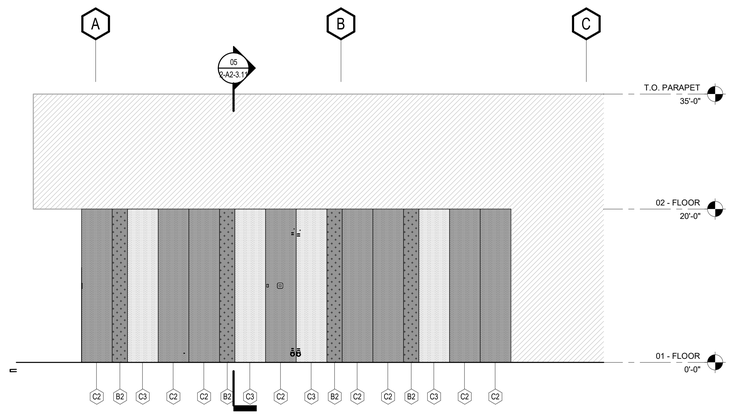
Job Number	31722
Checked By	Checker
Scale	1/8" = 1'-0"

GYM - EXTERIOR ELEVATIONS

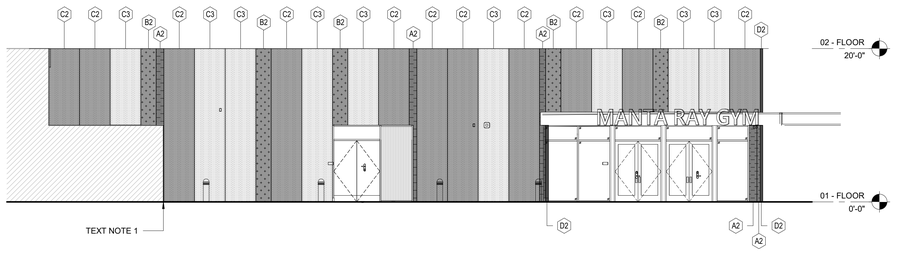
2-A2-3.02



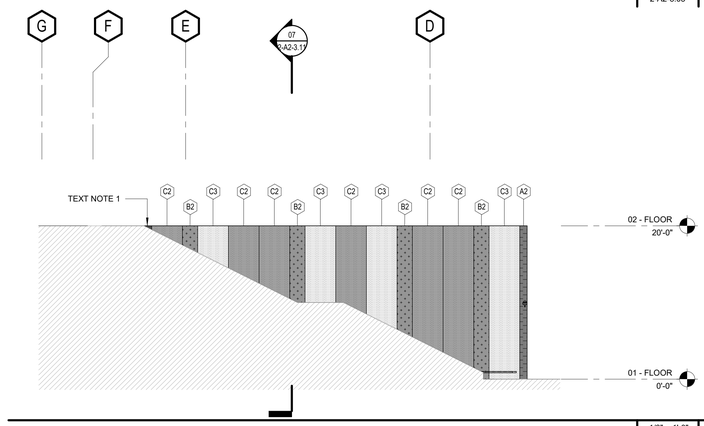
GYM - EXTERIOR ELEVATION - SOUTH 1 - METAL PANEL | 1/8" = 1'-0" | 2-A2-3.03 | 15



GYM - EXTERIOR ELEVATION - EAST 1 - METAL PANEL | 1/8" = 1'-0" | 2-A2-3.03 | 07



GYM - EXTERIOR ELEVATION - WEST 2 - METAL PANEL | 1/8" = 1'-0" | 2-A2-3.03 | 06



GYM - EXTERIOR ELEVATION - WEST - METAL PANEL | 1/8" = 1'-0" | 2-A2-3.03 | 05

LEGEND

- MP MODULE TYPE A2. RE: 05/2-A2-3.04
- MP MODULE TYPE B2. RE: 09/2-A2-3.04
- MP MODULE TYPE C2. RE: 13/2-A2-3.04
- MP MODULE TYPE C3. RE: 17/2-A2-3.04
- MP MODULE TYPE D2. RE: 21/-A2-3.04
- PORTION OF ELEVATION NOT APPLICABLE TO METAL PANEL PATTERN

TEXT NOTE 1: BRAKE METAL INFILL PANEL, FACTORY FINISH TO MATCH METAL PANEL SYSTEM

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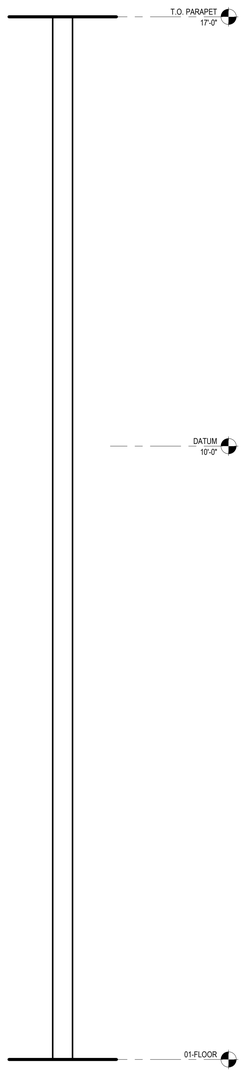
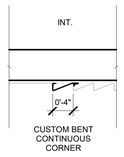
DSA SUBMITTAL	08/08/2025

Job Number	31722
Checked By	Checker
Scale	1/8" = 1'-0"

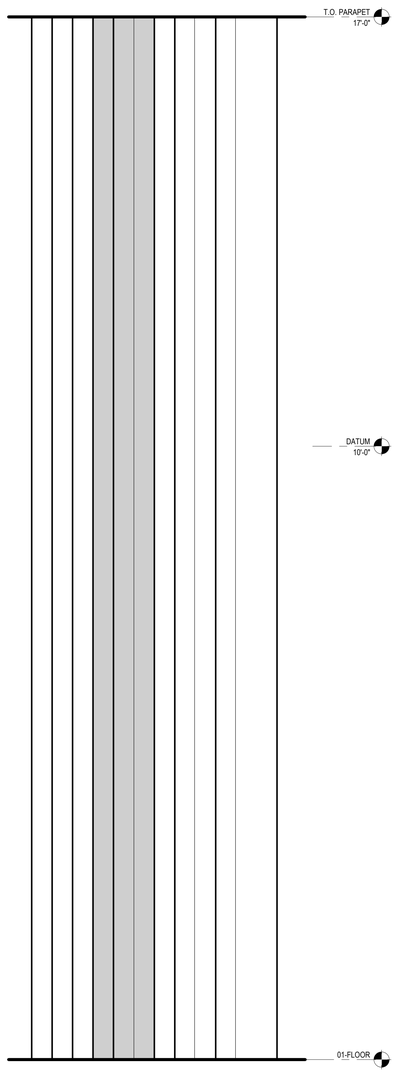
GYM - EXTERIOR ELEVATIONS - METAL PANEL PATTERN

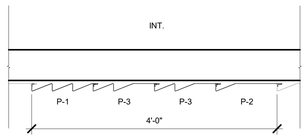
2-A2-3.03



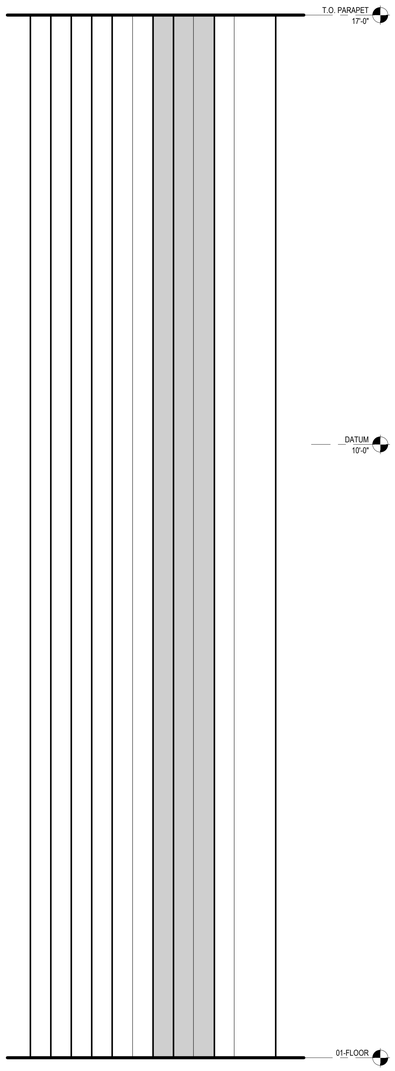


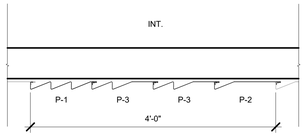
TYPE D2 | 1" = 1'-0" | 2-A2-3.04 | 21



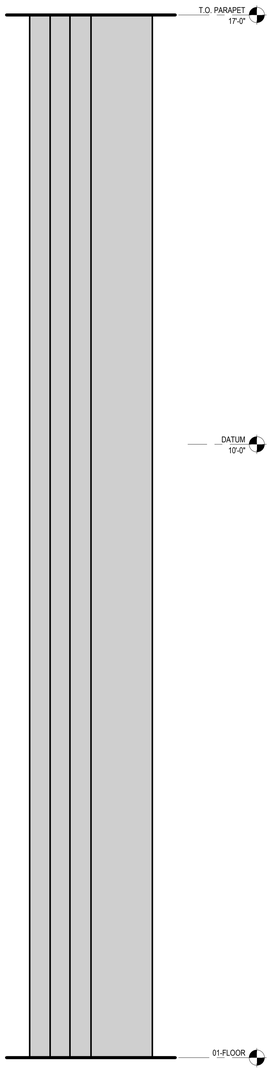


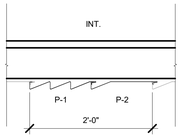
TYPE C3 | 1" = 1'-0" | 2-A2-3.04 | 17



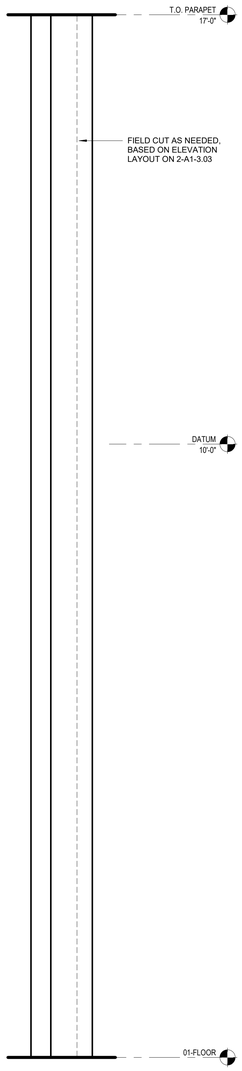


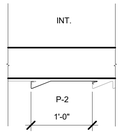
TYPE C2 | 1" = 1'-0" | 2-A2-3.04 | 13





TYPE B2 | 1" = 1'-0" | 2-A2-3.04 | 09





TYPE A2 | 1" = 1'-0" | 2-A2-3.04 | 05

LEGEND

MORIN STANDARD COLOR, PATIAN GREEN, 435R202

MORIN CUSTOM COLOR, XX, XX

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ARCHITECTURE ENGINEERING INTERIOR DESIGN
LANDSCAPE ARCHITECTURE PLANNING

949-261-1001 Office

LPADesignStudios.com

5301 California Avenue, Suite 100
Irvine, California 92617

LICENSED ARCHITECT
RICHARD MISYO
No. C-10639
REN 12/31/2026
STATE OF CALIFORNIA

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MALIBU HIGH SCHOOL
INCREMENT 02

30215 Morning View Dr.,
Malibu, CA 90265
APN: 4469-017-900

Developed for
SANTA MONICA - MALIBU UNIFIED SCHOOL DISTRICT

Revision	Date

Submittal	Date
SCHEMATIC DESIGN	09/04/2024
50% DESIGN DEVELOPMENT	12/13/2024
100% DESIGN DEVELOPMENT	02/21/2025
DSA SUBMITTAL	06/16/2025
50% CONSTRUCTION DOCS	06/27/2025
DSA SUBMITTAL	08/08/2025

Job Number	31722
Checked By	Checker
Scale	As indicated

GYM - EXTERIOR ELEVATIONS - METAL PANEL PATTERN

2-A2-3.04



BIRD'S EYE VIEW FROM HIGH ENTRY NEAR PARKING LOT D, LOOKING NORTHWEST



BIRD'S EYE VIEW FROM CAMPUS ENTRY NEAR PARKING LOT D, LOOKING NORTHWEST



BIRD'S EYE VIEW FROM TRACK AND FIELD LOOKING WEST



VIEW FROM UPPER LEVEL LOOKING SOUTHWEST



VIEW FROM UPPER LEVEL LOOKING SOUTH



VIEW FROM LOWER LEVEL LOOKING NORTHEAST

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LANDSCAPE ARCHITECTURE PLANNING

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LPADesignStudios.com

5301 California Avenue, Suite 100
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LICENSED ARCHITECT
RICHARD MUSTO
No. C16639
REN 12/31/2026
STATE OF CALIFORNIA

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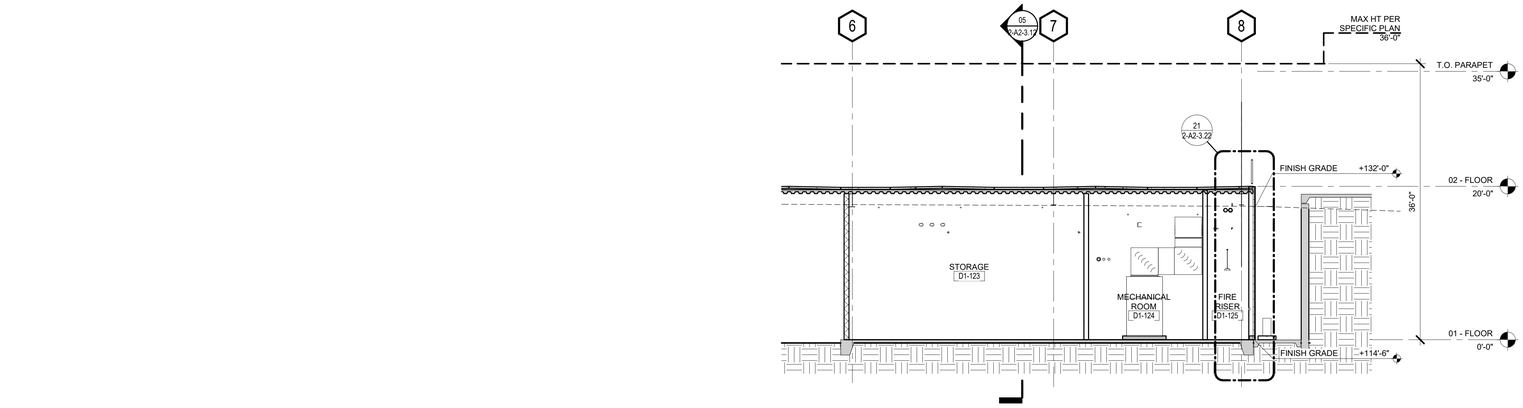
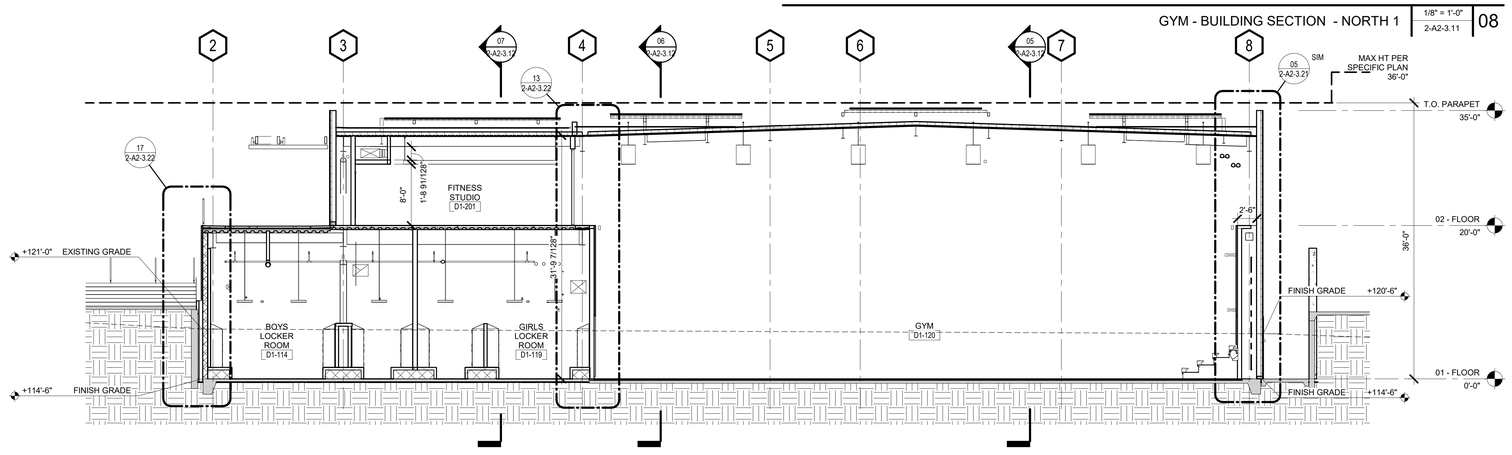
Scale	

GYM - EXTERIOR VIEWS

2-A2-3.05



GYM - BUILDING SECTION - NORTH 1 | 1/8" = 1'-0" | 2-A2-3.11 | 08



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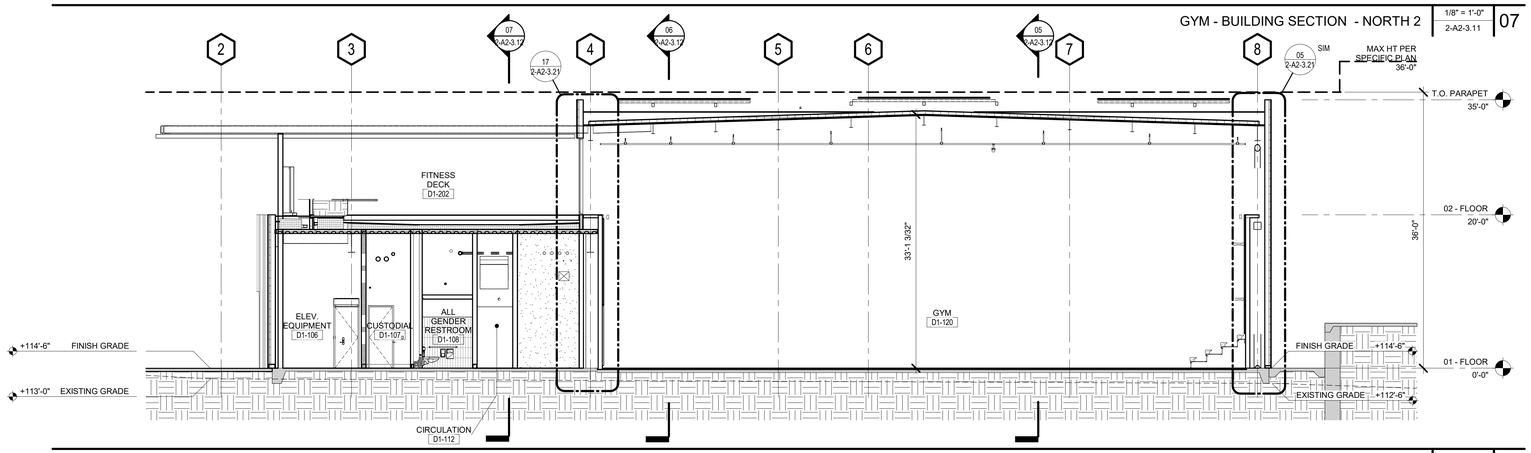
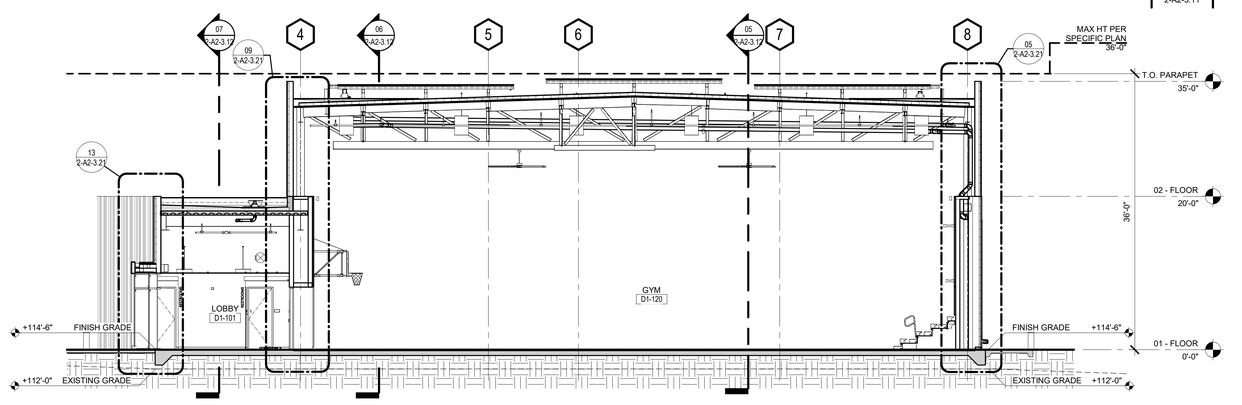


GYM - BUILDING SECTION - NORTH 3 | 1/8" = 1'-0" | 2-A2-3.11 | 06



GYM - BUILDING SECTION - NORTH 4 | 1/8" = 1'-0" | 2-A2-3.11 | 05

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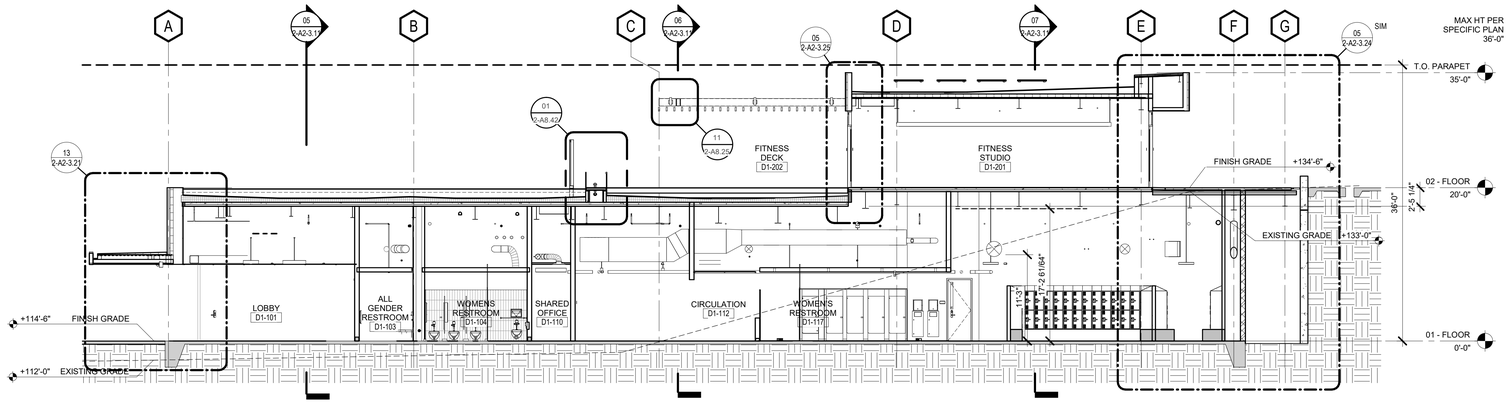
Job Number	31722
Checked By	Checker
Scale	1/8" = 1'-0"

GYM - BUILDING SECTIONS

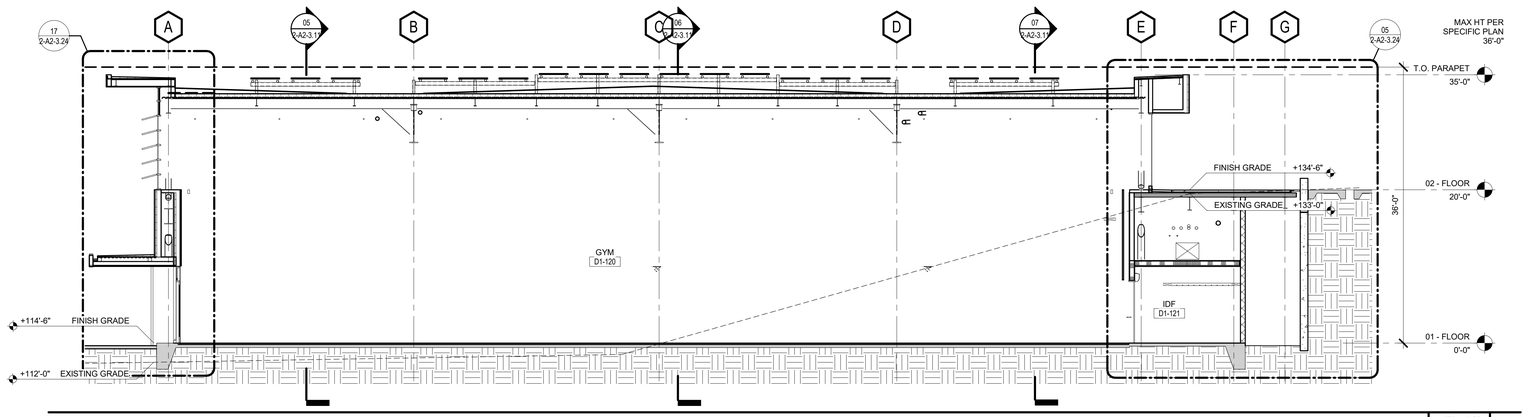
2-A2-3.11

KEYNOTES

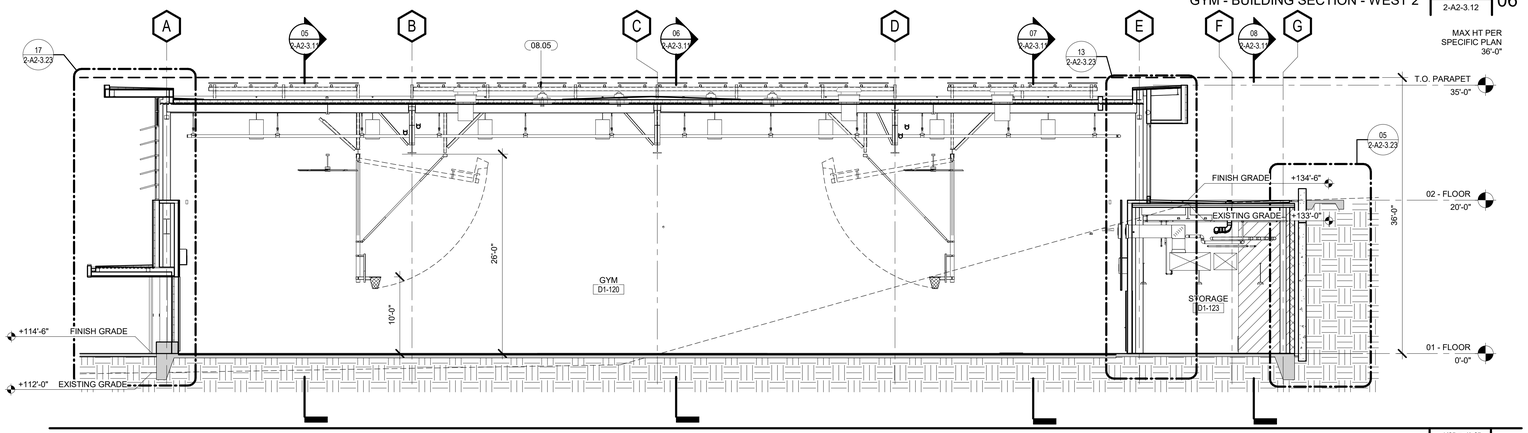
08.05	TUBULAR SKYLIGHT NATURAL DAYLIGHT SYSTEM, RE: 17/2-A8.21



GYM - BUILDING SECTION - WEST 1 | 1/8" = 1'-0" | 2-A2-3.12 | 07



GYM - BUILDING SECTION - WEST 2 | 1/8" = 1'-0" | 2-A2-3.12 | 06



GYM - BUILDING SECTION - WEST 3 | 1/8" = 1'-0" | 2-A2-3.12 | 05

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Job Number	31722
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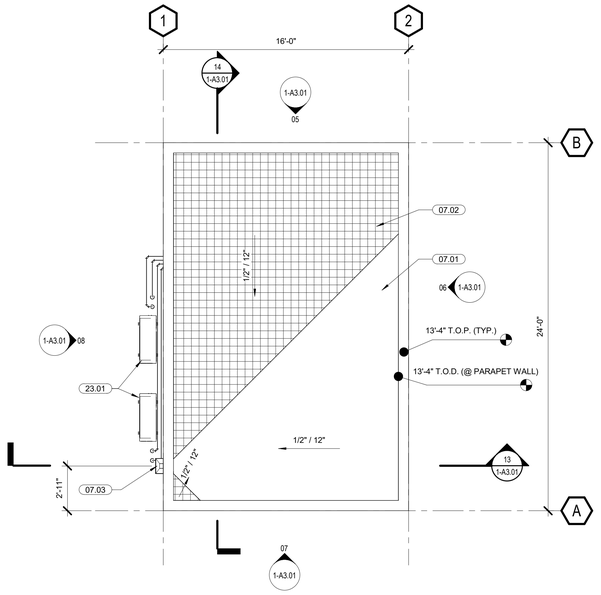
Scale	1/8" = 1'-0"

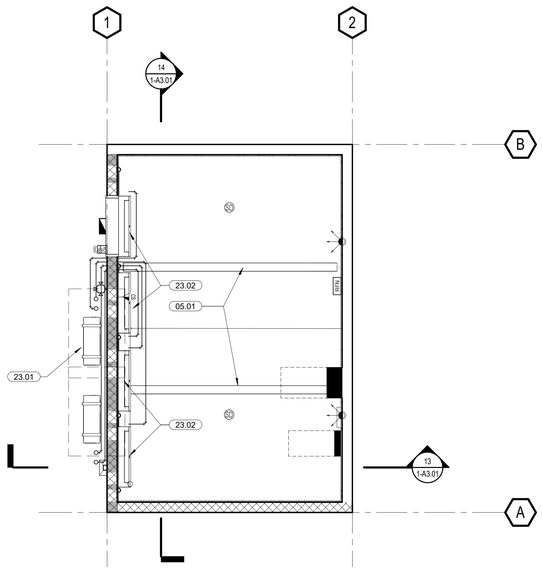
GYM - BUILDING SECTIONS

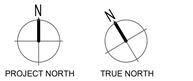
2-A2-3.12



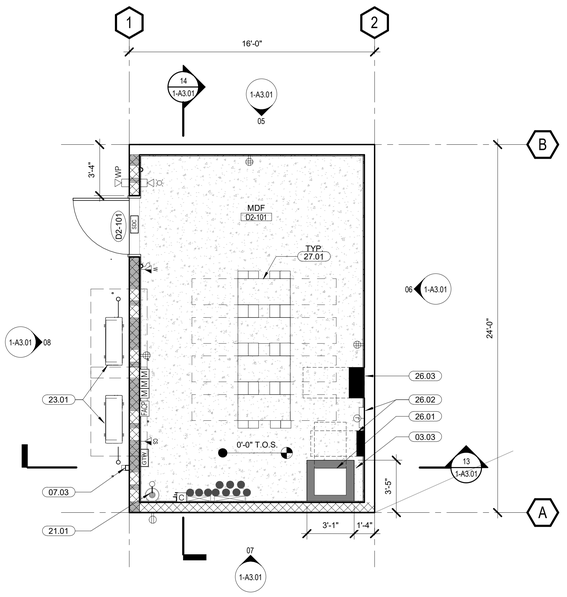


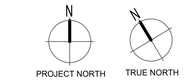
ROOF PLAN | 1/4" = 1'-0" | 1-A2.01 | 07





REFLECTED CEILING PLAN | 1/4" = 1'-0" | 1-A2.01 | 13





FLOOR PLAN | 1/4" = 1'-0" | 1-A2.01 | 05

KEYNOTES

03.03	CONCRETE HOUSEKEEPING PAD 6" HIGH FROM F.F., RE: 06D/1-S6.01
05.01	STRUCTURAL STEEL BEAM ABOVE, PRIMED AND PAINTED, RE: STRUCTURAL DWGS
07.01	R1 ROOFING ASSEMBLY
07.02	RIGID INSULATION ROOF CRICKET
07.03	SCUPPER WITH 3" DIA. DOWNSPOUT, FACTORY FINISH TO MATCH DOOR AND FRAME, RE: 13/1-A8.01
21.01	CLEAN AGENT CYLINDER, RE: FIRE PROTECTION DWGS
23.01	WALL MOUNTED CONDENSING UNIT, RE: MECHANICAL DWGS
23.02	WALL MOUNTED FAN COIL UNIT, RE: MECHANICAL DWGS
26.01	TRANSFORMER, RE: ELECTRICAL DWGS
26.02	ELECTRICAL PANEL, RE: ELECTRICAL DWGS
26.03	FIRE ALARM CONTROL PANEL, RE: ELECTRICAL SWGS
27.01	IT RACK, TYP. RE: TELECOM DWGS

LEGEND

- MASONRY WALL CONSTRUCTION
- 1-HR RATED MASONRY WALL CONSTRUCTION
- 0' - 0" — DENOTES ELEVATION (0'-0" DEFINED AS FINISH FLOOR ELEVATION PER CIVIL DWGS)
- T.O.P. — TOP OF PARAPET
- T.O.D. — TOP OF ROOF DECK, RE: STRUCTURAL DWGS
- T.O.S. — TOP OF CONCRETE SLAB, RE: STRUCTURAL DWGS
- DENOTES CONCRETE SLAB-ON-GRADE OR FLOOR SLAB, RE: STRUCTURAL DWGS
- DENOTES CONCRETE PAD 6" HIGH FROM F.F., RE: STRUCTURAL DWGS
- RIGID INSULATION ROOF CRICKET

GENERAL NOTES

1. ROOFING SYSTEM TO BE CLASS A RATED.

2. ROOF SYSTEM SHALL BE SLOPED A MINIMUM OF 1/4 INCH IN 12 INCHES AT VALLEYS FOR DRAINAGE. VERIFY PRIOR TO CONSTRUCTION. NOTIFY ARCHITECT IMEDIATELY IN CASE OD DISCREPANCIES.

3. PRIOR TO THE ISSUANCE OF USE AND OCCUAPNCY, WRITTEN CERTIFICATION BY A CALIFORNIA REGISTERED ENGINEER THAT THE ROOF IS IN CONFORMANCE WITH THE APPROVED PLANS SHALL BE SUBMITTED TO THE PROJECT INSPECTOR.

4. INSTALLATION OF THE ROOFING SHALL BE IN STRICT ACCORDANCE WITH MANUFACTURERS' SPECIFICATIONS AND PROCEDURES.

5. ALL PENETRATIONS THROUGH THE ROOF SHALL BE BY THE USE OF ROUND CONDUIT FOR PIPES, VENTS, RISERS AND EQUIPMENT SUPPORTS. THE USE OF CHANNELS, ANGLES, OR UNI-STRUT THROUGH THE ROOF WITH PITCH POCKETS SHALL NOT BE ALLOWED.

6. ALL LIGHT FIXTURE DIMENSIONS ARE TO CENTER LINE OF FIXTURE OR GROUP OF FIXTURES, U.N.O.

7. SEE ELECTRICAL, MECHANICAL, LOW VOLTAGE AND FIRE ALARM DRAWINGS FOR EQUIPMENT SPECIFICATIONS AND LEGENDS.

8. FOR PENETRATIONS IN RATED EXTERIOR CMU WALLS, PROVIDE FIRESTOPPING ON BOTH SIDES OF WALL. ON THE EXTERIOR SIDE, RECESS THE FIRESTOPPING WITHIN THE CMU AND COVER WITH AN APPROVED UV RESISTANT & WATERPROOF SEALANT - COLOR TO MATCH FINISH OF CMU.

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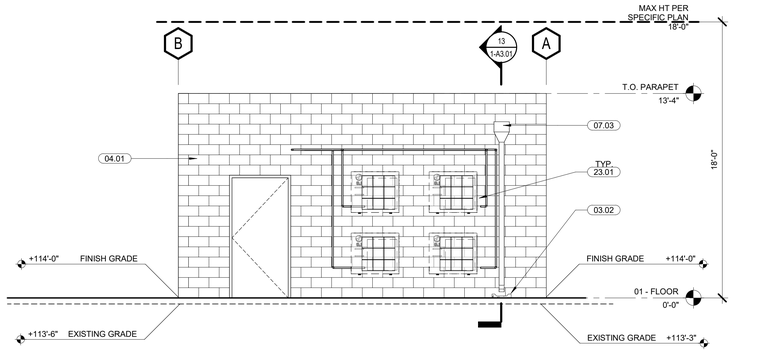
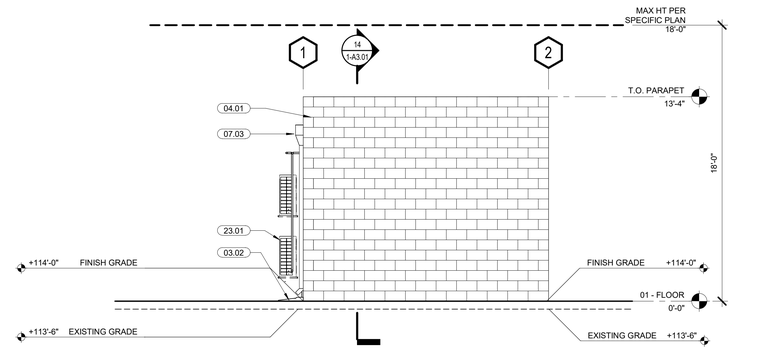
MDF - FLOOR, ROOF, AND CEILING PLANS

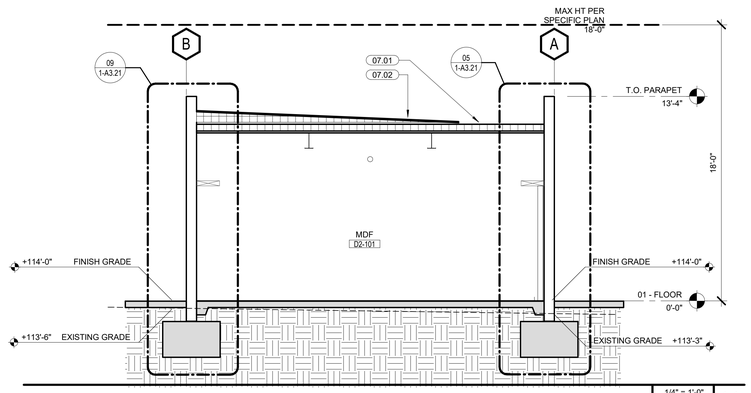
1-A2.01



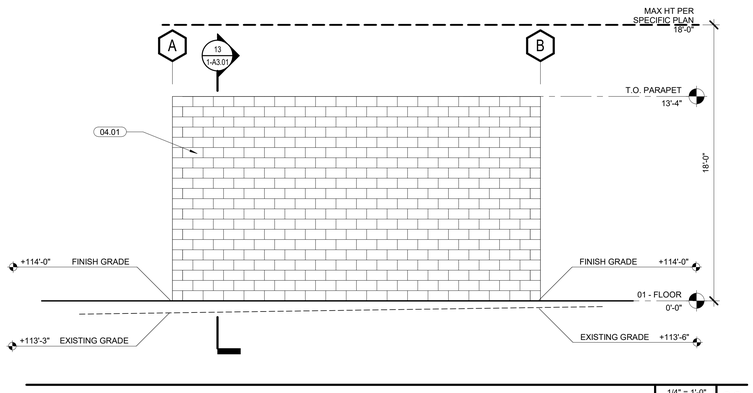
MDF - EXT ELEVATION - WEST | 1/4" = 1'-0" | 1-A3.01 | 08



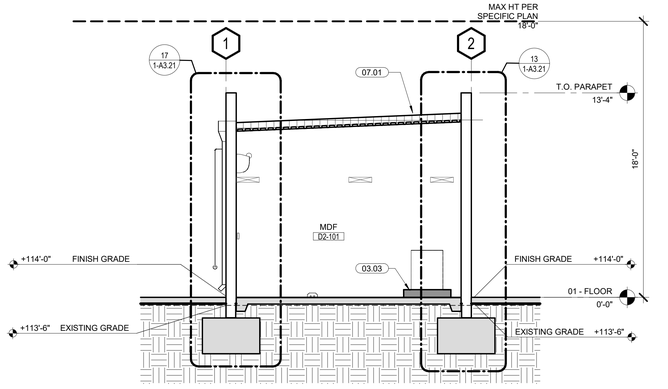
MDF - EXT ELEVATION - SOUTH | 1/4" = 1'-0" | 1-A3.01 | 07



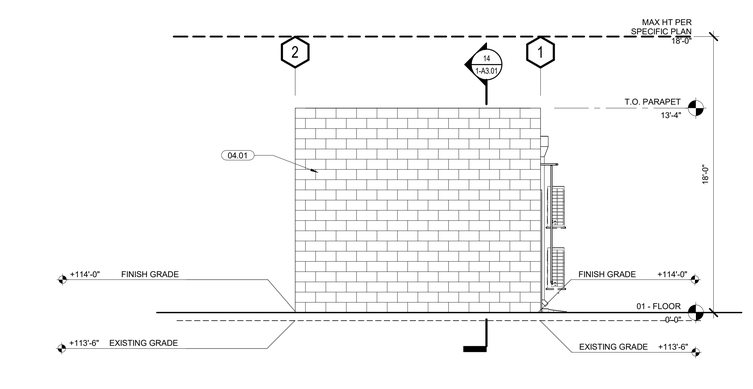
MDF - BUILDING SECTION | 1/4" = 1'-0" | 1-A3.01 | 14



MDF - EXT ELEVATION - EAST | 1/4" = 1'-0" | 1-A3.01 | 06



MDF - BUILDING SECTION | 1/4" = 1'-0" | 1-A3.01 | 13



MDF - EXT ELEVATION - NORTH | 1/4" = 1'-0" | 1-A3.01 | 05

KEYNOTES

03.02	CONCRETE SPLASH BLOCK
03.03	CONCRETE HOUSEKEEPING PAD 6" HIGH FROM F.F., RE: 06D/1-S6.01
04.01	CONCRETE MASONRY UNIT WALL ASSEMBLY; REFER TO EXTERIOR ASSEMBLIES ON A8.01 AND STRUCTURAL DRAWINGS.
07.01	R1 ROOFING ASSEMBLY
07.02	RIGID INSULATION ROOF CRICKET
07.03	SCUPPER WITH 3" DIA. DOWNSPOUT, FACTORY FINISH TO MATCH DOOR AND FRAME, RE: 13/1-A8.01
23.01	WALL MOUNTED CONDENSING UNIT, RE: MECHANICAL DWGS

LEGEND

8" CMU BLOCK, RE: STRUCTURAL DWGS

GENERAL NOTES

1. ROOF ASSEMBLY TO BE MIN R-30.
2. ALL SCUPPERS AND DOWNSPOUTS TO BE FACTORY FINISHED TO MATCH DOOR AND FRAME FINISH.
3. REFER TO SHEET 1-A8.01 FOR EXTERIOR ASSEMBLY TYPES.
4. CONTRACTOR TO PROVIDE COORDINATION DRAWING OF ALL EXTERIOR DEVICE LOCATIONS FOR REVIEW BY ARCHITECT PRIOR TO INSTALLATION.

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MDF - EXTERIOR ELEVATIONS & BUILDING SECTIONS

1-A3.01

CAST-IN-PLACE CONCRETE

1. Concrete mixing shall comply with ASTM C94.

2. Hydraulic Cement:
   A. ASTM C595 see table for types.
   B. Alternatively, ASTM C150 type II/V.

3. Aggregates:
   A. Normal Weight Concrete Aggregate (NW): ASTM C33 for aggregates of natural sand and rock. The maximum aggregate size is noted in the table below. The maximum dry density shall be 145 pcf.
      a. Where smaller aggregate is required for workability or areas of congestion, the contractor shall submit a request to the structural engineer prior to submitting the mix design. Pea gravel is not permitted.
   B. Light Weight Aggregate (LW) for Structural Concrete: ASTM C330, expanded shale lightweight aggregate. The maximum dry density shall be 115 pcf.
   C. Alkali Aggregates: Aggregate shall be non-reactive per ASTM C1778.

4. See the table below for the required concrete properties:

Class	Use/Location	Strength (psi) 28-Day	Agg Type	Max Agg Size (in)	Slump (in)	Max w/c	Target Air %	ASTM C595 Type	Exposure Category	GWP Limit kgCO$_2$e/m^3
A	UNLESS NOTED OTHERWISE	4,000	NW	1	3-5	0.5	--	IL	F0,S0	324
B	FOOTING AND GRADE BEAMS	4,000	NW	1	3-5	0.5	--	IL (HS)	F0,S0,C1*	324
C	SLAB ON GRADE	4,500	NW	1	3-5	0.45	--	IL	F0,S0	378
D	WALLS	4,000	NW	1	3-5	0.45	--	IL	F0,S0,C1*	324
E	COLUMNS	5,000	NW	1	3-5	0.5	--	IL	F0,S0	378
F	FILL ON DECK	4,000	LW	3/4	3-5	0.45	--	IL	F0,S0	594
G	PIERS / CAISSONS	3,000	NW	1 1/2	5-7	0.6	--	IL	F0,S0,C1*	280

* An exposure class of C1 is assumed for concrete in contact with soil exposed to moisture per ACI 318, but not due to external sources of chlorides.

5. Slump: Per ACI 301, CH. 4 and CBC section 1705.3. The specified slump above is measured before applying chemical add mixtures. The slump may be increased up to a maximum 8" at the contractor's option for workability and should be noted in the mix design submittal.

6. Global Warming Potential (GWP): as defined in the specifications.
   A. Concrete may be considered one product category to comply with the GWP Limit. A weighted average of the maximum GWP for all concrete mixes installed in the project shall be less than the weighted average maximum GWP as specified above. Calculations shall be submitted for approval.

7. N/A

8. All concrete above grade, including slab on grade, deck fill, wall, topping slab, stair landing and tread, shall have 1.5 pounds of 3/4" long fibrous reinforcing per cubic yard of concrete.

9. Lean Concrete: Where specifically indicated, containing 2 sacks of cement per cubic yard of concrete. Use only where specifically called for.

10. Non-shrink Grout: ASTM C1107, cementitious, non-metallic, attaining a compressive strength of 8000 psi.

11. Concrete Mix Design Submittal: Prior to ordering concrete, submit for each compressive strength and type of concrete required designed, mix designs signed, and sealed by a registered Civil or Structural Engineer in State of California to Architect (Structural Engineer), Special Inspector and to Governing Code Authority complying with California Building Code, Chapter 19.

12. Construction Joint: Roughen surface to 1/4-inch amplitude. Clean, remove laitance, thoroughly wet and remove standing water before placing new concrete. Submit to the Architect (Structural Engineer) at least 14 days prior to placing concrete indicating locations of construction joints and extent of pours. Place joints at locations to minimize the effects of shrinkage as well as being placed at points that least impair the strength of the structure. Provide dowels as directed.

13. Embedments and Penetrations in Concrete: No penetration through structural concrete is permitted unless shown in these drawings or specifically accepted in writing by the Architect (Structural Engineer). Do not cut any reinforcing.
   A. Pipes, Sleeves, Conduits, and Ducts: Not permitted embedded or penetrating concrete spread footings, columns, walls or concrete cast over metal decking, except as shown in these drawings.
   B. Conduits Embedded in Structural Concrete Slabs: Not permitted unless limited to two layers of 1 inch, and 1/6 slab thickness. outside diameter conduits and smaller spaced at least 3 inches center to center and within middle third of slab thickness. No conduit embedded in concrete cast over metal decking is permitted. No aluminum conduit is permitted.

14. Chamfered Corners: Provide 3/4-inch chamfer at exposed corners of columns, beams and walls except where structural walls are laid flush with column or beam faces, unless detailed otherwise.

15. Curing: Maintain concrete above 50 degrees Fahrenheit and in a moist condition for a minimum of 7 days after placement unless otherwise accepted by the Architect (Structural Engineer).

16. Non-Structural Topping slab shall be normal weight concrete reinforced with 6x6-W3.5xW3.5 W.W.F. at the center line of the slab. See plans & details for information on concrete fill over metal deck.

17. The maximum size for a single elevated concrete slab pour shall be 25,000 sq. ft. and shall have a maximum length to depth ratio of 2:1.

18. The maximum water-soluble chloride ION (CI) content in concrete by percentage of weight cement is 0.30.

19. Where "Styrofoam" or "EPS" is indicated on the drawings, provide expanded polystyrene conforming to ASTM D6817 Type EPS12 with the following physical properties.
   A. Density (min): 0.70 lb/ft^3
   B. Compressive Resistance (min): 2.2 psi @ 1% strain
   C. Flexural Strength (min): 10.0 psi

METAL DECKING

1. Metal Decking and Accessories: Verco Manufacturing Company, type and gauge as indicated on structural drawings, ASTM A653-SS grade 50 minimum conforming to IAPMO report ER-2018, G60 coating, unless heavier galvanized coating is indicated in specifications. Run deck units continuous over three or more spans where possible, deck is designed for unshored construction, UNO. Provide vented deck where vapor impervious material occurs over concrete fill, see Architectural for locations.

2. Deck Welding: AWS D1.3 using prequalified procedures.
   A. Qualification of Welders: Welders shall be experienced in welding light-gauge steel and using prequalified procedures. Erector shall establish welding procedure for arc spot welding of metal decking to structural steel, for each gauge of decking to be used. Prior to deck erection, each welder shall be qualified using this procedure and witnessed by Special Inspector. See California Building Code, Chapter 22A and 17A, for additional qualification requirements.

3. Shop Drawings: Submit to Architect (Structural Engineer) for review. Shop drawings shall include layout of deck, type of deck, methods of attachment, and all deck openings larger than 1'-0".

4. Limits to Non-Structural Items Suspended From Metal Decking:
   A. Hangers supported by metal decking with structural concrete fill shall be anchored using products with valid evaluation report under applicable code.
      a. Limit hangers to the following applications: Acoustical ceilings, ducts no greater than 6 sq. feet cross sectional area, pipes no greater than 3 inch diameter. See typical detailing for further clarification of design intent.
      b. At duct and pipe distributions systems, limit hanger loads to concrete filled metal deck as follows: 250# maximum per metal deck span per 24" width. Support larger duct work and piping from structural beams as shown in typical details.
   B. Hangers supported by metal decking without structural concrete fill shall be anchored using products with valid evaluation report under applicable code.
      a. Limit hangers to the following applications: Acoustical ceilings, ducts no greater than 1.5 sq. feet cross sectional area, pipes no greater than 1.5 inch diameter. See typical detailing for further clarification of design intent.
      b. At duct and pipe distributions systems, limit hanger loads to metal deck w/o concrete fill as follows: 100# maximum per metal deck span per 24" width. Support larger duct work and piping from structural beams as shown in typical details.

5. Pre-punched Holes in Metal Decking and Accessories: Metal deck welding and installation of welded shear studs are not permitted through single layer sheets greater than 16 gauge (G90 MAX), nor through double layer sheets greater than 20 gauge (G60 MAX), nor through sheets with total galvanized coating thickness greater than 1.25 ounces per square foot. Provide pre-punched holes as necessary. Provide closure angle at all openings per typical details.

6. Excess Structural Concrete: Concrete filled metal decking and steel framing will deflect during placement of concrete. These deflections will require placement of concrete in excess of amount based on nominal dimensions in order to bring slab within tolerances of a horizontal plane. Provide excess concrete at no cost to Owner.

7. Deck shall be layed out such that low flutes land on each parallel support wherever possible. Provide filler deck accessory where low flutes do not align with parallel framing. Provide 2" minimum bearing at each support and 2" lap at ends of decking panels.

8. Composite slabs:
   A. See "Proprietary Anchorage and Fasteners" notes for welded headed studs.
   B. Stud welding, inspection and testing shall conform to AWS D1.1, CH. 7.
   C. 18 gauge or thicker decking shall not be lapped where welded studs are attached through decking.

REINFORCING STEEL

1. Reinforcing Steel: All bars shall be deformed.Table Notes:

Use/Location	Type/Grade	GWP Limit (unfabricated) (MTCO$_2$e/MT)	Notes
Standard Bars (#3 thru #6)	ASTM A615, Grade 60	0.89	-
Standard Bars (#7 and larger)	ASTM A615, Grade 60	0.89	-
Bars to be welded (#3 thru #6)	ASTM A706, Grade 60	0.89	-
Bars to be welded (#7 and larger)	ASTM A706, Grade 60	0.89	-
Smooth WWF	ASTM A1064, Fy = 65 ksi	-	A
Deformed wire stirrups	ASTM A1064, Fy = 65 ksi	-	B
Spiral reinforcing	ASTM A1064, Fy = 65 ksi	-	-

   A. Provide WWF in flat sheets only - do not use rolled mesh. Lap 1-1/2 wire spaces (1 foot minimum).
   B. Only D4 and larger are allowed.
   C. MT = Metric ton

2. Reinforcing shall be placed in accordance with the American Concrete Institute Standard 318 (ACI 318) and Concrete Reinforcing Steel Institute's (CRSI) "Manual of Standard Practice". Reinforcing shall be kept clean and free of rust.

3. Provide all accessories needed to support reinforcing in the positions shown in the drawings. Chairs and spacers for reinforcing shall be non-ferrous or plastic-coated when resting on exposed concrete surfaces.

4. Shop Drawings: ACI 318. Show reinforcing steel placement, including sizes, quantities, spacing, clearances, splice locations, lap lengths, and concrete coverage and submit to the Architect (Structural Engineer). Promptly notify the Architect (Structural Engineer) prior to developing shop drawings if insufficient clear distances between reinforcing steel and other congestion are encountered. Notify Special Inspector of adjustments made from approved Contract Documents which are indicated on accepted shop drawings that facilitate field placement of reinforcing steel and concrete. All bars shall be marked so that they can easily be identified by the project inspector after installation.

5. Lap Splices: At concrete, Provide Class B splices per Typical Bar Development Schedules UNO. At masonry, provide 72db lap splice length UNO. Splice bars only at locations indicated. If additional splice locations are proposed, promptly notify the Architect (Structural Engineer) prior to developing shop drawings.
   A. Splices in Walls: Locate splices in horizontal bars at well-staggered locations. Do not splice vertical bars except at horizontal supports such as floor and roof diaphragms.

6. Mechanical and Welded Splice: Mechanical Splices and Welded Splices are to be used only at the indicated locations. Notify the Architect (Structural Engineer) of all instances prior to developing shop drawings.
   A. Mechanical Splice: Mechanical couplers shall have a current Evaluation Report and satisfy ACI requirements for type 2 couplers for the applicable bar size/grade designation.
   B. Welded Splice: Welded splice shall develop at least 125 percent of the yield strength of the spliced bar for the applicable bar size and grade designation.

7. Minimum Clearances Between Parallel Reinforcing Steel, Including Distance Between Sets of Spliced Bars: 1 inch, 1 bar diameter, or 4/3 times the maximum aggregate size, whichever is greater. 1-1/2 inches, 1-1/2 bar diameters, or 4/3 times the maximum aggregate size, whichever is greater, at columns, piers, and pilasters only. For bundled bars, minimum clear distances between units of bundled bars shall be the same as single bars, except bar diameter is derived from the equivalent total area of the bundle.

8. Specified Concrete Coverage: Place bars as near to the concrete surface as the following specified coverages and in accordance with ACI 117:

A.	Slabs on Grade	Locate at the center of slab.
B.	Slabs Supporting Earth Above	1-1/2 inches from top.
C.	Formed Concrete Exposed to Earth or Weather	1-1/2 inches (#5 and smaller) 2 inches (#6 and larger)
D.	Concrete Poured Against Earth (Unformed)	3 inches
E.	Walls Above Grade, Exposed to Weather	1-1/2 inches (#5 and smaller) 2 inches (#6 and larger)
F.	Walls Above Grade, Not Exposed to Weather	3/4 inch (#11 and smaller) 1-1/2 inches (#14 and larger)
G.	Columns (Clear to Face of Ties)	1-1/2 inches
H.	Beams (Clear to Face of Ties)	1-1/2 inches
I.	Structural Slabs, Not Exposed to Weather (Top and Bottom)	1 inch (#8 and smaller) 1db (#9 and larger)
J.	Structural Slabs, Exposed to Weather	1-1/2 inches (#5 and smaller) 2 inches (#6 and larger)
K.	Structural Slabs over Void Forms	1 inch (top #8 and smaller); 1 db (#9 and larger) 2 inches (bottom)

1. Dowels between foundations and vertical wall & column bars shall match the size, grade and spacing of the column or wall vertical reinforcing and be lapped with a class B lap splice, UNO.

2. Dowels at Construction Joints: Provide dowels matching size and quantity of reinforcing steel interrupted at construction joints, unless detailed otherwise.

3. Placement of Bars in Walls (unless detailed otherwise): Place vertical bars closest to wall surfaces at curtains containing vertical and horizontal bars of the same size. In curtains with vertical and horizontal bars of different sizes or spacing, place the layer with the most steel area closest to the near wall surface.

4. Bars Terminating at Walls, Columns, Beams, and Foundations: Extend bars to within 2 inches (3 inches at concrete poured against earth) of the far face of the wall, column, beam, or foundation and provide a standard hook unless detailed otherwise.

5. Bars Interrupted by Structural Steel: Extend bars within 2 inches of the steel face and provide a standard hook unless detailed otherwise.

6. Welding: AWS D1.4, edition adopted by applicable code.
   A. Acceptable Reinforcing Steel for Welding: ASTM A706. If welding of reinforcing steel other than A706 is desired, submit a proposed procedure, indicating conformance with the Applicable Code and requirements of the Governing Code Authority, to the Architect (Structural Engineer) for acceptance and to the Governing Code Authority for approval prior to execution.
   B. Rebar to rebar weld is not allowed except where specifically indicated on plans. Provide electrode E80XX (80 ksi) where permitted.
   C. Welder Certification: As required by the Governing Code Authority.

7. See welding notes in the Structural Steel Section of these notes for additional requirements.

8. Bending: Bend cold according to typical details unless otherwise accepted by the Architect (Structural Engineer). Do not field-bend reinforcing steel bars embedded in concrete unless otherwise accepted in writing by the Architect (Structural Engineer).

9. In-plant fusion welding of holding wires to ties, stirrups and hoops in beams, columns and grade beams to preassemble reinforcing steel cages is permitted under the following conditions per CBC 2022 1903.8:
   A. Fusion welding is not allowed to longitudinal reinforcing steel in any beam, column or grade beam. The holding wire area shall not exceed 5% of the beam, column or grade beam cross sectional longitudinal steel area.
   B. Fusion welding of holding wires to the ends of the reinforcing steel placed in mats (spread footings, slab reinforcement, etc.) provided the fusion weld occurs within 6 bar diameters of the free end of the bar (e.g. not allowed at the end of coupled, t-headed or weld spliced bars).
   C. Fusion welding of holding wires shall not occur on a bent portion of a reinforcing bar. After holding wire has been fusion welded to a reinforcing bar, that bar may not be bent where the fusion weld occurs.
   D. Contractor to submit complete shop drawings indicating which members will use fusion welding process for preassembly. Provide complete details indicating the size of stirrups, holding wires and welding requirements.
   E. Holding wires shall conform to ASTM A1064.
   F. All reinforcing steel to be welded shall comply with ASTM A706 Grade 60.
      a. Contractor to submit complete shop welding program outlining the following: Type of specific fusion welding machine (i.e. Schnell IDEA 12/25 Machine, etc.)
      b. Periodic inspection of the in-plant welding.
   G. Fusion welded reinforcing steel shall have one tensile test taken from one specimen sampled at a rate of 2.5 tons or fraction thereof of each size of reinforcing steel fusion welded. No bend test is necessary. The specimen shall have a holding wire attached to it that need not be removed. The elongation requirements shall comply with the ASTM of reinforcing steel specified on the construction documents (e.g. if A615 is specified, but A706 is used due to the welding requirement, then A615 elongation requirements shall be satisfied).
   H. The use of fusion welding shall conform to ACI 318-19 26.6.4.
   I. If field conditions result in conflicts with other structural members (ex. anchor bolts) the rebar must be relocated in the field to avoid said conflicts.

DESIGN LOADING

1. Loading and Design Parameters:
   A. Live Load
      a. Floor / Roof Live Load: See legends as provided on loading plan sheets.
      b. Live Load Reduction:
         - Floor Live Load of 100 psf and below: General (Applicable Code Section 1607A.12.1)
         - Floor Live Load over 100 psf: Unreduced
         - Roof Live Load: General (Applicable Code Section 1607A.14.2)

   B. Wind Design Parameters
      Wind Speed Strength level, V: 100 MPH (STRENGTH)
      a. Wind Speed Allowable Stress, V_{asd} 78 MPH (ASD)
      b. Risk Category: III
      c. Exposure: C
      d. Enclosure Classification: Enclosed, Hub Canopy: Open
         - Internal Pressure Coefficient, GC_{pi}: +/- 0.18, Hub Canopy: 0.0
      e. Components and Cladding Wind Pressure:

      Hub Building (Middle School Building and MDF Building):

	EFFECTIVE AREA		
ZONE	10 SF	100 SF	500 SF
1"	16.0 / -20.0 (psf)	16.0 / -20.0 (psf)	16.0 / -16.0 (psf)
1	16.0 / -34.8 (psf)	16.0 / -27.2 (psf)	16.0 / -21.8 (psf)
2	16.0 / -45.9 (psf)	16.0 / -36.1 (psf)	16.0 / -29.2 (psf)
3	16.0 / -62.5 (psf)	16.0 / -42.9 (psf)	16.0 / -29.2 (psf)
4	20.0 / -21.6 (psf)	17.0 / -18.7 (psf)	16.0 / -16.7 (psf)
5	20.0 / -26.6 (psf)	17.0 / -20.7 (psf)	16.0 / -16.7 (psf)

      Hub Canopy:

	EFFECTIVE AREA		
ZONE	10 SF	100 SF	500 SF
1	20.4 / -18.7 (psf)	20.4 / -18.7 (psf)	20.4 / -18.7 (psf)
2	30.6 / -28.9 (psf)	30.6 / -28.9 (psf)	20.4 / -18.7 (psf)
3	40.8 / -56.1 (psf)	30.6 / -28.9 (psf)	20.4 / -18.7 (psf)

      Gymnasium Building:

	EFFECTIVE AREA		
ZONE	10 SF	100 SF	500 SF
1"	16.0 / -23.5 (psf)	16.0 / -23.5 (psf)	16.0 / -16.0 (psf)
1	16.0 / -41.0 (psf)	16.0 / -32.0 (psf)	16.0 / -25.7 (psf)
2	16.0 / -54.1 (psf)	16.0 / -42.5 (psf)	16.0 / -34.4 (psf)
3	16.0 / -73.7 (psf)	16.0 / -50.6 (psf)	16.0 / -34.4 (psf)
4	23.5 / -25.5 (psf)	20.1 / -22.0 (psf)	17.7 / -19.6 (psf)
5	23.5 / -31.4 (psf)	20.1 / -24.4 (psf)	17.7 / -19.6 (psf)

      Loads indicated are strength-level loads (negative values indicate pressure away from the surface).

   C. Rain Loads
      a. Rain Intensity (15-minute), i: 2.84 (in/hr), 15-min duration/100-year return period

   D. Snow Loads Parameters:
      a. Ground snow load, p_g 0 PSF
      b. Flat-roof snow load, p_f 0 PSF
      c. Risk Category: III
      d. Snow importance factor, I_s 1.1
      e. Thermal factor, C_t 1.0
      f. Slope factor, C_s 1.0

   E. Project Seismic Design Parameters:
      a. Site Class: D
      b. Mapped Spectral Acceleration (S_s, S_1): 1.608g, 0.557 g (respectively)
      c. Site Specific Design Spectral Acceleration (S_{DS}, S_{D1}): 1.224g, 0.760 g (respectively)
      d. Site Coefficient (F_a, F_v): 1.142, 2.047 (respectively)
      e. Seismic Importance Factor I_e: 1.25
      f. Risk Category: III
      g. Seismic Design Category: D

      Gymnasium Building Seismic Design:

a. Basic Seismic Force Resisting System:	Steel Buckling-Restrained Braced Frames
b. Seismic Response Coefficient, C_s:	0.191 g
c. Analysis Procedure:	Modal Response Spectrum Analysis
d. Seismic Base Shear:	403 kips
e. Response Modification Factor R:	8
f. Overstrength Factor, Ω_o:	2.5
g. Deflection Amplification Factor, C_d:	5
h. Maximum Story Inelastic Drift:	Roof Floor: 1.0 in (North / South) 1.0 in (East / West) Second Floor: 1.5 in (North / South) 1.5 in (East / West) Vertical: No Irregularity
i. Irregularities:	Horizontal: Type 1a: Torsional Irregularity Type 2: Reentrant Corner Irregularity Type 3: Diaphragm Discontinuity Irregularity
j. Reducancy Factor, ρ:	ρ = 1.3 (North / South) 1.3 (East / West)
k. Building Mass:	2110 kips
m. Location of Seismic Base	At Top of Footing

      Hub Building (Middle School Building) Seismic Design:

a. Basic Seismic Force Resisting System:	Steel Buckling-Restrained Braced Frames
b. Seismic Response Coefficient, C_s:	0.191 g
c. Analysis Procedure:	Modal Response Spectrum Analysis
d. Seismic Base Shear:	103 kips
e. Response Modification Factor R:	8
f. Overstrength Factor, Ω_o:	2.5
g. Deflection Amplification Factor, C_d:	5
h. Maximum Story Inelastic Drift:	Roof Floor: 1.00 in (North / South) 0.75 in (East / West) Vertical: N/A
i. Irregularities:	Horizontal: Type 1a: Torsional Irregularity Type 2: Reentrant Corner Irregularity Type 5: Nonparallel System Irregularity
j. Reducancy Factor, ρ:	ρ = 1.3 (North / South) 1.3 (East / West)
k. Building Mass:	538 kips
m. Location of Seismic Base	At Top of Footing (- 1'-6")

      Hub Canopy Seismic Design:

a. Basic Seismic Force Resisting System:	Steel Special Cantilever Column System
b. Seismic Response Coefficient, C_s:	0.612 g
c. Analysis Procedure:	Modal Response Spectrum Analysis
d. Seismic Base Shear:	93.6 kips
e. Response Modification Factor R:	2.5
f. Overstrength Factor, Ω_o:	1.25
g. Deflection Amplification Factor, C_d:	2.5
h. Maximum Story Inelastic Drift:	Roof Floor: 4.5 in (North / South) 4.0 in (East / West)
i. Irregularities:	Vertical: N/A Horizontal: Type 5: Nonparallel System Irregularity
j. Reducancy Factor, ρ:	ρ = 1.0 (North / South) 1.0 (East / West)
k. Building Mass:	153 kips
m. Location of Seismic Base	At Top of Caisson (- 1'-0")

      Shade Pavillion Seismic Design:

a. Basic Seismic Force Resisting System:	Steel Special Cantilever Column System
b. Seismic Response Coefficient, Cs:	0.612 g
c. Analysis Procedure:	Equivalent Lateral Force Procedure
d. Seismic Base Shear:	6.2 kips
e. Response Modification Factor R:	2.5
f. Overstrength Factor, Oo:	1.25
g. Deflection Amplification Factor, Cd:	2.5
h. Maximum Story Inelastic Drift:	Roof Floor: 2.1 in (North / South) 2.1 in (East / West)
i. Irregularities:	Vertical: N/A Horizontal: N/A
j. Reducancy Factor, p:	p = 1.3 (North / South) 1.3 (East / West)
k. Building Mass:	10 kips
m. Location of Seismic Base	At Top of Caisson

DEFERRED SUBMITTAL ITEMS ANCHORED OR SUPPORTED BY STRUCTURE

1. Design Responsibility: Contractor to design and obtain separate Governing Code Authority approval for deferred approval items noted on Gx series sheets.

2. Shop Drawings and Structural Calculations: Submit design plans, details and calculations of deferred submittal items signed and sealed by a structural engineer registered in State of California to Architect (Structural Engineer) for acceptance and to Governing Code Authority for approval prior to fabrication.

3. Design: Design components for imposed forces including lateral restraint complying with Applicable Code, Contract Documents, and applicable portions of ASI Specifications. If building Seismic Force Resisting System (SFRS) is used for lateral restraint, indicate load paths to building lateral resisting system in calculations and show connection forces on shop drawings. Where building provides vertical support, indicate loads and load paths to building in calculations and show connection forces on shop drawings. Dead load elements at lowest level of connection uno Design loads are as follows:
   A. Dead load: Self weight of deferred system (including supported components of other systems).
   B. Live load: Per applicable code.
   C. Seismic and wind loads: Per applicable code. See Design Loading section of General Notes
   D. Design Movement: Lateral Movement: Design Loading (Section E) of General Notes
      Vertical Movement: Live Load Deflection of L/360

4. Stabilizing Elements at Connections to Structural Members: Design connections of deferred submittal items to supporting structure such that torsion in supporting elements is avoided wherever possible. Where torsion in supporting element is resulted, provide beam bottom flange brace per detail 17 or 18/2-S6.11 at each connection point.

QUALITY ASSURANCE (STRUCTURAL OBSERVATION, MATERIALS TESTING, and SPECIAL INSPECTION)

1. Structural Observation:
   A. The Architect (Structural Engineer) of record will perform visual observation of the construction as required CAC 4-333 and 4-341 in accordance with the governing code. These visual observations shall not be considered a substitute for special inspections.
   B. Coordination Responsibilities of Contractor: Notify Architect (Structural Engineer) 48 hours in advance of critical stages of construction indicated below so visits may be scheduled by Structural Observer. Failure by Contractor to meet observation schedule may require removal of subsequent Work for observation. Contractor to bear costs of removal and replacement of finished Work or framing damaged by removal process or as required for corrective action and for any associated scheduling delays.
      Critical stages of construction requiring structural observation:
      1. Prior to pouring first foundation at each of the structures.
      2. Prior to pouring first concrete filled metal deck.
      3. After structural steel erection, Prior to application of architectural furring.
      4. After roof deck welded off.
   C. Pre-construction Meeting: Owner may coordinate and call for meeting between Architect (Structural Engineer) responsible for structural design, Structural Observer, Contractor, affected subcontractors and Special Inspector. Structural observer will preside over this meeting. Purpose of meeting is to identify major structural elements and connections that affect vertical and lateral load resisting systems of structure and to review schedule of Structural Observation, Materials Testing, and Special Inspection of Project.

2. Mill Test Reports Certifying Materials: Contractor to submit mill test reports certifying reinforcing steel, and structural steel are of identifiable tested stock to Owner, Special Inspector, Architect (Structural Engineer) and, upon request, to Governing Code Authority. Ensure materials are properly tagged for identification. If mill test reports cannot be made available or if material cannot be identified, Testing Laboratory will perform tests as directed by Architect (Structural Engineer). Contractor shall pay Testing Laboratory for costs related to tests and inspections of unidentifiable materials or materials furnished without mill test reports, materials found deficient after initial tests and inspections, or materials replacing deficient materials.
   A. Ultrasonic Examination of Heavy Rolled Shapes and Thick Plates at Proposed Welded Moment Connections: Where complete penetration groove welds occur at Groups 4 and 5 structural steel shapes, as defined in ASTM A6, and plates exceeding 2 inches thick, submit mill test reports to Architect (Structural Engineer) and, upon request, to Governing Code Authority. Mill test reports shall certify that Charpy V-notch testing was conducted in compliance with ASTM A6, Supplementary Requirement S5, including impact test complying with ASTM A673 at frequency P with minimum average value of 20 ft.-lbs. absorbed energy at 70 degrees Fahrenheit.

3. Weld Testing and Inspection: Testing Laboratory will submit weld test results to Owner, Contractor, Architect (Structural Engineer) and to Governing Code Authority. See Specifications for testing requirements not indicated on structural drawings.
   A. Structural Steel Welding: Apart from visual inspection and review of fabrication and erection reports of fabricator/erector's own quality control testing and inspection, Owner's Testing Laboratory will perform indicated shop and field inspection and testing. Testing Laboratory will be AWS Q C.-1 certified and will provide inspectors for continuous inspection of steel fabrication and erection of structural welding. Shop and field testing of materials and welding will be as follows:
      a. Ultrasonic testing is required for all (100%) and complete penetration welds. Test groove welding on continuity plates by ultrasonic testing after beam flange weld connection. Testing shall occur after completed welds have cooled to ambient temperature. Weld backing removal areas and fillet welds shall be subjected to magnetic particle examination.
      b. Base metal thicker than 1-1/2 inches, subjected to through thickness weld shrinkage, will be ultrasonically tested directly behind such welds after welds have cooled to ambient temperature.
      c. Welds shall be visually inspected and periodically measured (15 percent minimum).
      d. Check 10 percent of fillet welds by magnetic particle (ASTM 109 method). Check 25 percent of continuity plate fillet welds by magnetic particle, UNO. At continuity plates in moment connections (where CJP is used on one or more plate ends), 100 percent of fillet welds shall be tested by magnetic particle.
      e. Ultrasonically test column flanges located at proposed welded moment connections, continuity plates, doubler plates and base plates where column flange or plate thickness exceeds 1-1/2 inches. Test for evidence of laminations, inclusions or other discontinuities in accordance with ASTM A435, straight beam ultrasonic examination of steel plates, or ASTM A898, straight beam ultrasonic examination of rolled steel structural shapes, as applicable. Test zone to include area 6 inches above and below each beam flange connection. For plates, any discontinuity causing a total loss of back reflection not contained within 3-inch diameter circle, or one-half thickness of plate, whichever is greater, will be rejected. For rolled shapes, ASTM A898, Level I criteria applies. Testing will be performed on material prior to fabrication, after fabrication, and after final welding of beam.
      f. f. k-Area welds shall be MT'd no sooner than 48 hours after completion of weld.
      g. Amperage, voltage, polarity and electrode stick out will be verified for compliance with electrode manufacturer's recommendations.

4. Special Inspection: Per DSA-103 and chapter 17A of CBC.

GENERAL

1. Authority Having Jurisdiction (AHJ): Division of the State Architect (DSA SS)
   Applicable Code: 2022 California Building Code (CBC) as modified by AHJ. References to industry standards herein shall be latest edition as adopted by Applicable Code.

2. Field Verification: Field verify existing conditions and dimensions prior to construction. Promptly notify Architect (Structural Engineer) in case of discrepancies.

3. Design Intent: Contract Documents indicate design intent for structure in its completed state. They do not indicate method of construction. Promptly notify Architect (Structural Engineer), prior to proceeding with Work, if design intent requires further clarification.

4. Deviations, Modifications and Substitutions to Approved Structural Drawings: Must be accepted in writing by Architect (Structural Engineer) and approved by Governing Code Authority. No deviation, modification or substitution will be accepted via shop drawing review.

5. Procedures of Construction: Contractor is responsible for procedures of construction complying with national, state and local safety ordinances. Site visits (including Structural Observation) by Architect (Structural Engineer) do not constitute supervision of methods of construction.
   A. Protection of Utilities: Locate existing utilities, including those not shown on Contract Documents, and protect them from damage. Contractor bears expense of repair or replacement of utilities in conjunction with excavation of Work.
   B. Excavations: Protect structure, adjacent structures, adjacent properties, streets, and utilities during excavation utilizing lagging, shoring, underpinning and related procedures as may be required. Provide necessary supports for soil at sides of excavations. Contractor and affected trades shall refer to Geotechnical Report for more information.
   C. Protection of Structure: Provide necessary measures to protect structure and adjacent buildings during execution of Work.
   D. Contractor Proposed Revisions: Where a revision of structural design or connection is proposed by Contractor to accommodate construction tolerances, construction sequence and/or dimension modifications, Contractor shall retain a structural engineer licensed in State of California to perform design. Submit stamped and signed design drawings and calculations to the Architect (Structural Engineer) for review and the Governing Code Authority for approval.
   E. Erection Plans: Determine phases of Work requiring erection plans according to applicable safety regulations. Maintain certified copies of erection plans at site during construction.
   F. Shoring, Bracing, and Other Temporary Supports: Design and erect shoring, bracing, and other temporary supports where structure has not attained design strength and as required for safe erection. Ensure floor, roof, and wall members are securely shored and braced during construction. Provide shoring at elevated beams and slabs supporting concrete or masonry walls during and after pour until wall attains design strength.
   G. Temporary Loading: Ensure construction loads do not exceed indicated design live load values. Notify affected sub-contractor trades of these design load limits.
   H. Fabrication, Shipment, and Erection of Structural Steel: Ensure stresses occurring during fabrication, shipment, and erection of structural steel are temporary and are less than design and allowable stress capacities of individual members. Do not impair full design and load carrying capacity of members due to fabrication, shipment or erection. Contractor is responsible for controlling erection sequence, erection procedure, temperature differentials and weld shrinkage to minimize residue stresses. Provide additional materials for the erection of structural steel such as temporary bracing and guy cables as may be necessary at no additional cost. Remove these materials unless approved in writing by Owner. Do not tighten bolts in typical beam to column connections for erection purposes.
   I. Securing Reinforcing Steel, Dowels, Anchor Bolts and Embeds: Firmly support and accurately place complying with ACI standards prior to casting concrete or grout in masonry walls. Use ties and support bars in addition to reinforcing steel shown where necessary. No welding of reinforcing steel, including tack welding, is permitted unless otherwise accepted in writing by Architect (Structural Engineer). Provide plastic or plastic coated chairs and spacers when resting on exposed surfaces.
   J. Coordination Responsibility: Contractor is responsible for coordination of Work including that of sub-contractor trades.
   K. Core drilling of hardened concrete shall only be done after specific review by Architect (Structural Engineer) Core drilling shall not cut any reinforcing. Concrete coverage for reinforcement as described in the Reinforcing Steel section of General Notes shall be maintained at locations of cores.

6. Submittals: Submit to Architect (Structural Engineer) as indicated on structural drawings and specifications. General Contractor shall review submittal for completeness and compliance with Contract Documents prior to submission.
   A. Request for Information (RFI) Submittals: Accompany RFI's with partial structural foundation or framing plans showing location in question and affected structural members. Copy partial plan from structural drawings and indicate grid line locations and floor level. Also provide properly drawn engineering sketches illustrating issues and Contractor's proposed solutions. Photographs are not acceptable substitutes to engineering sketches.
   B. Composite Slab Penetration Submittal: Submit to Architect (Structural Engineer) for each floor indicating size and location of each slab penetration and opening as necessary by all affected trades. Submit penetration plans together with corresponding metal decking or reinforcing steel shop drawings. Submit written statement from Special Inspector that no additional penetrations or openings were added to those shown in penetration submittal.
   C. Concrete and Masonry Wall Penetration Submittal: Submit to Architect (Structural Engineer) for each wall indicating size and location of each wall penetration and opening as necessary by all affected trades. Submit penetration elevations together with corresponding reinforcing steel shop drawings. Submit written statement from Special Inspector that no additional penetrations or openings were added to those shown in penetration submittal.

7. Contract Documents Use: Review Contract Documents in their entirety before performing structural related Work and before developing shop drawings. Bring discrepancies to immediate attention of Architect (Structural Engineer) before starting Work.
   A. Scaling of Drawings: Not permitted.
   B. Additional Structural Requirements: See specifications.
   C. Building Geometry: See architectural drawings for building geometry including, but not limited to, top of floor and roof elevations; depressions; slopes; curbs; drains; trenches; slab and deck edge locations; wall overall dimensions; and size and locations of openings in floors, roof, and walls.
   D. Non-structural Items Requiring Special Provisions: See architectural, mechanical, plumbing, and electrical drawings for non-structural items requiring special provisions during construction. They include, but are not limited to, non-structural walls; size and location of openings and sleeves penetrating structure; size and location of concrete curbs and pads; and size and location of piping, ductwork, and equipment anchorages mounted or suspended from structure. Verify exact size and location of equipment with equipment manufacturer.
   E. Work shown is new unless noted as existing. (E).

8. Materials: Furnish and install in compliance with legally constituted public authorities having jurisdiction including county and local ordinances and safety orders of State Industrial Accident Commission, OHSA. The Architect (Structural Engineer) and Owner accept no responsibility for the contractors failure to comply with these requirements.

9. Penetrations, Embedments, and Openings in Structural Members: No penet

ABBREVIATIONS

&	AND
@	AT
Ø	DIAMETER
>	GREATER THAN
≥	GREATER THAN OR EQUAL TO
<	LESS THAN
≤	LESS THAN OR EQUAL TO
#	"POUNDS, NUMBER"
AB	ANCHOR BOLT(S)
ABV	ABOVE
ADDL	ADDITIONAL
ADJ	ADJACENT
AESS	ARCHITECTURAL EXPOSED STRUCTURAL STEEL
AFF	ABOVE FINISHED FLOOR
AHJ	AUTHORITY HAVING JURISDICTION
AHU	AIR HANDLING UNIT
ALT	ALTERNATE
ALUM	ALUMINUM
AOR	ARCHITECT OF RECORD
APPROX	APPROXIMATE
ARCH	ARCHITECT(URAL)
ASD	ALLOWABLE STRESS DESIGN
(B)	BOTTOM
BF	BRACED FRAME
BFF	BELOW FINISHED FLOOR
BLDG	BUILDING
BLKG	BLOCKING
BLW	BELOW
BM	BEAM
BN	BOUNDARY NAILING
BO	BOTTOM OF
BOD	BOTTOM OF DECK
BOF	BOTTOM OF FOOTING
BOPC	BOTTOM OF PILE CAP
BOS	BOTTOM OF STEEL
BOSL	BOTTOM OF SLAB
BOT	BOTTOM
BP	BASE PLATE
BRB	BUCKLING RESTRAINED BRACE
BRCG	BRACING
BRDG	BRIDGING
BRG	BEARING
BTWN	BETWEEN
BU	BUILT-UP
C	CAMBER
CA	COLUMN ABOVE
CANT	CANTILEVER
CB	COLUMN BELOW
CGS	CENTER OF GRAVITY OF PRESTRESSING STRAND
CIP	CAST-IN-PLACE
CIV	CIVIL
CJ	CONSTRUCTION/CONTROL JOINT
CJP	COMPLETE JOINT PENETRATION
CL	CENTERLINE
CLG	CEILING
CLR	CLEAR
CLT	CROSS LAMINATED TIMBER
CMU	CONCRETE MASONRY UNIT
COL	COLUMN
CONC	CONCRETE
CONN	CONNECTION/CONNECT
CONST	CONSTRUCTION
CONT	CONTINUOUS
COORD	COORDINATE
COV	COVER
CTR	CENTER
CVN	Charpy V-Notch
d	Penny - Nail size
db	"REBAR, WIRE, or PRESTRESSSING STRAND DIAMETER"
DBA	DEFORMED BAR ANCHOR
DBL	DOUBLE
DCW	DEMAND CRITICAL WELD
DEMO	DEMOLITION/DEMOLISH
DET	DETAIL
DF	Douglas Fir
DIA	DIAMETER
DIAG	DIAGONAL
DIM	DIMENSION
DN	Down
DO	DITTO
DWG	DRAWING
DWL	DOWEL
(E)	EXISTING
EA	EACH
EBF	ECCENTRICALLY BRACED FRAME
EDP	ENVIRONMENTAL PRODUCT DECLARATION
EF	EACH FACE
EFF	EFFECTIVE
EGRS	Elevator Guide Rail Support
EJ	EXPANSION JOINT
EL	ELEVATION
ELEC	ELECTRICAL
ELEV	ELEVATOR
EMBED	"EMBEDMENT, EMBEDDED"
EN	EDGE NAILING
ENGR	ENGINEER
EOR	ENGINEER OF RECORD
EQ	EQUAL
EQUIP	EQUIPMENT
EQUIV	EQUIVALENT
ER	EVALUATION REPORT
ESR	EVALUATION SERVICE REPORT
ETC	ET CETERA
EW	EACH WAY
EXP	EXPANSION
EXT	EXTERIOR
FAB	FABRICATE
f'c	28-DAY (UNO) COMPRESSIVE STRENGTH OF CONCRETE
FDN	FOUNDATION
FF	Finished Floor
FG	FINISHED GRADE
FIN	FINISH(ED)
FLR	FLOOR
f'm	28-DAY (UNO) COMPRESSIVE STRENGTH OF MASONRY
FN	FIELD NAILING
FRP	FIBER-REINFORCED POLYMER
FS	FAR SIDE / FINISHED SURFACE
FT	"FOOT, FEET"
FTG	FOOTING
FUT	FUTURE
Fy	YIELD STRENGTH
GA	"GAGE, GAUGE"
GALV	GALVANIZE(D)
GC	GENERAL CONTRACTOR
GEN	GENERAL
GWP	GLOBAL WARMING POTENTIAL
GLB	GLUED-LAMINATED BEAM
GR	GRADE
HD	HOLDDOWN
HDR	HEADER
HGR	HANGER
HORIZ	HORIZONTAL
HS	HIGH STRENGTH
HSA	HEADED STUD ANCHOR
HSB	HIGH STRENGTH BOLT
HSS	HOLLOW STRUCTURAL SECTION
HT	HEIGHT
IAPMO	INTERNATIONAL ASSOCIATION OF PLUMBING AND MECHANICAL OFFICIALS
ICC	INTERNATIONAL CODE COUNCIL
ID	INSIDE DIAMETER
IN	INCH
INFO	INFORMATION
INT	INTERIOR
IOR	INSPECTOR OF RECORD
JST	JOIST
JT	JOINT
K	KIPS (1000 LBS)
KLF	KIPS PER LINEAR FOOT
KSF	KIPS PER SQUARE FOOT
KSI	KIPS PER SQUARE INCH
L	ANGLE
LAND	LANDSCAPE
LBS	POUNDS
LCA	LIFE CYCLE ASSESSMENT
Ld	DEVELOPMENT LENGTH of straight rebar
Ldh	DEVELOPMENT LENGTH for hooked rebar
Ldt	DEVELOPMENT LENGTH for headed rebar
LL	DOUBLE ANGLE
LLBB	LONG LEG BACK TO BACK
LLH	LONG LEG HORIZONTAL
LLV	LONG LEG VERTICAL
LONG	LONGITUDINAL
LOR	LABORATORY OF RECORD
LRFD	LOAD AND RESISTANCE FACTOR DESIGN
Ls	SPLICE LENGTH of straight rebars
LSH	LONG SIDE HORIZONTAL
LSL	LONG-SLOTTED HOLE
LSV	LONG SIDE VERTICAL
LT GA	LIGHT GAUGE
LVL	LAMINATED VENEER LUMBER
LWC	LIGHTWEIGHT CONCRETE

MAX	MAXIMUM
MECH	MECHANICAL
MEP	MECH, ELECT, & PLUMB
MEZZ	MEZZANINE
MF	MOMENT FRAME
MFR	MANUFACTURER
MIN	MINIMUM
MISC	MISCELLANEOUS
MTL	METAL
(N)	NEW
N/A	NOT APPLICABLE
NF	NEAR FACE
NIC	NOT IN CONTRACT
NO.	NUMBER
NOM	NOMINAL
NS	NEAR SIDE
NTS	NOT TO SCALE
NWC	NORMALWEIGHT CONCRETE
O/C	ON CENTER
OD	OUTSIDE DIAMETER
OH	OPPOSITE HAND
OPNG	OPENING
OPP	OPPOSITE
OVS	OVERSIZED HOLE
PAF	POWDER/POWER ACTUATED FASTENER
PAR	PARALLEL
PC	PRECAST CONCRETE
PCF	POUNDS PER CUBIC FOOT
PCY	POUNDS PER CUBIC YARD
PERF	PERFORATED
PERP	PERPENDICULAR
PI	PROJECT INSPECTOR
PJ	PANEL JOINT
PJP	PARTIAL JOINT PENETRATION
PL	PLATE
PLF	POUNDS PER LINEAR FOOT
PLF	POUNDS PER LINEAR FOOT
PLUMB	PLUMBING
PQR	PROCEDURE QUALIFICATION RECORD
PRELIM	PRELIMINARY
PROP	PROPERTY
PSF	POUNDS PER SQUARE FOOT
PSI	POUNDS PER SQUARE INCH
PSL	PARALLEL STRAND LUMBER
PT	"PRESSURE TREATED, POST-TENSION(ED)"
PWD	PLYWOOD
QTY	QUANTITY
RAD	RADIUS
RBS	REDUCED BEAM SECTION
REF	REFERENCE
REINF	REINFORCEMENT
REQ'D	REQUIRED
REV	REVISION
RO	ROUGH OPENING
RR	ROOF RAFTER
RTU	ROOF TOP UNIT
SC	"SLIP CRITICAL, SAW CUT"
SCBF	SPECIAL CONCENTRICALLY BRACED FRAME
SCHED	SCHEDULE(D)
SDS	SELF-DRILLING SCREW
SECT	SECTION
SEOR	STRUCTURAL ENGINEER OF RECORD
SEP	SEPARATION
SFRS	SEISMIC FORCE RESISTING SYSTEM
SHT	SHEET
SHTG	SHEATHING
SIM	SIMILAR
SLBB	SHORT LEG BACK TO BACK
SMRF	SPECIAL MOMENT RESISTING FRAME
SMS	SHEET METAL SCREW
SOG	SLAB-ON-GRADE
SPEC(S)	SPECIFICATION(S)
SQ	SQUARE
SS	STAINLESS STEEL
SSL	SHORT-SLOTTED HOLE
STAGG	STAGGERED
STD	STANDARD
STIFF	STIFFENER
STL	STEEL
STRUCT	"STRUCTURE, STRUCTURAL"
SUSP	SUSPENDED
SW	SHEAR WALL
SYM	"SYMMETRIC, SYMMETRICAL"
(T)	TOP
(T&B)	TOP AND BOTTOM
T.O.	TOP OF
THK	THICK
TOC	TOP OF CONCRETE
TOF	TOP OF FOOTING / FOUNDATION
TOM	TOP OF MASONRY
TOPC	TOP OF PILE CAP
TOS	TOP OF STEEL
TOSL	TOP OF SLAB
TOW	TOP OF WALL
TRANS	TRANSVERSE
TYP	TYPICAL
UNO	UNLESS NOTED OTHERWISE
UT	ULTRASONIC TESTING
VERT	VERTICAL
VIF	VERIFY IN FIELD
W/	WITH
W/C	WATER-CEMENT RATIO
W/O	WITHOUT
"WF, W"	WIDE FLANGE
WP	WORK POINT
WPS	WELD PROCEDURE SPECIFICATIONS
WT	"WEIGHT, "T" SECTION CUT FROM WIDE FLANGED BEAM"
WWF	WELDED WIRE FABRIC
XS	EXTRA STRONG
XXS	DOUBLE EXTRA STRONG

LIGHT GAUGE METAL FRAMING GENERAL NOTES

1. Minimum yield strength shall be as follows:
   A. 43 mils (18 gauge) and lighter (33 ksi):
      a. Carbon Sheet Steel to be Painted: ASTM A1003, Grade 33, TYPE H.
      b. Galvanized: ASTM A653, SS GRADE 33.
   B. 54 mils (16 gauge) and heavier (50 ksi):
      a. Carbon Sheet Steel to be Painted: ASTM A1003, Grade 50, TYPE H.
      b. Galvanized: ASTM A653, SS GRADE 50.
2. Manufacturer and Properties: Member of Steel Stud Manufacturer's Association (SSMA) complying with ICC-ESR 3064P or Cemco applying with ICC-ESR 3016 or Clark-Dietrich complying with ICC ESR-1166P. Provide punched studs as scheduled in these drawings with minimum effective section properties as indicated in referenced evaluation report.
3. Design Gauge Thicknesses: Indicated properties are based on the following thicknesses:
   12 ga. - 0.1017 inch, 97 mils 14 ga. - 0.0713 inch, 68 mils 16 ga. - 0.0566 inch, 54 mils
   18 ga. - 0.0451 inch, 43 mils 20 ga. - 0.0346 inch, 33 mils
4. Track Material: Provide unpunched track of dimensions to ensure proper fit of studs with minimum effective section properties as indicated in referenced evaluation report.
5. Lateral Bridging for Studs: Required when rigid wall finish does not continue full height on either or both sides of studs. Install horizontal straps or cold-rolled channels as shown and in accordance with Section D3 of AISI specification. See typical details.|
6. Lateral Blocking for Joists: Joists shall be braced by full depth blocking at all points of support. See Typical details for additional locations of joist blocking.
7. Joist Web Punch-Out Locations: Web punch-outs shall not be located closer than twice the member depth from edge of bearing support or concentrated loads, 12" minimum. Do not provide punchouts at tracks.
8. Securing Studs and Braces: Plumb, align and tightly nest in both upper and lower tracks with secure attachment to both flanges of tracks. Splices in axial loaded studs and braces are not permitted.
9. Self-Drilling Screws: See General Notes.
10. Welding: ANSI/AWS D1.3 and CBC Section 2210A. Wire tying of framing components is not permitted.
    A. Welder Certification: Governing Code Authority.
    B. Electrodes: E60XX at 33 ksi members, E70XX at 50 ksi members.
    C. Touch-Up: Zinc-rich paint at galvanized members and regular paint at carbon sheet steel.

MASONRY

1. Specified Compressive Strength of Masonry (f'm): 2000 psi typical unless noted otherwise.
2. Verifying Specified Compressive Strength of Masonry (f'm): Use masonry prism testing method unless otherwise acceptable to Architect (Structural Engineer). Submit masonry prism data for each type and compressive strength of masonry required, with a professional engineer's signature and state of California seal, to Architect (Structural Engineer). Compliance with minimum required compressive strength shall be based on Applicable Code Section 2105A.2.
3. Concrete Block: ASTM C90, medium weight, attaining a minimum compressive strength as required to meet specified compressive strength of masonry (f'm). Completed (grouted and mortared) masonry assembly not to exceed 115 pcf max. dry density.
4. Face Brick: ASTM C216.
5. Portland Cement for Mortar and Grout: ASTM C150, type I or II. Use of masonry cement or plastic cement is not permitted.
6. Aggregates for Mortar and Grout:
   A. Aggregates for Mortar: ASTM C144.
   B. Aggregates for Grout: ASTM C404, coarse type.
7. Mortar: ASTM C270, Type S, attaining a minimum compressive strength as required to meet specified compressive strength of masonry (f'm)
8. Grout: ASTM C476, coarse type, attaining a minimum compressive strength as required to meet specified compressive strength of masonry (f'm). However, in no case shall grout compressive strength be less than the greater of f'm or 2000 psi at 28 days.
9. Reinforcing Steel: Reinforcing steel section of general notes unless indicated otherwise.
10. Masonry Wall Penetration Submittal: Submit for each wall indicating size and location of each wall penetration and opening as necessary by affected trades. Submit together with appropriate reinforcing steel shop drawings. Submit written statement from Special Inspector that no additional penetrations or openings were added to those shown in penetration submittal.
11. Reinforcing Steel Splices: Lap reinforcing steel at splices a minimum of 72 bar diameters, except dowels in footings at base of walls shall splice a minimum of 72 bar diameters, unless noted otherwise. Where minimum clear distance between bars at adjacent splices is 3 inches or less, increase lap length 30 percent unless splices are staggered at least 24 bar diameters.
12. Dowels for Walls, Columns, Pilasters, and Piers: Match size and spacing of vertical reinforcing steel, unless noted otherwise. Set dowels to align with cells containing reinforcing steel.
13. Minimum Reinforcing Steel Clearances:
    A. Minimum Clearances Between Reinforcing and Outside Face of Masonry: 2 inches except in no case shall clearance be less than 2-1/2 bar diameters.
    B. Minimum Clearance Between Reinforcing and Inside Face of Grout Cell: 1/2 inch or 1 bar diameter whichever is greater.
    C. Minimum Clearance Distances Between Parallel Reinforcing: 1 inch or nominal bar diameter, whichever is greater. Increase to 1-1/2 inches or 1-1/2 times nominal bar diameter, whichever is greater, at columns, pilasters, and piers only.
14. Placement: Set courses in running bond pattern unless indicated otherwise. Set cells in vertical alignment. Provide flush mortar joints at surfaces to receive waterproofing or damp-proofing.
15. Grouting: Grout solid all cells. Mechanically vibrate grout in cells.
    A. Grout Height Limits: CBC Section 2104A.1.3, TMS 602, Article 3.5 D
    B. Horizontal Construction Joints: Hold grout 1 1/2 inches below top of masonry unit if work is stopped one hour longer.
    C. Grout Cover Around Reinforcing Steel, Anchor Bolts and Inserts Penetrating Masonry Shell: 1 inch minimum.
16. Horizontal Bars Terminating at Wall Ends and Opening Jambs: Extend bars to within 2 inches of end of wall and provide standard ACI 90-degree hook unless detailed otherwise.
17. Control joints shall be provided as indicated on Arch and wall elevations per detail 01/2-S6.61. If not indicated on Arch, provide control joints at 25'-0" O/C maximum and coordinate w/ Arch.

PROPRIETARY ANCHORAGES and FASTENERS

1. Anchorages:
   A. Drill and Epoxy Anchors and Rebar:
      a. At Concrete: Hilti HIT-RE 500 V3 adhesive anchor system complying with ICC-ES Evaluation Report ESR-3814.
      b. At Masonry: Hilti HIT-HY 270 adhesive anchor system complying with ICC-ES Evaluation Report ESR-4143.
      c. Provide anchor type, size and embedment as indicated in details.
      d. Overhead applications must be installed using the Hilti HIT-SZ piston plug system.
   B. Mechanical (Expansion) Anchors:
      a. At Concrete: Hilti KB-TZ2 carbon steel expansion anchor complying with ICC-ES Evaluation Report ESR-4266.
      b. At Masonry: Hilti KB-TZ2 carbon steel expansion anchor complying with ICC-ES Evaluation Report ESR-4561.
      c. Where mechanical anchor is exposed to weather, provide stainless steel anchor conforming to the Evaluation Report in lieu of carbon steel.
   C. Welded Shear Studs: Nelson S3L flux filled, headed stud anchors, 65,000 psi minimum ultimate tensile strength conforming to ASTM A29, automatically end welded in field and complying with ICC-ES Evaluation Report ESR-2856.
   D. Welded Deformed Anchors: Nelson D2L, cold rolled, deformed steel reinforcing bars conforming to ASTM A1064 and complying with ICC-ES Evaluation Report ESR-2907.
2. Fasteners:
   A. Power/Powder Actuated Fasteners (Indicated "Shot Pins" or "PAF" on Drawings): Hilti Low-velocity Power Actuated Drive, 0.157" diameter (X-U), complying with ICC-ES Report ESR-2269. Provide appropriate washer between fastener head and light gauge metal or wood surface. Shot pins shall not be used @ PT slab or beams.
   B. Self-Drilling Metal Screws (Indicated "Screws" or "SMS" on Drawings): Hilti Self Drilling Screw complying with current ICC-ES Evaluation Report ESR-2196.
   C. Concrete Screws: Hilti KH-EZ carbon steel screw anchor complying with ICC ES Evaluation Report ESR-3027.
   D. Masonry Screws: Hilti KH-EZ carbon steel screw anchor complying with ICC ES Evaluation Report ESR-3056.
   E. Self-Drilling wood Screw: At steel to wood connections (Indicated "SDS" on drawings): Simpson SDS screw complying with ICC-ES ESR 2236. At wood to wood connections (Indicated "SDWS" on drawings): Simpson SDWS screw complying with IAPMO-UES ER 192.
   F. Lag Screw: Lag Screw complying with ANSI / ASME B18.2.1
   G. Where fasteners are exposed to weather, provide stainless steel fasteners conforming to the Evaluation Report in lieu of carbon steel.
3. Installation: See manufacturer's written instructions and referenced ICC-ES evaluation report. Contractor shall arrange an anchor manfacturer's representative to provide onsite installation training for all anchor products specified.
   A. Prior to drilling holes for post-installed anchors, contractor shall locate existing rebar, prestressing tendons, post-tensioning tendons, and embedded utilities using non-hazardous, non-destructive methods with accurate location tolerances (plus or minus 1/4-inch). Do not cut, hit, or otherwise damage existing rebar or tendons during anchor installation.
   B. Drilling Holes in Existing Concrete or Masonry for Anchorages: Use non-pneumatic, rotary hammer tools with ANSI compliant non-rebar cutting drill bits to drill holes of proper tolerances. Locate existing rebar including prestressing and post-tensioning tendons using non-hazardous, non-destructive methods with accurate location tolerances (plus or minus 1/4-inch) prior to drilling holes to avoid cutting or damaging Holes shall be thoroughly cleaned per manufacturer's written recommendations prior to installation of anchorages.
   C. Deleterious Materials: Keep anchorages, including holes for drill and epoxy anchors and mechanical anchors, free of dust, grease, and other materials that impair bond.
   D. Use of diamond core bit with roughening tool for anchor holes requires approval from Engineer of Record prior to drilling. Unless otherwise shown in the drawings, all holes shall be drilled perpendicular to the concrete surface.
   E. Embedment Depths:
      a. Mechanical Anchors: Embedment depths noted in drawings are the effective minimum embedment UNO. Refer to applicable evaluation report for the corresponding minimum hole depth and nominal embedment.
      b. Screw Anchors: Embedment depths noted in drawings are the nominal minimum embedment UNO. Refer to the applicable evaluation report for the corresponding minimum hole depth.
   F. Anchor installer certification is required for all installers of drill and epoxy anchors in horizontal or upwardly inclined orientation. Installer qualification must be provided to the inspector prior to installation.
   G. Installation Torques for Expansion Anchors shall be as noted:

Nominal Anchor Diameter	Expansion Anchor Installation Torque (ft-lb)			
	Into Concrete		Into Masonry	
	KB-TZ2 Carbon Steel	KB-TZ2 Stainless Steel	KB-TZ2 Carbon Steel	KB-TZ2 Stainless Steel
1/4"	4	6	4	6
3/8"	30	30	15	15
1/2"	50	40	25	15
5/8"	40	60	30	35
3/4"	110	125	50	50

   H. Installation Torques for Screw Anchors shall be as noted:

Nominal Anchor Diameter	Screw Anchor Installation Torque (ft-lb)					
	Into Concrete				Into Masonry	
	Hilti KH-EZ Hex	Hilti KH-EZ C	Hilti KH-EZ CRC	Hilti KH-EZ E & KH-EZ I	Hilti KH-EZ (Hex, P, PM, PL & C)	Hilti KH-EZ CRC
1/4"	18		N/A	18	21	N/A
3/8"	40 (19 @ h_{nom} <2.5")		40	40	22	20
1/2"	45	N/A	45	N/A	34	25
5/8"	85	N/A	85	N/A	38	35
3/4"	95	N/A	85	N/A	70	45

Note: 1/4" dia. Hilti KH-EZ P, PM & PL in concrete shall have installation torque of 18 ft-lb.

4. Testing
   A. See DSA 103 Testing and Inspections.
   B. Installation in Concrete:
      a. Provide testing of post-installed anchors in concrete per CBC 2022 1910A.5.
   C. Installation in Masonry:
      a. Provide testing of post-installed anchors in masonry per CBC 2022 1910A.5 as required by section 1705A.4.

STRUCTURAL STEEL

1. Provide readily identifiable structural steel in compliance with Applicable Code Section 2202A.1.
2. Structural Steel: Furnish structural steel complying with the following ASTM standard specifications, unless noted otherwise:

Use/Shape	Type/Grade	GWP Limit (unfabricated) (MT CO_2e/MT)	Notes
Wide Flanges and Channels	ASTM A992, Grade 50	1.01	
Angles	ASTM A572, Grade 50	1.01	
Plates	ASTM A572, Grade 50	1.49	
Hollow Structural Sections (rectangular and round)	ASTM A500, Grade C (50 ksi)	1.71	
Pipes:	ASTM A53, Grade B (35 ksi)		
Anchor Rods:	ASTM F1554, Grade 55		Weldable All Threaded
Headed Anchor Bolts	ASTM F1554, Grade 55		Weldable

3. Holes for Bolted Connections and Anchor Rods: AISC "standard" holes, unless noted otherwise. See Note 11, for oversized holes for anchor rods in non-frame base plates.
4. High Strength Bolts, Nuts and Washers: AISC "Specification for Structural Joints Using High-Strength Bolts."
   A. Hardened Washers: ASTM F436, under nuts except where plate washers are used. Provide beveled washers where joint face slope is greater than 1:20.
   B. Tightening: Snug tight for all high strength bolts except tighten A325-SC and A490-SC bolts to at least the minimum proper tension according to AISC Specification.
   C. Provide Class A Faying Surface or better at bolted connections indicated with "SC" type bolts.
   D. All bolts parts of "SFRS" shall be "SC" type bolts.
5. Welding:
   A. Applicable Welding Standard: Applicable Code and latest adopted edition of AWS D1.1 and D1.8.
   B. Pre-qualified and Non Pre-qualified Welds: Welds shall be pre-qualified in compliance with Applicable Welding Standard. Where non pre-qualified welds are to be used, qualify by test and procedure qualification test record complying with Applicable Welding Standard.
   C. Work performed by Welders and Inspectors: Adhere to approved Welding Procedure Specification (WPS). Each welder and inspector shall retain a copy of WPS.
   D. Pre-construction Meeting: Conduct to include Architect (Structural Engineer), fabricator, erector, Contractor and inspectors to discuss Welding Procedure Specification (WPS).
   E. Welding Procedure Specification (WPS): Fabricator/erector to develop WPS in compliance with Applicable Welding Standard. Submit to Architect (Structural Engineer) for acceptance and Governing Code Authority for approval prior to fabrication. WPS submittal to include the following:
      a. Welding manufacturers' specifications.
      b. Information required by Applicable Code, Contract Documents and any other information necessary to produce welds that are in compliance with Applicable Welding Standard.
      c. Detailed sequence of weld sketches addressing effects of welding heat for welds at joints and within seismic frame assemblies as a whole. Plan sequence of erection and welding to minimize locked in stresses and distortion considering effects of welding heat. Procedures submitted shall result in completed connections which comply with design intent of structural drawings. No deviation from structural drawings is permitted unless otherwise accepted by Architect (Structural Engineer) and approved by Governing Code Authority.
      d. Welding parameters recommended by electrode manufacturer.
      e. List of applicable base metal types and thicknesses.
      f. Welding joint sketches including joint type, weld type, joint geometry, and applicable dimensions. Individual weld passes shall be identified in sketches and numbered to identify the sequence of their deposition. Sketches shall identify the maximum layer thicknesses and bead widths. In no case shall layer thickness exceed 1/4-inch, nor shall maximum bead width exceed 5/8-inch.
      g. Applicable welding process.
      h. Position of welding.
      i. List of filler metal per Applicable Welding Standard and electrode specification and classification. Include details showing shielding material to be used.
      j. Minimum preheat requirements, interpass temperatures and post weld heat treatment. Minimum specified preheat shall meet requirements of AWS D1.1, table 3.2, and AISC 360-16 Section M2-2 requirements for jumbo sections.
      k. List of applicable electrical characteristics for process employed. Clearly indicate specific values required for each welding pass. These electrical characteristics shall include at a minimum the following:
         - Electrode diameter.
         - Type of current and acceptable ranges of current measured in amperage. For wire feed processes, indicate manufacturers' recommended melt-off rate, deposition rate, and wire feed speed.
         - Voltage (for all processes).
         - Actual field condition travel speed and manufacturer's data for travel speed.
         - Electrode extension (stick out) for wire feed processes.
         - Amperage, voltage and electrode extension (as applicable) shall be within filler metal manufacturer's recommendations (compare to AWS D1.1, Section 3.6 and 3.7).
         - Electrode manufacturer's technical information, with identification number listed, and welding parameter recommendations.
   F. Welding Electrode (Filler Metal): E70xx (70 ksi) uno, provide filler metal with Charpy V-notch toughness of 20 ft/lbs at -20 degrees Fahrenheit at complete penetration groove welds.
      a. Welds indicated as part of the "SFRS" shall comply with AISC 341 sections A3.4a and I2.3. These welded connections shall be made with a filler metal achieving a minimum Charpy V-notch toughness of 20ft/lbs at a temperature lower than 0°F.
      b. Welds indicated as "Demand Critical" (DC) shall comply with AISC 341 sections A3.4b and I2.3. These welded connections shall be made with a filler metal achieving a minimum Charpy V-notch toughness of 20ft/lbs at a temperature lower than 0°F, and a filler metal producing welds that have a minimum Charpy V-notch toughness of 40ft/lbs at temperature lower than +70°F.
   G. Welding Toughness Requirements: Certify conformance to Charpy V-notch toughness requirements with tests by an independent testing laboratory for each AWS classification, manufacturer and trade name. Testing procedures shall be in accordance to Applicable Welding Standard and AWS D1.8
   H. Fabricators: Perform shop welds by fabricators approved by LA City or AISC.
      a. Welder Qualification: Welders, regardless if Work is performed in shop or in field, shall be qualified for the Work they will be doing and shall have certifications current and acceptable to Governing Code Authority.
      b. Special inspection shall be required for all welding, as required by governing code authority.
   I. Welds Exposed to View:
      a. Faces of fillet welds exposed to view shall have as-welded surfaces that are reasonably smooth and uniform. No finishing or grinding shall be required, except where clearances or fit of other items may so necessitate.
      b. Partial and full penetration welds exposed to view shall be ground smooth and flush with finish surface of steel. Remove backup bars and weld tabs. Fill holes with weld metal or body solder and smooth by grinding or filing.
   J. Groove Preparation: Clean groove preparation thermal cuts by grinding.
   K. Termination of Welds: Terminate at joint ends in a manner that ensures sound welds. Use extension bars and run-off tabs whenever necessary.
   L. Hand-held Calibrated Amp and Volt Meters: To be used by fabricator, erector and inspectors to assure proper amperage and voltage of welding process. Measure amperage and voltage at arc. Verify travel speed and electrode stick-out in compliance with electrode manufacturer's recommendations and with approved WPS.
   M. Storage of Electrodes: Adhere to Section 5.3 of AWS D1.1.
   N. Weld each flange of moment frame beam to column connections in one continuous process without cooling below pre-heat temperature.
   O. Welding of ASTM A913 Materials: Perform according to requirements of latest edition of AWS standard, structural drawings and specifications, whichever is more stringent.
   P. Minimum Fillet Weld Size: Where minimum fillet weld size, as stipulated by AISC Section J2 and Table J2.4, exceeds fillet weld size indicated on structural drawings, use AISC stipulated size.
   Q. Minimum Groove or Butt Weld Size: Provide complete penetration unless indicated otherwise.
   R. Weld Length: Length of welds shown are net effective lengths. Where length of weld is not indicated, provide weld full length of joint.
   S. Welding at Galvanized Steel: Galvanization shall be ground off prior to welding. Repair galvanization after completion of welding.
6. Shop Drawings: Submit To Architect (Structural Engineer) for review and, upon request, to Governing Code Authority. Include sequence of erection procedures.
7. Sustainable Design Submittals: Submit type III factory-specific or product-specific environmental product declaration (EPD) for each of the following products:
   A. Hot Rolled Structural Steel
   B. Hollow Structural Steel
   C. Steel Plate
8. Fabrication: Perform in shop certified by AISC or City of Los Angeles.
   A. Moment Connections: Orient flange stiffener plates and cap plates used in moment connections so that rolling direction of plate is parallel with direction of principal stress.
   B. Horizontal Members: Place natural camber up.
   C. Filler Plates: Provide at splices of parts having more than 1/8-inch difference in thickness. Filler plates to match grade of material spliced.
9. Traceability:
   A. Material tracing is required for all steel including miscellaneous metals, connectors, and steel products manufactured by third parties. The contractor is advised that material tracing is required as directed by DSA and the project inspection team and may include any or all of the levels of traceability described below:
      a. Lot traceability: materials can be traced to the set of mill test reports (MTRs) for the project.
      b. Piece-mark traceability: heat number can be correlated to each piece mark.
      c. Piece traceability: heat number can be correlated for each piece, which requires separate piece marks for each piece, or marking of each individual piece with its heat number.
   B. Prior to placing the mill order, the contractor shall schedule a preconstruction meeting to include the AOR, SEOR, PI and inspectors responsible for inspection of the steel material fabrication and erection/installation for the purpose of reviewing material traceability requirements.
   C. The contractor shall include the cost of piece traceability in their basic services and provide deductive alternates for piece-mark and lot traceability to be provided as a credit to the Owner.
10. Cleaning: After fabrication, clean steel surfaces free of rust, loose mill scale, and oil.
11. Oversized Holes for Anchor Rods in Non-Frame Column Base Plates: Oversized holes in base plate may be provided at contractor's option in accordance with AISC Table 14-2 UNO. Where oversized holes are provided, provide plate washer with standard hole with minimum size per AISC Table 14-2 (3/8" thick min) UNO.
12. Exposure to Soil: Encase structural steel in lean concrete with 4-inches concrete cover where exposed to soil.
13. Exposure to Weather: UNO, structural steel (including connection elements) exposed to weather shall be hot dipped galvanized. At welding on galvanized members, galvanization shall be ground off prior to welding. Repair galvanization after completion of welding.
14. Structural Steel Allowance: In addition to the steel shown or implied in this document, allow for an additional 2 tons of structural steel to be constructed at the direction of the Structural Engineer during construction. The allowed steel may be of any shape or sizes, including plates, wide flanges, tubes, pipes, channels, angles, and/or any other structural shapes. The number of pieces may vary. The locations of applications may vary. Direction may be given in multiple occasions during construction. The allowance should include all fabrication and construction related services, such as shop drawings, shop preparation, field erection and coordination, bolted connections and field welding. Expenditure of any part of this allowance shall be approved in writing by the Structural Engineer prior to any fabrication and erection.
15. Heavy Sections
    A. Heavy sections shall comply with AISC 360-16 Section A3.1c.
    B. Heavy sections forming part of the "SFRS" shall also comply with AISC 341-16 Section A3.3.
    C. Welded Splices including welds to baseplates shall comply with AISC 360-16 Section J1.5.
16. See General Notes, Quality Assurance section, Notes 3 and 4 for non-destructive testing.
17. SFRS denotes items considered part of the "SEISMIC FORCE RESISTING SYSTEM" (Refer to AISC 341-16 and AWS D1.8).
18. DC denotes welds considered "DEMAND CRITICAL" per AISC 341-16 Section A3.4B and I2.3.
19. Field weld flag symbols indicate design intent but are not requirements. Whether a weld is to be made in shop or field is means and methods and to be coordinated by contractor.
20. Where bent plates specified cannot be bent due to thickness provide two plate pieces joined with a complete penetration weld.

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ARCHITECTURE ENGINEERING INTERIOR DESIGN LANDSCAPE ARCHITECTURE PLANNING

949-261-1001 Office

LPADesignStudios.com

5301 California Avenue, Suite 100
Irvine, California 92617

REGISTERED PROFESSIONAL ENGINEER HARSHDA A. PRASAD NO. S6463 09/30/27 STRUCTURAL STATE OF CALIFORNIA

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MALIBU HIGH SCHOOL
INCREMENT 02

30215 Morning View Dr.,
Malibu, CA 90265

Developed for
SANTA MONICA - MALIBU UNIFIED SCHOOL DISTRICT

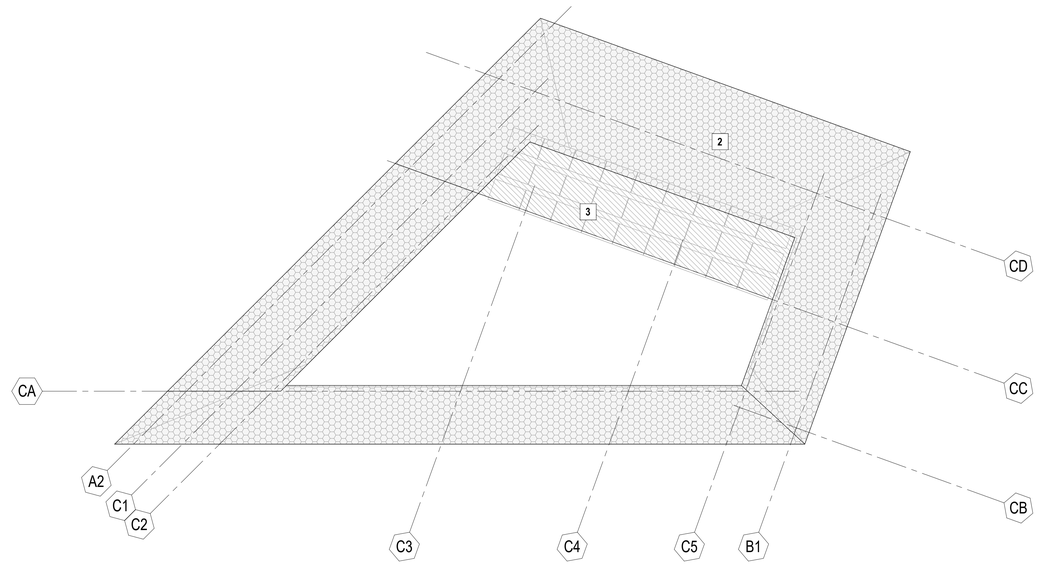
Revision	Date

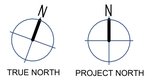
Submittal	Date
SCHEMATIC DESIGN	09/04/2024
50% DESIGN DEVELOPMENT	12/13/2024
100% DESIGN DEVELOPMENT	02/21/2025
CDP SUBMITTAL	06/16/2025
50% CONSTRUCTION DOCS	06/27/2025
DSA SUBMITTAL	09/08/2025

Job Number	31722
Checked By	HP
Scale	12" = 1'-0"

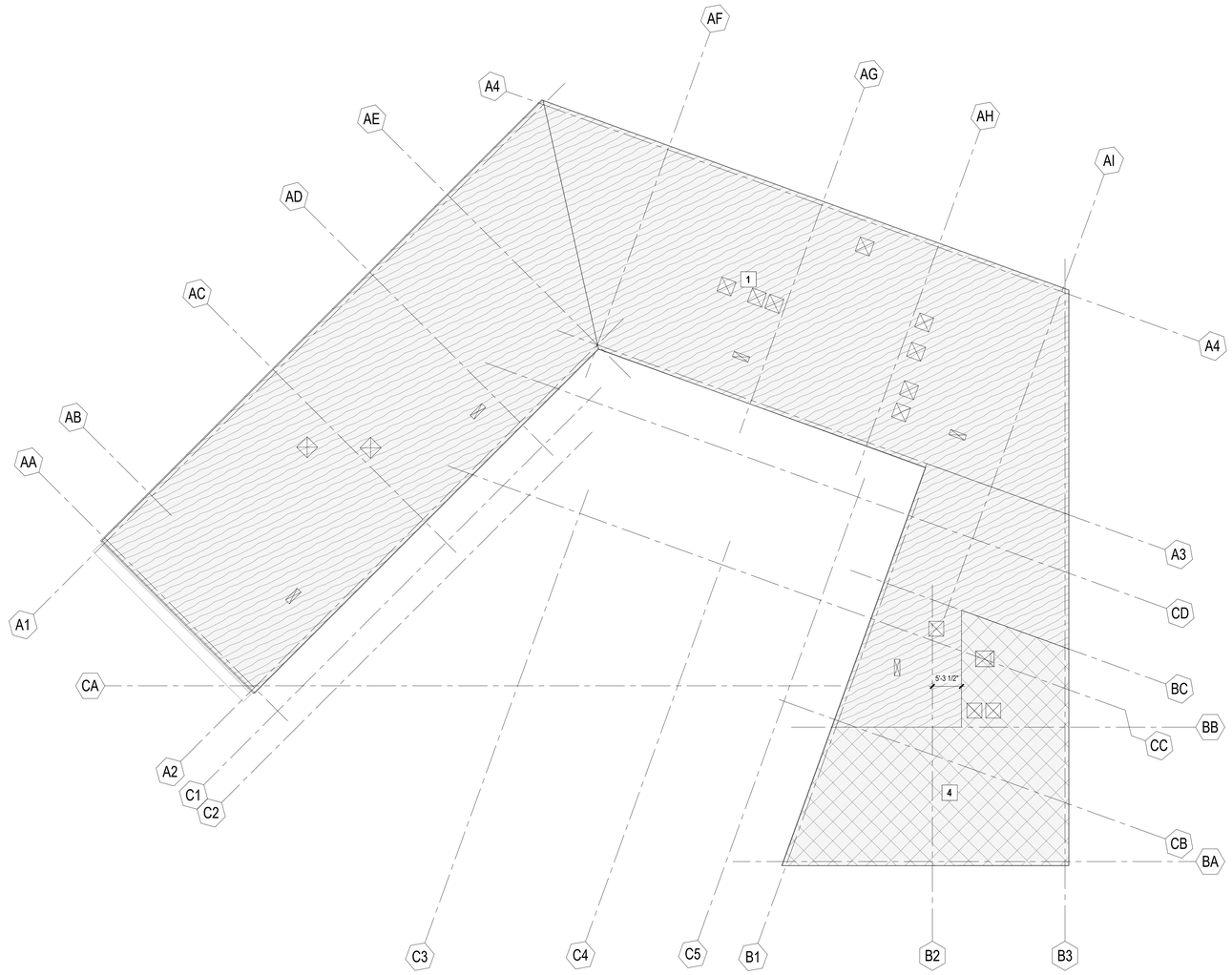
GENERAL NOTES

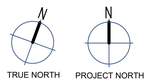
2-S0.02





HUB - CANOPY LOADING DIAGRAM | 3/32" = 1'-0" | 07





HUB - ROOF LOADING DIAGRAM | 3/32" = 1'-0" | 05

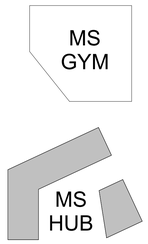
PLAN NOTES AND LEGEND

1. FOR PLAN NOTES AND LEGEND SEE 2-S1-2.0X SERIES.

LOADING DIAGRAM SCHEDULE

MARK	DESCRIPTION	SDL [a] [c]	LL [b]
1	HUB ROOF	23 psf	20 psf (ROOF LIVE LOAD)
2	HUB CANOPY	19 psf	20 psf (ROOF LIVE LOAD)
3	HUB CANOPY (PV AREA)	9 psf	20 psf (ROOF LIVE LOAD)
4	HUB ROOF (BROADCASTING AREA)	23 psf	20 psf (ROOF LIVE LOAD) + 20 psf (CEILING FRAMING OVER STAGE)

NOTES:
[a] SDL = SUPERIMPOSED DEAD LOAD, (SELF-WEIGHT OF STRUCTURAL DECK & FRAMING NOT INCLUDED.)
[b] LL = ROOF LIVE LOAD REDUCIBLE, UNO.
[c] SDL INCLUDES 5 PSF PV ALLOWANCE.



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ARCHITECTURE ENGINEERING INTERIOR DESIGN
LANDSCAPE ARCHITECTURE PLANNING
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LPADesignStudios.com
5301 California Avenue, Suite 100
Irvine, California 92617



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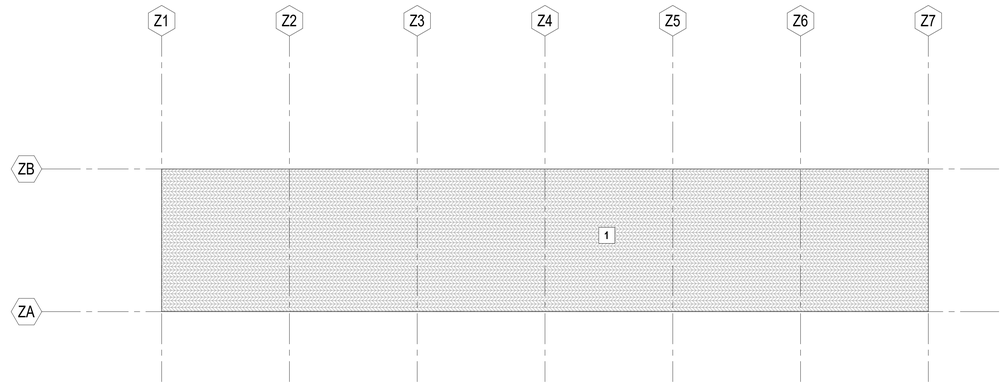
Scale	As indicated

MS HUB - LOADING DIAGRAMS

2-S1-1.21

PLAN NOTES AND LEGEND

1. FOR PLAN NOTES AND LEGEND SEE 2-S1-2.0X SERIES.



LOADING DIAGRAM SCHEDULE			
MARK	DESCRIPTION	SDL [a]	LL [b]
1	SHADE PAVILION CANOPY	13 psf	20 psf (ROOF LIVE LOAD)

NOTES:
[a] SDL = SUPERIMPOSED DEAD LOAD, (SELF-WEIGHT OF FRAMING NOT INCLUDED.)
[b] LL = ROOF LIVE LOAD REDUCIBLE, UNO.

TRUE NORTH

PROJECT NORTH

SHADE PAVILLION - ROOF LOADING DIAGRAM | 1/4" = 1'-0" | 05

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ARCHITECTURE ENGINEERING INTERIOR DESIGN
LANDSCAPE ARCHITECTURE PLANNING

949-261-1001 Office

LPADesignStudios.com

5301 California Avenue, Suite 100
Irvine, California 92617

REGISTERED PROFESSIONAL ENGINEER
HARSHA A. PRASAD
NO. 55493
STRUCTURAL
STATE OF CALIFORNIA

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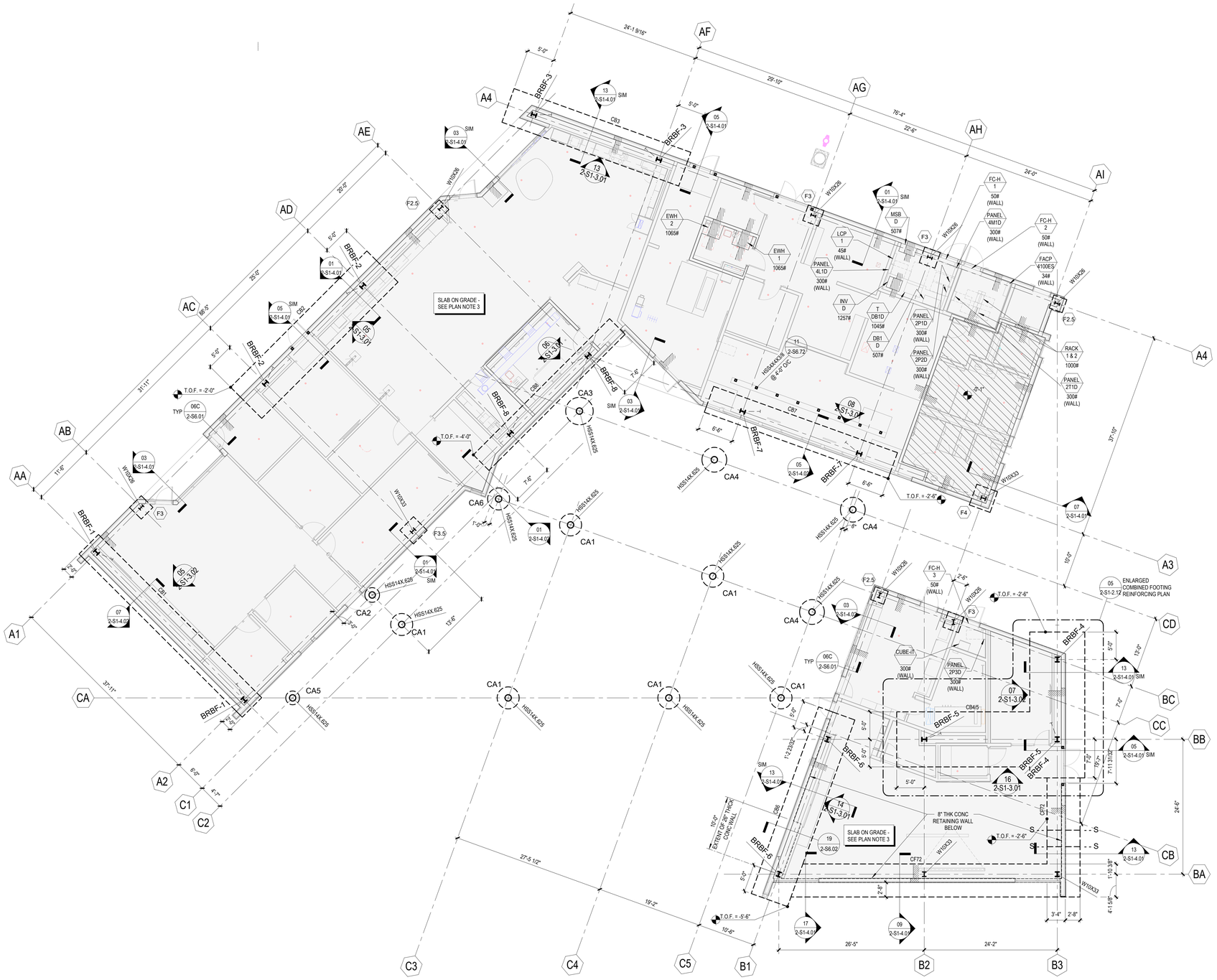
Scale	As indicated

SHADE PAVILION - LOADING DIAGRAMS

2-S1-1.22



COMBINED BEAM SCHEDULE

Mark	FOOTING SIZE (WIDTH x DEPTH)	REINFORCING	
		CONTINUOUS LONGITUDINAL BARS	TRANSVERSE BARS
CB1	60"x24"	(4) #7 TOP & (4) #6 BOT	#5 @ 12"O/C T&B
CB2	96"x24"	(6) #5 TOP & (6) #6 BOT	#5 @ 12"O/C T&B
CB3	78"x24"	(6) #5 TOP & (6) #7 BOT	#5 @ 12"O/C T&B
CB4/5	120 X 30"	SEE 05/2-S1-2.12	SEE 05/2-S1-2.12
CB6	84"x30"	(6) #5 TOP & (6) #7 BOT	#6 @ 12"O/C T&B
CB7	60"x36"	(6) #7 TOP & (6) #8 BOT	#6 @ 12"O/C T&B
CB8	48"x42"	(6) #7 TOP & (6) #9 BOT	#7 @ 12"O/C T&B

CONTINUOUS FOOTING SCHEDULE

Mark	FOOTING SIZE (WIDTH x DEPTH)	REINFORCING	
		CONTINUOUS LONGITUDINAL BARS	TRANSVERSE BARS
CF72*	72"x18"	(5) #5 T&B	#5 @ 12"O/C T&B

* PROVIDE 8" WIDE x 12" DEEP SHEAR KEY CENTERED AT THE BOTTOM OF CF72 AS SHOWN IN DETAIL 17/2-S6.02.

SPREAD FOOTING SCHEDULE

FOOTING MARK	FOOTING SIZE		FOOTING REINFORCING (PROVIDE HOOKS AT ENDS)
	WIDTH x LENGTH	THICKNESS	
F2.5	2'-6" SQUARE	18"	(3) #7 BOT EA WAY
F3	3'-0" SQUARE	18"	(3) #7 BOT EA WAY
F3.5	3'-6" SQUARE	18"	(3) #7 BOT EA WAY
F4	4'-0" SQUARE	18"	(4) #7 BOT EA WAY

NOTES:
1. TERMINATE ALL FOOTINGS LONGITUDINAL REINF. BARS W/ STANDARD 90° BENDS AT ENDS, UNLESS NOTED OTHERWISE.
2. ALL COMBINED AND SPREAD FOOTINGS ARE TO BE FOUNDED ON APPROVED COMPACTED FILL AS PER THE GEOTECHNICAL REPORT.
3. REFER TO DETAIL 01/2-S6.02 FOR COMBINED FOOTING BAR LAYOUT, SPLICE LOCATION, AND DOWELS TO SLAB.

PLAN NOTES

1. FOR GENERAL NOTES SEE 2-S0 SERIES SHEETS. FOR TYPICAL DETAILS SEE 2-S6 SERIES SHEETS.
2. SEE ARCHITECTURAL, MECHANICAL, ELECTRICAL, and PLUMBING DRAWINGS FOR TOP OF CONCRETE SLAB ON GRADE ELEVATIONS, DEPRESSIONS, SLOPES, OPENINGS, DRAINS, TRENCHES, PADS, and CURBS; SLAB EDGE LOCATIONS; WALL OVERALL DIMENSIONS; and LOCATIONS OF OPENINGS NOT INDICATED ON STRUCTURAL DRAWINGS.
3. BUILDING SLAB-ON-GRADE: 5" THICK W/ #4 @ 18" O/C EACH WAY at CENTER OF SLAB OVER 15 MIL STEGO WRAP VAPOR BARRIER OR APPROVED EQ (LAP 6" AT JOINTS and TAPE SEAL - OMIT VAPOR BARRIER AT EXTERIOR AREAS) OVER AT LEAST 2 FEET OF NON EXPANSIVE (EI<20) AND PROPERLY COMPACTED FILL AS INDICATED IN THE GEOTECHNICAL REPORT. PROVIDE CONSTRUCTION JOINTS OR WEAKENED PLANE JOINTS IN SLAB-ON-GRADE EACH DIRECTION PER DETAIL 06/2-S6.01 - AT AREAS TO RECEIVE TILE, COORDINATE LOCATION OF JOINTS IN SLAB TO ALIGN WITH TILE EXPANSION JOINTS PER ARCH.
4. CENTER COLUMNS ON NUMBERED GRID LINES UNLESS NOTED OTHERWISE. CENTER SPREAD FOOTINGS, and COMBINED FOOTINGS ON COLUMNS UNLESS NOTED OTHERWISE.
5. IN NO CASE SHALL PIPES, CONDUITS, OR SLEEVES BE EMBEDDED IN SPREAD OR CONTINUOUS FOOTINGS OR WITHIN TOP OR BOTTOM THIRD OF GRADE BEAMS UNLESS SPECIFICALLY DETAILED ON STRUCTURAL DRAWINGS. PIPES, CONDUITS OR SLEEVES MAY ONLY BE EMBEDDED WITHIN THE MIDDLE THIRD OF GRADE BEAMS WHERE NOTED ON STRUCTURAL PLANS AND DETAILED IN THE STRUCTURAL DRAWINGS.
6. WHERE CONTINUOUS FOOTINGS and SPREAD FOOTINGS INTERSECT, EXCAVATE TO BOTTOM OF DEEPER FOOTING and CONTINUE ALL BARS THRU INTERSECTION. PLACE BARS AT CONTINUOUS FOOTING CORNERS and INTERSECTIONS PER 05/2-S6.01. WHERE CONTINUOUS FOOTINGS TERMINATE AT SIDES OF GRADE BEAMS OR SPREAD FOOTINGS, EXTEND LONGITUDINAL BARS TO FAR SIDE OF GRADE BEAM OR SPREAD FOOTING and TERMINATE W/ STANDARD 90° HOOK.
7. LOCATE TOP OF SPREAD FOOTINGS, COMBINED FOOTINGS, and CONTINUOUS FOOTINGS 1'-6" BELOW LOWEST ADJACENT SLAB OR GRADE ELEVATION UNLESS NOTED OTHERWISE.
8. GEOTECHNICAL OBSERVATION / COMPACTION REPORT SHALL BE SUBMITTED TO THE BUILDING INSPECTOR PRIOR TO FOOTING INSPECTION.
9. COORDINATE EXTENT OF CONCRETE PADS SUPPORTING EQUIPMENT WITH MANUFACTURER AND WITH EDGE DISTANCE REQUIREMENTS PER EQUIPMENT ANCHORAGE DETAILS IN 2-S6.9X SERIES.
10. CONSTRUCT LIGHT GUAGE METAL STUD WALLS PER 01/2-S6.71A AT EXTERIOR CONDITION AND 01/2-S6.71B AT INTERIOR CONDITION UNLESS NOTED OTHERWISE ON PLANS OR 2-S1-4.X SHEET SERIES.
11. SEE CIVIL DRAWINGS FOR APPROXIMATE LOCATION OF EXISTING UNDERGROUND UTILITIES. PROTECT OR RELOCATE EXISTING UTILITIES AS REQUIRED DURING FOOTING EXCAVATION OR CONSTRUCTION. DO NOT SURCHARGE EXISTING UTILITIES, SEE 01/2-S6.01 FOR ADDITIONAL CLARIFICATION.

LEGEND

- W9XXX / HSSXXXXX — INDICATES NON-FRAME COLUMN ABOVE FOR BASE PLATE INFO SEE 09/2-S6.11 UNO
- BRBF — INDICATES BRACED FRAME COLUMN - BRACED FRAME ELEVATIONS AND SIZE ON SX-3.0X SERIES SHEETS
- INDICATES SPREAD FOOTING MARK - SEE SCHEDULE ON THIS SHEET and 13/2-S6.01
- FX / XX.XX' — INDICATES TOP OF SPREAD FOOTING ELEVATION - IF NO ELEVATION INDICATED, LOCATE TOP OF SPREAD FOOTING PER NOTE 7
- CFX — INDICATES CONTINUOUS FOOTING MARK - SEE SCHEDULE ON THIS SHEET and 01/2-S6.02
- CBX — INDICATES COMBINED BEAM MARK - SEE SCHEDULE ON THIS SHEET.
- T.O.F — INDICATES TOP OF FOOTING - IF NO ELEVATION INDICATED, LOCATE TOP OF FOOTING PER NOTE 7
- S-----S — INDICATES STEP IN CONTINUOUS FOOTING OR GRADE BEAM - SEE 09/2-S6.01. LOCATION OF FOOTING STEPS SHOWN ON PLAN IS APPROXIMATE, UNO. LOCATION OF STEPS IS TO BE COORDINATED BY CONTRACTOR WITH UTILITY LOCATIONS AND FINISH GRADES.
- INDICATES CHANGE IN ELEVATION AT SLAB ON GRADE - SEE DETAIL 12/2-S6.02 UNLESS DETAILED OTHERWISE
- OR — INDICATES CONCRETE CURB OR HOUSEKEEPING PAD - CONSTRUCT PER 06D/2-S6.01 UNO
- +X'-X" — INDICATES ELEVATION OF TOP OF STRUCTURAL CONCRETE SLAB ON GRADE (TOC) - SEE ARCHITECTURAL FOR TOC IF NO ELEVATION INDICATED
- INDICATES LIGHT GAUGE METAL STUD FRAMING - SEE SCHEDULE ON 01/2-S6.71A AND 01/2-S6.71B
- INDICATES DEPRESSED SLAB TO RECIEVE ARCHITECTURAL TOPPING. SEE ARCH FOR THICKNESS AND FINISH. SEE ALSO GENERAL NOTES SECTION CAST-IN-PLACE CONCRETE, NOTE 17 AS APPLICABLE.
- INDICATES MEP EQUIPMENT TAG.
  FOR FLOOR MOUNTED UNIT ANCHORAGE INF AND CONCRETE PAD REQUIREMENT SEE 01/2-S6.91 UNO
  FOR WALL MOUNTED UNIT CONNECTION INF REFER TO LANDSCAPE, MECHANICAL, ELECTRICAL, PLUMBING, ETC. FOR EXACT LOACTION OF EQUIPMENT. SEE 09/2-S6.94 UNO
- XX# (WALL) — INDICATES MAX. EQUIPMENT WEIGHT INCLUDING ALL ACCESSORIES
  INDICATES WALL MOUNTED UNIT
- CAX — INDICATES CAISSION MARK - SEE SCHEDULE ON 01/2-S1.11. LOCATE TOP OF CAISSON 1'-0" BELOW ADJACENT SLAB OR GRADE ELEVATION UNLESS NOTED OTHERWISE.

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ARCHITECTURE ENGINEERING INTERIOR DESIGN
LANDSCAPE ARCHITECTURE PLANNING
949-261-1001 Office
LPADesignStudios.com
5301 California Avenue, Suite 100
Irvine, California 92617
REGISTERED PROFESSIONAL ENGINEER — HAMIDA A. PRASAD — NO. S5493 — 09/27 — STATE OF CALIFORNIA

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MALIBU HIGH SCHOOL
INCREMENT 02
30215 Morning View Dr.,
Malibu, CA 90265
Developed for
SANTA MONICA - MALIBU UNIFIED SCHOOL DISTRICT

Revision	Date

Submittal	Date
SCHEMATIC DESIGN	09/04/2024
50% DESIGN DEVELOPMENT	12/13/2024
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CDP SUBMITTAL	06/16/2025
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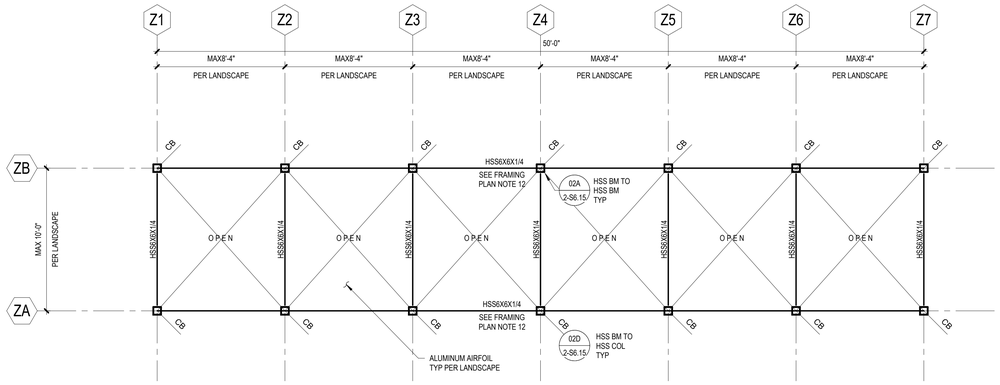
DSA SUBMITTAL	09/08/2025

Job Number	31722
Checked By	HP
Scale	1/8" = 1'-0"

MS HUB - FOUNDATION PLAN

2-S1-2.01



TRUE NORTH PROJECT NORTH

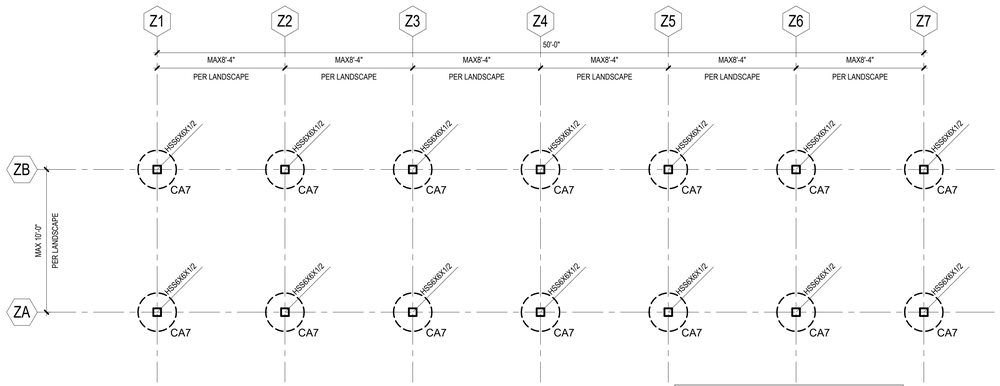
ROOF FRAMING PLAN - SHADE PAVILION CANOPY | 1/4" = 1'-0" | 07

SHADE PAVILION FRAMING PLAN NOTES

1. FOR GENERAL NOTES SEE 2-S0 SERIES SHEETS. FOR TYPICAL DETAILS SEE 2-S6 SERIES SHEETS.
2. SEE ARCHITECTURAL, LANDSCAPE, MECHANICAL, ELECTRICAL, and PLUMBING DRAWINGS FOR TOP OF STRUCTURAL CONCRETE SLAB OR METAL DECK ELEVATIONS, DEPRESSIONS, SLOPES, CURBS, DRAINS, PADS, DECK EDGE LOCATIONS; WALL OVERALL DIMENSIONS; and LOCATIONS OF OPENINGS IN WALLS and SLABS NOT INDICATED ON STRUCTURAL DRAWINGS.
3. CENTER COLUMNS AT GRID INTERSECTIONS UNLESS NOTED OTHERWISE.
4. BEAMS ARE SPACED EQUALLY BETWEEN COLUMNS AND GIRDERS UNLESS NOTED OTHERWISE.
5. NO PENETRATION IN STRUCTURAL STEEL IS PERMITTED UNLESS SPECIFICALLY SHOWN ON STRUCTURAL DRAWINGS.
6. COORDINATE DETAILING AND SECONDARY MEMBERS FOR DEFERRED SUBMITTAL ITEMS PER GENERAL NOTE SECTION DEFERRED SUBMITTAL ITEMS ANCHORED OR SUPPORTED BY STRUCTURE.
7. AT CONTINOUS HSS SPLICE PROVIDE A FULL PENN WELD ALL AROUND AND GRIND SMOOTH. LOCATE SPLICE 1'-0" MAX FROM SUPPORT - SEE DETAIL 15/2-S6.15

LEGEND

CB — INDICATES FRAME OR NON-FRAME COLUMN - SEE FOUNDATION PLAN FOR COLUMN SIZE



TRUE NORTH PROJECT NORTH

FOUNDATION PLAN - SHADE PAVILION CANOPY | 1/4" = 1'-0" | 05

SHADE PAVILION FOUNDATION PLAN NOTES

1. FOR GENERAL NOTES SEE 2-S0 SHEETS. FOR TYPICAL DETAILS SEE 2-S6 SERIES SHEETS.
2. SEE ARCHITECTURAL, LANDSCAPE, MECHANICAL, ELECTRICAL, and PLUMBING DRAWINGS FOR TOP OF CONCRETE SLAB ON GRADE ELEVATIONS, DEPRESSIONS, SLOPES, OPENINGS, DRAINS, TRENCHES, PADS, and CURBS; SLAB EDGE LOCATIONS; WALL OVERALL DIMENSIONS; and LOCATIONS OF OPENINGS NOT INDICATED ON STRUCTURAL DRAWINGS.
3. CENTER COLUMNS ON NUMBERED GRID LINES UNLESS NOTED OTHERWISE. CENTER CAISSONS ON COLUMNS UNLESS NOTED OTHERWISE.
4. IN NO CASE SHALL PIPES, CONDUITS, OR SLEEVES BE EMBEDDED IN CAISSONS.
5. GEOTECHNICAL OBSERVATION / COMPACTION REPORT SHALL BE SUBMITTED TO THE BUILDING INSPECTOR PRIOR TO FOOTING INSPECTION.
6. SEE CIVIL DRAWINGS FOR APPROXIMATE LOCATION OF EXISTING UNDERGROUND UTILITIES. PROTECT OR RELOCATE EXISTING UTILITIES AS REQUIRED DURING FOOTING EXCAVATION OR CONSTRUCTION. DO NOT SURCHARGE EXISTING UTILITIES, SEE 01/2-S6.01 FOR ADDITIONAL CLARIFICATION.

LEGEND

W-XX / HSSXXXXX — INDICATES COLUMN ABOVE

CAX — INDICATES CAISSION MARK - SEE SCHEDULE ON 01/2-S1.11. LOCATE TOP OF CAISSON 1'-0" BELOW ADJACENT SLAB OR GRADE ELEVATION UNLESS NOTED OTHERWISE.

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ARCHITECTURE ENGINEERING INTERIOR DESIGN
LANDSCAPE ARCHITECTURE PLANNING
949-261-1001 Office
LPADesignStudios.com
5301 California Avenue, Suite 100
Irvine, California 92617

REGISTERED PROFESSIONAL ENGINEER
HAMIDA A. PASSAD
No. S6493
05/31/27
STRUCTURAL
STATE OF CALIFORNIA

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MALIBU HIGH SCHOOL
INCREMENT 02

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Developed for
SANTA MONICA - MALIBU UNIFIED SCHOOL DISTRICT

Revision	Date

Submittal	Date
SCHEMATIC DESIGN	09/04/2024
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DSA SUBMITTAL	09/08/2025

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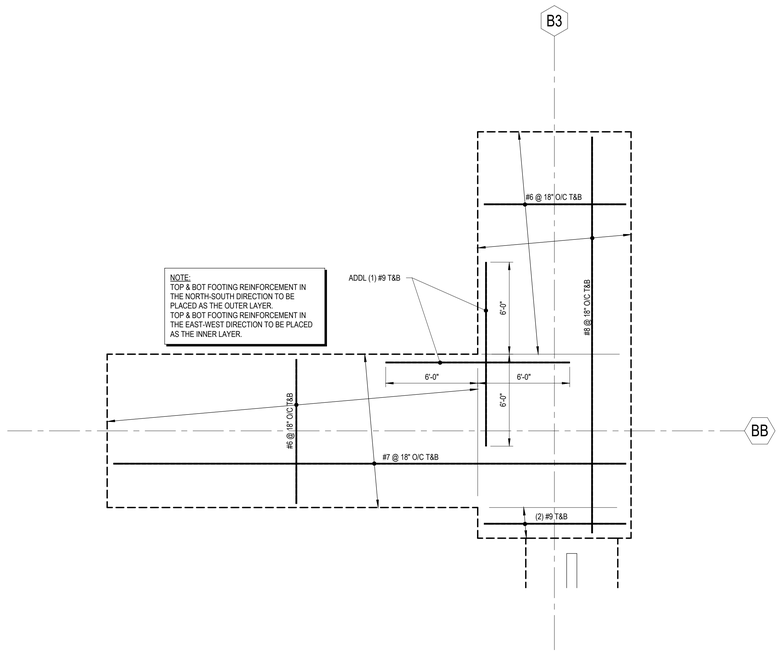
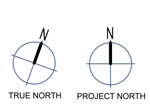
Checked By	HP
Scale	As indicated

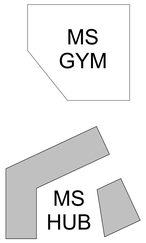
MS HUB - SHADE PAVILION CANOPY

2-S1-2.04





FOUNDATION PLAN - Callout 1 | 1/4" = 1'-0" | 05



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ARCHITECTURE ENGINEERING INTERIOR DESIGN
LANDSCAPE ARCHITECTURE PLANNING

949-261-1001 Office

LPADesignStudios.com

5301 California Avenue, Suite 100
Irvine, California 92617

REGISTERED PROFESSIONAL ENGINEER
LAKSHMA A. PRASAD
NO. 55493
09/27
STRUCTURAL
STATE OF CALIFORNIA

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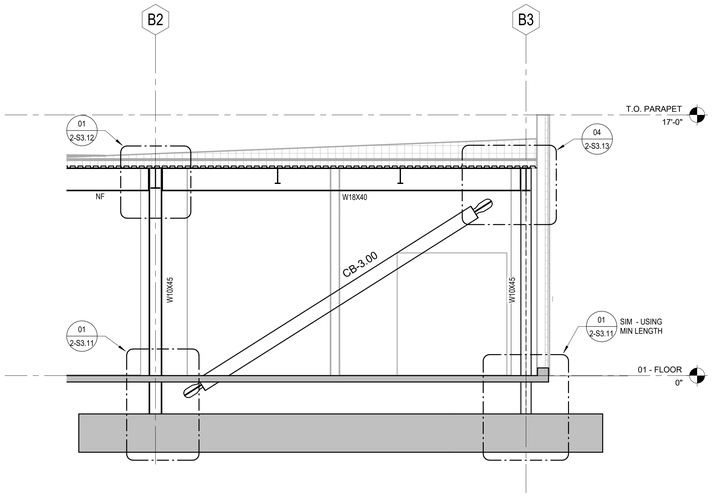
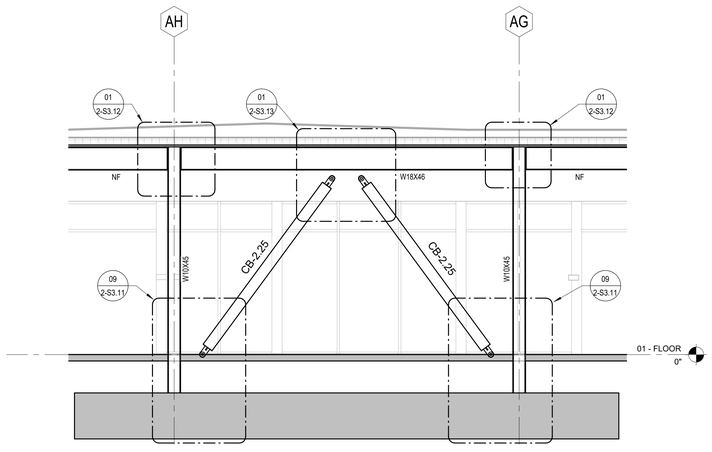
Job Number	31722
Checked By	HP
Scale	1/4" = 1'-0"

MS HUB - ENLARGED FOUNDATION PLAN

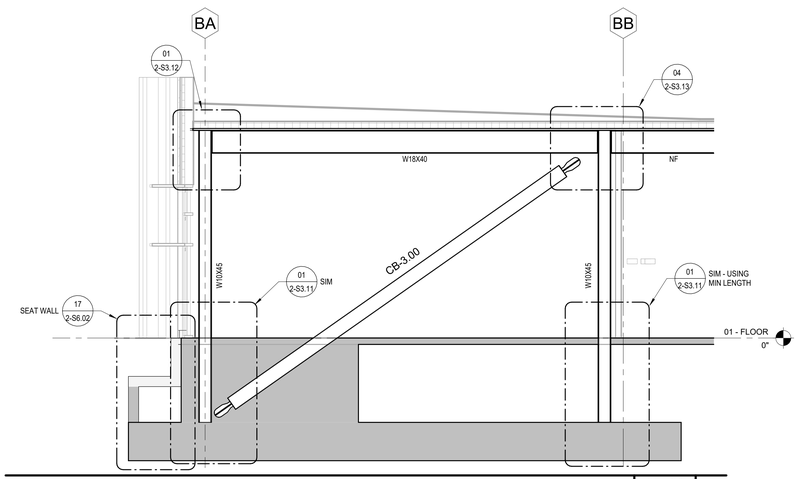
2-S1-2.12



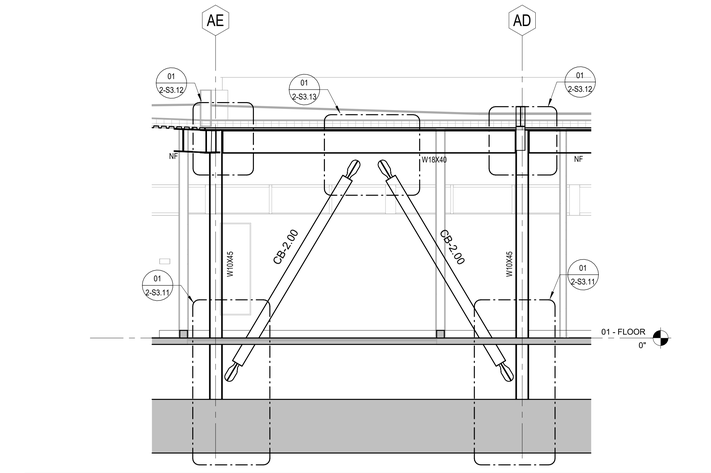
BRACE FRAME ELEVATION ALONG GRID BB (BRB-5) | 1/4" = 1'-0" | 2-S1-3.01 | 16



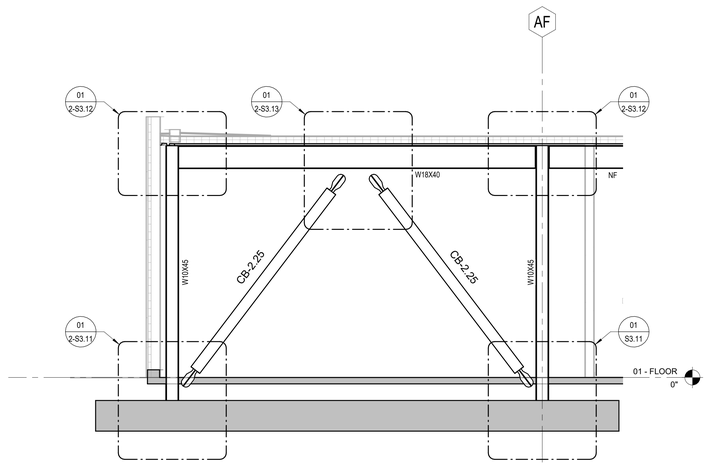
BRACE FRAME ELEVATION ALONG GRID A3 (BRBF-7) | 1/4" = 1'-0" | 2-S1-3.01 | 08



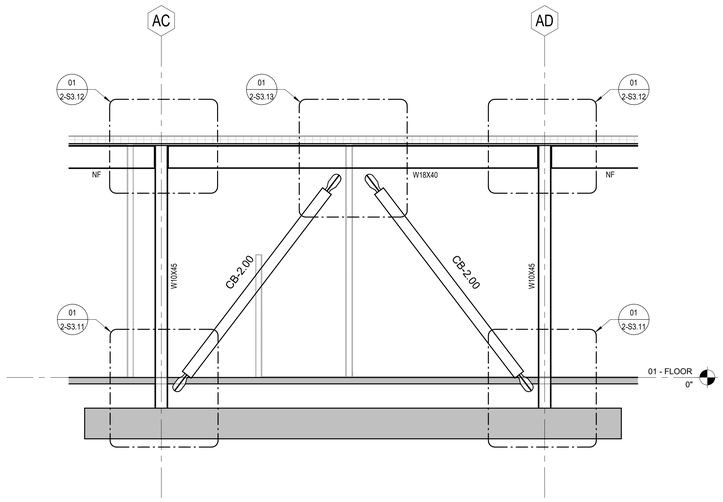
HUB - BRACE FRAME ELEVATION ALONG GRID B1 (BRB-6) | 1/4" = 1'-0" | 2-S1-3.01 | 14



HUB - BRACE FRAME ELEVATION ALONG GRID A2 (BRBF-8) | 1/4" = 1'-0" | 2-S1-3.01 | 06



HUB - BRACE FRAME ELEVATION ALONG GRID A4 (BRBF-3) | 1/4" = 1'-0" | 2-S1-3.01 | 13



HUB - BRACE FRAME ELEVATION ALONG GRID A1 (BRBF-2) | 1/4" = 1'-0" | 2-S1-3.01 | 05

BRACE FRAME ELEVATION NOTES

1. FOR GENERAL NOTES SEE 2-S0 SERIES SHEETS. FOR TYPICAL DETAILS SEE 2-S6 SERIES SHEETS.
2. BRBF CONNECTIONS AND LENGTHS SHOWN IN ELEVATIONS ARE FOR REFERENCE ONLY. COORDINATE SPECIFICS OF BRACE AND CONNECTION DETAILING / GEOMETRY WITH INFORMATION SHOWN WITHIN COREBRACE SCHEDULE AND DETAILING IN 2-S3.1X, 2-S3.2X and 2-S6 SERIES DETAILS.
3. CB-X.XX INDICATES BUCKLING RESTRAINED BRACE FRAME. SEE 2-S3.2X SHEET SERIES FOR ALL REQUIREMENTS.
4. THE FOLLOWING WELDS ARE CLASSIFIED AS DEMAND CRITICAL (SEE WELDING REQUIREMENTS UNDER THE STRUCTURAL STEEL SECTION OF THE GENERAL NOTES)
   A. GROOVE WELDS AT COLUMN SPLICES.
   B. WELDS AT COLUMN to BASE PLATE CONNECTIONS.
   C. WELDS at BEAM TO COLUMN CONNECTIONS.
5. PROVIDE ROUND PIPE CASING TYPICAL WITH BOLTED CONNECTION EA END TYPICAL UNO.
   A. BRBF-1 and -7 ARE TO BE PROVIDED WITH PINNED CONNECTION EA END.
6. BRBF-1 and -7 ARE EXPOSED.
7. SEE 2-S3.11 FOR BRBF BASE PLATE DETAIL AND SCHEDULE.
8. FOR COLUMN ORIENTATION SEE PLANS.
9. ADD ANGLES AT COLUMN FOR SUPPORT OF METAL DECKING PER 15/2-S6.12 UNLESS NOTED OTHERWISE.
10. NO PENETRATION IN STRUCTURAL STEEL IS PERMITTED UNLESS SPECIFICALLY SHOWN ON STRUCTURAL DRAWINGS.
11. SEE DETAIL 4/2-S3.23 FOR EXPANDED POLYSTYRENE REQUIREMENT AROUND BRB CASING BURIED IN CONCRETE.

BRACE FRAME ELEVATION LEGEND

CB-X.XX	INDICATES BUCKLING RESTRAINED BRACED FRAME. SEE 2-S3.2X FOR ALL REQUIREMENTS.
NF	INDICATES NON-FRAME FRAMING MEMBER - SEE PLANS FOR MEMBER SIZE AND CONNECTION DETAILS.

LPA
ARCHITECTURE ENGINEERING INTERIOR DESIGN
LANDSCAPE ARCHITECTURE PLANNING
949-261-1001 Office
LPADesignStudios.com
5301 California Avenue, Suite 100
Irvine, California 92617

REGISTERED PROFESSIONAL ENGINEER
HARINDRA A. PRASAD
NO. S5493
EXP. 08/31/27
STRUCTURAL
STATE OF CALIFORNIA

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MALIBU HIGH SCHOOL
INCREMENT 02

30215 Morning View Dr.,
Malibu, CA 90265

Developed for
SANTA MONICA - MALIBU UNIFIED SCHOOL DISTRICT

Revision	Date

Submittal	Date
SCHEMATIC DESIGN	09/04/2024
50% DESIGN DEVELOPMENT	12/13/2024
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50% CONSTRUCTION DOCS	06/27/2025
DSA SUBMITTAL	09/08/2025

Job Number	31722
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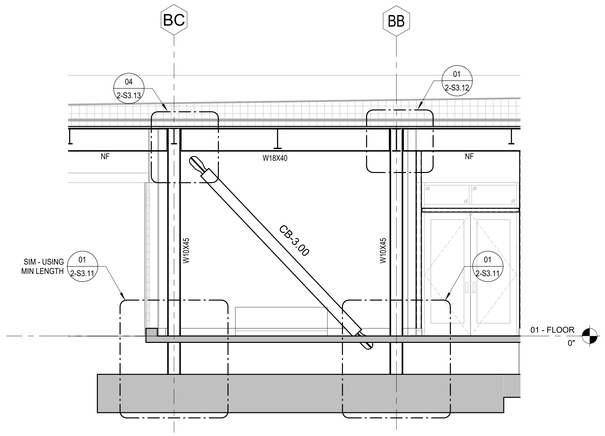
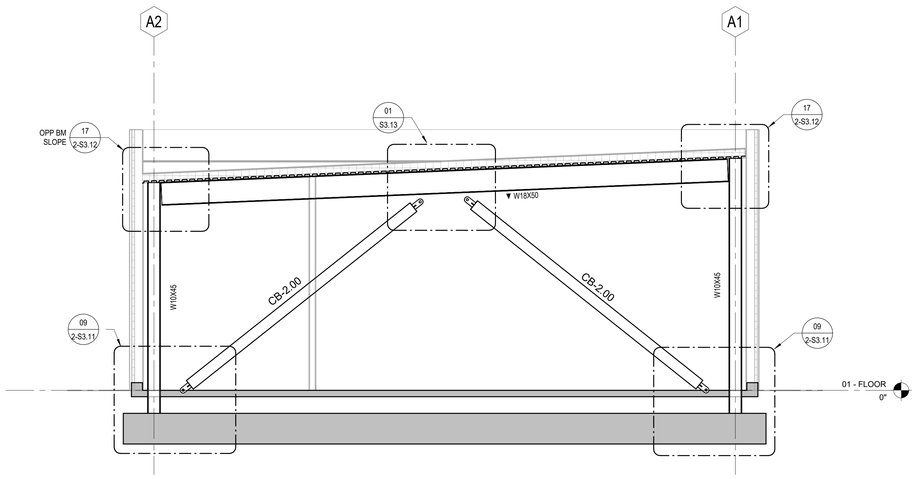
Scale	As indicated

MS HUB - BRACE FRAME ELEVATIONS

2-S1-3.01



BRACE FRAME ELEVATION ALONG GRID B3 (BRB-4) N.T.S. 07



BRACE FRAME ELEVATION ALONG GRID AA (BRBF-1) N.T.S. 05

BRACE FRAME ELEVATION NOTES

1. FOR GENERAL NOTES SEE 2-S0 SERIES SHEETS. FOR TYPICAL DETAILS SEE 2-S6 SERIES SHEETS.
2. BRBF CONNECTIONS AND LENGTHS SHOWN IN ELEVATIONS ARE FOR REFERENCE ONLY. COORDINATE SPECIFICS OF BRACE AND CONNECTION DETAILING / GEOMETRY WITH INFORMATION SHOWN WITHIN COREBRACE SCHEDULE AND DETAILING IN 2-S3.1X, 2-S3.2X and 2-S6 SERIES DETAILS.
3. CB-X.XX INDICATES BUCKLING RESTRAINED BRACE FRAME. SEE 2-S3.2X SHEET SERIES FOR ALL REQUIREMENTS.
4. THE FOLLOWING WELDS ARE CLASSIFIED AS DEMAND CRITICAL (SEE WELDING REQUIREMENTS UNDER THE STRUCTURAL STEEL SECTION OF THE GENERAL NOTES)
   A. GROOVE WELDS AT COLUMN SPLICES.
   B. WELDS AT COLUMN to BASE PLATE CONNECTIONS.
   C. WELDS at BEAM TO COLUMN CONNECTIONS.
5. PROVIDE ROUND PIPE CASING TYPICAL WITH BOLTED CONNECTION EA END TYPICAL UNO.
   A. BRBF-1 and -7 ARE TO BE PROVIDED WITH PINNED CONNECTION EA END.
6. BRBF-1 and -7 ARE EXPOSED.
7. SEE 2-S3.11 FOR BRBF BASE PLATE DETAIL AND SCHEDULE.
8. FOR COLUMN ORIENTATION SEE PLANS.
9. ADD ANGLES AT COLUMN FOR SUPPORT OF METAL DECKING PER 15/2-S6.12 UNLESS NOTED OTHERWISE.
10. NO PENETRATION IN STRUCTURAL STEEL IS PERMITTED UNLESS SPECIFICALLY SHOWN ON STRUCTURAL DRAWINGS.
11. SEE DETAIL 4/2-S3.23 FOR EXPANDED POLYSTYRENE REQUIREMENT AROUND BRB CASING BURIED IN CONCRETE.

BRACE FRAME ELEVATION LEGEND

CB-X.XX	INDICATES BUCKLING RESTRAINED BRACED FRAME. SEE 2-S3.2X FOR ALL REQUIREMENTS.
NF	INDICATES NON-FRAME FRAMING MEMBER - SEE PLANS FOR MEMBER SIZE AND CONNECTION DETAILS.

LPA
ARCHITECTURE ENGINEERING INTERIOR DESIGN
LANDSCAPE ARCHITECTURE PLANNING
949-261-1001 Office
LPADesignStudios.com
5301 California Avenue, Suite 100
Irvine, California 92617

REGISTERED PROFESSIONAL ENGINEER
HARINDA A. PRASAD
NO. S5493
09/27
STRUCTURAL
STATE OF CALIFORNIA

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50% CONSTRUCTION DOCS	06/27/2025
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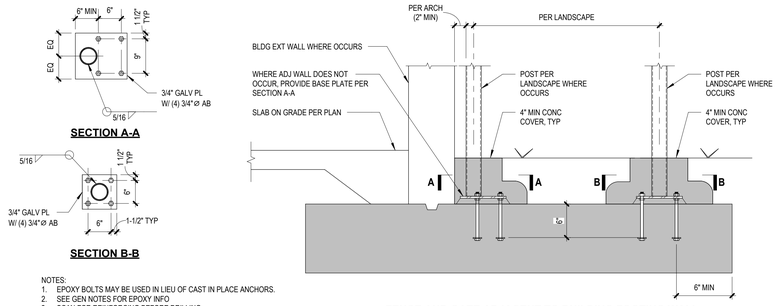
Job Number	31722
Checked By	HP
Scale	As indicated

MS HUB - BRACE FRAME ELEVATIONS

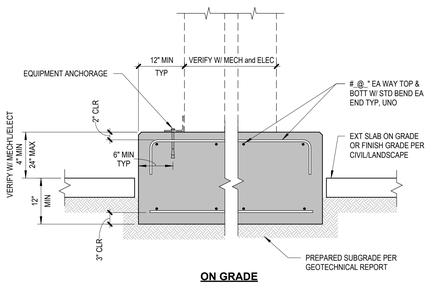
2-S1-3.02



NOTES:
1. EPOXY BOLTS MAY BE USED IN LIEU OF CAST IN PLACE ANCHORS.
2. SEE GEN NOTES FOR EPOXY INFO
3. SCAN FOR REINFORCING BEFORE DRILLING.
4. DRILLING INTO REINFORCING IS NOT ACCEPTABLE.

FENCE AND GATE ADJACENT TO BUILDING FOOTING WALL OR AT THE END OF A BUILDING FOOTING

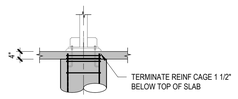
TYP FENCE POST NEXT TO BUILDING — N.T.S. — 16



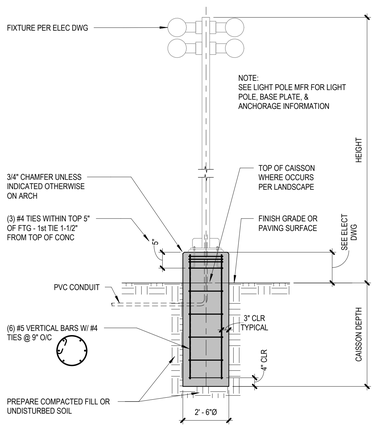
ON GRADE

NOTE:
SEE MECHANICAL and ELECTRICAL DRAWINGS FOR THE FOLLOWING:
1. LOCATION and DIMENSIONS OF BASES

TYPICAL CONCRETE BASE FOR EQUIPMENT — N.T.S. — 19



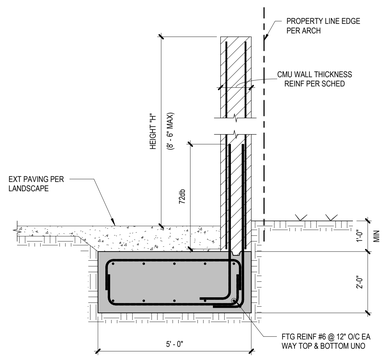
CONDITION AT LANDSCAPE SLAB



LIGHT POLE CAISSON SCHED	
HEIGHT	CAISSON DEPTH
18'-0" MAX	4'-0" MAX

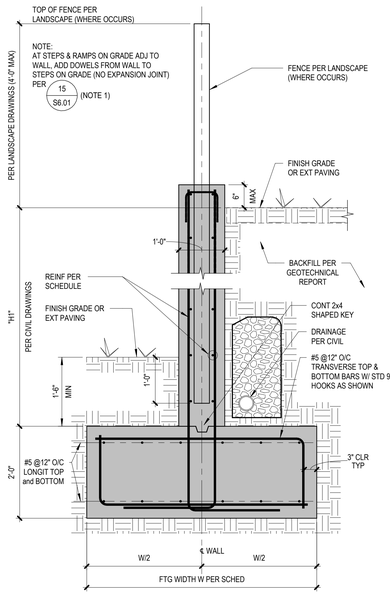
NOTES:
1. CONC f'c = 2500 AT 28 DAYS
2. USE NORMAL WEIGHT CONC AGGREGATES (1-1/2" MAX SIZE).
3. PROVIDE REINFORCING STL CONFORMING TO ASTM A615, GRADE 60.

TYP EVENT LIGHT POLE BASE SUPPORT CAISSON — N.T.S. — 17



TYPICAL MASONRY FREESTANDING WALL SECTION (OFFSET FOOTING) — N.T.S. — 13

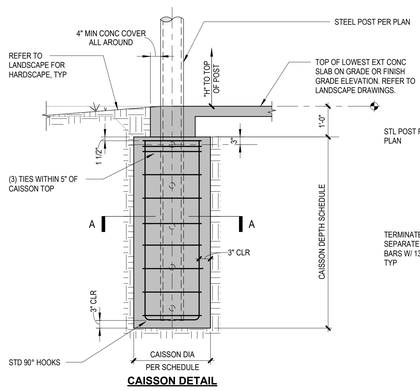
RETAINING WALL SCHED		
MAX "H1"	FTG WIDTH "W"	STEM REINF EA WAY, EA FACE
4'-0"	4'-0"	#5 @ 12" O/C
6'-0"	6'-0"	#5 @ 12" O/C
8'-0"	10'-0"	#5 @ 12" O/C



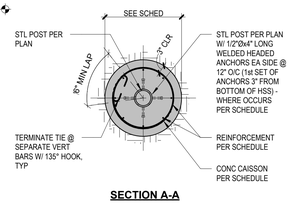
TYPICAL SECTION

NOTE:
PROVIDE OVER EXCAVATION /
SOIL PREP PER GEOTECH REQ'D

TYP CONC RETAINING WALL & SCHEDULE — N.T.S. — 10



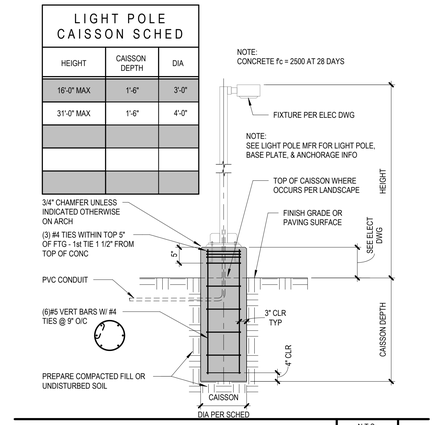
CAISSON DETAIL



SECTION A-A

CAISSON SCHEDULE								
DESIGNATION	DESCRIPTION	CAISSON					POST MAX HEIGHT "H"	REFERENCE
		DIA	DEPTH	VERTICAL BARS "Bv"	TIES	HEADED STUDS REQ'D		
CA1	AT HUB - CANOPY	4'-0"	9'-0"	(10) #9	#4 @ 12" O/C	AS PER SECTION A-A	20'-0"	-
CA2	AT HUB - CANOPY	2'-8"	12'-0"	(8) #8	#4 @ 12" O/C	AS PER SECTION A-A	20'-0"	-
CA3	AT HUB - CANOPY	5'-0"	7'-6"	(12) #10	#5 @ 12" O/C	AS PER SECTION A-A	20'-0"	-
CA4	AT HUB - CANOPY	4'-6"	8'-0"	(12) #9	#5 @ 12" O/C	AS PER SECTION A-A	20'-0"	-
CA5	AT HUB - CANOPY	5'-0"	10'-0"	(12) #10	#5 @ 12" O/C	AS PER SECTION A-A	20'-0"	-
CA6	AT HUB - CANOPY	4'-0"	8'-6"	(10) #9	#4 @ 12" O/C	AS PER SECTION A-A	20'-0"	-
CA7	AT SHADE PAVILION - CANOPY	2'-6"	4'-6"	(8) #6	#4 @ 9" O/C	AS PER SECTION A-A	12'-0"	-
1A	OUTDOOR BASKETBALL BACKSTOP	2'-0"	4'-0"	(4) #5	#3 @ 10" O/C	-	10'-0"	10/2-L5.04

TYP CAISSON SCHED. and DETAIL — N.T.S. — 01



TYP SITE LIGHT POLE DETAIL — N.T.S. — 04

FREE STANDING WALL SCHEDULE			
HEIGHT "H"	WIDTH "W"	CMU WALL THICKNESS	VERTICAL REINF
10'-0"	8'-0"	12"	#6 @ 16" O/C EA FACE

TYP MASONRY FREE STANDING WALL — N.T.S. — 02

LPA
ARCHITECTURE ENGINEERING INTERIOR DESIGN
LANDSCAPE ARCHITECTURE PLANNING
949-261-1001 Office
LPADesignStudios.com
5301 California Avenue, Suite 100
Irvine, California 92617

REGISTERED PROFESSIONAL ENGINEER
HAMIDHA A. PRASAD
No. 55493
Exp. 09/30/27
STRUCTURAL
STATE OF CALIFORNIA

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MALIBU HIGH SCHOOL
INCREMENT 02

30215 Morning View Dr.,
Malibu, CA 90265

Developed for
SANTA MONICA - MALIBU UNIFIED SCHOOL DISTRICT

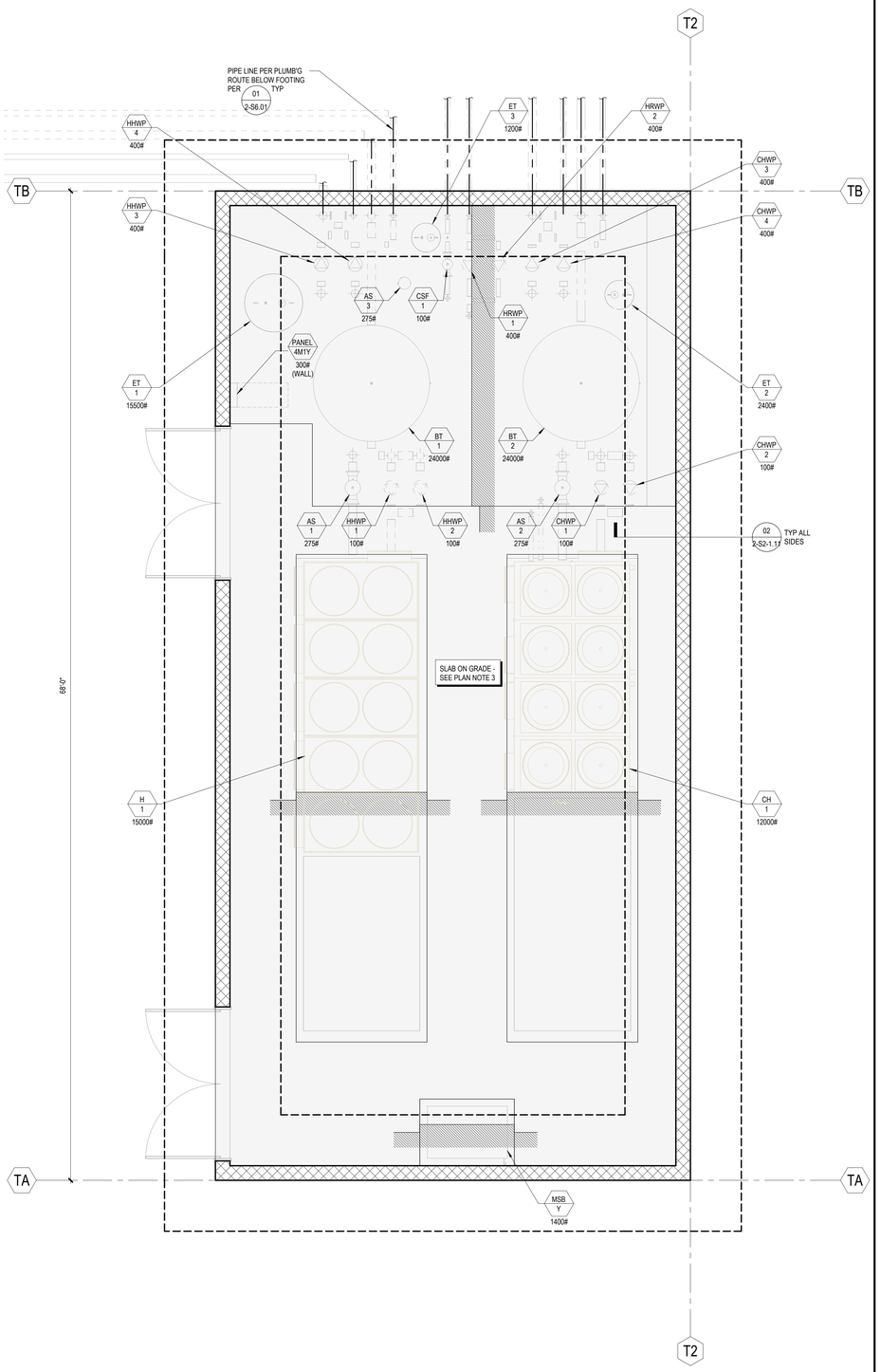
Revision	Date

Submittal	Date
SCHEMATIC DESIGN	08/04/2024
50% DESIGN DEVELOPMENT	12/13/2024
90% DESIGN DEVELOPMENT	04/16/2025
CDP SUBMITTAL	06/16/2025
50% CONSTRUCTION DOCS	06/27/2025
DSA SUBMITTAL	09/08/2025

Job Number	31722
Checked By	HP
Scale	

SITE DETAILS

2-S1.11



TRUE NORTH PROJECT NORTH

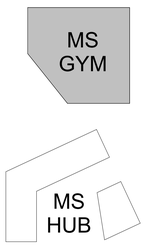
MECH ENCLOSURE - FOUNDATION PLAN | 1/4" = 1'-0" | 2-S2-1.01 | 05

PLAN NOTES

1. FOR GENERAL NOTES SEE 2-S0 SERIES SHEETS. FOR TYPICAL DETAILS SEE 2-S6 SERIES SHEETS.
2. SEE LANDSCAPE, MECHANICAL, ELECTRICAL, and PLUMBING DRAWINGS FOR TOP OF CONCRETE SLAB ON GRADE ELEVATIONS, DEPRESSIONS, SLOPES, OPENINGS, DRAINS, TRENCHES, PADS, and CURBS; SLAB EDGE LOCATIONS; WALL OVERALL DIMENSIONS; and LOCATIONS OF OPENINGS NOT INDICATED ON STRUCTURAL DRAWINGS.
3. SITE SLAB-ON-GRADE: 6" THICK W/ #4 @ 18" O/C EACH WAY at CENTER OF SLAB OVER 15 MIL STEGO WRAP VAPOR BARRIER OR APPROVED EQ (LAP 6" AT JOINTS and TAPE SEAL - OMIT VAPOR BARRIER AT EXTERIOR AREAS) OVER AT LEAST 2 FEET OF NON EXPANSIVE (EI<20) AND PROPERLY COMPACTED FILL AS INDICATED IN THE GEOTECHNICAL REPORT. PROVIDE CONSTRUCTION JOINTS OR WEAKENED PLANE JOINTS IN SLAB-ON-GRADE EACH DIRECTION PER DETAIL 06/2-S6.01 - AT AREAS TO RECEIVE TILE, COORDINATE LOCATION OF JOINTS IN SLAB TO ALIGN WITH TILE EXPANSION JOINTS PER ARCH.
4. CENTER WALLS ON CONTINOUS FOOTING UNLESS NOTED OTHERWISE.
5. IN NO CASE SHALL PIPES, CONDUITS, OR SLEEVES BE EMBEDDED IN SPREAD OR CONTINUOUS FOOTINGS OR WITHIN TOP OR BOTTOM THIRD OF GRADE BEAMS UNLESS SPECIFICALLY DETAILED ON STRUCTURAL DRAWINGS. PIPES, CONDUITS OR SLEEVES MAY ONLY BE EMBEDDED WITHIN THE MIDDLE THIRD OF GRADE BEAMS WHERE NOTED ON STRUCTURAL PLANS AND DETAILED IN THE STRUCTURAL DRAWINGS.
6. WHERE CONTINUOUS FOOTINGS and SPREAD FOOTINGS INTERSECT, EXCAVATE TO BOTTOM OF DEEPER FOOTING and CONTINUE ALL BARS THRU INTERSECTION. PLACE BARS AT CONTINUOUS FOOTING CORNERS and INTERSECTIONS PER 05/S6.01. WHERE CONTINUOUS FOOTINGS TERMINATE AT SIDES OF GRADE BEAMS OR SPREAD FOOTINGS, EXTEND LONGITUDINAL BARS TO FAR SIDE OF GRADE BEAM OR SPREAD FOOTING and TERMINATE W/ STANDARD 90° HOOK.
7. LOCATE TOP OF SPREAD FOOTINGS, COMBINED FOOTINGS, and CONTINUOUS FOOTINGS 1'-4" BELOW LOWEST ADJACENT SLAB OR GRADE ELEVATION UNLESS NOTED OTHERWISE.
8. GEOTECHNICAL OBSERVATION / COMPACTION REPORT SHALL BE SUBMITTED TO THE BUILDING INSPECTOR PRIOR TO FOOTING INSPECTION.
9. COORDINATE EXTENT OF CONCRETE PADS SUPPORTING EQUIPMENT WITH MANUFACTURER AND WITH EDGE DISTANCE REQUIREMENTS PER EQUIPMENT ANCHORAGE DETAILS IN 2-S6.9X SERIES.
10. CONSTRUCT LIGHT GUAGE METAL STUD WALLS PER 01/S6.71A AT EXTERIOR CONDITION AND 01/2-S6.71B AT INTERIOR CONDITION UNLESS NOTED OTHERWISE.
11. SEE CIVIL DRAWINGS FOR APPROXIMATE LOCATION OF EXISTING UNDERGROUND UTILITIES. PROTECT OR RELOCATE EXISTING UTILITIES AS REQUIRED DURING FOOTING EXCAVATION OR CONSTRUCTION. DO NOT SURCHARGE EXISTING UTILITIES, SEE 01/2-S6.01 FOR ADDITIONAL CLARIFICATION.

LEGEND

- CFX — INDICATES CONTINUOUS FOOTING MARK - SEE SCHEDULE ON THIS SHEET
- T.O.F — INDICATES TOP OF FOOTING ELEVATION - IF NO ELEVATION INDICATED, LOCATE TOP OF CONT. OR MAT FOOTING PER NOTE 7
- S - - - - - S — INDICATES STEP IN CONTINUOUS FOOTING OR GRADE BEAM - SEE 09/2-S6.01. LOCATION OF FOOTING STEPS SHOWN ON PLAN IS APPROXIMATE, UNO. LOCATION OF STEPS IS TO BE COORDINATED BY CONTRACTOR WITH UTILITY LOCATIONS AND FINISH GRADES.
- INDICATES CHANGE IN ELEVATION AT SLAB ON GRADE - SEE DETAIL 12/2-S6.02 UNLESS DETAILED OTHERWISE
- OR — INDICATES CONCRETE CURB OR HOUSEKEEPING PAD - CONSTRUCT PER 06D/2-S6.01 UNO
- +X'-X" — INDICATES ELEVATION OF TOP OF STRUCTURAL CONCRETE SLAB ON GRADE (TOC) - SEE ARCHITECTURAL FOR TOC IF NO ELEVATION INDICATED
- INDICATES NON-BEARING CMU WALL
- INDICATES 12" THICK CONCRETE BLOCK SHEAR WALL SOLID GROUTED - FOR REINFORCING SEE 02/2-S1.01
- INDICATES MEP EQUIPMENT TAG.
  FOR FLOOR MOUNTED UNIT ANCHORAGE INF AND CONCRETE PAD REQUIREMENT SEE 01/2-S6.91 UNO
  FOR WALL MOUNTED UNIT CONNECTION INF REFER TO LANDSCAPE, MECHANICAL, ELECTRICAL, PLUMBING, ETC. FOR EXACT LOACTION OF EQUIPMENT. SEE 09/2-S6.94 UNO
  XX# (WALL) — INDICATES MAX. EQUIPMENT WEIGHT INCLUDING ALL ACCESSORIES
  INDICATES WALL MOUNTED UNIT



LPA
ARCHITECTURE ENGINEERING INTERIOR DESIGN
LANDSCAPE ARCHITECTURE PLANNING
949-261-1001 Office
LPADesignStudios.com
5301 California Avenue, Suite 100
Irvine, California 92617

REGISTERED PROFESSIONAL ENGINEER
HAMIDHA A. PRASAD
NO. S5493
09/27
STRUCTURAL
STATE OF CALIFORNIA

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MALIBU HIGH SCHOOL
INCREMENT 02

30215 Morning View Dr.,
Malibu, CA 90265

Developed for
SANTA MONICA - MALIBU UNIFIED SCHOOL DISTRICT

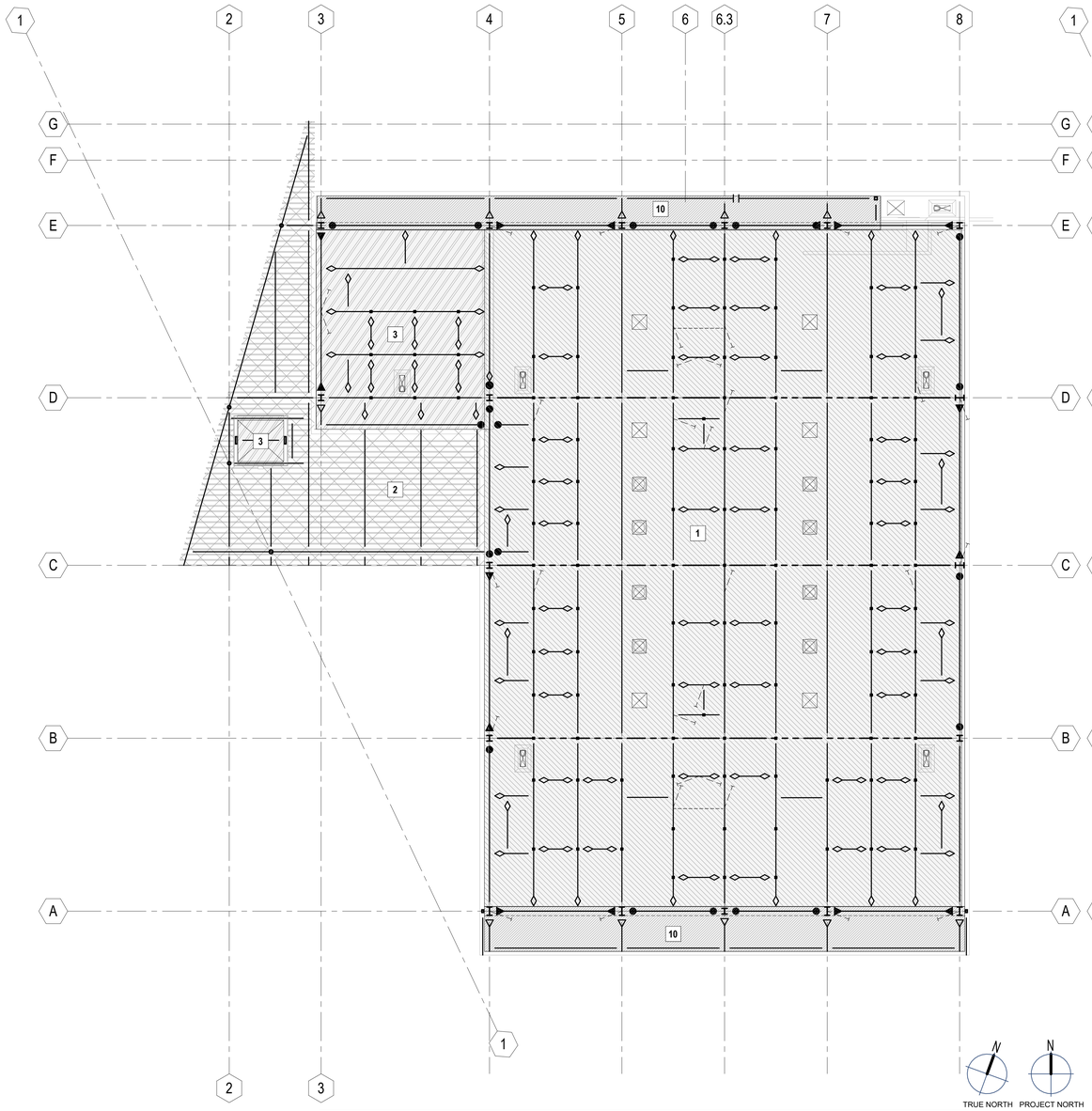
Revision	Date

Submittal	Date
SCHEMATIC DESIGN	09/04/2024
50% DESIGN DEVELOPMENT	12/13/2024
100% DESIGN DEVELOPMENT	03/21/2025
CDP SUBMITTAL	06/16/2025
50% CONSTRUCTION DOCS	06/27/2025
DSA SUBMITTAL	09/08/2025

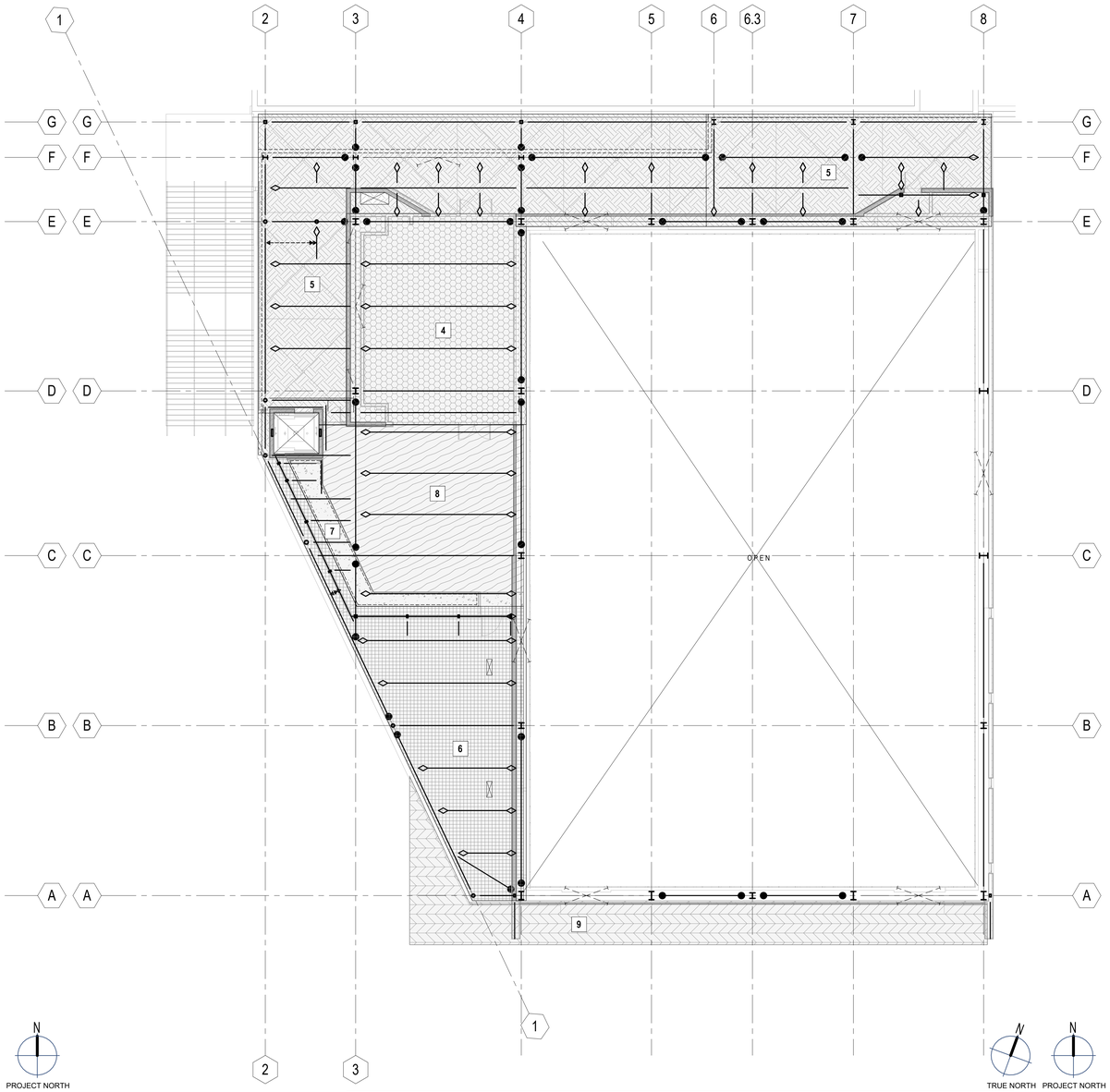
Job Number	31722
Checked By	HP
Scale	As indicated

MECH ENCLOSURE - FOUNDATION PLAN

2-S2-1.01



GYM - ROOF LOADING DIAGRAM | 3/32" = 1'-0" | 2-S2-1.21 | 14



GYM - LEVEL 2 LOADING DIAGRAM | 3/32" = 1'-0" | 2-S2-1.21 | 02

PLAN NOTES AND LEGEND

1. FOR PLAN NOTES AND LEGEND SEE 2-S2-2.0X SERIES.

LOADING DIAGRAM SCHEDULE

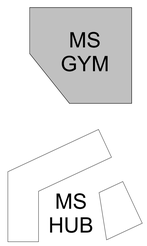
MARK	DESCRIPTION	SDL [a]	LL
6	GYM - GRAVEL ZONE	136.2 psf [b]	20 psf
7	GYM - PLANTER ZONE	410.2 psf [b]	20 psf
8	GYM - FITNESS DECK	33.2 psf [b]	100 psf
9	ENTRANCE CANOPY	12.1 psf	20 psf (ROOF LIVE LOAD)
10	GYM HIGH ROOF	13.7 psf	20 psf (ROOF LIVE LOAD)

LOADING DIAGRAM SCHEDULE

MARK	DESCRIPTION	SDL [a]	LL
1	TYP GYM ROOF	23.9 psf	20 psf (ROOF LIVE LOAD)
2	GYM ROOF - TRELLIS	9.0 psf	20 psf (ROOF LIVE LOAD)
3	GYM ROOF - FITNESS STUDIO	27.1 psf	20 psf (ROOF LIVE LOAD)
4	GYM - FITNESS STUDIO	15.7 psf [b]	100 psf
5	GYM - ARCH TOPPING	51.1 psf [b]	100 psf

NOTES:
[a] SDL = SUPERIMPOSED DEAD LOAD, (SELF-WEIGHT OF STRUCTURAL DECK & FRAMING NOT INCLUDED.)

[b] THE WEIGHT OF THE COMPOSITE METAL DECK, ALONG WITH AN ADDITIONAL 8 PSF TO ACCOUNT FOR THE OVERFLOW POUR, HAS BEEN INCLUDED IN THE DESIGN. THESE LOADS ARE EXCLUDED FROM THE SUPERIMPOSED DEAD LOAD (SDL) VALUES NOTED HEREIN.



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LANDSCAPE ARCHITECTURE PLANNING
949-261-1001 Office
LPADesignStudios.com
5301 California Avenue, Suite 100
Irvine, California 92617

REGISTERED PROFESSIONAL ENGINEER
HANDANDA A. PRASAD
NO. 56463
09/30/27
STRUCTURAL
STATE OF CALIFORNIA

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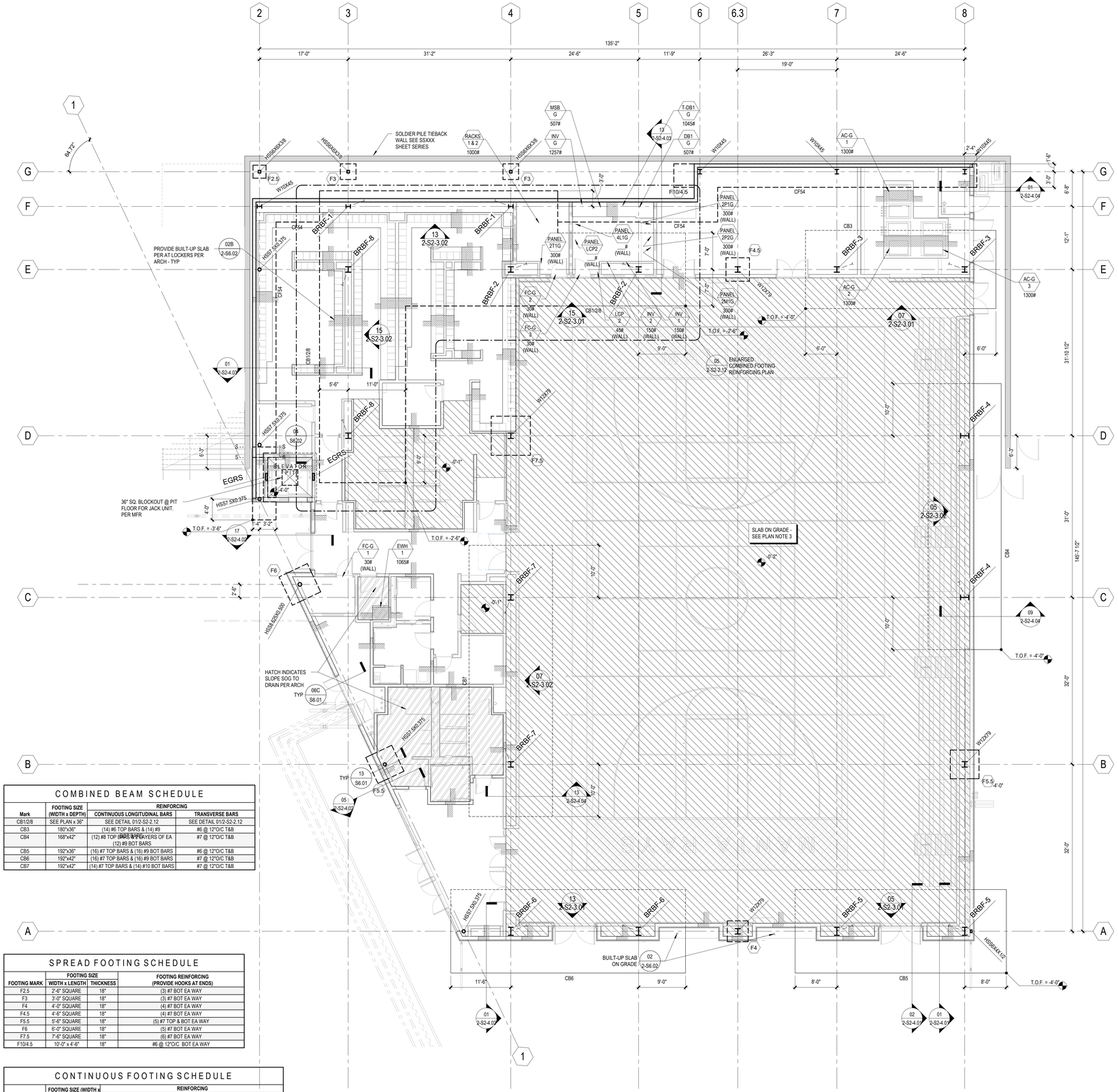
100% DESIGN DEVELOPMENT	02/21/2025
CDP SUBMITTAL	06/16/2025
50% CONSTRUCTION DOCS	06/27/2025
DSA SUBMITTAL	09/08/2025

Job Number	31722
Checked By	HP
Scale	As indicated

GYM - LOADING DIAGRAMS

2-S2-1.21



COMBINED BEAM SCHEDULE

Mark	FOOTING SIZE (WIDTH x DEPTH)	REINFORCING	
		CONTINUOUS LONGITUDINAL BARS	TRANSVERSE BARS
CB1/2/8	SEE PLAN x 36"	SEE DETAIL 01/2-S3-2.12	SEE DETAIL 01/2-S2-2.12
CB3	180"x36"	(14) #6 TOP BARS & (14) #9 BOT BARS	#5 @ 12"O/C T&B
CB4	168"x42"	(12) #8 TOP BARS IN (3) LAYERS OF EA (12) #9 BOT BARS	#7 @ 12"O/C T&B
CB5	192"x36"	(16) #7 TOP BARS & (16) #9 BOT BARS	#6 @ 12"O/C T&B
CB6	192"x42"	(16) #7 TOP BARS & (16) #9 BOT BARS	#7 @ 12"O/C T&B
CB7	192"x42"	(14) #7 TOP BARS & (14) #10 BOT BARS	#7 @ 12"O/C T&B

SPREAD FOOTING SCHEDULE

FOOTING MARK	FOOTING SIZE		FOOTING REINFORCING (PROVIDE HOOKS AT ENDS)
	WIDTH x LENGTH	THICKNESS	
F2.5	2'-6" SQUARE	18"	(3) #7 BOT EA WAY
F3	3'-0" SQUARE	18"	(3) #7 BOT EA WAY
F4	4'-0" SQUARE	18"	(4) #7 BOT EA WAY
F4.5	4'-6" SQUARE	18"	(4) #7 BOT EA WAY
F5.5	5'-6" SQUARE	18"	(5) #7 TOP & BOT EA WAY
F6	6'-0" SQUARE	18"	(5) #7 BOT EA WAY
F7.5	7'-6" SQUARE	18"	(6) #7 BOT EA WAY
F10/4.5	10'-0" x 4'-6"	18"	#6 @ 12"O/C BOT EA WAY

CONTINUOUS FOOTING SCHEDULE

Mark	FOOTING SIZE (WIDTH x DEPTH)	REINFORCING	
		CONTINUOUS LONGITUDINAL BARS	TRANSVERSE BARS
CF54	54"x18"	(5) #6 BOT	#6 @ 12"O/C BOT

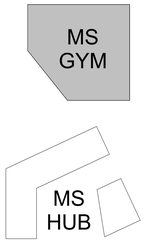
NOTES:
1. TERMINATE ALL FOOTINGS LONGITUDINAL REINF. BARS W/ STANDARD 90° BENDS AT ENDS, UNLESS NOTED OTHERWISE.
2. ALL COMBINED AND SPREAD FOOTINGS ARE TO BE FOUNDED ON APPROVED COMPACTED FILL AS PER THE GEOTECHNICAL REPORT.
3. REFER TO DETAIL 01/2-S6.02 FOR COMBINED FOOTING BAR LAYOUT, SPLICE LOCATION, AND DOWELS TO SLAB.

PLAN NOTES

1. FOR GENERAL NOTES SEE 2-S0 SERIES SHEETS. FOR TYPICAL DETAILS SEE 2-S6 SERIES SHEETS.
2. SEE ARCHITECTURAL, MECHANICAL, ELECTRICAL, and PLUMBING DRAWINGS FOR TOP OF CONCRETE SLAB ON GRADE ELEVATIONS, DEPRESSIONS, SLOPES, OPENINGS, DRAINS, TRENCHES, PADS, and CURBS; SLAB EDGE LOCATIONS; WALL OVERALL DIMENSIONS; and LOCATIONS OF OPENINGS NOT INDICATED ON STRUCTURAL DRAWINGS.
3. BUILDING SLAB-ON-GRADE- 5" THICK W/ #4 @ 18" O/C EACH WAY at CENTER OF SLAB OVER 15 MIL STEGO WRAP VAPOR BARRIER OR APPROVED EQ (LAP 6" AT JOINTS and TAPE SEAL - OMIT VAPOR BARRIER AT EXTERIOR AREAS) OVER AT LEAST 2 FEET OF NON EXPANSIVE (EI<20) AND PROPERLY COMPACTED FILL AS INDICATED IN THE GEOTECHNICAL REPORT. PROVIDE CONSTRUCTION JOINTS OR WEAKENED PLANE JOINTS IN SLAB-ON-GRADE EACH DIRECTION PER DETAIL 06/2-S6.01 - AT AREAS TO RECEIVE TILE, COORDINATE LOCATION OF JOINTS IN SLAB TO ALIGN WITH TILE EXPANSION JOINTS PER ARCH.
4. CENTER COLUMNS ON NUMBERED GRID LINES UNLESS NOTED OTHERWISE. CENTER SPREAD FOOTINGS, and COMBINED FOOTINGS ON COLUMNS UNLESS NOTED OTHERWISE.
5. IN NO CASE SHALL PIPES, CONDUITS, OR SLEEVES BE EMBEDDED IN SPREAD OR CONTINUOUS FOOTINGS OR WITHIN TOP OR BOTTOM THIRD OF GRADE BEAMS UNLESS SPECIFICALLY DETAILED ON STRUCTURAL DRAWINGS. PIPES, CONDUITS OR SLEEVES MAY ONLY BE EMBEDDED WITHIN THE MIDDLE THIRD OF GRADE BEAMS WHERE NOTED ON STRUCTURAL PLANS AND DETAILED IN THE STRUCTURAL DRAWINGS.
6. WHERE CONTINUOUS FOOTINGS and SPREAD FOOTINGS INTERSECT, EXCAVATE TO BOTTOM OF DEEPER FOOTING and CONTINUE ALL BARS THRU INTERSECTION. PLACE BARS AT CONTINUOUS FOOTING CORNERS and INTERSECTIONS PER 05/S6.01. WHERE CONTINUOUS FOOTINGS TERMINATE AT SIDES OF GRADE BEAMS OR SPREAD FOOTINGS, EXTEND LONGITUDINAL BARS TO FAR SIDE OF GRADE BEAM OR SPREAD FOOTING and TERMINATE W/ STANDARD 90° HOOK.
7. LOCATE TOP OF SPREAD FOOTINGS, COMBINED FOOTINGS, and CONTINUOUS FOOTINGS 1'-6" BELOW LOWEST ADJACENT SLAB OR GRADE ELEVATION UNLESS NOTED OTHERWISE.
8. GEOTECHNICAL OBSERVATION / COMPACTION REPORT SHALL BE SUBMITTED TO THE BUILDING INSPECTOR PRIOR TO FOOTING INSPECTION.
9. COORDINATE EXTENT OF CONCRETE PADS SUPPORTING EQUIPMENT WITH MANUFACTURER AND WITH EDGE DISTANCE REQUIREMENTS PER EQUIPMENT ANCHORAGE DETAILS IN 2-S6.9X SERIES.
10. CONSTRUCT LIGHT GUAGE METAL STUD WALLS PER 01/2-S6.71A AT EXTERIOR CONDITION AND 01/2-S6.71B AT INTERIOR CONDITION UNLESS NOTED OTHERWISE.
11. SEE CIVIL DRAWINGS FOR APPROXIMATE LOCATION OF EXISTING UNDERGROUND UTILITIES. PROTECT OR RELOCATE EXISTING UTILITIES AS REQUIRED DURING FOOTING EXCAVATION OR CONSTRUCTION. DO NOT SURCHARGE EXISTING UTILITIES, SEE 01/2-S6.01 FOR ADDITIONAL CLARIFICATION.

LEGEND

- WXXX / HSSXXXXXX — INDICATES NON-FRAME COLUMN ABOVE FOR BASE PLATE INFO SEE 09/2-S6.11 UNO
- BRBF — INDICATES BRACED FRAME COLUMN - BRACED FRAME ELEVATIONS and SIZE ON SX-3.0X SERIES SHEETS
- FX — INDICATES SPREAD FOOTING MARK - SEE SCHEDULE ON THIS SHEET and 13/2-S6.01
- XX.XX' — INDICATES TOP OF SPREAD FOOTING ELEVATION - IF NO ELEVATION INDICATED, LOCATE TOP OF SPREAD FOOTING PER NOTE 7
- CFX — INDICATES CONTINUOUS FOOTING MARK - SEE SCHEDULE ON THIS SHEET
- T.O.F — INDICATES TOP OF FOOTING ELEVATION - IF NO ELEVATION INDICATED, LOCATE TOP OF CONT. OR MAT FOOTING PER NOTE 7
- S - - - - - S — NDICATES STEP IN CONTINUOUS FOOTING OR GRADE BEAM - SEE 09/2-S6.01. LOCATION OF FOOTING STEPS SHOWN ON PLAN IS APPROXIMATE, UNO. LOCATION OF STEPS IS TO BE COORDINATED BY CONTRACTOR WITH UTILITY LOCATIONS AND FINISH GRADES.
- INDICATES CHANGE IN ELEVATION AT SLAB ON GRADE - SEE DETAIL 12/2-S6.02 UNLESS DETAILED OTHERWISE
- OR — INDICATES CONCRETE CURB OR HOUSEKEEPING PAD - CONSTRUCT PER 06D/2-S6.01 UNO
- +X'-X" — INDICATES ELEVATION OF TOP OF STRUCTURAL CONCRETE SLAB ON GRADE (TOC) - SEE ARCHITECTURAL FOR TOC IF NO ELEVATION INDICATED
- EGRS — INDICATES ELEVATOR GUIDE RAIL SUPPORT - PROVIDE HSS18X6X3/8 AT EACH GUIDE RAIL. COORDINATE LOCATION WITH ELEVATOR MANUFACTURER. SEE 01/2-S6.14
- INDICATES 8" THK NON-BEARING CMU WALL . . REINFORCE AS PER DETAIL 01/2-S6.61.
- INDICATES LIGHT GAUGE METAL STUD FRAMING - SEE SCHEDULE ON 01/2-S6.71A AND 01/2-S6.71B
- INDICATES DEPRESSED SLAB TO RECIEVE ARCHITECTURAL TOPPING. SEE ARCH FOR THICKNESS AND FINISH.
- XXX (WALL) — INDICATES MEP EQUIPMENT TAG. REFER TO ARCH, MECH, ELECT, PLUMB, ETC FOR EXACT LOCATION OF EQUIPMENT
  FOR FLOOR MOUNTED UNIT ANCHORAGE INF AND CONCRETE PAD REQUIREMENT SEE 01/2-S6.91 UNO
  FOR WALL MOUNTED UNIT CONNECTION INF REFER TO LANDSCAPE, MECHANICAL, ELECTRICAL, PLUMBING, ETC. FOR EXACT LOACTION OF EQUIPMENT. SEE 09/2-S6.94 UNO
  XXlb — INDICATES MAX. EQUIPMENT WEIGHT INCLUDING ALL ACCESSORIES
  INDICATES WALL MOUNTED UNIT



GYM - FOUNDATION PLAN | 1/8" = 1'-0" | 2-S2-2.01 | 05

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LPADesignStudios.com
5301 California Avenue, Suite 100
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REGISTERED PROFESSIONAL ENGINEER — NO. S5493 — 09/27 — LAKSHMANA A. PRASAD — STRUCTURAL — STATE OF CALIFORNIA

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INCREMENT 02
30215 Morning View Dr.,
Malibu, CA 90265
Developed for
SANTA MONICA - MALIBU UNIFIED SCHOOL DISTRICT

Submittal	Date
SCHEMATIC DESIGN	09/04/2024
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Revision — Date

Job Number	31722
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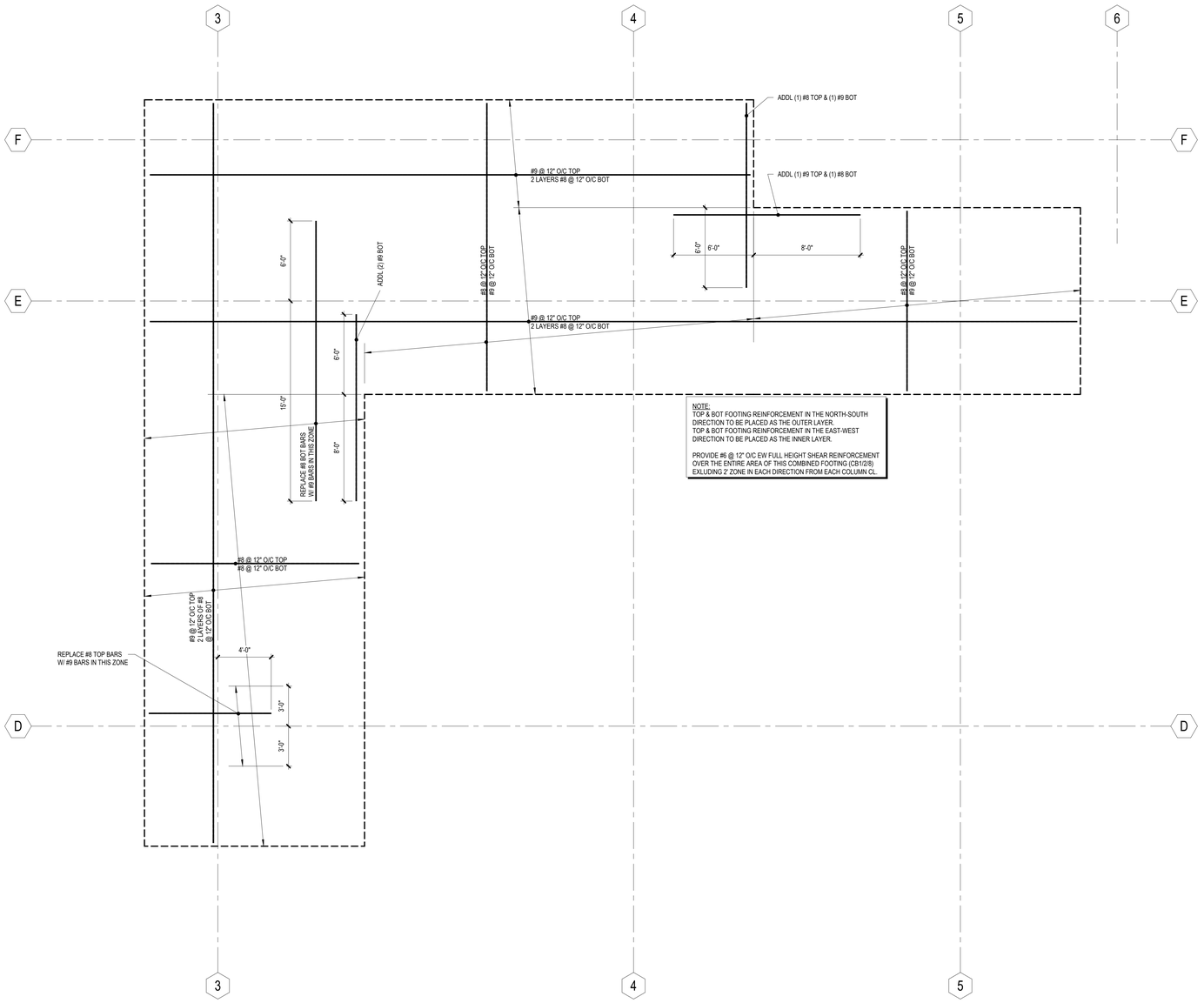
Scale	1/8" = 1'-0"

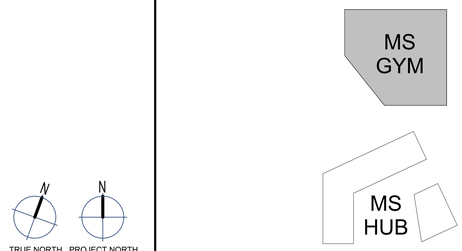
GYM - FOUNDATION PLAN

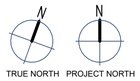
2-S2-2.01



NOTE:
TOP & BOT FOOTING REINFORCEMENT IN THE NORTH-SOUTH DIRECTION TO BE PLACED AS THE OUTER LAYER.
TOP & BOT FOOTING REINFORCEMENT IN THE EAST-WEST DIRECTION TO BE PLACED AS THE INNER LAYER.

PROVIDE #6 @ 12" O/C EW FULL HEIGHT SHEAR REINFORCEMENT OVER THE ENTIRE AREA OF THIS COMBINED FOOTING (CB1/2/8) EXLUDING 2' ZONE IN EACH DIRECTION FROM EACH COLUMN CL.





GYM - FOUNDATION PLAN - Callout 1 | 1/4" = 1'-0" | 2-S2-2.12 | 05

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949-261-1001 Office

LPADesignStudios.com

5301 California Avenue, Suite 100
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REGISTERED PROFESSIONAL ENGINEER
HARIBINDA A. PRASAD
NO. S6463
09/30/27
STRUCTURAL
STATE OF CALIFORNIA

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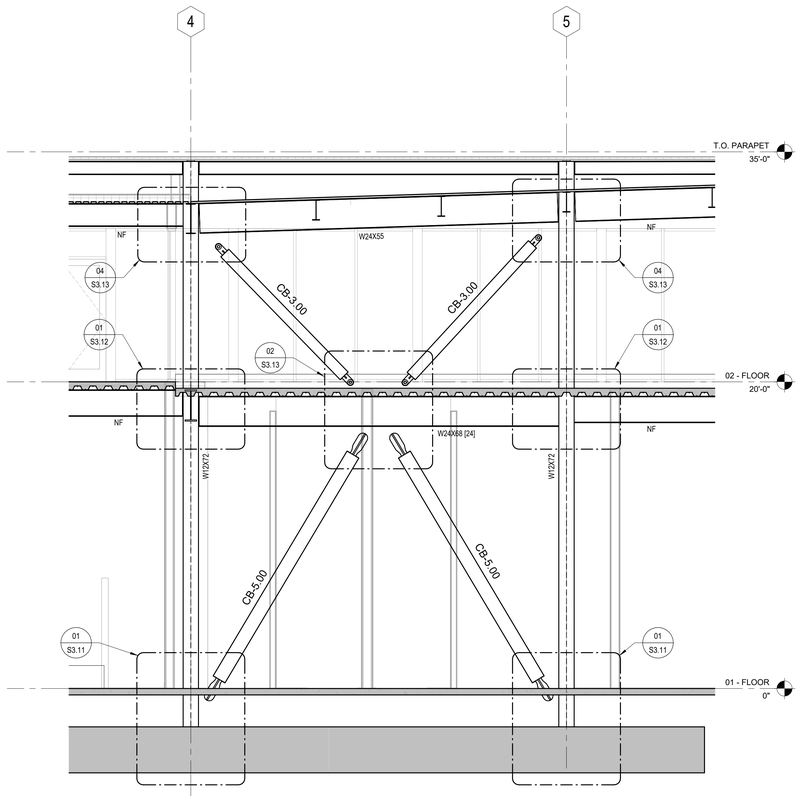
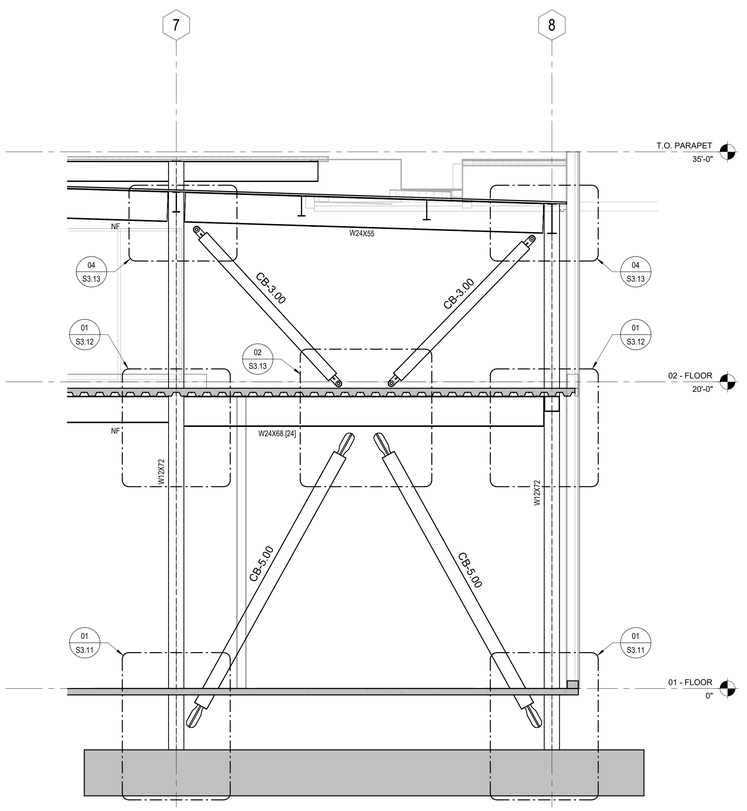
GYM - ENLARGED
FOUNDATION PLAN

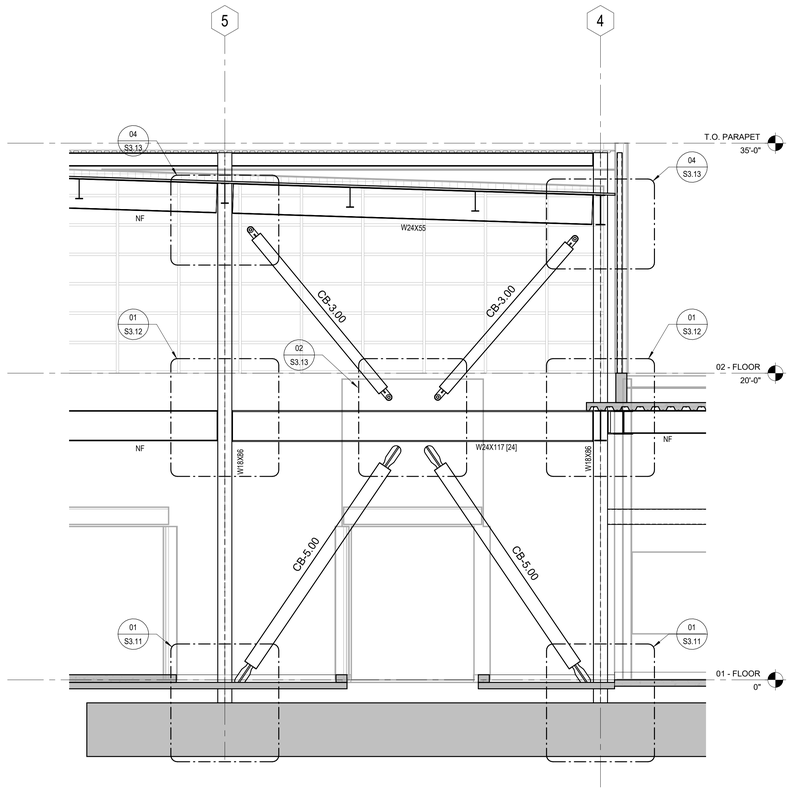
2-S2-2.12



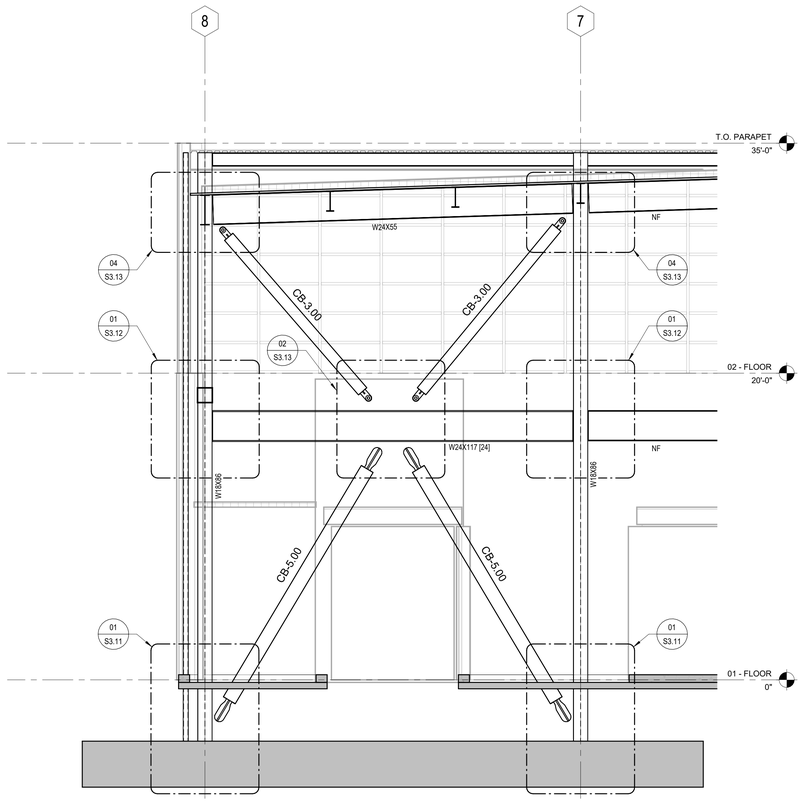
GYM - BRACE FRAME ELEVATION ALONG GRID E (BRBF-2) | 1/4" = 1'-0" | 2-S2-3.01 | 15



GYM - BRACE FRAME ELEVATION ALONG GRID E (BRBF-3) | 1/4" = 1'-0" | 2-S2-3.01 | 07



GYM - BRACE FRAME ELEVATION ALONG GRID A (BRBF-6) | 1/4" = 1'-0" | 2-S2-3.01 | 13



GYM - BRACE FRAME ELEVATION - ALONG GRID A (BRBF-5) | 1/4" = 1'-0" | 2-S2-3.01 | 05

BRACE FRAME ELEVATION NOTES

1. FOR GENERAL NOTES SEE S0 SERIES SHEETS. FOR TYPICAL DETAILS SEE S6 SERIES SHEETS.
2. BRBF CONNECTIONS AND LENGTHS SHOWN IN ELEVATIONS ARE FOR REFERENCE ONLY. COORDINATE SPECIFICS OF BRACE AND CONNECTION DETAILING / GEOMETRY WITH INFORMATION SHOWN WITHIN COREBRACE SCHEDULE AND DETAILING IN S3.1X, S3.2X and S6 SERIES DETAILS.
3. CB-X.XX INDICATES BUCKLING RESTRAINED BRACE FRAME. SEE S3.2X SHEET SERIES FOR ALL REQUIREMENTS.
4. THE FOLLOWING WELDS ARE CLASSIFIED AS DEMAND CRITICAL (SEE WELDING REQUIREMENTS UNDER THE STRUCTURAL STEEL SECTION OF THE GENERAL NOTES)
   A. GROOVE WELDS AT COLUMN SPLICES.
   B. WELDS AT COLUMN to BASE PLATE CONNECTIONS.
   C. WELDS at BEAM TO COLUMN CONNECTIONS.
5. PROVIDE ROUND PIPE CASING TYPICAL WITH BOLTED CONNECTION EA END TYPICAL UNO:
   A. BRBF-2, -3, -4, -5, -6, and -7 ARE TO BE PROVIDED WITH PINNED CONNECTION EA END AT THE SECOND STORY ONLY.
   B. AT BRBF -7 and -8 PROVIDE 10IN SQUARE CASING FOR THE BRACE AT THE FIRST FLOOR ONLY.
6. BRBF-2, -3, -4, -5, -6, and -7 ARE EXPOSED AT THE SECOND STORY ONLY.
7. SEE S3.11 FOR BRBF BASE PLATE DETAIL AND SCHEDULE.
8. FOR COLUMN ORIENTATION SEE PLANS.
9. ADD ANGLES AT COLUMN FOR SUPPORT OF METAL DECKING PER 15/2-S6.12 UNLESS NOTED OTHERWISE.
10. NO PENETRATION IN STRUCTURAL STEEL IS PERMITTED UNLESS SPECIFICALLY SHOWN ON STRUCTURAL DRAWINGS.
11. SEE DETAIL 4/2-S3.23 FOR EXPANDED POLYSTYRENE REQUIREMENT AROUND BRB CASING BURIED IN CONCRETE.

BRACE FRAME ELEVATION LEGEND

CB-X.XX	INDICATES BUCKLING RESTRAINED BRACED FRAME. SEE 2-S3.2X FOR ALL REQUIREMENTS.
NF	INDICATES NON-FRAME FRAMING MEMBER - SEE PLANS FOR MEMBER SIZE AND CONNECTION DETAILS.

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949-261-1001 Office

LPADesignStudios.com

5301 California Avenue, Suite 100
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REGISTERED PROFESSIONAL ENGINEER
HAMIDA A. PRASAD
NO. S6493
09/27
STRUCTURAL
STATE OF CALIFORNIA

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INCREMENT 02

30215 Morning View Dr.,
Malibu, CA 90265

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Job Number	31722
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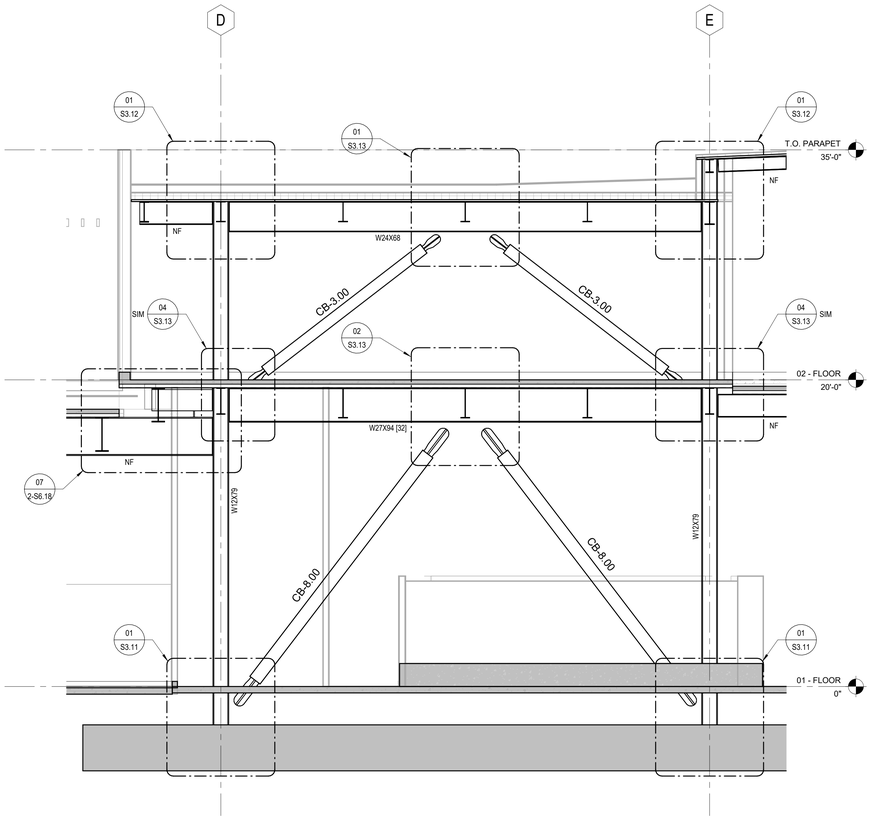
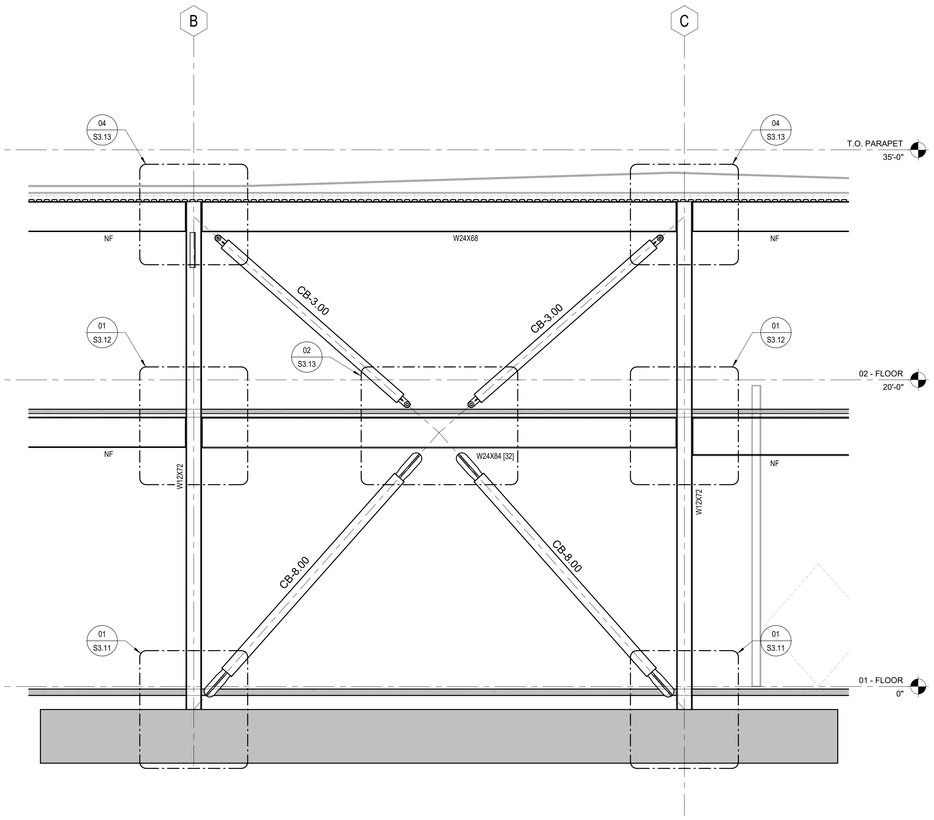
Scale	As indicated

GYM - BRACE FRAME ELEVATIONS

2-S2-3.01



GYM - BRACE FRAME ELEVATION ALONG GRID 3 (BRBF-8) | 1/4" = 1'-0" 2-S2-3.02 | 15



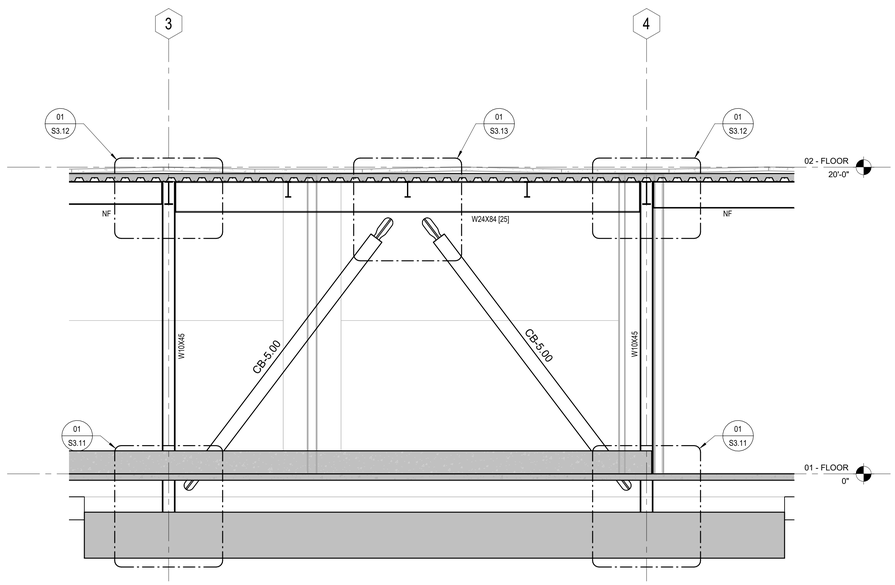
GYM - BRACE FRAME ELEVATION ALONG GRID 4 (BRBF-7) | 1/4" = 1'-0" 2-S2-3.02 | 07

BRACE FRAME ELEVATION NOTES

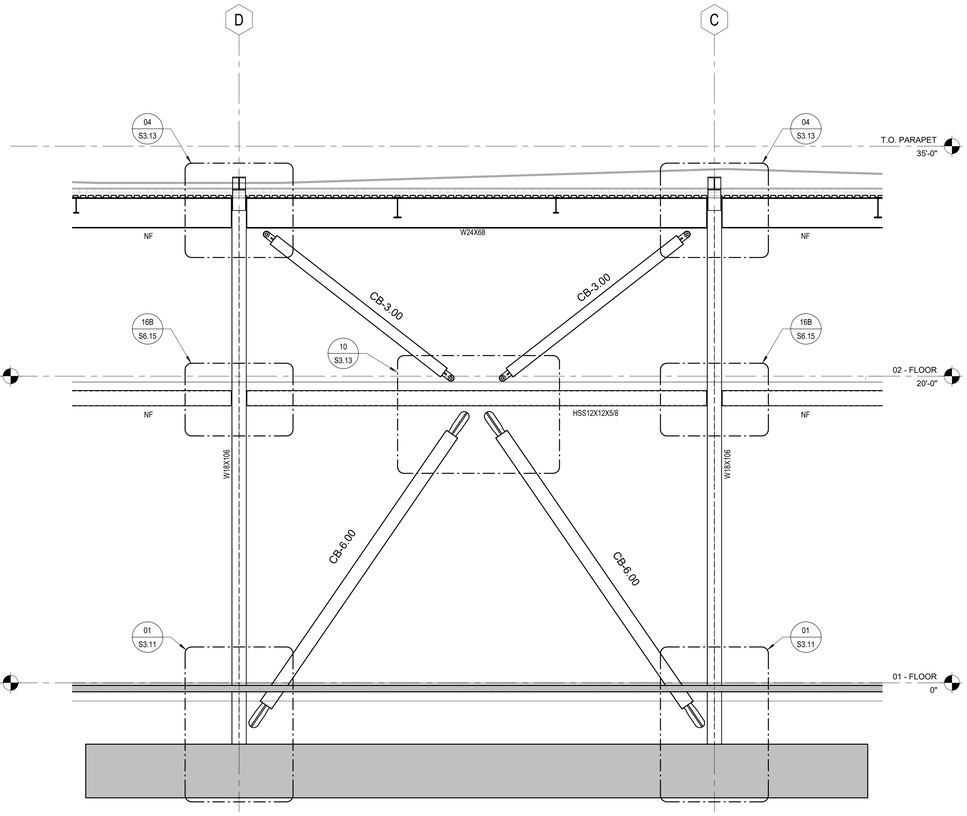
1. FOR GENERAL NOTES SEE S0 SERIES SHEETS. FOR TYPICAL DETAILS SEE S6 SERIES SHEETS.
2. BRBF CONNECTIONS AND LENGTHS SHOWN IN ELEVATIONS ARE FOR REFERENCE ONLY. COORDINATE SPECIFICS OF BRACE AND CONNECTION DETAILING / GEOMETRY WITH INFORMATION SHOWN WITHIN COREBRACE SCHEDULE AND DETAILING IN S3.1X, S3.2X and S6 SERIES DETAILS.
3. CB-X.XX INDICATES BUCKLING RESTRAINED BRACE FRAME. SEE S3.2X SHEET SERIES FOR ALL REQUIREMENTS.
4. THE FOLLOWING WELDS ARE CLASSIFIED AS DEMAND CRITICAL (SEE WELDING REQUIREMENTS UNDER THE STRUCTURAL STEEL SECTION OF THE GENERAL NOTES)
   A. GROOVE WELDS AT COLUMN SPLICES.
   B. WELDS AT COLUMN to BASE PLATE CONNECTIONS.
   C. WELDS at BEAM TO COLUMN CONNECTIONS.
5. PROVIDE ROUND PIPE CASING TYPICAL WITH BOLTED CONNECTION EA END TYPICAL UNO:
   A. BRBF-2, -3, -4, -5, -6, and -7 ARE TO BE PROVIDED WITH PINNED CONNECTION EA END AT THE SECOND STORY ONLY.
   B. AT BRBF -7 and -8 PROVIDE 10IN SQUARE CASING FOR THE BRACE AT THE FIRST FLOOR ONLY.
6. BRBF-2, -3, -4, -5, -6, and -7 ARE EXPOSED AT THE SECOND STORY ONLY.
7. SEE S3.11 FOR BRBF BASE PLATE DETAIL AND SCHEDULE.
8. FOR COLUMN ORIENTATION SEE PLANS.
9. ADD ANGLES AT COLUMN FOR SUPPORT OF METAL DECKING PER 15/2-S6.12 UNLESS NOTED OTHERWISE.
10. NO PENETRATION IN STRUCTURAL STEEL IS PERMITTED UNLESS SPECIFICALLY SHOWN ON STRUCTURAL DRAWINGS.
11. SEE DETAIL 4/2-S3.23 FOR EXPANDED POLYSTYRENE REQUIREMENT AROUND BRB CASING BURIED IN CONCRETE.

BRACE FRAME ELEVATION LEGEND

CB-X.XX	INDICATES BUCKLING RESTRAINED BRACED FRAME. SEE 2-S3.2X FOR ALL REQUIREMENTS.
NF	INDICATES NON-FRAME FRAMING MEMBER - SEE PLANS FOR MEMBER SIZE AND CONNECTION DETAILS.



GYM - BRACE FRAME ELEVATION ALONG GRID F (BRBF-1) | 1/4" = 1'-0" 2-S2-3.02 | 13



GYM - BRACE FRAME ELEVATION ALONG GRID 8 (BRBF-4) | 1/4" = 1'-0" 2-S2-3.02 | 05

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949-261-1001 Office
LPADesignStudios.com
5301 California Avenue, Suite 100
Irvine, California 92617

REGISTERED PROFESSIONAL ENGINEER
HAMIDA A. PLASENCIA
NO. S5493
09/27
STRUCTURAL
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INCREMENT 02

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Developed for
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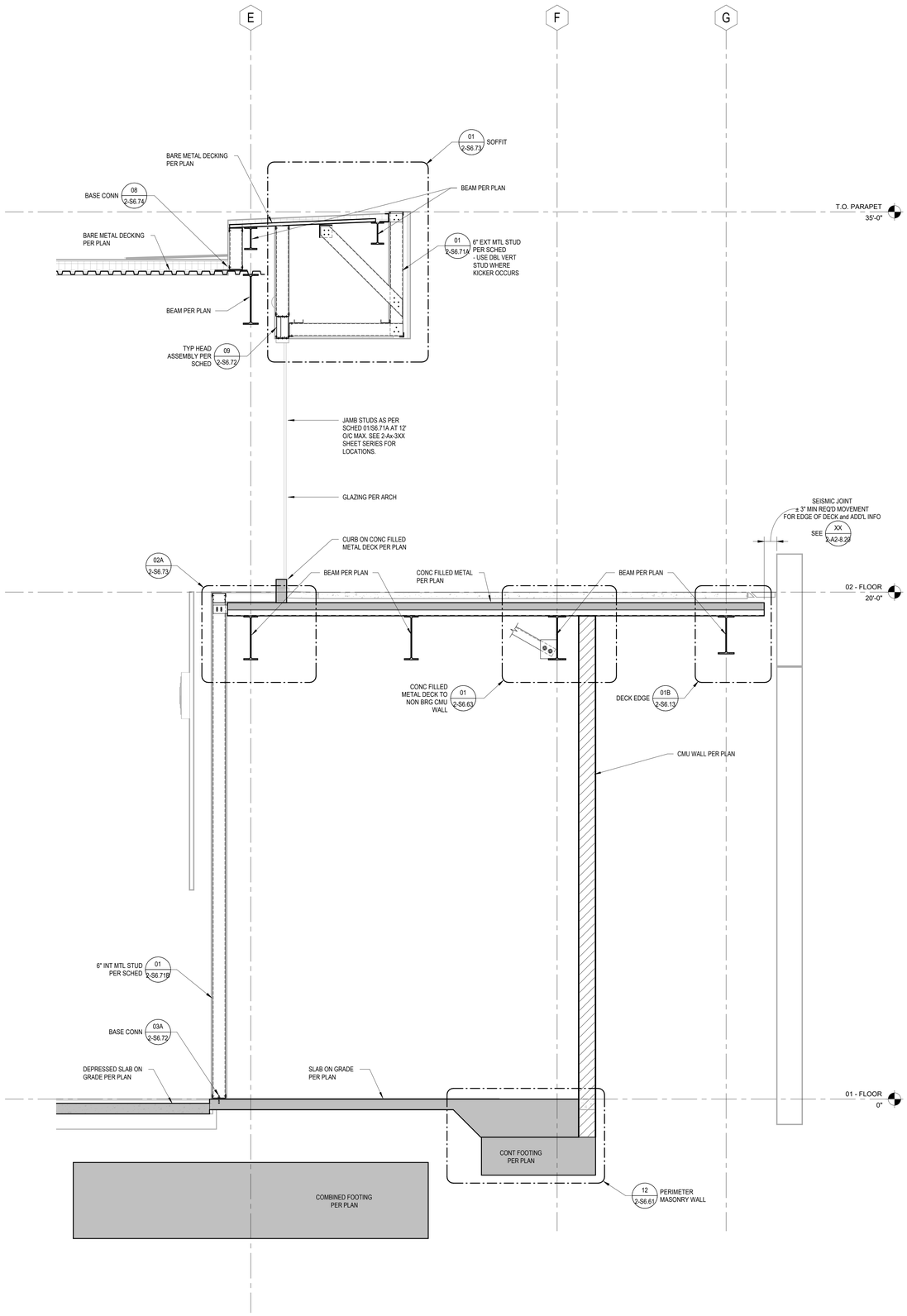
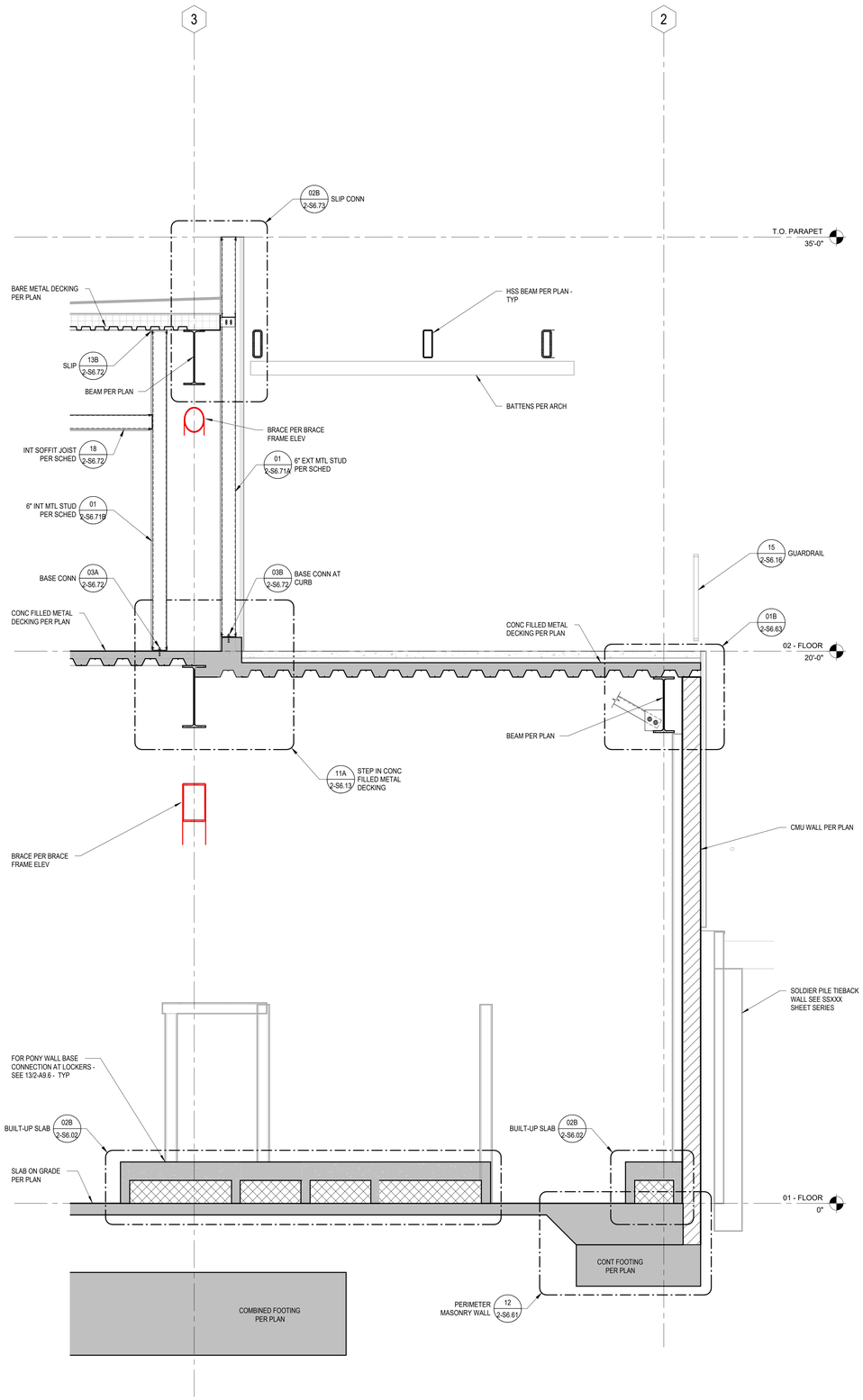
GYM - BRACE FRAME ELEVATIONS

2-S2-3.02





WALL SECTIONS 1/2" = 1'-0" 13

WALL SECTIONS 1/2" = 1'-0" 01

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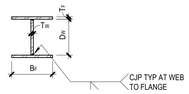
GYM - WALL SECTIONS

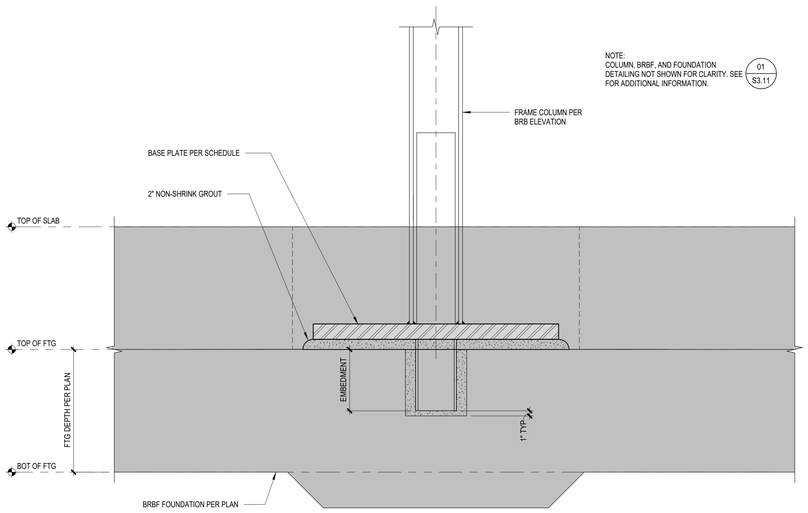
2-S2-4.03

BUILT UP SHEAR LUG SCHEDULE

BUILT-UP SHEAR LUG PROFILE	PROFILE SECTION	"Dw"	"Tw"	"Br"	"Tr"	EMBEDMENT
SL1	A	8"	1"	6"	3/4"	6"
SL2	A	12"	1 1/2"	8"	1"	10"

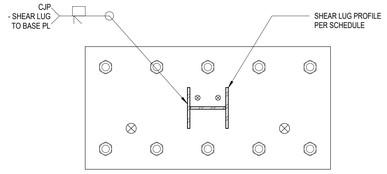


BUILT-UP SHEAR LUG PROFILE SECTION (A)



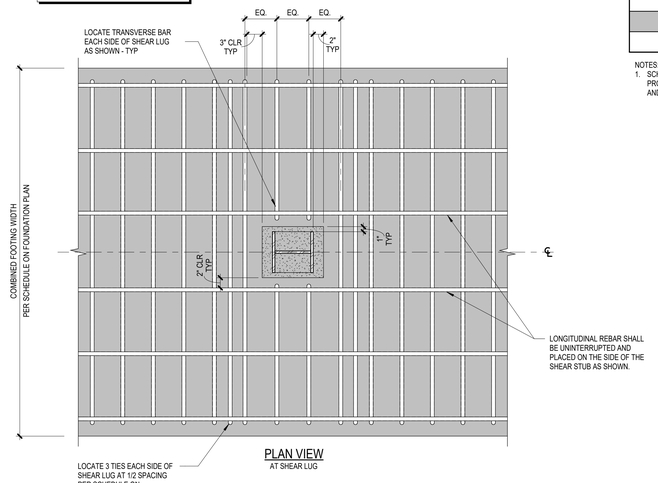
BUILT-UP SHEAR LUG ELEVATION

BUILT-UP SHEAR LUG | N.T.S. | 15



REFLECTED PLAN VIEW
AT BASE PLATE

NOTE:
FOR REMAINDER OF INFO SEE ELEVATION AT COLUMN BASE. FOR COMBINED FOOTING REINFORCING SEE 01 2-S6.02

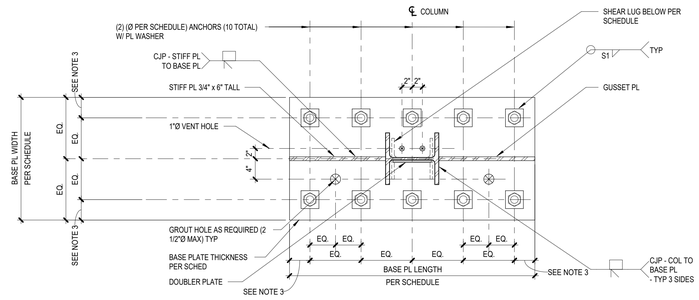


PLAN VIEW
AT SHEAR LUG

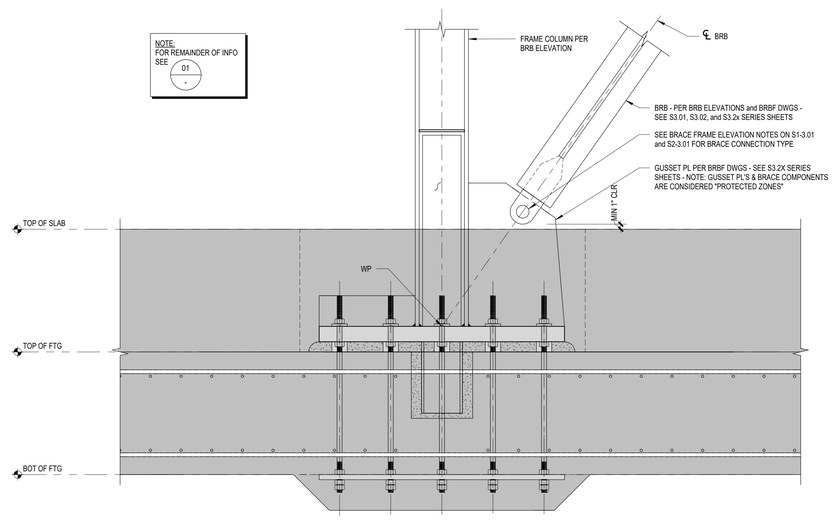
STEEL BRB FRAME BASE PLATE SCHEDULE

COLUMN SIZE	BASE PLATE				ANCHOR BOLT		
	THICKNESS	WIDTH	MIN LENGTH (SEE NOTE 1)	BUILT-UP SHEAR LUG PROFILE PER 15/-	F1554-55	WASHER SIZE	WASHER WELD (S1)
W10X45 AT HUB	1"	18"	20"	SL1	7/8"Ø	1/2"x3"x3"	3/8"
W12X79	1 3/4"	24"	24"	SL2	1 1/4"Ø	1/2"x3"x3"	3/8"
W18X86 & W18X106	1 1/4"	28"	20"	SL2	7/8"Ø	1/2"x3"x3"	3/8"
W10X45 AT GYM	1 3/8"	20"	20"	SL1	7/8"Ø	1/2"x3"x3"	3/8"
W12X72	1 3/8"	24"	24"	SL2	7/8"Ø	1/2"x3"x3"	3/8"

NOTES:
1. SCHEDULED LENGTH CORRESPONDS TO MINIMUM LENGTH OF BASEPLATE (CENTERED ABOUT COLUMN CENTERLINE). PROVIDE ADDITIONAL PLATE EXTENT EA SIDE OF COLUMN CL AS REQUIRED TO ACCOMMODATE GUSSET PLATE GEOMETRY AND WELD AT COLUMN BASEPLATE (SEE COREBRACE CONNECTION SCHEDULES FOR ADDITIONAL INFORMATION)

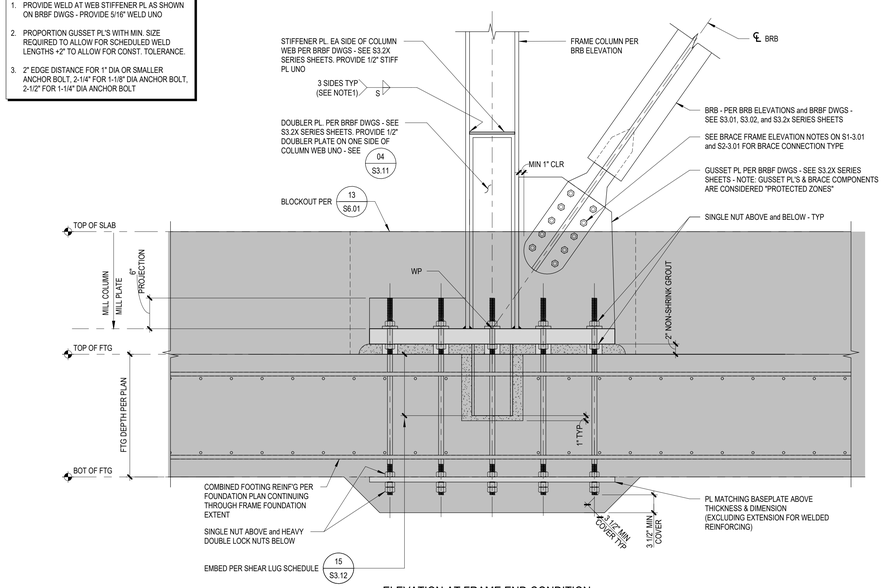


PLAN AT FRAME END CONDITION



TYPICAL EXPOSED STEEL BRB FRAME BASE PLATE DETAIL | N.T.S. | 09

NOTES:
1. PROVIDE WELD AT WEB STIFFENER PL AS SHOWN ON BRBF DWGS - PROVIDE 5/16" WELD UNO
2. PROPORTION GUSSET PL'S WITH MIN. SIZE REQUIRED TO ALLOW FOR SCHEDULED WELD LENGTHS +2" TO ALLOW FOR CONST. TOLERANCE.
3. 2" EDGE DISTANCE FOR 1" DIA OR SMALLER ANCHOR BOLT, 2-1/4" FOR 1-1/8" DIA ANCHOR BOLT, 2-1/2" FOR 1-1/4" DIA ANCHOR BOLT



ELEVATION AT FRAME END CONDITION

TYPICAL STEEL BRB FRAME BASE PLATE DETAIL | N.T.S. | 01

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LANDSCAPE ARCHITECTURE PLANNING
949-261-1001 Office
LPADesignStudios.com
5301 California Avenue, Suite 100
Irvine, California 92617

REGISTERED PROFESSIONAL ENGINEER
HAMIDA A. PRASAD
NO. S5493
6/30/27
STRUCTURAL
STATE OF CALIFORNIA

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INCREMENT 02

30215 Morning View Dr.,
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Developed for
SANTA MONICA - MALIBU UNIFIED SCHOOL DISTRICT

Revision	Date

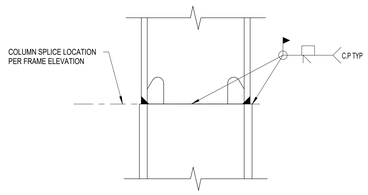
Submittal	Date
SCHEMATIC DESIGN	09/04/2024
50% DESIGN DEVELOPMENT	12/13/2024
100% DESIGN DEVELOPMENT	03/14/2025
CDP SUBMITTAL	06/16/2025
50% CONSTRUCTION DOCS	06/27/2025
DSA SUBMITTAL	09/08/2025

Job Number	31722
Checked By	HP
Scale	1" = 1'-0"

TYPICAL BRB DETAILS

2-S3.11

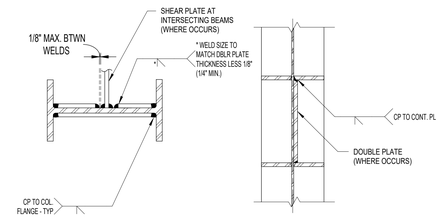
NOTE:
FOR GEOMETRY AT
WELD ACCESS HOLES SEE 20 / S6.11



NOTES:
1. STEEL FABRICATOR TO DESIGN AND PROVIDE ALL REQUIRED ERECTION PLATES. ERECTION PLATES ARE TO BE PROVIDED SUCH THAT NO HOLES OCCUR WITHIN COLUMN SECTION.
2. FOR FINISH SURFACES AT COLUMN ENDS - SEE AISC 'CODE OF STANDARD PRACTICE' 6.2.2

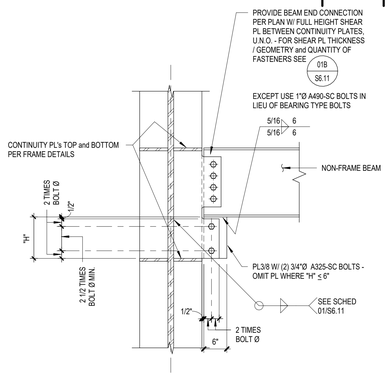
TYP. FRAME COLUMN SPLICE DETAIL — N.T.S. — 08

NOTE:
1. AT CONTRACTORS OPTION PROVIDE DOUBLE PLATE ON EITHER SIDE OF COLUMN WEB.

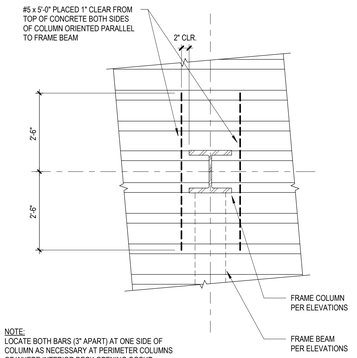


PLAN VIEW **SECTION**

STEEL PANEL ZONE DOUBLER PLATE — N.T.S. — 04



TYPICAL NON-FRAME BEAM TO FRAME COLUMN WEB CONNECTION — N.T.S. — 07



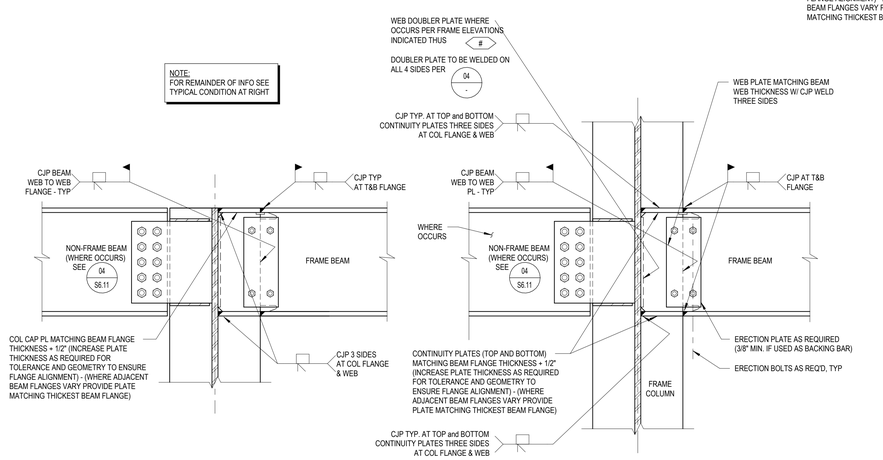
NOTE:
LOCATE BOTH BARS (3" APART) AT ONE SIDE OF COLUMN AS NECESSARY AT PERIMETER COLUMNS OF WHERE INTERIOR DECK OPENING OCCUR

TYP. ADDED BARS IN CONC. DECKS WHERE FRAME COLUMNS PENETRATE — N.T.S. — 03

NOTE:
FOR REMAINDER OF INFO SEE 01 / -

SLOPED BRB FRAME BEAM TO COLUMN CONNECTION — N.T.S. — 17

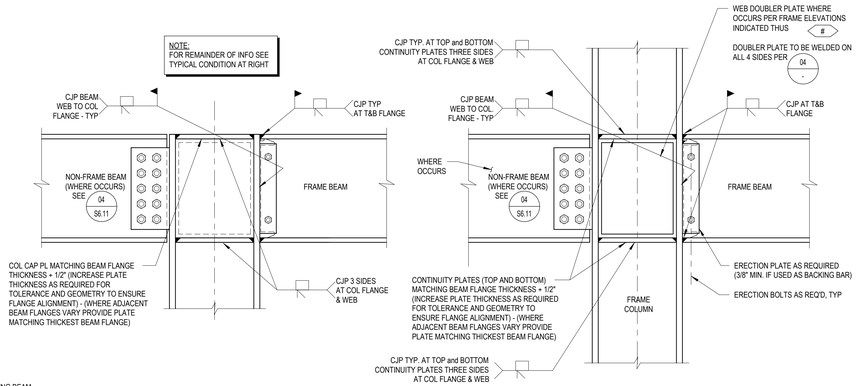
NOTE:
FOR REMAINDER OF INFO SEE
TYPICAL CONDITION AT RIGHT



ELEVATION AT TOP OF COLUMN **TYPICAL ELEVATION**

CONDITIONS AT FRAME BEAM TO COLUMN MINOR AXIS

NOTE:
FOR GEOMETRY AT
WELD ACCESS HOLES SEE 20 / S6.11



ELEVATION AT TOP OF COLUMN **TYPICAL ELEVATION**

NOTE:
FOR GEOMETRY AT
WELD ACCESS HOLES SEE 20 / S6.11

CONDITIONS AT FRAME BEAM TO COLUMN MAJOR AXIS

NOTES:
1. AT BOTTOM FLANGE CONNECTION: AFTER FULL PENETRATION WELDING, REMOVE BACKING BAR. WELD ROOT SHALL BE INSPECTED AND TESTED FOR IMPERFECTIONS, WHICH IF FOUND, ARE TO BE REMOVED BY BACKGOUGING TO SOUND MATERIAL and CLEANED BY GRINDING IF BACKGOUGED BY AIR ARC. BACKGOUGED AREA IS TO BE RE-WELDED TO FLUSH CONDITION. WHERE BEAM CONNECTION OCCURS AT COLUMN FLANGE APPLY FILLET WELD TO REINFORCE JOINT. SIZE OF REINFORCING FILLET WELD SHALL BE IN ACCORDANCE WITH AWS D1.8, BUT NOT LESS THAN 5/16".
2. AT TOP FLANGE CONNECTION: AFTER FULL PENETRATION WELDING, BACKING BAR CAN REMAIN IN PLACE. WHERE BEAM CONNECTION OCCURS AT COLUMN FLANGE APPLY FILLET WELD BETWEEN COLUMN FLANGE AND BACKUP BAR TO REINFORCE JOINT. SIZE OF FILLET WELD SHALL BE IN ACCORDANCE WITH AWS D1.8, BUT NOT LESS THAN 5/16". AT CONTRACTORS OPTION BACKING BAR CAN BE REMOVED AND PROCEDURE DESCRIBED FOR BOTTOM FLANGE CAN BE FOLLOWED AT TOP FLANGE.
3. PERFORM BEAM WEB WELDING AFTER ALL FLANGE WELDING IS COMPLETE.
4. ALL WELDING SHALL BE IN CONFORMANCE W/ AWS 1.1 and AWS 1.8.
5. FOR PREHEAT and POSTHEAT REQUIREMENTS SEE AWS D1.8
6. BRACES, BRACE CONNECTIONS, AND GUSSET PLATES OMITTED FOR CLARITY.
7. REMOVE ALL WELD TABS AT BOTH TOP FLANGE AND BOTTOM FLANGE CONNECTION.
8. PROVIDE CONTINUITY AND STIFFENER PLATES AS SHOWN (ON EACH SIDE OF COLUMN WEB) AT ONE SIDED / END CONDITIONS UNO

WHERE BEAM DEPTHS VARY <= 4", PROVIDE SLOPING CONTINUITY PLATE MATCHING THICKER BEAM FLANGE

TYP. BRB FRAME BEAM TO COLUMN CONNECTION — N.T.S. — 01

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ARCHITECTURE ENGINEERING INTERIOR DESIGN
LANDSCAPE ARCHITECTURE PLANNING
949-261-1001 Office
LPADesignStudios.com
5301 California Avenue, Suite 100
Irvine, California 92617

REGISTERED PROFESSIONAL ENGINEER — HAMIDA A. PRASAD — NO. S5493 — 09/30/27 — STRUCTURAL — STATE OF CALIFORNIA

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MALIBU HIGH SCHOOL
INCREMENT 02

30215 Morning View Dr.,
Malibu, CA 90265

Developed for
SANTA MONICA - MALIBU UNIFIED SCHOOL DISTRICT

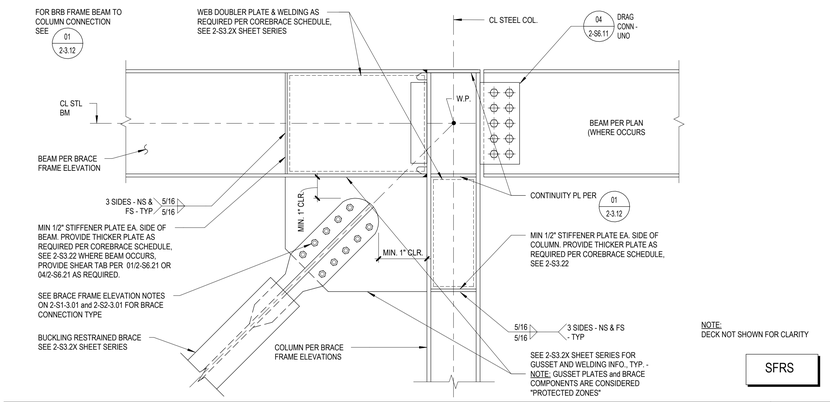
Revision	Date

Submittal	Date
SCHEMATIC DESIGN	09/04/2024
50% DESIGN DEVELOPMENT	12/13/2024
100% DESIGN DEVELOPMENT	03/14/2025
CDP SUBMITTAL	06/16/2025
50% CONSTRUCTION DOCS	06/27/2025
DSA SUBMITTAL	09/08/2025

Job Number	31722
Checked By	HP
Scale	As indicated

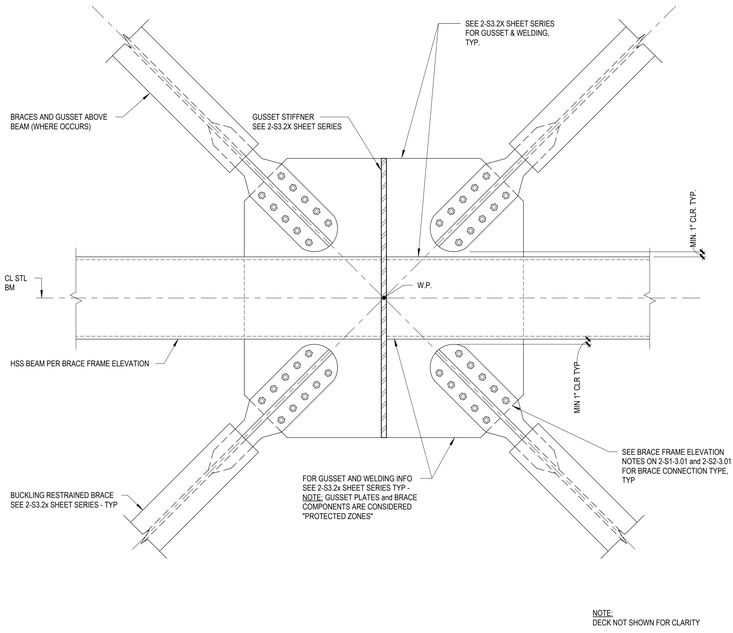
TYPICAL BRB DETAILS

2-S3.12



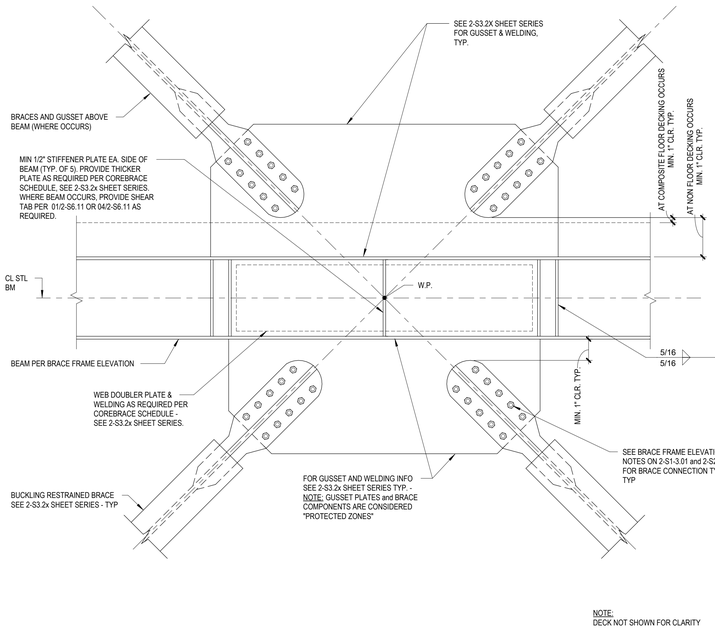
SFRS

BRBF BRACE CONNECTION TO BEAM-COLUMN (1 SIDE) N.T.S. 04



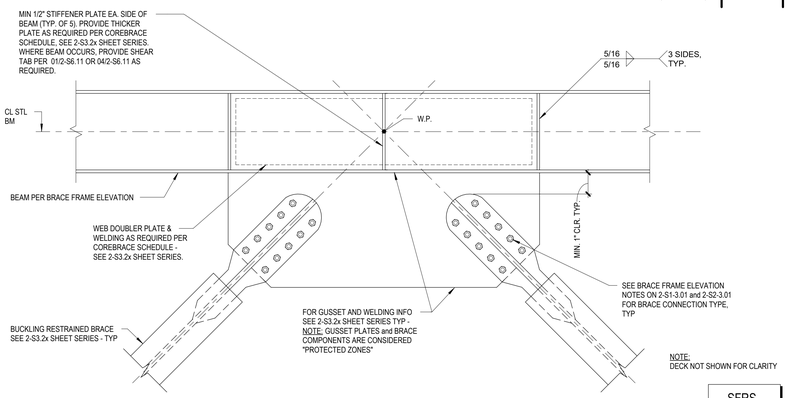
SFRS

BRBF BRACE TO HSS BEAM CONNECTION (2 SIDE) N.T.S. 10



SFRS

BRBF BRACE TO BEAM CONNECTION (2 SIDE) N.T.S. 02



SFRS

BRBF BRACE TO BEAM CONNECTION (1 SIDE) N.T.S. 01

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LPADesignStudios.com
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DSA SUBMITTAL	09/08/2025

Job Number	31722
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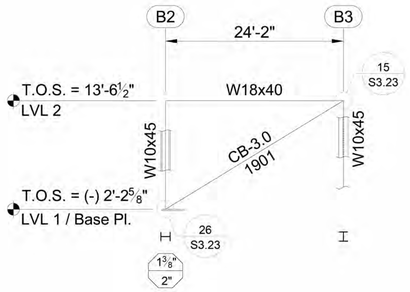
Scale	1" = 1'-0"

TYPICAL BRB DETAILS

2-S3.13



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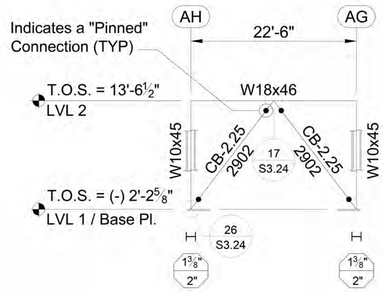

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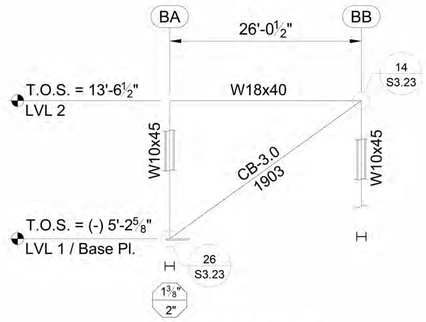

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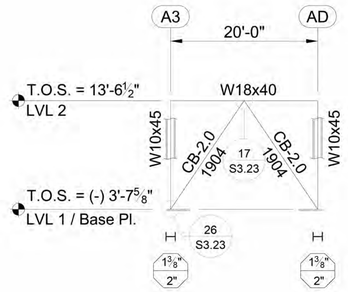

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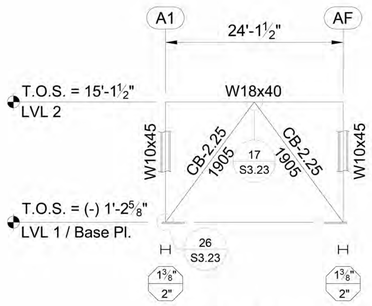

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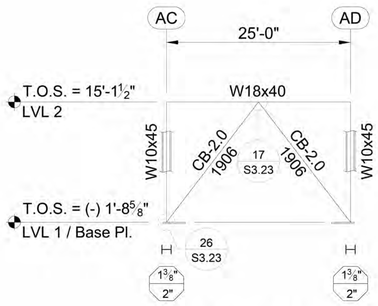

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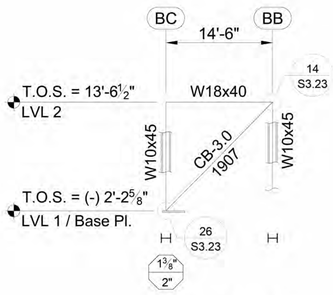

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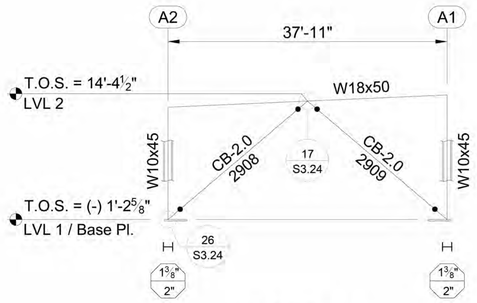

GRID AA
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HUB BRB'S

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949-261-1001 Office
LPADesignStudios.com
5301 California Avenue, Suite 100
Irvine, California 92617

REGISTERED PROFESSIONAL ENGINEER
HAMIDRA A. PRASAD
NO. 55493
STRUCTURAL
STATE OF CALIFORNIA

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Job Number	31722
Checked By	HP
Scale	

COREBRACE BRB
FRAME ELEVATIONS

2-S3.21

CoreBrace
20 ANNIVERSARY 2002 - 2022
SUPERIOR SEISMIC PERFORMANCE
5789 W. Wells Park Rd.
West Jordan, Utah 84081
(801) 280-0701

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CoreBrace Engineering Design Responsibilities are limited to the following:
- Complete BRB design based on A_{sc} provided by E.O.R.
- Design connection of BRB to gusset.
- Design gusset connection to frame columns, beams and base plates.

General Notes:
1. See "Casing Buried in Concrete Detail" where concrete slab will interfere with required BRB stroke.
2. Structural steel detailer and erection team to consider erectability constraints when determining piece erection sequencing and field welding versus shop welding of stiffeners and gussets.
3. Detail callouts are typical at the given frame location, UNO. See "CB" sheets for typical details.
4. Single-line diagrams do not necessarily represent WP axis of members, see details.
5. Member sizes, dimensions, elevations, and work point locations on CB sheets are shown for coordination only. Project documents shall govern. Verify in field as necessary.
6. See project documents for additional information; more stringent requirements on project documents shall govern.

Abbreviations

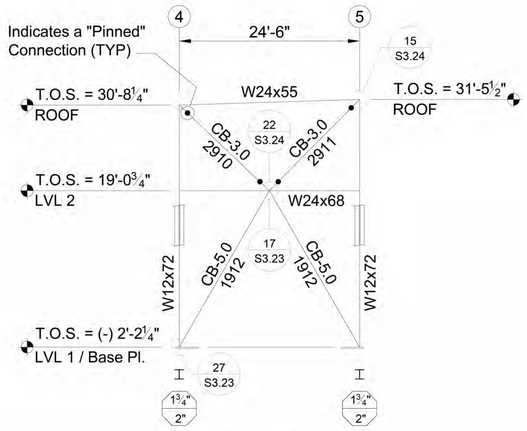
Abt	About	DIA	Diameter	NTS	Not to Scale
Approx	Approximate	DIM	Dimension	PL	Plate
Asc	Area of Steel Core	dc	Depth of column	Req'd	Required
bfb	Width of flange of beam	(E)	Existing	Sched	Schedule
bfc	Width of flange of column	EQ	Equal	SIM	Similar
Bldg	Building	FF	Finished Floor	SYM	Symetrical
Bm	Beam	FHG	Full-Height Gusset	Stiff	Stiffener
Bot	Bottom	Flng	Flange	tfb	Thickness of flange of beam
B.P.	Base Plate	Galv	Galvanized	tfc	Thickness of flange of column
BRB	Buckling-Restrained Brace	Gsst	Gusset	T&B	Top and Bottom
CB	CoreBrace	Info	Information	T.O.F.	Top of Footing
CJP	Complete Joint Penetration	LVL	Level	T.O.C	Top of Concrete
C_L	Centerline	MAX	Maximum	twb	Thickness of web of beam
Col	Column	MIN	Minimum	TYP	Typical
Conc	Concrete	N&FS	Near and Far Side	UNO	Unless Noted Otherwise
Conn	Connection	Nom	Nominal	WP	WORK POINT

Symbols Legend:

X / Y	X = BASE PL THICKNESS Y = GROUT THICKNESS
⌶	INDICATES FRAMING OF GUSSET PL TO COLUMN WEB (WEAK AXIS)
H	INDICATES FRAMING OF GUSSET PL TO COLUMN FLANGE (STRONG AXIS)
□	INDICATES FRAMING OF GUSSET PL TO HSS COLUMN (SLOT GUSSET THROUGH)

CB-XX	INDICATES BRB WITH CORE AREA SIZE OF XX in^2
T.O.S. = X'-X"	INDICATES TOP OF STEEL BEAM ELEVATION
19##	BRACE MARK IDENTIFICATION FOR BOLTED END BRACES
29##	BRACE MARK IDENTIFICATION FOR PINNED END BRACES

LICENSED PROFESSIONAL ENGINEER
HAMIDRA A. PRASAD
NO. 55493
STRUCTURAL
STATE OF CALIFORNIA
EXP 12/2026



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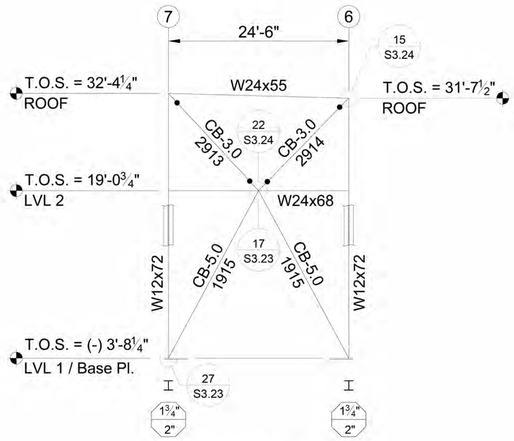

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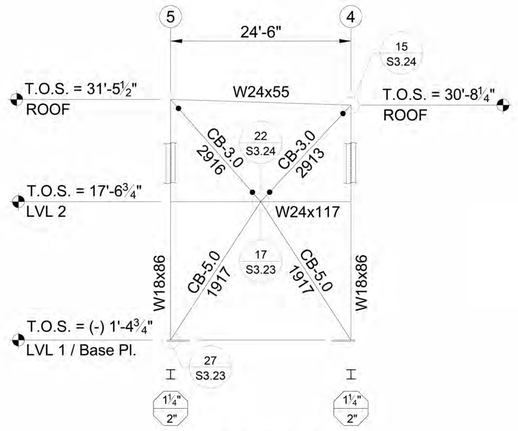

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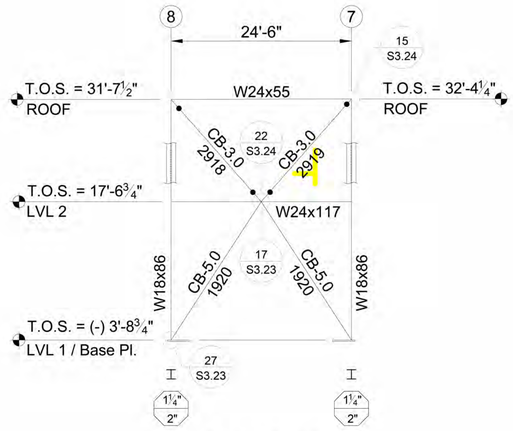

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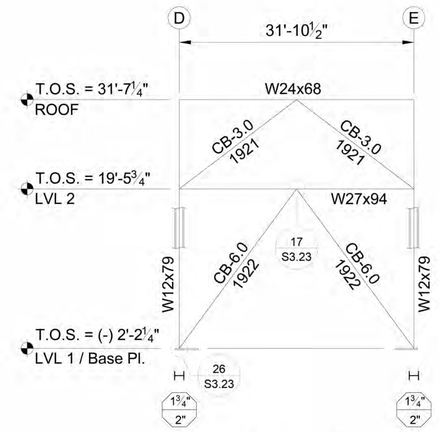

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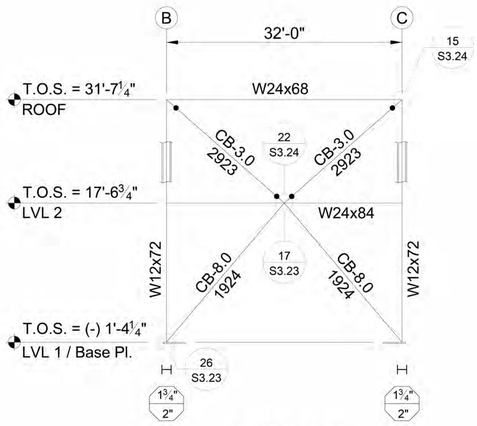

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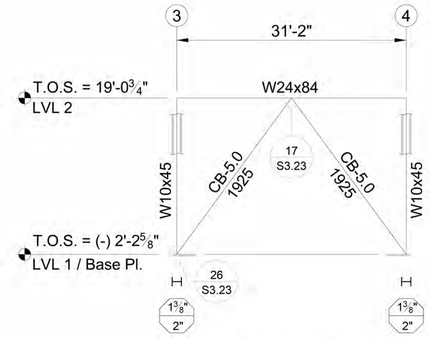

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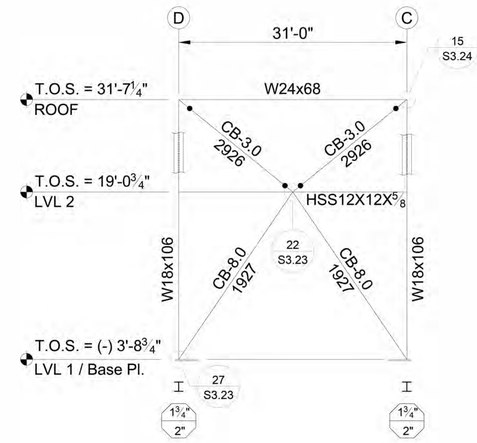

GRID 8
(BRBF-4)

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ARCHITECTURE ENGINEERING INTERIOR DESIGN
LANDSCAPE ARCHITECTURE PLANNING
949-261-1001 Office
LPADesignStudios.com
5301 California Avenue, Suite 100
Irvine, California 92617

REGISTERED PROFESSIONAL ENGINEER
HAMIDA A. PLASENCIA
No. S5493
12/31/2027
STRUCTURAL
STATE OF CALIFORNIA

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MALIBU HIGH SCHOOL
INCREMENT 02

30215 Morning View Dr.,
Malibu, CA 90265

Developed for
SANTA MONICA - MALIBU UNIFIED SCHOOL DISTRICT

Revision	Date

Submittal	Date
SCHEMATIC DESIGN	09/04/2024
50% DESIGN DEVELOPMENT	12/13/2024
100% DESIGN DEVELOPMENT	03/07/2025
CDP SUBMITTAL	06/16/2025
50% CONSTRUCTION DOCS	06/27/2025
DSA SUBMITTAL	09/08/2025

Job Number	31722
Checked By	HP
Scale	

COREBRACE BRB
FRAME ELEVATIONS

2-S3.22

EXP 12/2026

GYM BRB'S

20 ANNIVERSARY 2002 - 2022
COREBRACE
SUPERIOR SEISMIC PERFORMANCE

5789 W. Wells Park Rd.
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(801) 280-0701

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CoreBrace Engineering Design Responsibilities are limited to the following:
- Complete BRB design based on A_{sc} provided by E.O.R.
- Design connection of BRB to gusset.
- Design gusset connection to frame columns, beams and base plates.

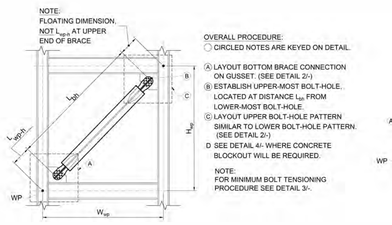
General Notes:
1. See "Casing Buried in Concrete Detail" where concrete slab will interfere with required BRB stroke.
2. Structural steel detailer and erection team to consider erectability constraints when determining piece erection sequencing and field welding versus shop welding of stiffeners and gussets.
3. Detail callouts are typical at the given frame location, UNO. See "CB" sheets for typical details.
4. Single-line diagrams do not necessarily represent WP axis of members, see details.
5. Member sizes, dimensions, elevations, and work point locations on CB sheets are shown for coordination only. Project documents shall govern. Verify in field as necessary.
6. See project documents for additional information; more stringent requirements on project documents shall govern.

Abbreviations

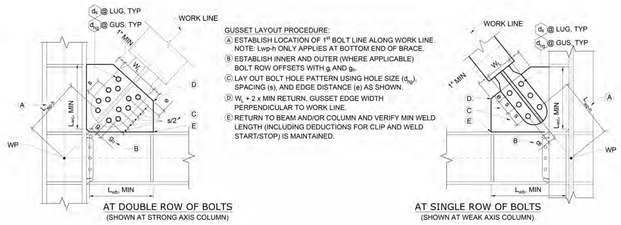
Abt	About	DIA	Diameter	NTS	Not to Scale
Approx	Approximate	DIM	Dimension	PL	Plate
Asc	Area of Steel Core	dc	Depth of column	Req'd	Required
bfb	Width of flange of beam	(E)	Existing	Sched	Schedule
bfc	Width of flange of column	EQ	Equal	SIM	Similar
Bldg	Building	FF	Finished Floor	SYM	Symetrical
Bm	Beam	FHG	Full-Height Gusset	Stiff	Stiffener
Bot	Bottom	Flng	Flange	tfb	Thickness of flange of beam
B.P.	Base Plate	Galv	Galvanized	tfc	Thickness of flange of column
BRB	Buckling-Restrained Brace	Gsst	Gusset	T&B	Top and Bottom
CB	CoreBrace	Info	Information	T.O.F.	Top of Footing
CJP	Complete Joint Penetration	LVL	Level	T.O.C	Top of Concrete
C_l	Centerline	MAX	Maximum	twb	Thickness of web of beam
Col	Column	MIN	Minimum	TYP	Typical
Conc	Concrete	N&FS	Near and Far Side	UNO	Unless Noted Otherwise
Conn	Connection	Nom	Nominal	WP	WORK POINT

Symbols Legend:

X / Y	X = BASE PL THICKNESS Y = GROUT THICKNESS
⌶	INDICATES FRAMING OF GUSSET PL TO COLUMN WEB (WEAK AXIS)
⊢	INDICATES FRAMING OF GUSSET PL TO COLUMN FLANGE (STRONG AXIS)
□	INDICATES FRAMING OF GUSSET PL TO HSS COLUMN (SLOT GUSSET THROUGH)
CB-XX	INDICATES BRB WITH CORE AREA SIZE OF XX in^2
T.O.S. = X'-X"	INDICATES TOP OF STEEL BEAM ELEVATION
19##	BRACE MARK IDENTIFICATION FOR BOLTED END BRACES
29##	BRACE MARK IDENTIFICATION FOR PINNED END BRACES



BOLTED GUSSET OVERALL LAYOUT PROCEDURE 1
SCALE: NTS



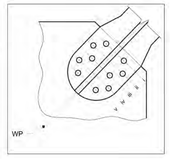
BOLTED GUSSET LAYOUT PROCEDURE 2
SCALE: NTS

BOLT TENSIONING PROCEDURE
Bolts shall be torqued to achieve the appropriate bolt tension as set forth in the erector's approved procedures. As a minimum, the following items shall be adhered to:

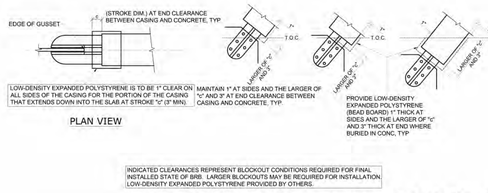
A. Starting with the most rigid part of the connection (Row 'I') and continuing to the least rigid part of the connection (Row 'A'), bring all bolts to snug-tight condition.
B. Recheck snug-tight condition of bolts in rows 'I' and 'H', re-tighten as necessary.
C. Torque bolts in Row 'I' to appropriate level of tension using approved procedure.
D. Re-check snug tight condition of bolt in row 'H'.
E. Torque bolts in Row 'H' to appropriate level using approved procedure.
F. Continue alternating check of snug tight condition of next-to-nearest row and torquing nearest row of untorged bolts as set forth in steps D & E until end of brace is reached and all bolts are at appropriate level of torque.
G. Repeat similar procedure at top end of brace.

GENERAL NOTES:
ALL BOLTED BRACE CONNECTIONS SHALL BE INSTALLED IN ACCORDANCE WITH THE ERECTOR'S APPROVED QUALITY ASSURANCE PLAN. AS A MINIMUM, THE FOLLOWING MUST BE MET:

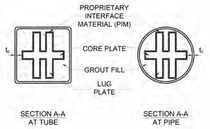
- Tighten all slip-critical bolts and bolts installed at oversized holes by a method approved by the engineer of record. Provide hardened washers under all turned elements.
- Where ASTM F3125 Gr A490-SC/F2280-TC or stronger bolts are specified in the drawings, provide hardened washer between nut & gusset. Where required by AISC Specifications, provide washer between bolt head & gusset.
- Bolts must be long enough for the threads to be flush with the outside face of the nut after tightening. Thread stickout shall not exceed that allowed by structural drawings.
- Do not reuse bolts, nuts, or washers.
- TC bolts must be in the as-delivered, clean and lubricated condition when torqued, per RCSC requirements. If left installed on the brace but in an untorqued and exposed condition for any period of time, a pre-installation verification must be performed or the bolts must be replaced.



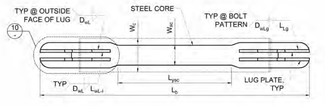
MINIMUM BOLT TENSIONING PROCEDURE 3
SCALE: NTS



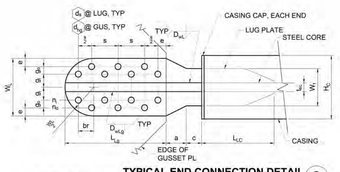
BRB CASING BURIED IN CONCRETE - TYPICAL DETAIL 4
SCALE: NTS



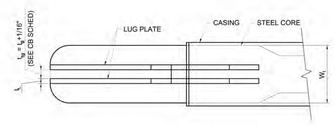
TYPICAL CORE AND CASING CONFIGURATION 5
SCALE: NTS



TYPICAL CORE PLATE DETAIL 6
SCALE: NTS

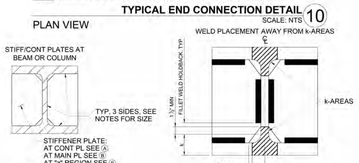


TYPICAL END CONNECTION DETAIL 8
SCALE: NTS



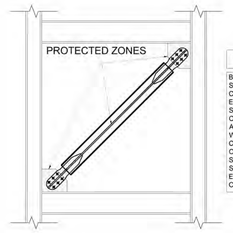
NOTE: BOLT HOLES IN CONNECTION LUGS ARE STANDARD HOLES.

TYPICAL END CONNECTION DETAIL 10
SCALE: NTS



STIFF/CONT PL TO MEMBER 11
SCALE: NTS

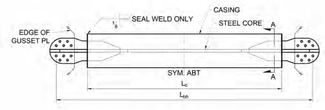
NOT USED 12
SCALE: NTS



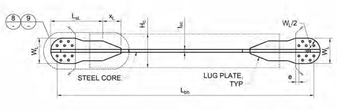
SHADED REGIONS INDICATE PROTECTED ZONES

BRB PROTECTED ZONES SHALL INCLUDE THE STEEL CORE AND CONNECTION ELEMENTS AND SHALL SATISFY THE REQUIREMENTS OF SECTION F4.5c OF AISC 341. ADDITIONALLY, ATTACHMENTS WHICH PENETRATE THE CASING (SCREWS, PAF, ETC) OR ANY ATTACHMENT SUPPORTING OVER 50 LBS SHALL BE APPROVED BY THE ENGINEER OF RECORD AND COREBRACE.

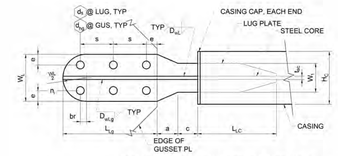
PROTECTED ZONES - AISC 341 13
SCALE: NTS



TYPICAL CORE AND CASING CONFIGURATION 5
SCALE: NTS



TYPICAL CORE PLATE DETAIL 7
SCALE: NTS



TYPICAL END CONNECTION DETAIL 9
SCALE: NTS

NOTE: BOLT HOLES IN CONNECTION LUGS ARE STANDARD HOLES.

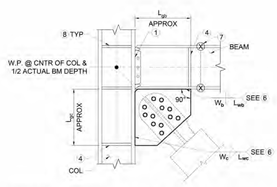
GENERAL NOTES:
G1. SEE PROJECT DRAWINGS FOR ADDITIONAL INFORMATION
G2. DIMENSIONS AND WP LOCATIONS FROM PROJECT DRAWINGS GOVERN. CONTACT COREBRACE PRIOR TO DETAILING IF ANY DISCREPANCIES ARE NOTED.
G3. CORE PL A36 SPECIAL (FY RANGE PROVIDED ON COREBRACE SCHEDULE)
G4. CASING A500 GR B FOR HSS AND A53 GR B FOR PIPE
G5. BRB LUG PLATE (TRANSVERSE STIFFENER) A572 GR 50
G6. GUSSET PL, GUSSET STIFFENER AND REPAD PL A572 GR 50 U.N.O.
G7. ALL STIFFENERS AND DOUBLER PL TO MATCH BEAM AND COLUMN GRADE.
G8. USE ASTM F3125 GR A490-SC/F2280-TC OR ASTM F3148 TNA BOLTS. BOLT HOLES IN GUSSET ARE OVERSIZED. BOLT HOLES IN BRB ARE STANDARD. ***(BOLTS AND WASHERS PROVIDED BY OTHERS)***
G9. CLASS A (TOOL CLEAN) ALL FAYING SURFACES.
G10. GALVANIZED FAYING SURFACES TO BE HAND WIRE BRUSHED PRIOR TO ERECTION OF BRB.
G11. THE GAP BETWEEN THE BOLTED CONNECTION PLATES AT THE END OF THE BRB SHALL NOT BE INCREASED EXCEPT IN INSTANCES WHERE SPECIFIC APPROVAL AND METHODOLOGY HAVE BEEN PROVIDED BY COREBRACE.

CONNECTION NOTES:
CIRCLED NOTES ARE KEYED ON CONNECTION DETAILS.

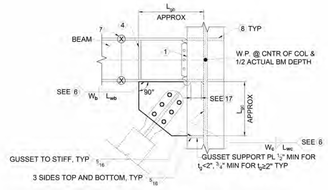
1. SEE STRUCTURAL DRAWINGS FOR BM-TO-COL & COL-TO-B.P. CONNECTION, TYP.
2. SEE CONNECTION SCHEDULE FOR CONNECTION DIMENSIONS.
3. SEE COREBRACE SCHEDULE FOR BRB GEOMETRY DIMENSIONS.
4. MAIN STIFF PL EA SIDE AS REQ'D BY STRUCTURAL DRAWINGS OR AS INDICATED ON CONNECTION SCHEDULE. SEE DETAIL 11.
5. FIELD INSTALL STIFF PL AS NECESSARY FOR INSTALLATION OF BRACE.
6. WELD BOTH SIDES. WHERE AVAILABLE WELD LENGTH IS LONGER THAN REQ'D WELD LENGTH, PROVIDE WELD ALONG ENTIRE LENGTH TO WITHIN ¾" OF EDGE OF PL.
7. TOP AND BOTTOM FLANGE LATERAL BRACING AS REQUIRED BY STRUCTURAL DRAWINGS.
8. CONTINUITY PLATE WHERE REQ'D BY STRUCTURAL DRAWINGS. AT WEAK-AXIS COLUMN, ALWAYS PROVIDE CONTINUITY PLATE T&B AND N&FS. SEE DETAIL 11.
9. PROVIDE W_{lw} WELD IN "Z" REGION. IT IS ACCEPTABLE TO EXTEND THIS WELD OVER THE ENTIRE LENGTH OF THE GUSSET PLATE. ALTERNATIVELY, PROVIDE CJP GUSSET-TO-BEAM WELD. WHERE W_{lw} IS NOT REQ'D, USE W_b.

9 THROUGH 16 NOT USED

17. IF EFFECTIVE WELD LENGTH IS LESS THAN 4*W_{lw}, WELD SHALL STILL BE APPLIED IN THIS REGION. HOWEVER, LENGTH BETWEEN RATHOLE & COLUMN WEB SHALL NOT BE COUNTED TOWARD REQUIRED WELD LENGTH (L_{wb}).

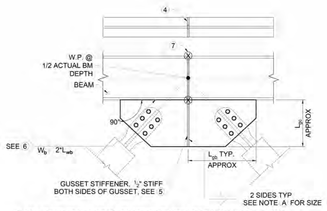


TYPICAL CONNECTION AT BRACE TOP 14
SCALE: NTS
SHOWN AT STRONG AXIS COLUMN
SHOWN WITH DOUBLE BOLT ROW (SIM AT SINGLE BOLT ROW)



TYPICAL CONNECTION AT BRACE TOP 15
SCALE: NTS
SHOWN AT WEAK AXIS COLUMN
SHOWN WITH SINGLE BOLT ROW (SIM AT DOUBLE BOLT ROW)

NOT USED 16
SCALE: NTS

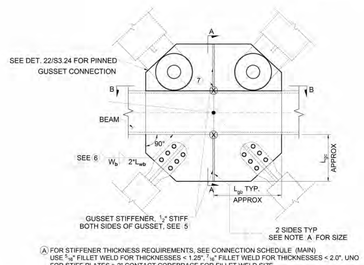


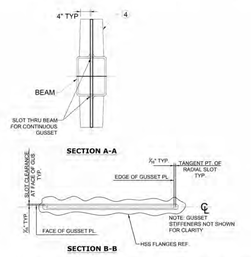
TYPICAL CONNECTION AT CHEVRON TOP 17
SCALE: NTS
SHOWN WITH SINGLE BOLT ROW (SIM AT DOUBLE BOLT ROW)

NOT USED 18
SCALE: NTS

NOT USED 19
SCALE: NTS

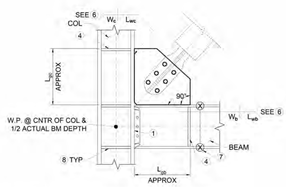
NOT USED 20
SCALE: NTS





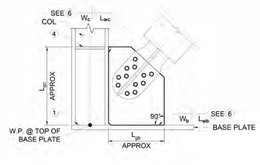
TYPICAL CONNECTION AT V BOT & CHEVRON TOP AT HSS BEAM 22
SCALE: NTS

NOT USED 23
SCALE: NTS

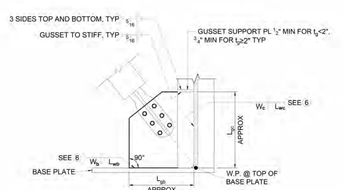


TYPICAL CONNECTION AT BRACE BOTTOM 24
SCALE: NTS
SHOWN AT STRONG AXIS COLUMN
SHOWN WITH SINGLE BOLT ROW (SIM AT DOUBLE BOLT ROW)

NOT USED 25
SCALE: NTS



TYPICAL CONNECTION AT BASEPLATE 26
SCALE: NTS
SHOWN AT STRONG AXIS COLUMN
WP AT TOP OF BASE PLATE
SHOWN WITH DOUBLE BOLT ROW (SIM AT SINGLE BOLT ROW)



TYPICAL CONNECTION AT BASEPLATE 27
SCALE: NTS
SHOWN AT WEAK AXIS COLUMN
WP AT TOP OF BASE PLATE
SHOWN WITH SINGLE BOLT ROW (SIM AT DOUBLE BOLT ROW)

REFERENCED CODES:
- AISC 360, 341, 358.
- AWS D1.8

BRB ENGINEERING DESIGN RESPONSIBILITY IS LIMITED TO THE FOLLOWING:
- COMPLETE BRB DESIGN BASED ON Asc PROVIDED IN STRUCTURAL DRAWINGS.
- DESIGN GUSSET PLATE AND CONNECTION OF BRB TO GUSSET PLATE.
- DESIGN CONNECTION OF GUSSET TO FRAME COLUMNS & BEAMS/BASE PLATES.

CoreBrace™
SUPERIOR SEISMIC PERFORMANCE

5789 W. Wells Park Rd.
West Jordan, Utah 84081
(801) 280-0701

LPA
ARCHITECTURE ENGINEERING INTERIOR DESIGN
LANDSCAPE ARCHITECTURE PLANNING
949-261-1001 Office
LPADesignStudios.com
5301 California Avenue, Suite 100
Irvine, California 92617

REGISTERED PROFESSIONAL ENGINEER
HAMIDA A. PRASAD
NO. 55493
09/27
STRUCTURAL
STATE OF CALIFORNIA

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MALIBU HIGH SCHOOL
INCREMENT 02
30215 Morning View Dr.,
Malibu, CA 90265
Developed for
SANTA MONICA - MALIBU UNIFIED SCHOOL DISTRICT

Revision	Date

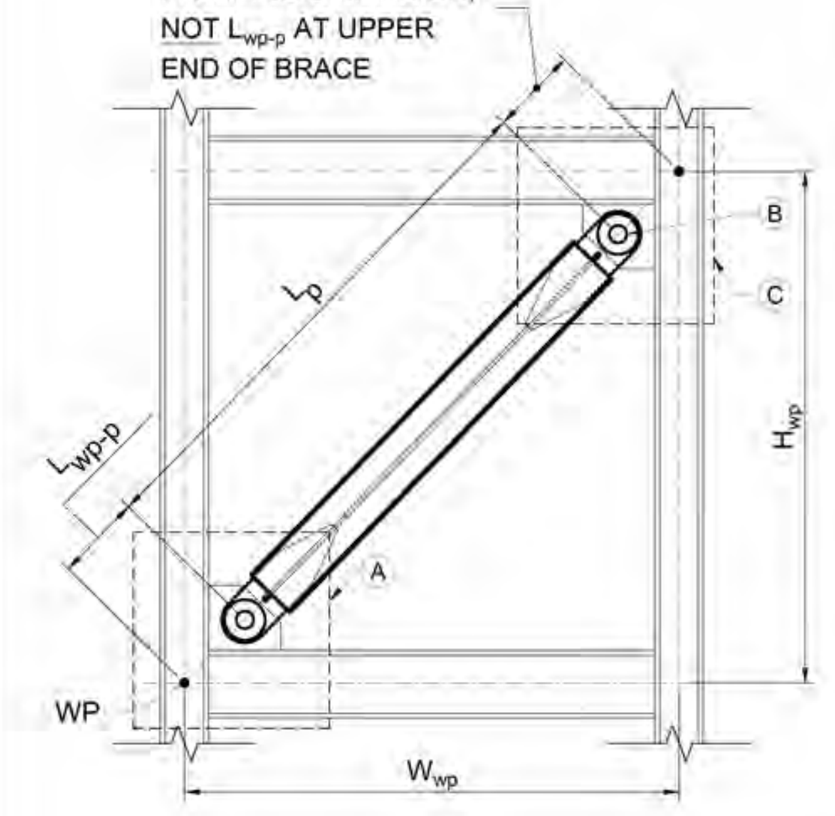
Submittal	Date
SCHEMATIC DESIGN	09/04/2024
50% DESIGN DEVELOPMENT	12/13/2024
100% DESIGN DEVELOPMENT	03/14/2025
CDP SUBMITTAL	06/16/2025
50% CONSTRUCTION DOCS	06/27/2025
DSA SUBMITTAL	09/09/2025

LICENSED PROFESSIONAL ENGINEER
HAMIDA A. PRASAD
No. 55493
PROFESSIONAL
STRUCTURAL
STATE OF CALIFORNIA
EXP 12/2026

Job Number	31722
Checked By	HP
Scale	

COREBRACE BOLTED BRACE and GUSSET CONNECTION DETAILS

2-S3.23

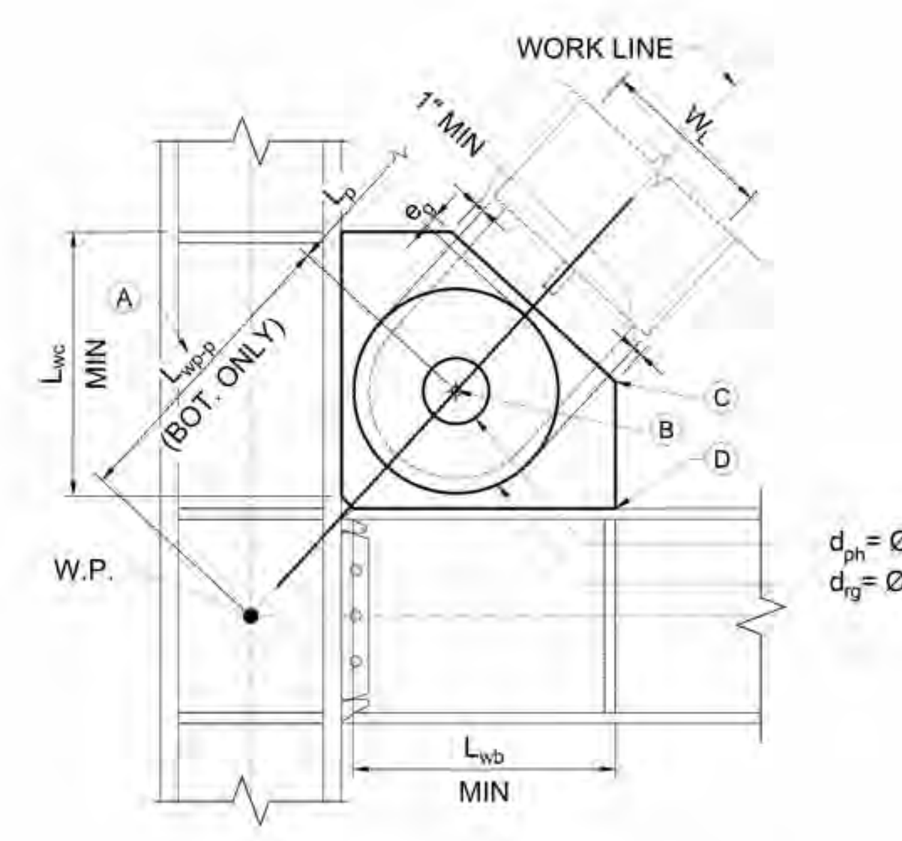


OVERALL PROCEDURE:
Ⓐ LAY OUT LOWER BRACE CONNECTION ON GUSSET. (SEE DETAIL 2/-)
Ⓑ ESTABLISH UPPER PIN-HOLE CENTER LOCATED AT DISTANCE L_p FROM LOWER PIN-HOLE CENTER.
Ⓒ LAY OUT UPPER BRACE CONNECTION ON GUSSET STARTING AT PIN HOLE CENTER SIMILAR TO BOTTOM.
D SEE DETAIL 4/- WHERE CONCRETE BLOCKOUT WILL BE REQUIRED.

NOTE:
IT IS RECOMMENDED TO FIELD INSTALL AT LEAST ONE GUSSET PER BRB DUE TO EXTREMLY TIGHT TOLERANCES REQUIRED FOR PINNED CONNECTIONS IN AISC 360.

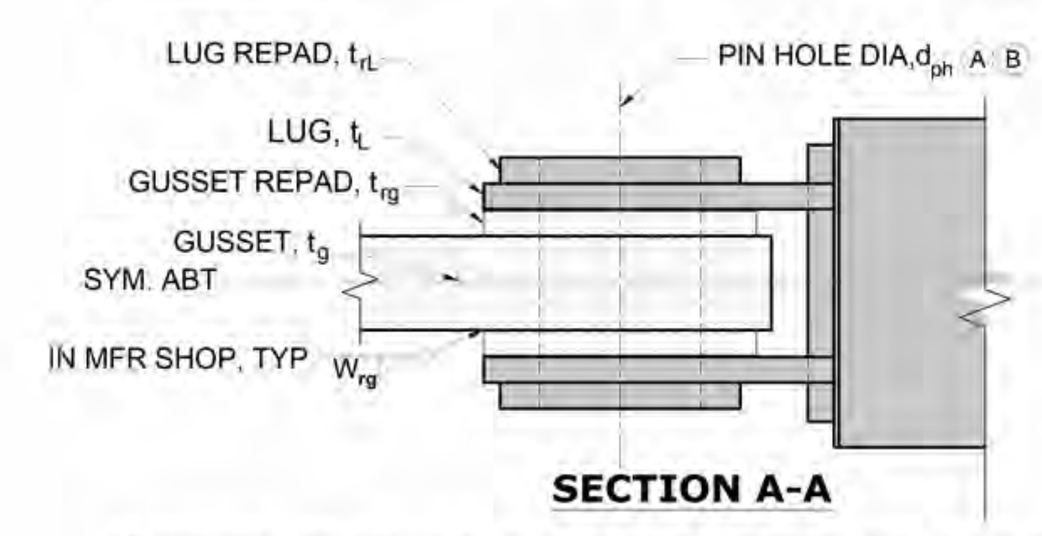
PINNED GUSSET OVERALL LAYOUT PROCEDURE (1)
SCALE: NTS

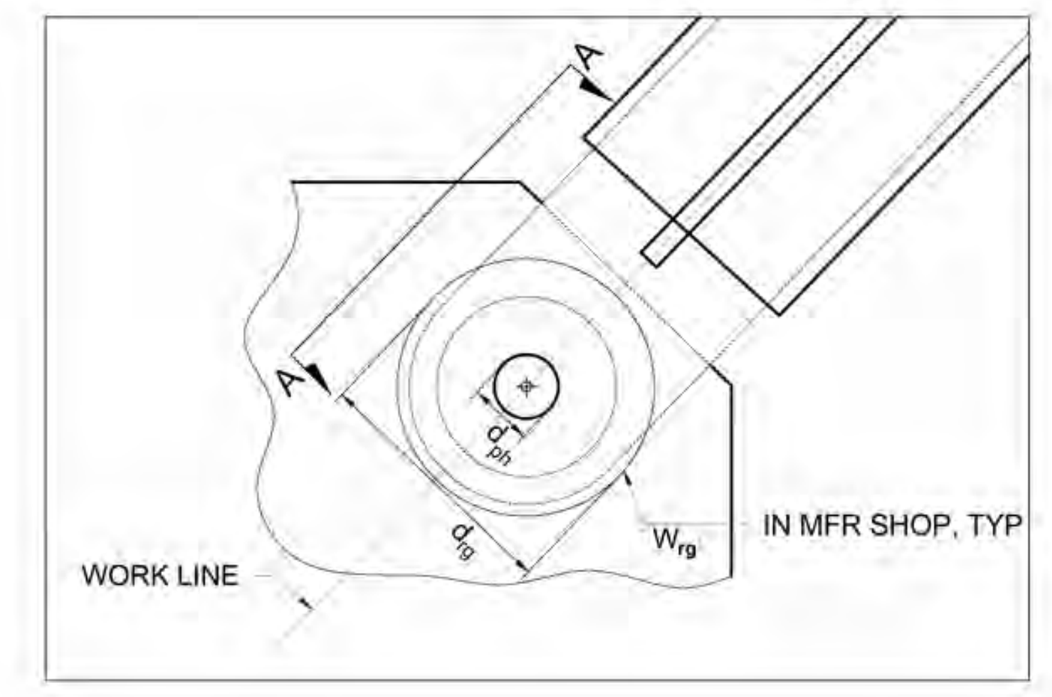
GUSSET LAYOUT PROCEDURE:
Ⓐ ESTABLISH LOCATION OF PIN HOLE CENTERLINE ALONG WORK LINE.
Ⓑ LAY OUT PIN HOLE AND GUSSET REPAD AS SHOWN. (SEE DETAIL 3/-)
Ⓒ LOCATE FREE EDGE OF GUSSET USING $\frac{1}{2}$*d_{rg} + e_g. GUSSET EDGE WIDTH IS d_{rg} + 2 x MIN RETURN AND PERPENDICULAR TO WORK LINE.
Ⓓ RETURN TO BEAM AND/OR COLUMN AND VERIFY MIN WELD LENGTH (INCLUDING DEDUCTIONS FOR CLIP AND WELD START/STOP) IS MAINTAINED.



PINNED GUSSET LAYOUT PROCEDURE (2)
SCALE: NTS

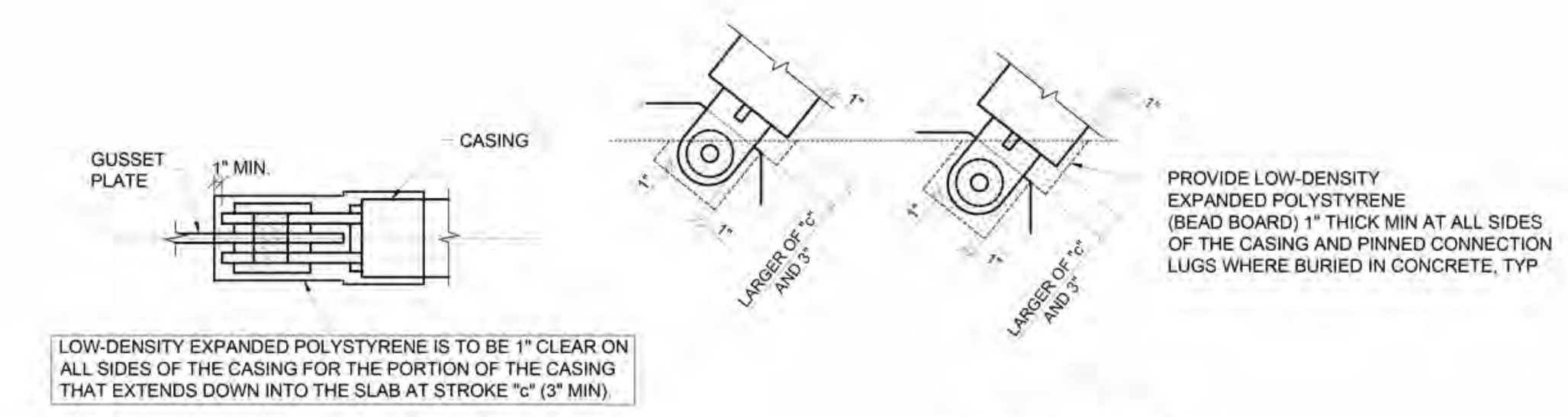
PROVIDED BY COREBRACE
PROVIDED BY STRUCTURAL STEEL FABRICATOR





Ⓐ PER AISC 360 SECTION D5.2, PROVIDED PIN HOLE DIAMETER, d_{ph}, SHALL NOT BE MORE THAN $\frac{1}{32}$" GREATER THAN THE PIN DIAMETER, d_p, WITH A TOLERANCE OF +0",-$\frac{1}{32}$". CONTRACTOR TO VERIFY FINAL PIN HOLE DIAMETER IN GUSSET & GUSSET REPAD.
Ⓑ MACHINED PIN HOLE, d_{ph}, RECOMMENDED.

GUSSET PIN HOLE & REPAD - TYPICAL DETAIL (3)
SCALE: NTS



LOW-DENSITY EXPANDED POLYSTYRENE IS TO BE 1" CLEAR ON ALL SIDES OF THE CASING FOR THE PORTION OF THE CASING THAT EXTENDS DOWN INTO THE SLAB AT STROKE "c" (3" MIN).

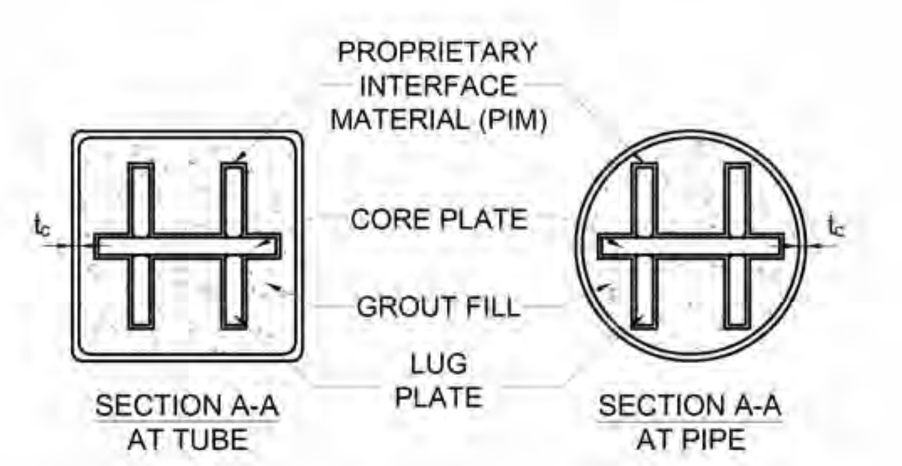
PLAN VIEW

ELEVATION VIEW

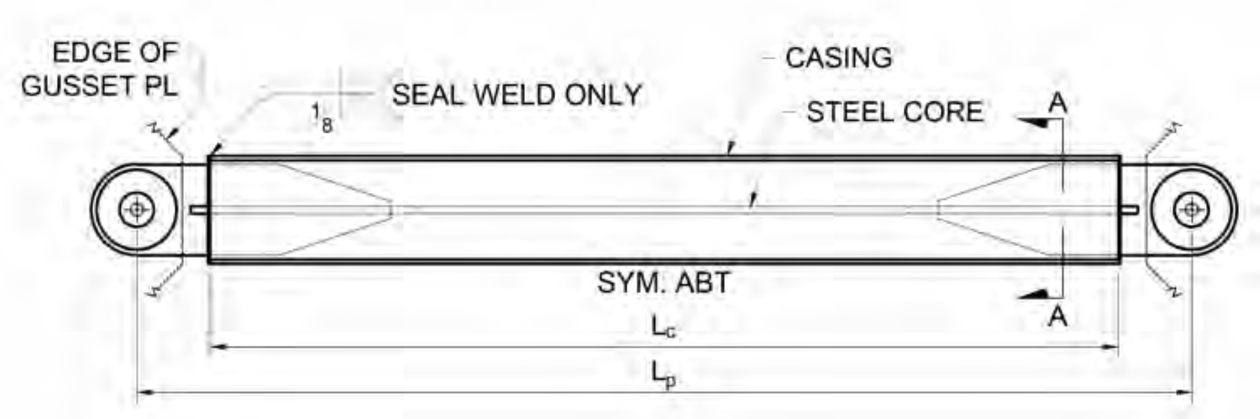
INDICATED CLEARANCES REPRESENT BLOCKOUT CONDITIONS REQUIRED FOR FINAL INSTALLED STATE OF BRB. LARGER BLOCKOUTS MAY BE REQUIRED FOR INSTALLATION. LOW-DENSITY EXPANDED POLYSTYRENE PROVIDED BY OTHERS.

ALL BLOCK-OUTS AT PINNED CONNECTIONS MUST BE APPROVED BY COREBRACE AND STRUCTURAL ENGINEER OF RECORD.

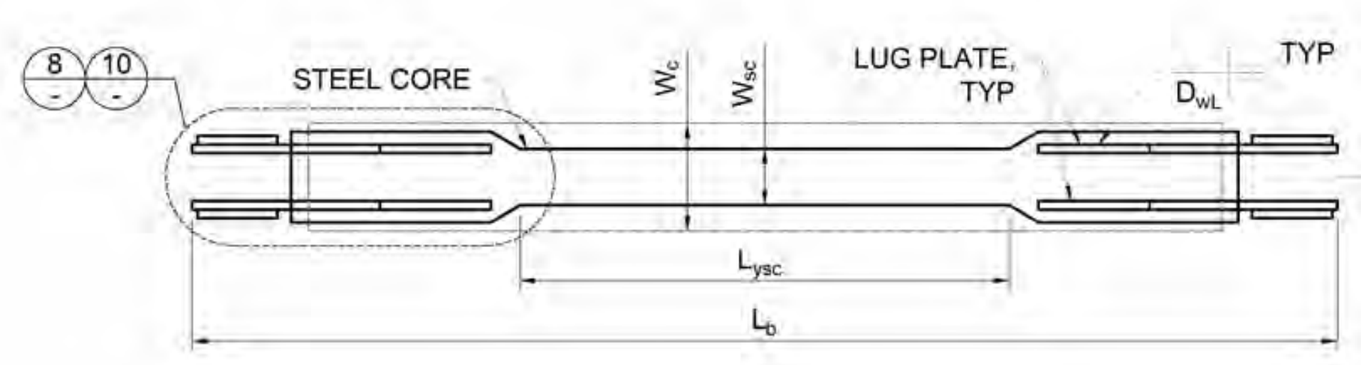
PIN AND CASING BURIED IN CONCRETE - TYPICAL DETAIL (4)
SCALE: NTS



SECTION A-A

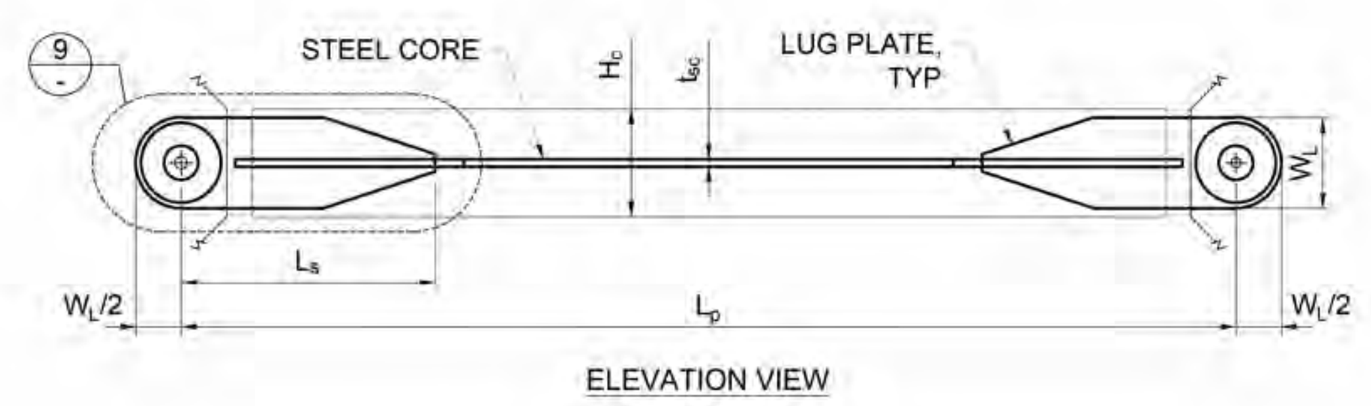


TYPICAL CORE AND CASING CONFIGURATION (5)
SCALE: NTS



PLAN VIEW

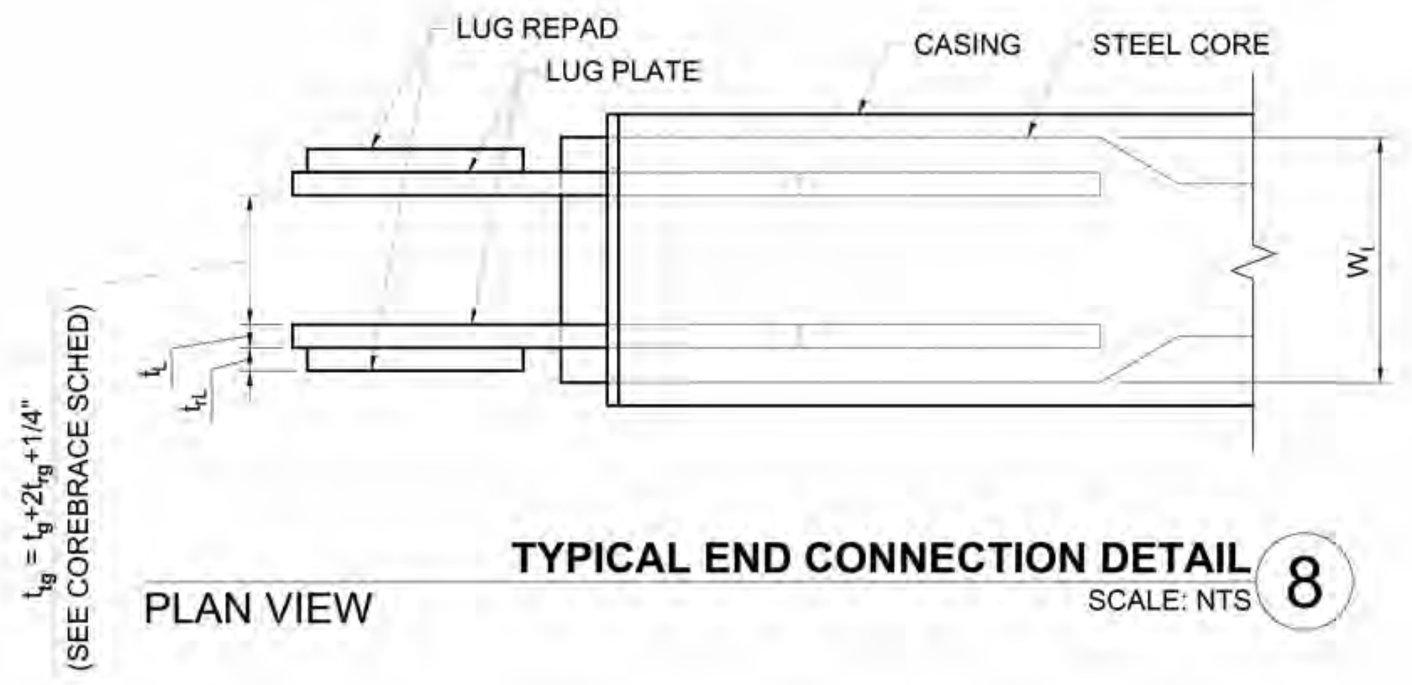
TYPICAL CORE PLATE DETAIL (6)
SCALE: NTS



ELEVATION VIEW

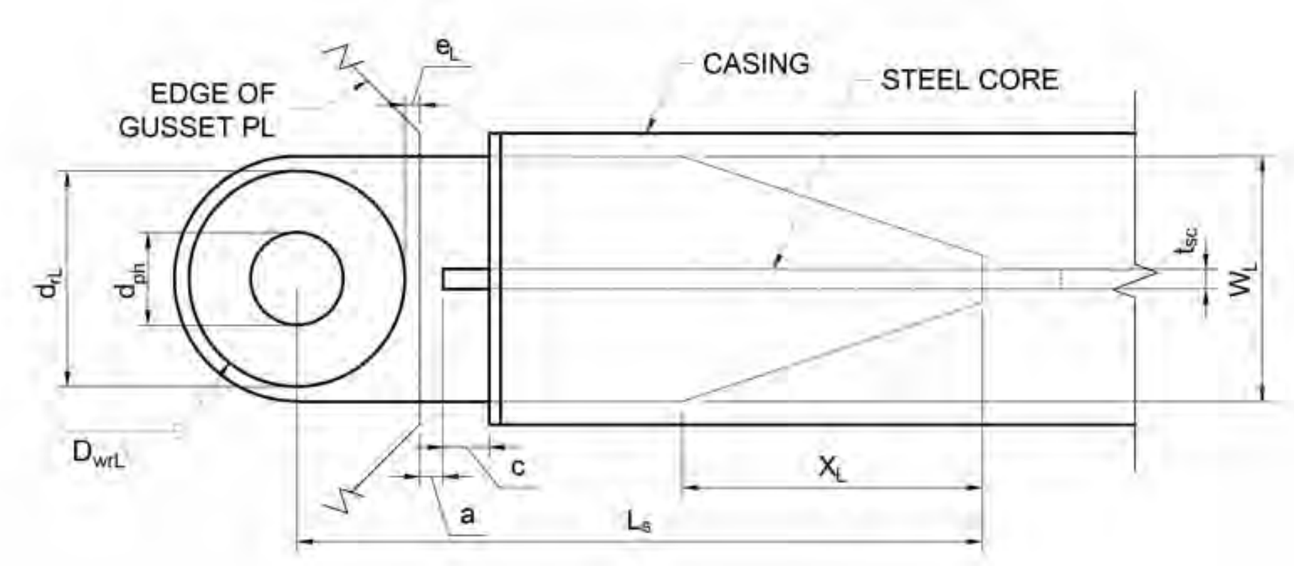
ELEVATION VIEW

TYPICAL CORE PLATE DETAIL (7)
SCALE: NTS



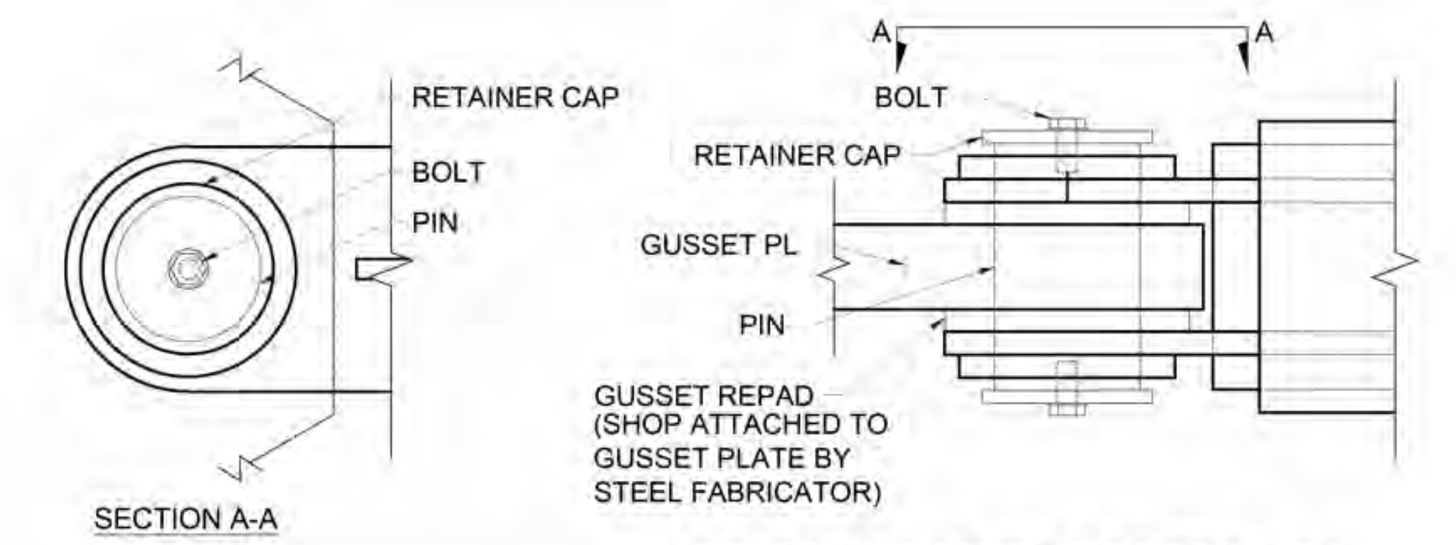
PLAN VIEW

TYPICAL END CONNECTION DETAIL (8)
SCALE: NTS

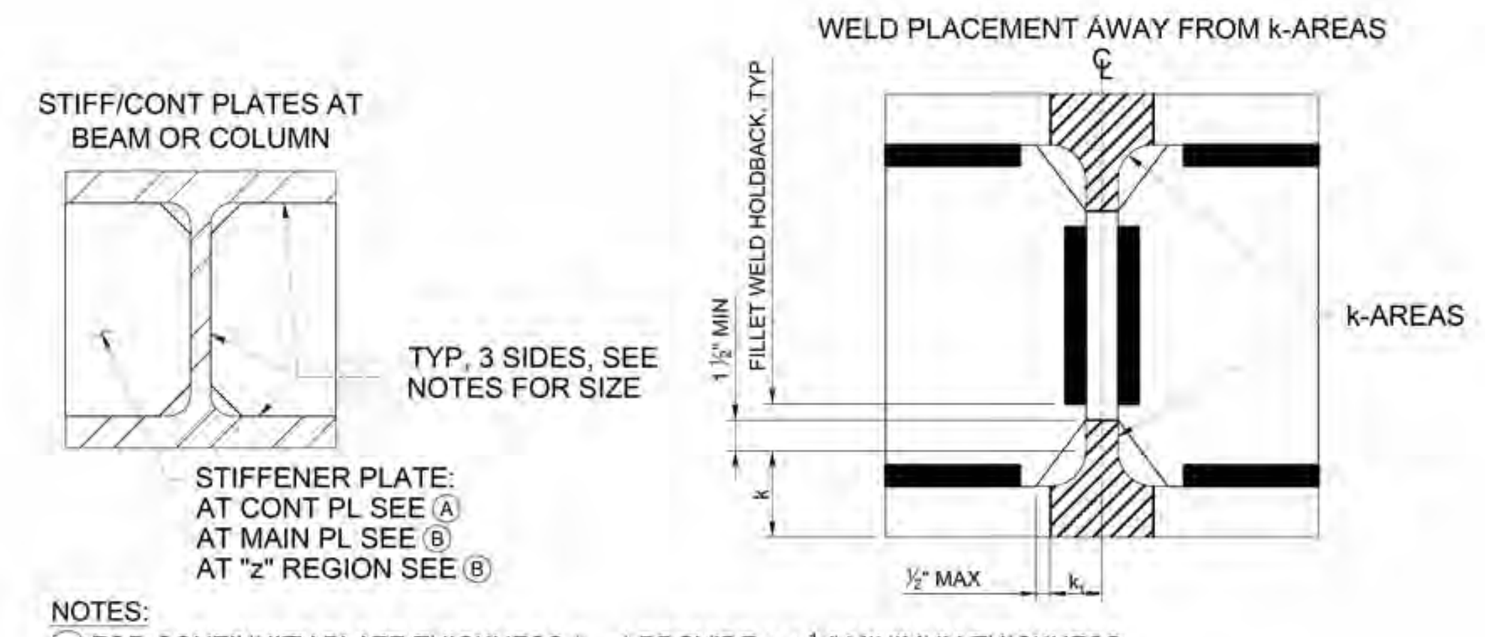


ELEVATION VIEW

TYPICAL END CONNECTION DETAIL (9)
SCALE: NTS



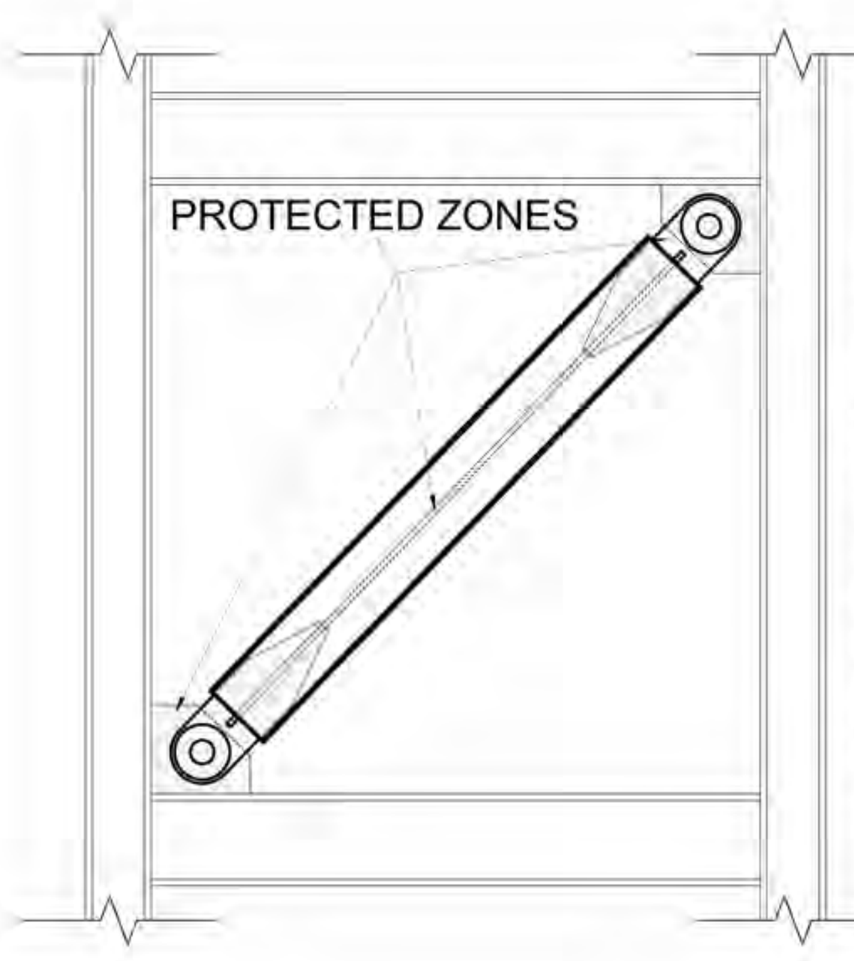
PIN RETAINER CAP DETAIL (10)
SCALE: NTS



NOTES:
Ⓐ FOR CONTINUITY PLATE THICKNESS (t_{cont}) PROVIDE t_{fb}+ $\frac{1}{8}$" MINIMUM THICKNESS USE $\frac{5}{8}$ t_{cont} FILLET WELD SIZE
Ⓑ FOR STIFFENER THICKNESS REQUIREMENTS, SEE CONNECTION SCHEDULE (MAIN AND AT "z") USE $\frac{5}{16}$" FILLET WELD FOR THICKNESSES < 1.25", $\frac{7}{16}$" FILLET WELD FOR THICKNESSES < 2.0", UNO FOR STIFF PLATES > 2" CONTACT COREBRACE FOR FILLET WELD SIZE.

STIFF/CONT PL TO MEMBER (11)
SCALE: NTS

NOT USED (12)
SCALE: NTS



SHADED REGIONS INDICATE PROTECTED ZONES

BRB PROTECTED ZONES SHALL INCLUDE THE STEEL CORE AND CONNECTION ELEMENTS AND SHALL SATISFY THE REQUIREMENTS OF SECTION F4.5c OF AISC 341. ADDITIONALLY, ATTACHMENTS WHICH PENETRATE THE CASING (SCREWS, PAF, ETC) OR ANY ATTACHMENT SUPPORTING OVER 50 LBS SHALL BE APPROVED BY THE ENGINEER OF RECORD AND COREBRACE.

PROTECTED ZONES - AISC 341 (13)
SCALE: NTS

GENERAL NOTES:

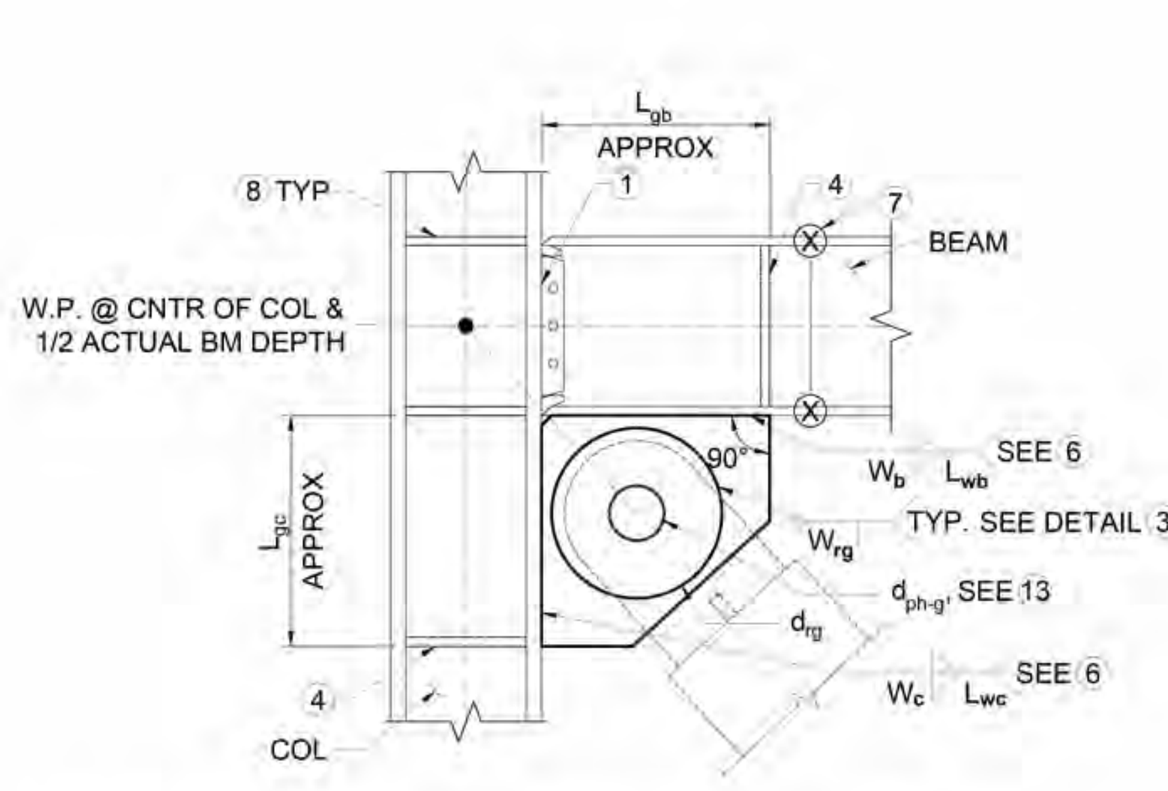
G1. SEE PROJECT DRAWINGS FOR ADDITIONAL INFORMATION
G2. DIMENSIONS AND WP LOCATIONS FROM PROJECT DRAWINGS GOVERN. CONTACT COREBRACE PRIOR TO DETAILING IF ANY DISCREPANCIES ARE NOTED.
G3. CORE PL A36 SPECIAL (FY RANGE PROVIDED ON COREBRACE SCHEDULE)
G4. CASING A500 GR B FOR HSS AND A53 GR B FOR PIPE
G5. BRB LUG PLATE (TRANSVERSE STIFFENER) A572 GR 50
G6. GUSSET PL, GUSSET STIFFENER AND REPAD PL A572 GR 50 U.N.0.
G7. ALL STIFFENERS AND DOUBLER PL TO MATCH BEAM AND COLUMN GRADE.
G8. PIN HOLE TOLERANCE PER AISC 360 SECTION D5.2

CONNECTION NOTES:

◯ CIRCLED NOTES ARE KEYED ON CONNECTION DETAILS.

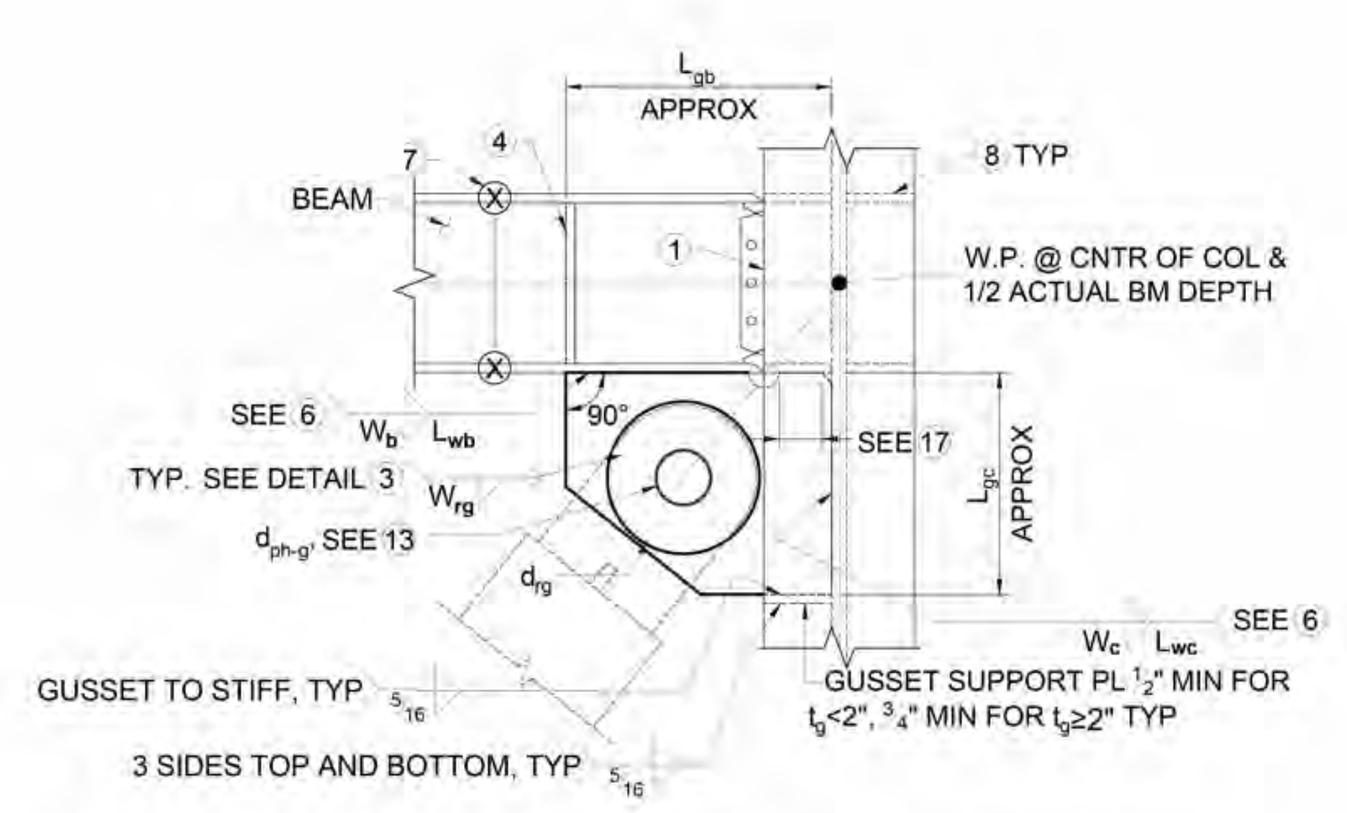
① SEE STRUCTURAL DRAWINGS FOR BM-TO-COL & COL-TO-B.P. CONNECTION, TYP.
2 SEE CONNECTION SCHEDULE FOR CONNECTION DIMENSIONS.
3 SEE COREBRACE SCHEDULE FOR BRB GEOMETRY DIMENSIONS.
④ MAIN STIFF PL EA SIDE AS REQ'D BY STRUCTURAL DRAWINGS OR AS INDICATED ON CONNECTION SCHEDULE. SEE DETAIL 11.
⑤ FIELD INSTALL STIFF PL AS NECESSARY FOR INSTALLATION OF BRACE.
⑥ WELD BOTH SIDES. WHERE AVAILABLE WELD LENGTH IS LONGER THAN REQ'D WELD LENGTH, PROVIDE WELD ALONG ENTIRE LENGTH TO WITHIN $\frac{3}{4}$" OF EDGE OF PL.
⑦ TOP AND BOTTOM FLANGE LATERAL BRACING AS REQUIRED BY STRUCTURAL DRAWINGS.
⑧ CONTINUITY PLATE WHERE REQ'D BY STRUCTURAL DRAWINGS. AT WEAK-AXIS COLUMN, ALWAYS PROVIDE CONTINUITY PLATE T&B AND N&FS. SEE DETAIL 11.

9 THROUGH 12 NOT USED
⑬ PER AISC 360 SECTION D5.2, THE DIAMETER OF THE PIN HOLE SHALL NOT BE MORE THAN $\frac{1}{32}$" GREATER THAN THE DIAMETER OF THE PIN. MACHINED HOLE RECOMMENDED.
14 FIELD INSTALL AT LEAST ONE GUSSET AS NECESSARY FOR BRACE INSTALLATION.
15 THROUGH 16 NOT USED
⑰ IF EFFECTIVE WELD LENGTH IS LESS THAN 4*W_b, WELD SHALL STILL BE APPLIED IN THIS REGION. HOWEVER, LENGTH BETWEEN RATHOLE & COLUMN WEB SHALL NOT BE COUNTED TOWARD REQUIRED WELD LENGTH (L_{wb}).



A SEE DETAILS 1, 2, AND 3 FOR BRB & GUSSET LAYOUT PROCEDURE.

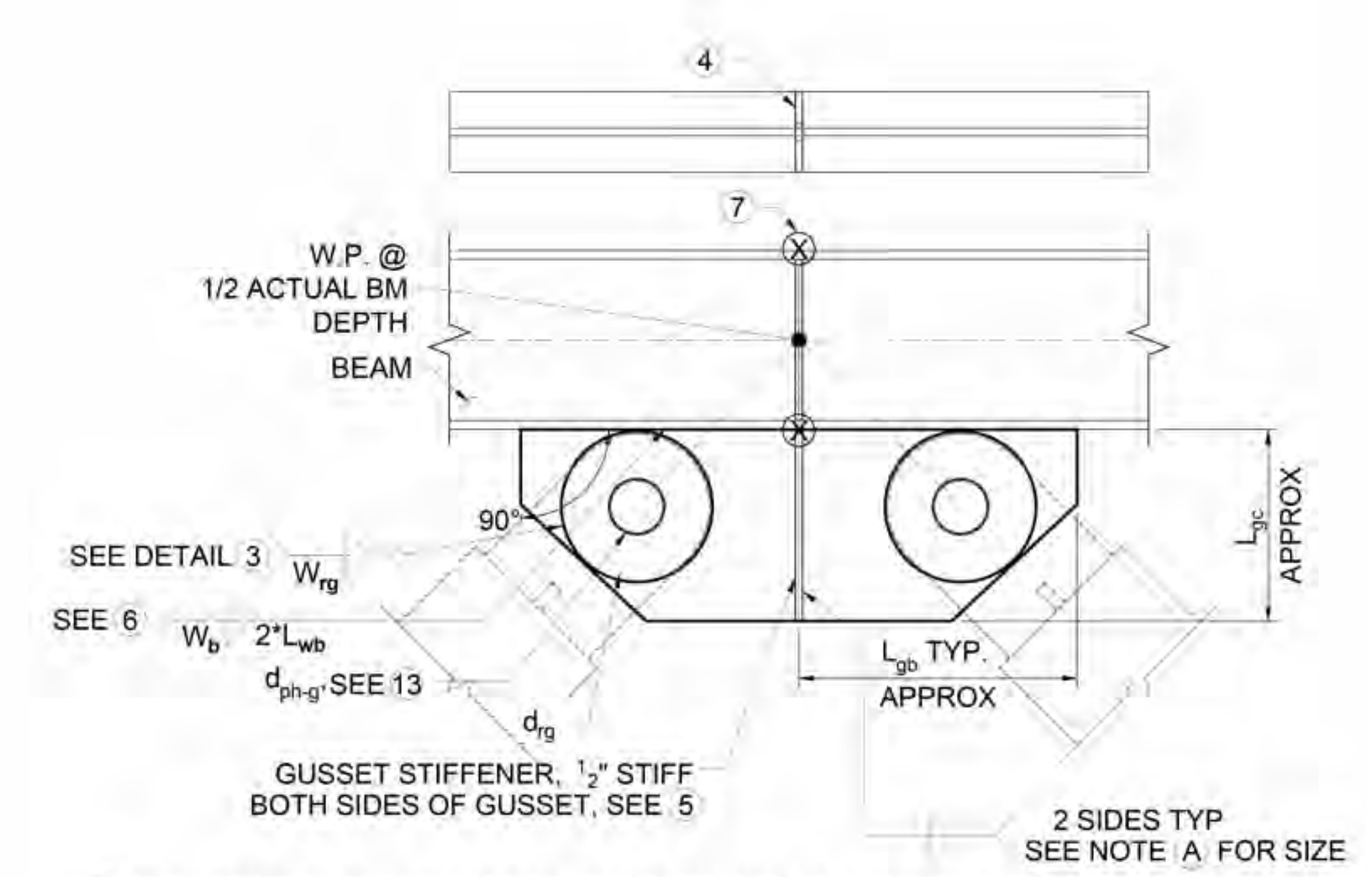
TYPICAL CONNECTION AT BRACE TOP (14)
SHOWN AT STRONG AXIS COLUMN
SCALE: NTS



A SEE DETAILS 1, 2, AND 3 FOR BRB & GUSSET LAYOUT PROCEDURE.

TYPICAL CONNECTION AT BRACE TOP (15)
SHOWN AT WEAK AXIS COLUMN
SCALE: NTS

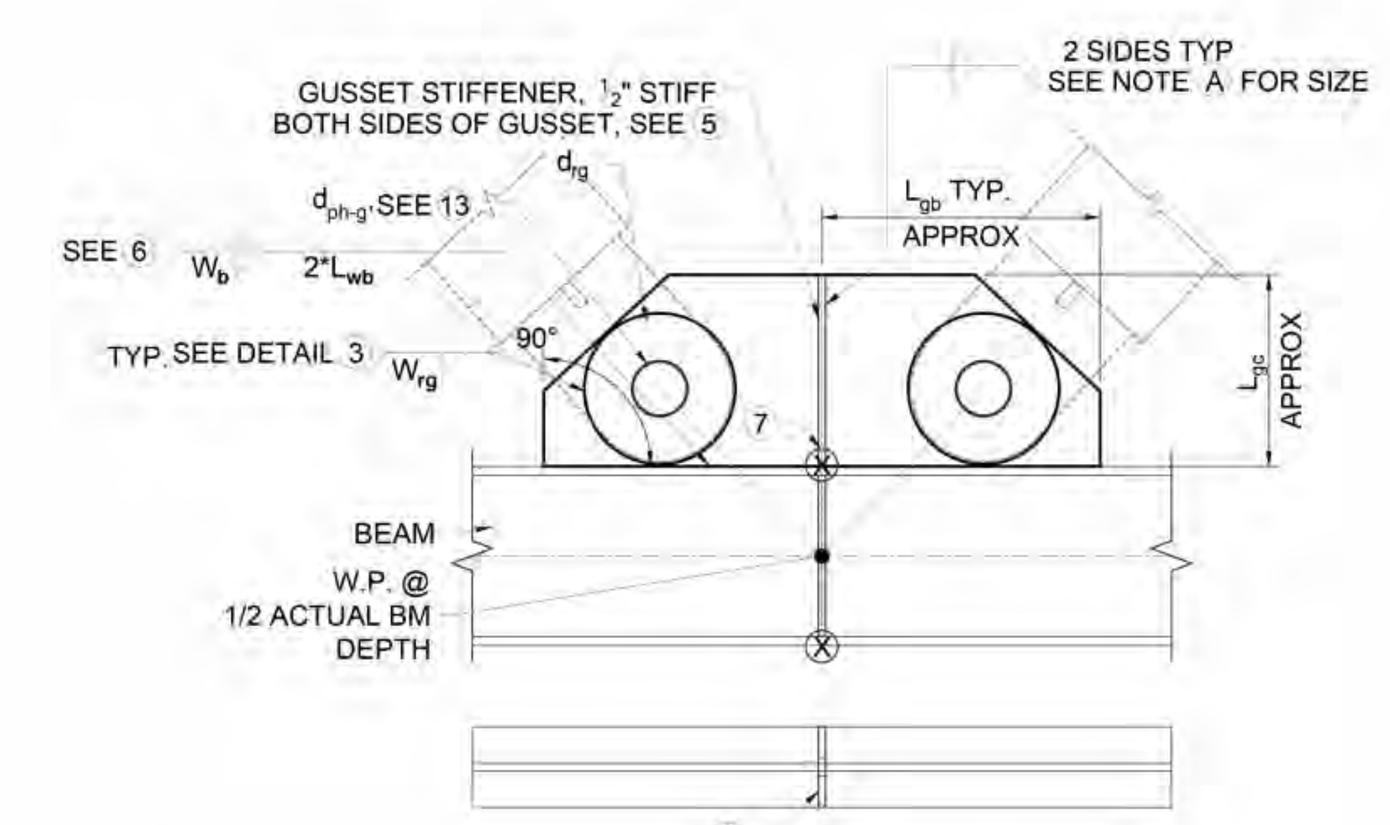
NOT USED (16)
SCALE: NTS



Ⓐ FOR STIFFENER THICKNESS REQUIREMENTS, SEE CONNECTION SCHEDULE (MAIN) USE $\frac{5}{16}$" FILLET WELD FOR THICKNESSES < 1.25", $\frac{7}{16}$" FILLET WELD FOR THICKNESSES < 2.0", UNO FOR STIFF PLATES > 2" CONTACT COREBRACE FOR FILLET WELD SIZE.

TYPICAL CONNECTION AT CHEVRON TOP (17)
SCALE: NTS

NOT USED (18)
SCALE: NTS



Ⓐ FOR STIFFENER THICKNESS REQUIREMENTS, SEE CONNECTION SCHEDULE (MAIN) USE $\frac{5}{16}$" FILLET WELD FOR THICKNESSES < 1.25", $\frac{7}{16}$" FILLET WELD FOR THICKNESSES < 2.0", UNO FOR STIFF PLATES > 2" CONTACT COREBRACE FOR FILLET WELD SIZE.

NOT USED (19)
SCALE: NTS

NOT USED (20)
SCALE: NTS

NOT USED (21)
SCALE: NTS

TYPICAL CONNECTION AT CHEVRON BOT (22)
SCALE: NTS

NOT USED (23)
SCALE: NTS

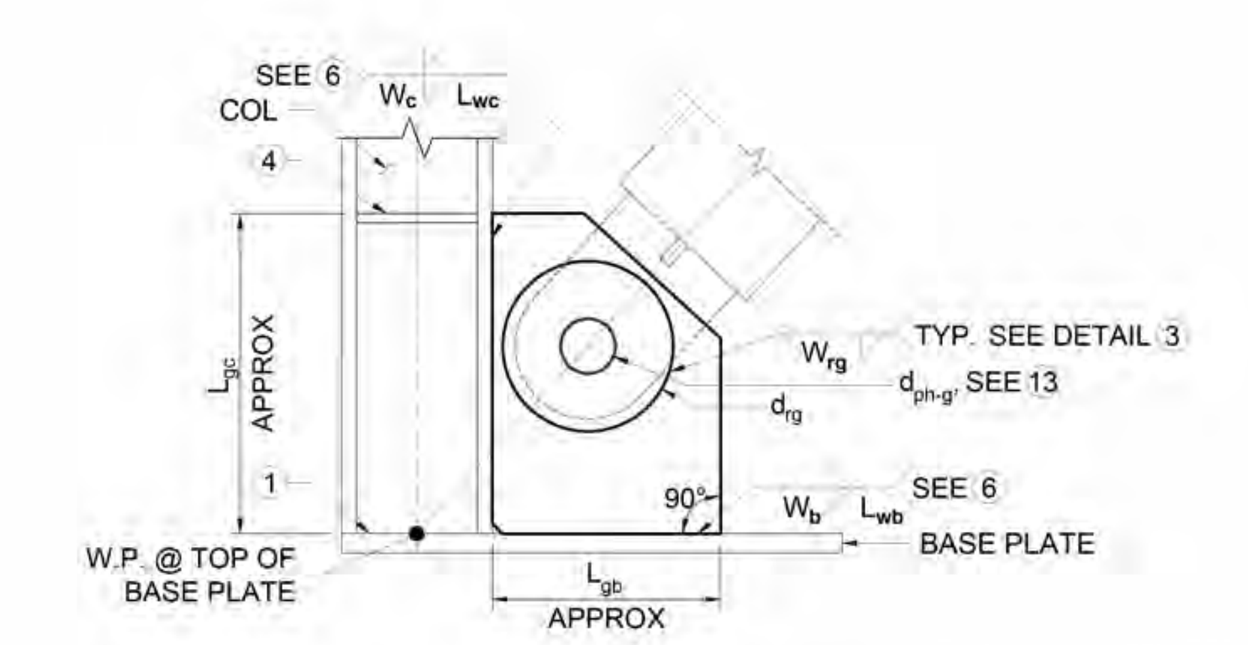
REFERENCED CODES:
- AISC 360, 341, 358.
- AWS D1.8

BRB ENGINEERING DESIGN RESPONSIBILITY IS LIMITED TO THE FOLLOWING:
- COMPLETE BRB DESIGN BASED ON Asc PROVIDED IN STRUCTURAL DRAWINGS.
- DESIGN GUSSET PLATE AND CONNECTION OF BRB TO GUSSET PLATE.
- DESIGN CONNECTION OF GUSSET TO FRAME COLUMNS & BEAMS/BASE PLATES.

COREBRACE™
SUPERIOR SEISMIC PERFORMANCE
5789 W. Wells Park Rd.
West Jordan, Utah 84081
(801) 280-0701

NOT USED (24)
SCALE: NTS

NOT USED (25)
SCALE: NTS



A SEE DETAILS 1, 2, AND 3 FOR BRB & GUSSET LAYOUT PROCEDURE.

TYPICAL CONNECTION AT BASEPLATE (26)
SHOWN AT STRONG AXIS COLUMN
WP AT TOP OF BASE PLATE
SCALE: NTS

EXP 12/2026

LPA
ARCHITECTURE ENGINEERING INTERIOR DESIGN LANDSCAPE ARCHITECTURE PLANNING
949-261-1001 Office
LPADesignStudios.com
5301 California Avenue, Suite 100
Irvine, California 92617

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MALIBU HIGH SCHOOL
INCREMENT 02

30215 Morning View Dr.,
Malibu, CA 90265

Developed for
SANTA MONICA - MALIBU UNIFIED SCHOOL DISTRICT

Revision	Date

Submittal	Date
SCHEMATIC DESIGN	09/04/2024
50% DESIGN DEVELOPMENT	12/13/2024
100% DESIGN DEVELOPMENT	02/21/2025
CDP SUBMITTAL	06/16/2025
50% CONSTRUCTION DOCS	06/27/2025
DSA SUBMITTAL	09/08/2025

Job Number	31722
Checked By	HP
Scale	

COREBRACE PINNED BRACE and GUSSET CONNECTION DETAILS

2-S3.24

| | | | | | | | | Casing | | | | | | | |

COREBRACE SCHEDULE 1

												Casing																				F_{ysc}	CB
CB-ID	ETABS	Line	Grids	Lvls	Mark	Qty	L_b	L_p	d_{ph-g}	L_c	Type	Profile	W_c	H_c	t_c	W_L	L_S	X_L	t_L	d_{rL}	t_{rL}	D_{wrL}	D_{wL}	e_L	c	a	L_{ysc}	L''_{ysc}	W_{sc}	t_{sc}	A_{sc}	PL	K_{eff}	K_f	P_{ysc}	Min	Max	Wt
#	#		#	#	#	#	in	in	in	in	t,p		in	in	in	in	in	in	in	in	in	#	#	in	in	in	in	in	in	in	in^2		k/in	(K_{eff}/K_{Lwp})	kip	ksi	ksi	lb
CB-2.25	**151**	**A3**	**AI-CL**	**1**	**2902**	**1**	175 8/16	171	1.7188	157.00	p	**o**	8.63	-	0.2500	4.50	17.69	3.44	0.63	3.88	0.25	4.00	4.00	0.81	2.50	1.50	135.63	119.75	3.000	0.75	2.25	-	459	1.58	86	38	46	1176
CB-2.25	**152**	**A3**	**CL-AH**	**1**	**2902**	**1**	175 8/16	171	1.7188	157.00	p	**o**	8.63	-	0.2500	4.50	17.69	3.44	0.63	3.88	0.25	4.00	4.00	0.81	2.50	1.50	135.63	119.75	3.000	0.75	2.25	-	459	1.58	86	38	46	1176
CB-2.00	**143**	**AA**	**A2-CL**	**1**	**2908**	**1**	241 8/16	237	1.7188	223.00	p	**o**	8.63	-	0.2500	4.50	18.00	3.75	0.75	4.38	0.00	0.00	4.00	0.56	2.50	1.50	201.00	186.50	4.000	0.50	2.00	-	278	1.39	76	38	46	1599
CB-2.00	**144**	**AA**	**CL-A1**	**1**	**2909**	**1**	243 8/16	239	1.7188	225.00	p	**o**	8.63	-	0.2500	4.50	18.00	3.75	0.75	4.38	0.00	0.00	4.00	0.56	2.50	1.50	203.00	188.50	4.000	0.50	2.00	-	276	1.38	76	38	46	1613
CB-3.00	**184**	**E**	**4-CL**	**2**	**2910**	**1**	153	148	1.9688	133.50	p	**o**	8.63	-	0.2500	5.00	18.56	4.06	0.75	4.38	0.25	4.00	4.00	0.81	2.50	1.50	110.88	96.38	4.000	0.75	3.00	-	718	1.67	114	38	46	1047
CB-3.00	**183**	**E**	**CL-5**	**2**	**2911**	**1**	159	154	1.9688	139.50	p	**o**	8.63	-	0.2500	5.00	18.56	4.06	0.75	4.38	0.25	4.00	4.00	0.81	2.50	1.50	116.88	102.38	4.000	0.75	3.00	-	684	1.64	114	38	46	1089
CB-3.00	**179**	**E**	**7-CL**	**2**	**2913**	**1**	169	164	1.9688	149.50	p	**o**	8.63	-	0.2500	5.00	18.56	4.06	0.75	4.38	0.25	4.00	4.00	0.81	2.50	1.50	126.88	112.38	4.000	0.75	3.00	-	635	1.58	114	38	46	1159
CB-3.00	**180**	**E**	**CL-8**	**2**	**2914**	**1**	163	158	1.9688	143.50	p	**o**	8.63	-	0.2500	5.00	18.56	4.06	0.75	4.38	0.25	4.00	4.00	0.81	2.50	1.50	120.88	106.38	4.000	0.75	3.00	-	664	1.61	114	38	46	1117
CB-3.00	**167**	**A**	**5-CL**	**2**	**2916**	**1**	175	170	1.9688	155.50	p	**o**	8.63	-	0.2500	5.00	18.56	4.06	0.75	4.38	0.25	4.00	4.00	0.81	2.50	1.50	132.88	118.38	4.000	0.75	3.00	-	608	1.56	114	38	46	1202
CB-3.00	**168**	**A**	**CL-4**	**2**	**2913**	**1**	169	164	1.9688	149.50	p	**o**	8.63	-	0.2500	5.00	18.56	4.06	0.75	4.38	0.25	4.00	4.00	0.81	2.50	1.50	126.88	112.38	4.000	0.75	3.00	-	635	1.57	114	38	46	1159
CB-3.00	**163**	**A**	**8-CL**	**2**	**2918**	**1**	179	174	1.9688	159.50	p	**o**	8.63	-	0.2500	5.00	18.56	4.06	0.75	4.38	0.25	4.00	4.00	0.81	2.50	1.50	136.88	122.38	4.000	0.75	3.00	-	593	1.53	114	38	46	1230
CB-3.00	**164**	**A**	**CL-7**	**2**	**2919**	**1**	185	180	1.9688	165.50	p	**o**	8.63	-	0.2500	5.00	18.56	4.06	0.75	4.38	0.25	4.00	4.00	0.81	2.50	1.50	142.88	128.38	4.000	0.75	3.00	-	569	1.51	114	38	46	1272
CB-3.00	**172**	**4**	**B-CL**	**2**	**2923**	**1**	202	197	1.9688	182.50	p	**o**	8.63	-	0.2500	5.00	18.56	4.06	0.75	4.38	0.25	4.00	4.00	0.81	2.50	1.50	159.88	145.38	4.000	0.75	3.00	-	510	1.50	114	38	46	1391
CB-3.00	**171**	**4**	**CL-D**	**2**	**2923**	**1**	202	197	1.9688	182.50	p	**o**	8.63	-	0.2500	5.00	18.56	4.06	0.75	4.38	0.25	4.00	4.00	0.81	2.50	1.50	159.88	145.38	4.000	0.75	3.00	-	510	1.50	114	38	46	1391
CB-3.00	**175**	**8**	**F-CL**	**2**	**2926**	**1**	188	183	1.9688	168.50	p	**o**	8.63	-	0.2500	5.00	18.56	4.06	0.75	4.38	0.25	4.00	4.00	0.81	2.50	1.50	145.88	131.38	4.000	0.75	3.00	-	558	1.51	114	38	46	1293
CB-3.00	**176**	**8**	**CL-D**	**2**	**2926**	**1**	188	183	1.9688	168.50	p	**o**	8.63	-	0.2500	5.00	18.56	4.06	0.75	4.38	0.25	4.00	4.00	0.81	2.50	1.50	145.88	131.38	4.000	0.75	3.00	-	558	1.51	114	38	46	1293
						16																														max -->		**1613**

Table of Symbols

- L_b = Length of CB tip to tip
- L_p = Distance center to center of pins
- $d_{ph-g,R,L}$ = Diameter of pin hole in Gusset, Left, and Right Lugs
- L_c = Length of casing
- **Casing** = Size & type of casing
- **Type** = t = tube (square/rect) and p = pipe (round)
- W_L = Width of lug
- X_L = Length from start of lug transition to end of lug transition
- t_L = Thickness of lug
- d_{rL} = Diameter of repad at lug
- t_{rL} = Thickness of repad at lug
- D_{wrL} = Size of weld at lug repad to lug # 1/16ths
- D_{wL} = Size of weld at lug to core # 1/16ths
- e_L = Distance from edge of lug repad to edge of gusset
- **c** = Core extension length out of casing
- **a** = Gap between core and gusset
- L_{ysc} = Length of yielding core w/out allowance for Cntr Stiffener
- L''_{ysc} = Yield length of core - Yielding Portion Only
- W_{sc} = Width of core at yield section
- t_{sc} = Thickness of core
- A_{sc} = Cross sectional area of core at yield section
- **PL** = Type of core, (-) = flat, (+) = cruciform
- K_{eff} = Effective Stiffness of BRB from WP to WP
- K_f = Axial Stiffness Adjustment Factor
- P_{ysc} = Yield force of CB
- F_{ysc} = Specified yield stress range of core plate

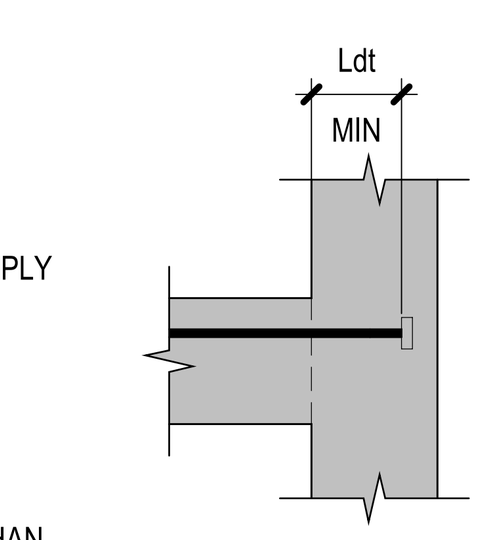
COREBRACE SCHEDULE 1

| | | | | | | | | | | | | Gusset & Gusset Repad | | | | | | | | BOTTOM OF BRACE CONNECTION | | | | | | | | | | | | | | | | | | TOP OF BRACE CONNECTION | | | | | | | | | | | | | | | | | | Required Stiff or Continuity Plate | | | | CB | Total |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---

HEADED BAR DEVELOPMENT LENGTH (Ldt) SCHEDULE

CASE TYPE / BAR SIZE	f'c = 3000psi I	II	III	IV	f'c = 4000psi I	II	III	IV	f'c = 5000psi I	II	III	IV	f'c = 6000psi I	II	III	IV
#3	6"	6"	6"	6"	6"	6"	6"	6"	6"	6"	6"	6"	6"	6"	6"	6"
#4	9"	6"	7"	6"	8"	6"	7"	6"	8"	6"	6"	6"	8"	6"	6"	6"
#5	12"	8"	10"	6"	11"	7"	9"	6"	11"	7"	9"	6"	11"	7"	8"	6"
#6	15"	10"	12"	8"	15"	9"	12"	7"	14"	9"	11"	7"	14"	9"	11"	7"
#7	19"	12"	16"	10"	18"	12"	15"	9"	18"	11"	14"	9"	17"	11"	14"	9"
#8	24"	15"	19"	12"	22"	14"	18"	11"	21"	13"	17"	11"	21"	13"	17"	11"
#9	28"	18"	23"	14"	27"	17"	21"	13"	26"	16"	21"	13"	25"	16"	20"	13"
#10	34"	21"	27"	17"	32"	20"	25"	16"	31"	19"	24"	15"	30"	19"	24"	15"
#11	39"	25"	32"	20"	37"	23"	30"	19"	36"	22"	29"	18"	35"	22"	28"	18"

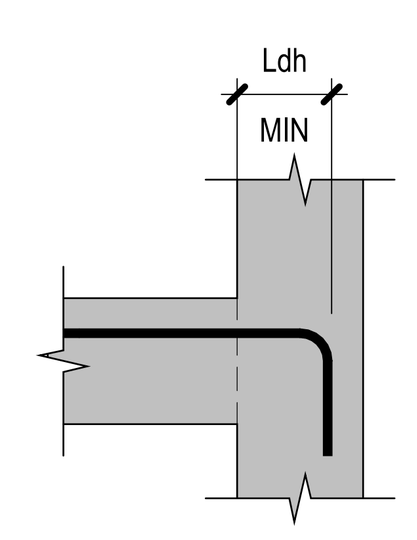
NOTES:
1. THESE BAR DEVELOPMENT LENGTHS APPLY TO NORMAL WEIGHT CONC ONLY.
2. PROVIDE LENTON HEADED REINFORCING BARS PER IAPMO-UES ER-0188.
3. LENGTHS SHOWN IN SCHEDULE ABOVE APPLY TO UNCOATED GRADE 60 BARS. MULTIPLY THE SPECIFIED LENGTH BY 1.33 FOR GRADE 80 BARS
4. CASE I: TYPICAL
5. CASE II: HEADED BARS SPACED GREATER THAN 6db O/C
6. CASE III: HEADED BARS WITH SIDE COVER PARALLEL WITH HEADED BAR GREATER THAN OR EQUAL TO 6db or HEADED BARS TERMINATING WITHIN CONFINED COLUMN CORE WITH SIDE COVER PARALLEL WITH HEADED BAR BAR GREATER THAN OR EQUAL TO 2 1/2"
7. CASE IV: HEADED BARS MEETING REQUIREMENTS OF BOTH CASE II AND CASE III



HOOKED BAR DEVELOPMENT LENGTH (Ldh) SCHEDULE

CASE TYPE / BAR SIZE	f'c = 3000psi I	II	III	IV	f'c = 4000psi I	II	III	IV	f'c = 5000psi I	II	III	IV	f'c = 6000psi I	II	III	IV
#3	8"	6"	6"	6"	7"	6"	6"	6"	7"	6"	6"	6"	7"	6"	6"	6"
#4	12"	7"	9"	6"	11"	7"	9"	6"	10"	7"	8"	6"	10"	7"	8"	6"
#5	16"	10"	13"	8"	15"	10"	12"	8"	15"	9"	12"	7"	14"	9"	11"	7"
#6	21"	13"	17"	11"	20"	12"	16"	10"	19"	12"	15"	10"	19"	14"	15"	9"
#7	26"	17"	21"	13"	25"	16"	20"	13"	24"	15"	19"	12"	23"	15"	19"	12"
#8	32"	20"	26"	16"	30"	19"	24"	15"	29"	18"	23"	15"	28"	18"	23"	14"
#9	38"	24"	31"	19"	36"	23"	29"	18"	35"	22"	28"	18"	34"	21"	27"	17"
#10	46"	29"	37"	23"	43"	27"	35"	22"	42"	26"	33"	21"	41"	25"	33"	20"
#11	54"	34"	43"	27"	50"	32"	40"	25"	49"	30"	39"	24"	47"	30"	38"	24"

NOTES:
1. FOR TYP BAR HOOKS & BENDS, SEE DETAIL 03/-
2. HOOKED BAR LENGTHS SHOWN IN SCHEDULE ABOVE APPLY TO NORMAL WEIGHT CONC - MULTIPLY THE SPECIFIED DEVELOPMENT LENGTH BY 1.33 FOR LIGHTWEIGHT CONC
3. LENGTHS SHOWN IN SCHEDULE ABOVE APPLY TO UNCOATED GRADE 60 BARS. MULTIPLY THE SPECIFIED LENGTH BY 1.33 FOR GRADE 80 BARS
4. CASE I: TYPICAL
5. CASE II: HOOKED BARS SPACED GREATER THAN 6db O/C
6. CASE III: HOOKED BARS WITH SIDE COVER PARALLEL WITH HOOKED BAR GREATER THAN OR EQUAL TO 6db or HOOKED BARS TERMINATING WITHIN CONFINED COLUMN CORE WITH SIDE COVER PARALLEL WITH HOOKED BAR BAR GREATER THAN OR EQUAL TO 2 1/2"
7. CASE IV: HOOKED BARS MEETING REQUIREMENTS OF BOTH CASE II AND CASE III
8. HOOKED BARS MAYBE SUBSTITUTED WITH HEADED BARS PER 'Ldt' SCHEDULE AT LEFT



HOOKED (Ldh) AND HEADED (Ldt) BAR DEVELOPMENT LENGTH SCHEDULES — N.T.S. — 16

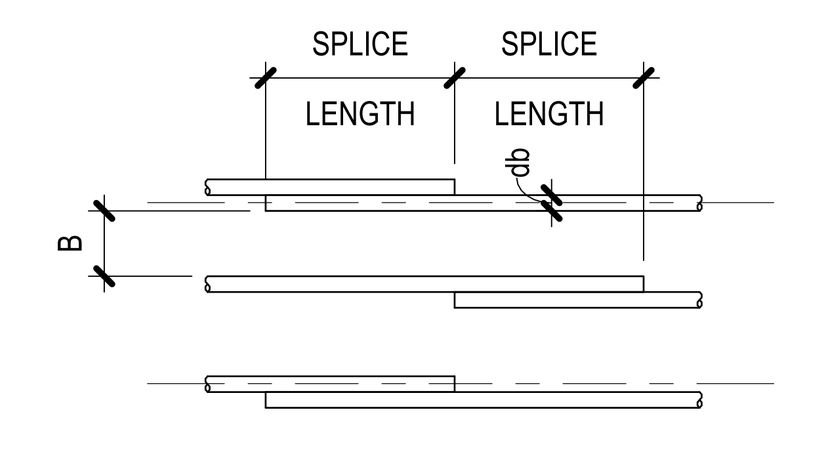


DIAGRAM AT STAGGERED SPLICES

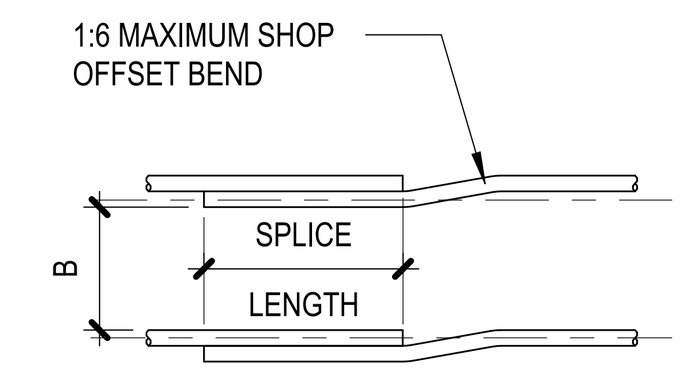
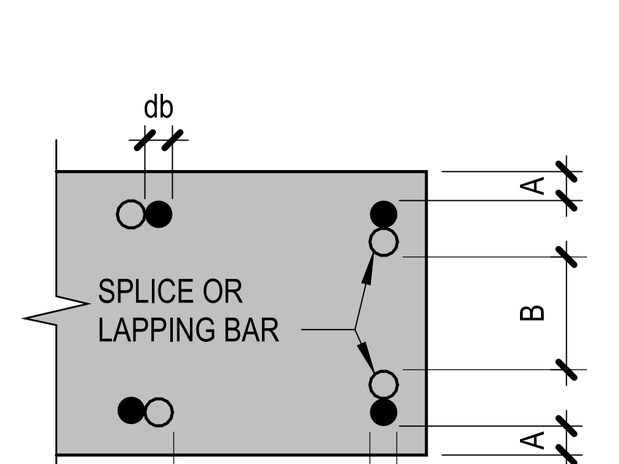


DIAGRAM AT NON-STAGGERED SPLICES



BAR SPACING DIAGRAM

LEGEND:
A. CLEAR EDGE DISTANCE
B. CLEAR SPACING OF SPLICED OR LAPPED BARS (SEE GEN NOTE 'E.8' FOR MIN CLEAR SPACING)
db = BAR ⌀

NOTES:
1. ALL SPLICES SHALL BE CLASS B SPLICES UNLESS INDICATED OTHERWISE. DEVELOPMENT Ld TO BE USED WHERE SPECIFICALLY INDICATED.
2. SCHEDULE APPLIES TO UNCOATED GRADE 60 BARS IN NORMAL WEIGHT CONC
3. TOP BARS (INDICATED "T" IN SCHEDULE) ARE HORIZ BARS WITH MORE THAN 12" OF CONC CAST BELOW THE BARS.
4. BOTTOM BARS (INDICATED "B" IN SCHEDULE) ARE ALL VERT BARS AND HORIZ BARS WITH LESS THAN 12" OF CONC CAST BELOW HORIZ BARS.
5. FOR LIGHTWEIGHT CONC MULTIPLY LENGTHS IN SCHEDULE BY 1.33.
6. AT SPLICE BETWEEN BARS OF VARYING SIZE, PROVIDE LAP SPLICE CORRESPONDING TO LARGER OF 'Ls' OF SMALLER BAR and 'Ld' OF LARGER BAR.
7. LENGTHS SHOWN IN SCHEDULE APPLY TO UNCOATED GRADE 60 BARS MULTIPLY THE SPECIFIED LENGTH BY 1.33 FOR GRADE 80 BARS.

SCHEDULE FOR DETERMINING CATEGORY

I	II
1. A>db and B>2db 2. A>db and B>db and TIES THROUGHOUT Ld	OTHER CASES

TENSION LAP SPLICE "Ls" SCHEDULE

SPLICE LENGTH (INCHES)

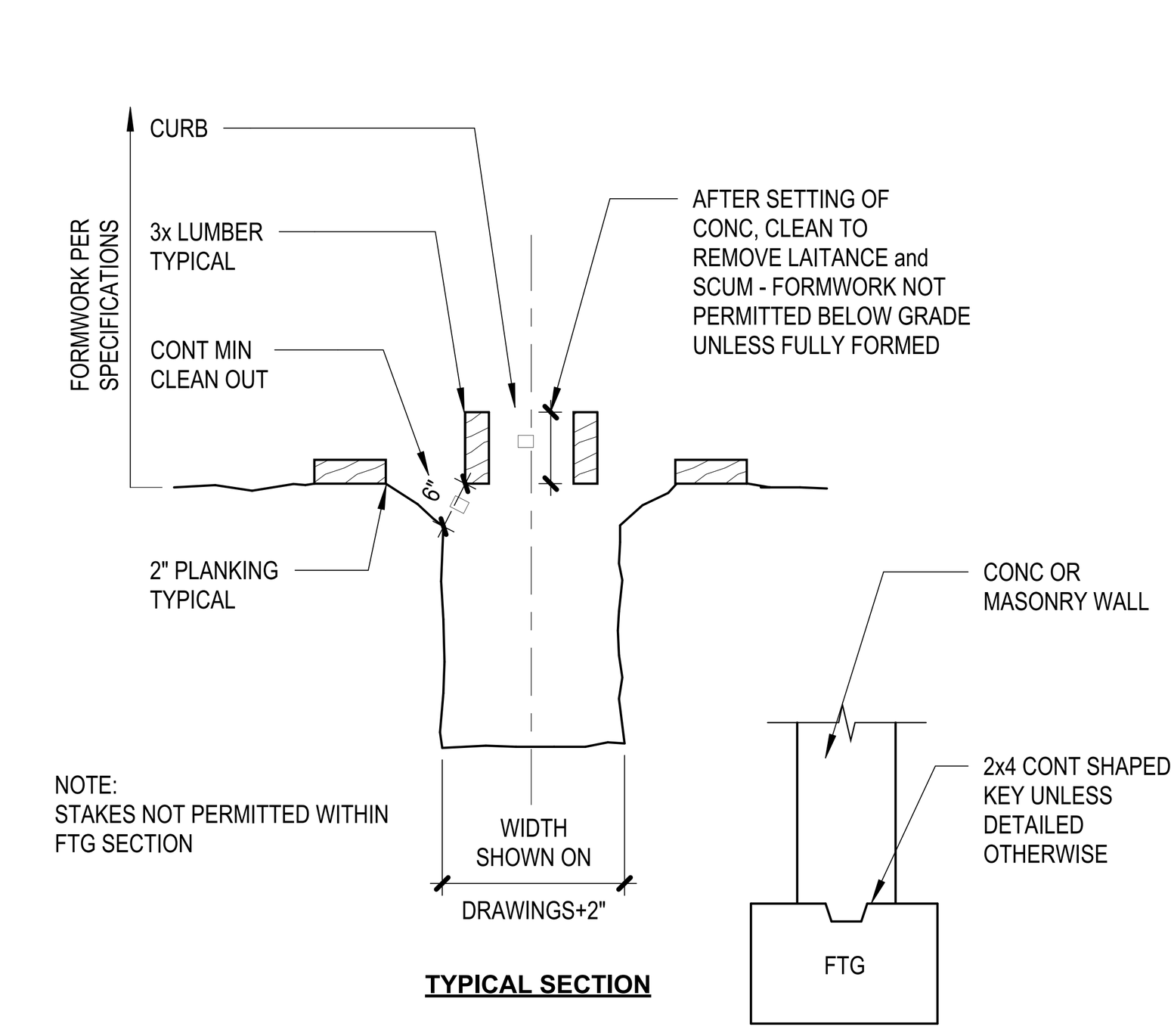
CATEGORY	NORMAL WEIGHT CONCRETE f'c PSI	0.375 #3 T	B	0.500 #4 T	B	0.625 #5 T	B	0.750 #6 T	B	0.875 #7 T	B	1.000 #8 T	B	1.128 #9 T	B	1.270 #10 T	B	1.410 #11 T	B
I	3000	28	22	37	29	47	36	56	43	81	63	93	72	105	81	118	91	131	101
	4000	24	19	32	25	40	31	48	37	70	54	80	62	91	70	102	79	113	87
	5000	22	17	29	22	36	28	43	33	63	49	72	55	81	63	91	70	101	78
II	3000	42	32	56	43	70	54	84	64	122	94	139	107	157	121	177	136	196	151
	4000	36	28	48	37	60	47	72	56	106	81	121	93	136	105	153	118	170	131
	5000	33	25	43	33	54	42	65	50	94	73	108	83	122	94	137	105	152	117

DEVELOPMENT "Ld" SCHEDULE

DEVELOPMENT LENGTH (INCHES)

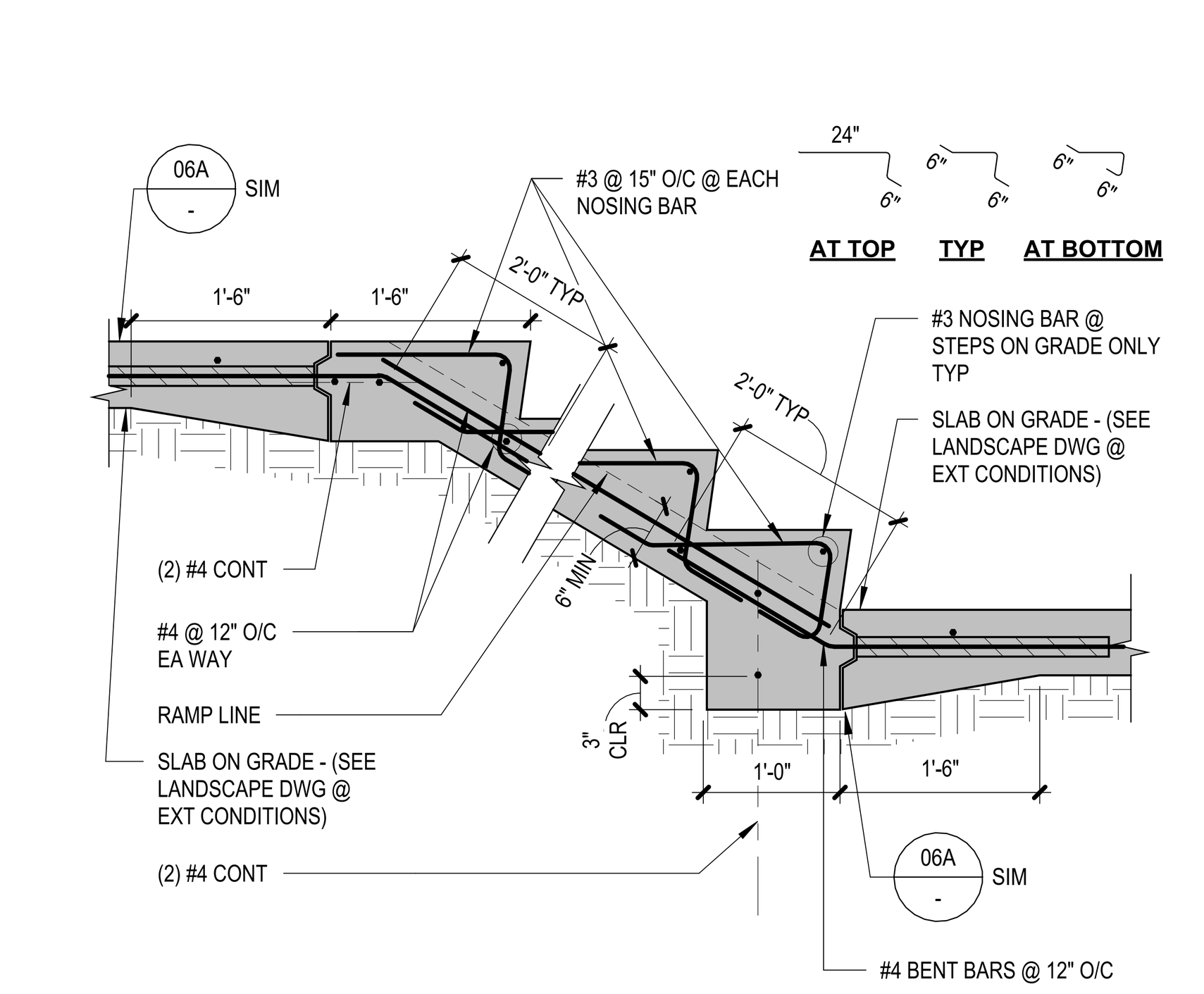
CATEGORY	NORMAL WEIGHT CONCRETE f'c PSI	0.375 #3 T	B	0.500 #4 T	B	0.625 #5 T	B	0.750 #6 T	B	0.875 #7 T	B	1.000 #8 T	B	1.128 #9 T	B	1.270 #10 T	B	1.410 #11 T	B
I	3000	22	17	29	22	36	28	43	33	63	48	72	55	81	62	91	70	101	78
	4000	19	15	25	19	31	24	37	29	54	42	62	48	70	54	79	61	87	67
	5000	17	13	22	17	28	22	33	26	49	37	55	43	63	48	70	54	78	60
II	3000	32	25	43	33	54	41	64	50	94	72	107	82	121	93	136	105	151	116
	4000	28	22	37	29	47	36	56	43	81	63	93	71	105	81	118	91	131	101
	5000	25	19	33	26	42	32	50	38	73	56	83	64	94	72	105	81	117	90

TYPICAL REBAR TENSION SPLICE and BAR DEVELOPMENT SCHEDULE (IN CONCRETE) — N.T.S. — 04



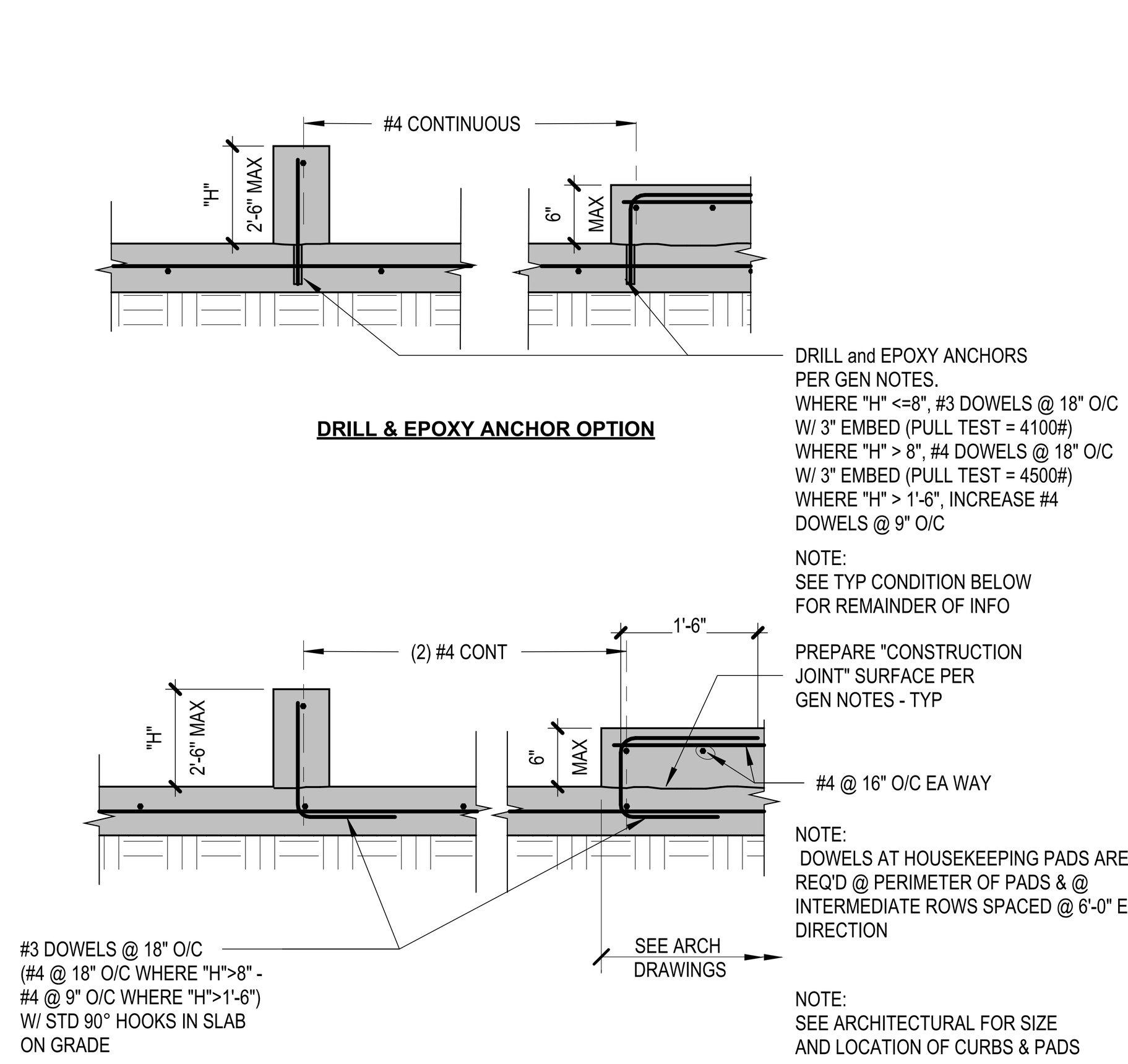
STARTER WALL DETAIL (A)

TYP MANDATORY FOUNDATION FORMWORK (UNLESS FULLY FORMED) — N.T.S. — 19

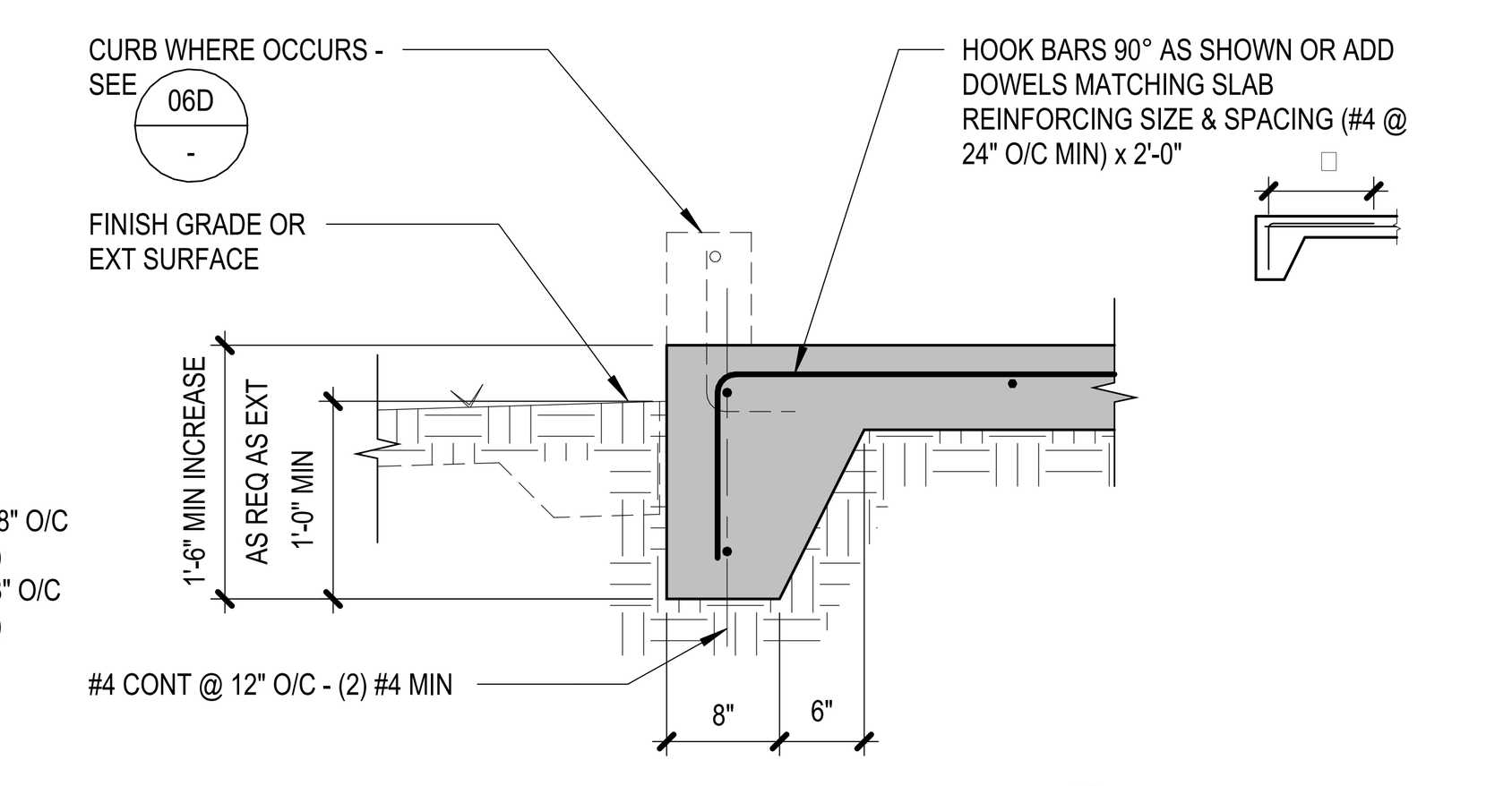


NOTES:
1. ADD #4 x 12" ⌊36" DOWELS @ 12" OC WHERE SIDE WALLS OCCUR AT STAIRS OR RAMP UNO
2. SEE ARCHITECTURAL OR LANDSCAPE FOR TREAD & RISER GEOMETRY AND FINISHING

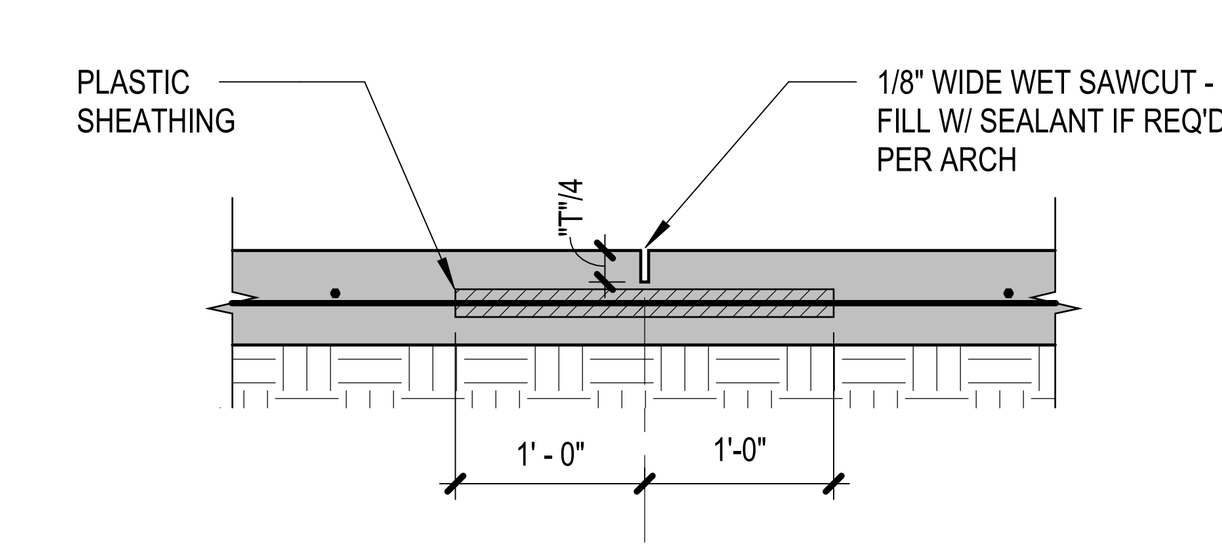
TYPICAL SECTION AT CONCRETE STEPS OR RAMP ON GRADE — N.T.S. — 15



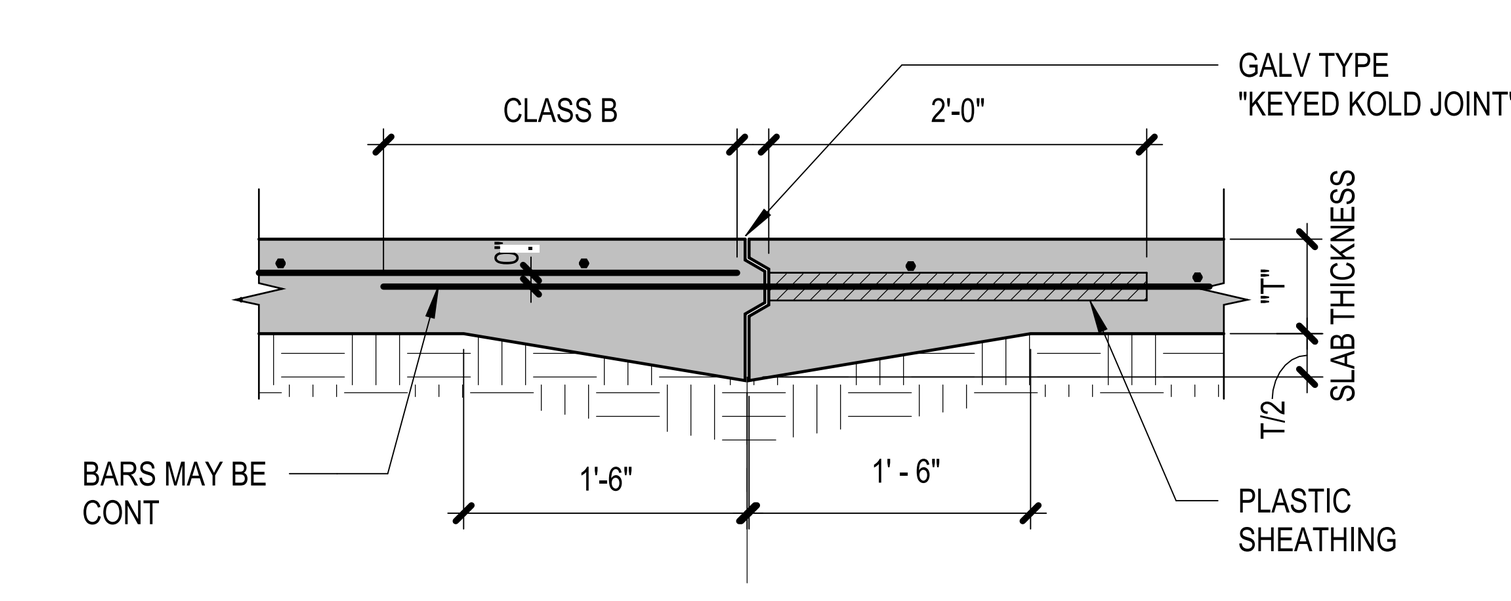
TYP CONDITION
CONDITION AT CURB OR HOUSEKEEPING PAD (D)



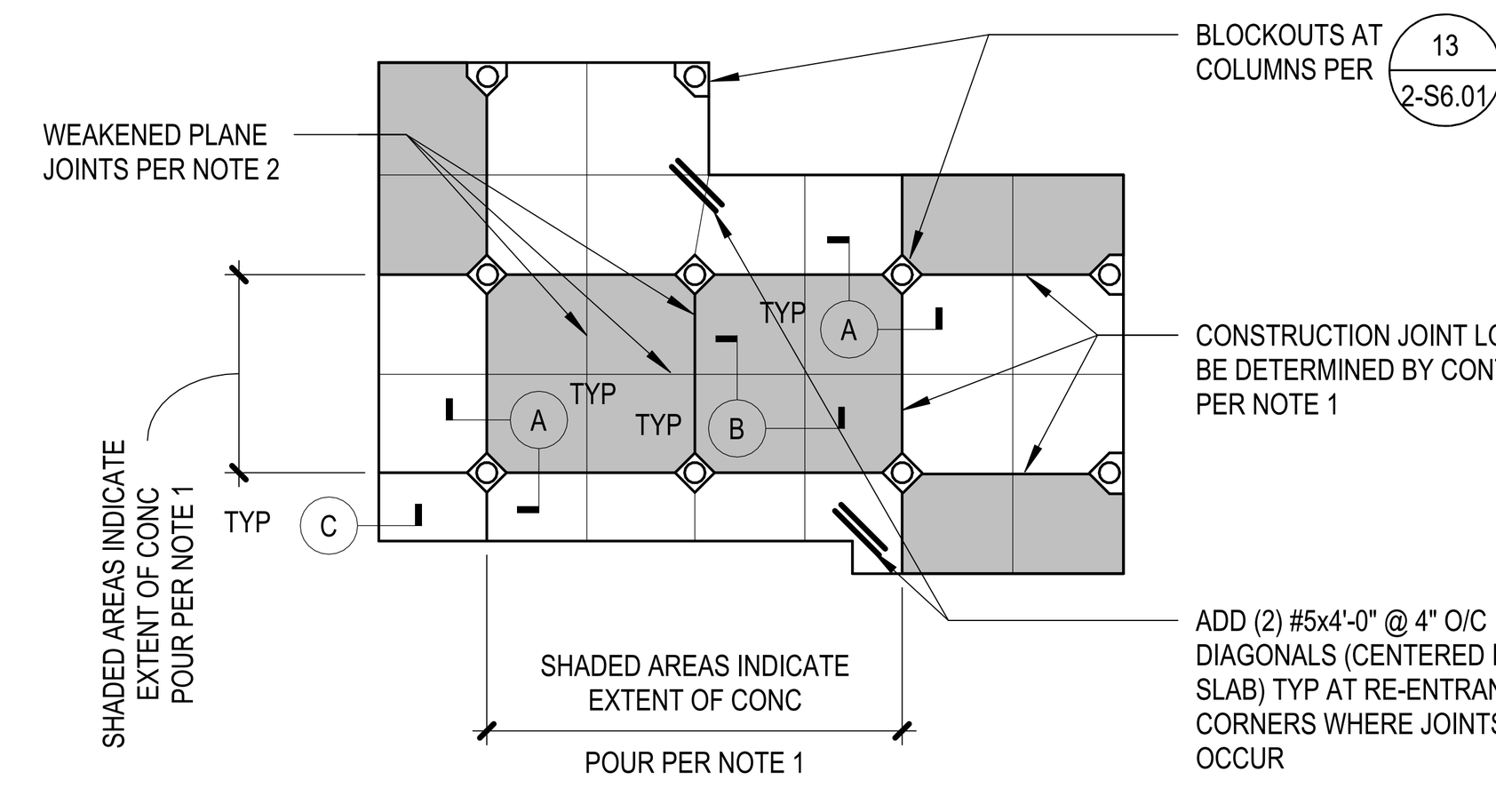
TURNED-DOWN SLAB EDGE (C)



WEAKENED PLANE JOINT (B)

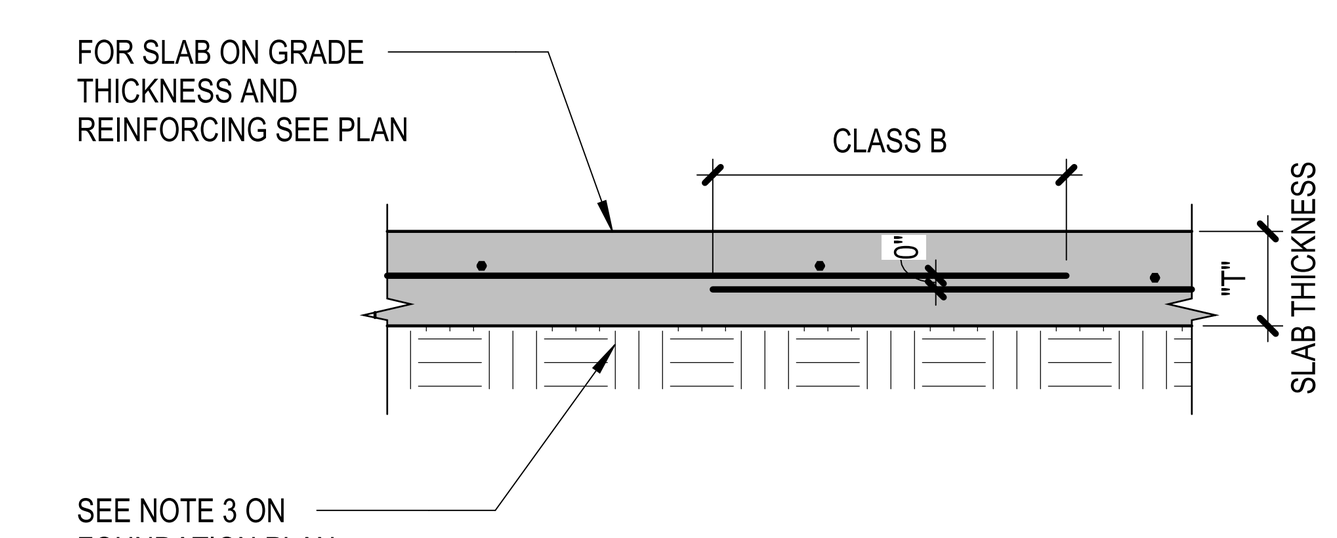


CONSTRUCTION JOINT (A)



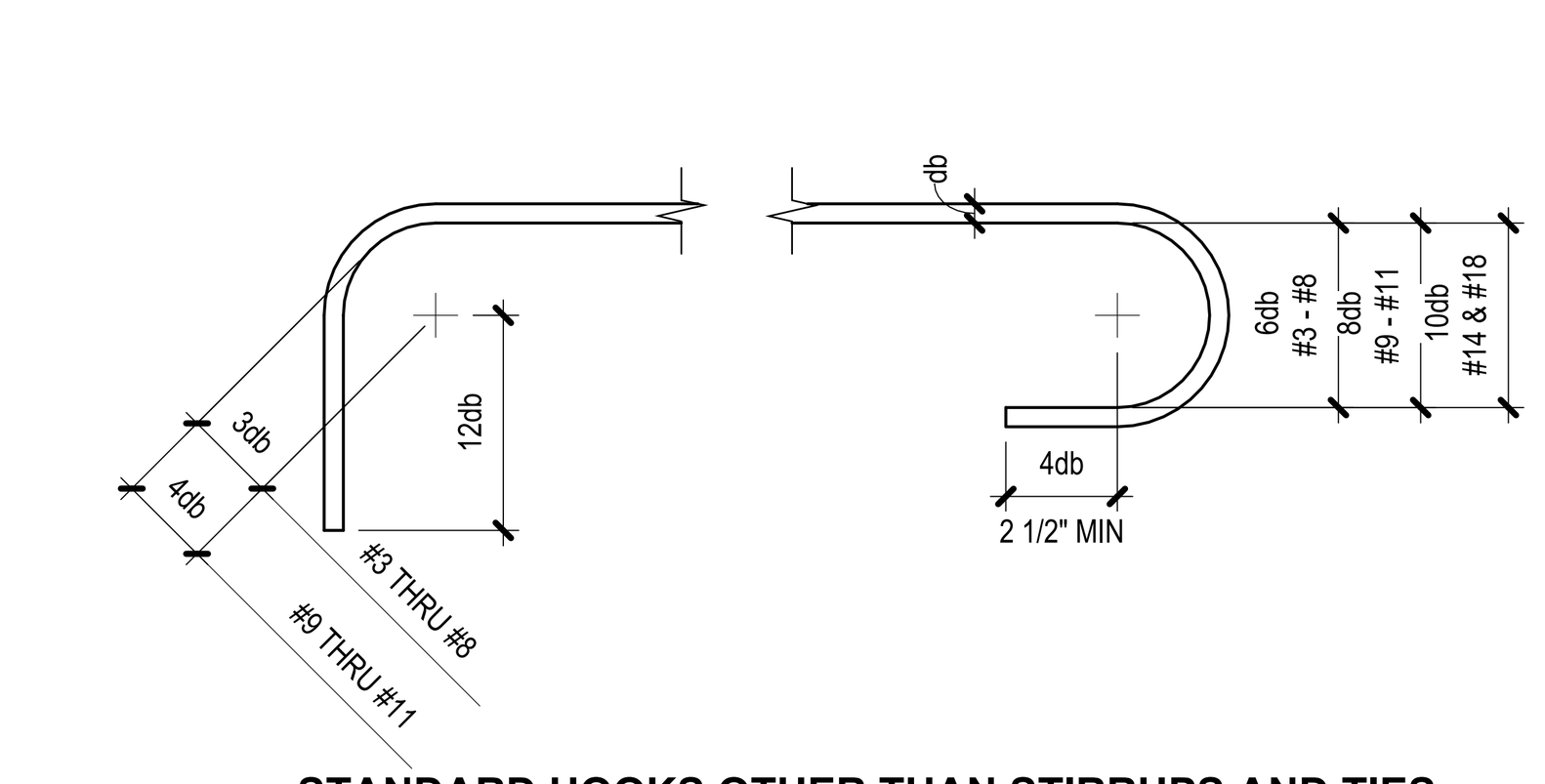
NOTES:
1. AREA OF CONC POURS TO BE DETERMINED BY CONTRACTOR. SUBMIT JOINT LAYOUT PRIOR TO POURING SLABS PER GENERAL NOTES. PROVIDE CONSTRUCTION JOINTS SURROUNDING AREA OF EA POUR UNLESS DETAILED OTHERWISE. ALLOW 24 HOURS MIN BEFORE CASTING SLABS AT ADJ AREAS.
2. SAWCUT WEAKENED PLANE JOINT AS SOON AS CONC CAN SUPPORT WEIGHT OF PERSONNEL AND SAW WITHOUT AFFECTING FINAL FINISH BUT NO LATER THAN 12 HOURS AFTER POUR. LOCATE WEAKENED PLANE JOINTS ALIGNED TO COLUMN GRID AS SHOWN AND NO GREATER THAN 15'-0" IN BOTH DIRECTIONS, UNLESS NOTED OTHERWISE.

SLAB ON GRADE JOINT DIAGRAM (PLAN VIEW)

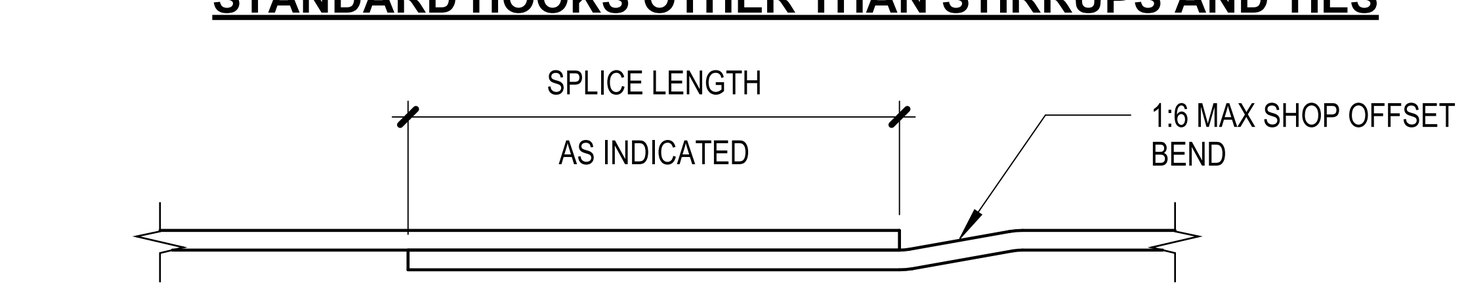


TYPICAL SECTION AT SLAB ON GRADE

TYP SLAB ON GRADE DETAILS — N.T.S. — 06



STANDARD HOOKS OTHER THAN STIRRUPS AND TIES

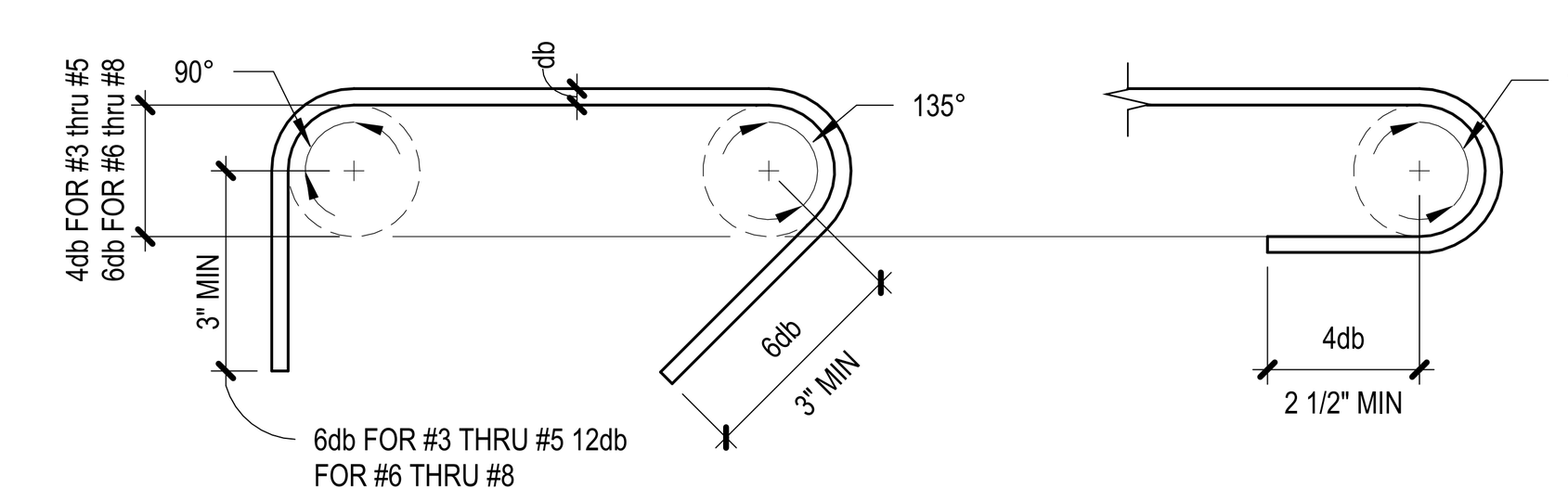


MAXIMUM OFFSET AT SPLICES

BAR DIAMETER DISTANCES

BAR DIA	#3	#4	#5	#6	#7	#8	#9	#10	#11
3db	1 1/8"	1 1/2"	1 7/8"	2 1/4"	2 5/8"	3"	-	-	-
4db	1 1/2"*	2"*	2 1/2"	3"	3 1/2"	4"	4 1/2"	5"	5 1/2"
6db	2 1/4"*	3"	3 3/4"	4 1/2"	5 1/4"	6"	-	-	-
8db	-	-	-	-	-	-	9"	10"	11"
12db	4 1/2"	6"	7 1/2"	9"	10 1/2"	12"	13 1/2"	15"	16 1/2"

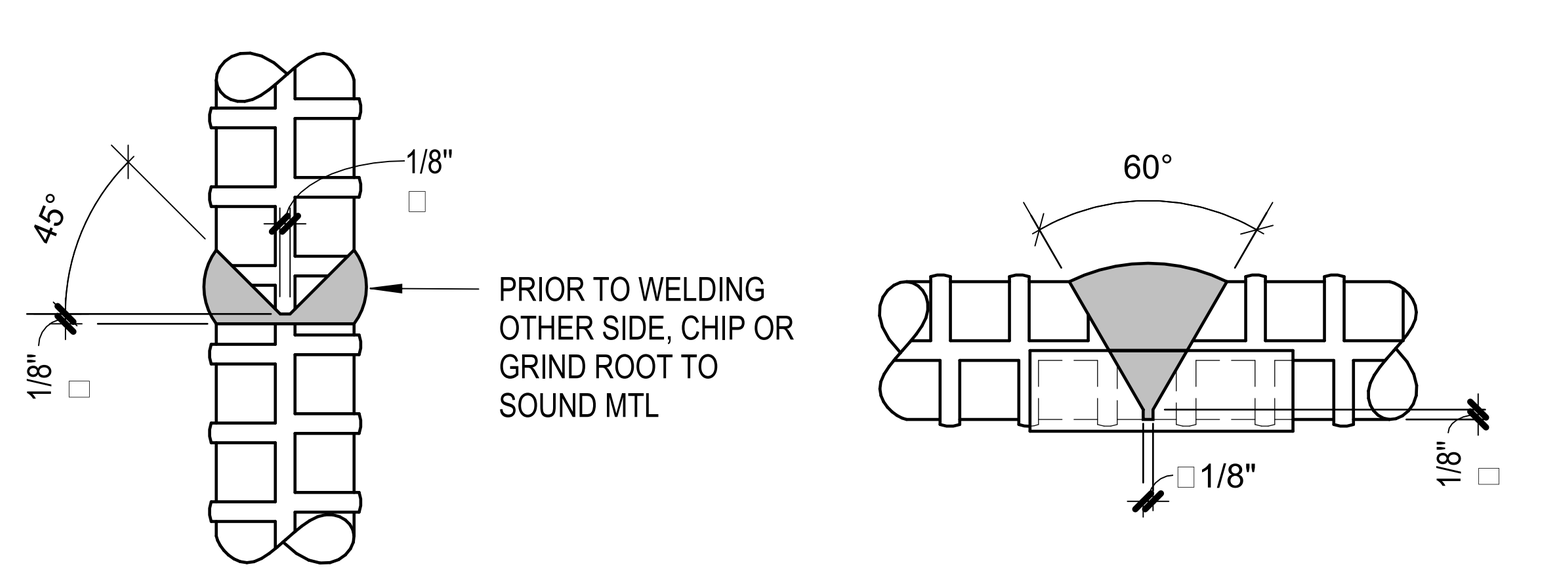
* INDICATES MINIMUM DIMENSIONS MAY GOVERN



STANDARD HOOKS FOR STIRRUPS AND TIES

NOTE:
HOOKS OF TWO SUCCESSIVE STIRRUPS OR TIES ENGAGING SAME LONGITUDINAL BAR SHALL BE ALTERNATED END FOR END

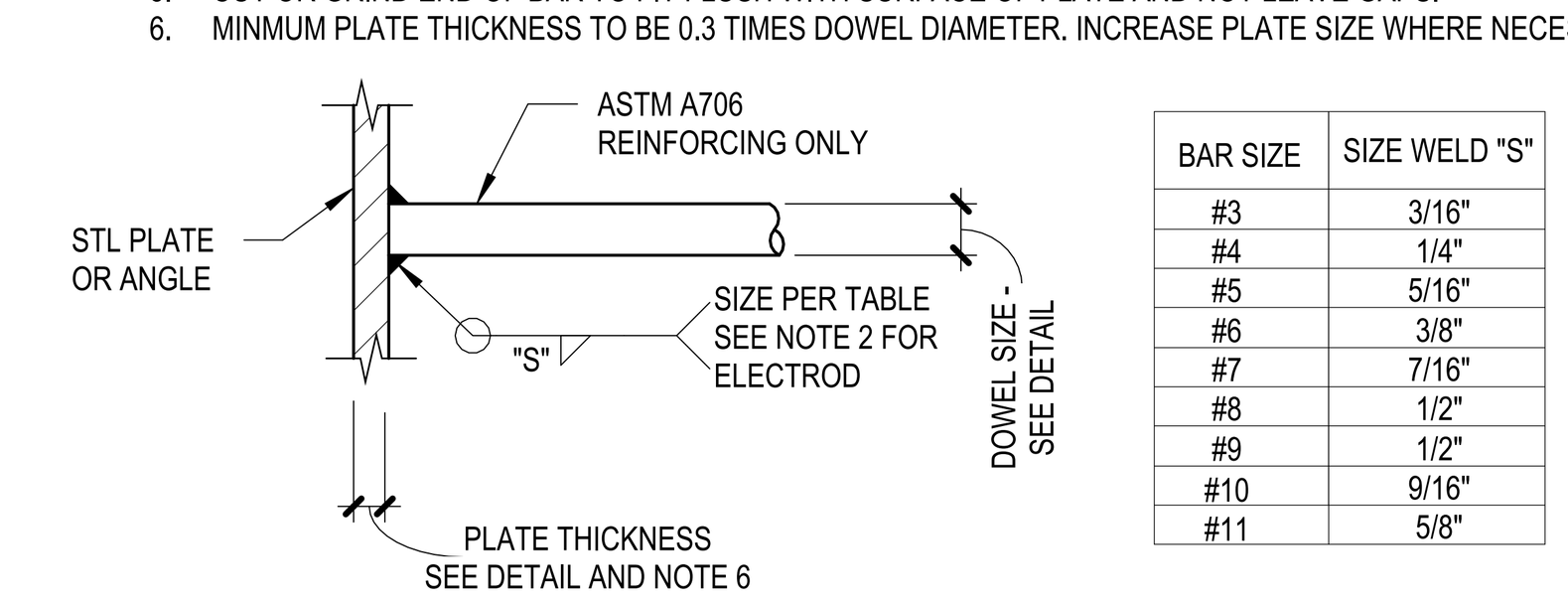
TYP REINFORCING STEEL HOOKS, BENDS and OFFSETS AT SPLICES — N.T.S. — 03



NOTES:
1. AS AN ALT TO LAP SPLICE, BUTT WELD MAY BE USED AS INDICATED ABOVE, PROVIDED THEY ARE STAGGERED @ 24" MIN
2. AN APPROVED TESTING LABORATORY SHALL PROVIDE A PREQ'DUALIFICATION TENSION TEST FOR SAMPLES ON EVERY SIZE OF BAR BEING WELDED.
3. MATERIALS, CONDITIONS AND WELDING PROCEDURES UTILIZED SHALL COMPLY WITH THE CURRENT APPLICABLE BUILDING CODE AND THE REQ'D OF THE GOVERNING INSPECTION AGENCY.
4. GENERAL CONTRACTOR IS RESPONSIBLE FOR ALL COSTS INCURRED IN OBTAINING APPROVAL.

TYPICAL REINFORCING BUTT WELDS DETAIL (ALTERNATE TO SPLICES) — N.T.S. — 18

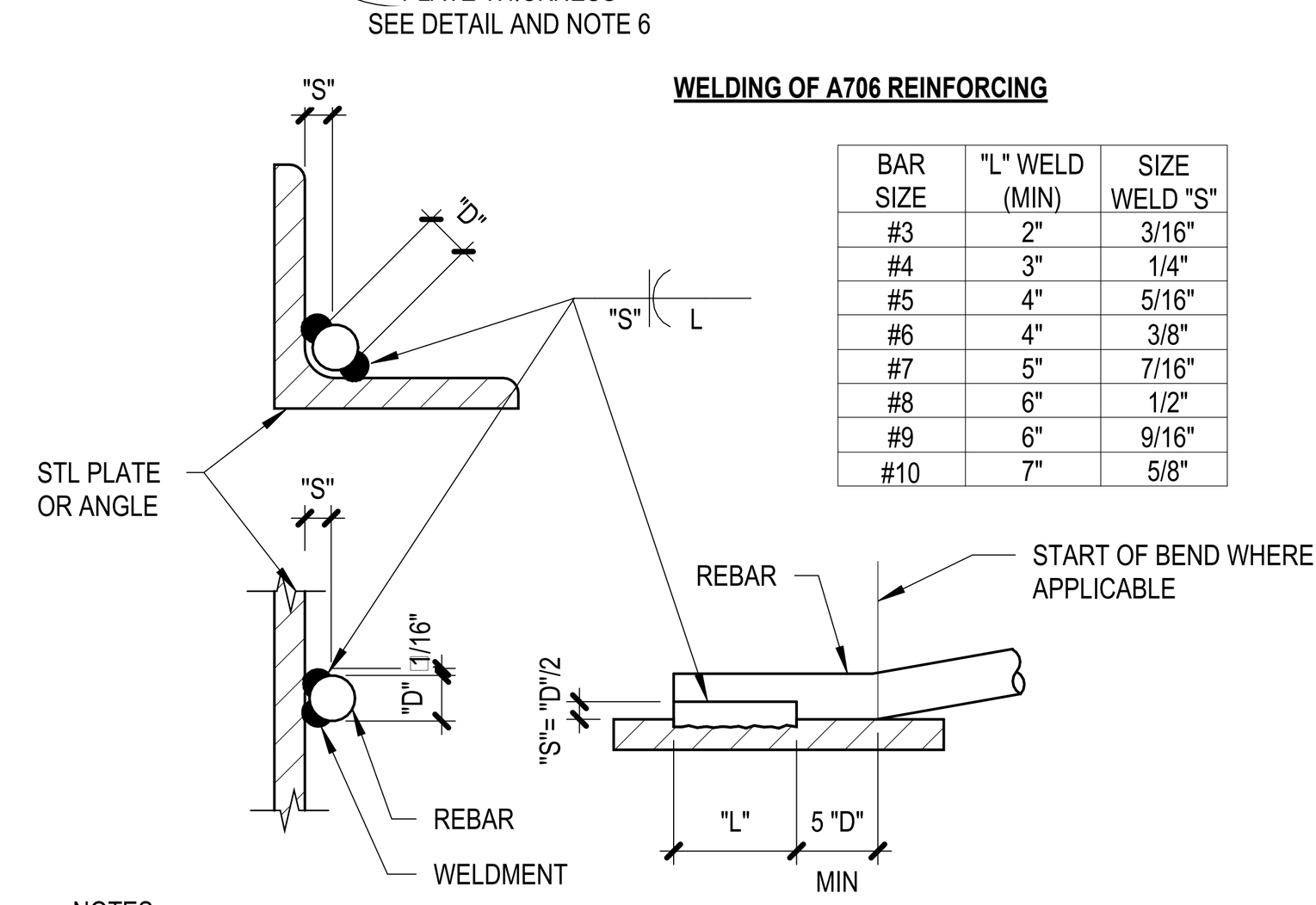
NOTES FOR DOWEL WELDS TO PLATE:
1. WELDING OF A615 REINF NOT ALLOWED, MUST USE ASTM A706 REINFORCING.
2. USE E80 ELECTRODES FOR GRADE 60, E110 ELECTRODES FOR GRADE 80.
3. ALL WELDING TO BE PER AWS D1.4
4. PREHEAT PER AWS D1.4 TABLE 5.2
5. CUT OR GRIND END OF BAR TO FIT FLUSH WITH SURFACE OF PLATE AND NOT LEAVE GAPS.
6. MINMUM PLATE THICKNESS TO BE 0.3 TIMES DOWEL DIAMETER. INCREASE PLATE SIZE WHERE NECESSARY.



BAR SIZE	SIZE WELD "S"
#3	3/16"
#4	1/4"
#5	5/16"
#6	3/8"
#7	7/16"
#8	1/2"
#9	1/2"
#10	9/16"
#11	5/8"

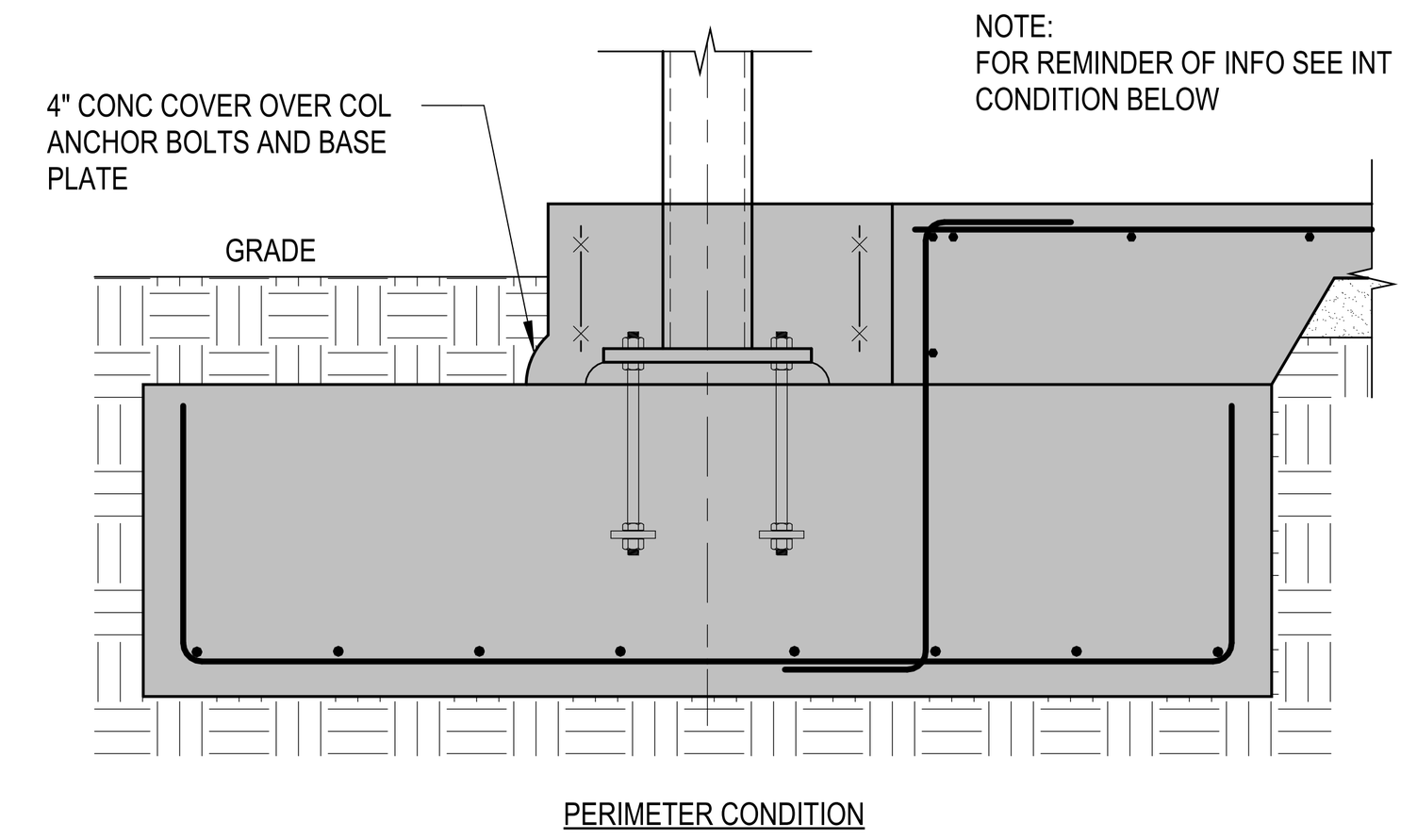
WELDING OF A706 REINFORCING

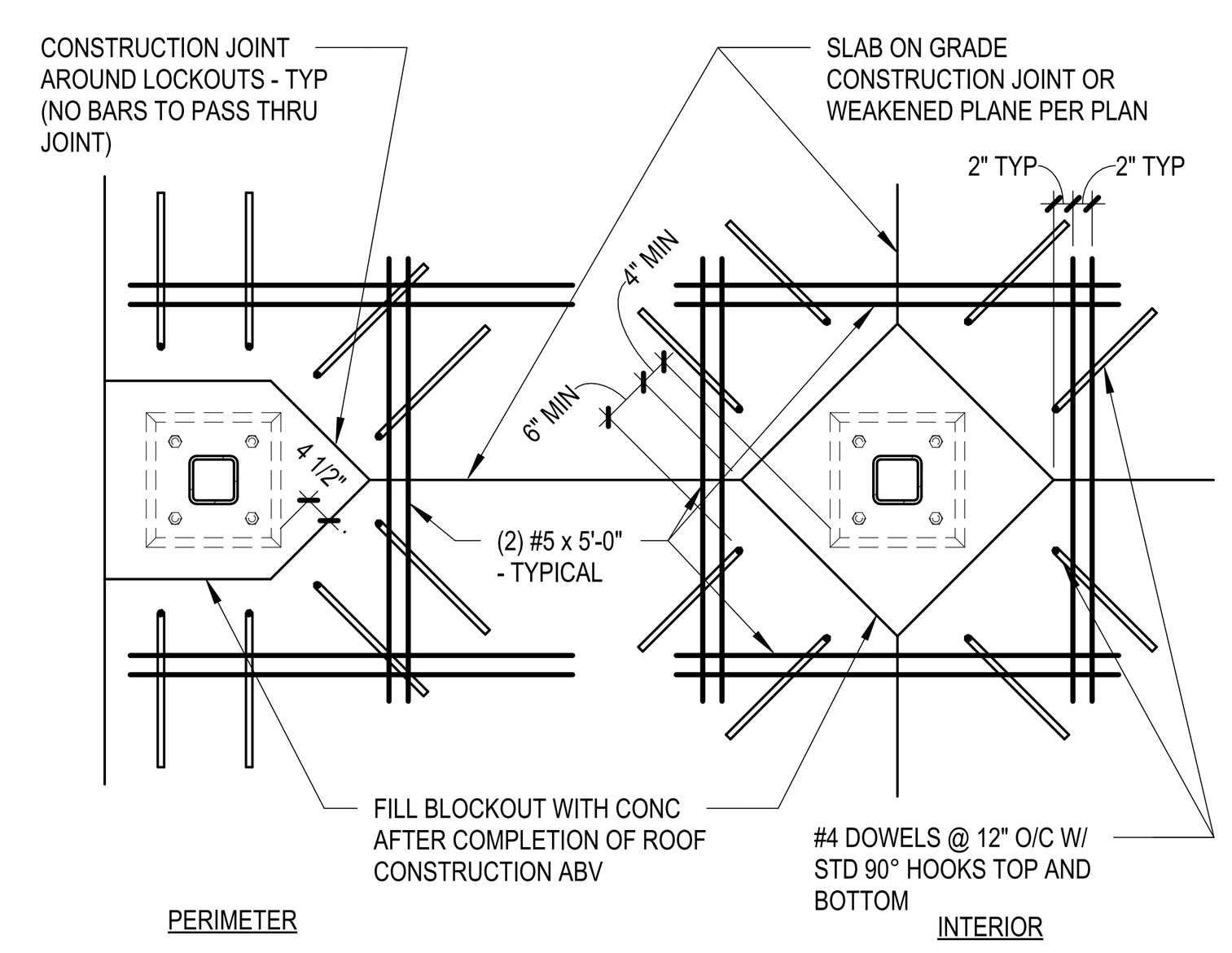
BAR SIZE	"L" WELD (MIN)	SIZE WELD "S"
#3	2"	3/16"
#4	3"	1/4"
#5	4"	5/16"
#6	4"	3/8"
#7	5"	7/16"
#8	6"	1/2"
#9	6"	9/16"
#10	7"	5/8"

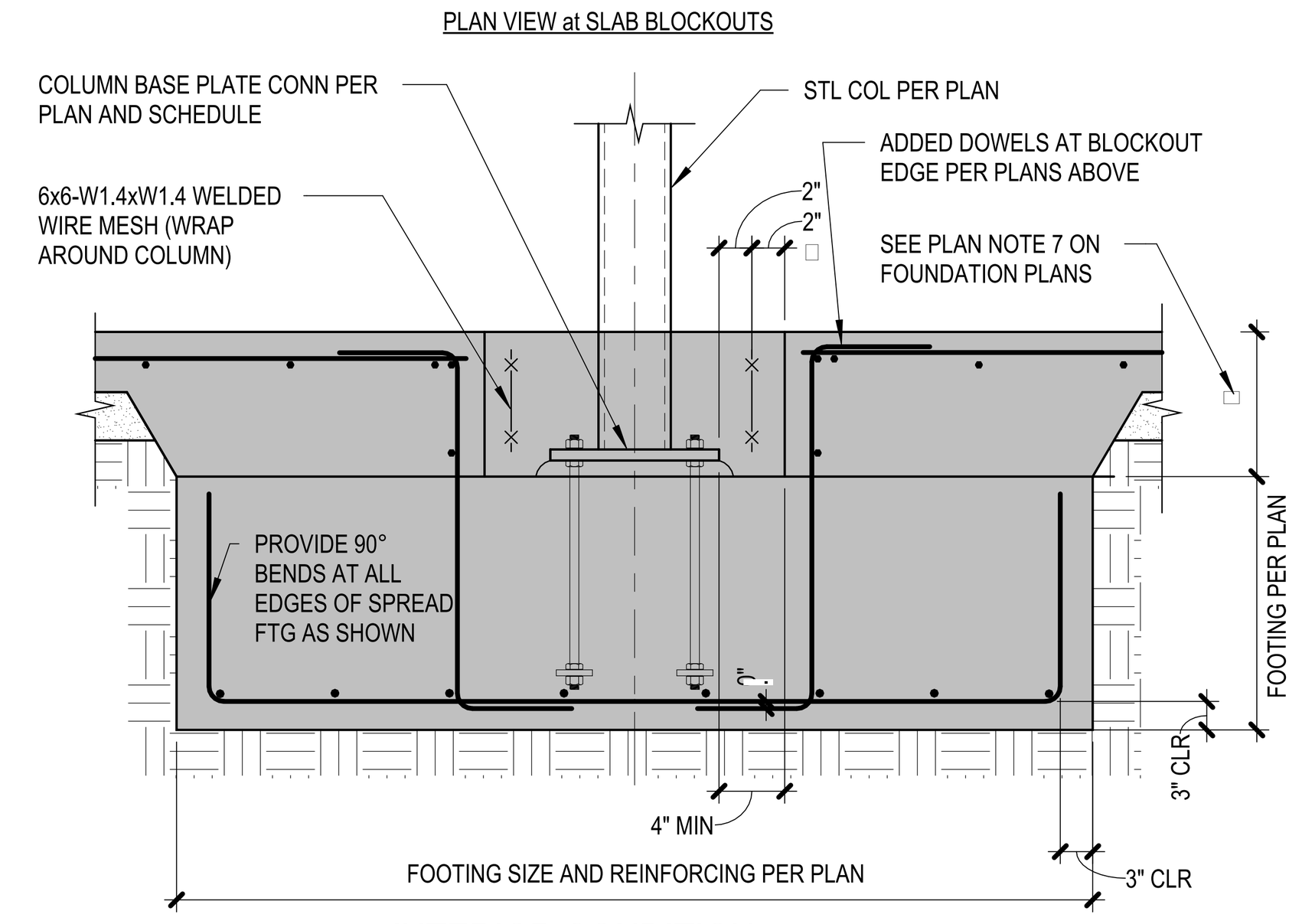


NOTES:
1. ALL REINFORCING WELDING SHALL BE IN ACCORDANCE WITH AWS CODE D1.4-05 CURRENT EDITION.
2. WELDED REINFORCING SHALL CONFORM TO ASTM A706.
3. ASTM A615 REINFORCING STL MAY BE WELDED PROVIDED A CHEMICAL ANALYSIS IS PERFORMED TO DETERMINE CARBON EQUIVALENCY, TO ESTABLISH MIN PREHEATING REQ'D. HEAT STICKS SHALL BE USED 6" FROM WELD TO VERIFY PREHEAT TEMPERATURES. CHEMICAL ANALYSIS REPORTS SHALL BE PROVIDED TO ARCHITECT (STRUCTURAL ENGINEER) PRIOR TO WELDING.

TYPICAL REBAR WELDING — N.T.S. — 17

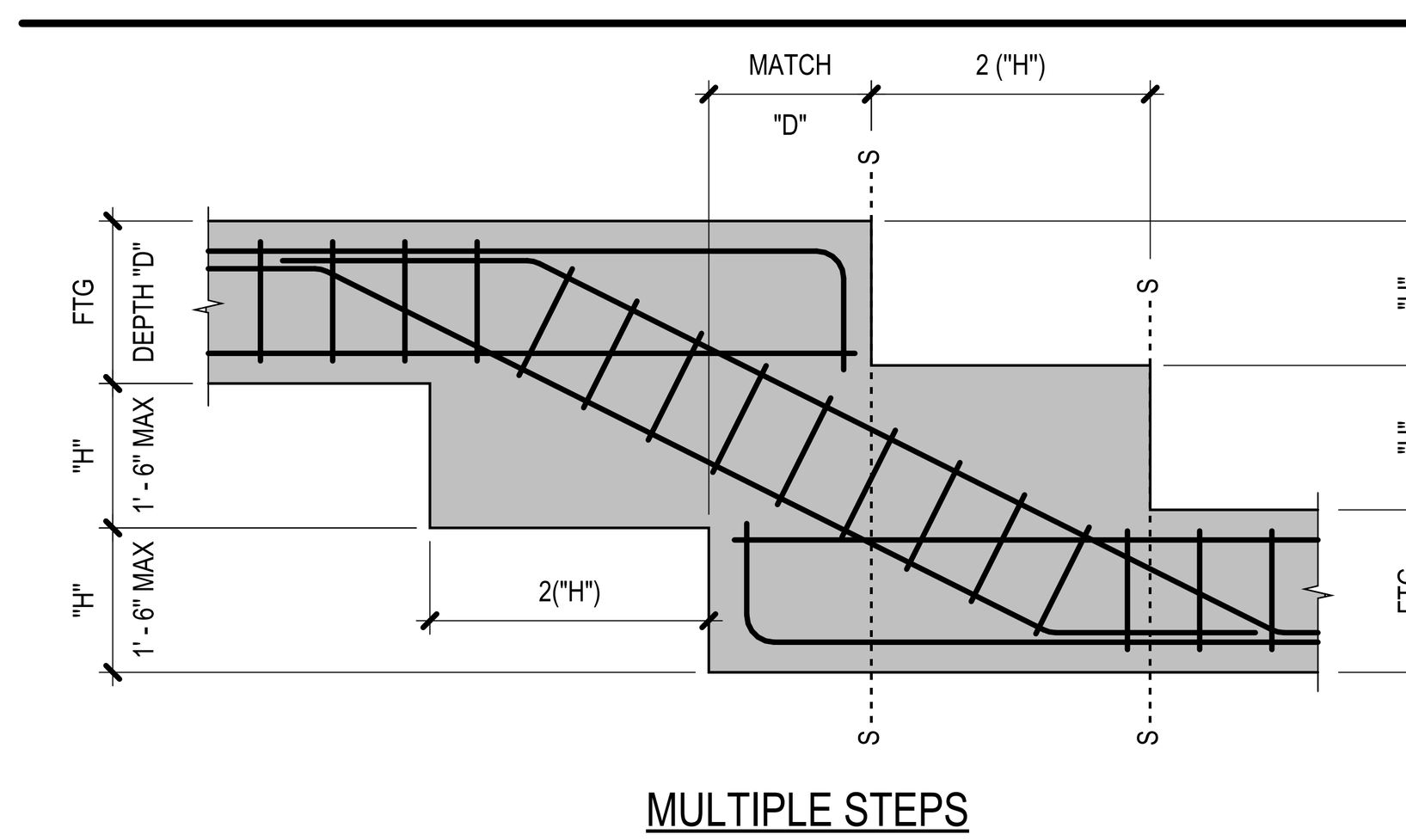




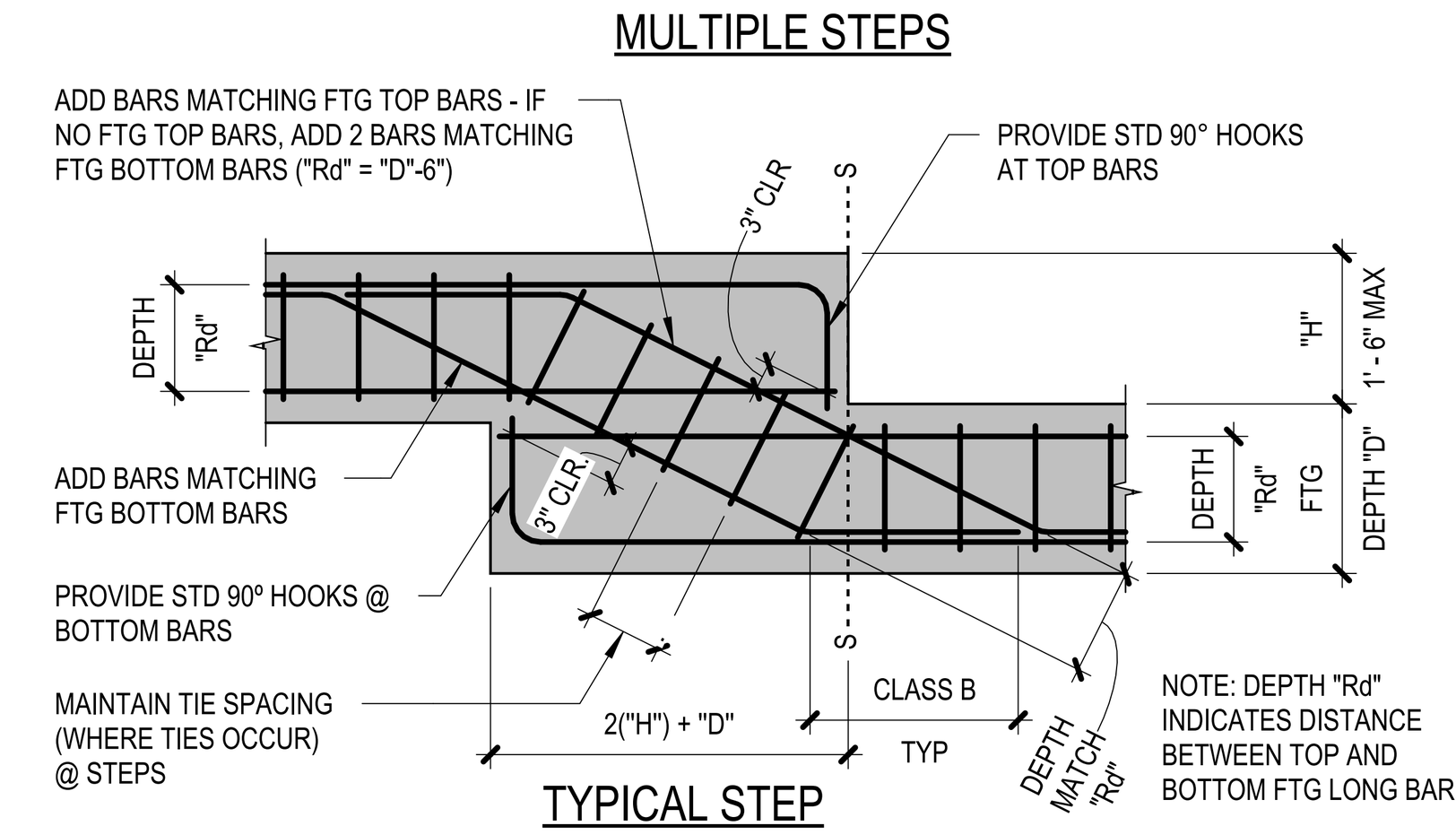


INTERIOR CONDITION

TYPICAL SPREAD FOOTING AT STEEL COLUMN — N.T.S. — 13

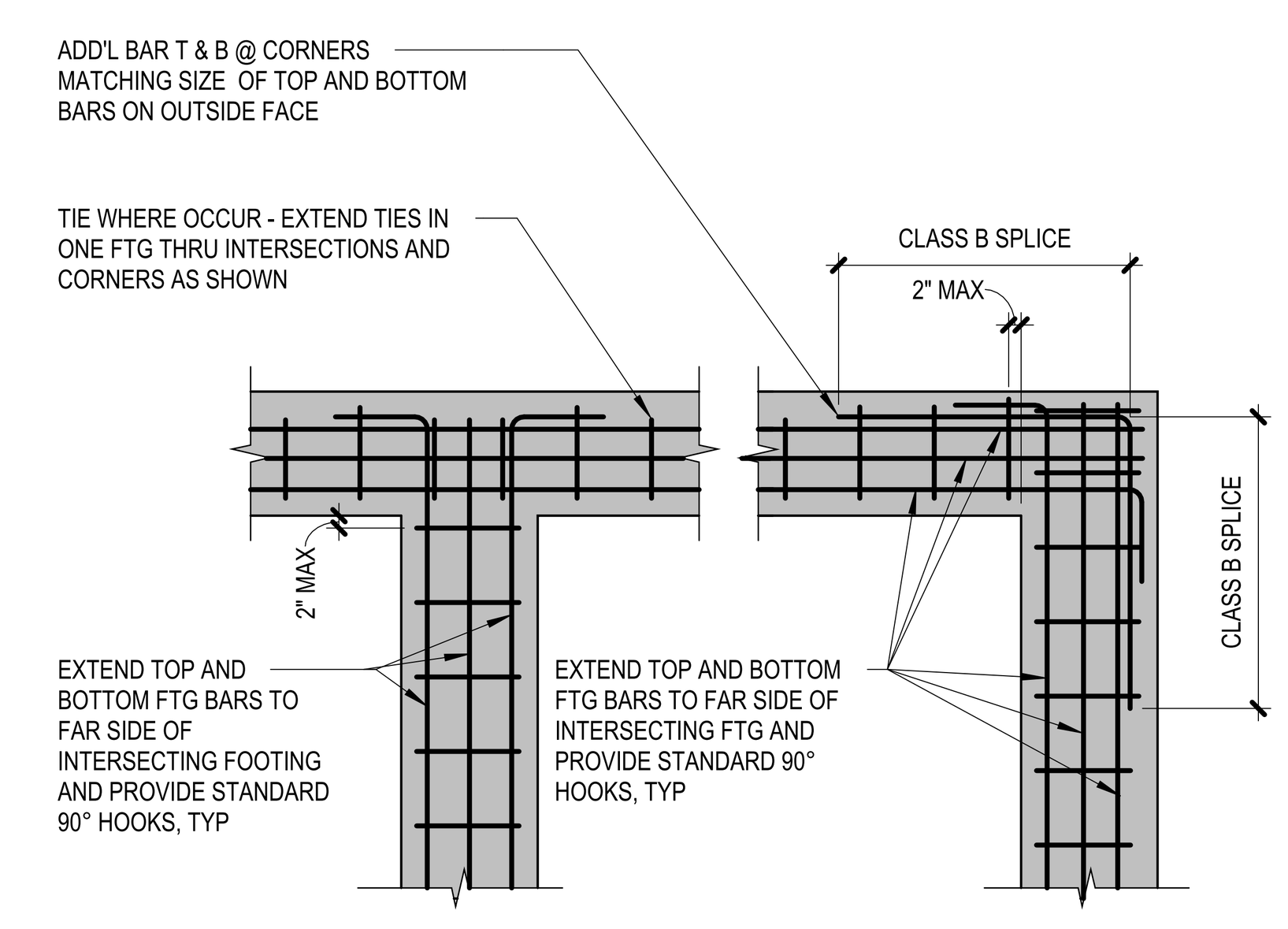


MULTIPLE STEPS



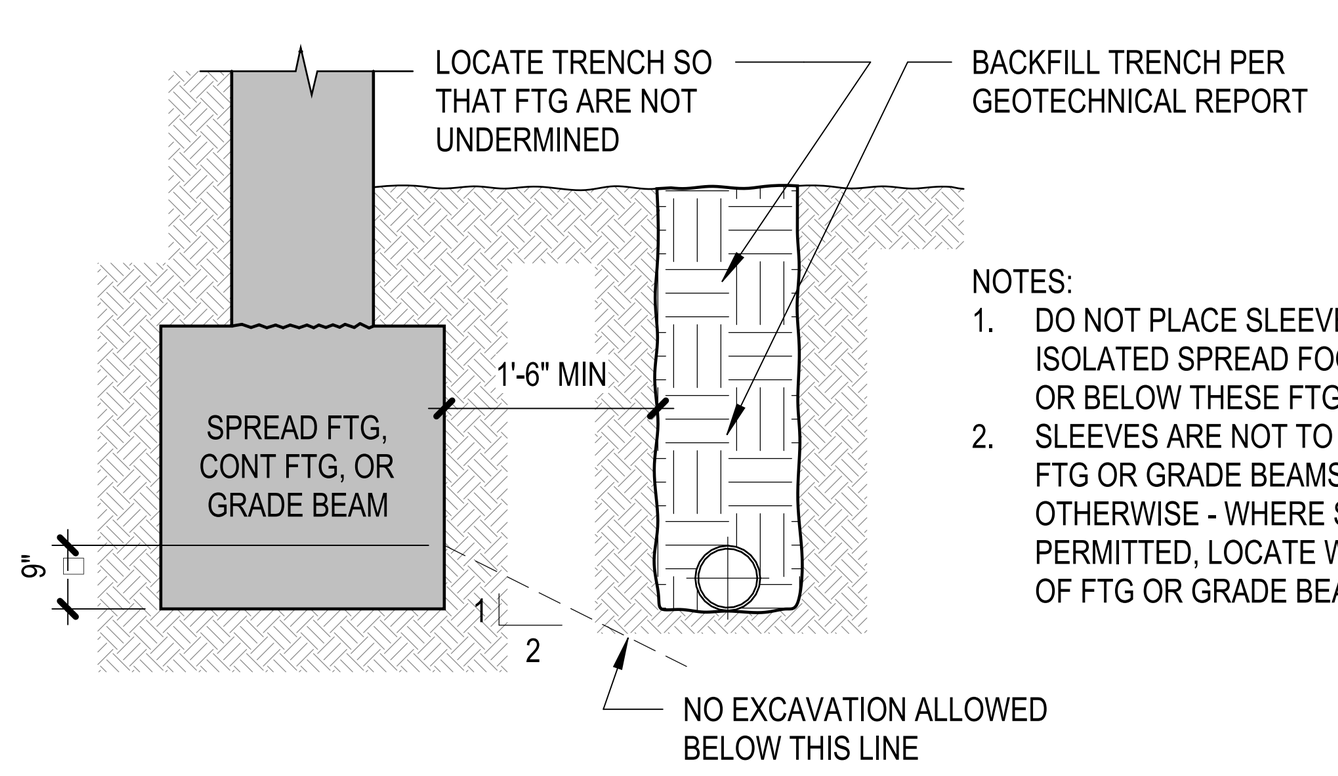
TYPICAL STEP

TYP STEPPED FOOTING/GRADE BEAM DETAIL — N.T.S. — 09



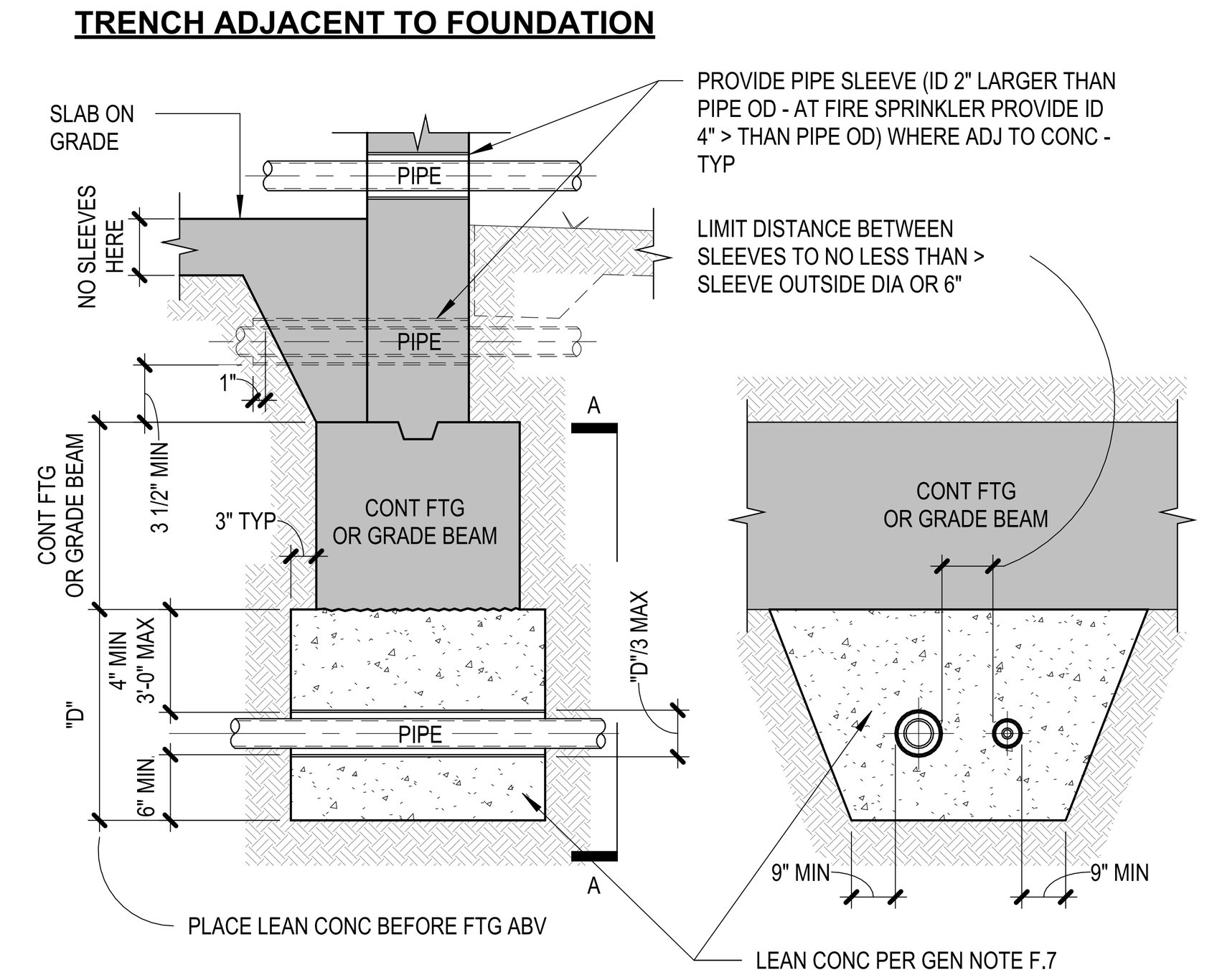
PLAN VIEW AT INTERSECTIONS — PLAN VIEW AT CORNERS

TYP FTG REINFORCING @ CORNERS & INTERSECTIONS — N.T.S. — 05



NOTES:
1. DO NOT PLACE SLEEVES OR CONDUIT IN ISOLATED SPREAD FOOTINGS - RUN AROUND OR BELOW THESE FTG.
2. SLEEVES ARE NOT TO PASS THROUGH CONT FTG OR GRADE BEAMS UNLESS SHOWN OTHERWISE - WHERE SLEEVES ARE PERMITTED, LOCATE WITHIN MIDDLE THIRD OF FTG OR GRADE BEAM DEPTH.

TRENCH ADJACENT TO FOUNDATION



PIPES ABOVE OR BELOW FOUNDATION — ELEVATION A-A

TYP PIPES ABOVE/BELOW OR TRENCHES ADJACENT TO FOUNDATIONS — N.T.S. — 01

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ARCHITECTURE ENGINEERING INTERIOR DESIGN LANDSCAPE ARCHITECTURE PLANNING
949-261-1001 Office
LPADesignStudios.com
5301 California Avenue, Suite 100
Irvine, California 92617

REGISTERED PROFESSIONAL ENGINEER — HARSHDA A. PRASAD — NO. S6463 — 09/30/27 — STRUCTURAL — STATE OF CALIFORNIA

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MALIBU HIGH SCHOOL
INCREMENT 02

30215 Morning View Dr.,
Malibu, CA 90265

Developed for
SANTA MONICA - MALIBU UNIFIED SCHOOL DISTRICT

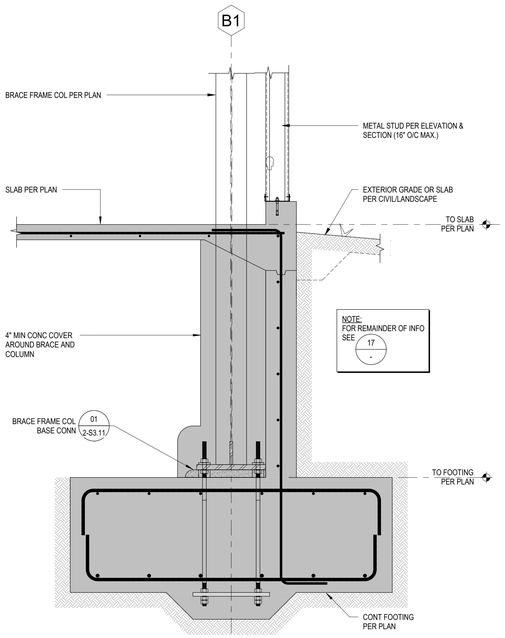
Revision	Date

Submittal	Date
SCHEMATIC DESIGN	09/04/2024
50% DESIGN DEVELOPMENT	12/13/2024
100% DESIGN DEVELOPMENT	02/21/2025
CDP SUBMITTAL	06/16/2025
50% CONSTRUCTION DOCS	06/27/2025
DSA SUBMITTAL	09/08/2025

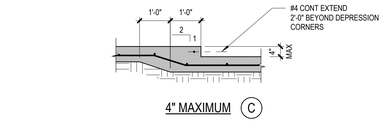
Job Number	31722
Checked By	HP
Scale	As indicated

TYPICAL FOUNDATION AND SOG DETAILS

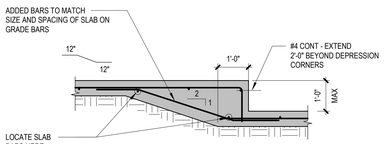
2-S6.01



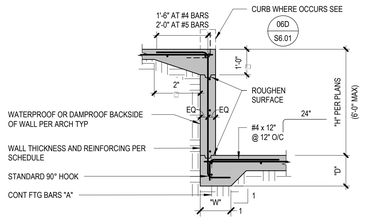
STEEL COLUMNS TO LOW FOOTING BASE CONNECTION | N.T.S. | 19



4" MAXIMUM (C)



1'-0" MAXIMUM (B)

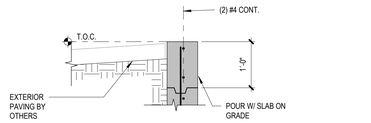


WALL SCHEDULE

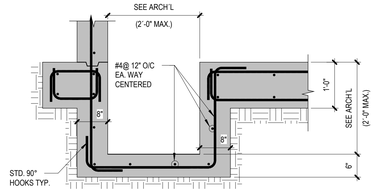
MAXIMUM HEIGHT "H"	FTG WIDTH "W" x DEPTH "D"	FTG BARS "A"	WALL THK	WALL REINFORCING EA WAY
2'-6"	10" x 1'-0"	(2) #4	6"	#4 @ 16" OC
4'-0"	1'-0" x 1'-0"	(2) #5	8"	#5 @ 16" OC
6'-0"	1'-0" x 1'-6"	(2) #6	10"	#6 @ 16" OC

6'-0" MAXIMUM (A)

TYPICAL SECTIONS AT CHANGE IN SLAB ON GRADE ELEVATION (6'-0" MAXIMUM) | N.T.S. | 12

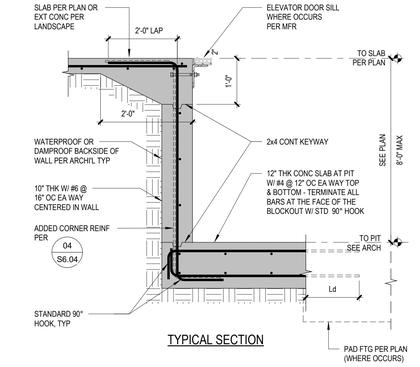


CONDITION (B)

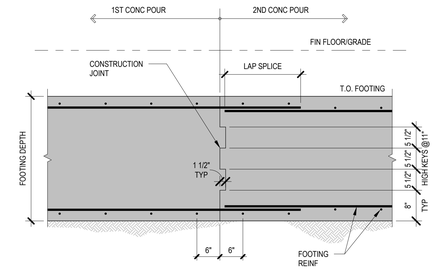


CONDITION AT SUMP PIT (A)

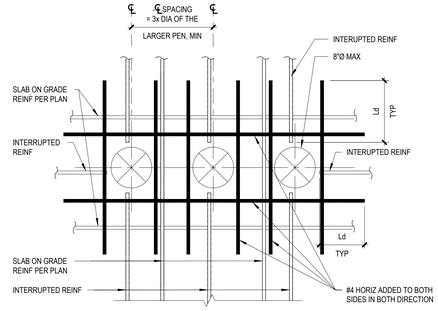
TYPICAL ELEVATOR PIT DETAIL | N.T.S. | 04



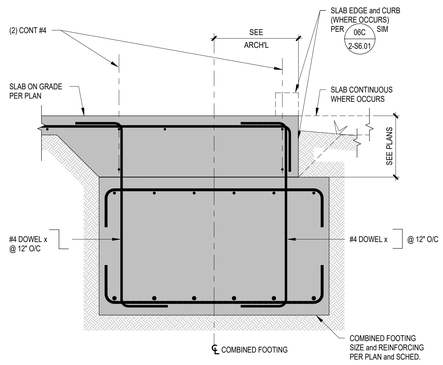
TYPICAL SECTION



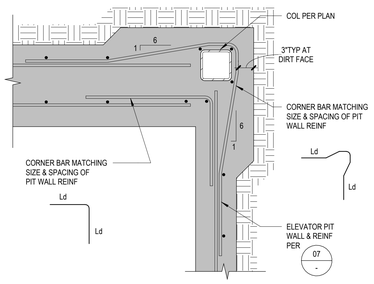
TYPICAL CONTINUOUS FOOTING CONSTRUCTION JOINT DETAIL | N.T.S. | 11



TYP SLAB ON GRADE REINF AT CONDUIT PENETRATIONS | N.T.S. | 03

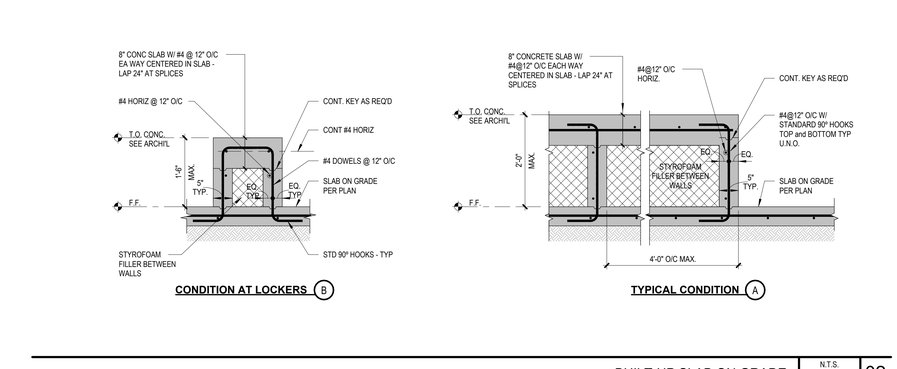


TYP. COMBINED FOOTING SECTION (PERIMETER CONDITION) | N.T.S. | 14



PLAN VIEW

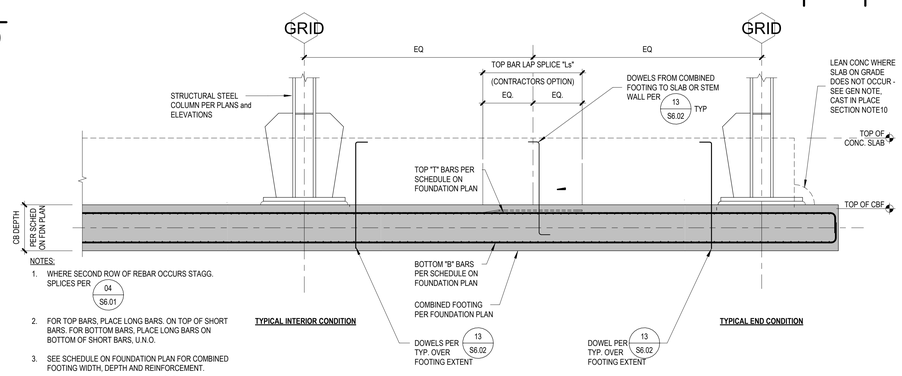
HSS COLUMN AT ELEVATOR PIT CORNER | N.T.S. | 10



CONDITION AT LOCKERS (B)

TYPICAL CONDITION (A)

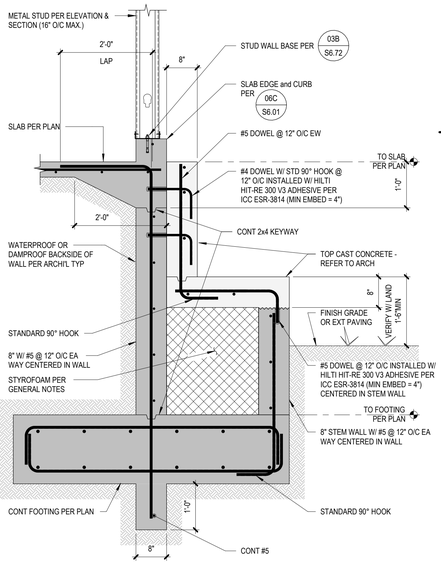
BUILT-UP SLAB ON GRADE | N.T.S. | 02



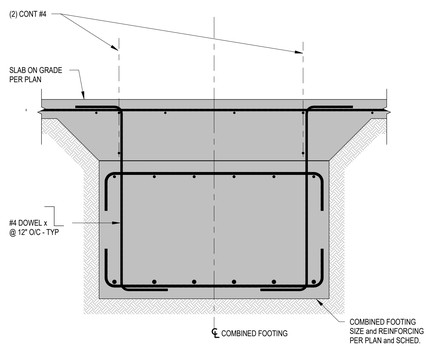
NOTES:
1. WHERE SECOND ROW OF REBAR OCCURS STAGG. SPLICES PER 04 S6.01
2. FOR TOP BARS, PLACE LONG BARS ON TOP OF SHORT BARS. FOR BOTTOM BARS, PLACE LONG BARS ON BOTTOM OF SHORT BARS, U.N.O.
3. SEE SCHEDULE ON FOUNDATION PLAN FOR COMBINED FOOTING WIDTH, DEPTH AND REINFORCEMENT.
4. SEE BRBF BASE DETAILING PER 01 S3.11 FOR ADDITIONAL INFORMATION.
5. TOP BAR LAP SPLICE PREFERRED LOCATION IS INDICATED ON THIS ELEVATION. BOTTOM BAR SPLICE TO BE LOCATED OUTSIDE OF THIS ZONE, AWAY FROM THE CENTER OF THE FOOTING.

TYPICAL COMBINED FOOTING

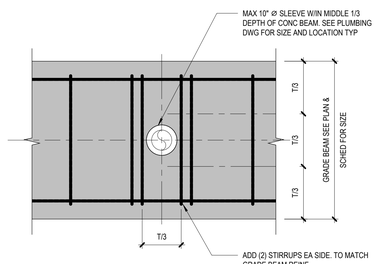
TYPICAL COMBINED FOOTING ELEVATION | N.T.S. | 01



RETAINING WALL DETAIL | N.T.S. | 17



TYP. COMBINED FOOTING SECTION (INTERIOR CONDITION) | N.T.S. | 13



SLEEVE THRU FOOTING / GRADE BEAM | N.T.S. | 09

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ARCHITECTURE ENGINEERING INTERIOR DESIGN
LANDSCAPE ARCHITECTURE PLANNING
949-261-1001 Office
LPADesignStudios.com
5301 California Avenue, Suite 100
Irvine, California 92617

REGISTERED PROFESSIONAL ENGINEER HIMANSHA A. PRASAD NO. 55493 05/31/27 STRUCTURAL STATE OF CALIFORNIA

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MALIBU HIGH SCHOOL
INCREMENT 02

30215 Morning View Dr.,
Malibu, CA 90265

Developed for
SANTA MONICA - MALIBU UNIFIED SCHOOL DISTRICT

Revision	Date

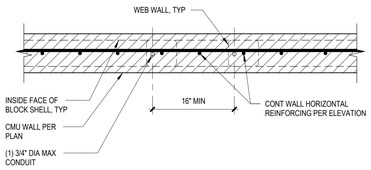
Submittal	Date
SCHEMATIC DESIGN	09/04/2024
50% DESIGN DEVELOPMENT	12/13/2024
100% DESIGN DEVELOPMENT	04/16/2025
CDP SUBMITTAL	06/16/2025
50% CONSTRUCTION DOCS	06/27/2025
DSA SUBMITTAL	09/08/2025

Job Number	31722
Checked By	HP
Scale	

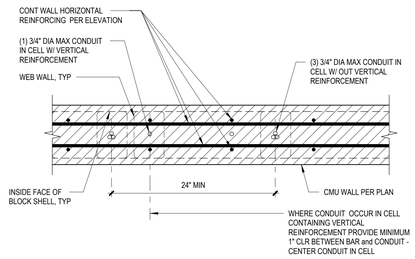
TYPICAL FOUNDATION AND SOG DETAILS

2-S6.02

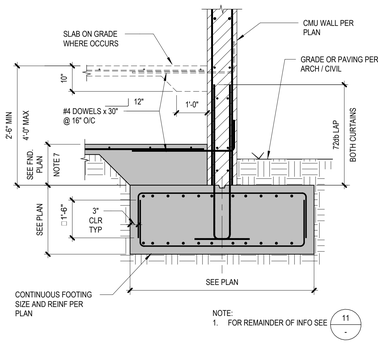
NOTES:
1. PLACE CONDUITS IN CELLS WITHOUT VERTICAL REINFORCEMENT WHENEVER POSSIBLE.
2. WIRE VERTICAL CONDUIT TO WALL HORIZONTAL BARS, MAINTAIN BARS IN PLACE DURING GROUT POUR.
3. HORIZONTAL CONDUIT ARE NOT PERMITTED.
4. NO ALUMINUM COMPONENTS SHALL BE EMBEDED IN MASONRY CONSTRUCTION.
5. CELLS SHOWN ARE REF ONLY ACTUAL CELL & BLOCK CONFIGURATION MAY VARY.



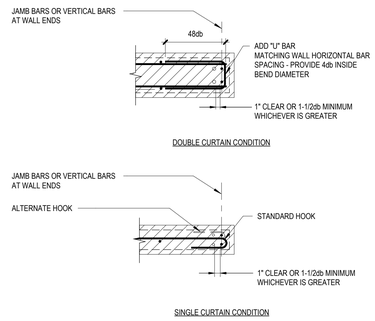
8" CMU WALL (PLAN VIEW)



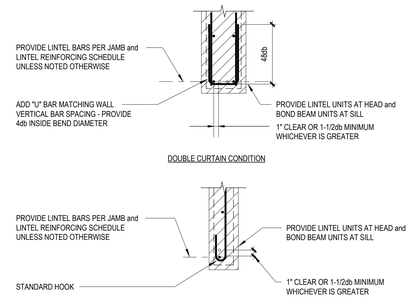
12" CMU WALL (PLAN VIEW)



NOTE:
1. FOR REMAINDER OF INFO SEE 11 -
2. DETAILING SHOWN FOR 12" CMU WALL, 8" CMU WALL SIMILAR

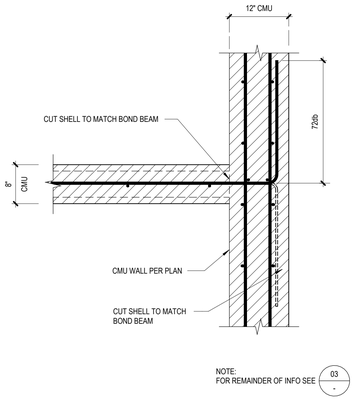


SECTION AT JAMB BARS OR BARS AT WALL ENDS (PLAN VIEWS) (B)



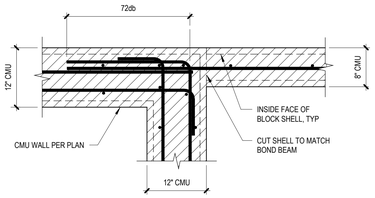
SINGLE CURTAIN CONDITION SECTION AT LINTEL BARS (A)
(SILL CONDITION SIMILAR)

VERTICAL CONDUITS IN CMU WALL — N.T.S. — 16



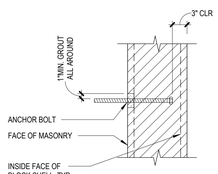
NOTE:
FOR REMAINDER OF INFO SEE 03 -

PLAN VIEW CONDITION (B)



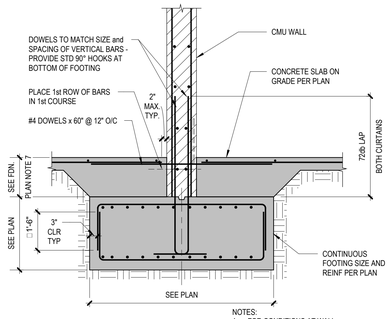
PLAN VIEW CONDITION (A)

TYP MASONRY ANCHOR BOLT DETAIL — N.T.S. — 15



NOTE:
1. ANCHOR BOLTS SHALL BE HEX HEADED WITH THE DIMENSIONS OF THE HEX CONFORMING TO ANSI/ASME B18.2.1 BENT BAR ANCHORS SHALL NOT BE USED.

TYPICAL PERIMETER MASONRY WALL AT CONTINUOUS FOOTING — N.T.S. — 12



NOTES:
1. FOR CONDITIONS AT WALL OPENINGS SEE 13 -
2. DETAILING SHOWN FOR 12" CMU WALL, 8" CMU WALL SIMILAR

TYPICAL INTERIOR MASONRY WALL AT CONTINUOUS FOOTING — N.T.S. — 11

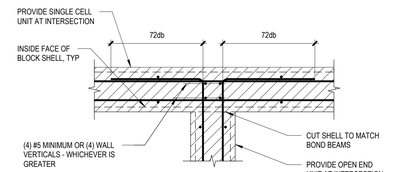
KEY NOTES:
1. PROVIDE DOWELS AT BOTTOM OF WALL MATCHING SIZE and QUANTITY OF VERTICAL OR JAMB BARS INTO FOUNDATION W/ STD 90° HOOKS AT BOTTOM OF FOOTING - LAP W/ VERTICAL OR JAMB BARS 72 BAR DIAMETERS (db)
2. TYPICAL HORIZONTAL WALL BARS PER WALL REINFORCING SCHEDULE UNLESS OTHERWISE INDICATED ON PLANS OR ELEVATIONS - PROVIDE STD 180° HOOKS IN 8" WALL AT WALL ENDS and OPENINGS ON VERTICAL BAR (PROVIDE "U" BARS PER 04B/- IN 12" WALLS) - LAP HORIZONTAL BARS 48db AT STAGGERED LOCATIONS - NO ATTEMPT IS MADE TO LOCATE HORIZONTAL BAR SPLICE LOCATIONS
3. TYPICAL VERTICAL WALL BARS PER WALL REINFORCING SCHEDULE UNLESS OTHERWISE INDICATED ON PLANS OR ELEVATIONS - LAP VERTICAL BARS AT ELEVATED LEVELS AS SHOWN 72db - ADD DOWELS AT CONCRETE SLAB ON GRADE and ELEVATED CONCRETE LEVELS PER DETAILS INDICATED
4. TYPICAL JAMB BARS - SEE JAMB and LINTEL REINFORCING SCHEDULE UNLESS NOTED OTHERWISE ON PLANS OR ELEVATIONS - EXTEND JAMB BARS 72db ABOVE and BELOW OPENINGS UNLESS SHOWN OTHERWISE (ADD BARS WITH STD 180° HOOK IN 8" WALLS (90° HOOK IN 12" WALLS) AT TOP OF WALL WHERE WALLS TERMINATE ABOVE OPENING) - LAP JAMB BARS AT ELEVATED LEVELS WHERE SHOWN 72 BAR DIAMETERS - FOR TYPICAL SECTION AT JAMB BARS INCLUDING CONFINING TIES SEE 04B/- UNLESS NOTED OTHERWISE
5. TYPICAL LINTEL BARS - SEE JAMB and LINTEL REINFORCING SCHEDULE UNLESS OTHERWISE INDICATED ON PLANS OR ELEVATIONS - SPLICES NOT PERMITTED - EXTEND LINTEL BARS 72db BEYOND OPENINGS UNLESS SHOWN OTHERWISE (PROVIDE STD 180° HOOK IN 8" WALLS (90° HOOK IN 12" WALLS) AT WALL ENDS IF EXTENSION LENGTH BEYOND OPENING CANNOT BE ATTAINED) - FOR TYPICAL SECTION AT LINTEL BARS INCLUDING CONFINING TIES SEE 04A/- UNLESS NOTED OTHERWISE
6. WHERE OPENING JAMBS ABOVE and BELOW MISALIGN BY LESS THAN 16" ACCEPTABLE TO PROVIDE SINGLE ALIGNING JAMB FOR ALL OPENINGS
7. DETERMINE LINTEL BARS BASED ON WIDTH OF LARGER OPENING ABOVE OR BELOW
8. PROVIDE (2) #5 VERTICAL BARS AT WALL ENDS UNLESS NOTED OTHERWISE - LAP VERTICAL BARS AT ELEVATED LEVELS AS SHOWN 72 BAR DIAMETERS
9. IF WALL HEIGHT IS NON-MODULAR OR TOP OF WALL SLOPES, EITHER SAW TOP COURSE OR (IF NOT EXPOSED) FORM TOP COURSE and GROUT SOLIDLY
10. EXTEND JAMB BARS DOWN TO TOP OF OPENING and PROVIDE STD 180° HOOK IN 8" WALLS (90° HOOK IN 12" WALLS)
11. AT TOP OF WALL, PROVIDE (2) HORIZONTAL WALL BARS W/ STD 180° HOOK IN 8" WALLS (90° HOOK IN 12" WALLS) AT WALL ENDS
12. SEE ARCH WALL ELEVATIONS FOR CONTROL JOINT LOCATIONS (MAX 25'-0" O/C UNO)
13. PIER WIDTH "PW" SHALL BE AT LEAST 3 TIMES WALL THICKNESS UNLESS PIER WIDTH and SECTION SHOWN ON WALL ELEVATIONS IN STRUCTURAL DRAWINGS
14. BEAM POCKET PER PLAN (WHERE OCCURS). AT INTERRUPTED CHORD REINFORCING PROVIDE BARS MATCHING SIZE AND QUANTITY OF INTERRUPTED CHORD REINFORCING DIRECTLY BENEATH POCKET CONTINUE 72db BEYOND POCKET EACH END - SEE 09/2-S6.62

JAMB and LINTEL REINFORCING SCHEDULE
(UNLESS NOTED OTHERWISE ON PLANS OR WALL ELEVATIONS)

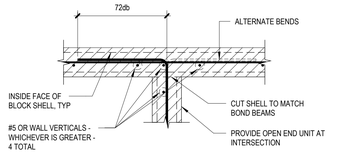
MAXIMUM OPENING WIDTH "W"	REINFORCING	
	JAMB REINFORCING (VERTICAL)	LINTEL REINFORCING (HORIZONTAL)
2'-0"	(2)#5	(2)#5
4'-6"	(2)#5	(2)#5
6'-0"	(2)#6	(2)#6
8'-0"	(2)#6	(2)#6
15'-0"	SEE ELEVATION	SEE ELEVATION

NOTES:
1. AT PIERS BETWEEN ADJACENT OPENINGS WHERE PIER WIDTH "PW" < 6'-0", DETERMINE JAMB BARS BASED ON LARGER OPENING WIDTH "W".
2. OPENING (JAMB) and CORNER BARS SHALL BE OF SIZE NO LESS THAN THE VERTICAL BARS SPECIFIED ON WALL ELEVATION.

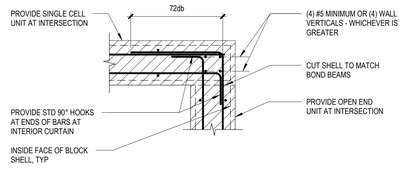
TYPICAL MASONRY CONSTRUCTION AT OPENINGS and WALL ENDS — N.T.S. — 04



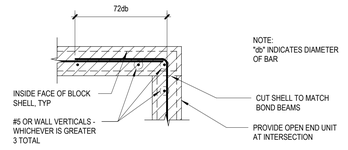
INTERSECTION (DOUBLE CURTAIN)



INTERSECTION (SINGLE CURTAIN)

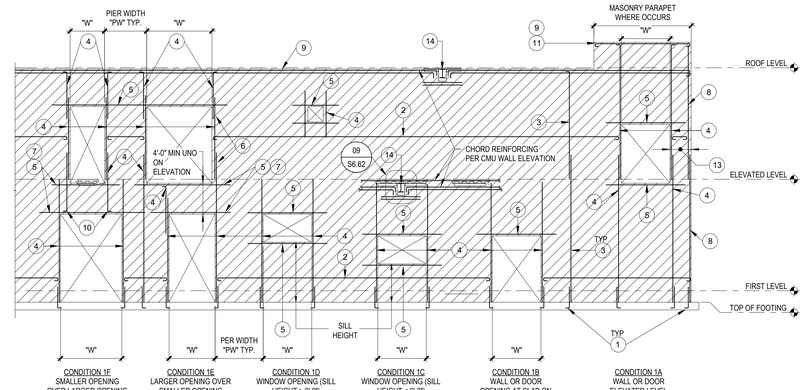


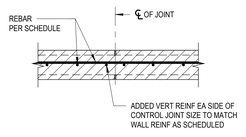
CORNER (DOUBLE CURTAIN)



CORNER (SINGLE CURTAIN)

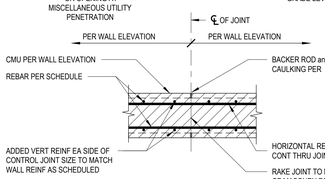
TYPICAL MASONRY CONSTRUCTION AT CORNERS and INTERSECTIONS (PLAN VIEWS) — N.T.S. — 03





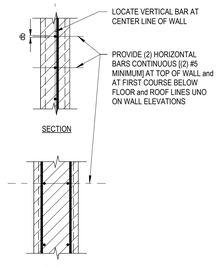
CMU CONTROL JOINT AT SINGLE CURTAIN CONDITION

NOTE:
FOR REMAINDER OF INFO SEE DOUBLE CURTAIN CONDITION



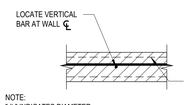
CMU CONTROL JOINT AT DOUBLE CURTAIN CONDITION

NOTE:
MORTAR JOINT SHALL BE CONTINUOUS ALONG CONTROL JOINT



WALL REINFORCING SCHEDULE
(UNLESS NOTED OTHERWISE - SEE PLANS OR WALL ELEVATIONS FOR WALL THICKNESS)

NOMINAL WALL THICKNESS	REINFORCING		REINFORCING PLACEMENT DETAIL
	VERTICAL REINFORCING	HORIZ REINFORCING	
8"	#6 @ 16" O/C - AT WALL CENTERLINE	#5 @ 16" O/C - ADJACENT TO VERTICAL REINFORCING	01Z -



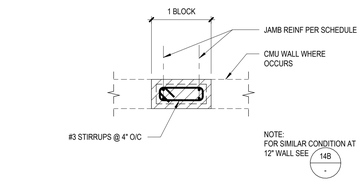
NOTE:
"db" INDICATES DIAMETER OF BAR

PLAN VIEW
BAR PLACEMENT AT SINGLE CURTAIN CONDITION (Z)

NOTE:
PROVIDE OPEN END UNIT AT EACH VERTICAL BAR

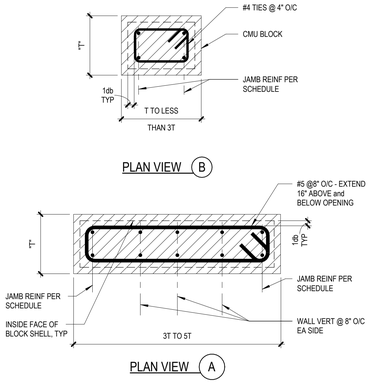
BAR PLACEMENT AT DOUBLE CURTAIN CONDITION (Y)

CMU INTERSECTION BETWEEN 8" CMU AND 12" CMU (PLAN VIEW) — N.T.S. — 18

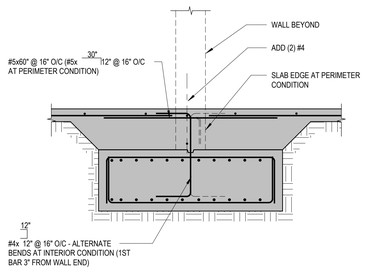


PIER REINFORCING AT 8" WALL (PLAN VIEW) — N.T.S. — 17

PIER REINFORCING AT 12" WALL (PLAN VIEW) — N.T.S. — 14



TYPICAL OPENING MASONRY WALL AT CONTINUOUS FOOTING — N.T.S. — 13



TYPICAL MASONRY WALL ELEVATION and REINFORCING SCHEDULES (APPLICABLE TO ALL MASONRY WALLS EXCEPT SITE RETAINING WALLS UNLESS NOTED OTHERWISE) — N.T.S. — 01

LPA
ARCHITECTURE ENGINEERING INTERIOR DESIGN
LANDSCAPE ARCHITECTURE PLANNING
949-261-1001 Office
LPADesignStudios.com
5301 California Avenue, Suite 100
Irvine, California 92617

REGISTERED PROFESSIONAL ENGINEER — HAMIDHA A. PRASAD — NO. S5493 — 09/27/25 — STRUCTURAL — STATE OF CALIFORNIA

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MALIBU HIGH SCHOOL
INCREMENT 02

30215 Morning View Dr.,
Malibu, CA 90265

Developed for
SANTA MONICA - MALIBU UNIFIED SCHOOL DISTRICT

Revision	Date

Submittal	Date
SCHEMATIC DESIGN	09/04/2024
50% DESIGN DEVELOPMENT	12/13/2024
90% DESIGN DEVELOPMENT	04/18/2025
CDP SUBMITTAL	06/16/2025
50% CONSTRUCTION DOCS	06/27/2025
DSA SUBMITTAL	09/08/2025

Job Number	31722
Checked By	HP
Scale	As indicated

TYP. CMU WALL ELEVATION and DETAILS

2-S6.61

CAST-IN-PLACE CONCRETE

1. Concrete mixing shall comply with ASTM C94.
2. Hydraulic Cement:
   A. ASTM C595 see table for types.
   B. Alternatively, ASTM C150 type II/V.
3. Aggregates:
   A. Normal Weight Concrete Aggregate (NW): ASTM C33 for aggregates of natural sand and rock. The maximum aggregate size is noted in the table below. The maximum dry density shall be 145 pcf.
      a. Where smaller aggregate is required for workability or areas of congestion, the contractor shall submit a request to the structural engineer prior to submitting the mix design. Pea gravel is not permitted.
   B. Light Weight Aggregate (LW) for Structural Concrete: ASTM C330, expanded shale lightweight aggregate. The maximum dry density shall be 115 pcf.
   C. Alkali Aggregates: Aggregate shall be non-reactive per ASTM C1778.
4. See the table below for the required concrete properties:

Class	Use/Location	Strength (psi) 28-Day	Agg Type	Max Agg Size (in)	Slump (in)	Max w/c	Target Air %	ASTM C595 Type	Exposure Category	GWP Limit kgCO$_2$e/m^3
A	UNLESS NOTED OTHERWISE	4,000	NW	1	3-5	0.5	--	IL	F0,S0	324
B	FOOTING AND GRADE BEAMS	4,000	NW	1	3-5	0.5	--	IL (HS)	F0,S0,C1*	324
C	SLAB ON GRADE	4,500	NW	1	3-5	0.45	--	IL	F0,S0	378
D	WALLS	4,000	NW	1	3-5	0.45	--	IL	F0,S0,C1*	324
E	COLUMNS	5,000	NW	1	3-5	0.5	--	IL	F0,S0	378
F	FILL ON DECK	4,000	LW	3/4	3-5	0.45	--	IL	F0,S0	594
G	PIERS / CAISSONS	3,000	NW	1 1/2	5-7	0.6	--	IL	F0,S0,C1*	280

* An exposure class of fC1 is assumed for concrete in contact with soil exposed to moisture per ACI 318, but not due to external sources of chlorides.

5. Slump: Per ACI 301, CH. 4 and CBC section 1705.3. The specified slump above is measured before applying chemical add mixtures. The slump may be increased up to a maximum 8" at the contractor's option for workability and should be noted in the mix design submittal.
6. Global Warming Potential (GWP): as defined in the specifications.
   A. Concrete may be considered one product category to comply with the GWP Limit. A weighted average of the maximum GWP for all concrete mixes installed in the project shall be less than the weighted average maximum GWP as specified above. Calculations shall be submitted for approval.
7. N/A
8. All concrete above grade, including slab on grade, deck fill, wall, topping slab, stair landing and tread, shall have 1.5 pounds of 3/4" long structural reinforcing per cubic yard per concrete.
9. Lean Concrete: Where specifically indicated, containing 2 sacks of cement per cubic yard of concrete. Use only where specifically called for.
10. Non-shrink Grout: ASTM C1107, cementitious, non-metallic, attaining a compressive strength of 8000 psi.
11. Concrete Mix Design Submittal: Prior to ordering concrete, submit for each compressive strength and type of concrete required designed, mix designs signed, and sealed by a registered Civil or Structural Engineer in State of California to Architect (Structural Engineer), Special Inspector, Owner and to Governing Code Authority complying with California Building Code, Chapter 19.
12. Construction Joint: Roughen surface to 1/4-inch amplitude. Clean, remove laitance, thoroughly wet and remove standing water before placing new concrete. Submit to the Architect (Structural Engineer) at least 14 days prior to placing concrete indicating locations of construction joints and extent of pours. Place joints at locations to minimize the effects of shrinkage as well as being placed at points that least impair the strength of the structure. Provide dowels as directed.
13. Embedments and Penetrations in Concrete: No penetration through structural concrete is permitted unless shown in these drawings or specifically accepted in writing by the Architect (Structural Engineer). Do not cut any reinforcing.
   A. Pipes, Sleeves, Conduits, and Ducts: Not permitted embedded or penetrating concrete spread footings, columns, walls or concrete cast over metal decking, except as shown in these drawings.
   B. Conduits Embedded in Structural Concrete Slabs: Not permitted unless limited to two layers of 1 inch, and 1/6 slab thickness. outside diameter conduits and smaller spaced at least 3 inches center to center and within middle third of slab thickness. No conduit embedded in concrete cast over metal decking is permitted. No aluminum conduit is permitted.
14. Chamfered Corners: Provide 3/4-inch charfer at exposed corners of columns, beams and walls except where structural walls are laid flush with column or beam faces, unless detailed otherwise.
15. Curing: Maintain concrete above 50 degrees Fahrenheit and in a moist condition for a minimum of 7 days after placement unless otherwise accepted by the Architect (Structural Engineer).
16. Non-Structural Topping slab shall be normal weight concrete reinforced with 6x6-W3.5xW3.5 W.W.F. at the center line of the slab. See plans & details for information on concrete fill over metal deck.
17. The maximum size for a single elevated concrete slab pour shall be 25,000 sq. ft. and shall have a maximum length to depth ratio of 2:1.
18. The maximum water-soluble chloride ION (CI) content in concrete by percentage of weight cement is 0.30.
19. Where "Styrofoam" or "EPS" is indicated on the drawings, provide expanded polystyrene conforming to ASTM D6817 Type EPS12 with the following physical properties.
   A. Density (min): 0.70 lb/ft^3
   B. Compressive Resistance (min): 2.2 psi @ 1% strain
   C. Flexural Strength (min): 10.0 psi

METAL DECKING

1. Metal Decking and Accessories: Verco Manufacturing Company, type and gauge as indicated on structural drawings, ASTM A653-SS grade 50 minimum conforming to IAPMO report ER-2018, G60 coating, unless heavier galvanized coating is indicated in specifications. Run deck units continuous over three or more spans where possible, deck is designed for unshored construction, UNO. Provide vented deck where vapor impervious material occurs over concrete fill, see Architectural for locations.
2. Deck Welding: AWS D1.3 using prequalified procedures.
   A. Qualification of Welders: Welders shall be experienced in welding light-gauge steel and using prequalified procedures. Erector shall establish welding procedure for arc spot welding of metal decking to structural steel, for each gauge of decking to be used. Prior to deck erection, each welder shall be qualified using this procedure and witnessed by Special Inspector. See California Building Code, Chapter 22A and 17A, for additional qualification requirements.
3. Shop Drawings: Submit to Architect (Structural Engineer) for review. Shop drawings shall include layout of deck, type of deck, methods of attachment, and all deck openings larger than 1'-0".
4. Limits to Non-Structural Items Suspended From Metal Decking:
   A. Hangers supported by metal decking with structural concrete fill shall be anchored using products with valid evaluation report under applicable code.
      a. Limit hangers to the following applications: Acoustical ceilings, ducts no greater than 6 sq. feet cross sectional area, pipes no greater than 3 inch diameter. See typical detailing for further clarification of design intent.
      b. At duct and pipe distributions systems, limit hanger loads to concrete filled metal deck as follows: 250# maximum per metal deck span per 24" width. Support larger duct work and piping from structural beams as shown in typical details.
   B. Hangers supported by metal decking without structural concrete fill shall be anchored using products with valid evaluation report under applicable code.
      a. Limit hangers to the following applications: Acoustical ceilings, ducts no greater than 1.5 sq. feet cross sectional area, pipes no greater than 1.5 inch diameter. See typical detailing for further clarification of design intent.
      b. At duct and pipe distributions systems, limit hanger loads to metal deck w/o concrete fill as follows: 100# maximum per metal deck span per 24" width. Support larger duct work and piping from structural beams as shown in typical details.
5. Pre-punched Holes in Metal Decking and Accessories: Metal deck welding and installation of welded shear studs are not permitted through single layer sheets greater than 16 gauge (G90 MAX), nor through double layer sheets greater than 20 gauge (G60 MAX), nor through sheets with total galvanized coating thickness greater than 1.25 ounces per square foot. Provide pre-punched holes as necessary. Provide closure angle at all openings per typical details.
6. Excess Structural Concrete: Concrete filled metal decking and steel framing will deflect during placement of concrete. These deflections will require placement of concrete in excess of amount based on nominal dimensions in order to bring slab within tolerances of a horizontal plane. Provide excess concrete at no cost to Owner.
7. Deck shall be layed out such that low flutes land on each parallel support wherever possible. Provide filler deck accessory where low flutes do not align with parallel framing. Provide 2" minimum bearing at each support and 2" lap at ends of decking panels.
8. Composite slabs:
   A. See "Proprietary Anchorage and Fasteners" notes for welded headed studs.
   B. Stud welding, inspection and testing shall conform to AWS D1.1, CH. 7.
   C. 18 gauge or thicker decking shall not be lapped where welded studs are attached through decking.

REINFORCING STEEL

1. Reinforcing Steel: All bars shall be deformed.Table Notes:

Use/Location	Type/Grade	GWP Limit (unfabricated) (MTCO$_2$e/MT)	Notes
Standard Bars (#3 thru #6)	ASTM A615, Grade 60	0.89	-
Standard Bars (#7 and larger)	ASTM A615, Grade 60	0.89	-
Bars to be welded (#3 thru #6)	ASTM A706, Grade 60	0.89	-
Bars to be welded (#7 and larger)	ASTM A706, Grade 60	0.89	-
Smooth WWF	ASTM A1064, Fy = 65 ksi	-	A
Deformed wire stirrups	ASTM A1064, Fy = 65 ksi	-	B
Spiral reinforcing	ASTM A1064, Fy = 65 ksi	-	-

   A. Provide WWF in flat sheets only - do not use rolled mesh. Lap 1-1/2 wire spaces (1 foot minimum).
   B. Only D4 and larger are allowed.
   C. MT = Metric ton.
2. Reinforcing shall be placed in accordance with the American Concrete Institute Standard 318 (ACI 318) and Concrete Reinforcing Steel Institute's (CRSI) "Manual of Standard Practice". Reinforcing shall be kept clean and free of rust.
3. Provide all accessories needed to support reinforcing in the positions shown in the drawings. Chairs and spacers for reinforcing shall be non-ferrous or plastic-coated when resting on exposed concrete surfaces.
4. Shop Drawings: ACI 318. Show reinforcing steel placement, including sizes, quantities, spacing, clearances, splice locations, lap lengths, and concrete coverage and submit to the Architect (Structural Engineer). Promptly notify the Architect (Structural Engineer) prior to developing shop drawings if insufficient clear distances between reinforcing steel and other congestion are encountered. Notify Special Inspector of adjustments made from approved Contract Documents which are indicated on accepted shop drawings that facilitate field placement of reinforcing steel and concrete. All bars shall be marked so that they can easily be identified by the project inspector after installation.
5. Lap Splices: At concrete, Provide Class B splices per Typical Bar Development Schedules UNO. At masonry, provide 72db lap splice length UNO. Splice bars only at locations indicated. If additional splice locations are proposed, promptly notify the Architect (Structural Engineer) prior to developing shop drawings.
   A. Splices in Walls: Locate splices in horizontal bars at well-staggered locations. Do not splice vertical bars except at horizontal supports such as floor and roof diaphragms.
6. Mechanical and Welded Splice: Mechanical Splices and Welded Splices are to be used only at the indicated locations. Notify the Architect (Structural Engineer) of all instances prior to developing shop drawings.
   A. Mechanical Splice: Mechanical couplers shall have a current Evaluation Report and satisfy ACI requirements for type 2 couplers for the applicable bar size/grade designation.
   B. Welded Splice: Welded splice shall develop at least 125 percent of the yield strength of the spliced bar for the applicable bar size and grade designation.
7. Minimum Clearances Between Parallel Reinforcing Steel, Including Distance Between Sets of Spliced Bars: 1 inch, 1 bar diameter, or 4/3 times the maximum aggregate size, whichever is greater, 1-1/2 inches, 1-1/2 bar diameters, or 4/3 times the maximum aggregate size, whichever is greater, at columns, piers, and pilasters only. For bundled bars, minimum clear distances between units of bundled bars shall be the same as single bars, except bar diameter is derived from the equivalent total area of the bundle.
8. Specified Concrete Coverage: Place bars as near to the concrete surface as the following specified coverages and in accordance with ACI 117:

A. Slabs on Grade	Locate at the center of slab.
B. Slabs Supporting Earth Above	1-1/2 inches from top.
C. Formed Concrete Exposed to Earth or Weather	1-1/2 inches (#5 and smaller) 2 inches (#6 and larger)
D. Concrete Poured Against Earth (Unformed)	3 inches
E. Walls Above Grade, Exposed to Weather	1-1/2 inches (#5 and smaller) 2 inches (#6 and larger)
F. Walls Above Grade, Not Exposed to Weather	3/4 inch (#11 and smaller) 1-1/2 inches (#14 and larger)
G. Columns (Clear to Face of Ties)	1-1/2 inches
H. Beams (Clear to Face of Ties)	1-1/2 inches
I. Structural Slabs, Not Exposed to Weather (Top and Bottom)	1 inch (#8 and smaller) 1db (#9 and larger)
J. Structural Slabs, Exposed to Weather	1-1/2 inches (#6 and smaller) 2 inches (#6 and larger)
K. Structural Slabs over Void Forms	1 inch (top #8 and smaller); 1 db (#9 and larger) 2 inches (bottom)

9. Dowels between foundations and vertical wall & column bars shall match the size, grade and spacing of the column or wall vertical reinforcing and be lapped with a class B lap splice, UNO.
10. Dowels at Construction Joints: Provide dowels matching size and quantity of reinforcing steel interrupted at construction joints, unless detailed otherwise.
11. Placement of Bars in Walls (unless detailed otherwise): Place vertical bars closest to wall surfaces at curtains containing vertical and horizontal bars of the same size. In curtains with vertical and horizontal bars of different sizes or spacing, place the layer with the most steel area closest to the near wall surface.
12. Bars Terminating at Walls, Columns, Beams, and Foundations: Extend bars to within 2 inches (3 inches at concrete poured against earth) of the far face of the wall, column, beam, or foundation and provide a standard hook unless detailed otherwise.
13. Bars Interrupted by Structural Steel: Extend bars within 2 inches of the steel face and provide a standard hook unless detailed otherwise.
14. Welding: AWS D1.4, edition adopted by applicable code.
   A. Acceptable Reinforcing Steel for Welding: ASTM A706. If welding of reinforcing steel other than A706 is desired, submit a proposed procedure, indicating conformance with the Applicable Code and requirements of the Governing Code Authority, to the Architect (Structural Engineer) for acceptance and to the Governing Code Authority for approval prior to execution.
   B. Rebar to rebar weld is not allowed except where specifically indicated on plans. Provide electrode E80XX (80 ksi) where permitted.
   C. Welder Certification: As required by the Governing Code Authority.
15. See welding notes in the Structural Steel Section of these notes for additional requirements.
16. Bending: Bend cold according to typical details unless otherwise accepted by the Architect (Structural Engineer). Do not field-bend reinforcing steel bars embedded in concrete unless otherwise accepted in writing by the Architect (Structural Engineer).
17. In-plant fusion welding of holding wires to ties, stirrups and hoops in beams, columns and grade beams to preassemble reinforcing steel cages is permitted under the following conditions per CBC 2022 1903.8:
   A. Fusion welding is not allowed to longitudinal reinforcing steel in any beam, column or grade beam. The holding wire area shall not exceed 5% of the beam, column or grade beam cross sectional longitudinal steel area.
   B. Fusion welding of holding wires to the ends of the reinforcing steel placed in mats (spread footings, slab reinforcement, etc.) provided the fusion weld occurs within 6 bar diameters of the free end of the bar (e.g. not allowed at the end of coupled, t-headed or weld spliced bars).
   C. Fusion welding of holding wires shall not occur on a bent portion of a reinforcing bar. After holding wire has been fusion welded to a reinforcing bar, that bar may not be bent where the fusion weld occurs.
   D. Contractor to submit complete shop drawings indicating which members will use fusion welding process for preassembly. Provide complete details indicating the size of stirrups, holding wires and welding requirements.
   E. Holding wires shall conform to ASTM A1064.
   F. All reinforcing steel to be welded shall comply with ASTM A706 Grade 60.
      a. Contractor to submit complete shop welding program outlining the following: Type of specific fusion welding machine (i.e. Schnell IDEA 12/25 Machine, etc.)
      b. Periodic inspection of the in-plant welding.
   G. Fusion welded reinforcing steel shall have one tensile test taken from one specimen sampled at a rate of 2.5 tons or fraction thereof of each size of reinforcing steel fusion welded. No bend test is necessary. The specimen shall have a holding wire attached to it that need not be removed. The elongation requirements shall comply with the ASTM of reinforcing steel specified on the construction documents (e.g. if A615 is specified, but A706 is used due to the welding requirement, then A615 elongation requirements shall be satisfied).
   H. The use of fusion welding shall conform to ACI 318-19:26.6.4.
   I. If field conditions result in conflicts with other structural members (ex. anchor bolts) the rebar must be relocated in the field to avoid said conflicts.

DESIGN LOADING

1. Loading and Design Parameters:
   A. Live Load
      a. Floor / Roof Live Load: See legends as provided on loading plan sheets.
      b. Live Load Reduction:
         - Floor Live Load of 100 psf and below: General (Applicable Code Section 1607A.12.1)
         - Floor Live Load over 100 psf: Unreduced
         - Roof Live Load: General (Applicable Code Section 1607A.14.2)

   B. Wind Design Parameters

Wind Speed Strength level, V:	100 MPH (STRENGTH)
a. Wind Speed Allowable Stress, V_{asd}	78 MPH (ASD)
b. Risk Category:	III
c. Exposure:	C
d. Enclosure Classification:	Enclosed, Hub Canopy: Open
• Internal Pressure Coefficient, GC_{pi}:	+/- 0.18, Hub Canopy: 0.0
e. Components and Cladding Wind Pressure:	

Hub Building (Middle School Building and MDF Building):

	EFFECTIVE AREA		
ZONE	10 SF	100 SF	500 SF
1'	16.0 / -20.0 (psf)	16.0 / -20.0 (psf)	16.0 / -16.0 (psf)
1	16.0 / -34.8 (psf)	16.0 / -27.2 (psf)	16.0 / -21.8 (psf)
2	16.0 / -45.9 (psf)	16.0 / -36.1 (psf)	16.0 / -29.2 (psf)
3	16.0 / -52.5 (psf)	16.0 / -42.9 (psf)	16.0 / -29.2 (psf)
4	20.0 / -21.6 (psf)	17.0 / -18.7 (psf)	16.0 / -16.7 (psf)
5	20.0 / -26.6 (psf)	17.0 / -20.7 (psf)	16.0 / -16.7 (psf)

Hub Canopy:

	EFFECTIVE AREA		
ZONE	10 SF	100 SF	500 SF
1	20.4 / -18.7 (psf)	20.4 / -18.7 (psf)	20.4 / -18.7 (psf)
2	30.6 / -28.9 (psf)	30.6 / -28.9 (psf)	20.4 / -18.7 (psf)
3	40.8 / -56.1 (psf)	30.6 / -28.9 (psf)	20.4 / -18.7 (psf)

Gymnasium Building:

	EFFECTIVE AREA		
ZONE	10 SF	100 SF	500 SF
1'	16.0 / -23.5 (psf)	16.0 / -23.5 (psf)	16.0 / -16.0 (psf)
1	16.0 / -41.0 (psf)	16.0 / -32.0 (psf)	16.0 / -25.7 (psf)
2	16.0 / -54.1 (psf)	16.0 / -42.5 (psf)	16.0 / -34.4 (psf)
3	16.0 / -73.7 (psf)	16.0 / -50.6 (psf)	16.0 / -34.4 (psf)
4	23.5 / -25.5 (psf)	20.1 / -22.0 (psf)	17.7 / -19.6 (psf)
5	23.5 / -31.4 (psf)	20.1 / -24.4 (psf)	17.7 / -19.6 (psf)

Loads indicated are strength-level loads (negative values indicate pressure away from the surface).

   C. Rain Loads
      a. Rain Intensity (15-minute), i: 2.84 (in/hr), 15-min duration/100-year return period

   D. Snow Loads Parameters:

a. Ground snow load, p_g	0 PSF
b. Flat-roof snow load, p_f	0 PSF
c. Risk Category:	III
d. Snow load importance factor, I_s	1.1
e. Thermal factor, C_t	1.0
f. Slope factor, C_s	1.0

   E. Project Seismic Design Parameters:

a. Site Class:	D
b. Mapped Spectral Acceleration (S_s, S_1):	1.608g, 0.557 g (respectively)
c. Site Specific Design Spectral Acceleration (S_{DS}, S_{D1}):	1.224g, 0.760 g (respectively)
d. Site Coefficient (F_a, F_v):	1.142, 2.047 (respectively)
e. Seismic Importance Factor I_e:	1.25
f. Risk Category:	III
g. Seismic Design Catagory:	D

MDF Building Seismic Design:

a. Basic Seismic Force Resisting System:	Special Reinforced Masonry Shear Walls
b. Seismic Response Coefficient, C_s:	0.245 g
c. Analysis Procedure:	Equivalent Lateral Force Procedure
d. Seismic Base Shear:	15.8 kips
e. Response Modification Factor R:	5.0
f. Overstrength Factor, Ω_0:	2.5
g. Deflection Amplification Factor, C_d:	3.5
h. Maximum Story Inelastic Drift:	Roof Floor: 0.1 in (North / South) 0.1 in (East / West)
i. Irregularities:	Vertical: N/A Horizontal: N/A
j. Redundancy Factor, p:	p = 1.3 (North / South) 1.3 (East / West)
k. Building Mass:	64.4 kips
m. Location of Seismic Base	At Top of Footing

DEFERRED SUBMITTAL ITEMS ANCHORED OR SUPPORTED BY STRUCTURE

1. Design Responsibility: Contractor to design and obtain separate Governing Code Authority approval for deferred approval items noted on Gx series sheets.
2. Shop Drawings and Structural Calculations: Submit design plans, details and calculations of deferred submittal items signed and sealed by a structural engineer registered in State of California to Architect (Structural Engineer) for acceptance and to Governing Code Authority for approval prior to fabrication.
3. Design: Design components for imposed forces including lateral restraint complying with Applicable Code, Contract Documents, and applicable portions of AISI Specifications. If building Seismic Force Resisting System (SFRS) is used for lateral restraint, indicate load paths to building lateral resisting system in calculations and show connection forces on shop drawings. Where building provides vertical support, indicate loads and load paths to building in calculations and show connection forces on shop drawings. Dead load elements at lowest level of connection uno Design loads are as follows:
   A. Dead load: Self weight of deferred system (including supported components of other systems).
   B. Live load: Per applicable code.
   C. Seismic and wind loads: Per applicable code. See Design Loading section of General Notes
   D. Design Movement: Lateral Movement: Design Loading (Section E) of General Notes
      Vertical Movement: Live Load Deflection of L/360
4. Stabilizing Elements at Connections to Structural Members: Design connections of deferred submittal items to supporting structure such that torsion to supporting elements is avoided whenever possible. Where torsion in supporting element is resulted, provide beam bottom flange brace per detail 17 or 18/2-SE.11 at each connection point.

QUALITY ASSURANCE (STRUCTURAL OBSERVATION, MATERIALS TESTING, and SPECIAL INSPECTION)

1. Structural Observation:
   A. The Architect (Structural Engineer) of record will perform visual observation of the construction as required CAC 4-333 and 4-341 in accordance with the governing code. These visual observations shall not be considered a substitute for special inspections.
   B. Coordination Responsibilities of Contractor: Notify Architect (Structural Engineer) 48 hours in advance of critical stages of construction indicated below so visits may be scheduled by Structural Observer. Failure by Contractor to meet observation schedule may require removal of subsequent Work for observation. Contractor to bear costs of removal and replacement of finished Work or framing damaged by removal process or as required for corrective action and for any associated scheduling delays.
      Critical stages of construction requiring structural observation:
      1. Prior to pouring first foundation at each of the structures.
      2. Prior to pouring first concrete filled metal deck.
      3. After structural steel erection, Prior to application of architectural furring.
      4. After roof deck welded off.
   C. Pre-construction Meeting: Owner may coordinate and call for meeting between Architect (Structural Engineer) responsible for structural design, Structural Observer, Contractor, affected subcontractors and Special Inspector. Structural observer will preside over this meeting. Purpose of meeting is to identify major structural elements and connections that affect vertical and lateral load resisting systems of structure and to review schedule of Structural Observation, Materials Testing, and Special Inspection of Project.
2. Mill Test Reports Certifying Materials: Contractor to submit mill test reports certifying reinforcing steel, and structural steel are of identifiable tested stock to Owner, Special Inspector, Architect (Structural Engineer) and, upon request, to Governing Code Authority. Ensure materials are properly tagged for identification. If mill test reports cannot be made available or if material cannot be identified, Testing Laboratory will perform tests as directed by Architect (Structural Engineer). Contractor shall pay Testing Laboratory for costs related to tests and inspections of unidentifiable materials or materials furnished without mill test reports, materials found deficient after initial tests and inspections, or materials replacing deficient materials.
   A. Ultrasonic Examination of Heavy Rolled Shapes and Thick Plates at Proposed Welded Moment Connections: Where complete penetration groove welds occur at Groups 4 and 5 structural steel shapes, as defined in ASTM A6, and plates exceeding 2 inches thick, submit mill test reports to Architect (Structural Engineer) and, upon request, to Governing Code Authority. Mill test reports shall certify that Charpy V-notch testing was conducted in compliance with ASTM A6. Supplementary Requirement S5, including impact test complying with ASTM A673 at frequency P with minimum average value of 20 ft.-lbs. absorbed energy at 70 degrees Fahrenheit.
3. Weld Testing and Inspection: Testing Laboratory will submit weld test results to Owner, Contractor, Architect (Structural Engineer) and to Governing Code Authority. See Specifications for testing requirements not indicated on structural drawings.
   A. Structural Steel Welding: Apart from visual inspection and review of fabrication and erection reports of fabricator/erector's own quality control testing and inspection, Owner's Testing Laboratory will perform indicated shop and field inspection and testing. Testing Laboratory will be AWS Q.C.-1 certified and will provide inspectors for continuous inspection of steel fabrication and erection and structural steel shop and field testing of materials and welding will be as follows:
      a. Ultrasonic testing is required for all (100%) and complete penetration welds. Test groove welding on continuity plates by ultrasonic testing after beam flange weld connection. Testing shall occur after completed welds have cooled to ambient temperature. Weld backing removal areas and fillet welds shall be subjected to magnetic particle examination.
      b. Base metal thicker than 1-1/2 inches, subjected to through thickness weld shrinkage, will be ultrasonically tested directly behind such welds after welds have cooled to ambient temperature.
      c. Welds shall be visually inspected and periodically measured (15 percent minimum).
      d. Check 10 percent of fillet welds by magnetic particle (ASTM 109 method). Check 25 percent of continuity plate fillet welds by magnetic particle, UNO. At continuity plates in moment connections (where CJP is used on one or more plate ends), 100 percent of fillet welds shall be tested by magnetic particle.
      e. Ultrasonically test column flanges located at proposed welded moment connections, continuity plates, doubler plates and base plates where column flange or plate thickness exceeds 1-1/2 inches. Test for evidence of laminations, inclusions or other discontinuities in accordance with ASTM A435, straight beam ultrasonic examination of steel plates, or ASTM A898, straight beam ultrasonic examination of rolled steel structural shapes, as applicable. Test zone to include area 6 inches above and below each beam flange connection. For plates, any discontinuity causing a total loss of back reflection not contained within 3-inch diameter circle, or one-half thickness of plate, whichever is greater, will be rejected. For rolled shapes, ASTM A898, Level I criteria applies. Testing will be performed on material prior to fabrication, after fabrication, and after final welding of beam.
      f. f. k-Area welds shall be MT'd no sooner than 48 hours after completion of weld.
      g. Amperage, voltage, polarity and electrode stick out will be verified for compliance with electrode manufacturer's recommendations.
4. Special Inspection: Per DSA-103 and chapter 17A of CBC.

GENERAL

1. Authority Having Jurisdiction (AHJ): Division of the State Architect (DSA SS)
   Applicable Code: 2022 California Building Code (CBC) as modified by AHJ. References to industry standards herein shall be latest edition as adopted by Applicable Code.
2. Field Verification: Field verify existing conditions and dimensions prior to construction. Promptly notify Architect (Structural Engineer) in case of discrepancies.
3. Design Intent: Contract Documents indicate design intent for structure in its completed state. They do not indicate method of construction. Promptly notify Architect (Structural Engineer), prior to proceeding with Work, if design intent requires further clarification.
4. Deviations, Modifications and Substitutions to Approved Structural Drawings: Must be accepted in writing by Architect (Structural Engineer) and approved by Governing Code Authority. No deviation, modification or substitution will be accepted via shop drawing review.
5. Procedures of Construction: Contractor is responsible for procedures of construction complying with national, state and local safety ordinances. Site visits (including Structural Observation) by Architect (Structural Engineer) do not constitute supervision of methods of construction.
   A. Protection of Utilities: Locate existing utilities, including those not shown on Contract Documents, and protect them from damage. Contractor bears expense of repair or replacement of utilities in conjunction with execution of Work.
   B. Excavations: Protect structure, adjacent structures, adjacent properties, streets, and utilities during excavation utilizing lagging, shoring, underpinning and related procedures as may be required. Provide necessary supports for soil at sides of excavations. Contractor and affected trades shall refer to Geotechnical Report for more information.
   C. Protection of Structure: Provide necessary measures to protect structure and adjacent buildings during execution of Work.
   D. Contractor Proposed Revisions: Where a revision of structural design or connection is proposed by Contractor to accommodate construction tolerances, construction sequence and/or dimension modifications, Contractor shall retain a structural engineer licensed in State of California to perform design. Submit stamped and signed design drawings and calculations to the Architect (Structural Engineer) for review and the Governing Code Authority for approval.
   E. Erection Plans: Determine phases of Work requiring erection plans according to applicable safety regulations. Maintain certified copies of erection plans at site during construction.
   F. Shoring, Bracing, and Other Temporary Supports: Design and erect shoring, bracing, and other temporary supports where structure has not attained design strength and as required for safe erection. Ensure floor, roof, and wall members are securely shored and braced during construction. Provide shoring at elevated beams and slabs supporting concrete or masonry walls during and after wall pour until wall attains design strength.
   G. Temporary Loading: Ensure construction loads do not exceed indicated design live load values. Notify affected sub-contractor trades of these design load limits.
   H. Fabrication, Shipment, and Erection of Structural Steel: Ensure stresses occurring during fabrication, shipment, and erection of structural steel are temporary and are less than design and allowable stress capacities of individual members. Do not impair full design and load carrying capacity of members due to fabrication, shipment, or erection. Contractor is responsible for controlling erection sequence, erection procedure, temperature differentials and weld shrinkage to minimize residue stresses. Provide additional materials for the erection of structural steel such as temporary bracing and guy cables as may be necessary at no additional cost. Remove these materials unless approved in writing by Owner. Do not tighten bolts in typical beam to column connections for erection purposes.
   I. Securing Reinforcing Steel, Dowels, Anchor Bolts and Embeds: Firmly support and accurately place complying with ACI standards prior to casting concrete or grout in masonry walls. Use ties and support bars in addition to reinforcing steel shown where necessary. No welding of reinforcing steel, including tack welding, is permitted unless otherwise accepted in writing by Architect (Structural Engineer). Provide plastic or plastic coated chairs and spacers when resting on exposed surfaces.
   J. Coordination Responsibility: Contractor is responsible for coordination of Work including that of sub-contractor trades.
   K. Core drilling of hardened concrete shall only be done after specific review by Architect (Structural Engineer) Core drilling shall not out any reinforcing. Concrete coverage for reinforcement as described in the Reinforcing Steel section of General Notes shall be maintained at locations of cores.
6. Submittals: Submit to Architect (Structural Engineer) as indicated on structural drawings and specifications. General Contractor shall review submittal for completeness and compliance with Contract Documents prior to submission.
   A. Request for Information (RFI) Submittals: Accompany RFI's with partial structural foundation or framing plans showing location in question and affected structural members. Copy partial plan from structural drawings and include grid line locations and floor level. Also provide properly drawn engineering sketches illustrating issues and Contractor's proposed solutions. Photographs are not acceptable substitutes to engineering sketches.
   B. Composite Slab Penetration Submittal: Submit to Architect (Structural Engineer) for each floor indicating size and location of each slab penetration and opening as necessary by all affected trades. Submit penetration plans together with corresponding metal decking or reinforcing steel shop drawings. Submit written statement from Special Inspector that no additional penetrations or openings were added to those shown in penetration submittal.
   C. Concrete and Masonry Wall Penetration Submittal: Submit to Architect (Structural Engineer) for each wall indicating size and location of each wall penetration and opening as necessary by all affected trades. Submit penetration elevations together with corresponding reinforcing steel shop drawings. Submit written statement from Special Inspector that no additional penetrations or openings were added to those shown in penetration submittal.
7. Contract Documents Use: Review Contract Documents in their entirety before performing structural related Work and before developing shop drawings. Bring discrepancies to immediate attention of Architect (Structural Engineer) before starting Work.
   A. Scaling of Drawings: Not permitted.
   B. Additional Structural Requirements: See specifications.
   C. Building Geometry: See architectural drawings for building geometry including, but not limited to, top of floor and roof elevations; depressions; slopes; curbs; drains; trenches; slab and deck edge locations; wall elevations; and size and locations of openings in floors, roof, and walls.
   D. Non-structural Items Requiring Special Provisions: See architectural, mechanical, plumbing, and electrical drawings for non-structural items requiring special provisions during construction. They include, but are not limited to, non-structural walls; size and locations of openings and sleeves penetrating structural walls; size and location of concrete curbs and pads; and size and location of piping, ductwork, and equipment anchorages mounted or suspended from structure. Verify exact size and location of equipment with equipment manufacturer.
   E. Work shown is new unless noted as existing. (E).
8. Materials: Furnish and install in compliance with legally constituted public authorities having jurisdiction including county and local ordinances and safety orders of State Industrial Accident Commission, OHSA. The Architect (Structural Engineer) and Owner accept no responsibility for the contractors failure to comply with these requirements.
9. Penetrations, Embedments, and Openings in Structural Members: No penetration, embedment, opening, sleeve, pipe, or conduit shall occur in structural members including footings, slabs, walls, columns, and beams unless specifically shown or indicated on structural drawings.
10. Typical Details: Details on sheets indicated as typical are applicable throughout Project wherever the described condition occurs and may or may not be specifically referenced on structural drawings. Contractor is responsible for identifying these details and understanding extent of their application prior to performing Work. Details not shown or noted shall be similar to those shown for similar construction. Contractor shall submit RFI's for details such as this to Architect (Structural Engineer) prior to proceeding with work.
11. Evaluation Report:
   A. References to Evaluation Reports for proprietary materials herein shall be latest edition as adopted by Authority Having Jurisdiction (AHJ).
   B. For proprietary structural elements and products, product to hold Evaluation Report in compliance with applicable code for products intended use.
   C. Approved Evaluation Report Agencies:
      a. ICC (ICC-ES)
      b. IAPMO (IAPMO-ES)
      c. OSHPD (OPA / OPM / OSP / OPD)
      d. City Of Los Angeles (COLA/RR)
      e. Miami-Dade (NOA)
      f. Other Agencies as noted in DSA IR A-5.

EARTHWORK and FOUNDATIONS

1. Geotechnical Report: Perform soils work complying with foundation design based on recommendations in report; prepared by LEIGHTON CONSULTING, INC. , dated OCT 16, 2024 Revised May 23, 2025 and subsequent addenda letters as applicable. Maintain at site a copy of report and addenda.
2. Allowable Foundation Design Values per Geotechnical Report.
   A. Bearing Capacity: 3,000 psf. Footings for proposed structures should have a minimum embedment of 2 feet and have a minimum width of 2 feet. The allowable bearing pressure may be increased by 500 psf for every foot increase in width and by 500 psf for every foot increase in embedment until a maximum of 4,000 psf. Values may be increased by one-third for transient loading.
   B. Passive Lateral Bearing Pressure: 250 psf/ft. Values may be increased by one-third for transient loading.
   C. Coefficient of Friction: 0.3.
   D. Combined Lateral Resistance: The allowable lateral resistance can be taken as the combined effect of friction resistance and passive resistance.
   E. Unit of Subgrade Modulus: 100 pci for 1-ft square footing reduced by [(B+1)/2B]^2 for larger square footing sizes. B is the square footing width. 75 pci for slab-on-grade.
3. Grading, Excavations, Backfill and Compaction of Backfill: Comply with Geotechnical Report and requirements of Governing Code Authority and performed only under Continuous Special Inspection of geotechnical engineer. Building pads shall be over excavated as recommended in Geotechnical Report. If soft pockets are discovered during over excavation, additional over excavation will be required as directed by the Geotechnical Engineer.
4. Foundation Excavations: Foundations are to bear on approved compacted fill as indicated in Geotechnical Report. Excavations are to be inspected by geotechnical engineer prior to placement of reinforcing steel and formwork. Ensure excavations are clean, dry and free of debris or loose soil. Slope sides of excavation not less than minimum slope indicated in Geotechnical Report. Cast concrete directly against excavated surfaces.
5. Backfilling of Retaining Walls: Place after completion and inspection of waterproofing. Adequately shore retaining walls during backfill operation. Unless adequately shored, do not place backf

ABBREVIATIONS

&	AND
@	AT
Ø	DIAMETER
>	GREATER THAN
≥	GREATER THAN OR EQUAL TO
<	LESS THAN
≤	LESS THAN OR EQUAL TO
#	"POUNDS, NUMBER"
AB	ANCHOR BOLT(S)
ABV	ABOVE
ADDL	ADDITIONAL
ADJ	ADJACENT
AESS	ARCHITECTURAL EXPOSED STRUCTURAL STEEL
AFF	ABOVE FINISHED FLOOR
AHJ	AUTHORITY HAVING JURISDICTION
AHU	AIR HANDLING UNIT
ALT	ALTERNATE
ALUM	ALUMINUM
AOR	ARCHITECT OF RECORD
APPROX	APPROXIMATE
ARCH	ARCHITECT(URAL)
ASD	ALLOWABLE STRESS DESIGN
(B)	BOTTOM
BF	BRACED FRAME
BFF	BELOW FINISHED FLOOR
BLDG	BUILDING
BLKG	BLOCKING
BLW	BELOW
BM	BEAM
BN	BOUNDARY NAILING
BO	BOTTOM OF
BOD	BOTTOM OF DECK
BOF	BOTTOM OF FOOTING
BOPC	BOTTOM OF PILE CAP
BOS	BOTTOM OF STEEL
BOSL	BOTTOM OF SLAB
BOT	BOTTOM
BP	BASE PLATE
BRB	BUCKLING RESTRAINED BRACE
BRCG	BRACING
BRDG	BRIDGING
BRG	BEARING
BTWN	BETWEEN
BU	BUILT-UP
C	CAMBER
CA	COLUMN ABOVE
CANT	CANTILEVER
CB	COLUMN BELOW
CGS	CENTER OF GRAVITY OF PRESTRESSING STRAND
CIP	CAST-IN-PLACE
CIV	CIVIL
CJ	CONSTRUCTION/CONTROL JOINT
CJP	COMPLETE JOINT PENETRATION
CL	CENTERLINE
CLG	CEILING
CLR	CLEAR
CLT	CROSS LAMINATED TIMBER
CMU	CONCRETE MASONRY UNIT
COL	COLUMN
CONC	CONCRETE
CONN	CONNECTION/CONNECT
CONST	CONSTRUCTION
CONT	CONTINUOUS
COORD	COORDINATE
COV	COVER
CTR	CENTER
CVN	Charpy V-Notch
d	Penny - Nail size
db	"REBAR, WIRE, or PRESTRESSSING STRAND DIAMETER"
DBA	DEFORMED BAR ANCHOR
DBL	DOUBLE
DCW	DEMAND CRITICAL WELD
DEMO	DEMOLITION/DEMOLISH
DET	DETAIL
DF	Douglas Fir
DIA	DIAMETER
DIAG	DIAGONAL
DIM	DIMENSION
DN	Down
DO	DITTO
DWG	DRAWING
DWL	DOWEL
(E)	EXISTING
EA	EACH
EBF	ECCENTRICALLY BRACED FRAME
EDP	ENVIRONMENTAL PRODUCT DECLARATION
EF	EACH FACE
EFF	EFFECTIVE
EGRS	Elevator Guide Rail Support
EJ	EXPANSION JOINT
EL	ELEVATION
ELEC	ELECTRICAL
ELEV	ELEVATOR
EMBED	"EMBEDMENT, EMBEDDED"
EN	EDGE NAILING
ENGR	ENGINEER
EOR	ENGINEER OF RECORD
EQ	EQUAL
EQUIP	EQUIPMENT
EQUIV	EQUIVALENT
ER	EVALUATION REPORT
ESR	EVALUATION SERVICE REPORT
ETC	ET CETERA
EW	EACH WAY
EXP	EXPANSION
EXT	EXTERIOR
FAB	FABRICATE
f'c	28-DAY (UNO) COMPRESSIVE STRENGTH OF CONCRETE
FDN	FOUNDATION
FF	Finished Floor
FG	FINISHED GRADE
FIN	FINISH(ED)
FLR	FLOOR
f'm	28-DAY (UNO) COMPRESSIVE STRENGTH OF MASONRY
FN	FIELD NAILING
FRP	FIBER-REINFORCED POLYMER
FS	FAR SIDE / FINISHED SURFACE
FT	"FOOT, FEET"
FTG	FOOTING
FUT	FUTURE
Fy	YIELD STRENGTH
GA	"GAGE, GAUGE"
GALV	GALVANIZE(D)
GC	GENERAL CONTRACTOR
GEN	GENERAL
GWP	GLOBAL WARMING POTENTIAL
GLB	GLUED-LAMINATED BEAM
GR	GRADE
HD	HOLDDOWN
HDR	HEADER
HGR	HANGER
HORIZ	HORIZONTAL
HS	HIGH STRENGTH
HSA	HEADED STUD ANCHOR
HSB	HIGH STRENGTH BOLT
HSS	HOLLOW STRUCTURAL SECTION
HT	HEIGHT
IAPMO	INTERNATIONAL ASSOCIATION OF PLUMBING AND MECHANICAL OFFICIALS
ICC	INTERNATIONAL CODE COUNCIL
ID	INSIDE DIAMETER
IN	INCH
INFO	INFORMATION
INT	INTERIOR
IOR	INSPECTOR OF RECORD
JST	JOIST
JT	JOINT
K	KIPS (1000 LBS)
KLF	KIPS PER LINEAR FOOT
KSF	KIPS PER SQUARE FOOT
KSI	KIPS PER SQUARE INCH
L	ANGLE
LAND	LANDSCAPE
LBS	POUNDS
LCA	LIFE CYCLE ASSESSMENT
Ld	DEVELOPMENT LENGTH of straight rebar
Ldh	DEVELOPMENT LENGTH for hooked rebar
Ldt	DEVELOPMENT LENGTH for headed rebar
LL	DOUBLE ANGLE
LLBB	LONG LEG BACK TO BACK
LLH	LONG LEG HORIZONTAL
LLV	LONG LEG VERTICAL
LONG	LONGITUDINAL
LOR	LABORATORY OF RECORD
LRFD	LOAD AND RESISTANCE FACTOR DESIGN
Ls	SPLICE LENGTH of straight rebars
LSH	LONG SIDE HORIZONTAL
LSL	LONG-SLOTTED HOLE
LSV	LONG SIDE VERTICAL
LT GA	LIGHT GAUGE
LVL	LAMINATED VENEER LUMBER
LWC	LIGHTWEIGHT CONCRETE
MAX	MAXIMUM
MECH	MECHANICAL
MEP	MECH, ELECT, & PLUMB
MEZZ	MEZZANINE
MF	MOMENT FRAME
MFR	MANUFACTURER
MIN	MINIMUM
MISC	MISCELLANEOUS
MTL	METAL
(N)	NEW
N/A	NOT APPLICABLE
NF	NEAR FACE
NIC	NOT IN CONTRACT
NO.	NUMBER
NOM	NOMINAL
NS	NEAR SIDE
NTS	NOT TO SCALE
NWC	NORMALWEIGHT CONCRETE
O/C	ON CENTER
OD	OUTSIDE DIAMETER
OH	OPPOSITE HAND
OPNG	OPENING
OPP	OPPOSITE
OVS	OVERSIZED HOLE
PAF	POWDER/POWER ACTUATED FASTENER
PAR	PARALLEL
PC	PRECAST CONCRETE
PCF	POUNDS PER CUBIC FOOT
PCY	POUNDS PER CUBIC YARD
PERF	PERFORATED
PERP	PERPENDICULAR
PI	PROJECT INSPECTOR
PJ	PANEL JOINT
PJP	PARTIAL JOINT PENETRATION
PL	PLATE
PLF	POUNDS PER LINEAR FOOT
PLF	POUNDS PER LINEAR FOOT
PLUMB	PLUMBING
PQR	PROCEDURE QUALIFICATION RECORD
PRELIM	PRELIMINARY
PROP	PROPERTY
PSF	POUNDS PER SQUARE FOOT
PSI	POUNDS PER SQUARE INCH
PSL	PARALLEL STRAND LUMBER
PT	"PRESSURE TREATED, POST-TENSION(ED)"
PWD	PLYWOOD
QTY	QUANTITY
RAD	RADIUS
RBS	REDUCED BEAM SECTION
REF	REFERENCE
REINF	REINFORCEMENT
REQ'D	REQUIRED
REV	REVISION
RO	ROUGH OPENING
RR	ROOF RAFTER
RTU	ROOF TOP UNIT
SC	"SLIP CRITICAL, SAW CUT"
SCBF	SPECIAL CONCENTRICALLY BRACED FRAME
SCHED	SCHEDULE(D)
SDS	SELF-DRILLING SCREW
SECT	SECTION
SEOR	STRUCTURAL ENGINEER OF RECORD
SEP	SEPARATION
SFRS	SEISMIC FORCE RESISTING SYSTEM
SHT	SHEET
SHTG	SHEATHING
SIM	SIMILAR
SLBB	SHORT LEG BACK TO BACK
SMRF	SPECIAL MOMENT RESISTING FRAME
SMS	SHEET METAL SCREW
SOG	SLAB-ON-GRADE
SPEC(S)	SPECIFICATION(S)
SQ	SQUARE
SS	STAINLESS STEEL
SSL	SHORT-SLOTTED HOLE
STAGG	STAGGERED
STD	STANDARD
STIFF	STIFFENER
STL	STEEL
STRUCT	"STRUCTURE, STRUCTURAL"
SUSP	SUSPENDED
SW	SHEAR WALL
SYM	"SYMMETRIC, SYMMETRICAL"
(T)	TOP
(T&B)	TOP AND BOTTOM
T.O.	TOP OF
THK	THICK
TOC	TOP OF CONCRETE
TOF	TOP OF FOOTING / FOUNDATION
TOM	TOP OF MASONRY
TOPC	TOP OF PILE CAP
TOS	TOP OF STEEL
TOSL	TOP OF SLAB
TOW	TOP OF WALL
TRANS	TRANSVERSE
TYP	TYPICAL
UNO	UNLESS NOTED OTHERWISE
UT	ULTRASONIC TESTING
VERT	VERTICAL
VIF	VERIFY IN FIELD
W/	WITH
W/C	WATER-CEMENT RATIO
W/O	WITHOUT
"WF, W"	WIDE FLANGE
WP	WORK POINT
WPS	WELD PROCEDURE SPECIFICATIONS
WT	"WEIGHT, "T" SECTION CUT FROM WIDE FLANGED BEAM"
WWF	WELDED WIRE FABRIC
XS	EXTRA STRONG
XXS	DOUBLE EXTRA STRONG

LIGHT GAUGE METAL FRAMING GENERAL NOTES

1. Minimum yield strength shall be as follows:
   A. 43 mils (18 gauge) and lighter (33 ksi):
      a. Carbon Sheet Steel to be Painted: ASTM A1003, Grade 33, Type H.
      b. Galvanized: ASTM A653, SS Grade 33.
   B. 54 mils (16 gauge) and heavier (50 ksi):
      a. Carbon Sheet Steel to be Painted: ASTM A1003, Grade 50, Type H.
      b. Galvanized: ASTM A653, SS Grade 50.
2. Manufacturer and Properties: Member of Steel Stud Manufacturer's Association (SSMA) complying with ICC-ESR 3064P or Cemco complying with ICC-ESR 3016. Provide punched studs as scheduled in these drawings with minimum effective section properties as indicated in the referenced evaluation report.
3. Design Gauge Thicknesses: Indicated properties are based on the following thicknesses:
   12 ga. - 0.1017 inch, 97 mils
   14 ga. - 0.0713 inch, 68 mils
   16 ga. - 0.0566 inch, 54 mils
   18 ga. - 0.0451 inch, 43 mils
   20 ga. - 0.0346 inch, 33 mils
4. Track Material: Provide unpunched track of dimensions to ensure proper fit of studs with minimum effective section properties as indicated in the referenced evaluation report.
5. Lateral Bridging for Studs: Required when rigid wall finish does not continue full height on either or both sides of studs. Install horizontal straps or cold-rolled channels as shown and in accordance with Section D3 of AISI specification. See typical details.
6. Lateral Blocking for Joists: Joists shall be braced by full-depth blocking at all points of support. Joist blocking shall also be provided at the following locations: See typical details.
7. Joist Web Punch-Out Locations: Web punch-outs shall not be located closer than twice the member depth from edge of bearing support or concentrated loads, 12" minimum. Do not provide punchouts at tracks.
8. Securing Studs and Braces: Plumb, align and tightly nest in both upper and lower tracks with secure attachment to both flanges of tracks. Splices in axial loaded studs and braces are not permitted.
9. Self-Drilling Screws: See General Notes.
10. Welding: ANSI/AWS D1.3 and CBC Section 2210. Wire tying of framing components is not permitted.
    A. Welder Certification: Governing Code Authority.
    B. Electrodes: E60XX at 33 ksi members, E70XX at 50 ksi members.
    C. Touch-Up: Zinc-rich paint at galvanized members and regular paint at carbon sheet steel.

MASONRY

1. Specified Compressive Strength of Masonry (f'm): 2000 psi typical unless noted otherwise.
2. Verifying Specified Compressive Strength of Masonry (f'm): Use masonry prism testing method unless otherwise acceptable to Architect (Structural Engineer). Submit masonry prism data for each type and compressive strength of masonry required, with a professional engineer's signature and state of California seal, to Architect (Structural Engineer). Compliance with minimum required compressive strength shall be based on Applicable Code Section 2105A.2.
3. Concrete Block: ASTM C90, medium weight, attaining a minimum compressive strength as required to meet specified compressive strength of masonry (f'm). Completed (grouted and mortared) masonry assembly not to exceed 115 pcf max. dry density.
4. Face Brick: ASTM C216.
5. Portland Cement for Mortar and Grout: ASTM C150, type I or II. Use of masonry cement or plastic cement is not permitted.
6. Aggregates for Mortar and Grout:
   A. Aggregates for Mortar: ASTM C144.
   B. Aggregates for Grout: ASTM C404, coarse type.
7. Mortar: ASTM C270, Type S, attaining a minimum compressive strength as required to meet specified compressive strength of masonry (f'm)
8. Grout: ASTM C476, coarse type, attaining a minimum compressive strength as required to meet specified compressive strength of masonry (f'm). However, in no case shall grout compressive strength be less than the greater of f'm or 2000 psi at 28 days.
9. Reinforcing Steel: Reinforcing steel section of general notes unless indicated otherwise.
10. Masonry Wall Penetration Submittal: Submit for each wall indicating size and location of each wall penetration and opening as necessary by affected trades. Submit together with appropriate reinforcing steel shop drawings. Submit written statement from Special Inspector that no additional penetrations or openings were added to those shown in penetration submittal.
11. Reinforcing Steel Splices: Lap reinforcing steel at splices a minimum of 72 bar diameters, except dowels in footings at base of walls shall splice a minimum of 72 bar diameters, unless noted otherwise. Where minimum clear distance between bars at adjacent splices is 3 inches or less, increase lap length 30 percent unless splices are staggered at least 24 bar diameters.
12. Dowels for Walls, Columns, Pilasters, and Piers: Match size and spacing of vertical reinforcing steel, unless noted otherwise. Set dowels to align with cells containing reinforcing steel.
13. Minimum Reinforcing Steel Clearances:
    A. Minimum Clearances Between Reinforcing and Outside Face of Masonry: 2 inches except in no case shall clearance be less than 2-1/2 bar diameters.
    B. Minimum Clearance Between Reinforcing and Inside Face of Grout Cell: 1/2 inch or 1 bar diameter whichever is greater.
    C. Minimum Clearance Distances Between Parallel Reinforcing: 1 inch or nominal bar diameter, whichever is greater. Increase to 1-1/2 inches or 1-1/2 times nominal bar diameter, whichever is greater, at columns, pilasters, and piers only.
14. Placement: Set courses in running bond pattern unless indicated otherwise. Set cells in vertical alignment. Provide flush mortar joints at surfaces to receive waterproofing or damp-proofing.
15. Grouting: Grout solid all cells. Mechanically vibrate grout in cells.
    A. Grout Height Limits: CBC Section 2104A.1.3, TMS 602, Article 3.5 D
    B. Horizontal Construction Joints: Hold grout 1 1/2 inches below top of masonry unit if work is stopped one hour longer.
    C. Grout Cover Around Reinforcing Steel, Anchor Bolts and Inserts Penetrating Masonry Shell: 1 inch minimum.
16. Horizontal Bars Terminating at Wall Ends and Opening Jambs: Extend bars to within 2 inches of end of wall and provide standard ACI 90-degree hook unless detailed otherwise.
17. Control joints shall be provided as indicated on Arch and wall elevations per detail 01/2-S6.61. If not indicated on Arch, provide control joints at 25'-0" O/C maximum and coordinate w/ Arch.

PROPRIETARY ANCHORAGES and FASTENERS

1. Anchorages:
   A. Drill and Epoxy Anchors and Rebar:
      a. At Concrete: Hilti HIT-RE 500 V3 adhesive anchor system complying with ICC-ES Evaluation Report ESR-3814.
      b. At Masonry: Hilti HIT-HY 270 adhesive anchor system complying with ICC-ES Evaluation Report ESR-4143.
      c. Provide anchor type, size and embedment as indicated in details.
      d. Overhead applications must be installed using the Hilti HIT-SZ piston plug system.
   B. Mechanical (Expansion) Anchors:
      a. At Concrete: Hilti KB-TZ2 carbon steel expansion anchor complying with ICC-ES Evaluation Report ESR-4266.
      b. At Masonry: Hilti KB-TZ2 carbon steel expansion anchor complying with ICC-ES Evaluation Report ESR-4561.
      c. Where mechanical anchor is exposed to weather, provide stainless steel anchor conforming to the Evaluation Report in lieu of carbon steel.
   C. Welded Shear Studs: Nelson S3L flux filled, headed stud anchors, 65,000 psi minimum ultimate tensile strength conforming to ASTM A29, automatically end welded in field and complying with ICC-ES Evaluation Report ESR-2856.
   D. Welded Deformed Anchors: Nelson D2L, cold rolled, deformed steel reinforcing bars conforming to ASTM A1064 and complying with ICC-ES Evaluation Report ESR-2907.
2. Fasteners:
   A. Power/Powder Actuated Fasteners (Indicated "Shot Pins" or "PAF" on Drawings): Hilti Low-velocity Power Actuated Drive, 0.157" diameter (X-U), complying with ICC-ES Report ESR-2269. Provide appropriate washer between fastener head and light gauge metal or wood surface. Shot pins shall not be used @ PT slab or beams.
   B. Self-Drilling Metal Screws (Indicated "Screws" or "SMS" on Drawings): Hilti Self Drilling Screw complying with current ICC-ES Evaluation Report ESR-2196.
   C. Concrete Screws: Hilti KH-EZ carbon steel screw anchor complying with ICC ES Evaluation Report ESR-3027.
   D. Masonry Screws: Hilti KH-EZ carbon steel screw anchor complying with ICC ES Evaluation Report ESR-3056.
   E. Self-Drilling wood Screw: At steel to wood connections (Indicated "SDS" on drawings): Simpson SDS screw complying with ICC-ES ESR 2236. At wood to wood connections (Indicated "SDWS" on drawings): Simpson SDWS screw complying with IAPMO-UES ER 192.
   F. Lag Screw: Lag Screw complying with ANSI / ASME B18.2.1
   G. Where fasteners are exposed to weather, provide stainless steel fasteners conforming to the Evaluation Report in lieu of carbon steel.
3. Installation: See manufacturer's written instructions and referenced ICC-ES evaluation report. Contractor shall arrange an anchor manfacturer's representative to provide onsite installation training for all anchor products specified.
   A. Prior to drilling holes for post-installed anchors, contractor shall locate existing rebar, prestressing tendons, post-tensioning tendons, and embedded utilities using non-hazardous, non-destructive methods with accurate location tolerances (plus or minus 1/4-inch). Do not cut, hit, or otherwise damage existing rebar or tendons during anchor installation.
   B. Drilling Holes in Existing Concrete or Masonry for Anchorages: Use non-pneumatic, rotary hammer tools with ANSI compliant non-rebar cutting drill bits to drill holes of proper tolerances. Locate existing rebar including prestressing and post-tensioning tendons using non-hazardous, non-destructive methods with accurate location tolerances (plus or minus 1/4-inch) prior to drilling holes to avoid cutting or damaging Holes shall be thoroughly cleaned per manufacturer's written recommendations prior to installation of anchorages.
   C. Deleterious Materials: Keep anchorages, including holes for drill and epoxy anchors and mechanical anchors, free of dust, grease, and other materials that impair bond.
   D. Use of diamond core bit with roughening tool for anchor holes requires approval from Engineer of Record prior to drilling. Unless otherwise shown in the drawings, all holes shall be drilled perpendicular to the concrete surface.
   E. Embedment Depths:
      a. Mechanical Anchors: Embedment depths noted in drawings are the effective minimum embedment UNO. Refer to applicable evaluation report for the corresponding minimum hole depth and nominal embedment.
      b. Screw Anchors: Embedment depths noted in drawings are the nominal minimum embedment UNO. Refer to the applicable evaluation report for the corresponding minimum hole depth.
   F. Anchor installer certification is required for all installers of drill and epoxy anchors in horizontal or upwardly inclined orientation. Installer qualification must be provided to the inspector prior to installation.
   G. Installation Torques for Expansion Anchors shall be as noted:

Nominal Anchor Diameter	Expansion Anchor Installation Torque (ft-lb)			
	Into Concrete		Into Masonry	
	KB-TZ2 Carbon Steel	KB-TZ2 Stainless Steel	KB-TZ2 Carbon Steel	KB-TZ2 Stainless Steel
1/4"	4	6	4	6
3/8"	30	30	15	15
1/2"	50	40	25	15
5/8"	40	60	30	35
3/4"	110	125	50	50

   H. Installation Torques for Screw Anchors shall be as noted:

Nominal Anchor Diameter	Screw Anchor Installation Torque (ft-lb)					
	Into Concrete				Into Masonry	
	Hilti KH-EZ Hex	Hilti KH-EZ C	Hilti KH-EZ CRC	Hilti KH-EZ E & KH-EZ I	Hilti KH-EZ (Hex, P, PM, PL & C)	Hilti KH-EZ CRC
1/4"	18		N/A	18	21	N/A
3/8"	40 (19 @ h_{nom} <2.5")		40	40	22	20
1/2"	45	N/A	45	N/A	34	25
5/8"	85	N/A	85	N/A	38	35
3/4"	95	N/A	85	N/A	70	45

Note: 1/4" dia. Hilti KH-EZ P, PM & PL in concrete shall have installation torque of 18 ft-lb.

4. Testing
   A. See DSA 103 Testing and Inspections.
   B. Installation in Concrete:
      a. Provide testing of post-installed anchors in concrete per CBC 2022 1910A.5.
   C. Installation in Masonry:
      a. Provide testing of post-installed anchors in masonry per CBC 2022 1910A.5 as required by section 1705A.4.

STRUCTURAL STEEL

1. Provide readily identifiable structural steel in compliance with Applicable Code Section 2202A.1.
2. Structural Steel: Furnish structural steel complying with the following ASTM standard specifications, unless noted otherwise:

Use/Shape	Type/Grade	GWP Limit (unfabricated) (MT CO_2e/MT)	Notes
Wide Flanges and Channels	ASTM A992, Grade 50	1.01	
Angles	ASTM A572, Grade 50	1.01	
Plates	ASTM A572, Grade 50	1.49	
Hollow Structural Sections (rectangular and round)	ASTM A500, Grade C (50 ksi)	1.71	
Pipes:	ASTM A53, Grade B (35 ksi)		
Anchor Rods:	ASTM F1554, Grade 55		Weldable All Threaded
Headed Anchor Bolts	ASTM F1554, Grade 55		Weldable

3. Holes for Bolted Connections and Anchor Rods: AISC "standard" holes, unless noted otherwise. See Note 11, for oversized holes for anchor rods in non-frame base plates.
4. High Strength Bolts, Nuts and Washers: AISC "Specification for Structural Joints Using High-Strength Bolts."
   A. Hardened Washers: ASTM F436, under nuts except where plate washers are used. Provide beveled washers where joint face slope is greater than 1:20.
   B. Tightening: Snug tight for all high strength bolts except tighten A325-SC and A490-SC bolts to at least the minimum proper tension according to AISC Specification.
   C. Provide Class A Faying Surface or better at bolted connections indicated with "SC" type bolts.
   D. All bolts parts of "SFRS" shall be "SC" type bolts.
5. Welding:
   A. Applicable Welding Standard: Applicable Code and latest adopted edition of AWS D1.1 and D1.8.
   B. Pre-qualified and Non Pre-qualified Welds: Welds shall be pre-qualified in compliance with Applicable Welding Standard. Where non pre-qualified welds are to be used, qualify by test and procedure qualification test record complying with Applicable Welding Standard.
   C. Work performed by Welders and Inspectors: Adhere to approved Welding Procedure Specification (WPS). Each welder and inspector shall retain a copy of WPS.
   D. Pre-construction Meeting: Conduct to include Architect (Structural Engineer), fabricator, erector, Contractor and inspectors to discuss Welding Procedure Specification (WPS).
   E. Welding Procedure Specification (WPS): Fabricator/erector to develop WPS in compliance with Applicable Welding Standard. Submit to Architect (Structural Engineer) for acceptance and Governing Code Authority for approval prior to fabrication. WPS submittal to include the following:
      a. Welding manufacturers' specifications.
      b. Information required by Applicable Code, Contract Documents and any other information necessary to produce welds that are in compliance with Applicable Welding Standard.
      c. Detailed sequence of weld sketches addressing effects of welding heat for welds at joints and within seismic frame assemblies as a whole. Plan sequence of erection and welding to minimize locked in stresses and distortion considering effects of welding heat. Procedures submitted shall result in completed connections which comply with design intent of structural drawings. No deviation from structural drawings is permitted unless otherwise accepted by Architect (Structural Engineer) and approved by Governing Code Authority.
      d. Welding parameters recommended by electrode manufacturer.
      e. List of applicable base metal types and thicknesses.
      f. Welding joint sketches including joint type, weld type, joint geometry, and applicable dimensions. Individual weld passes shall be identified in sketches and numbered to identify the sequence of their deposition. Sketches shall identify the maximum layer thicknesses and bead widths. In no case shall layer thickness exceed 1/4-inch, nor shall maximum bead width exceed 5/8-inch.
      g. Applicable welding process.
      h. Position of welding.
      i. List of filler metal per Applicable Welding Standard and electrode specification and classification. Include details showing shielding material to be used.
      j. Minimum preheat requirements, interpass temperatures and post weld heat treatment. Minimum specified preheat shall meet requirements of AWS D1.1, table 3.2, and AISC 360-16 Section M2-2 requirements for jumbo sections.
      k. List of applicable electrical characteristics for process employed. Clearly indicate specific values required for each welding pass. These electrical characteristics shall include at a minimum the following:
         - Electrode diameter.
         - Type of current and acceptable ranges of current measured in amperage. For wire feed processes, indicate manufacturers' recommended melt-off rate, deposition rate, and wire feed speed.
         - Voltage (for all processes).
         - Actual field condition travel speed and manufacturer's data for travel speed.
         - Electrode extension (stick out) for wire feed processes.
         - Amperage, voltage and electrode extension (as applicable) shall be within filler metal manufacturer's recommendations (compare to AWS D1.1, Section 3.6 and 3.7).
         - Electrode manufacturer's technical information, with identification number listed, and welding parameter recommendations.
   F. Welding Electrode (Filler Metal): E70xx (70 ksi) uno, provide filler metal with Charpy V-notch toughness of 20 ft/lbs at -20 degrees Fahrenheit at complete penetration groove welds.
      a. Welds indicated as part of the "SFRS" shall comply with AISC 341 sections A3.4a and I2.3. These welded connections shall be made with a filler metal achieving a minimum Charpy V-notch toughness of 20ft/lbs at a temperature lower than 0°F.
      b. Welds indicated as "Demand Critical" (DC) shall comply with AISC 341 sections A3.4b and I2.3. These welded connections shall be made with a filler metal achieving a minimum Charpy V-notch toughness of 20ft/lbs at a temperature lower than 0°F, and a filler metal producing welds that have a minimum Charpy V-notch toughness of 40ft/lbs at temperature lower than +70°F.
   G. Welding Toughness Requirements: Certify conformance to Charpy V-notch toughness requirements with tests by an independent testing laboratory for each AWS classification, manufacturer and trade name. Testing procedures shall be in accordance to Applicable Welding Standard and AWS D1.8
   H. Fabricators: Perform shop welds by fabricators approved by LA City or AISC.
      a. Welder Qualification: Welders, regardless if Work is performed in shop or in field, shall be qualified for the Work they will be doing and shall have certifications current and acceptable to Governing Code Authority.
      b. Special inspection shall be required for all welding, as required by governing code authority.
   I. Welds Exposed to View:
      a. Faces of fillet welds exposed to view shall have as-welded surfaces that are reasonably smooth and uniform. No finishing or grinding shall be required, except where clearances or fit of other items may so necessitate.
      b. Partial and full penetration welds exposed to view shall be ground smooth and flush with finish surface of steel. Remove backup bars and weld tabs. Fill holes with weld metal or body solder and smooth by grinding or filing.
   J. Groove Preparation: Clean groove preparation thermal cuts by grinding.
   K. Termination of Welds: Terminate at joint ends in a manner that ensures sound welds. Use extension bars and run-off tabs whenever necessary.
   L. Hand-held Calibrated Amp and Volt Meters: To be used by fabricator, erector and inspectors to assure proper amperage and voltage of welding process. Measure amperage and voltage at arc. Verify travel speed and electrode stick-out in compliance with electrode manufacturer's recommendations and with approved WPS.
   M. Storage of Electrodes: Adhere to Section 5.3 of AWS D1.1.
   N. Weld each flange of moment frame beam to column connections in one continuous process without cooling below pre-heat temperature.
   O. Welding of ASTM A913 Materials: Perform according to requirements of latest edition of AWS standard, structural drawings and specifications, whichever is more stringent.
   P. Minimum Fillet Weld Size: Where minimum fillet weld size, as stipulated by AISC Section J2 and Table J2.4, exceeds fillet weld size indicated on structural drawings, use AISC stipulated size.
   Q. Minimum Groove or Butt Weld Size: Provide complete penetration unless indicated otherwise.
   R. Weld Length: Length of welds shown are net effective lengths. Where length of weld is not indicated, provide weld full length of joint.
   S. Welding at Galvanized Steel: Galvanization shall be ground off prior to welding. Repair galvanization after completion of welding.
6. Shop Drawings: Submit To Architect (Structural Engineer) for review and, upon request, to Governing Code Authority. Include sequence of erection procedures.
7. Sustainable Design Submittals: Submit type III factory-specific or product-specific environmental product declaration (EPD) for each of the following products:
   A. Hot Rolled Structural Steel
   B. Hollow Structural Steel
   C. Steel Plate
8. Fabrication: Perform in shop certified by AISC or City of Los Angeles.
   A. Moment Connections: Orient flange stiffener plates and cap plates used in moment connections so that rolling direction of plate is parallel with direction of principal stress.
   B. Horizontal Members: Place natural camber up.
   C. Filler Plates: Provide at splices of parts having more than 1/8-inch difference in thickness. Filler plates to match grade of material spliced.
9. Traceability:
   A. Material tracing is required for all steel including miscellaneous metals, connectors, and steel products manufactured by third parties. The contractor is advised that material tracing is required as directed by DSA and the project inspection team and may include any or all of the levels of traceability described below:
      a. Lot traceability: materials can be traced to the set of mill test reports (MTRs) for the project.
      b. Piece-mark traceability: heat number can be correlated to each piece mark.
      c. Piece traceability: heat number can be correlated for each piece, which requires separate piece marks for each piece, or marking of each individual piece with its heat number.
   B. Prior to placing the mill order, the contractor shall schedule a preconstruction meeting to include the AOR, SEOR, PI and inspectors responsible for inspection of the steel material fabrication and erection/installation for the purpose of reviewing material traceability requirements.
   C. The contractor shall include the cost of piece traceability in their basic services and provide deductive alternates for piece-mark and lot traceability to be provided as a credit to the Owner.
10. Cleaning: After fabrication, clean steel surfaces free of rust, loose mill scale, and oil.
11. Oversized Holes for Anchor Rods in Non-Frame Column Base Plates: Oversized holes in base plate may be provided at contractor's option in accordance with AISC Table 14-2 UNO. Where oversized holes are provided, provide plate washer with standard hole with minimum size per AISC Table 14-2 (3/8" thick min) UNO.
12. Exposure to Soil: Encase structural steel in lean concrete with 4-inches concrete cover where exposed to soil.
13. Exposure to Weather: UNO, structural steel (including connection elements) exposed to weather shall be hot dipped galvanized. At welding on galvanized members, galvanization shall be ground off prior to welding. Repair galvanization after completion of welding.
14. Structural Steel Allowance: In addition to the steel shown or implied in this document, allow for an additional 2 tons of structural steel to be constructed at the direction of the Structural Engineer during construction. The allowed steel may be of any shape or sizes, including plates, wide flanges, tubes, pipes, channels, angles, and/or any other structural shapes. The number of pieces may vary. The locations of applications may vary. Direction may be given in multiple occasions during construction. The allowance should include all fabrication and construction related services, such as shop drawings, shop preparation, field erection and coordination, bolted connections and field welding. Expenditure of any part of this allowance shall be approved in writing by the Structural Engineer prior to any fabrication and erection.
15. Heavy Sections
    A. Heavy sections shall comply with AISC 360-16 Section A3.1c.
    B. Heavy sections forming part of the "SFRS" shall also comply with AISC 341-16 Section A3.3.
    C. Welded Splices including welds to baseplates shall comply with AISC 360-16 Section J1.5.
16. See General Notes, Quality Assurance section, Notes 3 and 4 for non-destructive testing.
17. SFRS denotes items considered part of the "SEISMIC FORCE RESISTING SYSTEM" (Refer to AISC 341-16 and AWS D1.8).
18. DC denotes welds considered "DEMAND CRITICAL" per AISC 341-16 Section A3.4B and I2.3.
19. Field weld flag symbols indicate design intent but are not requirements. Whether a weld is to be made in shop or field is means and methods and to be coordinated by contractor.
20. Where bent plates specified cannot be bent due to thickness provide two plate pieces joined with a complete penetration weld.

LPA
ARCHITECTURE ENGINEERING INTERIOR DESIGN
LANDSCAPE ARCHITECTURE PLANNING
949-261-1001 Office
LPADesignStudios.com
5301 California Avenue, Suite 100
Irvine, California 92617



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MALIBU HIGH SCHOOL
INCREMENT 01

30215 MORNING VIEW DR.
MALIBU, CA 90265
APN: 4469-017-900

Developed for
SANTA MONICA - MALIBU UNIFIED SCHOOL DISTRICT

Revision	Date

Submittal	Date
SCHEMATIC DESIGN	09/04/2024
50% DESIGN DEVELOPMENT	12/13/2024
100% DESIGN DEVELOPMENT	02/21/2025
CDP SUBMITTAL	06/16/2025
DSA SUBMITTAL	09/08/2025

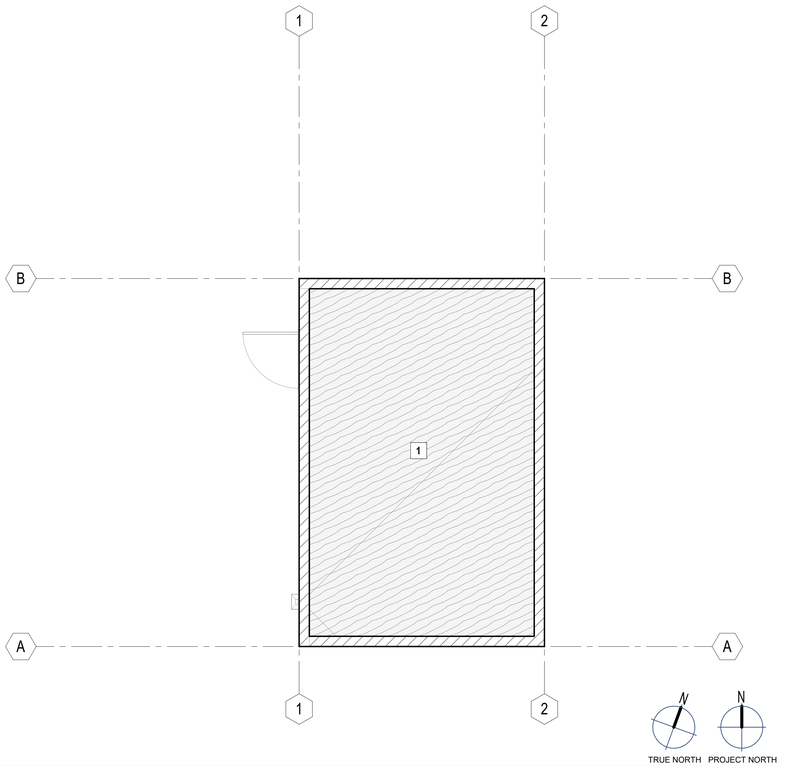
Job Number	31722
Checked By	HP
Scale	12" = 1'-0"

GENERAL NOTES

1-S0.02

PLAN NOTES AND LEGEND

FOR PLAN NOTES SEE 1-S2.11.



MDF - ROOF LOADING DIAGRAM 1/4" = 1'-0" 05

LOADING DIAGRAM SCHEDULE

MARK	DESCRIPTION	SDL [a] [b]	LL [b]
1	MDF ROOF	16.6 psf	20 psf (ROOF LIVE LOAD)

NOTES:
[a] SDL = SUPERIMPOSED DEAD LOAD, (SELF-WEIGHT OF STRUCTURAL DECK & FRAMING NOT INCLUDED.) ROCK CLIMBING PANELS ARE ATTACHED TO THE NORTH, EAST, AND SOUTH EXTERIOR FACES OF THE MDF CMU WALL. ADDITIONAL 3.2psf IS CONSIDERED TO THE BE APPLIED FULL HEIGHT TO THESE WALL FACES.

[b] LL = ROOF LIVE LOAD REDUCIBLE, UNO.

[c] SDL INCLUDES 5 PSF PV ALLOWANCE.

LPA

ARCHITECTURE ENGINEERING INTERIOR DESIGN
LANDSCAPE ARCHITECTURE PLANNING

949-261-1001 Office

LPADesignStudios.com

5301 California Avenue, Suite 100
Irvine, California 92617

REGISTERED PROFESSIONAL ENGINEER
HAMIDA A. PRASAD
NO. 56463
09/30/27
STRUCTURAL
STATE OF CALIFORNIA

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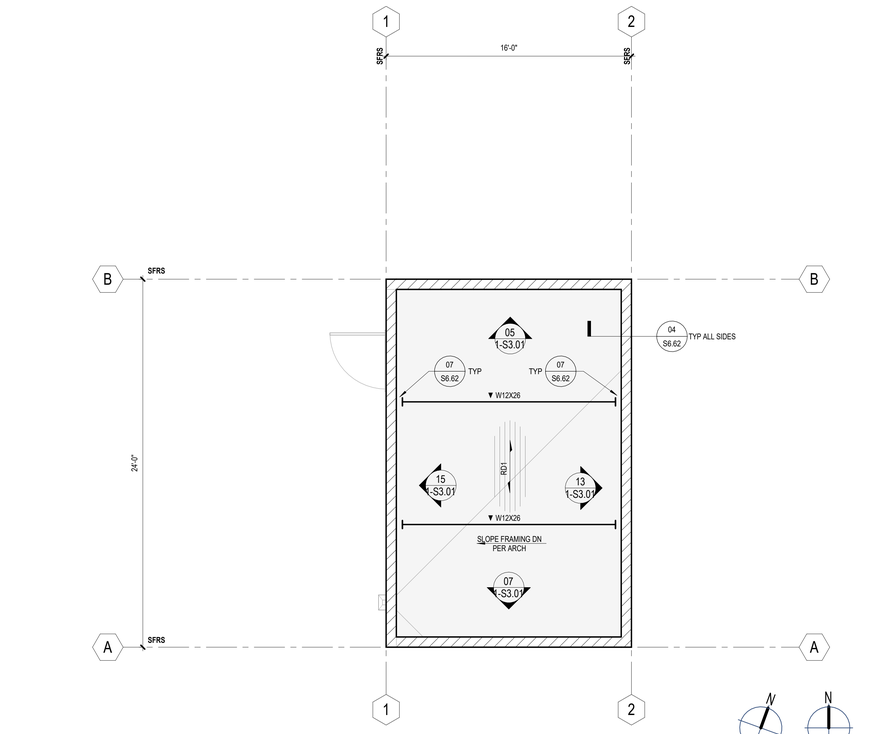
Scale	

MDF - LOADING DIAGRAM

1-S1.21



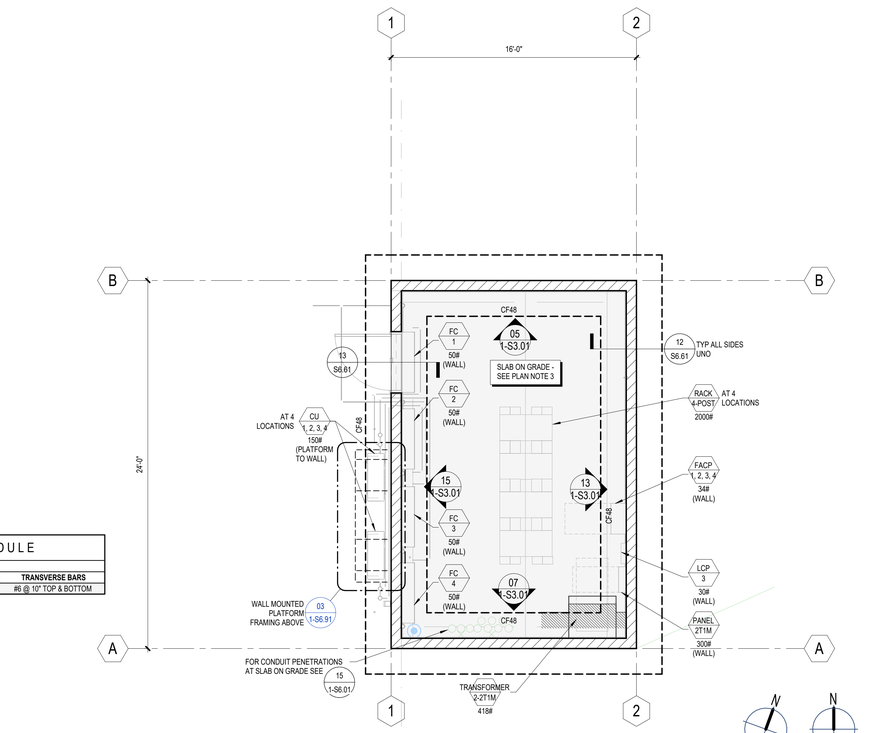
MDF - ROOF FRAMING PLAN | 1/4" = 1'-0" | 07

PLAN NOTES

1. FOR GENERAL NOTES SEE 1-S0 SERIES SHEETS. FOR TYPICAL DETAILS SEE 1-S6 SERIES SHEETS.
2. SEE ARCHITECTURAL, MECHANICAL, ELECTRICAL, and PLUMBING DRAWINGS FOR TOP OF STRUCTURAL CONCRETE SLAB OR METAL DECK ELEVATIONS, DEPRESSIONS, SLOPES, CURBS, DRAINS, PADS, DECK EDGE LOCATIONS; WALL OVERALL DIMENSIONS; and LOCATIONS OF OPENINGS IN WALLS and SLABS NOT INDICATED ON STRUCTURAL DRAWINGS. CMU WALLS EXTERIOR FACE TO ALIGN WITH GRID LINES.
3. CENTER COLUMNS AT GRID INTERSECTIONS UNLESS NOTED OTHERWISE.
4. BEAMS ARE SPACED EQUALLY BETWEEN WALLS UNLESS NOTED OTHERWISE.
5. N/A
6. N/A
7. N/A
8. NO PENETRATION IN STRUCTURAL STEEL IS PERMITTED UNLESS SPECIFICALLY SHOWN ON STRUCTURAL DRAWINGS.
9. SEE 1-S6.9X SERIES FOR EQUIPMENT ANCHORAGE UNLESS NOTED OTHERWISE. WHERE EQUIPMENT IS ANCHORED DIRECTLY TO BEAM, LOCATE BEAMS CENTERED UNDER EQUIPMENT CURB. WHERE EQUIPMENT IS ANCHORED ON A CONCRETE PAD, LOCATE BEAM CENTERLINE 6" INWARD FROM EDGE OF PAD. WHERE EQUIPMENT IS ANCHORED TO A BUILT-UP CONCRETE PAD, CENTER BEAM ON CONCRETE WALL OF BUILT-UP CONCRETE PAD. COORDINATE EXTENT OF CONCRETE PADS SUPPORTING EQUIPMENT WITH MANUFACTURER AND WITH EDGE DISTANCE REQUIREMENTS PER EQUIPMENT ANCHORAGE DETAILS.
10. COORDINATE DETAILING AND SECONDARY MEMBERS FOR DEFERRED SUBMITTAL ITEMS PER GENERAL NOTE SECTION B. COORDINATE DETAILING AND SECONDARY MEMBERS FOR DEFERRED SUBMITTAL ITEMS PER GENERAL NOTE SECTION DEFERRED SUBMITTAL ITEMS ANCHORED OR SUPPORTED BY STRUCTURE.
11. N/A
12. ROOF FRAMING HAS BEEN DESIGNED FOR AN ADDITIONAL 5 PSF UNIFORM DEAD FOR FUTURE PV. DECK HAS NOT BEEN DESIGNED FOR CONCENTRATED LOADING IMPOSED BY PV SYSTEM.

LEGEND

- +X'-X" — INDICATES ELEVATION OF TOP OF STRUCTURAL DECK - SEE ARCHITECTURAL FOR TOP OF STRUCTURAL DECK IF NO ELEVATION INDICATED
- INDICATES BEAM BENEATH DEPRESSED OR SLOPED STRUCTURAL SLAB (SEE ARCH PLANS FOR FURTHER CLARIFICATION - COORDINATE TOP OF STEEL ELEVATION AS REQUIRED)
- WXxXX — INDICATES NON-FRAME STEEL BEAM
- INDICATES 8" THICK CONCRETE BLOCK SHEAR WALL SOLID GROUTED - FOR REINFORCING and OTHER INFORMATION SEE CMU WALL ELEVATIONS and 1-S6.61
- RDX — INDICATES ROOF CONSTRUCTION MARK - SEE DETAIL 01/1-S6.12
- SFRS — INDICATES SEISMIC FORCE RESISTING SYSTEM (SFRS) - SEE GENERAL NOTE SECTION "STRUCTURAL STEEL" NOTE 4.D - WHEN (SFRS) IS INDICATED, ALL MEMBERS IN THAT FRAMING LINE ARE (SFRS) MEMBERS



MDF - FOUNDATION PLAN | 1/4" = 1'-0" | 05

CONTINUOUS FOOTING SCHEDULE

Mark	FOOTING SIZE (WIDTH x DEPTH)	REINFORCING	
		CONTINUOUS LONGITUDINAL BARS	TRANSVERSE BARS
CF36	48"x24"	(5) #7 @ TOP & BOTTOM	#6 @ 10" TOP & BOTTOM

PLAN NOTES

1. FOR GENERAL NOTES SEE 1-S0 SHEETS. FOR TYPICAL DETAILS SEE 1-S6 SERIES SHEETS.
2. SEE ARCHITECTURAL, MECHANICAL, ELECTRICAL, and PLUMBING DRAWINGS FOR TOP OF CONCRETE SLAB ON GRADE ELEVATIONS, DEPRESSIONS, SLOPES, OPENINGS, DRAINS, TRENCHES, PADS, and CURBS; SLAB EDGE LOCATIONS; WALL OVERALL DIMENSIONS; and LOCATIONS OF OPENINGS NOT INDICATED ON STRUCTURAL DRAWINGS.
3. BUILDING SLAB-ON-GRADE: 5" THICK W/ #4 @ 18" O/C EACH WAY at CENTER OF SLAB OVER 15 MIL STEGO WRAP VAPOR BARRIER OR APPROVED EQ (LAP 6" AT JOINTS and TAPE SEAL - OMIT VAPOR BARRIER AT EXTERIOR AREAS) OVER AT LEAST 2 FEET OF NON EXPANSIVE (EI<20) AND PROPERLY COMPACTED FILL AS INDICATED IN THE GEOTECHNICAL REPORT. PROVIDE CONSTRUCTION JOINTS OR WEAKENED PLANE JOINTS IN SLAB-ON-GRADE EACH DIRECTION PER DETAIL 06/1-S6.01 - AT AREAS TO RECEIVE TILE, COORDINATE LOCATION OF JOINTS IN SLAB TO ALIGN WITH TILE EXPANSION JOINTS PER ARCH.
4. CENTER CONTINUOUS FOOTINGS ON CMU WALLS UNLESS NOTED OTHERWISE.
5. IN NO CASE SHALL PIPES, CONDUITS, OR SLEEVES BE EMBEDDED IN SPREAD OR CONTINUOUS FOOTINGS OR WITHIN TOP OR BOTTOM THIRD OF GRADE BEAMS UNLESS SPECIFICALLY DETAILED ON STRUCTURAL DRAWINGS. PIPES, CONDUITS OR SLEEVES MAY ONLY BE EMBEDDED WITHIN THE MIDDLE THIRD OF GRADE BEAMS WHERE NOTED ON STRUCTURAL PLANS AND DETAILED IN THE STRUCTURAL DRAWINGS.
6. WHERE CONTINUOUS FOOTINGS and SPREAD FOOTINGS INTERSECT, EXCAVATE TO BOTTOM OF DEEPER FOOTING and CONTINUE ALL BARS THRU INTERSECTION. PLACE BARS AT CONTINUOUS FOOTING CORNERS and INTERSECTIONS PER 05/1-S6.01. WHERE CONTINUOUS FOOTINGS TERMINATE AT SIDES OF GRADE BEAMS OR SPREAD FOOTINGS, EXTEND LONGITUDINAL BARS TO FAR SIDE OF GRADE BEAM OR SPREAD FOOTING and TERMINATE W/ STANDARD 90° HOOK.
7. LOCATE TOP OF SPREAD FOOTINGS and CONTINUOUS FOOTINGS 1'-4" BELOW LOWEST ADJACENT SLAB OR GRADE ELEVATION UNLESS NOTED OTHERWISE.
8. GEOTECHNICAL OBSERVATION / COMPACTION REPORT SHALL BE SUBMITTED TO THE BUILDING INSPECTOR PRIOR TO FOOTING INSPECTION.
9. COORDINATE EXTENT OF CONCRETE PADS SUPPORTING EQUIPMENT WITH MANUFACTURER AND WITH EDGE DISTANCE REQUIREMENTS PER EQUIPMENT ANCHORAGE DETAILS IN 1-S6.9X SERIES.
10. N/A
11. SEE CIVIL DRAWINGS FOR APPROXIMATE LOCATION OF EXISTING UNDERGROUND UTILITIES. PROTECT OR RELOCATE EXISTING UTILITIES AS REQUIRED DURING FOOTING EXCAVATION OR CONSTRUCTION. DO NOT SURCHARGE EXISTING UTILITIES, SEE 01/1-S6.01 FOR ADDITIONAL CLARIFICATION.

LEGEND

- CFX — INDICATES CONT. FOOTING - SEE SCHEDULE ON 1-S2.11
- T.O.F — INDICATES TOP OF FOOTING ELEVATION - IF NO ELEVATION INDICATED, LOCATE TOP OF CONT. OR MAT FOOTING PER NOTE 7
- INDICATES 8" THICK CONCRETE BLOCK SHEAR WALL SOLID GROUTED - FOR REINFORCING and OTHER INFORMATION SEE CMU WALL ELEVATIONS and 1-S6.61
- S------S — INDICATES STEP IN CONTINUOUS FOOTING OR GRADE BEAM - SEE 09/S6.01. LOCATION OF FOOTING STEPS SHOWN ON PLAN IS APPROXIMATE, UNO. LOCATION OF STEPS IS TO BE COORDINATED BY CONTRACTOR WITH UTILITY LOCATIONS and FINISH GRADES.
- INDICATES CHANGE IN ELEVATION AT SLAB ON GRADE - SEE DETAIL 12/1-S6.02 UNLESS DETAILED OTHERWISE
- OR — INDICATES CONCRETE CURB OR HOUSEKEEPING PAD - CONSTRUCT PER 06D/1-S6.01 UNO
- +X'-X" — INDICATES ELEVATION OF TOP OF STRUCTURAL CONCRETE SLAB ON GRADE - SEE ARCHITECTURAL FOR TOC IF NO ELEVATION INDICATED
- INDICATES MEP EQUIPMENT TAG. REFER TO ARCH, MECH, ELECT, PLUMB, ETC FOR EXACT LOCATION OF EQUIPMENT
- FOR FLOOR MOUNTED UNIT ANCHORAGE INF AND CONCRETE PAD REQUIREMENT SEE 01/2-S6.91 UNO
- FOR WALL MOUNTED UNIT CONNECTION INF REFER TO LANDSCAPE, MECHANICAL, ELECTRICAL, PLUMBING, ETC. FOR EXACT LOACTION OF EQUIPMENT. SEE 09/2-S6.94 UNO
- XX# (WALL) — INDICATES MAX EQUIPMENT WEIGHT INCLUDING ALL ACCESSORIES (IN LBS)
- INDICATES WALL MOUNTED UNIT

LPA
ARCHITECTURE ENGINEERING INTERIOR DESIGN
LANDSCAPE ARCHITECTURE PLANNING
949-261-1001 Office
LPADesignStudios.com
5301 California Avenue, Suite 100
Irvine, California 92617

REGISTERED PROFESSIONAL ENGINEER
HAMIDA A. PLASENCIA
NO. S5493
09/27
STRUCTURAL
STATE OF CALIFORNIA

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MALIBU HIGH SCHOOL
INCREMENT 01

30215 MORNING VIEW DR.
MALIBU, CA 90265
APN: 4469-017-900

Developed for
SANTA MONICA - MALIBU UNIFIED SCHOOL DISTRICT

Revision	Date

Submittal	Date
SCHEMATIC DESIGN	09/04/2024
50% DESIGN DEVELOPMENT	12/13/2024
100% DESIGN DEVELOPMENT	03/14/2025
CDP SUBMITTAL	06/16/2025
DSA SUBMITTAL	09/08/2025

Job Number	31722
Checked By	HP
Scale	

MDF - FOUNDATION AND FRAMING PLANS

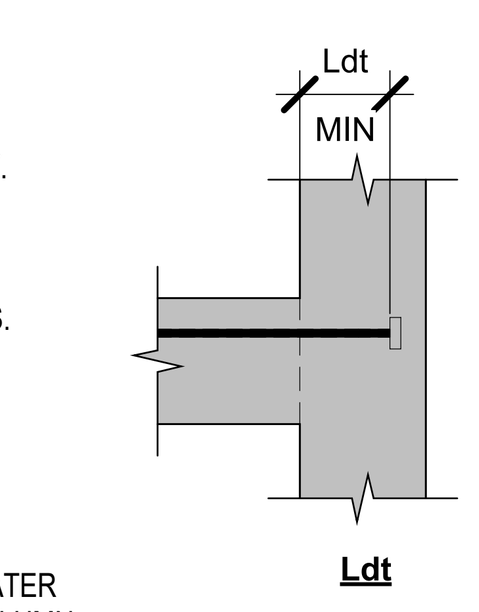
1-S2.11

HEADED BAR DEVELOPMENT LENGTH (Ldt) SCHEDULE

HEADED Bar Ldt Calc
Based on ACI 318-19

CASE TYPE / BAR SIZE	f'c = 3000psi I	II	III	IV	f'c = 4000psi I	II	III	IV	f'c = 5000psi I	II	III	IV	f'c = 6000psi I	II	III	IV
#3	6"	6"	6"	6"	6"	6"	6"	6"	6"	6"	6"	6"	6"	6"	6"	6"
#4	9"	6"	7"	6"	8"	6"	7"	6"	8"	6"	6"	6"	8"	6"	6"	6"
#5	12"	8"	10"	6"	11"	7"	9"	6"	11"	7"	9"	6"	11"	7"	8"	6"
#6	15"	10"	12"	8"	15"	9"	12"	7"	14"	9"	11"	7"	14"	9"	11"	7"
#7	19"	12"	16"	10"	18"	12"	15"	9"	18"	11"	14"	9"	17"	11"	14"	9"
#8	24"	15"	19"	12"	22"	14"	18"	11"	21"	13"	17"	11"	21"	13"	17"	11"
#9	28"	18"	23"	14"	27"	17"	21"	13"	26"	16"	21"	13"	25"	16"	20"	13"
#10	34"	21"	27"	17"	32"	20"	25"	16"	31"	19"	24"	15"	30"	19"	24"	15"
#11	39"	25"	32"	20"	37"	23"	30"	19"	36"	22"	29"	18"	35"	22"	28"	18"

NOTES:
1. THESE BAR DEVELOPMENT LENGTHS APPLY TO NORMAL WEIGHT CONC ONLY.
2. PROVIDE LENTON HEADED REINFORCING BARS PER IAPMO-UES ER-0188.
3. LENGTHS SHOWN IN SCHEDULE ABOVE APPLY TO UNCOATED GRADE 60 BARS. MULTIPLY THE SPECIFIED LENGTH BY 1.33 FOR GRADE 80 BARS
4. CASE I: TYPICAL
5. CASE II: HEADED BARS SPACED GREATER THAN 6db O/C
6. CASE III: HEADED BARS WITH SIDE COVER PARALLEL WITH HEADED BAR GREATER THAN OR EQUAL TO 6db or HEADED BARS TERMINATING WITHIN CONFINED COLUMN CORE WITH SIDE COVER PARALLEL WITH HEADED BAR BAR GREATER THAN OR EQUAL TO 2 1/2"
7. CASE IV: HEADED BARS MEETING REQUIREMENTS OF BOTH CASE II AND CASE III

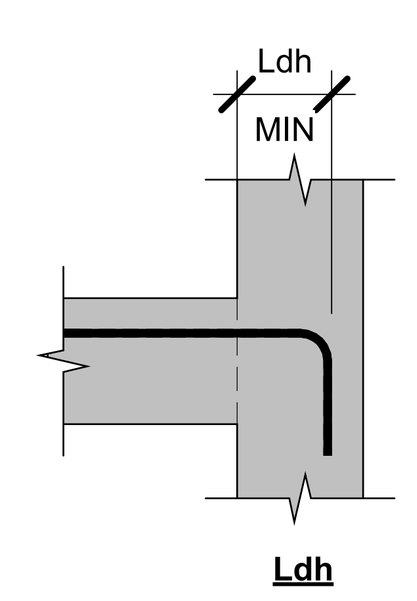


HOOKED BAR DEVELOPMENT LENGTH (Ldh) SCHEDULE

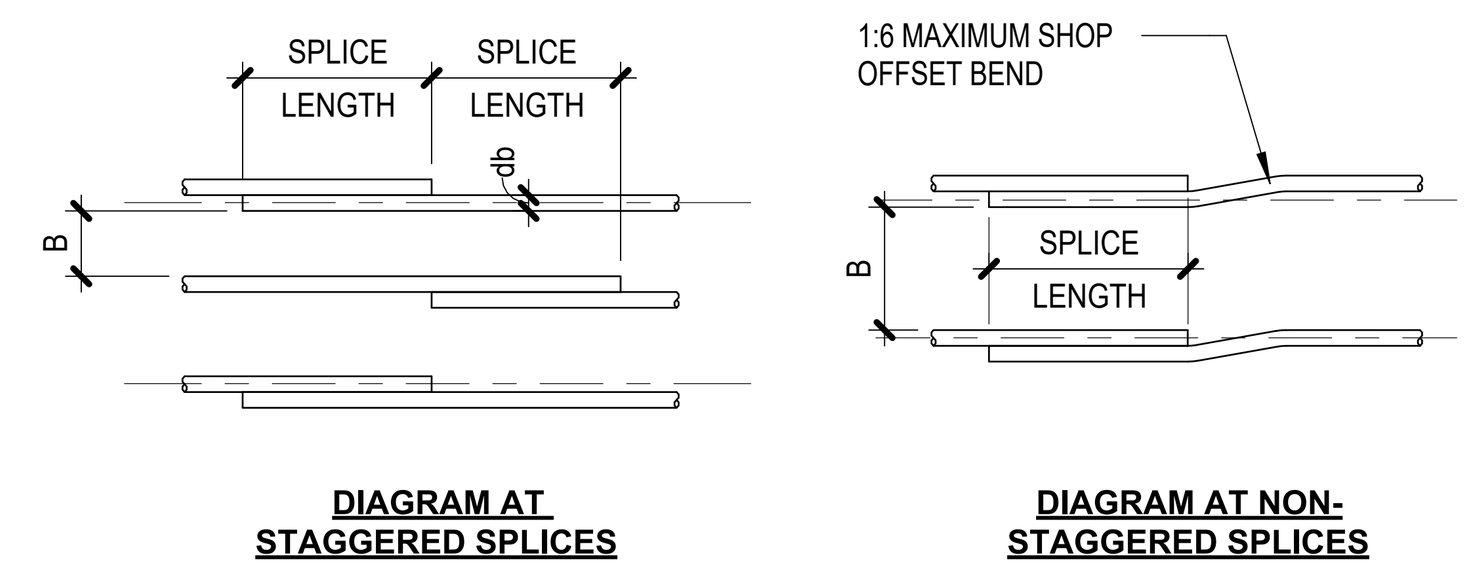
HOOKED Bar Ldh Calc
Based on ACI 318-19

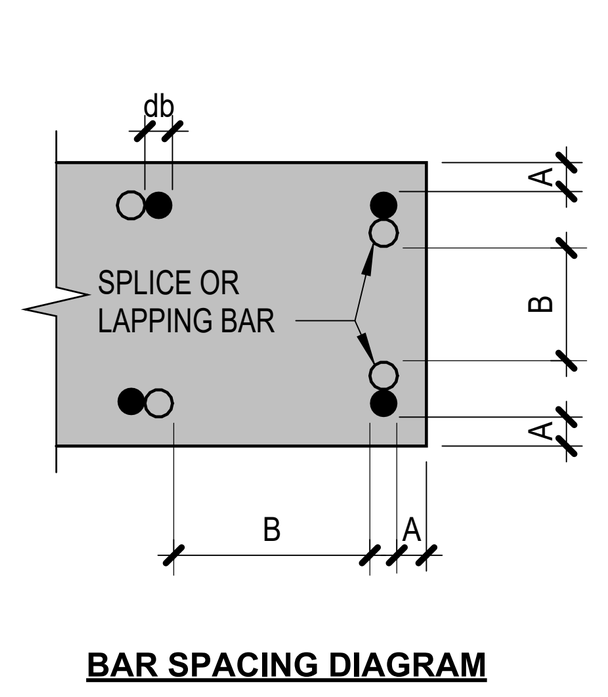
CASE TYPE / BAR SIZE	f'c = 3000psi I	II	III	IV	f'c = 4000psi I	II	III	IV	f'c = 5000psi I	II	III	IV	f'c = 6000psi I	II	III	IV
#3	8"	6"	6"	6"	7"	6"	6"	6"	7"	6"	6"	6"	7"	6"	6"	6"
#4	12"	7"	9"	6"	11"	7"	9"	6"	10"	7"	8"	6"	10"	7"	8"	6"
#5	16"	10"	13"	8"	15"	10"	12"	8"	15"	9"	12"	7"	14"	9"	11"	7"
#6	21"	13"	17"	11"	20"	12"	16"	10"	19"	12"	15"	10"	19"	14"	15"	9"
#7	26"	17"	21"	13"	25"	16"	20"	13"	24"	15"	19"	12"	23"	15"	19"	12"
#8	32"	20"	26"	16"	30"	19"	24"	15"	29"	18"	23"	15"	28"	18"	23"	14"
#9	38"	24"	31"	19"	36"	23"	29"	18"	35"	22"	28"	18"	34"	21"	27"	17"
#10	46"	29"	37"	23"	43"	27"	35"	22"	42"	26"	33"	21"	41"	25"	33"	20"
#11	54"	34"	43"	27"	50"	32"	40"	25"	49"	30"	39"	24"	47"	30"	38"	24"

NOTES:
1. FOR TYP BAR HOOKS & BENDS, SEE DETAIL 03/-
2. HOOKED BAR LENGTHS SHOWN IN SCHEDULE ABOVE APPLY TO NORMAL WEIGHT CONC - MULTIPLY THE SPECIFIED DEVELOPMENT LENGTH BY 1.33 FOR LIGHTWEIGHT CONC
3. LENGTHS SHOWN IN SCHEDULE ABOVE APPLY TO UNCOATED GRADE 60 BARS. MULTIPLY THE SPECIFIED LENGTH BY 1.33 FOR GRADE 80 BARS
4. CASE I: TYPICAL
5. CASE II: HOOKED BARS SPACED GREATER THAN 6db O/C
6. CASE III: HOOKED BARS WITH SIDE COVER PARALLEL WITH HOOKED BAR GREATER THAN OR EQUAL TO 6db or HOOKED BARS TERMINATING WITHIN CONFINED COLUMN CORE WITH SIDE COVER PARALLEL WITH HOOKED BAR BAR GREATER THAN OR EQUAL TO 2 1/2"
7. CASE IV: HOOKED BARS MEETING REQUIREMENTS OF BOTH CASE II AND CASE III
8. HOOKED BARS MAYBE SUBSTITUTED WITH HEADED BARS PER 'Ldt' SCHEDULE AT LEFT



HOOKED (Ldh) AND HEADED (Ldt) BAR DEVELOPMENT LENGTH SCHEDULES | N.T.S. | 16





LEGEND:
A. CLEAR EDGE DISTANCE
B. CLEAR SPACING OF SPLICED OR LAPPED BARS (SEE GEN NOTE 'E.8' FOR MIN CLEAR SPACING)
db = BAR Ø

NOTES:
1. ALL SPLICES SHALL BE CLASS B SPLICES UNLESS INDICATED OTHERWISE. DEVELOPMENT Ld TO BE USED WHERE SPECIFICALLY INDICATED.
2. SCHEDULE APPLIES TO UNCOATED GRADE 60 BARS IN NORMAL WEIGHT CONC
3. TOP BARS (INDICATED "T" IN SCHEDULE) ARE HORIZ BARS WITH MORE THAN 12" OF CONC CAST BELOW THE BARS.
4. BOTTOM BARS (INDICATED "B" IN SCHEDULE) ARE ALL VERT BARS AND HORIZ BARS WITH LESS THAN 12" OF CONC CAST BELOW HORIZ BARS.
5. FOR LIGHTWEIGHT CONC MULTIPLY LENGTHS IN SCHEDULE BY 1.33.
6. AT SPLICE BETWEEN BARS OF VARYING SIZE, PROVIDE LAP SPLICE CORRESPONDING TO LARGER OF 'Ls' OF SMALLER BAR and 'Ld' OF LARGER BAR.
7. LENGTHS SHOWN IN SCHEDULE APPLY TO UNCOATED GRADE 60 BARS MULTIPLY THE SPECIFIED LENGTH BY 1.33 FOR GRADE 80 BARS.

SCHEDULE FOR DETERMINING CATEGORY

I	II
1. A>db and B>2db 2. A>db and B>db and TIES THROUGHOUT Ld	OTHER CASES

TENSION LAP SPLICE "Ls" SCHEDULE

SPLICE LENGTH (INCHES)

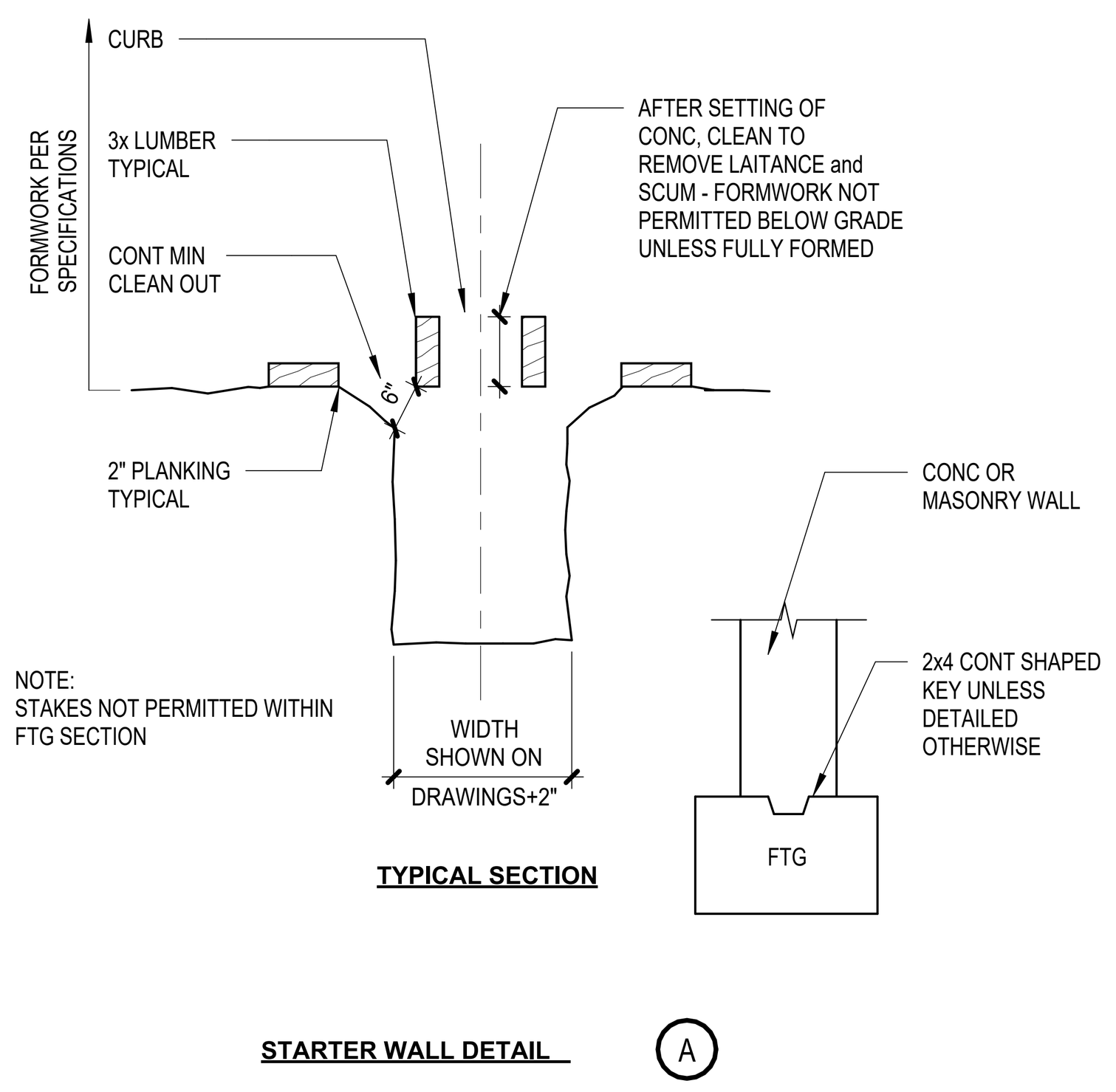
CATEGORY	NORMAL WEIGHT CONCRETE f'c PSI	0.375 #3 T	B	0.500 #4 T	B	0.625 #5 T	B	0.750 #6 T	B	0.875 #7 T	B	1.000 #8 T	B	1.128 #9 T	B	1.270 #10 T	B	1.410 #11 T	B
I	3000	28	22	37	29	47	36	56	43	81	63	93	72	105	81	118	91	131	101
	4000	24	19	32	25	40	31	48	37	70	54	80	62	91	70	102	79	113	87
	5000	22	17	29	22	36	28	43	33	63	49	72	55	81	63	91	70	101	78
II	3000	42	32	56	43	70	54	84	64	122	94	139	107	157	121	177	136	196	151
	4000	36	28	48	37	60	47	72	56	106	81	121	93	136	105	153	118	170	131
	5000	33	25	43	33	54	42	65	50	94	73	108	83	122	94	137	105	152	117

DEVELOPMENT "Ld" SCHEDULE

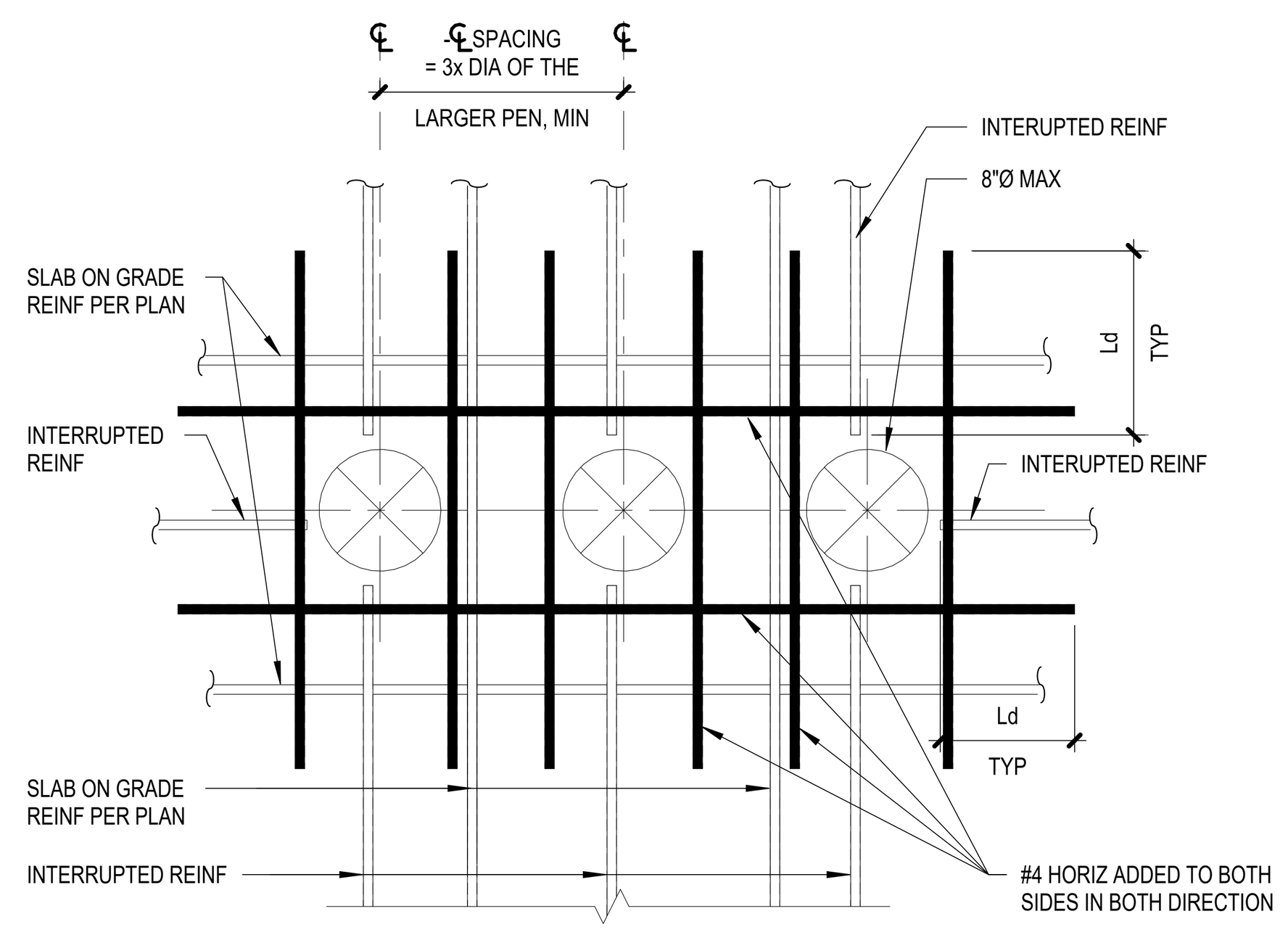
DEVELOPMENT LENGTH (INCHES)

CATEGORY	NORMAL WEIGHT CONCRETE f'c PSI	0.375 #3 T	B	0.500 #4 T	B	0.625 #5 T	B	0.750 #6 T	B	0.875 #7 T	B	1.000 #8 T	B	1.128 #9 T	B	1.270 #10 T	B	1.410 #11 T	B
I	3000	22	17	29	22	36	28	43	33	63	48	72	55	81	62	91	70	101	78
	4000	19	15	25	19	31	24	37	29	54	42	62	48	70	54	79	61	87	67
	5000	17	13	22	17	28	22	33	26	49	37	55	43	63	48	70	54	78	60
II	3000	32	25	43	33	54	41	64	50	94	72	107	82	121	93	136	105	151	116
	4000	28	22	37	29	47	36	56	43	81	63	93	71	105	81	118	91	131	101
	5000	25	19	33	26	42	32	50	38	73	56	83	64	94	72	105	81	117	90

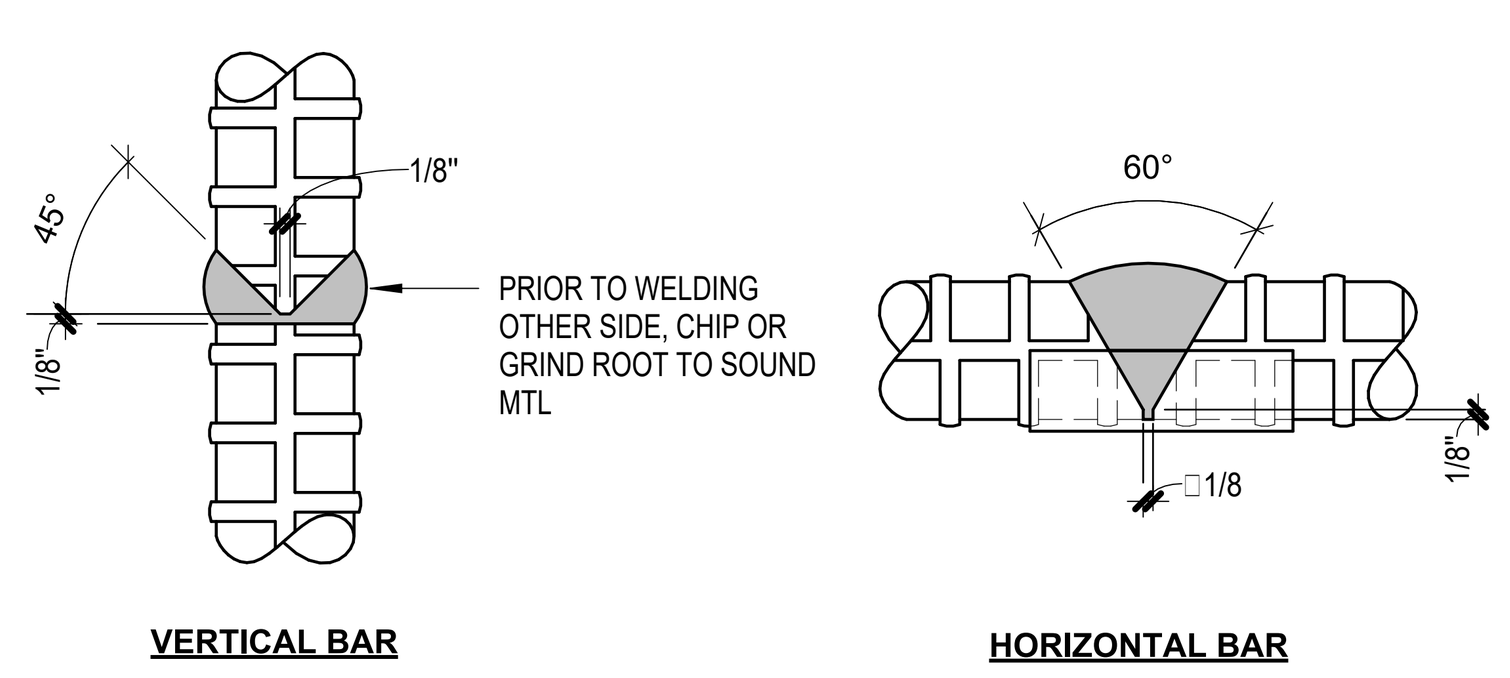
TYPICAL REBAR TENSION SPLICE and BAR DEVELOPMENT SCHEDULE (IN CONCRETE) | N.T.S. | 04



TYP MANDATORY FOUNDATION FORMWORK (UNLESS FULLY FORMED) | N.T.S. | 19



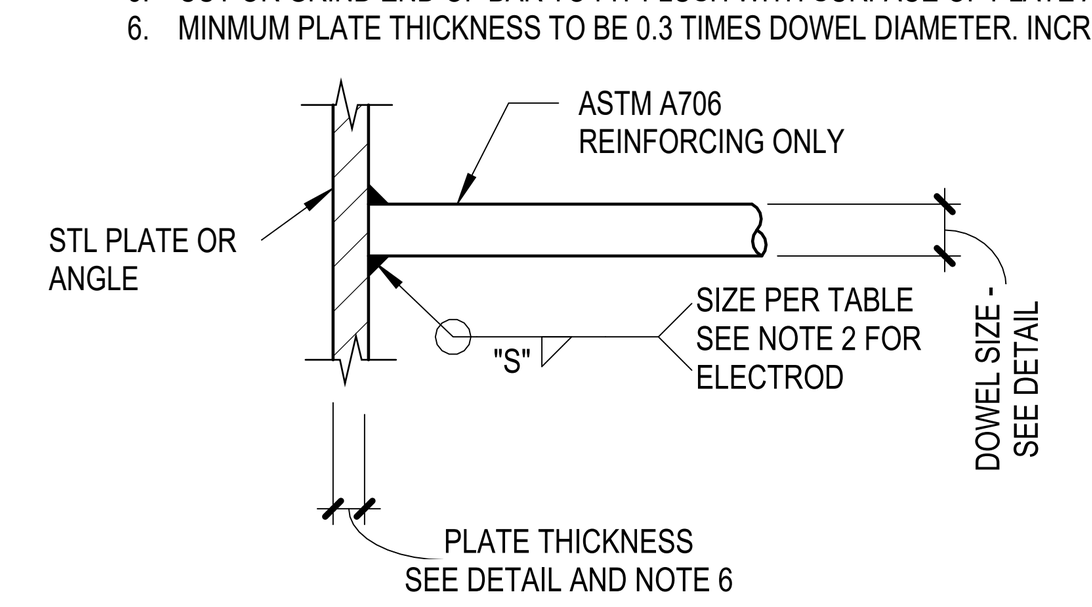
TYP SLAB ON GRADE REINF AT CONDUIT PENETRATIONS | N.T.S. | 15



NOTES:
1. AS AN ALT TO LAP SPLICE, BUTT WELD MAY BE USED AS INDICATED ABOVE, PROVIDED THEY ARE STAGGERED @ 24" MIN
2. AN APPROVED TESTING LABORATORY SHALL PROVIDE A PREQ'DUALIFICATION TENSION TEST FOR SAMPLES ON EVERY SIZE OF BAR BEING WELDED.
3. MATERIALS, CONDITIONS AND WELDING PROCEDURES UTILIZED SHALL COMPLY WITH THE CURRENT APPLICABLE BUILDING CODE AND THE REQ'D OF THE GOVERNING INSPECTION AGENCY.
4. GENERAL CONTRACTOR IS RESPONSIBLE FOR ALL COSTS INCURRED IN OBTAINING APPROVAL.

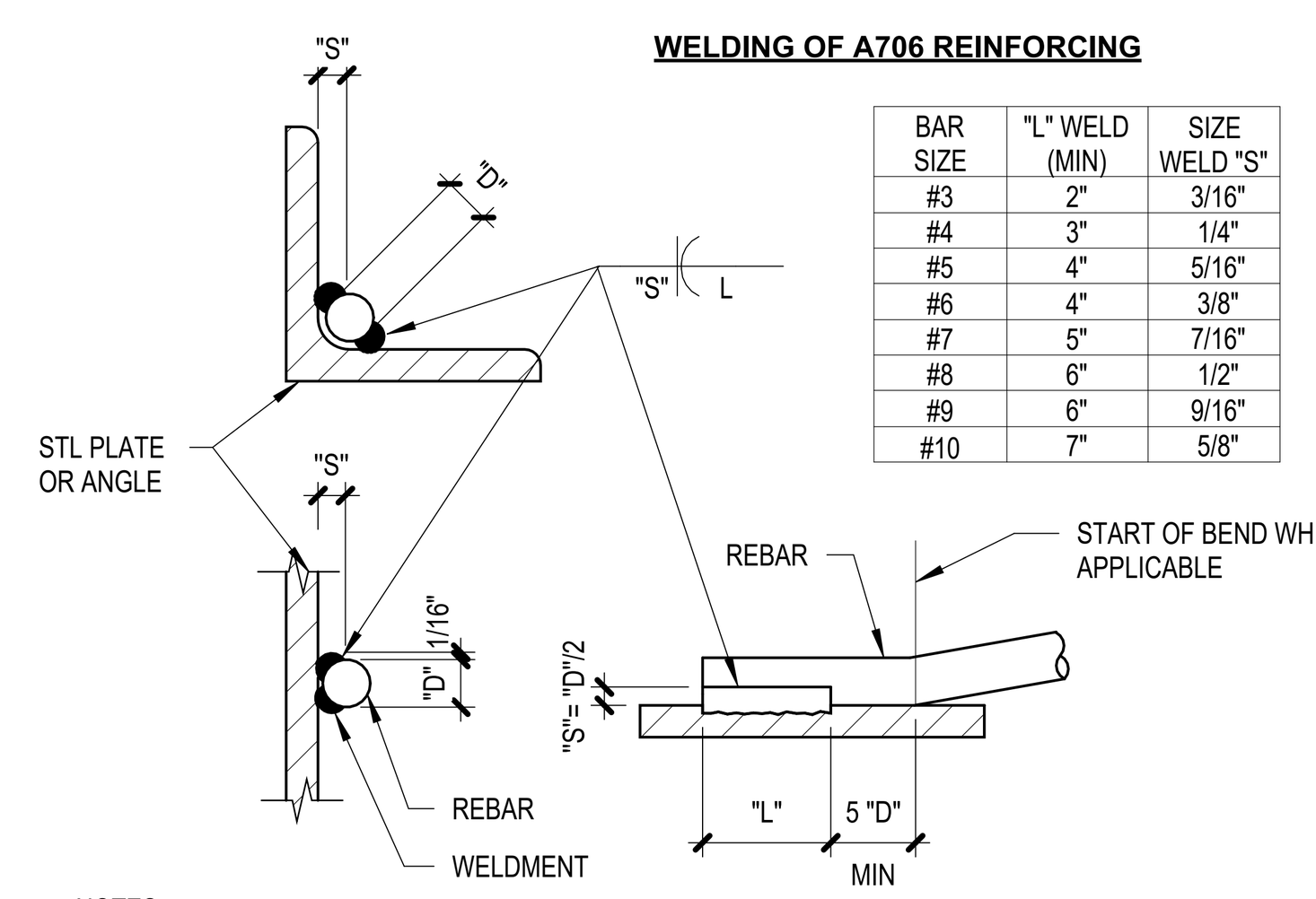
TYPICAL REINFORCING BUTT WELDS DETAIL (ALTERNATE TO SPLICES) | N.T.S. | 18

NOTES FOR DOWEL WELDS TO PLATE:
1. WELDING OF A615 REINF NOT ALLOWED, MUST USE ASTM A706 REINFORCING.
2. USE E80 ELECTRODES FOR GRADE 60, E110 ELECTRODES FOR GRADE 80.
3. ALL WELDING TO BE PER AWS D1.4
4. PREHEAT PER AWS D1.4 TABLE 5.2
5. CUT OR GRIND END OF BAR TO FIT FLUSH WITH SURFACE OF PLATE AND NOT LEAVE GAPS.
6. MINMUM PLATE THICKNESS TO BE 0.3 TIMES DOWEL DIAMETER. INCREASE PLATE SIZE WHERE NECESSARY.



BAR SIZE	SIZE WELD "S"
#3	3/16"
#4	1/4"
#5	5/16"
#6	3/8"
#7	7/16"
#8	1/2"
#9	1/2"
#10	9/16"
#11	5/8"

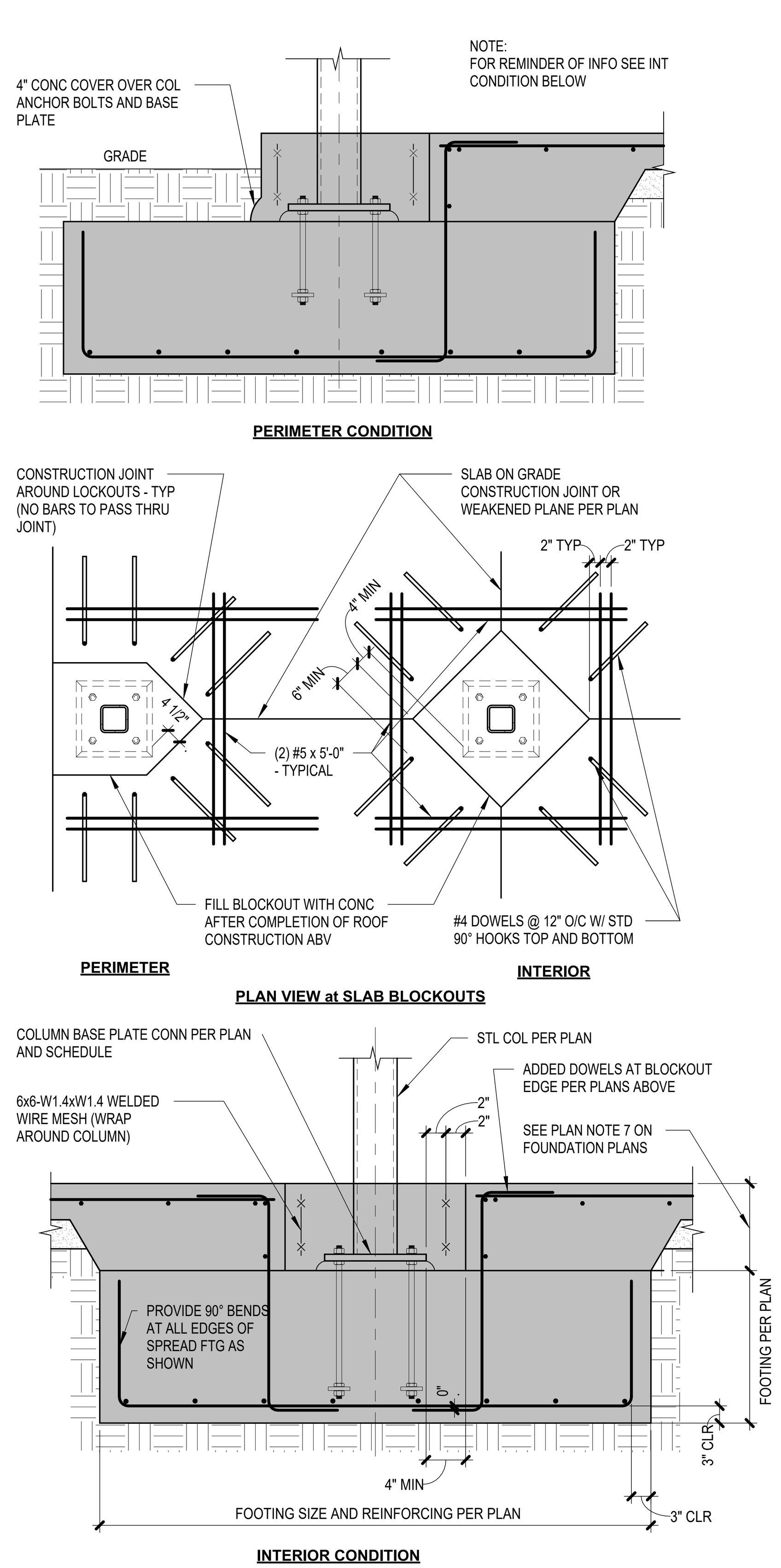
WELDING OF A706 REINFORCING



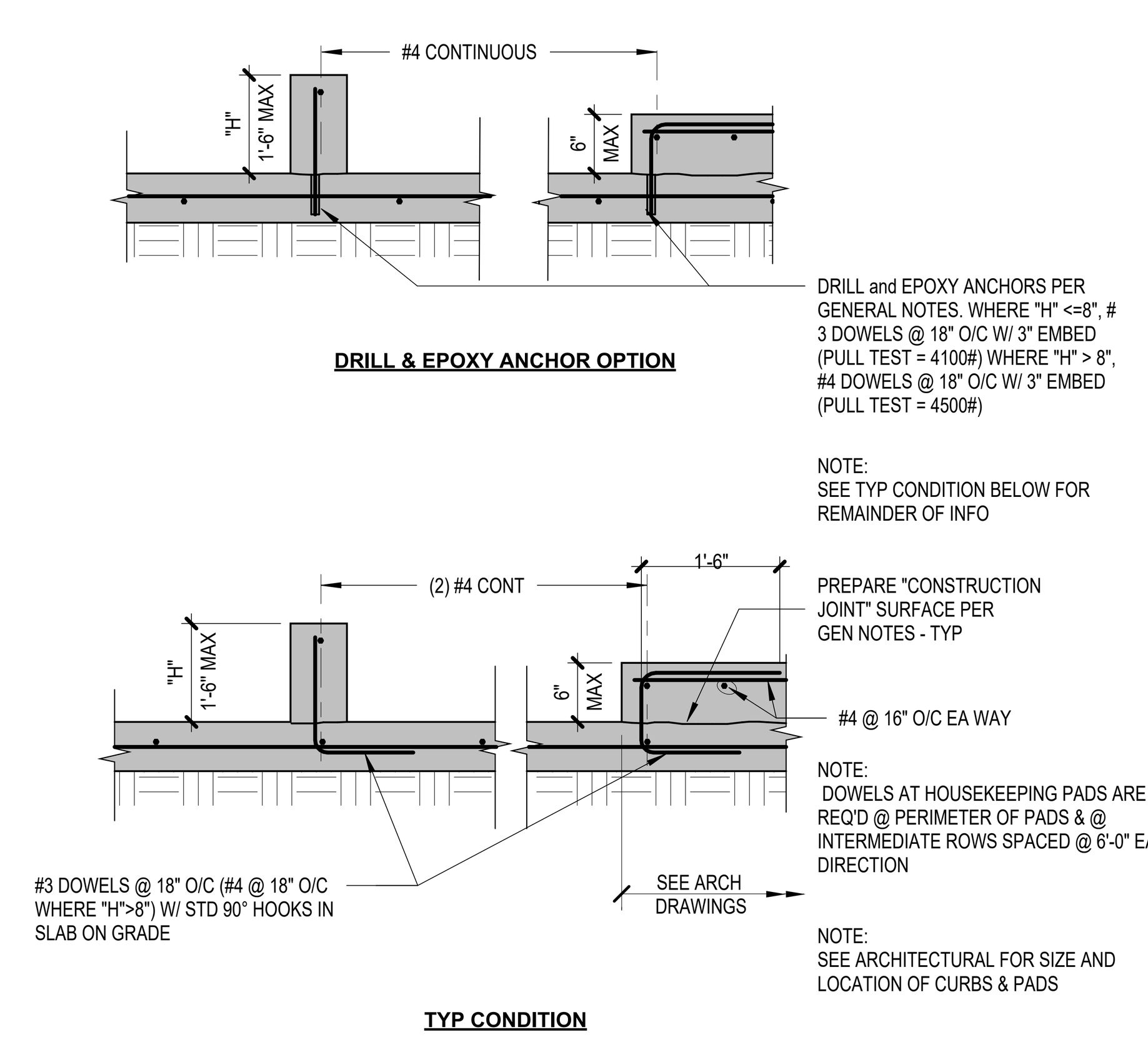
BAR SIZE	"L" WELD (MIN)	SIZE WELD "S"
#3	2"	3/16"
#4	3"	1/4"
#5	4"	5/16"
#6	4"	3/8"
#7	5"	7/16"
#8	6"	1/2"
#9	6"	9/16"
#10	7"	5/8"

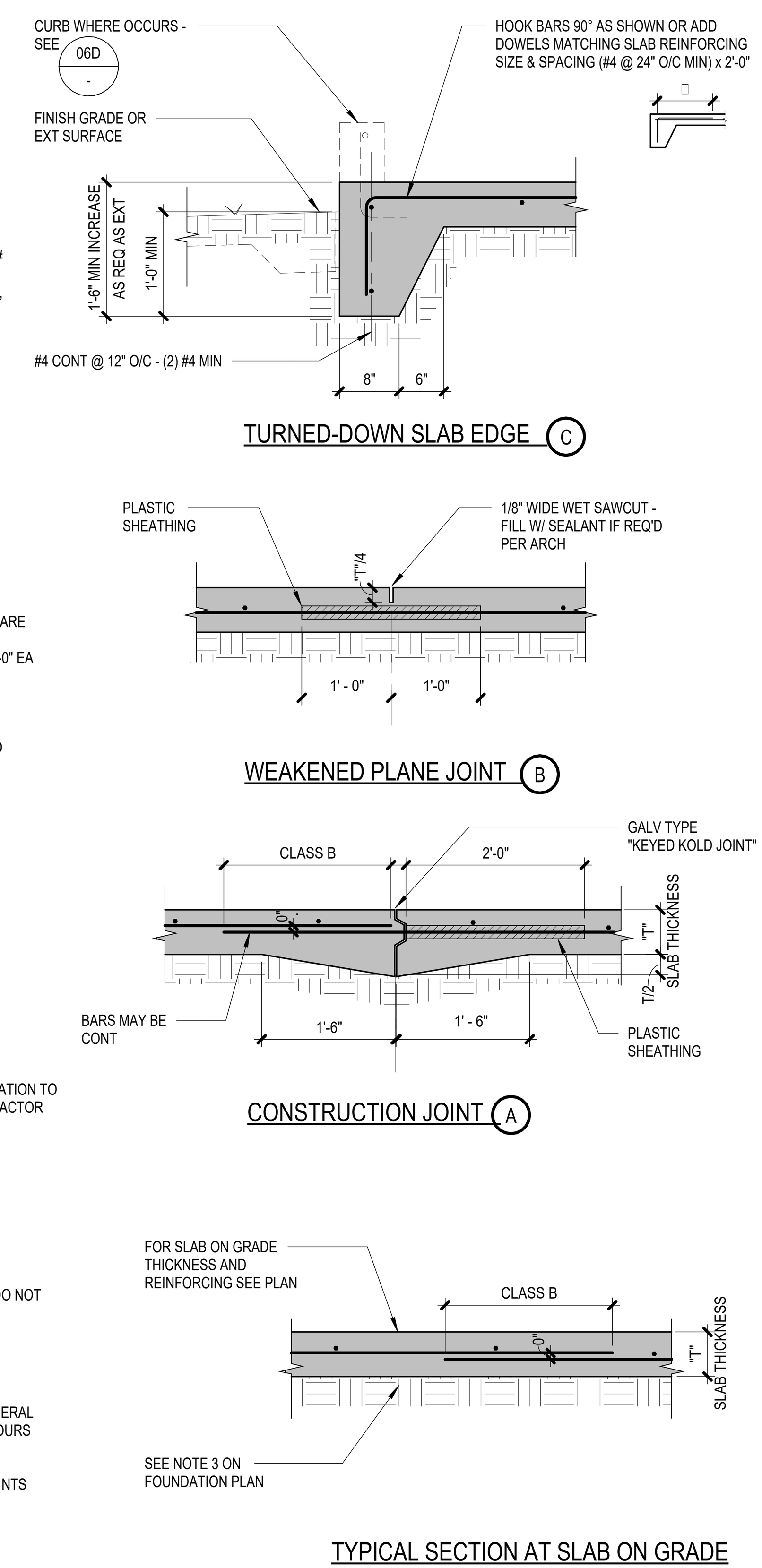
NOTES:
1. ALL REINFORCING WELDING SHALL BE IN ACCORDANCE WITH AWS CODE D1.4-05 CURRENT EDITION.
2. WELDED REINFORCING SHALL CONFORM TO ASTM A706.
3. ASTM A615 REINFORCING STL MAY BE WELDED PROVIDED A CHEMICAL ANALYSIS IS PERFORMED TO DETERMINE CARBON EQUIVALENCY, TO ESTABLISH MIN PREHEATING REQ'D. HEAT STICKS SHALL BE USED 6" FROM WELD TO VERIFY PREHEAT TEMPERATURES. CHEMICAL ANALYSIS REPORTS SHALL BE PROVIDED TO ARCHITECT (STRUCTURAL ENGINEER) PRIOR TO WELDING.

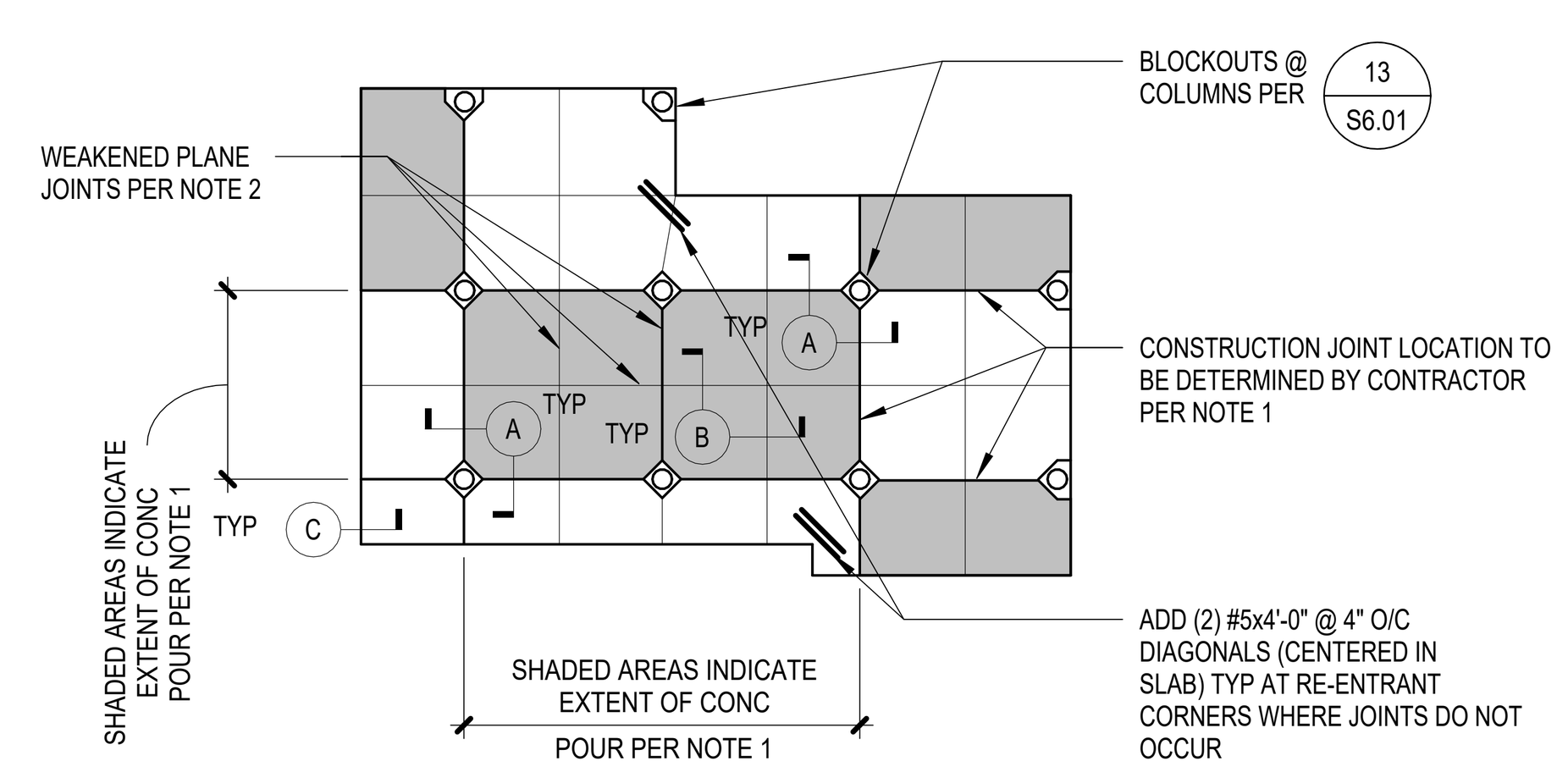
TYPICAL REBAR WELDING | N.T.S. | 17



TYPICAL SPREAD FOOTING AT STEEL COLUMN | N.T.S. | 13



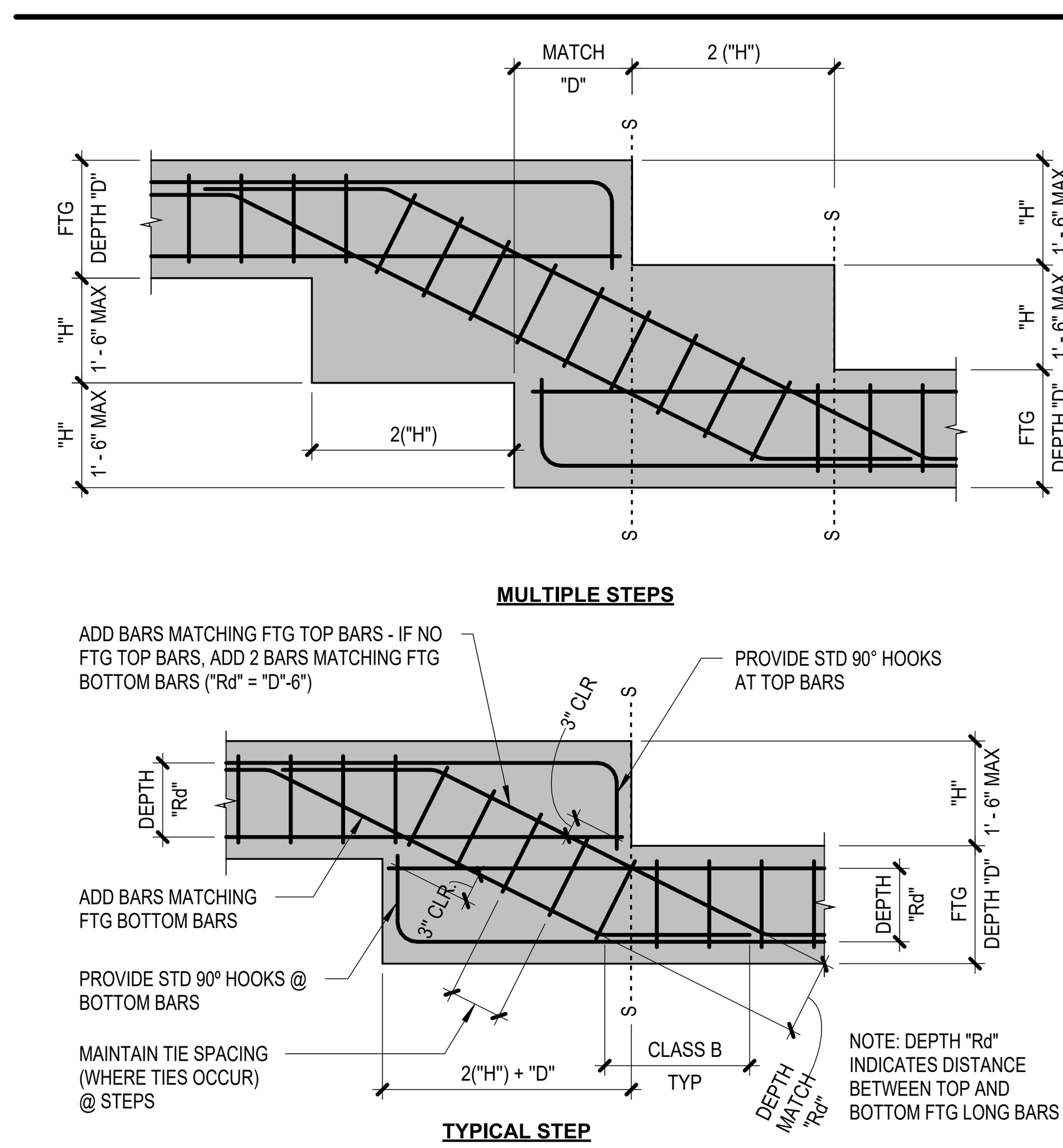




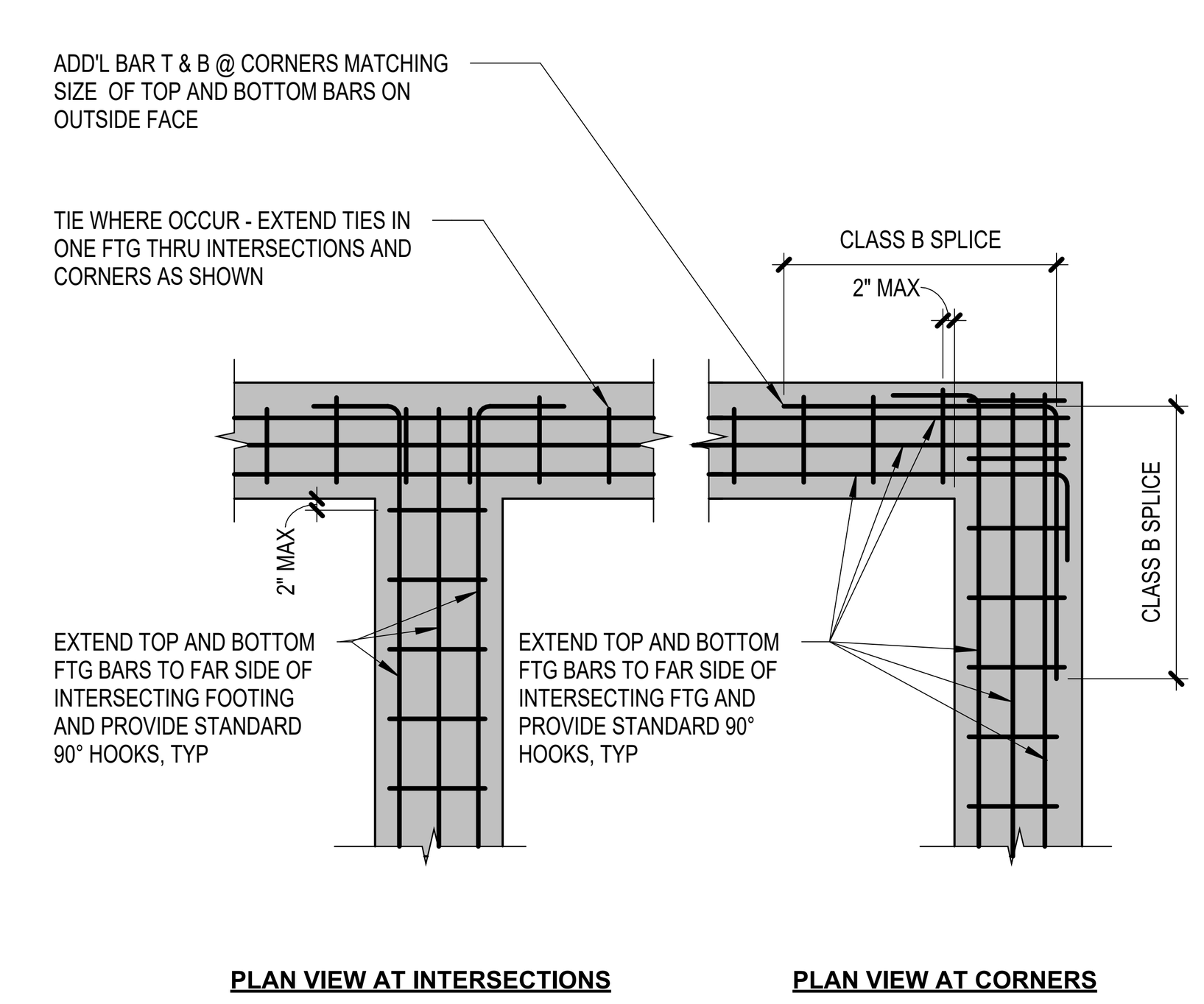
NOTES:
1. AREA OF CONC POURS TO BE DETERMINED BY CONTRACTOR. SUBMIT JOINT LAYOUT PRIOR TO POURING SLABS PER GENERAL NOTES. PROVIDE CONSTRUCTION JOINTS SURROUNDING AREA OF EA POUR UNLESS DETAILED OTHERWISE. ALLOW 24 HOURS MIN BEFORE CASTING SLABS AT ADJ AREAS.
2. SAWCUT WEAKENED PLANE JOINT AS SOON AS CONC CAN SUPPORT WEIGHT OF PERSONNEL AND SAW WITHOUT AFFECTING FINAL FINISH BUT NO LATER THAN 12 HOURS AFTER POUR. LOCATE WEAKENED PLANE JOINTS ALIGNED TO COLUMN GRID AS SHOWN AND NO GREATER THAN 15'-0" IN BOTH DIRECTIONS, UNLESS NOTED OTHERWISE.

SLAB ON GRADE JOINT DIAGRAM (PLAN VIEW)

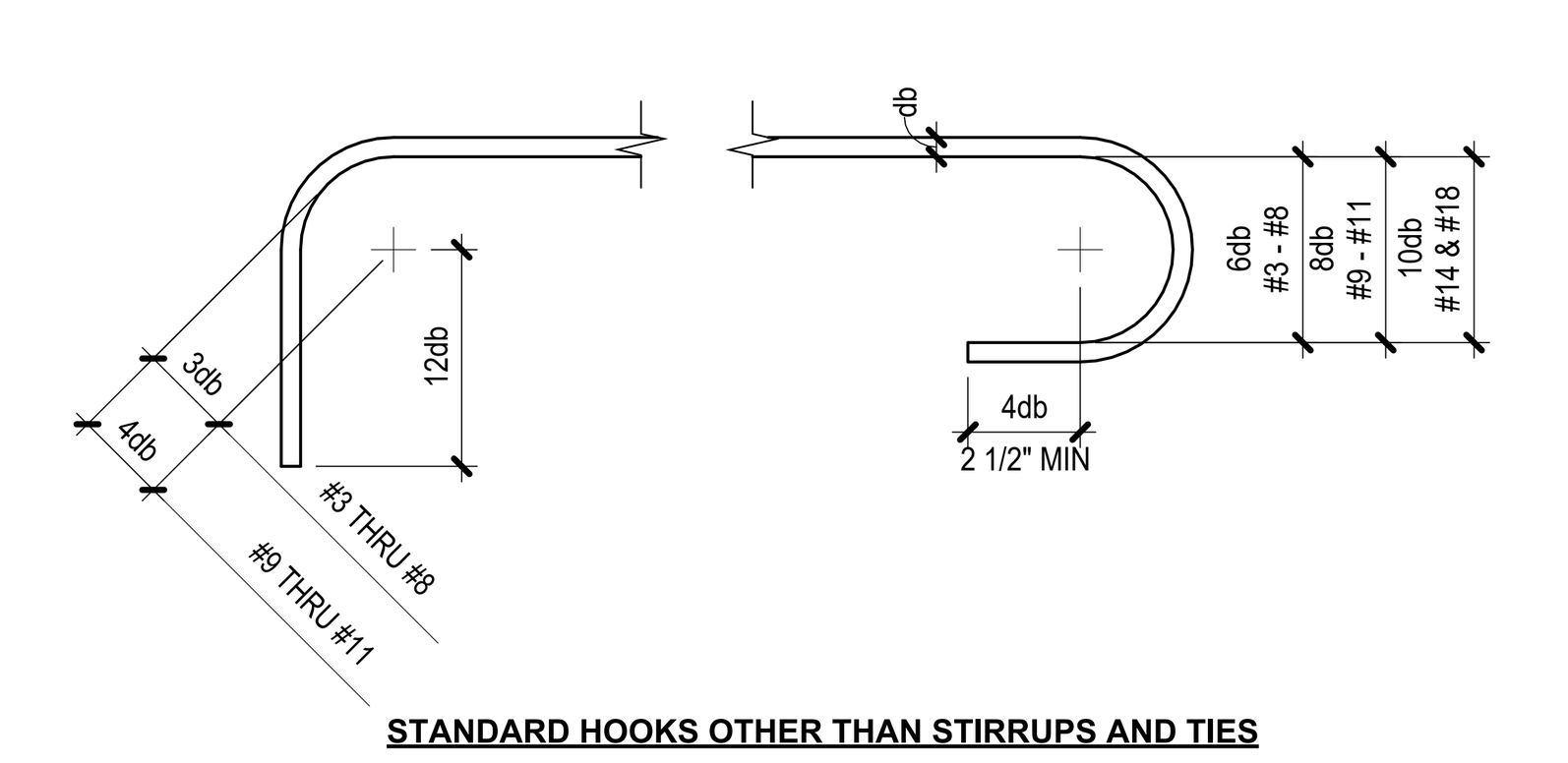
TYP SLAB ON GRADE DETAILS | N.T.S. | 06

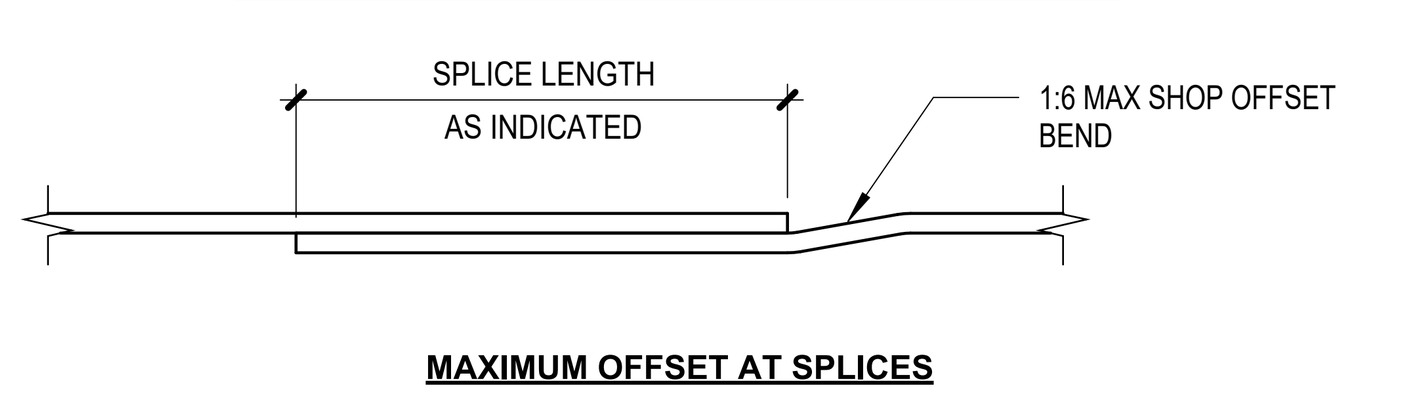


TYP STEPPED FOOTING/GRADE BEAM DETAIL | N.T.S. | 09



TYP FTG REINFORCING @ CORNERS & INTERSECTIONS | N.T.S. | 05

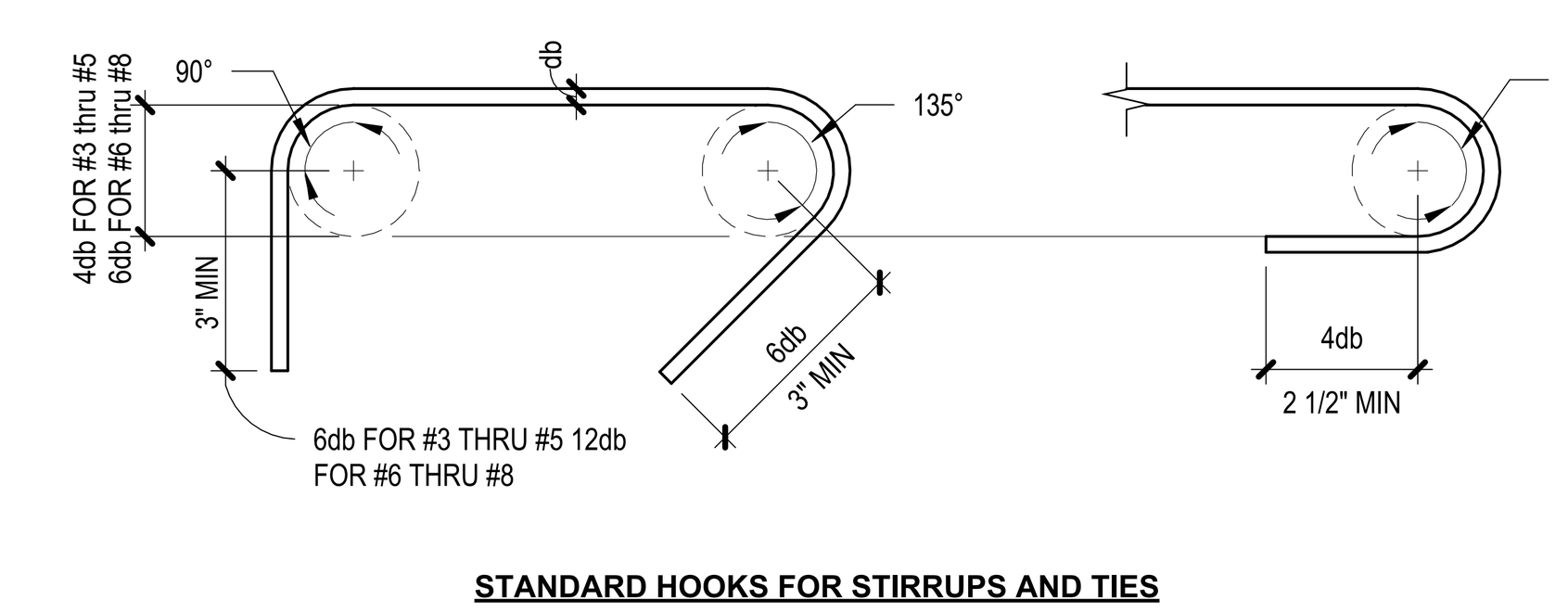




BAR DIAMETER DISTANCES

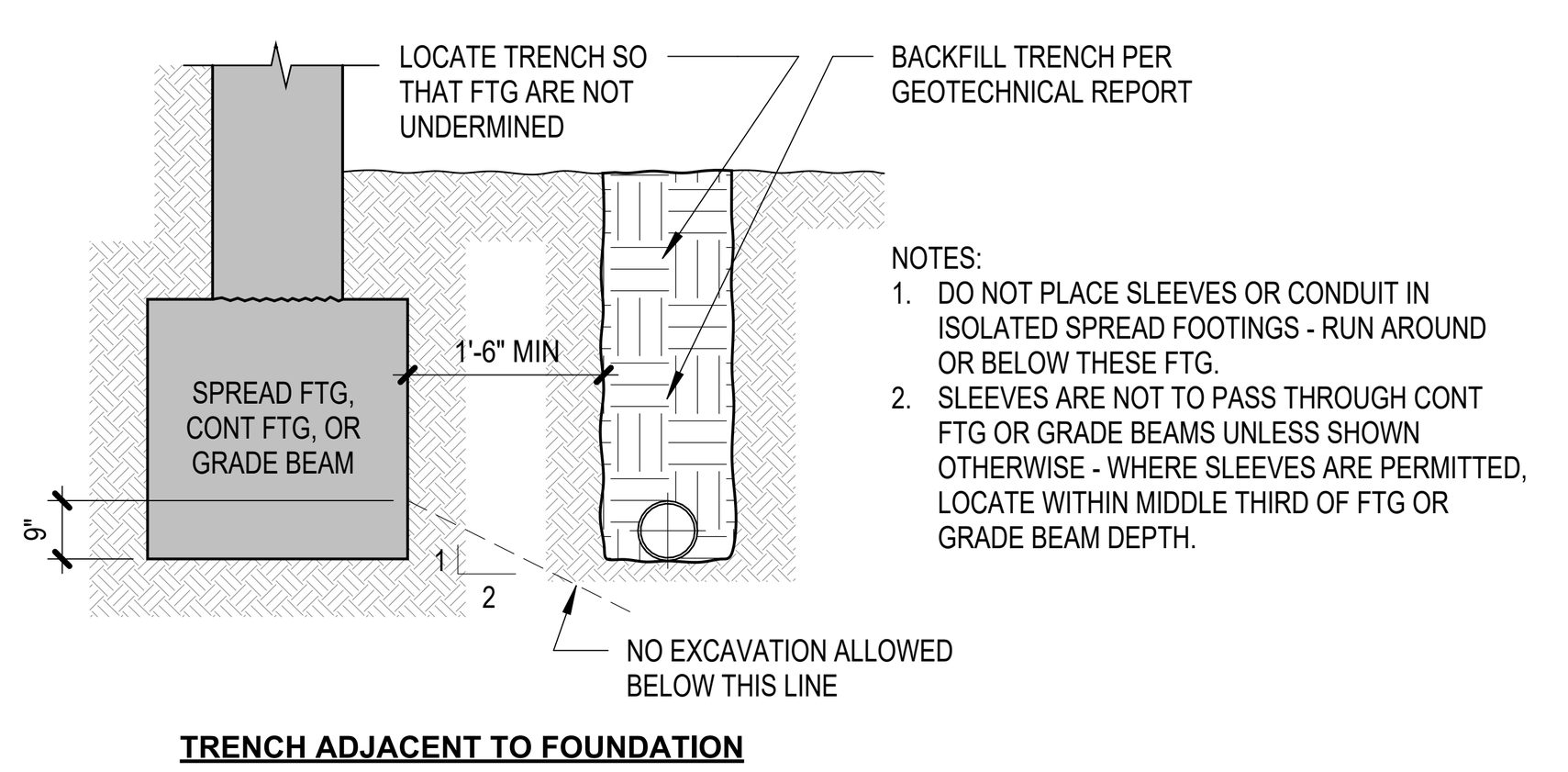
BAR DIA	BAR SIZE #3	#4	#5	#6	#7	#8	#9	#10	#11
3db	1 1/8"	1 1/2"	1 7/8"	2 1/4"	2 5/8"	3"	-	-	-
4db	1 1/2"*	2"*	2 1/2"	3"	3 1/2"	4"	4 1/2"	5"	5 1/2"
6db	2 1/4"*	3"	3 3/4"	4 1/2"	5 1/4"	6"	-	-	-
8db	-	-	-	-	-	-	9"	10"	11"
12db	4 1/2"	6"	7 1/2"	9"	10 1/2"	12"	13 1/2"	15"	16 1/2"

* INDICATES MINIMUM DIMENSIONS MAY GOVERN

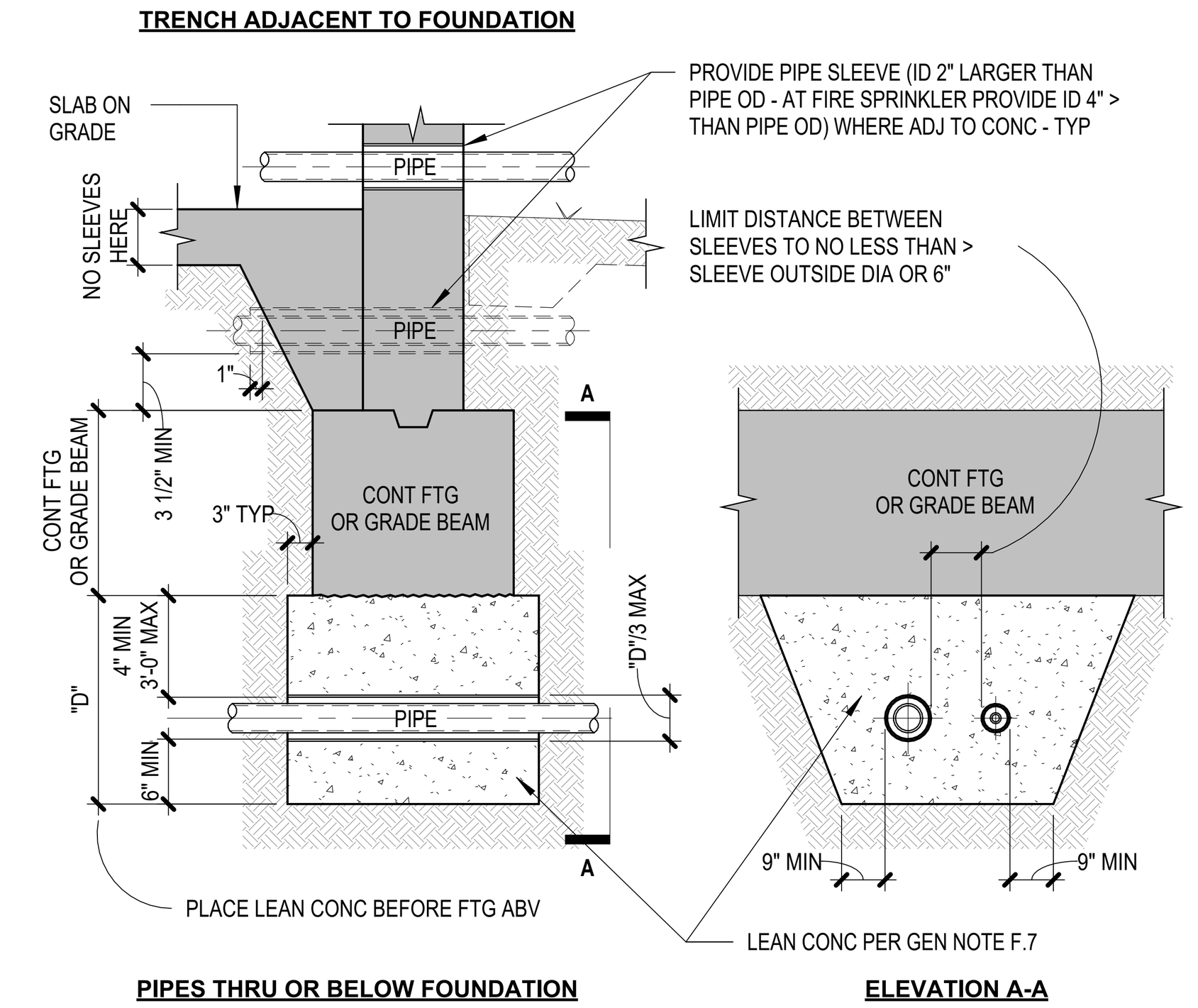


NOTE:
HOOKS OF TWO SUCCESSIVE STIRRUPS OR TIES ENGAGING SAME LONGITUDINAL BAR SHALL BE ALTERNATED END FOR END

TYP REINFORCING STEEL HOOKS, BENDS and OFFSETS AT SPLICES | N.T.S. | 03



NOTES:
1. DO NOT PLACE SLEEVES OR CONDUIT IN ISOLATED SPREAD FOOTINGS - RUN AROUND OR BELOW THESE FTG.
2. SLEEVES ARE NOT TO PASS THROUGH CONT FTG OR GRADE BEAMS UNLESS SHOWN OTHERWISE - WHERE SLEEVES ARE PERMITTED, LOCATE WITHIN MIDDLE THIRD OF FTG OR GRADE BEAM DEPTH.



TYP PIPES THRU OR TRENCHES ADJACENT TO FOUNDATIONS | N.T.S. | 01

LPA
ARCHITECTURE ENGINEERING INTERIOR DESIGN LANDSCAPE ARCHITECTURE PLANNING
949-261-1001 Office
LPADesignStudios.com
5301 California Avenue, Suite 100
Irvine, California 92617

REGISTERED PROFESSIONAL ENGINEER HARSHDA A. PRASAD NO. S6463 09/30/27 STRUCTURAL STATE OF CALIFORNIA

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MALIBU HIGH SCHOOL
INCREMENT 01

30215 MORNING VIEW DR.
MALIBU, CA 90265
APN: 4469-017-900

Developed for
SANTA MONICA - MALIBU UNIFIED SCHOOL DISTRICT

Revision	Date

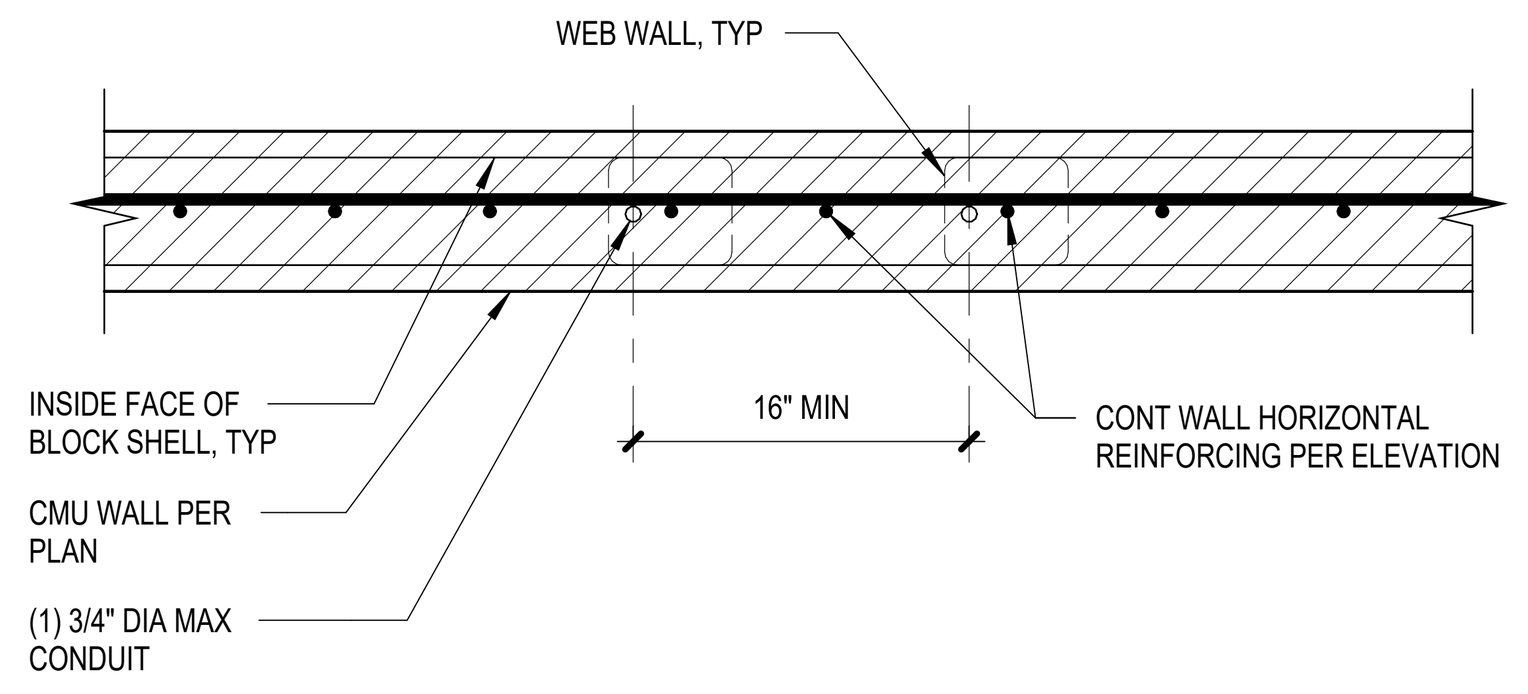
Submittal	Date
SCHEMATIC DESIGN	09/04/2024
50% DESIGN DEVELOPMENT	12/13/2024
100% DESIGN DEVELOPMENT	02/21/2025
CDP SUBMITTAL	06/16/2025
DSA SUBMITTAL	09/08/2025

Job Number	31722
Checked By	HP
Scale	As indicated

TYPICAL FOUNDATION AND SOG DETAILS

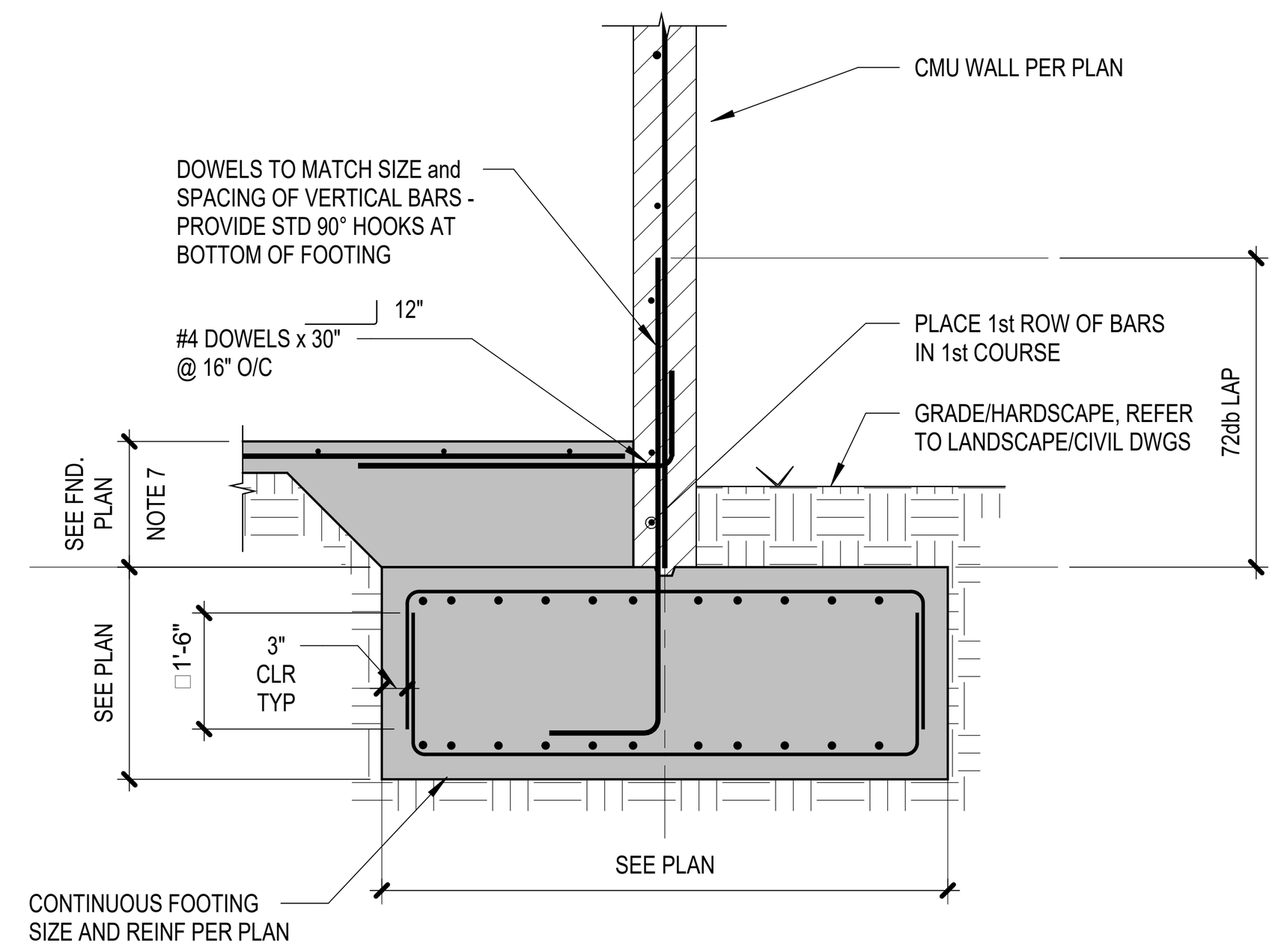
1-S6.01

NOTES:
1. PLACE CONDUITS IN CELLS WITHOUT VERTICAL REINFORCEMENT WHENEVER POSSIBLE.
2. WIRE VERTICAL CONDUIT TO WALL HORIZONTAL BARS, MAINTAIN BARS IN PLACE DURING GROUT POUR.
3. HORIZONTAL CONDUIT ARE NOT PERMITTED.
4. NO ALUMINUM COMPONENTS SHALL BE EMBEDED IN MASONRY CONSTRUCTION.
5. CELLS SHOWN ARE REF ONLY ACTUAL CELL & BLOCK CONFIGURATION MAY VARY.

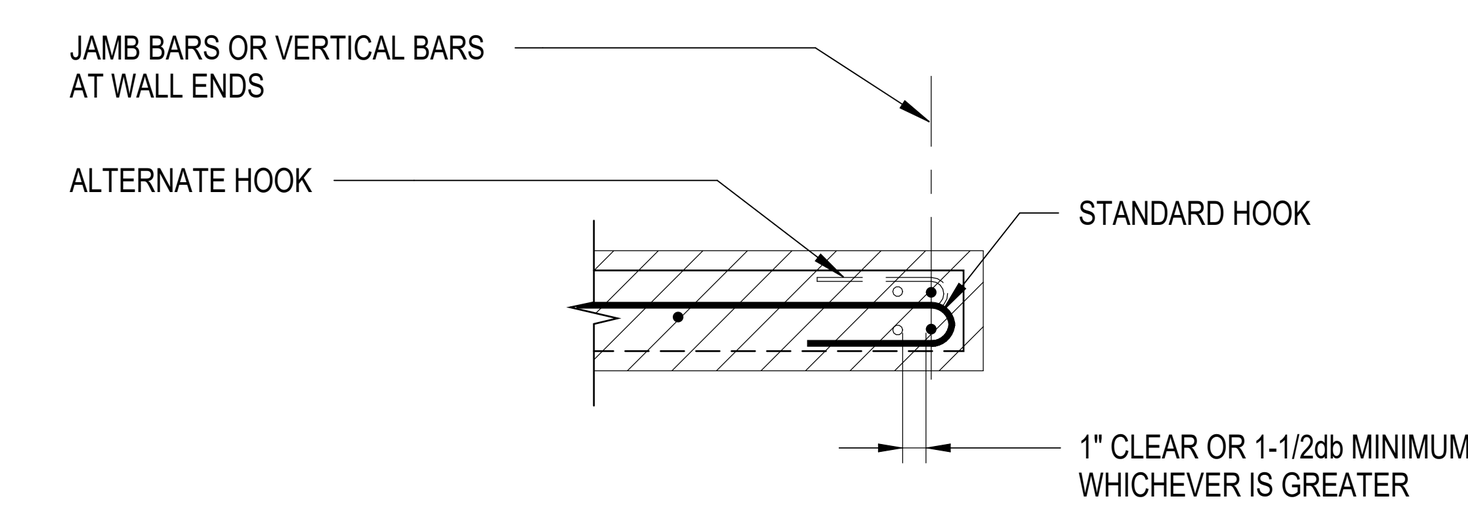


8" CMU WALL (PLAN VIEW)

VERTICAL CONDUITS IN CMU WALL | N.T.S. | 16

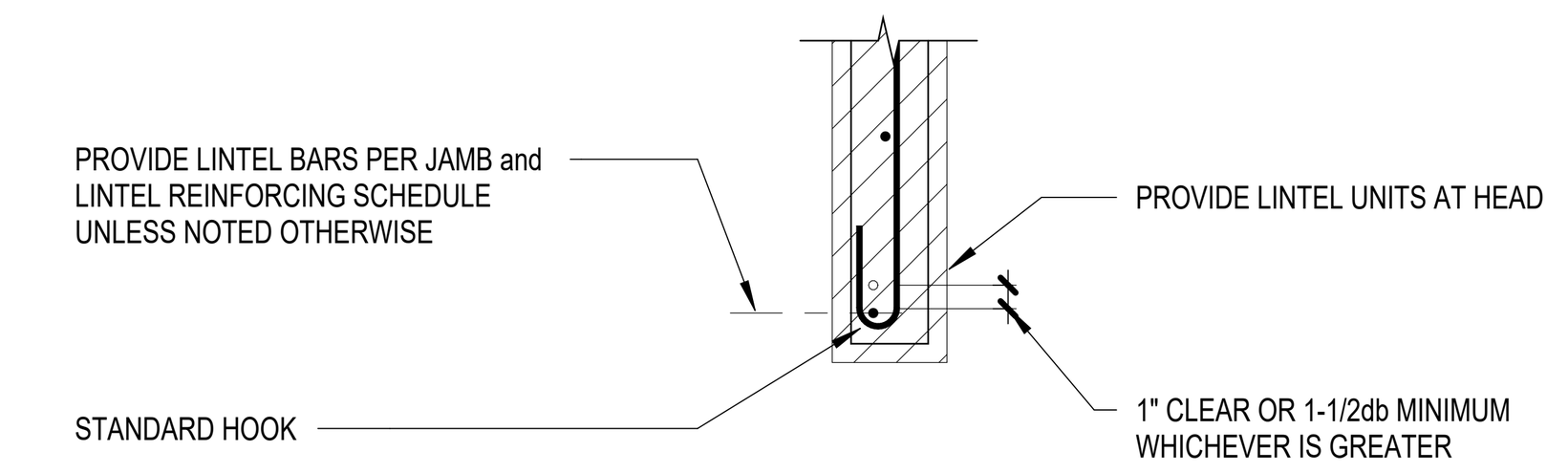


TYPICAL PERIMETER MASONRY WALL AT CONTINUOUS FOOTING | N.T.S. | 12



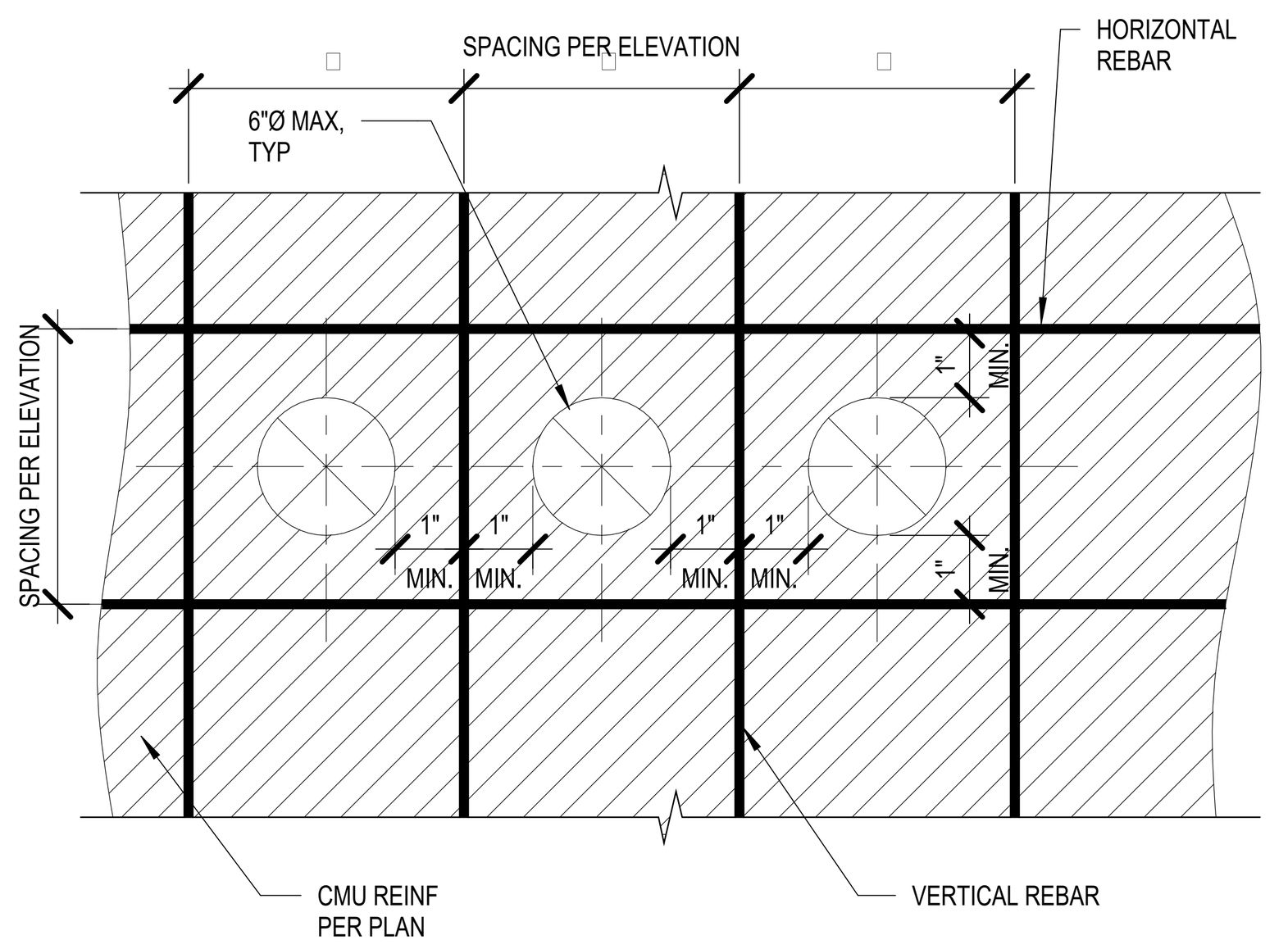
SINGLE CURTAIN CONDITION

SECTION AT JAMB BARS OR BARS AT WALL ENDS (PLAN VIEWS) (B)



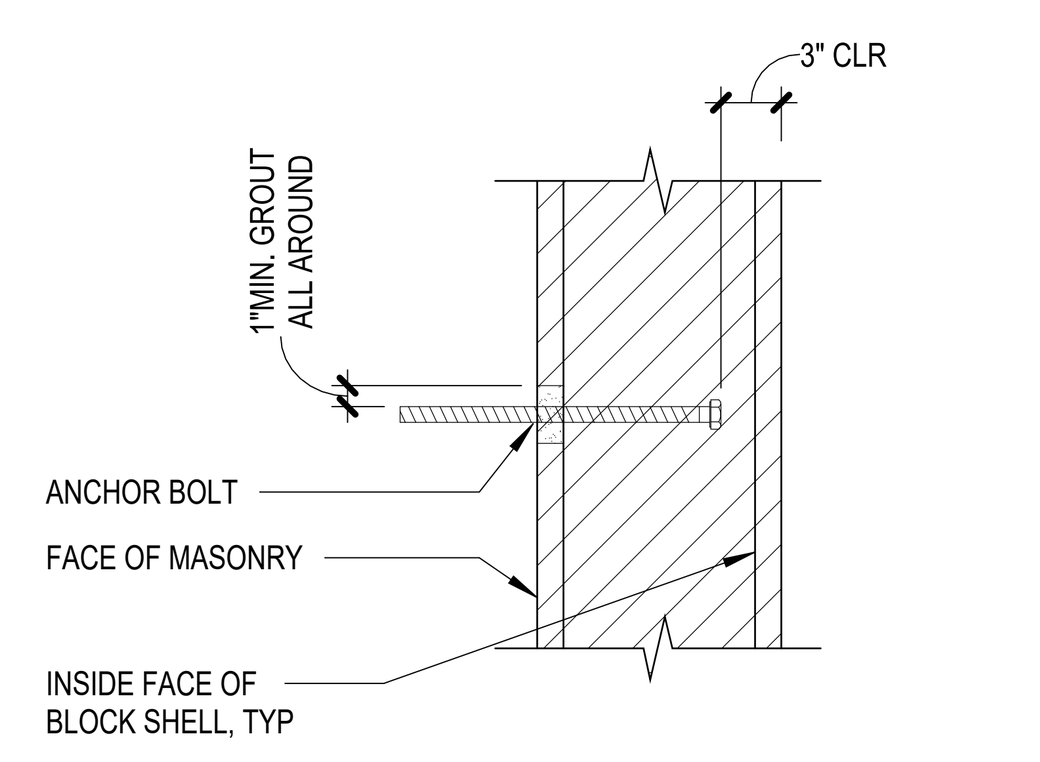
SINGLE CURTAIN CONDITION SECTION AT LINTEL BARS (A)
(SILL CONDITION SIMILAR)

TYPICAL MASONRY CONSTRUCTION AT OPENINGS and WALL ENDS | N.T.S. | 04



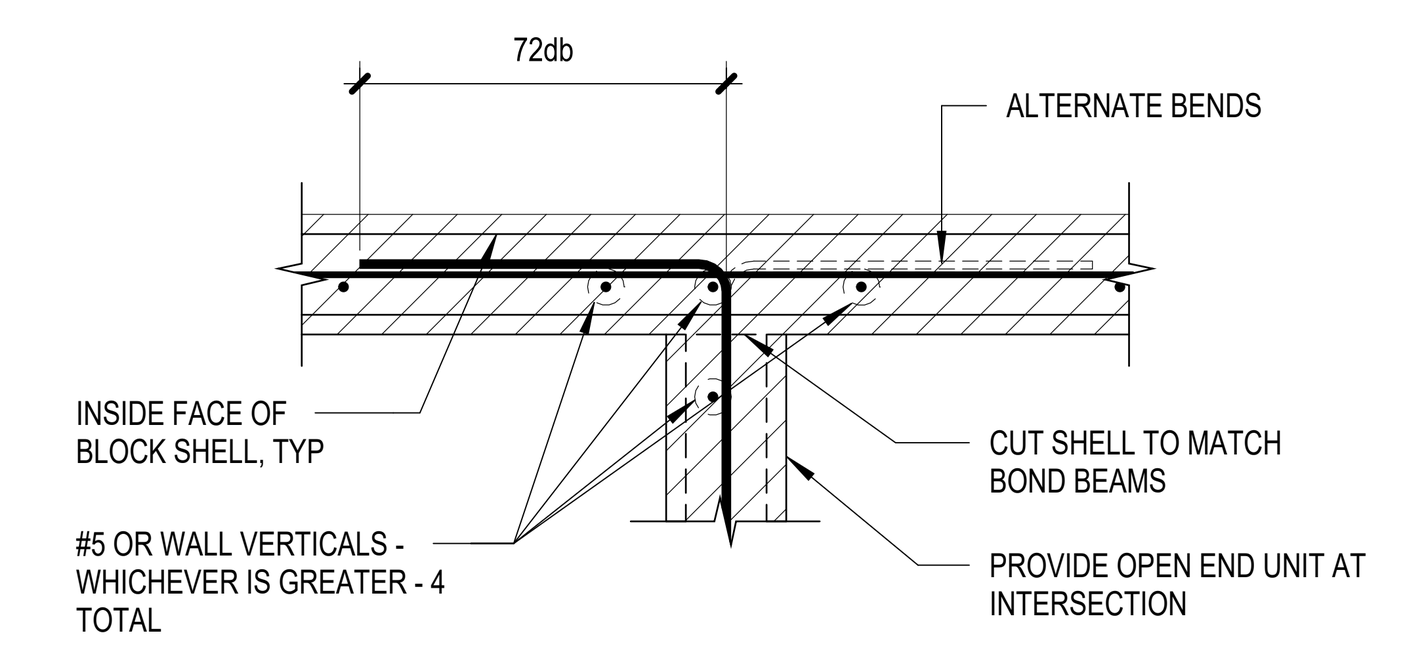
NOTE:
PENETRATIONS ALLOWED ONLY WHERE INDICATED ON STRUCTURAL WALL ELEVATIONS, UNOSEE NOTE 5 ON CMU WALL ELEVATIONS

HORIZONTAL CONDUIT PENETRATIONS IN CMU WALL | N.T.S. | 19

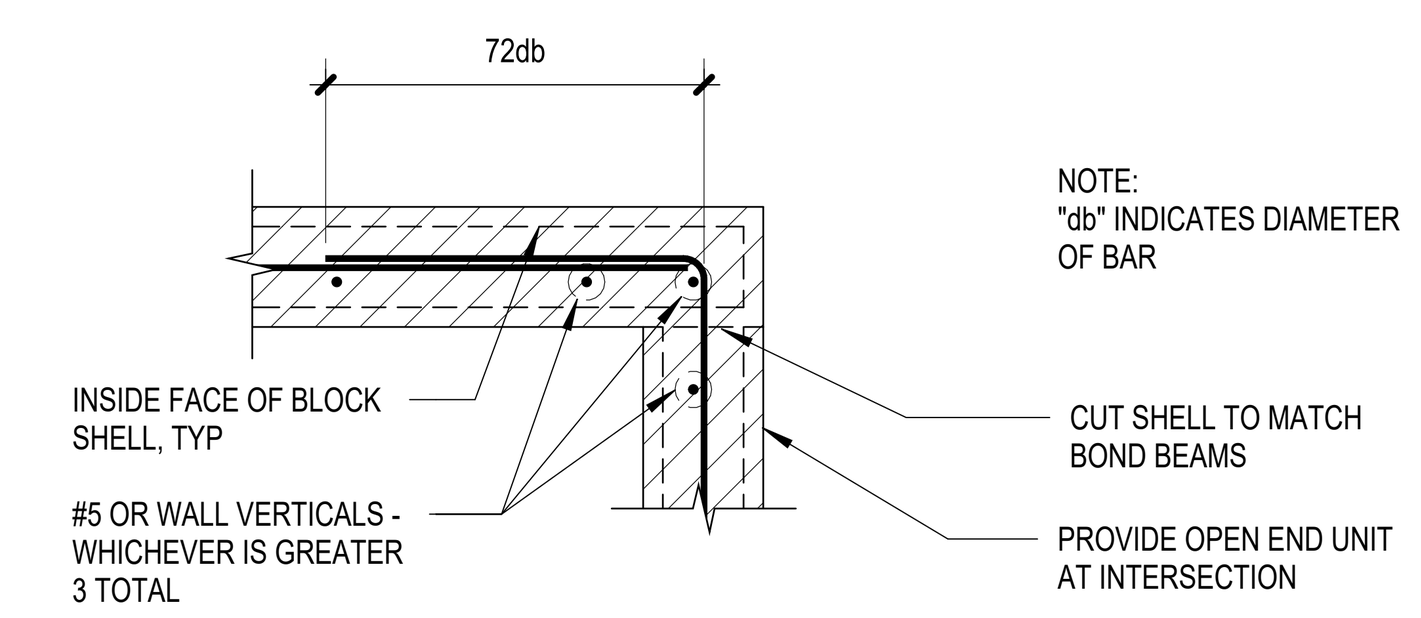


NOTE:
1. ANCHOR BOLTS SHALL BE HEX HEADED WITH THE DIMENSIONS OF THE HEX CONFORMING TO ANSI/ASME B18.2.1 BENT BAR ANCHORS SHALL NOT BE USED.

TYP MASONRY ANCHOR BOLT DETAIL | N.T.S. | 15



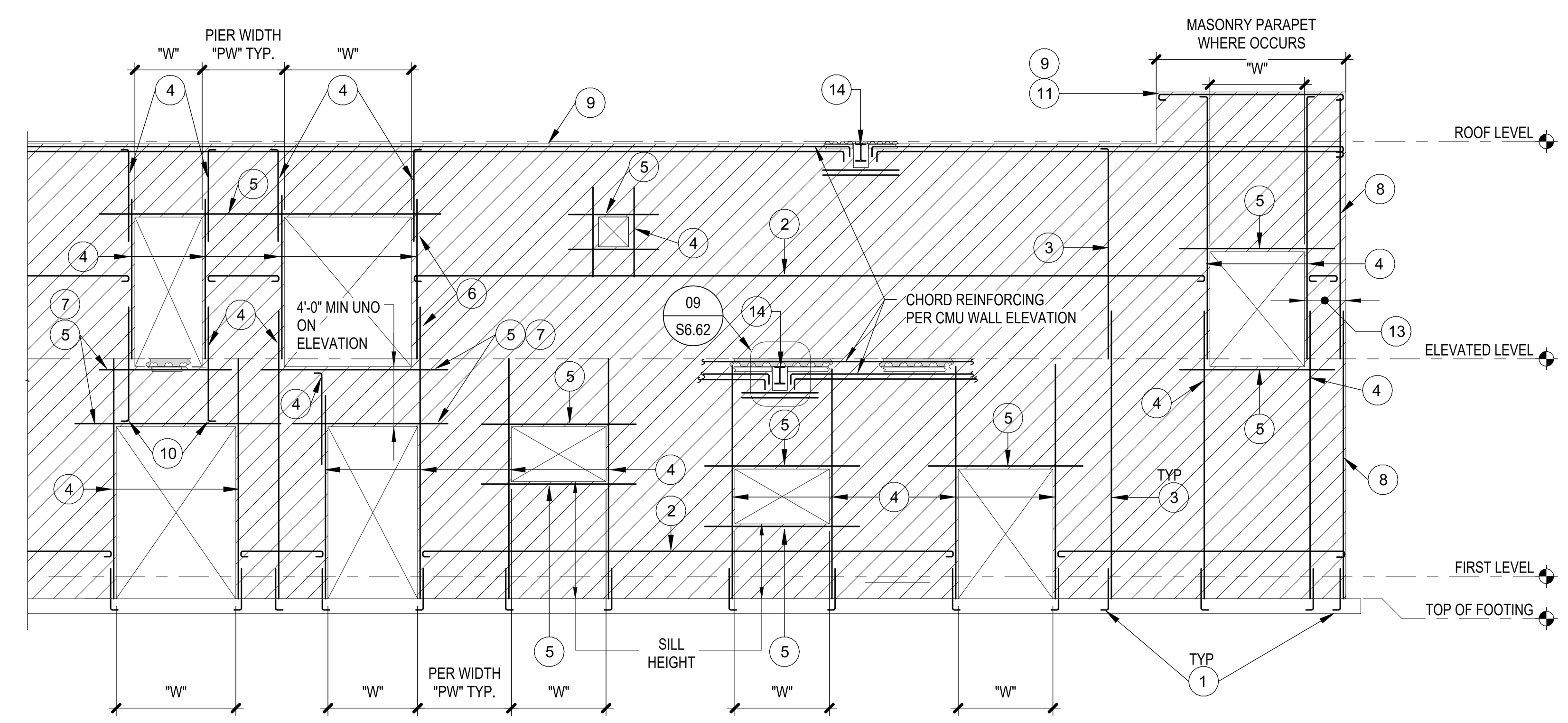
PLAN VIEW AT INTERSECTION (SINGLE CURTAIN)



PLAN VIEW AT CORNER (SINGLE CURTAIN)

TYP MASONRY CONSTRUCTION AT CORNERS and INTERSECTIONS | N.T.S. | 03

KEY NOTES:
1. PROVIDE DOWELS AT BOTTOM OF WALL MATCHING SIZE and QUANTITY OF VERTICAL OR JAMB BARS INTO FOUNDATION W/ STD 90° HOOKS AT BOTTOM OF FOOTING - LAP W/ VERTICAL OR JAMB BARS 72 BAR DIAMETERS (db)
2. TYPICAL HORIZONTAL WALL BARS PER WALL REINFORCING SCHEDULE UNLESS OTHERWISE INDICATED ON PLANS OR ELEVATIONS - PROVIDE STD 180° HOOKS IN 8" WALL AT WALL ENDS and OPENINGS ON VERTICAL BAR (PROVIDE "U" BARS PER 04B/- IN 12" WALLS) - LAP HORIZONTAL BARS 48db AT STAGGERED LOCATIONS - NO ATTEMPT IS MADE TO LOCATE HORIZONTAL BAR SPLICE LOCATIONS
3. TYPICAL VERTICAL WALL BARS PER WALL REINFORCING SCHEDULE UNLESS OTHERWISE INDICATED ON PLANS OR ELEVATIONS - LAP VERTICAL BARS AT ELEVATED LEVELS AS SHOWN 72db - ADD DOWELS AT CONCRETE SLAB ON GRADE and ELEVATED CONCRETE LEVELS PER DETAILS INDICATED
4. TYPICAL JAMB BARS - SEE JAMB and LINTEL REINFORCING SCHEDULE UNLESS NOTED OTHERWISE ON PLANS OR ELEVATIONS - EXTEND JAMB BARS 72db ABOVE and BELOW OPENINGS UNLESS SHOWN OTHERWISE (ADD BARS WITH STD 180° HOOK IN 8" WALLS (90° HOOK IN 12" WALLS) AT TOP OF WALL WHERE WALLS TERMINATE ABOVE OPENING) - LAP JAMB BARS AT ELEVATED LEVELS WHERE SHOWN 72 BAR DIAMETERS - FOR TYPICAL SECTION AT JAMB BARS INCLUDING CONFINING TIES SEE 04B/- UNLESS NOTED OTHERWISE
5. TYPICAL LINTEL BARS - SEE JAMB and LINTEL REINFORCING SCHEDULE UNLESS OTHERWISE INDICATED ON PLANS OR ELEVATIONS - SPLICES NOT PERMITTED - EXTEND LINTEL BARS 72db BEYOND OPENINGS UNLESS SHOWN OTHERWISE (PROVIDE STD 180° HOOK IN 8" WALLS (90° HOOK IN 12" WALLS) AT WALL ENDS IF EXTENSION LENGTH BEYOND OPENING CANNOT BE ATTAINED) - FOR TYPICAL SECTION AT LINTEL BARS INCLUDING CONFINING TIES SEE 04A/- UNLESS NOTED OTHERWISE
6. WHERE OPENING JAMBS ABOVE and BELOW MISALIGN BY LESS THAN 16" ACCEPTABLE TO PROVIDE SINGLE ALIGNING JAMB FOR ALL OPENINGS
7. DETERMINE LINTEL BARS BASED ON WIDTH OF LARGER OPENING ABOVE OR BELOW
8. PROVIDE (2) #5 VERTICAL BARS AT WALL ENDS UNLESS NOTED OTHERWISE - LAP VERTICAL BARS AT ELEVATED LEVELS AS SHOWN 72 BAR DIAMETERS
9. IF WALL HEIGHT IS NON-MODULAR OR TOP OF WALL SLOPES, EITHER SAW TOP COURSE OR (IF NOT EXPOSED) FORM TOP COURSE and GROUT SOLIDLY
10. EXTEND JAMB BARS DOWN TO TOP OF OPENING and PROVIDE STD 180° HOOK IN 8" WALLS (90° HOOK IN 12" WALLS)
11. AT TOP OF WALL, PROVIDE (2) HORIZONTAL WALL BARS W/ STD 180° HOOK IN 8" WALLS (90° HOOK IN 12" WALLS) AT WALL ENDS
12. SEE ARCH WALL ELEVATIONS FOR CONTROL JOINT LOCATIONS (MAX 25'-0" O/C UNO)
13. PIER WIDTH "PW" SHALL BE AT LEAST 3 TIMES WALL THICKNESS UNLESS PIER WIDTH and SECTION SHOWN ON WALL ELEVATIONS IN STRUCTURAL DRAWINGS
14. BEAM POCKET PER PLAN (WHERE OCCURS). AT INTERRUPTED CHORD REINFORCING PROVIDE BARS MATCHING SIZE AND QUANTITY OF INTERRUPTED CHORD REINFORCING DIRECTLY BENEATH POCKET CONTINUE 72db BEYOND POCKET EACH END - SEE 09/S1-6.62



CONDITION 1F
SMALLER OPENING OVER LARGER OPENING

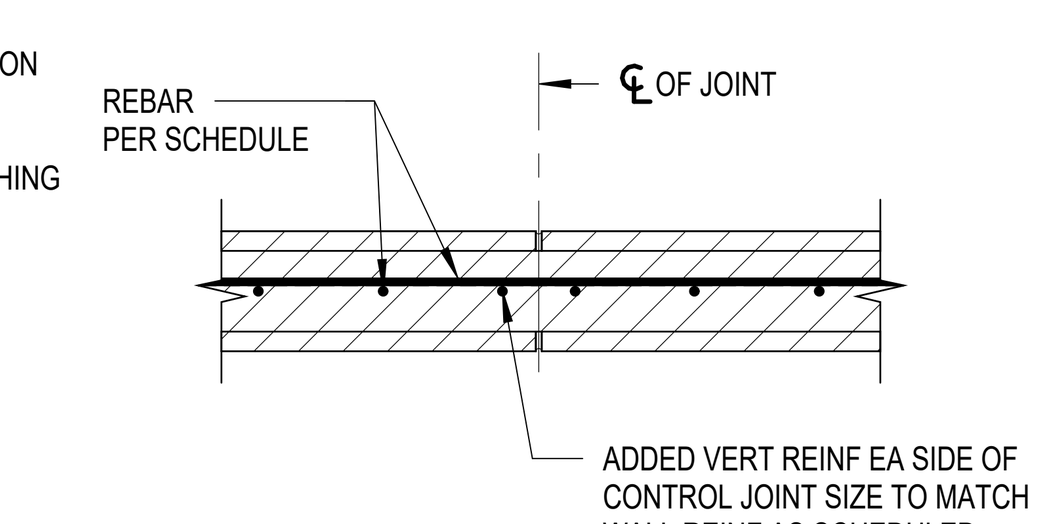
CONDITION 1E
LARGER OPENING OVER SMALLER OPENING

CONDITION 1D
WINDOW OPENING (SILL HEIGHT > 6'-0") OR OPENING AT MISCELLANEOUS UTILITY PENETRATION

CONDITION 1C
WINDOW OPENING (SILL HEIGHT < 6'-0")

CONDITION 1B
WALL OR DOOR OPENING AT SLAB ON GRADE LEVEL

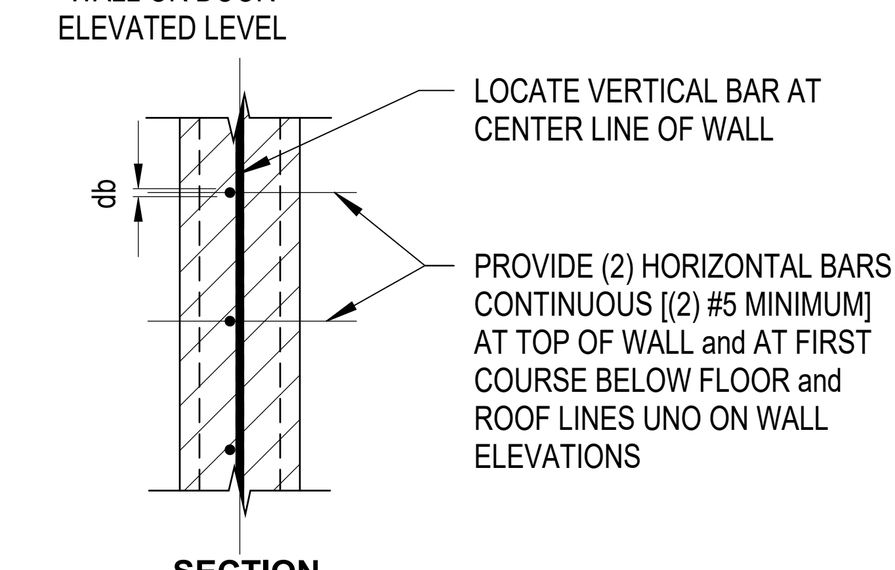
CONDITION 1A
WALL OR DOOR ELEVATED LEVEL



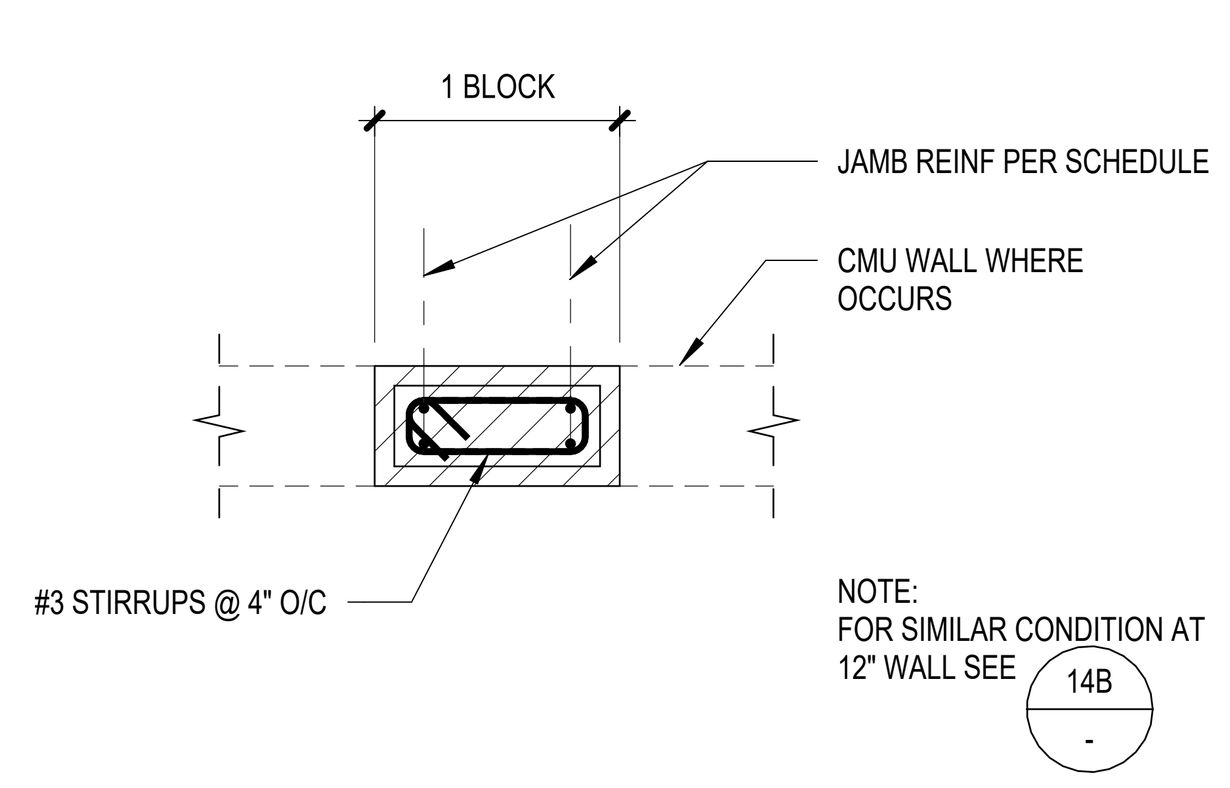
PLAN VIEW

CMU CONTROL JOINT AT SINGLE CURTAIN CONDITION

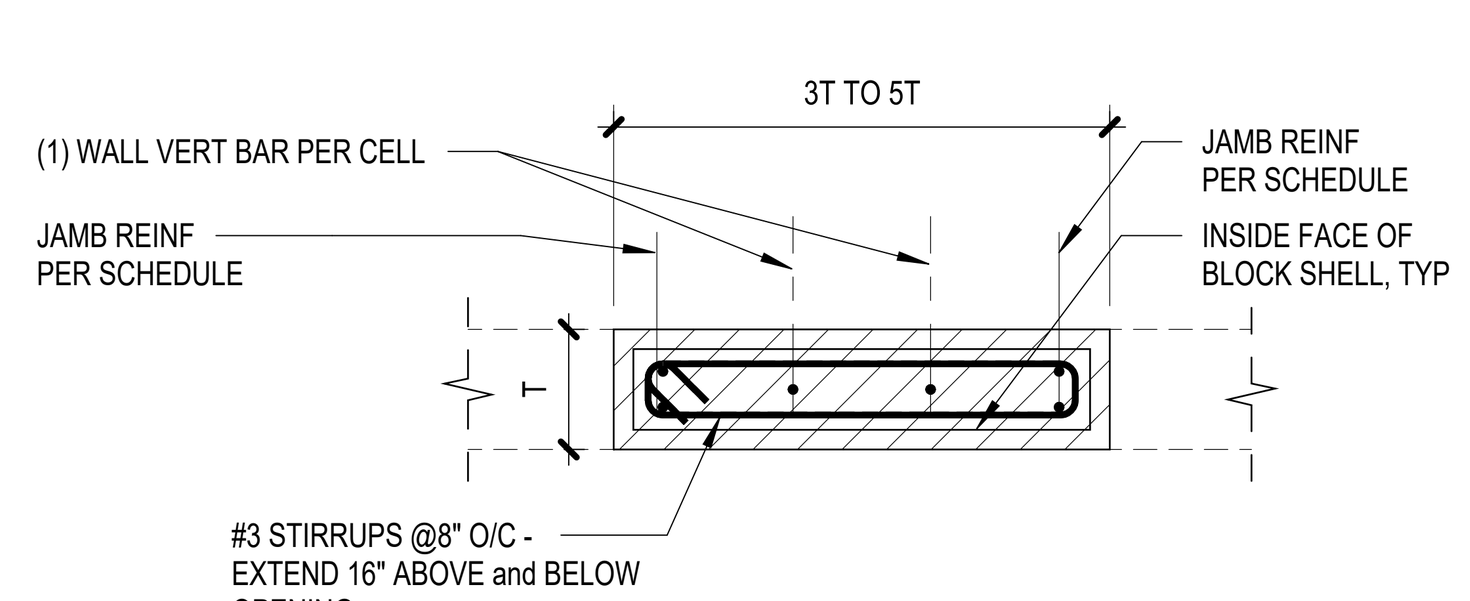
NOTE:
FOR REMAINDER OF INFO SEE DOUBLE CURTAIN CONDITION



SECTION

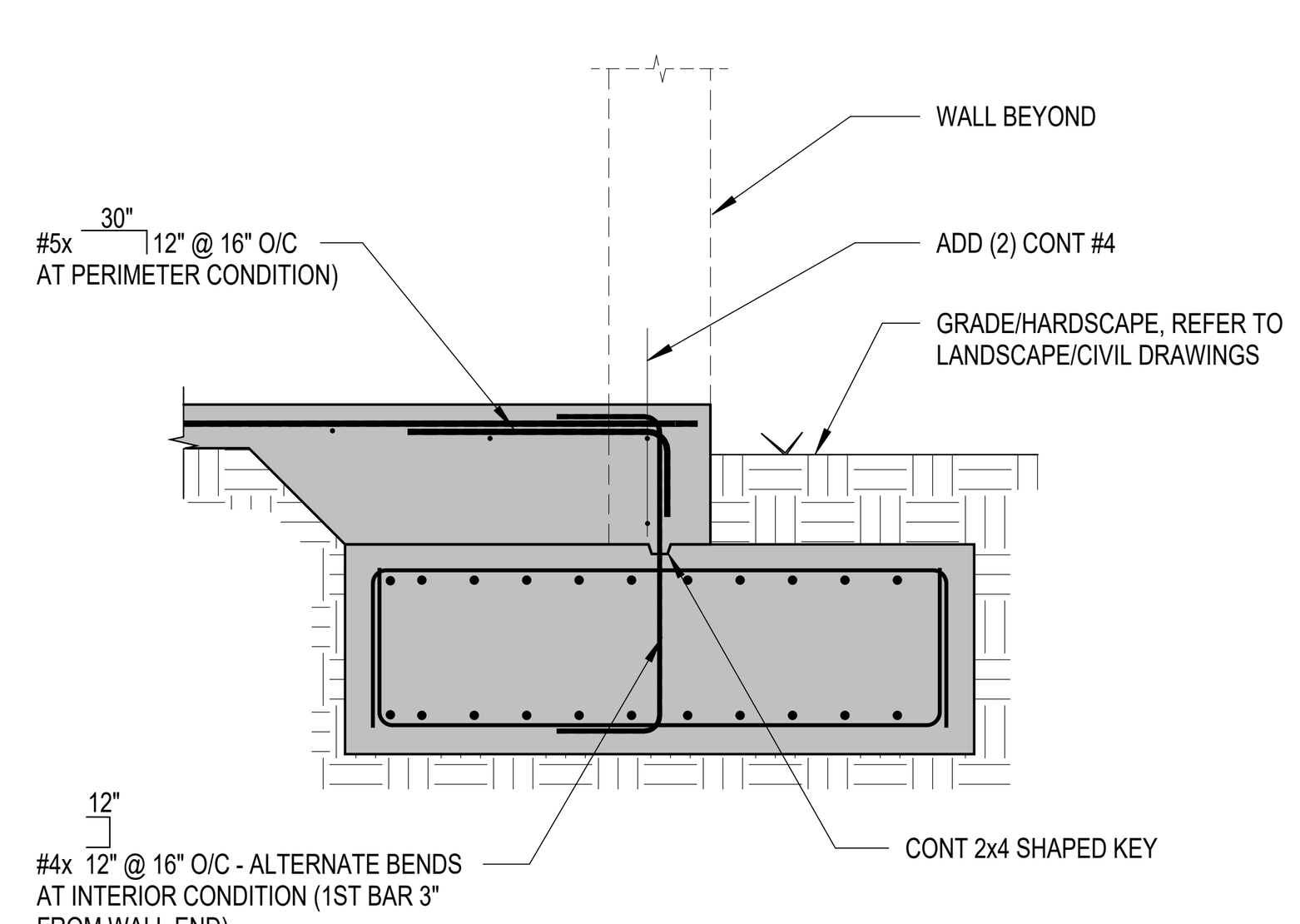


PIER (COLUMN) REINFORCING (ONE BLOCK CONDITION SHOWN)



PIER REINFORCING (TWO BLOCK CONDITION SHOWN)

PIER REINFORCING AT 8" WALL (PLAN VIEW) | N.T.S. | 17



TYPICAL OPENING MASONRY WALL AT CONTINUOUS FOOTING | N.T.S. | 13

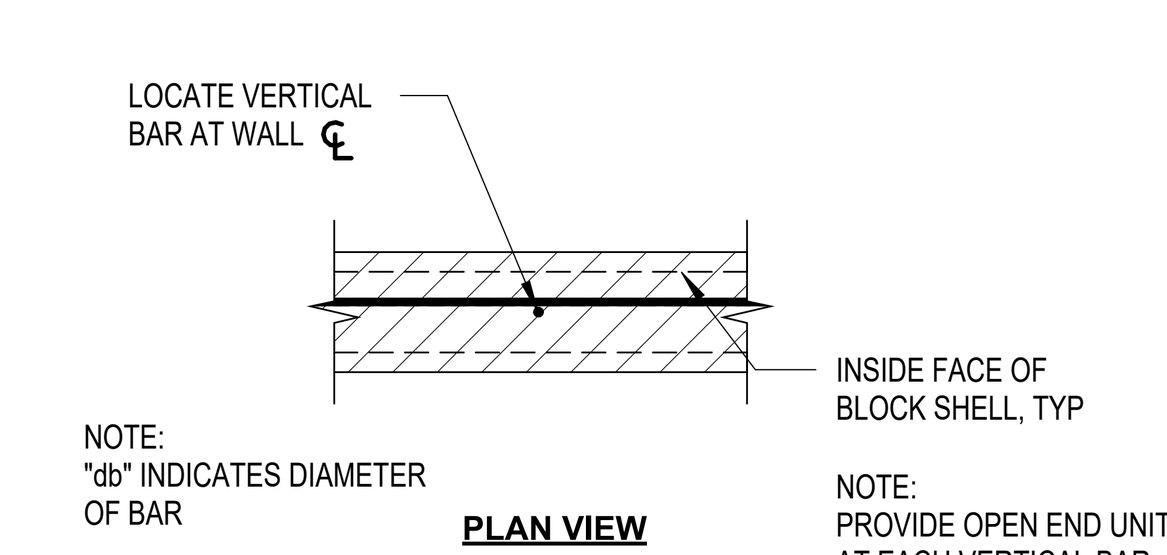
JAMB and LINTEL REINFORCING SCHEDULE
(UNLESS NOTED OTHERWISE ON PLANS OR WALL ELEVATIONS)

MAXIMUM OPENING WIDTH "W"	REINFORCING	
	JAMB REINFORCING (VERTICAL)	LINTEL REINFORCING (HORIZONTAL)
2'-0"	(2)#5	(2)#5
4'-6"	(2)#5	(2)#5
6'-0"	(2)#6	(2)#6
8'-0"	(2)#6	(2)#6
> 8'-0"	SEE ELEVATION	SEE ELEVATION

NOTES:
1. AT PIERS BETWEEN ADJACENT OPENINGS WHERE PIER WIDTH "PW" < 6'-0", DETERMINE JAMB BARS BASED ON LARGER OPENING WIDTH "W".
2. OPENING (JAMB) and CORNER BARS SHALL BE OF SIZE NO LESS THAN THE VERTICAL BARS SPECIFIED ON WALL ELEVATION.

WALL REINFORCING SCHEDULE
(UNLESS NOTED OTHERWISE - SEE PLANS OR WALL ELEVATIONS FOR WALL THICKNESS)

NOMINAL WALL THICKNESS	REINFORCING (UNO ON WALL ELEVATIONS)		REINFORCING PLACEMENT DETAIL
	VERTICAL REINFORCING	HORIZ REINFORCING	
8"	#5 @ 16" O/C - AT WALL CENTERLINE	#5 @ 16" O/C - ADJACENT TO VERTICAL REINFORCING	01Z / -



NOTE:
"db" INDICATES DIAMETER OF BAR

PLAN VIEW

NOTE:
PROVIDE OPEN END UNIT AT EACH VERTICAL BAR

BAR PLACEMENT AT SINGLE CURTAIN CONDITION (Z)

TYPICAL MASONRY WALL ELEVATION and REINFORCING SCHEDULES
(APPLICABLE TO ALL MASONRY WALLS EXCEPT SITE RETAINING WALLS UNLESS NOTED OTHERWISE) | N.T.S. | 01

LPA
ARCHITECTURE ENGINEERING INTERIOR DESIGN LANDSCAPE ARCHITECTURE PLANNING
949-261-1001 Office
LPADesignStudios.com
5301 California Avenue, Suite 100
Irvine, California 92617

REGISTERED PROFESSIONAL ENGINEER HARSHDA A. PRASAD NO. S6463 09/30/27 STRUCTURAL STATE OF CALIFORNIA

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INCREMENT 01

30215 MORNING VIEW DR.
MALIBU, CA 90265
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Revision	Date

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SCHEMATIC DESIGN	09/04/2024
50% DESIGN DEVELOPMENT	12/13/2024
100% DESIGN DEVELOPMENT	02/21/2025
CDP SUBMITTAL	06/16/2025
DSA SUBMITTAL	09/08/2025

Job Number	31722
Checked By	HP
Scale	As indicated

TYP. CMU WALL ELEVATION AND DETAILS

1-S6.61

GENERAL

1. THESE TEMPORARY/PERMANENT SHORING PLANS SHALL BE REVIEWED BY THE PROJECT GEOTECHNICAL ENGINEER PRIOR TO BEGINNING WORK. TEMPORARY SHORING NOT SUBJECT TO THE DIVISION OF THE STATE ARCHITECT (DSA) REVIEW. SEE "NOT FOR DSA REVIEW" NOTE ON APPLICABLE DETAILS, AS MAY OCCUR.
2. CONTRACTOR TO VERIFY ALL DIMENSIONS AND CONDITIONS AT THE SITE.
3. ALL CONSTRUCTION SHALL CONFORM TO REQUIREMENTS OF THE 2022 CALIFORNIA BUILDING CODE.
4. CONTRACTOR SHALL COORDINATE SHORING WITH DRAWINGS OF RECORD TO ENSURE PROVISIONS FOR POCKETS, BLOCKOUTS, OFFSETS, STEPPED FOOTINGS AND ANY OTHER ITEMS AFFECTED BY THE SHORING.
5. ENGINEER HAS NOT BEEN HIRED TO PERFORM ANY SERVICES RELATING TO, OR IN CONNECTION WITH, WATERPROOFING AND DRAINAGE. ENGINEER ASSUMES NO RESPONSIBILITY FOR PROJECT WATERPROOFING AND DRAINAGE DESIGN. IF WATERPROOFING IS TO BE USED ON THE PROJECT, PROPER COORDINATION OF SAID WATERPROOFING IS TO BE DONE BY OTHERS.
6. ENGINEER ASSUMES NO RESPONSIBILITY FOR CONSTRUCTION MEANS AND METHODS.
7. CLIENT AGREES NOT TO USE OR PERMIT ANY OTHER PERSON TO USE PLANS, DRAWINGS, OR OTHER WORK PRODUCT PREPARED BY CEFALI & ASSOCIATES WHICH ARE NOT FINAL AND DO NOT BEAR A SIGNED CEFALI & ASSOCIATES ENGINEER'S STAMP OR SEAL. CLIENT AGREES TO BE LIABLE AND RESPONSIBLE FOR ANY SUCH USE OF NON-FINAL PLANS, DRAWINGS, OR OTHER WORK PRODUCT NOT SIGNED AND STAMPED OR SEALED BY CEFALI & ASSOCIATES AND WAIVES LIABILITY AGAINST CEFALI & ASSOCIATES FOR THEIR USE.
8. HEAVY EQUIPMENT OR CRANES ARE NOT BE LOCATED ADJACENT TO THE SHORING BULKHEAD. NO PROVISIONS FOR EQUIPMENT SURCHARGING HAS BEEN PERMITTED IN THE DESIGN.
9. TEMPORARY BUILDING SHORING IF REQUIRED SHALL BE PROVIDED BY THE CONTRACTOR.
10. NO EXCAVATION OR GRADING SHALL COMMENCE UNTIL 10 DAYS AFTER ADJOINING PROPERTY OWNERS HAVE BEEN NOTIFIED IN WRITING AS REQUIRED BY SECTION 3301.2 OF THE CALIFORNIA BUILDING CODE.
11. ALL MEMBER SIZES SHALL BE AS SHOWN OR EQUAL. AS APPROVED BY CEFALI & ASSOCIATES, EQUIVALENT OR STRONGER MEMBERS MAY BE SUBSTITUTED TO SUIT THE AVAILABILITY OF MATERIALS.

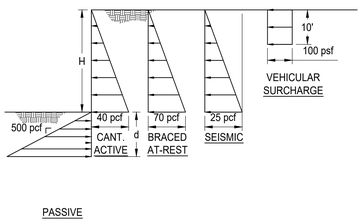
UNDERGROUND STRUCTURES

1. ALL UNDERGROUND UTILITIES OR STRUCTURES REPORTED BY THE OWNER OR OTHERS ARE INDICATED WITH THEIR APPROXIMATE LOCATION AND EXTENT IN THESE DRAWINGS. THE CLIENT BY ACCEPTING THESE PLANS OR PROCEEDING WITH CONSTRUCTION IN ACCORDANCE WITH THESE DRAWINGS AGREES TO ASSUME LIABILITY AND TO HOLD CEFALI & ASSOCIATES HARMLESS FOR ANY DAMAGES RESULTING FROM THE EXISTENCE OF UNDERGROUND UTILITIES OR STRUCTURES NOT REPORTED TO CEFALI & ASSOCIATES.
2. THE OWNER SHALL LOCATE ALL UTILITIES AND STRUCTURES WITHIN THE PROPOSED EXCAVATION AND MAKE APPROPRIATE ARRANGEMENTS FOR THEIR RELOCATION OR PROTECTION, PRIOR TO THE START OF CONSTRUCTION.
3. THE OWNER IN LOCATING ALL EXISTING UTILITIES AND STRUCTURES SHALL INSURE THAT NO CONFLICT EXISTS BETWEEN SHORING PILES AND TIEBACKS AND EXISTING UTILITIES. IF ANY CONFLICT IS FOUND TO EXIST, IT SHALL BE PROMPTLY BROUGHT TO THE ATTENTION OF CEFALI & ASSOCIATES AND CONSTRUCTION SHOULD NOT START UNTIL A RESOLUTION OF THE CONFLICT IS ACCOMPLISHED.
4. THE OWNER SHALL LOCATE AND CAP OFF ALL SEWER LATERALS BEHIND THE PROPOSED LOCATION OF SOLDIER BEAMS PRIOR TO THE INSTALLATION OF SOLDIER BEAMS.
5. AN UNDERGROUND SERVICE ALERT INQUIRY IDENTIFICATION NUMBER (USA II NO.) MUST BE OBTAINED AT LEAST TWO WORKING DAYS BEFORE STARTING WORK WITH THIS PERMIT. TELEPHONE NUMBER 811.

DIGALERT

GEOTECHNICAL DESIGN CRITERIA

1. THESE SHORING WALL PLANS WERE PREPARED WITH CONFORMANCE TO THE GEOTECHNICAL DESIGN RECOMMENDATIONS AS PRESENTED WITHIN THE SOILS REPORT BY VERDANTAS PROJECT NO. 036.25785, DATED MAY 23, 2025.
2. THE GEOTECHNICAL DESIGN VALUES USED ARE AS FOLLOWS:
   - A. EARTH PRESSURES:
     - A.A. ACTIVE: 40 PCF (TRIANGULAR)
     - A.B. AT-REST: 70 PCF (TRIANGULAR)
     - A.C. PASSIVE (PILES): 500 PCF
     - A.D. SEISMIC: 25 PCF (TRIANGULAR)
   - B. PILE FRICTION: 500 PSF
   - C. COEFFICIENT OF FRICTION: 0.3
   - D. LAGGING PRESSURE: DESIGN OR 400 PSF MAX. PRESSURE
   - E. POST-GROUT TIEBACK BOND: 2,000 PSF
   - F. SLIP-PLANE: 30°
   - G. MINIMUM TIEBACK BOND LENGTH: 15 FT
   - H. CUT SLOPES: CALOSH TYPE C SOILS
     1.5: SLOPES



SUBMITTALS

1. THE CONTRACTOR SHALL SUBMIT THE FOLLOWING ITEMS TO THE ENGINEER FOR REVIEW PRIOR TO CONSTRUCTION.
   - 1.1. CONCRETE MIX DESIGN
   - 1.2. CONCRETE CONSTRUCTION JOINT LOCATIONS NOT NOTED ON PLANS
   - 1.3. WALL FACING REINFORCING STEEL PLACING DRAWINGS
   - 1.4. STEEL MILL CERTIFICATION AND COUPON TEST RESULTS
   - 1.5. SHOTCRETE SUBCONTRACTOR QUALIFICATIONS AS OUTLINED IN THE SHOTCRETE PORTION OF THESE NOTES
   - 1.6. WELDING PROCEDURES
   - 1.7. TIEBACK SHOP DRAWINGS
2. THE CONTRACTOR SHALL ALLOW 14 CALENDAR DAYS FOR REVIEW AFTER RECEIVED BY ENGINEER.

CONCRETE

1. ALL CONCRETE CONSTRUCTION SHALL CONFORM WITH CHAPTER 19A OF THE CBC AND TO THE PROVISIONS OF ACI 318, LATEST ADDITION.
2. CONCRETE MIXES SHALL BE DESIGNED BY A QUALIFIED TESTING LABORATORY AND APPROVED BY CEFALI & ASSOCIATES.
3. SLURRY SHALL BE A MIX OF WATER, CEMENT AND SAND; 1-1/2 SACK CEMENT PER YARD OF MIX.
4. DRYPACK SHALL BE A MIX OF WATER, CEMENT AND SAND; 1 PART CEMENT TO 3 PARTS SAND WITH JUST ENOUGH WATER FOR WORKABILITY.
5. PORTLAND CEMENT SHALL CONFORM TO ASTM C150, TYPE V.
6. AGGREGATE FOR HARD ROCK CONCRETE SHALL CONFORM TO ALL REQUIREMENTS AND TESTS OF ASTM C33 AND PROJECT SPECIFICATIONS.
7. ADMIXTURES SHALL CONFORM TO ALL REQUIREMENTS AND TESTS OF ASTM C845, C260, C494, C 1017 OR C618 CLASSES N OR F AND PROJECT SPECIFICATIONS.
8. CONCRETE MIXING OPERATION, ETC. SHALL CONFORM TO ASTM C94.
9. A SPECIAL CONCRETE MIX SHALL BE USED FOR CONCRETE TO BE PLACED BELOW WATER. THE CONCRETE STRENGTH SHALL BE INCREASED BY 1,000 PSI OVER THE INITIAL SPECIFICATION PROVIDED IN THE TABLE BELOW. AN ADMIXTURE THAT REDUCE SEGREGATION OF PASTE/AGGREGATES AND DILUTION OF PASTE SHALL BE INCLUDED. THE ADMIXTURE SHALL BE SUBMITTED TO AND APPROVED BY CEFALI & ASSOCIATES.
10. SCHEDULE OF STRUCTURAL CONCRETE 28-DAY STRENGTH AND TYPES:

LOCATION IN STRUCTURE	STRENGTH (PSI)	DENSITY (PCF)	SLUMP (IN)
SLURRY	N/A	N/A	N/A
SOLDIER PILE TOES	3,000	150	1-4
WALL FACING/SHOTCRETE	5,000	(SEE "SHOTCRETE")	

GROUT - HIGH PRESSURE TIEBACK ANCHORS

1. GROUT IN THE TIEBACK SHAFT SHALL BE A GROUT MIX OF CEMENT AND WATER.
2. CALCIUM CHLORIDE SHALL NOT BE ALLOWED IN THE GROUT.
3. HIGH-PRESSURE GROUT SHALL CONSIST OF: 1-SACK (94 LB.) CEMENT TYPE I, II, III, V CONFORMING TO ASTM C 150 MIXED WITH 4.5-5 GALLONS POTABLE WATER IN ACCORDANCE WITH THE POST TENSION INSTITUTE MANUAL 4TH EDITION.
4. ADMIXTURES SHALL NOT NORMALLY BE USED. ADMIXTURES WHICH CONTROL BLEED, IMPROVE FLOWABILITY REDUCE WATER CONTENT, AND RETARD SET MAY BE USED IN THE GROUT SUBJECT TO THE APPROVAL OF CEFALI & ASSOCIATES AND TESTS THAT VERIFY GROUT AND BOND PROPERTIES ARE NOT ADVERSELY AFFECTED. ADMIXTURES, IF USED, SHALL BE COMPATIBLE WITH THE PRESTRESSING STEEL AND MIXED IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS.
5. THE GROUT MIX WILL BE BATCHED ON-SITE, USING A MIXING UNIT, DISCHARGING INTO A HOLDING TANK/AGITATOR UNIT OR DIRECTLY INTO THE PUMP PER THE FOLLOWING PROCEDURE:
   - A. FILL THE MIXING UNIT WITH THE SPECIFIED WATER USING A CALIBRATED MEASURING UNIT AND ADD CEMENT.
   - B. AGITATE THOROUGHLY UNTIL COLLOIDAL MIX IS ACHIEVED.
   - C. DISCHARGE GROUT INTO HOLDING TANK. AGITATE SLOWLY TO PREVENT SEGREGATION.
   - D. PUMP GROUT INTO BOREHOLE IN ACCORDANCE WITH THE TIE-BACK INSTALLATION PROCEDURE.
6. THE GROUTING EQUIPMENT SHALL PRODUCE GROUT FREE OF LUMPS AND INDISPENSED CEMENT. THE GROUTING EQUIPMENT SHALL BE SIZED TO ENABLE THE GROUT TO BE PUMPED IN CONTINUOUS OPERATION. THE MIXER SHALL BE CAPABLE OF CONTINUOUSLY AGITATING THE GROUT

STRUCTURAL STEEL

1. ALL STRUCTURAL STEEL (EXCLUDING PIPES AND PLATES) SHALL CONFORM TO THE REQUIREMENTS OF ASTM A572 GR. 50 OR ASTM A992 SPECIFICATIONS.
2. ALL STRUCTURAL STEEL PIPE SHALL CONFORM TO ASTM A53 GR. B SPECIFICATIONS.
3. ALL STRUCTURAL STEEL PLATE SHALL CONFORM TO ASTM A572 GR 50 SPECIFICATIONS UNLESS OTHERWISE NOTED.
4. ELECTRIC ARC WELDING SHALL UTILIZE ELECTRODES APPROVED BY BUILDING DEPARTMENT (E 70-XX) AND PLACED BY WELDERS PROPERLY CERTIFIED BY THE BUILDING OFFICIAL.

PRESTRESSING STEEL

1. ANCHOR ROD TENDON SYSTEMS SHALL BE DYWIDAG SYSTEMS INTERNATIONAL (DSI) THREADBARS, WILLIAMS THREADBARS, STRESSTEEL (SAS) THREADBARS, OR SKYLINE STEEL THREADED BAR SYSTEMS CONFORMING TO ASTM A722 TYPE 2 SPECIFICATION WITH AN ULTIMATE TENSILE STRENGTH OF 150 KSI. RODS SHALL BE ANCHORED USING PROPRIETARY HEXAGONAL NUTS OR ANCHOR NUTS AND MAY BE SPLICED WITH THE USE OF PROPRIETARY COUPLERS.
2. TENDONS SHALL BE INSTALLED STRAIGHT AND TRUE. KINKING OR SHARP CURVATURE IN ANCHORS UNDER TENSION SHALL BE CAUSE FOR REJECTION.
3. TENDONS SHALL NOT BE WELDED NOR USED FOR GROUNDING WELDING EQUIPMENT.
4. A MINIMUM OF CLASS II CORROSION PROTECTION IS REQUIRED FOR TEMPORARY ANCHORS IN SERVICE LESS THAN OR EQUAL TO 2 YEARS (CBC 1812A.4.1, NOTE 6).

BURIED STEEL MEMBERS CORROSION PROTECTION

1. WHERE MARKED "CORROSION PROTECTED" BURIED STEEL MEMBERS (WF SOLDIER BEAMS AND OTHER ATTACHED STEEL MEMBERS, ANCHOR RODS EXCLUDED, U.N.O.) SURFACES SHALL BE CORROSION PROTECTED WITH TNEMEC INC. PRODUCTS OR EQUAL AS FOLLOWS:
   - A. SHOP APPLIES:
     - A.A. SYSTEM TYPE: ZINC/COAL TAR EPOXY.
     - A.B. MANUFACTURER: TNEMEC COMPANY INC.
     - A.C. SURFACE PREPARATION: ALL SURFACES SHALL BE PREPARED IN ACCORDANCE WITH SSPC-SP10 NEAR WHITE BLAST CLEANING.
     - A.D. PRIME COAT 90-97 TNEME-ZINC AT 2.5 TO 3.5 MILS DFT.
     - A.E. FINISH COAT: 46H-413 TNEME-TAR AT 16.0 TO 20.0 MILS DFT. (APPLIED IN ONE OR TWO COATS).
     - A.F. TOTAL SYSTEM: THE TOTAL DRY FILM THICKNESS SHALL BE 19.0 MILS MINIMUM.
   - B. FIELD TOUCH UP:
     - B.A. SYSTEM TYPE: ZINC/EPOXY.
     - B.B. MANUFACTURER: TNEMEC COMPANY INC.
     - B.C. SURFACE PREPARATION: ALL DAMAGED SURFACES AND WELDS ETC. SHALL BE PREPARED IN ACCORDANCE WITH SSPC-SP10 NEAR WHITE BLAST CLEANING. IF THE AREAS ARE SMALL AND IT IS NOT PRACTICAL OR FEASIBLE TO BE PREPARED IN ACCORDANCE WITH SSPC-SP10, THEN SSPC-SP-11 POWER TOOL CLEAN TO BARE METAL WILL BE ACCEPTABLE.
     - B.D. SPOT PRIME: 94-H20 HYDRO-ZINC AT 2.5 TO 3.5 MILS DFT.
     - B.E. FINISH COAT(S): L69 EXPOXOLINE AT 6.0 TO 8.0 MILS DTF PER COAT (APPLIED IN TWO OR MORE COATS).

CONSTRUCTION JOINTS

1. ALL SURFACES OF CONSTRUCTION JOINTS SHALL BE CLEANED TO REMOVE DUST, CHIPS, OR OTHER FOREIGN MATTER AND ROUGHENED TO 1/4" AMPLITUDE PRIOR TO PLACING THE ADJACENT CONCRETE.
2. IMMEDIATELY BEFORE NEW CONCRETE IS PLACED, ALL CONSTRUCTION JOINT SHALL BE WETTED AND STANDING WATER REMOVED.
3. THE CONTRACTOR SHALL SUBMIT THE PROPOSED LOCATIONS OF CONSTRUCTION JOINTS FOR APPROVAL BY THE STRUCTURAL ENGINEER BEFORE STARTING CONSTRUCTION.

SHORING PROCEDURE

1. IN AREAS WHERE THE FINISHED GRADE OR FINISHED SURFACE IS HIGHER THAN THE EXISTING GRADE, RAISE THE GRADE TO WITHIN FINISHED GRADE. IN AREAS WHERE THE FINISHED GRADE OR FINISHED SURFACE IS LOWER THAN THE EXISTING GRADE, LOWER THE GRADE TO WITHIN FINISHED GRADE.
2. DRILL VERTICAL SOLDIER PILE SHAFTS.
3. PLACE EPOXY-COATED SOLDIER BEAMS IN SHAFT.
4. FILL THE TOE OF THE SOLDIER PILE SHAFT WITH 3000 PSI CONCRETE.
5. FILL BALANCE OF SHAFT WITH A SAND/CEMENT SLURRY.
6. PERFORM ABOVE STEPS FOR BALANCE OF SOLDIER PILES.
7. BEGIN EXCAVATION IN LIFTS AS MAY BE DETERMINED BY THE GRADING INSPECTOR. CLEAN SOLDIER PILES AS REQUIRED. PLACE WOOD LAGGING AS GRADE DESCENDS. PROVIDE SLURRY BEHIND LAGGING FOR FULL BEARING FILLING ALL VOIDS.
8. CONTINUE EXCAVATION TO THE STAGE 1 ELEVATION IN THE CASE OF A TIE-BACK. IN THE CASE OF CANTILEVER PILE, OMIT STAGE 1 AND CONTINUE TO THE BOTTOM OF EXCAVATION.
9. IN THE CASE OF TIED-BACK SOLDIER PILES, DRILL SHAFT FOR TIE-BACK AND INSTALL TENDONS PER THE "TIE-BACK INSTALLATION PROCEDURE" SHOWN.
10. REPEAT STEPS 7 AND 8 FOR THE REST OF THE TIE-BACK LOCATIONS.
11. PROCEED TO THE LEVEL OF THE BOTTOM OF EXCAVATION.
12. TOUCH-UP CORROSION PROTECTION.
13. INSTALL DRAINAGE AND WATERPROOFING.
14. FABRICATE REBAR CURTAIN FOR PERMANENT SHOTCRETE WALL PER THE REINFORCING DETAILS. SHOOT SHOTCRETE WALLS.
15. INSTALL GUARDRAIL SYSTEM ATOP WALLS, WHERE REQUIRED.
16. BRING OVER-EXCAVATED REGIONS TO WITHIN FINISHED GRADE.

SHAFTS

1. VERTICAL AND DIAGONAL SHAFTS ARE TO BE MACHINE DRILLED AND ACCURATELY LOCATED SO THAT SOLDIER PILES AND TIEBACKS ARE IN PROPER RELATION TO THE NEW WALL ALIGNMENT.
2. TOLERANCE FOR INSTALLATION OF SOLDIER PILES IS ±1 INCH FOR VARIATION OF PLAN LOCATION AND 0.5 PERCENT OF PILE LENGTH FOR OUT OF PLUMB.
3. LOCATE SOLDIER PILES AS REQUIRED OUTSIDE OF BUILDING WALLS TO INSURE PILE DOES NOT INTRUDE INTO FINISHED WALL DUE TO OUT OF PLUMB OR VARIATION IN PLAN LOCATION.
4. TIE BACK ANCHORS SHALL BE INSTALLED AT THE ANGLE OF DECLINATION INDICATED IN THE SECTION OR SCHEDULE WITH A TOLERANCE OF ±3 DEGREES.
5. TOLERANCE FOR INSTALLATION OF TIEBACK IN ELEVATION IS ±3 INCH.
6. TIEBACK SHAFTS SHALL BE FREE OF LOOSE MATERIAL AND CONCRETE SHALL BE PLACED IMMEDIATELY AFTER PLACING TENDON IN THE SHAFT.
7. IT WILL NOT BE NECESSARY TO DEWATER THE HOLES FOR SOLDIER PILES OR TIEBACKS SHOULD GROUNDWATER BE ENCOUNTERED PROVIDED THE CONCRETE IS TREMIED INTO POSITION WITH APPROVED DEVICES.
8. SHAFTS CLOSER THAN TWO SHAFT DIAMETERS ON CENTER SHALL BE DRILLED AND POURED IN AN ALTERNATING SEQUENCE SUCH THAT THE ALTERNATE SHAFT IS NOT DRILLED UNTIL THE ADJACENT PILE HAS CURED FOR AT LEAST 24 HOURS.
9. HOLES DRILLED FOR PILES/TIE-BACK ANCHORS SHALL BE DONE WITHOUT DETRIMENTAL LOSS OF GROUND, SLOUGHING OR CAVING OF MATERIALS AND WITHOUT ENDANGERING PREVIOUSLY INSTALLED SHORING MEMBERS OR EXISTING FOUNDATIONS. PROVIDE PROTECTION OF SHAFT AGAINST SLOUGHING OR CAVING, AS REQUIRED.
10. CASING OR OTHER METHODS SHALL BE USED WHERE NECESSARY TO PREVENT LOSS OF GROUND AND COLLAPSE OF THE HOLE.
11. WHERE CAVING OCCURS, DRILLED HOLES SHALL BE CASED AND ALL BACKFILL SHALL BE PRESSURE PUMPED SO THAT ALL VOIDS ARE FILLED.
12. ALL SHAFTS LEFT OPEN MORE THAN TWELVE (12) HOURS SHALL BE CASED.
13. WHEN WATER OVER 3 INCHES IN DEPTH IS PRESENT IN DRILLED PILE HOLES, A CONCRETE MIX WITH A STRENGTH OF 1000 PSI OVER THE DESIGN PSI SHALL BE TREMIED FROM THE BOTTOM UP.
14. DRILLING OF EARTH ANCHOR SHAFTS FOR TIE-BACKS SHALL OCCUR WHEN THE DRILL BENCH REACHES TWO TO THREE FEET BELOW THE LEVEL OF THE TIE-BACK POCKETS.
15. THE DRILL CUTTINGS FROM EARTH ANCHOR SHAFT SHALL BE REMOVED PRIOR TO ANCHOR INSTALLATION.

REINFORCING STEEL

1. ALL REINFORCING BARS SHALL CONFORM TO ASTM A615, GRADE 60, U.N.O. THE DEFORMATIONS SHALL BE IN ACCORDANCE WITH ASTM A305.
2. AT THE TIME CONCRETE IS PLACED, REINFORCEMENT SHALL BE FREE FROM MUD, OIL, OR OTHER NONMETALLIC COATINGS THAT DECREASE BOND. EPOXY-COATING OF REINFORCEMENT SHALL BE PERMITTED. STEEL REINFORCEMENT WITH RUST, MILL SCALE, OR A COMBINATION OF BOTH SHALL BE CONSIDERED SATISFACTORY, PROVIDED THE MINIMUM DIMENSIONS (INCLUDING HEIGHT OF DEFORMATIONS) AND WEIGHT OF A HAND-WIRE-BRUSHED TEST SPECIMEN COMPLY WITH APPLICABLE ASTM SPECIFICATION.
3. REINFORCEMENT SHALL BE ACCURATELY PLACED AND ADEQUATELY SUPPORTED BEFORE CONCRETE IS PLACED, AND SHALL BE SECURED AGAINST DISPLACEMENT WITHIN TOLERANCES.
4. WELDING OF CROSSING BARS SHALL NOT BE PERMITTED FOR ASSEMBLY OF REINFORCEMENT.
5. REINFORCING STEEL SHALL BE DETAILED IN ACCORDANCE WITH THE "A.C.I. MANUAL OF STANDARD PRACTICE FOR DETAILING REINFORCED CONCRETE STRUCTURES", LATEST EDITION.
6. ALL REINFORCING BAR BENDS SHALL BE MADE COLD. ALL DOWEL BENDS SHALL BE MADE PRIOR TO PLACING DOWELS; BARS SHALL NOT BE BENT AFTER ANY PORTION OF THE BAR IS ENCASED IN CONCRETE. MINIMUM BEND DIAMETERS AND STANDARD HOOKS SHALL BE PER ACI 318.
7. REINFORCING BAR SPLICES SHALL BE MADE ONLY AS INDICATED ON THE DRAWINGS. MINIMUM SPLICE LENGTH FOR REINFORCING STEEL BARS IN CONCRETE SHALL BE PER ACI 318. #5 AND LARGER REINFORCING BARS SHALL NOT BE SPLICED EXCEPT AS LOCATED AND DETAILED ON THE DRAWINGS. #4 BARS AND SMALLER WITH LENGTHS NOT SHOWN SHALL BE CONTINUOUS. ALL SPLICE LOCATIONS ARE SUBJECT TO APPROVAL BY STRUCTURAL ENGINEER. PROVIDE CLASS B SPLICE UNLESS NOTED OTHERWISE.
8. ALL BARS SHALL BE MARKED SO THEIR IDENTIFICATION CAN BE MADE WHEN THE FINAL IN-PLACE INSPECTION AND OBSERVATION IS MADE.
9. BARS IN WALL FACING SHALL BE SECURELY SUPPORTED ON WELL CURED CONCRETE BLOCKS OR APPROVED METAL CHAIRS, PRIOR TO PLACING CONCRETE.
10. DRAWINGS SHOW TYPICAL REINFORCING CONDITIONS. COMPLETE AND DETAILED REINFORCING PLACEMENT DRAWINGS SHALL BE PREPARED AND SUBMITTED TO THE FOR APPROVAL BY CEFALI & ASSOCIATES PRIOR TO FABRICATION IN ACCORDANCE WITH THE SPECIFICATIONS AND APPLICABLE CODES. THESE DRAWINGS SHALL BE AVAILABLE ON THE JOB SITE PRIOR TO PLACING OF CONCRETE.
11. REBAR SPACING GIVEN ARE MAXIMUM ON CENTER WHERE STATED AS "O.C.". REBAR IS CONTINUOUS UNLESS NOTED OTHERWISE.
12. CONCRETE PROTECTION FOR CAST-IN-PLACE REINFORCEMENT SHALL BE PROVIDED. THE FOLLOWING MINIMUM CONCRETE COVER SHALL BE PROVIDED:

CAST AGAINST AND PERMANENTLY EXPOSED TO EARTH	3"
EXPOSED TO EARTH OR WEATHER	
NO. 6 THROUGH NO. 18 BARS	2"
NO. 5 BARS AND SMALLER	1½"
NOT EXPOSED TO WEATHER OR IN CONTACT WITH GROUND	1½"

SHOTCRETE

1. SHOTCRETE SHALL COMPLY WITH THE REQUIREMENTS OF THE 2022 CALIFORNIA BUILDING CODE SECTION 1908A.
2. COARSE AGGREGATE, IF USED, SHALL NOT EXCEED 3/4" INCH.
3. THE MINIMUM SLUMP SHALL BE 1-1/2 INCHES AND THE MAXIMUM SLUMP SHALL BE 2-1/2" INCHES. SLUMP SHALL BE MEASURED AT THE POINT OF DISCHARGE FROM THE MIXER, EXCEPT WHEN THE BUILDING INSPECTOR MAY REQUIRE SLUMP TESTS AT THE DISCHARGE POINT WHERE WATER MAY HAVE BEEN ADDED.
4. REINFORCING STEEL SHALL BE SECURELY TIED IN PLACE IN A MANNER THAT PREVENTS ANY MOVEMENT DURING THE WET MIX SHOTCRETING.
5. THE MAXIMUM SIZE OF REINFORCEMENT SHALL BE NO. 5 BARS UNLESS IT IS DEMONSTRATED BY PRECONSTRUCTION TESTS THAT ADEQUATE ENCASEMENT OF LARGER BARS WILL BE ACHIEVED.
6. WHEN NO. 5 OR SMALLER BARS ARE USED, THERE SHALL BE A MINIMUM CLEARANCE BETWEEN PARALLEL REINFORCEMENT BARS OF 2-1/2 INCHES. WHEN BARS LARGER THAN NO. 5 ARE PERMITTED, THERE SHALL BE A MINIMUM CLEARANCE BETWEEN PARALLEL BARS EQUAL TO SIX DIAMETERS OF THE BARS USED. WHEN TWO CURTAINS OF STEEL ARE PROVIDED, THE CURTAIN NEARER THE NOZZLE SHALL HAVE A MINIMUM SPACING EQUAL TO 12 BAR DIAMETERS AND THE REMAINING CURTAIN SHALL HAVE A MINIMUM SPACING OF SIX BAR DIAMETERS. EXCEPTION: SUBJECT TO THE APPROVAL OF THE BUILDING OFFICIAL, REQUIRED CLEARANCES SHALL BE REDUCED WHERE IT IS DEMONSTRATED BY PRECONSTRUCTION TESTS THAT ADEQUATE ENCASEMENT OF THE BARS USED IN THE DESIGN WILL BE ACHIEVED.
7. LAP SPLICES OF REINFORCING BARS SHALL UTILIZE THE NONCONTACT LAP SPLICE METHOD WITH A MINIMUM CLEARANCE OF 2 INCHES BETWEEN BARS. THE USE OF CONTACT LAP SPLICES NECESSARY FOR SUPPORT OF THE REINFORCING IS PERMITTED WHEN APPROVED BY THE BUILDING OFFICIAL, BASED ON SATISFACTORY PRECONSTRUCTION TESTS THAT SHOW THAT ADEQUATE ENCASEMENT OF THE BARS WILL BE ACHIEVED, AND PROVIDED THAT THE SPLICE IS ORIENTED SO THAT A PLANE THROUGH THE CENTER OF THE SPLICED BARS IS PERPENDICULAR TO THE SURFACE OF THE SHOTCRETE.
8. A CAPABLE NOZZLEMAN'S HELPER WITH AN AIR BLOW PIPE SHALL BE PROVIDED TO ASSIST THE NOZZLEMAN IN KEEPING ALL REBOUND BUILD-UP OUT OF THE WORK.
9. ADDITIONAL WORKERS MAY BE REQUIRED TO TAKE THE REBOUND FROM THE WORK IF THE REBOUND CANNOT BE REMOVED BY THE AIR BLOW PIPE.
10. ANY REBOUND OR ACCUMULATED LOOSE AGGREGATE SHALL BE REMOVED FROM THE SURFACES TO BE COVERED PRIOR TO PLACING THE INITIAL OR ANY SUCCEEDING LAYERS OF SHOTCRETE. REBOUND SHALL NOT BE USED AS AGGREGATE.
11. EXCEPT WHERE PERMITTED HEREIN, UNFINISHED WORK SHALL NOT BE ALLOWED TO STAND FOR MORE THAN 30 MINUTES UNLESS EDGES ARE SLOPED TO A THIN EDGE. FOR STRUCTURAL ELEMENTS THAT WILL BE UNDER COMPRESSION AND FOR CONSTRUCTION JOINTS SHOWN ON THE APPROVED CONSTRUCTION DOCUMENTS, SQUARE JOINTS ARE PERMITTED. BEFORE PLACING ADDITIONAL MATERIAL ADJACENT TO PREVIOUSLY APPLIED WORK, SLOPING AND SQUARE EDGES SHALL BE CLEANED AND WETTED.
12. IN-PLACE SHOTCRETE THAT EXHIBITS SAGS, SLOUGHS, SEGREGATION, HONEYCOMBING, SAND POCKETS OR OTHER OBVIOUS DEFECTS SHALL BE REMOVED AND REPLACED. SHOTCRETE ABOVE SAGS AND SLOUGHS SHALL BE REMOVED AND REPLACED WHILE STILL PLASTIC.
13. NO KEYWAYS OR EMBEDMENTS SHALL BE PLACED ON THE FRONT FACE THAT WILL INTERFERE WITH THE STREAM FROM THE NOZZLE. GUARDRAIL SLEEVES ARE PERMITTED AS DETAILED AND THEY SHALL BE VISUALLY INSPECTED TO ENSURE THAT NO VOIDS ARE CREATED AROUND THEM WHEN APPLYING SHOTCRETE.
14. RIGID OR OTHER APPROVED BACKING SHALL BE PLACED AGAINST THE EARTH WHERE THERE IS ANY LIKELIHOOD OF SOIL BEING DISLODGED IN SUFFICIENT QUANTITY TO DAMAGE THE CONCRETE DURING THE APPLICATION OF WET MIX SHOTCRETE. RIGID OR OTHER APPROVED BACKING SHALL BE USED WHERE A VOID IN THE EMBANKMENT IS TO BE BRIDGED.
15. ALL OTHER APPLICABLE REQUIREMENTS OF THE CODE (INCLUDING ALL REQUIREMENTS FOR PNEUMATICALLY PLACED WET MIX MORTAR AND MAXIMUM TIME IN MIXERS) SHALL APPLY.
16. STRENGTH TESTS FOR SHOTCRETE SHALL BE MADE BY AN APPROVED AGENCY IN ACCORDANCE WITH ASTM STANDARDS. STRUCTURAL WET MIX SHOTCRETE SHALL NOT BE PLACED WHERE THE STREAM FROM THE NOZZLE CANNOT DIRECTLY IMPINGE ONTO THE SURFACE WHERE THE CONCRETE IS TO BE PLACED. TWO 16"x16"x12" UNREINFORCED TEST BOXES SHALL BE SHOT FOR EACH SHIFT FOR COMPRESSION STRENGTH TESTING.
17. WHEN REQUIRED BY THE DSA PROJECT INSPECTOR, A TEST PANEL SHALL BE SHOT, CURED, CORED OR SAWN, EXAMINED AND TESTED PRIOR TO COMMENCEMENT OF THE PROJECT. THE SAMPLE PANEL SHALL BE REPRESENTATIVE OF THE PROJECT AND SIMULATE JOB CONDITIONS AS CLOSELY AS POSSIBLE. THE PANEL THICKNESS AND REINFORCING SHALL REPRODUCE THE THICKEST AND MOST CONGESTED AREA SPECIFIED IN THE STRUCTURAL DESIGN. IT SHALL BE SHOT AT THE SAME ANGLE, USING THE SAME NOZZLEMAN AND WITH THE SAME CONCRETE MIX DESIGN THAT WILL BE USED ON THE PROJECT. THE EQUIPMENT USED IN PRECONSTRUCTION TESTING SHALL BE THE SAME TYPE/MANUFACTURER OF EQUIPMENT USED IN THE WORK REQUIRING SUCH TESTING, UNLESS SUBSTITUTE EQUIPMENT IS APPROVED BY THE BUILDING OFFICIAL.

ANCHOR TESTING PROCEDURE

1. EXCEPT FOR THE MODIFICATIONS AS SET FORTH IN SECTIONS 1812A.4.1 THOUGH 1812A.4.3, ALL PRESTRESSED ROCK AND SOIL TIEBACK ANCHORS COMPLY WITH PTI.
2. TESTING OF ANCHORS MAY BE PERFORMED AFTER POST-GROUTING OPERATIONS PROVIDED GROUT HAS REACHED STRENGTH OF 3,000 PSI AS REQUIRED BY PTI SECTION 6.11.
3. EACH ANCHOR SHALL BE SATISFACTORILY TESTED TO THE REQUIREMENTS OF A 150% OR 200% PULL TEST.
4. ALL ANCHORS, WITH THE EXCEPTION OF THE 200% TESTS, SHALL BE TESTED TO 150%. THIS TEST REQUIRES THE ANCHOR TO BE LOADED TO A MINIMUM OF 150% OF THE DESIGN LOAD. THE MOVEMENT OF THE PULLING HEAD INCLUDING THE FREE-STRESSING LENGTH ELONGATION SHALL NOT EXCEED 12 INCHES TOTAL DURING APPLICATION OF THE TEST LOAD FROM 0% TO 150%. AT THE 150% TEST LOAD, THE PULLING HEAD MOVEMENT SHALL NOT EXCEED 0.1 INCH DURING A 15-MINUTE TEST PERIOD.
5. UNLESS OTHERWISE APPROVED BY THE BUILDING OFFICAL ON THE RECOMMENDATION OF THE GEOTECHNICAL ENGINEER, TEN PERCENT OF THE ANCHORS WHERE DIRECTED, SHALL BE TESTED IN ACCORDANCE WITH A 200% TEST. A 200% TEST REQUIRES THE ANCHOR TO BE LOADED TO 200% OF THE DESIGN LOAD. IN ADDITION, A REPRESENTATIVE SAMPLE OF THESE TESTS SHALL BE TESTED FOR A TIME PERIOD OF 24 HOURS. THE GEOTECHNICAL ENGINEER SHALL PREDETERMINE THE LOCATION OF THESE TEST ANCHORS AND EXTRA TENDONS, AS MAY BE REQUIRED, SHALL BE ADDED. THE MOVEMENT OF THE PULLING HEAD INCLUDING THE FREE-STRESSING LENGTH ELONGATION SHALL NOT EXCEED 12 INCHES TOTAL D

MONITORING

1. SHORING PILES SHALL BE SURVEY MONITORED FOR LINE AND GRADE AT THE TOP OF THE SOLDIER PILE.
2. CONTROL POINTS SHALL BE ESTABLISHED OUTSIDE THE AREA OF INFLUENCE OF THE SHORING SYSTEM TO ENSURE THE ACCURACY OF THE MONITORING READINGS.
3. THE PERIODIC BASIS OF SHORING MONITORING, AS A MINIMUM, SHALL BE AS FOLLOWS:
   - 3.1. INITIAL MONITORING SHALL BE PERFORMED PRIOR TO ANY EXCAVATION.
   - 3.2. ONCE EXCAVATION HAS BEGUN, THE PERIODIC READINGS SHALL BE TAKEN WEEKLY UNTIL THE BOTTOM OF EXCAVATION HAS BEEN REACHED.
   - 3.3. IF PERFORMANCE OF THE SHORING IS WITHIN THE LIMITS SET FORTH BELOW AND THERE OCCURS A 3-WEEK PERIOD WHERE THE MOVEMENT IS LESS THAN 0.3 INCHES, THE MONITORING INTERVAL MAY BE INCREASED TO MONTHLY INTERVALS.
   - 3.4. THE PERIODIC MONITORING OF THE SOLDIER PILES CAN BE DISCONTINUED ONCE THE PERMANENT STRUCTURE IS CAPABLE OF RESISTING THE EARTH LOAD AND THIS HAS BEEN CONFIRMED IN WRITING BY THE STRUCTURAL ENGINEER.
   - 3.5. ADDITIONAL READINGS SHALL BE TAKEN WHEN REQUESTED BY CEFALI & ASSOCIATES OR THE GEOTECHNICAL ENGINEER.
   - 3.6. IF THE TOTAL CUMULATIVE HORIZONTAL OR VERTICAL MOVEMENT (FROM START OF CONSTRUCTION) OF EXISTING BUILDINGS REACHES 1/2 INCH OR SOLDIER PILE HORIZONTAL MOVEMENT REACHES 1 INCH ALL EXCAVATION ACTIVITIES IN THE AREA SHALL BE SUSPENDED. THE GEOTECHNICAL AND CEFALI & ASSOCIATES SHALL EXAMINE THE CAUSE OF MOVEMENT, AND RECOMMEND CORRECTIVE MEASURES, IF NECESSARY, BEFORE EXCAVATION CONTINUES. IF THE TOTAL CUMULATIVE HORIZONTAL OR VERTICAL MOVEMENT (FROM START OF CONSTRUCTION) OF THE EXISTING BUILDINGS REACHES 3/4 INCH OR SOLDIER PILE HORIZONTAL MOVEMENT REACHES 1-1/2 INCHES ALL EXCAVATION ACTIVITIES SHALL BE SUSPENDED UNTIL THE CAUSES, IF ANY, CAN BE DETERMINED. SUPPLEMENTAL SHORING SHALL BE DEVISED TO ELIMINATE FURTHER MOVEMENT SHORING BEFORE EXCAVATION CONTINUES.
4. IF IN THE OPINION OF CEFALI & ASSOCIATES, MONITORING DATA INDICATE EXCESSIVE MOVEMENT OR OTHER DISTRESS, ALL EXCAVATION SHALL CEASE UNTIL THE GEOTECHNICAL ENGINEER AND CEFALI & ASSOCIATES INVESTIGATE THE SITUATION AND MAKES RECOMMENDATIONS FOR REMEDIATION OR CONTINUING.
5. MONITORING READING SHALL BE SUBMITTED TO CEFALI & ASSOCIATES AND THE GEOTECHNICAL ENGINEER WITHIN 3 WORKING DAYS AFTER THEY ARE CONDUCTED. MONITORING READINGS SHALL BE ACCURATE TO WITHIN 0.01 FEET. RESULTS ARE TO BE SUBMITTED IN TABULAR FORM SHOWING AT LEAST THE INITIAL DATE OF MONITORING AND READING, CURRENT MONITORING DATE AND READING AND DIFFERENCE BETWEEN THE 2 READINGS. THE READING SHALL INDICATE INWARDS MOVEMENT AS NEGATIVE VALUES AND OUTWARDS MOVEMENT AS POSITIVE. NORTHINGS AND EASTINGS ARE NOT ACCEPTABLE. DOWNWARDS MOVEMENTS SHALL BE NEGATIVE AND UPWARDS MOVEMENT POSITIVE.
6. PRIOR TO CONSTRUCTION, THE CONTRACTOR SHALL COMPLETE A PHOTOGRAPHIC LOG OF ALL ADJACENT PROPERTIES AND STRUCTURES WITHIN A 1:1 OF THE BOTTOM OF EXCAVATION.
   - 6.1. THE CONTRACTOR SHALL DOCUMENT THE EXISTING CONDITIONS OF WALL CRACKS ADJACENT TO SHORING BULKHEADS PRIOR TO START OF CONSTRUCTION.

APPENDIX (OSHPD & DSA) MONITORING

1. SHORING PILES SHALL BE SURVEY MONITORED FOR LINE AND GRADE AT THE TOP OF THE SOLDIER PILE. ADDITIONAL MONITORING POINTS SHALL BE ESTABLISHED AT THE ANCHOR HEADS OF SELECTED SOLDIER PILES AND AT INTERMEDIATE INTERVALS AS CONSIDERED APPROPRIATE BY THE GEOTECHNICAL ENGINEER.
2. CONTROL POINTS SHALL BE ESTABLISHED OUTSIDE THE AREA OF INFLUENCE OF THE SHORING SYSTEM TO ENSURE THE ACCURACY OF THE MONITORING READINGS.
3. THE PERIODIC BASIS OF SHORING MONITORING, AS A MINIMUM, SHALL BE AS FOLLOWS:
   - 3.1. INITIAL MONITORING SHALL BE PERFORMED PRIOR TO ANY EXCAVATION.
   - 3.2. ONCE EXCAVATION HAS BEGUN, THE PERIODIC READINGS SHALL BE TAKEN WEEKLY UNTIL EXCAVATION REACHES THE ESTIMATED SUBGRADE ELEVATION AND THE PERMANENT FOUNDATION IS COMPLETE.
   - 3.3. IF PERFORMANCE OF THE SHORING IS WITHIN ESTABLISHED GUIDELINES, SHORING DESIGN ENGINEER MAY PERMIT THE PERIODIC READINGS TO BE BI-WEEKLY. ONCE INITIATED, BI-WEEKLY READINGS SHALL CONTINUE UNTIL THE BUILDING SLAB AT GROUND FLOOR LEVEL IS COMPLETED AND CAPABLE OF TRANSMITTING LATERAL LOADS TO THE PERMANENT STRUCTURE. THEREAFTER, READINGS CAN BE MONTHLY.
   - 3.4. WHERE THE BUILDING HAS BEEN DESIGNED TO ,RESIST LATERAL EARTH PRESSURES, THE PERIODIC MONITORING OF THE SOLDIER PILES AND ADJACENT STRUCTURE CAN BE DISCONTINUED ONCE THE GROUND FLOOR DIAPHRAGM AND SUBTERRANEAN PORTION OF THE STRUCTURE IS CAPABLE OF RESISTING LATERAL SOIL LOADS AND APPROVED BY THE SHORING DESIGN ENGINEER, GEOTECHNICAL ENGINEER AND BUILDING OFFICIAL.
   - 3.5. ADDITIONAL READINGS SHALL BE TAKEN WHEN REQUESTED BY THE SPECIAL INSPECTOR, CEFALI & ASSOCIATES, GEOTECHNICAL ENGINEER, OR BUILDING OFFICIAL.
4. MONITORING READING SHALL BE SUBMITTED TO CEFALI & ASSOCIATES AND THE BUILDING OFFICIAL WITHIN 3 WORKING DAYS AFTER THEY ARE CONDUCTED. MONITORING READINGS SHALL BE ACCURATE TO WITHIN 0.01 FEET. RESULTS ARE TO BE SUBMITTED IN TABULAR FORM SHOWING AT LEAST THE INITIAL DATE OF MONITORING AND READING, CURRENT MONITORING DATE AND READING AND DIFFERENCE BETWEEN THE 2 READINGS.
5. IF THE TOTAL CUMULATIVE HORIZONTAL OR VERTICAL MOVEMENT (FROM START OF CONSTRUCTION) OF THE EXISTING BUILDINGS REACHES 1/2 INCH OR SOLDIER PILES REACHES 1 INCH ALL EXCAVATION ACTIVITIES SHALL BE SUSPENDED. THE GEOTECHNICAL AND SHORING DESIGN ENGINEER SHALL DETERMINE THE CAUSE OF MOVEMENT, IF ANY, AND RECOMMEND CORRECTIVE MEASURES, IF NECESSARY, BEFORE EXCAVATION CONTINUES. IF THE TOTAL CUMULATIVE HORIZONTAL OR VERTICAL MOVEMENT (FROM START OF CONSTRUCTION) OF THE EXISTING BUILDINGS REACHES 3/4 INCH OR SOLDIER PILES REACHES 1-1/2 INCHES ALL EXCAVATION ACTIVITIES SHALL BE SUSPENDED UNTIL THE CAUSES, IF ANY, CAN BE DETERMINED. SUPPLEMENTAL SHORING SHALL BE DEVISED TO ELIMINATE FURTHER MOVEMENT AND THE BUILDING OFFICIAL SHALL REVIEW AND APPROVE THE SUPPLEMENTAL SHORING BEFORE EXCAVATION CONTINUES.
6. IF IN THE OPINION OF THE BUILDING OFFICIAL CEFALI & ASSOCIATES, MONITORING DATA INDICATE EXCESSIVE MOVEMENT OR OTHER DISTRESS, ALL EXCAVATION SHALL CEASE UNTIL THE GEOTECHNICAL ENGINEER AND SHORING DESIGN ENGINEER INVESTIGATES THE SITUATION AND MAKES RECOMMENDATIONS FOR REMEDIATION OR CONTINUING.
7. THE CONTRACTOR SHALL COMPLETE A WRITTEN AND PHOTOGRAPHIC LOG OF ALL EXISTING STRUCTURES WITHIN 100 FEET OR THREE TIMES DEPTH OF SHORING, PRIOR TO CONSTRUCTION. A LICENSED SURVEYOR SHALL DOCUMENT ALL EXISTING SUBSTANTIAL CRACKS IN ADJACENT EXISTING STRUCTURES.
8. THE CONTRACTOR SHALL DOCUMENT EXISTING CONDITION OF WALL CRACKS ADJACENT TO SHORING WALL PRIOR TO START OF CONSTRUCTION.
9. THE CONTRACTOR SHALL MONITOR EXISTING WALLS FOR MOVEMENT OR CRACKING THAT MAY RESULT FROM ADJACENT SHORING.
10. MONITORING SHALL BE PERFORMED BY A LICENSED SURVEYOR AND SHALL CONSIST OF VERTICAL AND LATERAL MOVEMENT OF THE EXISTING STRUCTURES. PRIOR TO STARTING SHORING INSTALLATION A PRE-CONSTRUCTION MEETING SHALL TAKE PLACE BETWEEN THE CONTRACTOR, CEFALI & ASSOCIATES, SURVEYOR, GEOTECHNICAL ENGINEER, AND THE BUILDING OFFICIAL TO IDENTIFY MONITORING LOCATIONS ON EXISTING BUILDINGS.
11. READING AND MEASUREMENTS SHALL BE SUBMITTED TO THE BUILDING OFFICIAL AND CEFALI & ASSOCIATES.
12. IF EXCESSIVE MOVEMENT OR VISIBLE CRACKING OCCURS, THE CONTRACTOR SHALL STOP WORK AND SHORE/REINFORCE EXCAVATION AND CONTACT CEFALI & ASSOCIATES AND THE BUILDING OFFICIAL.

CEFALI

Cefali & Associates, Inc.
4344 Laurel Canyon Blvd, Suite 3
Studio City, CA 91604
818.752.1812
engineering@cefali.com
www.cefali.com

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REGISTERED PROFESSIONAL ENGINEER
DAVID A. CEFALI
S-3138
EXPIRES
3-31-27
STRUCTURAL
STATE OF CALIFORNIA

CONSULTANTS:

ARCHITECT
LPA, INC.
949.769.6286

GEOTECHNICAL ENGINEER
VERDANTAS
949.379.2450

CIVIL ENGINEER
LPA, INC.
949.701.4033

STRUCTURAL ENGINEER
LPA, INC.
949.769.6201

MARK	DATE	DESCRIPTION
	09/08/2025	DSA SUBMITTAL

PROJECT NAME:

MALIBU HIGH SCHOOL GYM BUILDING

30215 MORNING VIEW DR.
MALIBU, CA 90265

SHEET NAME:

GENERAL NOTES

DATE: 06-13-2025

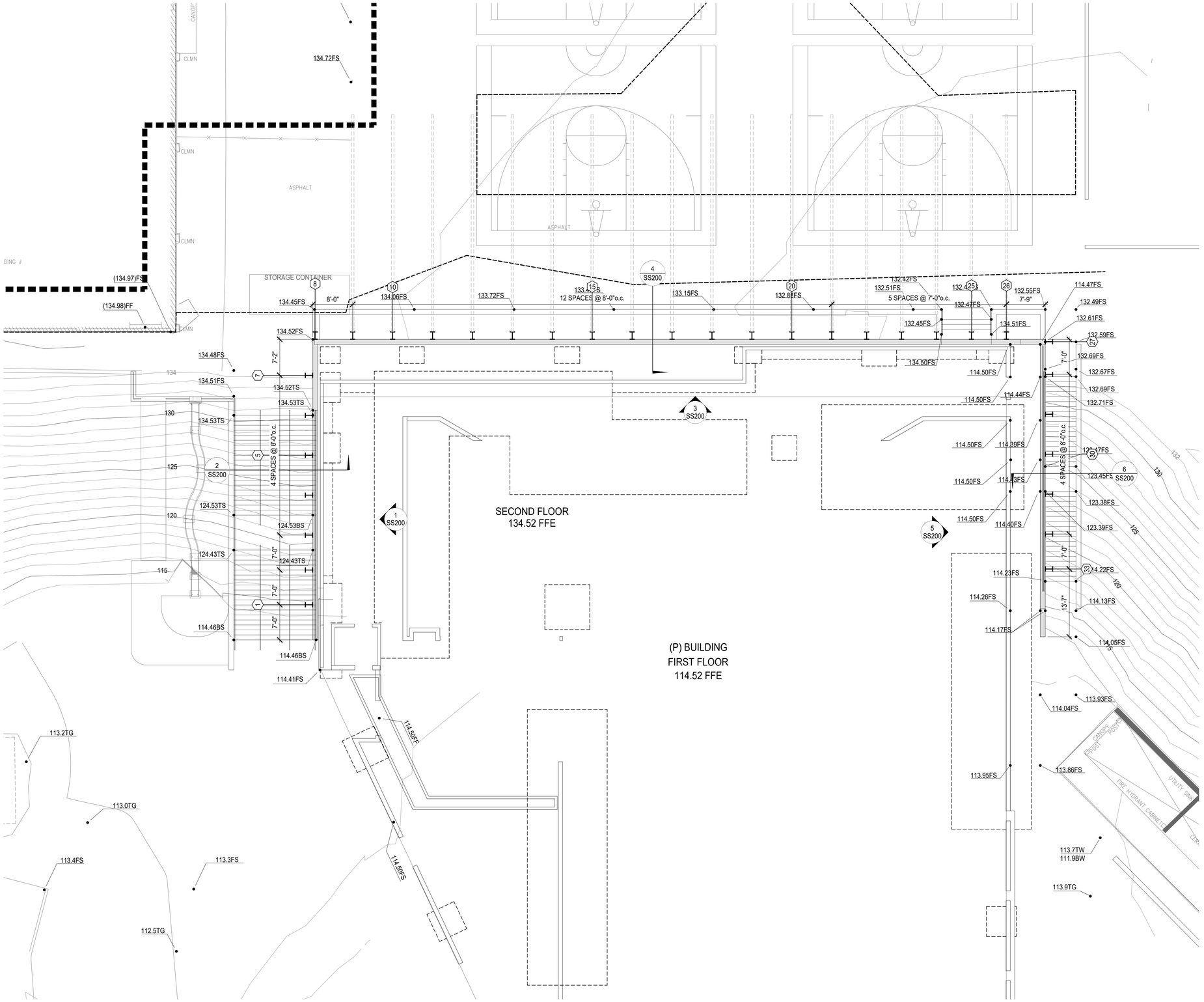
SCALE: N/A

DRAFTER: L.S.

PROJECT NO.: 25-029

DRAWING NO.:

SS001



SUPPORT OF EXCAVATION PLAN
1/8" = 1'-0"

CEFALI
Cefali & Associates, Inc.
4344 Laurel Canyon Blvd, Suite 3
Studio City, CA 91604
818.752.1812
engineering@cefali.com
www.cefali.com

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LPA, INC.
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949.701.4033

STRUCTURAL ENGINEER
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949.769.6201

MARK	DATE	DESCRIPTION
	09/08/2025	DSA SUBMITTAL

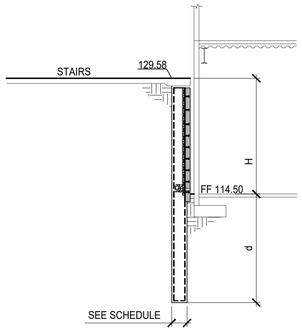
PROJECT NAME:
MALIBU HIGH SCHOOL GYM BUILDING

30215 MORNING VIEW DR.
MALIBU, CA 90265

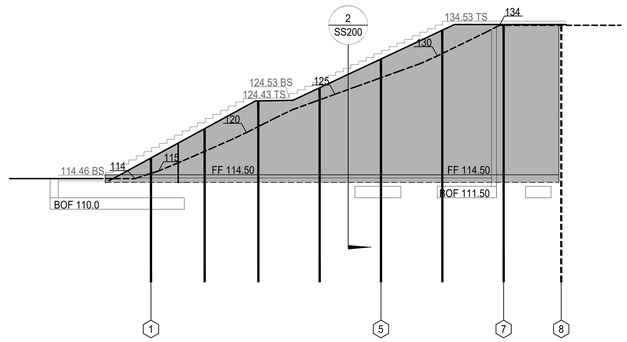
SHEET NAME:
SUPPORT OF EXCAVATION PLAN

DATE: 06-13-2025
SCALE: 1/8" = 1'-0"
DRAFTER: L.S.
PROJECT NO.: 25-029
DRAWING NO.:
SS100

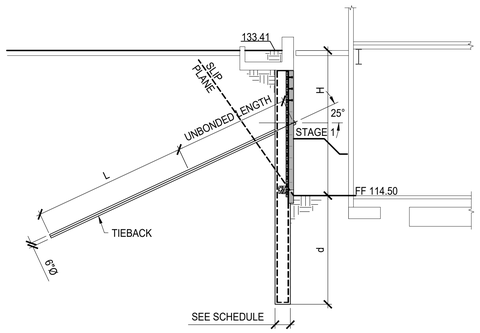
SHEET 3 OF 6



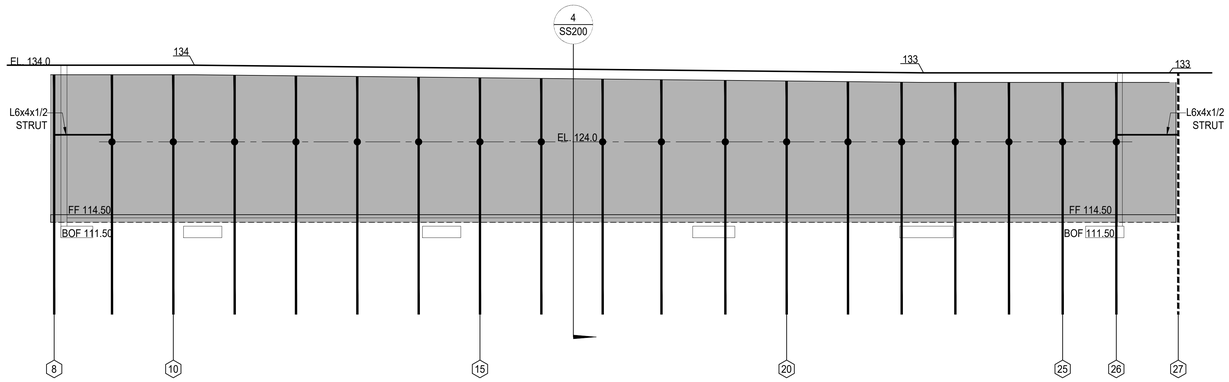
WEST SECTION 2



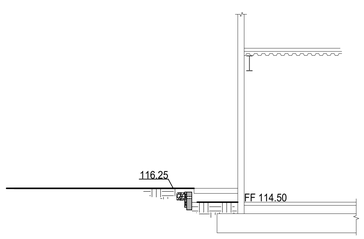
WEST BULKHEAD ELEVATION LOOKING WEST 1



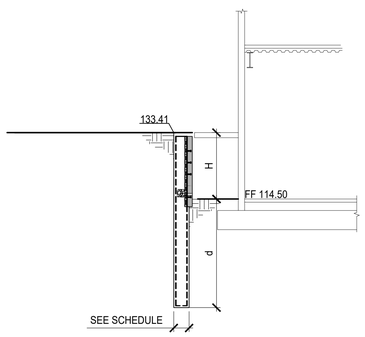
NORTH SECTION 4



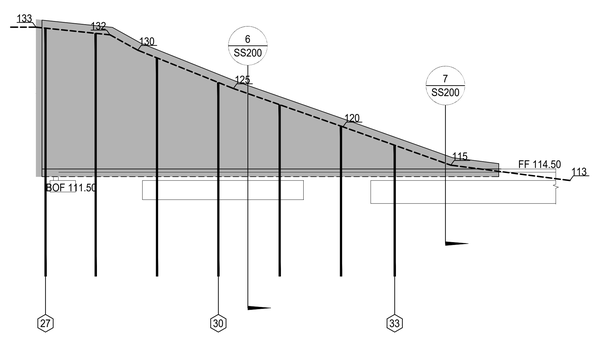
NORTH BULKHEAD ELEVATION LOOKING NORTH 3



EAST SECTION 7



EAST SECTION 6



EAST BULKHEAD ELEVATION LOOKING EAST 5

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Cefali & Associates, Inc.
4344 Laurel Canyon Blvd, Suite 3
Studio City, CA 91604
818.752.1812
engineering@cefali.com
www.cefali.com

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GEOTECHNICAL ENGINEER
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CIVIL ENGINEER
LPA, INC.
949.701.4033

STRUCTURAL ENGINEER
LPA, INC.
949.769.6201

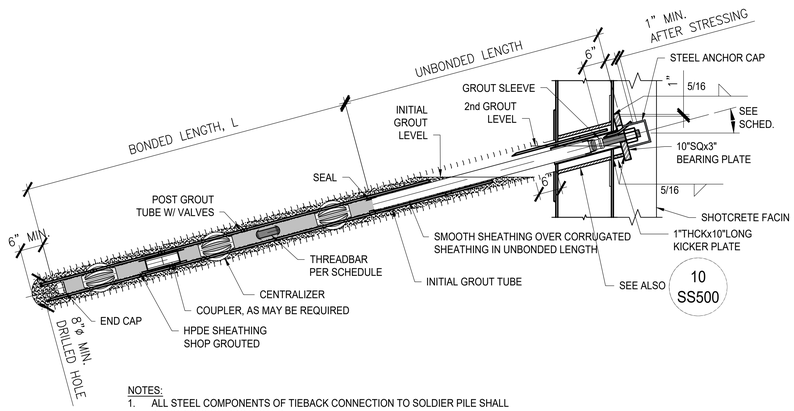
MARK	DATE	DESCRIPTION
	09/08/2025	DSA SUBMITTAL

PROJECT NAME:
MALIBU HIGH SCHOOL GYM BUILDING

30215 MORNING VIEW DR.
MALIBU, CA 90265

SHEET NAME:
ELEVATIONS & SECTIONS

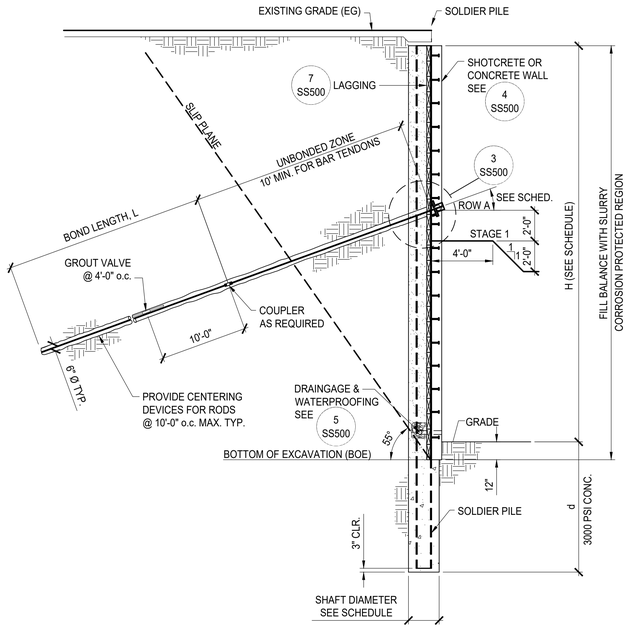
DATE: 06-13-2025
SCALE: 1/8" = 1'-0"
DRAFTER: L.S.
PROJECT NO.: 25-029
DRAWING NO.:
SS200
SHEET 4 OF 6



NOTES:
1. ALL STEEL COMPONENTS OF TIEBACK CONNECTION TO SOLDIER PILE SHALL BE CORROSION PROTECTED.
2. REFER TO MANUFACTURER TYPICAL DETAILS.

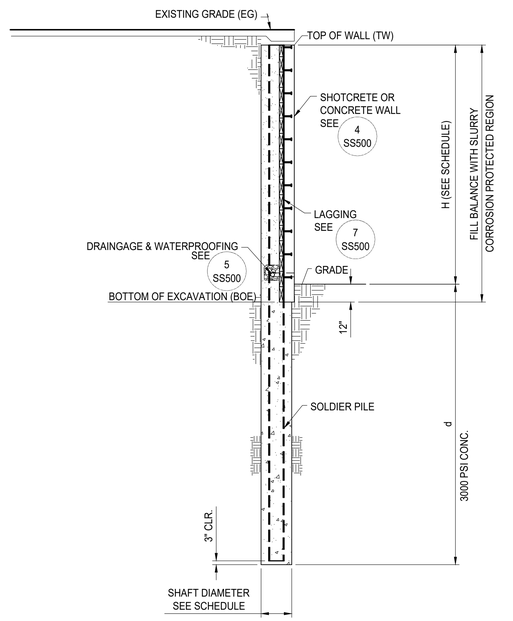
TYPICAL PERMANENT TIEBACK PROTECTION DETAIL 3

N.T.S.



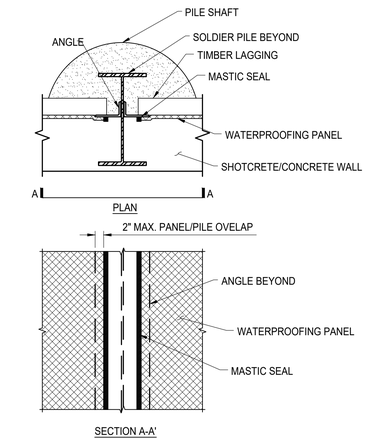
TYP. TIEBACK BULKHEAD SECTION 2

1/4" = 1'-0"



PERMANENT CANTILEVER PILE 1

1/4" = 1'-0"



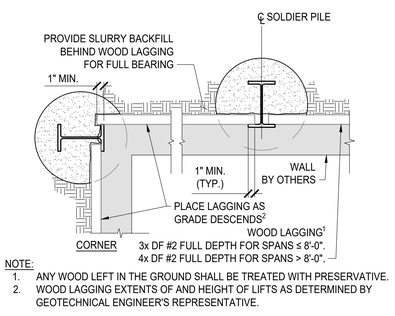
WATERPROOFING PANEL @ PILE 12

1" = 1'-0"

ROD TENDON CONNECTION COMPONENTS						
ROD SIZE	MAX. TEST LOAD	BASE PIPE SIZE	BEARING PLATE	TOP PLATE SIZE	STIFFENER PLATE	WELD A
$1\frac{1}{2}$"	141k	4" SCH. 160	8"x9"x5/8"	6"x6"x$1\frac{3}{8}$"	5/8"	5/16"
$1\frac{3}{8}$"	178.2k	4" SCH. 160	8"x9"x$1\frac{1}{2}$"	6"x6"x$1\frac{3}{4}$"	5/8"	5/16"
$1\frac{3}{4}$"	300.8k	6" XXS	8"x9"x2"	7"x7"x$2\frac{1}{4}$"	$1\frac{1}{4}$"	1/2"

TYPICAL TIEBACK ANCHOR CONNECTION 10

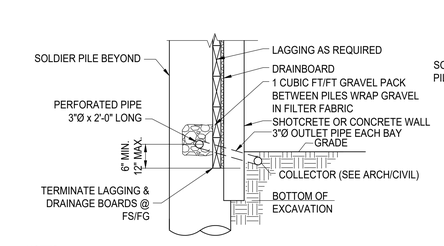
3/4" = 1'-0"



NOTE:
1. ANY WOOD LEFT IN THE GROUND SHALL BE TREATED WITH PRESERVATIVE.
2. WOOD LAGGING EXTENTS OF AND HEIGHT OF LIFTS AS DETERMINED BY GEOTECHNICAL ENGINEER'S REPRESENTATIVE.

TYPICAL WOOD LAGGING DETAIL 8

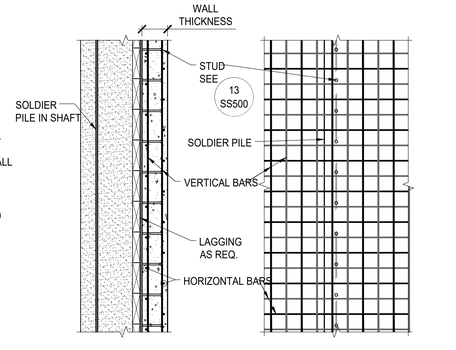
3/4" = 1'-0"



NOTES:
1. REFER TO WATERPROOFING DETAILS.
2. PIER SOLDIER PILES SHOWN, APPLICABLE TO STEEL PILES.
3. OUTLET SHALL OCCUR AT CENTER OF BAY.
4. CIVIL ENGINEER MAY ALTER OUTLET LOCATION TO COMPLY WITH DRAINAGE PLANS.

TYPICAL DRAINAGE DETAIL 5

1/2"=1'-0"

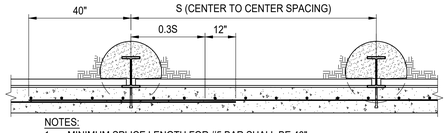


DISTANCE FROM TOP OF WALL	WALL THICKNESS	FRONT REINFORCING		BACK REINFORCING		STUD ANCHOR	
		VERTICAL	HORIZONTAL	VERTICAL	HORIZONTAL	SIZE	SPACING
0-10'	10"	#4 @ 12"	#5 @ 18"	#4 @ 12"	#5 @ 12"	3/4"	16"
10'-20'	10'	#4 @ 12"	#5 @ 12"	#4 @ 12"	#5 @ 8"	3/4"	12"

NOTES:
1. DOUBLE CURTAIN REINFORCING, SEE SEPARATE DETAIL FOR SINGLE CURTAIN.
2. NOT ALL COMPONENTS OF DRAINAGE AND WATERPROOFING SYSTEM ARE SHOWN.

REINFORCING SCHEDULE 4

1/2" = 1'-0"



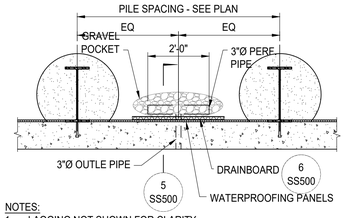
TYPICAL STUD ANCHOR 13

1-1/2" = 1'-0"

NOTES:
1. MINIMUM SPLICE LENGTH FOR #5 BAR SHALL BE 40".
2. LAP SPLICES SHALL BE BY THE NON-CONTACT LAP SPLICE METHOD WITH A MIN. OF 2" AND A MAX. OF 6" CLEAR BETWEEN BARS.
3. VERTICAL SPACING BETWEEN LAPS SHOULD OCCUR NO CLOSER THAN 18" O.C.
4. WATERPROOFING AND DRAINAGE ARE NOT SHOWN FOR CLARITY.
5. STEEL SOLDIER PILES SHOWN, APPLICABLE TO PIERS.

TYPICAL REBAR SPLICE DETAIL 14

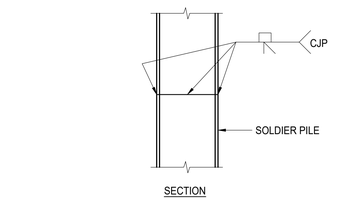
1/2"=1'-0"



NOTES:
1. LAGGING NOT SHOWN FOR CLARITY.
2. REFER TO WATERPROOFING DETAILS.
3. PIER SOLDIER PILES SHOWN, APPLICABLE TO STEEL PILES.
4. OUTLET SHALL OCCUR AT EVERY BAY.

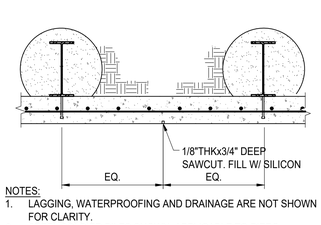
DRAINAGE @ BASE OF WALL 11

1/2"=1'-0"



SOLDIER PILE SPLICE DETAIL 7

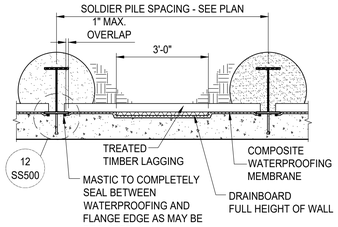
3/4" = 1'-0"



NOTES:
1. LAGGING, WATERPROOFING AND DRAINAGE ARE NOT SHOWN FOR CLARITY.
2. STEEL SOLDIER PILES SHOWN, APPLICABLE TO PIERS.
3. SINGLE CURTAIN SHOWN, DOUBLE CURTAIN SIM.
4. JOINT SHALL OCCUR AT EVERY THRID BAY MAX.

CONTROL JOINT DETAIL 9

1/2"=1'-0"



NOTES:
1. COMPLY WITH DRAINBOARD AND WATERPROOFING MANUFACTURE'S INSTALLATION REQUIREMENTS

DRAINAGE AND WATERPROOFING 6

1/2" = 1'-0"

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Cefali & Associates, Inc.
4344 Laurel Canyon Blvd, Suite 3
Studio City, CA 91604
818.752.1812
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REGISTERED PROFESSIONAL ENGINEER DAVID A. CEFALI S 3036 EXP. 6-30-26 STRUCTURAL STATE OF CALIFORNIA

CONSULTANTS:

ARCHITECT
LPA, INC.
949.769.6286

GEOTECHNICAL ENGINEER
VERDANTAS
949.379.2450

CIVIL ENGINEER
LPA, INC.
949.701.4033

STRUCTURAL ENGINEER
LPA, INC.
949.769.6201

MARK	DATE	DESCRIPTION
	09/08/2025	DSA SUBMITTAL

PROJECT NAME:
MALIBU HIGH SCHOOL GYM BUILDING

30215 MORNING VIEW DR.
MALIBU, CA 90265

SHEET NAME:
DETAILS

DATE: 06-13-2025
SCALE: AS NOTED
DRAFTER: L.S.
PROJECT NO.: 25-029

DRAWING NO.:
SS500

	PILE	SOLDIER PILE				TIEBACKS ROWA												SURCHARGE CONSIDERATION	SUPPORT CONDITIONS	COMMENTS
		H	SECTION	SHAFT DIA.	d DRILLED	ANGLE	TIE DIA.	TIE BOND	T_{DESIGN}	150% TEST			200% TEST			2000 PSF	TOTAL TIE LENGTH			
										T_{TEST}	ROD DIA.	0.6" Ø STRAND	T_{TEST}	ROD DIA.	0.6" Ø STRAND	TIE BONDED LENGTH "L"				
	(#)	(FT)		(IN)	(FT)	(DEG)	(IN)	(PSF)	(k)	(k)	(IN)	(#)	(k)	(IN)	(#)	(FT)	(FT)			
WEST	1	4	W10x15	24	9														CANTILEVER	
	2	6	W12x19	24	10														CANTILEVER	
	3	10	W16x54	24	17														CANTILEVER	
	4	11	W18x65	24	19														CANTILEVER	
	5	15	W24x104	30	23														CANTILEVER	
	6	18	W24x146	30	26														CANTILEVER	
	7	20	W27x178	30	29														CANTILEVER	
NORTH	8 TO 11	20	W16x45	30	7	25	6	2000	96	144	1 1/4	4	192	1 3/4	5	31	46		TIEBACK	
	12 TO 26	19	W16x45	30	7	25	6	2000	96	144	1 1/4	4	192	1 3/4	5	31	46		TIEBACK	
EAST	27	19	W16x45	30	7														CANTILEVER	
	29	15	W24x104	30	23														CANTILEVER	
	30	12	W18x76	24	20														CANTILEVER	
	31	9	W16x45	24	15														CANTILEVER	
	32	6	W12x19	24	10														CANTILEVER	
	33	5	W10x15	24	9														CANTILEVER	

PILE & TIEBACK SCHEDULE

1

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Cefali & Associates, Inc.
4344 Laurel Canyon Blvd, Suite 3
Studio City, CA 91604
818.752.1812
engineering@cefali.com
www.cefali.com

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MARK	DATE	DESCRIPTION
	09/08/2025	DSA SUBMITTAL

PROJECT NAME:

MALIBU HIGH SCHOOL
GYM BUILDING

30215 MORNING VIEW DR.
MALIBU, CA 90265

SHEET NAME:

SCHEDULES

DATE: 06-13-2025

SCALE: N/A

DRAFTER: L.S.

PROJECT NO.: 25-029

DRAWING NO.:

SS600

SHEET 6 OF 6

SCHNEIDER ELECTRIC ENERGY SERVICES PROJECT FOR

SANTA MONICA MALIBU

MIDDLE/HIGH SCHOOL

30215 MORNING VIEW DR

MALIBU, CA 90265

PROJECT NUMBER: PC25P0085

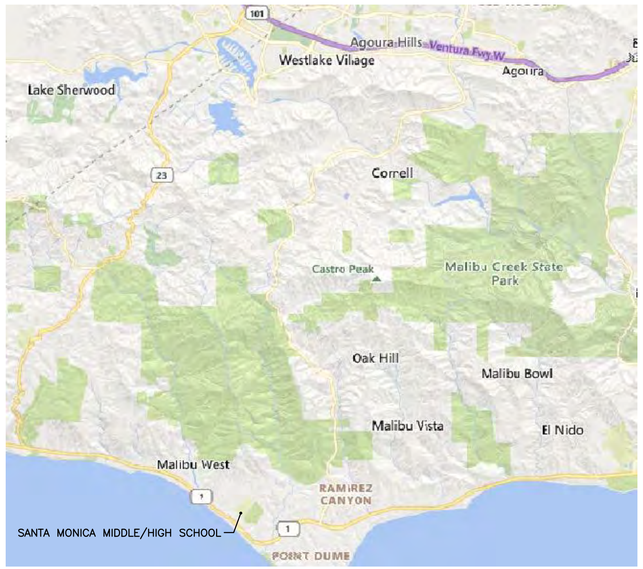
APPLICABLE CODES

- 2021 INTERNATIONAL EXISTING BUILDING CODE
- 2021 INTERNATIONAL BUILDING CODE
- 2021 INTERNATIONAL PLUMBING CODE
- 2021 INTERNATIONAL FUEL GAS CODE
- 2021 INTERNATIONAL MECHANICAL CODE
- 2020 NATIONAL ELECTRICAL CODE
- 2021 INTERNATIONAL FIRE CODE
- 2009 INTERNATIONAL ENERGY CONSERVATION CODE

SYSTEM DETAILS

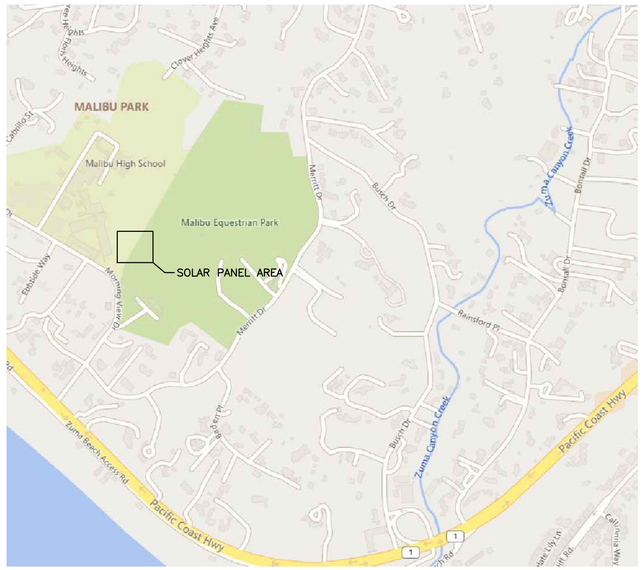
SYSTEM AC:	400KW
SYSTEM DC:	534.6KW
DC/AC RATIO:	1.24
RACKING TYPE:	FIXED TILT
TILT ANGLE:	20° FOR 2P SYSTEM,
INTER-ROW SPACING:	6'-4"
FRONT LIP HEIGHT:	36"
MODULE MANUFACTURER /PART NUMBER:	MISSION SOLAR/ MSI10-550HT4T
MODULE W:	550W
MODULE QUANTITY:	972
INVERTER MANUFACTURER /PART NUMBER:	CPS/ SCH100KTL-DO/US-480
INVERTER KW:	100KW
INVERTER QUANTITY:	4

AREA LOCATION MAPS



PLAN NORTH

A2 VICINITY MAP
NOT TO SCALE



PLAN NORTH

A3 SITE MAP
NOT TO SCALE

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ELECTRICAL	
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E-102	ENLARGED ELECTRICAL PLAN
E-103	ENLARGED SOLAR PV AREA 1
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Schneider Electric
TEXAS REGISTERED ENGINEERING FIRM F-5231
Schneider Electric
1650 West Crosby Road
Carrollton, TX 75006 USA
Tel. +1 972 323 1111
Fax +1 972 323 5498
www.schneider-electric.com

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30215 MORNING VIEW DR
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MARK	DATE	DESCRIPTION
		SUBMISSION / REVISION

DRAWN BY: EWR, MP	CHECKED BY: RES
DESIGNED BY: PH	APPROVED BY: PH
DATE: 08-18-2025	PROJECT: PC25P0085

COVERSHEET

G-001

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ELECTRICAL LEGEND

GENERAL DRAWING SYMBOLS

- CONNECT NEW TO EXISTING
- POINT OF DISCONNECTION
- KEYNOTE INDICATOR (1)
- AC CONDUIT
- DC CONDUIT
- ARCHITECTURAL BACKGROUND (THIN LINE)
- NEW ELECTRICAL WORK (HEAVY LINE)
- EXISTING WORK OR EQUIPMENT (THIN LINE)
- EXISTING WIRING TO BE REMOVED
- EXISTING EQUIPMENT TO BE REMOVED
- (E) EXISTING TO REMAIN
- 1 REVISION INDICATOR
- BLR 1 NEW EQUIPMENT DESIGNATION
- A3 M-501 DETAIL REFERENCE: DETAIL DESIGNATION / DWG WHERE SHOWN
- C M-501 SECTION REFERENCE: SECTION LETTER / DWG WHERE SHOWN

POWER

- NEW ELECTRICAL PANELEBOARD
- EXISTING ELECTRICAL PANELBOARD
- WP NON-FUSED DISCONNECT SWITCH (WP = NEMA 3R WHERE APPROPRIATE)
- FUSED DISCONNECT SWITCH
- MAGNETIC MOTOR STARTER
- COMBINATION MAGNETIC MOTOR STARTER
- VFD VARIABLE FREQUENCY DRIVE
- EF-1,5HP,208,1 MOTOR CONNECTION (EQUIPMENT NAME, HORSEPOWER, VOLTAGE, AND PHASE INDICATED)
- MAU-1,12KVA,480,3 EQUIPMENT CONNECTION (EQUIPMENT NAME, LOAD, VOLTAGE, AND PHASE INDICATED)
- CONTROL STATION
- T TRANSFORMER, DRY TYPE

SWITCHES

- $a SWITCH, SINGLE POLE; WITH SWITCHING SUBSCRIPT
- $2 SWITCH, TWO POLE
- $3 SWITCH, THREE-WAY
- $4 SWITCH, FOUR-WAY
- $P SWITCH WITH PILOT LIGHT
- $K SWITCH, KEY OPERATED
- $T TIMER SWITCH
- $D DIMMER SWITCH
- $LV SWITCH, LOW VOLTAGE
- $M THERMAL OVERLOAD MOTOR STARTER SWITCH
- SB SWITCHBANK
- SB LV LOW VOLTAGE SWITCHBANK
- PC SWITCH, PHOTOCELL
- $a a SWITCH & CONTROLLED OUTLET OR FIXTURE
- R RELAY
- OS OCCUPANCY SENSOR

RECEPTACLES

- SINGLE RECEPTACLE
- DUPLEX RECEPTACLE
- 6-30R SPECIAL PURPOSE RECEPTACLE, NEMA CONFIGURATION NOTED
- SPECIAL PURPOSE RECEPTACLE
- DUPLEX RECEPTACLE, ABOVE COUNTER
- GFCI DUPLEX RECEPTACLE, GROUND FAULT CIRCUIT INTERRUPTING
- IG DUPLEX RECEPTACLE, ISOLATED GROUND
- DOUBLE DUPLEX RECEPTACLE
- WP RECEPTACLE WITH WEATHER-PROOF COVER, (TYPE AS INDICATED ABOVE)
- CLOCK HANGER OUTLET
- SURFACE METAL RACEWAY WITH INTEGRAL SINGLE WIRING DEVICES (SPACING AS SHOWN OR SPECIFIED)
- MULTI OUTLET ASSEMBLY WITH INTERNAL WIRING DEVICES AND SIGNAL DEVICES (SPACING AS SHOWN OR SPECIFIED)
- P POWER POLE

MISCELLANEOUS

- JUNCTION BOX
- B EXISTING DEVICE BOX BLANK OFF
- T THERMOSTAT
- BASEBOARD HEATER, SIZE AS INDICATED, LENGTH TO SCALE
- CABINET ELECTRIC HEATER, WALL MOUNTED, SHOWN TO SCALE
- ELECTRIC UNIT HEATER, FORCED AIR
- G GROUND CONDUCTOR
- GROUND ROD
- CLOCK
- FLOOR BOX, NUMBER INDICATES TYPE (IE "TYPE 1")
- POKE THROUGH FITTING
- FACP FIRE ALARM CONTROL PANEL
- DUCT SMOKE DETECTOR

RACEWAYS

- HOME RUN TO PANELBOARD
- ELECTRICAL CIRCUIT
- ELECTRICAL CIRCUIT
- RACEWAY STUBBED OUT WITH BUSHING
- BREAK LINE FOR DRAWING CLARITY
- CABLE TRAY – SIZE AND TYPE AS INDICATED
- CABLE TRAY – LADDER TYPE
- UNDERFLOOR DUCT SYSTEM (NO. OF DUCTS INDICATED BY NO. OF LINES, 3 DUCT SHOWN)

THE FOLLOWING ARE NOT USED WHERE PLAN OR RISER IS DEDICATED TO A SINGLE SYSTEM

—XX—

FIRE ALARM (FA), DATA OR COMPUTER SYSTEM (D), TELEPHONE DATA COMBINED USE (TD), SECURITY (S), PRIMARY (P)

RISER DIAGRAM

- CIRCUIT BREAKER
- 300 300 FUSED SWITCH, AMPACITY INDICATED
- FUSED CUT-OUT
- TIMED SWITCH
- BUS CONNECTION
- CABLE TO BUS CONNECTION
- TRANSFORMER, INSULATING
- PANELBOARD (BRANCH CIRCUIT) OR MOTOR CONTROL CENTER
- 300 FUSE, AMPERAGE INDICATED
- SURGE ARRESTOR, VOLTAGE RATING INDICATED, ONE PER PHASE
- GF CIRCUIT BREAKER WITH GROUND FAULT TRIP (EQUIPMENT)
- DRAWOUT FUSED CIRCUIT BREAKER
- V VOLTMETER
- A AMMETER
- 2.5N FEEDER TAG, REF FEEDER SCHEDULE
- VS SELECTOR SWITCH, VOLTS
- AS SELECTOR SWITCH, AMPS
- CURRENT TRANSFORMER
- POTENTIAL TRANSFORMER
- M WATT HOUR METER
- K INTERLOCK, KEYED
- E INTERLOCK, ELECTRICAL
- MOMENTARY SWITCH: NC, NO
- CONTACT: NC, NO
- 15,400 AVAILABLE SHORT CIRCUIT CURRENT, 3 PHASE, SYMMETRICAL (15,400 AMPS SHOWN)

ELECTRICAL ABBREVIATIONS

A	AMPERE
AC	ALTERNATING CURRENT
AFF	ABOVE FINISHED FLOOR
AFG	ABOVE FINISHED GRADE
AH	AMPERE HOURS
AIC	AMPS INTERRUPTING CAPACITY
AL	ALUMINUM

ELECTRICAL ABBREVIATIONS

AMP	AMPERE
ATS	AUTOMATIC TRANSFER SWITCH
AWG	AMERICAN WIRE GAUGE
BKR	BREAKER
C	CONDUIT
CB	CIRCUIT BREAKER
CCTV	CLOSED CIRCUIT TELEVISION
COM	COMBINER PANEL
CT	CURRENT TRANSFORMER
Cu	COPPER
CW	COOL WHITE
DAS	DATA ACQUISITION SYSTEM
DC	DIRECT CURRENT
DCB	DC COMBINER
DN	DOWN
DPDT	DOUBLE POLE DOUBLE THROW
DPST	DOUBLE POLE SINGLE THROW
(E)	EXISTING
EB	EMERGENCY BALLAST
EF	EXHAUST FAN
EGC	EQUIPMENT GROUND CONDUCTOR
ELEC	ELECTRICAL
ELEV	ELEVATOR
EM	EMERGENCY
EMT	ELECTRICAL METALLIC TUBING EQUIP
EWC	EQUIPMENT ELECTRIC WATER COOLER
F	FUSE
FA	FIRE ALARM
FACP	FIRE ALARM CONTROL PANEL
FLUOR	FLUORESCENT
GFCI	GROUND FAULT CIRCUIT INTERRUPTER
GFI	GROUND FAULT INTERRUPTER
GND	GROUND
GRS	GALVANIZED RIGID STEEL
HID	HIGH INTENSITY DISCHARGE
HP	HORSEPOWER
HPS	HIGH PRESSURE SODIUM
Hz	HERTZ (CYCLES/SECOND)
ICEA	INSULATED CABLE ENGINEERS ASSOCIATION
IEEE	INSTITUTE OF ELECTRICAL AND ELECTRONICS ENGINEERS
IES	ILLUMINATING ENGINEERING SOCIETY
IG	ISOLATED GROUND
IMC	INTERMEDIATE METAL CONDUIT
KCMIL	THOUSAND CIRCULAR MILLS
KVA	KILOVOLT AMPERES
KVAR	KILO VOLT AMPERES REACTIVE
KW	KILOWATT
MATV	MASTER ANTENNA (SYSTEM FOR) TELEVISION
MCC	MOTOR CONTROL CENTER
MH	METAL HALIDE
MIN	MINIMUM
MLO	MAIN LUGS ONLY
MTS	MANUAL TRANSFER SWITCH
MV	MERCURY VAPOR
N	NEUTRAL
NEC	NATIONAL ELECTRICAL CODE (NFPA-70)
NECA	NATIONAL ELECTRICAL CONTRACTORS ASSOCIATION
NEMA	NATIONAL ELECTRICAL MANUFACTURERS ASSOCIATION
NF	NON-FUSED
NIC	NOT IN CONTRACT
NTS	NOT TO SCALE
OSHA	OCCUPATIONAL SAFETY AND HEALTH ACT
O.L.	OVERLOAD RELAY
PC	PHOTO-ELECTRIC CELL
PF	POWER FACTOR
PNL	PANEL
PT	POTENTIAL TRANSFORMER
PVC	POLYVINYL CHLORIDE
RECEPT	RECEPTACLE
SPDT	SINGLE POLE DOUBLE THROW
SPST	SINGLE POLE SINGLE THROW
SW	SWITCH
SWBD	SWITCHBOARD
SWGR	SWITCHGEAR
TEL	TELEPHONE
TV	TELEVISION
TYP	TYPICAL
UG	UNDERGROUND
UL	UNDERWRITERS LABORATORIES
V	VOLTS
W	WATTS
WW	WARM WHITE
WP	WEATHERPROOF
XFMR	TRANSFORMER
Z	IMPEDANCE

GENERAL ELECTRICAL NOTES

1. PROVIDE ELECTRICAL INSTALLATION IN ACCORDANCE WITH THE 2014 NATIONAL ELECTRICAL CODE, LOCAL CODES, AND ORDINANCES. COORDINATE WITH UTILITY COMPANIES FURNISHING SERVICES TO INSTALLATION. FULLY COORDINATE THE INSTALLATION OF ALL ELECTRICAL DEVICES WITH THE WORK OF OTHER TRADES.
2. PROVIDE ITEMS NECESSARY TO COMPLETE ELECTRICAL SYSTEMS. THE ELECTRICAL DRAWINGS ARE DIAGRAMMATIC AND DO NOT NECESSARILY SHOW EVERY CONDUIT, BOX, CONDUCTOR OR SIMILAR ITEMS FOR A COMPLETE INSTALLATION.
3. NO CHANGES TO THE INSTALLATION FROM THESE DRAWINGS MAY BE MADE WITHOUT EXPRESS WRITTEN CONSENT OF THE ENGINEER OF RECORD. ANY CHANGES OR MODIFICATIONS MADE WITHOUT CONSENT MAY RESULT IN WORK REMOVED AND INSTALLED ACCORDING TO THE PLANS WITH NO COST TO THE OWNER OR ENGINEER.
4. WHEREVER THE WORD "PROVIDE" IS USED, IT MEANS, "FURNISH AND INSTALL COMPLETE AND READY FOR USE."
5. PROVIDE OVERCURRENT PROTECTION DEVICES PER EQUIPMENT NAMEPLATE UNLESS OTHERWISE INDICATED.
6. PROVIDE CIRCUIT BREAKERS WITH UL LISTED INTERRUPTING RATINGS (RMS SYMMETRICAL AMPERES) GREATER THAN THE AVAILABLE FAULT CURRENT SHOWN ON THE ELECTRICAL ONE-LINE DIAGRAM. WHERE BREAKERS ARE INDICATED TO BE INSTALLED IN EXISTING PANELBOARDS, BREAKER INTERRUPTING RATINGS MUST BE EQUAL TO OR GREATER THAN THE EXISTING PANELBOARD RATING.
7. VERIFY PHYSICAL DIMENSIONS OF EQUIPMENT TO ENSURE THAT N.E.C. REQUIRED CLEARANCES CAN BE MET.
8. PROVIDE A PULLWIRE IN ALL CONDUIT.
9. PROVIDE A PLASTIC BUSHING ON END(S) OF ALL CONDUIT STUBS.
10. MOUNT DISCONNECT SWITCHES FOR MECHANICAL EQUIPMENT WITHIN SIGHT OF THE EQUIPMENT (NOT TO EXCEED 50').
11. CONDUITS PASSING THROUGH BUILDING CONSTRUCTION EXPANSION JOINTS SHALL HAVE APPROVED EXPANSION FITTINGS, PROPERLY BONDED. SEE ARCHITECTURAL FOR LOCATIONS OF EXPANSION JOINTS. SEAL AROUND ALL CONDUIT PENETRATIONS THROUGH WALLS, CEILINGS, AND FLOORS TO MAINTAIN CODE REQUIRED RATINGS.
12. COORDINATE CONNECTIONS OF MECHANICAL EQUIPMENT WITH MECHANICAL AND CONTROLS CONTRACTORS PRIOR TO ROUGH-IN.
13. WHEN CONNECTING NEW OR REPLACEMENT EQUIPMENT TO EXISTING ELECTRICAL FEEDERS, THE CONTRACTOR SHALL CONFIRM THE NUMBER, SIZE, AND INSULATION TYPE OF CONDUCTORS, PANELBOARD, CIRCUIT NUMBER AND TYPE, POLES, AND AMPACITY RATING OF OVERCURRENT PROTECTION DEVICE TO MEET THE REQUIREMENTS OF THE CURRENT EDITION OF THE NATIONAL ELECTRICAL CODE AND THE REQUIREMENTS OF THE EQUIPMENT MANUFACTURER BEFORE CONNECTING TO THE EQUIPMENT.
14. BRANCH CIRCUIT CONNECTIONS ARE SHOWN FOR THE SOLE PURPOSE OF INDICATING ALL OF THE DEVICES THAT ARE TO BE CONNECTED TO A PARTICULAR BRANCH CIRCUIT. CONDUCTOR SIZES AND/OR QUANTITIES ARE NOT INDICATED FOR 20 AND 15 AMP, BRANCH CIRCUITS. CONDUCTOR SIZES AND/OR QUANTITIES ARE ONLY INDICATED WHERE OVERSIZED CONDUCTORS ARE REQUIRED TO MINIMIZE VOLTAGE DROP OR ON BRANCH CIRCUIT CONNECTIONS WHICH ARE NOT FED BY 20 AMP & 15 AMP CIRCUIT BREAKERS. THE ELECTRICAL CONTRACTOR SHALL DETERMINE RACEWAY ROUTING, GROUPING OF BRANCH CIRCUITS FOR HOMERUNS, NUMBERS OF CONDUCTORS REQUIRED AND PLACEMENT OF JUNCTION BOXES. SHOW ACTUAL RACEWAY ROUTING AND CIRCUITING ON RECORD DRAWINGS.
15. GROUND ALL ELECTRICAL DEVICES, MOTORS, METALLIC PIPING, DUCTWORK, METAL FRAMING, REINFORCING STEEL, ETC., IN ACCORDANCE WITH NEC ARTICLE 250. INSTALL A DEDICATED GROUNDING CONDUCTOR FOR ALL SYSTEMS AND DEVICES UNLESS OTHERWISE NOTED. PROVIDE SEPARATE GREEN GROUNDING CONDUCTOR FOR ALL FLEXIBLE EQUIPMENT CONNECTIONS AND ALL EXTERIOR ELECTRICAL DEVICES, SUCH AS POLE MOUNTED LIGHTING, RECEPTACLES, BUILDING MOUNTED LIGHTING, ETC.
16. VERIFY ALL FINAL ROOM NAMES AND NUMBERS WITH OWNER PRIOR TO PREPARING PERMANENT PANEL SCHEDULES.
17. EXPOSED RACEWAYS IN FINISHED SPACES: PAINT ALL CONDUIT AND BOXES INSTALLED TIGHT TO EXPOSED ROOF STRUCTURES TO MATCH ADJACENT FINISHES.
18. ALL DEMOLISHED ELECTRICAL EQUIPMENT, DEVICES, LIGHT FIXTURES, CONDUIT, CABLE, ETC. SHALL BE TURNED OVER TO THE OWNER (AT OWNER'S REQUEST). ALL DEMOLISHED ELECTRICAL EQUIPMENT, DEVICES, LIGHT FIXTURES, CONDUIT, CABLE, ETC NOT REQUESTED TO BE RETAINED BY THE OWNER SHALL BE PROPERLY DISPOSED OF OFF THE SITE.
19. ARC FLASH WARNING LABELS SHALL BE PROVIDED ON NEW ELECTRICAL EQUIPMENT OR ANY EXISTING ELECTRICAL EQUIPMENT THAT IS MODIFIED PER NEC ARTICLE 110.16.

Schneider Electric
TEXAS REGISTERED ENGINEERING FIRM F-5231
Schneider Electric
1650 West Crosby Road
Carrollton, TX 75006 USA
Tel. +1 972 323 1111
Fax +1 972 323 5498
www.schneider-electric.com

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MIDDLE/HIGH SCHOOL
30215 MORNING VIEW DR
MALIBU, CA 90265

MARK	DATE	DESCRIPTION
		SUBMISSION / REVISION

DRAWN BY: EWR	CHECKED BY: RES
DESIGNED BY: PH	APPROVED BY: PH
DATE: 08-18-2025	PROJECT: PC25P0085

ELECTRICAL SYMBOLS & ABBREVIATIONS

E-001

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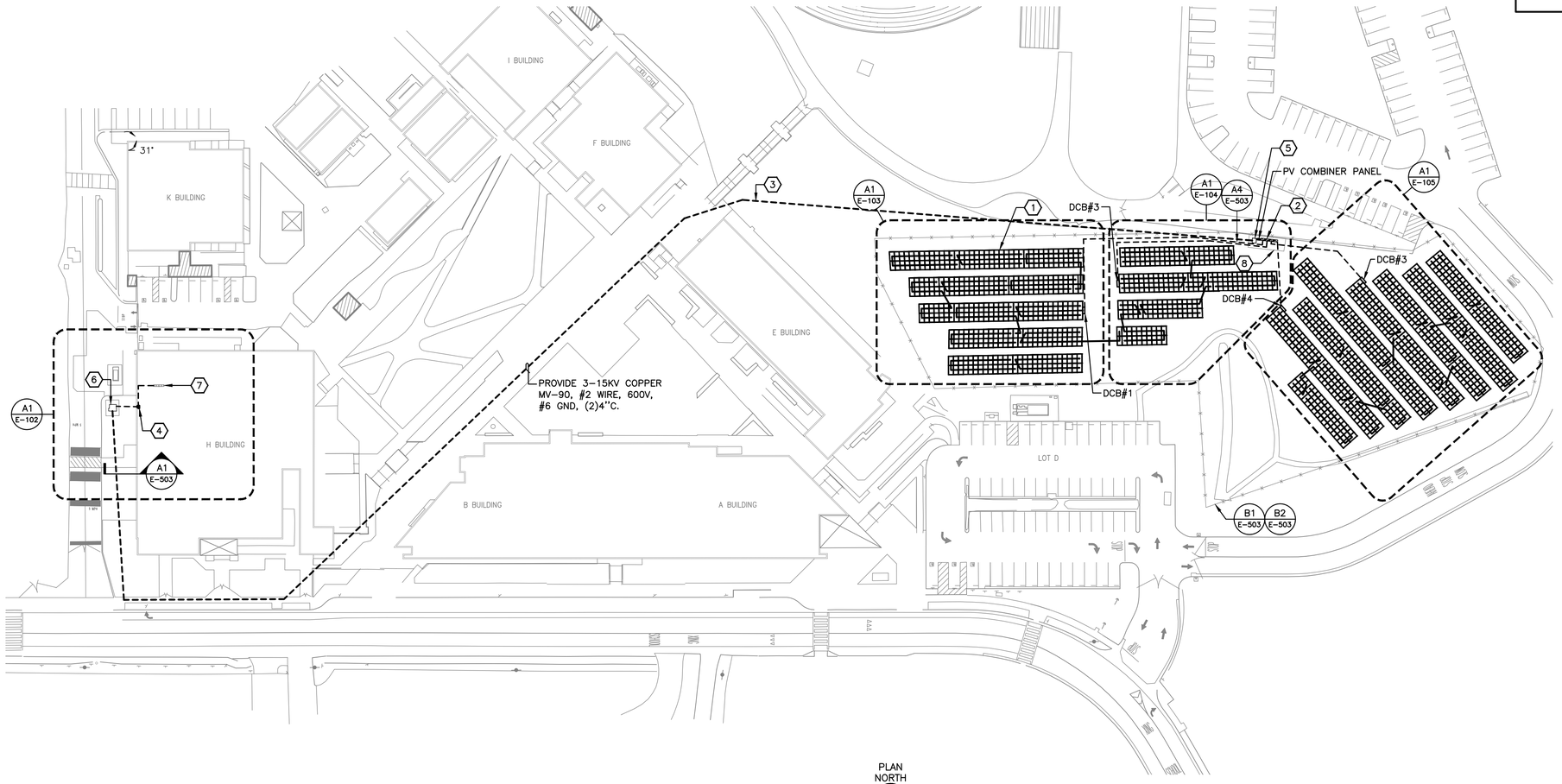
SHEET GENERAL NOTES

1. DC WIRE SHALL BE ATTACHED TO PV RACKS WITH STAINLESS STEEL MOUNTING CLIPS.

SHEET KEYNOTES

1. INSTALL MISSION SOLAR MODULES (MS10-550HT49-550W) FURNISHED BY SCHNEIDER ELECTRIC. REFER TO DETAIL A1/E-501 AND DETAIL C5/E-502 FOR STRING WIRING. REFER TO SCHEDULE ON SHEET E-605.
2. INSTALL 100KW CPS STRING INVERTERS (CPS SCA100KTL-DO/US-480) FURNISHED BY SCHNEIDER ELECTRIC. INVERTER PROVIDED WITH INTEGRAL AC AND DC DISCONNECTING MEANS. REFER TO DETAIL ELEVATION VIEW A3/E-501. REFER TO ONE-LINE DIAGRAM ON SHEET E-601.
3. ANY REQUIRED COMMUNICATIONS RACEWAYS BETWEEN PV ARRAY AND POINT OF INTERCONNECTION SHALL BE INCLUDED ALONGSIDE RACEWAYS FOR POWER.
4. LOCATE PV DISCONNECT OUTDOOR RATED NEMA 3R OUTSIDE ON THE WALL UP LOGAN ELECTRICAL BUILDING,
5. INSTALL (N)STEP UP TRANSFORMER 500KW 480V/12470.
6. INSTALL (N)STEP DOWN TRANSFORMER 500KW 12470V/480.
7. EXISTING MAIN SWITCHBOARD 480V, 2000A INSIDE THE ELECTRICAL ROOM.
8. STRUCTURAL WILL PROVIDE DETAILS TO ADD ON THE DRAWING.



PLAN NORTH

A1 SANTA MONICA MALIBU SOLAR PV SITE PLAN
SCALE: 1" = 50'-0"
0 20' 40' 80'

Schneider Electric
TEXAS REGISTERED ENGINEERING FIRM F-5231
Schneider Electric
1650 West Crosby Road
Carrollton, TX 75006 USA
Tel. +1 972 323 1111
Fax +1 972 323 5498
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ELECTRICAL SOLAR PV SITE PLAN

E-101

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SHEET KEYNOTES

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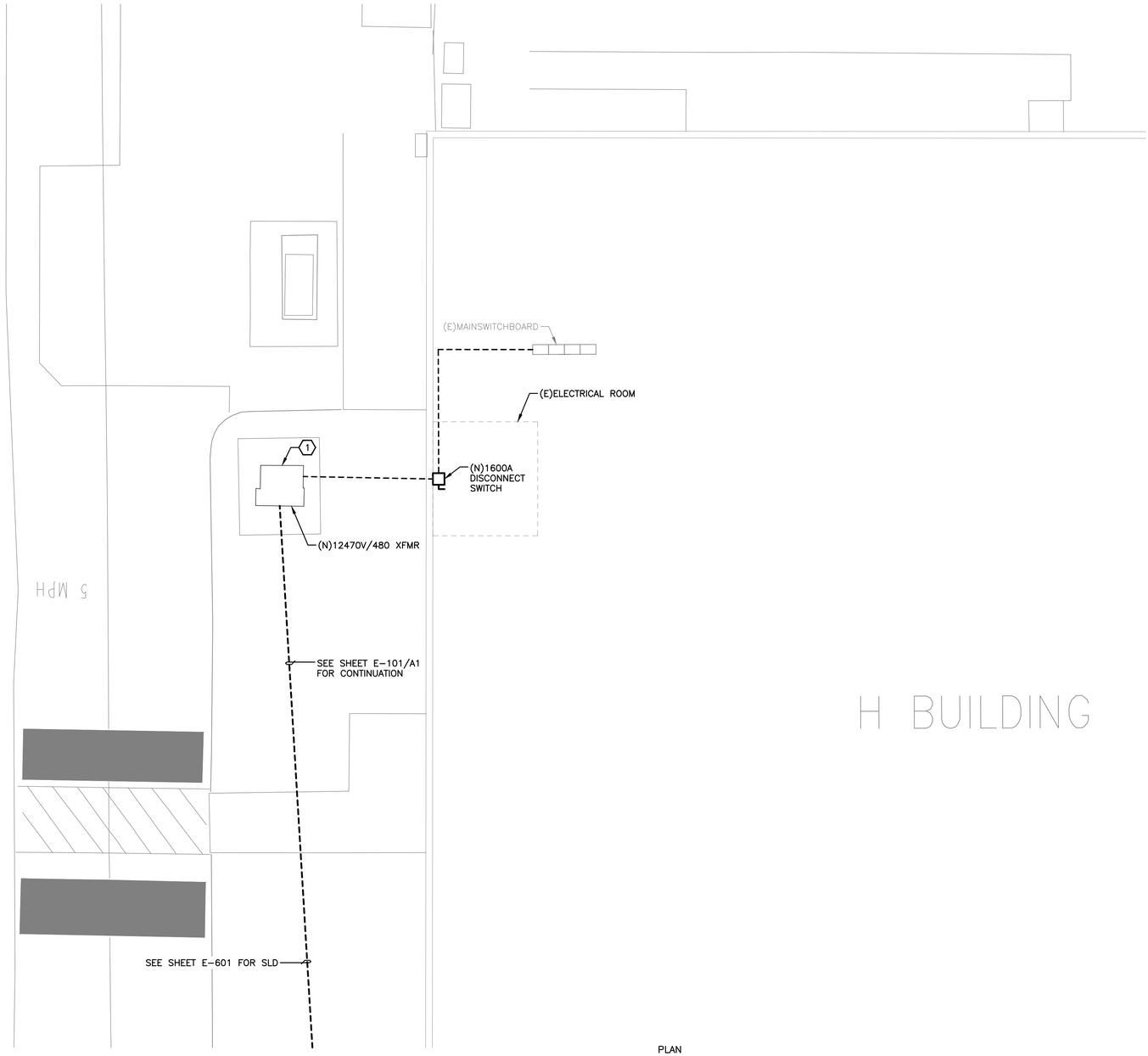
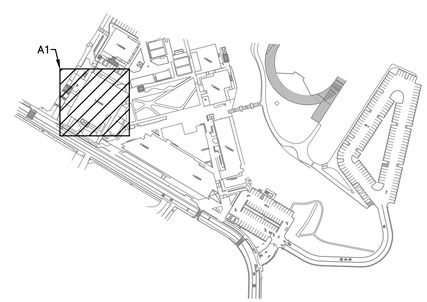


PLAN NORTH

A1 ENLARGED ELECTRICAL BLDG H PLAN
SCALE: 1/8" = 1'-0" 0 4' 8' 16'

KEY PLAN



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ENLARGED ELECTRICAL PLAN

E-102

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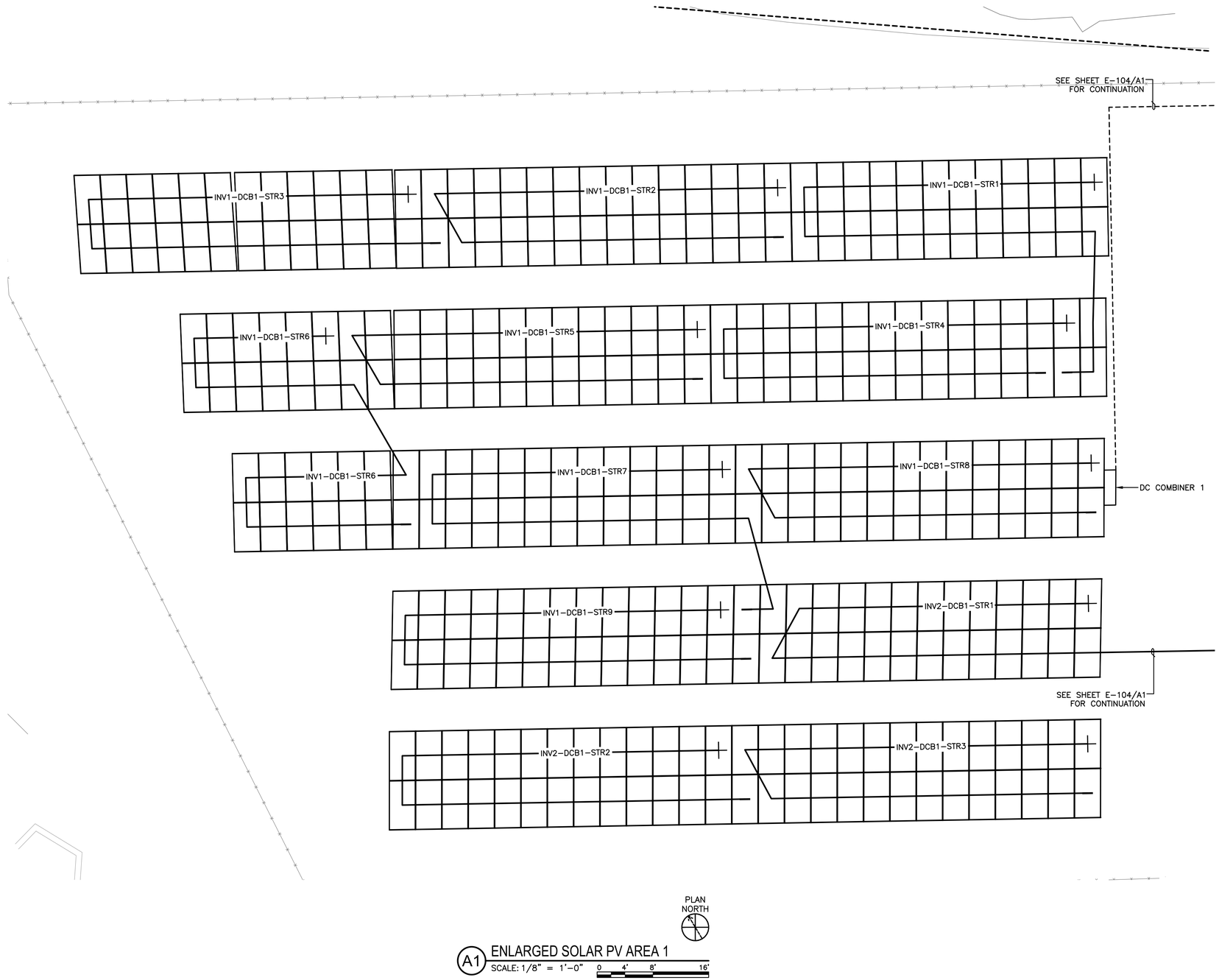
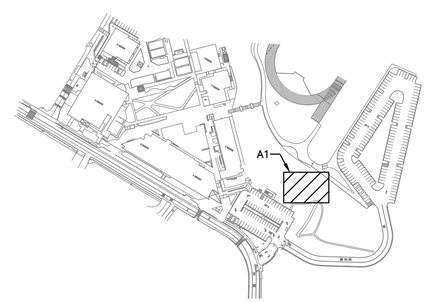
GENERAL NOTES

1. THE MOUNTING OF PV MODULES MUST BE GROUNDED PER NEC ARTICLE 690.43, EITHER VIA A UL 2703 LISTED RACKING SYSTEM OR WITH SOME OTHER DEVICE.



A1 ENLARGED SOLAR PV AREA 1
SCALE: 1/8" = 1'-0" 0 4' 8' 16'

KEY PLAN



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Schneider Electric
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ENLARGED SOLAR PV AREA 1

E-103

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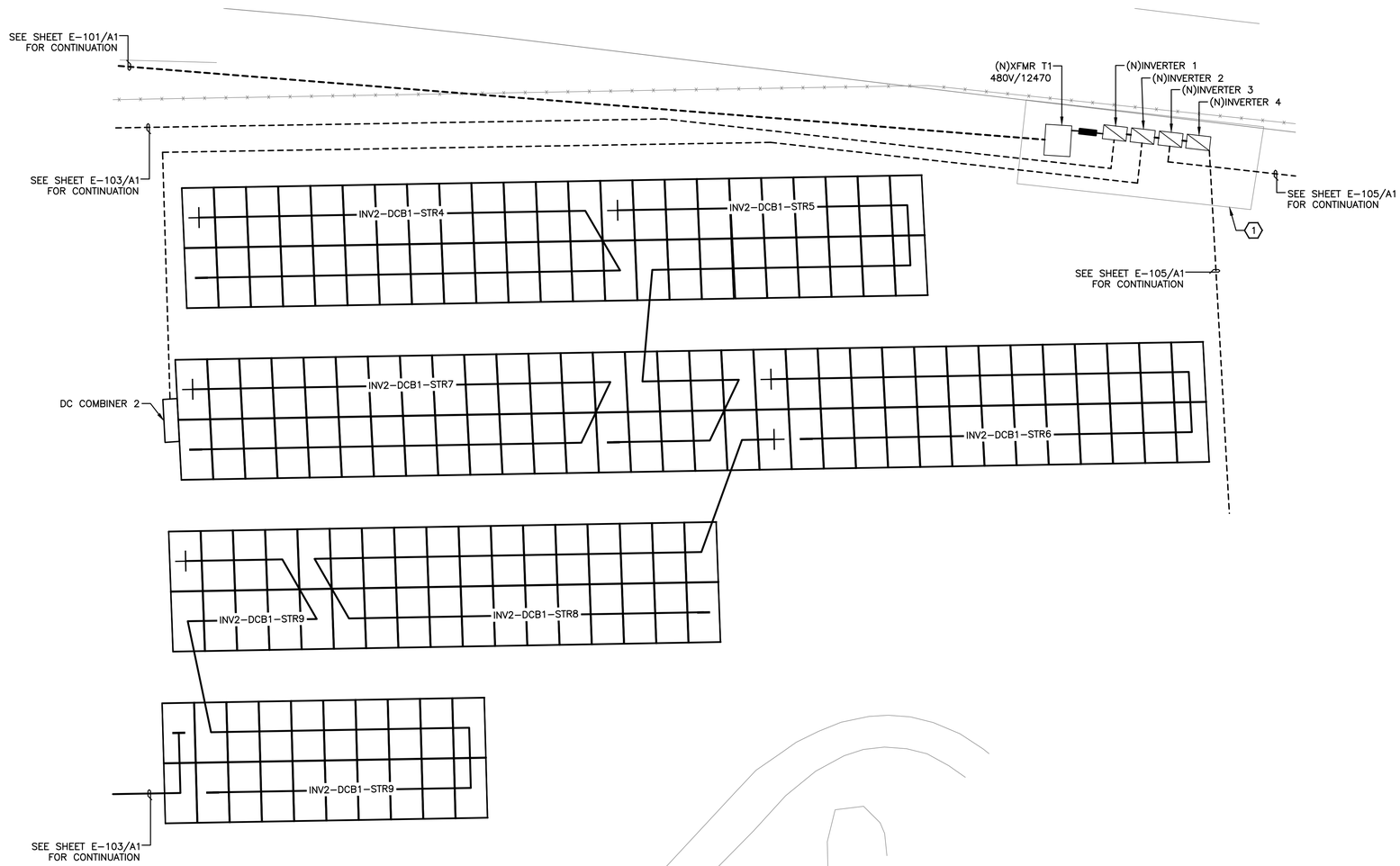


A1 ENLARGED SOLAR PV AREA 2
SCALE: 1/8" = 1'-0" 0 4' 8' 16'

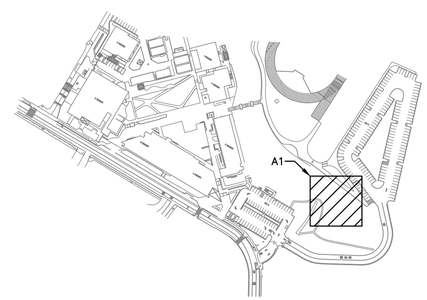
GENERAL NOTES

1. THE MOUNTING OF PV MODULES MUST BE GROUNDED PER NEC ARTICLE 690.43, EITHER VIA A UL 2703 LISTED RACKING SYSTEM OR WITH SOME OTHER DEVICE.

SHEET KEYNOTES

1. STRUCTURAL WILL PROVIDE DETAILS TO ADD ON THE DRAWING.

KEY PLAN



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TEXAS REGISTERED ENGINEERING FIRM F-5231
Schneider Electric
1650 West Crosby Road
Carrollton, TX 75006 USA
Tel. +1 972 323 1111
Fax +1 972 323 5498
www.schneider-electric.com

SCHNEIDER ELECTRIC ENERGY SERVICES PROJECT
FOR
SANTA MONICA MALIBU

MIDDLE/HIGH SCHOOL
30215 MORNING VIEW DR
MALIBU, CA 90265

MARK	DATE	DESCRIPTION

SUBMISSION / REVISION

DRAWN BY: EWR	CHECKED BY: RES
DESIGNED BY: PH	APPROVED BY: PH
DATE: 08-18-2025	PROJECT: PC25P0085

ENLARGED SOLAR PV AREA 2

E-104

SHT. - OF 18

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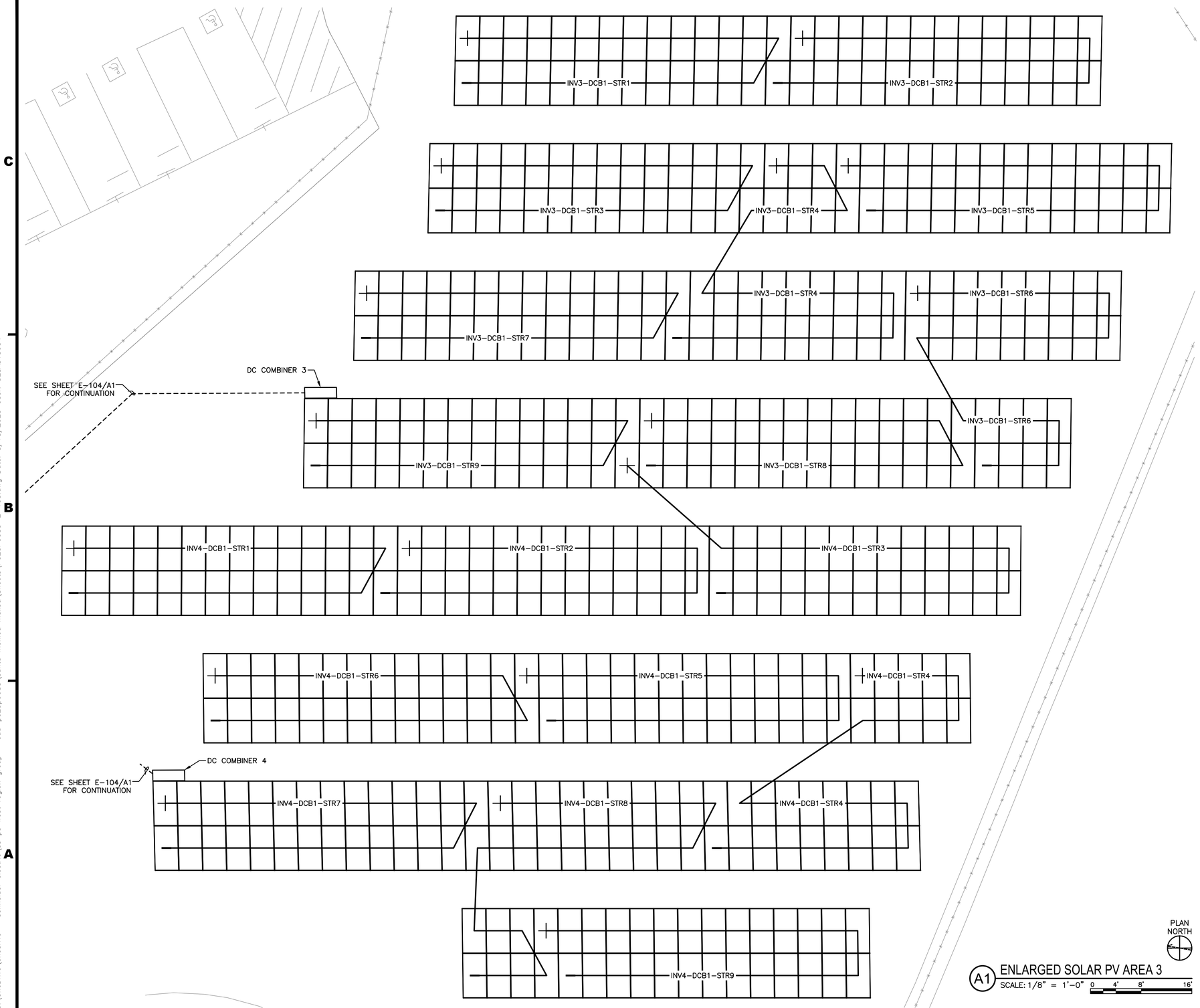
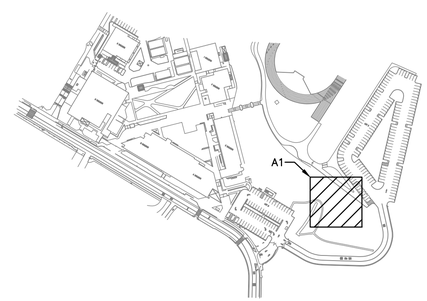
GENERAL NOTES

1. THE MOUNTING OF PV MODULES MUST BE GROUNDED PER NEC ARTICLE 690.43, EITHER VIA A UL 2703 LISTED RACKING SYSTEM OR WITH SOME OTHER DEVICE.



A1 ENLARGED SOLAR PV AREA 3
SCALE: 1/8" = 1'–0"
0 4' 8' 16'

KEY PLAN



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Schneider Electric
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ENLARGED SOLAR PV AREA 3

E-105

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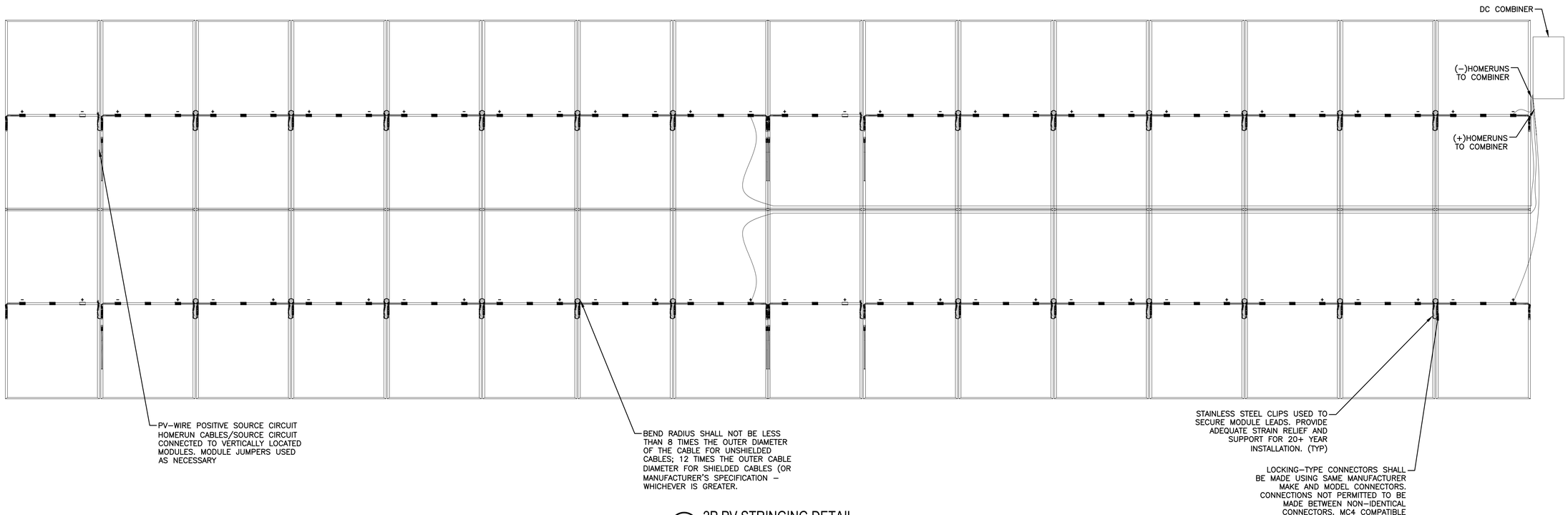
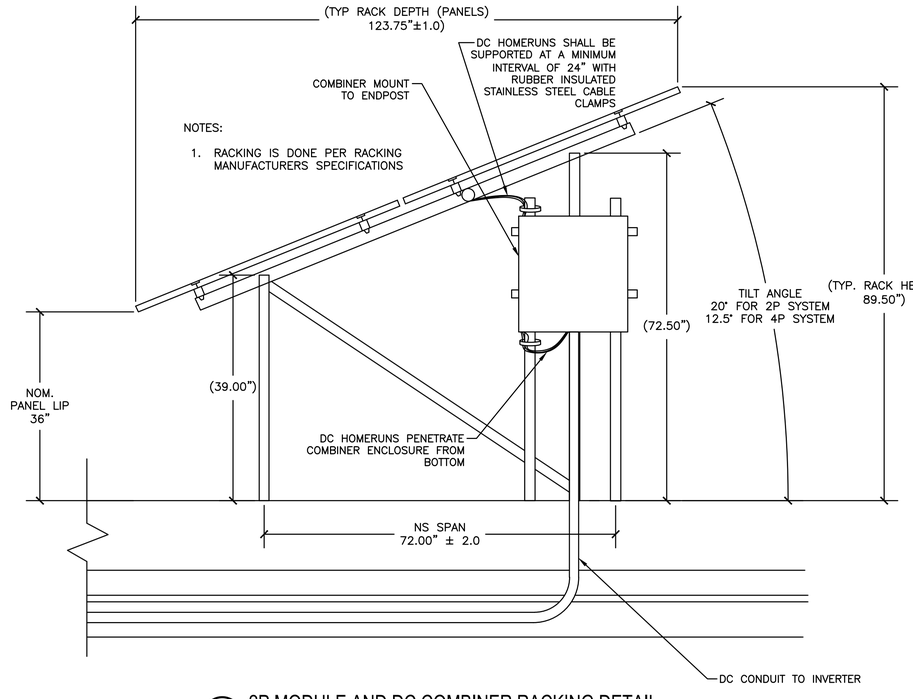
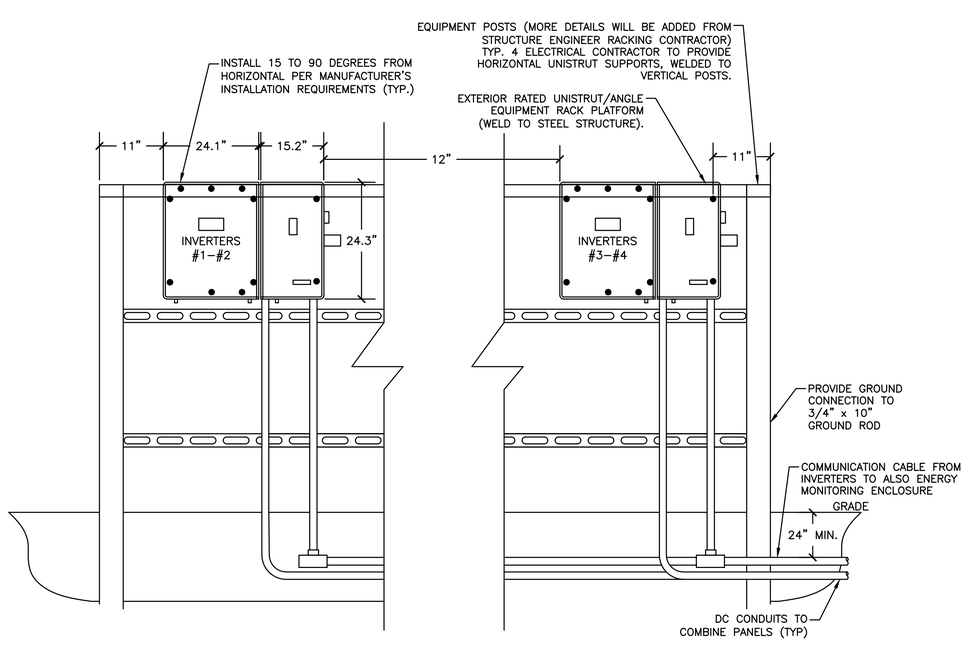


A1 2P PV STRINGING DETAIL
NOT TO SCALE



A2 2P MODULE AND DC COMBINER RACKING DETAIL
NOT TO SCALE



A3 EQUIPMENT ELEVATION - GRADE MOUNT (TYP.) DETAIL
NOT TO SCALE

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TEXAS REGISTERED ENGINEERING FIRM F-5231
Schneider Electric
1650 West Crosby Road
Carrollton, TX 75006 USA
Tel. +1 972 323 1111
Fax +1 972 323 5498
www.schneider-electric.com

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30215 MORNING VIEW DR
MALIBU, CA 90265

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DATE: 08–18–2025	PROJECT: PC25P0085

ELECTRICAL DETAILS

E-501

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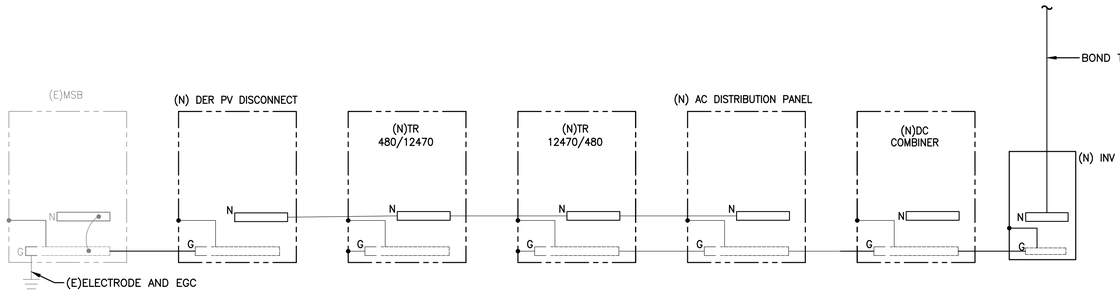
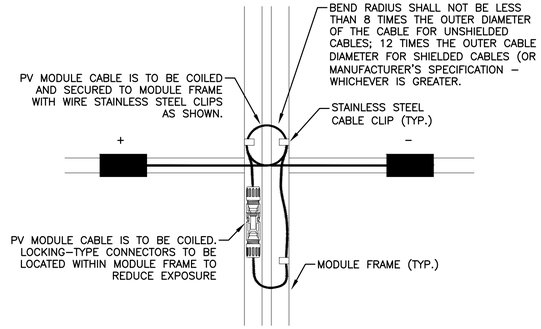


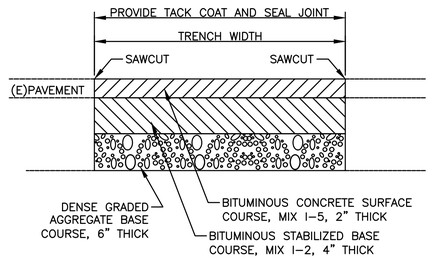
NOTES:
1. ALL GROUNDING CONNECTIONS SHALL COMPLY WITH NEC ARTICLE 250.8(A).
2. GROUNDING ELECTRODE SYSTEM SHALL COMPLY WITH NEC ARTICLE 250.53.

A4 GROUNDING DIAGRAM
NOT TO SCALE

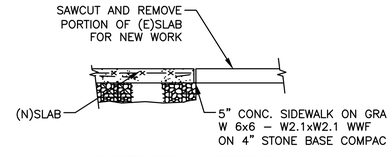


C5 PV WIRE MANAGEMENT DETAIL
NOT TO SCALE

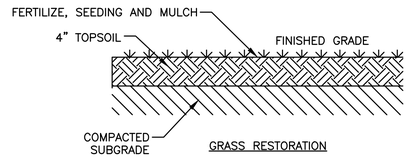
NOTES:
1. ALL DISTURBED AREAS SHALL BE RESTORED TO AN EQUAL OR BETTER CONDITION UNLESS DIRECTED OTHERWISE BY THE OWNER.
2. MATERIAL FOR CLASS "B"BEDDING SHALL CONSIST OF SAND OR SANDY SOIL, ALL OF WHICH SHALL PASS A 3/8" SIEVE AND NOT MORE THAN 10% SHALL PASS A NO. 200 SIEVE.
3. SHORE AS REQUIRED TO PREVENT A COLLAPSE OF EXCAVATION OR ADJACENT CONSTRUCTION.



PAVING RESTORATION

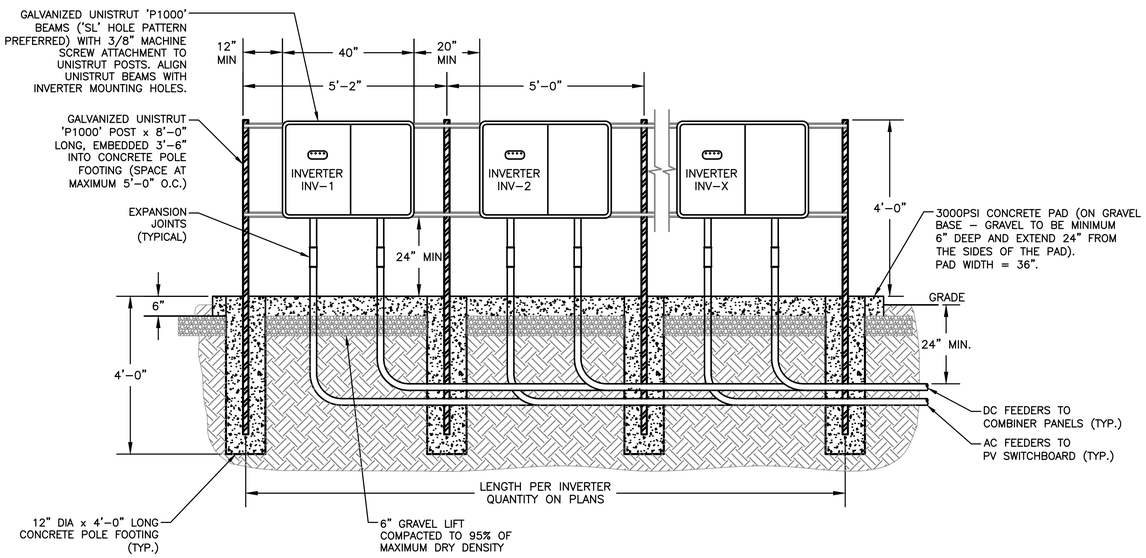


CONCRETE SIDEWALK RESTORATION



GRASS RESTORATION

B4 RESTORATION DETAILS
NOT TO SCALE



A2 INVERTER ELEVATION - GRADE MOUNT (TYP.)
NOT TO SCALE

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TEXAS REGISTERED ENGINEERING FIRM F-5231
Schneider Electric 1650 West Crosby Road Carrollton, TX 75006 USA
Tel. +1 972 323 1111
Fax +1 972 323 5498
www.schneider-electric.com

SCHNEIDER ELECTRIC ENERGY SERVICES PROJECT FOR SANTA MONICA MALIBU

MIDDLE/HIGH SCHOOL
30215 MORNING VIEW DR
MALIBU, CA 90265

MARK	DATE	DESCRIPTION
		SUBMISSION / REVISION

DRAWN BY: EWR, MP	CHECKED BY: RES
DESIGNED BY: PH	APPROVED BY: PH
DATE: 08–18–2025	PROJECT: PC25P0085

ELECTRICAL DETAILS

E-502

SHT. – OF 18

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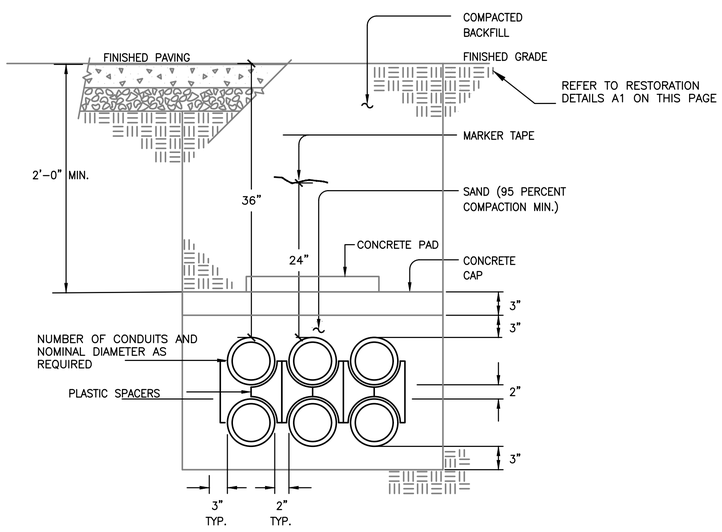
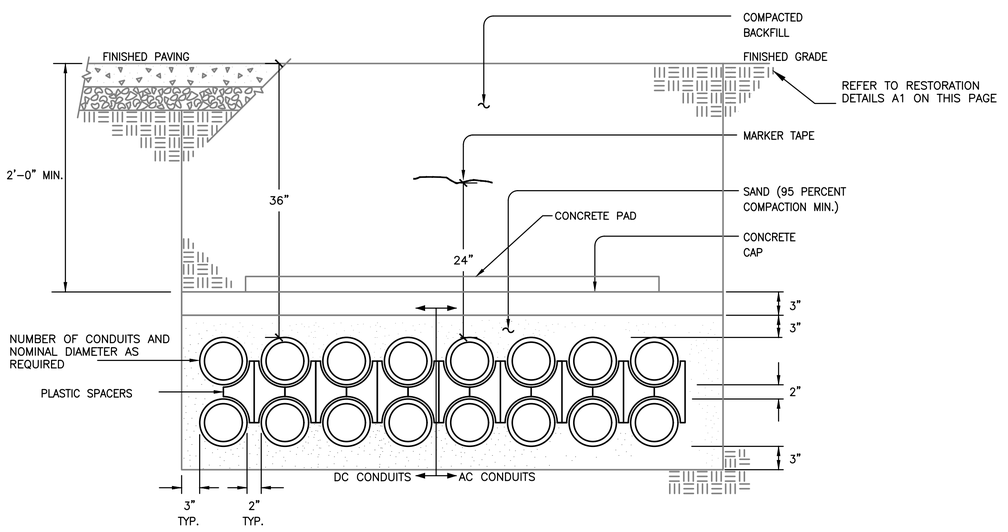
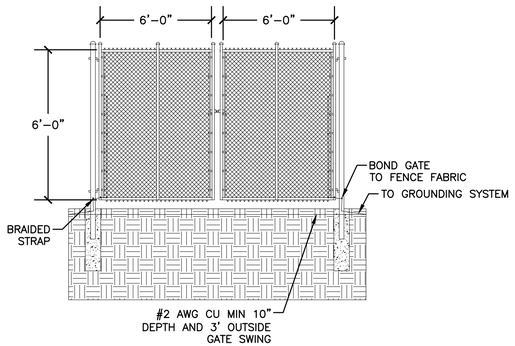


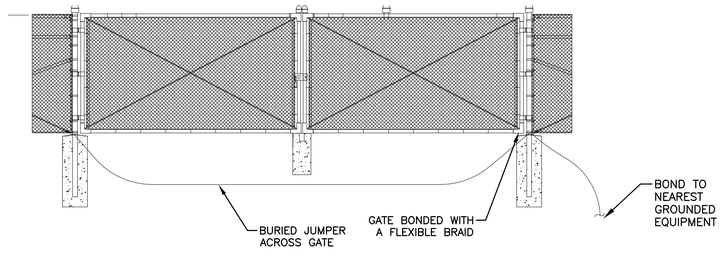
A1 PIPE TRENCH MEDIUM VOLTAGE TRANSFORMER DETAIL
NOT TO SCALE



A4 PIPE TRENCH DC COMBINER AND INVERTERS DETAIL
NOT TO SCALE



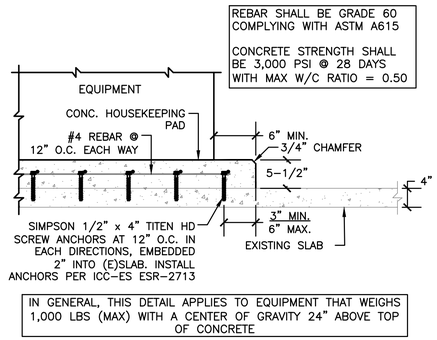
B1 DUAL SWING FENCE GATE DETAIL
NOT TO SCALE



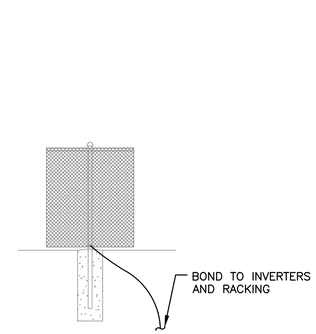
NOTES:

1. IF METAL FENCES ARE LOCATED WITHIN 5M(16FT) OF THE EXPOSED ELECTRICAL CONDUCTORS OR EQUIPMENT THE FENCE SHALL BE BONDED TO THE GROUNDING ELECTRODE SYSTEM.
2. ALL FENCE GROUNDING CONNECTIONS SHALL COMPLY WITH NEC ARTICLE 250.194.
3. FENCE SHALL BE CHAIN LINK AND HAVE A HEIGHT OF 6'. REFER TO SPECIFICATIONS.

B2 FENCE DETAIL
NOT TO SCALE



B4 TRANSFORMERS PAD DETAIL 24" COG
NOT TO SCALE



B5 FENCE GROUNDING DETAIL
NOT TO SCALE

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TEXAS REGISTERED ENGINEERING FIRM F-5231
Schneider Electric
1650 West Crosby Road
Carrollton, TX 75006 USA
Tel. +1 972 323 1111
Fax +1 972 323 5498
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SCHNEIDER ELECTRIC ENERGY SERVICES PROJECT
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30215 MORNING VIEW DR
MALIBU, CA 90265

MARK	DATE	DESCRIPTION
		SUBMISSION / REVISION

DRAWN BY: EWR	CHECKED BY: RES
DESIGNED BY: PH	APPROVED BY: PH
DATE: 08–18–2025	PROJECT: PC25P0085

ELECTRICAL DETAILS

E-503

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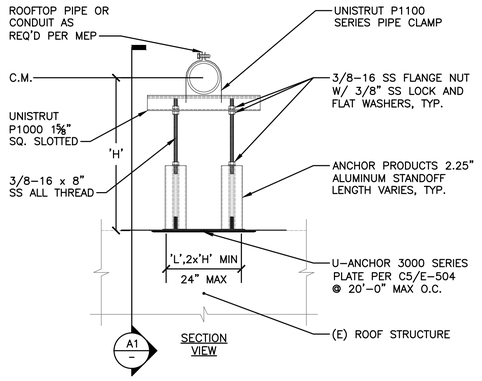
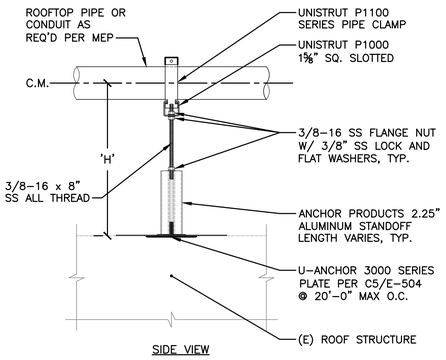


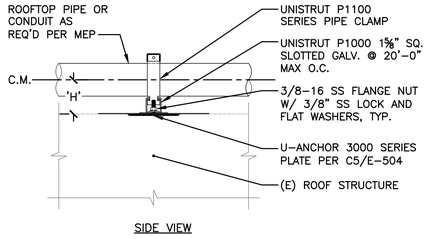
C.M. = CENTER OF MASS OF LARGER DIAMETER PIPE SUPPORT, INCLUDING WEIGHT OF PIPES	H = SHALL NOT EXCEED THE SMALLER OF 12" OR L/2 ROOF SLOPE SHALL NOT EXCEED 1" IN 12"

A1 ROOF PIPE SYSTEM SECUREMENT 0310
NOT TO SCALE



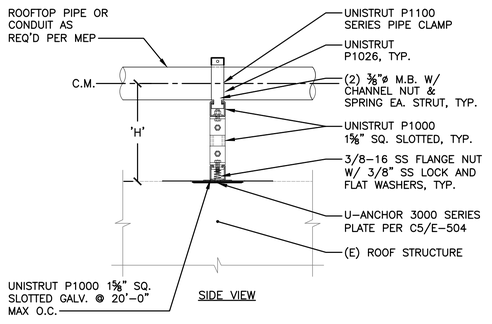
C.M. = CENTER OF MASS OF LARGER DIAMETER PIPE SUPPORT, INCLUDING WEIGHT OF PIPES	H = SHALL NOT EXCEED THE SMALLER OF 12" OR L/2 ROOF SLOPE SHALL NOT EXCEED 1" IN 12"

A1 ROOF PIPE SYSTEM SECUREMENT 0310
NOT TO SCALE



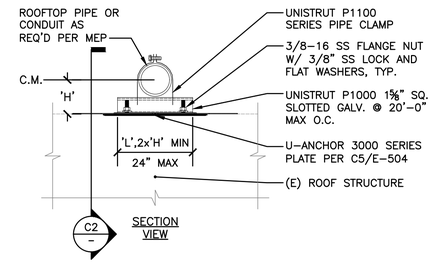
C.M. = CENTER OF MASS OF LARGER DIAMETER PIPE SUPPORT, INCLUDING WEIGHT OF PIPES	H = SHALL NOT EXCEED THE SMALLER OF 12" OR L/2 ROOF SLOPE SHALL NOT EXCEED 1" IN 12"

B2 ROOF PIPE SYSTEM SECUREMENT 0325
NOT TO SCALE



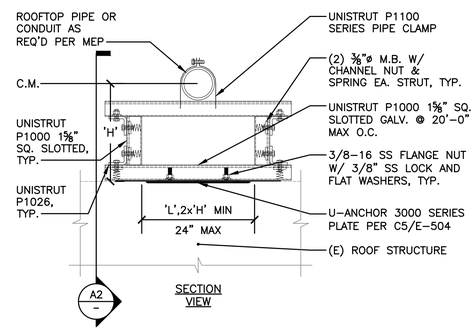
C.M. = CENTER OF MASS OF LARGER DIAMETER PIPE SUPPORT, INCLUDING WEIGHT OF PIPES	H = SHALL NOT EXCEED THE SMALLER OF 12" OR L/2 ROOF SLOPE SHALL NOT EXCEED 1" IN 12"

A2 UNISTRUT PIPE SYSTEM SECUREMENT
NOT TO SCALE



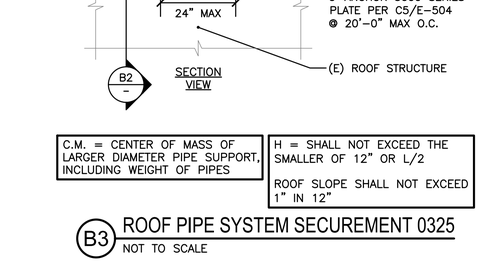
C.M. = CENTER OF MASS OF LARGER DIAMETER PIPE SUPPORT, INCLUDING WEIGHT OF PIPES	H = SHALL NOT EXCEED THE SMALLER OF 12" OR L/2 ROOF SLOPE SHALL NOT EXCEED 1" IN 12"

C3 ROOF PIPE SYSTEM SECUREMENT 0300
NOT TO SCALE



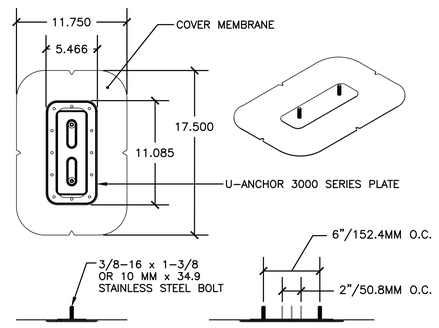
C.M. = CENTER OF MASS OF LARGER DIAMETER PIPE SUPPORT, INCLUDING WEIGHT OF PIPES	H = SHALL NOT EXCEED THE SMALLER OF 12" OR L/2 ROOF SLOPE SHALL NOT EXCEED 1" IN 12"

B3 ROOF PIPE SYSTEM SECUREMENT 0325
NOT TO SCALE

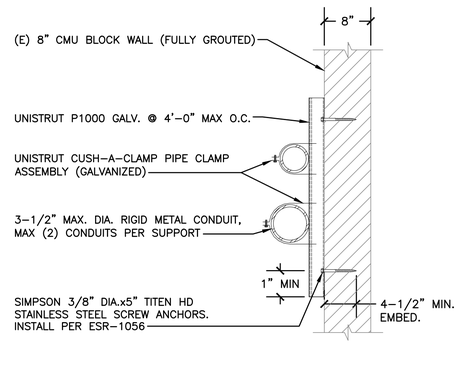


C.M. = CENTER OF MASS OF LARGER DIAMETER PIPE SUPPORT, INCLUDING WEIGHT OF PIPES	H = SHALL NOT EXCEED THE SMALLER OF 12" OR L/2 ROOF SLOPE SHALL NOT EXCEED 1" IN 12"

C3 ROOF PIPE SYSTEM SECUREMENT 0300
NOT TO SCALE

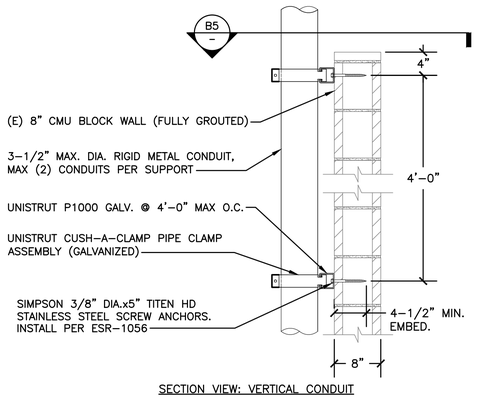


C5 U-ANCHOR U3000 SERIES PLATE
NOT TO SCALE



PLAN VIEW: VERTICAL CONDUIT

B5 WALL-MOUNTED PIPE/CONDUIT DETAIL
NOT TO SCALE



SECTION VIEW: VERTICAL CONDUIT

A5 WALL-MOUNTED PIPE/CONDUIT DETAIL
NOT TO SCALE

Schneider Electric
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Schneider Electric
1650 West Crosby Road
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MARK	DATE	DESCRIPTION / REVISION

DRAWN BY:	CHECKED BY:
MP	RES
DESIGNED BY:	APPROVED BY:
PH	PH
DATE:	PROJECT:
08–18–2025	PC25P0085

ELECTRICAL DETAILS

E-504

SHT. – OF 18

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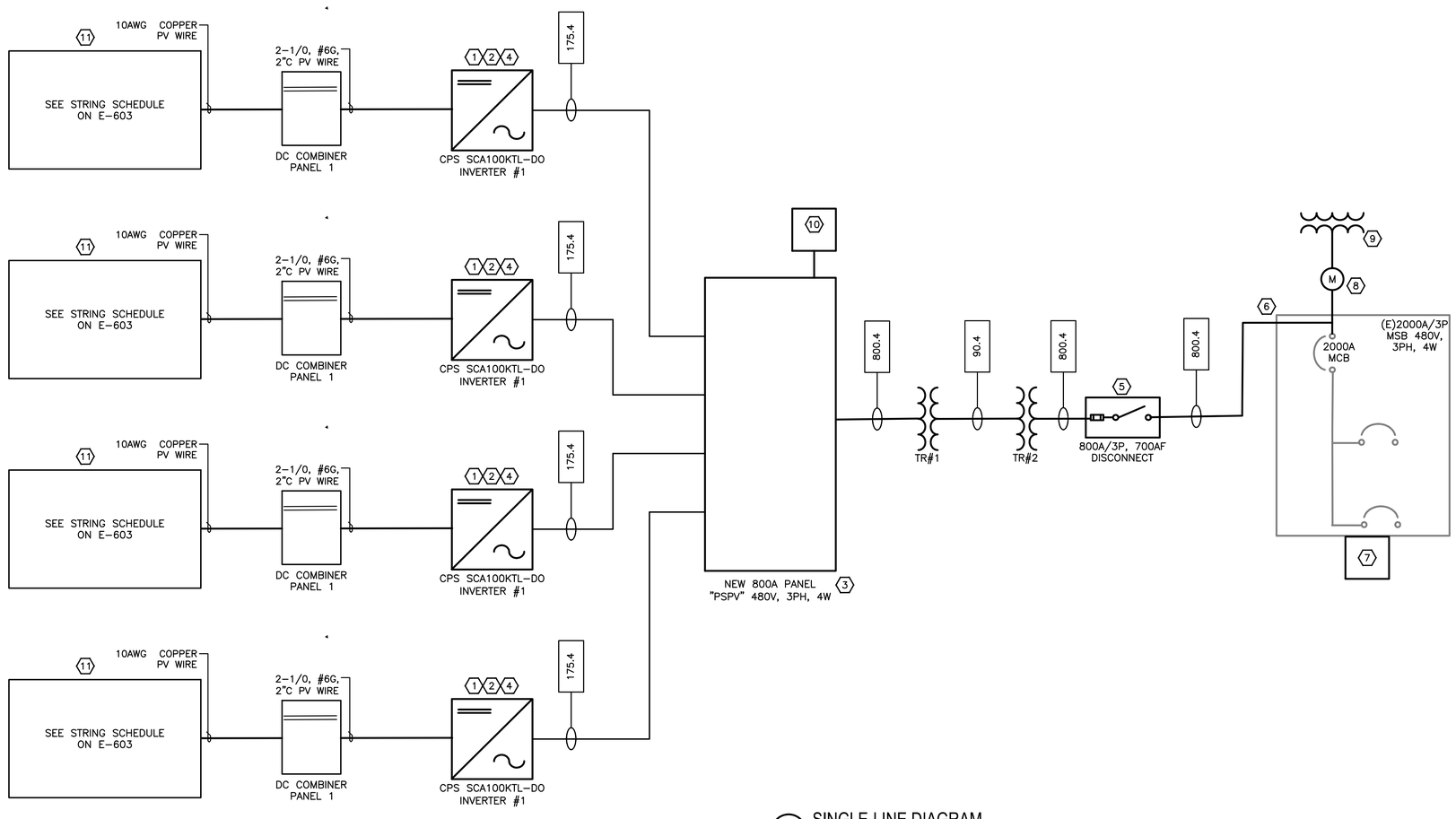
FEEDER SCHEDULE - 600V MAX.			
TAG	DESCRIPTION	TAG	DESCRIPTION
20.4	3#12,#12N,#12G-3/4"C	250.4	3-250KCMIL, #4N,4G- 2 1/2"C
30.4	3#10,#10N,#10G -3/4"C	300.4	3-350KCMIL, #4N,4G- 3"C
40.4	3#8,#10N,#10G-1"C	400.4	3-500KCMIL, #3N,3G- 4"C
50.4	3#6,#10N,#10G-1"C	500.4	2 SETS OF 3-250KCMIL, 2N, #2G-2 1/2" C
60.4	3#4,10N,#10G-1 1/4"C	600.4	2 SETS OF 3-350KCMIL, 1N, #1G-3" C
70.4	3#4,#8N,#8G -1 1/4" C	800.4	2 SETS OF 3-500KCMIL, 1/0N, #1/0G-4" C
80.4	3#3,#8N,#8G -1 1/4" C	900.4	3 SETS OF 3-350KCMIL, 2/0N, #2/0G-3" C
90.4	3#2,#8N,#8G -1 1/2" C	1000.4	3 SETS OF 3-400KCMIL, 2/0N, #2/0G-4" C
100.4	3#2,#8N,#8G -1 1/2" C	1200.4	4 SETS OF 3-350KCMIL, 3/0N, #3/0G-3" C
125.4	3#1,#6N,#6G -1 1/2" C	1600.4	5 SETS OF 3-500KCMIL, 4/0N, #4/0G-4" C
150.4	3#1/0#6N,#6G -2" C	2000.4	6 SETS OF 3-500KCMIL, 1-250LCMILN, # 1-250KCMILG-4" C
175.4	3#2/0,#6N,#6G -2" C	2500.4	7 SETS OF 3-500KCMIL, 1-350LCMILN, # 1-350KCMILG-4" C
200.4	3#3/0,#6N,#6G -2" C	3000.4	8 SETS OF 3-500KCMIL, 1-400KCMILN, # 1-400KCMILG-4" C
225.4	3#4/0,#4N,#4G -2-1/2" C	4000.4	11 SETS OF 3-500KCMIL, 1-500KCMILN, # 1-500KCMILG-4" C



A1 SINGLE-LINE DIAGRAM
NOT TO SCALE

GENERAL NOTES

1. ALL EQUIPMENT AND CONDUIT CONNECTIONS SHALL BE RAIN TIGHT.
2. REFER TO TABLE ON SHEET E-602 FOR LIST OF SCHNEIDER ELECTRIC-FURNISHED, CONTRACTOR-INSTALLED, EQUIPMENT.
3. SEE INVERTER SCHEDULE ON SHEET E-602 FOR LENGTHS OF INVERTER FEEDERS.

SHEET KEYNOTES

1. SCHNEIDER ELECTRIC TO FURNISH, CONTRACTOR TO INSTALL INVERTERS.
2. INSTALL NEW INVERTER FURNISHED BY SCHNEIDER ELECTRIC. UL1741, UL 1699B, UL 1998 LISTED WITH OVERVOLTAGE PROTECTION. UNIT COMPLIES WITH NEC 690.11 (ARC FAULT PROTECTION).
3. PROVIDE DISTRIBUTION PANEL. REFER TO PANEL SCHEDULE ON E-603 FOR MORE INFORMATION.
4. INSTALL ALSO ENERGY GENERATION MONITORING ENCLOSURE FURNISHED BY SCHNEIDER ELECTRIC WITH THE EQUIPMENT LISTED: PRODUCTION METER, WEATHER STATION AND CPS DATA MANAGER. PROVIDE 480V-240V , 5KVA MINI POWER ZONE FOR ALSO ENERGY MONITORING SYSTEM AND OUTDOOR RATED DUPLEX OUTLET.
5. PROVIDE FUSED DISCONNECT. DISCONNECT TO BE LOCATED WITHIN 15FT OF POINT OF INTERCONNECTION.
6. POINT OF INTERCONNECTION MADE ON LINE SIDE OF SERVICE ENTRANCE CONDUCTORS IN EXISTING MSB. THIS CONNECTION SHALL BE MADE IN CONFORMANCE WITH NEC.THE CONTRACTOR IS RESPONSIBLE FOR UPDATING THE EXISTING SWITCHBOARD (SWBD-MSB-3) AS NEEDED TO ACCOMMODATE THE NEW PV INCOMING POWER CABLE AT THE LINE SIDE OF THE MAIN 2000A BREAKER , AS INDICATED IN SINGLE LINE DIGRAM (SLD).
7. DAS ALSO ENERGY ENCLOSURE WITH CONSUMPTION METER AND DATA LOGGER.
8. UTILITY TO REPLACE EXISTING UTILITY METER WITH NEW BIDIRECTIONAL PRODUCTION METER.
9. EXISTING UTILITY PAD MOUNT TRANSFORMER. EXISTING PRIMARY AND SECONDARY TO REMAIN. 10.120V CONNECTIONS TO METER AND RECEPTACLE AT THE EQUIPMENT RACK 11.MODULES SHALL BE MOUNTED AND SECURED TO RACKING WITH HARDWARE THAT COMPLIES WITH ARTICLE 690.43(A) OF THE 2023 NEC. INCLUDE ALL APPURTENANCES AND/OR FIELD-TESTING REQUIRED TO COMPLY WITH THIS CODE

Schneider Electric
TEXAS REGISTERED ENGINEERING FIRM F-5231
Schneider Electric
1650 West Crosby Road
Carrollton, TX 75006 USA
Tel. +1 972 323 1111
Fax +1 972 323 5498
www.schneider-electric.com

SCHNEIDER ELECTRIC ENERGY SERVICES PROJECT FOR SANTA MONICA MALIBU

MIDDLE/HIGH SCHOOL
30215 MORNING VIEW DR
MALIBU, CA 90265

MARK	DATE	SUBMISSION / REVISION DESCRIPTION

DRAWN BY: EWR	CHECKED BY: XXX
DESIGNED BY: XXX	APPROVED BY: XXX
DATE: 06-16-2025	PROJECT: PC25P0029

ELECTRICAL SINGLE-LINE DIAGRAM

E-601

SHT. - OF -

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AC DISCONNECT 1200A

PHOTOVOLTAIC AC DISCONNECT

RATED AC OUTPUT CURRENT:	1200A
NOMINAL OPERATING AC VOLTAGE:	480V

D1 AC DISCONNECT
NOT TO SCALE

FED FROM INVERTER 100KW

LABEL FOR EACH BREAKER, NEC 408.4

RATED AC OUTPUT CURRENT:	1200A
NOMINAL OPERATING AC VOLTAGE:	480V

D2 DISTRIBUTION PANEL
NOT TO SCALE

TRANSFORMER XXX

DANGER

HIGH VOLTAGE
ELECTRICAL SHOCK HAZARD

D3 TRANSFORMER
NOT TO SCALE

AC DISCONNECT 1200A

RATED AC OUTPUT CURRENT:	1200A
NOMINAL OPERATING AC VOLTAGE:	480V

MAIN PHOTOVOLTAIC SYSTEM DISCONNECT

NEC 690.13(B)

WARNING

POWER SOURCE OUTPUT CONNECTION. DO NOT RELOCATE THIS OVERCURRENT DEVICE

LOAD SIDE CONNECTION, NEC 705.12(B)(2)

CAUTION
MULTIPLE SOURCES OF POWER

NEC 705.10 & NEC 690.59

C3 PRODUCTION / NET METER (BI-DIRECTIONAL)
NOT TO SCALE

I.S

INVERTER NUMBER.STRING NUMBER

B4 STRING
NOT TO SCALE

WARNING

ELECTRIC SHOCK HAZARD

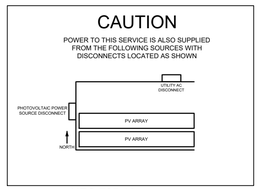
TERMINALS ON THE LINE AND LOAD SIDES MAY BE ENERGIZED IN THE OPEN POSITION

NEC 690.13(B)

WARNING

EQUIPMENT FED BY MULTIPLE SOURCES. TOTAL RATING OF ALL OVERCURRENT DEVICES EXCLUDING THE MAIN SUPPLY OVERCURRENT DEVICE SHALL NOT EXCEED AMPACITY OF BUSBAR

LOAD SIDE CONNECTION, NEC 705.12(B)(3)



NEC 705.10

B1 MAIN SERVICE DISCONNECT
NOT TO SCALE

B3 BUILDING / STRUCTURE
NOT TO SCALE

WARNING

THE DISCONNECTION OF THE GROUNDED CONDUCTOR(S) MAY RESULT IN OVERVOLTAGE ON THE EQUIPMENT

NEC 690.31(E)

DANGER

Arc Flash and Shock Hazard Present
Appropriate PPE Required

Arc Flash Boundary	0.9ft
Incident Energy in cal/cm²	0.5
Working Distance	18in
Shock Hazard Exposure	480 VAC
Insulating Gloves Class	00
Shock Hazard when covers removed	
Limited Approach Boundary	3.5ft
Restricted Approach Boundary	1.0ft

Level A
Minimum PPE Requirements

Non-melting or untreated natural fiber long-sleeve shirt and long pants

08-16-2024

A1 ARC FLASH & SHOCK HAZARD
NOT TO SCALE

DANGER

HIGH VOLTAGE - KEEP OUT

AUTHORIZED PERSONNEL ONLY
NO TRESPASSING

LOCATE ON EVERY GATE AND AT A MAXIMUM INTERVAL OF 100' ALONG FENCE SIDES

A3 FENCE
NOT TO SCALE

INVERTER 100KW

RATED AC OUTPUT CURRENT:	126.7A
NOMINAL OPERATING AC VOLTAGE:	480V

A4 INVERTER
NOT TO SCALE

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TEXAS REGISTERED ENGINEERING FIRM F-5231
Schneider Electric
1650 West Crosby Road
Carrollton, TX 75006 USA
Tel. +1 972 323 1111
Fax +1 972 323 5498
www.schneider-electric.com

SCHNEIDER ELECTRIC ENERGY SERVICES PROJECT FOR SANTA MONICA MALIBU

MIDDLE/HIGH SCHOOL
30215 MORNING VIEW DR
MALIBU, CA 90265

MARK	DATE	DESCRIPTION
		SUBMISSION / REVISION

DRAWN BY: EWR	CHECKED BY: RES
DESIGNED BY: PH	APPROVED BY: PH
DATE: 08-18-2025	PROJECT: PC25P0085

LABELING DETAIL

E-505

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DC COMBINER SCHEDULE

To	Cable Length	Buffer	Total	Cable Cross Section, AWG	Ohms/kft	Cable 90C racting	Ambient Temp Derate Factor	Cable Derate Rating	IMP	ISC	OCPD Rating	Voltage	Voltage Drop	Voltage Drop %
DC Combiner TX1-INV1-DCB1	190.764	40	230.764	1/0	0.122	170	0.91	154.7	117.99	125.91	150	1431.73	6.64	0.464%
DC Combiner TX1-INV1-DCB2	146.336	40	186.336	1/1	0.122	170	0.91	154.7	117.99	125.91	150	1431.73	5.36	0.375%
DC Combiner TX1-INV1-DCB3	81.936	40	121.936	1/2	0.122	170	0.91	154.7	117.99	125.91	150	1431.73	3.51	0.245%
DC Combiner TX1-INV1-DCB4	74.46	40	114.46	1/3	0.122	170	0.91	154.7	117.99	125.91	150	1431.73	3.3	0.230%

ALL INVERTERS AND STRINGS

From	To	Cable Length +, FT	Cable Length -, FT	Extension, FT	Buffer, FT	Total Length	Cable Cross Section, AWG	Corrected Voltage Drop	Corrected Voltage Drop %
DC Combiner TX1-INV1-DCB1	String TX1-INV1-DCB1-STR1	57.005	47.883	39.631	40	184.518	10	3.64	0.255%
	String TX1-INV1-DCB1-STR2	102.437	109.49	0	40	251.928	10	4.1	0.286%
	String TX1-INV1-DCB1-STR3	155.442	158.709	0	40	354.151	10	5.76	0.402%
	String TX1-INV1-DCB1-STR4	40.758	51.668	0	40	132.426	10	2.15	0.150%
	String TX1-INV1-DCB1-STR5	93.748	100.873	8.001	40	242.621	10	4.07	0.285%
	String TX1-INV1-DCB1-STR6	147.05	102.494	42	40	331.545	10	6.07	0.424%
	String TX1-INV1-DCB1-STR7	59.905	67.173	42	40	209.078	10	4.08	0.285%
	String TX1-INV1-DCB1-STR8	6.983	4.212	0	40	51.195	10	0.83	0.058%
	String TX1-INV1-DCB1-STR9	70.942	74.482	0	40	185.424	10	3.01	0.211%
DC Combiner TX1-INV1-DCB2	String TX1-INV2-DCB1-STR1	84.386	36.566	30.658	40	191.61	10	3.61	0.252%
	String TX1-INV2-DCB1-STR2	137.22	140.848	0	40	318.069	10	5.17	0.361%
	String TX1-INV2-DCB1-STR3	84.436	91.785	0	40	216.221	10	3.51	0.246%
	String TX1-INV2-DCB1-STR4	34.608	41.844	0	40	116.452	10	1.89	0.132%
	String TX1-INV2-DCB1-STR5	83.715	53.126	42	40	218.841	10	4.24	0.296%
	String TX1-INV2-DCB1-STR6	74.839	75.741	0	40	190.581	10	3.1	0.216%
	String TX1-INV2-DCB1-STR7	6.994	4.126	0	40	51.12	10	0.083	0.058%
	String TX1-INV2-DCB1-STR8	71.972	84.111	42	40	238.083	10	4.55	0.316%
	String TX1-INV2-DCB1-STR9	16.419	47.482	41.513	40	145.414	10	3.04	0.212%
DC Combiner TX1-INV1-DCB3	String TX1-INV3-DCB1-STR1	71.602	78.508	0	40	190.11	10	3.09	0.216%
	String TX1-INV3-DCB1-STR2	124.509	127.637	0	40	292.146	10	4.75	0.332%
	String TX1-INV3-DCB1-STR3	50.793	57.702	0	40	148.495	10	2.41	0.169%
	String TX1-INV3-DCB1-STR4	103.704	83.897	42	40	269.601	10	5.07	0.354%
	String TX1-INV3-DCB1-STR5	115.042	125.731	0	40	280.773	10	4.56	0.319%
	String TX1-INV3-DCB1-STR6	114.776	117.358	42	40	314.134	10	5.79	0.404%
	String TX1-INV3-DCB1-STR7	27.802	34.737	0	40	102.539	10	1.67	0.116%
	String TX1-INV3-DCB1-STR8	57.403	64.381	0	40	161.785	10	2.63	0.184%
	String TX1-INV3-DCB1-STR9	4.427	11.405	0	40	55.831	10	0.91	0.063%
DC Combiner TX1-INV1-DCB4	String TX1-INV4-DCB1-STR1	52.316	59.423	0	40	151.739	10	2.47	0.172%
	String TX1-INV4-DCB1-STR2	100.666	103.898	0	40	244.564	10	3.98	0.278%
	String TX1-INV4-DCB1-STR3	152.105	156.895	42	40	391	10	7.04	0.492%
	String TX1-INV4-DCB1-STR4	148.131	98.912	42	40	329.043	10	6.03	0.421%
	String TX1-INV4-DCB1-STR5	95.145	106.061	0	40	241.206	10	3.92	0.274%
	String TX1-INV4-DCB1-STR6	45.944	53.076	0	40	139.02	10	2.26	0.158%
	String TX1-INV4-DCB1-STR7	4.795	12.031	0	40	56.827	10	0.92	0.065%
	String TX1-INV4-DCB1-STR8	57680	70.988	42	40	210.667	10	4.11	0.287%
	String TX1-INV4-DCB1-STR9	75.19	86.123	0	40	201.313	10	3.27	0.229%

EQUIPMENTS SCHEDULE

EQUIPMENT				Parameters				FED TO	MOCP	MINIMUM CONDUIT AND CABLE SIZE	APPROXIMATE LENGTH OF RUN	VOLTAGE DROP INVERTER TO POI
TAG	#	DESCRIPTION	MANUFACTURER AND MODEL	PHASE	VOLTS	FLA	kW					
INV	1	INVERTER	CPS - 100kW 480V - Central	3	480	126.7	100	Distribution Panel 1	175	3-#2/0, 2-#6 2 "C, PVC	30	0.14%
INV	2	INVERTER	CPS - 100kW 480V - Central	3	480	126.7	100	Distribution Panel 1	175	3-#2/0, 2-#6 2 "C, PVC	50	0.23%
INV	3	INVERTER	CPS - 100kW 480V - Central	3	480	126.7	100	Distribution Panel 1	175	3-#2/0, 2-#6 2 "C, PVC	70	0.32%
INV	4	INVERTER	CPS - 100kW 480V - Central	3	480	126.7	100	Distribution Panel 1	175	3-#2/0, 2-#6 2 "C, PVC	90	0.41%
DIS-PAN	1	DISTRIBUTION PANEL	SQUARE D	3	480	506.8	422	TRANSFORMER 1	700	2 Sets Of 3-#500, 2-#1/0 3 1/2"C, PVC	30'	0.09%
TRANSFORMER	1	STEP UP TRANSFORMER	SQUARE D	3	12470	19.51	500	TRANSFORMER 2	25	1 sets of 3-#2 , 2#6 , 3 1/2"C , PVC	1120	0.20%
TRANSFORMER	2	STEP UP TRANSFORMER	SQUARE D	3	480	506.8	500	LV Disconnect 1	700	2 Sets of 3-#500 , 2#1/0 , 3 1/2"C , PVC	30	0.10%
LV Disconnect	1	disconnect switch	SQUARE D	3	480	506.8	500	point of interconnec	700	2 Sets of 3-#500 , 2#1/0 , 3 1/2"C , PVC	70	0.10%

Schneider Electric
TEXAS REGISTERED ENGINEERING FIRM F-5231
Schneider Electric
1650 West Crosby Road
Carrollton, TX 75006 USA
Tel. +1 972 323 1111
Fax +1 972 323 5498
www.schneider-electric.com

SCHNEIDER ELECTRIC ENERGY SERVICES PROJECT FOR
SANTA MONICA MALIBU
MIDDLE/HIGH SCHOOL
30215 MORNING VIEW DR
MALIBU, CA 90265

MARK	DATE	SUBMISSION / REVISION DESCRIPTION

DRAWN BY: EWR	CHECKED BY: RES
DESIGNED BY: PH	APPROVED BY: PH
DATE: 08–18–2025	PROJECT: PC25P0085

ELECTRICAL SCHEDULES

E-603

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PANEL SCHEDULE

PANEL: PSPV **LOCATION:** SOLAR ARRAY **VOLTS:** 480 Y/ 277 **PH:** 3-PHASE **W:** 4

AMP MAIN BRKR: 700 **AMP MLO:** **AIC RATING:** 42,000 **MOUNT:** SURFACE **FED FROM:** MSB

CIRCUIT DESCRIPTION	LOAD VA	CKT BKR	P	CIR #	PH	CIR #	P	CKT BKR	LOAD VA	CIRCUIT DESCRIPTION
INV-1	35096	175	3	1	A	2	3	175	35096	INV-3
	35096	-	-	3	B	4	-	-	35096	
	35096	-	-	5	C	6	-	-	35096	
INV-2	35096	175	3	7	A	8	3	175	35096	INV-4
	35096	-	-	9	B	10	-	-	35096	
	35096	-	-	11	C	12	-	-	35096	
METER VOLTAGE REFERENCE	-	15	3	13	A	14	2	15	5000	MINI POWER ZONE
	-	-	-	15	B	16	-	-	5000	
	-	-	-	17	C	18				
				19	A	20				
				21	B	22				
				23	C	24				
				25	A	26				
				27	B	28				
				29	C	30				
				31	A	32				
				33	B	34				
				35	C	36				
				37	A	38				
				39	B	40				
				41	C	42				

LOAD SUMMARY:	CONNECTED		FEEDER / SERVICE CALCULATION		
LIGHTING	0.00	KVA	0.00	KVA (125%)	
LARGEST MOTOR	0.00	KVA	0.00	KVA (125%)	
REMAINING MOTORS	0.00	KVA	0.00	KVA (100%)	
RECEPTACLES	0.00	KVA	0.00	KVA (*)	*1st 10KVA at 100%
KITCHEN EQUIPMENT	0.00	KVA	0.00	KVA (100%)	plus remainder at 50%
COOLING	0.00	KVA	0.00	KVA (100%)	
HEATING	0.00	KVA	0.00	KVA (100%)	
MISC.	842.30	KVA	842.30	KVA (100%)	
TOTALS	842.30	KVA	842.30	KVA	
	1013	AMPS	1013	AMPS	

NOTES:

Schneider Electric
TEXAS REGISTERED ENGINEERING FIRM F-5231
Schneider Electric
1650 West Crosby Road
Carrollton, TX 75006 USA
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Fax +1 972 323 5498
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SCHNEIDER ELECTRIC ENERGY SERVICES PROJECT
FOR
SANTA MONICA MALIBU

MIDDLE/HIGH SCHOOL
30215 MORNING VIEW DR
MALIBU, CA 90265

MARK	DATE	SUBMISSION / REVISION DESCRIPTION

DRAWN BY: EWR	CHECKED BY: RES
DESIGNED BY: PH	APPROVED BY: PH
DATE: 08-18-2025	PROJECT: PC25P0085

ELECTRICAL SCHEDULES

E-604

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CPS

Datasheet

100 kW, 1500 Vdc/480 Vac String Inverters for North America



CPS SCH100KTL-DO/US-480

The 100 kW high power CPS three-phase string inverters are designed for ground-mount applications with 480 Vac service voltage. The units are high performance, advanced, and reliable inverters designed specifically for the North American environment and grid. High efficiencies, wide operating voltages, broad temperature ranges, and a NEMA Type 4X enclosure enable this inverter platform to operate at high performance across many applications. The CPS 100 kW products ship with the Distributed or Centralized Wire Box, each fully integrated and separable with AC and DC disconnect switches. The Enhanced DC Wire Box includes touch-safe fusing for up to 20 strings. The CPS FlexOM solution enables communication, controls and remote product upgrades.

Key Features

- NFPA 70 and NEC compliant
- Touch-safe DC fuse holders adds convenience and safety
- CPS FlexOM Gateway enables remote firmware upgrades
- Integrated AC and DC disconnect switches
- 1 MPPT with 20 fused inputs for maximum flexibility
- Copper- and aluminum-compatible AC connections
- NEMA Type 4X outdoor rated, tough tested enclosure
- Advanced Smart-Grid features (CA Rule 21 certified)
- kVA headroom yields 100 kW @ 0.95 PF
- Generous DC/AC inverter load ratios
- Separable wire box design for fast service
- Enhanced DC wire boxes available



Standard Wire Boxes



Enhanced DC Wire Boxes

This device complies with part 15 of the FCC Rules

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Chint Power Systems America
1380 Presidential Drive, Suite 100, Richardson, TX 75081
Tel: 855-584-7168 Mail: AmericaSales@chintpower.com Web: www.chintpowersystems.com

CPS

Technical Data

Model Name	CPS SCH100KTL-DO/US-480
DC Input	
Max. DC input voltage	1500 Vdc
Operating DC input voltage range	750-1450 Vdc
Startup DC input voltage / power	900 Vdc / 200 W
Number of MPP trackers	1
MPPT voltage range @ PF > 0.99[1]	760-1300 Vdc
Max. PV input current (Isc × 1.25)	275 A
Number of DC inputs	Distributed Wire Box: 20 PV source circuits, positive and negative fused Centralized Wire Box: 1 input circuit, 1-2 terminations per pole, non-fused
DC disconnection type	Load-rated DC switch
DC surge protection	Type II MOV (with indicator/remote signaling)
AC Output	
Rated AC output power	100 kW
Max. AC output power[2]	100 kVA (105.3 kVA @ PF > 0.95)
Rated output voltage	480 Vac
Output voltage range[3]	423-528 Vac
Grid connection type[4]	3-Phase / PE / N (neutral optional)
Max. AC output current @ 480 Vac	120.3 A / 126.7 A
Rated output frequency	60 Hz
Output frequency range[3]	57-63 Hz
Power factor	> 0.99 (±0.8 adjustable)
Current THD @ rated load	< 3%
Max. fault current contribution (1 cycle RMS)	41.47 A
Max. OCPD rating	200 A
AC disconnection type	Load-rated AC switch
AC surge protection	Type II MOV (with indicator/remote signaling)
System and Performance	
Topology	Transformerless
Max. efficiency	98.9%
CEC efficiency	98.0%
Standby / night consumption	< 4 W
Environment	
Enclosure protection degree	NEMA Type 4X
Cooling method	Variable speed cooling fans
Operating temperature range	-22°F to 140°F / -30°C to 60°C
Non-operating temperature range[5]	-40°F to 158°F (-40°C to 70°C)
Operating humidity	0-100%
Operating altitude	8202 ft / 2500 m (no derating)
Audible noise	< 65 dBA @ 1 m and 77°F (25°C)
Display and Communication	
User interface and display	LED indicators, Wi-Fi and app
Inverter monitoring	Modbus RS485
Site-level monitoring	CPS FlexOM Gateway (1 per 32 inverters)
Modbus data mapping	SunSpec / CPS
Remote diagnostics / firmware upgrade functions	Standard / (with FlexOM Gateway)
Mechanical	
Dimensions (W × H × D)	Distributed Wire Box: 45.28 × 24.25 × 9.84 in (1150 × 616 × 250 mm) Centralized Wire Box: 39.37 × 24.25 × 9.84 in (1000 × 616 × 250 mm)
Weight	Inverter: 121 lbs (55 kg) Distributed Wire Box: 55 lbs (25 kg) Centralized Wire Box: 33 lbs (15 kg)
Mounting / installation angle	15-90 degrees from horizontal (vertical or angled)
AC termination	M10 stud type terminal [3Φ] (wire range: 1/0 AWG-500 kcmil CU/AL; lugs not supplied) Screw clamp terminal block [N] (#12-1/0 AWG CU/AL)
DC termination	Distributed Wire Box: Screw clamp fuse holder (wire range: #12-#6 AWG CU) Centralized Wire Box: Busbar, M10 bolts (wire range: #1 AWG-500 kcmil CU/AL [1 termination per pole], #1 AWG-300 kcmil CU/AL [2 terminations per pole]; lugs not supplied)
Fused string inputs	Standard/Distributed Wire Boxes: 25 A fuses provided (fuse values up to 30 A acceptable) Enhanced DC Wire Boxes: 20 A fuses provided (fuse values up to 30 A acceptable)
Safety	
Certifications and standards	UL 1741-SA/SB Ed. 3, CSA-C22.2 NO.107.1-01, IEEE 1547-2018, FCC PART15
Selectable grid standard	IEEE 1547a-2014, IEEE 1547-2018[6], CA Rule 21, ISO-NE
Smart-grid features	Volt-RideThru, Freq-RideThru, Ramp-Rate, Specified-PF, Volt-VAR, Freq-Watt, Vol-Watt
Warranty	
Standard[7]	5 years
Extended terms	10, 15, and 20 years

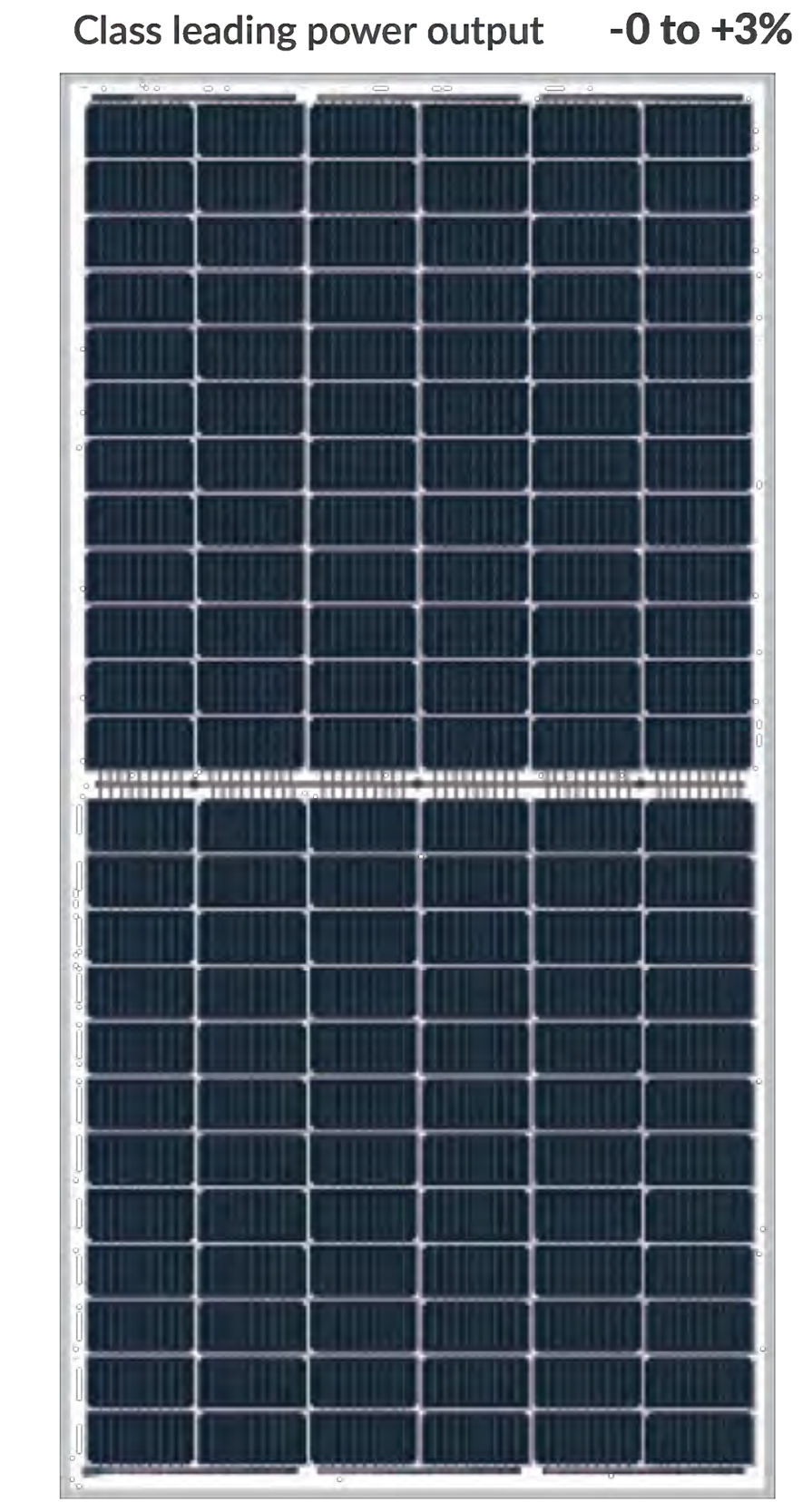
1) See user manual for information regarding MPPT voltage range when operating at non-unity PF.
2) 100 kW-480 V active power derating begins at 107.6°F (42°C) when PF = ±0.9 and MPPT ≥ Vmin; at 113°F (45°C) when PF=1 and MPPT ≥ Vmin.
3) The "output voltage range" and "output frequency range" may differ according to the specific grid standard.
4) Delta configurations must not be corner-grounded.
5) See user manual for further requirements regarding non-operating conditions.
6) Firmware version 12.0 or later required.

MSI 144HC

MISSION SOLAR ENERGY

550W Class leading power output

Positive Power Tolerance **-0 to +3%**



PERC Cells
Transparent Backsheet

Mission Solar Energy is headquartered in San Antonio, Texas. Our product line is tailored for residential, commercial and utility applications. Every Mission Solar Energy solar module is certified and surpasses industry standard regulations, proving excellent performance over the long term.

Demand the best. Demand Mission Solar Energy.

Certified Reliability
- Tested to UL 61730 & IEC Standards
- PID resistant
- Resistance to salt mist corrosion

Advanced Technology
- Half-cut cell with 10 Busbar
- Passivated Emitter Rear Contact
- Ideal for utility applications

Extreme Weather Resilience
- Up to 5,400 Pa front load & 2,400 Pa back load
- Tested load to UL 61730
- Dia. 25mm Hailstone tests at the speed of 24m/s

FRAME-TO-FRAME WARRANTY

Degradation guaranteed not to exceed 2% in year one and 0.55% annually from years two to 25 with 84.8%.

CERTIFICATIONS

CEC | TÜV SÜD | c UL us LISTED

UL 61730 / IEC 61215 / IEC 61730

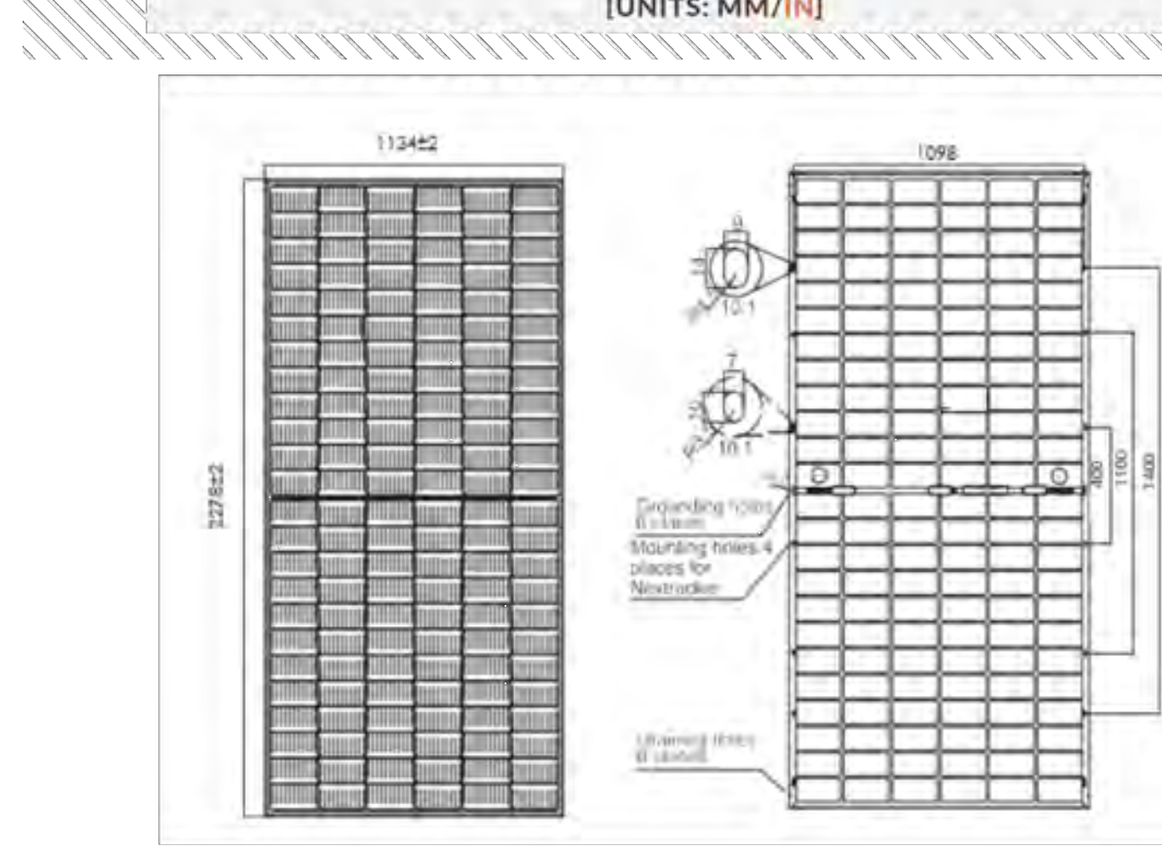
If you have questions or concerns about certification of our products in your area, please contact Mission Solar Energy.

Class Leading
550W

MSI PERC 144HC Bifacial

BASIC DIMENSIONS

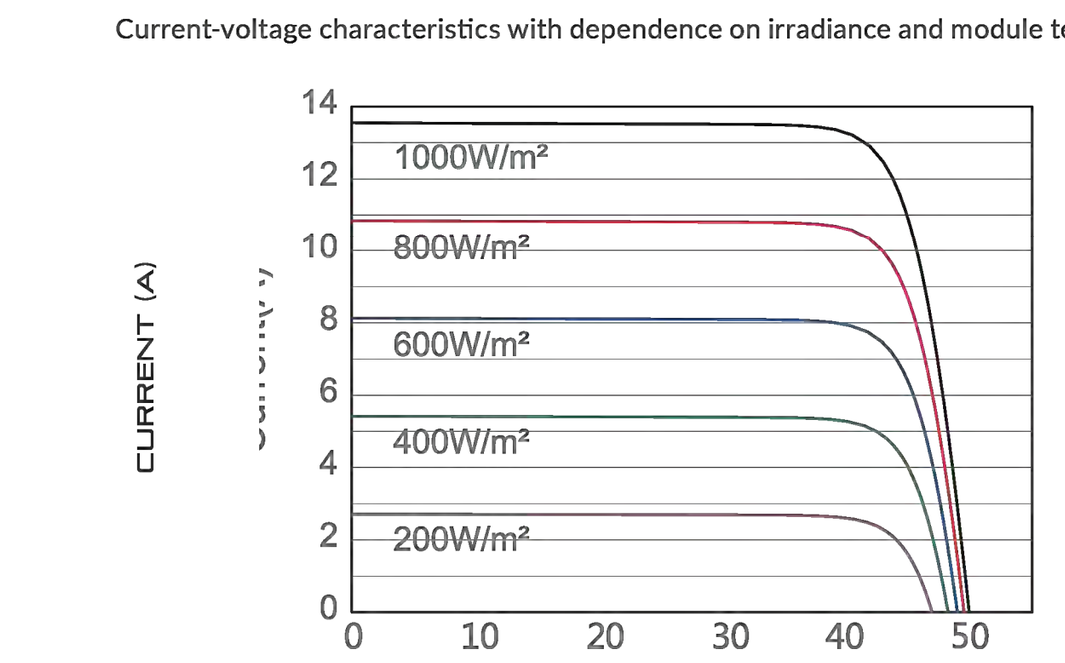
[UNITS: MM/IN]



CURRENT-VOLTAGE CURVE

MSI10-545HT4T, 144 HALF-CUT CELL SOLAR MODULE

Current-voltage characteristics with dependence on irradiance and module temperature



ELECTRICAL SPECIFICATION

PRODUCT TYPE			MSI10-xxxHT4T (xxx = Pmax)		
Power Output	Pmax	Wp	545	550	555
Module Efficiency		%	21.01	21.21	21.39
Tolerance		%	0/+3%	0/+3%	0/+3%
Short Circuit Current	Isc	A	13.92	13.99	14.02
Open Circuit Voltage	Voc	V	49.65	49.80	49.95
Rated Current	Imp	A	13.04	13.11	13.18
Rated Voltage	Vmp	V	41.80	41.95	42.09
Fuse Rating		A	30A	30A	30A
System Voltage		V	1,500	1,500	1,500

TEMPERATURE COEFFICIENTS

Normal Operating Cell Temperature (NOCT)	45°C (±2%)
Temperature Coefficient of Pmax	-0.350%/°C
Temperature Coefficient of Voc	-0.270%/°C
Temperature Coefficient of Isc	0.048%/°C

OPERATING CONDITIONS

Maximum System Voltage	1,500Vdc
Operating Temperature Range	-40°F to 185°F (-40°C to +85°C)
Maximum Series Fuse Rating	30A
Fire Safety Classification	UL Type 1
Front & Back Load (UL Standard)	Up to 5,400 Pa snow and 2,400 Pa wind load, Tested to UL 61730
Hail Safety Impact Velocity	25mm at 24 m/s

*Mission Solar Energy uses quality sourced materials that result in a Type 1 fire rating. Please note, the 'Fire Class' Rating is designated for the fully-installed PV system, which includes, but is not limited to, the module, the type of mounting used, pitch and roof composition.

MECHANICAL DATA

Solar Cells	PERC, 182mm x 91mm, 144 (6x24)
Cell Orientation	144 half-cut cells
Module Dimension	2278(±2mm) x 1135(±2mm) x 35(±1mm)
Weight	60.0 lbs. (27.2kg)
Glass	Single glass, 3.2mm AR coated tempered glass
Frame	35mm Anodized
Junction Box	Protection class IP68 with 3 bypass-diodes
Cable	1.2m, wire 4mmx2 (12AMG)
Connector	MC4 EVO2

CERTIFICATIONS AND TESTS

IEC	61215, 61730, 61701
UL	61730

TÜV SÜD | CEC | c UL us LISTED

SHIPPING INFORMATION

Container Feet	Ship To	Pallet	Panels	550W Bin
40'	Most States	22	682	375.10 kW

PALLET [31 PANELS]			
Weight	Height	Width	Length
1,926 lbs. (705 kg)	50.71 in (117.0 cm)	46 in (111.0 cm)	91.3 in (211.5 cm)

Mission Solar Energy
8303 S. New Braunfels Ave., San Antonio, Texas 78235
www.missionsolar.com | info@missionsolar.com

Mission Solar Energy reserves the right to make specification changes without notice.

Schneider Electric
TEXAS REGISTERED ENGINEERING FIRM F-5231
Schneider Electric
1650 West Crosby Road
Carrollton, TX 75006 USA
Tel. +1 972 323 1111
Fax +1 972 323 5498
www.schneider-electric.com

SCHNEIDER ELECTRIC ENERGY SERVICES PROJECT
FOR
SANTA MONICA MALIBU

MIDDLE/HIGH SCHOOL
30215 MORNING VIEW DR
MALIBU, CA 90265

MARK	DATE	SUBMISSION / REVISION DESCRIPTION

DRAWN BY: EWR	CHECKED BY: XXX
DESIGNED BY: XXX	APPROVED BY: XXX
DATE: 06-16-2025	PROJECT: PC25P0085

EQUIPMENT DATA SHEETS

E-701

SHT. - OF -

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Terrasmart Combiners are used for DC aggregation before the input of an inverter or charge controller. They provide a convenient location for O&M and disconnecting means. Combiners are highly configurable to fit any application.

Product features

- Listed to UL-1741
- Up to 36 input circuits
- Rated for 1000 or 1500 VDC
- 275, 320, 400, and 600 Amp load break disconnects
- 75/90C Al/Cu output terminals
- NEMA-3R, 4 & 4X enclosures
- Rated for continuous duty

Available options

- Mechanical lugs
- Provisions for compression lugs
- Isolating / grounded / floating configurations
- Touch safe protective cover
- Custom layouts
- Pre-terminated input conductors
- 10kA SCCR and greater
- Battery and energy storage
- Transient surge suppression
- Breather and drain vents
- Pad-lockable enclosures
- Lockout / tagout provision



Floating Disconnect Combiner, 1500VDC, 275A disconnect, 15 input circuits, transient surge protection, NEMA-4X fiberglass enclosure

Specifications

Voltage (Vdc)	1000 / 1500
Disconnect Ampacity	None / 275 / 320 / 400 / 600
Number of Input Circuits	1 to 36
Input Conductor Size (AWG)	#14 - 8 / #12-4
Fuse Size (Amps)	4 to 32 / 35 to 65
Number of Output Conductors Per Polarity	1 or 2
Output Conductor Size Range (MCM)	#6-350 / #2-600 / 300-800
Enclosure Dimensions (Inches)*	24×24×8 / 30×24×8 / 30×30×8
Enclosure NEMA Ratings	3R / 4 / 4X

*Other options available upon request. Please note dimensions and weight may vary for any custom solutions. Contact us for details.



GLIDE Fuse is a fixed-tilt ground mount system specially designed to increase the ground coverage ratio (GCR) of a potential solar project. The system is the ideal intersection of efficiency and affordability when aiming to maximize the amount of PV deployed on a given project site.

Efficient Design

- The low tilt and low module clearance height allow for reduced row spacing, increasing the amount of PV modules inside a given boundary.
- Streamlined design utilizes a lower part count and simplified connectors, reducing production and installation time.
- Long-table hybrid design is specifically designed to accommodate the specific string size of a project, reducing eBOS costs.
- Low module clearance allows for easier access behind each row, simplifying eBOS installation.

Seamless Installation

- Tabled design makes staging and installing materials more efficient.
- More robust purlin allows for wider foundation spacing than a standard fixed-tilt ground mount system.
- Brackets are designed for specific tilt angles, allowing for the system to square up more efficiently during installation.
- Simplified connectors make for little to no cost to maintain the system after installation.



Specifications

Wind Loads	Up to 150 mph
Snow Loads	Up to 20 psf
Tilt Angles	7.5, 10, and 12.5 degree options
Module Clearance	Maximum clearance height of 24"
Pre-Assembled Parts	Reduced installation time
Warranty	20 years
Module Configuration	4-high portrait or 8-high landscape
Raised Purlin	Integrated bonding and grounding
Listing	UL 2703



When EPCs and developers need a dependable, low-maintenance fixed-tilt ground mount system, they turn to GLIDE Wave. With over 5 GW of projects deployed across the U.S., our flexible design can be adapted to meet the project specific needs on any site, no matter the challenges.

Value Engineered

- Multiple foundation types are available to meet any unique underground soil conditions.
- Arrays are designed using continuous rows to follow the existing terrain and minimize the number of foundations required.
- Raised purlin are utilized as an integrated bonding and grounding method, which is UL 2703 listed, eliminating the need for additional grounding clips or washers.
- Parts and components are domestically sourced and manufactured for faster turnaround times.

Efficient Installation

- Pre-assembled parts and components reduce the number of connections needed at each table/bay by up to 50%.
- Components are designed with adjustable tolerances to make field installation a smoother process.
- Dedicated project management and in-house installation teams capable of completing full structural installation of an array.
- Integrated wire management and equipment posts available to simplify eBOS installation.



Specifications

Wind Loads	170 mph+
Snow Loads	90 psf+
Pre-Assembled Parts	Reduced installation time
Slope	Accomodates up to 30%
Warranty	20 years
Post Type	Cee posts or I-beam options available
Module Configuration	Portrait or landscape (all module frame types)
Raised Purlin	Integrated bonding and grounding
Listing	UL 2703

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Schneider Electric
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SCHNEIDER ELECTRIC ENERGY SERVICES PROJECT
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MARK	DATE	DESCRIPTION
		SUBMISSION / REVISION

DRAWN BY: EWR	CHECKED BY: XXX
DESIGNED BY: XXX	APPROVED BY: XXX
DATE: 06-16-2025	PROJECT: PC25P0085

EQUIPMENT DATA SHEETS

E-702

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ABBREVIATIONS

AB	AGGREGATE BASE	MIN	MINIMUM
AC	ASPHALT CONCRETE PAVEMENT	MOC	MIDDLE OF CURVATURE
AE	ACCESS EASEMENT	N	NORTH
ASPH	ASPHALT PAVING	NG	NATURAL GRADE
BC	BEGIN CURVATURE	NTS	NOT TO SCALE
BCR	BEGIN CURB RETURN	OC	ON CENTER
BFP	BACK FLOW PREVENTER	(P)	PROPOSED, NEW
BI	BOX INLET	PA	PLANTING AREA
BM	BENCHMARK	PBC	PULL BOX CABLE
BOP	BOTTOM OF PIPE	PBE	PULL BOX ELECTRIC
BOR	BOTTOM OF RAMP	PBT	PULL BOX TELEPHONE
BS	BOTTOM OF STAIRS	PBW	PULL BOX WATER
BVC	BEGIN VERTICAL CURVATURE	PCC	POINT OF COMPOUND CURVATURE
BW	BOTTOM OF WALL	PE	PEDESTRIAN EASEMENT
C&G	CURB AND GUTTER	PI	POINT OF INTERSECTION
CL,CL	CENTER LINE	PIVC	POINT OF INTERSECTION VERTICAL CURVATURE
CB	CATCH BASIN	PL	PROPERTY LINE
CONST	CONSTRUCT	POC	POINT OF CONNECTION
CR	CURB RETURN	PP	POWER POLE
CT	COURT	PRC	POINT OF REVERSE CURVATURE
CUL	CULVERT	PVC	POLYVINYL CHLORIDE
DI	DROP INLET	PVMT	PAVEMENT
DIP	DUCTILE IRON PIPE	R	RADIUS
DW	DOMESTIC WATER	RCP	REINFORCED CONCRETE PIPE
D/W	DRIVEWAY	RIM	TOP RIM OF STRUCTURE
DE	DRAINAGE EASEMENT	ROW	HIGHWAY EASEMENT
DR	DRIVE	RT	RIGHT
(E)	EXISTING	RW	RECLAIMED WATER
E	EAST	R/W	RIGHT OF WAY
EC	END CURVATURE	S	SOUTH OR SLOPE
ECR	END CURB RETURN	SBE	SETBACK EASEMENT
EG	EXISTING GRADE	SCO	SANITARY SEWER CLEANOUT
ELEV	ELEVATION	SD	STORM DRAIN
EOC	EDGE OF CONCRETE	SDMH	STORM DRAIN MANHOLE
EP	EDGE OF PAVEMENT	SF	SQUARE FEET
EQ	EQUAL	SHT	SHEET
ESMT	EASEMENT	STA	STATION
EVC	END OF VERTICAL CURVATURE	SMH	SANITARY SEWER MANHOLE
FF	FINISHED FLOOR	SS	SANITARY SEWER
FFE	FINISHED FLOOR ELEVATION	SWPPP	STORM WATER POLLUTION PREVENTION PLAN
FG	FINISHED GRADE	S/W	SIDEWALK
FH	FIRE HYDRANT	T	TANGENT
FL	FLOWLINE	TB	TOP OF BERM
FS	FINISHED SURFACE	TBC	TOP BACK OF CURB
FW	FIRE PROTECTION SERVICE WATER	TBW	TOP BACK OF WALK
GB	GRADE BREAK	TC	TOP OF CURB
GFL	GUTTER FLOWLINE	TF	TOP OF FOOTING
GSL	LIMITS OF GRAVITY SEWER	TG	TOP OF GRATE
GR	GRATE	TOE	TOE OF SLOPE
GV	GAS VALVE	TOP	TOP OF PIPE
HB	HOSE BIB	TOR	TOP OF RAMP
HP	HIGH POINT	TOS	TOP OF SLOPE
ICV	IRRIGATION CONTROL VALVE	TP	TOP OF PLANTER
INTX	POINT OF INTERSECTION	TS	TOP OF STAIRS
INV	INVERT	TW	TOP OF WALL
JP	JOINT POLE	TYP	TYPICAL
LE	LANDSCAPE EASEMENT	TP	TELEPHONE POLE
LF	LINEAR FEET	VC	VERTICAL CURVATURE
LIP	LIP OF GUTTER	W	WEST
LP	LOW POINT	WM	WATER MAIN
LT	LEFT	WV	WATER VALVE
MAX	MAXIMUM		
MH	MANHOLE		

LEGEND

SYMBOL	DESCRIPTION
(RD)	ROOF DRAIN POC 5' FROM BUILDING
(G)	GAS POC 5' FROM BUILDING
(F)	FIRE WATER POC 5' FROM BUILDING
(W)	DOMESTIC WATER POC 5' FROM BUILDING
(SS)	SANITARY SEWER POC 5' FROM BUILDING
(D)	STORM DRAIN MANHOLE
(S)	SANITARY SEWER MANHOLE
	DRAIN INLET
AD ∘	AREA DRAIN
	TRENCH DRAIN
	CLEANOUT
	BLOW OFF
	FIRE HYDRANT
	VALVE
	POST INDICATOR VALVE (PIV)/CHECK VALVE (CHK VLV)/FIRE DEPARTMENT CONNECTION (FDC)
	CHECK VALVE (CHK VLV)
	FIRE DEPARTMENT CONNECTION (FDC)
	DOUBLE DETECTOR CHECK (DBL CHK)
	REDUCED PRESSURE (BFP)
	POST INDICATOR VALVE (PIV)
	THRUST BLOCK
	BENDS, TEE AND CROSS
	WATER METER

LINE TYPE	DESCRIPTION
	APPROXIMATE PROJECT LIMITS
	RIGHT OF WAY/ PROPERTY LINE
	FENCE
	REMOVE EXISTING UTILITY
SS	EXISTING SEWER LINE
W	EXISTING WATER LINE
SD	EXISTING STORM DRAIN LINE
FW	EXISTING DEDICATED PRIVATE FIRE SERVICE
G	EXISTING NATURAL GAS SERVICE
E	EXISTING ELECTRICAL LINE / CONDUIT
T	EXISTING TELECOMMUNICATIONS LINE / CONDUIT
XXLF 8"SS S=X.XXX	SANITARY SEWER LINE
XXLF 6"DW PVC	DOMESTIC WATER LINE
XXLF 8"SD S=X.XXX	STORM DRAIN LINE (<8" DIAMETER)
XXLF 12"SD S=X.XXX	STORM DRAIN LINE (>8" DIAMETER)
	PERFORATED STORM DRAIN LINE
XXLF 6"FW PVC	DEDICATED PRIVATE FIRE SERVICE
XXLF GAS PVC	NATURAL GAS LINE
GB	GRADE BREAK LINE
>	FLOW LINE
	DAYLIGHT LINE

GENERAL EROSION AND SEDIMENT CONTROL NOTES

1. CONTRACTOR SHALL ENSURE THAT THE CONSTRUCTION SITE IS PREPARED PRIOR TO THE START OF CONSTRUCTION. CONTRACTOR SHALL HAVE ALL EROSION AND SEDIMENT CONTROL MEASURES IN PLACE AT ALL TIMES DURING CONSTRUCTION.
2. ALL EROSION AND SEDIMENT CONTROL MEASURES SHALL BE MAINTAINED UNTIL DISTURBED AREAS ARE STABILIZED.
3. THIS PLAN MAY NOT COVER ALL THE SITUATIONS THAT ARISE DURING CONSTRUCTION DUE TO UNANTICIPATED FIELD CONDITIONS.
4. ALL EROSION AND SEDIMENT CONTROL MEASURES SHALL BE CHECKED BEFORE AND AFTER ALL STORMS TO ENSURE MEASURES ARE FUNCTIONING PROPERLY.
5. CONTRACTOR SHALL MAINTAIN A LOG AT THE SITE OF ALL INSPECTIONS OR MAINTENANCE OF BMPS, AS WELL AS, ANY CORRECTIVE CHANGES TO THE BMPS OR EROSION AND SEDIMENT CONTROL PLAN.
6. IN AREAS WHERE SOIL IS EXPOSED, PROMPT REPLANTING WITH NATIVE COMPATIBLE, DROUGHT-RESISTANT VEGETATION SHALL BE PERFORMED. NO AREAS WILL BE LEFT EXPOSED OVER THE WINTER SEASON.
7. THE CONTRACTOR SHALL INSTALL THE STABILIZED CONSTRUCTION ENTRANCE PRIOR TO COMMENCEMENT OF GRADING. LOCATION OF THE ENTRANCE MAY BE ADJUSTED BY THE CONTRACTOR TO FACILITATE GRADING OPERATIONS. ALL CONSTRUCTION TRAFFIC ENTERING THE PAVED ROAD MUST CROSS THE STABILIZED CONSTRUCTION ENTRANCE.
8. ALL SEDIMENT DEPOSITED ON PAVED ROADWAYS SHALL BE SWEPT AT THE END OF EACH WORKING DAY OR MORE OFTEN AS NECESSARY.
9. CONTRACTOR SHALL PLACE GRAVEL/SAND BAGS AROUND ALL NEW DRAINAGE STRUCTURE OPENINGS IMMEDIATELY AFTER THE STRUCTURE OPENING IS CONSTRUCTED. THESE GRAVEL/SAND BAGS SHALL BE MAINTAINED AND REMAIN IN PLACE UNTIL CONSTRUCTION IS COMPLETED.
10. CONTRACTOR SHALL IMPLEMENT HOUSEKEEPING PRACTICES AS FOLLOWS:
    A. SOLID WASTE MANAGEMENT: PROVIDE DESIGNATED WASTE COLLECTION AREAS AND CONTAINERS. ARRANGE FOR REGULAR REMOVAL AND DISPOSAL. CLEAR SITE OF TRASH INCLUDING ORGANIC DEBRIS, PACKAGING MATERIALS, SCRAP OR SURPLUS BUILDING MATERIALS AND DOMESTIC WASTE DAILY.
    B. MATERIAL DELIVERY AND STORAGE: PROVIDE A DESIGNATED MATERIAL STORAGE AREA WITH SECONDARY CONTAINMENT SUCH AS BERMING. STORE MATERIAL ON PALLETS AND PROVIDE COVERING FOR SOLUBLE MATERIALS. RELOCATE STORAGE AREA INTO BUILDING SHELL WHEN POSSIBLE. INSPECT AREA WEEKLY.
    C. CONCRETE WASTE: PROVIDE A DESIGNATED AREA FOR A TEMPORARY PIT TO BE USED FOR CONCRETE TRUCK WASH-OUT. CONCRETE WASHOUT CANNOT BE WITHIN 50' MINIMUM OF DRAIN INLETS. DISPOSE OF HARDENED CONCRETE OFFSITE. AT NO TIME SHALL A CONCRETE TRUCK DUMP ITS WASTE AND CLEAN ITS TRUCK INTO THE STORM DRAINS VIA CURB AND GUTTER. INSPECT DAILY TO CONTROL RUNOFF, AND WEEKLY FOR REMOVAL OF HARDENED CONCRETE.
    D. PAINT AND PAINTING SUPPLIES: PROVIDE INSTRUCTION TO EMPLOYEES AND SUBCONTRACTORS REGARDING REDUCTION OF POLLUTANTS INCLUDING MATERIAL STORAGE, USE, AND CLEAN UP. INSPECT SITE WEEKLY FOR EVIDENCE OF IMPROPER DISPOSAL.
    E. VEHICLE FUELING, MAINTENANCE AND CLEANING: PROVIDE A DESIGNATED FUELING AREA WITH SECONDARY CONTAINMENT SUCH AS BERMING. DO NOT ALLOW MOBILE FUELING OF EQUIPMENT. PROVIDE EQUIPMENT WITH DRIP PANS. RESTRICT ONSITE MAINTENANCE AND CLEANING OF EQUIPMENT TO A MINIMUM. INSPECT AREA WEEKLY.
    F. HAZARDOUS WASTE MANAGEMENT: PREVENT THE DISCHARGE OF POLLUTANTS FROM HAZARDOUS WASTES TO THE DRAINAGE SYSTEM THROUGH PROPER MATERIAL USE, WASTE DISPOSAL AND TRAINING OF EMPLOYEES. HAZARDOUS WASTE PRODUCTS COMMONLY FOUND ON-SITE INCLUDE BUT ARE NOT LIMITED TO PAINTS & SOLVENTS, PETROLEUM PRODUCTS, FERTILIZERS, HERBICIDES & PESTICIDES, SOIL STABILIZERS, STABILIZATION PRODUCTS, ASPHALT PRODUCTS AND CONCRETE CURING PRODUCTS.
11. CONTRACTOR SHALL HYDROSEED ALL GRADED SLOPES. NATIVE SEED MIX SHALL BE 20% LANA PUBESCENT WHEAT GRASS, 40% BLANDO BROME, AND 40% ANNUAL RYE GRASS AND SHALL BE APPLIED AT A RATE OF 200 POUNDS PER ACRE. SOIL BINDING AGENT SHALL BE VERDYOL, SENTINEL, OR EQUAL, APPLIED AT A RATE OF 110 POUNDS PER ACRE. MULCH SHALL BE SILVER-FIBER, CONWED, OR EQUAL, APPLIED AT A RATE OF 1,000 POUNDS PER ACRE. FERTILIZER SHALL BE AGRI-FORM 16-7-12, BEST 16-6-8, OR EQUAL, APPLIED AT A RATE OF 500 POUNDS PER ACRE. THE CONTRACTOR SHALL WATER SEEDED AREAS OR RESEED AS NECESSARY TO ENSURE SUFFICIENT PLANT DEVELOPMENT FOR EROSION CONTROL.
12. NO GRADING SHALL BE DONE UNTIL SITE- AND SEASON-SPECIFIC SOIL LOSS AND HOUSEKEEPING STORMWATER BMPs HAVE BEEN APPROVED BY THE INSPECTOR. THE CONTRACTOR SHOULD EMPLOY THE DESIGN BMPs AND ANY OTHERS NEEDED AS SITUATIONS ARISE. CONTRACTOR SHOULD CONDUCT SITE INSPECTIONS BEFORE, DURING AND AFTER EACH EXTENDED STORM EVENT TO IDENTIFY CONDITIONS THAT MAY CONTRIBUTE TO EROSION AND SEDIMENT PROBLEMS OR ANY OTHER POLLUTANT DISCHARGES. IF ADDITIONAL CONTROL MEASURES ARE NEEDED, CONTRACTOR SHOULD IMPLEMENT THEM IMMEDIATELY.

POLLUTION PREVENTION NOTES

IN ORDER TO MEET THE REQUIREMENTS OF THE NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM (NPDES) PROGRAM FOR CONSTRUCTION, CONSTRUCTION CONTRACTORS SHALL INSTALL AND MAINTAIN APPROPRIATE BEST MANAGEMENT PRACTICES (BMPS), AS SHOWN IN THE EROSION CONTROL PLAN AND IN ACCORDANCE WITH THE SWPPP (STORM WATER POLLUTION PREVENTION PLAN), ON ALL CONSTRUCTION PROJECTS. BMPS SHALL BE INSTALLED IN ACCORDANCE WITH INDUSTRY RECOMMENDED STANDARDS, AND/OR IN ACCORDANCE WITH ANY GENERAL CONSTRUCTION PERMIT ISSUED BY THE STATE FOR THE PROJECT TO PREVENT ANY DISCHARGES FROM THE PROJECT SITE OR INTO ANY STORM DRAIN FACILITIES. ALL SEDIMENTS, CONSTRUCTION MATERIALS, DEBRIS AND WASTES, AND OTHER POLLUTANTS MUST BE RETAINED ON SITE AND MAY NOT BE TRANSPORTED FROM THE SITE VIA SHEET FLOW, SWALES, AREA DRAINS, NATURAL DRAINAGE COURSES, WIND, OR VEHICLE TRACKING. UNDER DIRECTION OF THE ENGINEER OF RECORD, EROSION AND/OR SEDIMENT CONTROL DEVICES SHALL BE MODIFIED AS NEEDED AS THE PROJECT PROGRESSES TO ENSURE EFFECTIVENESS.

BMP MAINTENANCE NOTES

1. FOLLOWING OWNER ACCEPTANCE OF CONSTRUCTION WORK, POST CONSTRUCTION BEST MANAGEMENT PRACTICE (BMP) MEASURES SHALL BE MAINTAINED BY THE PROPERTY OWNER, INCLUDING BUT NOT LIMITED TO:
    1.1. ANNUAL INSPECTION, REPLACEMENT, AND/OR SEDIMENTATION REMOVAL OF VEGETATED SWALES, TREATMENT PONDS, AND OTHER SURFACE STORMWATER TREATMENT MEASURES AS REQUIRED WITH AN INCREASED FREQUENCY BASED ON SITE CONDITIONS.
    1.2. MAINTENANCE SERVICE AGREEMENT(S) OF STORMWATER TREATMENT VAULTS, INLETS, MANHOLES, AND OTHER DEVICES BASED ON MANUFACTURES' RECOMMENDATIONS AND FREQUENCY.
    1.3. ANNUAL INSPECTION OF PERMEABLE PAVEMENT AND REMOVAL OF SEDIMENT AS NEEDED.
    1.4. ANNUAL INSPECTION OF STORMWATER INLETS AND MAINTENANCE AS REQUIRED TO CLEAR GRATES AND INLETS OF DEBRIS.
    1.5. THE PROJECT STORMWATER POLLUTION PREVENTION PLAN (SWPPP) AND WATER QUALITY MANAGEMENT PLAN (WQMP) MAY CONTAIN ADDITIONAL OR MORE STRINGENT MAINTENANCE REQUIREMENTS.
2. BMP DETAILS MAY BE FOUND IN APPENDIX H OF THE PROJECT SWPPP DOCUMENT. BMP DETAILS PER CALIFORNIA STORMWATER QUALITY ASSOCIATION (CASQA) AND ARE AVAILABLE AT www.casqa.org.
3. FOR PROJECTS GREATER THAN 1 ACRE: THE CONTRACTOR SHALL VERIFY THE STATUS OF THE SWPPP/NOI/WDID PRIOR TO EARTHMOVING ACTIVITIES. A STORMWATER POLLUTION PREVENTION PLAN (SWPPP) SHALL BE PREPARED AND A NOTICE OF INTENT (NOI) SHALL BE FILED WITH THE STATE WATER RESOURCES CONTROL BOARD (SWRCB) IN ACCORDANCE WITH THE REQUIREMENTS OF CALIFORNIA GENERAL PERMIT FOR STORMWATER DISCHARGES ASSOCIATED WITH CONSTRUCTION ACTIVITY (PERMIT NO. CAS000002) FOR ALL OPERATIONS ASSOCIATED WITH THESE PLANS. THE CONTRACTOR SHALL KEEP A COPY OF THE SWPPP ON SITE AND AVAILABLE FOR REVIEW.

AREA SUMMARY

TOTAL DISTURBED AREA = 0.03± ACRES

DEMOLITION NOTES

1. THE INTENT OF THE DEMOLITION PLAN IS TO DESCRIBE IN GENERAL THE DEMOLITION AREAS AFFECTED BY THE PROJECT CONSTRUCTION. IT IS NOT INTENDED AS A DETAILED DESCRIPTION OF EXISTING ITEMS OR ELEMENTS TO BE REMOVED. THE CONTRACTOR SHALL VISIT THE SITE AND REVIEW ANY AVAILABLE RECORD DOCUMENTS TO BECOME FAMILIAR WITH THE EXISTING CONDITIONS AND SHOULD INCLUDE THE REMOVAL OF ALL ITEMS NECESSARY FOR THE PROPER EXECUTION AND COMPLETION OF THE WORK. THE CONTRACT DOCUMENTS ARE COMPLEMENTARY, AND WHAT IS REQUIRED BY ONE SHALL BE BINDING AS IF REQUIRED BY ALL TO THE EXTENT THAT IT IS REASONABLY INFERABLE FROM THEM AS BEING NECESSARY TO PRODUCE THE INTENDED RESULTS.
2. REMOVE EXISTING BUILDINGS, FOUNDATIONS AND SERVICE UTILITIES AS INDICATED ON PLANS. CAP ALL UTILITIES AT APPROPRIATE POINTS. ALL EXISTING ELECTRICAL / TELEPHONE / CATV UTILITIES SHALL BE REMOVED AS INDICATED OR BACK TO THE POINT WHERE THE SPECIFIC UTILITY SYSTEM ENTERS THE WORK AREA. COORDINATE DEMOLITION OF ALL UTILITIES WITH THE OWNER. ALL UTILITIES CONNECTED TO EXISTING BUILDINGS TO REMAIN SHALL CONTINUE TO BE OPERATIONAL DURING THE DEMOLITION PROCESS. DOMESTIC AND FIRE SERVICE WATER AND NATURAL GAS SHALL BE REMOVED TO A POINT OUTSIDE THE PERIMETER OF PROPOSED NEW CONSTRUCTION TO EXISTING VALVES OR SIMILAR SHUT-OFF DEVICES. IF A SHUT-OFF DEVICE IS NOT REASONABLY ADJACENT TO THE PERIMETER OF THE PROPOSED NEW CONSTRUCTION, PROVIDE A SHUT-OFF DEVICE IN BELOW-GRADE YARD BOX. CONFIRM LOCATION OF NEW DEVICES WITH OWNER PRIOR TO INSTALLATION. SANITARY SEWER AND STORM DRAINAGE SHALL BE CAPPED TO A POINT OUTSIDE THE PERIMETER OF THE PROPOSED NEW CONSTRUCTION. OTHER UTILITIES NOT SPECIFICALLY IDENTIFIED IN THESE DOCUMENTS AND NOT ANTICIPATED FOR REUSE SHALL BE REMOVED IN ENTIRETY.
3. FOR ALL EXISTING MATERIALS THAT CAN BE SALVAGED, OWNER HAS FIRST RIGHT OF REFUSAL FOR REMOVED ITEMS THAT MAY HAVE RESIDUAL COMMERCIAL OR HISTORIC VALUE INCLUDING HARDWARE, GLASS, CORNER STONES, TIME CAPSULES, LIGHT STANDARDS, SIGNS, FENCING, BENCHES, WATER FOUNTAINS, TRASH CONTAINERS, ETC. SHALL REMAIN AS PROPERTY OF THE OWNER. ALL ITEMS TO BE SALVAGED FOR REUSE/REINSTALLATION MUST MEET CURRENT CODE REQUIREMENTS. COORDINATE ITEMS TO BE RETAINED WITH OWNER AND REMOVE FROM CONSTRUCTION SITE TO A LOCATION APPROVED BY OWNER. REMOVED MATERIALS, NOT INDICATED OR DIRECTED TO BE SALVAGED FOR THE OWNER'S BENEFIT ARE DEBRIS AND BECOME THE CONTRACTOR'S PROPERTY UPON REMOVAL.
4. THE EXISTENCE AND LOCATION OF ANY UNDERGROUND UTILITY PIPES OR STRUCTURES SHOWN ON THESE PLANS ARE OBTAINED BY SEARCH OF THE AVAILABLE RECORDS AND FIELD SURVEYS. THE CONTRACTOR SHALL CONTACT UNDERGROUND SERVICE ALERT, UTILITY COMPANIES, AND/OR FIELD VERIFY AND LOCATE ALL UTILITIES BEFORE PROCEEDING WITH WORK. THE CONTRACTOR IS ALSO REQUIRED TO TAKE DUE PRECAUTIONARY MEASURES TO PROTECT THE UTILITY LINES SHOWN AND ANY OTHER LINES NOT OF RECORD OR NOT SHOWN ON THESE PLANS. NOTIFY THE ENGINEER IF ADDITIONAL UTILITIES ARE LOCATED OR IF CONFLICTS ARE FOUND WITH EXISTING CONDITIONS.
5. ALL TREES TO BE REMOVED SHALL BE MARKED BY CONTRACTOR AND APPROVED FOR REMOVAL BY THE OWNER OR OWNER'S REPRESENTATIVE PRIOR TO REMOVING OR CUTTING TREE(S). EXISTING ROOTS SHALL BE GRINDED TO A DEPTH OF APPROXIMATELY 3-FEET. USE CAUTION WHILE GRINDING WHEN EXISTING UTILITIES ARE IN CLOSE PROXIMITY TO TREES. ALL TREES TO REMAIN WITHIN THE LIMIT OF WORK SHALL BE PROTECTED AND MAINTAINED PER SPECIFICATIONS AND DETAILS.
6. SAWCUT EXISTING CONCRETE AND ASPHALT TO AN EXISTING CONTROL JOINT WHERE POSSIBLE, AT MINIMUM TO A NEAT-STRAIGHT LINE. ALL DEBRIS SHALL BE HAULED OFFSITE TO A LEGAL DUMPING SITE OR SALVAGED FOR REUSE ON PROJECT AS NOTED.
7. WORK WITHIN CITY, COUNTY, OR STATE RIGHT-OF-WAY REQUIRES A SEPARATE ENCROACHMENT PERMIT WHICH THE CONTRACTOR IS RESPONSIBLE FOR OBTAINING PRIOR TO STARTING WORK WITHIN RIGHT-OF-WAY.
8. CONTRACTOR TO COORDINATE UTILITY DEMOLITION WITH DRAINAGE AND UTILITY WORK SHOWN IN THIS PLAN SET. ALL UTILITY SHUTDOWNS SHALL BE COORDINATED PER PROJECT SPECIFICATIONS.
9. EXISTING DRY UTILITIES SHOWN FOR DEMOLITION ARE SHOWN FOR COORDINATION ONLY. REFER TO OTHER DISCIPLINES FOR LIMITS AND DETAILS OF DEMOLITION.
10. THE CONTRACTOR SHALL RECYCLE CONSTRUCTION DEBRIS, ASPHALT, AND CONCRETE GENERATED FROM REMOVALS REQUIRED TO CONSTRUCT THE PROJECT. THE CONTRACTOR IS OBLIGATED, UNDER THIS CONTRACT, TO RECYCLE THE WASTE MATERIAL THROUGH AN APPROVED RECYCLING PLANT.
11. A LIST OF FACILITIES THAT ACCEPT CONSTRUCTION & DEMOLITION DEBRIS CAN BE FOUND ON THE CALRECYCLE WEBSITE AT: HTTPS://WWW.CALRECYCLE.CA.GOV/CONDEMO
12. CONTRACTOR IS RESPONSIBLE FOR PROTECTING EXISTING BUILDING FINISHES DURING DEMOLITION. ANY FINISH THAT IS DAMAGED DURING DEMOLITION SHALL BE REPAIRED OR REPLACED IN-KIND OR BETTER.

GENERAL NOTES TO CONTRACTOR

1. THE CONTRACTOR SHALL CONTACT THE RESPECTIVE UTILITY OWNERS FOR LOCATION, REMOVAL, AND/OR RELOCATION OF ANY UTILITY SERVICES AFFECTED BY CONSTRUCTION. THE CONTRACTOR SHALL TAKE ALL NECESSARY PRECAUTIONARY MEASURES TO PROTECT UNDERGROUND OR OVERHEAD STRUCTURES WHETHER OR NOT THEY ARE SHOWN ON THESE DRAWINGS.
2. THE CONTRACTOR SHALL NOTIFY THE PROJECT INSPECTOR AND THE RESPECTIVE UTILITY OWNERS AND OTHER AGENCIES AT LEAST TWO WORKING DAYS PRIOR TO START OF CONSTRUCTION.
3. THE CONTRACTOR SHALL BE RESPONSIBLE FOR EXPOSING, VERIFYING LOCATIONS (BOTH HORIZONTAL AND VERTICAL), AND MAINTAINING ALL EXISTING UNDERGROUND UTILITIES, BOTH SHOWN ON THE PLANS AND/OR NOT SHOWN ON THE PLANS DURING CONSTRUCTION. REPAIR DAMAGED UTILITIES TO THE SATISFACTION OF THE ENGINEER. THE CONTRACTOR SHALL LOCATE EXISTING UNDERGROUND UTILITIES SUFFICIENTLY AHEAD OF CONSTRUCTION TO PERMIT REVISIONS TO PLANS BECAUSE OF LOCATIONS OF EXISTING FACILITIES AND SHALL REPORT ALL DISCREPANCIES TO THE ENGINEER PRIOR TO THE COMMENCEMENT OF WORK.
4. THE EXISTENCE AND LOCATION OF ANY UNDERGROUND UTILITIES AND/OR STRUCTURES SHOWN ON THESE PLANS WERE OBTAINED BY A SEARCH OF THE AVAILABLE RECORDS. APPROVAL OF THESE PLANS DOES NOT CONSTITUTE A REPRESENTATION AS TO THE ACCURACY OR COMPLETENESS OF THE LOCATION OR THE EXISTENCE, OR NON-EXISTENCE OF ANY UTILITY AND/OR STRUCTURE WITHIN THE LIMITS OF THIS PROJECT. THE CONTRACTOR IS REQUIRED TO TAKE ALL DUE PRECAUTIONARY MEASURES TO PROTECT THE UTILITIES OF RECORD AND/OR NOT OF RECORD SHOWN OR NOT SHOWN AND ANY OTHER LINE(S) OR STRUCTURE(S) NOT SHOWN ON THESE PLANS. THE CONTRACTOR IS RESPONSIBLE FOR THE PROTECTION OF, AND/OR DAMAGE TO THESE LINE(S) AND/OR STRUCTURE(S).
5. THE CONTRACTOR SHALL BE RESPONSIBLE FOR TEMPORARY SHORING AT PROPOSED BUILDING FOUNDATIONS, FOOTINGS, AND WALLS TO PROTECT EXISTING UTILITIES IN PLACE.
6. UNAUTHORIZED CHANGES AND USES - CAUTION: THE ENGINEER PREPARING THESE PLANS WILL NOT BE RESPONSIBLE FOR, OR LIABLE FOR, UNAUTHORIZED CHANGES TO OR USES OF THESE PLANS. ALL CHANGES TO THE PLANS MUST BE IN WRITING AND MUST BE APPROVED BY THE PREPARER OF THESE PLANS.
7. THE CONTRACTOR SHALL MAINTAIN THE EXISTING ACCESSIBLE ROUTE CLEAR OR PROVIDE AN ALTERNATE ACCESSIBLE ROUTE OF TRAVEL DURING DEMOLITION AND/OR CONSTRUCTION.
8. THE CONTRACTOR SHALL MAINTAIN THE EXISTING FIRE EXITS AND STAIRS CLEAR AND USABLE OR PROVIDE ALTERNATE FIRE EXITS DURING DEMOLITION AND/OR CONSTRUCTION.

EARTHWORK NOTES

1. IT IS THE CONTRACTOR'S RESPONSIBILITY TO REVIEW THE GRADING PLANS AND SOILS REPORT THOROUGHLY PRIOR TO SITE MOBILIZATION. IT IS ALSO THE GRADING CONTRACTOR'S RESPONSIBILITY TO NOTIFY THE CIVIL AND SOILS ENGINEERS IF ONSITE DISCREPANCIES ARE OBSERVED THAT WOULD AFFECT THE EARTHWORK QUANTITIES.
2. THE EXISTING TOPOGRAPHY AS DELINEATED ON THESE DRAWINGS SHALL BE UTILIZED AS THE BASIS FOR ALL EARTHWORK COMPUTATIONS. SAID TOPOGRAPHY SHALL BE PRESUMED TO BE ACCEPTABLE TO ALL INTERESTED PARTIES UNLESS A DEVIATION IS FOUND PRIOR TO THE START OF GRADING IN ANY SPECIFIC AREAS. ANY DEVIATION SO DETERMINED SHALL BE PROMPTLY TRANSMITTED TO ALL INTERESTED PARTIES.
3. THE CONTRACTOR IS REQUIRED TO ESTIMATE THE QUANTITIES OF GRADING WORK TO BE DONE AND INCLUDE ALL COSTS THEREFROM WITH HIS BID, AS NO ADDITIONAL ALLOWANCE WILL BE MADE WITHOUT PRIOR CONSENT FROM THE OWNER.
4. OVER-EXCAVATION AND/OR EXCESS BACKFILLING OR DUPLICATION OF GRADING ACTIVITIES IS NOT A BASIS FOR ADDITIONAL COMPENSATION. THIS ALSO APPLIES WHERE MATERIAL IS TO BE REMOVED AND REPLACED TO REDUCE MOISTURE CONTENT.
5. OFF-SITE DISPOSAL OF EXCAVATION MATERIAL IS THE RESPONSIBILITY OF THE CONTRACTOR AND SHALL BE INCLUDED IN THE BID. THE CONTRACTOR SHALL HOLD THE OWNER AND ENGINEER HARMLESS AS A RESULT OF ANY CLAIMS ARISING FROM THE ACTIONS ENROUTE OR AWAY FROM THE SITE.
6. EARTH VOLUMES SHOWN HEREON ARE ESTIMATES BASED UPON THE GEOTECHNICAL ANALYSIS PERFORMED BY THE NAMED SOILS ENGINEER AND TOPOGRAPHIC SURVEY OF THE EXISTING GROUND SURFACE AT THE TIME OF PLAN PREPARATION. EARTHWORK VOLUMES ARE COMPUTED BY METHODS COMMONLY USED IN STANDARD ENGINEERING PRACTICE, AND ARE INTENDED FOR USE IN ESTABLISHING GOVERNING AGENCY FEES. ACTUAL FIELD CONDITIONS MAY VARY FROM OBSERVED OR MEASURED CONDITIONS AT THE TIME OF PLAN PREPARATION. EARTHWORK QUANTITIES MAY VARY AS A RESULT.
7. ANY EXPORT OR IMPORT REQUIRED TO BALANCE THE SITE SHALL BE THE SOLE RESPONSIBILITY OF THE CONTRACTOR.
8. PAVEMENT AND SUBGRADE RECOMMENDATIONS RELATED TO OVER-EXCAVATION, PAVEMENT SUBGRADE, ETC., PER GEOTECHNICAL REPORT.

GEOTECHNICAL INFORMATION

FOR SITE PREPARATION, OVEREXCAVATION, FOUNDATION RECOMMENDATIONS, PAVEMENT, SUBGRADE, AND GRADATION REQUIREMENTS SEE GEOTECHNICAL INVESTIGATION REPORT ENTITLED:

"GEOTECHNICAL EXPLORATION REPORT
MALIBU MIDDLE AND HIGH SCHOOL CAMPUS
PHASE II IMPROVEMENTS
PROPOSED AQUATIC CENTER, MIDDLE SCHOOL BUILDING, AND GYMNASIUM
30215 MORNING VIEW DRIVE
MALIBU, LOS ANGELES COUNTY, CALIFORNIA "

PREPARED BY: LEIGHTON CONSULTING, INC.
2600 MICHELSON DRIVE, SUITE 400
IRVINE, CALIFORNIA 92612

PROJECT NO: 036.0000025785

DATED: MAY 23, 2025

BENCHMARK

US NATIONAL GEODETIC SURVEY
PID NO: EW4180, EW1593, EW6821, EW4188, EW4106, EW4113, EW4205, EW4212, AE1725, AE1722
NAVD 88 DATUM

DATUM STATEMENT

STATE PLANE COORDINATES, CALIFORNIA SYSTEM ZONE 5 BASED ON NAD83 (CORS96) (EPOCH: 2002.0000) REFERENCE FRAME. THE HORIZONTAL COORDINATE VALUES SHOWN HEREON ARE BASED UPON LOCAL CONTROL POINTS AND DERIVED FROM THE GPS STATIC OBSERVATIONS THAT WERE POST-PROCESSED USING ON-LINE POSITIONING USER SERVICE (OPUS) PROVIDED BY THE US NATIONAL GEODETIC SURVEY.

VERTICAL VALUES ARE BASED UPON NORTH AMERICAN VERTICAL DATUM OF 1988 USING THE FOLLOWING US NATIONAL GEODETIC SURVEY BENCHMARKS: EW4180, EW1593, EW6821, EW4188, EW4106, EW4113, EW4205, EW4212, AE1725, AE1722. SEE SHEET 1 OF SEE PSOMAS MAP "AERIAL TOPOGRAPHIC SURVEY, UTILITY LOCATIONS AND EASEMENT EXHIBIT" JOB NO. 1SAN880102 TASK 100 FOR THE BENCHMARK DESCRIPTION.

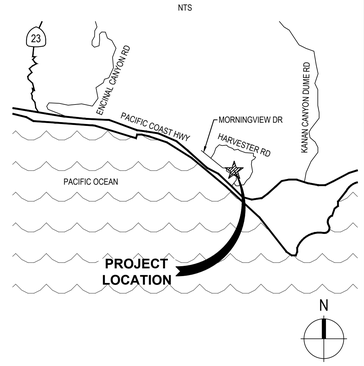
BASIS OF BEARINGS

THE BOUNDARY LINES SHOWN HEREON ARE BASED UPON RECOVERED CITY, COUNTY AND/OR PRIVATE SURVEY MONUMENTS. SEE PSOMAS MAP "BOUNDARY SURVEY"

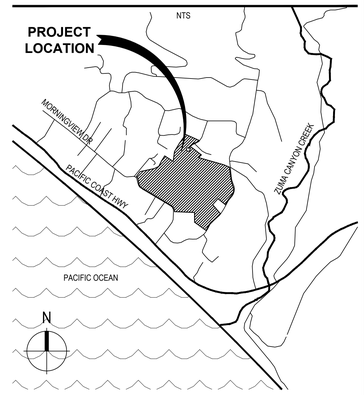
LEGAL DESCRIPTION

PARCELS 10, 11 AND 12 IN BLOCK 5 AS SHOWN ON THE RECORD OF SURVEY FILE DIN BOOK 56 PAGES 14 TO 17 INCLUSIVE OF RECORDS OF SURVEY, IN THE OFFICE OF THE COUNTY RECORDER OF SAID COUNTY.

VICINITY MAP



LOCATION MAP



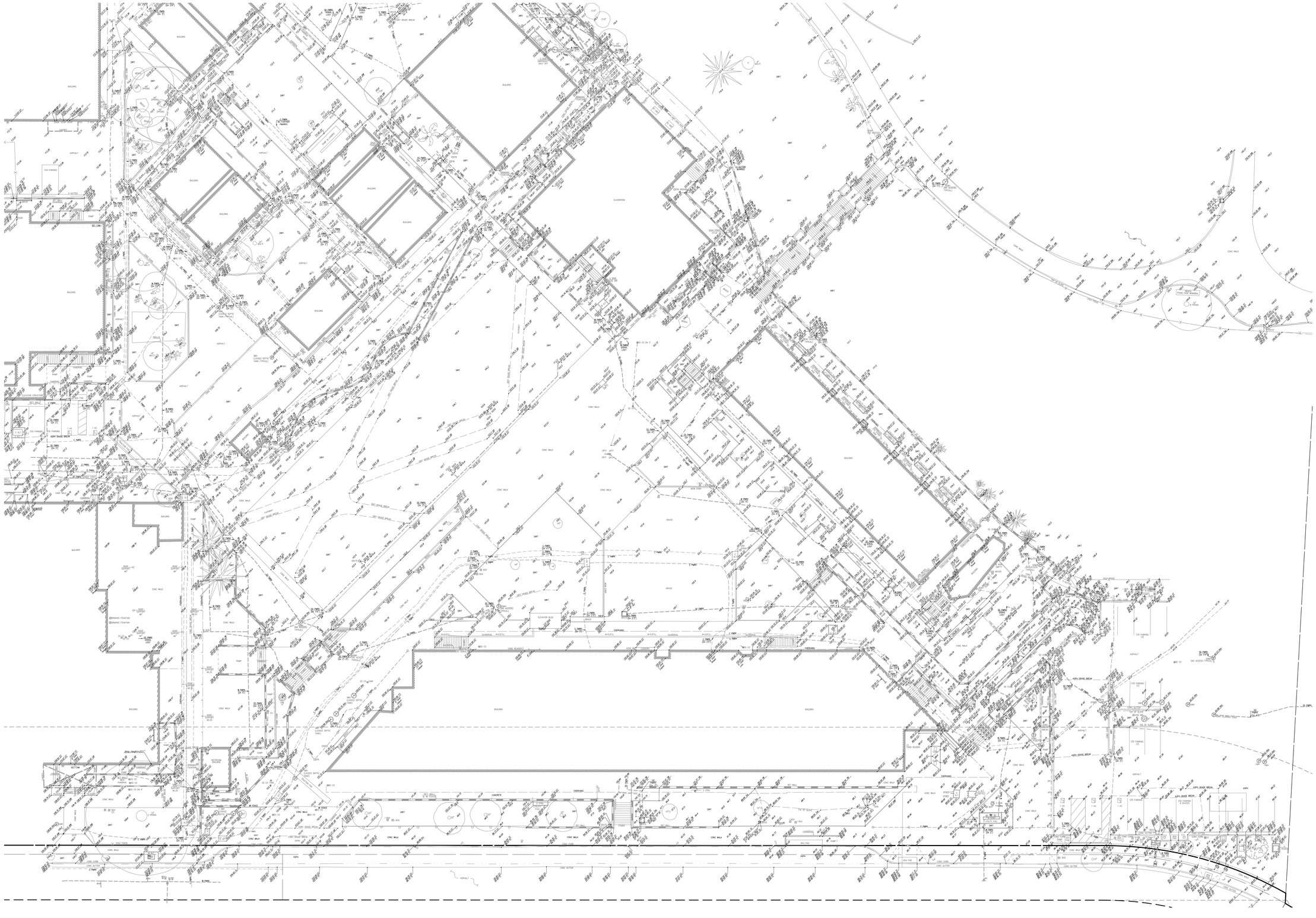
CIVIL SHEET INDEX

C0.01	CIVIL NOTES
C0.02	EXISTING CONDITIONS
C1.01	DEMOLITION PLAN
C2.01	GRADING PLAN
C5.01	HORIZONTAL CONTROL, PAVING, STRIPING AND SIGNAGE PLAN
C7.01	DETAILS

Received
10/7/2025
Planning Dept.

DIG ALERT NOTICE

PURSUANT TO THE CALIFORNIA GOVERNMENT CODE S



N

0 10 20 40

EXISTING CONDITIONS 1" = 20' 05

LPA

ARCHITECTURE ENGINEERING INTERIOR DESIGN
LANDSCAPE ARCHITECTURE PLANNING

949-261-1001 Office

LPADesignStudios.com

5301 California Avenue, Suite 100
Irvine, California 92617

REGISTERED PROFESSIONAL ENGINEER
KATHLEEN M. [illegible]
R.C.E. 68369
EXP. 9-30-27
CIVIL
STATE OF CALIFORNIA

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MALIBU MIDDLE SCHOOL LIFE SKILLS

30215 Morning View Dr.
Malibu, CA 90265

Developed for
SMMUSD

Submittal	Date
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Revision	Date

Job Number	31722
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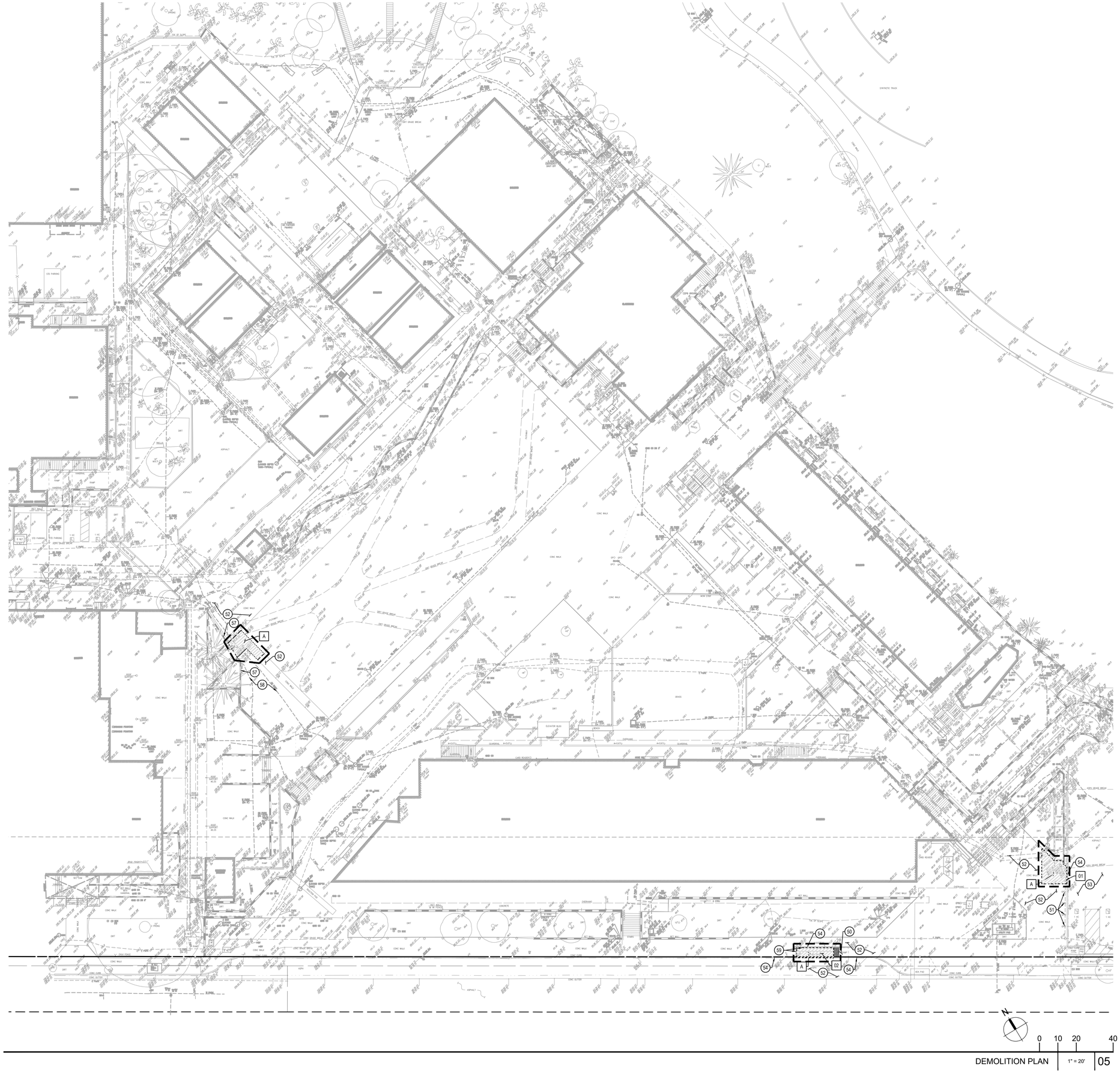
Scale	AS NOTED

EXISTING CONDITIONS

C0.02



DEMOLITION PLAN 1" = 20' 05

DEMOLITION LEGEND

LABEL	DESCRIPTION
A	REMOVE (E) CONCRETE PAVEMENT/SIDEWALK, SEE DEMOLITION NOTE 10 SHEET C0.01.
	SAWCUT (E) PAVEMENT AS NEEDED. SEE DEMOLITION NOTE 6 AND 10 SHEET C0.01.
	APPROXIMATE LIMIT OF WORK LINE.

DEMOLITION KEYNOTES

KEY NOTE	DESCRIPTION
01	SALVAGE (E) LIGHT STANDARD AND REMOVE FOOTING. SEE ELECTRICAL PLANS FOR IMPROVEMENTS.
02	REMOVE (E) TRUNCATED DOMES.

PROTECTION KEYNOTES

KEY NOTE	DESCRIPTION
50	PROTECT (E) CURB RAMP PER A#03-113456.
51	PROTECT (E) BOLLARD AND FOOTING PER A#03-113456.
52	PROTECT (E) CONCRETE PAVEMENT/SIDEWALK.
53	PROTECT (E) AC PAVEMENT.
54	PROTECT (E) CURB.
57	PROTECT (E) RETAINING WALL PER A#30457.
58	PROTECT (E) STORM DRAIN LINES AND FACILITIES.
59	PROTECT (E) HANDRAILS PER A#03-113456.

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ARCHITECTURE ENGINEERING INTERIOR DESIGN
LANDSCAPE ARCHITECTURE PLANNING

949-261-1001 Office

LPADesignStudios.com

5301 California Avenue, Suite 100
Irvine, California 92617

REGISTERED PROFESSIONAL ENGINEER
KATHLEEN M. SULLIVAN
R.C.E. 68369
EXP. 9-30-27
CIVIL
STATE OF CALIFORNIA

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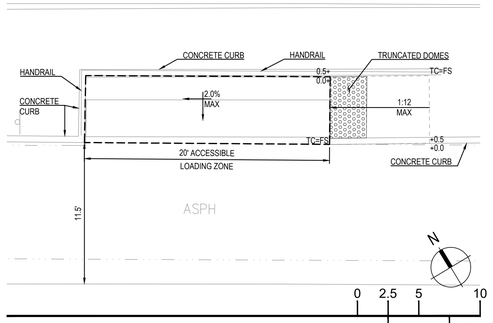
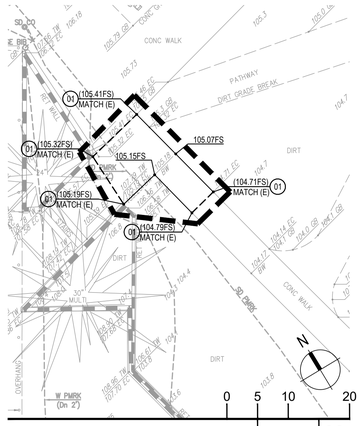
DEMOLITION PLAN

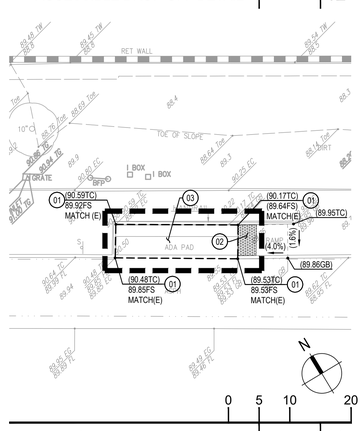
C1.01



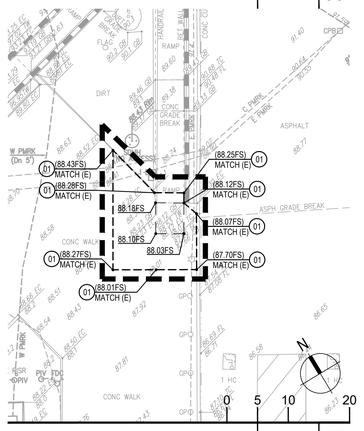
ACCESSIBLE DROP-OFF DETAIL 1" = 5' 12



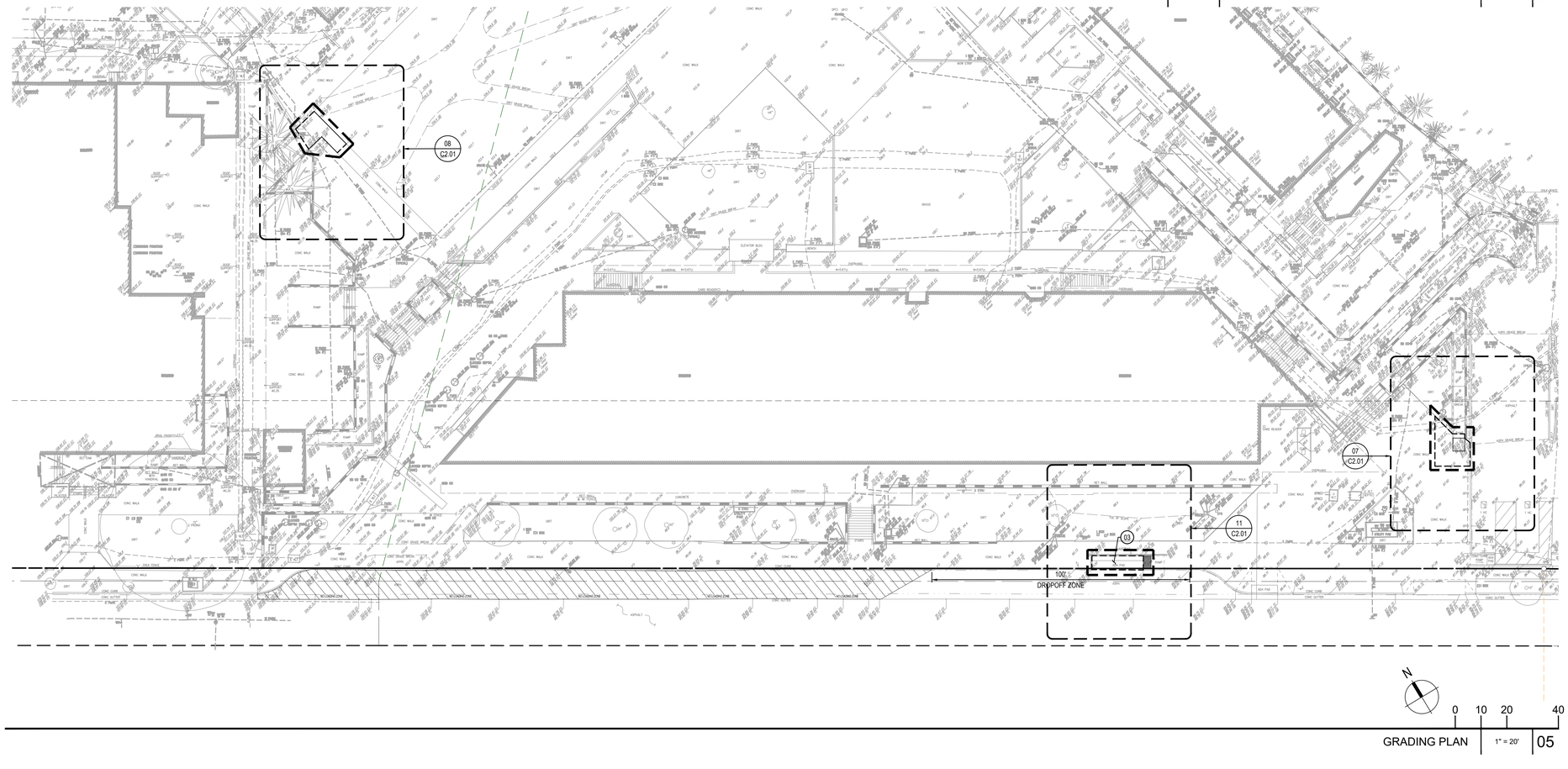
GRADING ENLARGEMENT 1" = 10' 08



GRADING ENLARGEMENT 1" = 10' 11



GRADING ENLARGEMENT 1" = 10' 07



GRADING PLAN 1" = 20' 05

LEGEND

SYMBOL	DESCRIPTION
PA	PLANTING AREA SEE LANDSCAPE PLAN DETAILS FOR GRADES ADJACENT TO HARDSCAPE
	APPROXIMATE LIMIT OF WORK
GB	GRADE BREAK
	SAWCUT (E) PAVEMENT AS NEEDED. SEE DEMOLITION PLAN
	FLOWLINE
TOS	TOP OF SLOPE
TOE	TOE OF SLOPE
	OVERLAND RELEASE

GRADING CONSTRUCTION NOTES

KEY NOTE	DESCRIPTION
01	JOIN EXISTING CONCRETE PAVEMENT AND MATCH EXISTING GRADE.
02	INSTALL TRUNCATED DOMES PER DETAIL 02 ON SHEET C7.01.
03	INSTALL ACCESSIBLE PASSENGER DROP-OFF PER DETAIL 12 ON SHEET C2.01.

LPA
ARCHITECTURE ENGINEERING INTERIOR DESIGN
LANDSCAPE ARCHITECTURE PLANNING
949-261-1001 Office
LPADesignStudios.com
5301 California Avenue, Suite 100
Irvine, California 92617

REGISTERED PROFESSIONAL ENGINEER
KATHEREEN M. SHINKAI
R.C.E. 68369
EXP. 9-30-27
CIVIL
STATE OF CALIFORNIA

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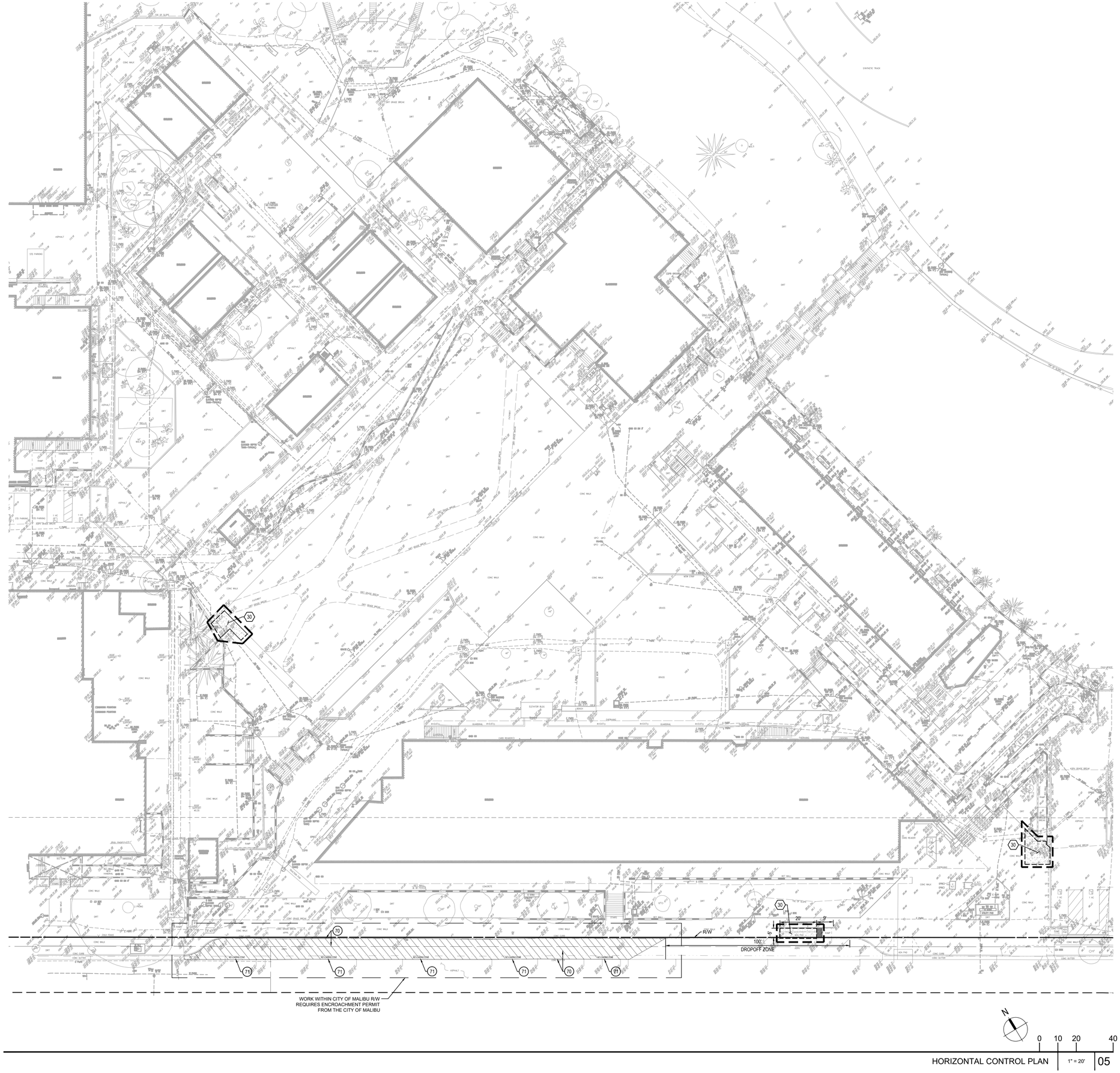
GRADING PLAN

C2.01



HORIZONTAL CONTROL PLAN | 1" = 20' | 05

PAVING NOTES:

1. LOCATION AND TYPE OF CONCRETE WALKS AND HARDSCAPE INCLUDING DETAILS FOR CONCRETE FINISHES, CONTROL JOINTS AND EXPANSION JOINTS TO MATCH EXISTING CONDITIONS.

PAVING LEGEND

SYMBOL	DESCRIPTION
30	PEDESTRIAN CONCRETE PAVEMENT 5 1/2" PCC OVER 4" CL II AB PER DETAIL 01 SHEET C7.01.

CONSTRUCTION NOTES:

KEY NOTE	DESCRIPTION
70	DROP-OFF ZONE STRIPING. 4" WIDE YELLOW STRIPE AT 45° ANGLE AT 3' SPACING OC. PAINT WORDS "NO PARKING" IN 12" HIGH LETTERS, WHERE INDICATED.
71	4" WIDE YELLOW STRIPING PAINT WORDS "NO LOADING ZONE" IN 12" HIGH LETTERS, WHERE INDICATED.

STRIPING NOTES

1. ALL EXISTING STRIPING AND MARKINGS TO REMAIN UNLESS OTHERWISE NOTED. CONFLICTS BETWEEN EXISTING AND PROPOSED SHALL BE RESOLVED BY THE ENGINEER.
2. REMOVAL OF EXISTING STRIPING AND PAVEMENT MARKINGS SHALL BE ACCOMPLISHED BY WET SANDBLASTING OR OTHER APPROVED GRINDING METHOD PRIOR TO INSTALLATION OF NEW STRIPING. ALL CONFLICTING STRIPING, PAVEMENT MARKINGS, AND RAISED PAVEMENT MARKERS SHALL BE REMOVED.
3. PAVEMENT THAT IS DAMAGED DUE TO THE REMOVAL OF MARKERS OR STRIPING SHALL BE REPAIRED TO THE SATISFACTION OF THE OWNER.

HORIZONTAL CONTROL NOTES:

THIS HORIZONTAL CONTROL PLAN ESTABLISHES THE FOLLOWING TO BE USED AS BASE CONTROL FOR CONSTRUCTION STAKING.

1. PRIOR TO STAKING ANY BUILDING STRUCTURE, SURVEYOR SHALL VERIFY THAT THE GRIDS SHOWN ON THIS PLAN MATCHES THE ARCHITECTURAL & STRUCTURAL PLANS.
2. TWO COORDINATES ARE PROVIDED TO ESTABLISH THE BUILDING GRID. SEE ARCHITECTURAL AND STRUCTURAL PLANS FOR FINAL BUILDING DIMENSIONS.
3. IF ANY DISCREPANCIES ARE FOUND DURING CONSTRUCTION STAKING NOTIFY CIVIL ENGINEER IMMEDIATELY.
4. SEE LANDSCAPE PLANS FOR DETAILED HARDSCAPE DIMENSIONS.
5. SEE LANDSCAPE PLANS FOR LOCATION AND TYPE OF CONCRETE WALKS AND HARDSCAPE INCLUDING DETAILS FOR CONCRETE FINISHES, CONTROL JOINTS AND EXPANSION JOINTS.
6. SEE PAVING AND STRIPING PLANS FOR LOCATION AND TYPE OF PAVING AND STRIPING.

BENCHMARK

-SEE SHEET C0.01 FOR BENCHMARK.

BASIS OF BEARINGS

-SEE SHEET C0.01 FOR BASIS OF BEARINGS.

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LANDSCAPE ARCHITECTURE PLANNING

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REGISTERED PROFESSIONAL ENGINEER
KATHLEEN M. [illegible]
R.C.E. 68369
EXP. 9-30-27
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MALIBU MIDDLE SCHOOL LIFE SKILLS

30215 Morning View Dr.
Malibu, CA 90265

Developed for
SMMUSD

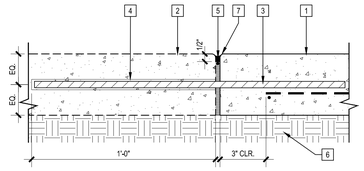
Revision	Date

Submittal	Date
DSA SUBMITTAL	06/20/2025
DSA SUBMITTAL V2	06/22/2025

Job Number	31722
Checked By	RR
Scale	AS NOTED

HORIZONTAL CONTROL & PAVING PLAN

C5.01



1 NEW CONCRETE PAVING AND REINFORCEMENT; REFER TO DTL. 01/-

2 EXISTING CONCRETE PAVING

3 1/2" X 24" SMOOTH STEEL DOWEL AT 18" O.C.

4 5/8" SLIP SLEEVE DRILLED INTO EXISTING CONCRETE PAVING; DOWEL TO HAVE FREE MOVEMENT ON THIS SIDE

5 JOINT SEALANT WITH BACKER ROD

6 BASE MATERIAL AND COMPACTED SUBGRADE; REFER TO DTL. 01/-

7 1/8" RADIUS; AT NEW CONCRETE PAVING

NOTES:

A. PROVIDE AT ALL LOCATIONS WHERE NEW CONCRETE JOINS EXISTING CONCRETE.

B. PROVIDE CLEAN SAWCUT AT EXISTING PAVING. EXTEND PROPOSED PAVING AS REQUIRED TO CLOSEST ADJACENT JOINT.

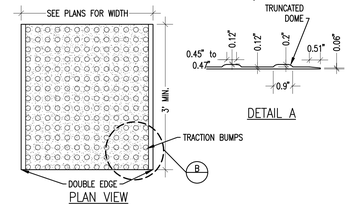
C. SEE PLANS FOR LIMIT OF DEMOLITION.

D. NATIVE OR FILL SOIL SUPPORTING EXTERIOR NON-STRUCTURAL FLATWORK AND UNPAVED LANDSCAPING AREAS ARE EXEMPT FROM SPECIAL INSPECTION AND TESTING.

E. CONCRETE BATCH PLANT INSPECTION IS NOT REQUIRED.

CONCRETE PAVING TIE-IN

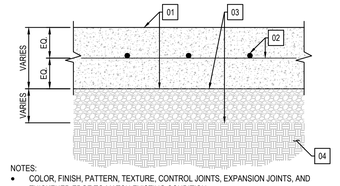
3"=1'-0" - 03



NOTE:
THE DETECTABLE WARNING SHALL EXTEND THE FULL WIDTH AND DEPTH OF THE CURB RAMP AND SHALL BE YELLOW COLOR AND MEET THE CONFIGURATION AND DIMENSION SHOWN. MANUFACTURER SHALL BE VANGUARD OR EQUAL. MAT SHALL BE FLUSH WITH ADJACENT CONCRETE WALK. RECESS CONCRETE WALK AS REQUIRED.

DETECTABLE WARNING MAT

NTS 02



NOTES:
- COLOR, FINISH, PATTERN, TEXTURE, CONTROL JOINTS, EXPANSION JOINTS, AND THICKENED EDGE TO MATCH EXISTING CONDITION.
- CONCRETE DOWELING PER DETAIL 03 SHEET C7.01.
- DO NOT ALLOW CONCRETE OVER-POUR INTO ADJACENT PLANTERS.
- MINIMUM CONCRETE STRENGTH PER SPECIFICATION SECTION 321313.

*SUBGRADE NOTES:
- PLACE AT LEAST 2 FEET OF RELATIVELY NON-EXPANSION FILL (EI < 20) UNDER ALL SLABS-ON-GRADE AND NEARBY FLATWORK. SLAB-ON-SLAB SUBGRADE SOIL SHALL BE MOISTURE CONDITIONED TO 3%–5% ABOVE OPTIMUM MOISTURE CONTENT, DOWN TO 18 INCHES DEEP, AND COMPACTED TO 90% OF THE MODIFIED PROCTOR (ASTM D1557) LAB MAX DENSITY BEFORE INSTALLING VAPOR BARRIERS, STEEL, OR CONCRETE.

*THE PROJECT GEOTECHNICAL REPORT INCLUDING ALL AMENDMENTS ARE TO SUPERSEDE THE PROVIDED SUBGRADE NOTES WHERE ANY DISCREPANCY OCCURS.

01 CONCRETE PAVING 6" THICK

02 #4 @ 12" OC EACH WAY

03 COMPACTED BASE COURSE 4" THICK

04 SUBGRADE PREPARATION PER NOTES ABOVE

CONCRETE PAVEMENT

NTS 01

LPA

ARCHITECTURE ENGINEERING INTERIOR DESIGN
LANDSCAPE ARCHITECTURE PLANNING

949-261-1001 Office

LPADesignStudios.com

5301 California Avenue, Suite 100
Irvine, California 92617

REGISTERED PROFESSIONAL ENGINEER
KATHLEEN M. GUTIERREZ
R.C.E. 68369
EXP. 9-30-27
CIVIL
STATE OF CALIFORNIA

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DETAILS

C7.01

ABBREVIATIONS

AB	AGGREGATE BASE	MIN	MINIMUM
AC	ASPHALT CONCRETE PAVEMENT	MOC	MIDDLE OF CURVATURE
AE	ACCESS EASEMENT	N	NORTH
ASPH	ASPHALT PAVING	NG	NATURAL GRADE
BC	BEGIN CURVATURE	NTS	NOT TO SCALE
BCR	BEGIN CURB RETURN	OC	ON CENTER
BFP	BACK FLOW PREVENTER	(P)	PROPOSED, NEW
BI	BOX INLET	PA	PLANTING AREA
BM	BENCHMARK	PBC	PULL BOX CABLE
BOP	BOTTOM OF PIPE	PBE	PULL BOX ELECTRIC
BOR	BOTTOM OF RAMP	PBT	PULL BOX TELEPHONE
BS	BOTTOM OF STAIRS	PBW	PULL BOX WATER
BVC	BEGIN VERTICAL CURVATURE	PCC	POINT OF COMPOUND CURVATURE
BW	BOTTOM OF WALL	PE	PEDESTRIAN EASEMENT
C&G	CURB AND GUTTER	PI	POINT OF INTERSECTION
CL,CL	CENTER LINE	PIVC	POINT OF INTERSECTION VERTICAL CURVATURE
CB	CATCH BASIN	PL	PROPERTY LINE
CONST	CONSTRUCT	POC	POINT OF CONNECTION
CR	CURB RETURN	PP	POWER POLE
CT	COURT	PRC	POINT OF REVERSE CURVATURE
CUL	CULVERT	PVC	POLYVINYL CHLORIDE
DI	DROP INLET	PVMT	PAVEMENT
DIP	DUCTILE IRON PIPE	R	RADIUS
DW	DOMESTIC WATER	RCP	REINFORCED CONCRETE PIPE
DWY	DRIVEWAY	RIM	TOP RIM OF STRUCTURE
DE	DRAINAGE EASEMENT	ROW	HIGHWAY EASEMENT
DR	DRIVE	RT	RIGHT
(E)	EXISTING	RW	RECLAIMED WATER
E	EAST	R/W	RIGHT OF WAY
EC	END CURVATURE	S	SOUTH OR SLOPE
ECR	END CURB RETURN	SBE	SETBACK EASEMENT
EG	EXISTING GRADE	SCO	SANITARY SEWER CLEANOUT
ELEV	ELEVATION	SD	STORM DRAIN
EOC	EDGE OF CONCRETE	SDMH	STORM DRAIN MANHOLE
EP	EDGE OF PAVEMENT	SF	SQUARE FEET
EQ	EQUAL	SHT	SHEET
ESMT	EASEMENT	STA	STATION
EVC	END OF VERTICAL CURVATURE	SMH	SANITARY SEWER MANHOLE
FF	FINISHED FLOOR	SS	SANITARY SEWER
FFE	FINISHED FLOOR ELEVATION	SWPPP	STORM WATER POLLUTION PREVENTION PLAN
FG	FINISHED GRADE	SW	SIDEWALK
FH	FIRE HYDRANT	T	TANGENT
FL	FLOWLINE	TB	TOP OF BERM
FS	FINISHED SURFACE	TBC	TOP BACK OF CURB
FW	FIRE PROTECTION SERVICE WATER	TBW	TOP BACK OF WALK
GB	GRADE BREAK	TC	TOP OF CURB
GFL	GUTTER FLOWLINE	TF	TOP OF FOOTING
GSL	LIMITS OF GRAVITY SEWER	TG	TOP OF GRATE
GR	GRATE	TOE	TOE OF SLOPE
GV	GAS VALVE	TOP	TOP OF PIPE
HB	HOSE BIB	TOR	TOP OF RAMP
HP	HIGH POINT	TOS	TOP OF SLOPE
ICV	IRRIGATION CONTROL VALVE	TP	TOP OF PLANTER
INTX	POINT OF INTERSECTION	TS	TOP OF STAIRS
INV	INVERT	TW	TOP OF WALL
JP	JOINT POLE	TYP	TYPICAL
LE	LANDSCAPE EASEMENT	TP	TELEPHONE POLE
LF	LINEAR FEET	VC	VERTICAL CURVATURE
LIP	LIP OF GUTTER	W	WEST
LP	LOW POINT	WM	WATER MAIN
LT	LEFT	WV	WATER VALVE
MAX	MAXIMUM		
MH	MANHOLE		

LEGEND

SYMBOL	DESCRIPTION
RD	ROOF DRAIN POC 5' FROM BUILDING
G	GAS POC 5' FROM BUILDING
F	FIRE WATER POC 5' FROM BUILDING
W	DOMESTIC WATER POC 5' FROM BUILDING
SS	SANITARY SEWER POC 5' FROM BUILDING
D	STORM DRAIN MANHOLE
S	SANITARY SEWER MANHOLE
	DRAIN INLET
AD	AREA DRAIN
	TRENCH DRAIN
	CLEANOUT
	BLOW OFF
	FIRE HYDRANT
	VALVE
	POST INDICATOR VALVE (PIV)/CHECK VALVE (CHK VLV)/FIRE DEPARTMENT CONNECTION (FDC)
	CHECK VALVE (CHK VLV)
	FIRE DEPARTMENT CONNECTION (FDC)
	DOUBLE DETECTOR CHECK (DBL CHK)
	REDUCED PRESSURE (BFP)
	POST INDICATOR VALVE (PIV)
	THRUST BLOCK
	BENDS, TEE AND CROSS
	WATER METER

LINE TYPE	DESCRIPTION
	APPROXIMATE PROJECT LIMITS
	RIGHT OF WAY/ PROPERTY LINE
	FENCE
	REMOVE EXISTING UTILITY
SS	EXISTING SEWER LINE
W	EXISTING WATER LINE
SD	EXISTING STORM DRAIN LINE
FW	EXISTING DEDICATED PRIVATE FIRE SERVICE
G	EXISTING NATURAL GAS SERVICE
E	EXISTING ELECTRICAL LINE / CONDUIT
T	EXISTING TELECOMMUNICATIONS LINE / CONDUIT
XXLF 6"SS S=X.XXX	SANITARY SEWER LINE
XXLF 6"DW PVC	DOMESTIC WATER LINE
XXLF 6"SD S=X.XXX	STORM DRAIN LINE (<8" DIAMETER)
XXLF 12"SD S=X.XXX	STORM DRAIN LINE (>8" DIAMETER)
	PERFORATED STORM DRAIN LINE
XXLF 6"FW PVC	DEDICATED PRIVATE FIRE SERVICE
XXLF GAS PVC	NATURAL GAS LINE
GB	GRADE BREAK LINE
	FLOW LINE
	DAYLIGHT LINE

GENERAL EROSION AND SEDIMENT CONTROL NOTES

1. CONTRACTOR SHALL ENSURE THAT THE CONSTRUCTION SITE IS PREPARED PRIOR TO THE START OF CONSTRUCTION. CONTRACTOR SHALL HAVE ALL EROSION AND SEDIMENT CONTROL MEASURES IN PLACE AT ALL TIMES DURING CONSTRUCTION.
2. ALL EROSION AND SEDIMENT CONTROL MEASURES SHALL BE MAINTAINED UNTIL DISTURBED AREAS ARE STABILIZED.
3. THIS PLAN MAY NOT COVER ALL THE SITUATIONS THAT ARISE DURING CONSTRUCTION DUE TO UNANTICIPATED FIELD CONDITIONS.
4. ALL EROSION AND SEDIMENT CONTROL MEASURES SHALL BE CHECKED BEFORE AND AFTER ALL STORMS TO ENSURE MEASURES ARE FUNCTIONING PROPERLY.
5. CONTRACTOR SHALL MAINTAIN A LOG AT THE SITE OF ALL INSPECTIONS OR MAINTENANCE OF BMPS, AS WELL AS, ANY CORRECTIVE CHANGES TO THE BMPS OR EROSION AND SEDIMENT CONTROL PLAN.
6. IN AREAS WHERE SOIL IS EXPOSED, PROMPT REPLANTING WITH NATIVE COMPATIBLE, DROUGHT-RESISTANT VEGETATION SHALL BE PERFORMED. NO AREAS WILL BE LEFT EXPOSED OVER THE WINTER SEASON.
7. THE CONTRACTOR SHALL INSTALL THE STABILIZED CONSTRUCTION ENTRANCE PRIOR TO COMMENCEMENT OF GRADING. LOCATION OF THE ENTRANCE MAY BE ADJUSTED BY THE CONTRACTOR TO FACILITATE GRADING OPERATIONS. ALL CONSTRUCTION TRAFFIC ENTERING THE PAVED ROAD MUST CROSS THE STABILIZED CONSTRUCTION ENTRANCE.
8. ALL SEDIMENT DEPOSITED ON PAVED ROADWAYS SHALL BE SWEPT AT THE END OF EACH WORKING DAY OR MORE OFTEN AS NECESSARY.
9. CONTRACTOR SHALL PLACE GRAVEL/SAND BAGS AROUND ALL NEW DRAINAGE STRUCTURE OPENINGS IMMEDIATELY AFTER THE STRUCTURE OPENING IS CONSTRUCTED. THESE GRAVEL/SAND BAGS SHALL BE MAINTAINED AND REMAIN IN PLACE UNTIL CONSTRUCTION IS COMPLETED.
10. CONTRACTOR SHALL IMPLEMENT HOUSEKEEPING PRACTICES AS FOLLOWS:
    A. SOLID WASTE MANAGEMENT:
    PROVIDE DESIGNATED WASTE COLLECTION AREAS AND CONTAINERS. ARRANGE FOR REGULAR REMOVAL AND DISPOSAL. CLEAR SITE OF TRASH INCLUDING ORGANIC DEBRIS. PACKAGING MATERIALS, SCRAP OR SURPLUS BUILDING MATERIALS AND DOMESTIC WASTE DAILY.
    B. MATERIAL DELIVERY AND STORAGE:
    PROVIDE A DESIGNATED MATERIAL STORAGE AREA WITH SECONDARY CONTAINMENT SUCH AS BERMING. STORE MATERIAL ON PALLETS AND PROVIDE COVERING FOR SOLUBLE MATERIALS. RELOCATE STORAGE AREA INTO BUILDING SHELL WHEN POSSIBLE. INSPECT AREA WEEKLY.
    C. CONCRETE WASTE:
    PROVIDE A DESIGNATED AREA FOR A TEMPORARY PIT TO BE USED FOR CONCRETE TRUCK WASH-OUT. CONCRETE WASHOUT CANNOT BE WITHIN 50' MINIMUM OF DRAIN INLETS. DISPOSE OF HARDENED CONCRETE OFFSITE. AT NO TIME SHALL A CONCRETE TRUCK DUMP ITS WASTE AND CLEAN ITS TRUCK INTO THE STORM DRAINS VIA CURB AND GUTTER. INSPECT DAILY TO CONTROL RUNOFF, AND WEEKLY FOR REMOVAL OF HARDENED CONCRETE.
    D. PAINT AND PAINTING SUPPLIES:
    PROVIDE INSTRUCTION TO EMPLOYEES AND SUBCONTRACTORS REGARDING REDUCTION OF POLLUTANTS INCLUDING MATERIAL STORAGE, USE, AND CLEAN UP. INSPECT SITE WEEKLY FOR EVIDENCE OF IMPROPER DISPOSAL.
    E. VEHICLE FUELING, MAINTENANCE AND CLEANING:
    PROVIDE A DESIGNATED FUELING AREA WITH SECONDARY CONTAINMENT SUCH AS BERMING. DO NOT ALLOW MOBILE FUELING OF EQUIPMENT. PROVIDE EQUIPMENT WITH DRIP PANS. RESTRICT ONSITE MAINTENANCE AND CLEANING OF EQUIPMENT TO A MINIMUM. INSPECT AREA WEEKLY.
    F. HAZARDOUS WASTE MANAGEMENT:
    PREVENT THE DISCHARGE OF POLLUTANTS FROM HAZARDOUS WASTES TO THE DRAINAGE SYSTEM THROUGH PROPER MATERIAL USE. WASTE DISPOSAL AND TRAINING OF EMPLOYEES. HAZARDOUS WASTE PRODUCTS COMMONLY FOUND ON-SITE INCLUDE BUT ARE NOT LIMITED TO PAINTS & SOLVENTS, PETROLEUM PRODUCTS, FERTILIZERS, HERBICIDES & PESTICIDES, SOIL STABILIZERS, STABILIZATION PRODUCTS, ASPHALT PRODUCTS AND CONCRETE CURING PRODUCTS.
11. CONTRACTOR SHALL HYDROSEED ALL GRADED SLOPES. NATIVE SEED MIX SHALL BE 20% LANA PUBESCENT WHEAT GRASS, 40% BLANDO BROME, AND 40% ANNUAL RYE GRASS AND SHALL BE APPLIED AT A RATE OF 200 POUNDS PER ACRE. SOIL BINDING AGENT SHALL BE VERDYOL, SENTINEL, OR EQUAL, APPLIED AT A RATE OF 110 POUNDS PER ACRE. MULCH SHALL BE SILVER-FIBER, CONWED, OR EQUAL, APPLIED AT A RATE OF 1,000 POUNDS PER ACRE. FERTILIZER SHALL BE AGRI-FORM 16-7-12, BEST 16-6-8, OR EQUAL, APPLIED AT A RATE OF 500 POUNDS PER ACRE. THE CONTRACTOR SHALL WATER SEEDED AREAS OR RESEED AS NECESSARY TO ENSURE SUFFICIENT PLANT DEVELOPMENT FOR EROSION CONTROL.
12. NO GRADING SHALL BE DONE UNTIL SITE- AND SEASON-SPECIFIC SOIL LOSS AND HOUSEKEEPING STORMWATER BMPs HAVE BEEN APPROVED BY THE INSPECTOR. THE CONTRACTOR SHOULD EMPLOY THE DESIGN BMPs AND ANY OTHERS NEEDED AS SITUATIONS ARISE. CONTRACTOR SHOULD CONDUCT SITE INSPECTIONS BEFORE, DURING AND AFTER EACH EXTENDED STORM EVENT TO IDENTIFY CONDITIONS THAT MAY CONTRIBUTE TO EROSION AND SEDIMENT PROBLEMS OR ANY OTHER POLLUTANT DISCHARGES. IF ADDITIONAL CONTROL MEASURES ARE NEEDED, CONTRACTOR SHOULD IMPLEMENT THEM IMMEDIATELY.

POLLUTION PREVENTION NOTES

IN ORDER TO MEET THE REQUIREMENTS OF THE NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM (NPDES) PROGRAM FOR CONSTRUCTION, CONSTRUCTION CONTRACTORS SHALL INSTALL AND MAINTAIN APPROPRIATE BEST MANAGEMENT PRACTICES (BMPS), AS SHOWN IN THE EROSION CONTROL PLAN AND IN ACCORDANCE WITH THE SWPPP (STORM WATER POLLUTION PREVENTION PLAN), ON ALL CONSTRUCTION PROJECTS. BMPS SHALL BE INSTALLED IN ACCORDANCE WITH INDUSTRY RECOMMENDED STANDARDS, AND/OR IN ACCORDANCE WITH ANY GENERAL CONSTRUCTION PERMIT ISSUED BY THE STATE FOR THE PROJECT TO PREVENT ANY DISCHARGES FROM THE PROJECT SITE OR INTO ANY STORM DRAIN FACILITIES. ALL SEDIMENTS, CONSTRUCTION MATERIALS, DEBRIS AND WASTES, AND OTHER POLLUTANTS MUST BE RETAINED ON SITE AND MAY NOT BE TRANSPORTED FROM THE SITE VIA SHEET FLOW, SWALES, AREA DRAINS, NATURAL DRAINAGE COURSES, WIND, OR VEHICLE TRACKING. UNDER DIRECTION OF THE ENGINEER OF RECORD, EROSION AND/OR SEDIMENT CONTROL DEVICES SHALL BE MODIFIED AS NEEDED AS THE PROJECT PROGRESSES TO ENSURE EFFECTIVENESS.

BMP MAINTENANCE NOTES

1. FOLLOWING OWNER ACCEPTANCE OF CONSTRUCTION WORK, POST CONSTRUCTION BEST MANAGEMENT PRACTICE (BMP) MEASURES SHALL BE MAINTAINED BY THE PROPERTY OWNER, INCLUDING BUT NOT LIMITED TO:
    1.1. ANNUAL INSPECTION, REPLACEMENT, AND/OR SEDIMENTATION REMOVAL OF VEGETATED SWALES, TREATMENT PONDS, AND OTHER SURFACE STORMWATER TREATMENT MEASURES AS REQUIRED WITH AN INCREASED FREQUENCY BASED ON SITE CONDITIONS.
    1.2. MAINTENANCE SERVICE AGREEMENT(S) OF STORMWATER TREATMENT VAULTS, INLETS, MANHOLES, AND OTHER DEVICES BASED ON MANUFACTURES' RECOMMENDATIONS AND FREQUENCY.
    1.3. ANNUAL INSPECTION OF PERMEABLE PAVEMENT AND REMOVAL OF SEDIMENT AS NEEDED.
    1.4. ANNUAL INSPECTION OF STORMWATER INLETS AND MAINTENANCE AS REQUIRED TO CLEAR GRATES AND INLETS OF DEBRIS.
    1.5. THE PROJECT STORMWATER POLLUTION PREVENTION PLAN (SWPPP) AND WATER QUALITY MANAGEMENT PLAN (WQMP) MAY CONTAIN ADDITIONAL OR MORE STRINGENT MAINTENANCE REQUIREMENTS.
2. BMP DETAILS MAY BE FOUND IN APPENDIX H OF THE PROJECT SWPPP DOCUMENT. BMP DETAILS PER CALIFORNIA STORMWATER QUALITY ASSOCIATION (CASQA) AND ARE AVAILABLE AT www.casqa.org.
3. FOR PROJECTS GREATER THAN 1 ACRE: THE CONTRACTOR SHALL VERIFY THE STATUS OF THE SWPPP/NOI/WDID PRIOR TO EARTHMOVING ACTIVITIES. A STORMWATER POLLUTION PREVENTION PLAN (SWPPP) SHALL BE PREPARED AND A NOTICE OF INTENT (NOI) SHALL BE FILED WITH THE STATE WATER RESOURCES CONTROL BOARD (SWRCB) IN ACCORDANCE WITH THE REQUIREMENTS OF CALIFORNIA GENERAL PERMIT FOR STORMWATER DISCHARGES ASSOCIATED WITH CONSTRUCTION ACTIVITY (PERMIT NO. CAS000002) FOR ALL OPERATIONS ASSOCIATED WITH THESE PLANS. THE CONTRACTOR SHALL KEEP A COPY OF THE SWPPP ON SITE AND AVAILABLE FOR REVIEW.

AREA SUMMARY

TOTAL DISTURBED AREA = X.XXx ACRES

DEMOLITION NOTES

1. THE INTENT OF THE DEMOLITION PLAN IS TO DESCRIBE IN GENERAL THE DEMOLITION AREAS AFFECTED BY THE PROJECT CONSTRUCTION. IT IS NOT INTENDED AS A DETAILED DESCRIPTION OF EXISTING ITEMS OR ELEMENTS TO BE REMOVED. THE CONTRACTOR SHALL VISIT THE SITE AND REVIEW ANY AVAILABLE RECORD DOCUMENTS TO BECOME FAMILIAR WITH THE EXISTING CONDITIONS AND SHOULD INCLUDE THE REMOVAL OF ALL ITEMS NECESSARY FOR THE PROPER EXECUTION AND COMPLETION OF THE WORK. THE CONTRACT DOCUMENTS ARE COMPLEMENTARY, AND WHAT IS REQUIRED BY ONE SHALL BE BINDING AS IF REQUIRED BY ALL TO THE EXTENT THAT IT IS REASONABLY INFERABLE FROM THEM AS BEING NECESSARY TO PRODUCE THE INTENDED RESULTS.
2. REMOVE EXISTING BUILDINGS, FOUNDATIONS AND SERVICE UTILITIES AS INDICATED ON PLANS. CAP ALL UTILITIES AT APPROPRIATE POINTS. ALL EXISTING ELECTRICAL / TELEPHONE / CATV UTILITIES SHALL BE REMOVED AS INDICATED OR BACK TO THE POINT WHERE THE SPECIFIC UTILITY SYSTEM ENTERS THE WORK AREA. COORDINATE DEMOLITION OF ALL UTILITIES WITH THE OWNER. ALL UTILITIES CONNECTED TO EXISTING BUILDINGS TO REMAIN SHALL CONTINUE TO BE OPERATIONAL DURING THE DEMOLITION PROCESS. DOMESTIC AND FIRE SERVICE WATER AND NATURAL GAS SHALL BE REMOVED TO A POINT OUTSIDE THE PERIMETER OF PROPOSED NEW CONSTRUCTION TO EXISTING VALVES OR SIMILAR SHUT-OFF DEVICES. IF A SHUT-OFF DEVICE IS NOT REASONABLY ADJACENT TO THE PERIMETER OF THE PROPOSED NEW CONSTRUCTION, PROVIDE A SHUT-OFF DEVICE IN BELOW-GRADE YARD BOX. CONFIRM LOCATION OF NEW DEVICES WITH OWNER PRIOR TO INSTALLATION. SANITARY SEWER AND STORM DRAINAGE SHALL BE CAPPED TO A POINT OUTSIDE THE PERIMETER OF THE PROPOSED NEW CONSTRUCTION. OTHER UTILITIES NOT SPECIFICALLY IDENTIFIED IN THESE DOCUMENTS AND NOT ANTICIPATED FOR REUSE SHALL BE REMOVED IN ENTIRETY.
3. FOR ALL EXISTING MATERIALS THAT CAN BE SALVAGED, OWNER HAS FIRST RIGHT OF REFUSAL FOR REMOVED ITEMS THAT MAY HAVE RESIDUAL COMMERCIAL OR HISTORIC VALUE INCLUDING HARDWARE, GLASS, CORNER STONES, TIME CAPSULES, LIGHT STANDARDS, SIGNS, FENCING, BENCHES, WATER FOUNTAINS, TRASH CONTAINERS, ETC. SHALL REMAIN AS PROPERTY OF THE OWNER. ALL ITEMS TO BE SALVAGED FOR REUSE/REINSTALLATION MUST MEET CURRENT CODE REQUIREMENTS. COORDINATE ITEMS TO BE RETAINED WITH OWNER AND REMOVE FROM CONSTRUCTION SITE TO A LOCATION APPROVED BY OWNER. REMOVED MATERIALS, NOT INDICATED OR DIRECTED TO BE SALVAGED FOR THE OWNER'S BENEFIT ARE DEBRIS AND BECOME THE CONTRACTOR'S PROPERTY UPON REMOVAL.
4. THE EXISTENCE AND LOCATION OF ANY UNDERGROUND UTILITY PIPES OR STRUCTURES SHOWN ON THESE PLANS ARE OBTAINED BY SEARCH OF THE AVAILABLE RECORDS AND FIELD SURVEYS. THE CONTRACTOR SHALL CONTACT UNDERGROUND SERVICE ALERT, UTILITY COMPANIES, AND/OR FIELD VERIFY AND LOCATE ALL UTILITIES BEFORE PROCEEDING WITH WORK. THE CONTRACTOR IS ALSO REQUIRED TO TAKE DUE PRECAUTIONARY MEASURES TO PROTECT THE UTILITY LINES SHOWN AND ANY OTHER LINES NOT OF RECORD OR NOT SHOWN ON THESE PLANS. NOTIFY THE ENGINEER IF ADDITIONAL UTILITIES ARE LOCATED OR IF CONFLICTS ARE FOUND WITH EXISTING CONDITIONS.
5. ALL TREES TO BE REMOVED SHALL BE MARKED BY CONTRACTOR AND APPROVED FOR REMOVAL BY THE OWNER OR OWNER'S REPRESENTATIVE PRIOR TO REMOVING OR CUTTING TREE(S). EXISTING ROOTS SHALL BE GRINDED TO A DEPTH OF APPROXIMATELY 3-FEET. USE CAUTION WHILE GRINDING WHEN EXISTING UTILITIES ARE IN CLOSE PROXIMITY TO TREES. ALL TREES TO REMAIN WITHIN THE LIMIT OF WORK SHALL BE PROTECTED AND MAINTAINED PER SPECIFICATIONS AND DETAILS.
6. SAWCUT EXISTING CONCRETE AND ASPHALT TO AN EXISTING CONTROL JOINT WHERE POSSIBLE, AT MINIMUM TO A NEAT-STRAIGHT LINE. ALL DEBRIS SHALL BE HAULED OFFSITE TO A LEGAL DUMPING SITE OR SALVAGED FOR REUSE ON PROJECT AS NOTED.
7. WORK WITHIN CITY, COUNTY, OR STATE RIGHT-OF-WAY REQUIRES A SEPARATE ENCROACHMENT PERMIT WHICH THE CONTRACTOR IS RESPONSIBLE FOR OBTAINING PRIOR TO STARTING WORK WITHIN RIGHT-OF-WAY.
8. CONTRACTOR TO COORDINATE UTILITY DEMOLITION WITH DRAINAGE AND UTILITY WORK SHOWN IN THIS PLAN SET. ALL UTILITY SHUTDOWNS SHALL BE COORDINATED PER PROJECT SPECIFICATIONS.
9. EXISTING DRY UTILITIES SHOWN FOR DEMOLITION ARE SHOWN FOR COORDINATION ONLY. REFER TO OTHER DISCIPLINES FOR LIMITS AND DETAILS OF DEMOLITION.
10. THE CONTRACTOR SHALL RECYCLE CONSTRUCTION DEBRIS, ASPHALT, AND CONCRETE GENERATED FROM REMOVALS REQUIRED TO CONSTRUCT THE PROJECT. THE CONTRACTOR IS OBLIGATED, UNDER THIS CONTRACT, TO RECYCLE THE WASTE MATERIAL THROUGH AN APPROVED RECYCLING PLANT.
11. A LIST OF FACILITIES THAT ACCEPT CONSTRUCTION & DEMOLITION DEBRIS CAN BE FOUND ON THE CALRECYCLE WEBSITE AT: HTTPS://WWW.CALRECYCLE.CA.GOV/CONDEMO
12. CONTRACTOR IS RESPONSIBLE FOR PROTECTING EXISTING BUILDING FINISHES DURING DEMOLITION. ANY FINISH THAT IS DAMAGED DURING DEMOLITION SHALL BE REPAIRED OR REPLACED IN-KIND OR BETTER.

GENERAL NOTES TO CONTRACTOR

1. THE CONTRACTOR SHALL CONTACT THE RESPECTIVE UTILITY OWNERS FOR LOCATION, REMOVAL, AND/OR RELOCATION OF ANY UTILITY SERVICES AFFECTED BY CONSTRUCTION. THE CONTRACTOR SHALL TAKE ALL NECESSARY PRECAUTIONARY MEASURES TO PROTECT UNDERGROUND OR OVERHEAD STRUCTURES WHETHER OR NOT THEY ARE SHOWN ON THESE DRAWINGS.
2. THE CONTRACTOR SHALL NOTIFY THE PROJECT INSPECTOR AND THE RESPECTIVE UTILITY OWNERS AND OTHER AGENCIES AT LEAST TWO WORKING DAYS PRIOR TO START OF CONSTRUCTION.
3. THE CONTRACTOR SHALL BE RESPONSIBLE FOR EXPOSING, VERIFYING LOCATIONS (BOTH HORIZONTAL AND VERTICAL), AND MAINTAINING ALL EXISTING UNDERGROUND UTILITIES, BOTH SHOWN ON THE PLANS AND/OR NOT SHOWN ON THE PLANS DURING CONSTRUCTION. REPAIR DAMAGED UTILITIES TO THE SATISFACTION OF THE ENGINEER. THE CONTRACTOR SHALL LOCATE EXISTING UNDERGROUND UTILITIES SUFFICIENTLY AHEAD OF CONSTRUCTION TO PERMIT REVISIONS TO PLANS BECAUSE OF LOCATIONS OF EXISTING FACILITIES AND SHALL REPORT ALL DISCREPANCIES TO THE ENGINEER PRIOR TO THE COMMENCEMENT OF WORK.
4. THE EXISTENCE AND LOCATION OF ANY UNDERGROUND UTILITIES AND/OR STRUCTURES SHOWN ON THESE PLANS WERE OBTAINED BY A SEARCH OF THE AVAILABLE RECORDS. APPROVAL OF THESE PLANS DOES NOT CONSTITUTE A REPRESENTATION AS TO THE ACCURACY OR COMPLETENESS OF THE LOCATION OR THE EXISTENCE, OR NON-EXISTENCE OF ANY UTILITY AND/OR STRUCTURE WITHIN THE LIMITS OF THIS PROJECT. THE CONTRACTOR IS REQUIRED TO TAKE ALL DUE PRECAUTIONARY MEASURES TO PROTECT THE UTILITIES OF RECORD AND/OR NOT OF RECORD SHOWN OR NOT SHOWN AND ANY OTHER LINE(S) OR STRUCTURE(S) NOT SHOWN ON THESE PLANS. THE CONTRACTOR IS RESPONSIBLE FOR THE PROTECTION OF, AND/OR DAMAGE TO THESE LINE(S) AND/OR STRUCTURE(S).
5. THE CONTRACTOR SHALL BE RESPONSIBLE FOR TEMPORARY SHORING AT PROPOSED BUILDING FOUNDATIONS, FOOTINGS, AND WALLS TO PROTECT EXISTING UTILITIES IN PLACE.
6. UNAUTHORIZED CHANGES AND USES - CAUTION: THE ENGINEER PREPARING THESE PLANS WILL NOT BE RESPONSIBLE FOR, OR LIABLE FOR, UNAUTHORIZED CHANGES TO OR USES OF THESE PLANS. ALL CHANGES TO THE PLANS MUST BE IN WRITING AND MUST BE APPROVED BY THE PREPARER OF THESE PLANS.
7. THE CONTRACTOR SHALL MAINTAIN THE EXISTING ACCESSIBLE ROUTE CLEAR OR PROVIDE AN ALTERNATE ACCESSIBLE ROUTE OF TRAVEL DURING DEMOLITION AND/OR CONSTRUCTION.
8. THE CONTRACTOR SHALL MAINTAIN THE EXISTING FIRE EXITS AND STAIRS CLEAR AND USABLE OR PROVIDE ALTERNATE FIRE EXITS DURING DEMOLITION AND/OR CONSTRUCTION.

EARTHWORK NOTES

1. IT IS THE CONTRACTOR'S RESPONSIBILITY TO REVIEW THE GRADING PLANS AND SOILS REPORT THOROUGHLY PRIOR TO SITE MOBILIZATION. IT IS ALSO THE GRADING CONTRACTOR'S RESPONSIBILITY TO NOTIFY THE CIVIL AND SOILS ENGINEERS IF ONSITE DISCREPANCIES ARE OBSERVED THAT WOULD AFFECT THE EARTHWORK QUANTITIES.
2. THE EXISTING TOPOGRAPHY AS DELINEATED ON THESE DRAWINGS SHALL BE UTILIZED AS THE BASIS FOR ALL EARTHWORK COMPUTATIONS. SAID TOPOGRAPHY SHALL BE PRESUMED TO BE ACCEPTABLE TO ALL INTERESTED PARTIES UNLESS A DEVIATION IS FOUND PRIOR TO THE START OF GRADING IN ANY SPECIFIC AREAS. ANY DEVIATION SO DETERMINED SHALL BE PROMPTLY TRANSMITTED TO ALL INTERESTED PARTIES.
3. THE CONTRACTOR IS REQUIRED TO ESTIMATE THE QUANTITIES OF GRADING WORK TO BE DONE AND INCLUDE ALL COSTS THEREFROM WITH HIS BID, AS NO ADDITIONAL ALLOWANCE WILL BE MADE WITHOUT PRIOR CONSENT FROM THE OWNER.
4. OVER-EXCAVATION AND/OR EXCESS BACKFILLING OR DUPLICATION OF GRADING ACTIVITIES IS NOT A BASIS FOR ADDITIONAL COMPENSATION. THIS ALSO APPLIES WHERE MATERIAL IS TO BE REMOVED AND REPLACED TO REDUCE MOISTURE CONTENT.
5. OFF-SITE DISPOSAL OF EXCAVATION MATERIAL IS THE RESPONSIBILITY OF THE CONTRACTOR AND SHALL BE INCLUDED IN THE BID. THE CONTRACTOR SHALL HOLD THE OWNER AND ENGINEER HARMLESS AS A RESULT OF ANY CLAIMS ARISING FROM THE ACTIONS ENROUTE OR AWAY FROM THE SITE.
6. EARTH VOLUMES SHOWN HEREON ARE ESTIMATES BASED UPON THE GEOTECHNICAL ANALYSIS PERFORMED BY THE NAMED SOILS ENGINEER AND TOPOGRAPHIC SURVEY OF THE EXISTING GROUND SURFACE AT THE TIME OF PLAN PREPARATION. EARTHWORK VOLUMES ARE COMPUTED BY METHODS COMMONLY USED IN STANDARD ENGINEERING PRACTICE, AND ARE INTENDED FOR USE IN ESTABLISHING GOVERNING AGENCY FEES. ACTUAL FIELD CONDITIONS MAY VARY FROM OBSERVED OR MEASURED CONDITIONS AT THE TIME OF PLAN PREPARATION. EARTHWORK QUANTITIES MAY VARY AS A RESULT.
7. ANY EXPORT OR IMPORT REQUIRED TO BALANCE THE SITE SHALL BE THE SOLE RESPONSIBILITY OF THE CONTRACTOR.
8. PAVEMENT AND SUBGRADE RECOMMENDATIONS RELATED TO OVER-EXCAVATION, PAVEMENT SUBGRADE, ETC., PER GEOTECHNICAL REPORT.

GEOTECHNICAL INFORMATION

FOR SITE PREPARATION, OVEREXCAVATION, FOUNDATION RECOMMENDATIONS, PAVEMENT, SUBGRADE, AND GRADATION REQUIREMENTS SEE GEOTECHNICAL INVESTIGATION REPORT ENTITLED:

"GEOTECHNICAL EXPLORATION REPORT
MALIBU MIDDLE AND HIGH SCHOOL CAMPUS
PHASE II IMPROVEMENTS
PROPOSED AQUATIC CENTER, MIDDLE SCHOOL BUILDING, AND GYMNASIUM
30215 MORNING VIEW DRIVE
MALIBU, LOS ANGELES COUNTY, CALIFORNIA "

PREPARED BY:	LEIGHTON CONSULTING, INC. 2600 MICHELSON DRIVE, SUITE 400 IRVINE, CALIFORNIA 92612
PROJECT NO:	036.0000025785
DATED:	OCT 16, 2024
REVISED:	MAY 23, 2025

EARTHWORK QUANTITIES

APPROXIMATE CUT:	0 CY
APPROXIMATE FILL:	9 CY
NET:	9 CY (IMPORT)

NOTE:
EARTHWORK QUANTITIES INDICATED ARE FOR REFERENCE ONLY (NOT FOR BID OR PAYMENT). THE CONTRACTOR IS RESPONSIBLE FOR ACTUAL QUANTITIES.

HAUL ROUTE TO BE DETERMINED AT PRE-GRADE MEETING AND ALL NECESSARY PERMITS SHALL BE OBTAINED BY THE GENERAL CONTRACTOR

BENCHMARK

US NATIONAL GEODETIC SURVEY
PID NO: EW4180, EW1593, EW6821, EW4188, EW4106, EW4113, EW4205, EW4212, AE1725, AE1722
NAVD 88 DATUM

DATUM STATEMENT

STATE PLANE COORDINATES, CALIFORNIA SYSTEM ZONE 5 BASED ON NAD83 (CORS96) (EPOCH: 2002.0000) REFERENCE FRAME. THE HORIZONTAL COORDINATE VALUES SHOWN HEREON ARE BASED UPON LOCAL CONTROL POINTS AND DERIVED FROM THE GPS STATIC OBSERVATIONS THAT WERE POST-PROCESSED USING ON-LINE POSITIONING USER SERVICE (OPUS) PROVIDED BY THE US NATIONAL GEODETIC SURVEY.

VERTICAL VALUES ARE BASED UPON NORTH AMERICAN VERTICAL DATUM OF 1988 USING THE FOLLOWING US NATIONAL GEODETIC SURVEY BENCHMARKS: EW4180, EW1593, EW6821, EW4188, EW4106, EW4113, EW4205, EW4212, AE1725, AE1722. SEE SHEET 1 OF SEE PSOMAS MAP "AERIAL TOPOGRAPHIC SURVEY, UTILITY LOCATIONS AND EASEMENT EXHIBIT" JOB NO. 1SAN080102 TASK 100 FOR THE BENCHMARK DESCRIPTION.

BASIS OF BEARINGS

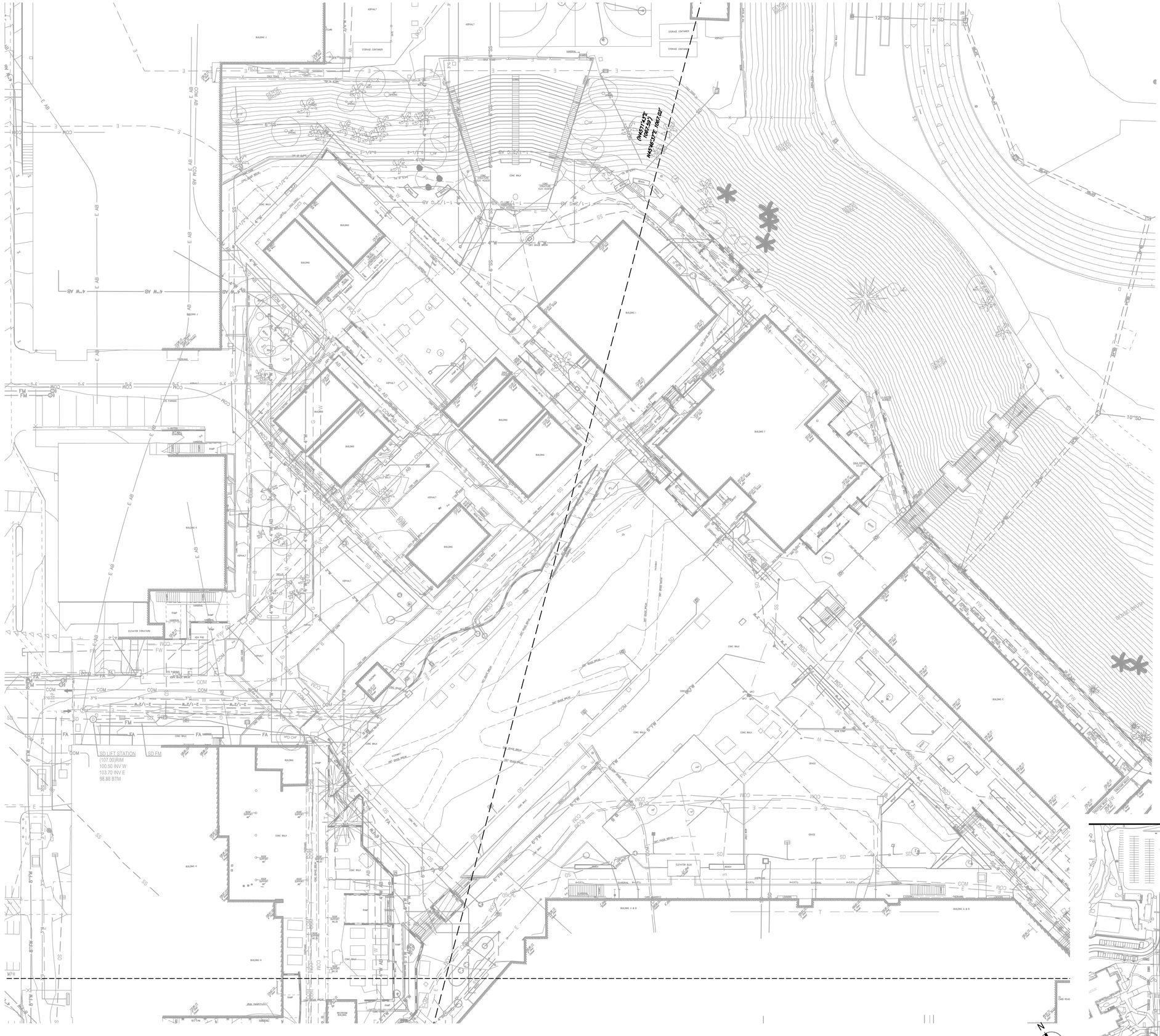
THE BOUNDARY LINES SHOWN HEREON ARE BASED UPON RECOVERED CITY, COUNTY AND/OR PRIVATE SURVEY MONUMENTS. SEE PSOMAS MAP "BOUNDARY SURVEY"

LEGAL DESCRIPTION

PARCELS 10, 11 AND 12 IN BLOCK 5 AS SHOWN ON THE RECORD OF SURVEY FILE DIN BOOK 56 PAGES 14 TO 17 INCLUSIVE OF RECORDS OF SURVEY, IN THE OFFICE OF THE COUNTY RECORDER OF SAID COUNTY.

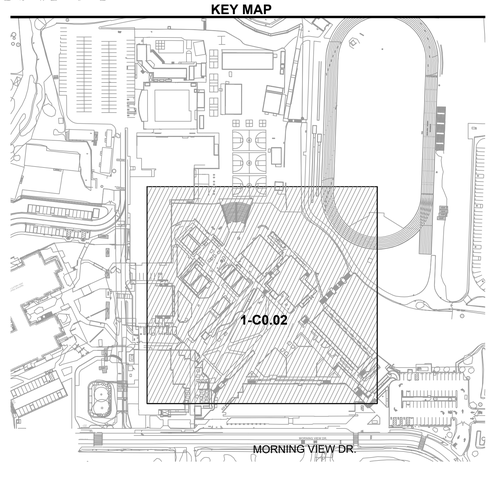
FIRE PROTECTION SYSTEM NOTES

1. PRIOR TO INSTALLATION, ALL PLANS AND SPECIFICATIONS SHALL BE APPROVED BY GOVERNING AGENCY.
2. INSPECTIONS ARE REQUIRED:
    1) PRIOR TO POURING THRUST BLOCKS
    2) FOR HYDROSTATIC TESTING
    3) FOR FLUSH
3. INSTALLATION, INSPECTION, AND TESTING SHALL CONFORM TO 2022 NFPA 13 AND 2019 NFPA 24.
4. PRIVATE FIRE



EXISTING CONDITIONS

KEY MAP



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ARCHITECTURE ENGINEERING INTERIOR DESIGN
LANDSCAPE ARCHITECTURE PLANNING

949-261-1001 Office

LPADesignStudios.com

5301 California Avenue, Suite 100
Irvine, California 92617

REGISTERED PROFESSIONAL ENGINEER
KATHLEEN M. SKINNER
R.C.E. 68369
EXP. 9-30-27
STATE OF CALIFORNIA

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PHASE0.3 MDF

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Malibu, CA 90265

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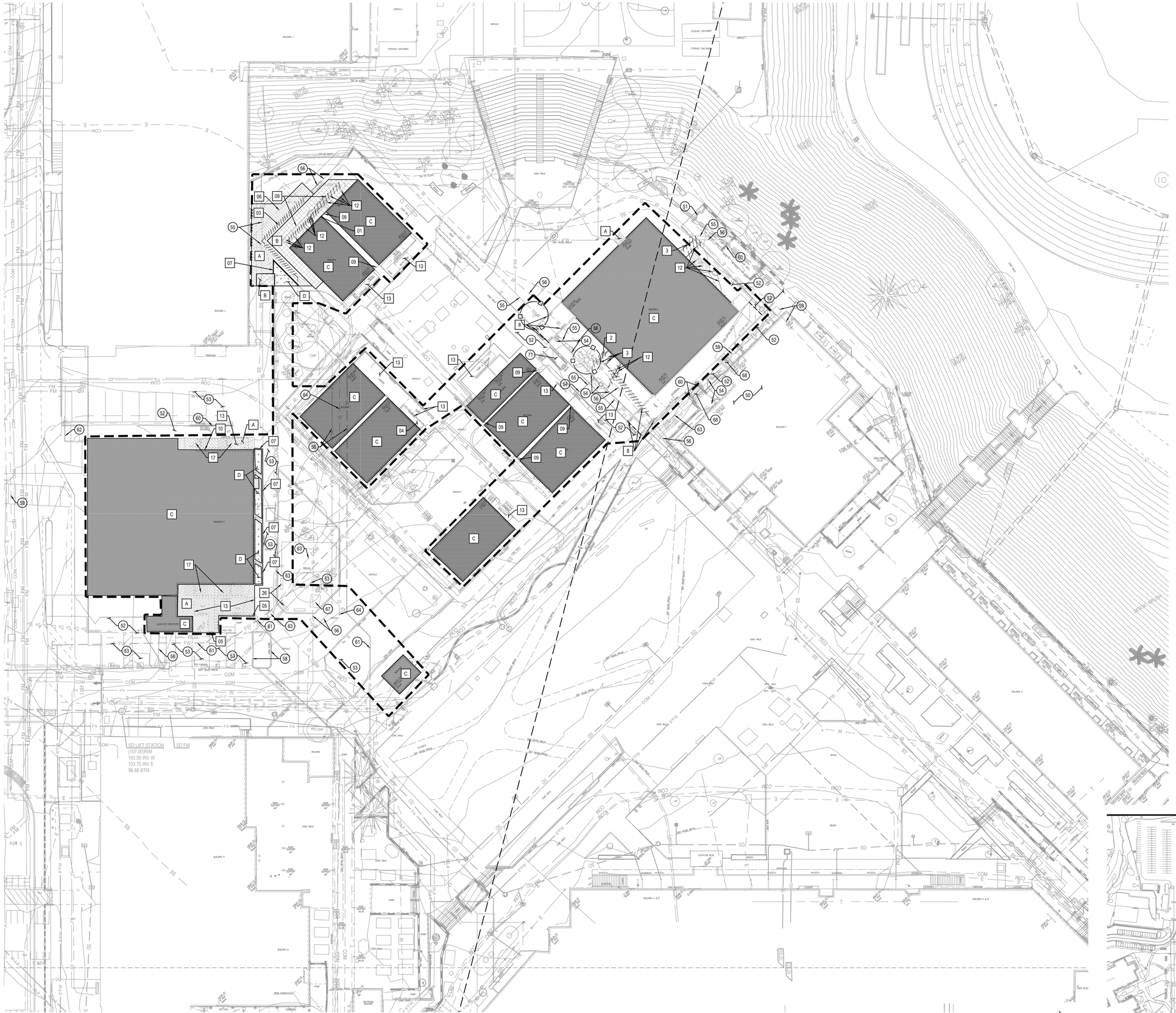
EXISTING CONDITIONS

1-C0.02



DEMOLITION NOTES

-SEE DEMOLITION NOTES, SHEET C0.01.

DEMOLITION LEGEND

LABEL	DESCRIPTION
A	REMOVE (E) CONCRETE PAVEMENT/SIDEWALK. SEE DEMOLITION NOTE 10 SHEET C0.01.
B	REMOVE (E) AC PAVEMENT. SEE DEMOLITION NOTE 10 SHEET C0.01.
C	REMOVE (E) BUILDING STRUCTURE. SEE DEMOLITION NOTE 2 SHEET C0.01.
D	REMOVE (E) LANDSCAPING. SEE LANDSCAPE AND IRRIGATION PLANS FOR IMPROVEMENTS.
	REMOVE (E) TREE. SEE DEMOLITION NOTE 5 SHEET C0.01.
	(E) TREE TO REMAIN AND BE PROTECTED. SEE DEMOLITION NOTE 5 SHEET C0.01.
	SAWCUT (E) PAVEMENT AS NEEDED. SEE DEMOLITION NOTE 6 AND 10 SHEET C0.01.
	APPROXIMATE LIMIT OF WORK.
	REMOVE (E) UTILITY. SEE DEMOLITION NOTES 2, 4, 8, AND 9 SHEET C0.01.

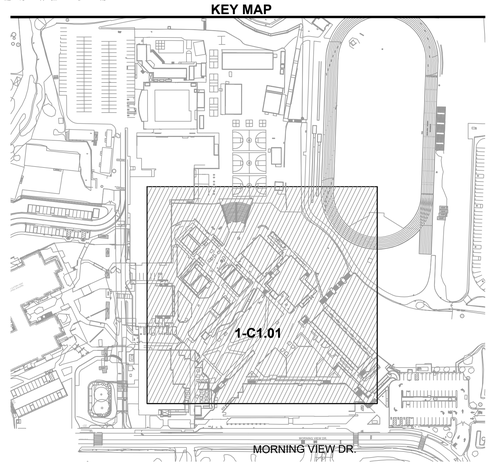
DEMOLITION KEYNOTES

KEY NOTE	DESCRIPTION
01	REMOVE (E) STORM DRAIN PIPE AND APPURTENANCES. SEE 2-C3.01 - 2-C3.02 PLAN FOR IMPROVEMENTS.
02	REMOVE (E) SANITARY SEWER PIPE AND APPURTENANCES. SEE UTILITY PLAN FOR IMPROVEMENTS.
03	REMOVE (E) WATER PIPE AND APPURTENANCES. SEE UTILITY PLAN FOR IMPROVEMENTS.
04	LEVEL (E) DIRT TO MATCH SURROUNDING ELEVATIONS AFTER DEMOLITION.
05	REMOVE (E) RETAINING WALL AND FOOTING.
06	RELOCATE (E) GAS FACILITIES. SEE PLUMBING PLAN FOR DEMO LIMITS.
07	REMOVE (E) CURB AND/OR CURB AND GUTTER.
08	REMOVE (E) CONCRETE POSTS.
09	REMOVE (E) FENCE AND FOOTINGS AND/OR GATE. SEE LANDSCAPE PLANS FOR IMPROVEMENTS.
10	REMOVE (E) LIGHT STANDARD AND FOOTING. SEE ELECTRICAL PLANS FOR IMPROVEMENTS.
12	SEE ELECTRICAL, TELECOM AND FIRE ALARM PLANS FOR DETAILS.
13	REMOVE (E) RAMP, LANDING AND HANDRAIL.
16	REMOVE (E) HANDRAIL.
17	REMOVE (E) STAIRS AND HANDRAILS IF PRESENT.
26	REMOVE (E) CONCRETE BENCH.

PROTECTION KEYNOTES

KEY NOTE	DESCRIPTION
50	PROTECT (E) BUILDING, FOUNDATION AND OTHER STRUCTURAL FEATURES AND BUILDING UTILITIES.
51	PROTECT (E) CANOPY AND COLUMNS, AND OTHER STRUCTURAL FEATURES AND CANOPY UTILITIES.
52	PROTECT (E) CONCRETE PAVEMENT/SIDEWALK.
53	PROTECT (E) AC PAVEMENT.
54	PROTECT (E) STORM DRAIN FACILITIES.
55	PROTECT (E) SANITARY SEWER FACILITIES.
56	PROTECT (E) WATER SERVICE FACILITIES.
58	PROTECT (E) CURB.
59	PROTECT (E) TELECOM FACILITIES.
60	PROTECT (E) RETAINING WALL.
61	PROTECT (E) FIRE WATER SERVICE FACILITIES.
62	PROTECT (E) FENCE.
63	PROTECT (E) ELECTRICAL FACILITIES.
64	PROTECT (E) GAS FACILITIES.
67	RELOCATE (E) BENCHES.
68	PROTECT (E) STAIRS AND FOUNDATIONS.
71	PROTECT (E) RAMP, LANDING AND HANDRAIL.

KEY MAP



LPA
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KATHLEEN M. SKINNER
R.C.E. 68369
EXP. 9-30-27
CIVIL
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Scale	AS NOTED

DEMOLITION PLAN

1-C1.01

GRADING LEGEND

SYMBOL	DESCRIPTION
PA	PLANTING AREA SEE LANDSCAPE PLAN DETAILS FOR GRADES ADJACENT TO HARDSCAPE.
- - -	APPROXIMATE LIMIT OF WORK.

GRADING CONSTRUCTION NOTES

KEY NOTE	DESCRIPTION
11	INSTALL A TEMPORARY COVER TO BRING THE MANHOLE OR UTILITY BOX TO GRADE IF NEEDED.

(E) BUILDING J

(P) MDF BUILDING 114.5 FFE

(E) BUILDING F (107.2±) FFE

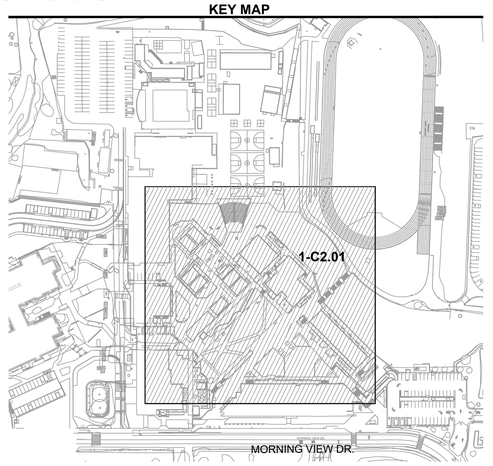
(E) CAFETORIUM 109.0 FFE

(E) BUILDING (100.9±) FFE

0 10 20 40

GRADING PLAN 1" = 20'

KEY MAP



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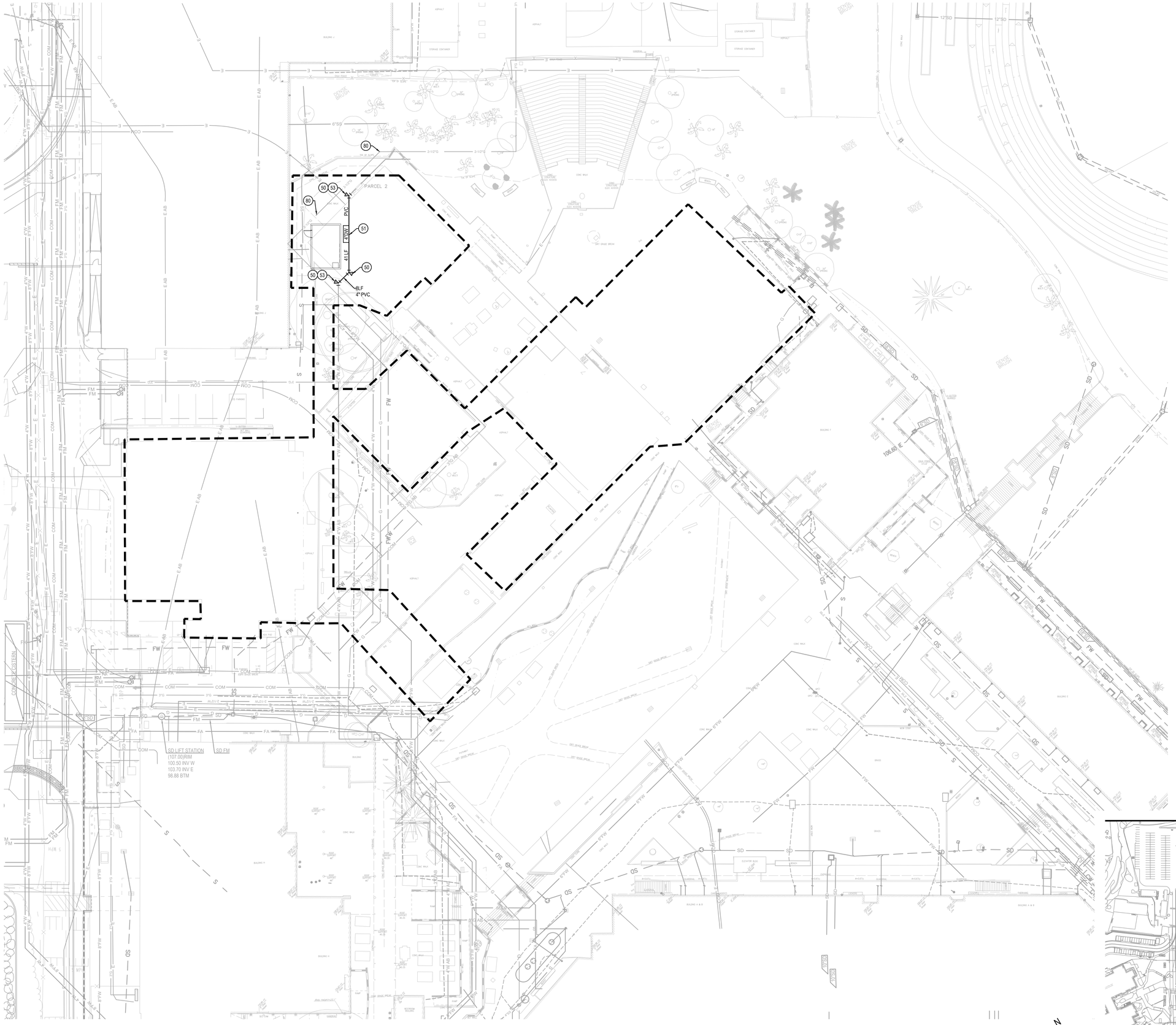
GRADING PLAN

1-C2.01



WATER CONSTRUCTION NOTES:

- (W) DOMESTIC WATER SERVICE POINT OF CONNECTION. SUPPLY AND INSTALL WATER SERVICE LATERAL STUBBED 5 FT. FROM FACE OF BUILDING. SIZE AS SHOWN. PLUG AND MARK END. COORDINATE EXACT LOCATION WITH PLUMBING PLANS.
- (50) SUPPLY AND INSTALL THRUST BLOCK PER DETAIL 2 SHEET C7.01. TYPICAL FOR ALL BENDS, TEES AND CROSSES ON PIPE SIZES GREATER THAN 3".
- (51) SUPPLY AND INSTALL PVC C900 DR-18 WITH 30" MIN COVER AND 36" MIN COVER WHERE SURFACE LOADS ARE EXPECTED. TRENCHING PER DETAIL 08 SHEET C7.02.
- (53) CONNECT TO EXISTING DOMESTIC WATER SERVICE LINE. CONTRACTOR TO VERIFY SIZE AND LOCATION OF EXISTING WATER LINE AND NOTIFY ENGINEER OF ANY DISCREPANCIES PRIOR TO CONSTRUCTION.

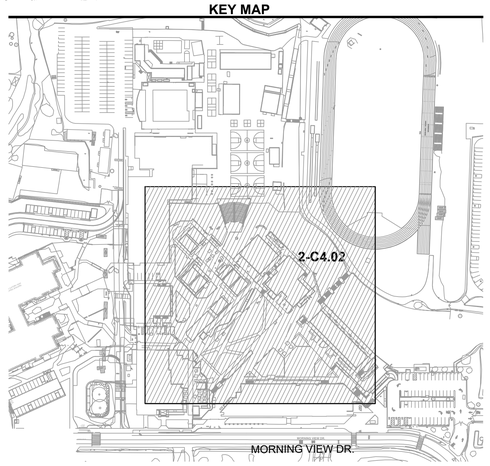
GAS CONSTRUCTION NOTES:

- (80) RE-ROUTE EXISTING INTERRUPTED GAS SERVICE. MATCH EXISTING SIZE AND MATERIAL SEE PLUMBING PLANS FOR DETAILS.

CONSTRUCTION NOTES:

1. UTILITIES TO CROSS OVER OR UNDER OTHER UTILITIES TO MAINTAIN 12" MINIMUM CLEARANCE AT UTILITY CROSSINGS, UNLESS NOTED OTHERWISE. SANITARY SEWER TO CROSS UNDER POTABLE WATER.
2. CONTRACTOR SHALL VERIFY SIZE AND LOCATION (HORIZONTAL AND VERTICAL) OF EXISTING CROSSING AND JOINING UTILITIES PRIOR TO CONSTRUCTION AND IMMEDIATELY NOTIFY THE ENGINEER OF ANY CONFLICT.
3. CONTRACTOR SHALL CONSTRUCT GRAVITY UTILITIES (SEWER AND STORM DRAIN) BEFORE OTHER UTILITIES. CONSTRUCTION OF THESE GRAVITY UTILITIES TO START FROM THE DOWNSTREAM ENDS.
4. EXISTING UTILITIES ARE COMPILED BASED ON PREVIOUS BASE FILES, FIELD SURVEY AND FIELD VERIFICATION. POTHOLING IS RECOMMENDED TO VERIFY ANY AND ALL UTILITIES KNOWN OR UNKNOWN WHICH MAY BE IN CONFLICT WITH PROPOSED CONSTRUCTION.
5. PRIOR TO THE REMOVAL OF ANY WET OR DRY UTILITY LINES, THE CONTRACTOR SHALL CONFIRM WITH OWNER REPRESENTATIVE WHETHER THESE UTILITY LINES ARE STILL ACTIVE OR NOT. IMMEDIATELY NOTIFY THE ENGINEER OF ANY CONFLICT.
6. CONTRACTOR TO ADJUST TO FINISH GRADE ALL EXISTING UTILITY BOXES, SEWER CLEANOUT COVERS, PULL BOXES AND VALVE COVERS NOT SPECIFICALLY SHOWN WITHIN THE LIMITS OF WORK.
7. SEE DETAIL 04 SHEET 2-C7.02 FOR SEWER UTILITY TRENCHING AND BACKFILL.
8. SEE DETAIL 08 SHEET 2-C7.02 FOR WATER UTILITY TRENCHING AND BACKFILL.
9. SAWCUT, REMOVE AND REPLACE EXISTING CURB AS REQUIRED FOR TRENCHING. MATCH EXISTING CURB.

KEY MAP



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REGISTERED PROFESSIONAL ENGINEER
KATHLEEN M. SWANEY
R.C.E. 68369
EXP. 9-30-27
CIVIL
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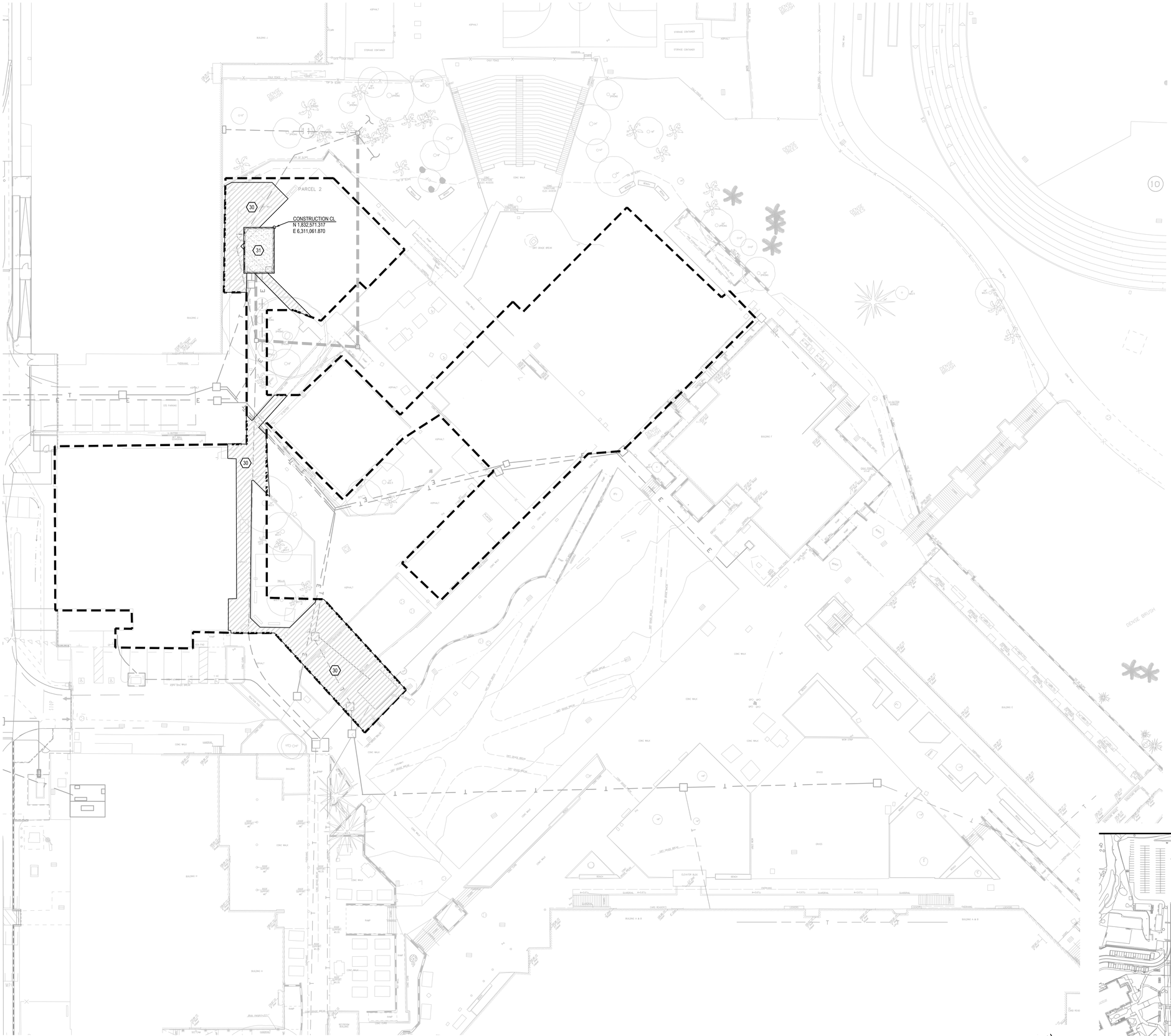
UTILITY PLAN

1-C4.01



HORIZONTAL CONTROL, PAVING, AND STRIPING PLAN

0 10 20 40

1" = 20'

PAVING NOTES:

1. SEE LANDSCAPE PLANS FOR PAVERS, LOCATION AND TYPE OF CONCRETE WALKS AND HARDSCAPE INCLUDING DETAILS FOR CONCRETE FINISHES, CONTROL JOINTS AND EXPANSION JOINTS.
2. VERIFY ALL VEHICULAR AND NON-VEHICULAR LIMITS WITH LANDSCAPE PLANS.

PAVING LEGEND

SYMBOL	DESCRIPTION
30	TEMPORARY COVER INSTALL A TEMPORARY PAVEMENT COVER WHEN AND WHERE NECESSARY TO ACCESS THE SITE IN THE INTERIM CONDITION.
31	CONCRETE PAVEMENT PER STRUCTURAL PLANS.

HORIZONTAL CONTROL NOTES:

THIS HORIZONTAL CONTROL PLAN ESTABLISHES THE FOLLOWING TO BE USED AS BASE CONTROL FOR CONSTRUCTION STAKING.

1. PRIOR TO STAKING ANY BUILDING STRUCTURE, SURVEYOR SHALL VERIFY THAT THE GRIDS SHOWN ON THIS PLAN MATCHES THE ARCHITECTURAL & STRUCTURAL PLANS.
2. TWO COORDINATES ARE PROVIDED TO ESTABLISH THE BUILDING GRID. SEE ARCHITECTURAL AND STRUCTURAL PLANS FOR FINAL BUILDING DIMENSIONS.
3. IF ANY DISCREPANCIES ARE FOUND DURING CONSTRUCTION STAKING NOTIFY CIVIL ENGINEER IMMEDIATELY.
4. SEE LANDSCAPE PLANS FOR DETAILED HARDSCAPE DIMENSIONS.
5. SEE LANDSCAPE PLANS FOR LOCATION AND TYPE OF CONCRETE WALKS AND HARDSCAPE INCLUDING DETAILS FOR CONCRETE FINISHES, CONTROL JOINTS AND EXPANSION JOINTS.
6. SEE PAVING AND STRIPING PLANS FOR LOCATION AND TYPE OF PAVING AND STRIPING.

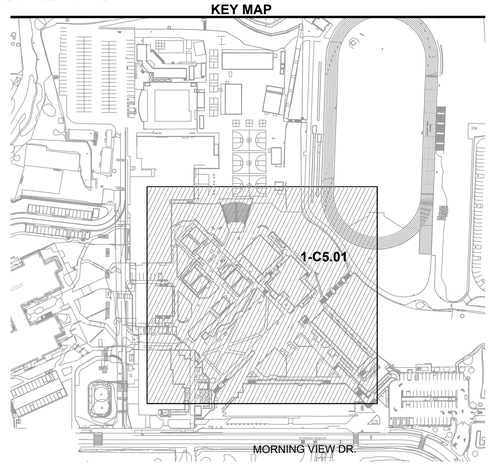
BENCHMARK

-SEE SHEET C0.01 FOR BENCHMARK.

BASIS OF BEARINGS

-SEE SHEET C0.01 FOR BASIS OF BEARINGS.

KEY MAP



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ARCHITECTURE ENGINEERING INTERIOR DESIGN
LANDSCAPE ARCHITECTURE PLANNING

949-261-1001 Office

LPADesignStudios.com

5301 California Avenue, Suite 100
Irvine, California 92617

REGISTERED PROFESSIONAL ENGINEER
KATHLEEN M. SKINNER
R.C.E. 68369
EXP. 9-30-27
CIVIL
STATE OF CALIFORNIA

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PHASE0.3 MDF

30215 Morning View Dr.
Malibu, CA 90265

Developed for
SMMUSD

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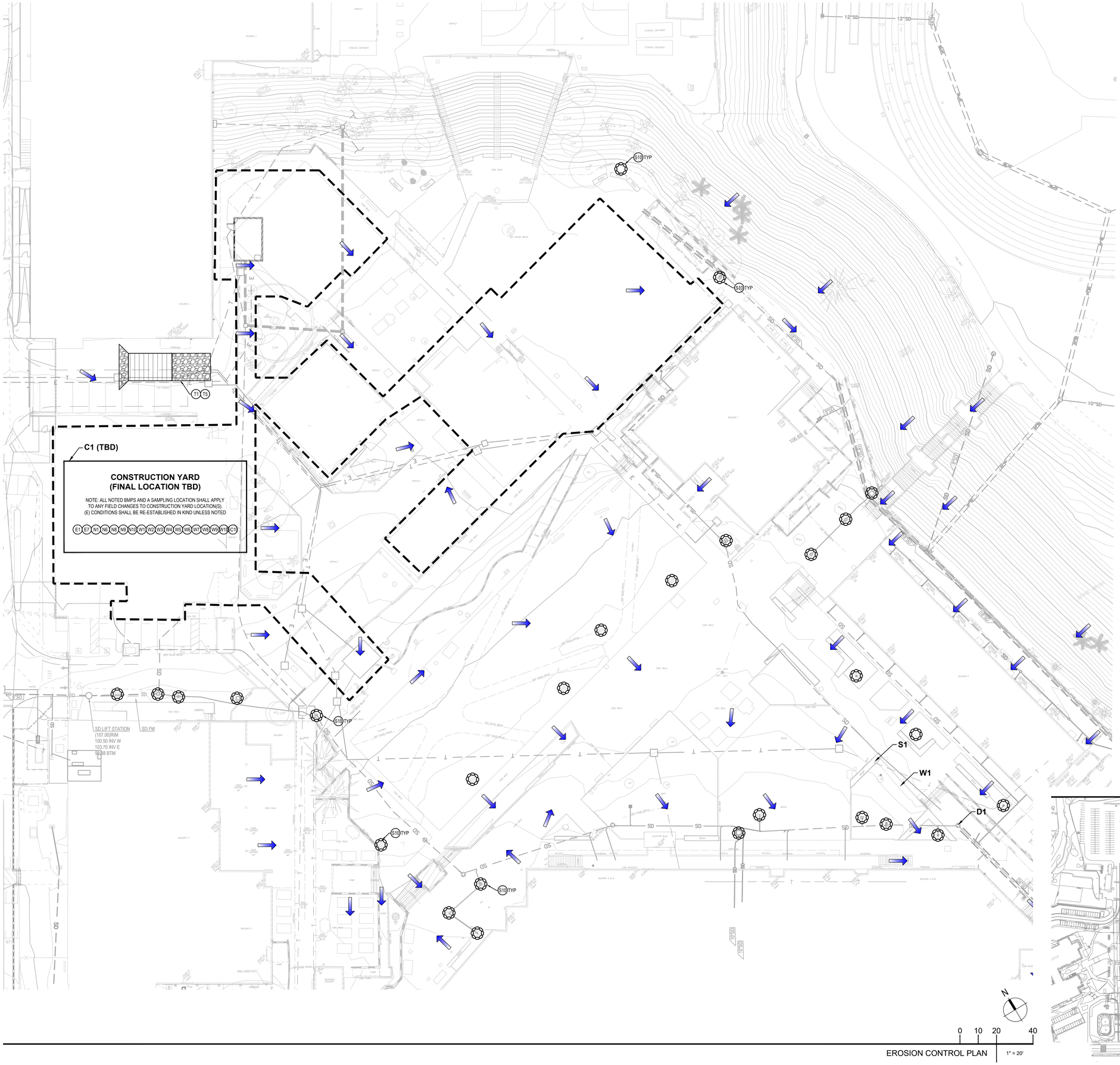
HORIZONTAL CONTROL, PAVING, AND STRIPING PLAN

1-C5.01



EROSION CONTROL NOTES

-SEE SHEET C0.01 FOR EROSION / SEDIMENT CONTROL NOTES AND BMP MAINTENANCE NOTES

-ALL BMPS PER CALIFORNIA STORMWATER QUALITY ASSOCIATION (CASQA)(UNLESS NOTED OTHERWISE) AND ARE AVAILABLE AT www.casqa.org.

-FOR BMP'S NOT SPECIFICALLY CALLED OUT PER PLAN, COORDINATE WITH THE QSP REGARDING APPLICATION AND LOCATIONS FOR USE.

-AT THE COMPLETION OF PROJECT, CONTRACTOR SHALL REMOVE ALL CONSTRUCTION BMPS FROM SITE AND DISPOSE IN A LEGAL MANNER.

LEGEND

SYMBOL	DESCRIPTION
	GRAVEL BAGS AND/OR SANDBAGS PER BMP KEYNOTES
	FIBER ROLL
	SILT FENCE
	APPROXIMATE LIMITS OF WORK
	FLOW DIRECTION

EROSION CONTROL BMPs:

KEY NOTE	DESCRIPTION
E1	EC-1, SCHEDULING
E2	EC-2, PRESERVATION OF EXISTING VEGETATION
E3	EC-3, HYDRAULIC MULCH
E4	EC-4, HYDROSEEDING
E5	EC-5, SOIL BINDERS
E6	EC-6, STRAW MULCH
E7	EC-7, GEOTEXTILES AND MATS
E15	EC-15, SOIL PREPARATION/ROUGHENING

SEDIMENT CONTROL BMPs:

S1	SE-1, SILT FENCE
S5	SE-5, FIBER ROLLS
S6	SE-6, GRAVEL BAG BERM
S7	SE-7, STREET SWEEPING AND VACUUMING
S8	SE-8, SANDBAG BARRIER
S10	SE-10, STORM DRAIN INLET PROTECTION

TRACKING CONTROL BMPs:

T1	TC-1, STABILIZED CONSTRUCTION ENTRANCE/EXIT
T3	TC-3, ENTRANCE/OUTLET TIRE WASH

NON-STORMWATER MANAGEMENT CONTROL BMP

N1	NS-1, WATER CONSERVATION PRACTICES
N3	NS-3, PAVING AND GRINDING OPERATIONS
N6	NS-6, ILLICIT CONNECTION/DISCHARGE
N7	NS-7, POTABLE WATER/IRRIGATION
N8	NS-8, VEHICLE AND EQUIPMENT CLEANING
N9	NS-9, VEHICLE AND EQUIPMENT FUELING
N12	NS-12, CONCRETE CURING
N13	NS-13, CONCRETE FINISHING
EC11	SC-10, NON-STORMWATER DISCHARGES

WIND EROSION CONTROL BMPs:

WE	WE-1, WIND EROSION CONTROL

WASTE MANAGEMENT AND MATERIALS POLLUTION CONTROL BMPs:

W1	WM-1, MATERIAL DELIVERY AND STORAGE
W2	WM-2, MATERIAL USE
W3	WM-3, STOCKPILE MANAGEMENT
W4	WM-4, SPILL PREVENTION AND CONTROL
W5	WM-5, SOLID WASTE MANAGEMENT
W6	WM-6, HAZARDOUS WASTE MANAGEMENT
W7	WM-7, CONTAMINATED SOIL MANAGEMENT
W8	WM-8, CONCRETE WASTE MANAGEMENT
W9	WM-9, SANITARY/SEPTIC WASTE MANAGEMENT
W10	WM-10, LIQUID WASTE MANAGEMENT

STORM WATER STORAGE OR CONTAINMENT

W#	STORMWATER STORAGE (E.G. BIORETENTION) OR CONTAINMENT (E.G. CISTERN)

DISCHARGE LOCATIONS

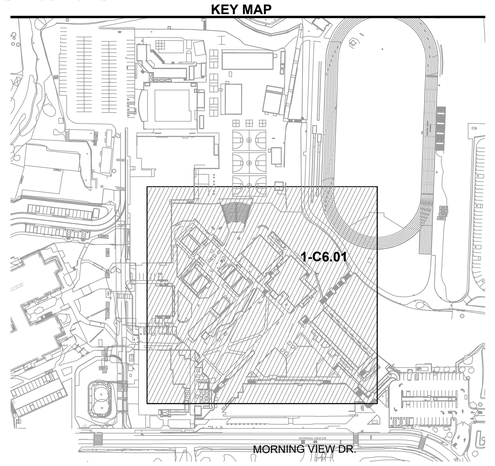
D#	DISCHARGE LOCATION

SAMPLING LOCATIONS

B#	POLLUTANT SAMPLE LOCATION - BACKGROUND SAMPLE
C#	POLLUTANT SAMPLE LOCATION - CONTRACTORS YARD
S#	POLLUTANT SAMPLE LOCATION - SITE
R#	POLLUTANT SAMPLE LOCATION - RUN-ON

NOTE:
THE SAMPLE LOCATIONS SHOWN ARE THE MINIMUM REQUIREMENT FOR THE PROJECT SITE AT RISK LEVEL 3. SAMPLE LOCATIONS MAY BE RELOCATED IF FIELD CONDITIONS WILL NOT ALLOW FOR SATISFACTORY SAMPLING. ANY ADJUSTMENTS TO SAMPLING LOCATIONS MUST MEET THE INTENDED PURPOSE ORIGINALLY DESIGNATED FOR THAT LOCATION AND MUST BE DOCUMENTED WITH A SWPPP AMENDMENT FORM.

KEY MAP



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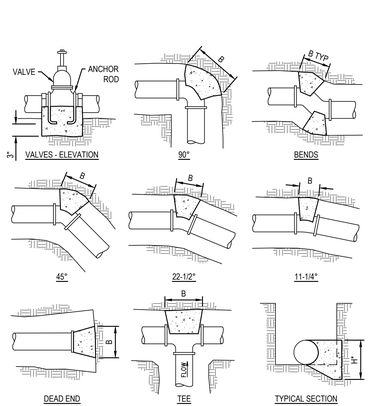
EROSION CONTROL PLAN

1-C6.01



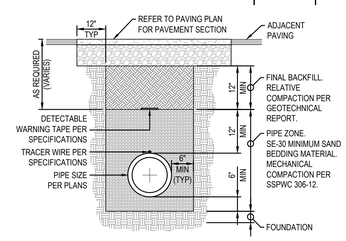
NOTES:

1. THRUST BLOCKS SHALL BE USED FOR PLASTIC PIPE 4" DIAMETER OR LARGER.
2. THRUST BLOCK INSTALLATION PER SSPWC SECTION 306 (LATEST EDITION).
3. THRUST BLOCKS SHALL BE PCC, 450-C-2000 PER SSPWC SECTION 201 (LATEST EDITION).
4. ANCHOR RODS SHALL BE GALVANIZED STEEL, 1/2" DIAMETER, WRAPPED AROUND PIPE.
5. ALL VIEWS ARE PLAN VIEWS UNLESS OTHERWISE NOTED.
6. THRUST BLOCK AREAS ARE BASED ON 200 PSI PRESSURE AND 1,500 PSF ALLOWABLE SOIL BEARING PRESSURE. THRUST BLOCK SIZING PER 2019 NFPA 24, ANNEX A, SECTION A.10.6.1.
7. THRUST BLOCKS SHALL BE INSTALLED AT EVERY CHANGE OF DIRECTION.

HORIZONTAL BEND THRUST BLOCK REQUIRED TOTAL BEARING AREA						
PIPE SIZE (IN)	11¼° BEND	22½° BEND	45° BEND	90° BEND	DEAD END	TEE
	AREA (SF)	AREA (SF)	AREA (SF)	AREA (SF)	AREA (SF)	AREA (SF)
4	0.7	1.4	2.8	5.1	3.6	3.6
6	1.5	2.9	5.7	10.6	7.5	7.5
8	2.5	5.0	9.8	18.2	12.9	12.9
10	3.8	7.6	14.8	27.4	19.4	19.4
12	5.4	10.7	20.9	38.7	27.4	27.4

* BLOCK HEIGHT (H) SHOULD BE CHOSEN SO THAT THE CALCULATED BLOCK WIDTH (B) VARIES BETWEEN ONE AND TWO TIMES THE HEIGHT, NFPA A.10.6.1.

THRUST BLOCKS FOR PLASTIC PIPE - 1500 PSF SOIL BEARING CAPACITY | NTS | 02



NOTES:

1. ALL PIPE SYSTEMS SHALL BE INSTALLED IN ACCORDANCE WITH ASTM D2774, "UNDERGROUND INSTALLATION OF THERMOPLASTIC PRESSURE PIPING", LATEST EDITION.
2. 36" MINIMUM COVER REQUIRED FOR INSTALLATIONS UNDER HARDSCAPE. 30" MINIMUM COVER FOR INSTALLATIONS UNDER PLANTED AREAS.
3. IF UNSTABLE FOUNDATION SOIL IS ENCOUNTERED, THE GEOTECHNICAL FIELD INSPECTOR SHALL DETERMINE OVEREXCAVATION DEPTH AND FOUNDATION RE-FILL MATERIAL.
4. CONTRACTOR SHALL PROVIDE HAND EXCAVATED "BELL HOLE" FOR EACH PIPE JOINT SO THAT THE WEIGHT OF PIPE DOES NOT BEAR ON THE BELL. CONTRACTOR SHALL RE-FILL AND HAND-TAMP EACH "BELL HOLE" PRIOR TO COMPLETING THE PLACEMENT OF PIPE BEDDING.

PIPE TRENCH - WATER | NTS | 03

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CONSTRUCTION DETAILS

1-C7.01

ABBREVIATIONS

AB	AGGREGATE BASE	MIN	MINIMUM
AC	ASPHALT CONCRETE PAVEMENT	MOC	MIDDLE OF CURVATURE
AE	ACCESS EASEMENT	N	NORTH
ASPH	ASPHALT PAVING	NG	NATURAL GRADE
BC	BEGIN CURVATURE	NTS	NOT TO SCALE
BCR	BEGIN CURB RETURN	OC	ON CENTER
BFP	BACK FLOW PREVENTER	(P)	PROPOSED, NEW
BI	BOX INLET	PA	PLANTING AREA
BM	BENCHMARK	PBC	PULL BOX CABLE
BOP	BOTTOM OF PIPE	PBE	PULL BOX ELECTRIC
BOR	BOTTOM OF RAMP	PBT	PULL BOX TELEPHONE
BS	BOTTOM OF STAIRS	PBW	PULL BOX WATER
BVC	BEGIN VERTICAL CURVATURE	PCC	POINT OF COMPOUND CURVATURE
BW	BOTTOM OF WALL	PE	PEDESTRIAN EASEMENT
C&G	CURB AND GUTTER	PI	POINT OF INTERSECTION
CL,CL	CENTER LINE	PIVC	POINT OF INTERSECTION VERTICAL CURVATURE
CB	CATCH BASIN	PL	PROPERTY LINE
CONST	CONSTRUCT	POC	POINT OF CONNECTION
CR	CURB RETURN	PP	POWER POLE
CT	COURT	PRC	POINT OF REVERSE CURVATURE
CUL	CULVERT	PVC	POLYVINYL CHLORIDE
DI	DROP INLET	PVMT	PAVEMENT
DIP	DUCTILE IRON PIPE	R	RADIUS
DW	DOMESTIC WATER	RCP	REINFORCED CONCRETE PIPE
D/W	DRIVEWAY	RIM	TOP RIM OF STRUCTURE
DE	DRAINAGE EASEMENT	ROW	HIGHWAY EASEMENT
DR	DRIVE	RT	RIGHT
(E)	EXISTING	RW	RECLAIMED WATER
E	EAST	R/W	RIGHT OF WAY
EC	END CURVATURE	S	SOUTH OR SLOPE
ECR	END CURB RETURN	SBE	SETBACK EASEMENT
EG	EXISTING GRADE	SCO	SANITARY SEWER CLEANOUT
ELEV	ELEVATION	SD	STORM DRAIN
EOC	EDGE OF CONCRETE	SDMH	STORM DRAIN MANHOLE
EP	EDGE OF PAVEMENT	SF	SQUARE FEET
EQ	EQUAL	SHT	SHEET
ESMT	EASEMENT	STA	STATION
EVC	END OF VERTICAL CURVATURE	SMH	SANITARY SEWER MANHOLE
FF	FINISHED FLOOR	SS	SANITARY SEWER
FFE	FINISHED FLOOR ELEVATION	SWPPP	STORM WATER POLLUTION PREVENTION PLAN
FG	FINISHED GRADE		
FH	FIRE HYDRANT		
FL	FLOWLINE	S/W	SIDEWALK
FS	FINISHED SURFACE	T	TANGENT
FW	FIRE PROTECTION SERVICE WATER	TB	TOP OF BERM
GB	GRADE BREAK	TBC	TOP BACK OF CURB
GFL	GUTTER FLOWLINE	TBW	TOP BACK OF WALK
GSL	LIMITS OF GRAVITY SEWER	TC	TOP OF CURB
GR	GRATE	TF	TOP OF FOOTING
GV	GAS VALVE	TG	TOP OF GRATE
HB	HOSE BIB	TOE	TOE OF SLOPE
HP	HIGH POINT	TOP	TOP OF PIPE
ICV	IRRIGATION CONTROL VALVE	TOR	TOP OF RAMP
INTX	POINT OF INTERSECTION	TOS	TOP OF SLOPE
INV	INVERT	TP	TOP OF PLANTER
JP	JOINT POLE	TS	TOP OF STAIRS
LE	LANDSCAPE EASEMENT	TW	TOP OF WALL
LF	LINEAR FEET	TYP	TYPICAL
LIP	LIP OF GUTTER	TP	TELEPHONE POLE
LP	LOW POINT	VC	VERTICAL CURVATURE
LT	LEFT	W	WEST
MAX	MAXIMUM	WM	WATER MAIN
MH	MANHOLE	WV	WATER VALVE

LEGEND

SYMBOL	DESCRIPTION
(RD)	ROOF DRAIN POC 5' FROM BUILDING
(G)	GAS POC 5' FROM BUILDING
(F)	FIRE WATER POC 5' FROM BUILDING
(W)	DOMESTIC WATER POC 5' FROM BUILDING
(SS)	SANITARY SEWER POC 5' FROM BUILDING
(D)	STORM DRAIN MANHOLE
(S)	SANITARY SEWER MANHOLE
	DRAIN INLET
AD	AREA DRAIN
	TRENCH DRAIN
	CLEANOUT
	BLOW OFF
	FIRE HYDRANT
	VALVE
	POST INDICATOR VALVE (PIV)/CHECK VALVE (CHK VLV)/FIRE DEPARTMENT CONNECTION (FDC)
	CHECK VALVE (CHK VLV)
	FIRE DEPARTMENT CONNECTION (FDC)
	DOUBLE DETECTOR CHECK (DBL CHK)
	REDUCED PRESSURE (BFP)
	POST INDICATOR VALVE (PIV)
	THRUST BLOCK
	BENDS, TEE AND CROSS
	WATER METER

LINE TYPE	DESCRIPTION
	APPROXIMATE PROJECT LIMITS
	RIGHT OF WAY/ PROPERTY LINE
-x-x-x-x-x-x-x-x-x-x-x-x-	FENCE
	REMOVE EXISTING UTILITY
SS SS	EXISTING SEWER LINE
W W	EXISTING WATER LINE
SD SD	EXISTING STORM DRAIN LINE
FW FW	EXISTING DEDICATED PRIVATE FIRE SERVICE
G G	EXISTING NATURAL GAS SERVICE
E E	EXISTING ELECTRICAL LINE / CONDUIT
T T	EXISTING TELECOMMUNICATIONS LINE / CONDUIT
XXLF 6"SS S=X.XXX	SANITARY SEWER LINE
XXLF 6"DW PVC	DOMESTIC WATER LINE
XXLF 6"SD S=X.XXX	STORM DRAIN LINE (≤8" DIAMETER)
XXLF 12"SD S=X.XXX	STORM DRAIN LINE (>8" DIAMETER)
	PERFORATED STORM DRAIN LINE
XXLF 8"FW PVC	DEDICATED PRIVATE FIRE SERVICE
XXLF GAS PVC	NATURAL GAS LINE
GB	GRADE BREAK LINE
> >	FLOW LINE
	DAYLIGHT LINE

GENERAL EROSION AND SEDIMENT CONTROL NOTES

1. CONTRACTOR SHALL ENSURE THAT THE CONSTRUCTION SITE IS PREPARED PRIOR TO THE START OF CONSTRUCTION. CONTRACTOR SHALL HAVE ALL EROSION AND SEDIMENT CONTROL MEASURES IN PLACE AT ALL TIMES DURING CONSTRUCTION.
2. ALL EROSION AND SEDIMENT CONTROL MEASURES SHALL BE MAINTAINED UNTIL DISTURBED AREAS ARE STABILIZED.
3. THIS PLAN MAY NOT COVER ALL THE SITUATIONS THAT ARISE DURING CONSTRUCTION DUE TO UNANTICIPATED FIELD CONDITIONS.
4. ALL EROSION AND SEDIMENT CONTROL MEASURES SHALL BE CHECKED BEFORE AND AFTER ALL STORMS TO ENSURE MEASURES ARE FUNCTIONING PROPERLY.
5. CONTRACTOR SHALL MAINTAIN A LOG AT THE SITE OF ALL INSPECTIONS OR MAINTENANCE OF BMPS, AS WELL AS, ANY CORRECTIVE CHANGES TO THE BMPS OR EROSION AND SEDIMENT CONTROL PLAN.
6. IN AREAS WHERE SOIL IS EXPOSED, PROMPT REPLANTING WITH NATIVE COMPATIBLE, DROUGHT-RESISTANT VEGETATION SHALL BE PERFORMED. NO AREAS WILL BE LEFT EXPOSED OVER THE WINTER SEASON.
7. THE CONTRACTOR SHALL INSTALL THE STABILIZED CONSTRUCTION ENTRANCE PRIOR TO COMMENCEMENT OF GRADING. LOCATION OF THE ENTRANCE MAY BE ADJUSTED BY THE CONTRACTOR TO FACILITATE GRADING OPERATIONS. ALL CONSTRUCTION TRAFFIC ENTERING THE PAVED ROAD MUST CROSS THE STABILIZED CONSTRUCTION ENTRANCE.
8. ALL SEDIMENT DEPOSITED ON PAVED ROADWAYS SHALL BE SWEPT AT THE END OF EACH WORKING DAY OR MORE OFTEN AS NECESSARY.
9. CONTRACTOR SHALL PLACE GRAVEL/SAND BAGS AROUND ALL NEW DRAINAGE STRUCTURE OPENINGS IMMEDIATELY AFTER THE STRUCTURE OPENING IS CONSTRUCTED. THESE GRAVEL/SAND BAGS SHALL BE MAINTAINED AND REMAIN IN PLACE UNTIL CONSTRUCTION IS COMPLETED.
10. CONTRACTOR SHALL IMPLEMENT HOUSEKEEPING PRACTICES AS FOLLOWS:
    A. SOLID WASTE MANAGEMENT:
    PROVIDE DESIGNATED WASTE COLLECTION AREAS AND CONTAINERS. ARRANGE FOR REGULAR REMOVAL AND DISPOSAL. CLEAR SITE OF TRASH INCLUDING ORGANIC DEBRIS, PACKAGING MATERIALS, SCRAP OR SURPLUS BUILDING MATERIALS AND DOMESTIC WASTE DAILY.
    B. MATERIAL DELIVERY AND STORAGE:
    PROVIDE A DESIGNATED MATERIAL STORAGE AREA WITH SECONDARY CONTAINMENT SUCH AS BERMING. STORE MATERIAL ON PALLETS AND PROVIDE COVERING FOR SOLUBLE MATERIALS. RELOCATE STORAGE AREA INTO BUILDING SHELL WHEN POSSIBLE. INSPECT AREA WEEKLY.
    C. CONCRETE WASTE:
    PROVIDE A DESIGNATED AREA FOR A TEMPORARY PIT TO BE USED FOR CONCRETE TRUCK WASH-OUT. CONCRETE WASHOUT CANNOT BE WITHIN 50' MINIMUM OF DRAIN INLETS. DISPOSE OF HARDENED CONCRETE OFFSITE. AT NO TIME SHALL A CONCRETE TRUCK DUMP ITS WASTE AND CLEAN ITS TRUCK INTO THE STORM DRAINS VIA CURB AND GUTTER. INSPECT DAILY TO CONTROL RUNOFF, AND WEEKLY FOR REMOVAL OF HARDENED CONCRETE.
    D. PAINT AND PAINTING SUPPLIES:
    PROVIDE INSTRUCTION TO EMPLOYEES AND SUBCONTRACTORS REGARDING REDUCTION OF POLLUTANTS INCLUDING MATERIAL STORAGE, USE, AND CLEAN UP. INSPECT SITE WEEKLY FOR EVIDENCE OF IMPROPER DISPOSAL.
    E. VEHICLE FUELING, MAINTENANCE AND CLEANING:
    PROVIDE A DESIGNATED FUELING AREA WITH SECONDARY CONTAINMENT SUCH AS BERMING. DO NOT ALLOW MOBILE FUELING OF EQUIPMENT. PROVIDE EQUIPMENT WITH DRIP PANS. RESTRICT ONSITE MAINTENANCE AND CLEANING OF EQUIPMENT TO A MINIMUM. INSPECT AREA WEEKLY.
    F. HAZARDOUS WASTE MANAGEMENT:
    PREVENT THE DISCHARGE OF POLLUTANTS FROM HAZARDOUS WASTES TO THE DRAINAGE SYSTEM THROUGH PROPER MATERIAL USE, WASTE DISPOSAL AND TRAINING OF EMPLOYEES. HAZARDOUS WASTE PRODUCTS COMMONLY FOUND ON-SITE INCLUDE BUT ARE NOT LIMITED TO PAINTS & SOLVENTS, PETROLEUM PRODUCTS, FERTILIZERS, HERBICIDES & PESTICIDES, SOIL STABILIZERS, STABILIZATION PRODUCTS, ASPHALT PRODUCTS AND CONCRETE CURING PRODUCTS.
11. CONTRACTOR SHALL HYDROSEED ALL GRADED SLOPES. NATIVE SEED MIX SHALL BE 20% LANA PUBESCENT WHEAT GRASS, 40% BLANDO BROME, AND 40% ANNUAL RYE GRASS AND SHALL BE APPLIED AT A RATE OF 200 POUNDS PER ACRE. SOIL BINDING AGENT SHALL BE VERDYOL, SENTINEL, OR EQUAL, APPLIED AT A RATE OF 110 POUNDS PER ACRE. MULCH SHALL BE SILVER-FIBER, CONWED, OR EQUAL, APPLIED AT A RATE OF 1,000 POUNDS PER ACRE. FERTILIZER SHALL BE AGRI-FORM 16-7-12, BEST 16-6-8, OR EQUAL, APPLIED AT A RATE OF 500 POUNDS PER ACRE. THE CONTRACTOR SHALL WATER SEEDED AREAS OR RESEED AS NECESSARY TO ENSURE SUFFICIENT PLANT DEVELOPMENT FOR EROSION CONTROL.
12. NO GRADING SHALL BE DONE UNTIL SITE- AND SEASON-SPECIFIC SOIL LOSS AND HOUSEKEEPING STORMWATER BMPs HAVE BEEN APPROVED BY THE INSPECTOR. THE CONTRACTOR SHOULD EMPLOY THE DESIGN BMPs AND ANY OTHERS NEEDED AS SITUATIONS ARISE. CONTRACTOR SHOULD CONDUCT SITE INSPECTIONS BEFORE, DURING AND AFTER EACH EXTENDED STORM EVENT TO IDENTIFY CONDITIONS THAT MAY CONTRIBUTE TO EROSION AND SEDIMENT PROBLEMS OR ANY OTHER POLLUTANT DISCHARGES. IF ADDITIONAL CONTROL MEASURES ARE NEEDED, CONTRACTOR SHOULD IMPLEMENT THEM IMMEDIATELY.

POLLUTION PREVENTION NOTES

IN ORDER TO MEET THE REQUIREMENTS OF THE NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM (NPDES) PROGRAM FOR CONSTRUCTION, CONSTRUCTION CONTRACTORS SHALL INSTALL AND MAINTAIN APPROPRIATE BEST MANAGEMENT PRACTICES (BMPS), AS SHOWN IN THE EROSION CONTROL PLAN AND IN ACCORDANCE WITH THE SWPPP (STORM WATER POLLUTION PREVENTION PLAN), ON ALL CONSTRUCTION PROJECTS. BMPS SHALL BE INSTALLED IN ACCORDANCE WITH INDUSTRY RECOMMENDED STANDARDS, AND/OR IN ACCORDANCE WITH ANY GENERAL CONSTRUCTION PERMIT ISSUED BY THE STATE FOR THE PROJECT TO PREVENT ANY DISCHARGES FROM THE PROJECT SITE OR INTO ANY STORM DRAIN FACILITIES. ALL SEDIMENTS, CONSTRUCTION MATERIALS, DEBRIS AND WASTES, AND OTHER POLLUTANTS MUST BE RETAINED ON SITE AND MAY NOT BE TRANSPORTED FROM THE SITE VIA SHEET FLOW, SWALES, AREA DRAINS, NATURAL DRAINAGE COURSES, WIND, OR VEHICLE TRACKING. UNDER DIRECTION OF THE ENGINEER OF RECORD, EROSION AND/OR SEDIMENT CONTROL DEVICES SHALL BE MODIFIED AS NEEDED AS THE PROJECT PROGRESSES TO ENSURE EFFECTIVENESS.

BMP MAINTENANCE NOTES

1. FOLLOWING OWNER ACCEPTANCE OF CONSTRUCTION WORK, POST CONSTRUCTION BEST MANAGEMENT PRACTICE (BMP) MEASURES SHALL BE MAINTAINED BY THE PROPERTY OWNER, INCLUDING BUT NOT LIMITED TO:
    1.1. ANNUAL INSPECTION, REPLACEMENT, AND/OR SEDIMENTATION REMOVAL OF VEGETATED SWALES, TREATMENT PONDS, AND OTHER SURFACE STORMWATER TREATMENT MEASURES AS REQUIRED WITH AN INCREASED FREQUENCY BASED ON SITE CONDITIONS.
    1.2. MAINTENANCE SERVICE AGREEMENT(S) OF STORMWATER TREATMENT VAULTS, INLETS, MANHOLES, AND OTHER DEVICES BASED ON MANUFACTURES' RECOMMENDATIONS AND FREQUENCY.
    1.3. ANNUAL INSPECTION OF PERMEABLE PAVEMENT AND REMOVAL OF SEDIMENT AS NEEDED.
    1.4. ANNUAL INSPECTION OF STORMWATER INLETS AND MAINTENANCE AS REQUIRED TO CLEAR GRATES AND INLETS OF DEBRIS.
    1.5. THE PROJECT STORMWATER POLLUTION PREVENTION PLAN (SWPPP) AND WATER QUALITY MANAGEMENT PLAN (WQMP) MAY CONTAIN ADDITIONAL OR MORE STRINGENT MAINTENANCE REQUIREMENTS.
2. BMP DETAILS MAY BE FOUND IN APPENDIX H OF THE PROJECT SWPPP DOCUMENT. BMP DETAILS PER CALIFORNIA STORMWATER QUALITY ASSOCIATION (CASQA) AND ARE AVAILABLE AT www.casqa.org.
3. FOR PROJECTS GREATER THAN 1 ACRE: THE CONTRACTOR SHALL VERIFY THE STATUS OF THE SWPPP/NOI/WDID PRIOR TO EARTHMOVING ACTIVITIES. A STORMWATER POLLUTION PREVENTION PLAN (SWPPP) SHALL BE PREPARED AND A NOTICE OF INTENT (NOI) SHALL BE FILED WITH THE STATE WATER RESOURCES CONTROL BOARD (SWRCB) IN ACCORDANCE WITH THE REQUIREMENTS OF CALIFORNIA GENERAL PERMIT FOR STORMWATER DISCHARGES ASSOCIATED WITH CONSTRUCTION ACTIVITY (PERMIT NO. CAS000002) FOR ALL OPERATIONS ASSOCIATED WITH THESE PLANS. THE CONTRACTOR SHALL KEEP A COPY OF THE SWPPP ON SITE AND AVAILABLE FOR REVIEW.

AREA SUMMARY

TOTAL DISTURBED AREA = 3.35± ACRES

DEMOLITION NOTES

1. THE INTENT OF THE DEMOLITION PLAN IS TO DESCRIBE IN GENERAL THE DEMOLITION AREAS AFFECTED BY THE PROJECT CONSTRUCTION. IT IS NOT INTENDED AS A DETAILED DESCRIPTION OF EXISTING ITEMS OR ELEMENTS TO BE REMOVED. THE CONTRACTOR SHALL VISIT THE SITE AND REVIEW ANY AVAILABLE RECORD DOCUMENTS TO BECOME FAMILIAR WITH THE EXISTING CONDITIONS AND SHOULD INCLUDE THE REMOVAL OF ALL ITEMS NECESSARY FOR THE PROPER EXECUTION AND COMPLETION OF THE WORK. THE CONTRACT DOCUMENTS ARE COMPLEMENTARY, AND WHAT IS REQUIRED BY ONE SHALL BE BINDING AS IF REQUIRED BY ALL TO THE EXTENT THAT IT IS REASONABLY INFERABLE FROM THEM AS BEING NECESSARY TO PRODUCE THE INTENDED RESULTS.
2. REMOVE EXISTING BUILDINGS, FOUNDATIONS AND SERVICE UTILITIES AS INDICATED ON PLANS. CAP ALL UTILITIES AT APPROPRIATE POINTS. ALL EXISTING ELECTRICAL / TELEPHONE / CATV UTILITIES SHALL BE REMOVED AS INDICATED OR BACK TO THE POINT WHERE THE SPECIFIC UTILITY SYSTEM ENTERS THE WORK AREA. COORDINATE DEMOLITION OF ALL UTILITIES WITH THE OWNER. ALL UTILITIES CONNECTED TO EXISTING BUILDINGS TO REMAIN SHALL CONTINUE TO BE OPERATIONAL DURING THE DEMOLITION PROCESS. DOMESTIC AND FIRE SERVICE WATER AND NATURAL GAS SHALL BE REMOVED TO A POINT OUTSIDE THE PERIMETER OF PROPOSED NEW CONSTRUCTION TO EXISTING VALVES OR SIMILAR SHUT-OFF DEVICES. IF A SHUT-OFF DEVICE IS NOT REASONABLY ADJACENT TO THE PERIMETER OF THE PROPOSED NEW CONSTRUCTION, PROVIDE A SHUT-OFF DEVICE IN BELOW-GRADE YARD BOX. CONFIRM LOCATION OF NEW DEVICES WITH OWNER PRIOR TO INSTALLATION. SANITARY SEWER AND STORM DRAINAGE SHALL BE CAPPED TO A POINT OUTSIDE THE PERIMETER OF THE PROPOSED NEW CONSTRUCTION. OTHER UTILITIES NOT SPECIFICALLY IDENTIFIED IN THESE DOCUMENTS AND NOT ANTICIPATED FOR REUSE SHALL BE REMOVED IN ENTIRETY.
3. FOR ALL EXISTING MATERIALS THAT CAN BE SALVAGED, OWNER HAS FIRST RIGHT OF REFUSAL FOR REMOVED ITEMS THAT MAY HAVE RESIDUAL COMMERCIAL OR HISTORIC VALUE INCLUDING, BUT NOT LIMITED TO, GLASS, CORNER STONES, TIME CAPSULES, LIGHT STANDARDS, SIGNS, FENCING, BENCHES, WATER FOUNTAINS, TRASH CONTAINERS, ETC. SHALL REMAIN AS PROPERTY OF THE OWNER. ALL ITEMS TO BE SALVAGED FOR REUSE/REINSTALLATION MUST MEET CURRENT CODE REQUIREMENTS. COORDINATE ITEMS TO BE RETAINED WITH OWNER AND REMOVE FROM CONSTRUCTION SITE TO A LOCATION APPROVED BY OWNER. REMOVED MATERIALS, NOT INDICATED OR DIRECTED TO BE SALVAGED FOR THE OWNER'S BENEFIT ARE DEBRIS AND BECOME THE CONTRACTOR'S PROPERTY UPON REMOVAL.
4. THE EXISTENCE AND LOCATION OF ANY UNDERGROUND UTILITY PIPES OR STRUCTURES SHOWN ON THESE PLANS ARE OBTAINED BY SEARCH OF THE AVAILABLE RECORDS AND FIELD SURVEYS. THE CONTRACTOR SHALL CONTACT UNDERGROUND SERVICE ALERT, UTILITY COMPANIES, AND/OR FIELD VERIFY AND LOCATE ALL UTILITIES BEFORE PROCEEDING WITH WORK. THE CONTRACTOR IS ALSO REQUIRED TO TAKE DUE PRECAUTIONARY MEASURES TO PROTECT THE UTILITY LINES SHOWN AND ANY OTHER LINES NOT OF RECORD OR NOT SHOWN ON THESE PLANS. NOTIFY THE ENGINEER IF ADDITIONAL UTILITIES ARE LOCATED OR IF CONFLICTS ARE FOUND WITH EXISTING CONDITIONS.
5. ALL TREES TO BE REMOVED SHALL BE MARKED BY CONTRACTOR AND APPROVED FOR REMOVAL BY THE OWNER OR OWNER'S REPRESENTATIVE PRIOR TO REMOVING OR CUTTING TREE(S). EXISTING ROOTS SHALL BE GRINDED TO A DEPTH OF APPROXIMATELY 3-FEET. USE CAUTION WHILE GRINDING WHEN EXISTING UTILITIES ARE IN CLOSE PROXIMITY TO TREES. ALL TREES TO REMAIN WITHIN THE LIMIT OF WORK SHALL BE PROTECTED AND MAINTAINED PER SPECIFICATIONS AND DETAILS.
6. SAWCUT EXISTING CONCRETE AND ASPHALT TO AN EXISTING CONTROL JOINT WHERE POSSIBLE, AT MINIMUM TO A NEAT-STRAIGHT LINE. ALL DEBRIS SHALL BE HAULED OFFSITE TO A LEGAL DUMPING SITE OR SALVAGED FOR REUSE ON PROJECT AS NOTED.
7. WORK WITHIN CITY, COUNTY, OR STATE RIGHT-OF-WAY REQUIRES A SEPARATE ENCROACHMENT PERMIT WHICH THE CONTRACTOR IS RESPONSIBLE FOR OBTAINING PRIOR TO STARTING WORK WITHIN RIGHT-OF-WAY.
8. CONTRACTOR TO COORDINATE UTILITY DEMOLITION WITH DRAINAGE AND UTILITY WORK SHOWN IN THIS PLAN SET. ALL UTILITY SHUTDOWNS SHALL BE COORDINATED PER PROJECT SPECIFICATIONS.
9. EXISTING DRY UTILITIES SHOWN FOR DEMOLITION ARE SHOWN FOR COORDINATION ONLY. REFER TO OTHER DISCIPLINES FOR LIMITS AND DETAILS OF DEMOLITION.
10. THE CONTRACTOR SHALL RECYCLE CONSTRUCTION DEBRIS, ASPHALT, AND CONCRETE GENERATED FROM REMOVALS REQUIRED TO CONSTRUCT THE PROJECT. THE CONTRACTOR IS OBLIGATED, UNDER THIS CONTRACT, TO RECYCLE THE WASTE MATERIAL THROUGH AN APPROVED RECYCLING PLANT.
11. A LIST OF FACILITIES THAT ACCEPT CONSTRUCTION & DEMOLITION DEBRIS CAN BE FOUND ON THE CALRECYCLE WEBSITE AT: HTTPS://WWW.CALRECYCLE.CA.GOV/CONDEMO
12. CONTRACTOR IS RESPONSIBLE FOR PROTECTING EXISTING BUILDING FINISHES DURING DEMOLITION. ANY FINISH THAT IS DAMAGED DURING DEMOLITION SHALL BE REPAIRED OR REPLACED IN-KIND OR BETTER.

GENERAL NOTES TO CONTRACTOR

1. THE CONTRACTOR SHALL CONTACT THE RESPECTIVE UTILITY OWNERS FOR LOCATION, REMOVAL, AND/OR RELOCATION OF ANY UTILITY SERVICES AFFECTED BY CONSTRUCTION. THE CONTRACTOR SHALL TAKE ALL NECESSARY PRECAUTIONARY MEASURES TO PROTECT UNDERGROUND OR OVERHEAD STRUCTURES WHETHER OR NOT THEY ARE SHOWN ON THESE DRAWINGS.
2. THE CONTRACTOR SHALL NOTIFY THE PROJECT INSPECTOR AND THE RESPECTIVE UTILITY OWNERS AND OTHER AGENCIES AT LEAST TWO WORKING DAYS PRIOR TO START OF CONSTRUCTION.
3. THE CONTRACTOR SHALL BE RESPONSIBLE FOR EXPOSING, VERIFYING LOCATIONS (BOTH HORIZONTAL AND VERTICAL), AND MAINTAINING ALL EXISTING UNDERGROUND UTILITIES, BOTH SHOWN ON THE PLANS AND/OR NOT SHOWN ON THE PLANS DURING CONSTRUCTION. REPAIR DAMAGED UTILITIES TO THE SATISFACTION OF THE ENGINEER. THE CONTRACTOR SHALL LOCATE EXISTING UNDERGROUND UTILITIES SUFFICIENTLY AHEAD OF CONSTRUCTION TO PERMIT REVISIONS TO PLANS BECAUSE OF LOCATIONS OF EXISTING FACILITIES AND SHALL REPORT ALL DISCREPANCIES TO THE ENGINEER PRIOR TO THE COMMENCEMENT OF WORK.
4. THE EXISTENCE AND LOCATION OF ANY UNDERGROUND UTILITIES AND/OR STRUCTURES SHOWN ON THESE PLANS WERE OBTAINED BY A SEARCH OF THE AVAILABLE RECORDS. APPROVAL OF THESE PLANS DOES NOT CONSTITUTE A REPRESENTATION AS TO THE ACCURACY OR COMPLETENESS OF THE LOCATION OR THE EXISTENCE, OR NON-EXISTENCE OF ANY UTILITY AND/OR STRUCTURE WITHIN THE LIMITS OF THIS PROJECT. THE CONTRACTOR IS REQUIRED TO TAKE ALL DUE PRECAUTIONARY MEASURES TO PROTECT THE UTILITIES OF RECORD AND/OR NOT OF RECORD SHOWN OR NOT SHOWN AND ANY OTHER LINE(S) OR STRUCTURE(S) NOT SHOWN ON THESE PLANS. THE CONTRACTOR IS RESPONSIBLE FOR THE PROTECTION OF, AND/OR DAMAGE TO THESE LINE(S) AND/OR STRUCTURE(S).
5. THE CONTRACTOR SHALL BE RESPONSIBLE FOR TEMPORARY SHORING AT PROPOSED BUILDING FOUNDATIONS, FOOTINGS, AND WALLS TO PROTECT EXISTING UTILITIES IN PLACE.
6. UNAUTHORIZED CHANGES AND USES - CAUTION: THE ENGINEER PREPARING THESE PLANS WILL NOT BE RESPONSIBLE FOR, OR LIABLE FOR, UNAUTHORIZED CHANGES TO OR USES OF THESE PLANS. ALL CHANGES TO THE PLANS MUST BE IN WRITING AND MUST BE APPROVED BY THE PREPARER OF THESE PLANS.
7. THE CONTRACTOR SHALL MAINTAIN THE EXISTING ACCESSIBLE ROUTE CLEAR OR PROVIDE AN ALTERNATE ACCESSIBLE ROUTE OF TRAVEL DURING DEMOLITION AND/OR CONSTRUCTION.
8. THE CONTRACTOR SHALL MAINTAIN THE EXISTING FIRE EXITS AND STAIRS CLEAR AND USABLE OR PROVIDE ALTERNATE FIRE EXITS DURING DEMOLITION AND/OR CONSTRUCTION.

EARTHWORK NOTES

1. IT IS THE CONTRACTOR'S RESPONSIBILITY TO REVIEW THE GRADING PLANS AND SOILS REPORT THOROUGHLY PRIOR TO SITE MOBILIZATION. IT IS ALSO THE GRADING CONTRACTOR'S RESPONSIBILITY TO NOTIFY THE CIVIL AND SOILS ENGINEERS IF ONSITE DISCREPANCIES ARE OBSERVED THAT WOULD AFFECT THE EARTHWORK QUANTITIES.
2. THE EXISTING TOPOGRAPHY AS DELINEATED ON THESE DRAWINGS SHALL BE UTILIZED AS THE BASIS FOR ALL EARTHWORK COMPUTATIONS. SAID TOPOGRAPHY SHALL BE PRESUMED TO BE ACCEPTABLE TO ALL INTERESTED PARTIES UNLESS A DEVIATION IS FOUND PRIOR TO THE START OF GRADING IN ANY SPECIFIC AREAS. ANY DEVIATION SO DETERMINED SHALL BE PROMPTLY TRANSMITTED TO ALL INTERESTED PARTIES.
3. THE CONTRACTOR IS REQUIRED TO ESTIMATE THE QUANTITIES OF GRADING WORK TO BE DONE AND INCLUDE ALL COSTS THEREFROM WITH HIS BID, AS NO ADDITIONAL ALLOWANCE WILL BE MADE WITHOUT PRIOR CONSENT FROM THE OWNER.
4. OVER-EXCAVATION AND/OR EXCESS BACKFILLING OR DUPLICATION OF GRADING ACTIVITIES IS NOT A BASIS FOR ADDITIONAL COMPENSATION. THIS ALSO APPLIES WHERE MATERIAL IS TO BE REMOVED AND REPLACED TO REDUCE MOISTURE CONTENT.
5. OFF-SITE DISPOSAL OF EXCAVATION MATERIAL IS THE RESPONSIBILITY OF THE CONTRACTOR AND SHALL BE INCLUDED IN THE BID. THE CONTRACTOR SHALL HOLD THE OWNER AND ENGINEER HARMLESS AS A RESULT OF ANY CLAIMS ARISING FROM THE ACTIONS ENROUTE OR AWAY FROM THE SITE.
6. EARTH VOLUMES SHOWN HEREON ARE ESTIMATES BASED UPON THE GEOTECHNICAL ANALYSIS PERFORMED BY THE NAMED SOILS ENGINEER AND TOPOGRAPHIC SURVEY OF THE EXISTING GROUND SURFACE AT THE TIME OF PLAN PREPARATION. EARTHWORK VOLUMES ARE COMPUTED BY METHODS COMMONLY USED IN STANDARD ENGINEERING PRACTICE, AND ARE INTENDED FOR USE IN ESTABLISHING GOVERNING AGENCY FEES. ACTUAL FIELD CONDITIONS MAY VARY FROM OBSERVED OR MEASURED CONDITIONS AT THE TIME OF PLAN PREPARATION. EARTHWORK QUANTITIES MAY VARY AS A RESULT.
7. ANY EXPORT OR IMPORT REQUIRED TO BALANCE THE SITE SHALL BE THE SOLE RESPONSIBILITY OF THE CONTRACTOR.
8. PAVEMENT AND SUBGRADE RECOMMENDATIONS RELATED TO OVER-EXCAVATION, PAVEMENT SUBGRADE, ETC., PER GEOTECHNICAL REPORT.

GEOTECHNICAL INFORMATION

FOR SITE PREPARATION, OVEREXCAVATION, FOUNDATION RECOMMENDATIONS, PAVEMENT, SUBGRADE, AND GRADATION REQUIREMENTS SEE GEOTECHNICAL INVESTIGATION REPORT ENTITLED:

"GEOTECHNICAL EXPLORATION REPORT
MALIBU MIDDLE AND HIGH SCHOOL CAMPUS
PHASE II IMPROVEMENTS
PROPOSED AQUATIC CENTER, MIDDLE SCHOOL BUILDING, AND GYMNASIUM
30215 MORNING VIEW DRIVE
MALIBU, LOS ANGELES COUNTY, CALIFORNIA "

PREPARED BY:	LEIGHTON CONSULTING, INC. 2600 MICHELSON DRIVE, SUITE 400 IRVINE, CALIFORNIA 92612
PROJECT NO:	036.0000025785
DATED:	OCT 16, 2024
REVISED:	MAY 23, 2025

EARTHWORK QUANTITIES

APPROXIMATE CUT:	8,140 CY
APPROXIMATE FILL:	4,303 CY
NET:	3,837 CY (EXPORT)

NOTE:
EARTHWORK QUANTITIES INDICATED ARE FOR REFERENCE ONLY (NOT FOR BID OR PAYMENT). THE CONTRACTOR IS RESPONSIBLE FOR ACTUAL QUANTITIES.

HAUL ROUTE TO BE DETERMINED AT PRE-GRADE MEETING AND ALL NECESSARY PERMITS SHALL BE OBTAINED BY THE GENERAL CONTRACTOR

NOTE: PROJECT GEOTECHNICAL CONSULTANT HAS RECOMMENDED THAT ADDITIONAL EXPANSION INDEX TESTING BE PERFORMED AFTER THE COMPLETION OF GRADING TO QUANTIFY THE EI VALUES PRESENTED IN THE REPORT.

BENCHMARK

US NATIONAL GEODETIC SURVEY
PID NO: EW4180, EW1593, EW6821, EW4188, EW4106, EW4113, EW4205, EW4212, AE1725, AE1722
NAVD 88 DATUM

DATUM STATEMENT

STATE PLANE COORDINATES, CALIFORNIA SYSTEM ZONE 5 BASED ON NAD83 (CORS96) (EPOCH: 2002.0000) REFERENCE FRAME. THE HORIZONTAL COORDINATE VALUES SHOWN HEREON ARE BASED UPON LOCAL CONTROL POINTS AND DERIVED FROM THE GPS STATIC OBSERVATIONS THAT WERE POST-PROCESSED USING ON-LINE POSITIONING USER SERVICE (OPUS) PROVIDED BY THE US NATIONAL GEODETIC SURVEY.

VERTICAL VALUES ARE BASED UPON NORTH AMERICAN VERTICAL DATUM OF 1988 USING THE FOLLOWING US NATIONAL GEODETIC SURVEY BENCHMARKS: EW4180, EW1593, EW6821, EW4188, EW4106, EW4113, EW4205, EW4212, AE1725, AE1722. SEE SHEET 1 OF SEE PSOMAS MAP "AERIAL TOPOGRAPHIC SURVEY, UTILITY LOCATIONS AND EASEMENT EXHIBIT" JOB NO. 1SAN080102 TASK 100 FOR THE BENCHMARK DESCRIPTION.

BASIS OF BEARINGS

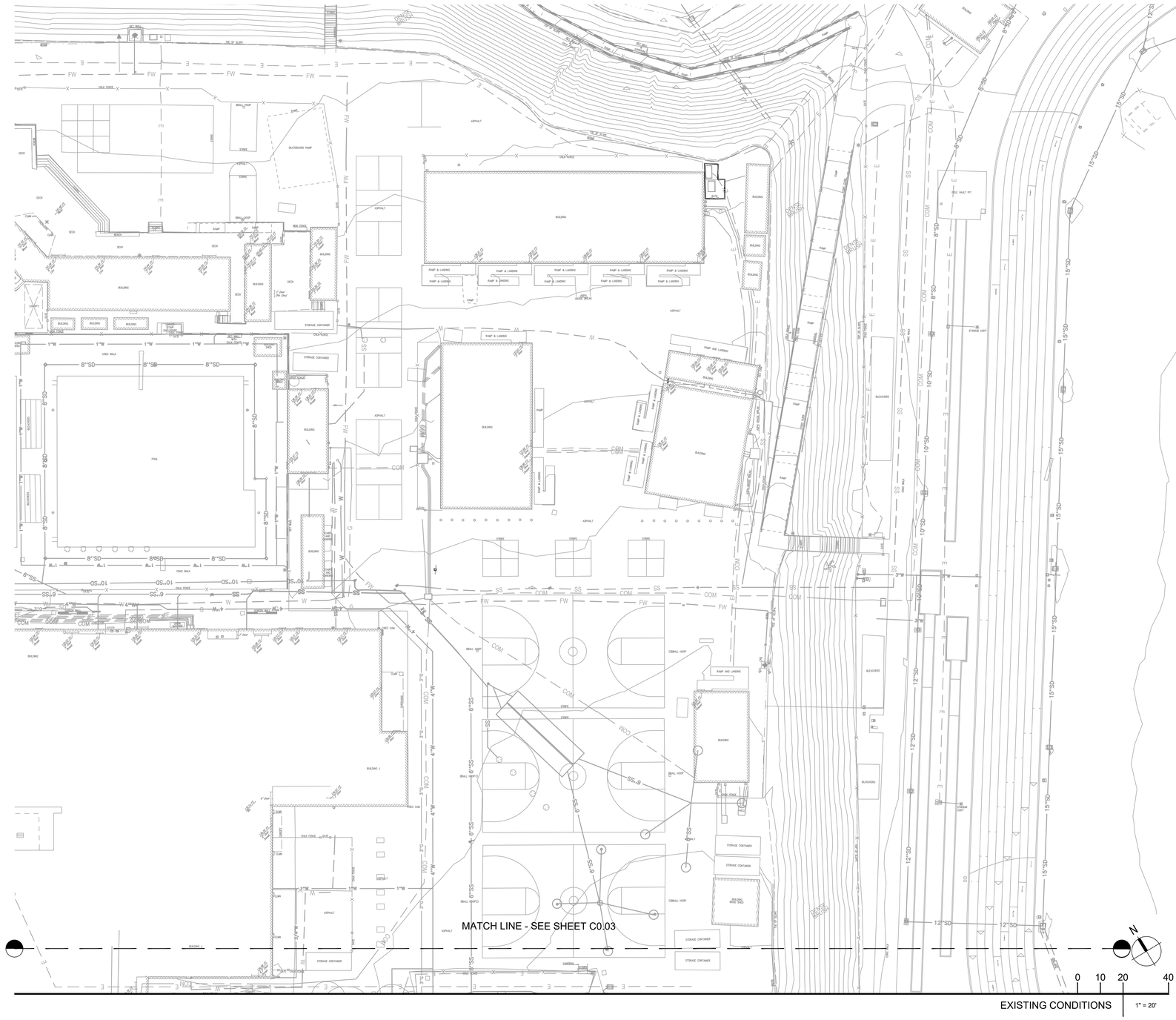
THE BOUNDARY LINES SHOWN HEREON ARE BASED UPON RECOVERED CITY, COUNTY AND/OR PRIVATE SURVEY MONUMENTS. SEE PSOMAS MAP "BOUNDARY SURVEY"

LEGAL DESCRIPTION

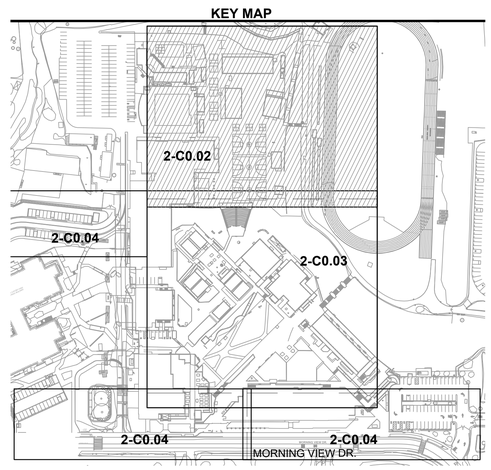
PARCELS 10, 11 AND 12 IN BLOCK 5 AS SHOWN ON THE RECORD OF SURVEY FILE DIN BOOK 56 PAGES 14 TO 17 INCLUSIVE OF RECORDS OF SURVEY, IN THE OFFICE OF THE COUNTY RECORDER OF SAID COUNTY.

FIRE PROTECTION SYSTEM NOTES

1. PRIOR TO INSTALLATION, ALL P



KEY MAP



LPA

ARCHITECTURE ENGINEERING INTERIOR DESIGN
LANDSCAPE ARCHITECTURE PLANNING

949-261-1001 Office

LPADesignStudios.com

5301 California Avenue, Suite 100
Irvine, California 92617

REGISTERED PROFESSIONAL ENGINEER
KATHLEEN M. SUTHAR
R.C.E. 68369
EXP. 9-30-27
STATE OF CALIFORNIA

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MALIBU MIDDLESCHOOL
INCREMENT 02

30215 Morning View Dr.
Malibu, CA 90265

Developed for
SANTA MONICA - MALIBU UNIFIED SCHOOL DISTRICT

Revision	Date

Submittal	Date
SCHEMATIC DESIGN	08/04/2024
DESIGN DEVELOPMENT	02/21/2025
DSA SUBMITTAL	08/08/2025

Job Number	31722
Checked By	RR
Scale	AS NOTED

EXISTING CONDITIONS

2-C0.02

MATCH LINE - SEE SHEET C0.02

MATCH LINE - SEE SHEET C0.03

MATCH LINE - SEE SHEET C0.04

SD LIFT STATION
(107.00)RIM
100.50 INV W
103.70 INV E
98.88 BTM

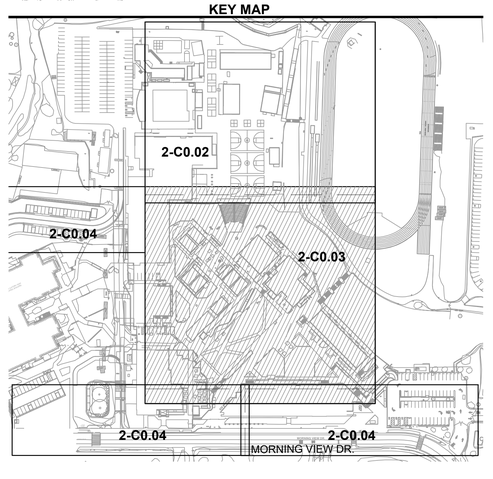
SD FM

EXISTING CONDITIONS

0 10 20 40

1" = 20'

KEY MAP



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KATHLEEN M. SUTHAR
R.C.E. 68369
EXP. 9-30-27
CIVIL
STATE OF CALIFORNIA

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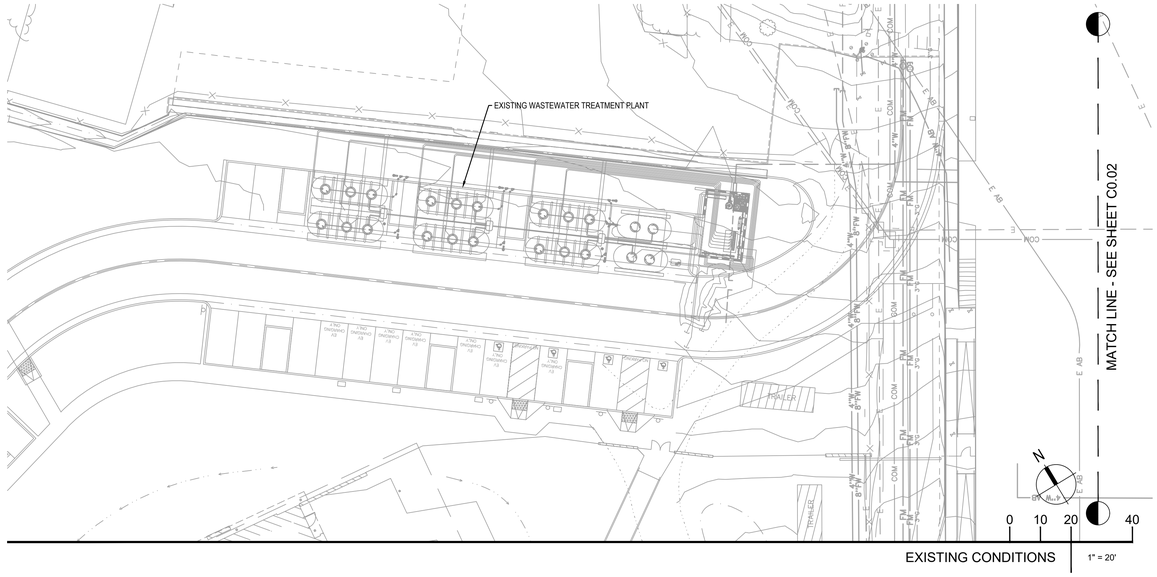
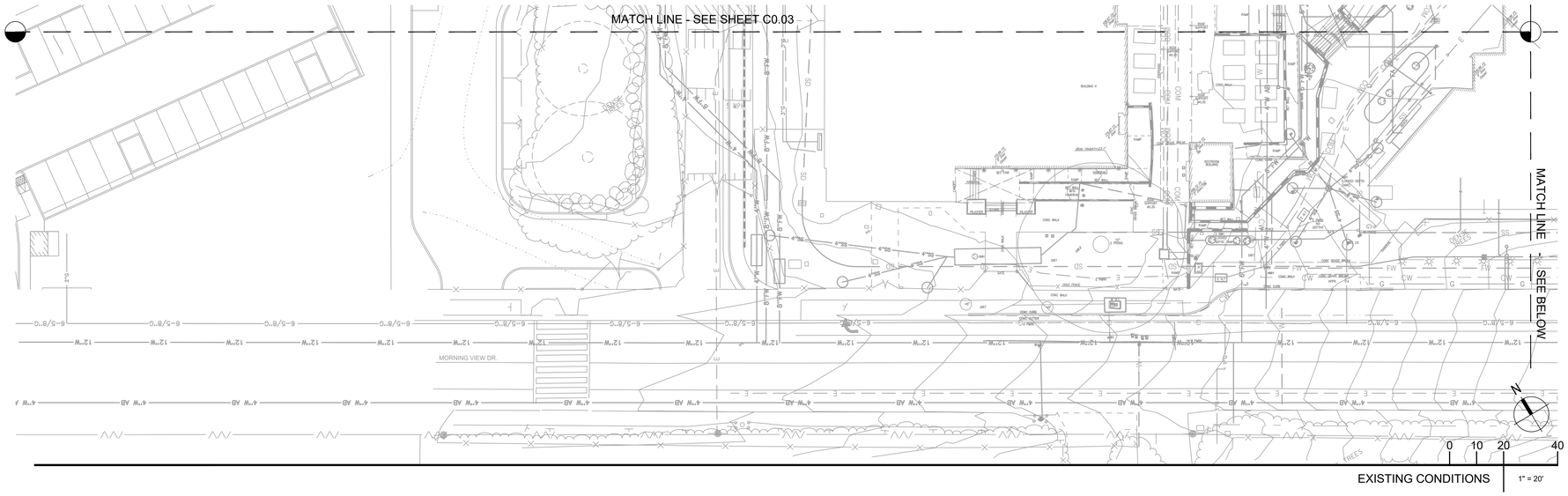
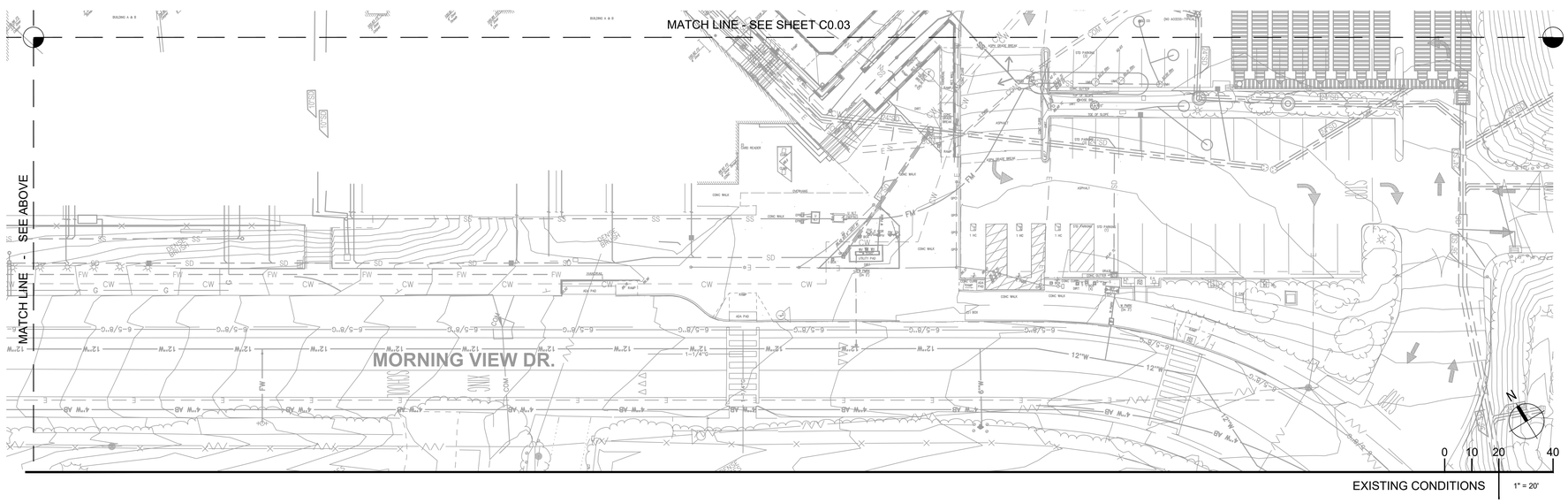
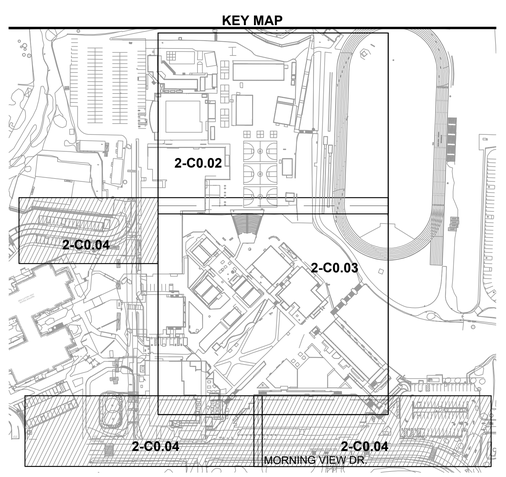
2-C0.03









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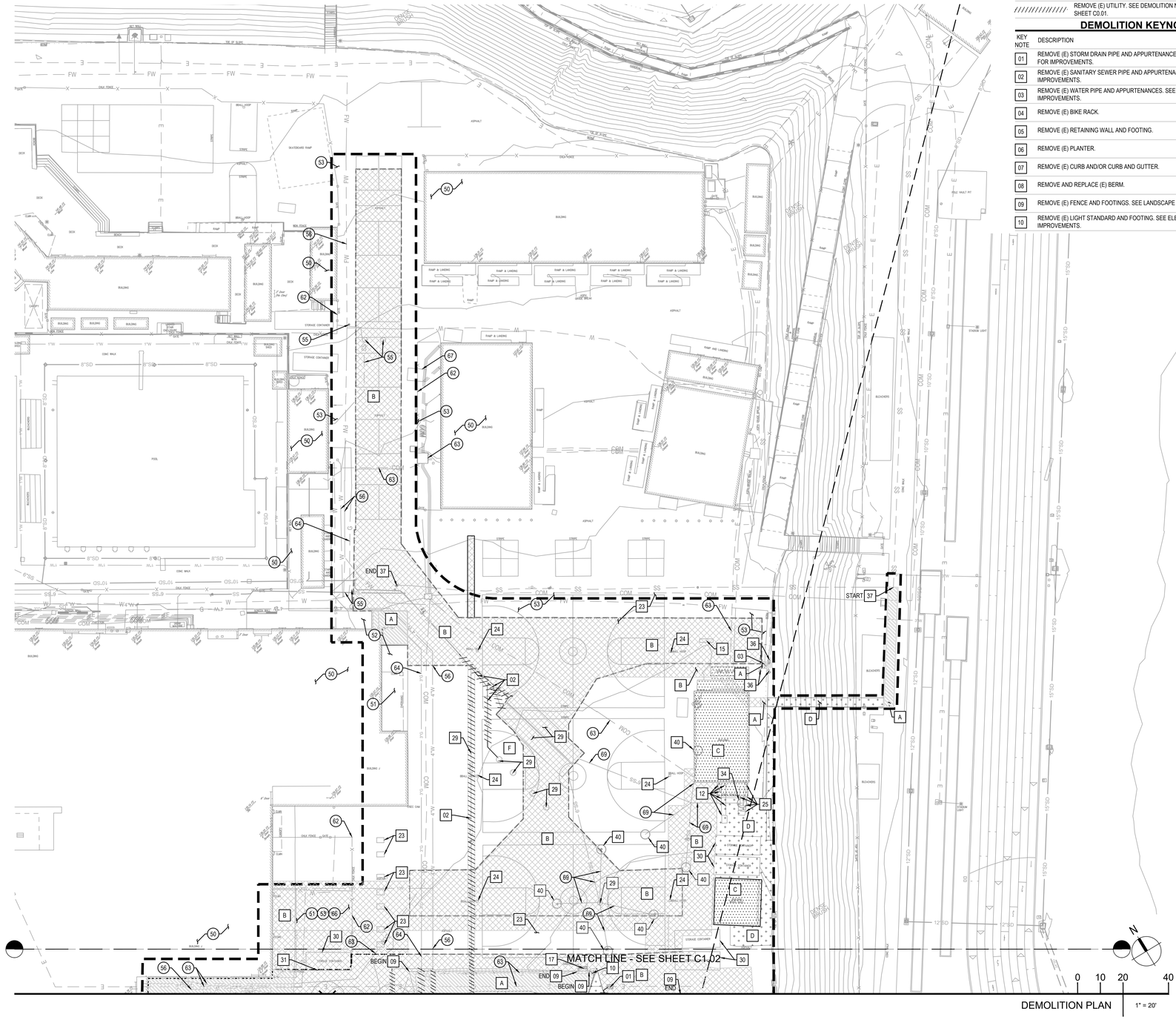
DESIGN DEVELOPMENT	02/12/2025
DSA SUBMITTAL	09/08/2025

Job Number	31722
Checked By	RR
Scale	AS NOTED

EXISTING CONDITIONS

2-C0.04



DEMOLITION PLAN

DEMOLITION NOTES

-SEE DEMOLITION NOTES, SHEET C0.01.

DEMOLITION LEGEND

LABEL	DESCRIPTION
A	REMOVE (E) CONCRETE PAVEMENT/SIDEWALK. SEE DEMOLITION NOTE 10 SHEET C0.01.
B	REMOVE (E) AC PAVEMENT. SEE DEMOLITION NOTE 10 SHEET C0.01.
C	REMOVE (E) BUILDING STRUCTURE. SEE DEMOLITION NOTE 2 SHEET C0.01.
D	REMOVE (E) LANDSCAPING/DIRT. SEE LANDSCAPE AND IRRIGATION PLANS FOR IMPROVEMENTS.
E	REMOVE (E) ARTIFICIAL TURF.
	REMOVE (E) TREE. SEE DEMOLITION NOTE 5 SHEET C0.01.
	(E) TREE TO REMAIN AND BE PROTECTED. SEE DEMOLITION NOTE 5 SHEET C0.01.
	SAWCUT (E) PAVEMENT AS NEEDED. SEE DEMOLITION NOTE 6 AND 10 SHEET C0.01.
	APPROXIMATE LIMIT OF WORK.
//////////	REMOVE (E) UTILITY. SEE DEMOLITION NOTES 2, 4, 8, AND 9 SHEET C0.01.

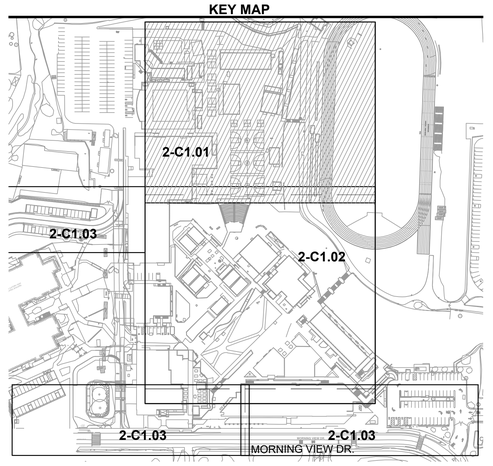
DEMOLITION KEYNOTES

KEY NOTE	DESCRIPTION
01	REMOVE (E) STORM DRAIN PIPE AND APPURTENANCES. SEE 2-C3.01 - 2-C3.02 PLAN FOR IMPROVEMENTS.
02	REMOVE (E) SANITARY SEWER PIPE AND APPURTENANCES. SEE UTILITY PLAN FOR IMPROVEMENTS.
03	REMOVE (E) WATER PIPE AND APPURTENANCES. SEE UTILITY PLAN FOR IMPROVEMENTS.
04	REMOVE (E) BIKE RACK.
05	REMOVE (E) RETAINING WALL AND FOOTING.
06	REMOVE (E) PLANTER.
07	REMOVE (E) CURB AND/OR CURB AND GUTTER.
08	REMOVE AND REPLACE (E) BERM.
09	REMOVE (E) FENCE AND FOOTINGS. SEE LANDSCAPE PLANS FOR IMPROVEMENTS.
10	REMOVE (E) LIGHT STANDARD AND FOOTING. SEE ELECTRICAL PLANS FOR IMPROVEMENTS.
11	REMOVE (E) GAS FACILITIES.
12	REMOVE (E) ELECTRICAL CONDUITS OR FACILITIES. SEE ELECTRICAL PLANS FOR DETAIL AND IMPROVEMENTS.
13	REMOVE (E) RAMP, LANDING AND HANDRAIL.
14	REMOVE (E) AMPHITHEATER AND ASSOCIATED FEATURES.
15	REMOVE (E) BENCH.
16	REMOVE (E) HANDRAIL.
17	REMOVE (E) STAIRS AND HANDRAILS IF PRESENT.
18	REMOVE (E) VALLEY GUTTER.
19	SALVAGE (E) MEMORIAL PLAQUE AND RETURN TO DISTRICT.
20	SALVAGE (E) BENCH WITH MEMORIAL PLAQUE AND RETURN TO DISTRICT.
21	SALVAGE (E) BOULDER WITH MEMORIAL PLAQUE AND RETURN TO DISTRICT.
22	REMOVE (E) GRAVEL.
23	REMOVE (E) STRIPING.
24	SALVAGE (E) BASKETBALL POLE AND ALL ASSOCIATED COMPONENTS BUT NOT LIMITED TO IE BACKSTOP/EXTENSION, RIM/GOAL/NETTING, POLE PADDING, AND RETURN TO DISTRICT FOR REUSE. SEE LANDDSCAPE PLANS FOR INSTALLATION IMPROVEMENT AND LOCATION.
25	REMOVE (E) TELECOMMUNICATION FACILITIES. SEE ELECTRICAL PLANS FOR IMPROVEMENTS.
26	REMOVE (E) CONCRETE BENCH.
27	REMOVE (E) CANOPY OVERHANG, COLUMNS, AND FOOTINGS.
28	REMOVE (E) IRRIGATION FACILITIES.
29	REMOVE (E) SEPTIC SEWER TANK AND ASSOCIATED FACILITIES IN ACCORDANCE WITH LOCAL AND STATE GUIDELINES. REMEDIATE (E) SOIL AS REQUIRED.
30	SALVAGE AND RELOCATE (E) STORAGE CONTAINER. FINAL LOCATION PER DISTRICT.
31	REMOVE AND REPLACE (E) CHAIN LINK FENCE.
32	REMOVE (E) ELECTRIC PULL BOX.
33	REMOVE (E) SEPTIC PUMP AND VAULT.
34	REMOVE (E) SEEPAGE PITS IN ACCORDANCE WITH LOCAL AND STATE GUIDELINES. REMEDIATE (E) SOIL AS REQUIRED.
35	REMOVE (E) TRACTION PAD.
36	REMOVE (E) GUARD POST.
37	(E) SEWER MAIN TO BE ABANDONED IN PLACE. PRIOR TO ABANDONMENT, ALL ACTIVE SERVICE CONNECTIONS SHALL BE PERMANENTLY REROUTED AS SHOWN ON THE UTILITY PLANS OR AS DIRECTED BY THE ENGINEER. SEWER MAIN SHALL BE THOROUGHLY CLEANED, FLUSHED, AND SLURRY FILLED.
38	(E) STORM DRAIN TO BE ABANDONED IN PLACE.
39	SLURRY FILL (E) SANITARY SEWER SEPTIC TANK AND SEEPAGE PITS. ABANDON (E) SEWER LATERALS. SEPTIC TANK AND SEEPAGE PITS IN PLACE PER SEPARATE WASTEWATER PLAN.
40	SLURRY FILL (E) SEEPAGE PITS AND ABANDON IN PLACE PER SEPARATE WASTEWATER PLAN.

PROTECTION KEYNOTES

KEY NOTE	DESCRIPTION
50	PROTECT (E) BUILDING, FOUNDATION AND OTHER STRUCTURAL FEATURES AND BUILDING UTILITIES.
51	PROTECT (E) CANOPY AND COLUMNS, AND OTHER STRUCTURAL FEATURES AND CANOPY UTILITIES.
52	PROTECT (E) CONCRETE PAVEMENT/SIDEWALK.
53	PROTECT (E) AC PAVEMENT.
54	PROTECT (E) STORM DRAIN FACILITIES.
55	PROTECT (E) SANITARY SEWER FACILITIES.
56	PROTECT (E) WATER SERVICE FACILITIES.
57	PROTECT (E) STORAGE CONTAINER.
58	PROTECT (E) CURB.
59	PROTECT (E) CURB AND GUTTER.
60	PROTECT (E) RETAINING WALL.
61	PROTECT (E) FIRE WATER SERVICE FACILITIES.
62	PROTECT (E) FENCE.
63	PROTECT (E) ELECTRICAL OR COMMUNICATION FACILITIES.
64	PROTECT (E) GAS FACILITIES.
65	PROTECT (E) IRRIGATION FACILITIES.
66	PROTECT AND RELOCATE (E) GYM EQUIPMENT.
67	RELOCATE (E) BENCHES.
68	PROTECT (E) STAIRS AND FOUNDATIONS.

KEY MAP



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ARCHITECTURE ENGINEERING INTERIOR DESIGN
LANDSCAPE ARCHITECTURE PLANNING
949-261-1001 Office
LPADesignStudios.com
5301 California Avenue, Suite 100
Irvine, California 92617

REGISTERED PROFESSIONAL ENGINEER
KATHLEEN M. SUTHAR
R.C.E. 68369
EXP. 9-30-27
CIVIL
STATE OF CALIFORNIA

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MALIBU MIDDLESCHOOL
INCREMENT 02

30215 Morning View Dr.
Malibu, CA 90265

Developed for
SANTA MONICA - MALIBU UNIFIED SCHOOL DISTRICT

Revision	Date

Submittal	Date
SCHEMATIC DESIGN	09/04/2024
DESIGN DEVELOPMENT	02/21/2025
DSA SUBMITTAL	09/09/2025

Job Number	31722
Checked By	RR
Scale	AS NOTED

DEMOLITION PLAN

2-C1.01

MATCH LINE - SEE SHEET C1.01

MATCH LINE - SEE SHEET C1.03

DEMOLITION NOTES

-SEE DEMOLITION NOTES, SHEET C0.01.

DEMOLITION LEGEND

LABEL	DESCRIPTION
A	REMOVE (E) CONCRETE PAVEMENT/SIDEWALK. SEE DEMOLITION NOTE 10 SHEET C0.01.
B	REMOVE (E) AC PAVEMENT. SEE DEMOLITION NOTE 10 SHEET C0.01.
C	REMOVE (E) BUILDING STRUCTURE. SEE DEMOLITION NOTE 2 SHEET C0.01.
D	REMOVE (E) LANDSCAPING/DIRT. SEE LANDSCAPE AND IRRIGATION PLANS FOR IMPROVEMENTS.
E	REMOVE (E) ARTIFICIAL TURF.
	REMOVE (E) TREE. SEE DEMOLITION NOTE 5 SHEET C0.01.
	(E) TREE TO REMAIN AND BE PROTECTED. SEE DEMOLITION NOTE 5 SHEET C0.01.
	SAWCUT (E) PAVEMENT AS NEEDED. SEE DEMOLITION NOTE 6 AND 10 SHEET C0.01.
	APPROXIMATE LIMIT OF WORK.
	REMOVE (E) UTILITY. SEE DEMOLITION NOTES 2, 4, 8, AND 9 SHEET C0.01.

DEMOLITION KEYNOTES

KEY NOTE	DESCRIPTION
01	REMOVE (E) STORM DRAIN PIPE AND APPURTENANCES. SEE 2-C3.01 - 2-C3.02 PLAN FOR IMPROVEMENTS.
02	REMOVE (E) SANITARY SEWER PIPE AND APPURTENANCES. SEE UTILITY PLAN FOR IMPROVEMENTS.
03	REMOVE (E) WATER PIPE AND APPURTENANCES. SEE UTILITY PLAN FOR IMPROVEMENTS.
04	REMOVE (E) BIKE RACK.
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06	REMOVE (E) PLANTER.
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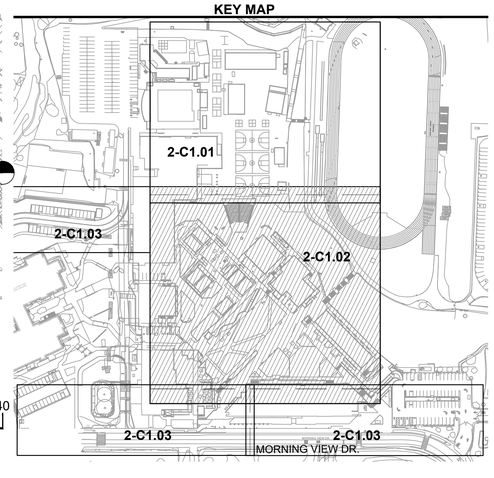

0 10 20 40

DEMOLITION PLAN 1" = 20'

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R.C.E. 68369
EXP. 9-30-27
STATE OF CALIFORNIA

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MALIBU MIDDLESCHOOL
INCREMENT 02

30215 Morning View Dr.
Malibu, CA 90265

Developed for
SANTA MONICA - MALIBU UNIFIED SCHOOL DISTRICT

Revision	Date

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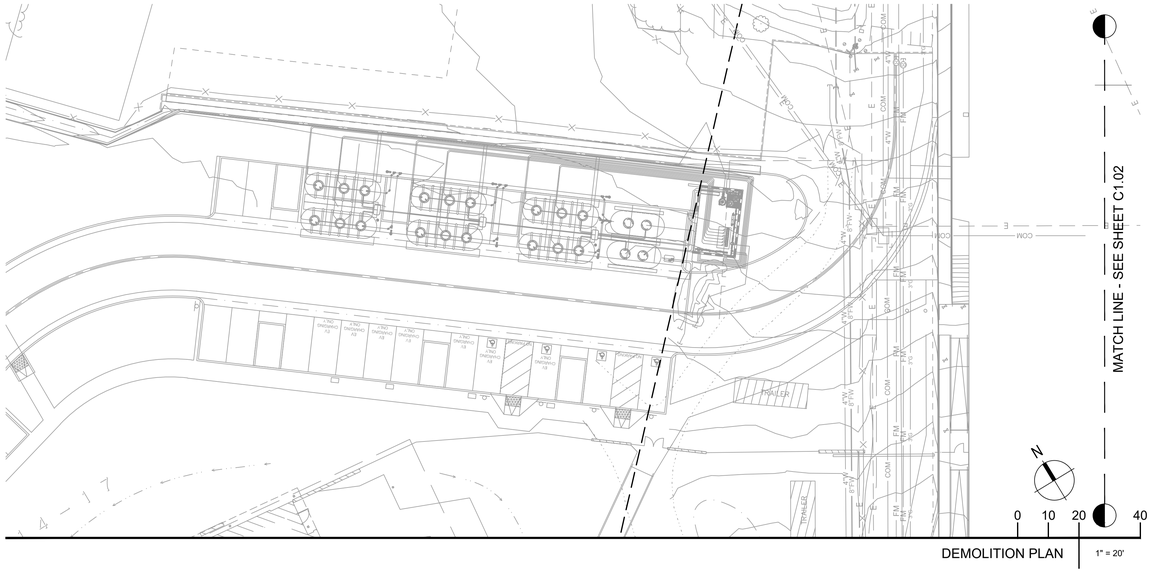
DESIGN DEVELOPMENT	02/21/2025
DSA SUBMITTAL	09/08/2025

Job Number	31722
Checked By	RR
Scale	AS NOTED

DEMOLITION PLAN

2-C1.02



DEMOLITION NOTES

-SEE DEMOLITION NOTES, SHEET C0.01.

DEMOLITION LEGEND

LABEL	DESCRIPTION
A	REMOVE (E) CONCRETE PAVEMENT/SIDEWALK. SEE DEMOLITION NOTE 10 SHEET C0.01.
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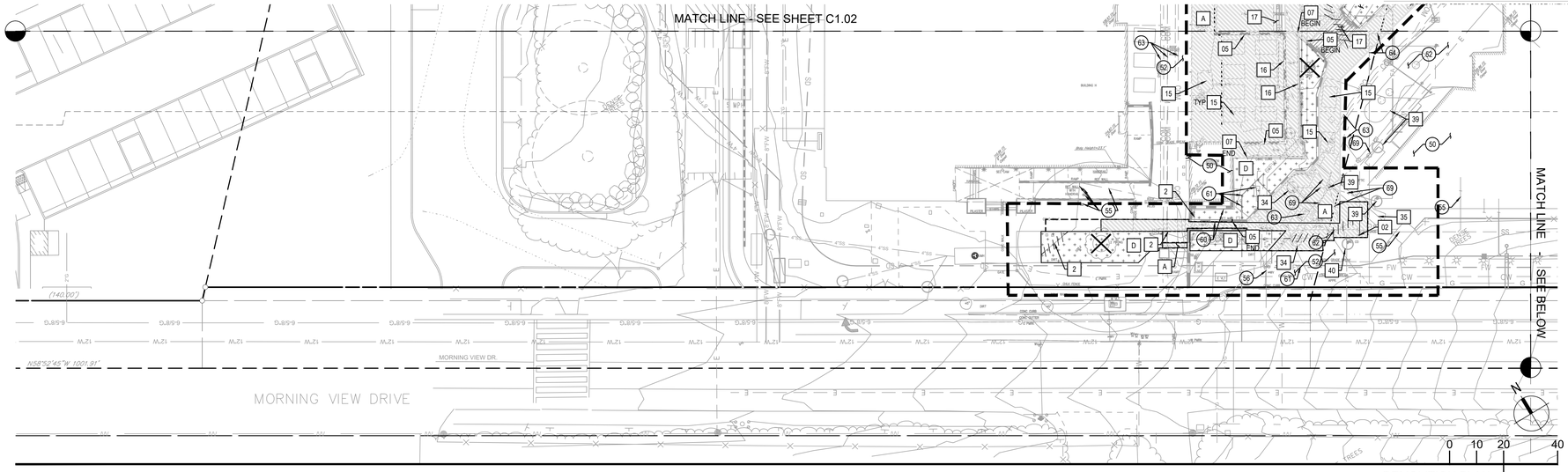
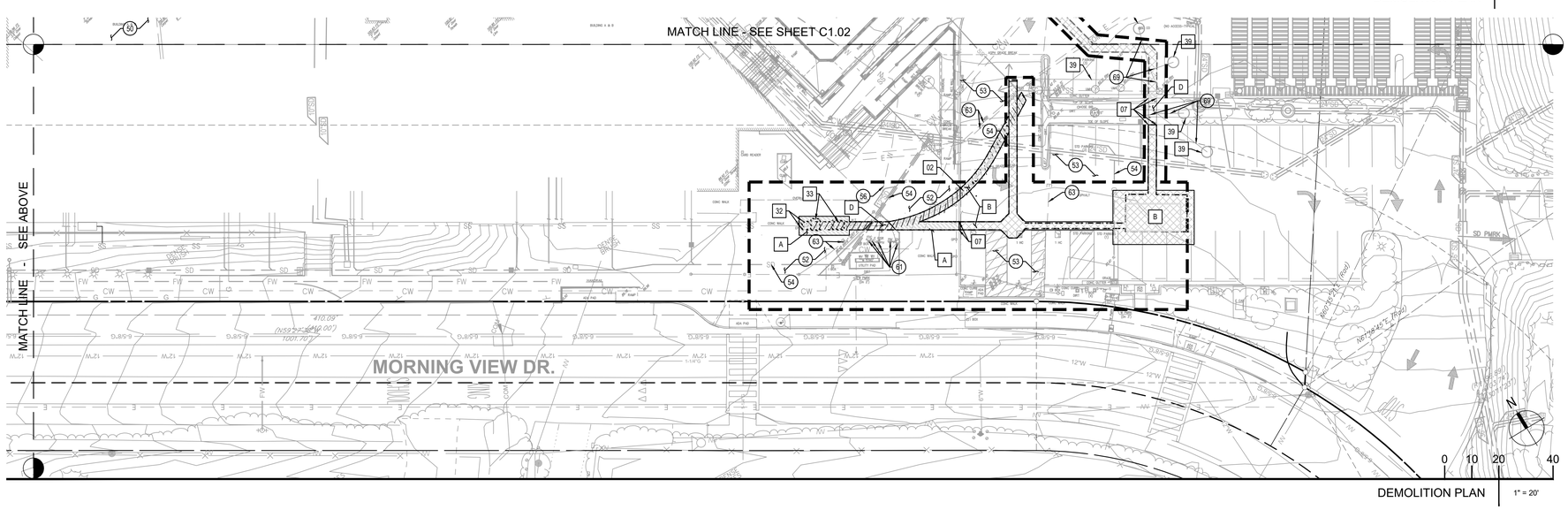
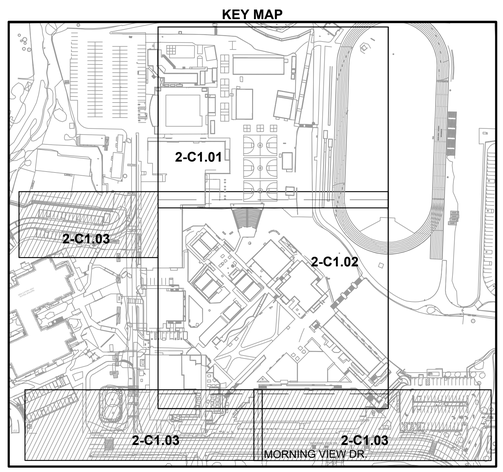
69	ABANDON (E) UTILITY AND ITS APPURTENANCES IN PLACE.







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DSA SUBMITTAL	09/08/2025

Job Number	31722
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Scale	AS NOTED

DEMOLITION PLAN

2-C1.03

GRADING LEGEND

SYMBOL	DESCRIPTION
PA	PLANTING AREA SEE LANDSCAPE PLAN DETAILS FOR GRADES ADJACENT TO HARDSCAPE.
	APPROXIMATE LIMIT OF WORK.
GB	GRADE BREAK.
	SAWCUT (E) PAVEMENT AS NEEDED. SEE DEMOLITION PLAN.
	FLOWLINE.
TOS	TOP OF SLOPE.
TOE	TOE OF SLOPE.

GRADING CONSTRUCTION NOTES

KEY NOTE	DESCRIPTION
09	JOIN EXISTING CURB AND/OR GUTTER AND MATCH GRADE.
10	JOIN EXISTING SIDEWALK AND MATCH EXISTING GRADE.
11	ADJUST EXISTING UTILITY RIM AND RISER TO FINISHED GRADE.
12	ADJUST EXISTING MANHOLE RIM TO FINISHED GRADE. MANHOLE CONE TO BE RAISED IF GRADE RINGS EXCEED ALLOWABLE HEIGHT FOR LADDER ACCESS.
14	COLD MILL EDGES TO JOIN EXISTING ASPHALT PAVEMENT AND MATCH GRADE.
15	ADJUST EXISTING STORM DRAIN INLET TO FINISHED GRADE.
16	ADJUST EXISTING DRY UTILITY VAULTS TO GRADE.
17	VALLEY GUTTER PER DETAIL 09 SHEET 2-C7.01.
18	CONSTRUCT CONCRETE MOW CURB PER DETAIL 11 SHEET L5.01.
19	V-DITCH PER DETAIL 05 SHEET 2-C7.01.

(E) BUILDING J

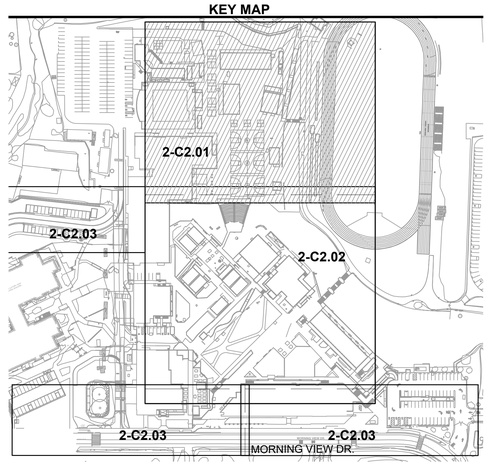
MATCH LINE - SEE SHEET 2-C2.02

START 19

0 10 20 40

GRADING PLAN 1" = 20'

KEY MAP



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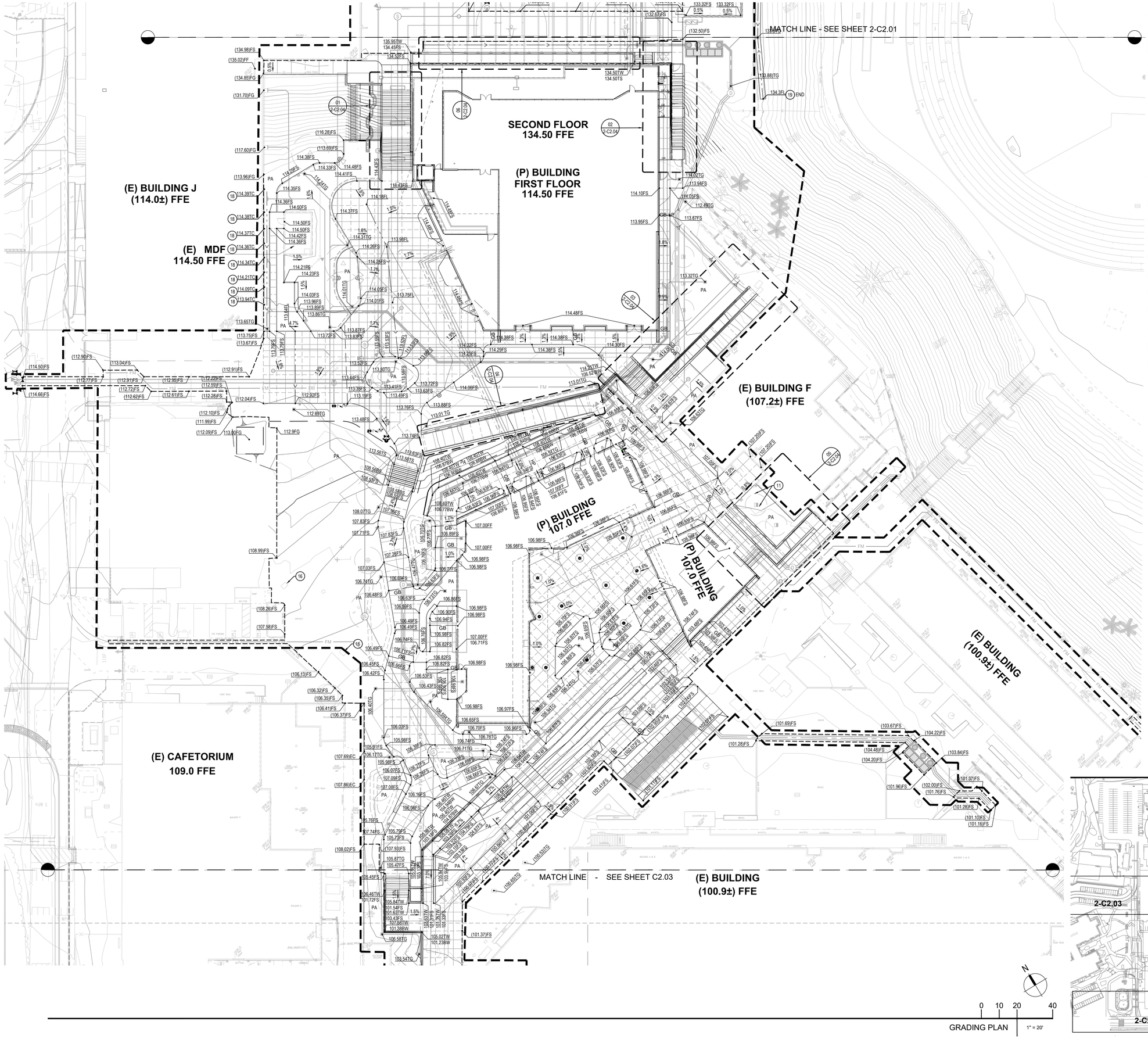
GRADING PLAN

2-C2.01



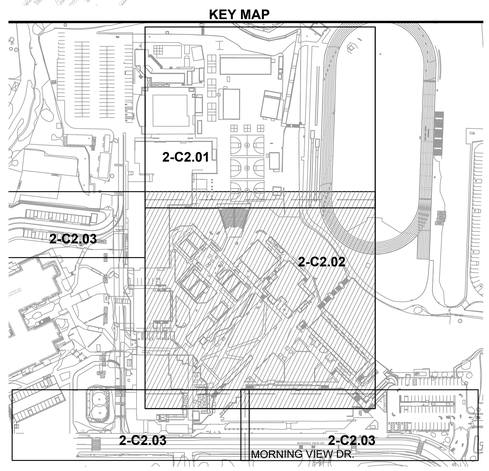
GRADING LEGEND

SYMBOL	DESCRIPTION
PA	PLANTING AREA SEE LANDSCAPE PLAN DETAILS FOR GRADES ADJACENT TO HARDSCAPE.
	APPROXIMATE LIMIT OF WORK.
GB	GRADE BREAK.
	SAWCUT (E) PAVEMENT AS NEEDED. SEE DEMOLITION PLAN.
	FLOWLINE.
TOS	TOP OF SLOPE.
TOE	TOE OF SLOPE.

GRADING CONSTRUCTION NOTES

KEY NOTE	DESCRIPTION
09	JOIN EXISTING CURB AND/OR GUTTER AND MATCH GRADE.
10	JOIN EXISTING SIDEWALK AND MATCH EXISTING GRADE.
11	ADJUST EXISTING UTILITY RIM AND RISER TO FINISHED GRADE.
12	ADJUST EXISTING MANHOLE RIM TO FINISHED GRADE. MANHOLE CONE TO BE RAISED IF GRADE RINGS EXCEED ALLOWABLE HEIGHT FOR LADDER ACCESS.
14	COLD MILL EDGES TO JOIN EXISTING ASPHALT PAVEMENT AND MATCH GRADE.
15	ADJUST EXISTING STORM DRAIN INLET TO FINISHED GRADE.
16	ADJUST EXISTING DRY UTILITY VAULTS TO GRADE.
17	VALLEY GUTTER PER DETAIL 09 SHEET 2-C7.01.
18	CONSTRUCT CONCRETE MOW CURB PER DETAIL 11 SHEET L5.01.
19	V-DITCH PER DETAIL 05 SHEET 2-C7.01.

KEY MAP



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ARCHITECTURE ENGINEERING INTERIOR DESIGN
LANDSCAPE ARCHITECTURE PLANNING
949-261-1001 Office
LPADesignStudios.com
5301 California Avenue, Suite 100
Irvine, California 92617

REGISTERED PROFESSIONAL ENGINEER KATHLEEN M. SUTHAR R.C.E. 68369 EXP. 9-30-27 CIVIL STATE OF CALIFORNIA

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MALIBU MIDDLESCHOOL
INCREMENT 02

30215 Morning View Dr.
Malibu, CA 90265

Developed for
SANTA MONICA - MALIBU UNIFIED SCHOOL DISTRICT

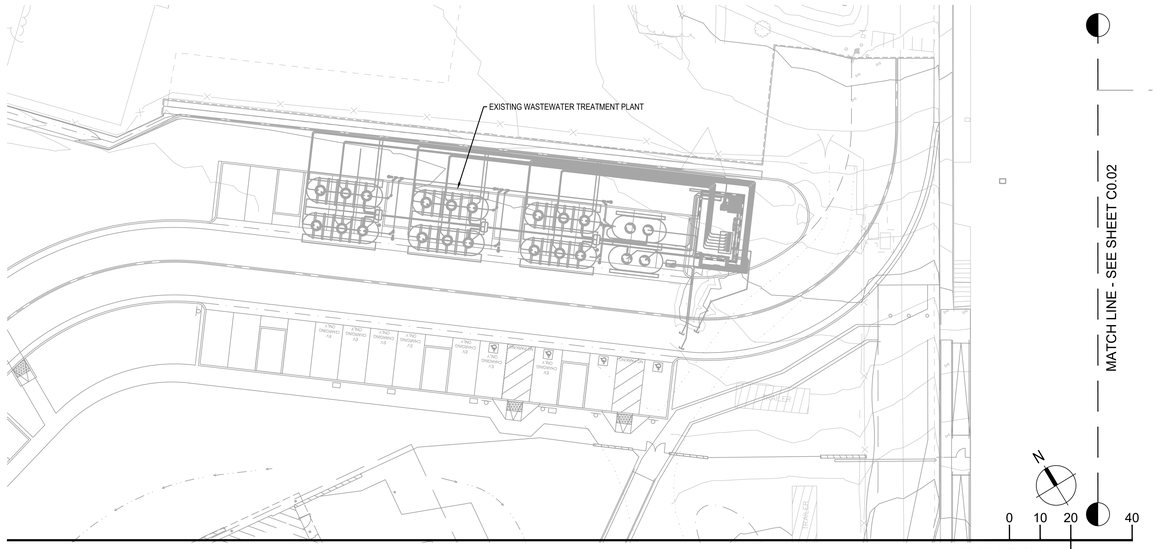
Revision	Date

Submittal	Date
SCHEMATIC DESIGN	09/04/2024
DESIGN DEVELOPMENT	02/21/2025
DSA SUBMITTAL	09/08/2025

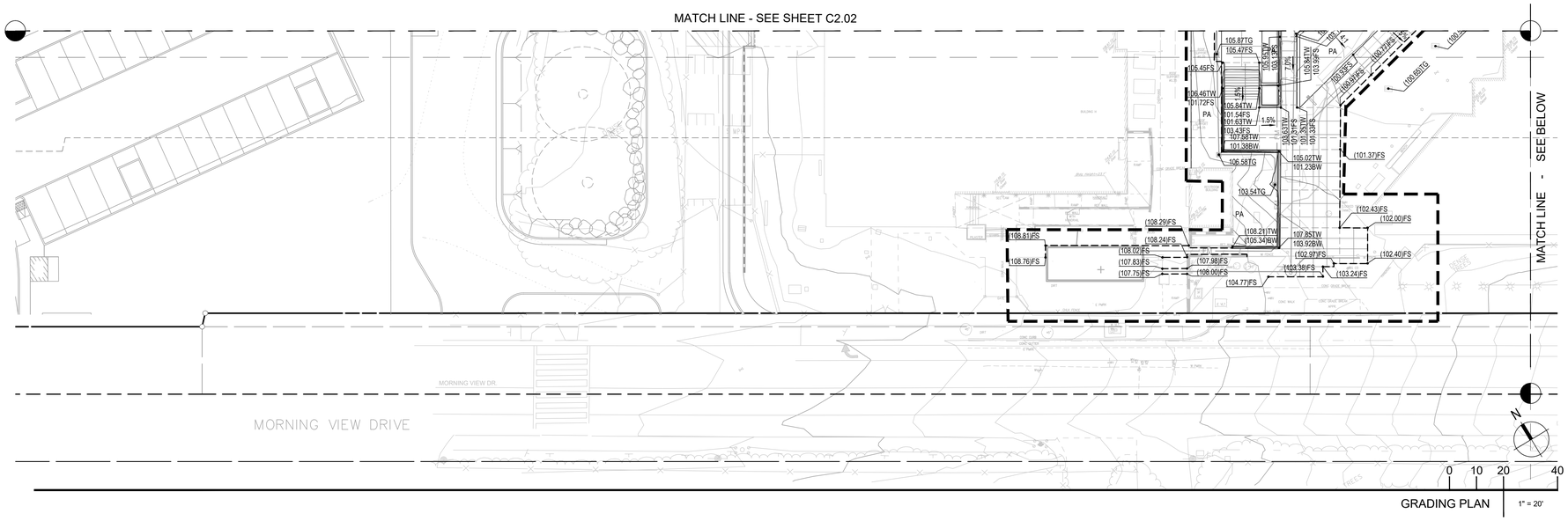
Job Number	31722
Checked By	RR
Scale	AS NOTED

GRADING PLAN

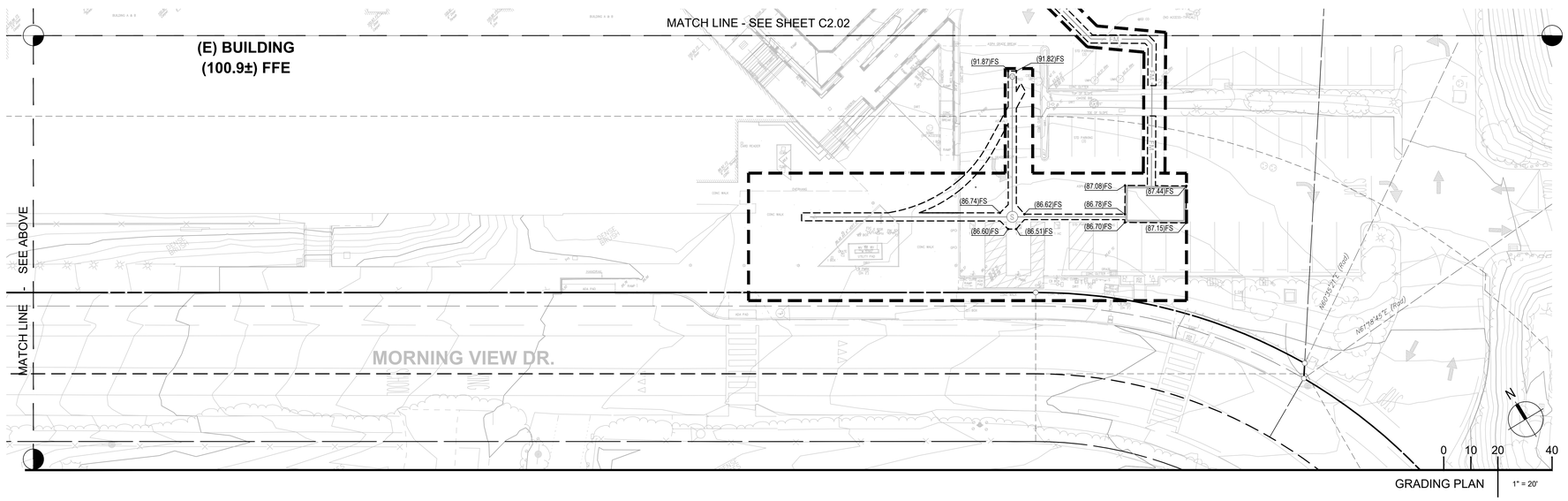
2-C2.02



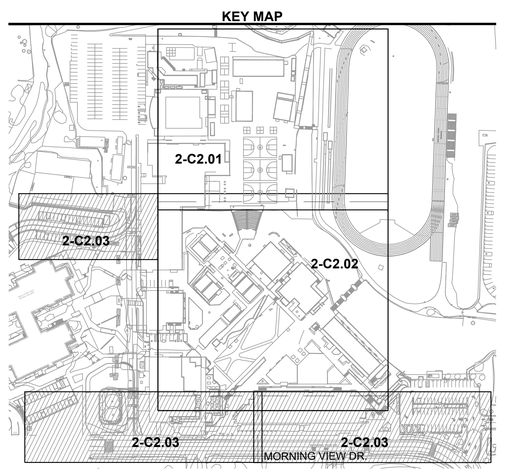
GRADING PLAN 1" = 20'



GRADING PLAN 1" = 20'



GRADING PLAN 1" = 20'



GRADING LEGEND

SYMBOL	DESCRIPTION
PA	PLANTING AREA SEE LANDSCAPE PLAN DETAILS FOR GRADES ADJACENT TO HARDSCAPE.
	APPROXIMATE LIMIT OF WORK.
GB	GRADE BREAK.
	SAWCUT (E) PAVEMENT AS NEEDED. SEE DEMOLITION PLAN.
	FLOWLINE.
TOS	TOP OF SLOPE.
TOE	TOE OF SLOPE.

GRADING CONSTRUCTION NOTES

KEY NOTE	DESCRIPTION
09	JOIN EXISTING CURB AND/OR GUTTER AND MATCH GRADE.
10	JOIN EXISTING SIDEWALK AND MATCH EXISTING GRADE.
11	ADJUST EXISTING UTILITY RIM AND RISER TO FINISHED GRADE.
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14	COLD MILL EDGES TO JOIN EXISTING ASPHALT PAVEMENT AND MATCH GRADE.
15	ADJUST EXISTING STORM DRAIN INLET TO FINISHED GRADE.
16	ADJUST EXISTING DRY UTILITY VAULTS TO GRADE.
17	VALLEY GUTTER PER DETAIL 09 SHEET 2-C7.01.
18	CONSTRUCT CONCRETE MOW CURB PER DETAIL 11 SHEET L5.01.
19	V-DITCH PER DETAIL 05 SHEET 2-C7.01.

LPA
ARCHITECTURE ENGINEERING INTERIOR DESIGN
LANDSCAPE ARCHITECTURE PLANNING
949-261-1001 Office
LPADesignStudios.com
5301 California Avenue, Suite 100
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REGISTERED PROFESSIONAL ENGINEER
KATHLEEN M. SUTHAT
R.C.E. 68369
EXP. 9-30-27
CIVIL
STATE OF CALIFORNIA

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MALIBU MIDDLESCHOOL
INCREMENT 02

30215 Morning View Dr.
Malibu, CA 90265

Developed for
SANTA MONICA - MALIBU UNIFIED SCHOOL DISTRICT

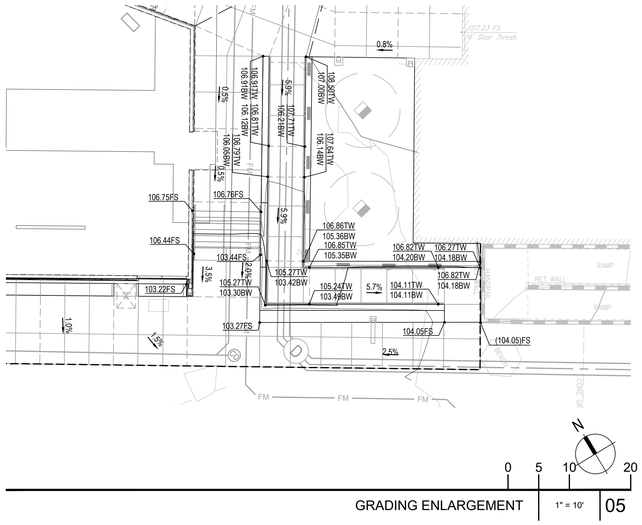
Revision	Date

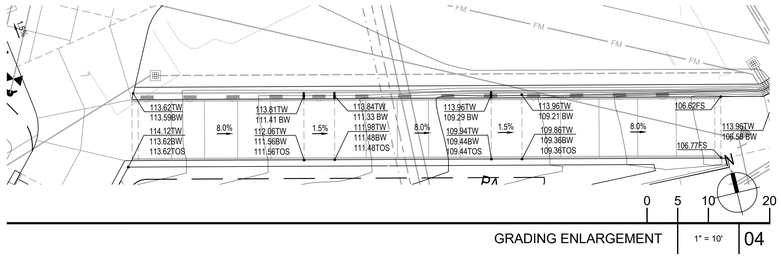
Submittal	Date
SCHEMATIC DESIGN	09/04/2024
DESIGN DEVELOPMENT	02/21/2025
DSA SUBMITTAL	09/08/2025

Job Number	31722
Checked By	RR
Scale	AS NOTED

GRADING PLAN

2-C2.03





GRADING LEGEND

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GRADING CONSTRUCTION NOTES

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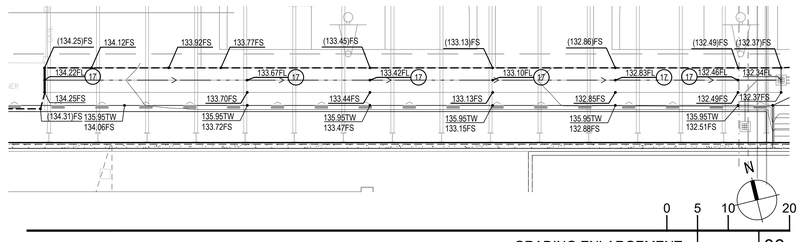

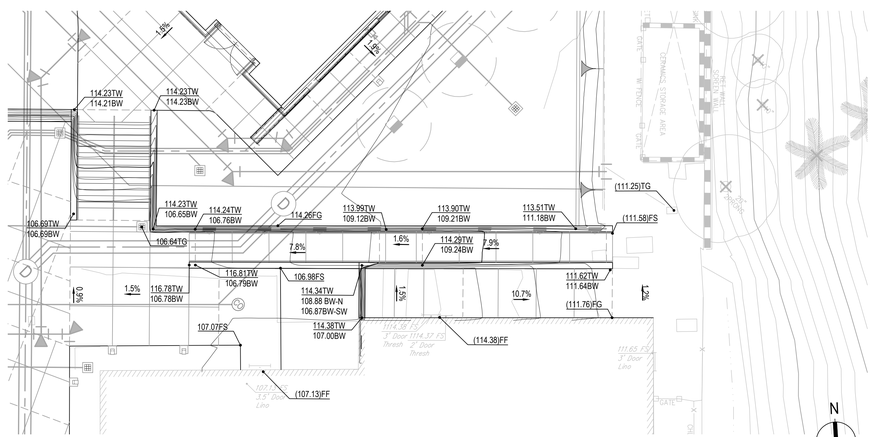

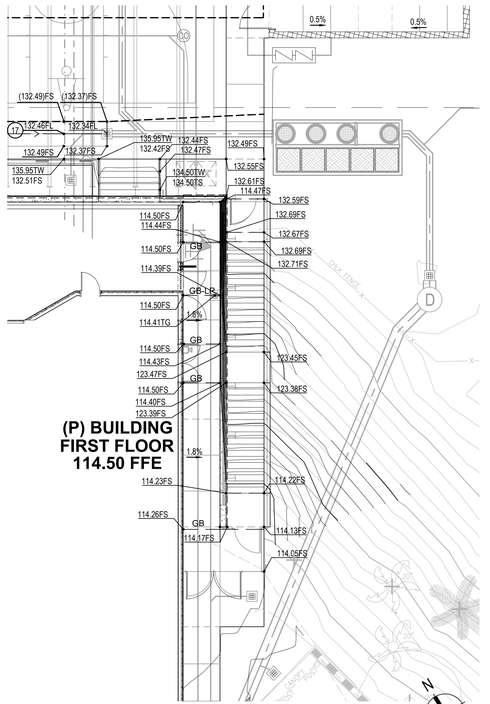

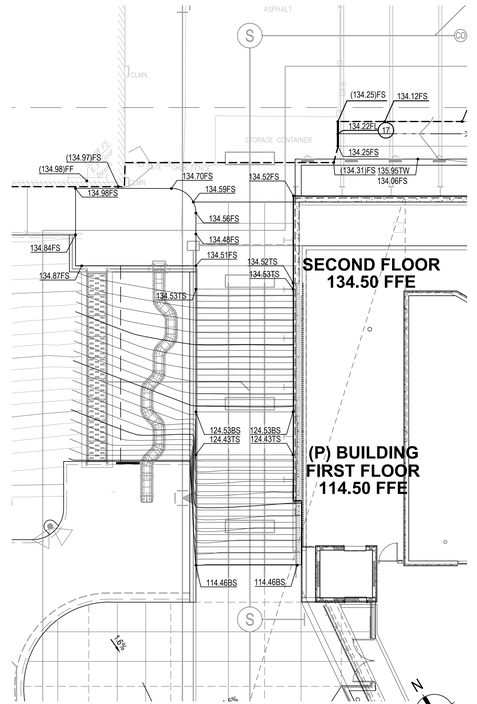

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MALIBU MIDDLESCHOOL
INCREMENT 02

30215 Morning View Dr.
Malibu, CA 90265

Developed for
SANTA MONICA - MALIBU UNIFIED SCHOOL DISTRICT

Revision Date

Submittal	Date
SCHEMATIC DESIGN	09/04/2024
DESIGN DEVELOPMENT	02/21/2025
DSA SUBMITTAL	08/08/2025

Job Number	31722
Checked By	RR
Scale	AS NOTED

GRADING PLAN DETAILS

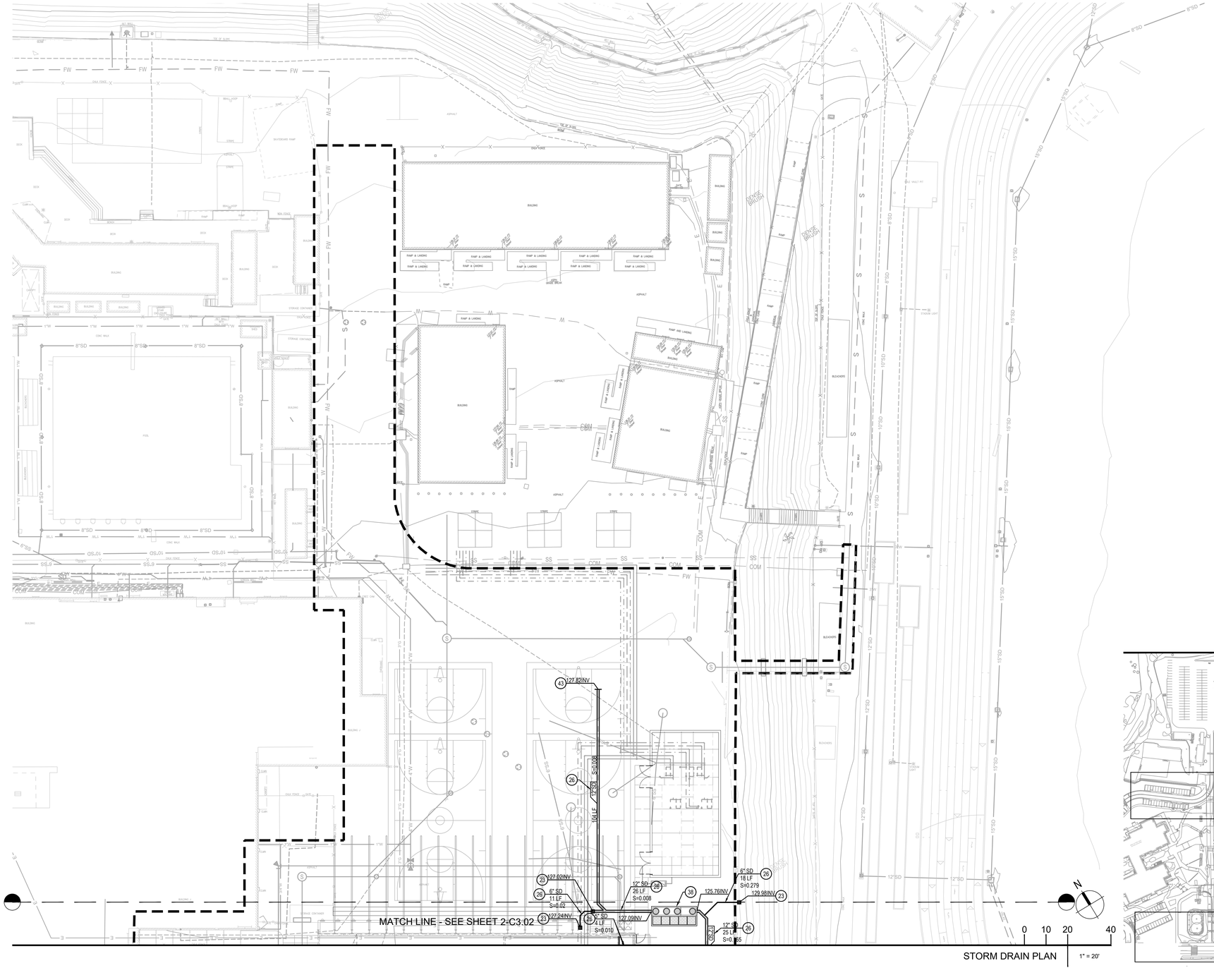
2-C2.04

STORM DRAIN CONSTRUCTION NOTES

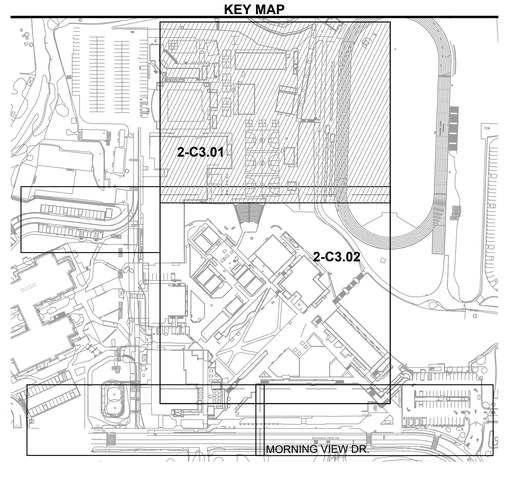
KEY NOTE	DESCRIPTION
RD	ROOF DRAIN POINT OF CONNECTION. SUPPLY AND INSTALL ROOF DRAIN LATERAL STUBBED 5 FT. FROM FACE OF BUILDING, S=0.020 MIN. PLUG AND MARK END. COORDINATE EXACT LOCATION WITH PLUMBING PLANS.
20	SUPPLY AND INSTALL 4" RISER WITH NDS 12"X12" LOW PROFILE HOUSING ADAPTER AND A 12"X12" ATRIUM GRATE (BLACK) OR EQUIVALENT PER DETAIL 02 SHEET 2-C7.02.
23	SUPPLY AND INSTALL 18"X18" CONCRETE DRAIN INLET PER DETAIL 01 SHEET 2-C7.02.
24	SUPPLY AND INSTALL STORM DRAIN CLEAN OUT PER DETAIL 07 SHEET 2-C7.02.
25	SUPPLY AND INSTALL PRECAST CONCRETE STORM DRAIN MANHOLE PER DETAIL 17 2-C7.02.
26	SUPPLY AND INSTALL PVC STORM DRAIN FOR PIPES OF DIAMETER SMALLER THAN 12" AND HDPE STORM DRAIN FOR PIPES OF DIAMETER 12" OR LARGER, SIZE PER PLAN. TRENCH DETAIL PER DETAIL 03 SHEET 2-C7.02.
28	SUPPLY AND INSTALL 4" WIDE TRENCH DRAIN PER DETAIL 16 SHEET 2-C7.02.
30	CONNECT TO EXISTING STORM DRAIN CONTRACTOR TO VERIFY ELEVATION OF EXISTING PIPE AND NOTIFY ENGINEER OF DISCREPANCIES PRIOR TO CONSTRUCTION.
37	SUPPLY AND INSTALL CONTECH MODULAR WETLANDS UNIT (MWS-L-8-16-V). SEE DETAIL 13 SHEET 2-C7.01.
38	SUPPLY AND INSTALL CONTECH MODULAR WETLANDS UNIT (MWS-L-8-20-V). SEE DETAIL 13 SHEET 2-C7.01.
41	INSTALL SYNTHETIC TURF SUBDRAIN PER DETAIL 14 SHEET 2-C7.02.
42	SUPPLY AND INSTALL NDS 12"X12" LOW PROFILE HOUSING ADAPTER AND A 12"X12" SQUARE CATCH BASIN GRATE (BLACK) PER OR EQUIVALENT IN WALK OFF MAT PIT. SEE DETAIL 13 SHEET L5.01.
43	PROVIDE STORM DRAIN STUB-OUT CAP END OF STUB WITH WATERTIGHT CAP. CLEARLY MARK FOR FUTURE USE.
45	INSTALL DROP-IN STORM DRAIN MANHOLE PER DETAIL __ SHEET __.
46	INSTALL SYNTHETIC TURF DRAIN PER DETAIL 15 SHEET 2-C7.02.

CONSTRUCTION NOTES:

1. UTILITIES TO CROSS OVER OR UNDER OTHER UTILITIES TO MAINTAIN 12" MINIMUM CLEARANCE AT UTILITY CROSSINGS, UNLESS NOTED OTHERWISE.
2. CONTRACTOR SHALL VERIFY SIZE AND LOCATION (HORIZONTAL AND VERTICAL) OF EXISTING CROSSING AND JOINING UTILITIES PRIOR TO CONSTRUCTION AND IMMEDIATELY NOTIFY THE ENGINEER OF ANY CONFLICT.
3. CONTRACTOR SHALL CONSTRUCT GRAVITY UTILITIES (SEWER AND STORM DRAIN) BEFORE OTHER UTILITIES. CONSTRUCTION OF THESE GRAVITY UTILITIES TO START FROM THE DOWNSTREAM ENDS.
4. EXISTING UTILITIES ARE COMPILED BASED ON PREVIOUS BASE FILES, FIELD SURVEY AND FIELD VERIFICATION. POTHOLING IS RECOMMENDED TO VERIFY ANY AND ALL UTILITIES KNOWN OR UNKNOWN WHICH MAY BE IN CONFLICT WITH PROPOSED CONSTRUCTION.
5. PRIOR TO THE REMOVAL OF ANY WET OR DRY UTILITY LINES, THE CONTRACTOR SHALL CONFIRM WITH OWNER REPRESENTATIVE WHETHER THESE UTILITY LINES ARE STILL ACTIVE OR NOT. IMMEDIATELY NOTIFY THE ENGINEER OF ANY CONFLICT.
6. CONTRACTOR TO ADJUST TO FINISHED GRADE ALL EXISTING UTILITY BOXES, STORM DRAIN CLEANOUT COVERS, PULL BOXES AND VALVE COVERS NOT SPECIFICALLY SHOWN WITHIN THE LIMITS OF WORK.
7. SEE DETAIL 03 SHEET 2-C7.02 FOR STORM DRAIN UTILITY TRENCHING AND BACKFILL.
8. SAWCUT, REMOVE AND REPLACE EXISTING CURB AS REQUIRED FOR TRENCHING. MATCH EXISTING CURB.
9. ALL PRECAST DRAIN INLETS TO HAVE AN APPROVED "NO DUMPING DRAINS TO OCEAN" 3" X 5¾" ROUNDED CORNERED RECTANGLES STYLE #NDO OR 4" DIAMETER ROUND STYLE #SDO ABRASION AND UV RESISTANT DURACAST STYLE MARKER BY DAS MANUFACTURING OR EQUIVALENT APPLIED TO THE CONCRETE COLLAR AROUND DRAIN INLET USING RAPID SET URETHANE ADHESIVE OR QUICKSTIK EPOXY PUTTY ADHESIVE PER MANUFACTURER'S RECOMMENDATIONS AND SPECIFICATIONS.
   http://www.dasmanufacturing.com/product_guide.html



KEY MAP



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30215 Morning View Dr.
Malibu, CA 90265
Developed for
SANTA MONICA - MALIBU UNIFIED SCHOOL DISTRICT

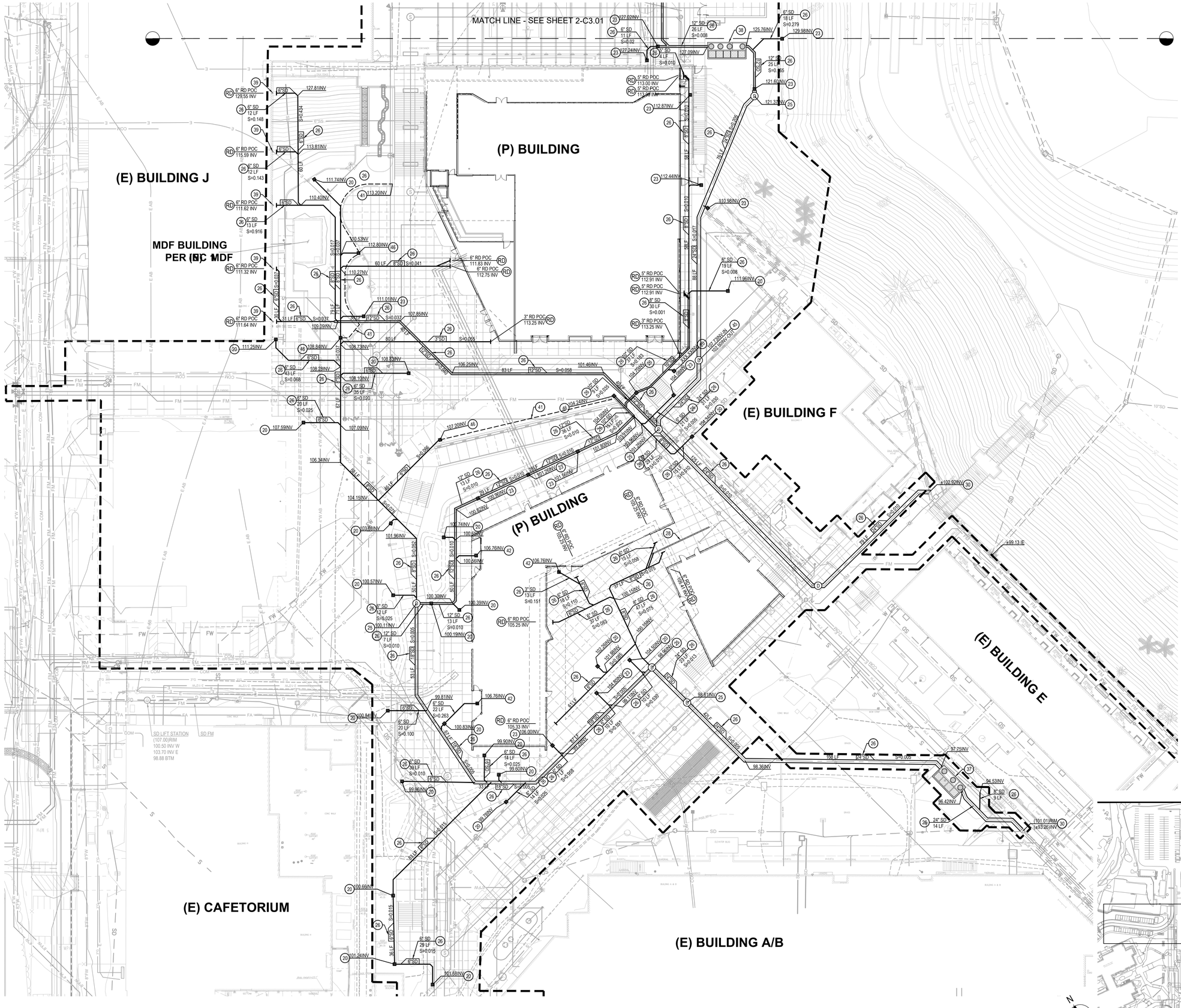
Revision	Date

Submittal	Date
SCHEMATIC DESIGN	09/04/2024
DESIGN DEVELOPMENT	02/21/2025
DSA SUBMITTAL	09/08/2025

Job Number	31722
Checked By	RR
Scale	AS NOTED

STORM DRAIN PLAN

2-C3.01


MATCH LINE - SEE SHEET 2-C3.01
(E) BUILDING J
MDF BUILDING PER (E) MDF
(P) BUILDING
(E) BUILDING F
(P) BUILDING
(E) BUILDING E
(E) CAFETORIUM
(E) BUILDING A/B
SD LIFT STATION (107.00)RIM 100.50 INV W 103.70 INV E 98.88 BTM
6" RD POC 129.55 INV
6" SD 12 LF S=0.148
6" RD POC 115.59 INV
6" SD 12 LF S=0.143
6" RD POC 111.62 INV
6" SD 13 LF S=0.916
6" RD POC 111.32 INV
6" RD POC 111.64 INV
127.81INV
113.81INV
111.74INV
113.20INV
110.40INV
112.80INV
110.27INV
111.01INV
107.85INV
109.09INV
111.25INV
108.84INV
106.73INV
108.83INV
108.28INV
108.10INV
107.59INV
107.09INV
106.34INV
104.15INV
103.88INV
101.96INV
100.57INV
100.11INV
99.81INV
100.84INV
99.96INV
101.24INV
101.68INV
127.02INV
127.24INV
127.09INV
125.76INV
129.98INV
121.60INV
121.37INV
112.87INV
112.44INV
110.98INV
111.96INV
112.91 INV
112.91 INV
113.25 INV
113.25 INV
112.75 INV
111.83 INV
107.30INV
103.51INV
106.25INV
101.46INV
104.24INV
104.09INV
103.93INV
101.60INV
101.56INV
100.76INV
100.66INV
100.57INV
100.30INV
100.39INV
100.19INV
105.25 INV
105.76INV
102.26INV
101.86INV
104.50INV
104.60INV
98.98INV
98.61INV
98.36INV
97.75INV
94.53INV
95.42INV
101.01 RIM ±93.26 INV
±102.52INV
±99.13 IE
105.33 INV
106.00INV
99.90INV
99.60INV
99.78INV
100.66INV
101.24INV
101.68INV
6" SD 16 LF S=0.279
12" SD 26 LF S=0.008
6" SD 11 LF S=0.02
6" SD 4 LF S=0.010
12" SD 25 LF S=0.005
6" SD 19 LF S=0.008
8" SD 30 LF S=0.001
3" SD 80 LF S=0.055
12" SD 83 LF S=0.058
6" SD 43 LF S=0.068
6" SD 35 LF S=0.020
6" SD 20 LF S=0.025
12" SD 30 LF S=0.010
12" SD 13 LF S=0.010
12" SD 7 LF S=0.010
6" SD 12 LF S=0.025
12" SD 13 LF S=0.010
3" SD 13 LF S=0.151
6" SD 19 LF S=0.110
6" SD 37 LF S=0.069
6" SD 47 LF S=0.075
24" SD 26 LF S=0.013
6" SD 14 LF S=0.025
6" SD 61 LF S=0.551
6" SD 22 LF S=0.263
6" SD 20 LF S=0.100
6" SD 61 LF S=0.010
6" SD 14 LF S=0.025
6" SD 29 LF S=0.015
8" SD 9 LF
24" SD 14 LF
6" SD 61 LF S=0.037
8" SD 60 LF S=0.041
12" SD 107 LF S=0.037
3" SD 80 LF S=0.055
12" SD 83 LF S=0.058
12" SD 30 LF S=0.010
12" SD 107 LF S=0.010
12" SD 61 LF S=0.010
12" SD 61 LF S=0.005
12" SD 61 LF S=0.005
12" SD 61 LF S=0.005
12" SD 61 LF S=0.005
12" SD 61 LF S=0.005
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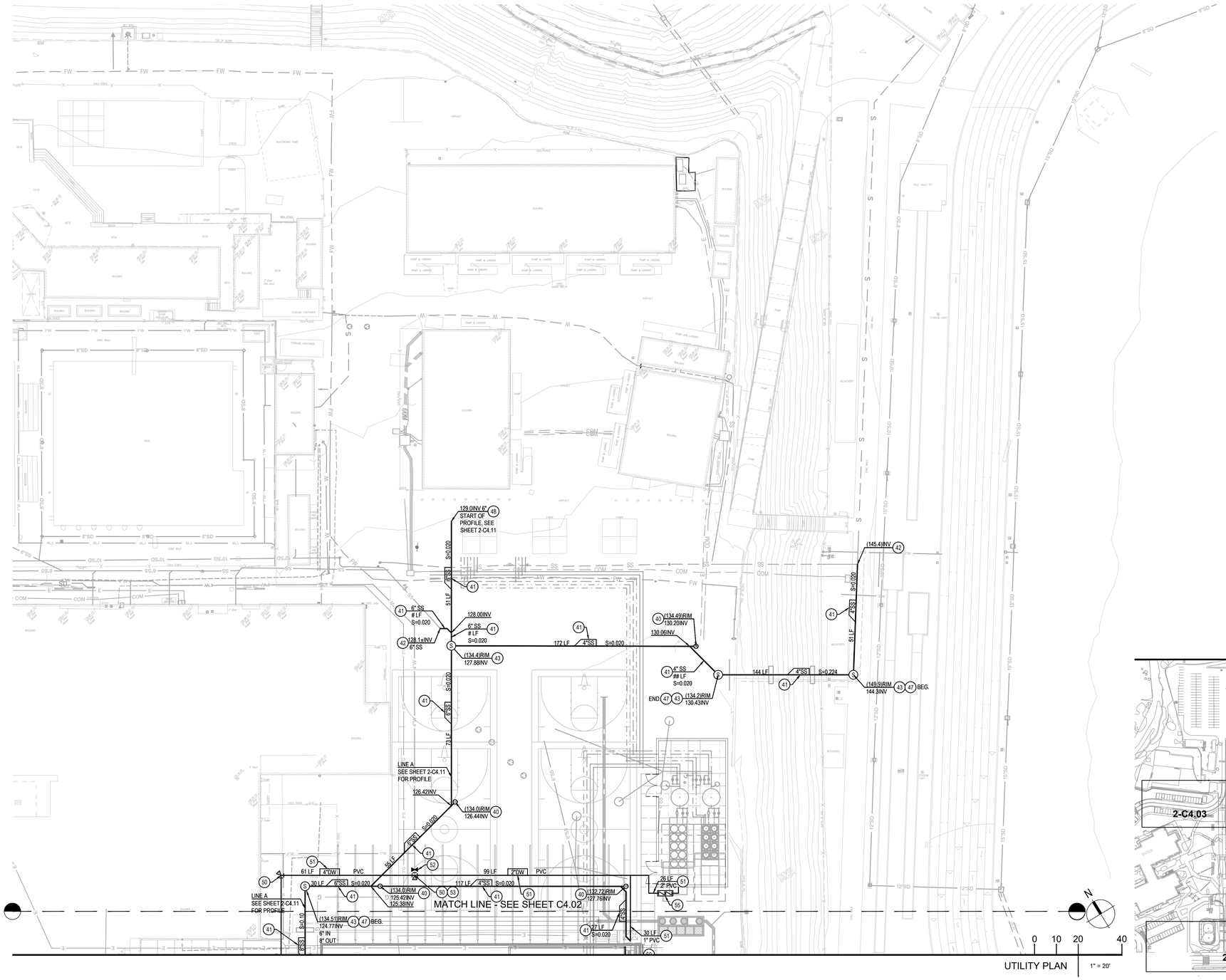
24" SD 61 LF S=0.005
24" SD 61 LF S=0.005
24" SD 61



SEWER CONSTRUCTION NOTES:

KEY NOTE	DESCRIPTION
◯	SEWER SERVICE POINT OF CONNECTION. SUPPLY AND INSTALL SEWER SERVICE LATERAL STUBBED 5 FT. FROM FACE OF BUILDING, S=0.020 MIN. PLUG AND MARK END. COORDINATE EXACT LOCATION WITH PLUMBING PLANS.
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43	SUPPLY AND INSTALL SEWER MANHOLE PER SPPWC 200-4, SHEET 2-C7.03.
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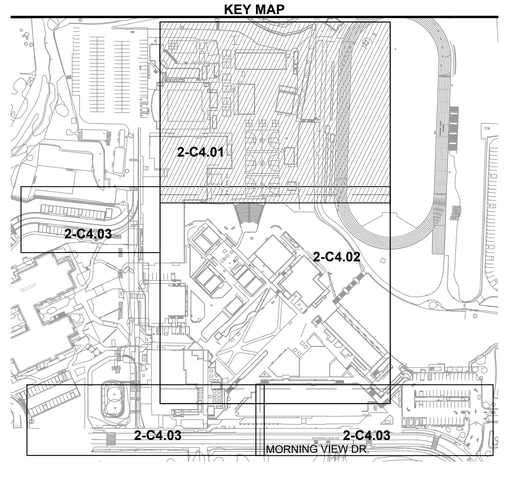
KEY MAP



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MALIBU MIDDLESCHOOL
INCREMENT 02

30215 Morning View Dr.
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Developed for
SANTA MONICA - MALIBU UNIFIED SCHOOL DISTRICT

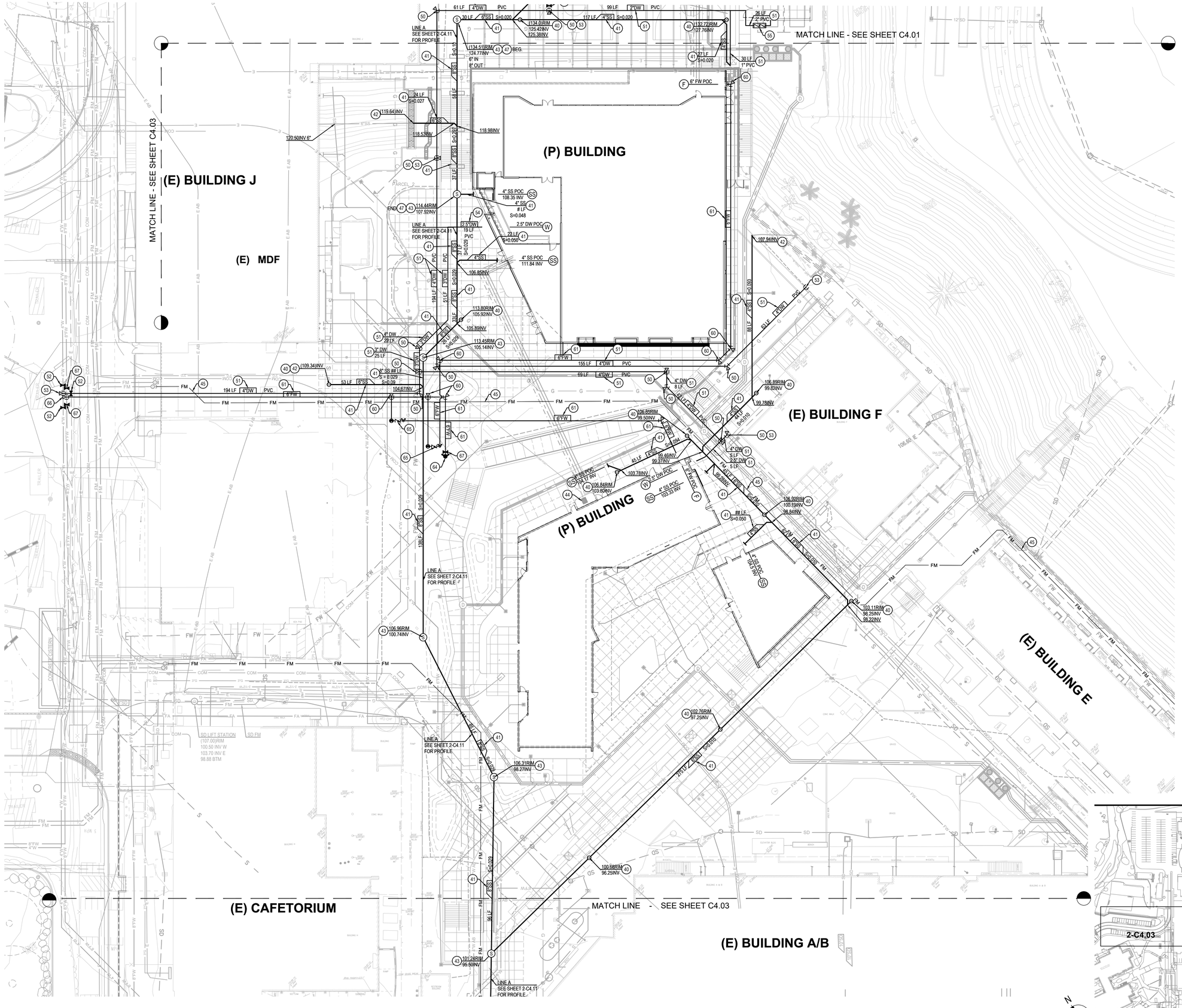
Revision	Date

Submittal	Date
SCHEMATIC DESIGN	09/04/2024
DESIGN DEVELOPMENT	02/21/2025
DSA SUBMITTAL	09/09/2025

Job Number	31722
Checked By	RR
Scale	AS NOTED

UTILITY PLAN

2-C4.01



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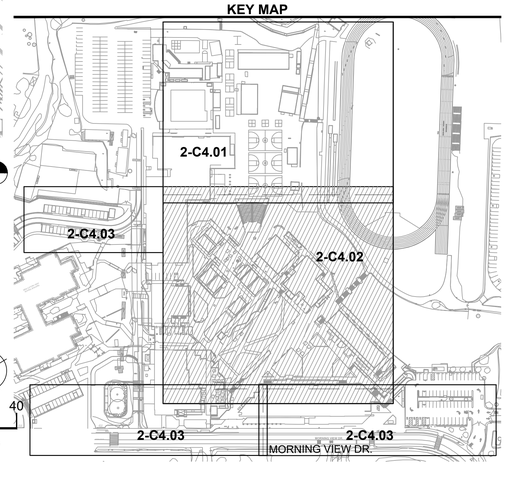

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ARCHITECTURE ENGINEERING INTERIOR DESIGN
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5301 California Avenue, Suite 100
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MALIBU MIDDLESCHOOL INCREMENT 02

30215 Morning View Dr.
Malibu, CA 90265

Developed for
SANTA MONICA - MALIBU UNIFIED SCHOOL DISTRICT

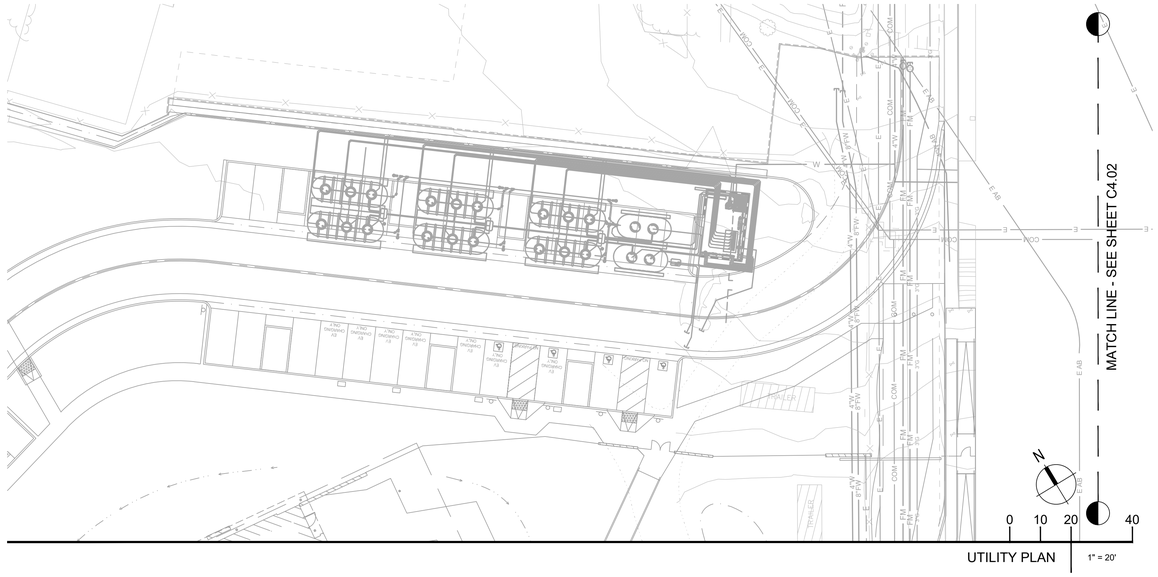
Revision	Date

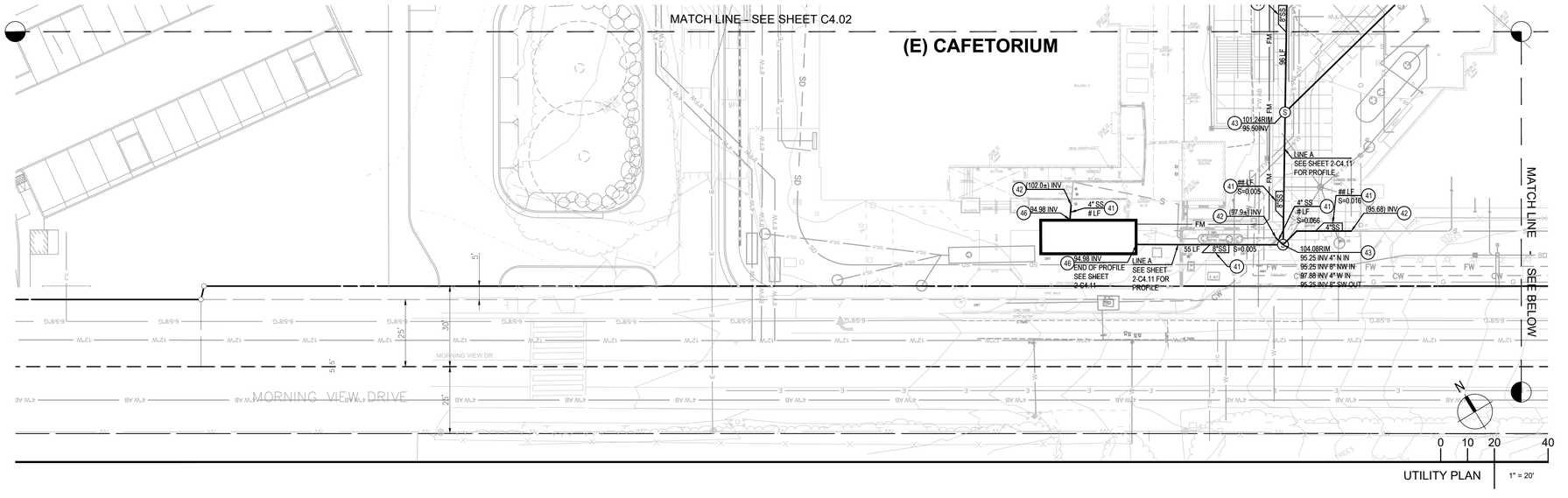
Submittal	Date
SCHEMATIC DESIGN	09/04/2024
DESIGN DEVELOPMENT	02/21/2025
DSA SUBMITTAL	09/08/2025

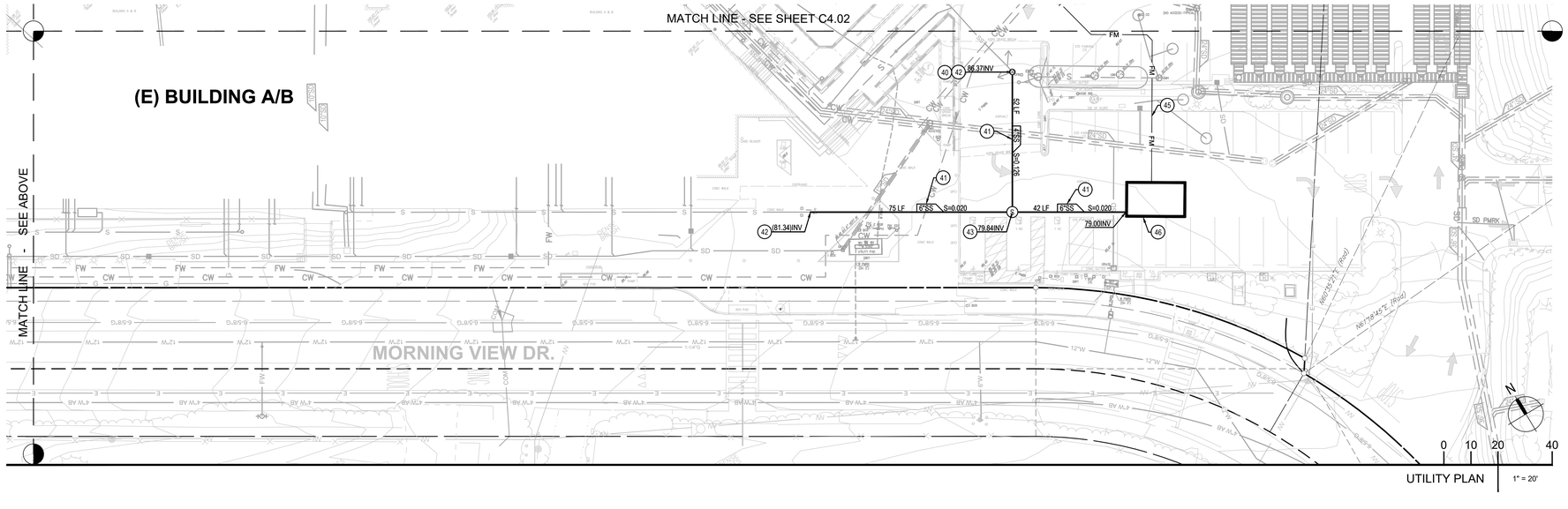
Job Number	31722
Checked By	RR
Scale	AS NOTED

UTILITY PLAN

2-C4.02







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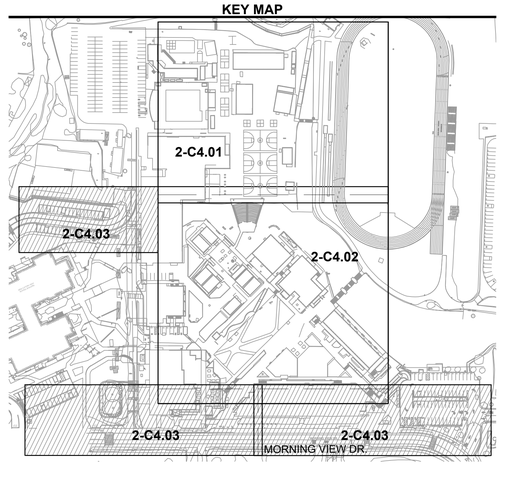

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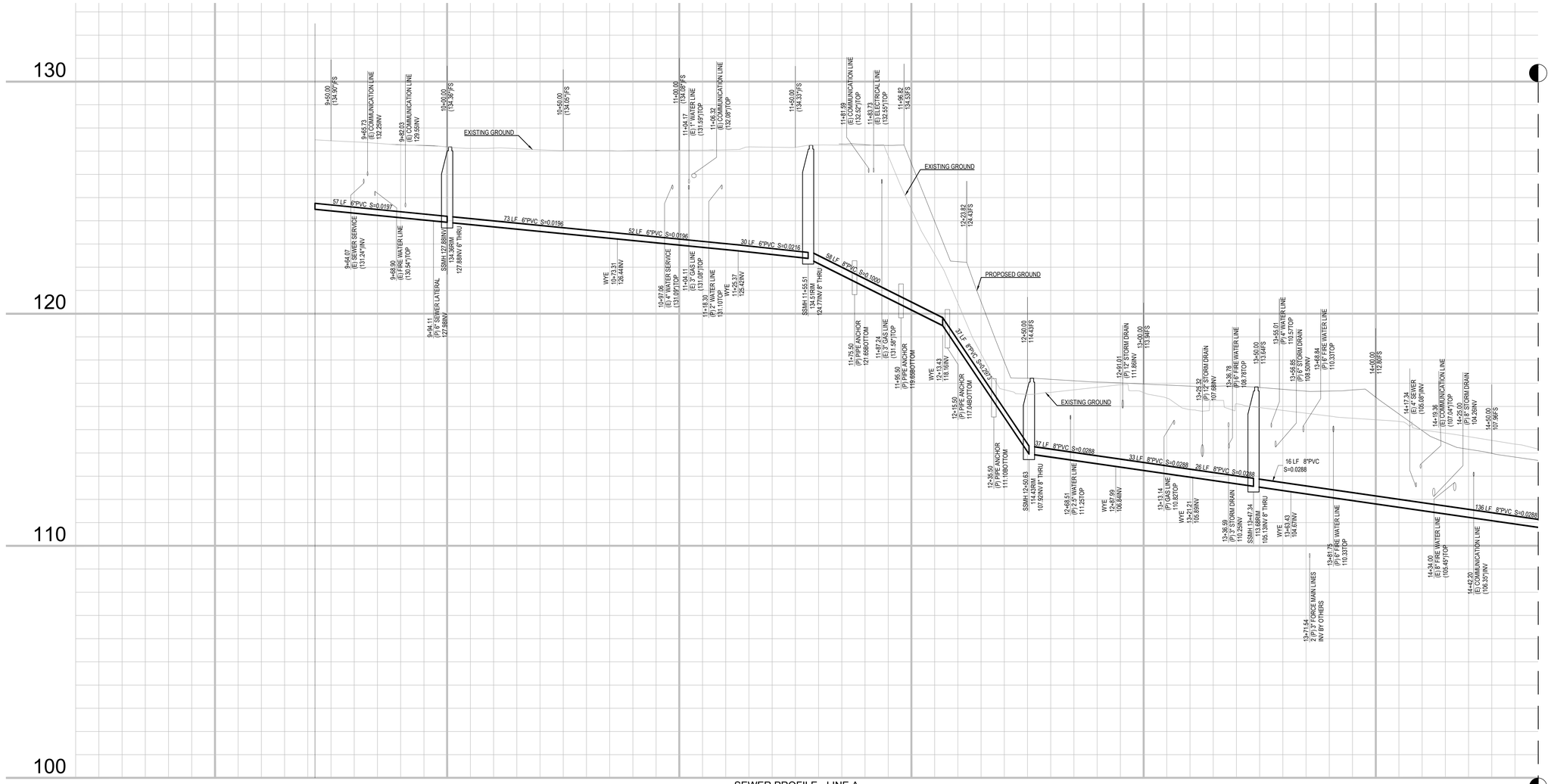
2-C4.03



SEWER PROFILE - LINE A
SCALE: HORZ:1"=20'
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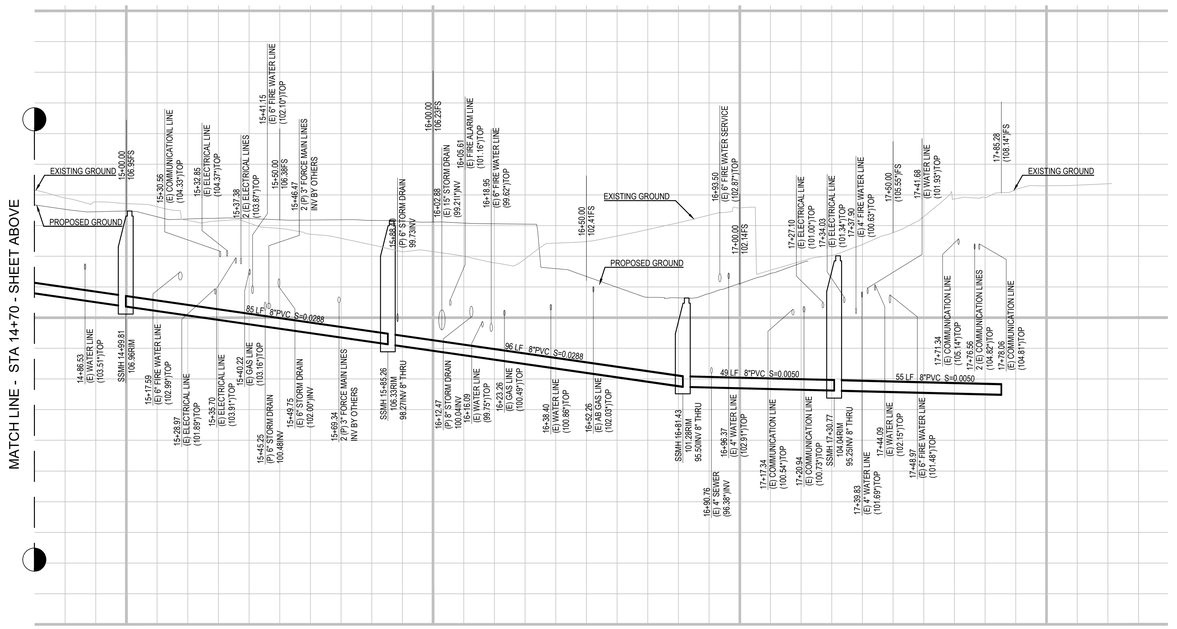

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ARCHITECTURE ENGINEERING INTERIOR DESIGN
LANDSCAPE ARCHITECTURE PLANNING
949-261-1001 Office
LPADesignStudios.com
5301 California Avenue, Suite 100
Irvine, California 92617

REGISTERED PROFESSIONAL ENGINEER
KATHLEEN M. SYMANSKI
R.C.E. 68369
EXP. 9-30-27
CIVIL
STATE OF CALIFORNIA

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MALIBU MIDDLESCHOOL
INCREMENT 02

30215 Morning View Dr.
Malibu, CA 90265

Developed for
SANTA MONICA - MALIBU UNIFIED SCHOOL DISTRICT

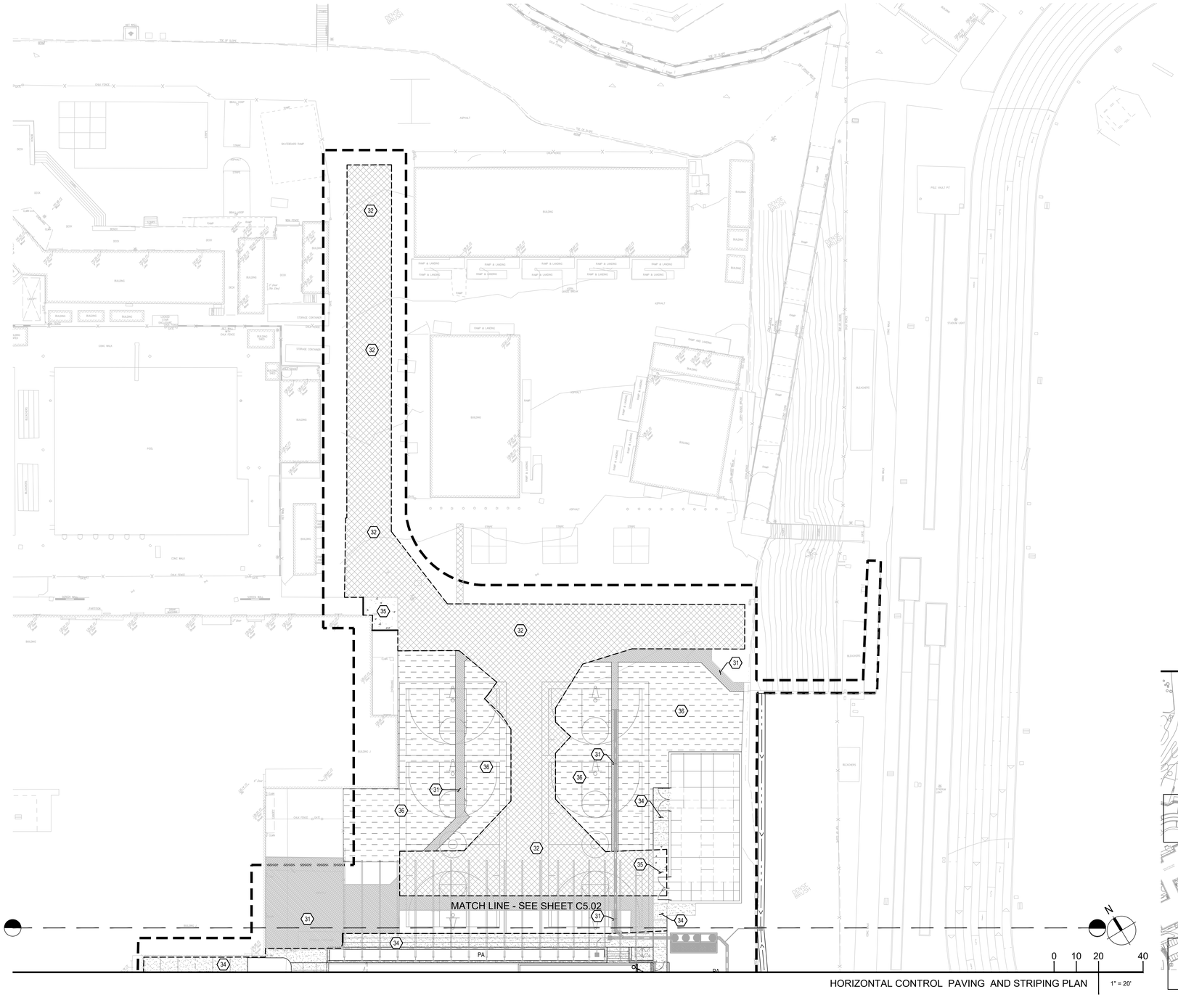
Revision	Date

Submittal	Date
SCHEMATIC DESIGN	09/04/2024
DESIGN DEVELOPMENT	02/21/2025
DSA SUBMITTAL	09/08/2025

Job Number	31722
Checked By	RR
Scale	AS NOTED

SEWER PROFILE

2-C4.11



HORIZONTAL CONTROL PAVING AND STRIPING PLAN

PAVING NOTES:

1. SEE LANDSCAPE PLANS FOR PAVERS, LOCATION AND TYPE OF CONCRETE WALKS AND HARDSCAPE INCLUDING DETAILS FOR CONCRETE FINISHES, CONTROL JOINTS AND EXPANSION JOINTS.
2. VERIFY ALL VEHICULAR AND NON-VEHICULAR LIMITS WITH LANDSCAPE PLANS.

PAVING LEGEND

SYMBOL	DESCRIPTION
30	PARKING STALL AC PAVEMENT 3" AC OVER 7.5" CL II AB PER GEOTECHNICAL ENGINEER'S RECOMMENDATION. SEE DETAIL 22 SHEET 2C-7.02.
31	DRIVE AISLE AC PAVEMENT 4" AC OVER 8.5" CL II AB PER GEOTECHNICAL ENGINEER'S RECOMMENDATION. SEE DETAIL 22 SHEET 2C-7.02.
32	HEAVY DUTY AC PAVEMENT 4" AC OVER 12" CL II AB PER GEOTECHNICAL ENGINEER'S RECOMMENDATION. SEE DETAIL 22 SHEET 2C-7.02.
33	ARTIFICIAL TURF SECTION SEE LANDSCAPE PLANS.
34	PEDESTRIAN CONCRETE PAVEMENT 5.5" PCC OVER 4" CL II AB PER GEOTECHNICAL ENGINEER'S RECOMMENDATION. SEE DETAIL 01 SHEET 2C-7.01.
35	VEHICULAR CONCRETE PAVEMENT 6.5" PCC OVER 12" CL II AB PER GEOTECHNICAL ENGINEER'S RECOMMENDATION. SEE DETAIL 01 SHEET 2C-7.01.
36	GRIND AND OVERLAY EXISTING ASPHALT CONCRETE 1.5" MIN
FA	FIRE ACCESS. PAINT CURB RED PER DETAIL __, SHEET C._..
	REMOVE EXISTING PAVEMENT MARKING.

HORIZONTAL CONTROL NOTES:

THIS HORIZONTAL CONTROL PLAN ESTABLISHES THE FOLLOWING TO BE USED AS BASE CONTROL FOR CONSTRUCTION STAKING.

1. PRIOR TO STAKING ANY BUILDING STRUCTURE, SURVEYOR SHALL VERIFY THAT THE GRIDS SHOWN ON THIS PLAN MATCHES THE ARCHITECTURAL & STRUCTURAL PLANS.
2. TWO COORDINATES ARE PROVIDED TO ESTABLISH THE BUILDING GRID. SEE ARCHITECTURAL AND STRUCTURAL PLANS FOR FINAL BUILDING DIMENSIONS.
3. IF ANY DISCREPANCIES ARE FOUND DURING CONSTRUCTION STAKING NOTIFY CIVIL ENGINEER IMMEDIATELY.
4. SEE LANDSCAPE PLANS FOR DETAILED HARDSCAPE DIMENSIONS.
5. SEE LANDSCAPE PLANS FOR LOCATION AND TYPE OF CONCRETE WALKS AND HARDSCAPE INCLUDING DETAILS FOR CONCRETE FINISHES, CONTROL JOINTS AND EXPANSION JOINTS.
6. SEE PAVING AND STRIPING PLANS FOR LOCATION AND TYPE OF PAVING AND STRIPING.

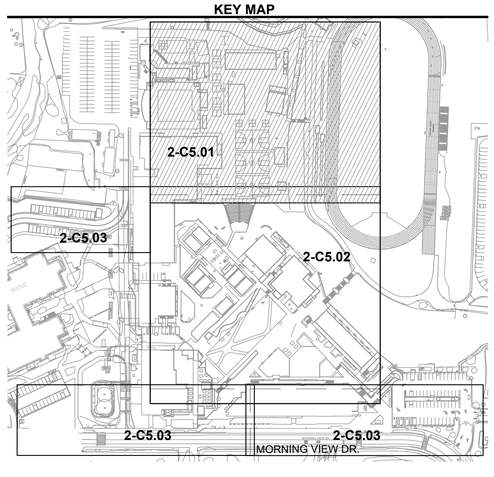
BENCHMARK

-SEE SHEET C0.01 FOR BENCHMARK.

BASIS OF BEARINGS

-SEE SHEET C0.01 FOR BASIS OF BEARINGS.

KEY MAP



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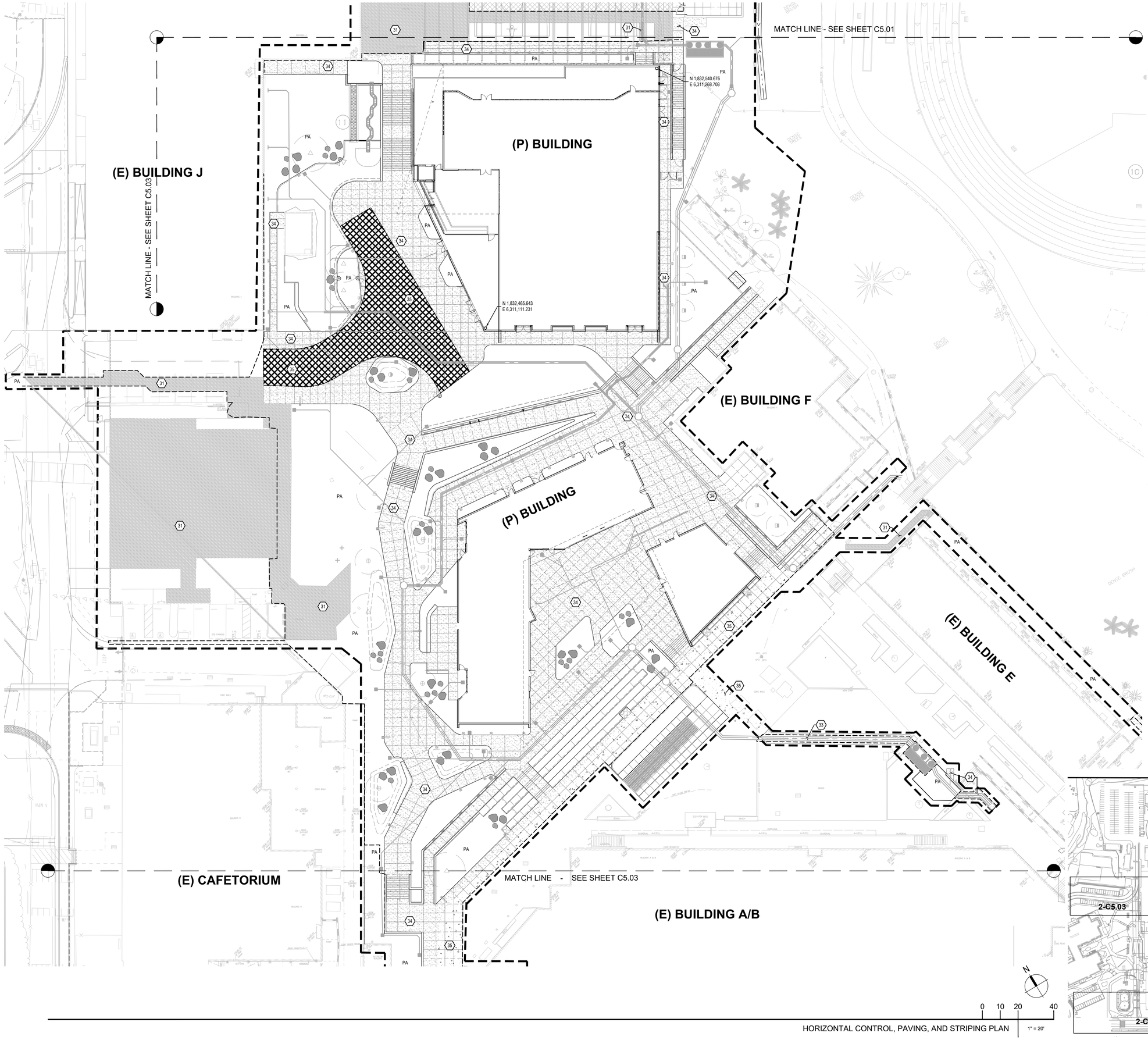
HORIZONTAL CONTROL PAVING AND STRIPING PLAN

2-C5.01



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FA	FIRE ACCESS. PAINT CURB RED PER DETAIL __, SHEET C_._.
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6. SEE PAVING AND STRIPING PLANS FOR LOCATION AND TYPE OF PAVING AND STRIPING.

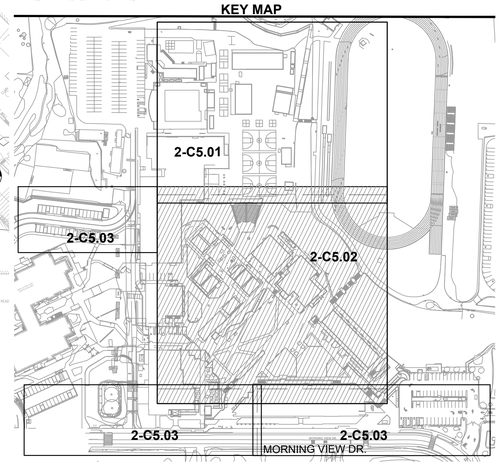
BENCHMARK

-SEE SHEET C0.01 FOR BENCHMARK.

BASIS OF BEARINGS

-SEE SHEET C0.01 FOR BASIS OF BEARINGS.

KEY MAP



0 10 20 40

HORIZONTAL CONTROL, PAVING, AND STRIPING PLAN 1" = 20'

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INCREMENT 02

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Developed for
SANTA MONICA - MALIBU UNIFIED SCHOOL DISTRICT

Revision	Date

Submittal	Date
SCHEMATIC DESIGN	09/04/2024
DESIGN DEVELOPMENT	02/21/2025
DSA SUBMITTAL	09/05/2025

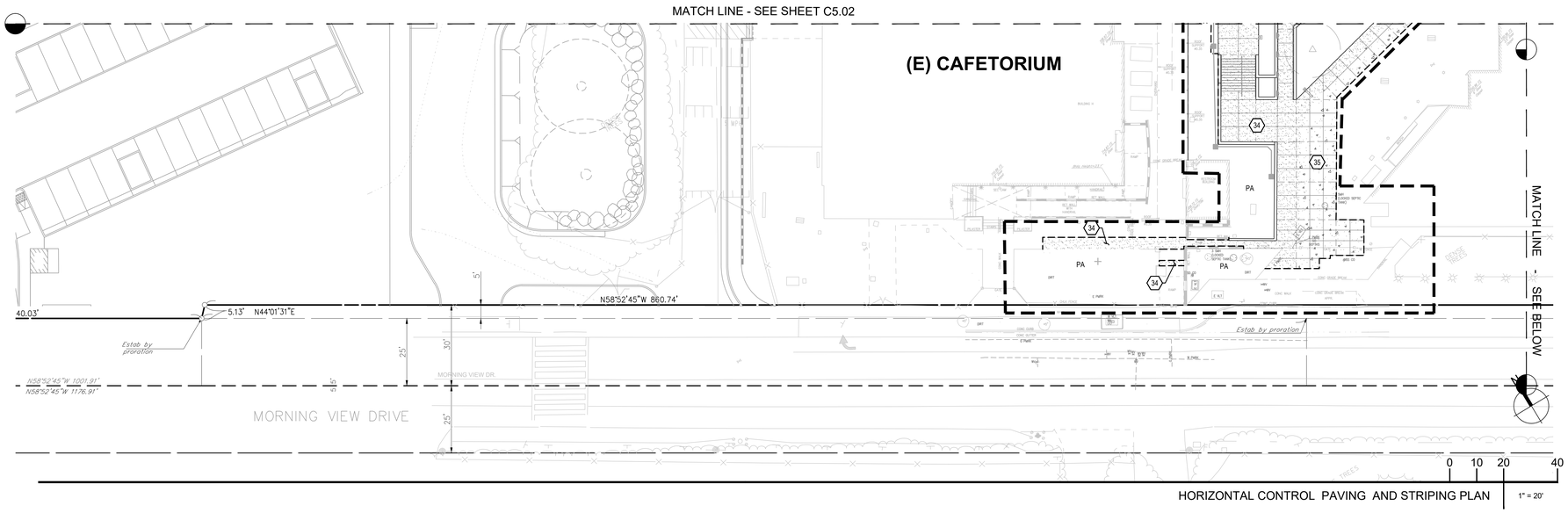
Job Number	31722
Checked By	RR
Scale	AS NOTED

HORIZONTAL CONTROL, PAVING, AND STRIPING PLAN

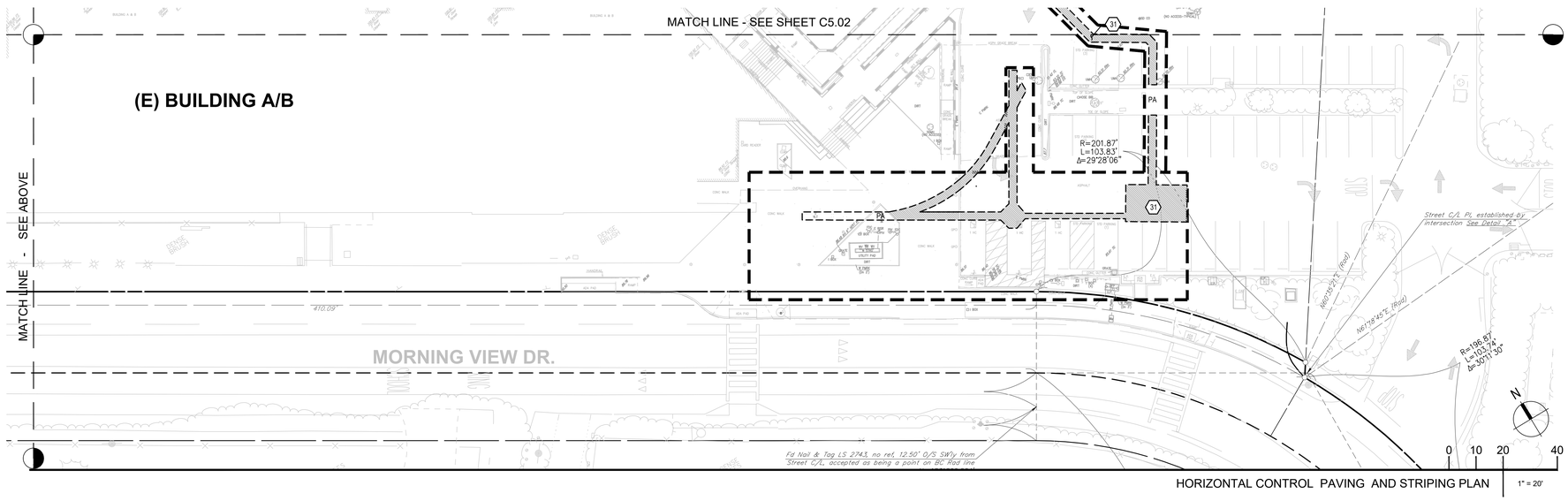
2-C5.02



HORIZONTAL CONTROL PAVING AND STRIPING PLAN 1" = 20'



HORIZONTAL CONTROL PAVING AND STRIPING PLAN 1" = 20'



HORIZONTAL CONTROL PAVING AND STRIPING PLAN 1" = 20'

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BENCHMARK

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BASIS OF BEARINGS

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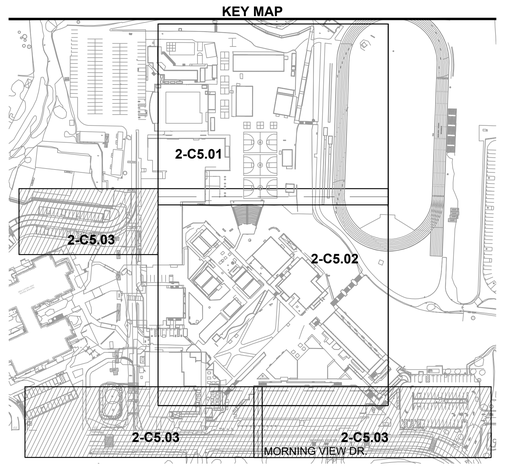
KEY MAP



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REGISTERED PROFESSIONAL ENGINEER
KATHLEEN M. SUTHAT
R.C.E. 68369
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CIVIL
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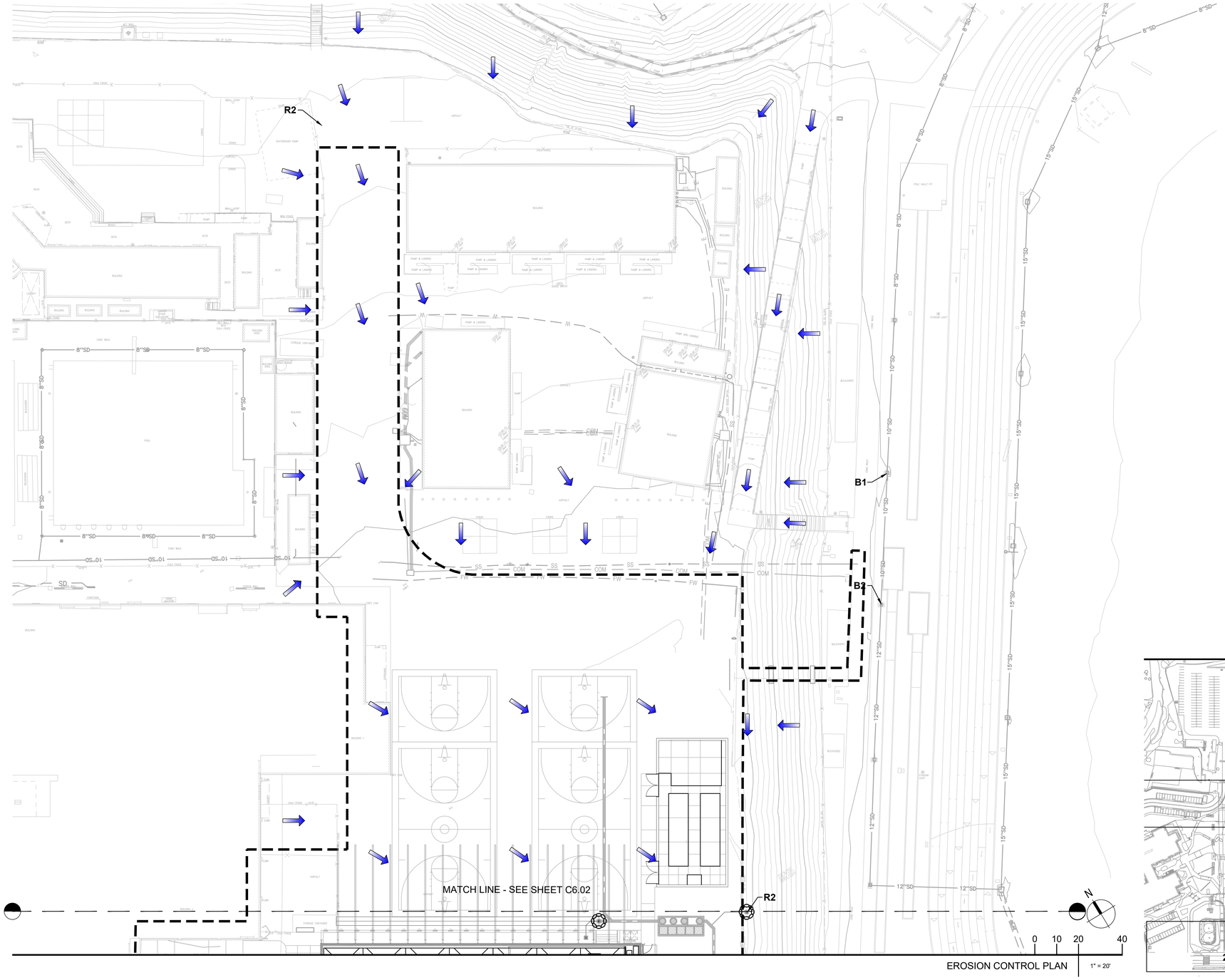
Scale	AS NOTED

HORIZONTAL CONTROL PAVING AND STRIPING PLAN

2-C5.03



EROSION CONTROL PLAN

EROSION CONTROL NOTES

-SEE SHEET C0.01 FOR EROSION / SEDIMENT CONTROL NOTES AND BMP MAINTENANCE NOTES

-ALL BMPS PER CALIFORNIA STORMWATER QUALITY ASSOCIATION (CASQA)(UNLESS NOTED OTHERWISE) AND ARE AVAILABLE AT www.casqa.org.

-FOR BMP'S NOT SPECIFICALLY CALLED OUT PER PLAN, COORDINATE WITH THE QSP REGARDING APPLICATION AND LOCATIONS FOR USE.

-AT THE COMPLETION OF PROJECT, CONTRACTOR SHALL REMOVE ALL CONSTRUCTION BMPS FROM SITE AND DISPOSE IN A LEGAL MANNER.

LEGEND

SYMBOL	DESCRIPTION
	GRAVEL BAGS AND/OR SANDBAGS PER BMP KEYNOTES
	FIBER ROLL
	SILT FENCE
	APPROXIMATE LIMITS OF WORK
	FLOW DIRECTION

EROSION CONTROL BMPs:

KEY NOTE	DESCRIPTION
E1	EC-1, SCHEDULING
E2	EC-2, PRESERVATION OF EXISTING VEGETATION
E3	EC-3, HYDRAULIC MULCH
E4	EC-4, HYDROSEEDING
E5	EC-5, SOIL BINDERS
E6	EC-6, STRAW MULCH
E7	EC-7, GEOTEXTILES AND MATS
E15	EC-15, SOIL PREPARATION/ROUGHENING

SEDIMENT CONTROL BMPs:

S1	SE-1, SILT FENCE
S5	SE-5, FIBER ROLLS
S6	SE-6, GRAVEL BAG BERM
S7	SE-7, STREET SWEEPING AND VACUUMING
S8	SE-8, SANDBAG BARRIER
S10	SE-10, STORM DRAIN INLET PROTECTION

TRACKING CONTROL BMPs:

T1	TC-1, STABILIZED CONSTRUCTION ENTRANCE/EXIT
T3	TC-3, ENTRANCE/OUTLET TIRE WASH

NON-STORMWATER MANAGEMENT CONTROL BMP

N1	NS-1, WATER CONSERVATION PRACTICES
N3	NS-3, PAVING AND GRINDING OPERATIONS
N6	NS-6, ILLICIT CONNECTION/DISCHARGE
N7	NS-7, POTABLE WATER/IRRIGATION
N8	NS-8, VEHICLE AND EQUIPMENT CLEANING
N9	NS-9, VEHICLE AND EQUIPMENT FUELING
N12	NS-12, CONCRETE CURING
N13	NS-13, CONCRETE FINISHING
EC1	SC-10, NON-STORMWATER DISCHARGES

WIND EROSION CONTROL BMPs:

WE	WE-1, WIND EROSION CONTROL

WASTE MANAGEMENT AND MATERIALS POLLUTION CONTROL BMPs:

W1	WM-1, MATERIAL DELIVERY AND STORAGE
W2	WM-2, MATERIAL USE
W3	WM-3, STOCKPILE MANAGEMENT
W4	WM-4, SPILL PREVENTION AND CONTROL
W5	WM-5, SOLID WASTE MANAGEMENT
W6	WM-6, HAZARDOUS WASTE MANAGEMENT
W7	WM-7, CONTAMINATED SOIL MANAGEMENT
W8	WM-8, CONCRETE WASTE MANAGEMENT
W9	WM-9, SANITARY/SEPTIC WASTE MANAGEMENT
W10	WM-10, LIQUID WASTE MANAGEMENT

STORM WATER STORAGE OR CONTAINMENT

W#	STORMWATER STORAGE (E.G. BIORETENTION) OR CONTAINMENT (E.G. CISTERN)

DISCHARGE LOCATIONS

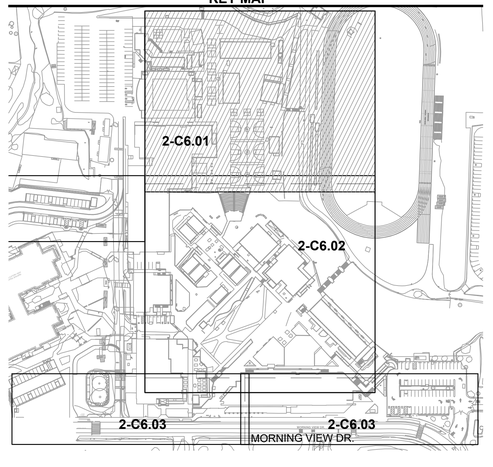
D#	DISCHARGE LOCATION

SAMPLING LOCATIONS

B#	POLLUTANT SAMPLE LOCATION - BACKGROUND SAMPLE
C#	POLLUTANT SAMPLE LOCATION - CONTRACTORS YARD
S#	POLLUTANT SAMPLE LOCATION - SITE
R#	POLLUTANT SAMPLE LOCATION - RUN-ON

NOTE:
THE SAMPLE LOCATIONS SHOWN ARE THE MINIMUM REQUIREMENT FOR THE PROJECT SITE AT RISK LEVEL 3. SAMPLE LOCATIONS MAY BE RELOCATED IF FIELD CONDITIONS WILL NOT ALLOW FOR SATISFACTORY SAMPLING. ANY ADJUSTMENTS TO SAMPLING LOCATIONS MUST MEET THE INTENDED PURPOSE ORIGINALLY DESIGNATED FOR THAT LOCATION AND MUST BE DOCUMENTED WITH A SWPPP AMENDMENT FORM.

KEY MAP



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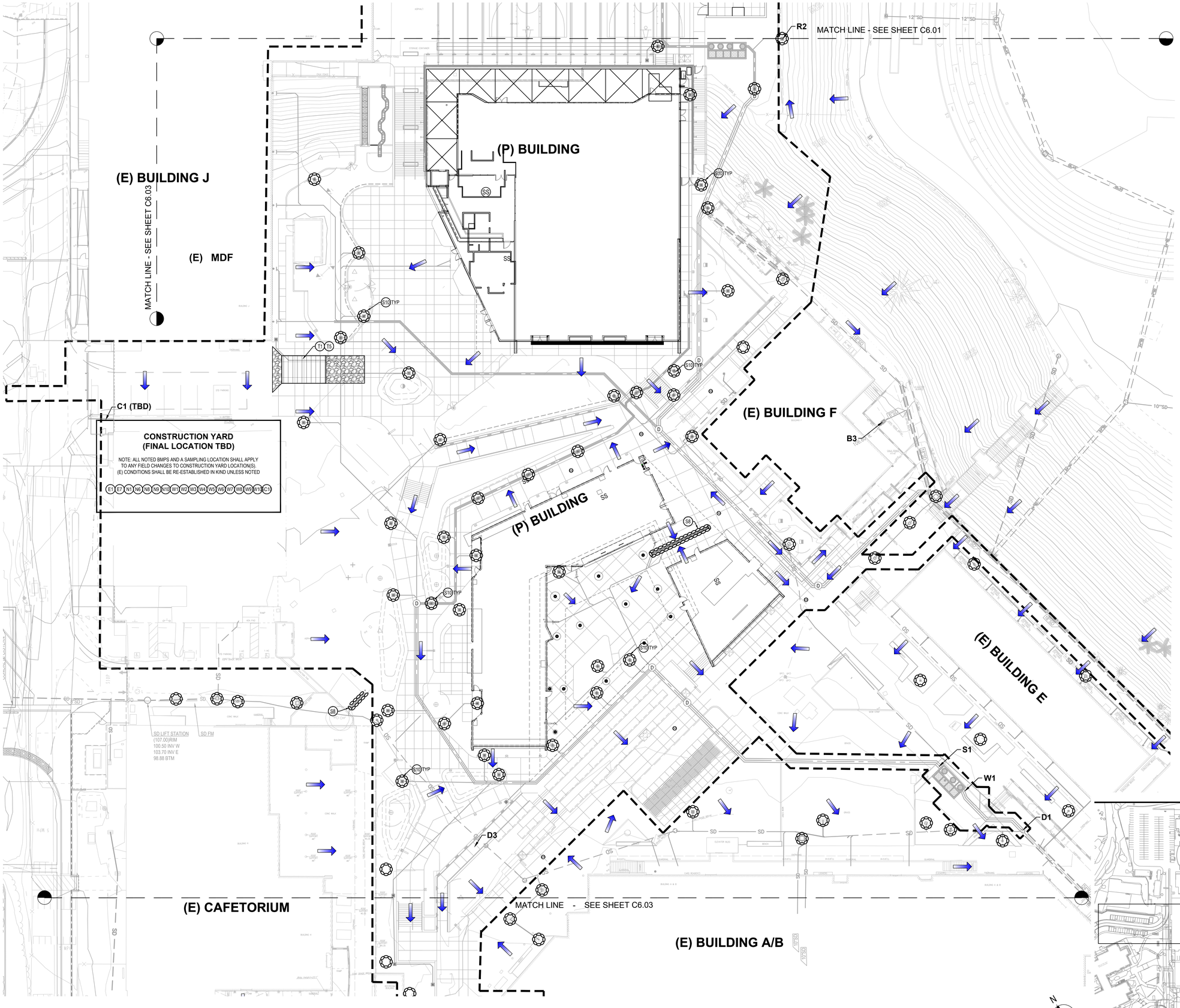
EROSION CONTROL PLAN

2-C6.01



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N3	NS-3, PAVING AND GRINDING OPERATIONS
N6	NS-6, ILLICIT CONNECTION/DISCHARGE
N7	NS-7, POTABLE WATER/IRRIGATION
N8	NS-8, VEHICLE AND EQUIPMENT CLEANING
N9	NS-9, VEHICLE AND EQUIPMENT FUELING
N12	NS-12, CONCRETE CURING
N13	NS-13, CONCRETE FINISHING
EC-1	SC-10, NON-STORMWATER DISCHARGES

WIND EROSION CONTROL BMPs:

WE	WE-1, WIND EROSION CONTROL

WASTE MANAGEMENT AND MATERIALS POLLUTION CONTROL BMPs:

W1	WM-1, MATERIAL DELIVERY AND STORAGE
W2	WM-2, MATERIAL USE
W3	WM-3, STOCKPILE MANAGEMENT
W4	WM-4, SPILL PREVENTION AND CONTROL
W5	WM-5, SOLID WASTE MANAGEMENT
W6	WM-6, HAZARDOUS WASTE MANAGEMENT
W7	WM-7, CONTAMINATED SOIL MANAGEMENT
W8	WM-8, CONCRETE WASTE MANAGEMENT
W9	WM-9, SANITARY/SEPTIC WASTE MANAGEMENT
W10	WM-10, LIQUID WASTE MANAGEMENT

STORM WATER STORAGE OR CONTAINMENT

W#	STORMWATER STORAGE (E.G. BIORETENTION) OR CONTAINMENT (E.G. CISTERN)

DISCHARGE LOCATIONS

D#	DISCHARGE LOCATION

SAMPLING LOCATIONS

B#	POLLUTANT SAMPLE LOCATION - BACKGROUND SAMPLE
C#	POLLUTANT SAMPLE LOCATION - CONTRACTORS YARD
S#	POLLUTANT SAMPLE LOCATION - SITE
R#	POLLUTANT SAMPLE LOCATION - RUN-ON

NOTE:
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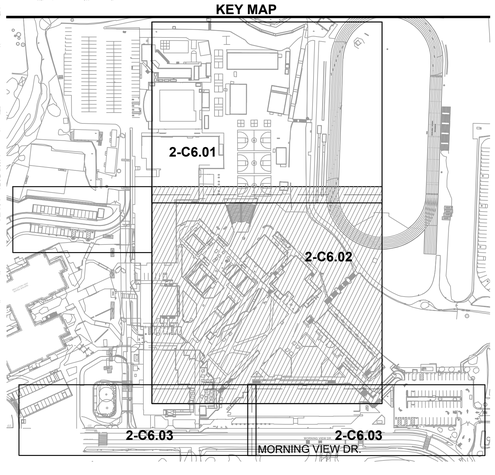
KEY MAP



0 10 20 40

EROSION CONTROL PLAN 1" = 20'

LPA
ARCHITECTURE ENGINEERING INTERIOR DESIGN
LANDSCAPE ARCHITECTURE PLANNING
949-261-1001 Office
LPADesignStudios.com
5301 California Avenue, Suite 100
Irvine, California 92617

REGISTERED PROFESSIONAL ENGINEER KATHLEEN M. SUTHAR R.C.E. 68369 EXP. 9-30-27 CIVIL STATE OF CALIFORNIA

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MALIBU MIDDLESCHOOL
INCREMENT 02

30215 Morning View Dr.
Malibu, CA 90265

Developed for
SANTA MONICA - MALIBU UNIFIED SCHOOL DISTRICT

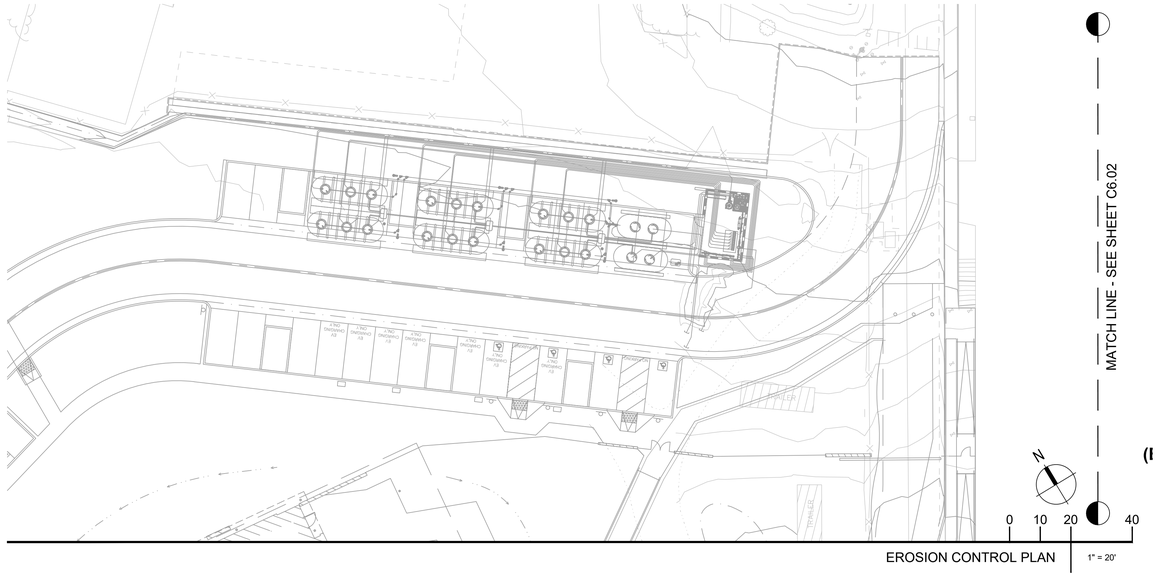
Revision	Date

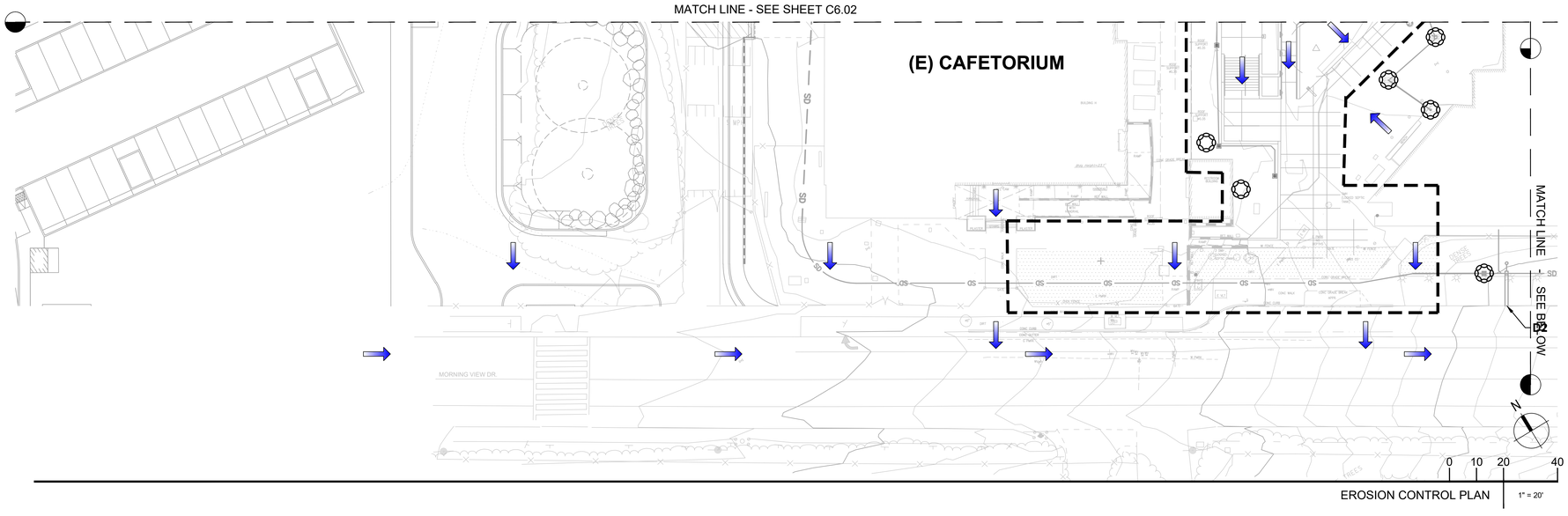
Submittal	Date
SCHEMATIC DESIGN	09/04/2024
DESIGN DEVELOPMENT	02/21/2025
DSA SUBMITTAL	09/08/2025

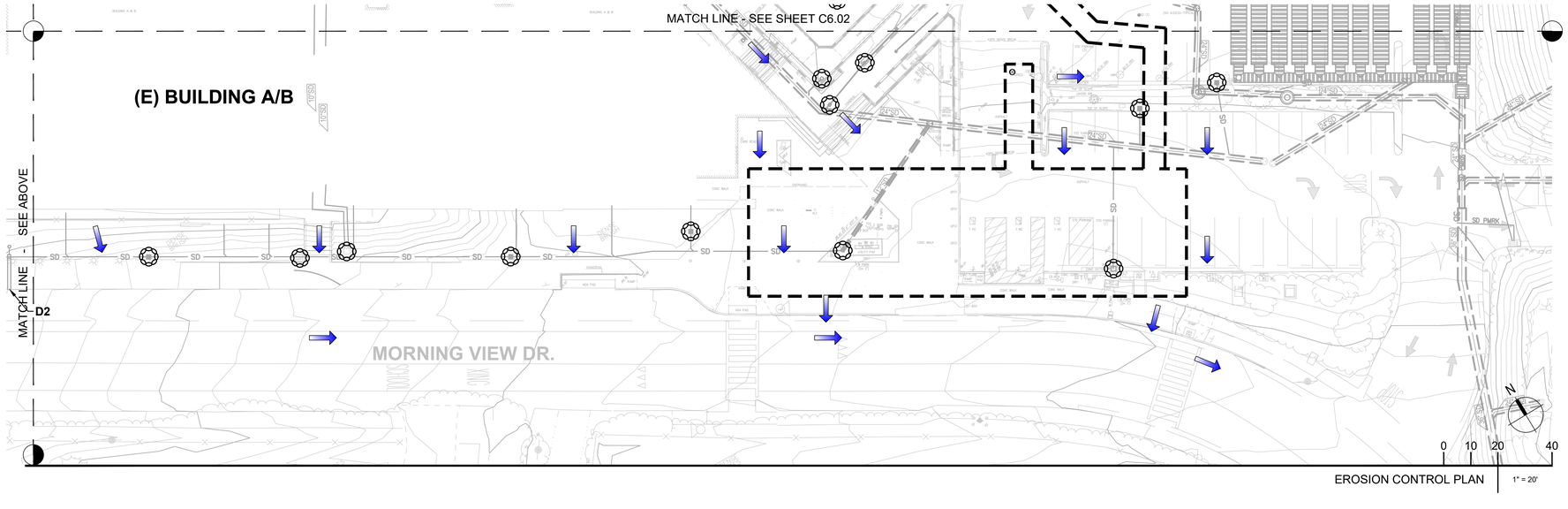
Job Number	31722
Checked By	RR
Scale	AS NOTED

EROSION CONTROL PLAN

2-C6.02







EROSION CONTROL NOTES

-SEE SHEET C0.01 FOR EROSION / SEDIMENT CONTROL NOTES AND BMP MAINTENANCE NOTES

-ALL BMPS PER CALIFORNIA STORMWATER QUALITY ASSOCIATION (CASQA)(UNLESS NOTED OTHERWISE) AND ARE AVAILABLE AT www.casqa.org.

-FOR BMP'S NOT SPECIFICALLY CALLED OUT PER PLAN, COORDINATE WITH THE QSP REGARDING APPLICATION AND LOCATIONS FOR USE.

-AT THE COMPLETION OF PROJECT, CONTRACTOR SHALL REMOVE ALL CONSTRUCTION BMPS FROM SITE AND DISPOSE IN A LEGAL MANNER.

LEGEND

SYMBOL	DESCRIPTION
	GRAVEL BAGS AND/OR SANDBAGS PER BMP KEYNOTES
	FIBER ROLL
	SILT FENCE
	APPROXIMATE LIMITS OF WORK
	FLOW DIRECTION

EROSION CONTROL BMPs:

KEY NOTE	DESCRIPTION
E1	EC-1, SCHEDULING
E2	EC-2, PRESERVATION OF EXISTING VEGETATION
E3	EC-3, HYDRAULIC MULCH
E4	EC-4, HYDROSEEDING
E5	EC-5, SOIL BINDERS
E6	EC-6, STRAW MULCH
E7	EC-7, GEOTEXTILES AND MATS
E15	EC-15, SOIL PREPARATION/ROUGHENING

SEDIMENT CONTROL BMPs:

S1	SE-1, SILT FENCE
S5	SE-5, FIBER ROLLS
S6	SE-6, GRAVEL BAG BERM
S7	SE-7, STREET SWEEPING AND VACUUMING
S8	SE-8, SANDBAG BARRIER
S10	SE-10, STORM DRAIN INLET PROTECTION

TRACKING CONTROL BMPs:

T1	TC-1, STABILIZED CONSTRUCTION ENTRANCE/EXIT
T3	TC-3, ENTRANCE/OUTLET TIRE WASH

NON-STORMWATER MANAGEMENT CONTROL BMP

N1	NS-1, WATER CONSERVATION PRACTICES
N3	NS-3, PAVING AND GRINDING OPERATIONS
N6	NS-6, ILLICIT CONNECTION/DISCHARGE
N7	NS-7, POTABLE WATER/IRRIGATION
N8	NS-8, VEHICLE AND EQUIPMENT CLEANING
N9	NS-9, VEHICLE AND EQUIPMENT FUELING
N12	NS-12, CONCRETE CURING
N13	NS-13, CONCRETE FINISHING
SC10	SC-10, NON-STORMWATER DISCHARGES

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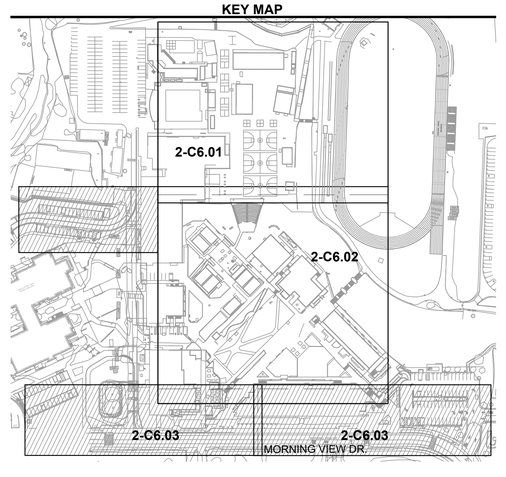
KEY MAP



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MALIBU MIDDLESCHOOL INCREMENT 02

30215 Morning View Dr.
Malibu, CA 90265

Developed for
SANTA MONICA - MALIBU UNIFIED SCHOOL DISTRICT

Revision	Date

Submittal	Date
SCHEMATIC DESIGN	08/04/2024
DESIGN DEVELOPMENT	02/21/2025
DSA SUBMITTAL	09/09/2025

Job Number	31722
Checked By	RR
Scale	AS NOTED

EROSION CONTROL PLAN

2-C6.03

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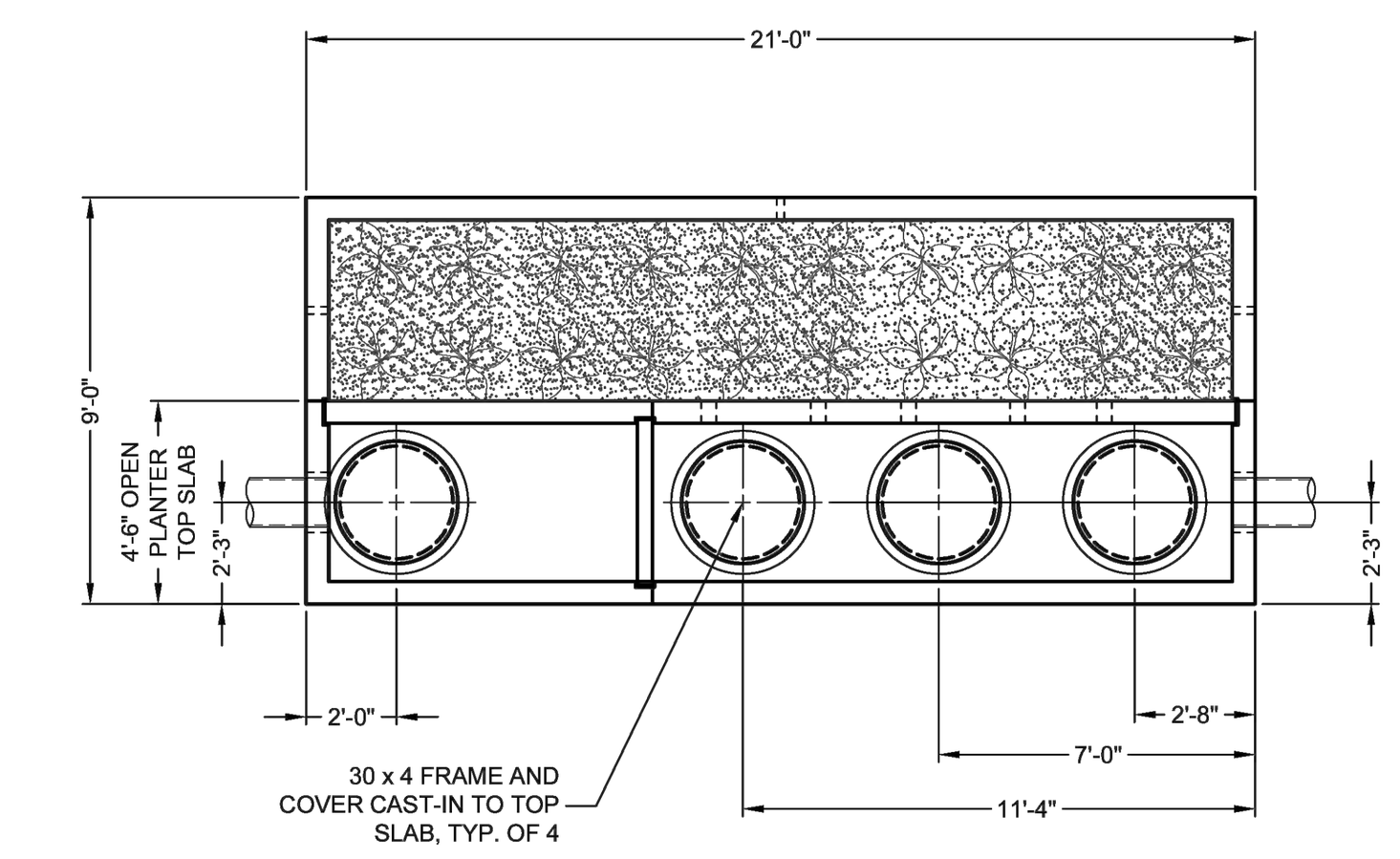
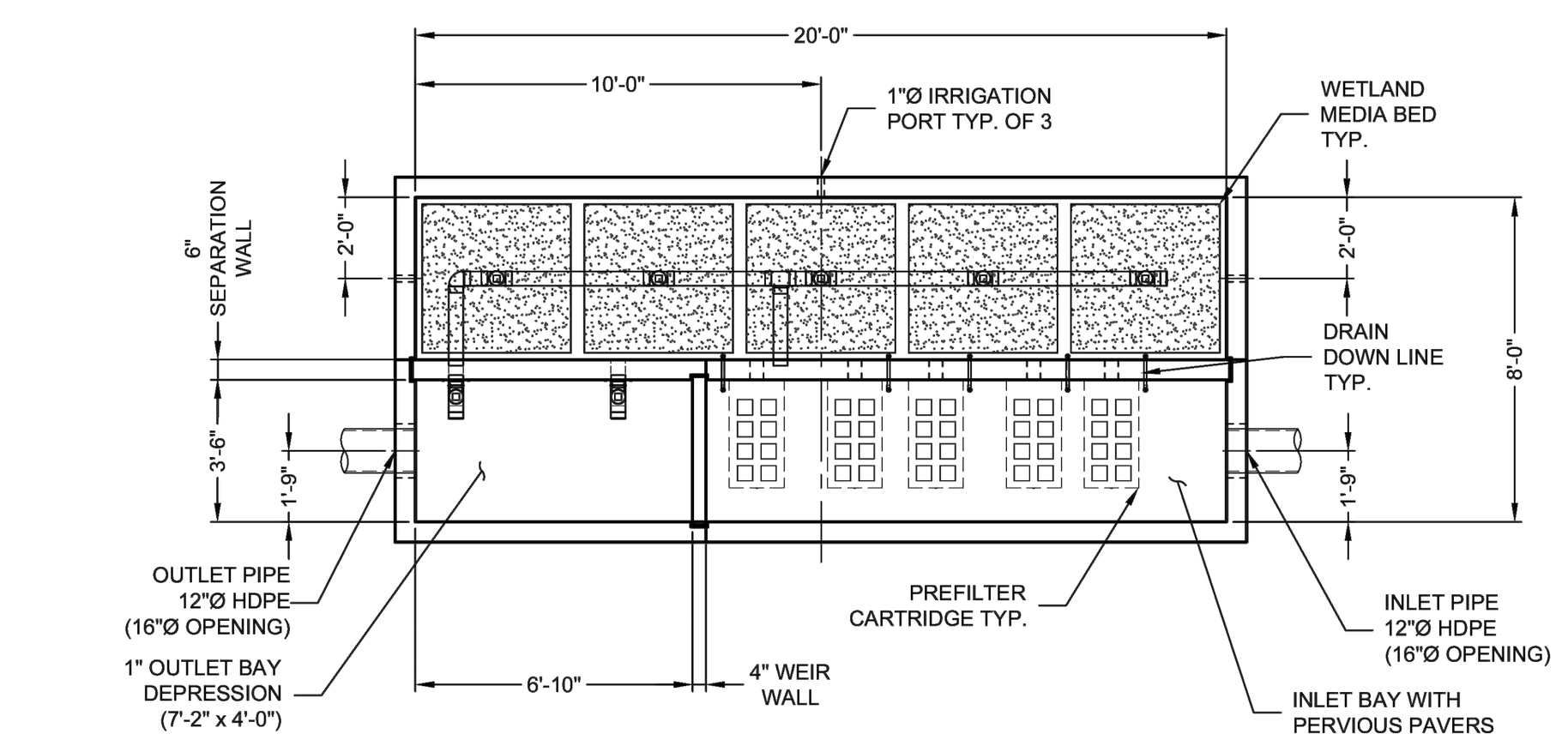
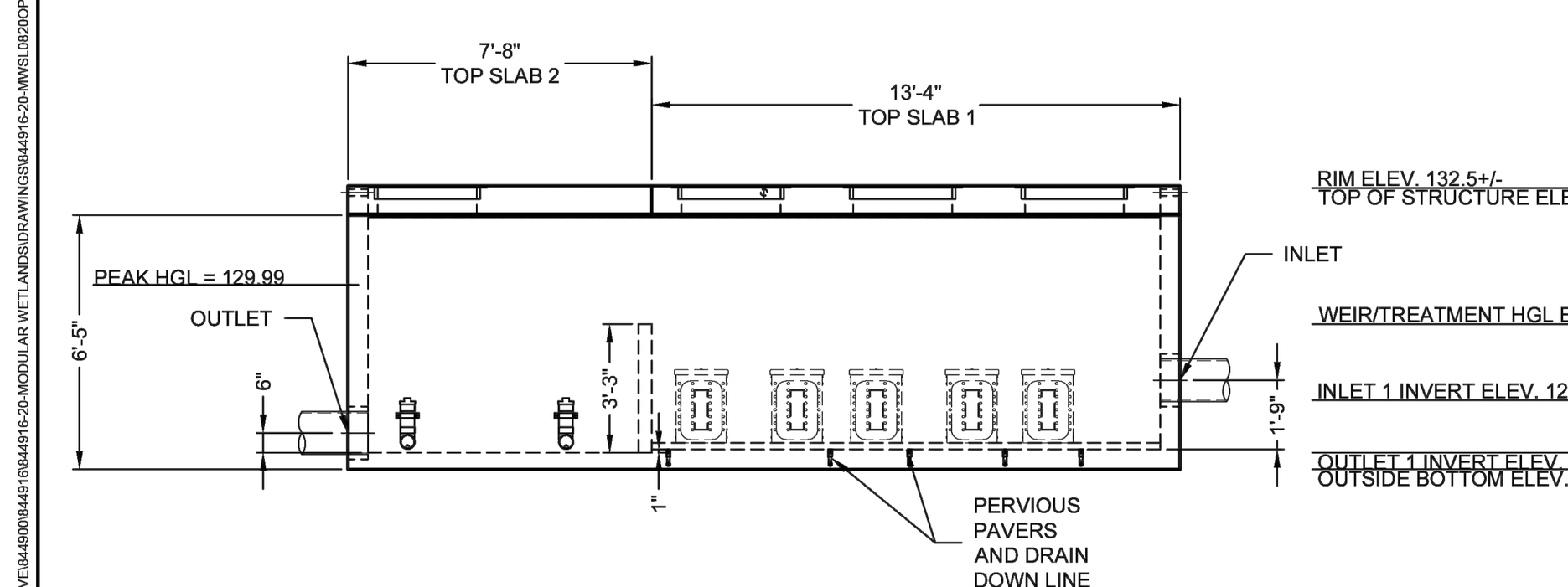


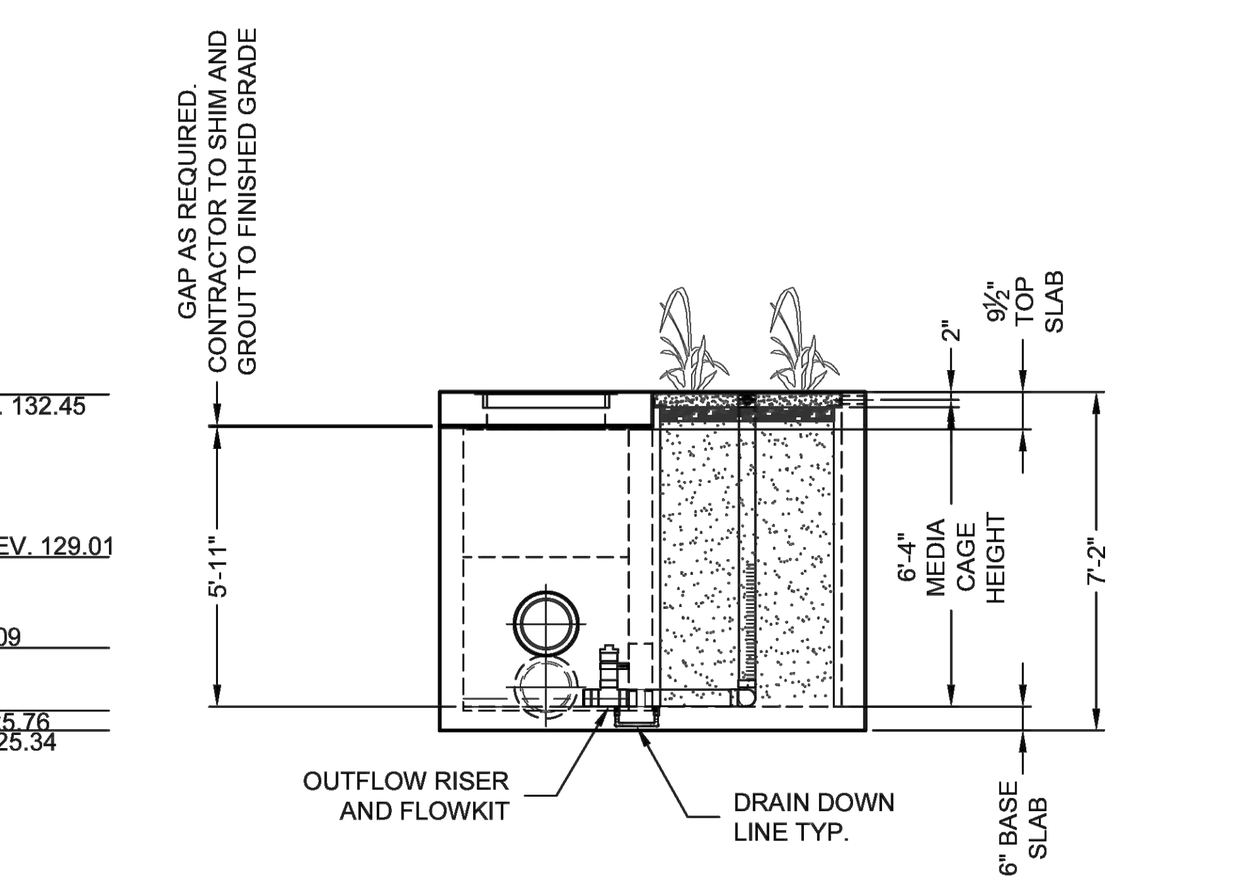
PLAN VIEW



RIM ELEVATION ADJUSTED TO MEET MANUFACTURING REQUIREMENTS



ELEVATION VIEW*



RIGHT END VIEW

SITE DESIGN DATA	
WATER QUALITY FLOW (CFS)	0.51
PEAK FLOW RATE (CFS)	11.38
RETURN PERIOD (YRS)	100
MAXIMUM POLLUTANT DENSITY (PREFILTER) (GPM/SF)	3.0
PREFILTER LOADING RATE (GPM/SF)	1.79
WETLAND MEDIA LOADING RATE (GPM/SF)	1.00
MEDIA OPERATING HEAD (FT)	3.00
SURFACE LOADING	PEDESTRIAN
GROUNDWATER ELEVATION*	125.76

*GROUNDWATER ELEVATION IS ASSUMED. EOR TO PROVIDE IF KNOWN

STRUCTURE DETAILS	
NUMBER OF DELIVERED PIECES (RISERS TO GRADE NOT NEEDED)	3
MAXIMUM FOOTPRINT	9.00' x 21.00'
DELIVERED HEAVIEST PICK*	53650 LB.
TOP SLAB 1 WITH CASTING FRAMES CAST-IN	6650 LB.
TOP SLAB 2 WITH CASTING FRAMES CAST-IN	4000 LB.
BASE SECTION	42325 LB.
SEPARATION WALL	8900 LB.
WEIR WALL	575 LB.
INTERNAL COMPONENTS	1850 LB.

* HEAVY PICK WEIGHT IS COMPRISED OF BASE SECTION WITH WALLS AND INTERIOR COMPONENTS INSTALLED

RVRSD
6505 / 000000
LAYOUT 6
MWS-L-8-20-R
24.92 TS
4.58 TIW

*MEDIA CASTINGS, IF REQUIRED, NOT SHOWN

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CONTECH PROPOSAL DRAWING

MODULAR WETLANDS MWSL0820OP - 844916-020
MALIBU MIDDLE SCHOOL INCREMENT 2 ***DSA PROJECT***
MALIBU, CA
SITE DESIGNATION: MWS 1

PROJECT No.: 844916	SEQ. No.: 020	DATE: 09/12/25
DESIGNED: RLH		DRAWN: RLH
CHECKED: RLH		APPROVED: RLH
SHEET NO.: 1 OF 1		

\\QUIKRETE.NET\CONTECH\MERLIN\PROJECT\ACTIVE\844900\844916\844916-20-MODULAR WETLANDS\DRAWINGS\844916-20-MWSL0820OP-CONFAB.DWG 9/16/2025 11:00 AM

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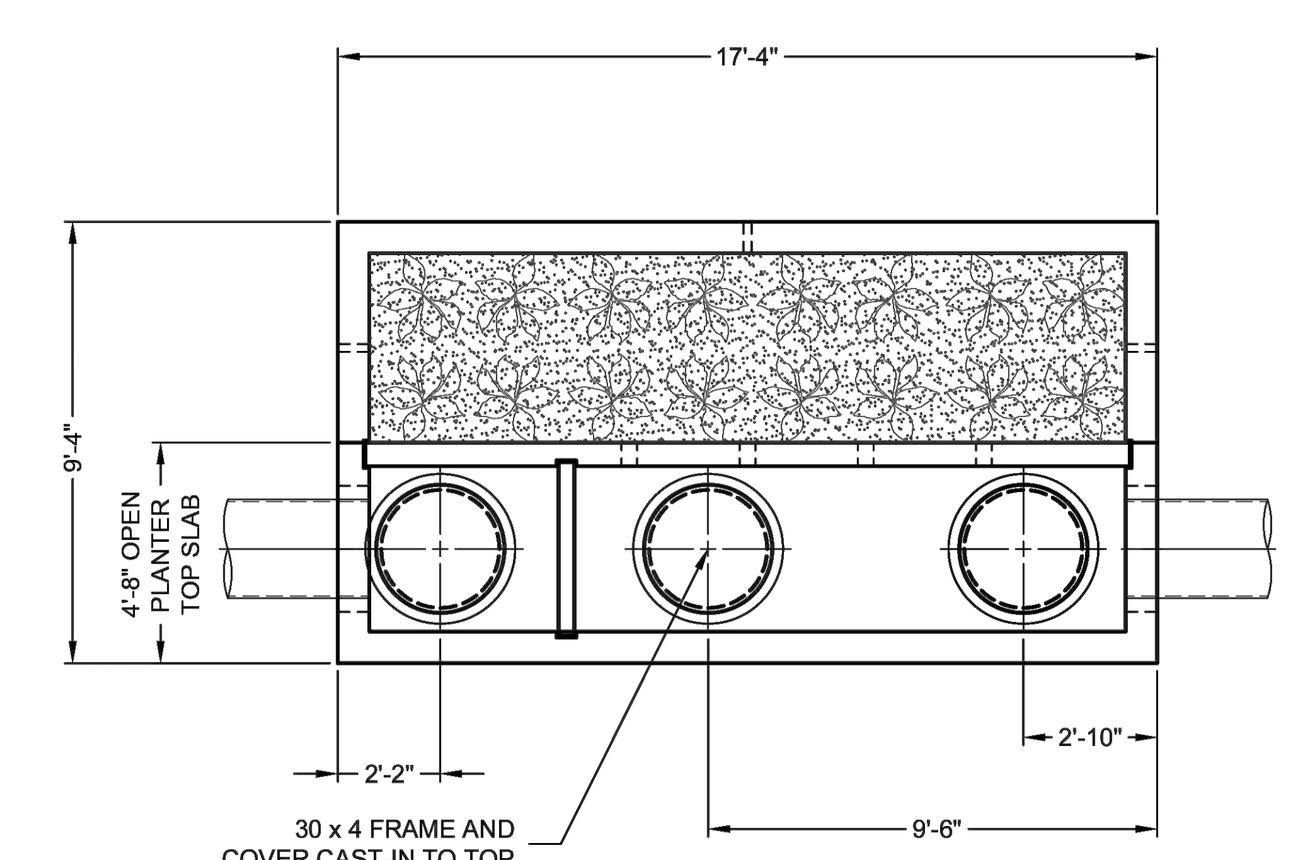
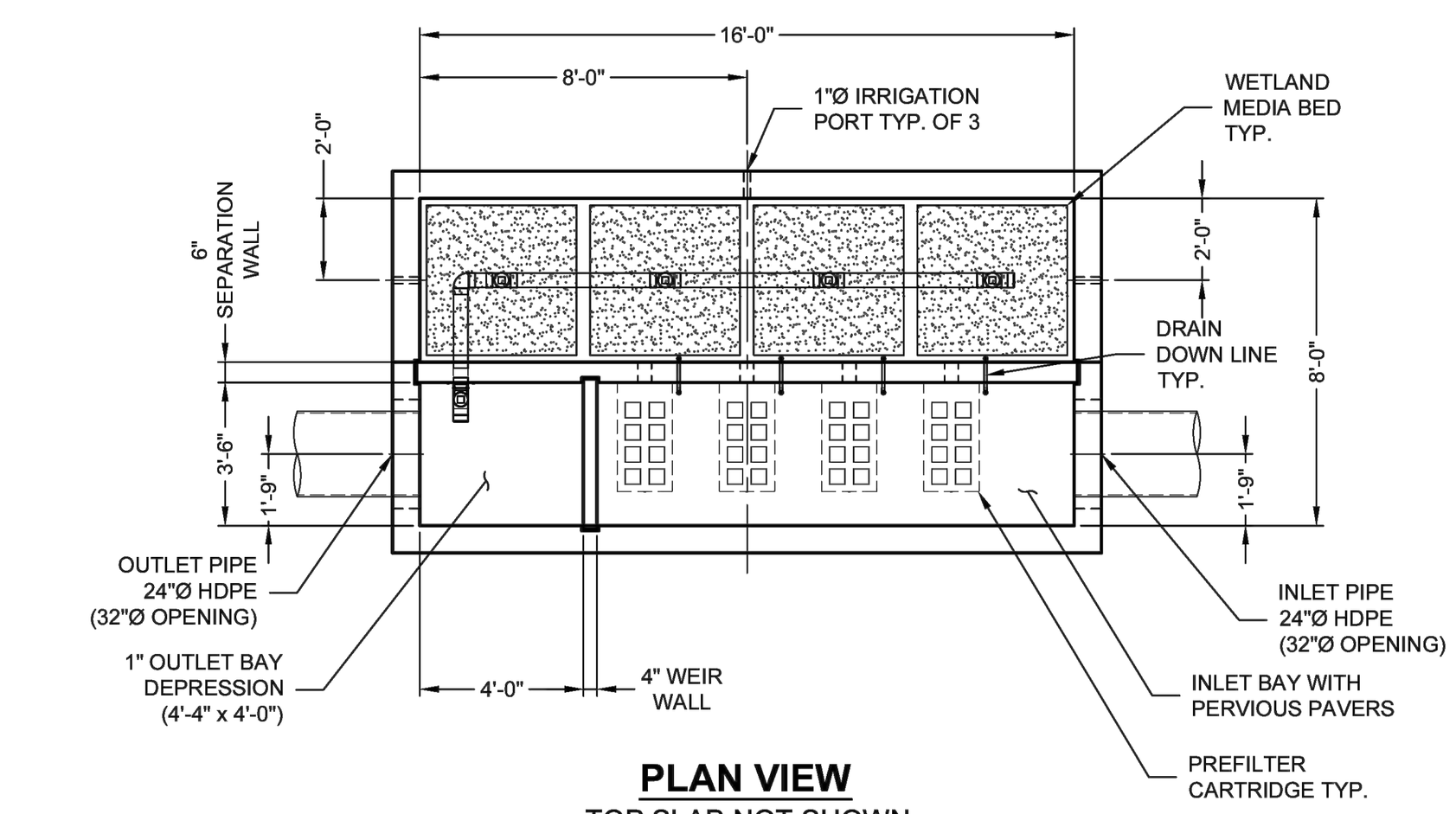
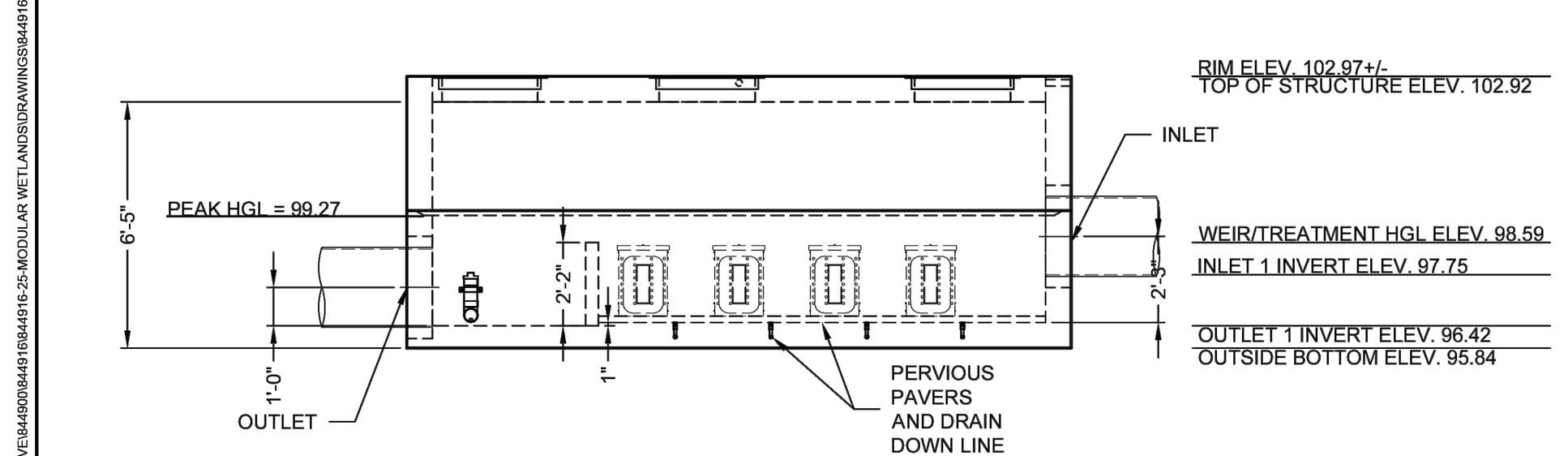


PLAN VIEW

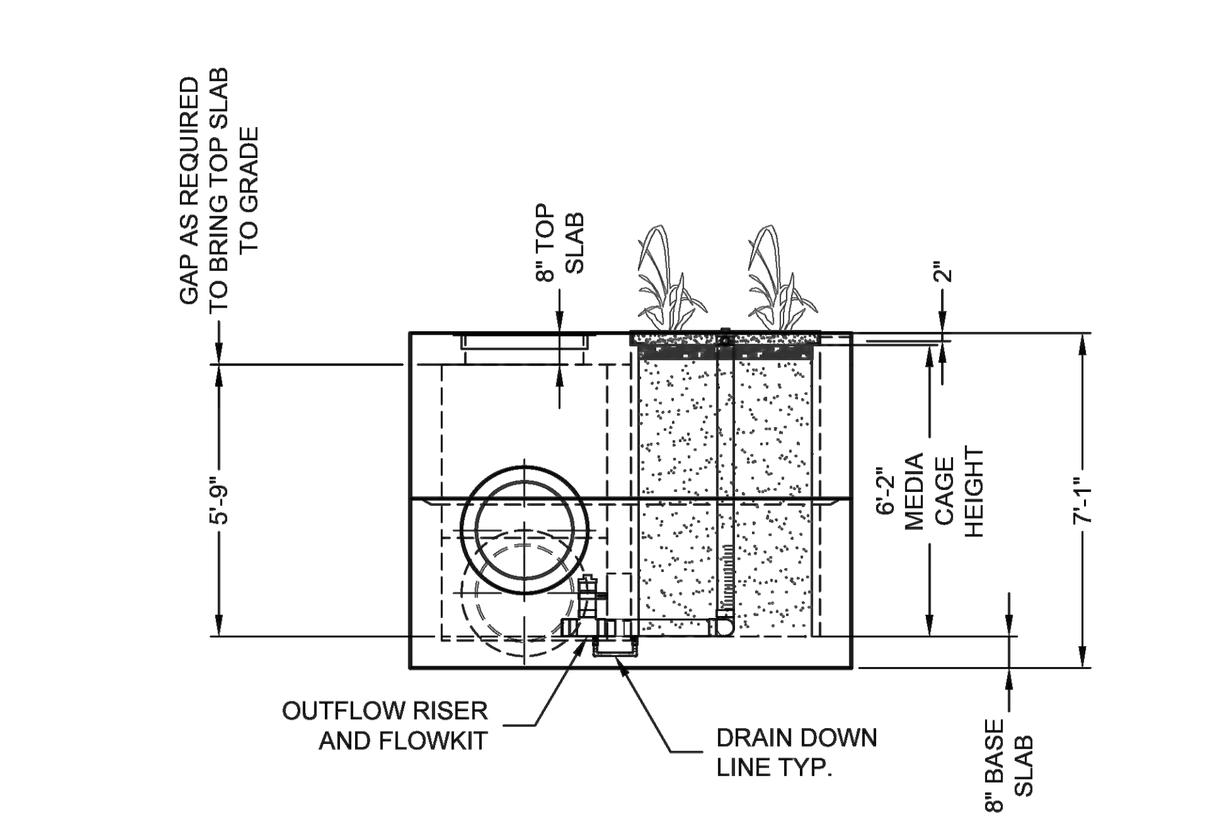


PLAN VIEW
TOP SLAB NOT SHOWN

RIM ELEVATION ADJUSTED TO MEET MANUFACTURING REQUIREMENTS



ELEVATION VIEW*



RIGHT END VIEW

SITE DESIGN DATA	
WATER QUALITY FLOW (CFS)	0.26
PEAK FLOW RATE (CFS)	6.60
RETURN PERIOD (YRS)	100
MAXIMUM POLLUTANT DENSITY (PREFILTER) (GPM/SF)	3.0
PREFILTER LOADING RATE (GPM/SF)	1.14
WETLAND MEDIA LOADING RATE (GPM/SF)	1.00
MEDIA OPERATING HEAD (FT)	1.91
SURFACE LOADING	PEDESTRIAN
GROUNDWATER ELEVATION*	96.42

*GROUNDWATER ELEVATION IS ASSUMED. EOR TO PROVIDE IF KNOWN

STRUCTURE DETAILS	
NUMBER OF DELIVERED PIECES (RISERS TO GRADE NOT NEEDED)	2
MAXIMUM FOOTPRINT	9.33' x 17.33'
DELIVERED HEAVIEST PICK*	39650 LB.
TOP SECTION WITH CASTING FRAMES CAST-IN	24525 LB.
BASE SECTION	30625 LB.
SEPARATION WALL	7025 LB.
WEIR WALL	400 LB.
INTERNAL COMPONENTS	1600 LB.

* HEAVY PICK WEIGHT IS COMPRISED OF BASE SECTION WITH WALLS AND INTERIOR COMPONENTS INSTALLED

RVRSD
6505 / 000000
LAYOUT 4
MWS-L-8-16-R
25.41 TS
3.57 TIW

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MODULAR WETLANDS MWSL0816OP - 844916-025
MALIBU MIDDLE SCHOOL INCREMENT 2 ***DSA PROJECT***
MALIBU, CA
SITE DESIGNATION: MWS 2

PROJECT No.: 844916	SEQ. No.: 025	DATE: 09/12/25
DESIGNED: RLH		DRAWN: RLH
CHECKED: RLH		APPROVED: RLH
SHEET NO.: 1 OF 1		

\\QUIKRETE.NET\CONTECH\MERLIN\PROJECT\ACTIVE\844900\844916\844916-25-MODULAR WETLANDS\DRAWINGS\844916-25-MWSL0816OP-CONFAB.DWG 9/16/2025 11:16 AM

MODULAR WETLAND UNITS | NTS | 13

ES-009

Engineering Specification

Job Name ______ Contractor ______
Job Location ______ Approval ______
Engineer ______ Contractor's P.O. No. ______
Approval ______ Representative ______

Series 009

Reduced Pressure Zone Assemblies

¼" – 2"

⚠ WARNING

It is illegal to use this product in any plumbing system providing water for human consumption, such as drinking or dishwashing, in the United States. Before installing standard material product, consult your local water authority, building and plumbing codes.

Series 009 Reduced Pressure Zone assemblies are designed to protect potable water supplies in accordance with national plumbing codes and water authority requirements. Specifically, the series protects drinking water supplies from dangerous cross-connections in accordance with national plumbing codes and water authority requirements for non-potable service applications such as irrigation, fireline, or industrial processing.

The series features two in-line, independent check valves, captured springs, and replaceable check seats with an intermediate relief valve. Its compact modular design facilitates maintenance and assembly access. Sizes 1/4" to 1" shutoffs have tee handles.

Series 009 assemblies of sizes ½" to 2" include a flood sensor to detect excessive water discharges from the relief valve. The sensor is installed on the assembly exterior and does not alter assembly functions or certifications. The sensor relays a signal that triggers notification to facility who can take corrective action, thus avoiding the possibility of ruinous flooding and costly damage.

NOTICE

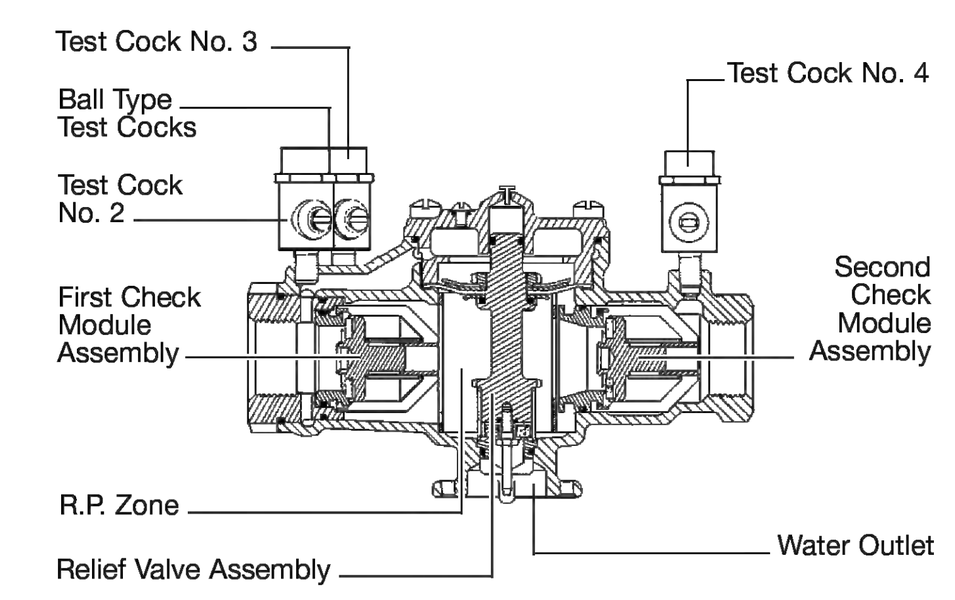
An add-on connection kit is required to activate the flood sensor. Without the connection kit, the sensor is a passive component that has no communication with any other device. (For more information, download RP/IS-009.)

Features

- Single access cover and modular check construction for ease of maintenance
- Top entry to all internals for immediate accessibility
- Captured springs for safe maintenance
- Internal relief valve for reduced installation clearances
- Replaceable seats for economical repair
- Bronze body construction for durability (1/4" – 2")
- Ball valve test cocks — screwdriver slotted (1/4" – 2")
- Large body passages provides low pressure drop
- Compact, space saving design
- No special tools required for servicing
- Sensor on the relief valve for flood detection (1/2" – 2")



009M2-QT-FS



NOTICE

Use of the flood sensor does not replace the need to comply with all required instructions, codes, and regulations related to installation, operation, and maintenance of this product, including the need to provide proper drainage in the event of a discharge.

Watts® is not responsible for the failure of alerts due to connectivity or power issues.

NOTICE

The information contained herein is not intended to replace the full product installation and safety information available or the experience of a trained product installer. You are required to thoroughly read all installation instructions and product safety information before beginning the installation of this product.

Inquire with governing authorities for local installation requirements.

Watts product specifications in U.S. customary units and metric are approximate and are provided for reference only. For precise measurements, please contact Watts Technical Service. Watts reserves the right to change or modify product design, construction, specifications, or materials without prior notice and without incurring any obligation to make such changes and modifications on Watts products previously or subsequently sold.

WATTS®

Specification

A Reduced Pressure Zone assembly shall be installed at each potential health hazard location to prevent backflow due to backsiphonage and/or backpressure. The assembly shall consist of an internal pressure differential relief valve located in a zone between two positive seating check modules with captured springs and silicone seat discs. Seats and seat discs shall be replaceable in both check modules and the relief valve. There shall be no threads or screws in the waterway exposed to line fluids. Service of all internal components shall be through a single access bronze cover secured with stainless steel bolts. The assembly shall also include two resilient seated isolation valves, four resilient seated test cocks, and an air gap drain fitting. The assembly shall meet the requirements of USC; ASSE Std. 1013; AWWA Std. C511-92; CSA B64.4. Shall be a Watts® Series 009, and shall include a sensor on the relief valve for flood detection.

Model/Option

Prefix:

U – Union connections (For more information download ES-U009 at watts.com.)

Suffix:

AQT – Elbow fittings for 360° rotation (3⁄4" – 2")
FS – Flood detection sensor (½" – 2")
HC – 21⁄2" Inlet/outlet fire hydrant fitting (2")
LF – Without shutoff valves
PC – Internal polymer coating
QT – Quarter-turn ball valves
S – Bronze strainer
SH – Stainless steel ball valve handles

Materials

Bronze body construction, silicone rubber disc material in the first and second check plus the relief valve. Replaceable polymer check seats for first and second checks. Removable relief valve seats. Stainless steel cover bolts.

Standardly furnished with NPT body connections. For optional bronze union inlet and outlet connections, specify prefix U (½" – 2"). Series 009QT furnished with quarter turn, full port, resilient seated, bronze ball valve shutoffs.

Pressure / Temperature

Suitable for supply pressure up to 175 psi (12.1 bar)
Water temperature: 33°F – 180°F (0.5°C – 75°C)

Standards

USC
ASSE No. 1013
AWWA C511-92
CSA B64.4
IAPMO File No. 1563

Approvals

ASSE 1013, UL CLASSIFIED, CSA C US, UPC, USC-FCCCHR

ASSE, AWWA, CSA, IAPMO

Approved by the Foundation for Cross-Connection Control and Hydraulic Research at the University of Southern California

UL Classified ¾" – 2"
(LF models only except 009M3LF)

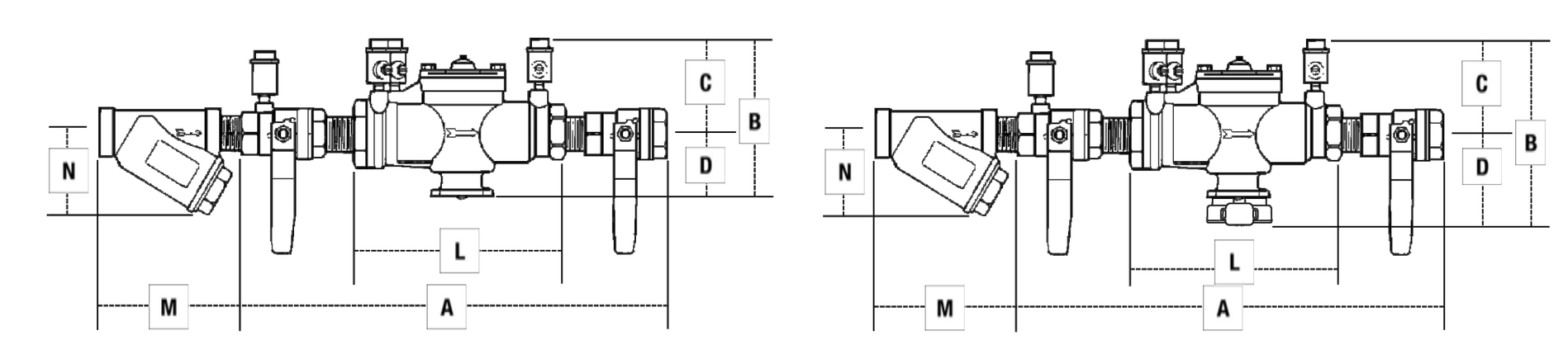
Insulated Enclosure

The WattsBox insulated enclosure is available for Series 009. For more information download ES-WB at watts.com.

Dimensions — Weight

Call customer service if you need assistance with technical details.

¼" – ⅜" ½" – 2"



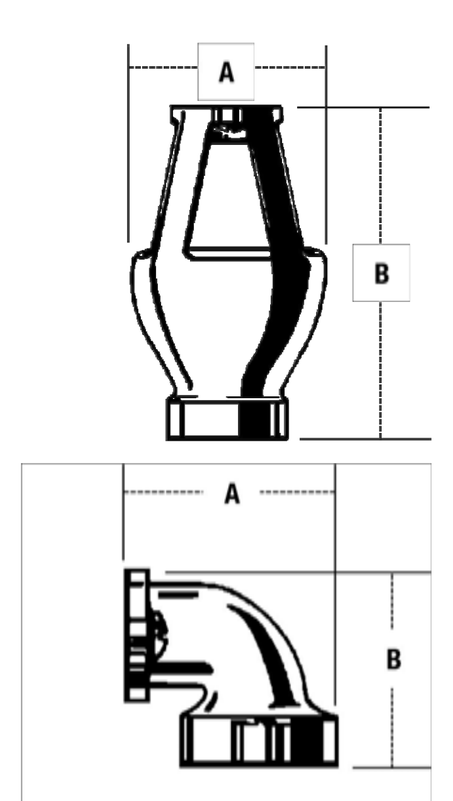
MODEL	DIMENSIONS (APPROX.)										STRAINER DIMENSIONS				WEIGHT	
	A		B		C		D		L		M		N			
in.	in.	mm	in.	mm	in.	mm	in.	mm	in.	mm	in.	mm	in.	mm	lb	kg
1/4	10	250	4⅝	117	3⅜	86	1¼	32	5½	140	2⅜	60	2½	64	5	2
⅜	10	250	4⅝	117	3⅜	86	1¼	32	5½	140	2⅜	60	2½	64	5	2
1/2	10	250	5⅞	149	3⅜	86	2½	64	5½	140	2¾	70	2¼	57	5	2
3/4	10¾	273	6¼	159	3½	89	2¾	70	6¾	171	3 3/16	81	2¾	70	6	3
1	14½	368	6¼	159	3	76	3¼	83	9½	241	3¾	95	3	76	12	5
1¼	17⅜	441	6¾	169	3½	89	3¼	83	11⅜	289	4 7/16	113	3½	89	15	6
1½	17⅞	454	6¾	169	3½	89	3¼	83	11⅛	283	4⅞	124	4	102	16	7
2	21⅜	543	8¾	222	4½	114	4¼	108	13½	343	5 15/16	151	5	127	30	13

Suffix HC – Fire Hydrant Fittings dimension 'A' = 25"

Air Gaps and Elbows

MODEL	SIZE	DRAIN OUTLET		DIMENSIONS				WEIGHT	
	For 909, 009, and 993			A		B			
		in.	mm	in.	mm	in.	mm	lb	kg
909AGA	¼"–½" 009, ¾" 009M2/M3	½	13	2⅜	60	3⅛	79	0.625	0.28
909AGC	¾"–1" 009/909, 1"–1½" 009M2	1	25	3¼	83	4⅞	124	1.5	0.68
909AGF	1¼"–2" 009M1, 1¼"–3" 009/909, 2" 009M2, 4"–6" 993	2	51	4⅜	111	6¾	171	3.25	1.47
909AGK	4"–6" 909, 8"–10" 909M1	3	76	6⅜	162	9⅝	244	6.25	2.83
909AGM	8"–10" 909	4	102	7⅜	187	11¼	286	15.5	7.03
909ELA	¼"–½" 009, ¾" 009M2/M3	–	–	–	–	–	–	–	–
909ELC	¾"–1" 009/909	–	–	2⅜	60	2⅜	60	0.38	0.17
909ELF*	1¼"-2" 009M1, 1¼"–2" 009/909, 2" 009M2, 4"–6" 993	–	–	3⅝	92	3⅝	92	2	0.91
909ELH* Vertical	2½"–3" 009/909	–	–	–	–	–	–	–	–

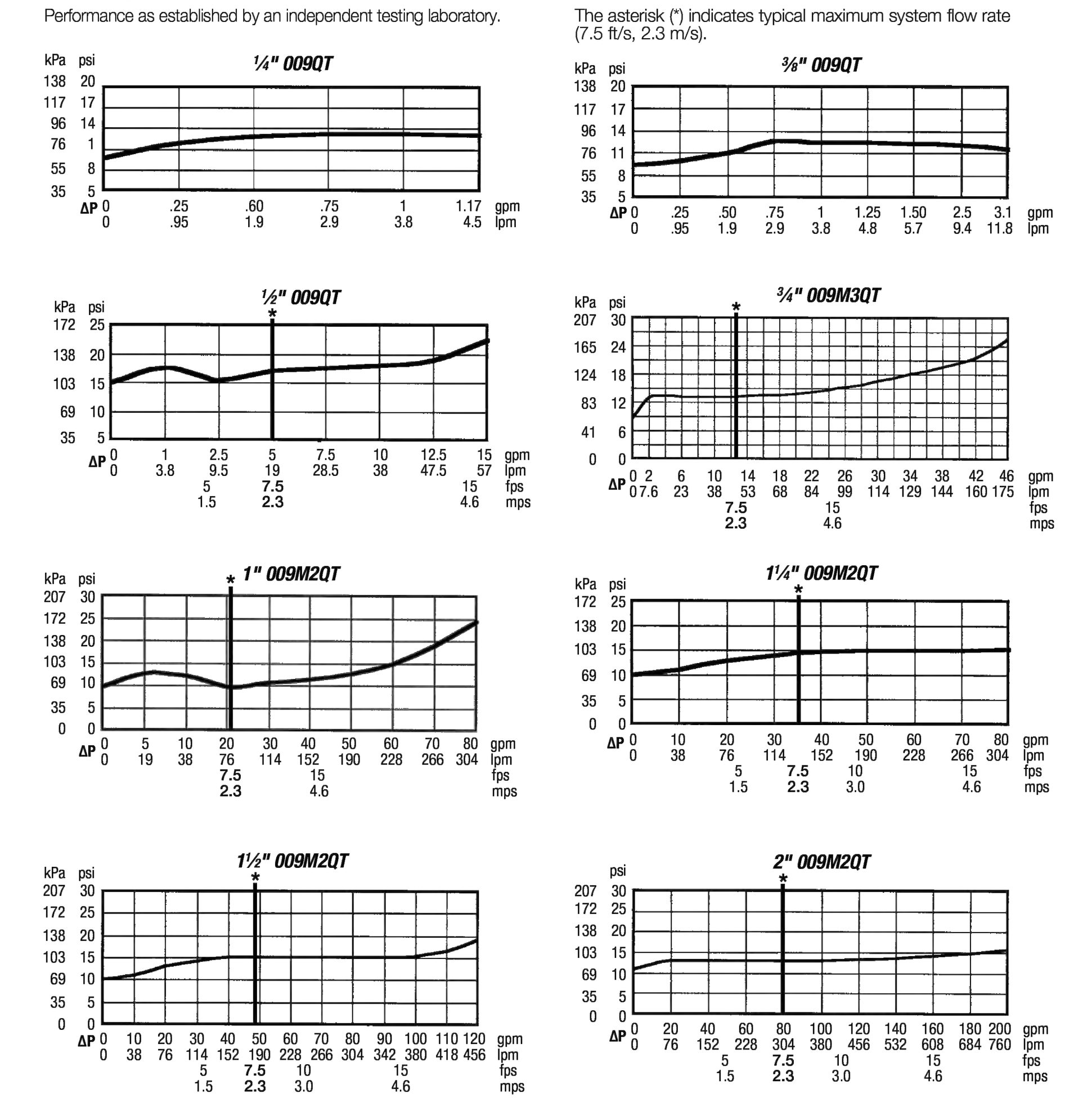
* Epoxy coated



Capacity

Performance as established by an independent testing laboratory.

The asterisk (*) indicates typical maximum system flow rate (7.5 ft/s, 2.3 m/s).



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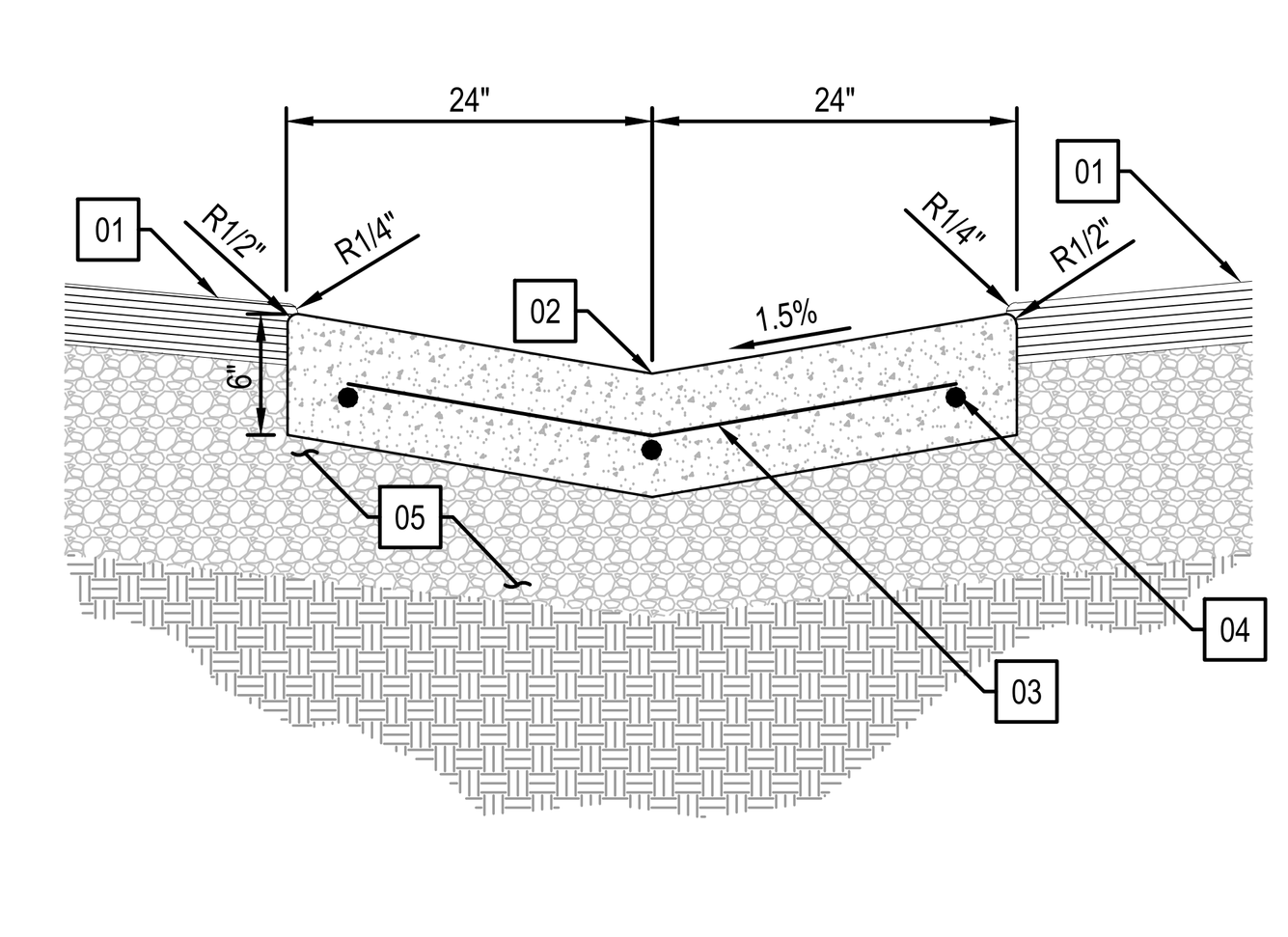
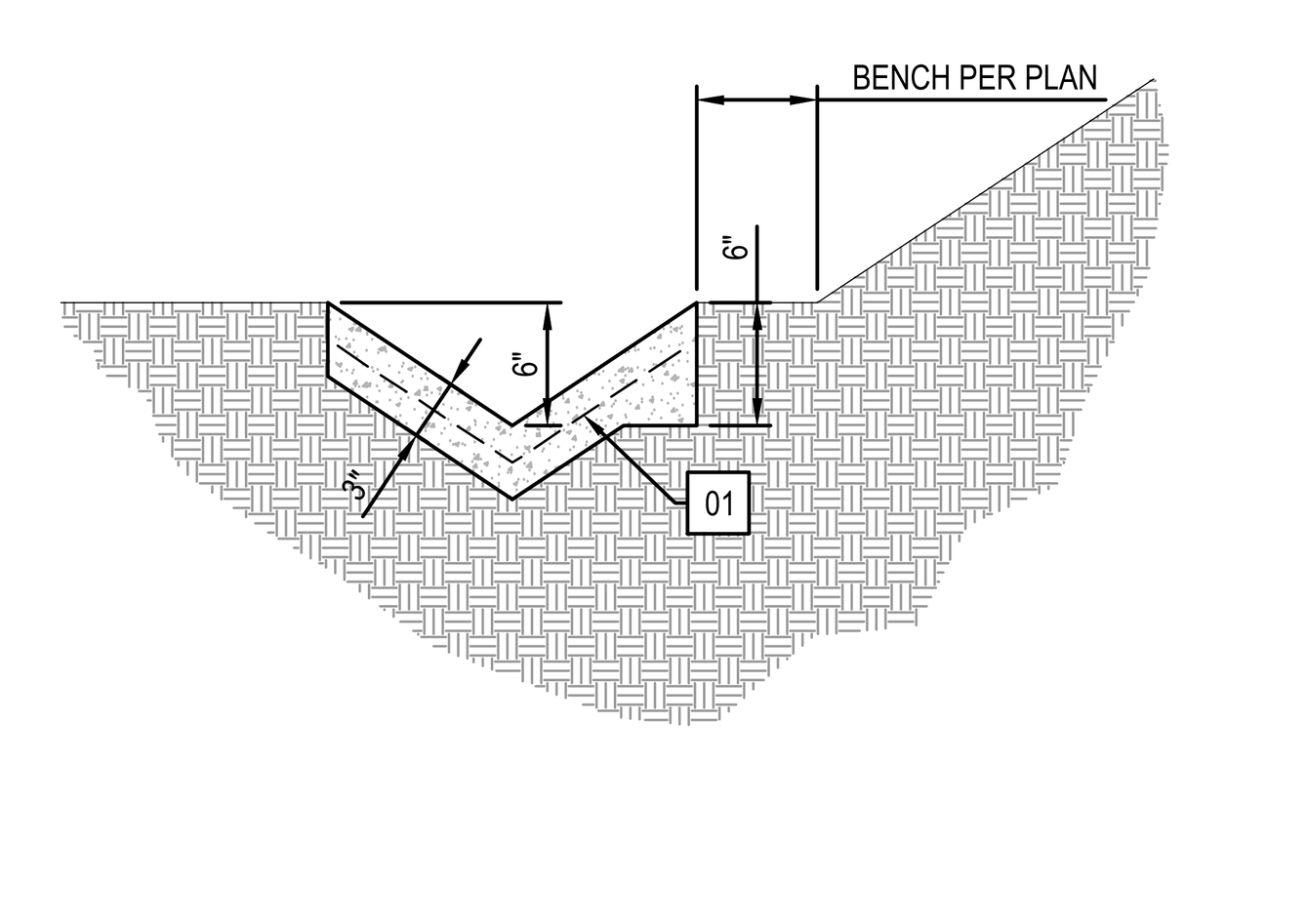
REDUCED PRESSURE ZONE ASSEMBLY | NTS | 02



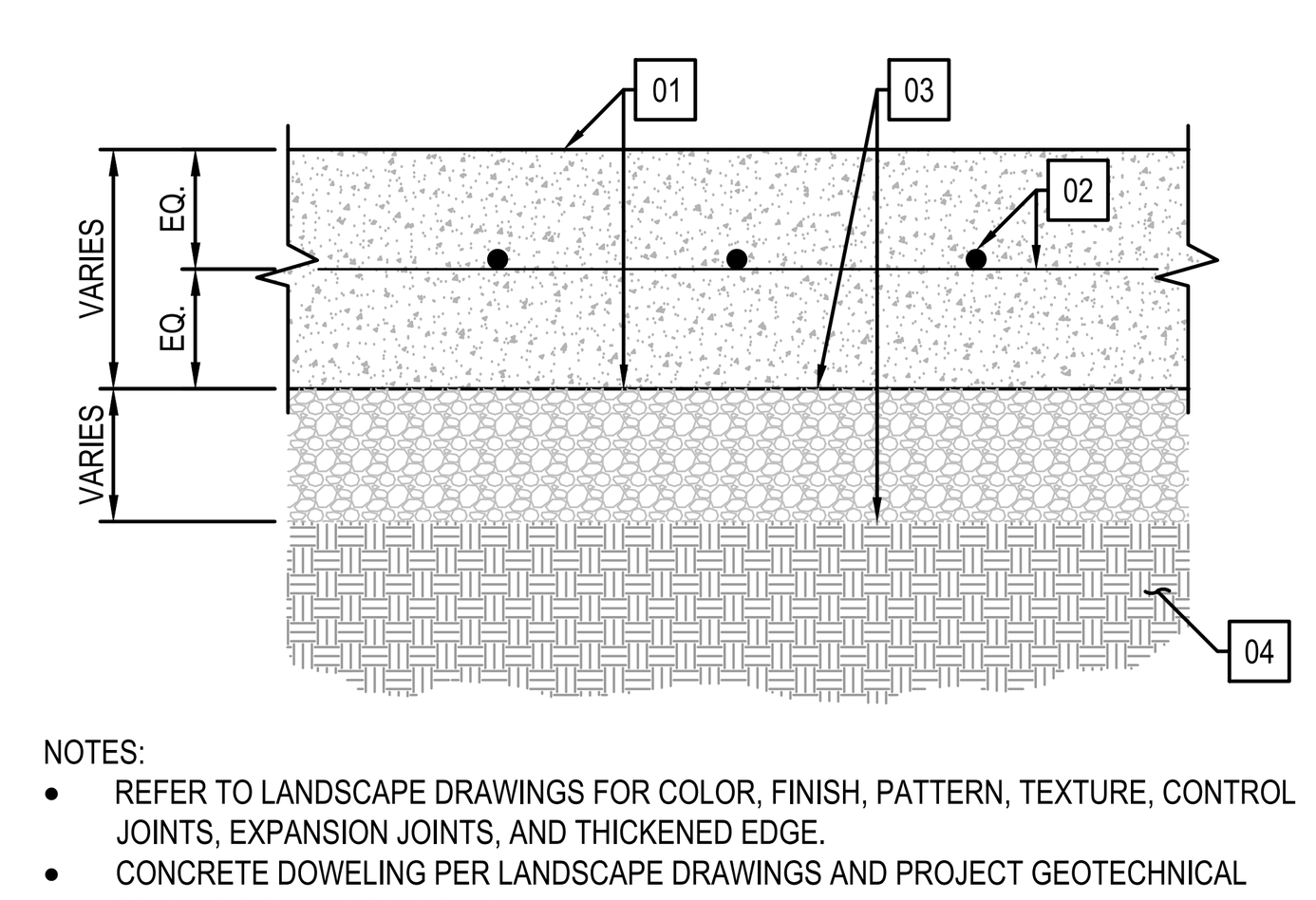
01 FINISHED SURFACE
02 FLOW LINE PER PLAN
03 #3 REBAR @ 18" OC
04 (3) #3 REBAR CONTINUOUS TYP
05 SUBGRADE PREPARATION PER GEOTECHNICAL ENGINEER RECOMMENDATIONS

VALLEY GUTTER | NTS | 09



01 6" x 6" - W1.4 x W1.4 WWM

V-DITCH | NTS | 05



NOTES:

- REFER TO LANDSCAPE DRAWINGS FOR COLOR, FINISH, PATTERN, TEXTURE, CONTROL JOINTS, EXPANSION JOINTS, AND THICKENED EDGE.
- CONCRETE DOWELING PER LANDSCAPE DRAWINGS AND PROJECT GEOTECHNICAL REPORT RECOMMENDATIONS.
- DO NOT ALLOW CONCRETE OVER-POUR INTO ADJACENT PLANTERS.
- MINIMUM CONCRETE STRENGTH PER SPECIFICATION SECTION 321313.

01 CONCRETE PAVING
PEDESTRIAN: 5.5" THICK
VEHICULAR: 6.5" THICK
02 PEDESTRIAN: #4 @ 18" OC EACH WAY
VEHICULAR: #4 @ 18" OC EACH WAY
03 COMPACTED BASE COURSE
PEDESTRIAN: 4" THICK
VEHICULAR: 12" THICK
04 SUBGRADE PREPARATION PER PROJECT GEOTECHNICAL REPORT

CONCRETE PAVEMENT | NTS | 01

LPA

ARCHITECTURE ENGINEERING INTERIOR DESIGN LANDSCAPE ARCHITECTURE PLANNING

949-261-1001 Office
LPADesignStudios.com
5301 California Avenue, Suite 100
Irvine, California 92617

REGISTERED PROFESSIONAL ENGINEER — KATHEREEN M. SHINKAI — R.C.E. 68369 — EXP. 9-30-27 — CIVIL — STATE OF CALIFORNIA

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MALIBU MIDDLESCHOOL
INCREMENT 02

30215 Morning View Dr.
Malibu, CA 90265

Developed for
SANTA MONICA - MALIBU UNIFIED SCHOOL DISTRICT

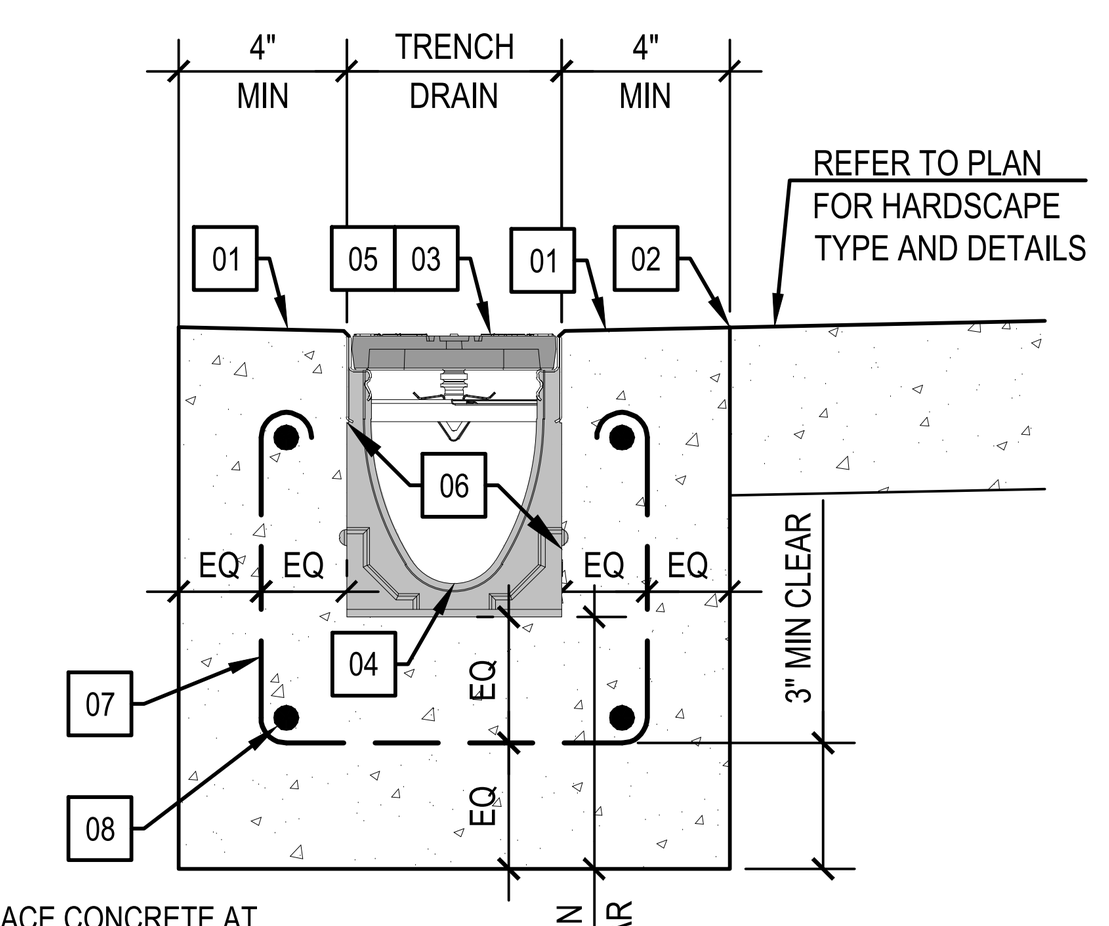
Revision	Date

Submittal	Date
SCHEMATIC DESIGN	09/04/2024
DESIGN DEVELOPMENT	02/21/2025
DSA SUBMITTAL	09/08/2025

Job Number	31722
Checked By	RR
Scale	AS NOTED

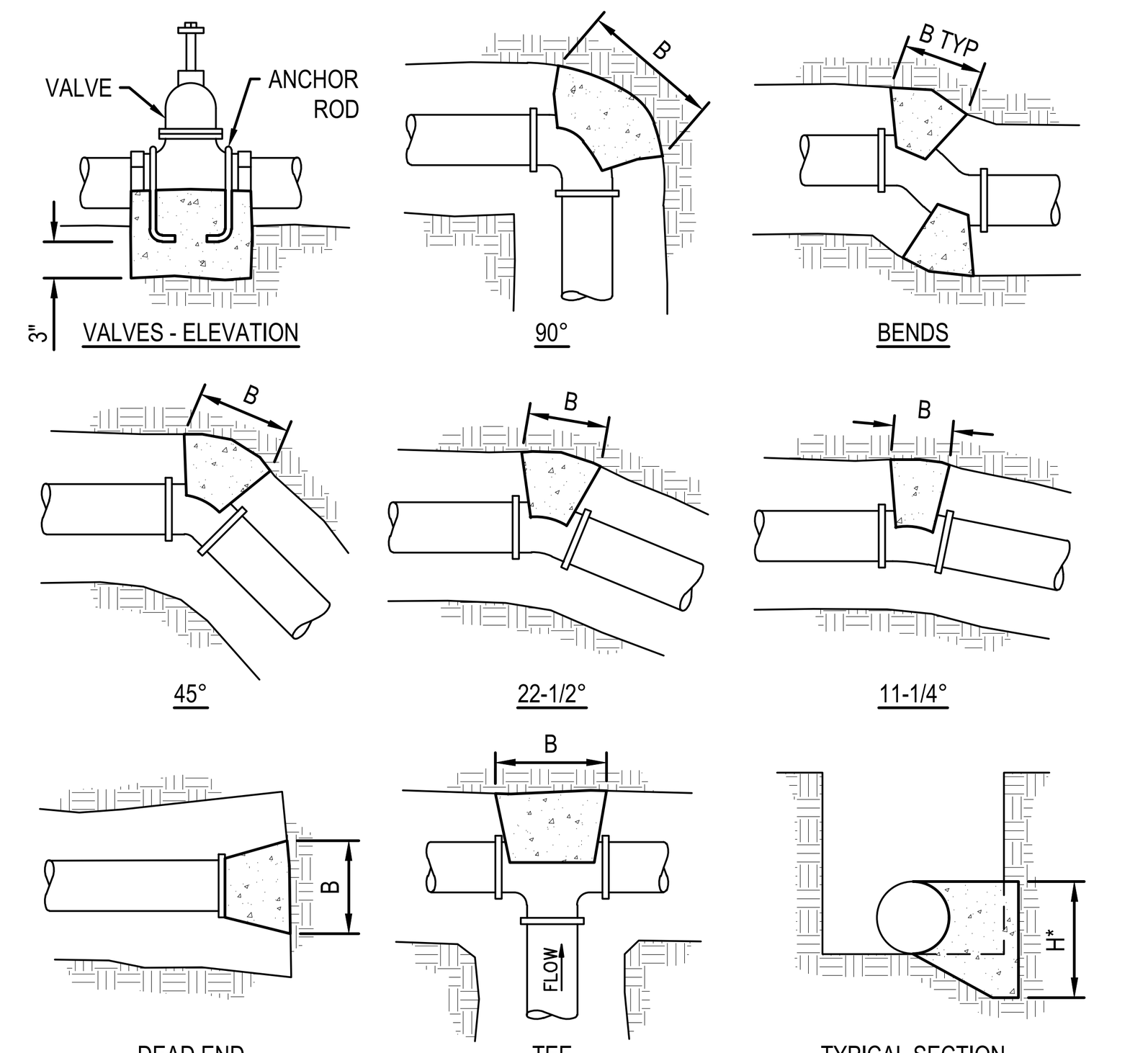
CONSTRUCTION DETAILS

2-C7.01



01	CAST IN PLACE CONCRETE AT FINISHED SURFACE SLOPE TO GRATE
02	JOINTS PER LANDSCAPING AND ARCHITECTURAL PLANS.
03	TOP OF GRATE (TG) ELEVATION
04	INVERT (INV) ELEVATION. SLOPE OF INVERT AS SHOWN ON PLANS
05	ACO TYPE 496D, TAN LONGITUDINAL (ADA) PLASTIC GRATE WITH 'DRAINLOK' LOCKING AS MANUFACTURED BY ACO, INC. OR SIMILAR APPROVED. GRATE AND TRENCH SLOPE PER PLAN.
06	TRENCH DRAIN CHANNEL: ACO KS100 KLASSIK DRAIN SYSTEM
07	#3 REBAR @ 36" OC
08	(4) #3 REBAR CONTINUOUS TYP

TRENCH DRAIN — NTS — 16



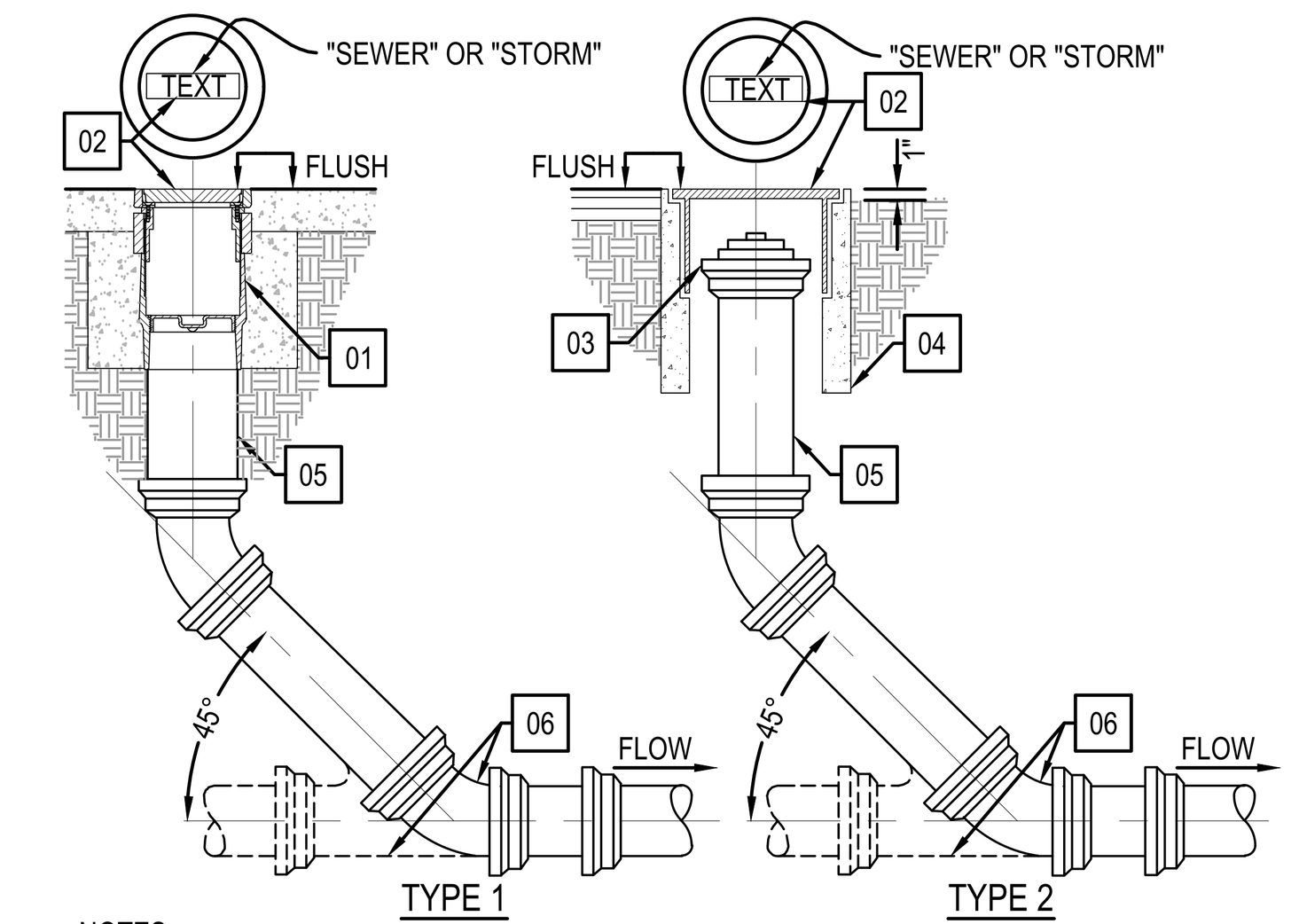
* BLOCK HEIGHT (H) SHOULD BE CHOSEN SO THAT THE CALCULATED BLOCK WIDTH (B) VARIES BETWEEN ONE AND TWO TIMES THE HEIGHT, NFPA A.10.6.1.

NOTES:
1. THRUST BLOCKS SHALL BE USED FOR PLASTIC PIPE 4" DIAMETER OR LARGER.
2. THRUST BLOCK INSTALLATION PER SSPWC SECTION 306 (LATEST EDITION).
3. THRUST BLOCKS SHALL BE PCC, 450-C-2000 PER SSPWC SECTION 201 (LATEST EDITION).
4. ANCHOR RODS SHALL BE GALVANIZED STEEL, 1/2" DIAMETER, WRAPPED AROUND PIPE.
5. ALL VIEWS ARE PLAN VIEWS UNLESS OTHERWISE NOTED.
6. THRUST BLOCK AREAS ARE BASED ON 200 PSI PRESSURE AND 1,500 PSF ALLOWABLE SOIL BEARING PRESSURE. THRUST BLOCK SIZING PER 2019 NFPA 24, ANNEX A, SECTION A.10.6.1.
7. THRUST BLOCKS SHALL BE INSTALLED AT EVERY CHANGE OF DIRECTION.

HORIZONTAL BEND THRUST BLOCK REQUIRED TOTAL BEARING AREA

PIPE SIZE (IN)	11 1/4° BEND AREA (SF)	22 1/2° BEND AREA (SF)	45° BEND AREA (SF)	90° BEND AREA (SF)	DEAD END AREA (SF)	TEE AREA (SF)
4	0.7	1.4	2.8	5.1	3.6	3.6
6	1.5	2.9	5.7	10.6	7.5	7.5
8	2.5	5.0	9.8	18.2	12.9	12.9
10	3.8	7.6	14.8	27.4	19.4	19.4
12	5.4	10.7	20.9	38.7	27.4	27.4

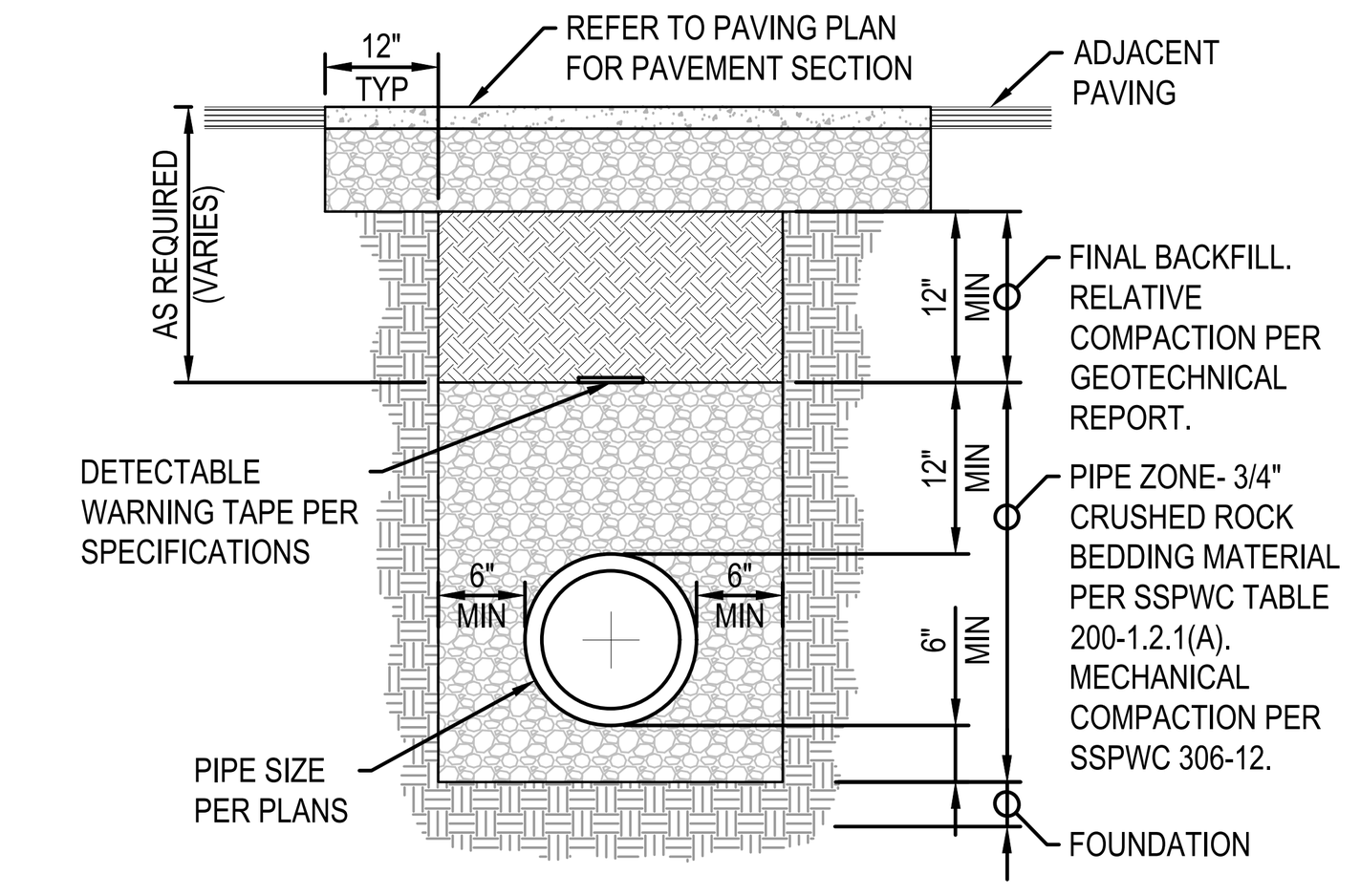
THRUST BLOCKS FOR PLASTIC PIPE - 1500 PSF SOIL BEARING CAPACITY — NTS — 11



NOTES:
- CLEANOUT TYPE 1 TO BE INSTALLED IN ALL CONCRETE PAVEMENT AND PEDESTRIAN HARDSCAPE AREAS. LID SHALL BE INSTALLED FLUSH WITH FINISHED SURFACE. PROVIDE PCC COLLAR BELOW HARDSCAPE PER MANUFACTURES REQUIREMENTS.
- CLEANOUT TYPE 2 TO BE INSTALLED IN ASPHALT PAVEMENT AND PLANTED AREAS. CLEANOUT RIM TO BE INSTALLED FLUSH WITH FINISHED SURFACE OF AC PAVING OR 1" ABOVE FINISHED GRADE IN PLANTER AREAS AS APPLIES.

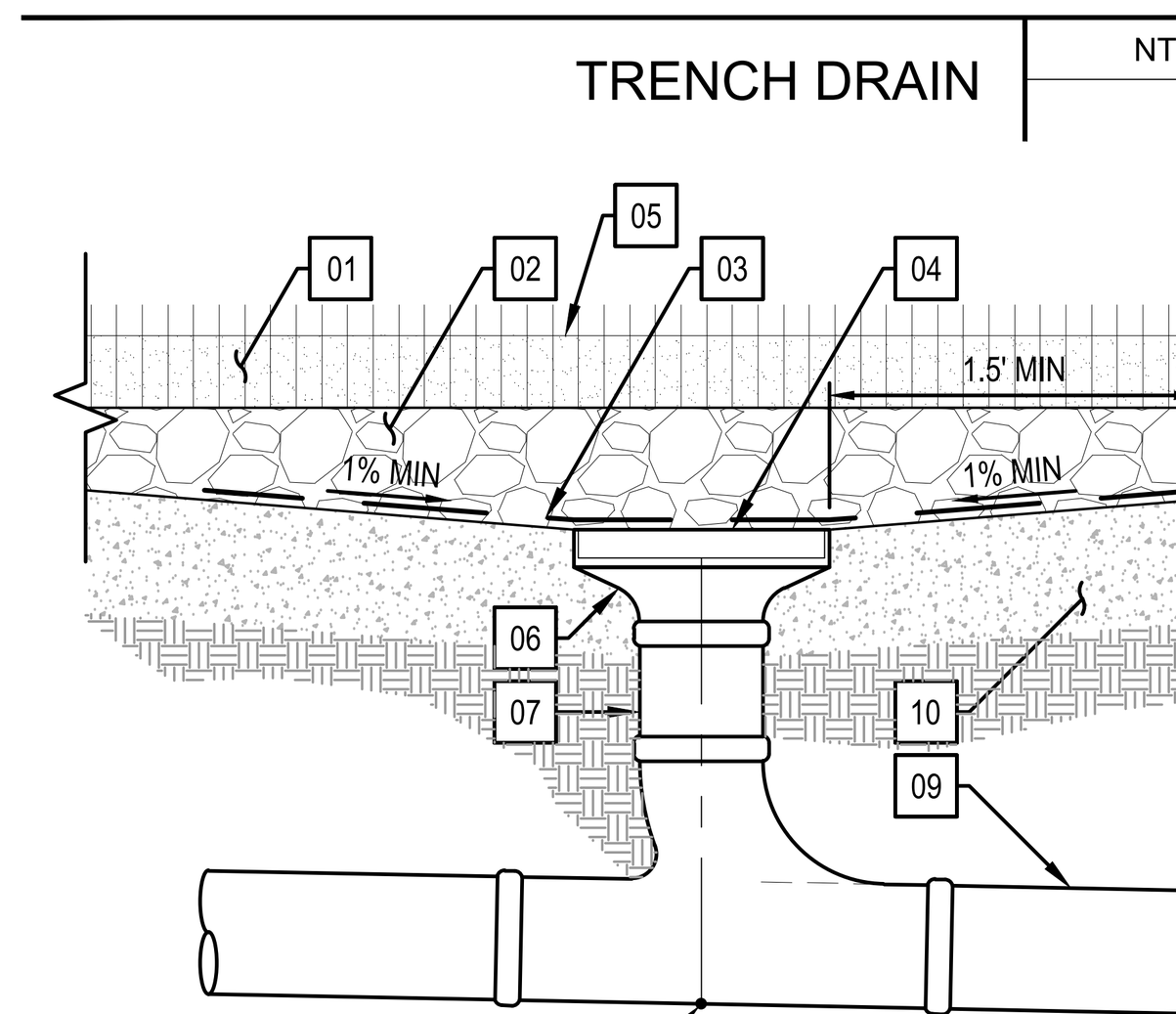
01	ZURN ZN-1400-HD-SM OR APPROVED EQUAL
02	CLEANOUT LID WITH "SEWER" OR "STORM"
03	SOLVENT WELD X F.I.P.T. COUPLING WITH M.I.P.T. PLUG WITH MALE SQUARE NUT.
04	BROOKS 1-RT CLEANOUT OR APPROVED EQUAL
05	PIPE SIZE PER PLAN
06	WYE FITTING AT LINE CLEANOUT, 45° ELBOW AT TERMINAL CLEANOUT

CLEANOUT — NTS — 07



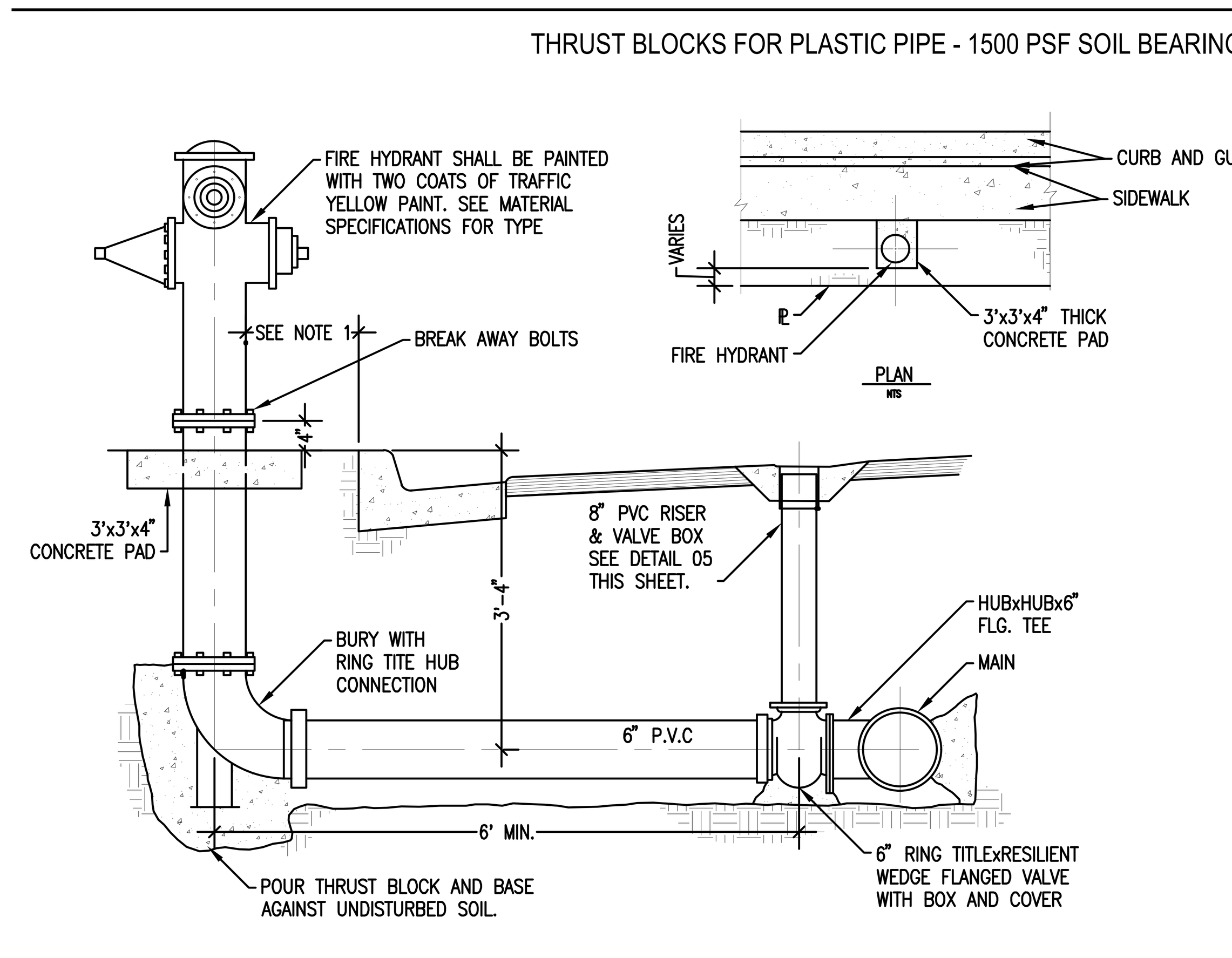
NOTES:
1. ALL PIPE SYSTEMS SHALL BE INSTALLED IN ACCORDANCE WITH ASTM D2321, "STANDARD PRACTICE FOR UNDERGROUND INSTALLATION OF THERMOPLASTIC PIPE FOR SEWERS AND OTHER GRAVITY FLOW APPLICATIONS", LATEST EDITION.
2. IF UNSTABLE FOUNDATION SOIL IS ENCOUNTERED, THE GEOTECHNICAL FIELD INSPECTOR SHALL DETERMINE OVEREXCAVATION DEPTH AND FOUNDATION RE-FILL MATERIAL.
3. CONTRACTOR SHALL PROVIDE HAND EXCAVATED "BELL HOLE" FOR EACH PIPE JOINT SO THAT THE WEIGHT OF PIPE DOES NOT BEAR ON THE BELL. CONTRACTOR SHALL RE-FILL AND HAND-TAMP EACH "BELL HOLE" PRIOR TO COMPLETING THE PLACEMENT OF PIPE BEDDING.
4. MEASURES SHOULD BE TAKEN TO PREVENT MIGRATION OF NATIVE FINES INTO BACKFILL MATERIAL WHEN REQUIRED BY GEOTECHNICAL REPORT. FILTER FABRIC IF USED SHALL SATISFY THE REQUIREMENTS FOR A TYPE 180N, NONWOVEN GEOTEXTILE PER SSPWC 213-2 (LATEST EDITION).

PIPE TRENCH - SEWER — NTS — 04



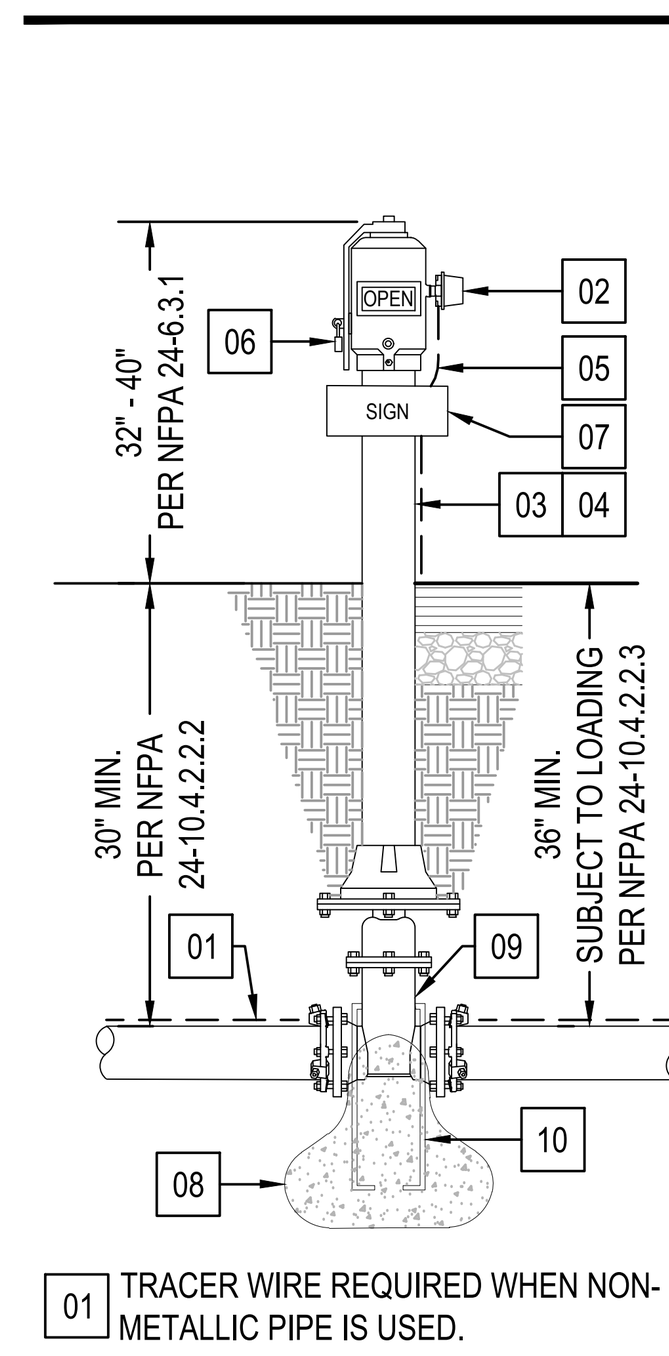
01	SYNTHETIC SURFACE SEE LANDSCAPE MATERIALS PLANS
02	PERMEABLE STONE PER SPECIFICATIONS
03	MIRAFI 140N FILTER FABRIC, COVER AND EXTEND A MINIMUM OF 3' BEYOND ALL SIDES OF DRAIN INLET
04	NDS 12" SQUARE GRATE, TOP OF GRATE (TG) TO BE SET FLUSH WITH SUBGRADE AND HOUSING ADAPTER
05	FINISH GRADE
06	NDS 12"X12" LOW PROFILE HOUSING ADAPTER
07	6" PVC RISER
08	WYE FITTING, INVERT ELEVATION PER PLAN
09	STORM PIPE AS SHOWN ON PLAN
10	CONCRETE SUBGRADE PER LANDSCAPE MATERIALS PLAN. SLOPE TO DRAIN.

SYNTHETIC TURF DRAIN — NTS — 15



NOTE:
1. FIRE HYDRANTS SHALL BE INSTALLED 24" FROM FACE OF CURBS WHERE SIDEWALKS ARE NOT ADJACENT TO CURBS. WHERE SIDEWALKS ARE ADJACENT TO CURBS, HYDRANTS SHALL BE CENTERED IN A 3'–0" SQUARE CONCRETE PAD (4" THICK) AS SHOWN. SET EDGE OF PAD AT B.C.R. WHERE HYDRANTS ARE REQUIRED AT STREET INTERSECTIONS.
2. AT 8' SIDEWALKS HYDRANT SHALL BE INSTALLED 24" FROM FACE OF CURB.

STANDARD FIRE HYDRANT — NTS — 10



01	TRACER WIRE REQUIRED WHEN NON-METALLIC PIPE IS USED.
02	TAMPER SWITCH (EXTEND ELECTRICAL TO FIRE CONTROL PANEL).
03	FLANGE POST INDICATOR VALVE & POST (FM-UL APPR.) LOCKED AND SECURED IN OPEN POSITION.
04	PIV SHALL BE PAINTED OSHA SAFETY RED WITH TWO COATS OF RUST-OLEUM HIGH PERFORMANCE PROTECTIVE ENAMEL PER MANUFACTURE'S RECOMMENDATIONS.
05	TAMPER SWITCH ELECTRICAL CONDUIT. SEE FIRE ALARM DRAWINGS FOR CONTINUATION.

GENERAL NOTES:

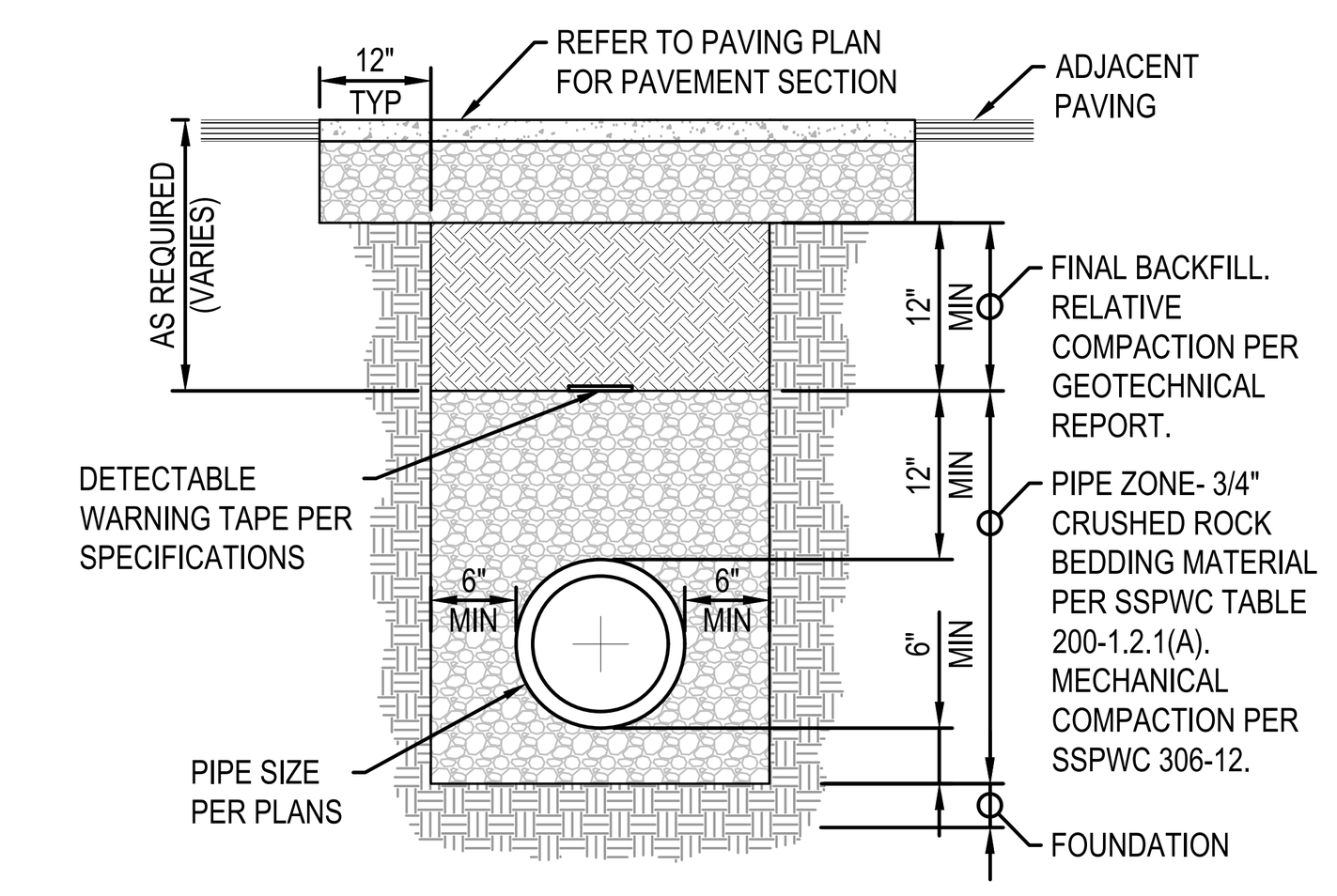
A. ALL FERROUS PIPE AND FITTINGS BURIED UNDERGROUND SHALL BE PROTECTED WITH A LOOSE 8-MIL THICK PLASTIC POLYETHYLENE TUBE IN ACCORDANCE WITH AWWA C105 (WRAPPING THE PIPE IN POLYETHYLENE SHEETING IS NOT ACCEPTABLE). THE ENDS OF THE TUBE AND ANY SPLICES MADE FOR TEES OR OTHER PIPE COMPONENTS SHALL BE TIGHTLY SEALED WITH 2-INCH-WIDE POLYETHYLENE ADHESIVE TYPE, POLYKEN 900, SCOTCH WRAP 50, OR APPROVED EQUAL.

B. ALL BOLTS USED FOR UNDERGROUND CONNECTIONS, INCLUDING T BOLTS, SHALL BE 316 STAINLESS STEEL. ASPHALTIC SEALANTS (AND OTHER OPAQUE SEALANTS) SHALL NOT BE USED TO COAT BOLTS AS TO ENSURE BOLTS CAN STILL BE VERIFIED AS 316 STAINLESS STEEL DURING INSPECTION. ALL FERROUS FITTINGS (WITH THE EXCEPTION OF 316 STAINLESS STEEL) SHALL BE CLEANED AND THOROUGHLY COATED WITH ASPHALT OR OTHER CORROSION RETARDING MATERIAL AFTER ASSEMBLY AND PRIOR TO THE INSTALLATION OF POLYETHYLENE TUBE.

C. CONCRETE POURED AGAINST PIPE FITTINGS SHALL BE PLACED SO THAT VALVES AND FITTINGS ARE ACCESSIBLE FOR REPAIR.

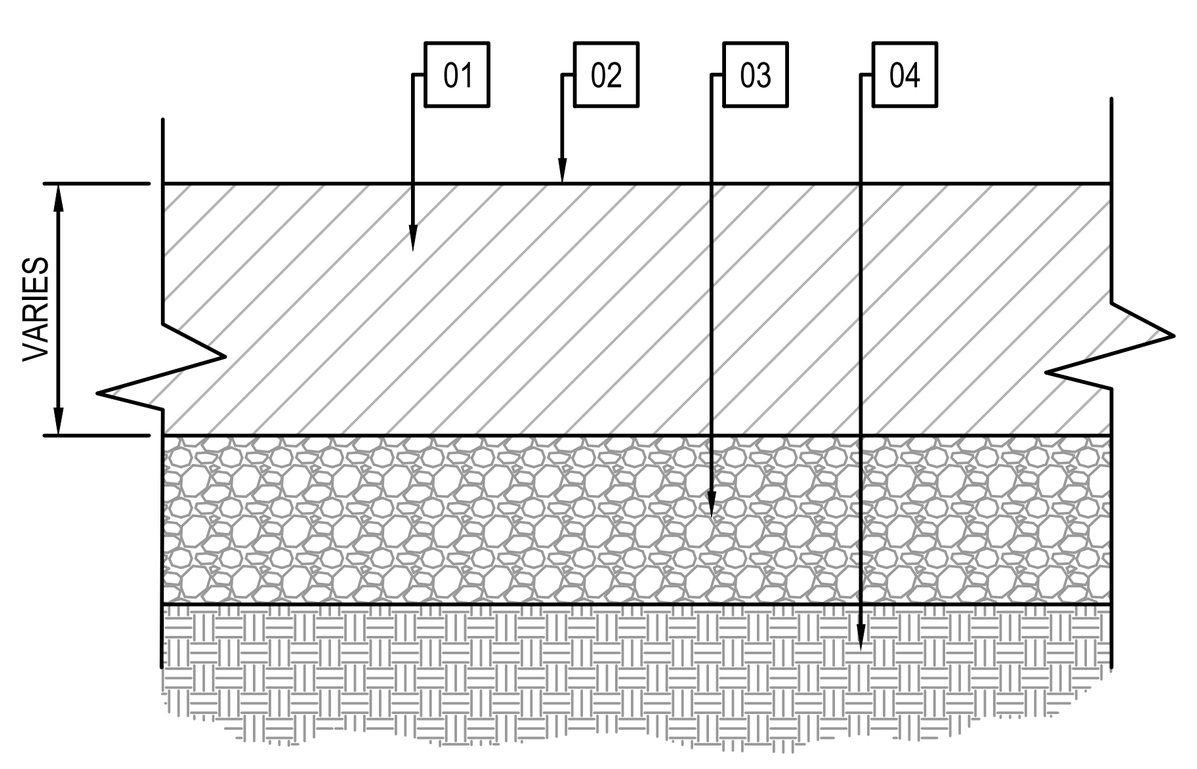
06	FRANGIBLE PAD LOCK
07	PIV IDENTIFICATION SIGN PER DETAIL 09 THIS SHEET.
08	THRUST BLOCK PER DETAIL 11 THIS SHEET.
09	IRON BODY GATE VALE (RESILIENT WEDGE, NON-RISING STEM, INDICATOR POST, FLG. X FLG.).
10	ANCHOR ROD PER THRUST BLOCK DETAIL 11 THIS SHEET.

PIV (POST INDICATOR VALVE) — NTS — 06



NOTES:
1. ALL PIPE SYSTEMS SHALL BE INSTALLED IN ACCORDANCE WITH ASTM D2321, "STANDARD PRACTICE FOR UNDERGROUND INSTALLATION OF THERMOPLASTIC PIPE FOR SEWERS AND OTHER GRAVITY FLOW APPLICATIONS", LATEST EDITION.
2. IF UNSTABLE FOUNDATION SOIL IS ENCOUNTERED, THE GEOTECHNICAL FIELD INSPECTOR SHALL DETERMINE OVEREXCAVATION DEPTH AND FOUNDATION RE-FILL MATERIAL.
3. CONTRACTOR SHALL PROVIDE HAND EXCAVATED "BELL HOLE" FOR EACH PIPE JOINT SO THAT THE WEIGHT OF PIPE DOES NOT BEAR ON THE BELL. CONTRACTOR SHALL RE-FILL AND HAND-TAMP EACH "BELL HOLE" PRIOR TO COMPLETING THE PLACEMENT OF PIPE BEDDING.
4. MEASURES SHOULD BE TAKEN TO PREVENT MIGRATION OF NATIVE FINES INTO BACKFILL MATERIAL WHEN REQUIRED BY GEOTECHNICAL REPORT. FILTER FABRIC IF USED SHALL SATISFY THE REQUIREMENTS FOR A TYPE 180N, NONWOVEN GEOTEXTILE PER SSPWC 213-2 (LATEST EDITION).

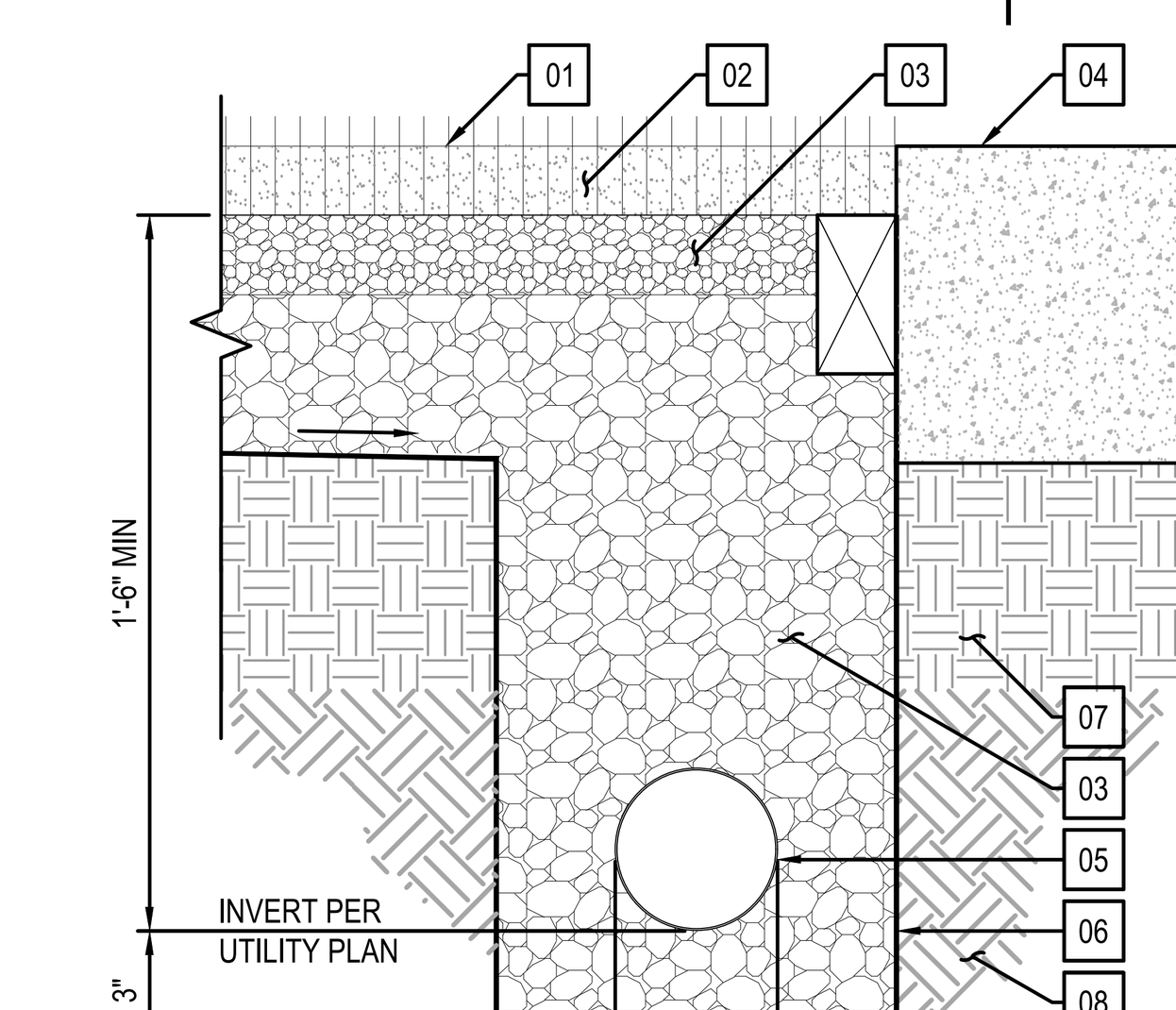
PIPE TRENCH - STORM DRAIN — NTS — 03



01	AC PAVING, SEE SCHEDULE BELOW
02	2 COATS OF SURFACE SEAL
03	BASE COURSE, SEE SCHEDULE BELOW
04	COMPACTED SUBGRADE PER GEOTECHNICAL REPORT RECOMMENDATIONS

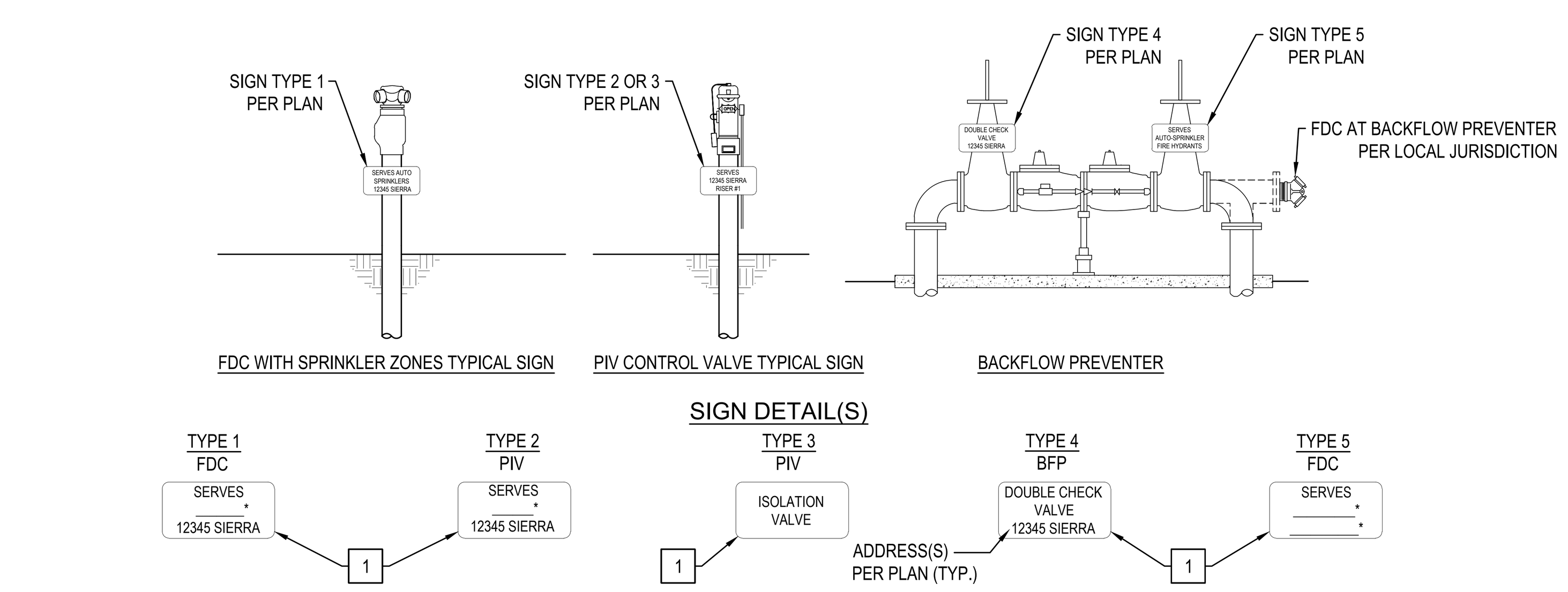
ASPHALT CONCRETE		BASE COURSE	
LOCATION	THICKNESS	THICKNESS	TYPE
TI 5 (PARKING, LIGHT TRAFFIC)	3"	7.5"	CII-AB
TI 6 (HEAVY TRAFFIC)	4"	8.5"	CII-AB
TI 7 (MAIN DRIVES, FIRE TRUCK)	4"	12"	CII-AB

AC PAVING — NTS — 22



01	FINISH GRADE
02	SYNTHETIC SURFACE SEE LANDSCAPE MATERIALS PLANS
03	PERMEABLE STONE PER SPECIFICATIONS
04	ADJACENT PAVING PER PLAN
05	6" PERFORATED DRAIN PIPE WITH SOCK (PERFORATIONS DOWN).
06	IMPERMEABLE LINER PER SPECIFICATIONS
07	SUBGRADE PREPERATION PER GEOTECHNICAL REPORT
08	UNDISTURBED NATIVE SUBGRADE

SYNTHETIC SURFACE SUBDRAIN — NTS — 14



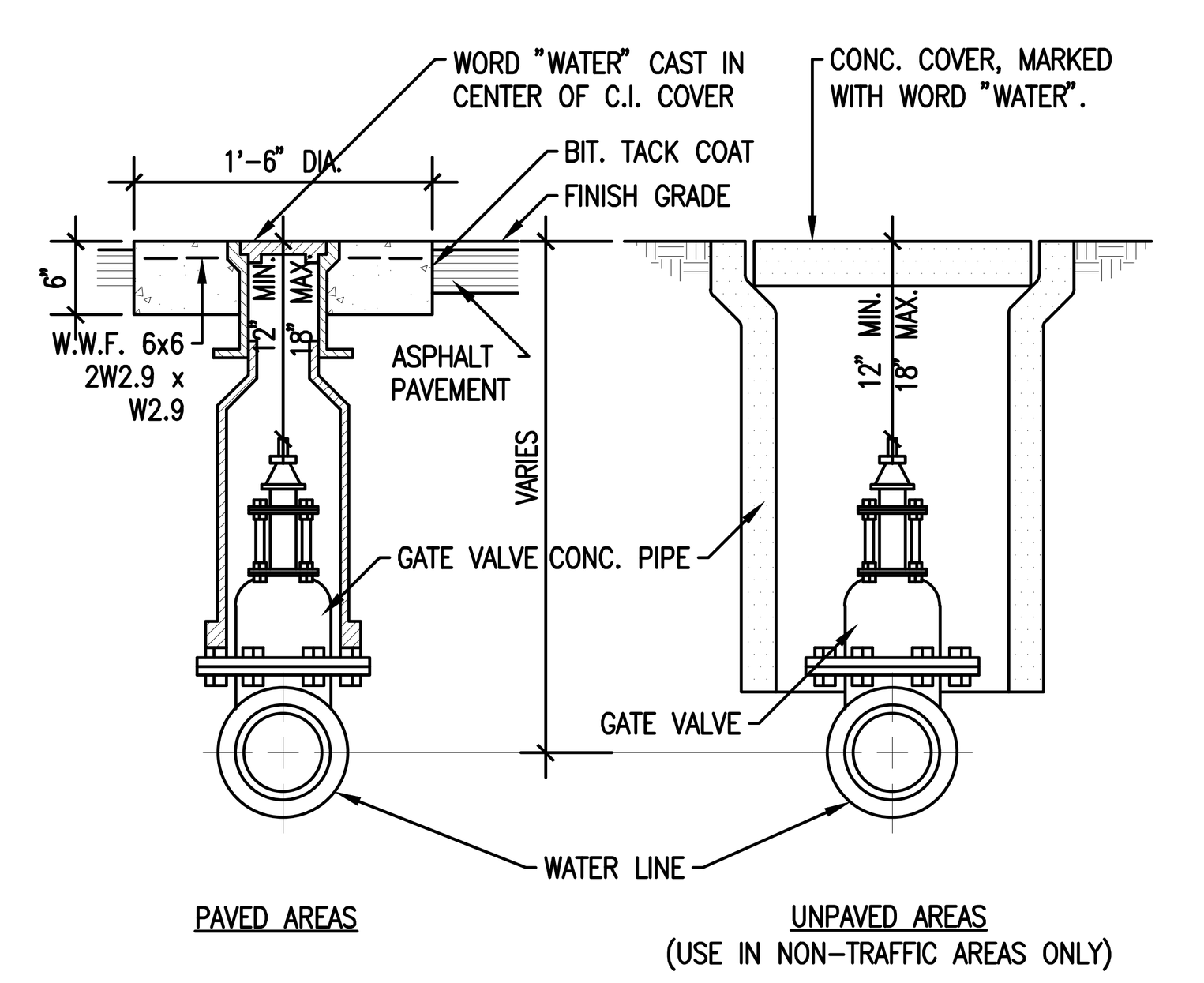
*INCLUDE TYPE OF SYSTEM BEING SERVED ON SIGN:
A. RISER AND #
B. AUTO-SPRINKLERS
C. STANDPIPES
D. FIRE PUMP CONNECTION
E. FIRE HYDRANT(S)
F. A COMBINATION THEREOF.

NOTE:
1. SIGN SHALL BE SECURED TO FIRE STRUCTURE WITH A CORROSION RESISTANT CHAIN OR CLAMP, MOUNTED 18" MIN. ABOVE FINISH GRADE TO BOTTOM OF SIGN.
2. THE SIGN SHALL NOT INTERFERE WITH THE OPERATION OF THE DEVICE.
3. THE SIGN SHALL BE VISIBLE FROM THE ADJACENT PUBLIC ROADWAY OR FIRE DEPARTMENT EMERGENCY ACCESS ROADWAY.
4. THE SIGN SHALL NOT BE BLOCKED BY LANDSCAPE.

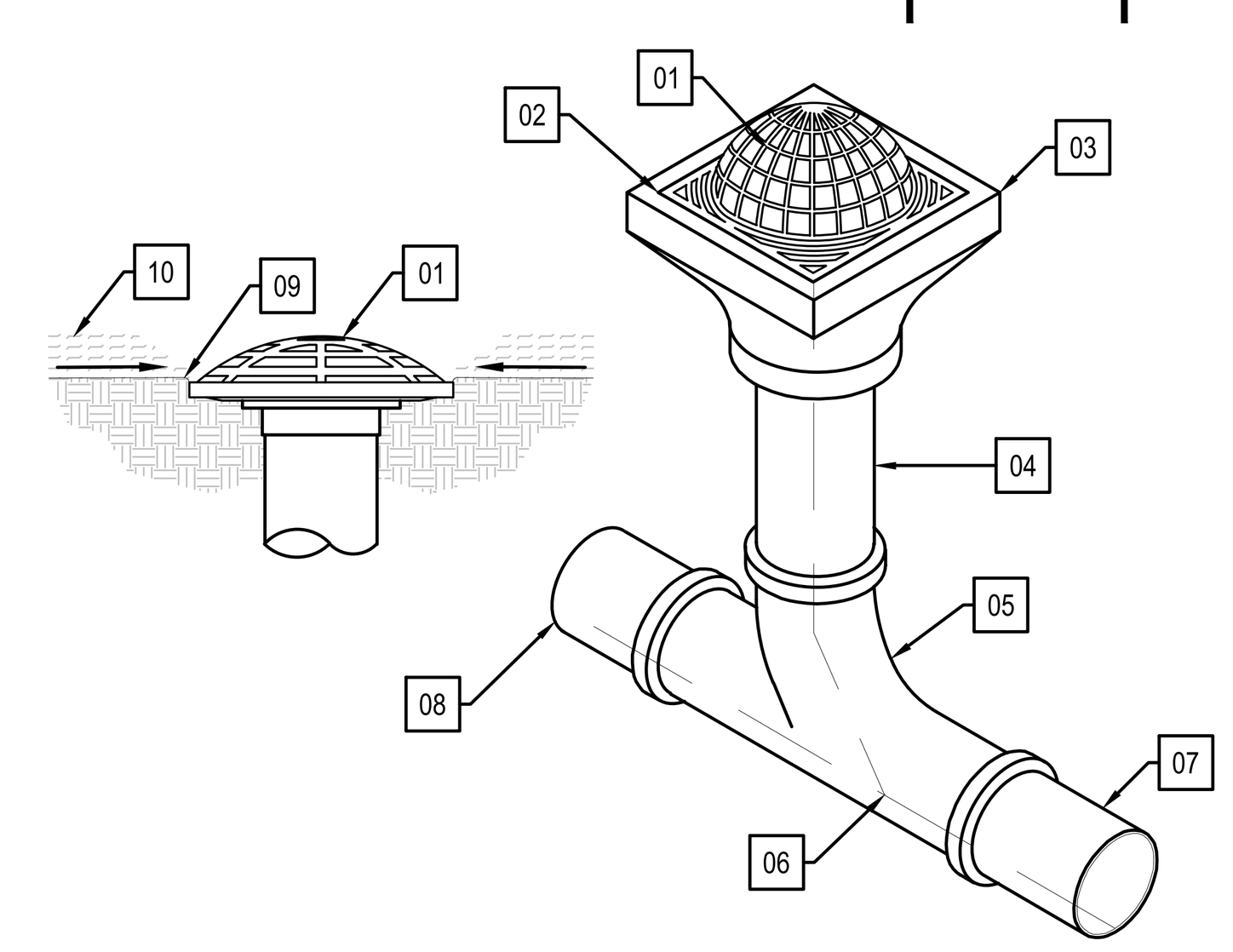
CONSTRUCTION NOTE:

1	1" MIN. WHITE REFLECTIVE LETTERING ON RED BACKGROUND. SIGN MATERIAL TO BE 1/8" ENGINEERING GRADE REFLECTIVE ALUMINUM, FACE-PAINTED RED. CONTRACTOR TO SUBMIT CUT-SHEET FOR REVIEW.

FIRE SERVICE SIGNAGE — NTS — 09

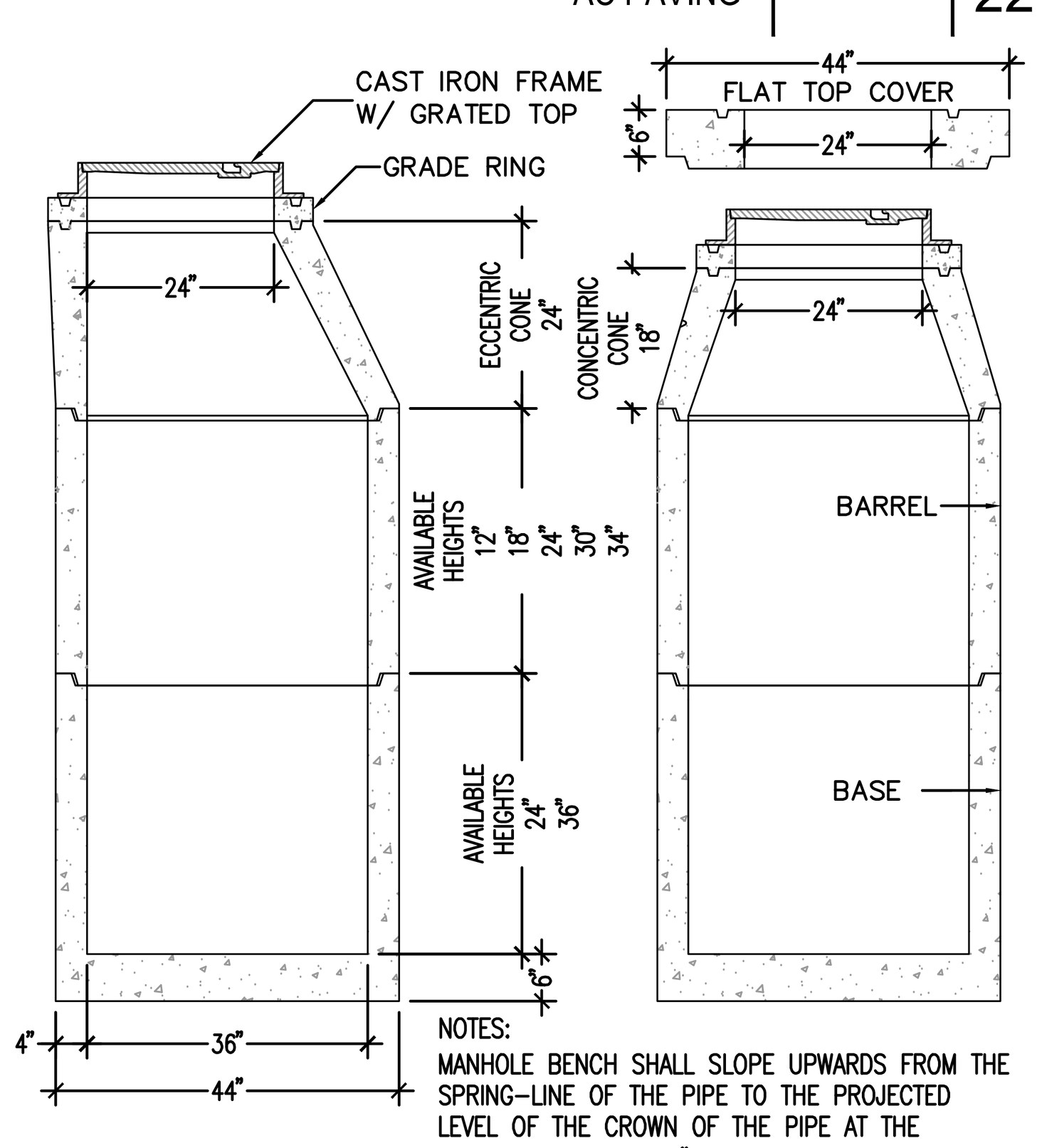


GATE VALVE — NTS — 05



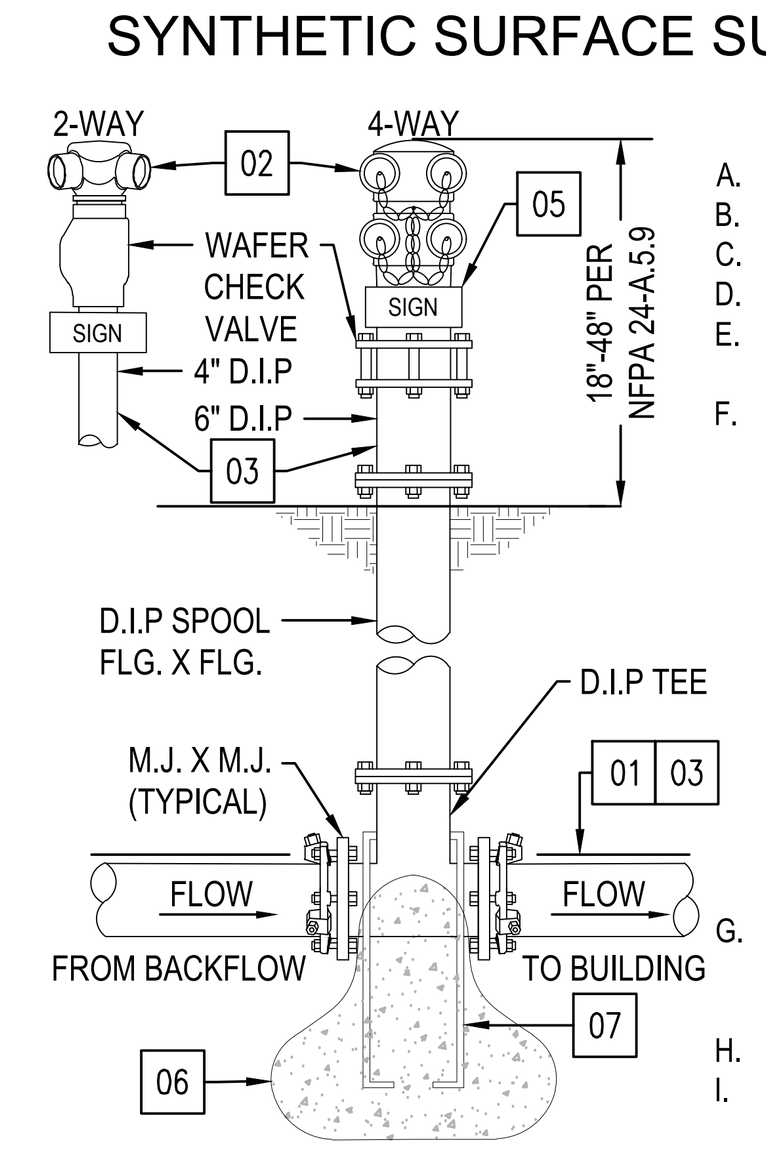
01	12" SQUARE BLACK ATRIUM GRATE. NDS PART NO. 1290 OR APPROVED EQUAL
02	TG ELEVATION PER PLAN
03	12" NDS PART NO. 1230 AND 1243 OR APPROVED EQUAL
04	4" PVC SDR 35 RISER
05	WYE FITTING
06	INVERT ELEVATION PER PLAN
07	STORM DRAIN PER PLAN
08	PLUG IF AT END OF RUN
09	GRATE RIM FLUSH WITH FINISHED GRADE UNLESS NOTED OTHERWISE
10	MATERIAL PER LANDSCAPE PLANS

12 INCH SQUARE ATRIUM PLANTER DRAIN — NTS — 02



NOTES:
MANHOLE BENCH SHALL SLOPE UPWARDS FROM THE SPRING–LINE OF THE PIPE TO THE PROJECTED LEVEL OF THE CROWN OF THE PIPE AT THE MANHOLE WALL OR 12" ABOVE THE SPRING–LINE, WHICHEVER IS LESS. SHALL BE SAME AS MAIN.

36" I.D. X 4" WALL SDMH — NTS — 17



GENERAL NOTES:
A. FDC SHALL BE ACCESSIBLE AND VISIBLE.
B. FDC INLETS SHALL FACE FIRE LANE.
C. 3FT. MINIMUM CLEARANCE AROUND FDC.
D. FDC SHALL HAVE A IDENTIFICATION SIGN.
E. FDC OUTLET VALVES SHALL HAVE 2.5" NATIONAL STANDARD HOSE THREADS.
F. ALL BOLTS USED FOR UNDERGROUND CONNECTIONS, INCLUDING T BOLTS, SHALL BE 316 STAINLESS STEEL. ASPHALTIC SEALANTS (AND OTHER OPAQUE SEALANTS) SHALL NOT BE USED TO COAT BOLTS AS TO ENSURE BOLTS CAN STILL BE VERIFIED AS 316 STAINLESS STEEL DURING INSPECTION. ALL FERROUS FITTINGS (WITH THE EXCEPTION OF 316 STAINLESS STEEL) SHALL BE CLEANED AND THOROUGHLY COATED WITH ASPHALT OR OTHER CORROSION RETARDING MATERIAL AFTER ASSEMBLY AND PRIOR TO THE INSTALLATION OF POLYETHYLENE TUBE.
G. CONCRETE POURED AGAINST PIPE FITTINGS SHALL BE PLACED SO THAT VALVES AND FITTINGS ARE ACCESSIBLE FOR REPAIR.
H. NO PAINT ON FDC INLET THREADS ALLOWED.
I. SYSTEM DEMANDS GREATER THAN 500 GPM SHALL PROVIDE A MIN. 6" RISER AND A 4-WAY CONNECTION.

01	TRACER WIRE REQUIRED WHEN NON-METALLIC PIPE IS USED.
02	6" X 2.5" FOUR-WAY SQUARE W/CLAPPER OR 4"X2.5" TWO-WAY W/CLAPPER. SIZE AS NOTED PER PLAN.
03	PIPE MATERIAL PER LOCAL FIRE AUTHORITY.
04	FDC SHALL BE PAINTED OSHA SAFETY RED WITH TWO COATS OF RUST-OLEUM HIGH PERFORMANCE PROTECTIVE ENAMEL PER MANUFACTURE'S RECOMMENDATIONS.
05	FDC IDENTIFICATION SIGN PER DETAIL XX.
06	THRUST BLOCK PER DETAIL XX.
07	ANCHOR ROD PER THRUST BLOCK DETAIL XX.

FDC (FIRE DEPARTMENT CONNECTION) — NTS — 13

GENERAL NOTES:

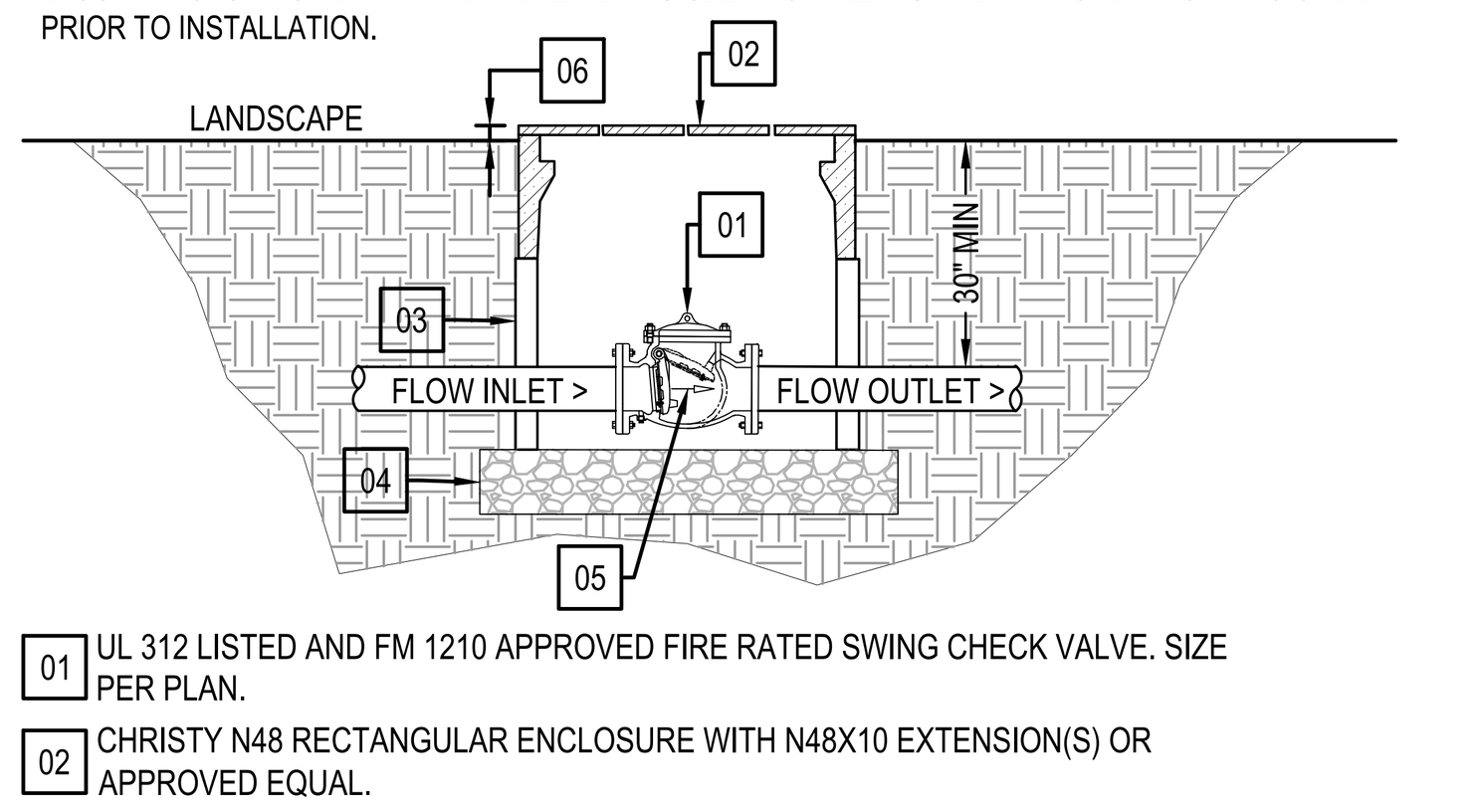
A. THE PIPING BETWEEN THE CHECK VALVE AND THE FDC SHALL BE EQUIPPED WITH AN APPROVED AUTOMATIC DRAIN VALVE IN AREAS SUBJECT TO FREEZING PER NFPA 13 8.17.2.6.1.

B. CHECK VALVE SHALL BE INSTALLED IN AN ACCESSIBLE LOCATION.

C. PRECAST BOX AND EXTENSION(S) INSTALLED PER MANUFACTURE'S RECOMMENDATIONS.

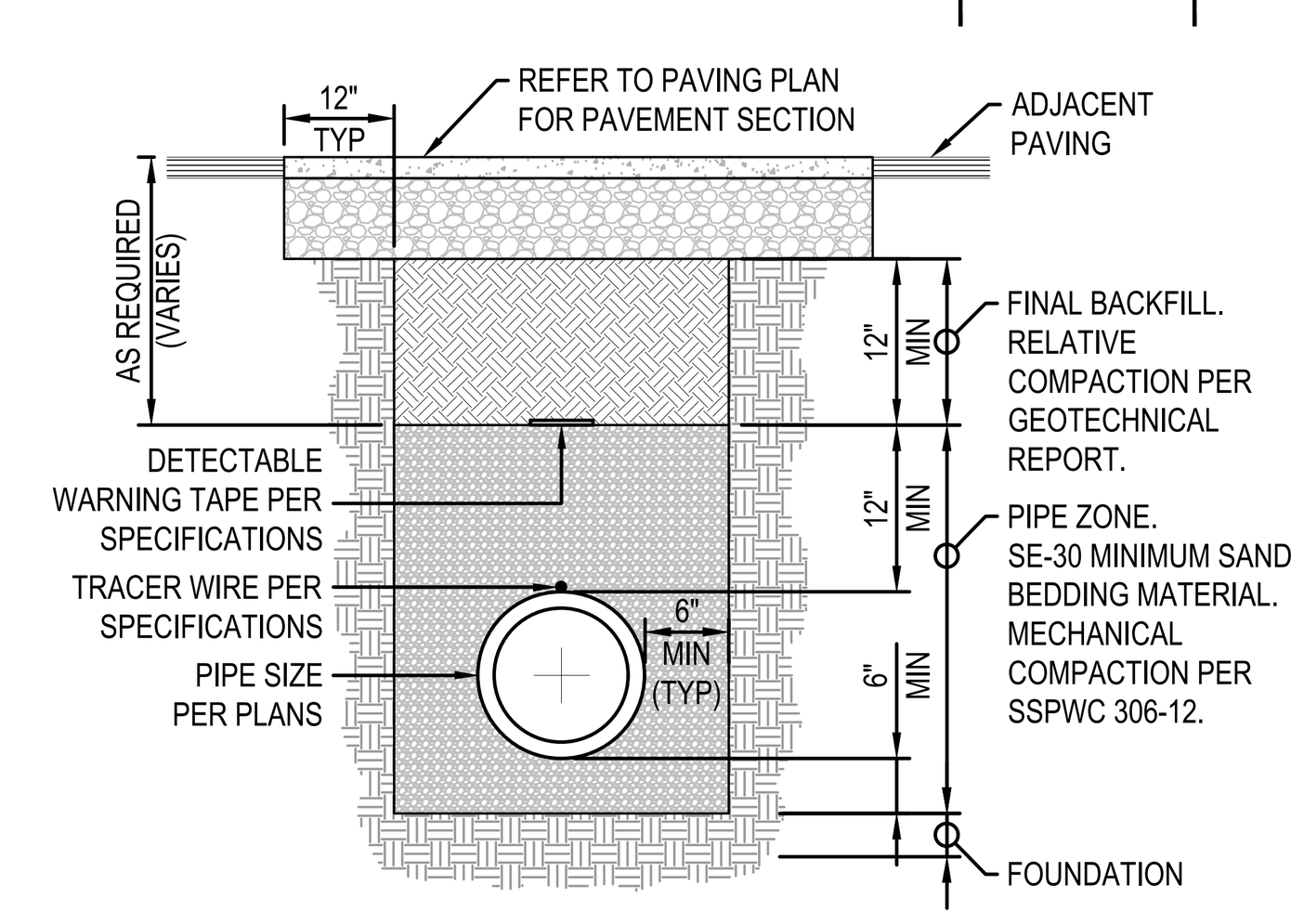
D. PRECAST BOX AND EXTENSION(S) ARE ASSUMED TO BE INSTALLED IN LANDSCAPE AREAS. IF INSTALLED IN TRAFFIC AREAS, BOX STRUCTURE & LID NEEDS TO BE H20 LOAD RATED.

E. CONTRACTOR TO VERIFY THE VALVE FLAP IS CLEAR OF DEBRIS AND IN PROPER WORKING ORDER PRIOR TO INSTALLATION.



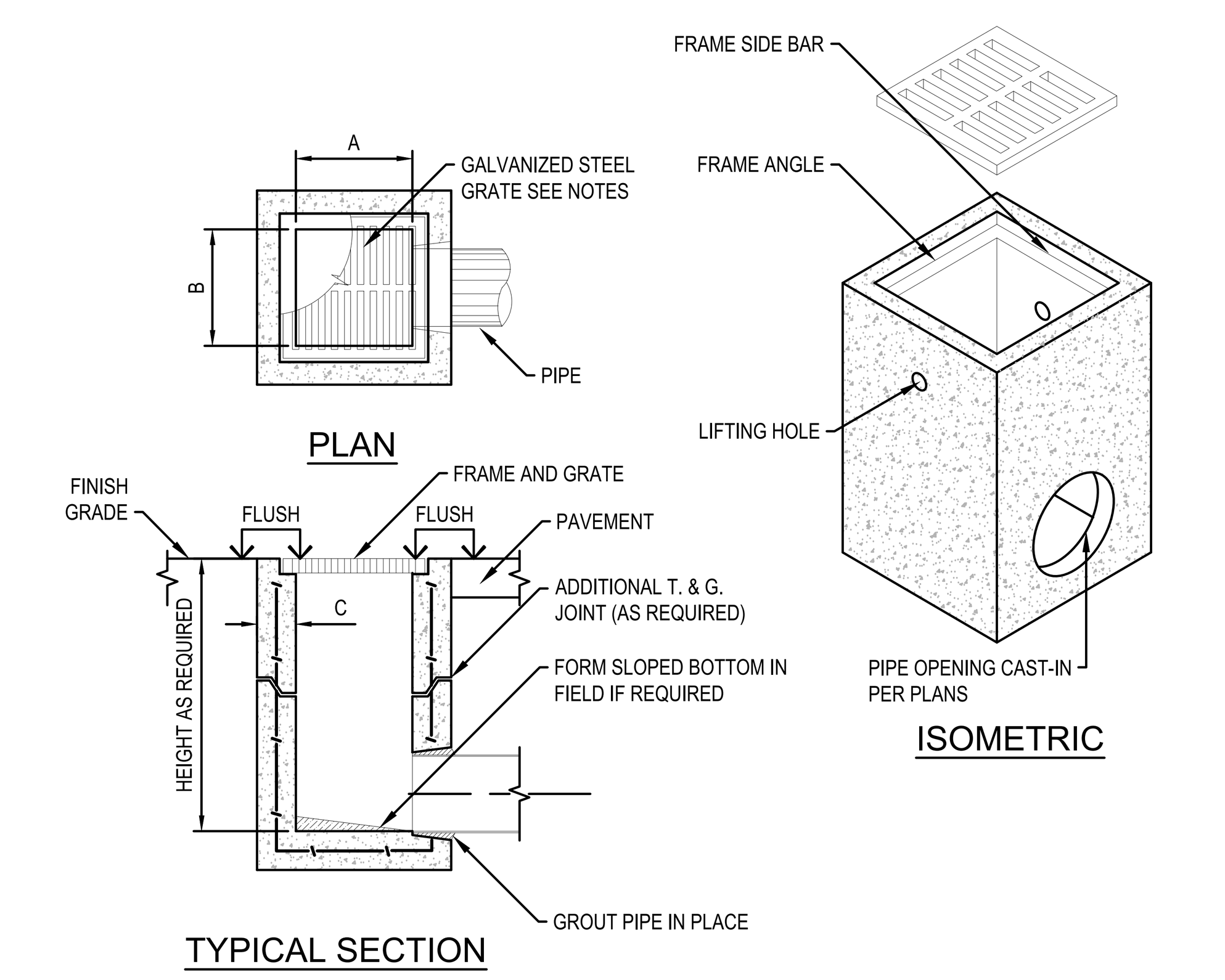
01	UL 312 LISTED AND FM 1210 APPROVED FIRE RATED SWING CHECK VALVE. SIZE PER PLAN.
02	CHRISTY N48 RECTANGULAR ENCLOSURE WITH N48X10 EXTENSION(S) OR APPROVED EQUAL.
03	EXTENSION(S) AS REQUIRED.
04	PLACE APPROXIMATELY 6" OF LEVELED COMPACTED GRAVEL.
05	CONFIRM PLACEMENT OF VALVE, SO THAT THE VALVE DIRECTIONAL ARROW IS POINTING TOWARDS THE OUTLET PIPE.
06	LID TO BE 1" ABOVE LANDSCAPE GRADE TO PREVENT NUISANCE WATER FROM ENTRY.

SWING CHECK VALVE — NTS — 12



NOTES:
1. ALL PIPE SYSTEMS SHALL BE INSTALLED IN ACCORDANCE WITH ASTM D2774, "UNDERGROUND INSTALLATION OF THERMOPLASTIC PRESSURE PIPING", LATEST EDITION.
2. 36" MINIMUM COVER REQUIRED FOR INSTALLATIONS UNDER HARDSCAPE. 30" MINIMUM COVER FOR INSTALLATIONS UNDER PLANTED AREAS.
3. IF UNSTABLE FOUNDATION SOIL IS ENCOUNTERED, THE GEOTECHNICAL FIELD INSPECTOR SHALL DETERMINE OVEREXCAVATION DEPTH AND FOUNDATION RE-FILL MATERIAL.
4. CONTRACTOR SHALL PROVIDE HAND EXCAVATED "BELL HOLE" FOR EACH PIPE JOINT SO THAT THE WEIGHT OF PIPE DOES NOT BEAR ON THE BELL. CONTRACTOR SHALL RE-FILL AND HAND-TAMP EACH "BELL HOLE" PRIOR TO COMPLETING THE PLACEMENT OF PIPE BEDDING.

PIPE TRENCH - WATER — NTS — 08



OLDCASTLE PRECAST DROP INLET TABLE OR EQUIVALENT

MODEL NUMBER	A IN	A MM	B IN	B MM	C IN	C MM
CB-1212	12	300	12	300	4	100
CB-1818	18	450	18	450	4	100
CB-1824	18	450	24	600	5	125
CB-2424	24	600	24	600	5	125
CB-2430	24	600	30	750	6	150
CB-3030	30	750	30	750	6	150
CB-2436	24	600	36	900	6	150
CB-3636	36	900	36	900	6	150
CB-2448	24	600	48	1200	6	150
CB-3648	36	900	48	1200	6	150
CB-4848	48	1200	48	1200	6	150

NOTES:
1. FRAMES AND GRATES MAY BE SPECIFIED FOR PEDESTRIAN OR H20 TRAFFIC LOADING. ALL GRATES ARE BICYCLE PROOF.
2. 1/2" MAX GRATE OPENINGS IN ALL DIRECTIONS FOR GRATES LOCATED IN PEDESTRIAN AREAS.

DRAIN INLET — NTS — 01

LPA
ARCHITECTURE ENGINEERING INTERIOR DESIGN LANDSCAPE ARCHITECTURE PLANNING
949-261-1001 Office
LPADesignStudios.com
5301 California Avenue, Suite 100
Irvine, California 92617

REGISTERED PROFESSIONAL ENGINEER KATHEREEN M. SHINKAI R.C.E. 68369 EXP. 9-30-27 CIVIL STATE OF CALIFORNIA

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MALIBU MIDDLESCHOOL INCREMENT 02

30215 Morning View Dr.
Malibu, CA 90265

Developed for
SANTA MONICA - MALIBU UNIFIED SCHOOL DISTRICT

Revision	Date

Submittal	Date
SCHEMATIC DESIGN	09/04/2024
DESIGN DEVELOPMENT	02/21/2025
DSA SUBMITTAL	09/08/2025

Job Number	31722
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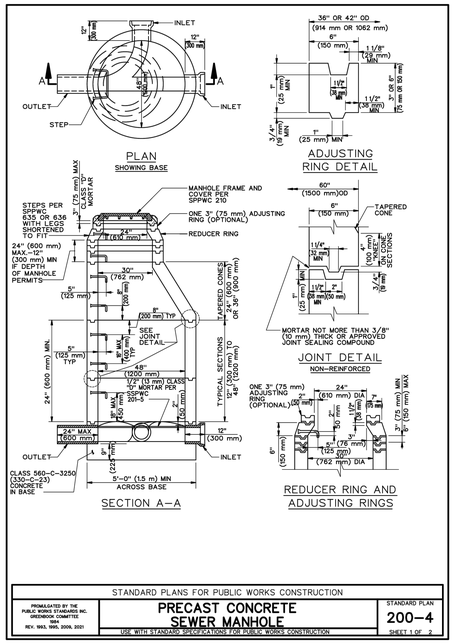
Scale	AS NOTED

CONSTRUCTION DETAILS

2-C7.02



NOTES:

1. EXCEPT AS NOTED HEREON, THE PRECAST UNITS SHALL BE MANUFACTURED AND TESTED IN ACCORDANCE WITH ASTM C478 (C478M). AS AN ALTERNATE CURING METHOD, THE UNITS MAY BE CURED USING SATURATED STEAM FOR A MINIMUM OF 12 HOURS FOLLOWED BY 6 DAYS OF WATER CURING OR MEMBRANE CURING. IF THE UNITS ARE CURED BY THE ALTERNATE METHOD, THEY SHALL NOT BE SHIPPED PRIOR TO 8 DAYS AFTER CASTING NOR UNTIL THE CONCRETE HAS ATTAINED A STRENGTH OF 3500 PSI (25 MPa)
2. MANHOLE STEPS SHALL CONFORM TO SPPWC 635 TYPE 1 OR 3 OR SPPWC 636. THE MANHOLE STEPS SHALL BE UNIFORMLY SPACED AT A MAXIMUM OF 16" (400 mm). THE LOWEST STEP SHALL BE PLACED NOT LESS THAN 8" (200 mm) NOR MORE THAN 18" (450 mm) ABOVE THE SHELF. THE STEPS SHALL PROJECT 5" (125 mm) INSIDE THE MANHOLE.
3. RISER SECTIONS MAY BE REINFORCED OR UNREINFORCED. REINFORCED SECTIONS SHALL BE REINFORCED IN ACCORDANCE WITH ASTM C478 (C478M) AND SHALL HAVE A MINIMUM WALL THICKNESS OF 5" (125 mm). UNREINFORCED RISER SECTIONS SHALL HAVE A MINIMUM WALL THICKNESS OF 6" (150 mm).
4. THE 24" x 48" (600 mm x 1200 mm) ECCENTRIC CONES MAY BE REINFORCED OR UNREINFORCED. IF REINFORCED, THE WALL THICKNESS SHALL BE NOT LESS THAN 5" (125 mm). IF UNREINFORCED, THE WALL THICKNESS SHALL NOT BE LESS THAN 6" (150 mm).
5. JOINTS SHALL BE TONGUE AND GROOVE. JOINTS FOR REINFORCED STRUCTURES SHALL CONFORM WITH ASTM C478 (C478M) SECTION 14.
6. PRECAST UNITS SHALL BE ASSEMBLED USING CLASS "B" MORTAR.
7. IF 30" (762 mm) DIAMETER MANHOLE FRAME AND COVER IS REQUIRED, IT SHALL BE INSTALLED WHERE THE REDUCER RING IS SHOWN IN THE SECTION.
8. FOR REINFORCED PRECAST STRUCTURES, ALL REINFORCEMENT SHALL HAVE A MINIMUM OF 2" (50 mm) OF COVER OVER THE STEEL ON THE INSIDE FACE.
9. THE TOP OPENING OF THE MANHOLE AND THE STEPS SHALL BE PLACED DIRECTLY OVER THE OUTLET OF THE STRUCTURE EXCEPT AS OTHERWISE NOTED ON PLANS.
10. CONCRETE BASE AND STUB WALLS SHALL BE POURED IN ONE OPERATION TO A POINT 2" (50 mm) ABOVE THE INLET AND OUTLET PIPES. ALL PIPES SHALL BE RIGIDLY SUPPORTED BY TEMPORARY PIERS OR OTHER METHODS DURING THE OPERATION. CONCRETE SHALL SET FOR 24 HOURS BEFORE PLACING PRECAST UNITS.

STANDARD PLANS FOR PUBLIC WORKS CONSTRUCTION		
PROMULGATED BY THE PUBLIC WORKS STANDARDS INC. GREENBOOK COMMITTEE 1964 REV. 1993, 1995, 2009, 2021	**PRECAST CONCRETE SEWER MANHOLE** USE WITH STANDARD SPECIFICATIONS FOR PUBLIC WORKS CONSTRUCTION	STANDARD PLAN **200–4** SHEET 1 OF 2

STANDARD PLANS FOR PUBLIC WORKS CONSTRUCTION	
PRECAST CONCRETE SEWER MANHOLE	STANDARD PLAN **200–4** SHEET 2 OF 2

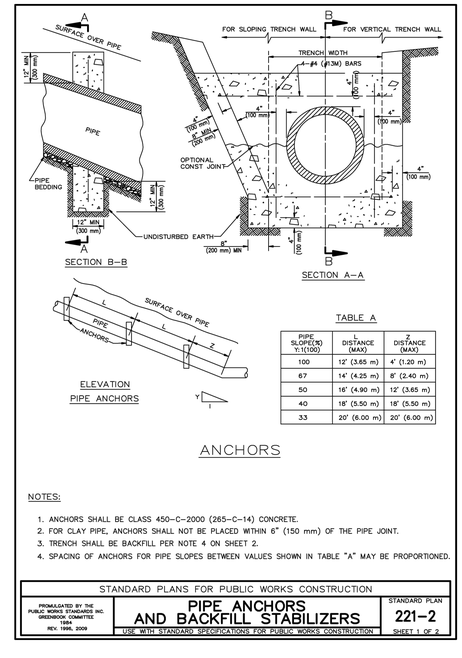


TABLE A

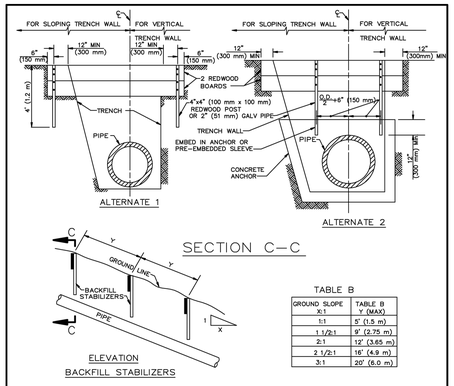
PIPE SLOPE(%) Y:1(100)	L DISTANCE (MAX)	Z DISTANCE (MAX)
100	12' (3.65 m)	4' (1.20 m)
67	14' (4.25 m)	8' (2.40 m)
50	16' (4.90 m)	12' (3.65 m)
40	18' (5.50 m)	18' (5.50 m)
33	20' (6.00 m)	20' (6.00 m)

ANCHORS

NOTES:

1. ANCHORS SHALL BE CLASS 450–C–2000 (265–C–14) CONCRETE.
2. FOR CLAY PIPE, ANCHORS SHALL NOT BE PLACED WITHIN 6" (150 mm) OF THE PIPE JOINT.
3. TRENCH SHALL BE BACKFILL PER NOTE 4 ON SHEET 2.
4. SPACING OF ANCHORS FOR PIPE SLOPES BETWEEN VALUES SHOWN IN TABLE "A" MAY BE PROPORTIONED.

STANDARD PLANS FOR PUBLIC WORKS CONSTRUCTION		
PROMULGATED BY THE PUBLIC WORKS STANDARDS INC. GREENBOOK COMMITTEE 1964 REV. 1996, 2009	**PIPE ANCHORS AND BACKFILL STABILIZERS** USE WITH STANDARD SPECIFICATIONS FOR PUBLIC WORKS CONSTRUCTION	STANDARD PLAN **221–2** SHEET 1 OF 2



SECTION C–C

TABLE B

GROUND SLOPE X:1	TABLE B Y (MAX)
1:1	5' (1.5 m)
1 1/2:1	9' (2.75 m)
2:1	12' (3.65 m)
2 1/2:1	16' (4.9 m)
3:1	20' (6.0 m)

STABILIZERS

NOTES:

1. REDWOOD BOARDS SHALL BE 2" x 12" (50 x 300 mm) WHERE DEPTH OF COVER OVER PIPE PERMITS, OTHERWISE USE 2" x 10" (50 x 250 mm).
2. REDWOOD BOARDS SHALL BE PLACED ON THE HIGH GROUND SIDE OF THE POSTS.
3. EACH REDWOOD BOARD SHALL BE FASTENED BY USING 2–16d NAILS TO EACH REDWOOD POST OR A 3/8" (10 mm) BOLT AND NUT WITH WASHERS TO EACH GALVANIZED PIPE. ALL HARDWARE SHALL BE GALVANIZED.
4. TRENCH BACKFILL SHALL BE CONSOLIDATED BY MECHANICAL COMPACTION. IN LIEU OF MECHANICALLY COMPACTION, SOIL CEMENT MAY BE USED; HOWEVER, THE TOP 12" (300 mm) OF BACKFILL SHALL BE NATIVE SOIL, MECHANICALLY COMPACTED.
5. SPACING OF STABILIZERS FOR GROUND SLOPES BETWEEN VALUES SHOWN IN TABLE "B" MAY BE PROPORTIONED.
6. THE CONTRACTOR MAY, AT ITS OPTION, SUBSTITUTE DOUGLAS FIR FOR THE REDWOOD PROVIDED IT HAS BEEN TREATED WITH PRESERVATIVES.

STANDARD PLANS FOR PUBLIC WORKS CONSTRUCTION	
PIPE ANCHORS AND BACKFILL STABILIZERS	STANDARD PLAN **221–2** SHEET 2 OF 2

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ARCHITECTURE ENGINEERING INTERIOR DESIGN
LANDSCAPE ARCHITECTURE PLANNING

949-261-1001 Office

LPADesignStudios.com

5301 California Avenue, Suite 100
Irvine, California 92617

REGISTERED PROFESSIONAL ENGINEER
KATHLEEN M. SUTHAM
R.C.E. 68369
EXP. 9-30-27
CIVIL
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MALIBU MIDDLESCHOOL
INCREMENT 02

30215 Morning View Dr.
Malibu, CA 90265

Developed for
SANTA MONICA - MALIBU UNIFIED SCHOOL DISTRICT

Revision	Date

Submittal	Date
SCHEMATIC DESIGN	09/04/2024
DESIGN DEVELOPMENT	02/21/2025
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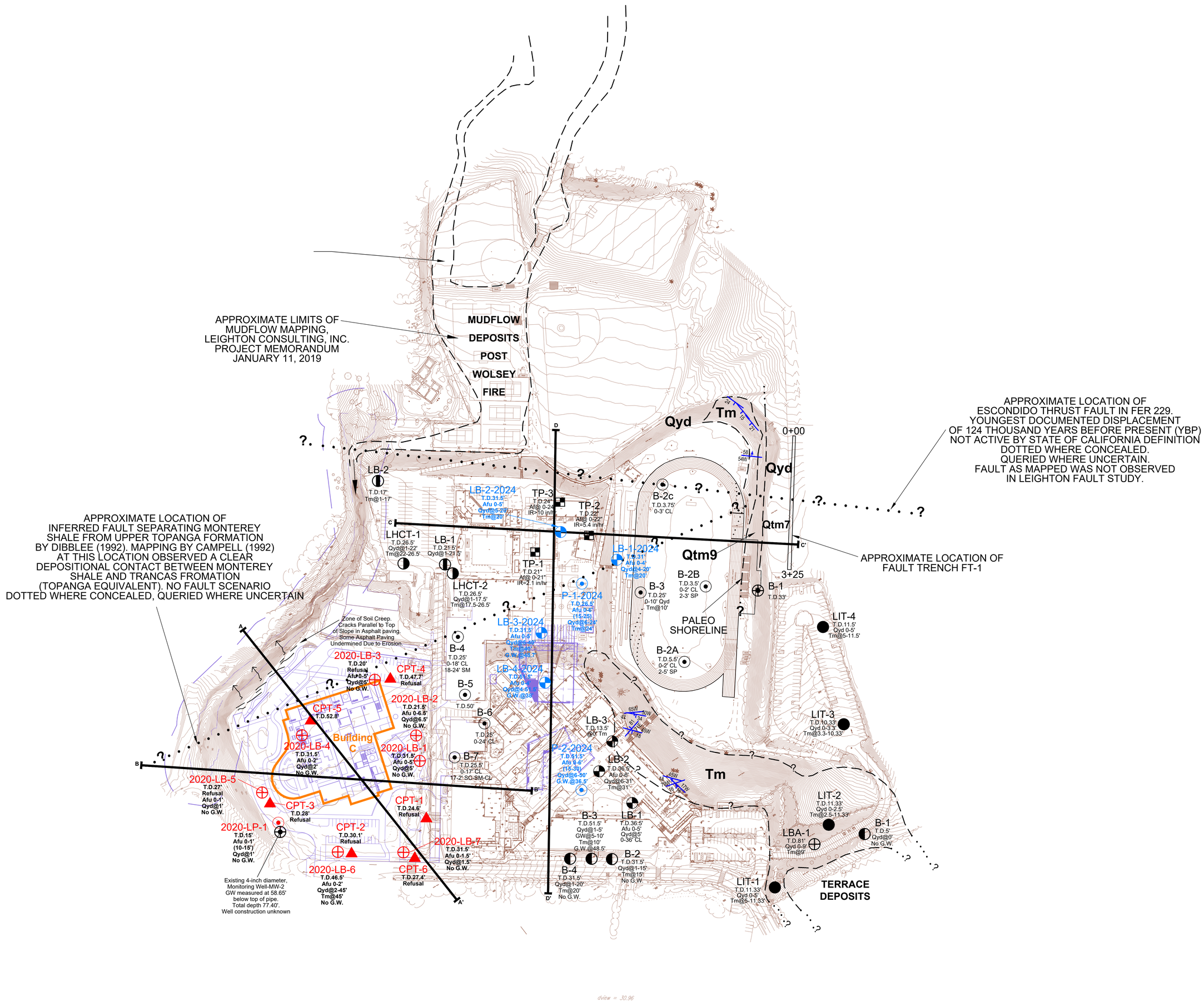

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LEGEND

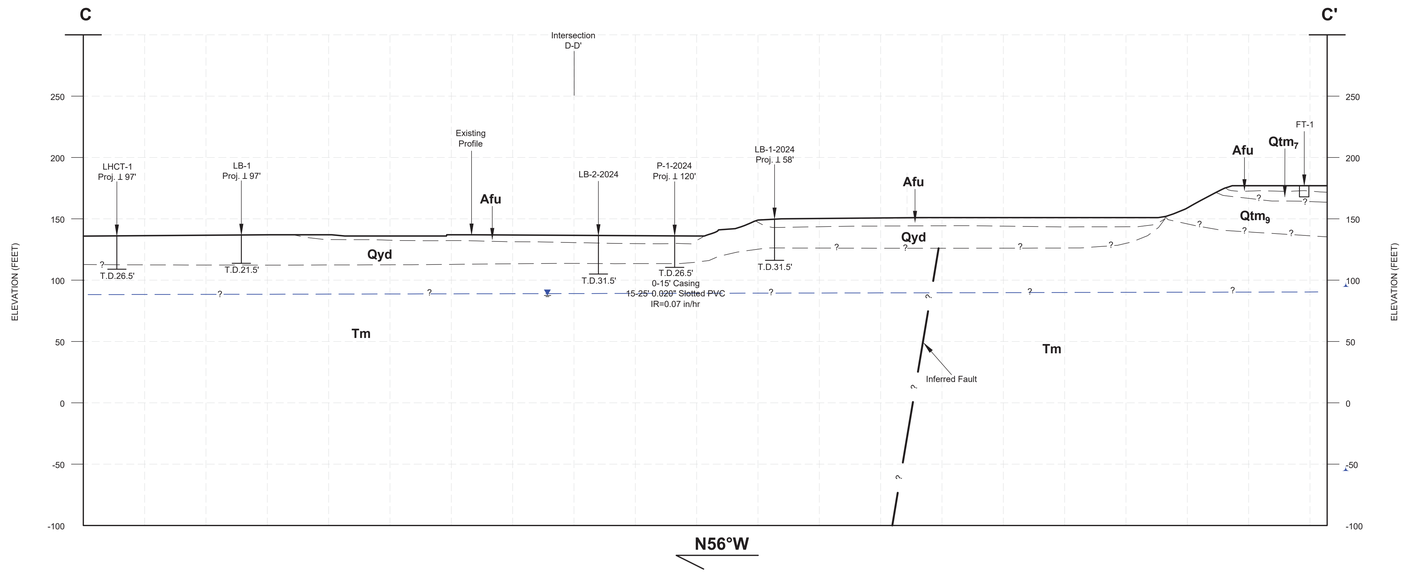
Afu	ARTIFICIAL FILL, UNDOCUMENTED
Qyd	MARINE TERRACE DEPOSITS
Tm	TERTIARY MONTEREY SHALE: SILTSTONE/CLAYSTONE
Qtm7	MARINE ISOTOPE STAGE 7-200,000 YEARS AGO
Qtm9	MARINE ISOTOPE STAGE 9 300-325,000 YEARS AGO
65W 42	STRIKE AND DIP OF BEDDING (LEIGHTON, 2009)
	APPROXIMATE LOCATION OF HOLLOW STEM AUGER BORINGS SHOWING TOAL DEPTH (T.D.) AND THICKNESS OF UNDOCUMENTED ARTIFICIAL FILL (Afu) OVER NATIVE MARINE TERRACE (Qyd) OVERLYING BEDROCK OF THE MONTEREY FORMATION (Tm) (11382.016)
LB-4-2024	APPROXIMATE LOCATION OF HOLLOW STEM AUGER BORINGS SHOWING TOAL DEPTH (T.D.) AND THICKNESS OF UNDOCUMENTED ARTIFICIAL FILL (Afu) OVER NATIVE MARINE TERRACE (Qyd) OVERLYING BEDROCK OF THE MONTEREY FORMATION (Tm) WHER ENCOUNTERED.
P-2-2024	APPROXIMATE LOCATION OF INFILTRATION TEST WELL SHOWING TOTAL DEPTH (T.D.) IN FEET BELOW GROUND SURFACE TEST DEPTH NOTED IN PARANTHESES. G.W.-GROUNDWATER DEPTH MEASURED DURING DRILLING.
CPT-6	APPROXIMATE LOCATION OF CONE PENETROMETER TEST (CPT) LOCATIONS SHOWING TOTAL DEPTH (T.D.) IN FEET BELOW GROUND SURFACE. REFUSAL NOTED WHERE APPLICABLE.
LP-1	APPROXIMATE LOCATION OF INFILTRATION TEST WELL SHOWING TOTAL DEPTH (T.D.) IN FEET BELOW GROUND SURFACE TEST DEPTH NOTED IN PARANTHESES

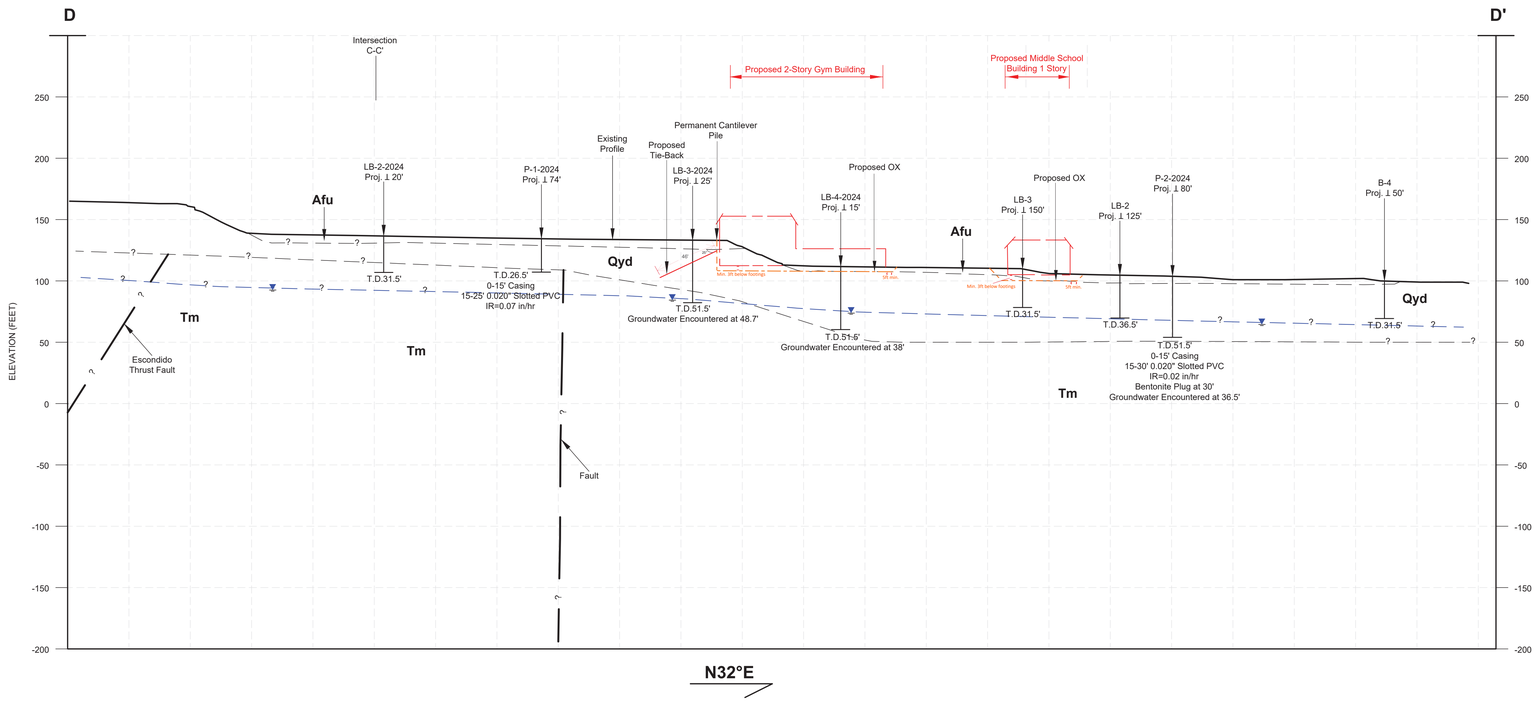
B-7 T.D.25.5'	HOLLOW STEM AUGER BORING (ASSOCIATED SOILS ENGINEERS, INC., 1999) SHOWING TOTAL DEPTH (T.D.) IN FEET (602311-001-006)
B-1 T.D.33'	BUCKET AUGER BORING (ASSOCIATED SOILS ENGINEERS, INC., 1999) SHOWING TOTAL DEPTH (T.D.) IN FEET
LB-2 T.D.17' Tm@1-17'	HOLLOW STEM AUGER BORING (LEIGHTON, 2009b), [ADDENDUM 1] SHOWING TOTAL DEPTH (T.D.) AND DEPTH TO EARTH UNITS IN FEET BELOW GROUND SURFACE (602311.001)
LIT-4 T.D.11.5' Qdy@0-5' Tm@5-11.5'	HOLLOW STEM AUGER BORING (LEIGHTON, 2009c), [ADDENDUM 2] SHOWING TOTAL DEPTH (T.D.) AND DEPTH TO EARTH UNITS IN FEET BELOW GROUND SURFACE (602311.001)
LHCT-2 T.D.26.5' Qdy@1-17.5' Tm@17.5-26.5'	HOLLOW STEM AUGER BORING (LEIGHTON, 2009d), [ADDENDUM 3] SHOWING TOTAL DEPTH (T.D.) AND DEPTH TO EARTH UNITS IN FEET BELOW GROUND SURFACE (602311.002)
TP-3 T.D.24" Af@0-24" IR>10 in/hr	TEST PIT LOCATION (LEIGHTON, 2010) SHOWING TOTAL DEPTH (T.D.) AND DEPTH TO EARTH UNITS IN FEET BELOW GROUND SURFACE, AND INFILLTRATION RATE (IR) IN INCHES PER HOUR (in./hr.) (602311.003)

LB-3 T.D.13.5' @5' Tm	HOLLOW STEM AUGER BORING (LEIGHTON, 2016b) SHOWING TOTAL DEPTH (T.D.) AND DEPTH TO EARTH UNITS IN FEET BELOW GROUND SURFACE (11382.004)
LBA-1 T.D.81' Qyd 0-9' Tm@9'	BUCKET AUGER CORE BORING (LEIGHTON, 2016a) SHOWING TOTAL DEPTH (T.D.) AND DEPTH TO EARTH UNITS IN FEET BELOW GROUND SURFACE (11382.002)
B-4 T.D.31.5' Qyd@1-20' Tm@20' No G.W.	HOLLOW STEM AUGER BORING (LEIGHTON, 2009a) SHOWING TOTAL DEPTH (T.D.) AND DEPTH TO EARTH UNITS IN FEET BELOW GROUND SURFACE (602311.001)
G.W.	GROUNDWATER AT TIME OF DRILLING
	GEOLOGIC CONTACT, DASHED WHERE APPROXIMATE, QUERIED WHERE UNCERTAIN
	INDICATES DIRECTION OF SOIL CREEP DOWN SLOPE
D D'	GEOLOGIC CROSS SECTION. SEE PLATE 2
0+00 FT-1 3+25	APPROXIMATE LOCATION OF LEIGHTON FAULT TRENCH FT-1 (LEIGHTON, 2021b) (11382.020)

PLATE 1	**GEOTECHNICAL MAP**
Scale: 1"=100'	Malibu Middle/High School Proposed Phase 2 Middle School Building and Gymnasium 30215 Morning View Drive, Malibu, California
Date: October 2025	Leighton
Proj: 25785	
Eng/Geol: CCK/JAR	

SCALE 0 50 100 FEET





GEOTECHNICAL CROSS SECTIONS C-C' AND D-D'
Malibu Middle/High School
Proposed Phase 2 Middle School Building and Gymnasium
30215 Morning View Drive, Malibu, California

Leighton

PLATE 2
Scale: 1"=50'
Date: October 2025
Proj: 25785
Eng/Geol: CCK/JAR

Z:\PROJECT FILES\SA-TZ\SMMUSD\25785 - MALIBU HS PHASE 2\VERDANTA\CAD\SHEETS AND PLANS\25785_P02_CS_2024-09-06.DWG (09-06-24 9:26:30AM) Plotted by: bran



01
PW-01

OVERALL SITE PLAN
SCALE: 1"=30'

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949-261-1001 Office

LPADesignStudios.com

5301 California Avenue, Suite 100
Irvine, California 92617

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REGISTERED PROFESSIONAL ENGINEER
JOHN YAROSZ
EXP 06-2026
CIVIL
STATE OF CALIFORNIA

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ENSITU ENGINEERING, INC.
7475 Carmelita Ave.
Atascadero, CA 93422
Tel: 805.772.0150
ENSITU@ensitu.com

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MALIBU MIDDLE & HIGH SCHOOL PHASE 2
30215 MORNING VIEW DRIVE
MALIBU, CALIFORNIA

Developed for
SMMUSD

Revision	Date

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SCHEMATIC DESIGN	09/04/2024
50% DESIGN DEVELOPMENT	12/13/2024
100% DESIGN DEVELOPMENT	02/21/2025
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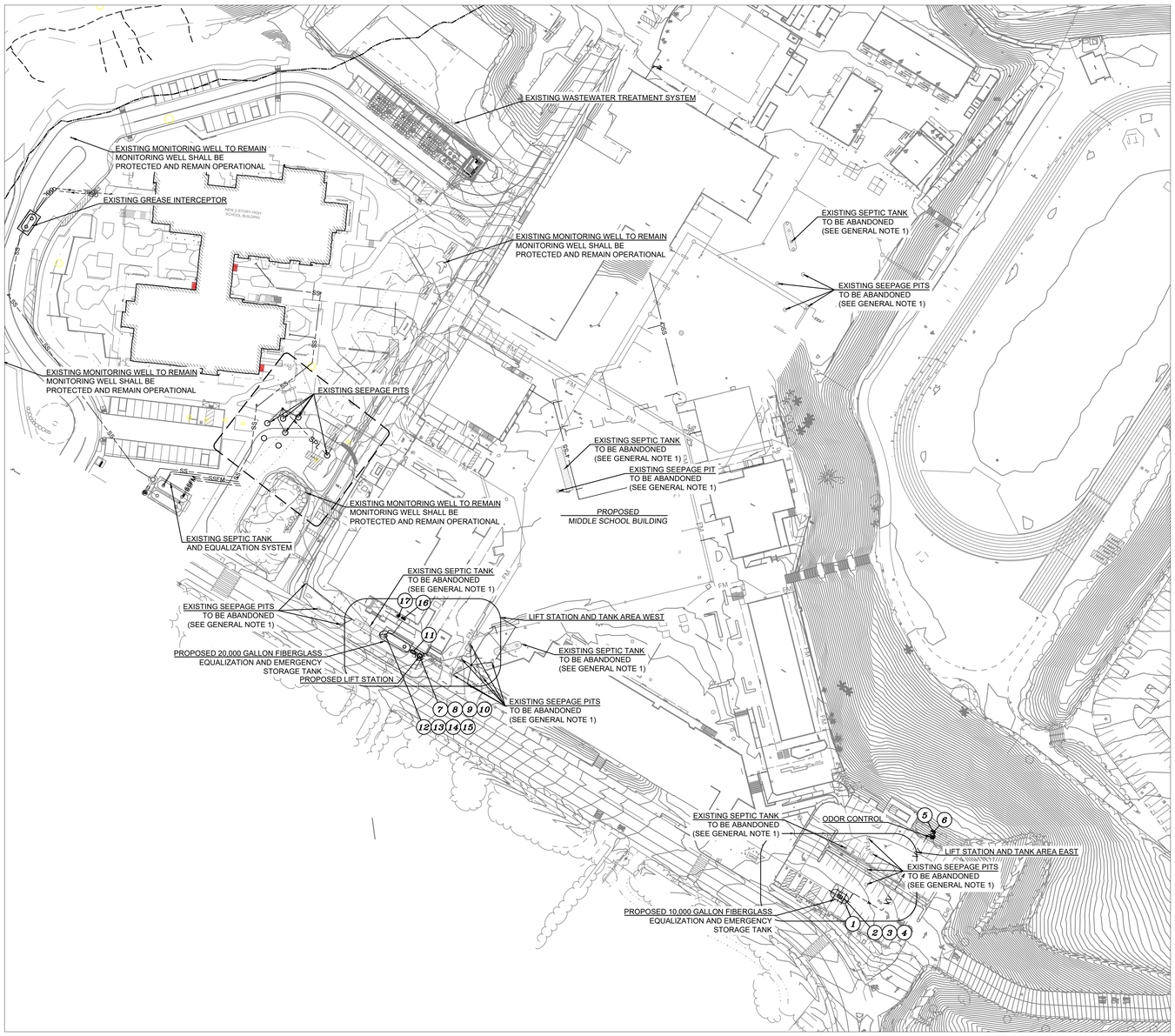
50% CONSTRUCTION DOCS	06/27/2025
DSA SUBMITTAL	09/08/2025

Job Number	817-01
Checked By	JNY
Scale	

OVERALL SITE PLAN

PW-01



PW–OVERALL SITE PLAN EXISTING AND PROPOSED

SCALE: 1"=0060'

PW-02

GENERAL NOTES:

1. EXISTING OWTS COMPONENTS LOCATION AND ABANDONMENT:
   - 1.1. CONTRACTOR IS RESPONSIBLE FOR LOCATING ALL EXISTING ONSITE WASTEWATER TREATMENT SYSTEM (OWTS) COMPONENTS. THE LOCATIONS ON THE ENGINEERING PLANS ARE INFORMATIONAL AND MAY NOT INCLUDE ALL COMPONENTS OF THE OWTS. MANY ITEMS, SUCH AS TANKS, PIPING, DISTRIBUTION DEVICES, SEEPAGE PITS, DISPERSAL FIELDS, AND OTHER APPURTENANCES ARE BURIED AND NOT LOCATABLE BY THE SURVEYOR OR UTILITIES LOCATOR .
   - 1.2. PRIOR TO COMMENCING WORK TO ABANDON, REMOVE, OR REPLACE EXISTING ONSITE WASTEWATER TREATMENT SYSTEM (OWTS) COMPONENTS AN "OWTS ABANDONMENT PERMIT" SHALL BE OBTAINED FROM THE CITY OF MALIBU. ALL WORK PERFORMED IN THE OWTS ABANDONMENT, REMOVAL, OR REPLACEMENT AREA SHALL BE PERFORMED IN STRICT ACCORDANCE WITH ALL APPLICABLE FEDERAL, STATE, AND LOCAL ENVIRONMENTAL AND OCCUPATIONAL SAFETY AND HEALTH REGULATORY REQUIREMENTS. THE OBTAINMENT OF ANY SUCH REQUIRED PERMITS OR APPROVALS FOR THIS SCOPE OF WORK SHALL BE THE RESPONSIBILITY OF THE APPLICANT AND THEIR AGENTS.
   - 1.3. THE EXISTING OWTS COMPONENTS INCLUDING; SEPTIC TANK(S), PIPING, CLEANOUT(S) SEEPAGE PIT(S), DISPERSAL FIELD(S), AND ALL OTHER APPURTENANCES SHALL BE PROPERLY ABANDONED PURSUANT TO CITY OF MALIBU ORDINANCE 435, SECTION 15.40.170 C, AND SECTION 15.40.170 D, TITLE 28 OF THE LOS ANGELES COUNTY CODE, INCORPORATING THE MOST CURRENT CALIFORNIA PLUMBING CODE, LOCAL PLUMBING CODE, AND POLICIES. METHOD OF ABANDONMENT SHALL BE DETERMINED BY THE ENGINEER AND/OR THE OWNER'S REPRESENTATIVE
2. SEWER PIPE SHALL BE BEDDED IN ACCORDANCE WITH SPECIFICATIONS AND TITLE 28 OF THE LOS ANGELES COUNTY CODE, INCORPORATING THE MOST CURRENT CALIFORNIA PLUMBING CODE, LOCAL PLUMBING CODE, AND ORDINANCES.
3. SYSTEM COMPONENTS AND APPURTENANCES (INCLUDING CLEAN-OUTS, VENTS, BACKWATER VALVES, ETC.) SHALL BE INSTALLED IN ACCORDANCE WITH TITLE 28 OF THE LOS ANGELES COUNTY CODE, INCORPORATING THE MOST CURRENT CALIFORNIA PLUMBING CODE, LOCAL PLUMBING CODE, AND POLICIES.
4. ELECTRICAL COMPONENTS AND APPURTENANCES SHALL BE INSTALLED IN ACCORDANCE WITH TITLE 27 OF THE LOS ANGELES COUNTY CODE, INCORPORATING THE MOST CURRENT CALIFORNIA ELECTRICAL CODE, LOCAL ELECTRICAL CODE, AND ORDINANCES.
5. A REGISTERED GEOTECHNICAL ENGINEER, UNDER THE DIRECTION OF THE OWNER, SHALL DETERMINE IF THE WASTEWATER LOADING RATE WILL CAUSE THE EXISTING SLOPE TO BECOME UNSTABLE. ENSITU ENGINEERING INC., IS NOT A GEOTECHNICAL ENGINEERING FIRM, THEREFORE, WE CAN NOT PREDICT AND/OR DETERMINE THE STABILITY OF THE EXISTING SLOPE.
6. THE PROJECT ENGINEERING GEOLOGIST SHALL OBSERVE THE INSTALLATION OF THE TANK AND DISPERSAL SYSTEM COMPONENTS OF THE AOWTS (INCLUDING BUT NOT LIMITED TO; (A) TANK EXCAVATION, BEDDING, AND BACKFILL (B) SEEPAGE PITS EXCAVATION, CONSTRUCTION, AND BACKFILL (C) SUBSURFACE DISPERSAL SYSTEM BEDDING, FILL MATERIAL, CONSTRUCTION, AND BACKFILL) AND PROVIDE THE CITY INSPECTOR WITH A FIELD MEMORANDUM(S) DOCUMENTING AND VERIFYING THAT THE TANK AND DISPERSAL SYSTEM COMPONENTS WERE INSTALLED PER APPROVED AOWTS PLANS.
7. LEACH FIELDS AND DISPERSAL SYSTEMS DESIGNATED AS SAND CATEGORY: ANY REMAINING FILL MATERIAL AND ANY BEACH SAND SEDIMENT THAT MIGHT HAVE REDUCED PERMEABILITY FROM EXISTING LEACH FIELD OPERATIONS ENCOUNTERED BELOW THE BOTTOM OF THE PROPOSED LEACH FIELD OR ANY MATERIAL ENCOUNTERED IN THE CONSTRUCTION OF THE LEACH FIELD THAT IS NOT CATEGORIZED AS BEACH SAND DEPOSITS SHALL BE EXCAVATED TO THE LEVEL OF THE NATIVE BEACH SAND DEPOSITS AND REPLACED WITH DOUBLE- WASHED SAND. THE PROJECT ENGINEERING GEOLOGIST SHALL OBSERVE THE EXCAVATION OF THE LEACH FIELD AND CONFIRM IN WRITING THAT ALL THE DELETERIOUS FILL AND NON-BEACH SAND MATERIALS BELOW THE LEACH FIELD HAVE BEEN REMOVED AND REPLACED WITH CLEAN SAND AND THE LEACH FIELD WAS CONSTRUCTED IN ACCORDANCE WITH THE APPROVED OWTS PLANS.
8. SUBSURFACE DRIP LINE SHALL BE PLACED IN UNCOMPACTED NATIVE SOILS RIPPED AND TILLED A MINIMUM OF 18 INCHES. SOIL SHALL BE AMENDED TO BE 30% SAND, 30% MULCH, 40% NATIVE OR LANDSCAPE DESIGNER SHALL BE CONTACTED TO ADVISE CONTRACTOR ON TYPE OF TOPSOIL TO IMPORT FOR MINIMUM BURIAL DEPTH. DISPERSAL FIELD SHALL BE PLANTED AND ESTABLISHED PRIOR TO OCCUPANCY (ENGINEER TO VERIFY)
9. ALL DIMENSIONS AND GRADES SHALL BE VERIFIED BY CONTRACTOR PRIOR TO SYSTEM INSTALLATION, BUILDING SEWER DEPTH OR CONNECTION POINT WAS NOT PROVIDED AND SHALL BE DETERMINED BY CONTRACTOR PRIOR TO CONSTRUCTION
10. CONTRACTOR TO VERIFY DEPTH AND LOCATION OF BUILDING SEWER CONNECTION, MINIMUM 2% SLOPE FROM STRUCTURE TO CONNECTION POINT.
11. ONSITE WASTEWATER TREATMENT SYSTEM SHALL BE VENTED IN ACCORDANCE WITH TITLE 28 OF THE LOS ANGELES COUNTY CODE, INCORPORATING THE MOST CURRENT CALIFORNIA PLUMBING CODE, LOCAL PLUMBING CODE, AND POLICIES.
12. THE OWTS IS SITED AS FAR LANDWARD AS FEASIBLE.

SITE PLAN TAG AND MAJOR EQUIPMENT LIST

SITE PLAN TAG	TAG	DESCRIPTION	SITE LOCATION	PHYSICAL LOCATION	MANUFACTURER	MODEL NUMBER	SUPPLIER
0001	TK-0100	EQUALIZATION TANK	LIFT STATION AND TANK AREA EAST	LIFT STATION AND TANK AREA EAST	XERXES	10' DIA 10,000 GAL SINGLE WALL	CONTRACTOR SUPPLIED EQUALIZATION TANK TK-0100
0002	FV-0100	BIOTUBE PUMP VAULT	LIFT STATION AND TANK AREA EAST	INTEGRAL TO EQUALIZATION TANK TK-0100	ORENCO SYSTEMS		CONTRACTOR SUPPLIED COMPONENT OF EQUALIZATION TANK TK-0100
0003	P-0100	EQUALIZATION PUMP	LIFT STATION AND TANK AREA EAST	INTEGRAL TO EQUALIZATION TANK TK-0100	ORENCO SYSTEMS	PF500534-30	CONTRACTOR SUPPLIED COMPONENT OF EQUALIZATION TANK TK-0100
0004	P-0110	EQUALIZATION PUMP	LIFT STATION AND TANK AREA EAST	INTEGRAL TO EQUALIZATION TANK TK-0100	ORENCO SYSTEMS	PF500534-30	CONTRACTOR SUPPLIED COMPONENT OF EQUALIZATION TANK TK-0100
0005	PLC-0100	PROGRAMMABLE LOGIC CONTROLLER	LIFT STATION AND TANK AREA EAST	LIFT STATION AND TANK AREA EAST			CONTRACTOR SUPPLIED COMPONENT OF EQUALIZATION TANK TK-0100
0006	OCU-0100	DRUM ODOR SCRUBBER	LIFT STATION AND TANK AREA EAST	LIFT STATION AND TANK AREA EAST	PURAFIL	DS-100	CONTRACTOR SUPPLIED DRUM SCRUBBER OCU-0100
0007	LS-0300	LIFT STATION	LIFT STATION AND TANK AREA WEST	LIFT STATION AND TANK AREA WEST	XERXES		CONTRACTOR SUPPLIED LIFT STATION LS-0300
0008	P-0300	SUBMERSIBLE GRINDER PUMP AND GUIDERAILS	LIFT STATION AND TANK AREA WEST	INTEGRAL TO LIFT STATION VAULT LS-0300	TSURUMI	TOS50MG22.2	CONTRACTOR SUPPLIED COMPONENT OF LIFT STATION LS-0300
0009	P-0310	SUBMERSIBLE GRINDER PUMP AND GUIDERAILS	LIFT STATION AND TANK AREA WEST	INTEGRAL TO LIFT STATION VAULT LS-0300	TSURUMI	TOS50MG22.2	CONTRACTOR SUPPLIED COMPONENT OF LIFT STATION LS-0300
0010	P-0350	SUBMERSIBLE CHOPPER PUMP AND GUIDERAILS	LIFT STATION AND TANK AREA WEST	INTEGRAL TO LIFT STATION VAULT LS-0300	TSURUMI	TOS50C2.75	CONTRACTOR SUPPLIED COMPONENT OF LIFT STATION LS-0300
0011	V-0300	VALVE VAULT 17"X30"X24"	LIFT STATION AND TANK AREA WEST	INTEGRAL TO LIFT STATION VAULT LS-0300	ARMORCAST	A6001640TAX24 H20 LOADING	CONTRACTOR SUPPLIED COMPONENT OF LIFT STATION LS-0300
0012	TK-0200	EQUALIZATION TANK	LIFT STATION AND TANK AREA WEST	LIFT STATION AND TANK AREA WEST	XERXES	10' DIA 20,000 GAL SINGLE WALL	CONTRACTOR SUPPLIED EQUALIZATION TANK TK-0200
0013	FV-0200	BIOTUBE PUMP VAULT	LIFT STATION AND TANK AREA WEST	INTEGRAL TO EQUALIZATION TANK TK-0200	ORENCO SYSTEMS		CONTRACTOR SUPPLIED COMPONENT OF EQUALIZATION TANK TK-0200
0014	P-0200	EQUALIZATION PUMP	LIFT STATION AND TANK AREA WEST	INTEGRAL TO EQUALIZATION TANK TK-0200	ORENCO SYSTEMS	PF500534-30	CONTRACTOR SUPPLIED COMPONENT OF EQUALIZATION TANK TK-0200
0015	P-0210	EQUALIZATION PUMP	LIFT STATION AND TANK AREA WEST	INTEGRAL TO EQUALIZATION TANK TK-0200	ORENCO SYSTEMS	PF500534-30	CONTRACTOR SUPPLIED COMPONENT OF EQUALIZATION TANK TK-0200
0016	PLC-0200	PROGRAMMABLE LOGIC CONTROLLER	LIFT STATION AND TANK AREA WEST	LIFT STATION AND TANK AREA WEST			CONTRACTOR SUPPLIED COMPONENT OF LIFT STATION LS-0300 AND EQUALIZATION TANK TK-0200
0017	OCU-0200	DRUM ODOR SCRUBBER	LIFT STATION AND TANK AREA WEST	LIFT STATION AND TANK AREA WEST	PURAFIL	DS-100	CONTRACTOR SUPPLIED DRUM SCRUBBER OCU-0200

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LANDSCAPE ARCHITECTURE PLANNING

949-261-1001 Office

LPADesignStudios.com

5301 California Avenue, Suite 100
Irvine, California 92617

REGISTERED PROFESSIONAL ENGINEER JOHN YAROSZ
NOT FOR REGULATORY APPROVAL, PERMITTING, OR CONSTRUCTION
EXP 06-2026
CIVIL
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ENSITU

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ENSITU ENGINEERING, INC.
7475 Carmelita Ave,
Atascadero, CA 93422
Tel: 805.772.0150
ENSITU@ensitu.com

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MALIBU MIDDLE & HIGH SCHOOL PHASE 2
30215 MORNING VIEW DRIVE
MALIBU, CALIFORNIA

Developed for SMMUSD

Revision	Date

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SCHEMATIC DESIGN	09/04/2024
90% DESIGN DEVELOPMENT	12/13/2024
100% DESIGN DEVELOPMENT	03/21/2025
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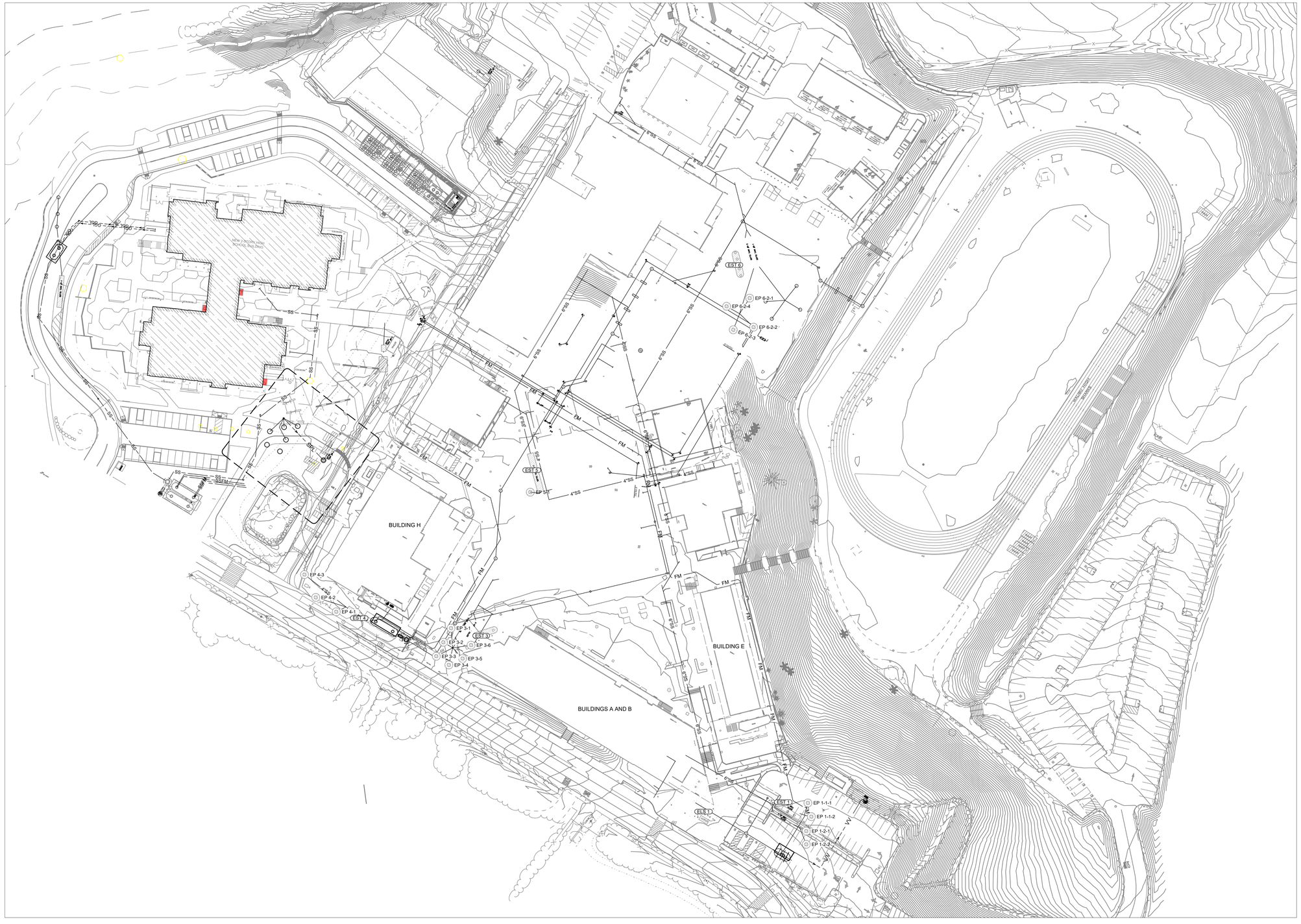
50% CONSTRUCTION DOCS	06/27/2025
DSA SUBMITTAL	09/08/2025

Job Number	817-01
Checked By	JNY
Scale	

SITE PLAN AND TABLES

PW-02



03
PW–03

PW–EXISTING OWTS ABANDONMENT PLAN
SCALE: 1"=50'

TAG	SITE PLAN NUMBER	LOCATION	DESCRIPTION	COMMENT
ELS 1	A01	MAIN ENTRANCE TO SCHOOL	EXISTING LIFT STAATION TO BE ABANDONED	CONTRACTOR TO VERIFY LOCATION AND METHOD OF ABANDONMENT (SEE GENERAL NOTES 1)
EST 1	A02	TOPANGA REPORT SYSTEM 1	EXISTING SEPTIC TANK TO BE ABANDONED	CONTRACTOR TO VERIFY LOCATION AND METHOD OF ABANDONMENT (SEE GENERAL NOTES 1)
EP 1-1-1	A03	TOPANGA REPORT SYSTEM 1	EXISTING SEEPAGE PIT TO BE ABANDONED	CONTRACTOR TO VERIFY LOCATION AND METHOD OF ABANDONMENT (SEE GENERAL NOTES 1)
EP 1-1-2	A04	TOPANGA REPORT SYSTEM 1	EXISTING SEEPAGE PIT TO BE ABANDONED	CONTRACTOR TO VERIFY LOCATION AND METHOD OF ABANDONMENT (SEE GENERAL NOTES 1)
EP 1-2-1	A05	TOPANGA REPORT SYSTEM 1	EXISTING SEEPAGE PIT TO BE ABANDONED	CONTRACTOR TO VERIFY LOCATION AND METHOD OF ABANDONMENT (SEE GENERAL NOTES 1)
EP 1-2-2	A06	TOPANGA REPORT SYSTEM 1	EXISTING SEEPAGE PIT TO BE ABANDONED	CONTRACTOR TO VERIFY LOCATION AND METHOD OF ABANDONMENT (SEE GENERAL NOTES 1)
EST 3	A07	TOPANGA REPORT SYSTEM 3	EXISTING SEPTIC TANK TO BE ABANDONED	CONTRACTOR TO VERIFY LOCATION AND METHOD OF ABANDONMENT (SEE GENERAL NOTES 1)
EP 3-1	A08	TOPANGA REPORT SYSTEM 3	EXISTING SEEPAGE PIT TO BE ABANDONED	CONTRACTOR TO VERIFY LOCATION AND METHOD OF ABANDONMENT (SEE GENERAL NOTES 1)
EP 3-2	A09	TOPANGA REPORT SYSTEM 3	EXISTING SEEPAGE PIT TO BE ABANDONED	CONTRACTOR TO VERIFY LOCATION AND METHOD OF ABANDONMENT (SEE GENERAL NOTES 1)
EP 3-3	A10	TOPANGA REPORT SYSTEM 3	EXISTING SEEPAGE PIT TO BE ABANDONED	CONTRACTOR TO VERIFY LOCATION AND METHOD OF ABANDONMENT (SEE GENERAL NOTES 1)
EP 3-4	A11	TOPANGA REPORT SYSTEM 3	EXISTING SEEPAGE PIT TO BE ABANDONED	CONTRACTOR TO VERIFY LOCATION AND METHOD OF ABANDONMENT (SEE GENERAL NOTES 1)
EP 3-5	A12	TOPANGA REPORT SYSTEM 3	EXISTING SEEPAGE PIT TO BE ABANDONED	CONTRACTOR TO VERIFY LOCATION AND METHOD OF ABANDONMENT (SEE GENERAL NOTES 1)
EP 3-6	A13	TOPANGA REPORT SYSTEM 3	EXISTING SEEPAGE PIT TO BE ABANDONED	CONTRACTOR TO VERIFY LOCATION AND METHOD OF ABANDONMENT (SEE GENERAL NOTES 1)
EST 4	A14	TOPANGA REPORT SYSTEM 4	EXISTING SEPTIC TANK TO BE ABANDONED	CONTRACTOR TO VERIFY LOCATION AND METHOD OF ABANDONMENT (SEE GENERAL NOTES 1)
EP 4-1	A15	TOPANGA REPORT SYSTEM 4	EXISTING SEEPAGE PIT TO BE ABANDONED	CONTRACTOR TO VERIFY LOCATION AND METHOD OF ABANDONMENT (SEE GENERAL NOTES 1)
EP 4-2	A16	TOPANGA REPORT SYSTEM 4	EXISTING SEEPAGE PIT TO BE ABANDONED	CONTRACTOR TO VERIFY LOCATION AND METHOD OF ABANDONMENT (SEE GENERAL NOTES 1)
EP 4-3	A17	TOPANGA REPORT SYSTEM 4	EXISTING SEEPAGE PIT TO BE ABANDONED	CONTRACTOR TO VERIFY LOCATION AND METHOD OF ABANDONMENT (SEE GENERAL NOTES 1)
EST 5	A18	TOPANGA REPORT SYSTEM 5	EXISTING SEPTIC TANK TO BE ABANDONED	CONTRACTOR TO VERIFY LOCATION AND METHOD OF ABANDONMENT (SEE GENERAL NOTES 1)
EP 5-1	A19	TOPANGA REPORT SYSTEM 5	EXISTING SEEPAGE PIT TO BE ABANDONED	CONTRACTOR TO VERIFY LOCATION AND METHOD OF ABANDONMENT (SEE GENERAL NOTES 1)
EST 6	A20	TOPANGA REPORT SYSTEM 6	EXISTING SEPTIC TANK TO BE ABANDONED	CONTRACTOR TO VERIFY LOCATION AND METHOD OF ABANDONMENT (SEE GENERAL NOTES 1)
EP 6-2-1	A21	TOPANGA REPORT SYSTEM 6	EXISTING SEEPAGE PIT TO BE ABANDONED	CONTRACTOR TO VERIFY LOCATION AND METHOD OF ABANDONMENT (SEE GENERAL NOTES 1)
EP 6-2-2	A22	TOPANGA REPORT SYSTEM 6	EXISTING SEEPAGE PIT TO BE ABANDONED	CONTRACTOR TO VERIFY LOCATION AND METHOD OF ABANDONMENT (SEE GENERAL NOTES 1)
EP 6-2-3	A23	TOPANGA REPORT SYSTEM 6	EXISTING SEEPAGE PIT TO BE ABANDONED	CONTRACTOR TO VERIFY LOCATION AND METHOD OF ABANDONMENT (SEE GENERAL NOTES 1)
EP 6-2-4	A24	TOPANGA REPORT SYSTEM 6	EXISTING SEEPAGE PIT TO BE ABANDONED	CONTRACTOR TO VERIFY LOCATION AND METHOD OF ABANDONMENT (SEE GENERAL NOTES 1)

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ARCHITECTURE ENGINEERING INTERIOR DESIGN
LANDSCAPE ARCHITECTURE PLANNING

949-261-1001 Office

LPADesignStudios.com

5301 California Avenue, Suite 100
Irvine, California 92617

REGISTERED PROFESSIONAL ENGINEER
JOHN YAROSZ
No. 92000
EXP 06-2026
CIVIL
STATE OF CALIFORNIA

NOT FOR REGULATORY APPROVAL, PERMITTING, OR CONSTRUCTION

ENSITU

"Dedicated to achieving higher standards in onsite and decentralized wastewater systems."

ENSITU ENGINEERING, INC.
7475 Carmelita Ave,
Atascadero, CA 93422
Tel: 805.772.0150
ENSITU@ensitu.com

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Scale	

EXISTING OWTS TO BE ABANDONED

PW–XX

STANDARD ABBREVIATIONS FOR PW SHEETS

(F)	FURNISHED
(R)	RELOCATED
1/4 RND	QUARTER ROUND
A	MIXER
A/C	AIR CONDITIONING
A/C UNIT	AIR CONDITIONING UNIT
AB	ANCHOR BOLT
ABS	ACRYLONTRILE BUTADIENE STYRENE TRUSS PIPE
ABV	ABOVE
AC	ALTERNATING CURRENT
ACC	ACCESSIBLE
ACI	AMERICAN CONCRETE INSTITUTE
ACS DR	ACCESS DOOR
ACS PNL	ACCESS PANEL
ACSR	ALUMINUM CABLE STEEL REINFORCED
ADDM	ADDENDUM
ADH	ADHESIVE
ADJ	ADJACENT, ADJOINING, ADJUSTABLE
AFF	ABOVE FINISHED FLOOR
AFL	ECTATE FEED LINE
AGGR	AGGREGATE
AHR	ANCHOR
AHU	AIR HANDLING UNIT
AI	AREA INLET
ALM	ALUMINUM PIPE OR TUBING
ALT	ALTERNATE
ALUM	ALUMINUM
AMB	AMBIENT
AMP	AMPERE
ANOD	ANODIZE
ANSI	AMERICAN NATIONAL STANDARDS INSTITUTE
APPD	APPROVED
APPROX	APPROXIMATE
ARCH	ARCHITECT
ARI	AMERICAN REFRIGERATION INSTITUTE
ARP	ALUMINUM REINFORCED PLASTIC PIPE
ASB	ASBESTOS
ASPH	ASPHALT
AUTO	AUTOMATIC
AV	ATMOSPHERIC VENT
AVG	AVERAGE
AWG	AMERICAN WIRE GAUGE
AWT	ACOUSTICAL WALL TREATMENT
B	BLOWER
BA	BREATHING AIR
BD	BLOWDOWN
BDRY	BOUNDARY
BFW	BOILED FEED WATER
BL	BLACK IRON PIPE
BLDG	BUILDING
BLW	BELOW
BM	BENCHMARK
BO	BOTTOM OF
BOT	BOTTOM
BPT	BRAIDED PLASTIC TUBING-PVC
BRK	BRICK
BRKT	BRACKET
BRR BRS	BRINE RETURN BRINE SUPPLY
BS	BOTH SIDES
BSMT	BASEMENT
Btu	BRITISH THERMAL UNIT
BTWN	BETWEEN
BW	BOTH WAYS
C TO C	CENTER TO CENTER
CAB	CABINET
CAP	CAPACITY
CB	CATCH BASIN
CC	CONTAMINABLE CONDENSATE
CEM	CEMENT
CEM PLAS	CEMENT PLASTER
CER	CERAMIC
CF	COLD FLARE
CFM	CUBIC FEET PER MINUTE
CHFR	CHAMFER
CHS	CHEMICAL SEWER
CI	CAST IRON PIPE
CI	CAST IRON
CI	CURB INLET
CIP	CAST-IN-PLACE
CIRC	CIRCULAR
CISP	CAST IRON SOIL PIPE
CJ	CONSTRUCTION JOINT
CJ	CONTROL JOINT
CKT	CIRCUIT
CKT BRKR	CIRCUIT BREAKER
CL	CENTERLINE
CLG	CEILING
CLOS	CLOSURE
CLR	CLEAR(ANCE)
cm	CENTIMETER(S)
CMCP	CORRUGATED METAL CULVERT PIPE
CMH	CHEMICAL HOSE
CMP	CORRUGATED METAL PIPE
CMPST	COMPOSITE
CMU	CONCRETE MASONRY UNIT
CND	CONDUIT
CO	CLEANOUT
CO2	CARBON DIOXIDE
COL	COLUMN
CONC	CONCRETE
CONN	CONNECTION
CONN	CONNECT
CONSTR	CONSTRUCTION
CONT	CONTINUE
CONTR	CONTRACTOR
COP	COPPER PIPE
CORR	CORRIDOR
COV	COVER
CPVC	CHLORINATED POLYVINYL CHLORIDE PIPE
CRCMF	CIRCUMFERENCE
CR	CONTACT RELAY
CRES	CORROSIVE RESISTANT STEEL
CS	CARBON STEEL PIPE
CSC	CAR SEAL CLOSED
CSO	CAR SEAL OPEN
CTR	CENTER
Cu	COPPER
CU FT	CUBIC FEET
CU YD	CUBIC YARDS
CV	COLD VENT
CV	CEILING VENT
CW	COLD WATER
CWR	COOLING WATER RETURN
CWS	COOLING WATER SUPPLY
CYL	CYLINDER
d	PENNY (AS IN NAIL - 10D)
D/P	DIFFERENTIAL PRESSURE
DAT	DATUM
DBL	DOUBLE
DCS	DISTRIBUTED CONTROL SYSTEM
DEG	DEGREE
DEMO	DEMOLITION
DEPR	DEPRESSION
DEPT	DEPARTMENT
DES	DESIGN
DET	DETAIL
DF	DRINKING FOUNTAIN
DH	DUCT HEATER
DI	DUCTILE CAST IRON PIPE
DIA	DIAMETER
DIAG	DIAGONAL
DIM	DIMENSION
DISTR PNL	DISTRIBUTION PANEL
DIV	DIVISION
DL	DEAD LOAD
DMPF	DAMPPROOFING
DMPR	DAMPER
DMW	DEMINERALIZED WATER
DN	DOWN
DP	DESIGN PRESSURE
DR	DRAIN
DR	DOOR
DR	DRAIN
DRN	DRAIN
DS	DILUTION STEAM
DS	DOWNSPOUT
DT	DESIGN TEMPERATURE
DW	DRINKING WATER
DWG	DRAWING
DWLS	DOWELS
E	EAST
EA	EACH
EF	EFFLUENT FILTER
EJ	EXPANSION JOINT
EL	ELEVATION
EL	ELEVATION - GRADE OR BUILDING
ELEC	ELECTRIC
EM	EXPANDED METAL
EMER	EMERGENCY
ENCL	ENCLOSE(URE)
ENTR	ENTRANCE, ENTERING
EP	ELECTRICAL PANELBOARD
EPRF	EXPLOSION PROOF
EPY	EPOXY COATING
EQ	EQUALIZATION
EQUIP	EQUIPMENT
ER	ETHYLENE REFRICERANT
ERP	EPOXY RESIN PIPE
ESD	EMERGENCY SHUTDOWN
EST	ESTIMATE(D)
EX	EXISTING
EXC	EXCAVATE
EXH	EXHAUST
EXP	EXPANSION
EXP	EXPOSED
EXST (E)	EXISTING
F	PROCESS FLOW DIAGRAM FLOW
F	FAHRENHEIT
FA	FIRE ALARM
FA	FRESH AIR
FC	FAIL CLOSED
FCU	FAN COIL UNIT
FDTN	FOUNDATION
FE	FIRE EXTINGUISHER
FF	FLUSHING FLUID
FG	FUEL GAS
FH	FIRE HYDRANT
FH	FLAT HEAD
FI	FAIL INDETERMINATE
FIG	FIGURE
FIN FLR	FINISH FLOOR
FIXT	FIXTURE
FL	FAIL LOCKED (LAST POSITION)
FLEX	FLEXIBLE
FLG	FLANGE
FLR	FLOOR
FN	FENCE
FO	FUEL OIL
FO	FAIL OPEN
FOF	FACE OF FLANGE
FP	FULL PORT
FPM	FEET PER MINUTE
FR	FIRE RESISTANT
FR	FRAME
FRG	FORGED
FRMG	FRAMING
FRP	FIBERGLASS REINFORCED PLASTIC PIPE
FT	FEET
FTG	FOOTING
FV	FULL VACUME
FW	FIRE WATER
FW	FIRE WATER
G	GROUND
G	NATURAL GAS
GA	GAGE
GAL	GALLON(S)
GALV	GALVANIZED
GALV STL	GALVANIZED STEEL
GC	GENERAL CONTRACTOR
GEN	GENERAL
GFCI	GROUND FAULT CIRCUIT INTERRUPTER
GI	GALVANIZED IRON
GIP	GALVANIZED IRON PIPE
GKT	GASKET(ED)
GL	GLASS
GLR	GLYCOL RETURN
GLS	GLYCOL SUPPLY
GO	GEAR OPERATED
GOVT	GOVERNMENT
GPM	GALLONS PER MINUTE
GR	GRADE
GR LN	GRADE LINE
GRAN	GRANITE
GRL	GRAVITY RECIRCULATION LOOP
GRTG	GRATING
GS	GALVANIZED STEEL PIPE
GSL	GRAVITY SEWER LINE
GSL	GRAVITY SEWER LINE (PIPE)
GSLA	GRAVITY SEWER LINE ABANDONED
GSLX	GRAVITY SEWER LINE EXISTING
GYP	GYPSUM
H	HYDROGEN
HB	HOSE BIBB
HC	HOSE CONNECTION
HD	HEAD
HD	HEAVY DUTY
HDR	HEADER
HDW	HARDWARE
HEX	HEXAGON
HH	HAND HOLE
HH	HANDHOLE
HM	HOLLOW METAL
HNDRL	HANDRAIL
HOA	HAND/OFF/AUTOMATIC
HORIZ	HORIZONTAL
HOSE	FLEXIBLE HOSE
HP	HIGH PRESSURE
HP	HIGH PRESSURE
HP	HORSEPOWER
HPT	HIGH POINT
HR	HOUR
HS	HIGH PRESSURE STEAM
HS	HIGH STRENGTH
HSI	HIGH SILICON IRON PIPE
HSKPG	HOUSEKEEPING
HT	HEIGHT
HTG	HEATING
HTR	HEATER
HVAC	HEATING, VENTILATING AND AIR CONDITIONING
HYDR	HYDRAULIC
Hz	HERTZ
I.P.S.	INSIDE PIPE SIZE
IA	INSTRUMENT AIR
IAS	INSTRUMENT AIR SUPPLY
IC	INTERCOM
ID	INSIDE DIAMETER
ILK	INTERLOCK
IN	INCH
INCL	INCLUDED
IND	INDETERMINATE
INSUL	INSULATION
INT	INTERIOR
INTM	INTERMEDIATE
IP	IRON PIPE
IPS	IRON PIPE SIZE
IRL	INTERNAL RECIRCULATION LOOP
IS	INTERMEDIATE PRESSURE STEAM
ISBL	INSIDE BATTERY LIMITS
J-BOX	JUNCTION BOX
JCT	JUNCTION
JT	JOINT
KIP	KILOPOUND (1000 POUNDS)
KLS	PVDF LINED STEEL PIPE (KYNAR® LINED TYPICAL)
km	KILOMETER
KOP	KNOCKOUT PANEL
kV	KILOVOLTS
kVA	KILOVOLT AMPERES
kVAR	KILOVOLT AMPERES REACTIVE
kW	KILOWATT
KWL	KITCHEN WASTE LINE
KWY	KEYWAY
KYN	PVDF (KYNAR® TYPICAL)
LAB	LABORATORY
LAD	LADDER
LAU	LAUNDRY
LAV	LAVATORY
LB	LAG BOLT
LB	POUND
LBL	LABEL
LC	LOCKED CLOSED
LD	LOAD
LDG	LOADING
LFL	LEACHFIELD LATERAL
LG	LENGTH
LH	LEFT HAND(ED)
LIN	LINEAR
LL	LIVE LOAD
LNG	LIQUIFIED NATURAL GAS
LO	LUBE OIL
LO	LOCKED OPEN
LP	LOW PRESSURE
LPG	LIQUIFIED PETROLEUM GAS
LPT	LOW POINT
LS	LOW PRESSURE STEAM
LT	LIGHT
LT WT	LIGHTWEIGHT
LTG	LIGHTING
LTNG	LIGHTNING
LWC	LIGHTWEIGHT CONCRETE
LWT	LEAVING WATER TEMPERATURE
m	METER(S)
MAS	MASONRY
MATL	MATERIAL(S)
MAX	MAXIMUM
MB	MACHINE BOLTS
MBR	MEMBER
MBR	MEMBRANE BIOREACTOR
MS	MOTOR STARTER
ME	METHANOL
MECH	MECHANICAL
MECH RM	MECHANICAL ROOM
MED	MEDIUM
MEMB	MEMBRANE
MFG	MANUFACTURING
MFR	MANUFACTURER
MG	MOTOR GENERATOR
MH	MANHOLE
MI	CARBON STEEL PIPE W/MALLEABLE IRON FITTINGS
MI	MALLEABLE IRON
MIN	MINIMUM
MISC	MISCELLANEOUS
mm	MILLIMETER(S)
MNIC	MATERIAL NOT IN CONTRACT (INSTALLATION BY CONTRACTOR)
MOD	MODULAR
MOD.	MODIFIED
MOS	MEMBRANE OPERATING SYSTEM
MOSA	MOS AIR
MOSB	MOS BACKPULSE
MOSE	MOS EFFLUENT
MOSI	MOS INFLUENT
MOSO	MOS OVERFLOW
MOSP	MOS PERMEATE
MOSRL	MOS RECIRCULATION LOOP
MOT	MOTOR
MOV	MOTOR OPERATED VALVE
MR	MIXED REFRIGERANT
MRD	METAL ROOF DECKING
MS	MEDIUM PRESSURE STEAM
MS	MOTOR STARTER
MS	MACHINE SCREWS
MT	MOUNT
MTD	MOUNTED
MTFR	METAL FURRING
MTL	MATERIAL
MTL	METAL
MW	MANWAY
N	NITROGEN
N	NORTH
N.L.	NEOPRENE LATEX
N’’REQD	NOT REQUIRED
NA	CAUSTIC
NAS	CAUSTIC SEWER
NC	NORMALLY CLOSED
NEC	NATIONAL ELECTRICAL CODE
NED	NEOPRENE HOSE
NEMA	NATIONAL ELECTRICAL MANUFACTURERS ASSOCIATION
NFPA	NATIONAL FIRE PROTECTION ASSOCIATION
NG	NATURAL GAS
NH	AMMONIA
NI	NICKEL ALLOY PIPE
Ni	NICKEL
NIC	NOT IN CONTRACT
NLS	NEOPRENE LINED STEEL PIPE
NM	NONMETALLIC
NNF	NORMALLY NO FLOW
NO	NORMALLY OPEN
NO	NUMBER
NOM	NOMINAL
NOZ	NOZZLE
NP	NYLON PIPE OR TUBE
NR	NOISE REDUCTION
NRC	NOISE REDUCTION COEFFICIENT
NTS	NOT TO SCALE
O/C	OPEN/CLOSE
O/O	ON/OFF
OA	OUTSIDE AIR
OBSC	OBSCURE
OC	ON CENTER
OCEW	ON CENTER EACH WAY
OD	OUTSIDE DIAMETER
OHMS	OVALHEAD MACHINE SCREW
OHWS	OVALHEAD WOOD SCREW
OP	OUTPUT
OPH	OPPOSITE HAND
OPNG	OPENING
OSBL	OUTSIDE BATTERY LIMITS
OVHD	OVERHEAD
OWS	OILY WATER SEWER
OX	OXYGEN
P	GENERAL PROCESS
P	PUMP
P	POLE
P.S.	PRESSED STEEL
PA	PLANT AIR
PAL	PROCESS AIR LINE
PAR	PARALLEL
PBS	PUSH BUTTON STATION
PC	PROCESS CONDENSATE
PCC	PRECAST CONCRETE
PCF	POUNDS PER CUBIC FOOT
PCP	CEMENT PLASTER (PORTLAND)
PD	PAVEMENT DRAIN
PED	PEDESTAL
PEL	PUMPED EFFLUENT LINE
PEP	POLYETHYLENE PIPE
PERF	PERFORATE(D)
PERIM	PERIMETER
PETB	POLYETHYLENE TUBING
PH	PHASE
PI	POINT OF INTERSECTION
PL	PLATE
PL	PROPERTY LINE
PL GL	PLATE GLASS
PLAM	PLASTIC LAMINATE
PLBG	PLUMBING
PLC	PROGRAMMABLE LOGIC CONTROLLER
PLF	POUNDS PER LINEAR FOOT
PLG	PILING
PLS	POLYETHYLENE LINED STEEL PIPE
PLYWD	PLYWOOD
PNL	PANEL
POL	POLISHED
POP	POLYPROPYLENE PIPE
PORT	PORTABLE
PPM	PARTS PER MILLION
PR	PROPYLENE REFRIGERANT
PREFAB	PREFABRICATE(D)
PREFIN	PREFINISHED
PREFMD	PREFORMED
PRESS	PRESSURE
PRKG	PARKING
PROJ	PROJECT
PRP	PHENOLIC RESIN PIPE
PRV	PRESSURE-REGULATING VALVE
PS	PIPE SPACE
PS CONC	PRESTRESSED CONCRETE
PSF	POUNDS PER SQUARE FOOT
PSI	POUNDS PER SQUARE INCH
PT	PAINT(ED)
PT	PNEUMATIC TUBE
PT CONC	POST-TENSIONED CONCRETE
PT.	POINT
PV	PROCESS VARIABLE
PVC	POLYVINYL CHLORIDE PIPE
PVDF	POLYVINYL CHLORIDE HOSE
PVG	PAVING
PW	PROCESS WATER
PW	PASS WINDOW
QO	QUENCH OIL
QT.	QUART
QTR	QUARTER
QTY	QUANTITY
R	RADIUS
R	RANGE
R	RISER
RA	RETURN AIR
RA GR	RETURN AIR GRILLE
RAR	RETURN AIR REGISTER
RAS	RETURN ACTIVATED SLUDGE
RBR	POLYVINYLIDENE FLUORIDE PIPE
RC	REMOTE CONTROL
RCCP	REINFORCED CONCRETE CULVERT PIPE
RCP	REINFORCED CONCRETE PIPE
RD	ROOF DRAIN
RECPT	RECEPTACLE
RECT	RECTIFIER
REF	REFERENCE
REFL	REFLECT
REFR	REFRIGERATION
REG	REGISTER
REG	REGLET
REINF	REINFORCE
REM	REMOVE(ABLE)
REQD	REQUIRED
RET	RETURN
REV	REVISION
RH	RELATIVE HUMIDITY
RH	RIGHT HAND
RLG	RAILING
RM	ROOM
RND	ROUND
RO	ROUGH OPENING
ROW	RIGHT OF WAY
RPM	REVOLUTIONS PER MINUTE
RS	RECOVERED SLOPS
RTD	RESISTANCE TEMPERATURE DETECTOR
RV	RELIEF VENT
RW	RAW WATER
RWC	RAINWATER CONDUCTOR
S	SOUTH
S.B.	SECURITY BARS
S/S	START/STOP
SA	SUPPLY AIR
SAR	SARAN TUBING
SBF	SODIUM BICARBONATE FEED LINE
SC	STEAM CONDENSATE
SC	SAMPLE CONNECTION
SCH	SCHEDULE
SCHED	SCHEDULE
SCRN	SCREEN
SCT	STRUCTURAL CLAY TILE
SD	SHUTDOWN
SD	STORM DRAIN
SDI	STEEL DOOR INSTITUTE
SECT	SECTION
SEQ	SEQUENCE
SFGL	SAFETY GLASS
SG	SYNTHESIS GAS
SG	SPECIFIC GRAVITY
SHLDR	SHOULDER
SHT	SHEET
SHTHG	SHEATHING
SHV	SHELVING
SIS	SAFETY INSTRUMENTED SYSTEMS
SJI	STEEL JOIST INSTITUTE
SLH	SLUDGE HOSE
SLNT	SEALANT
SLS	SARAN LINED STEEL PIPE
SLV	SLEEVE
SM	SHEET METAL
SMS	SHEET METAL SCREWS
SO	SEAL OIL
SO	STEAM OUT
SOV	SHUT OFF VALVE
SP	SET POINT
SP FIN	SPECIAL FINISH
SPC	SPACER
SPEC	SPECIFICATION
SPF	SOUNDPROOF
SPH	SEEPAGE PIT HEADER
SPH	SPACE HEATER
SPKR	SPEAKER
SQ	SQUARE
SQHD	SQUARE HEAD
SS	SANITARY SEWER
SS	STAINLESS STEEL
SS	STAINLESS STEEL PIPE OR TUBING
SS	SERVICE SINK
SS	STANDING SEAM (ROOF)
ST PR	STATIC PRESSURE
STA	STATION
STD	STANDARD
STL	STEEL
STOR	STORAGE
STRUCT	STRUCTURAL
STS	STORM SEWER
STWY	STAIRWAY
SUB FL	SUBFLOOR
SUSP	SUSPENDED
SV	SHEET VINYL
SW	SERVICE WATER
SW	SWITCH
SWBD	SWITCHBOARD
SWL	SKIMMER WASTE LINE
SWL	SKIMMER WASTE LINE
SWR	SEA WATER RETURN
SWS	SEA WATER SUPPLY
SYMM	SYMMETRICAL
SYNTH	SYNTHETIC
SYS	SYSTEM
T&G	TONGUE AND GROOVE
T/C	THERMOCOUPLE
T/T	TANGENT TO TANGENT
TAN	TANGENT
TDH	TOTAL DIFFERENTIAL HEAD
TEF	TEFLON TUBING
TEL	TELEPHONE
TEMP	TEMPERATURE
TEMP	TEMPORARY
TERM	TERMINAL
TGL	TOGGLE
THK	THICK(NESS)
THRD	THREADED
TI	TITANIUM ALLOY PIPE
TL	TANGENT LINE
TLS	TEFLON LINED STEEL PIPE
TO	TOP OF
TOPO	TOPOGRAPHY
TOS	TOP OF SLAB
TOS	TOP OF STEEL
TOW	TOP OF WALL
TRANS	TRANSOM
TRANS	TRANSVERSE
TSO	TIGHT SHUT-OFF
TSTAT	THERMOSTAT
TV	TELEVISION
TWR	TEMPERED WATER RETURN
TWS	TEMPERED WATER SUPPLY
TYB	TYGON® TUBING BRAIDED
TYG	TYGON® TUBING UNBRAIDED
TYP	TYPICAL
TYP	TYPICAL
UC	UNIT COOLER
UG	UNDERGROUND
UGND	UNDERGROUND
UH	UNIT HEATER
UL	UNDERWRITERS LABORATORIES
UNEX	UNEXCAVATED
UNFIN	UNFINISHED

LINE NUMBER IDENTIFICATION

3"-Sch 80 PVC-SWL-1300

- FLOW STREAM IDENTIFICATION
- MATERIAL CLASS
- LINE SIZE

EQUIPMENT IDENTIFICATION

TK-0100	EQUIPMENT TAG AND NUMBER
PRIMARY TANK (TRASH TRAP)	DESCRIPTION
25,000 gal (US)	VOLUME
FIBERGLASS	MATERIALS OF CONSTRUCTION

STANDARD SYMBOLS

	WATER LEVEL
Maximum Vol: Working Vol: Minimum Vol:	WATER LEVEL WITH VOLUME
HighHigh (HH): High (H): Working: Low (L): LowLow (LL):	WATER LEVEL WITH VOLUME
Service: From: / To: / Connector No: / Sheet / XX / PGS Comment	OFF PAGE CONNECTOR
Sht Fr/To From / To / # / Connector Number / Z / Pipe Group Service Comment	OFF PAGE CONNECTOR TWO-WAY
Service: To From: Connector Number To: Pipe Group Service Connector No: From Comment	TERMINAL CONNECTOR
Instrument Control ie. HOA Instrument ID Instrument Loop Number Instrument Control Panel	INSTRUMENT TAG
Function Instrument ID Number	VALVE TAG
DI	Discrete Input
DO	Discrete Output
AI	Analog Input
AO	Analog Output

VALVE SYMBOLS

NORMALLY CLOSED	NORMALLY OPEN	
		BALL
		GATE
		GLOBE
		BUTTERFLY
		PLUG
		PINCH
		NEEDLE
		DIAPHRAGM
		KNIFE GATE
		SLIDING GATE
		FLOAT
		ROTARY 3-OUT
		ANGLE VALVE
		CHECK VALVE W/ STOP
		CHECK VALVE
		3-WAY VALVE
		4-WAY VALVE
		PRESSURE RELIEF - SAFETY VALVE (PSV)

STANDARD EQUIPMENT SYMBOLS

PUMPS

	CENTRIFUGAL PUMP		VERTICAL INLINE PUMP
	SUBMERSIBLE CENTRIFUGAL SUMP PUMP		METERING PUMP
	SUBMERSIBLE TURBINE PUMP		SUMP PUMP
	PROGRESSIVE CAVITY PUMP		DOUBLE SUCTION CENTRIFUGAL PUMP
	DIAPHRAGM PUMP		VERTICAL TURBINE PUMP
	AIR OPERATED SINGLE DIAPHRAGM		SCREW PUMP
	AIR OPERATED DOUBLE DIAPHRAGM PUMP		

BLOWERS

	POSITIVE DISPLACEMENT BLOWER		Rotary Lobe Blower

FILTRATION

	FILTER WITH CONVEYANCE		EFFLUENT FILTER
	MEMBRANE FILTER		PUMP FILTER VAULT

TREATMENT AND DISPERSAL

	Attached Growth Treatment Pod		SEEPAGE PIT
	MIXER		

TANKS

	Horizontal Fiberglass Tank		Open Top or Process Tank
	CONICAL BOTTOM TANK		

PIPING SPECIALTY ITEMS

	Y-TYPE STRAINER		EJECTOR
	CONE STRAINER	RS	REMOVABLE SPOOL
	T-TYPE STRAINER	DS	DESUPERHEATER
	BASKET STRAINER		FLEXIBLE HOSE
	TEMPORARY STRAINER		EXPANSION JOINT
CO	CLEAN-OUT END OF LINE		WALL SEAL
CO	CLEAN-OUT IN-LINE		SPRAY HEAD
	FILTER		DIFFUSER
D	DETONATION ARRESTOR		DRAIN
F	FLAME ARRESTOR		DAMPER
T	STEAM TRAP		BREATHER
	EXHAUST HEAD		VENT COVER
S	IN-LINE SILENCER		IN-LINE MIXER
S	VENT SILENCER		DIVERTER VALVE
	EXCESS FLOW VALVE		ROTARY VALVE
	PULSATION DAMPENER		

LPA

ARCHITECTURE ENGINEERING INTERIOR DESIGN
LANDSCAPE ARCHITECTURE PLANNING

949-261-1001 Office

LPADesignStudios.com

5301 California Avenue, Suite 100
Irvine, California 92617

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"Dedicated to achieving higher standards in onsite and decentralized wastewater systems."

ENSITU ENGINEERING, INC.
7475 Carmelita Ave.
Atascadero, CA 93422
Tel: 805.772.0150
ENSITU@ensitu.com

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MALIBU MIDDLE & HIGH SCHOOL PHASE 2
30215 MORNING VIEW DRIVE
MALIBU, CALIFORNIA

Developed for SMMUSD

Revision	Date

Submittal	Date
SCHEMATIC DESIGN	09/04/2024
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Checked By	JNY
Scale	

P&ID ABBREVIATIONS AND SYMBOLS–01

PW-04

INSTRUMENT OR CONNECTION TO PROCESS

Symbol	Description
	INSTRUMENT OR CONNECTION TO PROCESS
	PNEUMATIC SYMBOL
	ELECTRIC SIGNAL
	HYDRAULIC SIGNAL
	CAPILLARY TUBE
	ELECTROMAGNETIC, SONIC, OPTICAL OR NUCLEAR SIGNAL
	SOFTWARE OR DATA LINK
	MECHANICAL LINK

CONTROL VALVE ACTUATOR SYMBOLS

Symbol	Description
	INSTRUMENT WITH LONG TAG NUMBER
	DUAL FUNCTION OR INSTRUMENTS SHARING COMMON HOUSING
	PILOT LIGHT OR GAUGE GLASS ILLUMINATOR
I	UNDEFINED INTERLOCK
	CHEMICAL SEAL–DIAPHRAM

General Instrument Symbols

LOCATION/ACCESSBILITY	DISCRETE INSTRUMENTS	SHARED DISPLAY AND CONTROL (DCS)	PLC	DISCRETE HARDWARE INTERLOCK
FIELD MOUNTED 1. FIELD OR LOCALLY MOUNTED 2. ACCESSIBLE TO AN OPERATOR AT DEVICE				
PRIMARY LOCATION NORMALLY ACCESSIBLE TO AN OPERATOR 1. CENTRAL OR MAIN CONTROL ROOM 2. FRONT OF MAIN PANEL OR CONSOLE MOUNTED. 3. VISIBLE ON VIDEO DISPLAY 4. ACCESSIBLE TO AN OPERATOR AT DEVICE OR CONSOLE.				
PRIMARY LOCATION NORMALLY INACCESSIBLE TO AN OPERATOR 1. CENTRAL OR MAIN CONTROL ROOM 2. REAR OF MAIN PANEL OR CONSOLE MOUNTED. 3. NOT VISIBLE ON VIDEO DISPLAY 4. NOT NORMALLY ACCESSIBLE TO AN OPERATOR AT DEVICE OR CONSOLE.				
AUXILIARY LOCATION NORMALLY ACCESSIBLE TO AN OPERATOR 1. SECONDARY OR LOCAL CONTROL ROOM 2. FIELD OR LOCAL CONTROL ROOM 3. FRONT OF SECONDARY OR LOCAL PANEL OR CABINET MOUNTED. 4. VISIBLE ON VIDEO DISPLAY 5. ACCESSIBLE TO AN OPERATOR AT DEVICE OR CONSOLE				
AUXILIARY LOCATION NORMALLY INACCESSIBLE TO AN OPERATOR 1. SECONDARY OR LOCAL CONTROL ROOM 2. FIELD OR LOCAL CONTROL ROOM 3. REAR OF SECONDARY OR LOCAL PANEL OR CABINET MOUNTED. 4. NOT VISIBLE ON VIDEO DISPLAY 5. NOT NORMALLY ACCESSIBLE TO AN OPERATOR AT DEVICE OR CONSOLE				

INSTRUMENT IDENTIFICATION LETTERS

	FIRST LETTER		SUCCEEDING LETTERS	
	PROCESS VARIABLE	MODIFIER	READOUT OR COMPUTER FUNCTION	MODIFIER (IF NEEDED)
A	ANALYSIS		ALARM	
B	BURNER, COMBUSTION		USER'S CHOICE	USER'S CHOICE
C	USER'S CHOICE		CONTROL	
D	USER'S CHOICE	DIFFERENTIAL		
E	VOLTAGE		SENSOR (PRIMARY ELEMENT)	
F	FLOWRATE	RATIO (FRACTION)		
G	USER'S CHOICE		GLASS, VIEWING DEVICE	
H	HAND			HIGH
I	CURRENT (ELECTRICAL)		INDICATE	
J	POWER	SCAN		
K	TIME, TIME SCHEDULE	TIME RATE OF CHANGE	CONTROL STATION	
L	LEVEL		LIGHT	LOW
M	USER'S CHOICE	MOMENTARY		MIDDLE, INTERMEDIATE
N	USER'S CHOICE		USER'S CHOICE	USER'S CHOICE
O	USER'S CHOICE		ORIFICE (RESTRICTION)	
P	PRESSURE, VACUUM		POINT (TEST CONNECTION)	
Q	QUANTITY	INITIGRATE, TOTALIZE		
R	RADIATION		RECORD	
S	SPEED, FREQUENCY	SAFETY	SWITCH	
T	TEMPERATURE		TRANSMIT	
U	MULTIVARIABLE		MALFUNCTION	MULTIFUNCTION
V	VIBRATION, MECH. ANALYSIS		VALVE, DAMPER, LOUVER	
W	WEIGHT, FORCE		WELL	
X	UNCLASSIFIED	X–AXIS	UNCLASSIFIED	UNCLASSIFIED
Y	EVENT, STATE OR PRESENCE	Y–AXIS	RELAY, COMPUTE, CONVERT	
Z	POSITION, DIMENSION	Z–AXIS	DIMMER, ACTUATOR, UNCLASSIFIED FINAL CONTROL ELEMENT	

CONTROL VALVE ACTUATOR SYMBOLS

Symbol	Description	Symbol	Description
	Manual Actuator	E/H	Electro Hydraulic
	Diaphragm Actuator		Electro Pneumatic
	Balanced Diaphragm	S	Solenoid
	Hand and	S	Solenoid Manual Reset
	Cylinder	S	Solenoid Remote Reset
M	Motor		

PRIMARY ELEMENTS

Symbol	Description
	SUBMERSIBLE PRESSURE TRANSDUCER
	LEVEL (FLOAT)
	LEVEL (ULTRASONIC)
	BUBBLER

PRIMARY ELEMENT SYMBOLS (FLOW)

- GENERAL SYMBOL IN–LINE ELEMENT XX = FS, FG, FE, FT
- IN–LINE FLOW ELEMENT WITH INTEGRAL TRANSMITTER XXXX = MASS, CORIOLIS, THERMAL, INT. ORIFICE ...
- IN–LINE FLOW ELEMENT WITH SEPARATE TRANSMITTER XXXX = MASS, CORIOLIS, THERMAL...
- ORIFICE
- MAGNETIC
- TURBINE OR PROPELLER
- ULTRASONIC
- VORTEX
- PITOT TUBE
- AVERAGING PITOT TUBE
- FLOW NOZZLE
- VENTURI
- WEDGE METER
- FLUME
- WEIR
- POSITIVE DISPLACEMENT
- ORIFICE IN QUICK CHANGE FITTING
- TARGET
- ROTAMETER WITH INTEGRAL VALVE (SHOWN WITH OPTIONAL INTEGRAL VALVE)
- FLOW SWITCH * = H/L
- FLOW GLASS
- FLOW CONDITIONING DEVICES (e.g., STRAIGHTENING VANES)
- RESTRICTION ORIFICE
- ROTAMETER

INSTRUMENT FUNCTION SYMBOLS

Symbol	Function	Symbol	Function
Σ	SUMMING	>	HIGH SELECT
Σ/n	AVERAGING	<	LOW SELECT
Δ	DIFFERENCE		HIGH LIMIT
X	MULTIPLYING		LOW LIMIT
÷	DIVIDING	±	BIAS
√	SQUARE ROOT	f(x)	UNSPECIFIED FUNCTION
X^n	EXPONENTIAL		USER DEFINED
/	CONVERSION INPUT/OUTPUT		

/ A ANALOG, B BINARY, D DIGITAL, E VOLTAGE, H HYDRAULIC, I CURRENT, O ELECTROMAGNETIC, SONIC, P PNEUMATIC, R RESISTANCE (ELECTRICAL)

Typical ISA Instrument Letter Identification (ISA 5.1)

First Letter	Initial or Measured Variable	Controller: Recording	Controller: Indicating	Controller: Blind	Controller: Self Actuated Control Valve	Readout Device: Recording	Readout Device: Indicating	Switches and Alarm Devices*: General	High**	Above High	Low	Below Low	Combo	Transmitter: Recording	Transmitter: Indicating	Transmitter: Blind	Solenoids, Relays, Computing Devices	Primary Element	Test Point	Well or Probe	Viewing Device, Glass	Safety Device	Final Element
A	Analysis	ARC	AIC	AC		AR	AI		ASH		ASL		ASHL	ART	AIT	AT	AY	AE	AP	AW			AV
B	Burner/ Combustion	BRC	BIC	BC		BR	BI		BSH		BSL		BSHL	BRT	BIT	BT	BY	BE		BW	BG		BZ
C	User's Choice																						
D	User's Choice																						
E	Voltage	ERC	EIC	EC		ER	EI		ESH		ESL		ESHL	ERT	EIT	ET	EY	EE					EZ
F	Flow Rate	FRC	FIC	FC	FCV	FR	FI		FSH		FSL		FSHL	FRT	FIT	FT	FY	FE	FP		FG		FV
					FICV																		
FQ	Flow Quality	FQRC	FQIC			FQR	FQI		FQSH		FQSL				FQIT	FQT	FQY	FQE					FQV
FF	Flow Ratio	FFRC	FFIC	FFC		FFR	FFI		FFSH		FFSL							FE					FFV
G	User's Choice																						
H	Hand		HIC	HC									HS										HV
I	Current	IRC	IIC			IR	II		ISH		ISL		ISHL	IRT	IIT	IT	IY	IE					IZ
J	Power	JRC	JIC			JR	JI	JS	JSH		JSL		JSHL	JRT	JIT	JT	JY	JE					JV
K	Time	KRC	KIC	KC	KCV	KR	KI		KSH		KSL		KSHL	KRT	KIT	KT	KY	KE					KV
L	Level	LRC	LIC	LC	LCV	LR	LI	LS	LSH	LSHH	LSL	LSLL	LSHL	LRT	LIT	LT	LY	LE		LW	LG		LV
M	User's Choice (Moisture)							MS	MSH														
N	User's Choice																						
O	User's Choice																						
P	Pressure/ Vacuum	PRC	PIC	PC	PCV	PR	PI		PSH		PSL		PSHL	PRT	PIT	PT	PY	PE	PP			PSV	PV
																						PSE	
PD	Pressure, Differential	PDRC	PDIC	PDC	PDCV	PDR	PDI		PDSH		PDSL			PDRT	PDIT	PDT	PDY	PE	PP				PDV
Q	Quality	QRC	QIC			QR	QI		QSH		QSL		QSHL	QRT	QIT	QT	QY	QE					QZ
R	Radiation	RRC	RIC	RC		RR	RI		RSH		RSL		RSHL	RRT	RIT	RT	RY	RE		RW			RZ
S	Speed/ Frequency	SRC	SIC	SC	SCV	SR	SI		SSH		SSL		SSHL	SRT	SIT	ST	SY	SE					SV
T	Temperature	TRC	TIC	TC	TCV	TR	TI		TSH		TSL		TSHL	TRT	TIT	TT	TY	TE	TP	TW		TSE	TV
TD	Temperature, Differential	TDRC	TDIC	TDC	TDCV	TDR	TDI		TDSH		TDSL			TDRT	TDIT	TDT	TDY	TE	TP	TW			TDV
U	Multivariable					UR	UI										UY						UV
V	Vibration/Machinery Analysis					VR	VI		VSH		VSL		VSHL	VRT	VIT	VT	VY	VE					VZ
W	Weight/ Force	WRC	WIC	WC	WCV	WR	WI		WSH		WSL		WSHL	WRT	WIT	WT	WY	WE					WZ
WD	Weight/ Force Differential	WDRC	WDIC	WDC	WDCV	WDR	WDI		WDSH		WDSL			WDRT	WDIT	WDT	WDY	WE					WDZ
X	Unclassified																						
Y	Event/ State/ Presence		YIC	YC		YR	YI	YS	YSH		YSL					YT	YY	YE					YZ
Z	Position/ Dimension	ZRC	ZIC	ZC	ZCV	ZR	ZI		ZSH		ZSL		ZSHL	ZRT	ZIT	ZT	ZY	ZE					ZV
ZD	Gauging/ Deviation	ZDRC	ZDIC	ZDC	ZDCV	ZDR	ZDI		ZDSH		ZDSL			ZDRT	ZDIT	ZDT	ZDY	ZDE					ZDV

Note: This table is not all-inclusive. Other Possible Combinations:

*A, alarm, the annunciating device, may be used in the same fashion as S, switch, the actuating device.

**The letters H and L may be omitted in the undefined case. TJR (Scanning Recorder) WKIC (Rate-of-Weight-Loss Controller)

Other Possible Combinations:			
FO	(Restriction Orifice)	PFR	(Ratio)
FRK, HIK	(Control Stations)	KQI	(Running Time Indicator)
FX	(Accessories)	QQI	(Indicating Counter)
TJR	(Scanning Recorder)	WKIC	(Rate-of-Weight-Loss Controller)
LLH	(Pilot Light)	HMS	(Hand Momentary Switch)

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ARCHITECTURE ENGINEERING INTERIOR DESIGN LANDSCAPE ARCHITECTURE PLANNING

949-261-1001 Office

LPADesignStudios.com

5301 California Avenue, Suite 100
Irvine, California 92617

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ENSITU ENGINEERING, INC.
7475 Carmelita Ave.
Atascadero, CA 93422
Tel: 805.772.0150
ENSITU@ensitu.com

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MALIBU MIDDLE & HIGH SCHOOL PHASE 2
30215 MORNING VIEW DRIVE
MALIBU, CALIFORNIA

Developed for SMMUSD

Revision	Date

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SCHEMATIC DESIGN	09/04/2024
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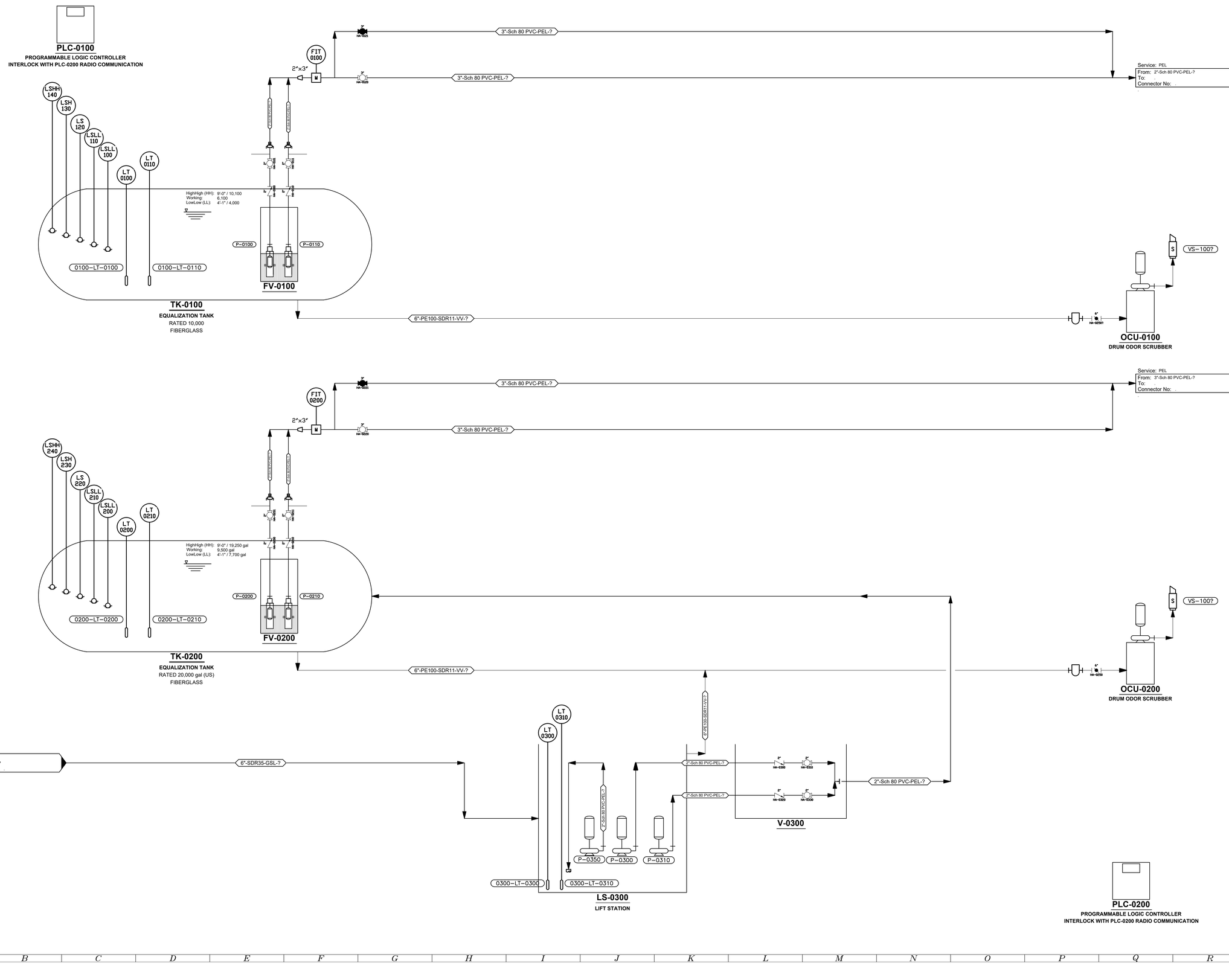
100% DESIGN DEVELOPMENT	02/21/2025
CDP SUBMITTAL	06/16/2025
50% CONSTRUCTION DOCS	06/27/2025
DSA SUBMITTAL	09/08/2025

Job Number	817-01
Checked By	JNY
Scale	

P&ID ABBREVIATIONS AND SYMBOLS–02

PW-05



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LANDSCAPE ARCHITECTURE PLANNING
949-261-1001 Office
LPADesignStudios.com
5301 California Avenue, Suite 100
Irvine, California 92617

NOT FOR REGULATORY APPROVAL, PERMITTING, OR CONSTRUCTION
REGISTERED PROFESSIONAL ENGINEER JOHN YAROSZ
EXP 06-2026
CIVIL
STATE OF CALIFORNIA

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ENSITU ENGINEERING, INC.
7475 Carmelita Ave.
Atascadero, CA 93422
Tel: 805.772.0150
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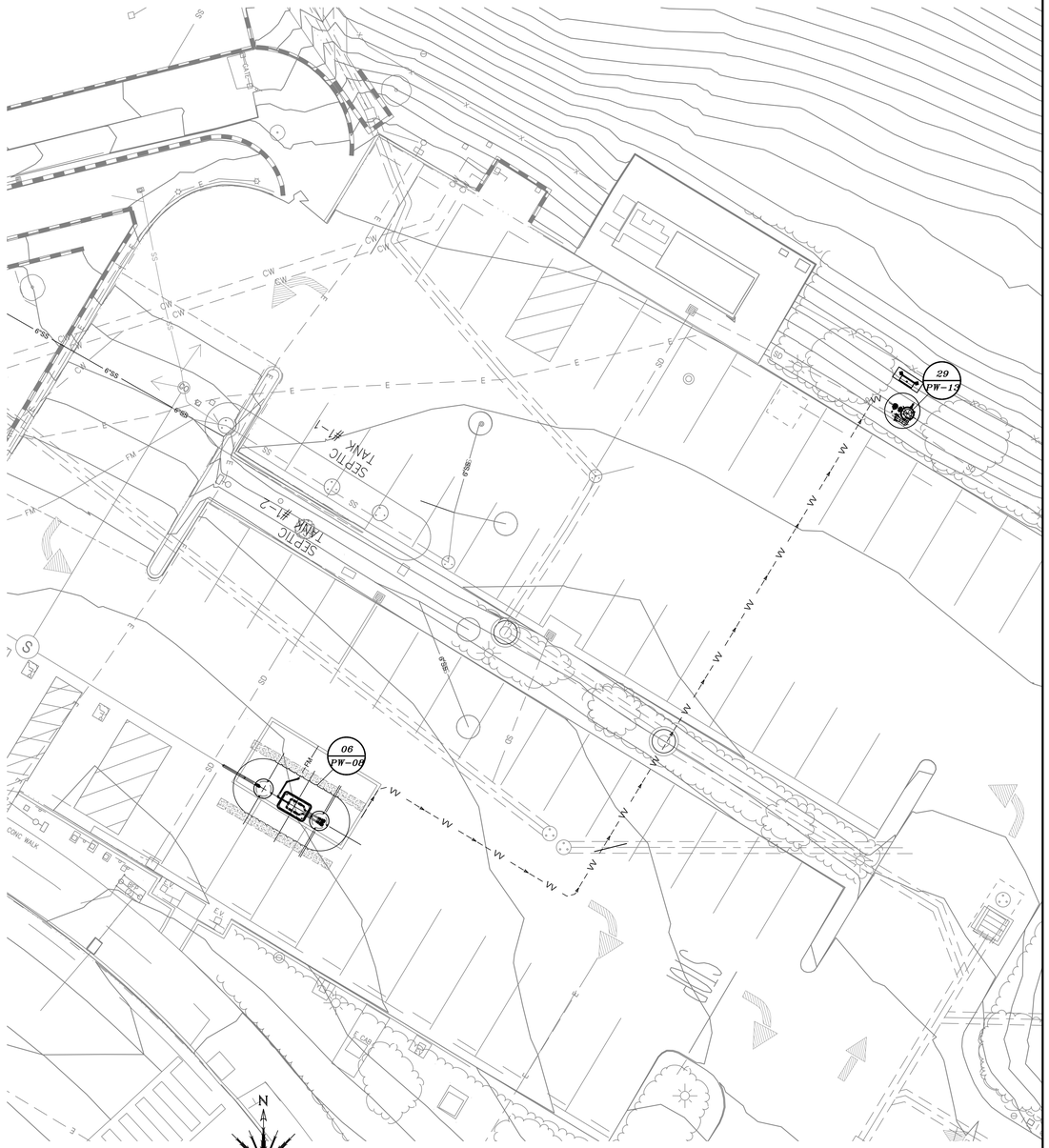
PROCESS AND INSTRUMENTATION DIAGRAM – P&ID

PW-06



04 PW-07 *WEST EQUALIZATION TANK PIPING PLAN*

SCALE: 1" = 10'_XREF



05 PW-07 *EAST EQUALIZATION TANK PIPING PLAN*

SCALE: 1" = 10'_XREF

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949-261-1001 Office

LPADesignStudios.com

5301 California Avenue, Suite 100
Irvine, California 92617

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7475 Carmelita Ave.
Atascadero, CA 93422
Tel: 805.772.0150
ENSITU@ensitu.com

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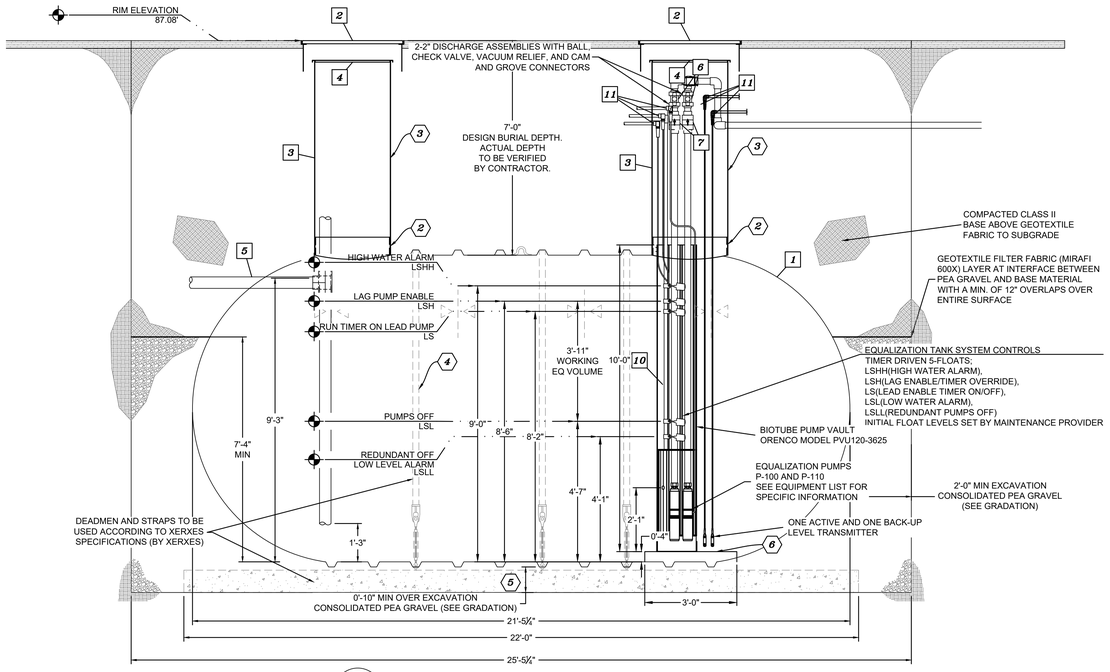
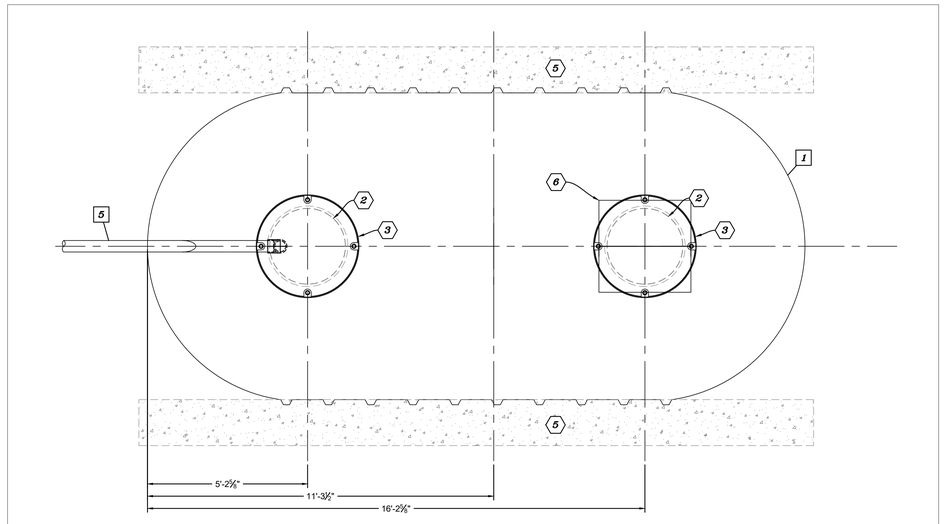
PIPING PLAN

PW-07



07 PW-08 *TK-3000 EQUALIZATION TANK SECTION*
SCALE: 1/2" = 1'



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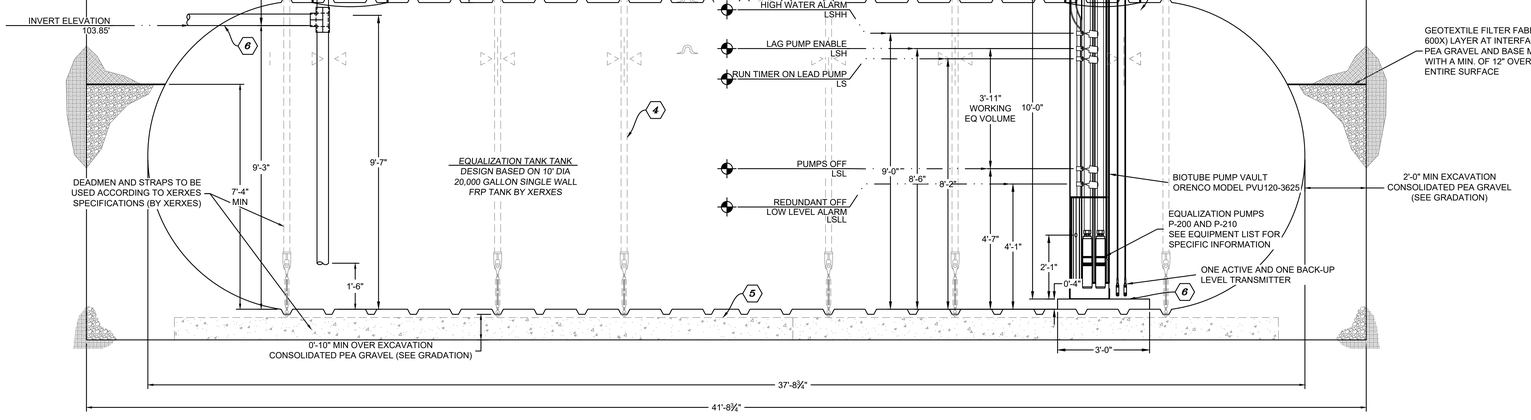
SCALE: 1/2" = 1'



09 PW-08 *TK-3100 EQUALIZATION TANK SECTION*
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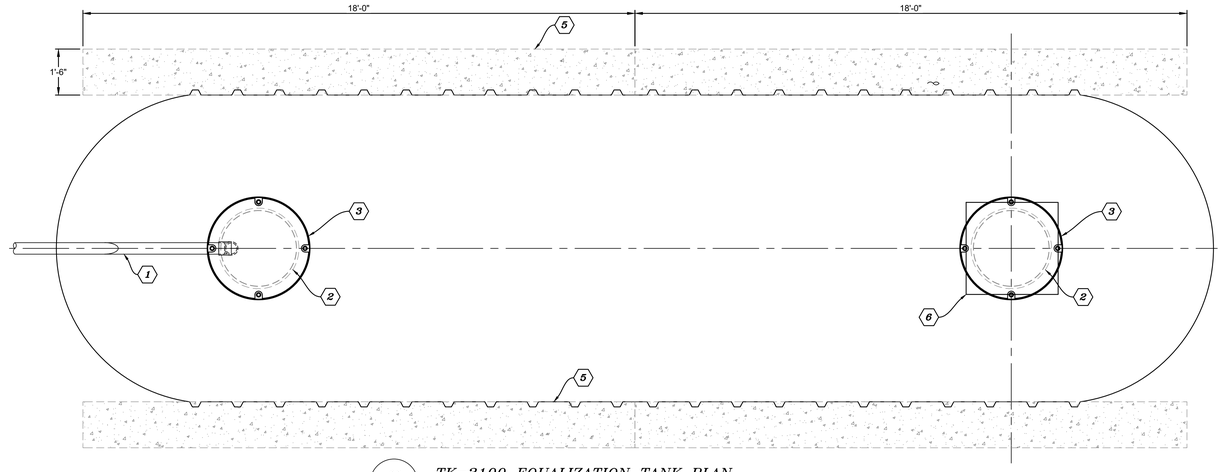

08 PW-08 *TK-3100 EQUALIZATION TANK PLAN*
SCALE: 1/2" = 1'

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LANDSCAPE ARCHITECTURE PLANNING
949-261-1001 Office
LPADesignStudios.com
5301 California Avenue, Suite 100
Irvine, California 92617

REGISTERED PROFESSIONAL ENGINEER JOHN YAROSLAVSKY No. 92625 CIVIL EXP 06-2026 STATE OF CALIFORNIA

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"Dedicated to achieving higher standards in onsite and decentralized wastewater systems."

ENSITU ENGINEERING, INC.
7475 Carmelita Ave.
Atascadero, CA 93422
Tel: 805.772.0150
ENSITU@ensitu.com

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EQUALIZATION TANK SECTIONS

PW-08

MANHOLE (ACCESS) COVERS, UNDERGROUND FIBERGLASS REINFORCED PLASTIC TANKAGE, AND UNDERGROUND FIBERGLASS REINFORCED PLASTIC WET WELL EQUIPMENT SECTION AND NOTES:

1. RELATED DOCUMENTS
 1.1. DRAWINGS AND GENERAL PROVISIONS OF THE CONTRACT, INCLUDING GENERAL AND SUPPLEMENTARY CONDITIONS AND DIVISION 01 SPECIFICATION SECTIONS, APPLY TO THIS SECTION AND THE FOLLOWING NOTES.

2. SUBSTITUTIONS AND "OR EQUAL" SUBMITTAL
 2.1. THE CONTRACTOR MAY SUPPLY ANY OF THE MATERIALS SPECIFIED OR OFFER AN EQUIVALENT. THE ENGINEER SHALL DETERMINE WHETHER THE MATERIAL OFFERED IS EQUIVALENT TO THAT SPECIFIED. THE CONTRACTOR SHALL MAKE ALL "OR EQUAL" SUBMITTALS WITHIN THIRTY (30) CALENDAR DAYS AFTER ISSUANCE OF NOTICE TO PROCEED. ANY REQUEST OR SUBMITTAL RECEIVED AFTER THE SPECIFIED PERIOD WILL BE CONSIDERED AS NOT EQUAL TO THAT SO SPECIFIED AND WILL BE PROCESSED AS A SUBSTITUTION DESCRIBED HEREINAFTER.
 2.2. WHENEVER ANY PARTICULAR MATERIAL, PROCESS, OR EQUIPMENT IS INDICATED BY PATENT, PROPRIETARY OR BRAND NAME, OR BY NAME OF MANUFACTURER, SUCH WORDING IS USED FOR THE PURPOSE OF FACILITATING ITS DESCRIPTION AND SHALL BE DEEMED TO BE FOLLOWED BY THE WORDS 'OR EQUAL.' A LISTING OF MATERIALS IS NOT INTENDED TO BE COMPREHENSIVE, OR IN ORDER OF PREFERENCE. THE CONTRACTOR MAY OFFER ANY MATERIAL, PROCESS, OR EQUIPMENT CONSIDERED TO BE EQUIVALENT TO THAT INDICATED. THE SUBSTANTIATION OF OFFERS SHALL BE SUBMITTED AS PROVIDED IN THE CONTRACT DOCUMENTS.
 2.3. THE CONTRACTOR SHALL, AT ITS EXPENSE, FURNISH DATA CONCERNING ITEMS OFFERED BY IT AS EQUIVALENT TO THOSE SPECIFIED. THE CONTRACTOR SHALL HAVE THE MATERIAL TESTED AS REQUIRED BY THE ENGINEER TO DETERMINE THAT THE QUALITY, STRENGTH, PHYSICAL, CHEMICAL, OR OTHER CHARACTERISTICS, INCLUDING DURABILITY, FINISH, EFFICIENCY, DIMENSIONS, SERVICE, AND SUITABILITY ARE SUCH THAT THE ITEMS WILL FULFILL ITS INTENDED FUNCTION.
 2.4. TEST METHODS SHALL BE SUBJECT TO THE APPROVAL OF THE ENGINEER. TEST RESULTS SHALL BE REPORTED PROMPTLY TO THE ENGINEER, WHO WILL EVALUATE THE RESULTS AND DETERMINE IF THE SUBSTITUTES ITEMS IS EQUIVALENT. THE ENGINEER'S FINDINGS SHALL BE FINAL. INSTALLATION AND USE OF A SUBSTITUTE ITEMS SHALL NOT BE MADE UNTIL APPROVED BY THE ENGINEER.
 2.5. ALL MANUFACTURER'S DATA SUBMITTED TO THE ENGINEER FOR REVIEW AND ACCEPTANCE SHALL CLEARLY IDENTIFY EACH PROPOSED SUBSTITUTE WITH THE CORRESPONDING CONTRACT DRAWING DETAIL AND SPECIFICATION SECTION. IF THE ENGINEER DECIDES TO ACCEPT FOR USE IN THE PROJECT A MATERIAL, PROCESS OR ARTICLE WHICH IS NOT THE EQUAL OF THAT SPECIFIED, SUBSTITUTION SHALL BE MADE IN THE MANNER DESCRIBED IN CHANGES AND EXTRA WORK OF THE GENERAL CONDITIONS, WITH A CREDIT TO THE COUNTY OR THE DIFFERENCE IN VALUE.
 2.6. THE ENGINEER SHALL DETERMINE WHETHER THE MATERIAL OFFERED IS EQUIVALENT TO THAT SPECIFIED. ANY REVISION TO STRUCTURES, PIPING, MECHANICAL, ELECTRICAL, INSTRUMENTATION, OR ANY OTHER WORK MADE NECESSARY BY SUCH SUBSTITUTION MUST BE APPROVED BY THE ENGINEER, AND THE ENTIRE COST BOTH DIRECT AND INDIRECT OF THESE REVISIONS SHALL BE BORNE BY THE CONTRACTOR.
 2.7. ANY MATERIALS, PROCESS, OR ARTICLE MAY BE REQUESTED AS A SUBSTITUTION BY THE CONTRACTOR, IN LIEU OF THAT SPECIFIED, UNDER THE FOLLOWING CONDITIONS:
  2.7.1. REQUESTS MUST BE SUBMITTED IN WRITING AND IN THE MANNER DESCRIBED IN SHOP DRAWINGS / SUBMITTALS OF THESE GENERAL REQUIREMENTS.
  2.7.2. REQUESTS MUST BE SUBMITTED THIRTY (30) CALENDAR DAYS PRIOR TO STARTING THE WORK, AS ESTABLISHED BY THE ENGINEER, SO AS NOT TO CAUSE ANY DELAY IN COMPLETION OF THE PROJECT. NO OTHER REQUEST WILL BE CONSIDERED AFTER EXPIRATION OF THE PERIOD SPECIFIED, EXCEPT THAT IN EXCEPTIONAL CASES WHERE IT IS DETERMINED TO BE IN THE BEST INTEREST OF THE COUNTY, AS APPROVED BY THE ENGINEER.
  2.7.3. THE CONTRACTOR AGREES TO PAY FOR ALL ENGINEERING AND DESIGN SERVICES, IF REQUIRED, TO MAKE ALL CHANGES AND ADJUSTMENTS IN MATERIAL AND WORK OF ALL TRADES DIRECTLY OR INDIRECTLY AFFECTED BY THE SUBSTITUTE, TO THE SATISFACTION OF THE ENGINEER, AT NO COST TO THE COUNTY.
  2.7.4. ALL REQUESTS FOR SUBSTITUTION SHALL BE MADE THROUGH THE CONTRACTOR. SUBMISSIONS BY THE MANUFACTURER SHALL BE ONLY THE CONTRACTOR'S APPROVAL OF SUCH SUBSTITUTION.
  2.7.5. NO REQUESTS FOR SUBSTITUTIONS WILL BE CONSIDERED DURING THE BIDDING PERIOD.
  2.7.6. THE CONTRACTOR SHALL FURNISH ADEQUATE DATA WITH EACH REQUEST FOR APPROVAL OF A SUBSTITUTE TO ENABLE THE ENGINEER TO EVALUATE THE PROPOSED SUBSTITUTION.
  2.7.7. IF A SUBSTITUTE OFFERED BY THE CONTRACTOR IS NOT FOUND TO BE EQUAL TO THE SPECIFIED MATERIAL, THEN CONTRACTOR SHALL FURNISH AND INSTALL THE SPECIFIED MATERIAL.
  2.7.8. THE SPECIFIED CONTRACT COMPLETION TIME SHALL NOT BE AFFECTED BY ANY CIRCUMSTANCE DEVELOPING FROM THE PROVISIONS OF THIS SECTION

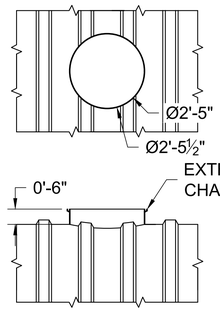
3. 36" ROUND MANHOLE WITH COMPOSITE COVER, BOLT-DOWN 12" SKIRT,
 3.1. SHIRT SHALL BE 316 STAINLESS STEEL OR COATED AS FOLLOWS:
  3.1.1. SURFACE PREP:
   3.1.1.1. WHITE METAL BLAST CLEANING (SSPC-SP5/NACE1): REMOVAL OF ALL VISIBLE RUST, MILL SCALE, PAINT, AND FOREIGN MATTER BY BLAST CLEANING BY WHEEL OR NOZZLE (DRY OR WET) USING SAND, GRIT, OR SHOT.
  3.1.2. COATING
   3.1.1.1. EPOXY MORTAR: HIGH-BUILD, 3-COMPONET AMINE CURED EPOXY MORTAR, SHALL HAVE A SOLIDS CONTENT OF 100 PERCENT BY VOLUME, SUITABLE FOR LONG-TERM IMMERSION AND ATMOSPHERIC EXPOSURE TO WASTEWATER. FILLER-RESURFACER COMPOUND SHALL BE A 3-COMPONENT EPOXY CEMENTITIOUS THIN OVERLAY MATERIAL USED TO FILL VOIDS AND ROUGH AREAS AND MUST FEATHER-EDGE CAPABLE. EPOXY GLAZE (FINISH) COAT SHALL BE 100 PERCENT SOLIDS EPOXY SUITABLE FOR LONG-TERM IMMERSION AND ATMOSPHERIC EXPOSURE TO WASTEWATER.
   3.1.1.2. FILLER/RESURFACER THIN OVERLAY (THICKNESS = MINIMUM 1/16"), TNEMEC 218 MORTARCLAD, OR EQUAL.
   3.1.1.3. EPOXY MORTAR (DFT = 125 MILS) TNEMEC 434 PERMA-SHIELD, OR EQUAL.
   3.1.1.4. FINISH COAT (DFT = 15-20 MILS), TNEMEC 435 PERMA-GLAZE, OR EQUAL

4. UNDER GROUND FIBERGLASS REINFORCED PLASTIC TANKAGE
 4.1. GENERAL
  4.1.1. FIBERGLASS TANK MANUFACTURER AND FIBERGLASS TANK INSTALLER SHALL COORDINATE TO DETERMINE TANK PENETRATIONS, BRACKETS,AND OTHER APPURTENANCES PRIOR TO FINAL TANK CONSTRUCTION AND IN ACCORDANCE WITH SPECIFICATIONS.
  4.1.2. TANKS AND EQUIPMENT SHALL BE INSTALLED IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS.
  4.1.3. TANK SHALL BE SUBJECTED TO TRAFFIC LOADS (H-20 LOADS) TANK MUST HAVE A COVER DEPTH OF AT LEAST 36 INCHES OF BACKFILL (COMPACTED CLASS II BASE).
  4.1.4. THE MAXIMUM BURIAL DEPTH IS 7 FEET OF COVER OVER THE TOP OF THE TANK. DEVIATION FROM THIS MAY BE PERMISSIBLE WITH PRIOR WRITTEN AUTHORIZATION FROM XERXES.
  4.1.5. CONCRETE PAD MUST EXTEND A MINIMUM OF 24 INCHES BEYOND THE TANK IN ALL DIRECTIONS.
  4.1.6. IF THERE IS AN UNATTACHED RISER OVER AN ACCESS OPENING, IT MUST NOT TRANSMIT LOAD FROM THE ASPHALT OR CONCRETE SLAB TO THE TANK. A MINIMUM SPACE OF 6 INCHES MUST EXIST BETWEEN THE BOTTOM OF THE RISER AND THE TOP OF THE TANK.
  4.1.7. IF THERE IS AN ATTACHED RISER ON AN ACCESS OPENING, IT MUST NOT TRANSMIT LOAD FROM THE ASPHALT OR CONCRETE SLAB TO THE TANK. A MINIMUM SPACE OF 3 INCHES MUST EXIST BETWEEN THE RISER OR SUMP AND THE SLAB.
  4.1.8. TANKS SHALL BE ANCHORED AS SHOWN ON PLANS
 4.2. SCOPE OF WORK
  4.2.1. THE CONTRACTOR SHALL FURNISH ALL LABOR, MATERIALS, TOOLS, EQUIPMENT, AND PERFORM ALL WORK AND SERVICES NECESSARY FOR THE INSTALLATION OF THE FIBERGLASS TANKAGE AS SHOWN ON THE CONTRACT DRAWINGS AND AS SPECIFIED, IN ACCORDANCE WITH PROVISIONS OF THE CONTRACT DOCUMENTS, AND COMPLETELY COORDINATED WITH WORK OF ALL OTHER TRADES.
  4.2.2. ALTHOUGH SUCH WORK IS NOT SPECIFICALLY INDICATED, FURNISH AND INSTALL ALL SUPPLEMENTARY OR MISCELLANEOUS ITEMS, APPURTENANCES AND DEVICES INCIDENTAL TO OR NECESSARY FOR A SOUND, SECURE AND COMPLETE INSTALLATION.
 4.1. SUBMITTALS.
  4.1.1. MANUFACTURER'S CERTIFICATE OF PROPER INSTALLATION.
 4.2. QUALITY ASSURANCE
  4.2.1. ACCEPTABLE MANUFACTURERS: THE MANUFACTURER XERXES CORPORATION, OR EQUAL
   4.2.1.1. MANUFACTURING STANDARDS.
    4.2.1.1.1. MANUFACTURER SHALL BE ABLE TO PROVIDE DOCUMENTATION THAT THE TANK SHELL HAS BEEN BUILT TO THE APPLICABLE REQUIREMENTS OF UNDERWRITERS LABORATORIES STANDARD UL 1316.
    4.2.1.1.2. TANK MANUFACTURER SHALL BE IN THE BUSINESS OF MANUFACTURING TANKS TO UL 1316 STANDARDS.
   4.2.1.2. MATERIALS:
   4.2.1.3. TANK SHALL BE MANUFACTURED OF 100% RESIN AND GLASS-FIBER REINFORCEMENT, WITH NO SAND FILLERS AND NO EXPOSED GLASS FIBERS.
   4.2.1.4. TANK OPENINGS FOR INSPECTION AND FOR INSTALLATION OF EFFLUENT-FILTER CHAMBER SHALL BE CONSTRUCTED OF FIBERGLASS-REINFORCED PLASTIC ("FRP").
 4.3. INSTALLATION AND START-UP
  4.3.1. A REPRESENTATIVE FROM THE MANUFACTURER, SHALL BE ON-SITE TO ASSIST IN CONCRETE TANK INSTALLATION. A REPRESENTATIVE FROM ALL MANUFACTURERS SHALL PROVIDE ON-SITE INSTALLATION ASSISTANCE AND PROVIDE START-UP ASSISTANCE AND CERTIFY CORRECT OPERATION.
 4.4. SINGLE-WALL FIBERGLASS UNDERGROUND TANKS
  4.4.1. PRODUCT STORAGE:
   4.4.1.1. TANK SHALL BE VENTED TO ATMOSPHERIC PRESSURE AS THE TANK IS NOT DESIGNED AS A PRESSURE VESSEL.
  4.4.2. LOADING CONDITION: TANK SHALL MEET THE FOLLOWING DESIGN CRITERIA:
   4.4.2.1. INTERNAL LOAD: TANK SHALL BE DESIGNED TO WITHSTAND A 5-PSIG AIR-PRESSURE TEST (3 PSIG FOR A 12-FOOT TANK) WITH A 5:1 SAFETY FACTOR.
   4.4.2.2. SURFACE LOADS: TANK SHALL WITHSTAND SURFACE H-20 AXLE LOADS WHEN PROPERLY INSTALLED ACCORDING TO MANUFACTURER'S CURRENT INSTALLATION INSTRUCTIONS.
   4.4.2.3. EXTERNAL HYDROSTATIC PRESSURE AND BURIAL DEPTH: TANK SHALL BE CAPABLE OF BEING BURIED IN GROUND WITH 7 FEET OF OVERBURDEN, THE HOLE FULLY FLOODED AND A SAFETY FACTOR OF 5:1 AGAINST GENERAL BUCKLING.
   4.4.2.4. TANK SHALL SUPPORT ACCESSORY EQUIPMENT-SUCH AS INLET AND OUTLET PIPING, EFFLUENT-FILTER CHAMBER, LADDERS AND BAFFLES-AS SHOWN ON TANK DRAWINGS AND WHEN INSTALLED ACCORDING TO TANK MANUFACTURER'S RECOMMENDATIONS.
 4.5. ACCESSORIES
  4.5.1. PIPING
   4.5.1.1. SCHEDULE 40 POLYVINYL CHLORIDE ("PVC") PIPE SHALL BE USED FOR INLET AND OUTLET PIPING.
  4.5.2. OPENINGS
   4.5.2.1. ALL 22-INCH OR 30-INCH OPENINGS SHALL BE MANUFACTURED OF FRP.
   4.5.2.2. LOCATION(S) SHALL BE SHOWN ON TANK DRAWINGS.
   4.5.2.3. OPTIONAL EXTENSIONS SHALL BE FRP OR PVC.
  4.5.3. ANCHOR STRAPS
   4.5.3.1. STRAPS SHALL BE FRP ANCHOR STRAPS AS SUPPLIED BY TANK MANUFACTURER.
   4.5.3.2. NUMBER AND LOCATION OF STRAPS SHALL BE SHOWN ON TANK DRAWINGS.
 4.6. EXAMINATION
  4.6.1. VERIFY THAT BUILDING SANITARY SEWER CONNECTION, SIZE, LOCATION AND INVERT ARE AS INDICATED
 4.7. INSTALLATION
  4.7.1. TANK SHALL BE INSTALLED ACCORDING TO MANUFACTURER'S CURRENT UNDERGROUND STORAGE TANK INSTALLATION INSTRUCTIONS
 4.8. WARRANTY
  4.8.1. WARRANTY SHALL BE MANUFACTURER'S CURRENT STANDARD.
   4.8.1.1. WILL NOT FAIL FOR A PERIOD OF THIRTY (30) YEARS FROM DATE OF ORIGINAL DELIVERY BY THE MANUFACTURER DUE TO NATURAL EXTERNAL CORROSION.
   4.8.1.2. WILL NOT FAIL FOR A PERIOD OF THIRTY (30) YEARS FROM DATE OF ORIGINAL DELIVERY BY THE MANUFACTURER DUE TO INTERNAL CORROSION, PROVIDED THE TANK IS USED SOLELY, WITH OR WITHOUT TANK WATER BOTTOMS.
   4.8.1.3. WILL MEET THE MANUFACTURER' PUBLISHED SPECIFICATIONS AND WILL BE FREE FROM MATERIAL DEFECTS IN MATERIALS AND WORKMANSHIP FOR A PERIOD OF ONE (1) YEAR FOLLOWING DATE OF ORIGINAL DELIVERY BY THE MANUFACTURER.
 4.9. SUPPLIER/MANUFACTURER'S SERVICES
  4.9.1. A SUPPLIER'S AND/OR MANUFACTURER'S REPRESENTATIVE FOR THE EQUIPMENT SPECIFIED SHALL BE AT THE JOB SITE FOR INSTALLATION ASSISTANCE, INSPECTION AND CERTIFICATION OF THE INSTALLATION, TESTING, START-UP ASSISTANCE, AND TRAINING OF OWNER'S PERSONNEL.

5. UNDERGROUND FIBERGLASS REINFORCED PLASTIC WET WELL
 5.1. GENERAL
  5.1.1. FIBERGLASS TANK MANUFACTURER AND FIBERGLASS TANK INSTALLER SHALL COORDINATE TO DETERMINE TANK PENETRATIONS, BRACKETS,AND OTHER APPURTENANCES PRIOR TO FINAL TANK CONSTRUCTION AND IN ACCORDANCE WITH SPECIFICATIONS.
 5.2. SCOPE OF WORK
  5.2.1. THE PRODUCT LISTED UNDER THIS SECTION SHALL INCLUDE ALL LABOR, MATERIALS AND EQUIPMENT NECESSARY TO FURNISH A FRP WET WELL. UNLESS OTHERWISE INDICATED THE TERMINOLOGY USED IN THIS SPECIFICATION SHALL BE IN ACCORDANCE WITH THE DEFINITIONS IN THE AMERICAN SOCIETY FOR TESTING AND MATERIALS (ASTM) DESIGNATION D883 - STANDARD TERMINOLOGY RELATED TO PLASTICS. WET WELLS SHALL BE ONE PIECE UNITS MANUFACTURED TO MEET OR EXCEED ALL APPLICABLE SPECIFICATIONS OF ASTM D3753
 5.3. SUBMITTALS
  5.3.1. SHOP DRAWINGS
   5.3.1.1. THE MANUFACTURER SHALL SUPPLY TO ENGINEER, CONTRACTOR, AND / OR OWNER, A COMPLETE SET OF SCALE DRAWINGS DETAILING DIMENSIONS OF HEIGHTS, DIAMETER, ELEVATIONS TO INVERT, PIPE SIZES AND ANY OTHER NECESSARY DETAILS.
  5.3.2. CALCULATIONS
   5.3.2.1. THE MANUFACTURER SHALL SUPPLY THE ENGINEER, CONTRACTOR, AND / OR OWNER BUOYANCY CALCULATIONS ASSUMING A FLOODED CONDITION AT FINISH GRADE FOR AN EMPTY WET WELL.
   5.3.2.2. STRUCTURAL DESIGN AND ANALYSIS SUBMITTALS WILL INCLUDE ANALYSIS SHOWING A MINIMUM SAFETY FACTOR OR 3:1 FOR LONGITUDINAL / AXIAL BUCKLING OF THE WET WELL SIDE WALL.
 5.4. PRODUCTS FIBERGLASS REINFORCED PLASTIC (FRP) WET WELL
  5.4.1. LOADING CONDITIONS
   5.4.1.1. THE WET WELL SHALL BE DESIGNED AND CONSTRUCTED TO WITHSTAND OR EXCEED WALL COLLAPSE AND BUCKLING WITH A 3:1 SAFETY FACTOR, BASED ON THE FIELD GEOTECHNICAL REPORT OF THE SITE SPECIFIC SOIL CONDITIONS. IF THOSE SITE SPECIFIC CONDITIONS ARE NOT AVAILABLE AT TIME OF DESIGN, LOADING CONDITIONS LISTED UNDER (1) (A.), (1)(B.), AND (1)(C.), SHALL BE ASSUMED.
    5.4.1.1.1. UNIT WEIGHT OF WATER IS 62.4 LBS. PER CUBIC FOOT.
    5.4.1.1.2. SATURATED SOIL UNIT WEIGHT OF 120 LBS. PER CUBIC FOOT.
    5.4.1.1.3. MODULUS OF SOIL REACTION OF 700 LBS. PER SQUARE FOOT.
   5.4.1.2. WET WELL BOTTOM SHALL NOT HAVE MORE THAN 1/8 INCHES OF CENTER DEFLECTION WITH VESSEL EMPTY AND WATER TABLE LOCATED ESTIMATED EQUAL TO FINISHED GRADE.
   5.4.1.3. WET WELL, WHEN INSTALLED ACCORDING TO WET WELL MANUFACTURERS CURRENT WET WELL INSTALLATION INSTRUCTIONS AND OPERATING GUIDELINES, SHALL SUPPORT ACCESSORY EQUIPMENT - SUCH AS SUBMERSIBLE PUMPS, RAILS, VALVES, AND LADDERS AS SHOWN ON DRAWINGS.
  5.4.2. PRODUCT STORAGE
   5.4.2.1. WET WELL SHALL BE VENTED TO ATMOSPHERIC PRESSURE.
   5.4.2.2. WET WELL SHALL BE CAPABLE OF STORING PRODUCTS IDENTIFIED IN THE MANUFACTURER'S LIMITED WARRANTY FOR UNDERGROUND WET WELLS IN EFFECT AT THE TIME OF PURCHASE.
  5.4.3. MATERIALS
   5.4.3.1. WET WELL SHALL BE MANUFACTURED WITH 100% PREMIUM RESIN (HIGHLY CROSS-LINKED ISOPHTHALIC POLYESTER OR TEREPHTHALIC POLYESTER RESINS ONLY), AND CHOPPED GLASS. NO FILLERS OR EXTENDERS WILL BE USED.
   5.4.3.2. THE RESIN SHALL BE SUITABLE FOR CONTINUOUS IMMERSION IN SEWAGE IN THE PH RANGE OF 3 TO 11 AND CONCENTRATIONS OF H'S FOUND IN MUNICIPAL SEWER SYSTEMS. RESINS SHALL BE SUITABLE FOR SULFURIC ACID CONCENTRATIONS TO 20% OF SOLUTION IN WASTE STREAM.
   5.4.3.3. WET WELL SHALL BE TESTED BY THE MANUFACTURER TO A BAROCOL HARDNESS OF AT LEAST 80% OF THE RESIN MANUFACTURER'S SPECIFIC HARDNESS FOR FULLY CURED RESIN.
   5.4.3.4. THE FOLLOWING PERTINENT AVERAGE MATERIAL PROPERTIES SHALL BE USED IN ANALYSIS FOR FIBERGLASS COMPOSITE IN THE WET WELL.

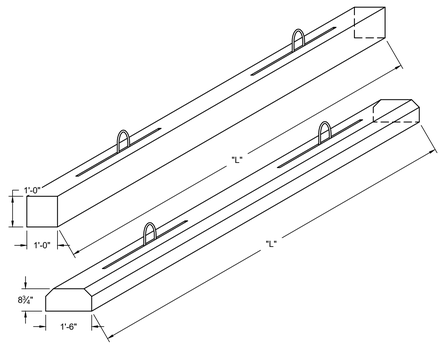
5.4.3.4.1.	TENSILE MODULUS	900,000 PSI
5.4.3.4.2.	FLEXURAL MODULUS	900,000 PSI
5.4.3.4.3.	TENSILE STRENGTH	10,000 PSI
5.4.3.4.4.	COMPRESSIVE STRENGTH	20,000 PSI
5.4.3.4.5.	POISSON'S RATIO	0.33

  5.4.4. WET WELL DIMENSIONS (REFER CONSTRUCTION DRAWINGS)
 5.5. ACCESSORIES AND FEATURES
  5.5.1. WET WELL TOP FLANGE
   5.5.1.1. THE WET WELL TOP FLANGE SHALL BE DESIGNED AND BUILT TO SUPPORT A 300 LB. VERTICAL FOOT TRAFFIC LOAD. FLANGE DIMENSIONS SHALL BE A MINIMUM OF 3.0INCHES WIDE OR GREATER.
  5.5.2. ANTI - FLOTATION FLANGE
   5.5.2.1. THE WET WELL ANTI-FLOTATION FLANGE SHALL HAVE AN OUTSIDE DIAMETER OF AT LEAST 4. INCHES GREATER THAN THE WALL DIAMETER OF THE WET WELL.
  5.5.3. PIPING STUB - OUTS AND CONNECTIONS
   5.5.3.1. PIPING STUB-OUTS WILL BE INSTALLED BY THE MANUFACTURER. INSTALLATION OF FRP PIPE WILL BE PERFORMED USING FIBERGLASS LAY UP PROCEDURES. ALL RESIN AND FIBERGLASS SHALL BE THE SAME TYPE AND GRADE AS USED IN THE MANUFACTURER OF THE BASIN.
   5.5.3.2. THE LOCATION OF FIELD STUB-OUTS IS SUBJECT TO THE MANUFACTURER'S APPROVAL.
  5.5.4. WET WELL WALL REINFORCEMENT RIB
   5.5.4.1. ALL 6' DIAMETER AND LARGER WET WELLS SHALL BE CONSTRUCTED USING INTEGRAL CONSTRUCTED TRAPEZOIDAL RIBS.
  5.5.5. PUMP MOUNTING BASE AND STUDS
   5.5.5.1. THE PUMP BASE MOUNTING STUDS SHALL BE 300 SERIES STAINLESS STEEL THREADED STUDS.
   5.5.5.2. THE PUMP MOUNTING BASE DETAIL SHALL BE PROVIDED BY THE OWNER.
 5.6. DOCUMENTATION
  5.6.1. CERTIFICATION AND DESIGN
   5.6.1.1. THE MANUFACTURER SHALL VERIFY THAT THE WET WELL HAS BEEN SAMPLED, TESTED AND INSPECTED IN ACCORDANCE WITH THIS SPECIFICATION AND MEETS ALL REQUIREMENTS.
   5.6.1.2. THE MANUFACTURER SHALL PROVIDE ANTI - FLOTATION CALCULATIONS FOR THE DESIGNED WET WELL BASED ON SPECIFIC SITE PARAMETERS.
  5.6.1.3. MARKING AND IDENTIFICATION
   5.6.1.3.1. THE WET WELL SHALL BE MARKED ON THE INSIDE AND OUTSIDE WITH THE FOLLOWING INFORMATION:
    5.6.1.3.1.1. MANUFACTURER'S TRADE NAME OR TRADEMARK
    5.6.1.3.1.2. MANUFACTURER'S LOCATION
    5.6.1.3.1.3. TOTAL HEIGHT AND DIAMETER OF WET WELL
    5.6.1.3.1.4. DATE OF MANUFACTURE
 5.6. WATER TESTING - SURCHARGED HYDROSTATIC TEST ("SHT") FOR TANKS UNDERGROUND FIBERGLASS REINFORCED PLASTIC TANKAGE, AND UNDERGROUND FIBERGLASS REINFORCED PLASTIC WET WELL
  6.1.1. STANDARD TEST
   6.1.1.1. THE STANDARD SURCHARGED HYDROSTATIC TEST SHALL HAVE THE PREFIX SHT FOLLOWED BY THE TEST CRITERION EXPRESSED AS THE MAXIMUM ALLOWABLE PERCENT LOSS PER DAY OF THE TEST WATER VOLUME. STANDARD CRITERIA FOR THE SHT TEST ARE:
    DESIGNATION TIGHTNESS CRITERION
    SHT-NMLNO MEASURABLE LOSS
    SHT-050 0.050% PER DAY
    SHT-VIO VISUAL INSPECTION ONLY
   6.1.1.1.1. SURCHARGED HYDROSTATIC TESTING SHALL BE CONFINED TO TANKS THAT HAVE BEEN DESIGNED AND CONSTRUCTED TO BE FILLED WITH LIQUID TO THE UNDERSIDE OF THE ROOF AND SURCHARGED. THE SURCHARGE TEST PRESSURE, AT THE UNDERSIDE OF THE ROOF HIGH POINT, SHALL BE WITHIN THE LOW PRESSURE RANGE.
   6.1.1.2. TANKS SHALL BE TESTED FOR TIGHTNESS BY CONTRACTOR AND SUBMITTED TO INSPECTOR. THE TEST SHALL BE SHT-050.
  6.1.2. TANK INSPECTION
   6.1.2.1. CLEAN THE EXPOSED SURFACES OF THE TANK, INCLUDING THE FLOOR, OF ALL FOREIGN MATERIAL AND DEBRIS. STANDING WATER IN OR OUTSIDE OF THE TANK THAT WOULD INTERFERE WITH THE OBSERVATION OF THE EXPOSED SURFACES OF THE TANK SHALL BE REMOVED. THE SURFACES AND JOINTS SHALL BE THOROUGHLY INSPECTED FOR POTENTIAL LEAKAGE POINTS. AREAS OF POTENTIAL LEAKAGE SHALL BE REPAIRED PRIOR TO FILLING THE TANK WITH WATER. LINERS THAT ARE MECHANICALLY LOCKED TO THE SURFACE DURING THE PLACEMENT OF THE CONCRETE SHALL BE INSTALLED PRIOR TO THE TANK INSPECTION. THE INSPECTION AND CORRECTIVE ACTION SHALL ALSO BE PERFORMED ON IN-PLACE INTERIOR LINERS.
   6.1.2.2. ALL OPENINGS, FITTINGS, AND PIPE PENETRATIONS IN THE TANK SHELL SHALL BE INSPECTED AT BOTH FACES OF THE TANK. ALL DEFECTS AND/OR CRACKS SHALL BE REPAIRED.
   6.1.2.3. INTERIOR LINERS SHALL BE INSPECTED FOR PINHOLES, TEARS AND PARTIALLY FUSED SPLICES. ALL DEFICIENCIES SHALL BE REPAIRED.
   6.1.2.4. JOINTS AND CRACKS SHALL BE TESTED WITH A VACUUM BOX.
  6.1.3. TEST PREPARATION AND SHT-VIO
   6.1.3.1. ALL TANK PENETRATIONS AND OUTLETS SHALL BE SECURELY SEALED TO PREVENT THE LOSS OF WATER FROM THE TANK DURING THE TEST. IF THE TANK IS TO BE FILLED USING THE TANK INLET PIPE, POSITIVE MEANS SHALL BE PROVIDED TO CHECK THAT WATER IS NOT ENTERING OR LEAVING THE TANK THROUGH THIS PIPE ONCE THE TANK IS FILLED TO TEST LEVEL.
   6.1.3.2. TANK PENETRATIONS AND PIPE, CHANNEL, AND CONDUIT OUTLETS SHALL BE MONITORED BEFORE AND DURING THE TEST TO DETERMINE THE WATERTIGHTNESS OF THESE APPURTENANCES. LEAKAGE AT THESE OUTLETS SHALL BE REPAIRED PRIOR TO TEST MEASUREMENTS. NO ALLOWANCE SHALL BE MADE IN TEST MEASUREMENTS FOR UNCORRECTED KNOWN POINTS OF LEAKAGE. THE FLOW FROM THE UNDERDRAIN SYSTEM SHALL BE MONITORED DURING THIS SAME PERIOD AND ANY INCREASE IN FLOW SHALL BE RECORDED.
   6.1.3.3. THE GROUND WATER LEVEL SHALL BE BROUGHT TO A LEVEL BELOW THE TOP OF THE BASE SLAB AND KEPT AT THAT ELEVATION OR AT A LOWER ELEVATION DURING THE TEST.
   6.1.3.4. AFTER THE TANK INSPECTION HAS BEEN COMPLETED, THE PRESSURE-RELIEF VALVE OR VALVES SHALL BE PLUGGED AND THE TOP OF THE TANK VENTED TO THE ATMOSPHERE. THE TANK SHALL BE FILLED WITH WATER, AT A RATE NOT EXCEEDING 4 FT/H (1.2 M/H), TO THE UNDERSIDE OF THE ROOF WHILE ALLOWING ALL AIR TO FREELY ESCAPE. THE WATER LEVEL SHALL BE KEPT NEAR OR AT THE TOP OF UNLINED OR UNCOATED TANKS FOR A PERIOD OF AT LEAST THREE (3) DAYS PRIOR TO THE TEST.
   6.1.3.5. THE TANK VENT AT THE ROOF HIGH POINT SHALL BE REPLACED WITH AN OPEN ENDED PIPE TO FORM A STANDPIPE. THE DIAMETER OF THE STANDPIPE SHALL NOT BE LESS THAN THE DIAMETER OF THE VENT IT REPLACES NOR MORE THAN SIX TIMES THE VENT DIAMETER. THE TOP OF THE STANDPIPE SHALL BE LOCATED TO LIMIT THE HYDRAULIC SURCHARGE TO 1.25 TIMES THE DESIGN SURCHARGE AT THE HIGH POINT OF THE UNDERSIDE OF THE ROOF. THE STANDPIPE SHALL BE SLOWLY FILLED TO THE POINT OF OVERFLOW.
  6.1.4. TEST MEASUREMENTS
   6.1.4.1. THE DURATION OF THE TEST SHALL BE 1 HOUR. THE WATER TEMPERATURE 18 IN. BELOW THE WATER SURFACE SHALL BE TAKEN AT THE START AND END OF EACH TEST.
   6.1.4.2. THE WATER LEVEL IN THE STANDPIPE SHALL BE MEASURED AFTER 1 HOUR. IF THE WATER LEVEL HAS DROPPED BELOW THE TOP MOST POINT OF THE UNDERSIDE OF THE ROOF OR TO A LEVEL, WITHIN THE STANDPIPE, BELOW THE CALCULATED ALLOWABLE LOSS OF WATER VOLUME FROM THE TANK, THE STANDPIPE SHALL BE REFILLED AND THE TEST REPEATED. HOWEVER, IF THE DROP OF THE WATER SURFACE BELOW THE ALLOWABLE LEVEL CAN BE SHOWN TO BE DUE TO WATER TEMPERATURE CHANGE, THE TANK SHALL BE CONSIDERED TO HAVE MET THE TEST REQUIREMENT. IF THE WATER LEVEL FAILS TO REMAIN WITHIN THE ALLOWABLE RANGE IN THE INITIAL TEST OR UP TO TWO RETESTS, THE TANK SHALL BE REINSPECTED FOR LEAKS IN THE EXTERIOR SURFACE AND THEN DRAINED AND INSPECTED FOR DEFECTS THAT ARE SUSPECTED LEAK LOCATIONS IN THE INTERIOR SURFACES. ALL LEAKS OR POINTS OF SUSPECTED LEAKS SHALL BE REPAIRED AND THE TEST REPEATED.
   6.1.4.3. ONCE THE WATER LEVEL HAS REMAINED WITHIN THE ALLOWABLE RANGE IN THE STANDPIPE FOR THE TEST PERIOD OF 1 HOUR, THE WATER LEVEL SHALL BE KEPT IN THE STANDPIPE WITH A CLOSE VISUAL INSPECTION OF ALL VISIBLE TANK JOINTS AND AROUND HATCHES, MANWAYS, NOZZLES, PIPE CONNECTIONS, AND OTHER OPENINGS AND PENETRATIONS HAS BEEN PERFORMED.
   6.1.4.4. THE WATER LEVEL SHALL THEN BE LOWERED BELOW THE INLETS TO THE PRESSURE-RELIEF VALVES, AND THE PLUGS SHALL BE REMOVED FROM THE RELIEF VALVES. THE OPERATION OF THE RELIEF VALVES SHALL THEN BE CHECKED BY REMOVING THE STANDPIPE, PLUGGING THE AIR VENT, AND INJECTING AIR INTO THE TOP OF THE TANK UNTIL THE PRESSURE IN THE VAPOR SPACE EQUALS THE DESIGN GAUGE PRESSURE. IF THE RELIEF VALVES DO NOT START TO RELEASE AIR AT THE DESIGN PRESSURE, THEY SHALL BE ADJUSTED OR REPAIRED.
   6.1.4.5. UPON COMPLETION OF THE TEST, THE PRESSURE IN THE TANK SHALL BE RELEASED AND THE TANK EMPTIED. A THOROUGH VISUAL INSPECTION SHALL BE MADE OF BOTH THE INSIDE AND OUTSIDE OF THE TANK, GIVING PARTICULAR ATTENTION TO ANY INTERNAL METAL TIES, BRACES, TRUSSES, AND THEIR ATTACHMENTS TO THE WALLS OF THE TANK.
  6.1.5. QUANTITATIVE CRITERIA
   6.1.5.1. THERE SHALL BE NO MEASURABLE LOSS OF WATER FOR TANKS SUBJECTED TO SHT-NML TIGHTNESS TEST. NO MEASURABLE LOSS OF WATER SHALL MEAN A DROP IN WATER SURFACE IN THE STANDPIPE INDICATING LESS THAN 0.01% VOLUME IN 24 HOURS.
   6.1.5.2. THE ALLOWABLE LOSS OF WATER FOR THE SHT-050 TIGHTNESS TEST SHALL NOT CAUSE THE W



14 PW-10 — TK-GENERAL DETAILS – FIBERGLASS TANK DETAILS PUMP PLATFORM
NO SCALE

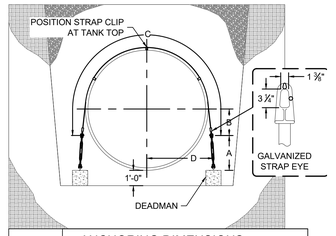
XERXES DEADMAN			
TANK SIZE GALLONS	QTY	"L"	APPROX. WEIGHT EACH
4'-600	2	12'	1,800 LBS
4'-1,000	2	12'	1,800 LBS
4'-1,500	2	16'	2,400 LBS
6'-1,500	2	12'	1,800 LBS
6'-2,000	2	12'	1,800 LBS
6'-3,000	2	16'	2,400 LBS
6'-4,000	2	18'	2,700 LBS
6'-5,000	4	12'	1,800 LBS
6'-6,000	4	16'	2,400 LBS
6'-8,000	4	18'	2,700 LBS
8'-2,000	2	12'	1,800 LBS
8'-3,000	2	12'	1,800 LBS
8'-4,000	2	12'	1,800 LBS
8'-5,000	2	16'	2,400 LBS
8'-6,000	2	18'	2,700 LBS
8'-7,000	4	12'	1,800 LBS
8'-8,000	4	12'	1,800 LBS
8'-9,000	2	12'	1,800 LBS
	2	16'	2,400 LBS
8'-10,000	4	16'	2,400 LBS
8'-11,000	4	16'	2,700 LBS
8'-12,000	4	18'	2,700 LBS
8'-13,000	4	12'	1,800 LBS
	2	16'	2,400 LBS
8'-14,000	2	12'	1,800 LBS
	4	16'	2,400 LBS
8'-15,000	6	16'	2,400 LBS
10'-10,000	2	22'	3,000 LBS
10'-11,000	2	22'	3,000 LBS
10'-12,000	2	22'	3,000 LBS
10'-13,000	4	14'	1,900 LBS
10'-14,000	4	14'	1,900 LBS
10'-15,000	4	14'	1,900 LBS
10'-20,000	4	18'	2,400 LBS
10'-22,000	4	22'	3,000 LBS
10'-25,000	4	14'	1,900 LBS
	2	18'	2,400 LBS
10'-30,000	6	18'	2,400 LBS
10'-35,000	2	18'	2,400 LBS
	4	22'	3,000 LBS
10'-40,000	8	18'	2,400 LBS



XERXES PRECAST DEADMEN

- XERXES DEADMEN ARE ENGINEERED AND DESIGNED TO BE USED WITH XERXES TANKS.
- IN MULTIPLE TANK INSTALLATIONS, EACH TANK REQUIRES ITS OWN SET OF DEADMEN.
- FOR CAST IN PLACE OR DEADMAN CONSTRUCTED OFF SITE, REFER TO XERXES INSTALLATION MANUAL AND OPERATING GUIDELINES FOR PROPER SIZING AND ANCHOR POINT SPECIFICATIONS.

15 PW-10 — TK-GENERAL DETAILS – FIBERGLASS TANK DETAILS PUMP PLATFORM
NO SCALE

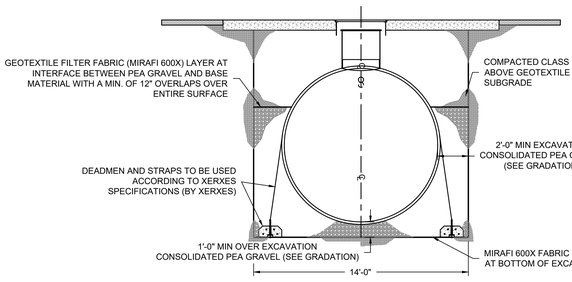


ANCHORING DIMENSIONS					
TANK DIA.	"A"	"B"	"C"	"D" MIN.	"D" MAX.
4'	18"	12"	8'-4-1/4"	27"	30"
6'	23"	13"	12'-1"	42"	48"
8'	31"	15"	15'-1"	52"	58"
10'	45"	15"	18'-8-3/4"	69"	75"
12'	50"	23"	22'-6-3/4"	87"	93"

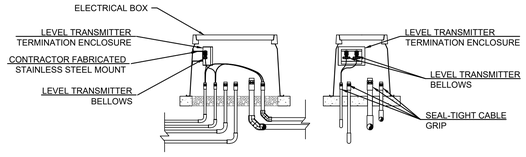
16 PW-10 — TK-GENERAL DETAILS – FIBERGLASS TANK DETAILS PUMP PLATFORM
NO SCALE

NOTE
1. PUMP PLATFORMS ARE USED FOR PUMPS UP TO 300 LBS.
2. STANDARD PLATFORM SIZES AVAILABLE: 24"X24", 24"X36", 36"X36"

17 PW-10 — TK-GENERAL DETAILS – FIBERGLASS TANK DETAILS PUMP PLATFORM
NO SCALE

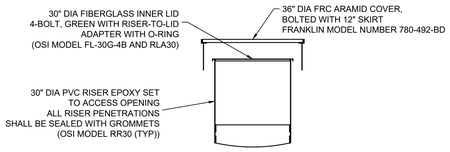


18 PW-10 — TK-GENERAL DETAILS – TANK FIBERGLASS LID DETAIL TRAFFIC RATED
NO SCALE

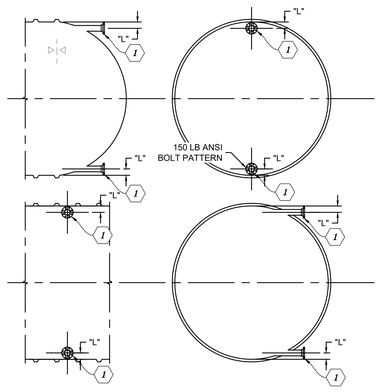


19 PW-10 — TK-GENERAL DETAILS – TANK FIBERGLASS LID DETAIL TRAFFIC RATED
NO SCALE

NOTES:
36" Round Manhole with Kevlar Composite Cover, Bolt-down 12" Skirt,
1. Shirt Shall be coated as follows:
 1.1. Surface Prep:
  1.1.1. White Metal Blast Cleaning (SSPC-SP5/NACE1): Removal of all visible rust, mill scale, paint, and foreign matter by blast cleaning by wheel or nozzle (dry or wet) using sand, grit, or shot.
 1.2. Coating
  1.2.1. Epoxy Mortar: High-build, 3-componet amine cured epoxy mortar, shall have a solids content of 100 percent by volume, suitable for long-term immersion and atmospheric exposure to wastewater. Filler-resurfacer compound shall be a 3-component epoxy cementitious thin overlay material used to fill voids and rough areas and must feather-edge capable. Epoxy Glaze (finish) coat shall bea 100 percent solids epoxy suitable for long-term immersion and atmospheric exposure to wastewater.
  1.2.2. Filler/Resurface thin Overlay (Thickness = minimum 1/16"), Tnemec 218 MortarClad, or equal.
  1.2.3. Epoxy Mortar (DFT = 125 mils) Tnemec 434 Perma-Shield, or equal.
  1.2.4. Finish coat (DFT = 15-20 mils), Tnemec 435 Perma-Glaze, or equal.



20 PW-10 — TK-GENERAL DETAILS – TANK FIBERGLASS LID DETAIL TRAFFIC RATED
NO SCALE



NOZZLE PLACEMENT	
NOZZLE DIAMETER (IN)	NOZZLE HEIGHT "L" (IN)
2	3
4	5
6	6
8	7
10	8
12	10
14	11
16	12
18	13
1 FLANGE 150LB ANSI BOLT PATTERN	

21 PW-10 — TK-GENERAL DETAILS – TANK FIBERGLASS LID DETAIL TRAFFIC RATED
NO SCALE

LPA
ARCHITECTURE ENGINEERING INTERIOR DESIGN
LANDSCAPE ARCHITECTURE PLANNING
949-261-1001 Office
LPADesignStudios.com
5301 California Avenue, Suite 100
Irvine, California 92617

REGISTERED PROFESSIONAL ENGINEER JOHN YAROSZ NAGY No. 92617 CIVIL STATE OF CALIFORNIA
NOT FOR REGULATORY APPROVAL, PERMITTING, OR CONSTRUCTION
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ENSITU ENGINEERING, INC.
7475 Carmelita Ave.
Atascadero, CA 93422
Tel: 805.772.0150
ENSITU@ensitu.com

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MALIBU MIDDLE & HIGH SCHOOL PHASE 2
30215 MORNING VIEW DRIVE
MALIBU, CALIFORNIA

Developed for SMMUSD

Revision	Date

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EQUALIZATION TANK STANDARD DETAILS

GENERAL NOTES, EQUALIZATION TANK AND APPURTENANCES :

1. RELATED DOCUMENTS

2. DRAWINGS AND GENERAL PROVISIONS OF THE CONTRACT, INCLUDING GENERAL AND SUPPLEMENTARY CONDITIONS AND DIVISION 01 SPECIFICATION SECTIONS, APPLY TO THIS SECTION AND THE FOLLOWING NOTES.

3. MANUFACTURER'S FIELD SERVICES

3.1. THE REQUIREMENT

3.1.1. PRIOR TO THE STARTUP OF THE FACILITY, AN EXPERIENCED, COMPETENT, AND AUTHORIZED REPRESENTATIVE OF THE MANUFACTURER OF EACH ITEM OF EQUIPMENT INCORPORATED INTO THE WORK, FOR WHICH FIELD SERVICES ARE INDICATED IN SPECIFIED EQUIPMENT SECTIONS, SHALL VISIT THE SITE OF THE WORK AND INSPECT, CHECK, ADJUST IF NECESSARY, AND APPROVE THE EQUIPMENT INSTALLATION. IN EACH CASE, THE REPRESENTATIVE SHALL REVISIT THE JOBSITE AS OFTEN AS NECESSARY UNTIL ALL TROUBLE IS CORRECTED AND THE EQUIPMENT INSTALLATION AND OPERATION ARE SATISFACTORY IN THE OPINION OF THE ENGINEER. EACH MANUFACTURER'S REPRESENTATIVE SHALLFURNISH TO THE ENGINEER AND THE INSPECTOR A WRITTEN REPORT CERTIFYING THAT THE EQUIPMENT HAS BEEN PROPERLY INSTALLED, AND LUBRICATED; IS IN ACCURATE ALIGNMENT; IS FREE FROM ANY UNDUE STRESS IMPOSED BY CONNECTING PIPING OR ANCHOR BOLTS; AND HAS BEEN OPERATED UNDER FULL LOAD CONDITIONS AND THAT IT OPERATED SATISFACTORILY. ALL COSTS FOR THESE SERVICES SHALL BE INCLUDED IN THE CONTRACTOR'S

4. CONTRACTORS'/MANUFACTURERS' SPECIAL SERVICES

4.1.GENERAL

4.1.1. INSTALLATION ASSISTANCE

4.1.1.1. THE CONTRACTOR SHALL PROVIDE, AT NO ADDITIONAL COST TO THE OWNER, THE SERVICES OF COMPETENT AND EXPERIENCED TECHNICAL PERSONNEL WHO SHALL REPRESENT THE MANUFACTURERS OF ALL EQUIPMENT AND SYSTEMS AS MAY BE NECESSARY TO RESOLVE ASSEMBLY OR INSTALLATION PROBLEMS AT THE WORK SITE WHICH ARE ATTRIBUTABLE TO, OR ASSOCIATED WITH, THE EQUIPMENT FURNISHED.

4.1.2. FUNCTIONAL TESTING

4.1.2.1. FUNCTIONAL (OR RUN) TESTING, IN THE PRESENCE OF THE MANUFACTURER'S REPRESENTATIVE AND ENGINEER, WILL BE REQUIRED FOR EACH ITEM OF EQUIPMENT FOLLOWING INSTALLATION AND WILL BE PERFORMED BY THE CONTRACTOR WITHOUT CHARGE. FUNCTIONAL TESTING IS DEFINED AS THAT TESTING NECESSARY TO DETERMINE IF INSTALLED EQUIPMENT AND SYSTEM WILL OPERATE AS INTENDED.

4.1.2.2. IN ADDITION TO THE FUNCTIONAL TESTS, SPECIFIC PERFORMANCE TESTING OF INSTALLED EQUIPMENT AND SYSTEMS SHALL BE CONDUCTED BY THE CONTRACTOR AS REQUIRED IN THE SPECIFICATION SECTION FOR THE EQUIPMENT OR SYSTEM.

4.1.2.3. THE CONTRACTOR SHALL FURNISH ALL LABOR, MATERIALS, TOOLS, EQUIPMENT, INSTRUCTIONS, AND SERVICES NECESSARY TO PERFORM THE FUNCTIONAL AND PERFORMANCE TESTING.

4.1.2.4. WHEN TECHNICAL ASSISTANCE IS NECESSARY TO RESOLVE PROBLEMS THAT MAY BECOME APPARENT DURING THE FUNCTIONAL OR PERFORMANCE TESTS, THE CONTRACTOR SHALL PROVIDE THE SERVICES OF A MANUFACTURER'S REPRESENTATIVE WHO SHALL PROVIDE SUCH ASSISTANCE AS NECESSARY TO DEMONSTRATE THE SPECIFIED PERFORMANCE.

4.1.3. START_UP

4.1.3.1. WHERE START_UP SERVICES ARE CALLED FOR IN THE SPECIFICATIONS, OR WHEN TECHNICAL ASSISTANCE IS NECESSARY DUE TO ANY MALFUNCTION OF THE EQUIPMENT OR SYSTEM FURNISHED, THE CONTRACTOR SHALL PROVIDE THE SERVICES OF A MANUFACTURER'S REPRESENTATIVE WHO SHALL PROVIDE SUCH SERVICES AS NECESSARY TO PROVIDE THE OWNER WITH AN ACCEPTABLE OPERATING FACILITY.

4.1.4. TRAINING OF OWNER'S PERSONNEL

4.1.4.1. WHERE TRAINING IS CALLED FOR IN THE SPECIFICATIONS, THE CONTRACT SHALL PROVIDE THE SERVICES OF MANUFACTURER'S REPRESENTATIVES WHO SHALL PROVIDE CLASSROOM AND ON_THE_JOB TRAINING FOR THE OWNER'S PERSONNEL IN THE OPERATION AND MAINTENANCE OF THE SPECIFIED EQUIPMENT, AT A SPECIFIED PERIOD OF TIME AND, IF REQUIRED, FOR A RETURN TRAINING CHECK.

4.1.5. SCHEDULING AND COORDINATION OF SERVICES

4.1.5.1. THE CONTRACTOR SHALL DESIGNATE AND PROVIDE ONE PERSON TO BE RESPONSIBLE FOR SCHEDULING, COORDINATION, AND EXPEDITING THE SPECIFIED SERVICES. SCHEDULING SERVICES SHALL BE DONE IN COOPERATION WITH, AND WITH THE ACCEPTANCE OF THE ENGINEER AND OWNER'S OPERATING PERSONNEL. SUCH SCHEDULE SHALL BE ARRANGED WITH THE APPROPRIATE SUBCONTRACTORS, MANUFACTURERS, AND SUPPLIERS IN SUFFICIENT TIME TO ASSURE THEIR COMPLIANCE WITH THE SERVICE REQUIREMENTS.

4.1.6. COST FOR SERVICES

4.1.6.1. COSTS FOR PROVIDING SERVICES DURING INSTALLATION, TESTING, AND FOR THE TRAINING OF OWNER'S PERSONNEL SHALL BE INCLUDED IN THE COSTS FOR PROVIDING THE APPLICABLE SPECIFIED EQUIPMENT.

4.1.6.2. WHERE THE NUMBER OF DAYS FOR SERVICES IS STATED IN THE SPECIFICATIONS, THIS SHALL BE CONSIDERED AS THE MINIMUM NUMBER OF DAYS. SHOULD ADDITIONAL TIME BE REQUIRED FOR SERVICES, SUCH TIME SHALL BE AT THE EXPENSE OF THE MANUFACTURER, SUPPLIER, OR CONTRACTOR AS APPLICABLE, AND AT NO ADDITIONAL COST TO THE OWNER.

4.1.6.3. WHERE THE NUMBER OF DAYS FOR SERVICES IS NOT STATED IN THE SPECIFICATIONS, SERVICES SHALL BE FURNISHED FOR INSTALLATION, TESTING, AND START_UP AS REQUIRED TO PROVIDE THE OWNER WITH A SATISFACTORY OPERATING FACILITY.

4.2.START_UP AND DEMONSTRATION

4.2.1. SYSTEM DESCRIPTION FOR PROJECT

4.2.1.1. IN ORDER TO ESTABLISH A BASIS OF UNDERSTANDING FOR SYSTEM DESCRIPTION FOR THIS PROJECT, A SYSTEM SHALL BE DEFINED AS FOLLOWS: A SYSTEM IS AN ARRANGEMENT OF ITEMS OF EQUIPMENT, COMPONENTS, PIPING, WIRING, MATERIALS, OR INCIDENTALS SO RELATED OR CONNECTED TO FORM A FUNCTIONAL AND OPERATIONAL UNITY.

4.2.2. PRE_START-UP PERIOD

4.2.2.1. PRIOR TO STARTUP, CONTRACTOR SHALL OBSERVE THE FOLLOWING PROCEDURES BY SEQUENCE:

4.2.2.2. INSURE BY CHECKLIST SUBMITTED TO OWNER THAT ALL REQUIRED WRITTEN STATEMENTS FROM MANUFACTURERS BY INDIVIDUAL SECTIONS OF SPECIFICATIONS ARE RECEIVED AND COMPLY TO CONTRACT DOCUMENTS.

4.2.2.3. INSURE WORK IS COMPLETE BEFORE STARTUP OF ANY UNIT OR SYSTEM. CERTIFY TO OWNER THAT SPECIFICALLY REQUIRED SERVICES OF RESPECTIVE EQUIPMENT MANUFACTURER'S REPRESENTATIVE BY INDIVIDUAL SECTIONS OF SPECIFICATIONS HAVE BEEN PERFORMED IN ACCORDANCE WITH CONTRACT DOCUMENTS.

4.2.2.4. INSURE SYSTEMS ARE TESTED HYDRAULICALLY, MECHANICALLY, AND ELECTRICALLY. INSURE SYSTEMS WHICH REQUIRE CALIBRATION, COMMISSIONING, AND BALANCING ARE FULLY CERTIFIED AS COMPLETE IN PERFORMANCE IN ACCORDANCE WITH CONTRACT DOCUMENTS.

4.2.2.5. INSURE SYSTEM IS PROPERLY SEEDED AND BIOLOGICALLY PREPARED AND PRODUCING TREATED WATER IN ACCORDANCE WITH THE APPLICABLE CONTROL AGENCIES

4.2.2.6. SCHEDULE STARTUP A MINIMUM OF 15 DAYS PRIOR TO STARTUP DATE BY WRITTEN NOTICE ISSUED TO BUT NOT NECESSARILY LIMITED TO: OWNER, ENGINEER, SUBCONTRACTORS, AND APPLICABLE CONTROL AGENCIES.

4.2.2.7. PROVIDE ALL LABOR, SUPERVISION, EQUIPMENT, VEHICLES OR ANY OTHER ITEM NECESSARY TO STARTUP, OPERATE, AND DEMONSTRATE THE SYSTEM.

4.2.3. START-UP AND DEMONSTRATION PERIOD

4.2.3.1. THE CONTRACTOR SHALL STARTUP, OPERATE AND DEMONSTRATE THE SPECIFIED PERFORMANCE OF EACH ITEM OF EQUIPMENT AND EACH SYSTEM ON BASIS OF 30 DAYS OF FULL OPERATION WITHOUT INTERRUPTION OF EQUIPMENT OR SYSTEM OR NEED OF ADJUSTMENT OR REPAIR.

4.2.3.2. DURING STARTUP WITH EQUIPMENT IN OPERATION, THE CONTRACTOR SHALL PROVIDE KNOWLEDGEABLE PERSONNEL TO INSTRUCT OWNERS DESIGNATED PERSONNEL ON OPERATION AND MAINTENANCE OF EACH SYSTEM. THIS SERVICE SHALL BE IN ADDITION TO SERVICES PROVIDED BY INDIVIDUAL MANUFACTURER'S AUTHORIZED REPRESENTATIVE(S) PRESCRIBED BY INDIVIDUAL SECTIONS OF THE SPECIFICATIONS. INSTRUCTIONS DURING THIS STARTUP PERIOD SHALL BE OVERVIEW IN NATURE AND NOT A REPEAT OF PREVIOUS OPERATION AND MAINTENANCE INSTRUCTIONS.

4.2.3.3. CONTRACTOR SHALL DEMONSTRATE THE TREATMENT SYSTEM WILL MEET LOCAL, STATE, AND FEDERAL DISCHARGE REQUIREMENTS FOR A DURATION OF 180 CONSECUTIVE DAYS OF FULL OPERATION WITHOUT INTERRUPTION OF EQUIPMENT OR SYSTEM OR NEED OF ADJUSTMENT OR REPAIR OTHER THAN "NORMAL" OPERATIONAL ADJUSTMENTS.

4.2.4. POST_START-UP AND DEMONSTRATION PERIOD

4.2.4.1. AFTER SUCCESSFUL COMPLETION OF THE STARTUP AND DEMONSTRATION PERIOD, THE OWNER WILL FURNISH ALL OPERATIONAL LABOR, UTILITIES, CHEMICALS, EXPENDABLES AND COST OF NORMAL WEAR FOR THE EQUIPMENT OR SYSTEM OF DIRECT SHUT DOWN AND PROTECTION OF THE SYSTEM UNTIL TOTAL PROJECT ACCEPTANCE. ALL SYSTEMS AND EQUIPMENT SHALL BE CLEAN AT THE COMPLETION OF THEIR STARTUP AND DEMONSTRATION PERIOD.

4.3.SUBMITTALS

4.3.1. SHOP DRAWINGS SHALL INCLUDE THE FOLLOWING:

4.3.1.1. GENERAL ARRANGEMENTS

4.3.1.2. PROCESS AND INSTRUMENTATION DIAGRAMS (P&IDS)

4.3.1.3. ELECTRICAL SCHEMATICS

4.3.1.4. LIFTING DIAGRAM

4.3.1.5. ANCHOR DIAGRAM

4.3.1.6. EQUIPMENT LIST AND CUT SHEETS

4.3.2. THE O&M MANUAL SHALL INCLUDE THE FOLLOWING:

4.3.2.1. WARRANTIES

4.3.2.2. FACTORY TEST REPORTS

4.3.2.3. OPERATING INSTRUCTIONS

4.3.2.4. FUNCTIONAL DESCRIPTION

4.3.2.5. CALCULATIONS

4.3.2.6. MAINTENANCE SCHEDULE

4.3.2.7. TROUBLESHOOTING GUIDE

4.3.2.8. MEMBRANE MODULE REPAIR INSTRUCTIONS

4.3.2.9. STORAGE REQUIREMENTS

4.3.2.10. TRAINING MATERIAL

4.3.2.11. INSTALLATION AND COMMISSIONING PROCEDURES

4.3.2.12. DRAWINGS

4.3.2.13. LIST OF MATERIALS

4.4.SPARE PARTS

4.4.1. GENERAL

4.4.1.1. THE SPARE PARTS SUPPLIER MUST BE THE MANUFACTURER OR A FACTORY AUTHORIZED REPRESENTATIVE OF THE MANUFACTURER. THE MANUFACTURER WILL BE RESPONSIBLE FOR ANY DEFAULT OF THE REPRESENTATIVE THAT IS NOT CORRECTED BY THE REPRESENTATIVE IN A TIMELY AND EFFICIENT MANNER. THIS RESPONSIBILITY INCLUDES REPLACING INCORRECT OR DEFECTIVE PARTS, TROUBLE SHOOTING, AND CORRECTING PROBLEMS THAT ARE TRACEABLE TO THE MANUFACTURER'S PARTS. THE SUPPLIER SHALL PROVIDE, ALONG WITH THE SPARE PARTS LIST, A FORMAL LETTER OF CERTIFICATION FROM THE MANUFACTURER THAT THE SUPPLIER IS AN AUTHORIZED REPRESENTATIVE OF THE MANUFACTURER.

4.4.1.2. THE SUPPLIER SHALL BE A STOCKING FACILITY OF THE MANUFACTURER OF THE PROPOSED PARTS, OR THE MANUFACTURER MUST MAINTAIN A STOCKING FACILITY OF THESE PARTS ON THE WEST COAST, OR THE SUPPLIER CAN GUARANTEE DELIVERY OF SPARE PARTS WITHIN SEVENTY-TWO (72) HOURS.

4.4.1.3. SPARE PARTS SHOULD BE SUPPLIED IN THE MANUFACTURER'S ORIGINAL PACKAGING AND SHALL BE NEW AND UNUSED. A STATEMENT SHALL BE INCLUDED TO CLEARLY INDICATE THAT THE SPARE PARTS ARE NEW AND UNUSED.

4.4.1.4. THE SPARE PARTS LIST SHALL BE IN ADDITION TO ANY OTHER LISTS REQUIRED UNDER ANY OTHER SECTIONS OF THESE SPECIFICATIONS. THIS LIST SHALL INCLUDE BUT IS NOT LIMITED TO THE FOLLOWING:

4.4.1.4.1. CURRENT PRICES INCLUDING DELIVERY TO THE JOBSITE.

4.4.1.4.2. ORIGINAL EQUIPMENT MANUFACTURER (OEM) PART NUMBERS, WHICH IDENTIFY INTERCHANGEABILITY.

4.4.1.4.3. MAKE AND TYPE OF EQUIPMENT AS WELL AS MODEL NUMBER.

4.4.1.4.4. SIZE.

4.4.1.4.5. SUPPLIER'S ADDRESS AND TELEPHONE NUMBER.

4.4.1.4.6. LETTER OF CERTIFICATION FROM THE MANUFACTURER.

4.4.1.4.7. MATERIALS.

4.4.1.4.8. SPECIAL TOOLS.

4.4.1.4.9. ESTIMATED DELIVERY LEAD TIMES.

4.4.1.4.10. WARRANTY: STATE TERMS OF WARRANTY OF SPARE PARTS OFFERED.

4.4.1.4.11. CROSS-SECTIONAL, EXPLODED VIEW OR ASSEMBLY-TYPE DRAWING WITH PART NUMBERS.

4.4.1.4.12. MANUFACTURER'S PRICE LIST CATALOG.

4.4.1.4.13. APPLICABLE TRADE DISCOUNT (FOR BUDGET PURPOSES)

4.4.1.5. DELIVERY OF ALL REQUIRED SPARE PARTS SHALL BE A CONDITION PRECEDENT TO RECEIPT OF PARTIAL COMPLETION OR A STATEMENT OF COMPLETION.

4.4.1.6. THE CONTRACTOR SHALL BE RESPONSIBLE FOR PROPER STORAGE AND PROTECTION OF THE SPARE PARTS UNTIL DELIVERED TO THE OWNER.

4.4.1.7. TO ENSURE PROPER TRACKING OF THE SPARE PARTS THE CONTRACTOR SHALL FILL OUT AND SUBMIT REQUIRED INFORMATION, ON THE FORMS PROVIDED BY THE ENGINEER, TO THE INSPECTOR WITH THE DELIVERY OF SPARE PARTS. THE CONTRACTOR'S COST OF PREPARING AND SUBMITTING THE SPARE PARTS LIST(S), PROCURING, AND INSPECTION OF THE SPARE PARTS SHALL BE INCLUDED IN THE CONTRACTOR'S LUMP SUM BID, AND THEREFORE, NO OVERHEAD OR PROFIT SHALL BE ADDED TO THE COST OF THE SPARE PARTS.

4.4.2. REQUIRED SPARE PARTS

4.4.2.1. THE REQUIRED SPARE PARTS LISTS SHALL BE INCLUDED WITH THE EQUIPMENT SUBMITTAL TO THE ENGINEER.

4.4.2.2. THE CONTRACTOR SHALL INCLUDE IN THE BID THE COST OF PROVIDING THE REQUIRED SPARE PARTS DESCRIBED UNDER INDIVIDUAL EQUIPMENT SPECIFICATIONS.

4.4.3. RECOMMENDED SPARE PARTS

4.4.3.1. THE CONTRACTOR SHALL SUBMIT WITH EACH EQUIPMENT SUBMITTAL A LIST FROM THE MANUFACTURER OF THE RECOMMENDED SPARE PARTS ADEQUATE TO ENSURE TWO (2) CONTINUOUS YEARS OF NORMAL OPERATION AFTER EXPIRATION OF THE EQUIPMENT WARRANTY. THE COST OF PREPARING AND SUBMITTING THE SPARE PARTS LIST(S) SHALL BE INCLUDED IN THE CONTRACTOR'S LUMP SUM BID.

4.4.3.2. THE RECOMMENDED SPARE PARTS LIST(S) SHALL INCLUDE ITEMS REQUIRING REPLACEMENT UNDER THE FOLLOWING CONDITIONS:

4.4.3.2.1.WEAR, CORROSION, OR EROSION DURING NORMAL OPERATION.

4.4.3.2.2.FAILURE WHICH CAUSES A SHUTDOWN OF EQUIPMENT OR SYSTEMS.

4.4.3.2.3.DAMAGE OR BREAKAGE DURING ROUTINE MAINTENANCE OR INSPECTIONS OF EQUIPMENT.

4.4.3.2.4.CUSTOM OR SPECIALLY FABRICATED PARTS, AND

4.4.3.2.5.LONG LEAD ITEMS.

4.4.3.3. IF AN ALLOWANCE FOR RECOMMENDED SPARE PARTS HAS BEEN INCLUDED AS A BID ITEM IN THE SCHEDULE OF WORK AND PRICES IN VOL. 1 OF THE PROPOSAL, THE CONTRACTOR SHALL PROCURE SUCH RECOMMENDED SPARE PARTS AS DIRECTED BY THE ENGINEER. THE ENGINEER WILL COMPILE, FROM THE CONTRACTOR'S SUBMITTAL, A LIST IDENTIFYING WHICH RECOMMENDED SPARE PARTS ARE APPROVED FOR PURCHASE. THE OWNER WILL PAY, FROM THE RECOMMENDED SPARE PARTS ALLOWANCE, THE VENDOR-INVOICED PRICES PLUS DELIVERY COST ONLY, WITHOUT MARKUP FOR OVERHEAD OR PROFIT. IF THE TOTAL COST DIFFERS FROM THE AMOUNT SET FORTH IN THE SCHEDULE OF WORK AND PRICES, THE CONTRACT PRICE SHALL BE ADJUSTED BY A CHANGE ORDER FOR THE DIFFERENCE AS AN ADDITIONAL AMOUNT DUE THE CONTRACTOR, OR A CREDIT TO THE OWNER, AS APPROPRIATE.

4.4.3.4. APPROVAL OF THE INDIVIDUAL EQUIPMENT SUBMITTAL DOES NOT CONSTITUTE AUTHORIZATION TO PROCURE THE RECOMMENDED SPARE PARTS.

4.4.4. PRICES CHARGED TO THE OWNER ARE BASED ON A PERCENTAGE DISCOUNT FROM THE MANUFACTURER'S PUBLISHED PRICE LIST(S) SHALL NOT BE SUBJECT TO CHANGE FOR A PERIOD OF SIXTY (60) CALENDAR DAYS AFTER BID OPENING. IF PRICES ON THE PRICE LIST(S) ARE RAISED, THE OWNER RESERVES THE RIGHT TO ACCEPT THE RAISE OR TO CANCEL SUCH ITEMS FROM THE CONTRACT. THE OWNER IS TO BE GIVEN BENEFIT OF ANY DECLINE IN PRICES IMMEDIATELY UPON THE MANUFACTURER'S EFFECTIVE DATE OF SUCH DECLINE. CHANGES IN PRICE LIST(S) SHALL BE EFFECTIVE ON THE DATE OF THE MANUFACTURER'S EFFECTIVE DATE OF CHANGE. INCREASE IN PRICES SHALL NOT BE RETROACTIVE.

5. TREATMENT PLANT PIPING IDENTIFICATION SYSTEMS

5.1.GENERAL

5.1.1. THE REQUIREMENT

5.1.1.1. THE CONTRACTOR SHALL FURNISH, MARK, AND INSTALL IDENTIFICATION DEVICES FOR ALL EXPOSED PIPING AND PIPING IN ACCESSIBLE CHASES AND AREAS ABOVE CEILINGS WITH PANELS, AND VALVES USING COLOR BANDS, LETTERING, FLOW DIRECTION ARROWS, AND RELATED PERMANENT IDENTIFICATION DEVICES, AND ALL APPURTENANT WORKS, IN ACCORDANCE WITH THE REQUIREMENTS OF THE CONTRACT DOCUMENTS.

5.1.2. REFERENCE SPECIFICATIONS, CODES AND STANDARDS

5.1.2.1. COMPLY WITH THE REFERENCE SPECIFICATIONS OF THE GENERAL REQUIREMENTS.

5.1.3. CONTRACTOR SUBMITTALS

5.1.3.1. SUBMITTALS SHALL BE MADE IN ACCORDANCE WITH GENERAL REQUIREMENTS.

5.1.3.2. THE FOLLOWING SUBMITTALS AND SPECIFIC INFORMATION SHALL BE PROVIDED:

5.1.3.2.1.THE CONTRACTOR SHALL SUBMIT SAMPLES OF ALL TYPES OF IDENTIFICATION DEVICES TO BE USED IN THE WORK.

5.1.3.2.2.THE CONTRACTOR SHALL SUBMIT TO THE ENGINEER, FOR APPROVAL, A LIST OF SUGGESTED WORDING FOR ALL VALVE TAGS PRIOR TO FABRICATION.

5.2.PRODUCTS

5.2.1. IDENTIFICATION OF PIPING

5.2.1.1. ALL EXPOSED PIPING AND PIPING IN ACCESSIBLE CHASES AND AREAS ABOVE CEILINGS WITH PANELS, INCLUDING STAINLESS STEEL, GALVANIZED STEEL, COPPER, PVC, AND FIBERGLASS RTR PIPING, SHALL BE COMPLETELY AND TOTALLY PAINTED FOR IDENTIFICATION PURPOSES. PIPING SHALL BE IDENTIFIED WITH LETTERING OR TAGS DESIGNATING THE SERVICE FOR EACH PIPING SYSTEM. SHALL HAVE FLOW DIRECTIONAL ARROWS, AND SHALL BE COMPLETELY PAINTED AND COLOR CODED AS SCHEDULED BELOW. ALL PIPING SCHEDULED TO BE COLOR CODED SHALL BE COMPLETELY PAINTED OR COATED WITH THE INDICATED COLORS.

5.2.1.2. EACH PIPE IDENTIFICATION SHALL CONSIST OF COLOR CODING IN ACCORDANCE WITH PARAGRAPH 3.4 IDENTIFICATION SCHEDULE. A PAINTED LABEL AND A DIRECTIONAL FLOW ARROW. THE PAINTED LABEL AND DIRECTIONAL ARROW SHALL BE PLACED BETWEEN COLOR BANDS. WHEN MORE THAN ONE COLOR BAND IS USED THE DIFFERENT COLOR BANDS SHALL BE PAINTED ADJACENT. PIPING IDENTIFICATION SHALL BE LOCATED IN ACCORDANCE WITH PARAGRAPH 3.3 PIPE IDENTIFICATION LOCATION.

5.2.1.3. COLOR BANDS AND ARROWS: PIPE COLOR BANDS SHALL BE PAINTED ON THE PIPE. PAPER OR PLASTIC BANDING OF PIPE SHALL NOT BE ACCEPTABLE. ARROWS SHALL BE OF THE SAME COLOR AS THE LETTERING AND SHALL POINT AWAY FROM THE LETTERED LABELS IN THE DIRECTION OF THE FLOW. CHLORINATED SERVICE SHALL BE IDENTIFIED BY A YELLOW SECOND BAND. COLOR BAND SIZE SHALL BE AS FOLLOWS:

PIPE SIZE	COLOR BAND SIZE
LESS THAN 1" DIAMETER	1" WIDE
1" TO 12" DIAMETER	PIPE DIAMETER WIDE
GREATER THAN 12" DIAMETER	12" WIDE
YELLOW SECOND BAND:	
LESS THAN 1" DIAMETER	½" WIDE
1" TO 12" DIAMETER	½ PIPE DIAMETER
GREATER THAN 12" DIAMETER	6" WIDE

5.2.1.4. FOR CASES WHERE THERE ARE INSULATED LINES WRAPPED WITH ALUMINUM SHEATHING, STAINLESS STEEL SHEATHING, OR GRAY FABRIC, THE BACKGROUND COLOR SHALL BE APPLIED TO A 24 INCH LENGTH OF PIPE SECTION AND COLOR BAND CENTERED WITHIN THE 24 INCH FIELD OF BACKGROUND COLOR.

5.2.1.5. PAINT COLORS: PAINT COLORS SHALL CONFORM TO THE FOLLOWING DESIGNATIONS:

COLOR	FEDERAL NUMBER
LIGHT BLUE	15200
DARK BLUE	15102
RED	11105
YELLOW	13655
ORANGE	12246
WHITE	17875
LIGHT BROWN	10219
DARK BROWN	10080
LIGHT GREEN	34540
GREEN	14187
BLACK	17038
SILVER	17178
GREY	16314
PURPLE	27144
PURPLE*	PANTONE 512C

*FOR RECLAIMED WATER

5.2.1.6. LETTERING: CONTENTS IDENTIFICATION LABELS SHALL BE STENCILED DIRECTLY ON PIPES. BLACK IDENTIFICATION LETTERS SHALL BE USED WHERE THE BACKGROUND PIPE COLOR IS LIGHT, AND WHITE IDENTIFICATION LETTERS WHERE THE BACKGROUND COLOR IS DARK. THE SIZE OF THE LETTERS FOR IDENTIFICATION LABELS SHALL BE AS FOLLOWS:

PIPE OUTSIDE DIAMETER	LETTER SIZE
5/8" TO 1"	5/16" HIGH
1" TO 3"	3/4" HIGH
OVER 3"	2" HIGH

5.2.2. IDENTIFICATION OF VALVES AND SHORT PIPE LENGTHS

5.2.2.1. IDENTIFYING DEVICES FOR VALVES AND THE SECTIONS OF PIPE THAT ARE TOO SHORT TO BE IDENTIFIED WITH COLOR BANDS, LETTERED LABELS, AND ARROWS SHALL BE IDENTIFIED WITH METAL TAGS AS SPECIFIED HEREIN.

5.2.2.2. METAL TAGS SHALL BE OF STAINLESS STEEL WITH EMBOSSED LETTERING. ALL TAGS SHALL BE DESIGNED TO BE FIRMLY ATTACHED TO THE VALVES OR SHORT PIPES OR TO THE STRUCTURE IMMEDIATELY ADJACENT TO SUCH VALVES OR SHORT PIPES.

5.2.3. IDENTIFICATION OF PIPE 5/8 INCH OR SMALLER

5.2.3.1. WHERE THE OUTSIDE DIAMETER OF PIPE OR PIPE COVERING IS 5/8 INCH OR SMALLER, METAL TAGS SHALL BE PROVIDED INSTEAD OF LETTERING. TAGS SHALL HAVE THE SPECIFIED IDENTIFYING LETTERING STAMPED IN THE TAG AND SHALL BE FASTENED TO THE PIPE WITH SUITABLE CHAINS. METAL TAGS AND CHAINS SHALL BE ALUMINUM OR STAINLESS STEEL. WHERE TAGS ARE USED, PIPE SHALL BE COLOR CODED AS SPECIFIED IN PARAGRAPH 3.04.

5.2.4. MISCELLANEOUS

5.2.4.1. ELECTRICAL CONDUIT SHALL BE PAINTED TO MATCH CEILING OR WALL SURFACES AS DIRECTED BY THE ENGINEER.

5.2.4.2. VENT LINES SHALL BE PAINTED TO MATCH THE SURFACES THAT THEY ADJOIN.

5.2.4.3. VALVE HANDWHEELS AND LEVERS SHALL BE PAINTED RED.

5.3.EXECUTION

5.3.1. GENERAL

5.3.1.1. ALL LABELS AND IDENTIFICATION TAGS SHALL BE INSTALLED IN ACCORDANCE WITH THE MANUFACTURER'S PRINTED INSTRUCTIONS, AND SHALL BE NEAT AND UNIFORM IN APPEARANCE. ALL SUCH TAGS OR LABELS SHALL BE READILY VISIBLE FROM ALL NORMAL WORKING LOCATIONS.

5.3.2. VALVE TAGS

5.3.2.1. VALVE TAGS SHALL BE PERMANENTLY ATTACHED TO THE VALVE OR STRUCTURE BY MEANS OF 2 STAINLESS STEEL BOLTS OR SCREWS.

5.3.3. THE WORDING ON THE VALVE TAGS SHALL DESCRIBE THE EXACT FUNCTION OF EACH VALVE, E.G., "HWR-BALANCING," "CLS THROTTLING", "RAS-PUMP SHUT-OFF," ETC.

5.3.4. PIPE IDENTIFICATION LOCATION

5.3.4.1. STRAIGHT LINES OF PIPE SHALL BE IDENTIFIED AT INTERVALS OF 30 FEET MAXIMUM, AND AT LEAST ONCE IN EACH ROOM UNLESS OTHERWISE DIRECTED BY THE ENGINEER.

5.3.4.2. PIPING SHALL ALSO BE IDENTIFIED AT A POINT APPROXIMATELY WITHIN 2 FEET OF ALL TURNS, ELLS, VALVES, AND ON THE UPSTREAM SIDE OF ALL DISTRIBUTION FITTINGS OR BRANCHES AND ON BOTH SIDES OF EACH FLOOR, WALL OR BARRIER THROUGH WHICH THE LINE PASSES.

5.3.4.3. FOR PIPE RUNS OF 50 FEET OR LESS THE DISTANCE BETWEEN BANDS SHALL BE 30 INCHES. FOR PIPE RUNS OF 50 FEET OR MORE, SPACING BETWEEN BANDS SHALL BE 72 INCHES.

5.3.4.4. SECTIONS OF PIPE THAT ARE TOO SHORT TO BE IDENTIFIED WITH COLOR BANDS, LETTERED LABELS, AND DIRECTIONAL ARROWS SHALL BE TAGGED AND IDENTIFIED SIMILAR TO VALVES.

5.3.5. IDENTIFICATION SCHEDULE

5.3.5.1. APPLICATION OF IDENTIFYING DEVICES SHALL CONFORM TO THE FOLLOWING COLOR CODES, OR MATCH EXISTING COLOR CODE AS DIRECTED BY THE ENGINEER.

MATERIAL IN PIPE	BACKGROUND COLOR	BAND COLOR(S)
POTABLE WATER	RP DEVICE	LIGHT BLUE
FRESH WATER (AIR GAP)	LIGHT BLUE	
INDUSTRIAL AND/OR COOLING WATER		
RECLAIMED WATER	PURPLE* (PANTONE 512 C)	
FINAL EFFLUENT	DARK BLUE	RED
SODIUM BICARBONATE	YELLOW	
MICRO-C	WHITE	YELLOW
VENT	GREEN	GREY
RAW SLUDGE	DARK BROWN	
WASTE ACTIVATED SLUDGE	LIGHT BROWN	
THICKENED WASTE ACTIVATED SLUDGE	LIGHT BROWN	
RETURN ACTIVATED SLUDGE	LIGHT BROWN	
GRIT	DARK BROWN	
MIXED LIQUOR	LIGHT BROWN	
PROCESS EFFLUENT	DARK BLUE	RED
FINAL CLARIFIER INFLUENT	LIGHT BROWN	
PROCESS AIR	GREEN	
PLANT DRAIN	BLACK	
STORM DRAIN	BLACK	
SUMP PUMP DISCHARGE	BLACK	
SANITARY SEWER	BLACK	
SANITARY VENT	BLACK	
INFLUENT RAW SEWAGE (UP TO PRIMARY TANKS)	GREY	

6. ONSITE WASTEWATER TREATMENT SYSTEM COMPONENTS

6.1.RISERS & LIDS:

6.1.1. RISERS

6.1.1.1. RISERS SHALL BE RIBBED PVC AS MANUFACTURED BY ORENCO SYSTEMS . INC. THE MATERIAL SHALL BE PVC AS PER ASTM D_1784 AND TESTED IN ACCORDANCE WITH AASHTO M304M_86 RISERS SHALL EXTEND TO TWO INCHES ABOVE THE GROUND SURFACE TO ALLOW FOR SETTLEMENT AND SHALL HAVE A MINIMUM NOMINAL DIAMETER OF 21 INCHES.

6.1.1.2. WHEN BONDING TO CONCRETE OR FIBERGLASS GROOVES, A TWO_PART EPOXY, ONE PINT REQUIRED PER 21 INCH OR 24 INCH DIAMETER RISER AND ONE QUART REQUIRED FOR 30 INCH DIAMETER RISER, MODEL ADHP10 OR ADHQ10, OR EQUAL SHALL BE USED. WHEN BONDING TO A FLANGED RISER TANK ADAPTER, EITHER A TWO_PART EPOXY, MODEL MA 320 OR EQUAL, OR A SINGLE COMPONENT ADHESIVE MODEL ADH100 OR EQUAL SHALL BE USED.

6.1.2. LIDS:

6.1.2.1. ONE SHALL BE FURNISHED WITH EACH ACCESS RISER. LIDS SHALL BE ORENCO SYSTEMS . INC. MODEL FL21G, FL24G, OR FL30G, AS APPROPRIATE. FIBERGLASS WITH GREEN NON_SKID FINISH, AND PROVIDED WITH URETHANE GASKET, STAINLESS STEEL BOLTS, AND WRENCH. THE RISER AND LID COMBINATION SHALL BE ABLE TO SUPPORT A 2500 LB. WHEEL LOAD. MODEL AND DIAMETER AS SHOWN IN CONTRACT DRAWINGS .

7. POLYVINYL CHLORIDE (PVC) PRESSURE PIPE

7.1.GENERAL

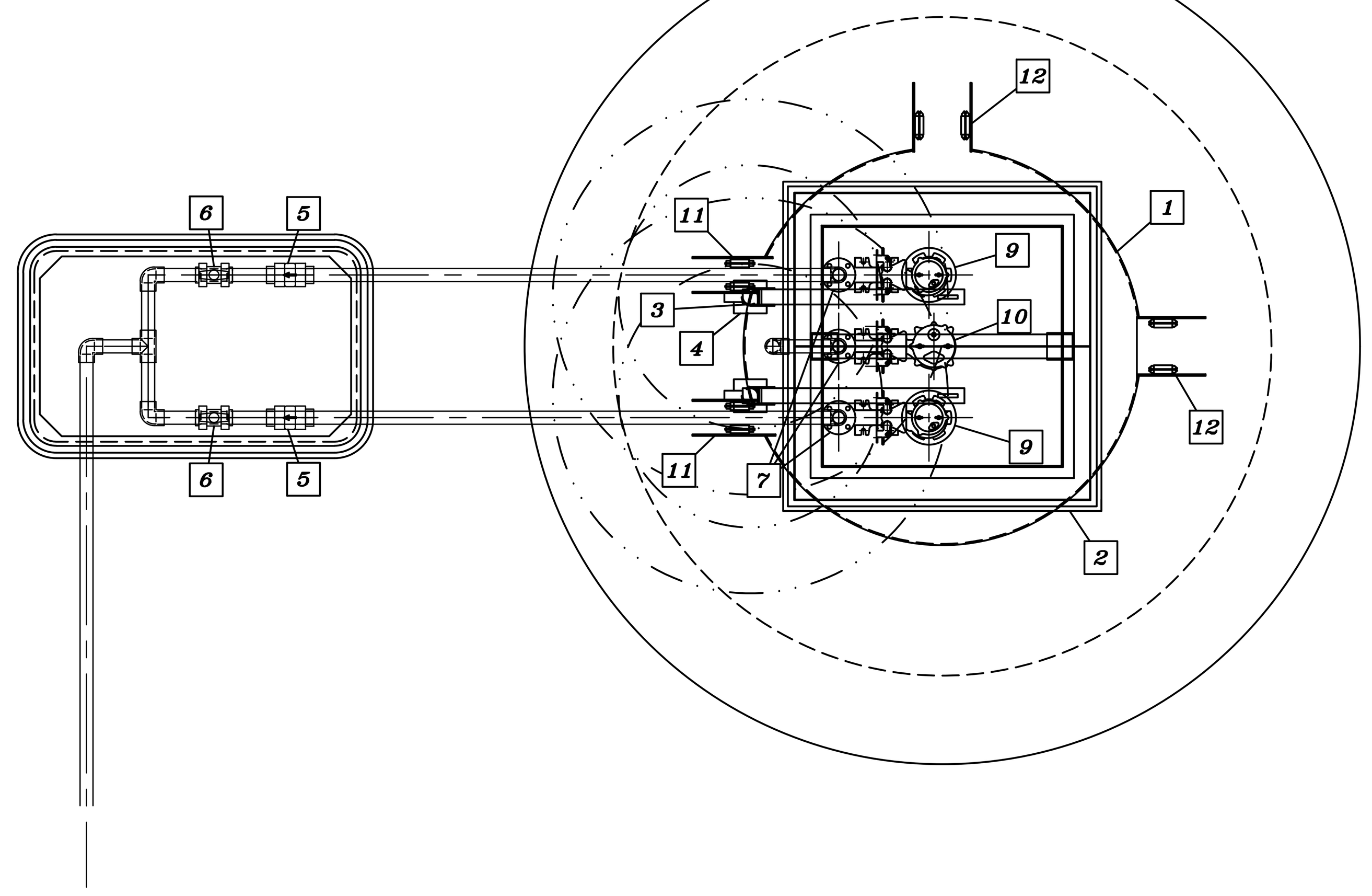
7.1.1. WORK INCLUDED:

7.1.1.1. THIS SECTION COVERS THE FURNISHING AND INSTALLATION OF DUCTILE IRON PIPE AND FITTINGS, STEEL PIPE AND FITTINGS, PVC PRESSURE PIPE AND FITTINGS, PVC NON-PRESSURE PIPE AND FITTINGS, REINFORCED CONCRETE PIPE AND FITTINGS, CORRUGATED POLYETHYLENE PIPE AND FITTINGS AND STEEL CASING PIPE.

7.1.1.2. ALL PIPING SHALL BE PVC SCHEDULE 80 UNLESS SPECIFIED AS OTHER MATERIAL ON PROCESS DIAGRAM. ALL AIR PIPING SHALL BE

7.2.SPECIFICATIONS

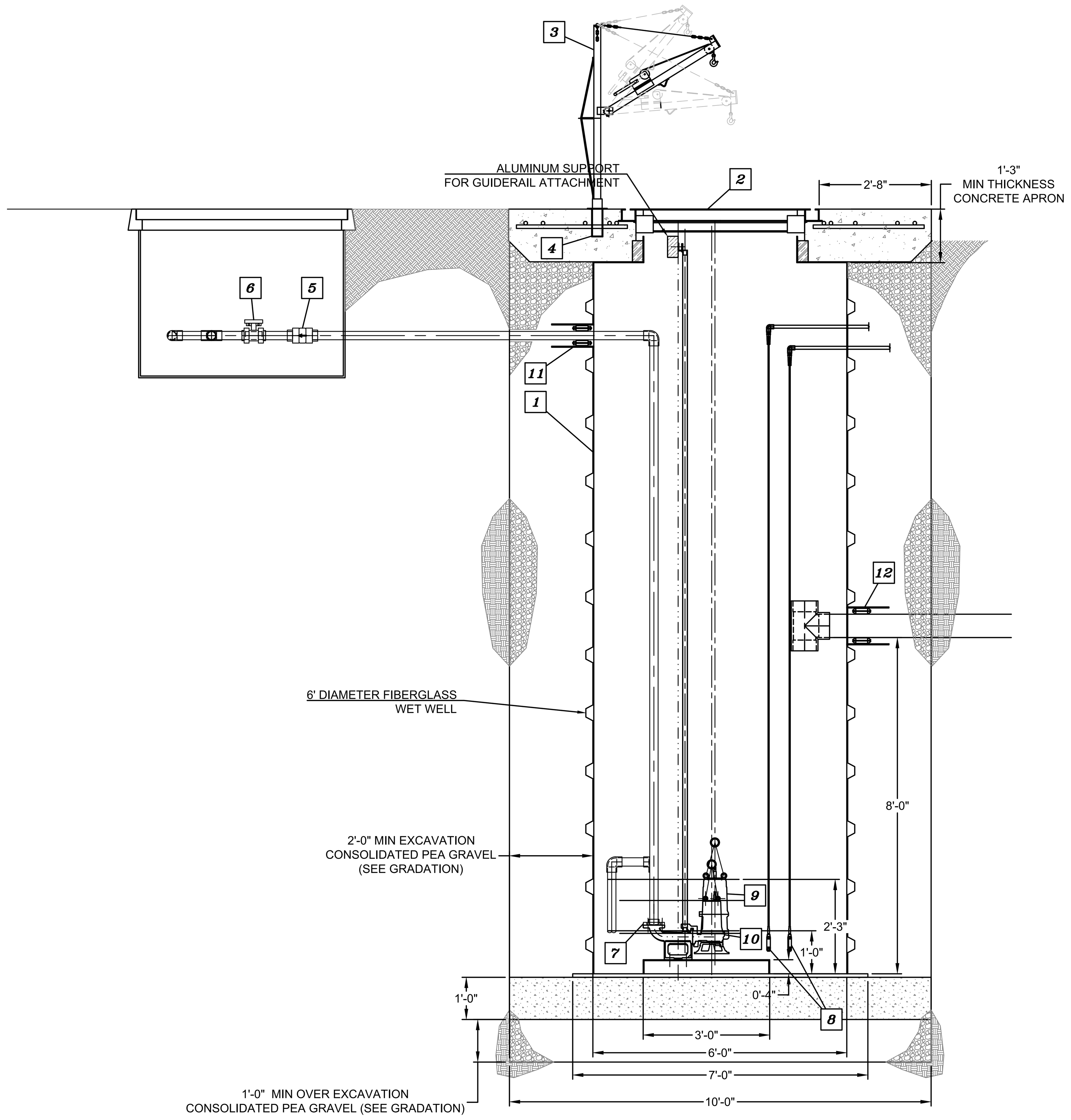
7.2.1. ALL PVC SCHEDULE 40 AND SCHEDULE 80 PI



23
PW-12

LIFT STATION PLAN

SCALE: 1/2" = 1'



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PW-12

LIFT STATION SECTION

SCALE: 1/2" = 1'

LIFT STATION EQUIPMENT

NUMBER	QTY	DESCRIPTION
1	1	6' DIAMETER FIBERGLASS MANHOLE
2	1	ACCESS HATCH HALLIDAY PRODUCTS MODEL NO H2W4848 WITH PROTECTIVE GRATE MODEL OPT-H20-GRATE-N
3	1	HALLIDAY D2B36D PORTABLE HOIST TYPE-304 STAINLESS STEEL CONSTRUCTION INCLUDING WENCH AND HOOK
4	2	HALLIDAY SERIES D HOIST SOCKET EMBED STYLE D2R LINED TYPE-304 STAINLESS STEEL WITH POLYMER LINING
5	2	2" SCH80 PVC TRUE UNION UTILITY SWING CHECK VALVE CLEAR, SPEARS MODEL F1720-C20
6	2	2" SCH80 PVC TRUE UNION (TU2000 INDUSTRIAL) BALL VALVE SOCKET SPEARS MODEL 1829-020
7	3	2" SCH80 PVC FLANGE, 2-PIECE SPEARS MODEL 855-020
8	2	LEVEL TRANSMITTER
9	2	TSURUMI TOS50MG22.2 LIFT STATION TRANSFER GRINDER PUMP AND SLIDE RAIL SYSTEM 1. MATERIALS OF CONSTRUCTION CONSTRUCTION OF MAJOR PARTS OF THE PUMPING UNIT(S) INCLUDING PUMP CASING, IMPELLER, AND DISCHARGE ELBOW SHALL BE MANUFACTURED FROM GRAY CAST IRON, ASTM A48 CLASS 35. INTERNAL AND EXTERNAL SURFACES COMING INTO CONTACT WITH THE PUMPAGE SHALL BE PROTECTED BY A FUSED POLYMER COATING. ALL EXPOSED FASTENERS SHALL BE STAINLESS STEEL. ALL UNITS SHALL BE FURNISHED WITH A DISCHARGE ELBOW WITH 150 LB. (10 KG/CM2) FLAT FACE FLANGE AND NPT COMPANION FLANGE. IMPELLERS SHALL BE OF THE SEMI-VORTEX, SOLIDS HANDLING DESIGN EQUIPPED WITH BACK PUMP OUT VANES AND SHALL BE SLIP FIT TO THE SHAFT AND KEY DRIVEN. THE GRINDING UNITS SHALL PROVIDE HORIZONTAL AND VERTICAL GRINDING ACTION. BOTH ROTATING AND STATIONARY GRINDING UNITS SHALL BE HARDENED HIGH CHROME CAST IRON RATED AT 60 HRC. THE PUMP CASING SHALL INCORPORATE AN AIR RELIEF PORT. 2 MECHANICAL SEAL . ALL UNITS SHALL BE FURNISHED WITH A DUAL INSIDE MECHANICAL SHAFT SEAL LOCATED COMPLETELY OUT OF THE PUMPAGE, RUNNING IN A SEPARATE OIL FILLED CHAMBER AND FURTHER PROTECTED BY AN EXCLUSIONARY OIL SEAL LOCATED BETWEEN THE BOTTOM SEAL FACES AND THE FLUID BEING PUMPED. THE OIL CHAMBER SHALL BE FITTED WITH A DEVICE THAT SHALL PROVIDE POSITIVE LUBRICATION OF TOP MECHANICAL SEAL, (DOWN TO ONE THIRD OF THE STANDARD OIL LEVEL). THE DEVICE SHALL NOT CONSUME ANY ADDITIONAL ELECTRICAL POWER. MECHANICAL SEALS SHALL RATED TO PRECLUDE THE INCURSION OF WATER UP TO 42.6 PSI. (98.4 FT.). UNITS SHALL HAVE SILICON CARBIDE MECHANICAL SEAL FACES. MECHANICAL SEAL HARDWARE SHALL BE STAINLESS STEEL. 3 MOTOR THE PUMP MOTORS SHALL BE 3 HP., 460 V., 60 HZ., 3 PHASE AND SHALL BE NEMA MG-1, DESIGN TYPE B EQUIVALENT. MOTOR(S) SHALL HAVE A 1.15 SERVICE FACTOR AND SHALL BE RATED FOR 20 STARTS PER HOUR. MOTOR(S) SHALL BE AIR FILLED, COPPER WOUND, CLASS E INSULATED WITH BUILT IN THERMAL AND OVER AMPERAGE PROTECTION FOR EACH WINDING. MOTOR SHAFT SHALL BE 403 OR 420 STAINLESS STEEL AND SHALL BE SUPPORTED BY TWO PERMANENTLY LUBRICATED, HIGH TEMPERATURE BALL BEARINGS, WITH A B-10 LIFE RATING AT BEST EFFICIENCY POINT OF 60,000 HOURS. THE BOTTOM BEARING SHALL BE TWO ROW, DOUBLE SHIELDED, C3, DEEP GROOVE TYPE BALL BEARING. THE TOP BEARING SHALL BE SINGLE ROW, DOUBLE SHIELDED, C3, DEEP GROOVE TYPE BALL BEARING. MOTOR HOUSING AND BEARING HOUSING SHALL BE GRAY CAST IRON, ASTM A48 CLASS 30. MOTORS SHALL BE SUITABLE VARIABLE SPEED APPLICATIONS, UTILIZING A PROPERLY SIZED VARIABLE FREQUENCY DRIVE. 4 POWER CABLE AND CABLE ENTRANCE THE PUMP POWER CABLE SHALL BE SUITABLE FOR SUBMERSIBLE PUMP APPLICATIONS. THE CABLE ENTRANCE SHALL INCORPORATE BUILT IN STRAIN RELIEF, A ONE PIECE, THREE WAY MECHANICAL COMPRESSION SEAL WITH A FATIGUE REDUCING CABLE BOOT. THE CABLE ENTRANCE ASSEMBLY SHALL CONTAIN AN ANTI-WICKING BLOCK TO ELIMINATE WATER INCURSION INTO THE MOTOR DUE TO CAPILLARY WICKING SHOULD THE POWER CABLE BE ACCIDENTALLY DAMAGED.
10		TSURUMI TOS50C2.75 LIFT STATION TRANSFER CHOPPER PUMP AND SLIDE RAIL SYSTEM 1. MATERIALS OF CONSTRUCTION CONSTRUCTION OF MAJOR PARTS OF THE PUMPING UNIT(S) INCLUDING PUMP CASING, IMPELLER, AND DISCHARGE ELBOW SHALL BE MANUFACTURED FROM GRAY CAST IRON, ASTM A48 CLASS 30B. UNIT(S) SHALL HAVE A FIELD ADJUSTABLE AND OR REPLACEABLE, HIGH CHROME CAST IRON CUTTER PLATE. INTERNAL AND EXTERNAL SURFACES COMING INTO CONTACT WITH THE PUMPAGE SHALL BE PROTECTED BY A FUSED POLYMER COATING. ALL EXPOSED FASTENERS SHALL BE STAINLESS STEEL. ALL UNITS SHALL BE FURNISHED WITH A DISCHARGE ELBOW WITH 150 LB. (10 KG/CM2) FLAT FACE FLANGE AND NPT COMPANION FLANGE. IMPELLERS SHALL BE OF THE SINGLE OR TWO-VANE, SEMI-OPEN, SOLIDS HANDLING DESIGN EQUIPPED WITH TUNGSTEN CARBIDE VANE TIP AND SHALL BE SLIP FIT TO THE SHAFT AND KEY DRIVEN. THE PUMP CASING SHALL INCORPORATE AN AIR RELIEF VALVE. 2 MECHANICAL SEAL . ALL UNITS SHALL BE FURNISHED WITH A DUAL INSIDE MECHANICAL SHAFT SEAL LOCATED COMPLETELY OUT OF THE PUMPAGE, RUNNING IN A SEPARATE OIL FILLED CHAMBER AND FURTHER PROTECTED BY AN EXCLUSIONARY OIL SEAL LOCATED BETWEEN THE BOTTOM SEAL FACES AND THE FLUID BEING PUMPED. UNIT 2 HP. AND ABOVE SHALL BE FITTED WITH A DEVICE THAT SHALL PROVIDE POSITIVE LUBRICATION OF TOP MECHANICAL SEAL, (DOWN TO ONE THIRD OF THE STANDARD OIL LEVEL). THE DEVICE SHALL NOT CONSUME ANY ADDITIONAL ELECTRICAL POWER. MECHANICAL SEALS SHALL RATED TO PRECLUDE THE INCURSION OF WATER UP TO 42.6 PSI. (98.4 FT.). UNITS SHALL HAVE SILICON CARBIDE MECHANICAL SEAL FACES. MECHANICAL SEAL HARDWARE SHALL BE STAINLESS STEEL. UNITS DESIGNED TO EXCEED 42.6 PSI. AT SHUT OFF HEAD SHALL INCORPORATE SEAL PRESSURE RELIEF PORTS. 3 MOTOR THE PUMP MOTOR(S) SHALL BE 1 HP, 460 V., 60 HZ., 3 PHASE AND SHALL BE NEMA MG-1, DESIGN TYPE B EQUIVALENT. MOTOR(S) SHALL HAVE A 1.15 SERVICE FACTOR AND SHALL BE RATED FOR 20 STARTS PER HOUR. MOTOR(S) SHALL BE AIR FILLED, COPPER WOUND, CLASS E, B, OR F INSULATED WITH BUILT IN THERMAL PROTECTION FOR EACH WINDING. MOTOR SHAFT SHALL BE 420 OR 403 STAINLESS STEEL AND SHALL BE SUPPORTED BY TWO PERMANENTLY LUBRICATED, HIGH TEMPERATURE BALL BEARINGS, WITH A B-10 LIFE RATING AT BEST EFFICIENCY POINT OF 60,000 HOURS. ON UNITS UP TO 10 HP. (7.5 KW), THE BOTTOM BEARING SHALL BE SINGLE ROW, DOUBLE SHIELDED, C3, DEEP GROOVE TYPE BALL BEARINGS. ON UNITS 15 HP. (11 KW) AND ABOVE, THE BOTTOM BEARING SHALL BE TWO ROW, DOUBLE SHIELDED, C3, DEEP GROOVE TYPE BALL BEARINGS. THE TOP BEARING ON ALL UNITS SHALL BE SINGLE ROW, DOUBLE SHIELDED, C3, DEEP GROOVE TYPE BALL BEARINGS. MOTOR HOUSING AND BEARING HOUSING SHALL BE GRAY CAST IRON, ASTM A48 CLASS 25B OR 30B(7.5 HP. AND ABOVE). MOTORS SHALL BE D.O.L. OR STAR-DELTA START (15 HP. AND ABOVE), AND SHALL BE SUITABLE FOR ACROSS THE LINE START OR VARIABLE SPEED APPLICATIONS, UTILIZING A PROPERLY SIZED VARIABLE FREQUENCY DRIVE. 4 POWER CABLE AND CABLE ENTRANCE ALL UNITS SHALL BE FURNISHED WITH A DUAL INSIDE MECHANICAL SHAFT SEAL LOCATED COMPLETELY OUT OF THE PUMPAGE, RUNNING IN A SEPARATE OIL FILLED CHAMBER AND FURTHER PROTECTED BY AN EXCLUSIONARY OIL SEAL LOCATED BETWEEN THE BOTTOM SEAL FACES AND THE FLUID BEING PUMPED. UNIT 2 HP. AND ABOVE SHALL BE FITTED WITH A DEVICE THAT SHALL PROVIDE POSITIVE LUBRICATION OF TOP MECHANICAL SEAL, (DOWN TO ONE THIRD OF THE STANDARD OIL LEVEL). THE DEVICE SHALL NOT CONSUME ANY ADDITIONAL ELECTRICAL POWER. MECHANICAL SEALS SHALL RATED TO PRECLUDE THE INCURSION OF WATER UP TO 42.6 PSI. (98.4 FT.). UNITS SHALL HAVE SILICON CARBIDE MECHANICAL SEAL FACES. MECHANICAL SEAL HARDWARE SHALL BE STAINLESS STEEL. UNITS DESIGNED TO EXCEED 42.6 PSI. AT SHUT OFF HEAD SHALL INCORPORATE SEAL PRESSURE RELIEF PORTS.
11	2	LINK SEAL LS-410-S-316 WITH STAINLESS STEEL HARDWARE. 6" PIPE SLEEVE, 2" PVC PIPE
12	2	LINKSEAL LS-475-S-316 WITH STAINLESS STEEL HARDWARE. 10" PIPE SLEEVE, 6" PVC PIPE

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PW-12

LIFT STATION EQUIPMENT TABLE

NO SCALE

LPA

ARCHITECTURE ENGINEERING INTERIOR DESIGN
LANDSCAPE ARCHITECTURE PLANNING

949-261-1001 Office

LPADesignStudios.com

5301 California Avenue, Suite 100
Irvine, California 92617

NOT FOR REGULATORY APPROVAL, PERMITTING OR CONSTRUCTION

REGISTERED PROFESSIONAL ENGINEER JOHN N. YAROSLASKI EXP 06-2026 CIVIL STATE OF CALIFORNIA

ENSITU

"Dedicated to achieving higher standards in onsite and decentralized wastewater systems."

ENSITU ENGINEERING, INC.
7475 Carmelita Ave.
Atascadero, CA 93422
Tel: 805.772.0150
ENSITU@ensitu.com

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MALIBU MIDDLE & HIGH SCHOOL PHASE 2
30215 MORNING VIEW DRIVE
MALIBU, CALIFORNIA

Developed for
SMMUSD

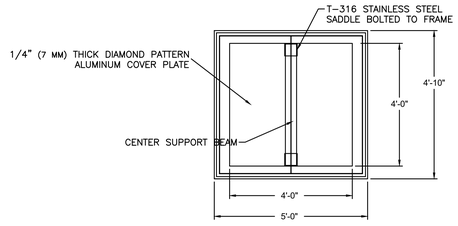
Revision	Date

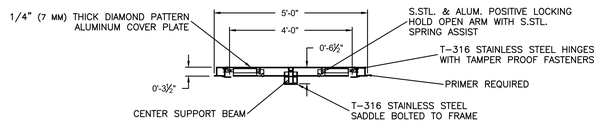
Submittal	Date
SCHEMATIC DESIGN	09/04/2024
50% DESIGN DEVELOPMENT	12/13/2024
100% DESIGN DEVELOPMENT	02/21/2025
CDP SUBMITTAL	06/16/2025
50% CONSTRUCTION DOCS	06/27/2025
DSA SUBMITTAL	09/08/2025

Job Number	817-01
Checked By	JNY
Scale	

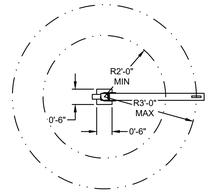
LIFT STATION

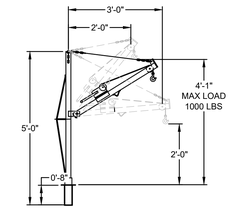
NOTES:
1. AUTO-LOCK T-316 STAINLESS STEEL HOLD OPEN ARM WITH RELEASE HANDLE
2. T-316 STAINLESS STEEL HINGES AND ATTACHING HARDWARE
3. T-316 STAINLESS STEEL SLAM LOCK W/REMOVABLE KEY
4. STAINLESS STEEL COMPRESSION SPRING ASSIST
5. DOUBLE LEAF CONSTRUCTION
6. H20 LOAD RATING SUITABLE FOR USE IN OFF STREET LOCATION WHERE NOT SUBJECTED TO HIGH DENSITY TRAFFIC.
7. EXTRUDED ALUMINUM CHANNEL FRAME
8. RECESSED LIFTING HANDLE
9. LIFETIME GUARANTEE





26 PW-13 *LS-GENERAL DETAILS ACCESS HATCH*
SCALE: 1/2" = 1'



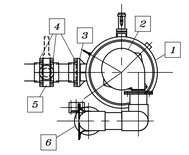


27 PW-13 *LS-GENERAL DETAILS PORTABLE HOIST*
SCALE: 1/2" = 1'

SERIES DB ADJUSTABLE REACH PORTABLE HOIST

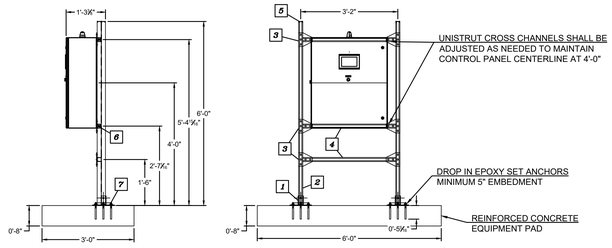
HALLIDAY D2B36D PORTABLE HOIST TYPE-304 STAINLESS STEEL CONSTRUCTION INCLUDING WENCH AND HOOK	THE PORTABLE HOIST SHALL BE SERIES DB AS MANUFACTURED BY HALLIDAY PRODUCTS INC. OF ORLANDO, FLORIDA. THE UNIT SHALL BE SIZED TO FACILITATE EQUIPMENT PLACEMENT AND REMOVAL. THE PORTABLE HOIST SHALL BE ALL T-304 STAINLESS STEEL CONSTRUCTION WITH STAINLESS STEEL MARINE GRADE BRAKE WINCH AND 30 FEET OF ¼ INCH T-304 STAINLESS STEEL CABLE WITH STAINLESS STEEL SAFETY HOOK. THE DAVIT ARM SHALL ADJUST IN 1INCH INCREMENTS FROM 24 TO 36 INCHES AND THE OVERALL UNIT HEIGHT SHALL BE 60". THE PORTABLE HOIST SHALL BE GUARANTEED AGAINST DEFECTS IN MATERIAL AND OR WORKMANSHIP FOR A PERIOD OF 3 YEARS
HALLIDAY SERIES D HOIST SOCKET EMBED STYLE D0R LINED TYPE-304 STAINLESS STEEL WITH POLYMER LINING	THE HOIST SOCKET SHALL BE SERIES D EMBED STYLE AS MANUFACTURED BY HALLIDAY PRODUCTS INC. OF ORLANDO, FLORIDA. THE UNIT SHALL BE SIZED TO FACILITATE DB SERIES PORTABLE HOIST INSERTION AND REMOVAL. THE HOIST SOCKET SHALL BE ALL T-304 STAINLESS STEEL CONSTRUCTION AND POLYMER LINED FOR SMOOTH ROTATION. THE HOIST SOCKET SHALL BE GUARANTEED AGAINST DEFECTS IN MATERIAL AND OR WORKMANSHIP FOR A PERIOD OF 3 YEARS

28 PW-13 *LS-PORTABLE HOIST EQUIPMENT TABLE*
NO SCALE



EQUIPMENT SCHEDULE

ITEM	DESCRIPTION	MFG/PART NUMBER
1	ACTIVATED CARBON ODOR CONTROL UNIT	PURAFIL DS-100
2	ODOR CONTROL BLOWER	1/2 HP, 460 V 1ph 60 hz, TEFC
3	6" FLANGED INLET	PURAFIL ASSEMBLY
4	6" SCH80 PVC TWO PIECE FLANGE	SPEARS MODEL 854-060
5	6" BUTTERFLY VALVE LUG INSERT STYLE	SPEARS MODEL 252311-060
6	SILENCER	CINCINNATI FAN MOODEL PB-10A CSA-5



CONTROL PANEL SUPPORT SYSTEM

NUMBER	QTY	DESCRIPTION	MANUFACTURER AND PART NUMBER
1	2	CHANNEL BASE	UNISTRUT P2072ASS
2	2	STRUT CHANNEL STAINLESS STEEL 1-5/8"	UNISTRUT P1001SS
3	6	SUPPORT/ATTACHMENT BRACKET	UNISTRUT P1726SS
4	3	STRUT CHANNEL STAINLESS STEEL 1-5/8"	UNISTRUT P1000SS
5	4	CHANNEL CAP STAINLESS STEEL	UNISTRUT P1280SS
6		CHANNEL NUT WITH SPRING 3/8" -16, TYPE 316 STAINLESS STEEL WITH STAINLESS STEEL HARDWARE	P1008U (STAINLESS STEEL)
7	8	DROP IN ANCHOR ROD HAS-R 1/2" x 6-1/2" SS316	ANCHOR ROD HILTI 2045003, HEXAGON NUT HILTI 411776 316SS, WASHER 411781 316SS

30 PW-13 *G-PANEL SUPPORT DETAIL*
SCALE: 1/2" = 1'

29 PW-13 *OCU-2100 AIR SCRUBBER DETAIL*
SCALE: 1/2" = 1'

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ARCHITECTURE ENGINEERING INTERIOR DESIGN
LANDSCAPE ARCHITECTURE PLANNING
949-261-1001 Office
LPADesignStudios.com
5301 California Avenue, Suite 100
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REGISTERED PROFESSIONAL ENGINEER JOHN YAROSZ
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Atascadero, CA 93422
Tel: 805.772.0150
ENSITU@ensitu.com

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MALIBU MIDDLE & HIGH SCHOOL PHASE 2
30215 MORNING VIEW DRIVE
MALIBU, CALIFORNIA

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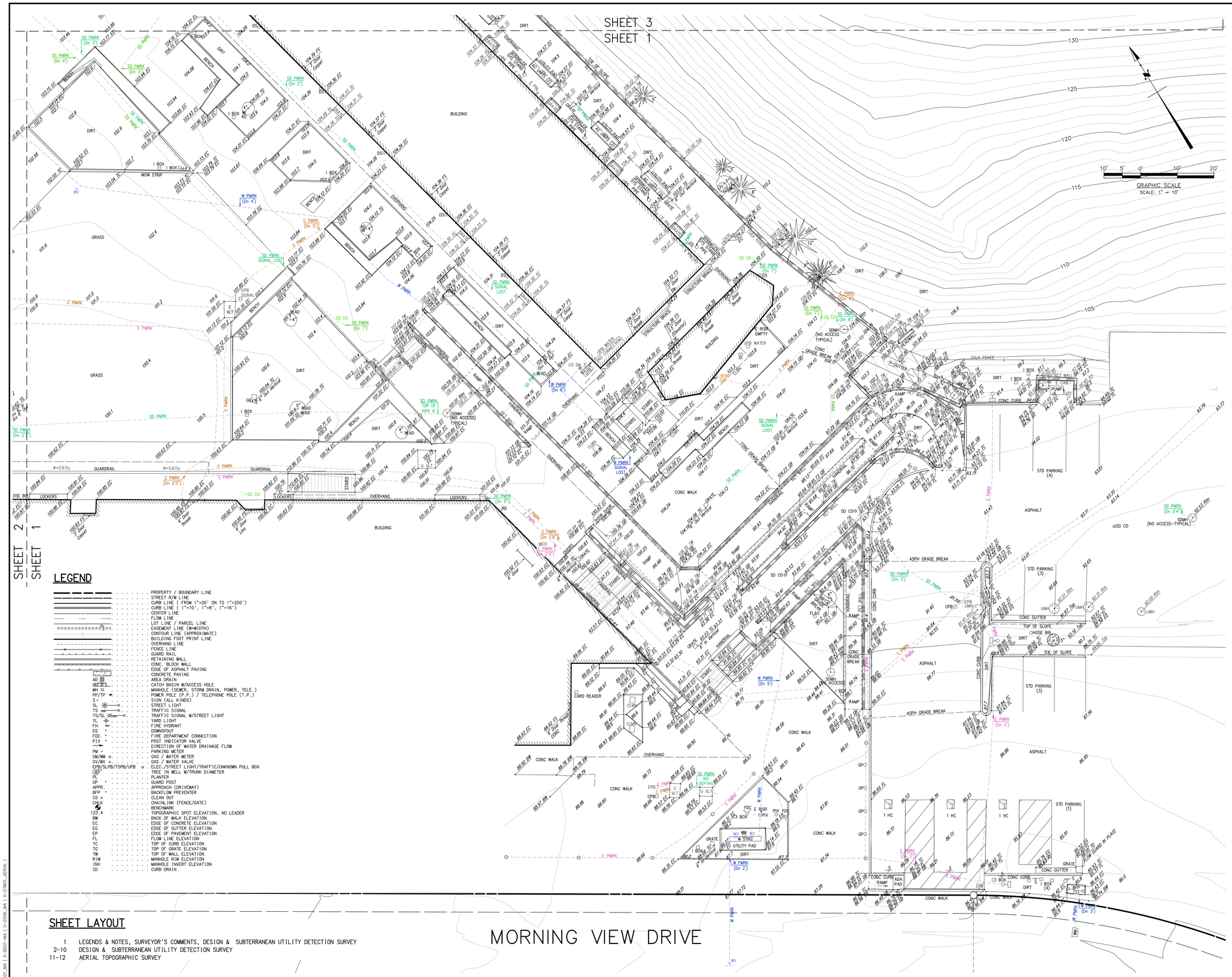
DSA SUBMITTAL	09/08/2025

Job Number	817-01
Checked By	JNY
Scale	

LIFT STATION DETAILS

SHEET 3
SHEET 1

SHEET 2
SHEET 1

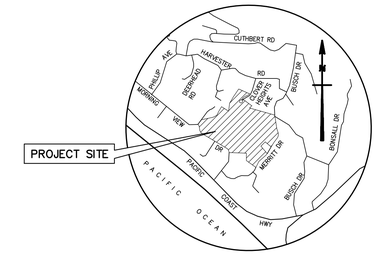


LEGEND

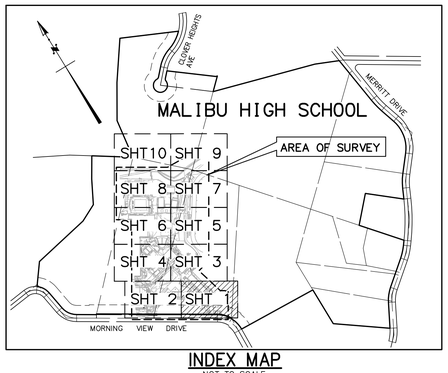
- PROPERTY / BOUNDARY LINE
- STREET R/W LINE
- CURB LINE (FROM 1"=20' ON TO 1"=200')
- CURB LINE (1"=10', 1"=8', 1"=16')
- CENTER LINE
- FLOW LINE
- LOT LINE / PARCEL LINE
- EASEMENT LINE (W=WIDTH)
- CONTOUR LINE (APPROXIMATE)
- BUILDING FOOT PRINT LINE
- OVERHANG LINE
- FENCE LINE
- GUARD RAIL
- RETAINING WALL
- CONC. BLOCK WALL
- EDGE OF ASPHALT PAVING
- CONCRETE PAVING
- AREA DRAIN
- CATCH BASIN W/ACCESS HOLE
- MH ○ MANHOLE (SEWER, STORM DRAIN, POWER, TELE.)
- PP/TP POWER POLE (P.P.) / TELEPHONE POLE (T.P.)
- S SIGN (ALL KINDS)
- SL STREET LIGHT
- TS TRAFFIC SIGNAL
- TS/SL TRAFFIC SIGNAL W/STREET LIGHT
- YL YARD LIGHT
- FH FIRE HYDRANT
- DS DOWNSPOUT
- FDC FIRE DEPARTMENT CONNECTION
- PIV POST INDICATOR VALVE
- DIRECTION OF WATER DRAINAGE FLOW
- PM PARKING METER
- GM/WM GAS / WATER METER
- GV/WV GAS / WATER VALVE
- EPB/SLPB/TSPB/UPB ELEC./STREET LIGHT/TRAFFIC/UNKNOWN PULL BOX
- TREE IN WELL W/TRUNK DIAMETER
- PL PLANTER
- GP GUARD POST
- APPROACH (DRIVEWAY)
- BFP BACKFLOW PREVENTER
- CO CLEAN OUT
- CHLK CHAINLINK (FENCE/GATE)
- BENCHMARK
- 123.4 TOPOGRAPHIC SPOT ELEVATION, NO LEADER
- BW BACK OF WALK ELEVATION
- EC EDGE OF CONCRETE ELEVATION
- EG EDGE OF GUTTER ELEVATION
- EP EDGE OF PAVEMENT ELEVATION
- FL FLOW LINE ELEVATION
- TC TOP OF CURB ELEVATION
- TG TOP OF GRATE ELEVATION
- TW TOP OF WALL ELEVATION
- RIM MANHOLE RIM ELEVATION
- INV MANHOLE INVERT ELEVATION
- CD CURB DRAIN

SHEET LAYOUT

1 LEGENDS & NOTES, SURVEYOR'S COMMENTS, DESIGN & SUBTERRANEAN UTILITY DETECTION SURVEY
2-10 DESIGN & SUBTERRANEAN UTILITY DETECTION SURVEY
11-12 AERIAL TOPOGRAPHIC SURVEY



VICINITY MAP
NOT TO SCALE



INDEX MAP
NOT TO SCALE

COMMENTS:

BOUNDARY LINES. . . . . WERE ESTABLISHED FROM RECOVERED CITY, COUNTY AND/OR PRIVATE SURVEY MONUMENTS. SEE PSOMAS MAP "BOUNDARY SURVEY" JOB NO. 1SAN080102 TASK 100, 116 FOR BOUNDARY ESTABLISHMENT.

LEGAL DESCRIPTION . . . . . SEE PSOMAS MAP "BOUNDARY SURVEY" JOB NO. 1SAN080102 TASK 100, 116 FOR LEGAL DESCRIPTION.

TITLE REPORT . . . . . FIRST AMERICAN TITLE COMPANY PRELIMINARY TITLE REPORT NO. 3029743 (60), DATED SEPTEMBER 18, 2009.

EASEMENTS . . . . . NOT SHOWN ON THIS SURVEY. SEE PSOMAS MAP "AERIAL TOPOGRAPHIC SURVEY, UTILITY LOCATIONS AND EASEMENT EXHIBIT", JOB NO. 1SAN080102 TASK 100 FOR EASEMENTS.

HORIZONTAL CONTROL . . . . . STATE PLANE COORDINATES, CALIFORNIA COORDINATE SYSTEM ZONE 5 BASED ON NAD83 (CORS96) (EPOCH: 2002.0000) REFERENCE FRAME. THE HORIZONTAL COORDINATE VALUES SHOWN HEREON ARE BASED UPON LOCAL CONTROL POINTS AND DERIVED FROM THE GPS STATIC OBSERVATIONS THAT WERE POST-PROCESSED USING ON-LINE POSITIONING USER SERVICE (OPUS) PROVIDED BY THE US NATIONAL GEODETIC SURVEY.

VERTICAL CONTROL . . . . . VERTICAL VALUES ARE BASED UPON NORTH AMERICAN VERTICAL DATUM OF 1988 USING THE FOLLOWING US NATIONAL GEODETIC SURVEY BENCHMARKS: EW4180, EW1593, EW6821, EW4188, EW4106, EW4113, EW4205, EW4212, AE1725, AE1722. SEE SHEET 1 OF SEE PSOMAS MAP "AERIAL TOPOGRAPHIC SURVEY, UTILITY LOCATIONS AND EASEMENT EXHIBIT", JOB NO. 1SAN080102 TASK 100 FOR THE BENCHMARK DESCRIPTION.

TOPOGRAPHY . . . . . BY GROUND SURVEY METHODS AND COMPLIES WITH NATIONAL MAP ACCURACY STANDARDS.

UTILITIES . . . . . VISIBLE SIGNS OF UNDERGROUND UTILITIES ARE BASED ON DATA COLLECTED BY THE FIELD CREW.

SURVEYOR'S NOTES

THIS SURVEY HAS BEEN PREPARED FOR DESIGN PURPOSES OVER LIMITED AREAS OF THE SCHOOL CAMPUS

1. BEFORE USING THIS MAP FOR DESIGN OR CONSTRUCTION PURPOSES, ALL EASEMENTS OF RECORD AND SETBACK LINES DEFINED IN COVENANTS, CONDITIONS AND RESTRICTIONS OF RECORD AFFECTING THIS PROPERTY SHOULD BE PLOTTED ON THIS MAP FROM A CURRENT TITLE REPORT. IF NO TITLE REPORT WAS FURNISHED, OUR CLIENT IS URGED TO FURNISH A CURRENT TITLE REPORT SO THAT THESE EASEMENT AND SETBACK LINES OF RECORD CAN BE PLOTTED ON THIS MAP.
2. THIS MAP SHOULD BE EXPANDED TO MEET ALTA REQUIREMENTS IF FINANCING IS TO BE OBTAINED FOR THE PROJECT, REQUIRING AN EXTENDED COVERAGE POLICY OF TITLE INSURANCE.
3. THIS SURVEY DOES NOT INCLUDE EASEMENTS EXCEPT THOSE SPECIFICALLY DELINEATED HEREON.
4. IF UNDERGROUND PUBLIC UTILITIES AND OTHER SUBSTRUCTURES, ZONES, SET BACK AND STREET WIDENING DATA ARE SHOWN HEREON, IT IS FOR INFORMATION ONLY, HAVING BEEN OBTAINED FROM A GENERAL REQUEST AT THE LOCAL AGENCY'S PUBLIC COUNTER AND/OR OTHER SOURCES NOT CONNECTED WITH THIS COMPANY. NO REPRESENTATION IS MADE AS TO THE ACCURACY, CURRENCY OR COMPLETENESS OF SAID INFORMATION AND ANY USERS OF SAID INFORMATION IS URGED TO CONTACT THE UTILITY OR LOCAL AGENCY DIRECTLY.

PAINT MARKS: (DEPTHS)

- SS PMRK (Dn =XX.XX' VARIES) . . . . . SANITARY SEWER
- SD PMRK (Dn =XX.XX' VARIES) . . . . . STORM DRAIN
- W PMRK (Dn =XX.XX' VARIES) . . . . . WATER LINE
- G PMRK (Dn =XX.XX' VARIES) . . . . . GAS LINE
- E PMRK (Dn =XX.XX' VARIES) . . . . . ELECTRICAL LINE
- C PMRK (Dn =XX.XX' VARIES) . . . . . COMMUNICATION LINE
- U PMRK (Dn =XX.XX' VARIES) . . . . . UNKNOWN UTILITY LINE
- Dn . . . . . DEPTH (PER GROUND PENETRATION RADAR)
- XXX.X . . . . . SURFACE GRADE

* DEPTHS ARE MEASURED FROM SURFACE GRADE TO TOP OF UNDERGROUND UTILITY PIPE.

MORNING VIEW DRIVE

SEAL: PROFESSIONAL LAND SURVEYOR — DANIEL L. RAHE — No. 9425 — STATE OF CALIFORNIA — 6/12/2024

DESIGNED	CJG
DRAFTED	CJG
CHECKED	DLR

REV	DATE	DESCRIPTION	BY	APP'D

BENCHMARK: US NATIONAL GEODETIC SURVEY
PID NO: EW4180, EW1593, EW6821, EW4188, EW4106, EW 4113, EW4205, EW4212, AE1725, AE1722
NAVD 88 DATUM
SEE DESCRIPTION ON SHEET 1

ELEVATION _____ ADJUSTMENT _____

PATHPLOT DATE:
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Plotted ~ 6/12/2024 8:56:03 AM :: Saved ~ 6/12/2024 8:47:00 AM

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DESIGN SURVEY AND SUBTERRANEAN UTILITY DETECTION FOR:

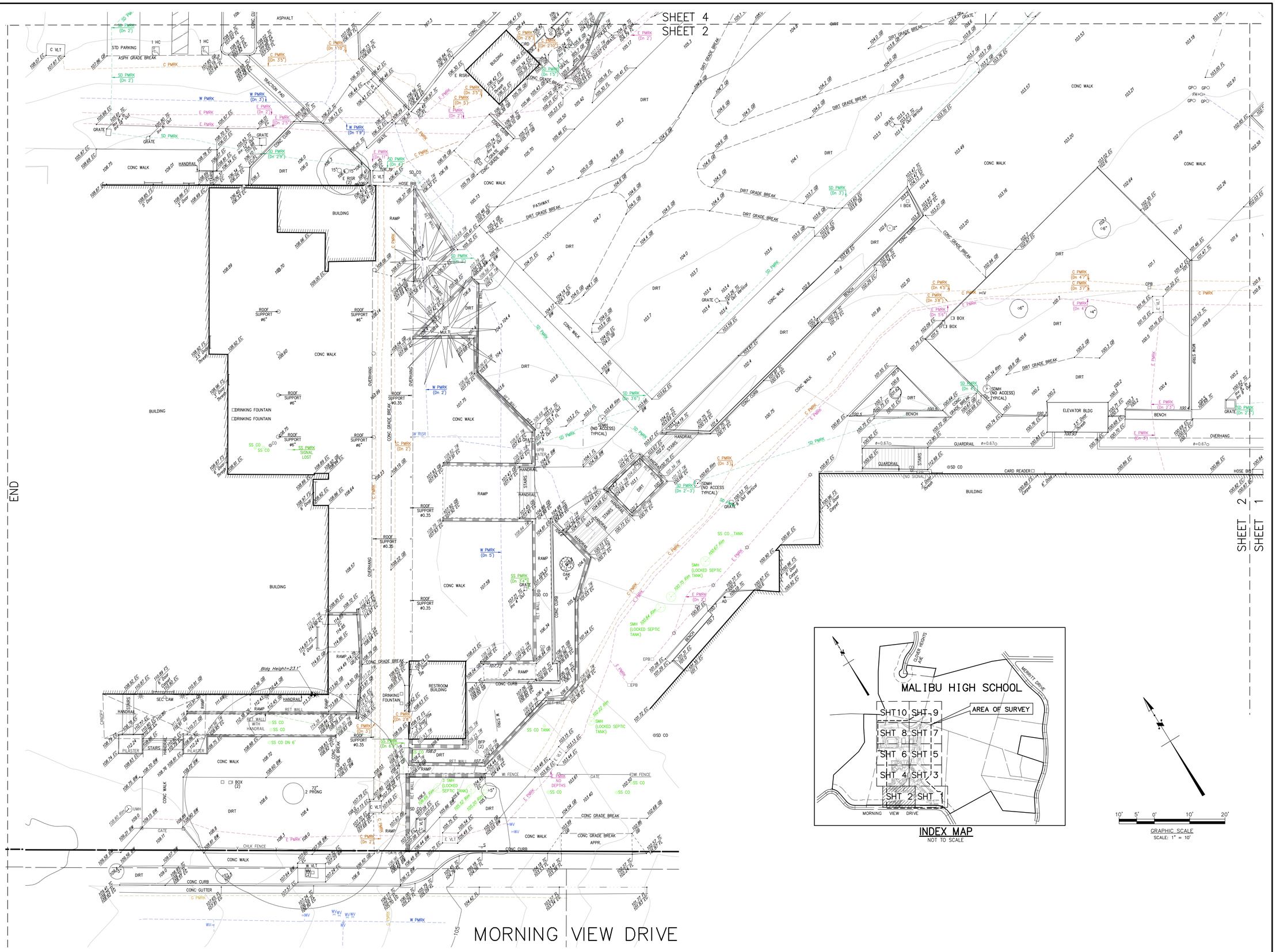
SANTA MONICA - MALIBU UNIFIED SCHOOL DISTRICT

MALIBU HIGH SCHOOL

IN THE CITY OF MALIBU COUNTY OF LOS ANGELES STATE OF CALIFORNIA

DATE	MAY 25, 2024
SCALE	1" = 10'
PROJECT NUMBER	1SAN080143
SHEET	1
OF	12

| V-DTBOL_MA | X-BOD1-MA | V-DSGN_MA | V-DTMOL_AERIAL |



INDEX MAP
NOT TO SCALE

SEAL: PROFESSIONAL LAND SURVEYOR DANIEL L. RAHE No. 9425 STATE OF CALIFORNIA	DESIGNED CJG	REV	DATE	DESCRIPTION	BY	APP'D
	DRAFTED CJG					
	CHECKED DLR					

BENCHMARK: US NATIONAL GEODETIC SURVEY
PID NO: EW4180, EW1593, EW6821, EW4188, EW4106, EW 4113, EW4205, EW4212, AE1725, AE1722
NAVD 88 DATUM
SEE DESCRIPTION ON SHEET 1

ELEVATION _____ ADJUSTMENT _____

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SANTA MONICA - MALIBU UNIFIED SCHOOL DISTRICT

MALIBU HIGH SCHOOL

IN THE CITY OF MALIBU COUNTY OF LOS ANGELES STATE OF CALIFORNIA

DATE: MAY 25, 2024
SCALE: 1" = 10'
PROJECT NUMBER: 1SAN080143
SHEET 2 OF 12

V-DTB01_MA | X-BD01-MA | V-DS06_MA | V-DTM01_AERIAL |

SHEET 5
SHEET 3

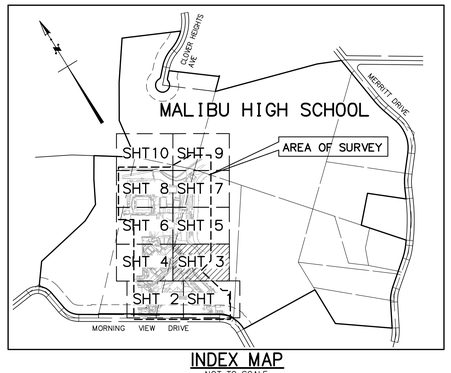
SHEET 4
SHEET 3

SHEET 3
SHEET 1

END

GRAPHIC SCALE
SCALE: 1" = 10'

INDEX MAP
NOT TO SCALE



| V-DTM01_MA | X-BD01-MA | V-DS06_MA | V-DTM01_AERIAL |

SEAL
DANIEL L. RAHE
No. 9425
PROFESSIONAL LAND SURVEYOR
STATE OF CALIFORNIA

DESIGNED	CJG
DRAFTED	CJG
CHECKED	DLR

REV	DATE	DESCRIPTION	BY	APP'D

BENCHMARK
US NATIONAL GEODETIC SURVEY
PID NO: EW4180, EW1593, EW6821, EW4188, EW4106,
EW 4113, EW4205, EW4212, AE1725, AE1722
NAVD 88 DATUM
SEE DESCRIPTION ON SHEET 1

ELEVATION _____ ADJUSTMENT _____

PATH/PLOT DATE:
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SANTA MONICA - MALIBU UNIFIED SCHOOL DISTRICT

MALIBU HIGH SCHOOL

IN THE CITY OF MALIBU COUNTY OF LOS ANGELES STATE OF CALIFORNIA

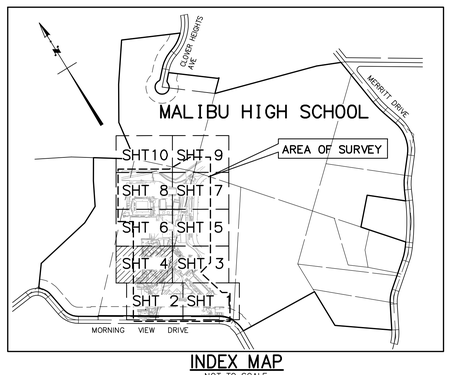
DATE	MAY 25, 2024
SCALE	1" = 10'
PROJECT NUMBER	1SAN080143
SHEET	3
OF	12

SHEET 6
SHEET 4

END

SHEET 4
SHEET 3

SHEET 4
SHEET 2



INDEX MAP
NOT TO SCALE

10' 5' 0' 10' 20'

GRAPHIC SCALE
SCALE: 1" = 10'

| V-01801_MA | X-8001-MA | V-0506_MA | V-01901_AERIAL |

SEAL

PROFESSIONAL LAND SURVEYOR
DANIEL L. RAHE
No. 9425
STATE OF CALIFORNIA

DESIGNED	CJG
DRAFTED	CJG
CHECKED	DLR

REV	DATE	DESCRIPTION	BY	APP'D

BENCHMARK:
US NATIONAL GEODETIC SURVEY
PID NO: EW4180, EW1593, EW6821, EW4188, EW4106,
EW 4113, EW4205, EW4212, AE1725, AE1722
NAVD 88 DATUM
SEE DESCRIPTION ON SHEET 1

ELEVATION _____ ADJUSTMENT _____

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SANTA MONICA - MALIBU UNIFIED SCHOOL DISTRICT

MALIBU HIGH SCHOOL

IN THE CITY OF MALIBU COUNTY OF LOS ANGELES STATE OF CALIFORNIA

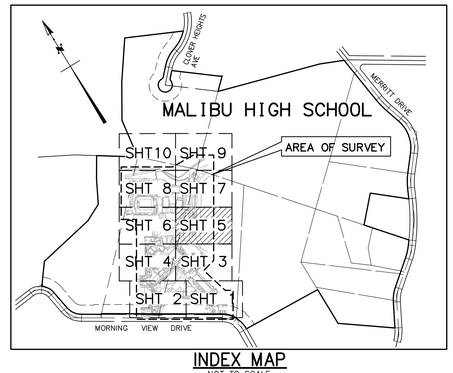
DATE:	MAY 25, 2024
SCALE	1" = 10'
PROJECT NUMBER	1SAN080143
SHEET	4
OF	12

SHEET 7
SHEET 5

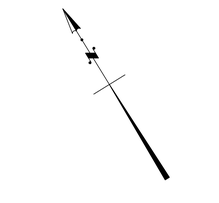
SHEET 6
SHEET 5

END

SHEET 5
SHEET 3



INDEX MAP
NOT TO SCALE



GRAPHIC SCALE
SCALE: 1" = 10'

SEAL

PROFESSIONAL LAND SURVEYOR
DANIEL L. RAHE
No. 9425
STATE OF CALIFORNIA

DESIGNED	CJG
DRAFTED	CJG
CHECKED	DLR

REV	DATE	DESCRIPTION	BY	APPD

BENCHMARK: US NATIONAL GEODETIC SURVEY
PID NO: EW4180, EW1593, EW6821, EW4188, EW4106, EW 4113, EW4205, EW4212, AE1725, AE1722
NAVD 88 DATUM
SEE DESCRIPTION ON SHEET 1

ELEVATION _____ ADJUSTMENT _____

PATH/PLOT DATE:
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SANTA MONICA - MALIBU UNIFIED SCHOOL DISTRICT

MALIBU HIGH SCHOOL

IN THE CITY OF MALIBU COUNTY OF LOS ANGELES STATE OF CALIFORNIA

DATE	MAY 25, 2024
SCALE	1" = 10'
PROJECT NUMBER	1SAN080143
SHEET	5
OF	12

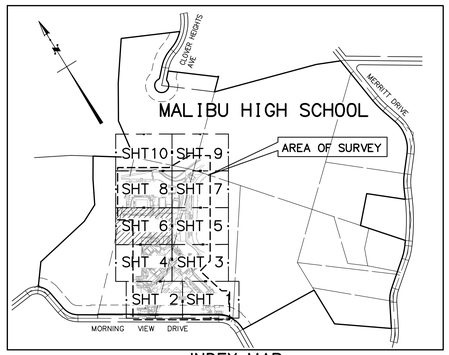
V-0T801-MA | X-B001-MA | V-0506_MA | V-0TN01_AERIAL |

SHEET 8
SHEET 6

END

SHEET 6
SHEET 5

SHEET 6
SHEET 4



INDEX MAP
NOT TO SCALE

10' 5' 0' 10' 20'
GRAPHIC SCALE
SCALE: 1" = 10'

| V-DTB01_MA | X-BD01-MA | V-DS06_MA | V-DTM01_AERIAL |

SEAL
DANIEL L. RAHE
No. 9425
PROFESSIONAL LAND SURVEYOR
STATE OF CALIFORNIA

DESIGNED	CJG
DRAFTED	CJG
CHECKED	DLR

REV	DATE	DESCRIPTION	BY	APP'D

BENCHMARK: US NATIONAL GEODETIC SURVEY
PID NO: EW4180, EW1593, EW6821, EW4188, EW4106, EW 4113, EW4205, EW4212, AE1725, AE1722
NAVD 88 DATUM
SEE DESCRIPTION ON SHEET 1

ELEVATION _____ ADJUSTMENT

PATH/PLOT DATE:
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SANTA MONICA - MALIBU UNIFIED SCHOOL DISTRICT

MALIBU HIGH SCHOOL

IN THE CITY OF MALIBU COUNTY OF LOS ANGELES STATE OF CALIFORNIA

DATE	MAY 25, 2024
SCALE	1" = 10'
PROJECT NUMBER	1SAN080143
SHEET	6
OF	12

SHEET 9
SHEET 7

SHEET 8
SHEET 7

SHEET 7
SHEET 5

END

PARCEL 9
PARCEL 2



INDEX MAP
NOT TO SCALE

GRAPHIC SCALE
SCALE: 1" = 10'

SEAL
PROFESSIONAL LAND SURVEYOR
DANIEL L. RAHE
No. 9425
STATE OF CALIFORNIA

DESIGNED	CJG
DRAFTED	CJG
CHECKED	DLR

REV	DATE	DESCRIPTION	BY	APP'D

BENCHMARK: US NATIONAL GEODETIC SURVEY
PID NO: EW4180, EW1593, EW6821, EW4188, EW4106, EW 4113, EW4205, EW4212, AE1725, AE1722
NAVD 88 DATUM
SEE DESCRIPTION ON SHEET 1

ELEVATION _____ ADJUSTMENT _____

PATH/PLOT DATE:
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SANTA MONICA - MALIBU UNIFIED SCHOOL DISTRICT

MALIBU HIGH SCHOOL

IN THE CITY OF MALIBU COUNTY OF LOS ANGELES STATE OF CALIFORNIA

DATE:	MAY 25, 2024
SCALE	1" = 10'
PROJECT NUMBER	1SAN080143
SHEET	7
OF	12

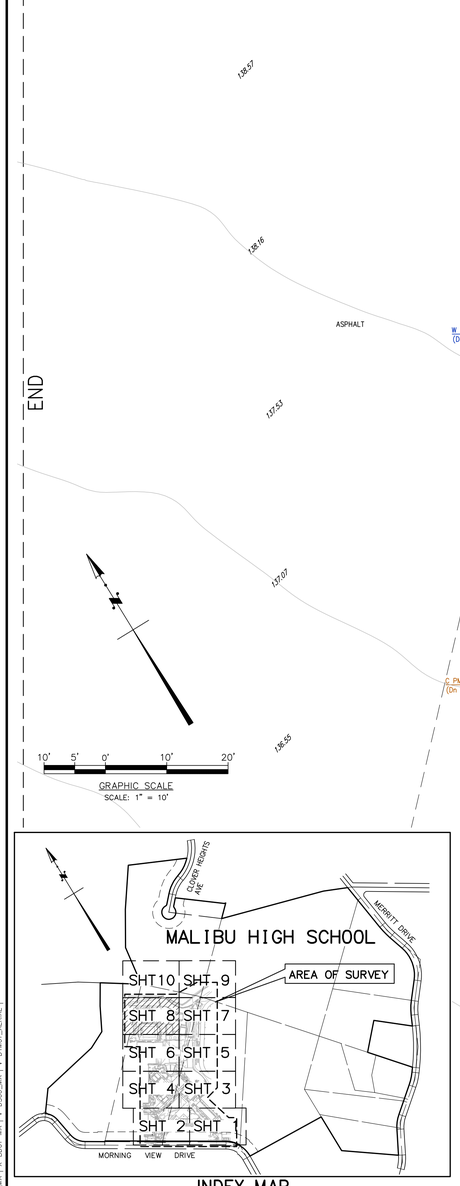
V-DTM01_MA | V-8001-MA | V-0506_MA | V-DTM01_AERIAL |

SHEET 10
SHEET 8

END

SHEET 8
SHEET 7

SHEET 8
SHEET 6



INDEX MAP
NOT TO SCALE

10' 5' 0' 10' 20'
GRAPHIC SCALE
SCALE: 1" = 10'

| V-DT601-MA | X-BD01-MA | X-DS06-MA | V-DTM01_AERIAL |

SEAL
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DANIEL L. RAHE
No. 9425
STATE OF CALIFORNIA

DESIGNED	CJG
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REV	DATE	DESCRIPTION	BY	APP'D

BENCHMARK
US NATIONAL GEODETIC SURVEY
PID NO: EW4180, EW1593, EW6821, EW4188, EW4106,
EW 4113, EW4205, EW4212, AE1725, AE1722
NAVD 88 DATUM
SEE DESCRIPTION ON SHEET 1

ELEVATION _____ ADJUSTMENT _____

PATH/PLOT DATE:
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SANTA MONICA - MALIBU UNIFIED SCHOOL DISTRICT

MALIBU HIGH SCHOOL

IN THE CITY OF MALIBU COUNTY OF LOS ANGELES STATE OF CALIFORNIA

DATE	MAY 25, 2024
SCALE	1" = 10'
PROJECT NUMBER	1SAN080143
SHEET	8
OF	12

END

SHEET 10
SHEET 9

PARCEL 1
PARCEL 9

PARCEL 1
PARCEL 2

SHEET 9
SHEET 7

END

DIRT

DIRT

CLIFF OR SLOPE

E PARK

X-GUTTER

OAK FENCE

165.7

164.8

164.1

164.1

164.5

165.4

165.8

166.4

166.6

167.0

167.4

168.0

168.6

156.1

150.3

150.4

150

165

175

170

165

160

155

162.5

164.42 EG
164.94 FL
164.46 EG

165.05 EG
164.58 FL
165.12 EG

165.52 TOP

165.89 EG
165.58 FL
165.98 EG

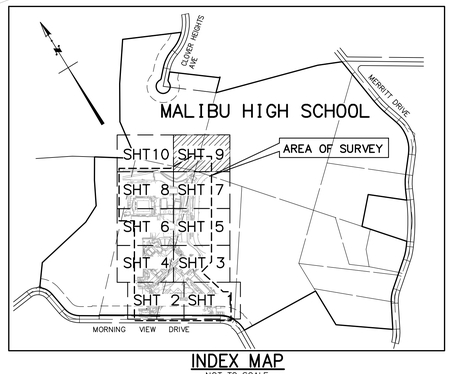
166.52 TOP

166.63 EG
166.27 FL
167.13 EG

167.13 TOP

167.51 EG
167.09 FL
167.91 EG

167.81 TOP
167.61 EG



INDEX MAP
NOT TO SCALE

10' 5' 0' 10' 20'

GRAPHIC SCALE
SCALE: 1" = 10'

SEAL	DANIEL L. RAHE, No. 9425, PROFESSIONAL LAND SURVEYOR, STATE OF CALIFORNIA
DESIGNED	CJG
DRAFTED	CJG
CHECKED	DLR

REV	DATE	DESCRIPTION	BY	APP'D

BENCHMARK: US NATIONAL GEODETIC SURVEY
PID NO: EW4180, EW1593, EW6821, EW4188, EW4106, EW 4113, EW4205, EW4212, AE1725, AE1722
NAVD 88 DATUM
SEE DESCRIPTION ON SHEET 1

ELEVATION _____ ADJUSTMENT _____

PATH/PLOT DATE:
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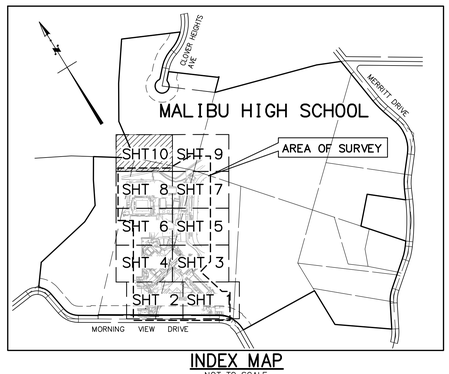
SANTA MONICA - MALIBU UNIFIED SCHOOL DISTRICT

MALIBU HIGH SCHOOL

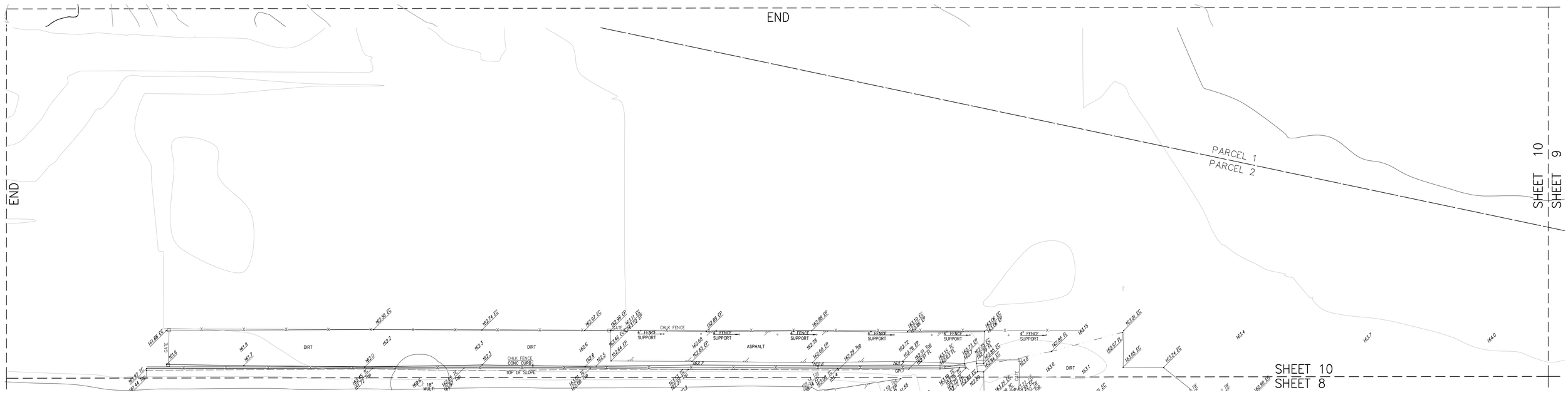
IN THE CITY OF MALIBU COUNTY OF LOS ANGELES STATE OF CALIFORNIA

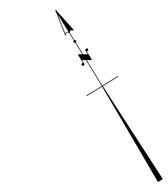
DATE	MAY 25, 2024
SCALE	1" = 10'
PROJECT NUMBER	1SAN080143
SHEET	9
OF	12

V-01801_MA | X-B001-MA | V-0506_MA | V-DTM01_AERIAL |



INDEX MAP
NOT TO SCALE





10' 5' 0' 10' 20'

GRAPHIC SCALE
SCALE: 1" = 10'

| V-DTB01_MA | X-B001-MA | V-DSG6_MA | V-DTM01_AERIAL |

SEAL

PROFESSIONAL LAND SURVEYOR
DANIEL L. RAHE
No. 9425
STATE OF CALIFORNIA

DESIGNED CJG
DRAFTED CJG
CHECKED DLR

REV	DATE	DESCRIPTION	BY	APP'D

BENCHMARK: US NATIONAL GEODETIC SURVEY
PID NO: EW4180, EW1593, EW6821, EW4188, EW4106, EW 4113, EW4205, EW4212, AE1725, AE1722
NAVD 88 DATUM
SEE DESCRIPTION ON SHEET 1

ELEVATION _____ ADJUSTMENT _____

PATH/PLOT DATE:
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Plotted – 6/12/2024 9:03:40 AM :: Saved – 6/12/2024 8:47:00 AM

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DESIGN SURVEY AND SUBTERRANEAN UTILITY DETECTION FOR:

SANTA MONICA - MALIBU UNIFIED SCHOOL DISTRICT

MALIBU HIGH SCHOOL

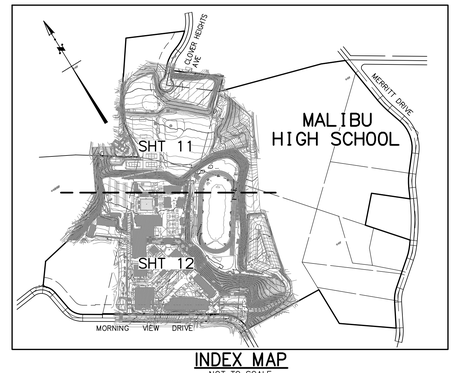
IN THE CITY OF MALIBU COUNTY OF LOS ANGELES STATE OF CALIFORNIA

DATE: MAY 25, 2024
SCALE: 1" = 10'
PROJECT NUMBER: 1SAN080143
SHEET 10 OF 12



AERIAL TOPOGRAPHIC SURVEY





INDEX MAP
NOT TO SCALE

PSOMAS
Geospatial Services
PHOTOGRAMMETRY LEGEND

ROADWAY
Asphalt | Line & Outline
Concrete | Line & Outline
Centerline
Curb
Curb Drain
Gutter
Speed Bump & Label
Sidewalk

ROADWAY - Markings & Labels
Crosswalk Paint Stripe
Solid Paint Stripe
Dashed Paint Stripe
Auxiliary Paint Marking
PSOMAS BOULEVARD
Roadway Name | Label
Left Turn Arrow
Right Turn Arrow
Straight Arrow
High-Occupancy Vehicle Lane

SITE
Fence
Hand Rail
Stairway Not Attached to Building | Outline
Double Gate
Single Gate
Single Post Sign
Double Post Sign
Billboard Sign | Line & Outline

VEGETATION
Vegetation - Brushline | Outline
Vegetation - Ground Not Visible | Outline
Vegetation - Treeline | Outline
Vegetation - Grassline | Outline
Vegetation - Planter
GNV or GROUND NOT VISIBLE
Ground Not Visible | Label
SCATTERED BRUSH
Scattered Brush | Label
SCATTERED TREES
Scattered Trees | Label
CULTIVATED AREA
Cultivated Area | Label
DENSE BRUSH
Dense Brush | Label
DENSE TREES
Dense Trees | Label
Single Tree
Ornamental Tree
Palm Tree

TOPOGRAPHY
Index (Major) Contour
Index (Major) Contour - Depression - By Request Only
Ground Control Point (GCP) | Symbol & Labels
Spot Elevation | Symbol & Label
Spot Elevation on Bridge | Symbol & Label

WATER
Pool or Spa with Label

UTILITIES
Pipe
Call Box
Two Directional Light
Miscellaneous Light
Utility Pole with Wires
Manhole
Above Ground Vent
Riser
Cell Tower
Directional Light
Parking Light
Guy Wire
Circular Storm Drain
Utility Pole
Sprinkler
Fire Hydrant
Traffic Crosswalk Light
Light Pole
Transmission Tower
Square Storm Drain
Crosswalk Post
Windmill
Streetlight Arm
Traffic Light
Traffic Signal With Arm
Electrolier
Valve
Well
Tank with Label
Utility Vault
Utility Box

MISCELLANEOUS
Miscellaneous Object
Miscellaneous Tower
Miscellaneous Post
Crash Cushion
Cattle Guard
Mail Box
Flag Pole

PARKING
Parking Area Curb
Parking Space Bumper/Curb
Speed Bump & Label
Solid Paint Stripe
Dashed Paint Stripe
Parking Space Paint Stripe
Auxiliary Paint Marking
Straight Arrow | Paint Marker
Right Turn Arrow | Paint Marker
Left Turn Arrow | Paint Marker
ADA Parking | Paint Marker

STRUCTURES
Building | Outline & Hatch
Canopy or Covered Area | Outline with Cross H
Trailer | Outline & Hatch with Label
Deck | Outline & Hatch
Stair Attached to Building | Outline

SEAL
PROFESSIONAL LAND SURVEYOR
DANIEL L. RAHE
No. 9425
STATE OF CALIFORNIA

DESIGNED	CJG
DRAFTED	CJG
CHECKED	DLR

REV	DATE	DESCRIPTION	BY	APP'D

BENCHMARK: US NATIONAL GEODETIC SURVEY
PID NO: EW4180, EW1593, EW6821, EW4188, EW4106, EW 4113, EW4205, EW4212, AE1725, AE1722
NAVD 88 DATUM
SEE DESCRIPTION ON SHEET 1

ELEVATION _____ ADJUSTMENT _____

PATH/PLOT DATE:
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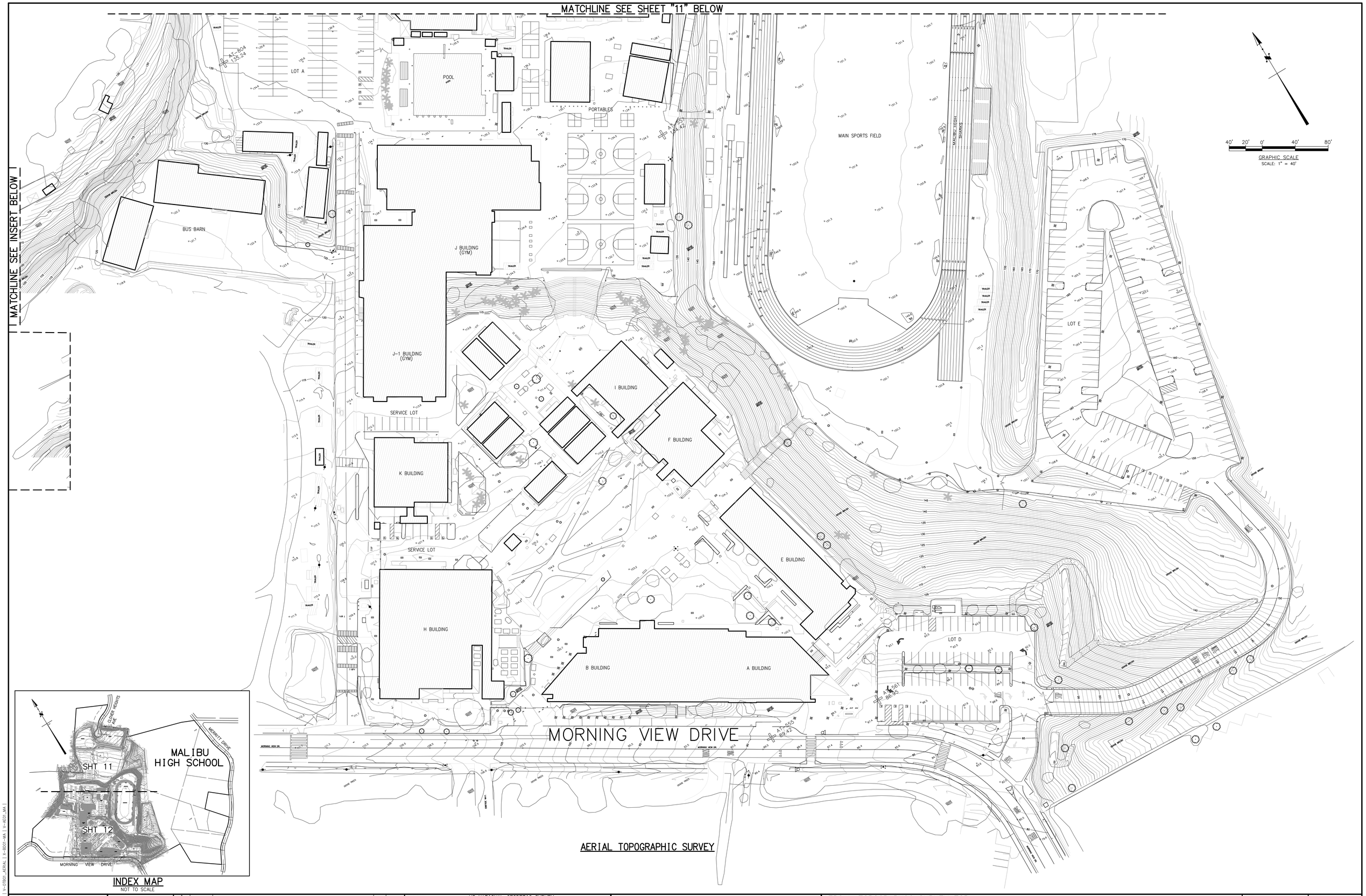
AERIAL TOPOGRAPHIC SURVEY FOR:
SANTA MONICA - MALIBU UNIFIED SCHOOL DISTRICT
MALIBU HIGH SCHOOL
IN THE CITY OF MALIBU COUNTY OF LOS ANGELES STATE OF CALIFORNIA

DATE:	MAY 25, 2024
SCALE	1" = 40'
PROJECT NUMBER	1SAN080143
SHEET	11
OF	12

| V-0TB01_AERIAL | V-BD01-MA | V-AE01_MA |



AERIAL TOPOGRAPHIC SURVEY

INDEX MAP
NOT TO SCALE

SEAL	DESIGNED	DRAFTED	CHECKED	REV	DATE	DESCRIPTION	BY	APP'D
PROFESSIONAL LAND SURVEYOR DANIEL L. RAHE No. 9425 STATE OF CALIFORNIA	CJG	CJG	DLR					

BENCHMARK: US NATIONAL GEODETIC SURVEY
PID NO: EW4180, EW1593, EW6821, EW4188, EW4106, EW 4113, EW4205, EW4212, AE1725, AE1722
NAVD 88 DATUM
SEE DESCRIPTION ON SHEET 1

ELEVATION _____ ADJUSTMENT _____

PATH/PLOT DATE:
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AERIAL TOPOGRAPHIC SURVEY FOR:

SANTA MONICA - MALIBU UNIFIED SCHOOL DISTRICT

MALIBU HIGH SCHOOL

IN THE CITY OF MALIBU COUNTY OF LOS ANGELES STATE OF CALIFORNIA

DATE: MAY 25, 2024
SCALE: 1" = 40'
PROJECT NUMBER: 1SAN080143
SHEET 12 OF 12

V-OTB01_AERIAL | X-B001-MA | V-AE01_MA |

COMMENTS:

BOUNDARY LINES . . . . . WERE ESTABLISHED FROM RECOVERED CITY, COUNTY AND/OR PRIVATE SURVEY MONUMENTS. SEE PSOMAS MAP "BOUNDARY SURVEY" JOB NO. 1SAN080102 TASK 100, 116 FOR BOUNDARY ESTABLISHMENT.

LEGAL DESCRIPTION . . . . . SEE PSOMAS MAP "BOUNDARY SURVEY" JOB NO. 1SAN080102 TASK 100, 116 FOR LEGAL DESCRIPTION.

TITLE REPORT . . . . . FIRST AMERICAN TITLE COMPANY PRELIMINARY TITLE REPORT NO. 3029743 (60), DATED SEPTEMBER 18, 2009.

EASEMENTS . . . . . NOT SHOWN ON THIS SURVEY. SEE PSOMAS MAP "AERIAL TOPOGRAPHIC SURVEY, UTILITY LOCATIONS AND EASEMENT EXHIBIT", JOB NO. 1SAN080102 TASK 100 FOR EASEMENTS.

HORIZONTAL CONTROL . . . . STATE PLANE COORDINATES, CALIFORNIA COORDINATE SYSTEM ZONE 5 BASED ON NAD83 (CORS96) (EPOCH: 2002.0000) REFERENCE FRAME. THE HORIZONTAL COORDINATE VALUES SHOWN HEREON ARE BASED UPON LOCAL CONTROL POINTS AND DERIVED FROM THE GPS STATIC OBSERVATIONS THAT WERE POST-PROCESSED USING ON-LINE POSITIONING USER SERVICE (OPUS) PROVIDED BY THE US NATIONAL GEODETIC SURVEY.

VERTICAL CONTROL . . . . . VERTICAL VALUES ARE BASED UPON NORTH AMERICAN VERTICAL DATUM OF 1988 USING THE FOLLOWING US NATIONAL GEODETIC SURVEY BENCHMARKS: EW4180, EW1593, EW6821, EW4188, EW4106, EW4113, EW4205, EW4212, AE1725, AE1722. SEE SHEET 1 OF SEE PSOMAS MAP "AERIAL TOPOGRAPHIC SURVEY, UTILITY LOCATIONS AND EASEMENT EXHIBIT". JOB NO. 1SAN080102 TASK 100 FOR THE BENCHMARK DESCRIPTION.

TOPOGRAPHY . . . . . BY GROUND SURVEY METHODS AND COMPLIES WITH NATIONAL MAP ACCURACY STANDARDS.

CONTOUR INTERVAL . . . . . 1 FOOT

UTILITIES . . . . . VISIBLE SIGNS OF UNDERGROUND UTILITIES ARE BASED ON DATA COLLECTED BY THE FIELD CREW.

CONTROL NOTES:

HORIZONTAL CONTROL :

STATE PLANE COORDINATES, CALIFORNIA COORDINATE SYSTEM ZONE 5 BASED ON NAD83(CORS96) EPOCH 2002.00. POSITIONAL VALUES SHOWN HEREON ARE BASED UPON LOCAL CONTROL POINTS AND DERIVED FROM THE GPS STATIC OBSERVATIONS UTILIZING DATA FROM SOUTHERN CALIFORNIA INTEGRATED GPS NETWORK (SCIGN) CONTINUOUSLY OPERATING REFERENCE STATIONS (CORS).

CSN1	34-15-12.762904	118-31-25.669137
WRHS	33-57-29.329617	118-25-39.330869
FMTP	34-24-35.494318	118-53-38.861402

VERTICAL CONTROL :

VERTICAL VALUES SHOWN HEREON ARE BASED UPON NORTH AMERICAN VERTICAL DATUM OF 1988 (NAVD88) UTILIZING COUNTY OF LOS ANGELES BENCHMARKS LISTED BELOW.

BENCHMARK NO: DY 11712, MALIBU QUAD

DESCRIPTION: LACO BM TAG IN NW COR C B SM W/O C/L DRWY TO HSE #30065 PACIFIC COAST HWY & 12.5M N/O CL
ELEVATION: 18.812 FEET (ADJUSTED IN 2003)

BENCHMARK NO: DY 11390, MALIBU QUAD

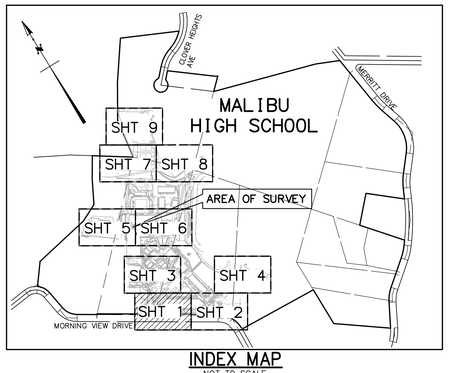
DESCRIPTION: DPW BM TAG NE COR CONC F HYD PAD 13.5M S/O C/L PACIFIC COAST HWY & 320M E/O MORNING VIEW DR 20M E/O E SIDE LIFEGUARD BLDG #30050

ELEVATION: 20.440 FEET (ADJUSTED IN 2003)

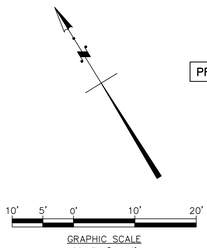
SURVEYOR'S NOTES

THIS SURVEY HAS BEEN PREPARED FOR DESIGN PURPOSES OVER LIMITED AREAS OF THE SCHOOL CAMPUS

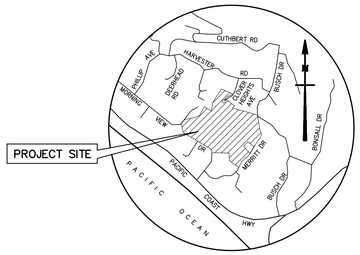
1. BEFORE USING THIS MAP FOR DESIGN OR CONSTRUCTION PURPOSES, ALL EASEMENTS OF RECORD AND SETBACK LINES DEFINED IN COVENANTS, CONDITIONS AND RESTRICTIONS OF RECORD AFFECTING THIS PROPERTY SHOULD BE PLOTTED ON THIS MAP FROM A CURRENT TITLE REPORT. IF NO TITLE REPORT WAS FURNISHED, OUR CLIENT IS URGED TO FURNISH A CURRENT TITLE REPORT SO THAT THESE EASEMENT AND SETBACK LINES OF RECORD CAN BE PLOTTED ON THIS MAP.
2. THIS MAP SHOULD BE EXPANDED TO MEET ALTA REQUIREMENTS IF FINANCING IS TO BE OBTAINED FOR THE PROJECT, REQUIRING AN EXTENDED COVERAGE POLICY OF TITLE INSURANCE.
3. THIS SURVEY DOES NOT INCLUDE EASEMENTS EXCEPT THOSE SPECIFICALLY DELINEATED HEREON.
4. IF UNDERGROUND PUBLIC UTILITIES AND OTHER SUBSTRUCTURES, ZONES, SET BACK AND STREET WIDENING DATA ARE SHOWN HEREON, IT IS FOR INFORMATION ONLY, HAVING BEEN OBTAINED FROM A GENERAL REQUEST AT THE LOCAL AGENCY'S PUBLIC COUNTER AND/OR OTHER SOURCES NOT CONNECTED WITH THIS COMPANY. NO REPRESENTATION IS MADE AS TO THE ACCURACY, CURRENCY OR COMPLETENESS OF SAID INFORMATION AND ANY USERS OF SAID INFORMATION IS URGED TO CONTACT THE UTILITY OR LOCAL AGENCY DIRECTLY.



INDEX MAP
NOT TO SCALE



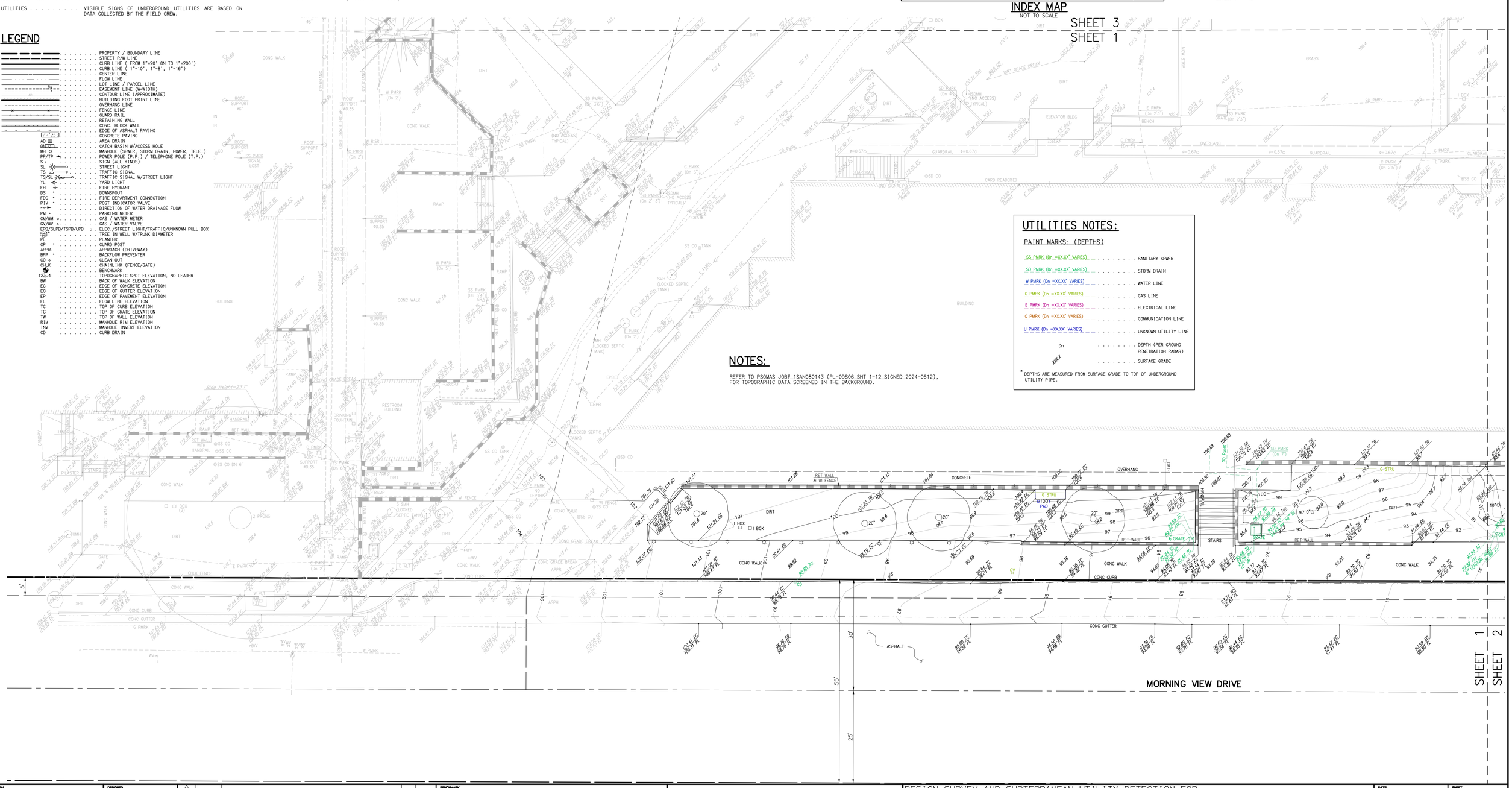
GRAPHIC SCALE
SCALE: 1" = 10'



VICINITY MAP
NOT TO SCALE

LEGEND

- PROPERTY / BOUNDARY LINE
- STREET R/W LINE
- CURB LINE (FROM 1"=20' ON TO 1"=200')
- CURB LINE (1"=10', 1"=8', 1"=16')
- CENTER LINE
- FLOW LINE
- LOT LINE / PARCEL LINE
- EASEMENT LINE (W=WIDTH)
- CONTOUR LINE (APPROXIMATE)
- BUILDING FOOT PRINT LINE
- OVERHANG LINE
- FENCE LINE
- GUARD RAIL
- RETAINING WALL
- CONC. BLOCK WALL
- EDGE OF ASPHALT PAVING
- CONCRETE PAVING
- AD — AREA DRAIN
- CATCH BASIN W/ACCESS HOLE
- MH — MANHOLE (SEWER, STORM DRAIN, POWER, TELE.)
- PP/TP — POWER POLE (P.P.) / TELEPHONE POLE (T.P.)
- S — SIGN (ALL KINDS)
- SL — STREET LIGHT
- TS — TRAFFIC SIGNAL
- TS/SL — TRAFFIC SIGNAL W/STREET LIGHT
- YL — YARD LIGHT
- FH — FIRE HYDRANT
- DS — DOWNSPOUT
- FDC — FIRE DEPARTMENT CONNECTION
- PIV — POST INDICATOR VALVE
- DIRECTION OF WATER DRAINAGE FLOW
- PM — PARKING METER
- GM/WM — GAS / WATER METER
- GV/WV — GAS / WATER VALVE
- EPB/SLPB/TSPB/UPB — ELEC./STREET LIGHT/TRAFFIC/UNKNOWN PULL BOX
- TREE — TREE IN WELL W/TRUNK DIAMETER
- PC — PLANTER
- GP — GUARD POST
- APPR. — APPROACH (DRIVEWAY)
- BFP — BACKFLOW PREVENTER
- CO — CLEAN OUT
- CH/LK — CHAINLINK (FENCE/GATE)
- BENCHMARK
- 123.4 — TOPOGRAPHIC SPOT ELEVATION, NO LEADER
- BW — BACK OF WALK ELEVATION
- EC — EDGE OF CONCRETE ELEVATION
- EG — EDGE OF GUTTER ELEVATION
- EP — EDGE OF PAVEMENT ELEVATION
- FL — FLOW LINE ELEVATION
- TC — TOP OF CURB ELEVATION
- TG — TOP OF GRATE ELEVATION
- TW — TOP OF WALL ELEVATION
- RIM — MANHOLE RIM ELEVATION
- INV — MANHOLE INVERT ELEVATION
- CD — CURB DRAIN



NOTES:

REFER TO PSOMAS JOB#_1SAN080143 (PL-0DS06_SHT 1-12_SIGNED_2024-0612), FOR TOPOGRAPHIC DATA SCREENED IN THE BACKGROUND.

UTILITIES NOTES:

PAINT MARKS: (DEPTHS)

- SS PMRK (Dn =XX.XX' VARIES) . . . . . SANITARY SEWER
- SD PMRK (Dn =XX.XX' VARIES) . . . . . STORM DRAIN
- W PMRK (Dn =XX.XX' VARIES) . . . . . WATER LINE
- G PMRK (Dn =XX.XX' VARIES) . . . . . GAS LINE
- E PMRK (Dn =XX.XX' VARIES) . . . . . ELECTRICAL LINE
- C PMRK (Dn =XX.XX' VARIES) . . . . . COMMUNICATION LINE
- U PMRK (Dn =XX.XX' VARIES) . . . . . UNKNOWN UTILITY LINE
- Dn . . . . . DEPTH (PER GROUND PENETRATION RADAR)
- XXX.X . . . . . SURFACE GRADE

* DEPTHS ARE MEASURED FROM SURFACE GRADE TO TOP OF UNDERGROUND UTILITY PIPE.

SEAL: DANIEL L. RAHE, No. 9425, PROFESSIONAL LAND SURVEYOR, STATE OF CALIFORNIA — 5/8/2025

DESIGNED	CJG
DRAFTED	CJG
CHECKED	DLR

REV	DATE	DESCRIPTION	BY	APP'D
1	4/28/25	ADDITIONAL TOPO	CJP	TPM

BENCHMARK: (SEE VERTICAL CONTROL NOTES ABOVE)
ELEVATION _____ ADJUSTMENT _____
PATH/PLOT DATE:
J:\LA\1SAN080107\D2_MYS\1SAN080143\SURVEY\DESIGN\PL\PL-0S06.dwg SHT1 :: thomas.mcdermott
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DESIGN SURVEY AND SUBTERRANEAN UTILITY DETECTION FOR:

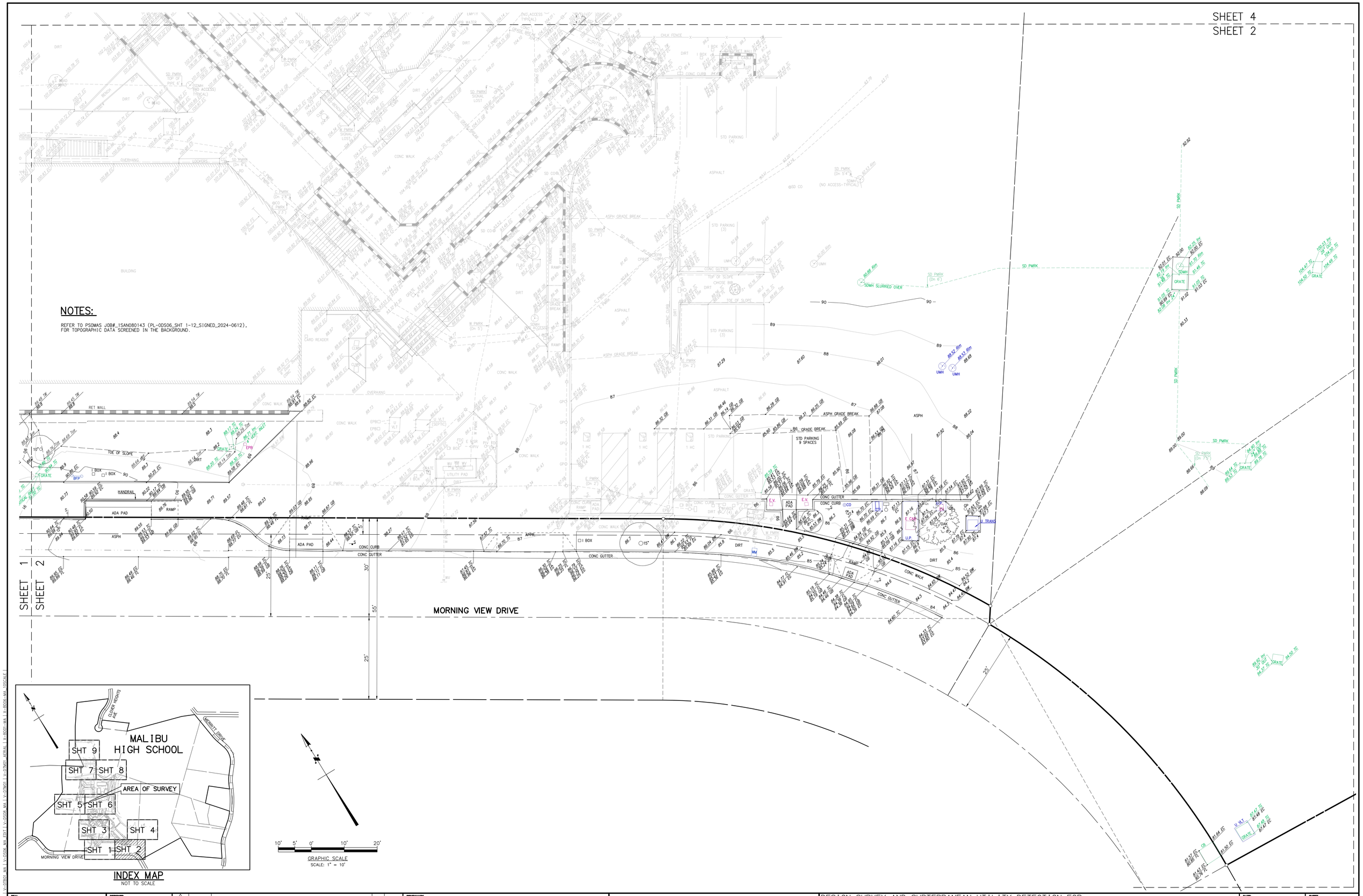
SANTA MONICA - MALIBU UNIFIED SCHOOL DISTRICT

MALIBU HIGH SCHOOL

IN THE CITY OF MALIBU COUNTY OF LOS ANGELES STATE OF CALIFORNIA

DATE	APRIL 28, 2025
SCALE	1" = 10'
PROJECT NUMBER	1SAN080149
SHEET	1
OF	9

V:\07801_MA\1SAN080107\D2_MYS\1SAN080143\SURVEY\DESIGN\PL\PL-0S06_MA_TOPO.dwg | V-0S06_MA_TOPO | V-0S06_MA | V-07801_AERIAL | X-B001-MA | X-B006-MA_1DSCALE |



NOTES:

REFER TO PSOMAS JOB#_1SAN080143 (PL-ODS06_SHT 1-12_SIGNED_2024-0612), FOR TOPOGRAPHIC DATA SCREENED IN THE BACKGROUND.

INDEX MAP
NOT TO SCALE

V-DTM01_MA | V-DS06_MA_EDIT | V-DS08_MA | V-DTM01 | V-DTM01_AERIAL | X-BD01-MA | X-BD06-MA_10SCALE |

SEAL

PROFESSIONAL LAND SURVEYOR
DANIEL L. RAHE
No. 9425
STATE OF CALIFORNIA

DESIGNED	CJG
DRAFTED	CJG
CHECKED	DLR

REV	DATE	DESCRIPTION	BY	APP'D
△	4/28/25	ADDITIONAL TOPO	CJP	TPM

BENCHMARK

(SEE VERTICAL CONTROL NOTES ON SHEET 1)

ELEVATION _____ ADJUSTMENT _____

PATH/PLOT DATE:
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DESIGN SURVEY AND SUBTERRANEAN UTILITY DETECTION FOR:

SANTA MONICA - MALIBU UNIFIED SCHOOL DISTRICT

MALIBU HIGH SCHOOL

IN THE CITY OF MALIBU COUNTY OF LOS ANGELES STATE OF CALIFORNIA

DATE: APRIL 28, 2025

SCALE: 1" = 10'

PROJECT NUMBER: 1SAN080149

SHEET 2 OF 9



INDEX MAP
NOT TO SCALE

GRAPHIC SCALE
SCALE: 1" = 10'

NOTES:

REFER TO PSOMAS JOB#_1SAN080143 (PL-0DS06_SHT 1-12_SIGNED_2024-0612), FOR TOPOGRAPHIC DATA SCREENED IN THE BACKGROUND.

SHEET 3
SHEET 1

SHEET 3
SHEET 1

SEAL: PROFESSIONAL LAND SURVEYOR DANIEL L. RAHE No. 9425 STATE OF CALIFORNIA	DESIGNED: CJG					
	DRAFTED: CJG					
	CHECKED: DLR					
		REV	DATE	DESCRIPTION	BY	APP'D
		△	4/28/25	ADDITIONAL TOPO	CJP	TPM

BENCHMARK: (SEE VERTICAL CONTROL NOTES ON SHEET 1)

ELEVATION _____ ADJUSTMENT _____

PATHPLOT DATE:
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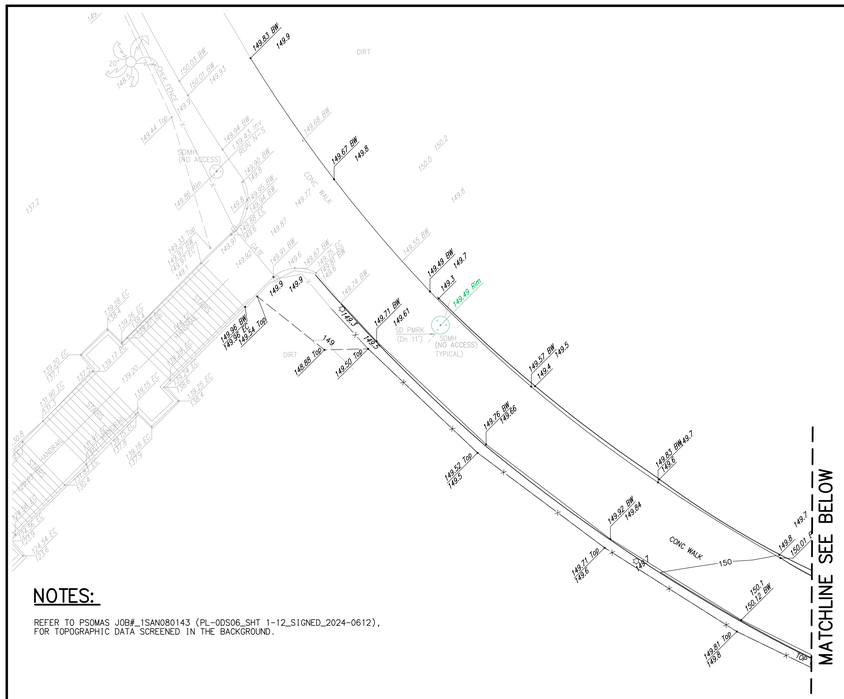
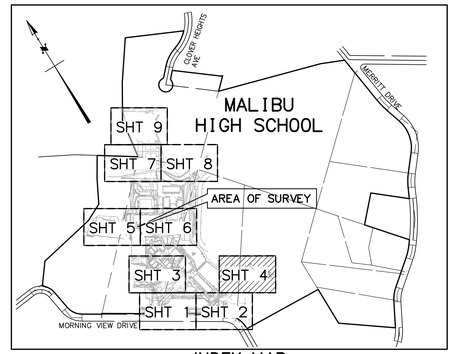
DATE: APRIL 28, 2025

SCALE: 1" = 10'

PROJECT NUMBER: 1SAN080149

SHEET 3 OF 9





INDEX MAP
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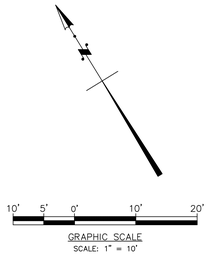

NOTES:

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SEAL: PROFESSIONAL LAND SURVEYOR DANIEL L. RAHE No. 9425 STATE OF CALIFORNIA	DESIGNED: CJG					
	DRAFTED: CJG					
	CHECKED: DLR	4/28/25	ADDITIONAL TOPO	CJP	TPM	
		REV	DATE	DESCRIPTION	BY	APP'D

BENCHMARK

(SEE VERTICAL CONTROL NOTES ON SHEET 1)

ELEVATION ADJUSTMENT

PATH/PLOT DATE:
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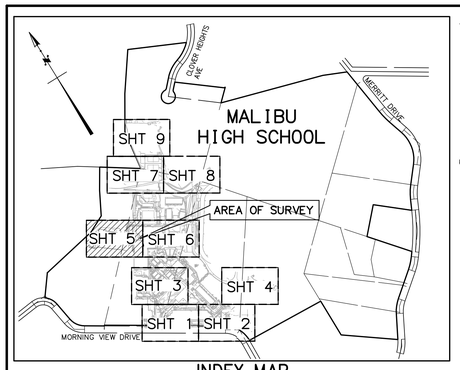
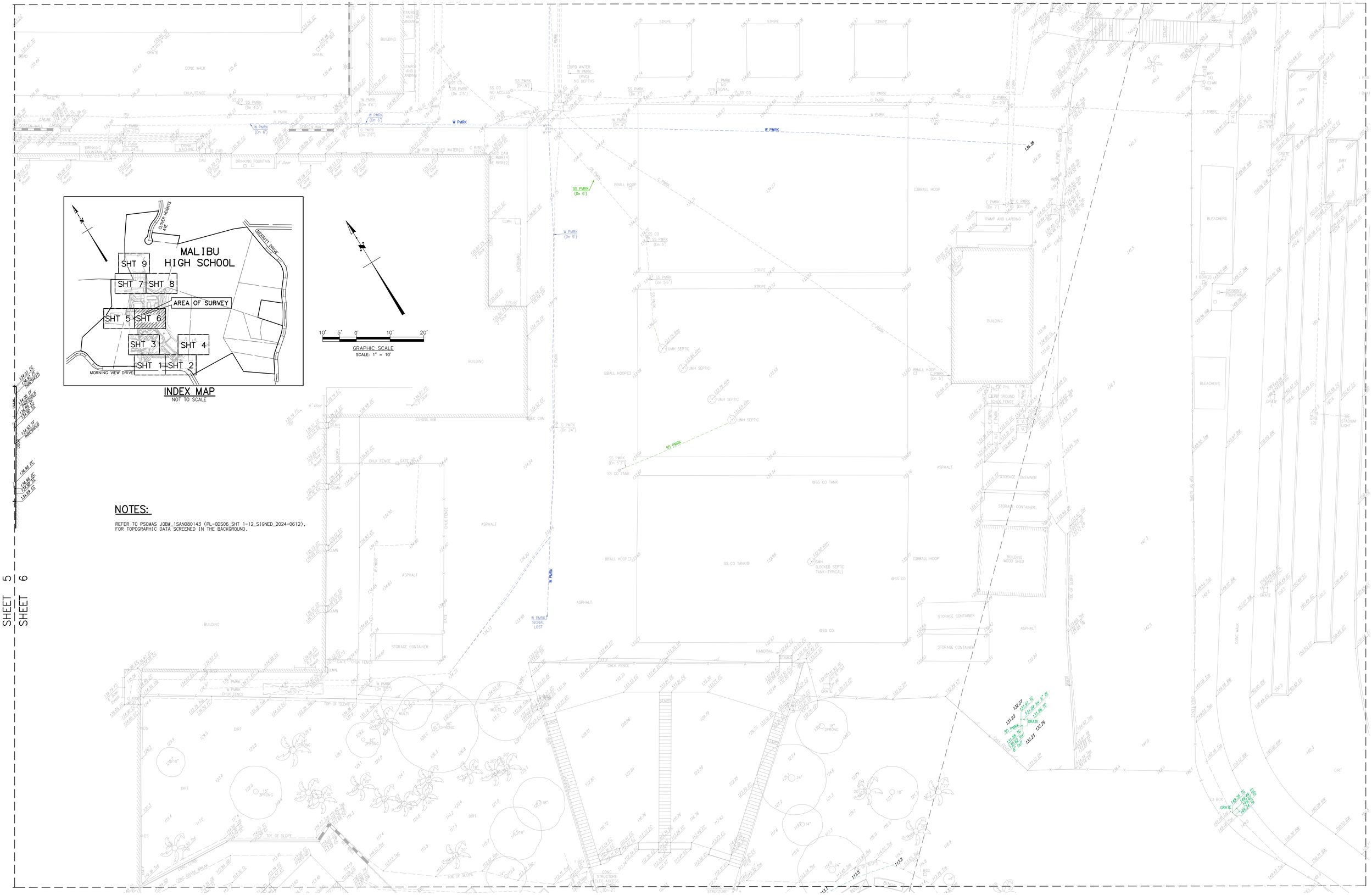
DATE: APRIL 28, 2025

SCALE: 1" = 10'

PROJECT NUMBER: 1SAN080149

SHEET 4 OF 9


FLOWER HEIGHTS AVE
MALIBU HIGH SCHOOL
LATIGO CANYON RD
LATIGO CANYON RD
LATIGO CANYON RD



INDEX MAP
NOT TO SCALE

NOTES:

REFER TO PSOMAS JOB#_1SAN080143 (PL-0DS06_SHT 1-12_SIGNED_2024-0612), FOR TOPOGRAPHIC DATA SCREENED IN THE BACKGROUND.

SHEET 5
SHEET 6

REV	DATE	DESCRIPTION	BY	APP'D
△	4/28/25	ADDITIONAL TOPO	CJP	TPM

SEAL: PROFESSIONAL LAND SURVEYOR — DANIEL L. RAHE — No. 9425 — STATE OF CALIFORNIA

DESIGNED: CJG
DRAFTED: CJG
CHECKED: DLR

BENCHMARK: (SEE VERTICAL CONTROL NOTES ON SHEET 1)
ELEVATION _____ ADJUSTMENT _____
PATH/PLOT DATE:
J:\LA\1SAN080100\02_MHS\1SAN080149\SURVEY\DESIGN\PL\PL-0S08.dwg SHT6 :: thomas.mcdermott
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DESIGN SURVEY AND SUBTERRANEAN UTILITY DETECTION FOR:

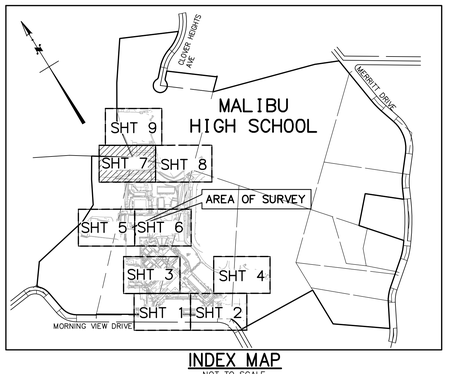
SANTA MONICA – MALIBU UNIFIED SCHOOL DISTRICT

MALIBU HIGH SCHOOL

IN THE CITY OF MALIBU — COUNTY OF LOS ANGELES — STATE OF CALIFORNIA

DATE: APRIL 28, 2025
SCALE: 1" = 10'
PROJECT NUMBER: 1SAN080149
SHEET 6 OF 9

SHEET 9
SHEET 7



INDEX MAP
NOT TO SCALE

10' 5' 0' 10' 20'
GRAPHIC SCALE
SCALE: 1" = 10'

SHEET 7
SHEET 8

NOTES:

REFER TO PSOMAS JOB#_1SAN080143 (PL-ODS06_SHT 1-12_SIGNED_2024-0612), FOR TOPOGRAPHIC DATA SCREENED IN THE BACKGROUND.

V:\DTR01 MA | V:\DS06 MA_EDIT | V:\DTM01 | V:\DTM01 AERIAL | X:\BD01-MA | X:\BD06-MA 1INSCALE |

SEAL
PROFESSIONAL LAND SURVEYOR
DANIEL L. RAHE
No. 9425
STATE OF CALIFORNIA

DESIGNED	CJG
DRAFTED	CJG
CHECKED	DLR

REV	DATE	DESCRIPTION	BY	APP'D
1	4/28/25	ADDITIONAL TOPO	CJP	TPM

BENCHMARK
(SEE VERTICAL CONTROL NOTES ON SHEET 1)
ELEVATION _____ ADJUSTMENT _____

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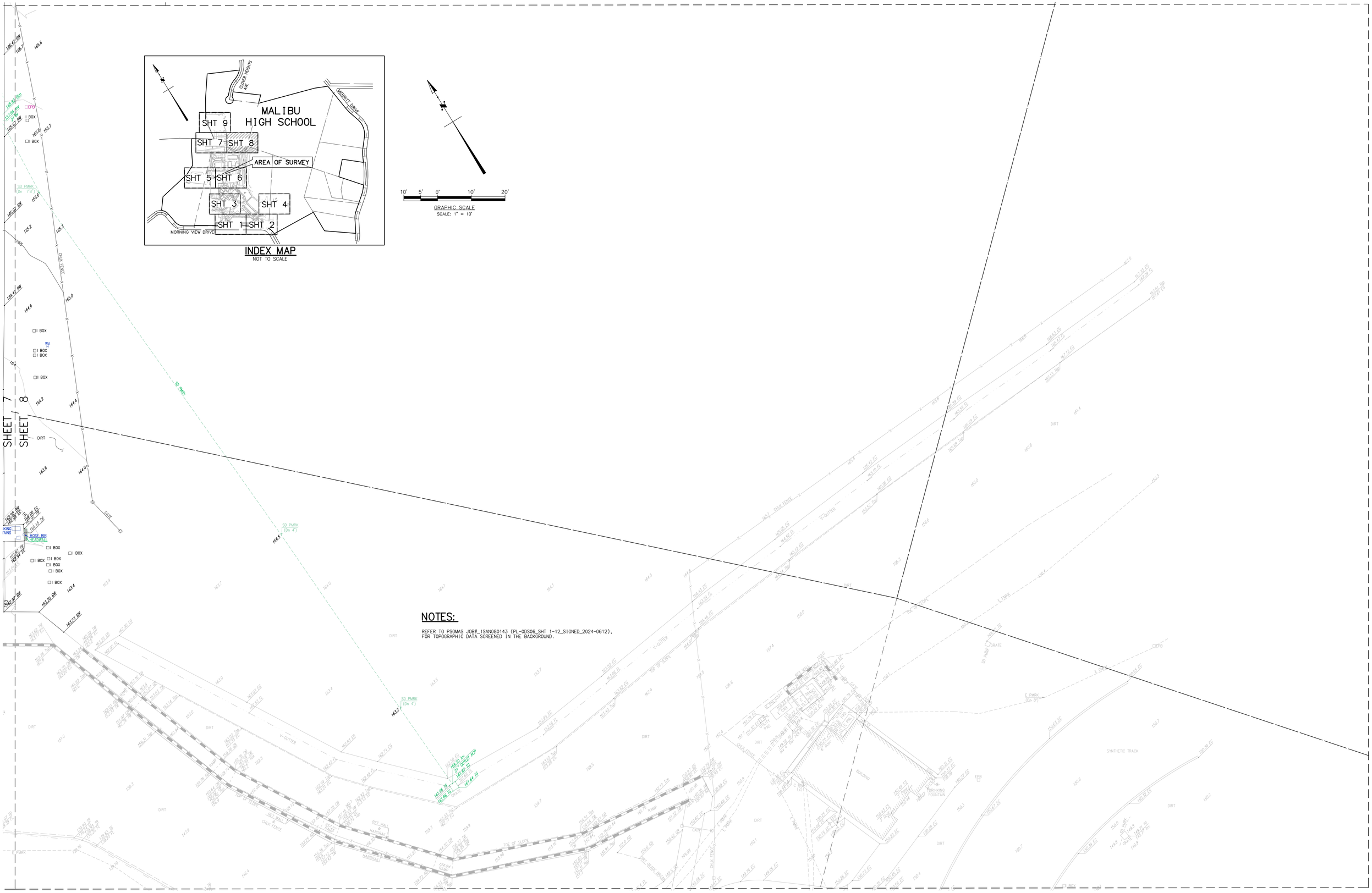
SHEET 7 OF 9



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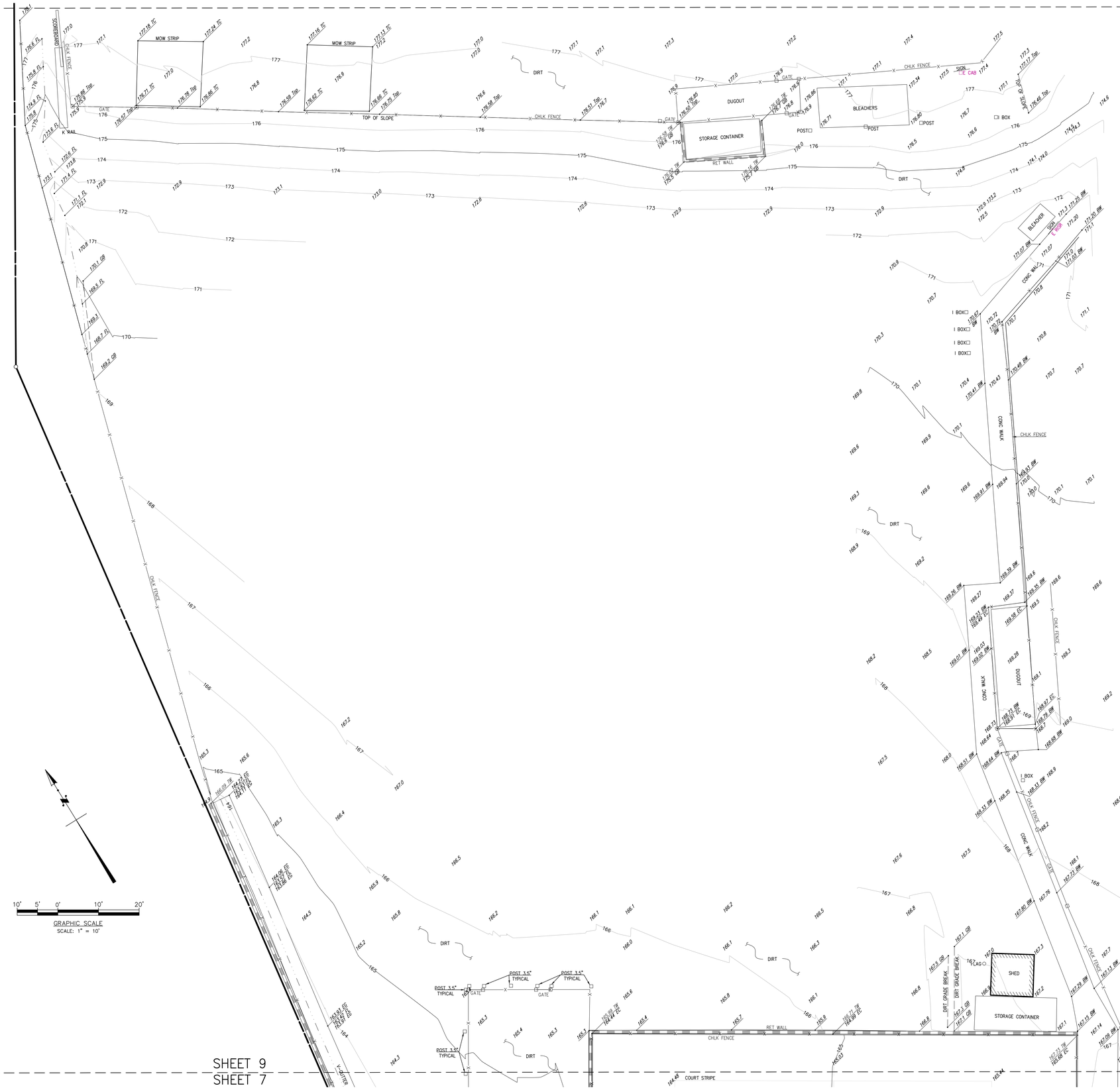
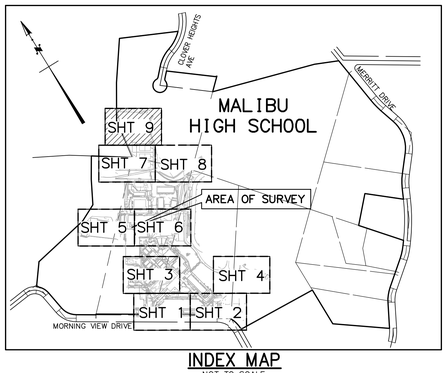
SHEET 8 OF 9





INDEX MAP
NOT TO SCALE

10' 5' 0' 10' 20'
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SHEET 9
SHEET 7

SEAL

PROFESSIONAL LAND SURVEYOR
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BENCHMARK

(SEE VERTICAL CONTROL NOTES ON SHEET 1)

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SHEET 9 OF 9

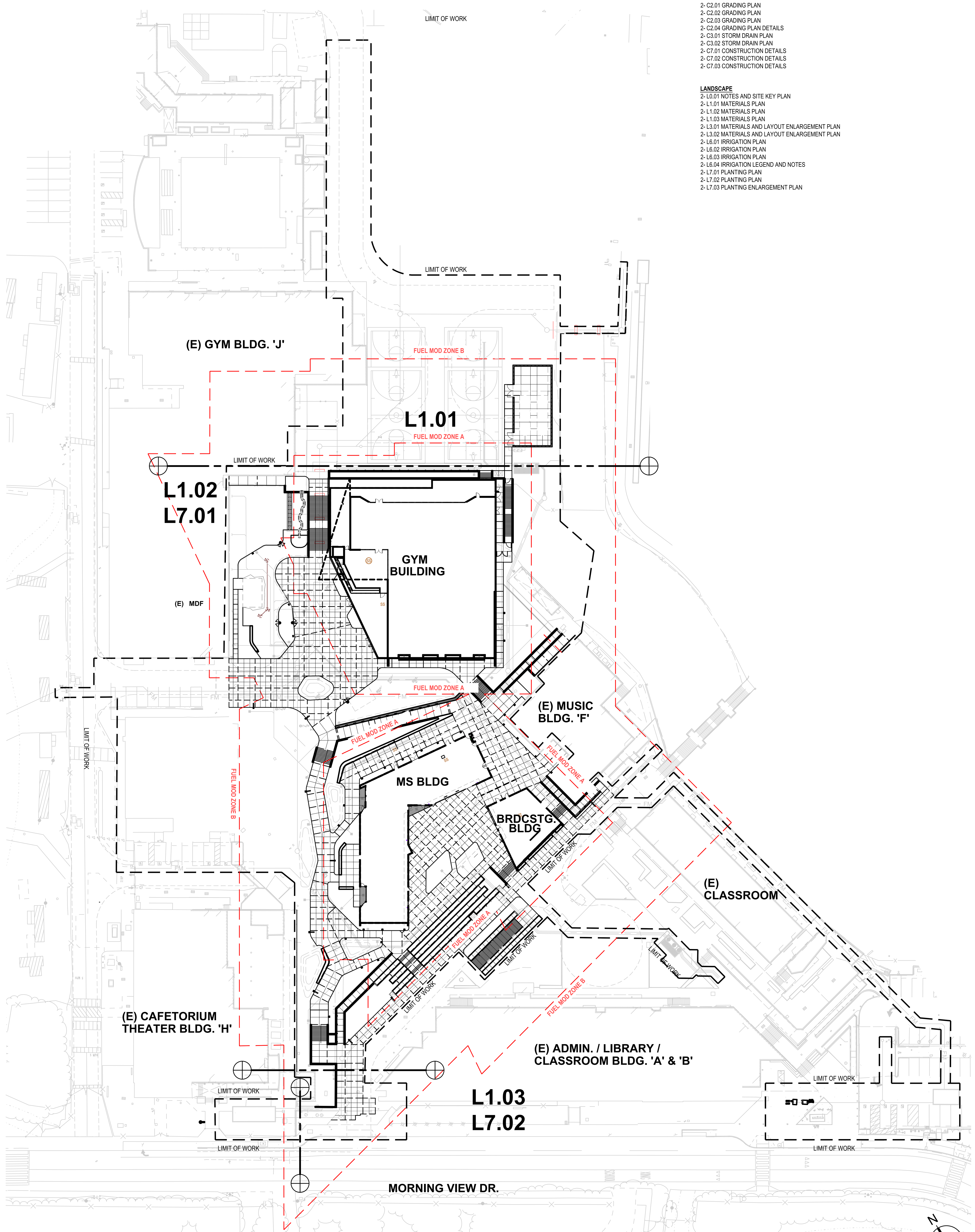
ABBREVIATIONS

&	AND
∠	ANGLE
@	AT
℄	CENTERLINE
Ø	DIAMETER OR ROUND
#	POUND OR NUMBER
ADJ.	ADJACENT
AGGR.	AGGREGATE
AL.	ALUMINUM
APPROX.	APPROXIMATE
ARCH.	ARCHITECTURAL
AC.	ASPHALT
ACC.	ACCESSIBLE
B.C.R.	BEGINNING OF CURVE RADIUS
B.O.C.	BACK OF CURB
B.O.W.	BOTTOM OF WALL
B.O.S.	BOTTOM OF SLOPE
BLDG.	BUILDING
BLK.	BLOCK
C.E.	CIVIL ENGINEER
C.I.P.	CAST IN PLACE
CLKG.	CAULKING
CMU.	CONCRETE MASONRY UNIT
CONC.	CONCRETE
CONSTR.	CONSTRUCTION
CONT.	CONTINUOUS
CTR.	CENTER
D.A.	DISABLED ACCESS
DET.	DETAIL
DIA.	DIAMETER
DIM.	DIMENSION
DN.	DOWN
DWGS.	DRAWINGS
E.J.	EXPANSION JOINT
EL.	ELEVATION
ELEC.	ELECTRICAL
EQ.	EQUAL
EXP.	EXPANSION
EXT.	EXTERIOR
F.G.	FINISH GRADE
F.S.	FINISH SURFACE
F.O.B.	FACE OF BUILDING
F.O.C.	FACE OF CURB
F.O.W.	FACE OF WALL

GA.	GAUGE
GALV.	GALVANIZED
GND.	GROUND
GR.	GRADE
HDR	HEADER
HT.	HEIGHT
LT.	LIGHT
MAX.	MAXIMUM
MET.	METAL
MFR.	MANUFACTURER
MIN.	MINIMUM
MTD.	MOUNTED
MTL.	MATERIAL
N.I.C.	NOT IN CONTRACT
N.T.S.	NOT TO SCALE
O.C.	ON CENTER
O.D.	OUTSIDE DIAMETER
(DIM.)	
PA	PLANTING AREA
PED.	PEDESTRIAN
PRCST.	PRECAST
P.I.P.	POURED IN PLACE
P.O.T.	POINT OF TANGENCY
P.T.S.	POST TENSION SLAB
QTY	QUANTITY
R.	RISER
RAD.	RADIUS
REINF.	REINFORCED
REQ.	REQUIRED
SCHED.	SCHEDULE
SHT.	SHEET
SPEC.	SPECIFICATION
S.S.	STAINLESS STEEL
STD.	STANDARD
STRL.	STRUCTURAL
T.	TREAD
T.C.	TOP OF CURB
T.O.S.	TOP OF SLOPE
T.O.W.	TOP OF WALL
TYP.	TYPICAL
TBD.	TO BE DETERMINED
VEH.	VEHICULAR
VERT.	VERTICAL
W/	WITH
W/O	WITHOUT

PLANTING NOTES

1. REFER TO CIVIL ENGINEER'S DRAWINGS FOR UTILITY LOCATIONS, TREE SUBDRAINAGE STUBOUTS, (IF REQUIRED), AND FINAL GRADING. IF ACTUAL SITE CONDITIONS VARY FROM WHAT IS SHOWN ON THE LANDSCAPE ARCHITECT'S DRAWINGS, THE CONTRACTOR SHALL CONTACT THE OWNER'S AUTHORIZED REPRESENTATIVE AND LANDSCAPE ARCHITECT FOR DIRECTION AS TO HOW TO PROCEED.
2. VERIFY LOCATIONS OF ALL PERTINENT EXISTING AND PROPOSED SITE IMPROVEMENTS. IF ANY PART OF THIS PLAN CANNOT BE FOLLOWED DUE TO SITE CONDITIONS, CONTACT THE LANDSCAPE ARCHITECT FOR INSTRUCTION PRIOR TO COMMENCING WORK.
3. EXACT LOCATIONS OF PLANT MATERIALS SHALL BE REVIEWED BY THE LANDSCAPE ARCHITECT IN THE FIELD PRIOR TO INSTALLATION. LANDSCAPE ARCHITECT RESERVES THE RIGHT TO ADJUST PLANTS TO EXACT LOCATION IN FIELD.
4. CONTRACTOR SHALL BE RESPONSIBLE FOR VERIFYING ALL PLANT COUNTS AND SQUARE FOOTAGES. QUANTITIES SHOWN ON PLANS TAKE PRECEDENCE OVER WRITTEN QUANTITIES IN "PLANTING LEGEND."
5. PROVIDE MATCHING FORMS AND SIZES FOR ALL PLANT MATERIALS WITHIN EACH SPECIES AND SIZE DESIGNATED ON THE DRAWINGS.
6. PRUNE NEWLY PLANTED TREES ONLY AS DIRECTED BY LANDSCAPE ARCHITECT.
7. ALIGNED AND EQUALLY SPACED, IN ALL DIRECTIONS, ALL SHRUBS TO BE AS DESIGNATED PER THESE NOTES AND DRAWINGS.
8. ALL TREES IN ROWS TO BE ALIGNED. (UNLESS NOTED OTHERWISE ON PLANS)
9. TREES SHALL BEAR SAME RELATION TO FINISH GRADE AS AT PLACE OF GROWTH.
10. FINISH GRADES OF ALL TURF AREAS SHALL BE (1") BELOW ADJACENT CURB OR PAVEMENT. FINISH GRADES OF ALL SHRUB AREAS SHALL BE (2-1/2") BELOW ADJACENT CURB, PAVEMENT OR HEADER.
11. CONTRACTOR SHALL SUBMIT FOR APPROVAL COLOR PHOTOS OF ALL TREES, SHRUBS, AND GROUNDCOVER. PHOTOS SHOULD INCLUDE A PERSON FOR SCALE PURPOSES, PHOTOS SHALL BE OF THE ACTUAL PLANT MATERIAL TO BE USED ON THE PROJECT. ALL PLANT MATERIAL SHALL BE OF A QUALITY AS DETERMINED BY THE LANDSCAPE ARCHITECT. MATERIAL FOUND UNSUITABLE FOR THE DESIGN OR SPECIFICATION INTENT WILL BE REJECTED.
12. PROVIDE A (3") LAYER OF MULCH AT PROPOSED TREE, SHRUB, AND GROUNDCOVER PLANTING AREAS, EXCEPT AREAS WITH JUTE MESHING.
13. CONTRACTOR SHALL CONDUCT AGRICULTURAL SUITABILITY AND FERTILITY SOILS TESTING PER SOIL PREPARATION SPECIFICATION. ANALYSIS SHALL INCLUDE RECOMMENDATIONS FOR SOIL PREPARATION AND BACKFILL MIX AS WELL AS RECOMMENDATIONS FOR POST MAINTENANCE FERTILIZATION. SUBMIT SOILS ANALYSES AND SAMPLES OF AMENDMENTS TO LANDSCAPE ARCHITECT FOR REVIEW PRIOR TO SOIL PREPARATION.
14. QUANTITIES LISTED ON PLANT LEGEND ARE PER SHEET. CONTRACTOR MUST VERIFY QUANTITIES GIVEN ON THE PLANS WITH ACTUAL QUANTITIES SHOWN.
15. PROVIDE ROOT BARRIERS IN ADDITION TO THOSE INDICATED ON THE PLANS FOR ALL TREES WITHIN 5' OF ANY HARDSCAPE.
16. NOT INSTALL WATERING BASINS AROUND TREES WHEN PLANTED IN TURF. PROVIDE A CIRCULAR TURF-FREE ZONE TO OUTSIDE EDGE OF ROOTBALL. PLACE ONLY 2-INCHES OF WOOD MULCH IN THIS AREA AND NO CLOSER THAN 4-INCHES FROM TRUNK.
17. PLANT ALL TREES A MIN. OF 5' FROM ANY UTILITIES. THE LANDSCAPE CONTRACTOR SHALL VERIFY THE LOCATION OF ALL UTILITIES PRIOR TO COMMENCING WORK.
18. TREES ARE TO BE A MINIMUM OF 5' AWAY FROM ANY HARDSCAPE SUCH AS CURBS, WALKS, ETC.
19. LANDSCAPE MAINTENANCE PERIOD IS 90 DAYS.
20. REFER TO SPECIFICATIONS FOR ADDITIONAL INFORMATION.



SITE KEY PLAN 1" = 40'-0" 05

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2- L7.03 PLANTING ENLARGEMENT PLAN

FUEL MODIFICATION PLAN NOTES

ZONE A - SETBACK ZONE

- EXTENDS 30 FEET BEYOND THE EDGE OF ANY COMBUSTIBLE STRUCTURE, ACCESSORY STRUCTURE, APPENDAGE, OR PROJECTION.
- OVERHANGS OR PARTS OF STRUCTURES NOT ACCURATELY REFLECTED IN THE PLANS MAY DENY THE APPROVAL OF THE PLANT LOCATION ON THE APPROVED PLAN.
- IRRIGATION BY AUTOMATIC OR MANUAL SYSTEMS SHALL BE PROVIDED TO MAINTAIN HEALTHY VEGETATION AND FIRE RESISTANCE.
- VEGETATION IN THIS ZONE SHALL CONSIST PRIMARILY OF GREEN LAWNS, GROUND COVERS NOT EXCEEDING 6 INCHES IN HEIGHT, AND ADEQUATELY SPACED SHRUBS. THE OVERALL LANDSCAPE CHARACTERISTICS SHALL PROVIDE ADEQUATE DEFENSIBLE SPACE IN A FIRE ENVIRONMENT
- PLANTS IN ZONE A SHOULD BE INHERENTLY HIGHLY FIRE-RESISTANT AND APPROPRIATELY SPACED. SPECIES SELECTION SHOULD REFERENCE THE FUEL MODIFICATION PLANT LIST. OTHER SPECIES MAY BE USED AND SUBJECT TO APPROVAL. PLANS RESUBMITTED 6 MONTHS AFTER THE INITIAL REVIEW WILL BE EVALUATED BASED ON THE CURRENT FUEL MODIFICATION PLANT LIST, AVAILABLE FROM THE FUEL MODIFICATION UNIT.
- TREES ARE GENERALLY NOT RECOMMENDED, EXCEPT FOR DWARF VARIETIES OR MATURE TREES OF SMALL STATURE.
- TARGET SPECIES WILL TYPICALLY NOT BE ALLOWED WITHIN 30 FEET OF FUEL STRUCTURES AND MAY REQUIRE REMOVAL IF EXISTING
- VINES AND CLIMBING PLANTS SHOULD NOT BE ALLOWED ON ANY COMBUSTIBLE STRUCTURE REQUIRING REVIEW.

ZONE B - IRRIGATED ZONE

- EXTENDS FROM THE OUTER EDGE OF ZONE A TO 100 FEET FROM STRUCTURES.
- IRRIGATION BY AUTOMATIC OR MANUAL SYSTEMS SHOULD BE PROVIDED TO MAINTAIN HEALTHY VEGETATION AND FIRE RESISTANCE.
- VEGETATION IN THIS ZONE SHOULD PRIMARILY CONSIST OF GREEN LAWNS, GROUND COVERS, AND ADEQUATELY SPACED SHRUBS AND TREES
- UNLESS OTHERWISE APPROVED, GROUND COVERS SHOULD BE MAINTAINED AT A HEIGHT NOT TO EXCEED 6 INCHES. ON SLOPES, 12 INCHES IS ACCEPTABLE WITHIN 50 FEET OF A STRUCTURE, AND 18 INCHES BEYOND 50 FEET. THE OVERALL LANDSCAPE CHARACTERISTICS SHOULD PROVIDE ADEQUATE DEFENSIBLE SPACE IN A FIRE ENVIRONMENT. SPECIMEN NATIVE PLANTS MAY BE APPROVED TO REMAIN IF PROPERLY MAINTAINED FOR ADEQUATE DEFENSIBLE SPACE. ANNUAL GRASSES OR WEEDS SHOULD BE MAINTAINED AT A HEIGHT NOT TO EXCEED 3 INCHES
- PLANTS SHOULD BE FIRE-RESISTANT AND APPROPRIATELY SPACED. PLANT SELECTION SHOULD REFERENCE THE FUEL MODIFICATION PLANT LIST. OTHER PLANTS MAY BE USED SUBJECT TO APPROVAL.
- REPLACEMENT PLANTING TO MEET MINIMUM CITY OR COUNTY SLOPE COVERAGE REQUIREMENTS OR ORDINANCES WILL BE CONSIDERED. IN ALL CASES, THE OVERALL LANDSCAPE CHARACTERISTICS SHOULD PROVIDE ADEQUATE DEFENSIBLE SPACE IN A FIRE ENVIRONMENT.
- TARGET SPECIES MAY REQUIRE REMOVAL WITHIN 50 FEET OF STRUCTURES, DEPENDING ON SITE CONDITIONS
- ALL TREES, UNLESS OTHERWISE APPROVED, SHOULD BE PLANTED FAR ENOUGH FROM STRUCTURES AND FIRE ACCESS ROADS, SO AS NOT TO OVERHANG ANY STRUCTURE OR ACCESS AT MATURITY

ZONE B - EXTENDED IRRIGATED ZONE

- EXTENDS FROM THE OUTER EDGE OF ZONE B UP TO 200 FEET FROM STRUCTURES OR TO THE PROPERTY LINE.
- REQUIRED THINNING AND CLEARANCE WILL BE DETERMINED UPON INSPECTION.
- IRRIGATION SYSTEMS ARE NOT REQUIRED.
- VEGETATION MAY CONSIST OF MODIFIED EXISTING NATIVE PLANTS, ADEQUATELY SPACED ORNAMENTAL SHRUBS AND TREES, OR BOTH. REPLACEMENT PLANTING TO MEET MINIMUM CITY OR COUNTY SLOPE COVER REQUIREMENTS OR ORDINANCES WILL BE CONSIDERED. IN ALL CASES, THE OVERALL LANDSCAPE CHARACTERISTICS SHALL PROVIDE ADEQUATE DEFENSIBLE SPACE IN A FIRE ENVIRONMENT
- PLANTS SHOULD BE SPACED APPROPRIATELY. EXISTING NATIVE VEGETATION SHOULD BE MODIFIED BY THINNING AND REMOVING PLANTS CONSTITUTING A FIRE RISK; THESE INCLUDE, BUT ARE NOT LIMITED TO: CHAMFER, SAGE, SAGE BRUSH, AND BUCKWHEAT.
- ANNUAL GRASSES AND WEEDS SHOULD BE MAINTAINED AT A HEIGHT NOT TO EXCEED 3 INCHES.
- GENERAL SPACING FOR EXISTING NATIVE SHRUBS OR GROUPS OF SHRUBS IS 15 FEET BETWEEN CANOPIES. NATIVE PLANTS MAY BE THINNED BY REDUCED LEVELS AS THE DISTANCE FROM DEVELOPMENT INCREASES
- GENERAL SPACING FOR EXISTING NATIVE TREES OR GROUPS OF TREES IS 30 FEET BETWEEN CANOPIES. THIS DISTANCE MAY VARY DEPENDING ON THE SLOPE, THE ARRANGEMENT OF TREES IN RELATION TO THE SLOPE, AND THE TREE SPECIES.

FIRE ACCESS ROAD ZONE

- EXTENDS A MINIMUM OF 10 FEET FROM THE EDGE OF ANY PUBLIC OR PRIVATE ROAD USED BY FIREFIGHTING RESOURCES.
- CLEAR AND REMOVE FLAMMABLE GROWTH FOR A MINIMUM OF 10 FEET ON EACH SIDE OF FIRE ACCESS ROADS. (FIRE CODE 325.10)
- ADDITIONAL CLEARANCE BEYOND 10 FEET MAY BE REQUIRED UPON INSPECTION
- FIRE ACCESS ROADS, DRIVEWAYS, AND TURNAROUNDS MUST BE MAINTAINED IN ACCORDANCE WITH THE FIRE CODE. FIRE ACCESS ROADS MUST HAVE UNOBSTRUCTED VERTICAL CLEARANCE CLEAR TO THE SKY FOR A WIDTH OF 20 FEET. (FIRE CODE 503.2.1)
- REMAINING PLANTS MUST BE APPROPRIATELY SPACED AND MAINTAINED TO PROVIDE SAFE EGRESS IN WILDLIFE FIRE ENVIRONMENTS.
- ALL TREES, UNLESS OTHERWISE APPROVED, MUST BE PLANTED FAR ENOUGH FROM STRUCTURES AND FIRE ACCESS ROADS, SO AS NOT TO OVERHANG ANY STRUCTURE OR ACCESS AT MATURITY.

MAINTENANCE

- ROUTINE MAINTENANCE SHOULD BE REGULARLY PERFORMED IN ALL AREAS. REQUIREMENTS INCLUDE ITEMS IN THE FUEL MODIFICATION GUIDELINES AND THOSE OUTLINED BELOW:
- REMOVAL OR THINNING OF UNDESIRABLE FUEL VEGETATION AND REMOVAL OF DEAD OR DYING PLANTS TO MEET MINIMUM BRUSH CLEARANCE REQUIREMENTS.
- PRUNING AND THINNING TO REDUCE THE OVERALL FUEL LOAD AND CONTINUITY OF FUELS
- FUEL LOADS SHOULD BE REDUCED BY PRUNING LOWER BRANCHES OF TREES AND TREE-FORM SHRUBS TO 1/3 OF THEIR HEIGHT, OR 6 FEET FROM THE LOWEST HANGING BRANCHES TO THE GROUND, TO HELP PREVENT FIRE FROM SPREADING AND MAKE MAINTENANCE EASIER. TREES WITH UNDERGROUND PLANTS SHOULD BE PRUNED AT LEAST THREE TIMES THE HEIGHT OF THE UNDERGROUND VEGETATION OR UP TO ONE THIRD THE HEIGHT OF THE TREE, WHICHEVER IS LESS, TO HELP PREVENT FIRE FROM SPREADING UPWARD INTO THE CROWN
- ACCUMULATED PLANT LITTER AND DEAD WOOD SHOULD BE REMOVED. DEBRIS AND TRIMMINGS PRODUCED BY MAINTENANCE SHOULD BE REMOVED FROM THE SITE OR CHIPPED AND EVENLY DISPERSED IN THE SAME AREA TO A MAXIMUM DEPTH OF 6 INCHES.
- ALL INVASIVE SPECIES AND THEIR PARTS SHOULD BE REMOVED FROM THE SITE.
- MANUAL AND AUTOMATIC IRRIGATION SYSTEMS SHOULD BE MAINTAINED FOR OPERATIONAL INTEGRITY AND PROGRAMMING.
- EFFECTIVENESS SHOULD BE REGULARLY EVALUATED TO AVOID OVER- OR UNDERWATERING
- COMPLIANCE WITH THE FIRE CODE IS A YEAR-ROUND RESPONSIBILITY. ENFORCEMENT WILL OCCUR FOLLOWING INSPECTION BY THE FIRE DEPARTMENT. ANNUAL INSPECTIONS FOR BRUSH CLEARANCE CODE REQUIREMENTS ARE CONDUCTED FOLLOWING THE NATURAL DRYING OF GRASSES AND FINE FUELS, BETWEEN THE MONTHS OF APRIL AND JUNE, DEPENDING ON THE GEOGRAPHIC REGION. INSPECTION FOR COMPLIANCE WITH AN APPROVED FUEL MODIFICATION PLAN MAY OCCUR AT ANY TIME OF YEAR.
- BRUSH CLEARANCE ENFORCEMENT ISSUES ON ADJACENT PROPERTIES SHOULD BE DIRECTED TO THE COUNTY OF LOS ANGELES FIRE DEPARTMENT'S BRUSH CLEARANCE UNIT AT (626) 969-2375
- ALL FUTURE PLANTINGS MUST BE IN ACCORDANCE WITH THE COUNTY OF LOS ANGELES FIRE DEPARTMENT'S FUEL MODIFICATION GUIDELINES AND APPROVED PRIOR TO INSTALLATION. CHANGES TO THE APPROVED PLAN, WHICH REQUIRE AN ADDITIONAL PLAN REVIEW, WILL INCUR A PLAN REVIEW FEE.
- QUESTIONS REGARDING LANDSCAPING, PLANTING, AND MAINTENANCE WITH REGARD TO FIRE SAFETY SHOULD BE DIRECTED TO THE FIRE DEPARTMENT'S FUEL MODIFICATION UNIT AT (626) 969-5205

Received
10/7/2025
Planning Dept.

LPA
ARCHITECTURE ENGINEERING INTERIOR DESIGN LANDSCAPE ARCHITECTURE PLANNING
949-261-1001 Office
LPADesignStudios.com
5301 California Avenue, Suite 100
Irvine, California 92617

LICENSED LANDSCAPE ARCHITECT ANH-THY TOBIN No. 4512 SIGNATURE 9/18/2025 DATE 3/31/2027 RENEWAL DATE STATE OF CALIFORNIA

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MALIBU MIDDLE SCHOOL INCREMENT 02

30215 Morning View Dr.
Malibu, CA 90265
APN: 4469-017-900

Developed for
SANTA MONICA - MALIBU UNIFIED SCHOOL DISTRICT

Revision	Date

Submittal	Date
SCHEMATIC DESIGN	09/04/2024
50% DESIGN DEVELOPMENT	12/13/2024
100% DESIGN DEVELOPMENT	02/14/2025
CDP SUBMITTAL	06/16/2025
50% CONSTRUCTION DOCS	06/27/2025
DSA SUBMITTAL	09/08/2025
2ND CDP SUBMITTAL	10/03/2025

Job Number	31722
Checked By	
Scale	1" = 40'-0"

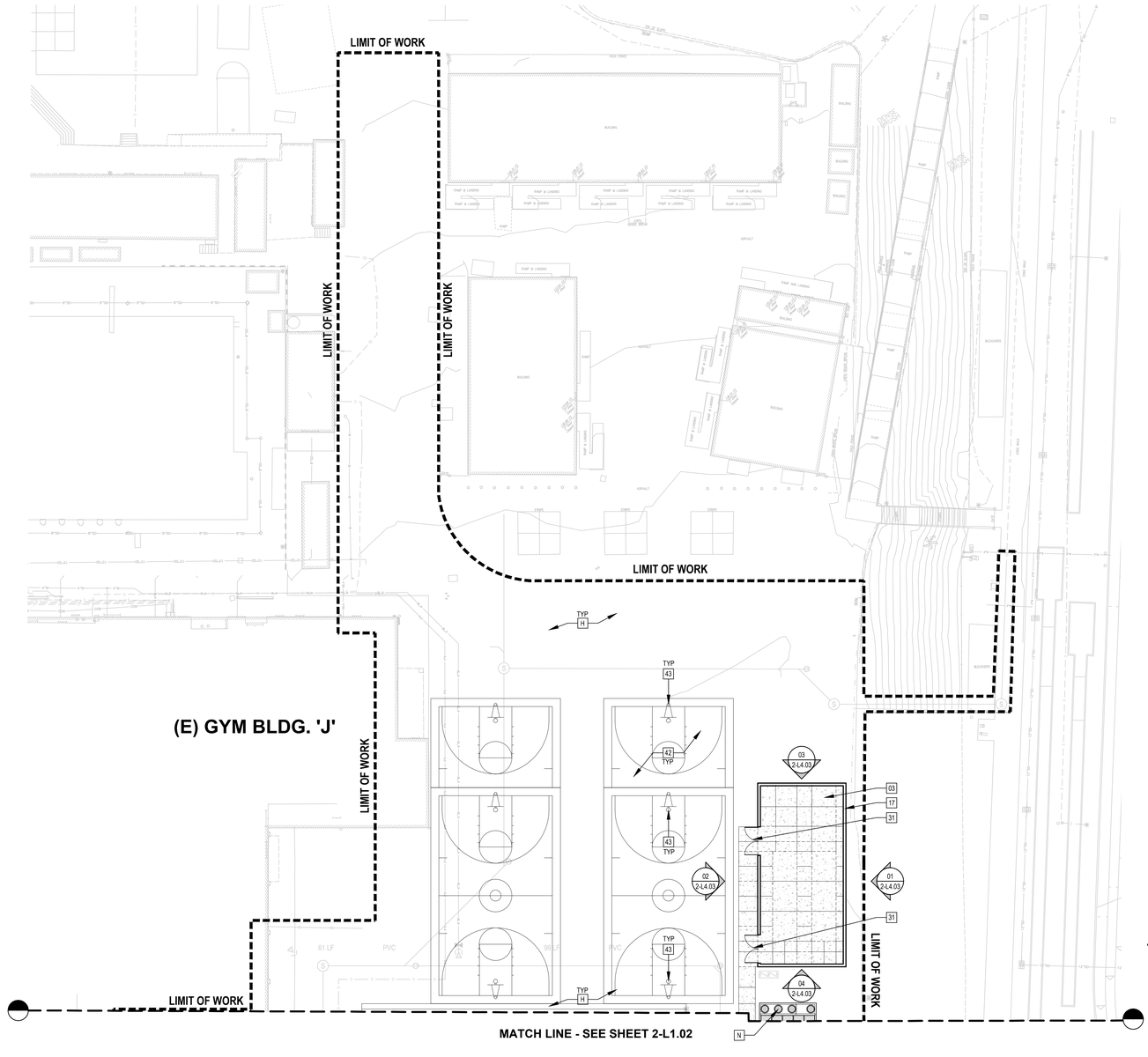
NOTES AND SITE KEY PLAN

2-L0.01

SITE SYMBOLS LEGEND

SYM.	DESCRIPTION	SYM.	DESCRIPTION	DET.
	FIRE HYDRANT - PER CIVIL		SAWCUT JOINT	02/ L5.01
	CATCH BASIN - PER CIVIL		EXPANSION JOINT	02/ L5.01
CO	CLEAN OUT - PER CIVIL		MATCHLINE	
MH	MAN HOLE - PER CIVIL		PROPERTY LINE/ RIGHT OF WAY	
	DRAIN INLETS - PER CIVIL		DIRECTION OF RAMP; DOWN SLOPE	
	EXISTING TREE PROTECT IN PLACE		ALIGN	
PA	PLANTING AREA	(E)PA	EXISTING PLANTING AREA	

NOTE: UTILITIES SHOWN ARE FOR REFERENCE ONLY. SEE CIVIL AND ELEC DWGS FOR DETAILS AND EXACT LOCATIONS. FINAL LOCATIONS TO BE REVIEWED BY LANDSCAPE ARCHITECT.



MATERIALS KEYNOTE LEGEND

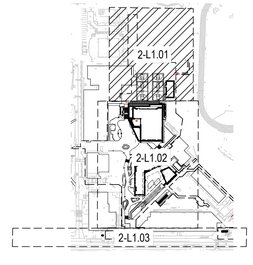
NOTE	DESCRIPTION	DET/ SHT	COLOR / FINISH
01	CONCRETE PAVING - TYPE 1	01/ 2-L5.01	NATURAL GREY / TOPCAST 05
02	CONCRETE RAMP		NATURAL GREY / TOPCAST 05
03	CONCRETE PAVING - TYPE 3	01/ 2-L5.01	NATURAL GREY MEDIUM BROOM
04	ROCK MULCH (ON GRADE)	16/ 2-L5.01	'TOPANGA' BY DECORATIVE STONE SOLUTIONS
05	CONCRETE PAVING - TYPE 5	01/ 2-L5.01	DAVIS COLOR 'MOCHA' / TOP CAST 25
06	CONCRETE FLUSH CURB UNDER SYNTHETIC TURF	09/ 2-L5.01	NATURAL GREY / SMOOTH TROWEL
07	DECORATIVE BOULDERS	24/ 2-L5.01	'TOPANGA' TYPE A,B,C PER DETAIL AVAIL. BY DECORATIVE STONE SOLUTIONS
08	SYNTHETIC TURF SURFACING	08/ 2-L5.01	PER DETAIL
09	CONCRETE STAIRS - TYPE 1	17/ 2-L5.01	NATURAL GREY / TOP CAST 05
10	CONCRETE STAIRS - TYPE 2	17/ 2-L5.01	DAVIS COLOR 'MOCHA' / TOP CAST 05
11	HANDRAIL AT STAIRS	01/ 2-L5.03	STAINLESS STEEL
12	CONCRETE RAMP	01/ 2-L5.01	DAVIS COLOR 'MOCHA' / TOP CAST 25
13	HANDRAIL AT RAMP	07/ 2-L5.03	STAINLESS STEEL
14	CONCRETE RETAINING WALL - TYPE 1	02/ 2-L5.02	NATURAL GREY AS CAST SMOOTH TROWEL
15	CONCRETE FREESTANDING WALL - TYPE 2	20/ 2-L5.02	DAVIS COLOR 'MOCHA' / TOP CAST 03, ETCH
16	CONCRETE RETAINING WALL W/ TOE KICK - TYPE 3	10/ 2-L5.02	DAVIS COLOR 'MOCHA' / TOP CAST 03, ETCH
17	CMU WALL	03/ 2-L5.02	PER DETAIL
18	NOT USED		
19	CONCRETE CHEEK WALL AT STAIRS - TYPE 6	09/ 2-L5.02	NATURAL GREY AS CAST SMOOTH TROWEL
20	CONCRETE CHEEK WALL AT STAIRS - TYPE 7	09/ 2-L5.02	DAVIS COLOR 'MOCHA' / TOP CAST 03, ETCH
21	CONCRETE WALL - TYPE 8	09/ SIM. 2-L5.02	NATURAL GREY / AS CAST SMOOTH TROWEL
22	GUARDRAIL AT WALL	13/ 2-L5.03	STAINLESS STEEL
23	6' HT. CHAIN LINK SERVICE GATE	03/ 2-L5.05	GALVANIZED STEEL
24	6' HT. CHAIN LINK FENCE	04/ 2-L5.05	GALVANIZED STEEL
25	DRINKING FOUNTAIN	17/ 2-L5.06	SEE SITE FURN. LEGEND 2-L0.01 INSTALL PER MANUF.
26	BIKE RACK	PER PLAN	SEE SITE FURN. LEGEND 2-L0.01 INSTALL PER MANUF. RECOM.
27	TABLES / BENCHES	PER PLAN	SEE SITE FURN. LEGEND 2-L0.01 INSTALL PER MANUF.
28	SKATEBOARD STORAGE RACK	PER PLAN	POWDER COATED 8 STORAGE CAP
29	CONVENIENCE POWER PEDESTALS	PER ELEC	CHRG. W/ (1) GFCI AND AND (1) USB
30	SITE LIGHTING	15, 23/ 2-L5.06	CUSTOM COLOR/ CUSTOM FINISH
31	METAL PANEL DOUBLE GATE - CMU ENCLOSURE	01/ 2-L5.06	CORRUGATED METAL
32	CLIMBING WALL (OVER (N) MDF)	11/ 2-A8.44	CUSTOM COLOR/FINISH BY 'EL DORADO CLIMBING'
33	SLIDE	01, 03/ 2-L5.04	CUSTOM COLOR/FINISH BY COLUMBIA CASCADE
34	BLOCK CLIMBER	19/ 2-L5.04	CUSTOM COLOR/FINISH BY COLUMBIA CASCADE
35	SHADE PAVILION CANOPY	01/ 2-L5.05	CUSTOM COLOR/ CUSTOM FINISH
36	CIP CONCRETE WALLS W/ TOE KICK LIGHTING	-	CUSTOM COLOR/ CUSTOM FINISH
37	FREESTANDING LIGHTWEIGHT PLANTERS	PER PLAN	MONTARA BY 'TOURNESOL' MA-363630 (QTY. 4) MA-483024 (QTY. 3) MA-723024 (QTY. 5)
38	RAISED METAL PLANTERS WITH WOOD SEATING	01, 02/ 2-A8.42	KITSAP MDLR. PLNTR. WALLS W/ RETURN LIP / 30" HT WITH 'WALLY A' STYLE BENCH BY 'TOURNESOL'
39	COMPOSITE TREX SYSTEM	D1/ 2-A8.12	'TREX TRANSCEND' DECKING CUSTOM CLR./FNSH.
40	DECORATIVE ROCK MULCH (ON STRUCTURE)	20/ 2-L5.01 SIM	'TOPANGA' 2"-4" IN SIZE AVAIL. BY DECORATIVE STONE SOLUTIONS
41	LIGHTWEIGHT BOULDER ON STRUCTURE	24/ 2-L5.01 SIM	TYPE A,B,C PER DETAIL AVAIL. BY DECORATIVE STONE SOLUTIONS
42	BASKETBALL COURT	13/ 2-L5.04	PER DETAIL
43	BASKETBALL POLE AND ASSEMBLY (REUSED)	10/ 2-L5.04	PER DETAIL
44	WALK OFF MAT	13/ 2-L5.01	GRIDLINE G6 STAINLESS STEEL BY 'CS CONST. SPECIALTIES'
45	6' HT. CHAIN LINK DBL. SWING PEDESTRIAN GATE	04/ 2-L5.06	GALVANIZED STEEL
46	BIKE LOCKER	PER PLAN	SEE SITE FURN. LEGEND 2-L0.01 INSTALL PER MANUF. RECOM.

REFERENCE KEYNOTE LEGEND

NOTE	DESCRIPTION	DET/ SHT	COMMENTS
A	EXISTING PAVING		PROTECT IN PLACE
B	EXISTING STAIR		PROTECT IN PLACE
C	EXISTING FENCE		PROTECT IN PLACE
D	EXISTING GATE		PROTECT IN PLACE
E	EXISTING SITE WALL		PROTECT IN PLACE
F	EXISTING KILN		PROTECT IN PLACE
G	RELOCATED TRANSFORMER	PER ELEC	
H	A.C. PAVING	PER CIVIL	
J	BUILDING CANOPY	PER ARCH	
K	BUILDING COLUMN	PER ARCH	
L	BUILDING STAIRS	PER ARCH	
M	BUILDING ELEVATOR	PER ARCH	
N	MODULAR WETLAND	PER CIVIL	

KEYMAP

SCALE=1"=250'-0"



LPA
ARCHITECTURE ENGINEERING INTERIOR DESIGN
LANDSCAPE ARCHITECTURE PLANNING
949-261-1001 Office
LPADesignStudios.com
5301 California Avenue, Suite 100
Irvine, California 92617

LICENSED LANDSCAPE ARCHITECT — TIMOTHY TOBIN — No. 6191 — SIGNATURE — RENEWAL 08/31/2025 — STATE OF CALIFORNIA

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MALIBU MIDDLE SCHOOL INCREMENT 02

30215 Morning View Dr.
Malibu, CA 90265
APN: 4469-017-900
Developed for
SANTA MONICA - MALIBU UNIFIED SCHOOL DISTRICT

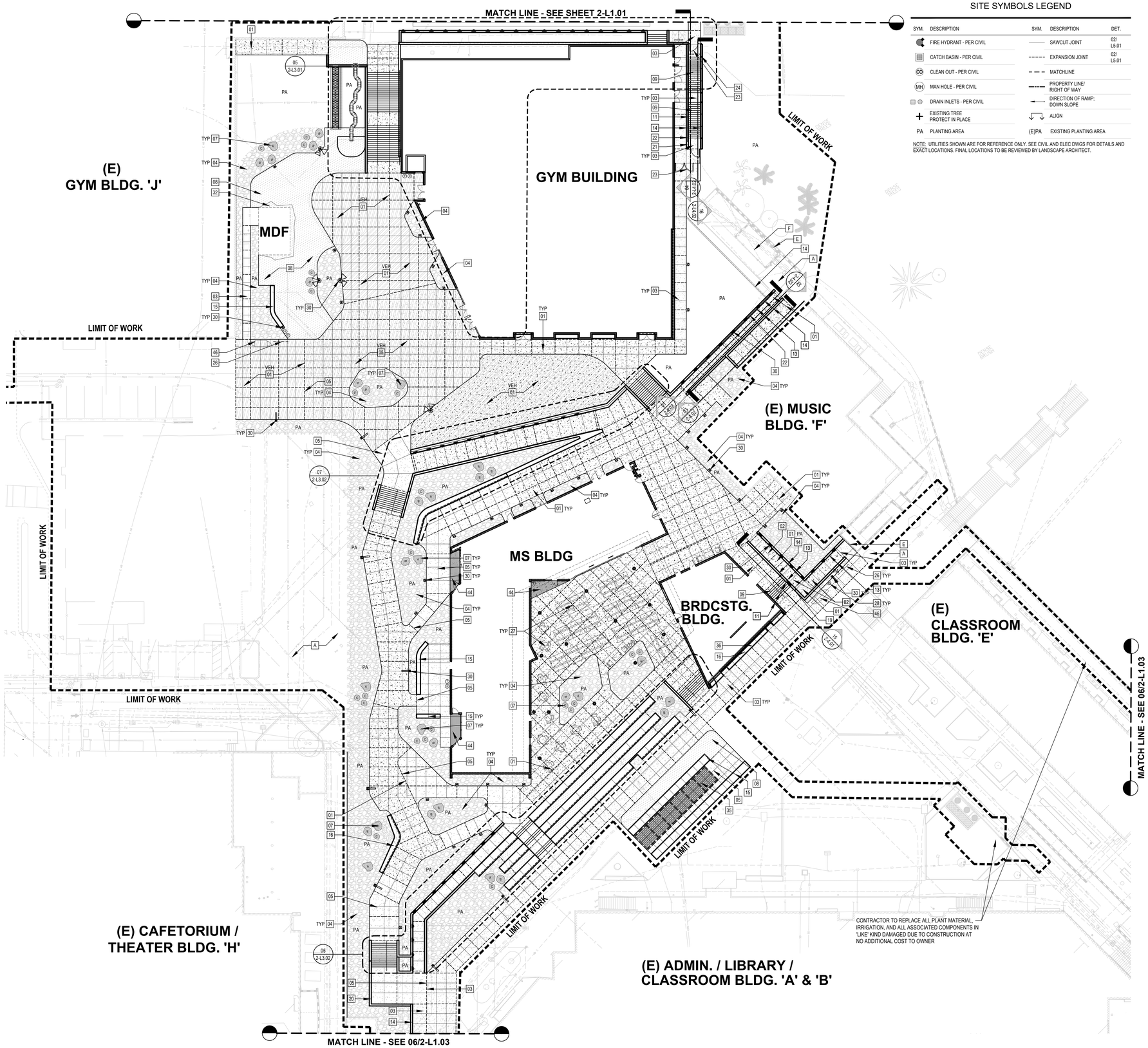
Revision	Date

Submittal	Date
SCHEMATIC DESIGN	09/04/2024
50% DESIGN DEVELOPMENT	12/13/2024
100% DESIGN DEVELOPMENT	04/18/2025
CDP SUBMITTAL	06/16/2025
50% CONSTRUCTION DOCS	06/27/2025
DSA SUBMITTAL	09/08/2025
2ND CDP SUBMITTAL	10/03/2025

Job Number	31722
Checked By	
Scale	1"=20'

MATERIALS PLAN

2-L1.01



SITE SYMBOLS LEGEND

SYM.	DESCRIPTION	SYM.	DESCRIPTION	DET.
	FIRE HYDRANT - PER CIVIL		SAWCUT JOINT	02/ L5.01
	CATCH BASIN - PER CIVIL		EXPANSION JOINT	02/ L5.01
CO	CLEAN OUT - PER CIVIL		MATCHLINE	
MH	MAN HOLE - PER CIVIL		PROPERTY LINE/ RIGHT OF WAY	
	DRAIN INLETS - PER CIVIL		DIRECTION OF RAMP; DOWN SLOPE	
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PA	PLANTING AREA	(E)PA	EXISTING PLANTING AREA	

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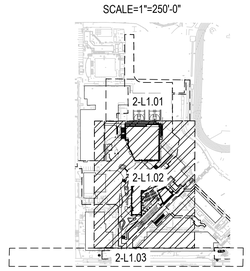
KEYMAP

SCALE=1"=250'-0"



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LANDSCAPE ARCHITECTURE PLANNING
949-261-1001 Office
LPADesignStudios.com
5301 California Avenue, Suite 100
Irvine, California 92617

REGISTERED LANDSCAPE ARCHITECT ANTHONY GUY TOBIN No. 5030 STATE OF CALIFORNIA

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MALIBU MIDDLE SCHOOL
INCREMENT 02

30215 Morning View Dr.
Malibu, CA 90265
APN: 4469-017-900

Developed for
SANTA MONICA - MALIBU UNIFIED SCHOOL DISTRICT

Revision	Date

Submittal	Date
SCHEMATIC DESIGN	09/04/2024
50% DESIGN DEVELOPMENT	12/13/2024
100% DESIGN DEVELOPMENT	03/14/2025
CDP SUBMITTAL	06/16/2025
50% CONSTRUCTION DOCS	09/27/2025
DSA SUBMITTAL	09/08/2025
2ND CDP SUBMITTAL	10/03/2025
3RD CDP SUBMITTAL	10/30/2025

Job Number	31722
Checked By	
Scale	1"=20'

MATERIALS PLAN

2-L1.02

SITE SYMBOLS LEGEND

SYM.	DESCRIPTION	SYM.	DESCRIPTION	DET.
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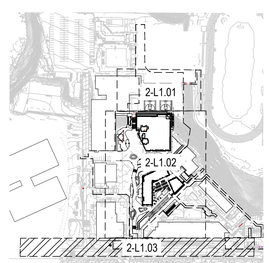
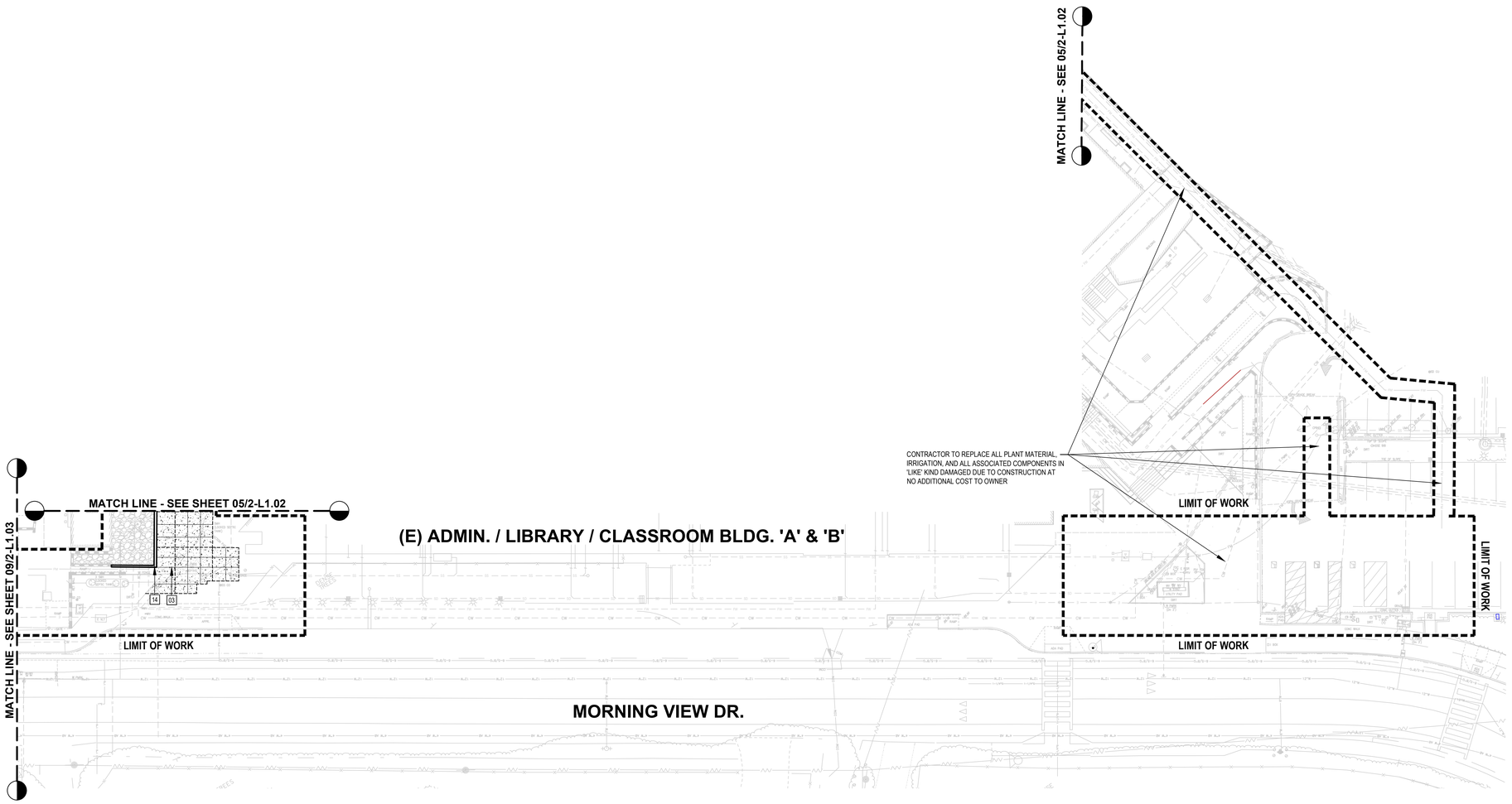
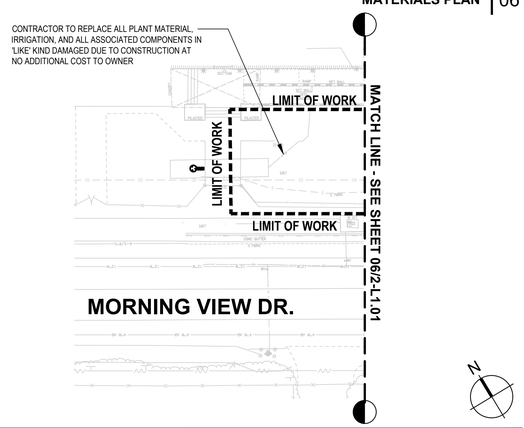
B	EXISTING STAIR		PROTECT IN PLACE
C	EXISTING FENCE		PROTECT IN PLACE
D	EXISTING GATE		PROTECT IN PLACE
E	EXISTING SITE WALL		PROTECT IN PLACE
F	EXISTING KILN		PROTECT IN PLACE
G	RELOCATED TRANSFORMER	PER ELEC	
H	A.C. PAVING	PER CIVIL	
J	BUILDING CANOPY	PER ARCH	
K	BUILDING COLUMN	PER ARCH	
L	BUILDING STAIRS	PER ARCH	
M	BUILDING ELEVATOR	PER ARCH	
N	MODULAR WETLAND	PER CIVIL	

KEYMAP





MATERIALS PLAN | 06



MATERIALS PLAN | 05

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ARCHITECTURE ENGINEERING INTERIOR DESIGN
LANDSCAPE ARCHITECTURE PLANNING
949-261-1001 Office
LPADesignStudios.com
5301 California Avenue, Suite 100
Irvine, California 92617

LICENSED LANDSCAPE ARCHITECT — TIMOTHY TOBIN — No. 6132 — RENEWAL 08/31/2025 — STATE OF CALIFORNIA

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MALIBU MIDDLE SCHOOL
INCREMENT 02

30215 Morning View Dr.
Malibu, CA 90265
APN: 4469-017-900
Developed for
SANTA MONICA - MALIBU UNIFIED SCHOOL DISTRICT

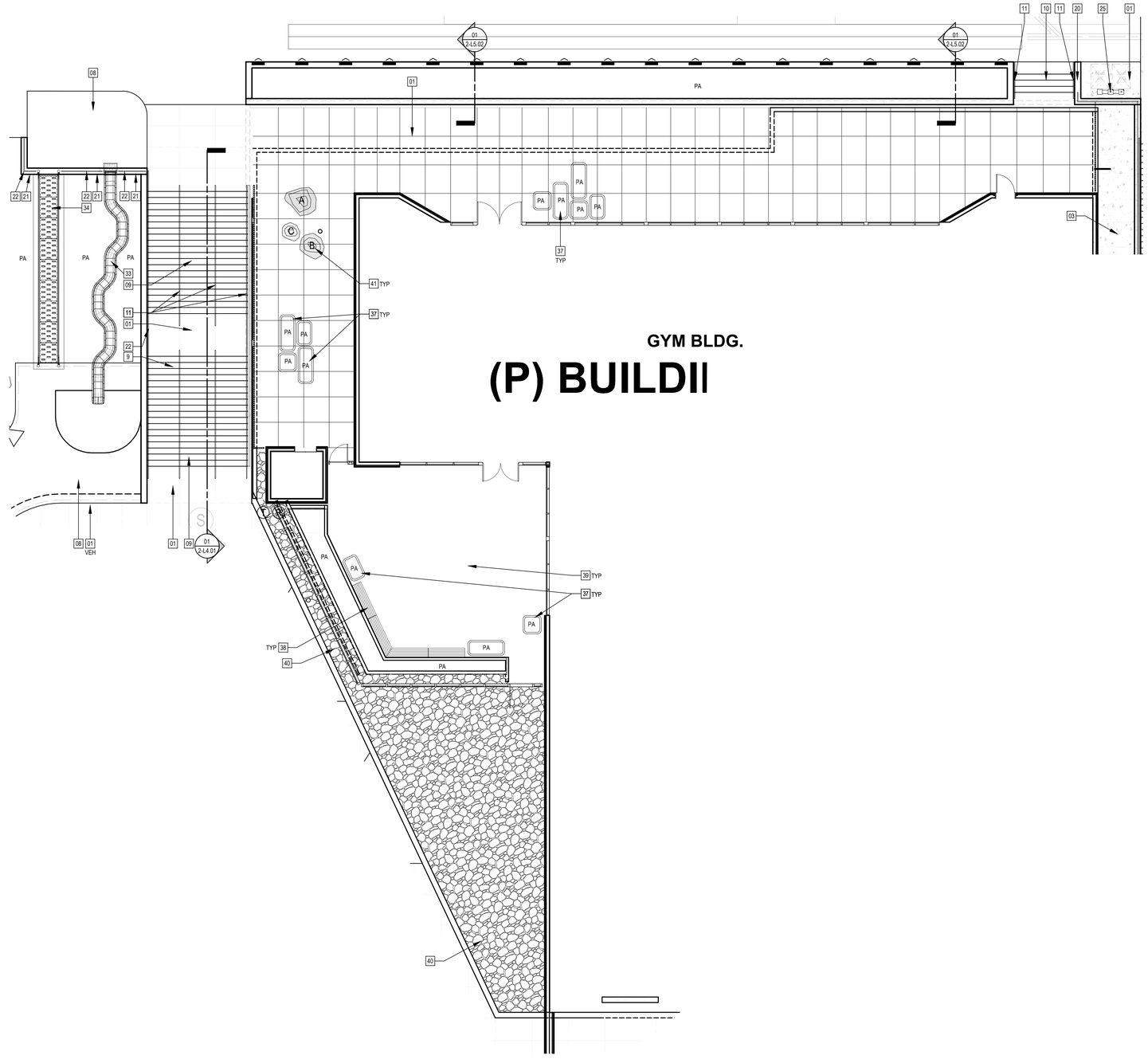
Revision	Date

Submittal	Date
SCHEMATIC DESIGN	09/04/2024
50% DESIGN DEVELOPMENT	12/13/2024
100% DESIGN DEVELOPMENT	03/14/2025
CDP SUBMITTAL	06/16/2025
50% CONSTRUCTION DOCS	06/27/2025
DSA SUBMITTAL	09/09/2025
2ND CDP SUBMITTAL	10/03/2025

Job Number	31722
Checked By	
Scale	1"=20'

MATERIALS PLAN

2-L1.03



MATERIALS KEYNOTE LEGEND

NOTE	DESCRIPTION	DET/ SHT	COLOR / FINISH
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02	CONCRETE RAMP		NATURAL GREY / TOPCAST 05
03	CONCRETE PAVING - TYPE 3	01/ 2-L5.01	NATURAL GREY MEDIUM BROOM
04	ROCK MULCH (ON GRADE)	16/ 2-L5.01	'TOPANGA' BY DECORATIVE STONE SOLUTIONS
05	CONCRETE PAVING - TYPE 5	01/ 2-L5.01	DAVIS COLOR 'MOCHA' / TOP CAST 25
06	CONCRETE FLUSH CURB UNDER SYNTHETIC TURF	09/ 2-L5.01	NATURAL GREY / SMOOTH TROWEL
07	DECORATIVE BOULDERS	24/ 2-L5.01	'TOPANGA' TYPE A,B,C PER DETAIL AVAIL. BY DECORATIVE STONE SOLUTIONS
08	SYNTHETIC TURF SURFACING	08/ 2-L5.01	PER DETAIL
09	CONCRETE STAIRS - TYPE 1	17/ 2-L5.01	NATURAL GREY / TOP CAST 05
10	CONCRETE STAIRS - TYPE 2	17/ 2-L5.01	DAVIS COLOR 'MOCHA' / TOP CAST 05
11	HANDRAIL AT STAIRS	01/ 2-L5.03	STAINLESS STEEL
12	CONCRETE RAMP	01/ 2-L5.01	DAVIS COLOR 'MOCHA' / TOP CAST 25
13	HANDRAIL AT RAMP	07/ 2-L5.03	STAINLESS STEEL
14	CONCRETE RETAINING WALL - TYPE 1	02/ 2-L5.02	NATURAL GREY AS CAST SMOOTH TROWEL
15	CONCRETE FREESTANDING WALL - TYPE 2	20/ 2-L5.02	DAVIS COLOR 'MOCHA' / TOP CAST 03, ETCH
16	CONCRETE RETAINING WALL W/ TOE KICK - TYPE 3	10/ 2-L5.02	DAVIS COLOR 'MOCHA' / TOP CAST 03, ETCH
17	CMU WALL	03/ 2-L5.02	PER DETAIL
18	NOT USED		
19	CONCRETE CHEEK WALL AT STAIRS - TYPE 6	09/ 2-L5.02	NATURAL GREY AS CAST SMOOTH TROWEL
20	CONCRETE CHEEK WALL AT STAIRS - TYPE 7	09/ 2-L5.02	DAVIS COLOR 'MOCHA' / TOP CAST 03, ETCH
21	CONCRETE WALL - TYPE 8	09/ SIM. 2-L5.02	NATURAL GREY / AS CAST SMOOTH TROWEL
22	GUARDRAIL AT WALL	13/ 2-L5.03	STAINLESS STEEL
23	6' HT. CHAIN LINK SERVICE GATE	03/ 2-L5.05	GALVANIZED STEEL
24	6' HT. CHAIN LINK FENCE	04/ 2-L5.05	GALVANIZED STEEL
25	DRINKING FOUNTAIN	17/ 2-L5.06	SEE SITE FURN. LEGEND 2-L0.01 INSTALL PER MANUF.
26	BIKE RACK	PER PLAN	SEE SITE FURN. LEGEND 2-L0.01 INSTALL PER MANUF. RECOM.
27	TABLES / BENCHES	PER PLAN	SEE SITE FURN. LEGEND 2-L0.01 INSTALL PER MANUF.
28	SKATEBOARD STORAGE RACK	PER PLAN	POWDER COATED 8 STORAGE CAP
29	CONVENIENCE POWER PEDESTALS	PER ELEC	CHRG. W/ (1) GFCI AND (1) USB
30	SITE LIGHTING	15, 23/ 2-L5.06	CUSTOM COLOR/ CUSTOM FINISH
31	METAL PANEL DOUBLE GATE - CMU ENCLOSURE	01/ 2-L5.06	CORRUGATED METAL
32	CLIMBING WALL (OVER (N) MDF)	11/ 2-A8.44	CUSTOM COLOR/FINISH BY 'EL DORADO CLIMBING'
33	SLIDE	01, 03/ 2-L5.04	CUSTOM COLOR/FINISH BY COLUMBIA CASCADE
34	BLOCK CLIMBER	19/ 2-L5.04	CUSTOM COLOR/FINISH BY COLUMBIA CASCADE
35	SHADE PAVILION CANOPY	01/ 2-L5.05	CUSTOM COLOR/ CUSTOM FINISH
36	CIP CONCRETE WALLS W/ TOE KICK LIGHTING	- -	CUSTOM COLOR/ CUSTOM FINISH
37	FREESTANDING LIGHTWEIGHT PLANTERS	PER PLAN	MONTARA BY 'TOURNESOL'/ MA-363630 (QTY. 4) MA-483024 (QTY. 3) MA-723024 (QTY. 5)
38	RAISED METAL PLANTERS WITH WOOD SEATING	01, 02/ 2-A8.42	KITSAP MDLR. PLNTR. WALLS W/ RETURN LIP / 30" HT. WITH 'WALLY A' STYLE BENCH BY 'TOURNESOL'
39	COMPOSITE TREX SYSTEM	D1/ 2-A8.12	'TREX TRANSCEND' DECKING CUSTOM CLR./FNSH.
40	DECORATIVE ROCK MULCH (ON STRUCTURE)	20/ 2-L5.01 SIM	'TOPANGA' / 2"-4" IN SIZE AVAIL. BY DECORATIVE STONE SOLUTIONS
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42	BASKETBALL COURT	13/ 2-L5.04	PER DETAIL
43	BASKETBALL POLE AND ASSEMBLY (REUSED)	10/ 2-L5.04	PER DETAIL
44	WALK OFF MAT	13/ 2-L5.01	GRIDLINE G6 STAINLESS STEEL BY 'CS CONST. SPECIALTIES'
45	6' HT. CHAIN LINK DBL. SWING PEDESTRIAN GATE	04/ 2-L5.06	GALVANIZED STEEL
46	BIKE LOCKER	PER PLAN	SEE SITE FURN. LEGEND 2-L0.01 INSTALL PER MANUF. RECOM.

REFERENCE KEYNOTE LEGEND

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N — PLAN NORTH

N — TRUE NORTH

0 4 8 16

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MALIBU MIDDLE SCHOOL
INCREMENT 02

30215 Morning View Dr.
Malibu, CA 90265
APN: 4469-017-900

Developed for
SANTA MONICA - MALIBU UNIFIED SCHOOL DISTRICT

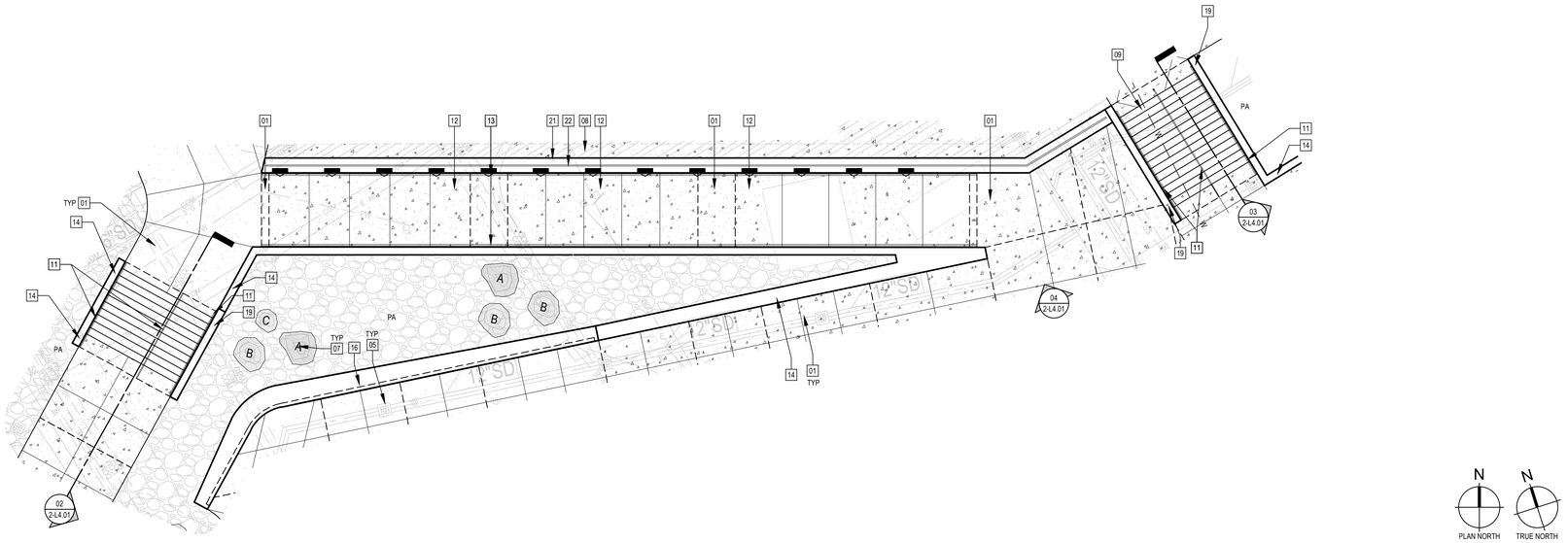
Revision	Date

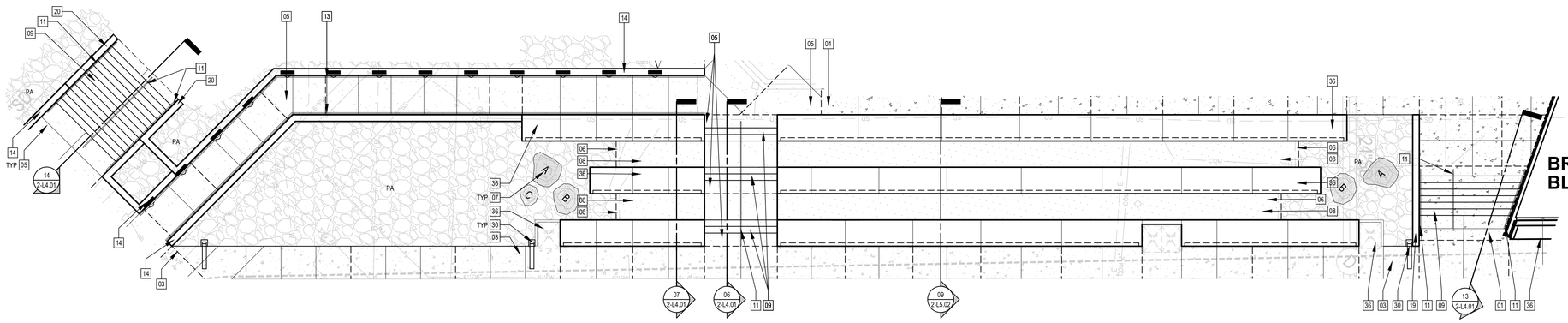
Submittal	Date
SCHEMATIC DESIGN	09/04/2024
50% DESIGN DEVELOPMENT	12/13/2024
90% DESIGN DEVELOPMENT	03/14/2025
CDP SUBMITTAL	06/16/2025
50% CONSTRUCTION DOCS	06/27/2025
DSA SUBMITTAL	09/08/2025
2ND CDP SUBMITTAL	10/03/2025

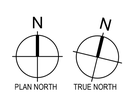
Job Number	31722
Checked By	
Scale	1/8" = 1'

MATERIALS AND LAYOUT ENLARGEMENT PLAN

2-L3.01







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INCREMENT 02

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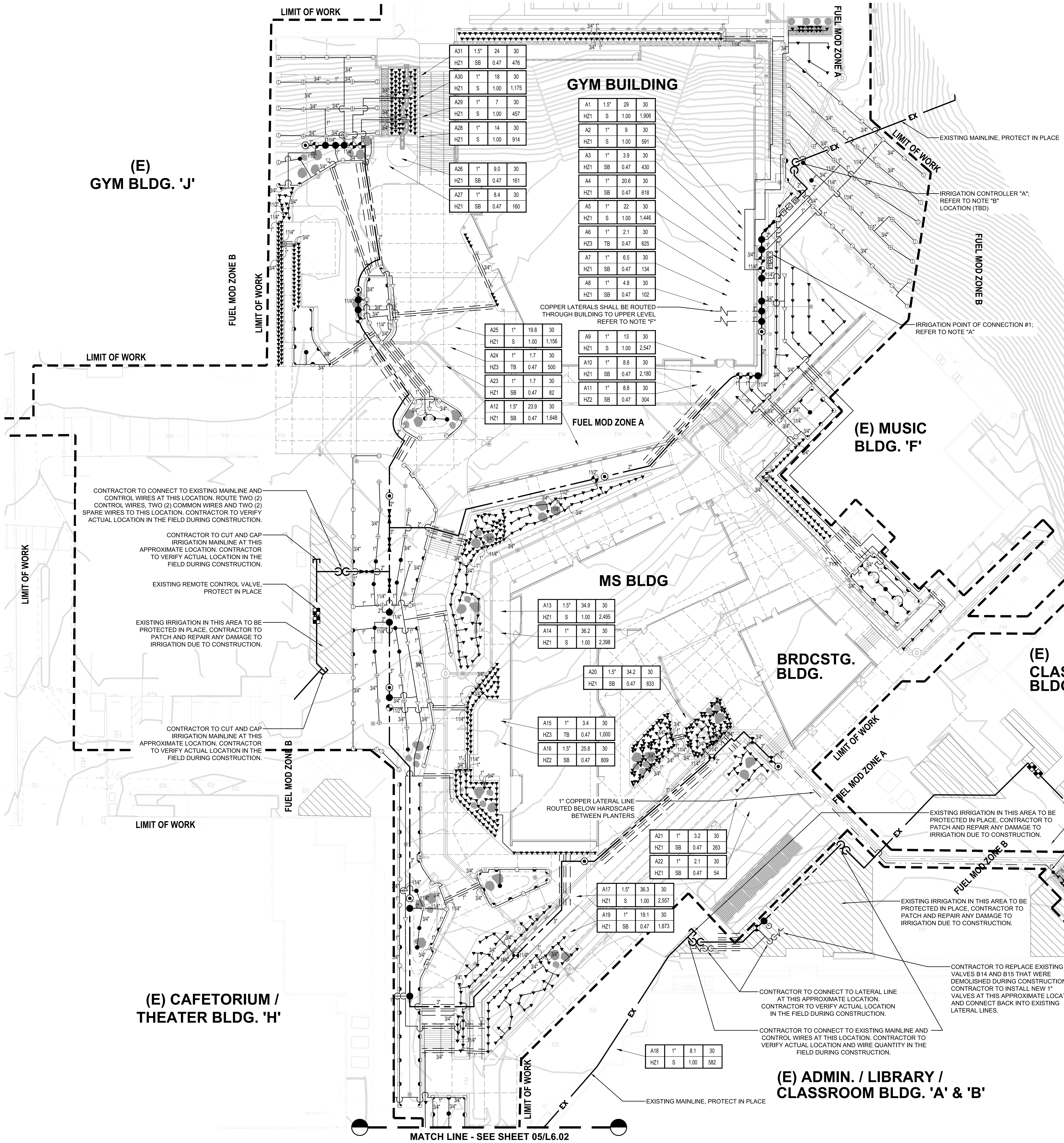
Job Number	31722
Checked By	
Scale	1/8" = 1'

MATERIALS AND LAYOUT ENLARGEMENT PLAN

2-L3.02



EXISTING IRRIGATION NOTES

NOTE 1:
CONTRACTOR SHALL MAINTAIN EXISTING MAINLINES IN WORKING ORDER. COORDINATE ALL INTERRUPTIONS OF OPERATION OF THE EXISTING IRRIGATION TO A MINIMUM. COORDINATE ALL INTERRUPTIONS WITH THE OWNER'S REPRESENTATIVE.

NOTE 2:
CONTRACTOR SHALL BE RESPONSIBLE FOR ALL EXISTING IRRIGATION EQUIPMENT DAMAGED DURING CONSTRUCTION AND IF DAMAGED, SHALL REPLACE WITH SAME MANUFACTURER AND MODEL.

NOTE 3:
ANY EXISTING IRRIGATION CONTROL VALVES CONNECTED TO EXISTING CONTROLLER SHALL BE RECONNECTED TO EXISTING CONTROLLER. CONFIRM PROPER CONTROLLER OPERATION AND INSTALLATION WITH OWNER'S AUTHORIZED REPRESENTATIVE PRIOR TO STARTING WORK AND UPON COMPLETION OF WORK.

NOTE 4:
CONTRACTOR SHALL CONFIRM THE EXISTING CONTROLLER MAKE AND MODEL AND SHALL CONFIRM THAT SAID CONTROLLER HAS ADEQUATE OPEN STATIONS TO OPERATE ANY ADJUSTED AND ALL PROPOSED IRRIGATION SYSTEM MODIFICATIONS. NOTIFY OWNER'S AUTHORIZED REPRESENTATIVE SHOULD ANY DISCREPANCIES BE NOTED.

NOTE 5:
CONTRACTOR SHALL BE RESPONSIBLE FOR REPAIR/MODIFICATION/REROUTING OF ALL ADJACENT IRRIGATION SYSTEM EQUIPMENT THAT IS AFFECTED BY NEW CONSTRUCTION IMPROVEMENTS. CONTRACTOR SHALL REPAIR SAID SYSTEMS TO A LIKE NEW MANNER, PROVIDING NO LESS THAN 100% OF HEAD RADIUS COVERAGE IN ALL AREAS WITH SYSTEM LAYOUT AS APPROVED BY OWNER'S AUTHORIZED REPRESENTATIVE. CONTRACTOR SHALL CONFIRM ALL AREAS REQUIRING MODIFICATION WITH OWNER'S AUTHORIZED REPRESENTATIVE PRIOR TO BIDDING WORK AND PRIOR TO STARTING WORK.

NOTE 6:
CONTRACTOR SHALL BE RESPONSIBLE FOR THE COMPLETE REMOVAL AND DISPOSAL OF ALL EXISTING IRRIGATION EQUIPMENT AFFECTED BY THE NEW CONSTRUCTION IMPROVEMENTS, IF NECESSARY. CONTRACTOR SHALL VERIFY ALL EQUIPMENT TO BE REMOVED AND DISPOSED OF IN FIELD PRIOR TO BIDDING WORK AND PRIOR TO STARTING WORK.

NOTE 7:
CONTRACTOR SHALL FIELD VERIFY DEPTH AND LOCATION OF ALL EXISTING UTILITIES PRIOR TO BIDDING WORK AND AGAIN PRIOR TO STARTING WORK. VERIFICATION SHALL BE DOCUMENTED AND DELIVERED TO OWNER'S REPRESENTATIVE.

NOTE 8:
CONTRACTOR SHALL BE RESPONSIBLE FOR THE PLACEMENT OF ALL SCH 40 PVC SLEEVING UNDER PAVING, WALLS AND CURBS AT NO LESS THAN 24" BELOW GRADE AND NO LESS THAN 2X DIAMETER OF IRRIGATION PIPE IN AREAS WHERE PIPE CROSSING WILL OCCUR. WHEN PIPE SIZE IS NOT AVAILABLE USE 6" SLEEVING MATERIAL. CONFIRM CROSSINGS WITH OWNER'S REPRESENTATIVE PRIOR TO PAVING AND HARDSCAPE CONSTRUCTION.

NOTE 9:
EXISTING IRRIGATION IN THIS AREA SHALL BE PROTECTED IN PLACE FOR CONTINUED USE. CONTRACTOR SHALL VERIFY THE EXTENT OF THE EXISTING SYSTEM AND MAKE ADJUSTMENTS TO CAP OFF OR MODIFY THE EXISTING SYSTEM TO MEET THE NEW LANDSCAPE CONDITION IF NECESSARY.

NOTE 10:
CONTRACTOR SHALL EXERCISE EXTREME CAUTION WHEN WORKING WITHIN THE DRIPLINE OF EXISTING TREES. NO MECHANICAL TRENCHING WITHIN THE DRIPLINE OF THE EXISTING TREE WILL BE ALLOWED. AIR SPADE SHALL BE UTILIZED FOR ALL TRENCHING WITHIN THE DRIPLINE OF TREES. CONTRACTOR SHALL REFER TO ARBORIST REPORT FOR ADDITIONAL PRECAUTIONS REQUIRED FOR THE EXISTING TREES. VERIFY ALL LAYOUT IN FIELD WITH OWNER'S AUTHORIZED REPRESENTATIVE.

PATCH AND REPAIR

NOTE A:
POINT OF CONNECTION (POC) #1 SHALL BE A CONNECTION TO AN EXISTING 4" DOMESTIC IRRIGATION WATER MAINLINE DOWNSTREAM OF AN EXISTING 2" IRRIGATION METER WITH A 2" SERVICE LINE. THE CONTRACTOR SHALL VERIFY THE ACTUAL LOCATION, WATER TYPE, METER SIZE AND WATER PRESSURE IN THE FIELD PRIOR TO STARTING WORK. MEASUREMENT OF THE STATIC (NO WATER MOVING) WATER PRESSURE IS ACCEPTABLE FOR POTABLE WATER SYSTEMS WHERE NO PUMP HAS BEEN INDICATED ON THESE PLANS. WHEN USING RECYCLED WATER, OR ON POTABLE WATER SYSTEMS REQUIRING A PUMP, ONLY THE MEASUREMENT OF DYNAMIC (WATER MOVING THROUGH THE METER) WATER PRESSURE, SHALL BE ACCEPTABLE. THE DYNAMIC WATER PRESSURE SHALL BE MEASURED AT THE MAXIMUM SYSTEM DEMAND AS INDICATED BELOW. IF ANY OF THE POC INFORMATION SHOWN ON THESE DRAWING IS FOUND TO BE DIFFERENT THAN THE ACTUAL POC INFORMATION GATHERED IN THE FIELD, IMMEDIATELY NOTIFY THE LANDSCAPE ARCHITECT AND IRRIGATION CONSULTANT. SHOULD THE CONTRACTOR FAIL TO VERIFY THE POC INFORMATION AS SHOWN HEREIN, ANY CHANGES REQUIRED BY LOW PRESSURE OR VOLUME SHALL BE THE SOLE RESPONSIBILITY OF THE CONTRACTOR.

WATER PRESSURE AT POC:	145	PSI (STATIC)
DESIGN WATER PRESSURE:	77	PSI
MAXIMUM SYSTEM DEMAND:	36	GPM
RESIDUAL WATER PRESSURE:	68	PSI

NOTE B:
CONTROLLER "A" SHALL BE OF THE BRAND, MODEL AND STATION SIZE AS INDICATED ON THE IRRIGATION MATERIALS LEGEND. THE CONTROLLER SHALL BE INSTALLED IN THE APPROXIMATE LOCATION SHOWN. THE CONTRACTOR SHALL COORDINATE THE REQUIRED ELECTRICAL POWER SUPPLY AT THIS LOCATION WITH THE OWNER'S AUTHORIZED REPRESENTATIVE. FINAL LOCATION OF CONTROLLER AND ELECTRICAL POINT OF CONNECTION SHALL BE CONFIRMED WITH OWNER'S AUTHORIZED REPRESENTATIVE PRIOR TO STARTING WORK.

NOTE C:
THESE PLANS ARE DIAGRAMMATIC, THE MAINLINE AND RELATED IRRIGATION EQUIPMENT IS SHOWN WITHIN THE PAVING FOR CLARITY ONLY. THE ACTUAL LOCATION OF MAINLINE AND RELATED IRRIGATION EQUIPMENT SHALL BE WITHIN PLANTER AND A MINIMUM OF 18" OFF ADJACENT HARDSCAPE AND OTHER OBSTACLES, TYPICAL.

NOTE D:
CONTRACTOR SHALL ADJUST ALL HEADS AS REQUIRED TO ACCOMMODATE ANY VERTICAL OBSTRUCTIONS THAT MAY OCCUR IN THE LANDSCAPE, INCLUDING BUT NOT LIMITED TO LIGHT POLES, FIRE HYDRANTS, TREES, ETC. WHEN A SLIGHT RELOCATION OF THE HEAD IS NOT SUFFICIENT TO CLEAR THE OBSTACLE, OR IF IT NEGATIVELY AFFECTS THE COVERAGE, AN ADDITIONAL HEAD SHALL BE INSTALLED TO PLACE ONE HEAD ON EITHER SIDE OF THE OBSTACLE. THE NOZZLES OF THESE TWO HEADS SHALL HAVE ARC PATTERNS THAT ADD UP TO THE ORIGINAL ARC PATTERN OF THE HEAD INDICATED ON THE PLANS. THE CONTRACTOR SHALL VERIFY ALL HEAD LAYOUT WITH OWNER'S AUTHORIZED REPRESENTATIVE PRIOR TO STARTING WORK.

NOTE E:
THESE PLANS ARE DIAGRAMMATIC, TREE BUBBLERS AND LATERAL LINES ARE SHOWN WITHIN THE PAVING FOR CLARITY ONLY, THE ACTUAL LOCATIONS SHALL BE WITHIN THE PLANTER. THE TREE BUBBLERS SHALL BE ALIGNED WITH TREES AS SHOWN ON THE PLANTING PLANS, AND AS DIRECTED BY OWNER'S AUTHORIZED REPRESENTATIVE. THE CONTRACTOR SHALL CONFIRM ALL LAYOUT IN FIELD WITH OWNER'S AUTHORIZED REPRESENTATIVE PRIOR TO STARTING WORK.

NOTE F:
LATERAL LINE PIPING WITHIN BUILDING SHALL BE A TYPE K COPPER AND IS SHOWN FOR CLARITY ONLY, ACTUAL DESIGN AND ROUTING SHALL BE COMPLETED BY PLUMBING ENGINEER AND INSTALLED BY PLUMBING CONTRACTOR. EACH STUB-OUT WITHIN EACH PLANTER SHALL HAVE A COPPER FEMALE ADAPTER FOR THE LANDSCAPE CONTRACTOR CONNECTION. ALL PIPING THROUGH BUILDING TO EXTERIOR AND THROUGH BUILDING TO UPPER FLOOR SHALL BE PROVIDED BY PLUMBER.

NOTE G:
PRIOR TO START OF CONSTRUCTION THE CONTRACTOR SHALL SUBMIT TO THE OWNER AND LANDSCAPE ARCHITECT A SCALED SHOP DRAWING INDICATING THE PROPOSED LOCATIONS FOR THE IRRIGATION EQUIPMENT LISTED BELOW. THE SHOP DRAWING SHALL BE PREPARED TO THE SATISFACTION OF THE OWNER AND LANDSCAPE ARCHITECT. SHOP DRAWINGS MUST INCLUDE THE PROPOSED LOCATIONS FOR THE FOLLOWING ITEMS:

1. POINT OF CONNECTION (INCLUDING WATER POC, BACK FLOW DEVICES, MASTER CONTROL VALVES, FLOW SENSORS, ETC.)
2. ISOLATION VALVES
3. AUTOMATIC CONTROL VALVES (INDICATE STATION NUMBER)
4. QUICK COUPLING VALVES
5. IRRIGATION CONTROLLER(S)
6. RELATED EQUIPMENT (AS MAY BE DIRECTED).

EACH PIECE OF AFOREMENTIONED EQUIPMENT SHALL HAVE IT'S PROPOSED INSTALLED LOCATION SHOWN ON THE SHOP DRAWINGS. THE SYMBOL FOR EACH PRODUCT SHALL BE A SCALED REPRESENTATION OF THE FOOTPRINT OF THE EQUIPMENT OR THE VALVE BOX IN WHICH THE EQUIPMENT IS INSTALLED. CONTRACTOR SHALL INSTALL ALL VALVE BOXES AND RELATED EQUIPMENT PER THE OWNER APPROVED SHOP DRAWINGS. ONCE THE SHOP DRAWING LOCATIONS ARE APPROVED, THE LANDSCAPE ARCHITECT OR OWNER'S AUTHORIZED REPRESENTATIVE WILL ALLOW NO ADJUSTMENTS TO THE APPROVED VALVE BOX PLACEMENT WITHOUT PRIOR WRITTEN ACCEPTANCE. ANY IRRIGATION EQUIPMENT INSTALLED WITHOUT PRIOR APPROVAL WITH SHOP DRAWINGS WILL BE SUBJECT TO RELOCATION BASED ON DIRECTION BY THE LANDSCAPE ARCHITECT AT THE CONTRACTOR'S EXPENSE.

WATER PRESSURE LOSS CALCULATIONS

WATER METER NUMBER	1	WATER METER SIZE (Inches)	1.00
HYDRAULIC GRADE LINE (FT)	110	WATER METER ELEVATION (FT)	110
ELEVATION DIFFERENCE (FT)	0	STATIC PRESSURE (PSI)	145.0
REMOTE CONTROL VALVE #	A1	REMOTE CONTROL VALVE SIZE (In.)	1.00
R.C.V. DEMAND (GPM)	29	TOTAL DEMAND (GPM)	29
HIGHEST HEAD SERVED (FT)	135	STATIC PRESSURE AT HIGHEST HEAD	134.2

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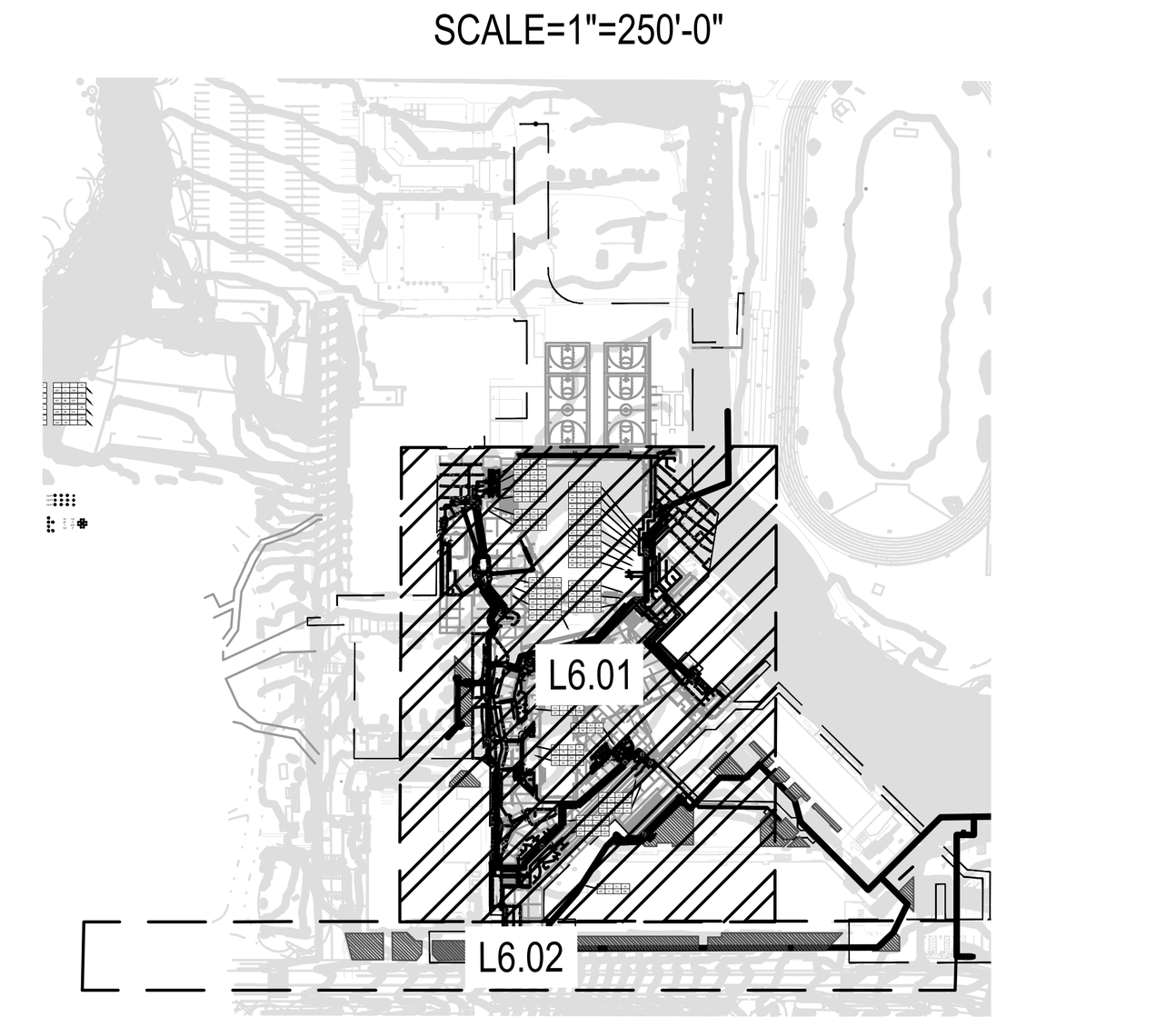
SIZE (Inches)	DESCRIPTION	FLOW	#	LOSS	
2.00	SERVICE LINE (50 FT OF TYPE K COPPER)	29	1	0.50	PSI
2.00	WATER METER (XXXX TYPE)	29	2	3.30	PSI
2.00	BACKFLOW PREVENTER (R/P TYPE)	29	3	12.00	PSI
2.00	FILTRATION (WYE FILTER)	29	4	0.30	PSI
2.00	PRESSURE REGULATOR (WILKINS 500HLR)	29	5	3.50	PSI
2.00	BFD ASSEMBLY PIPING (BRASS W/ 4 ELLS)	29	6	0.60	PSI
1.50	MASTER CONTROL VALVE	29	7	1.53	PSI
1.50	FLOW SENSOR	29	8	1.00	PSI
1.50	ISOLATION VALVES (BALL TYPE)	29	9	1.00	PSI
3.00	450 FEET OF MAINLINE: CL. 315 PVC	29	10	3.74	PSI
3.00	10 - 90 DEGREE ELBOWS	29	13	1.41	PSI
1.50	REMOTE CONTROL VALVE ASSEMBLY	29	14	3.50	PSI
10%	LATERAL LINE LOSSES	29	15	3.00	PSI
20%	FITTING LOSS (IN ADDITION TO ELBOWS SHOWN)	N/A	16	0.75	PSI
25.00	ELEVATION CHANGE (P.O.C. TO HIGHEST HEAD)	N/A	17	10.83	PSI
	TOTAL SYSTEM PRESSURE LOSS (SUM OF #1 THRU #17)		18	46.9	PSI
	PRESSURE REQUIRED AT HEAD (OPERATING PRESSURE)		19	30.0	PSI
	TOTAL PRESSURE REQUIRED (SUM OF #18 AND #19)		20	76.9	PSI
	STATIC WATER PRESSURE (FROM ABOVE)		21	145.0	PSI
	RESIDUAL PRESSURE (SUBTRACT #20 FROM #21)		22	68.1	PSI
	SET PRV OR MCV AT (#20 PLUS 10 PSI)		23	86.9	PSI
	PRESSURE BOOST, IF REQUIRED (SET TO ACHIEVE 20 PSI RESIDUAL)		24	N/A	PSI

KEYMAP

SCALE=1"=250'-0"



I HAVE COMPLIED WITH THE CRITERIA OF THE IRRIGATION GUIDELINES AND APPLIED THEM ACCORDINGLY FOR THE EFFICIENT USE OF WATER IN THE IRRIGATION DESIGN PLAN

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IRRIGATION PLAN | 05

sweeney + associates
IRRIGATION DESIGN AND CONSULTING
38730 Sky Canyon Drive, Suite C
Murrieta, Ca 92563
e: info@sweeneyassoc.com | t: (951) 461-6830
w: www.sweeneyassoc.com | f: (951) 461-6850

LPA
ARCHITECTURE ENGINEERING INTERIOR DESIGN
LANDSCAPE ARCHITECTURE PLANNING
949-261-1001 Office
LPADesignStudios.com
5301 California Avenue, Suite 100
Irvine, California 92617

LICENSED LANDSCAPE ARCHITECT ANH-THY TOBIN No. 4512 SIGNATURE 9/18/2025 DATE 3/31/2027 RENEWAL DATE STATE OF CALIFORNIA

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MALIBU MIDDLE SCHOOL
INCREMENT 02

30215 Morning View Dr.
Malibu, CA 90265
APN: 4469-017-900

Developed for
SANTA MONICA - MALIBU UNIFIED SCHOOL DISTRICT

Revision	Date

Submittal	Date
SCHEMATIC DESIGN	09/04/2024
50% DESIGN DEVELOPMENT	12/13/2024
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CDP SUBMITTAL	06/16/2025
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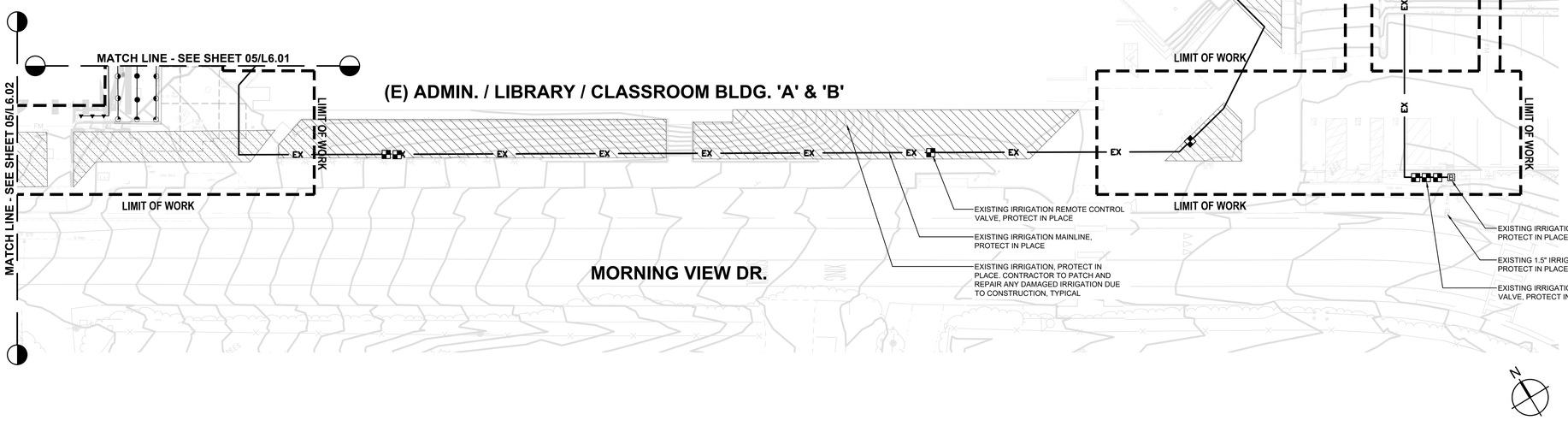
2ND CDP SUBMITTAL	10/03/2025
3RD CDP SUBMITTAL	10/30/2025

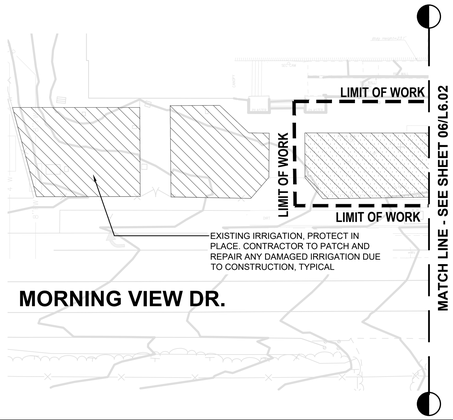
Job Number	31722
Checked By	
Scale	1" = 20'

IRRIGATION PLAN

2-L6.01



IRRIGATION PLAN | 06



IRRIGATION PLAN | 05

EXISTING IRRIGATION NOTES

NOTE 1:
CONTRACTOR SHALL MAINTAIN EXISTING MAINLINES IN WORKING ORDER. COORDINATE ALL INTERRUPTIONS OF OPERATION OF THE EXISTING IRRIGATION TO A MINIMUM. COORDINATE ALL INTERRUPTIONS WITH THE OWNER'S REPRESENTATIVE.

NOTE 2:
CONTRACTOR SHALL BE RESPONSIBLE FOR ALL EXISTING IRRIGATION EQUIPMENT DAMAGED DURING CONSTRUCTION AND IF DAMAGED, SHALL REPLACE WITH SAME MANUFACTURER AND MODEL.

NOTE 3:
ANY EXISTING IRRIGATION CONTROL VALVES CONNECTED TO EXISTING CONTROLLER SHALL BE RECONNECTED TO EXISTING CONTROLLER. CONFIRM PROPER CONTROLLER OPERATION AND INSTALLATION WITH OWNER'S AUTHORIZED REPRESENTATIVE PRIOR TO STARTING WORK AND UPON COMPLETION OF WORK.

NOTE 4:
CONTRACTOR SHALL BE RESPONSIBLE FOR REPAIR/MODIFICATION/REROUTING OF ALL IRRIGATION SYSTEM EQUIPMENT THAT IS AFFECTED BY NEW CONSTRUCTION IMPROVEMENTS. CONTRACTOR SHALL REPAIR SAID SYSTEMS TO A LIKE NEW MANNER, PROVIDING NO LESS THAN 100% OF HEAD RADIUS COVERAGE IN ALL AREAS WITH SYSTEM LAYOUT AS APPROVED BY OWNER'S AUTHORIZED REPRESENTATIVE. CONTRACTOR SHALL CONFIRM ALL AREAS REQUIRING MODIFICATION WITH OWNER'S AUTHORIZED REPRESENTATIVE PRIOR TO BIDDING WORK AND PRIOR TO STARTING WORK.

NOTE 5:
CONTRACTOR SHALL FIELD VERIFY DEPTH AND LOCATION OF ALL EXISTING UTILITIES PRIOR TO BIDDING WORK AND AGAIN PRIOR TO STARTING WORK. VERIFICATION SHALL BE DOCUMENTED AND DELIVERED TO OWNER'S REPRESENTATIVE.

NOTE 6:
CONTRACTOR SHALL BE RESPONSIBLE FOR THE PLACEMENT OF ALL SCH 40 PVC SLEEVING UNDER PAVING, WALLS AND CURBS AT NO LESS THAN 24" BELOW GRADE AND NO LESS THAN 2X DIAMETER OF IRRIGATION PIPE IN AREAS WHERE PIPE CROSSING WILL OCCUR. WHEN PIPE SIZE IS NOT AVAILABLE USE 6" SLEEVING MATERIAL. CONFIRM CROSSINGS WITH OWNER'S REPRESENTATIVE PRIOR TO PAVING AND HARDSCAPE CONSTRUCTION.

NOTE 7:
EXISTING IRRIGATION IN THIS AREA SHALL BE PROTECTED IN PLACE FOR CONTINUED USE. CONTRACTOR SHALL VERIFY THE EXTENT OF THE EXISTING SYSTEM AND MAKE ADJUSTMENTS TO CAP OFF OR MODIFY THE EXISTING SYSTEM TO MEET THE NEW LANDSCAPE CONDITION IF NECESSARY.

NOTE 8:
CONTRACTOR SHALL EXERCISE EXTREME CAUTION WHEN WORKING WITHIN THE DRIPLINE OF EXISTING TREES. NO MECHANICAL TRENCHING WITHIN THE DRIPLINE OF THE EXISTING TREE WILL BE ALLOWED. AIR SPADE SHALL BE UTILIZED FOR ALL TRENCHING WITHIN THE DRIPLINE OF TREES. CONTRACTOR SHALL REFER TO ARBORIST REPORT FOR ADDITIONAL PRECAUTIONS REQUIRED FOR THE EXISTING TREES. VERIFY ALL LAYOUT IN FIELD WITH OWNER'S AUTHORIZED REPRESENTATIVE.

PATCH AND REPAIR

KEYMAP

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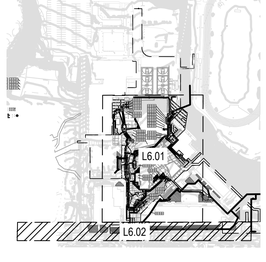

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sweeney + associates
IRRIGATION DESIGN AND CONSULTING
38730 Sky Canyon Drive, Suite C
Murrieta, Ca 92563
e: info@sweeneyassoc.com | t: (951) 461-6830
w: www.sweeneyassoc.com | t: (951) 461-6850

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ARCHITECTURE ENGINEERING INTERIOR DESIGN
LANDSCAPE ARCHITECTURE PLANNING
949-261-1001 Office
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5301 California Avenue, Suite 100
Irvine, California 92617

LICENSED LANDSCAPE ARCHITECT
ANDREW JOY TOBIN
No. 6363
STATE OF CALIFORNIA

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MALIBU MIDDLE SCHOOL
INCREMENT 02

30215 Morning View Dr.
Malibu, CA 90265
APN: 4469-017-900

Developed for
SANTA MONICA - MALIBU UNIFIED SCHOOL DISTRICT

Revision	Date

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2ND CDP SUBMITTAL	10/03/2025

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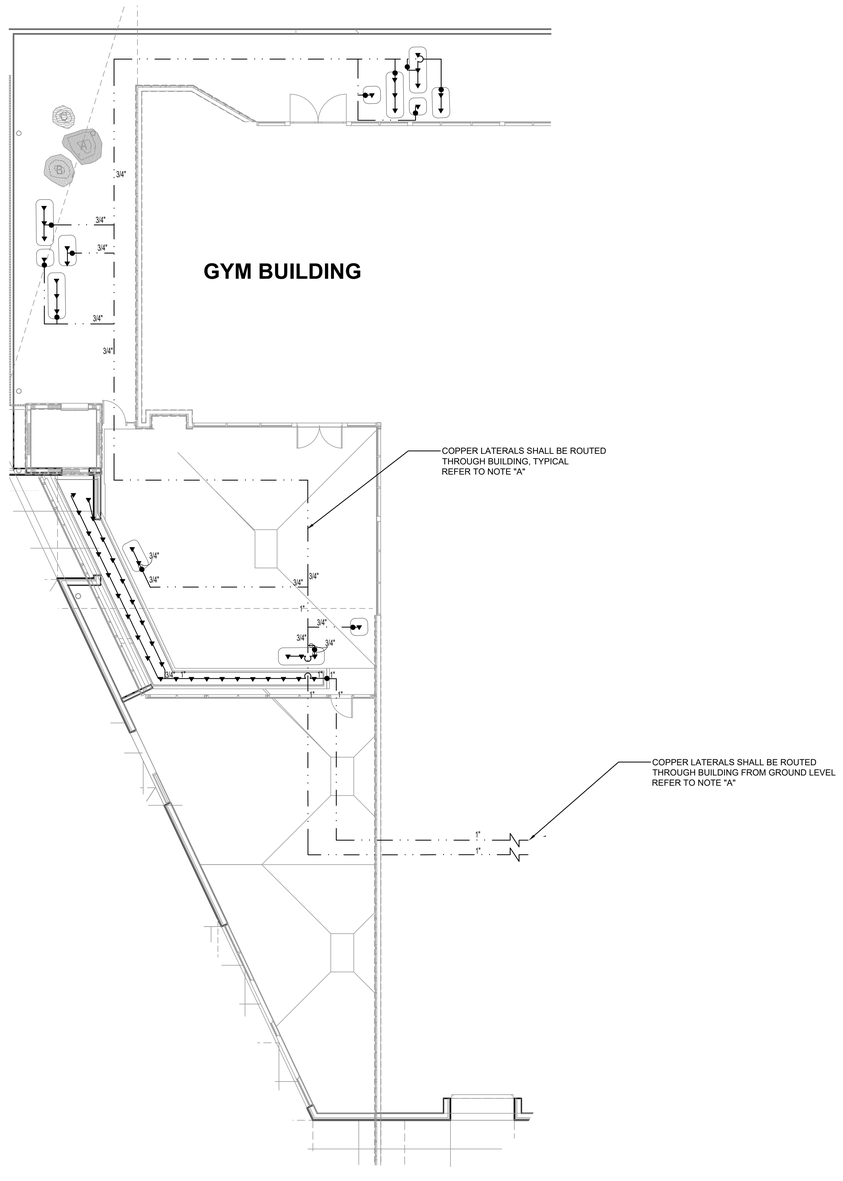
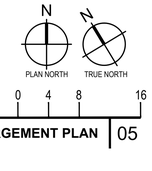
Checked By	
Scale	1" = 20'

IRRIGATION PLAN

2-L6.02

NOTE A:
LATERAL LINE PIPING WITHIN BUILDING SHALL BE A TYPE K COPPER AND IS SHOWN FOR CLARITY ONLY. ACTUAL DESIGN AND ROUTING SHALL BE COMPLETED BY PLUMBING ENGINEER AND INSTALLED BY PLUMBING CONTRACTOR. EACH STUB-OUT WITHIN EACH PLANTER SHALL HAVE A COPPER FEMALE ADAPTER FOR THE LANDSCAPE CONTRACTOR CONNECTION. ALL PIPING THROUGH BUILDING TO EXTERIOR AND THROUGH BUILDING TO UPPER FLOOR SHALL BE PROVIDED BY PLUMBER.





I HAVE COMPLIED WITH THE CRITERIA OF THE IRRIGATION GUIDELINES AND APPLIED THEM ACCORDINGLY FOR THE EFFICIENT USE OF WATER IN THE IRRIGATION DESIGN PLAN

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sweeney + associates
IRRIGATION DESIGN AND CONSULTING
38730 Sky Canyon Drive, Suite C
Murrieta, Ca 92563
e: info@sweeneyassoc.com t: (951) 461-6830
w: www.sweeneyassoc.com f: (951) 461-6850

IRRIGATION PLAN ENLARGEMENT PLAN | 05

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ARCHITECTURE ENGINEERING INTERIOR DESIGN
LANDSCAPE ARCHITECTURE PLANNING

949-261-1001 Office

LPADesignStudios.com

5301 California Avenue, Suite 100
Irvine, California 92617

LICENSED LANDSCAPE ARCHITECT
ANTHONY TOBIN NO. 4503
STATE OF CALIFORNIA

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Job Number	31722
Checked By	
Scale	1/8" = 1'

IRRIGATION ENLARGEMENT PLAN

2-L6.03

WATER AUDIT AND MAINTENANCE SCHEDULE

THE CONTRACTOR WILL CONDUCT AN IRRIGATION AUDIT USING A CERTIFIED IRRIGATION AUDITOR, AFTER THE FINAL FIELD OBSERVATION HAS BEEN COMPLETED AND ALL IRRIGATION COMPONENTS ARE INSTALLED IN ACCORDANCE WITH THE PLANS AND SPECIFICATIONS AND THE IRRIGATION SYSTEM IS ACCEPTED BY THE PROJECT ARCHITECT FOR MAINTENANCE.

THE IRRIGATION AUDIT WILL BE CONDUCTED IN ACCORDANCE WITH THE FOLLOWING SCHEDULE:

1. PLACE FLAGS AT EACH HEAD IN THE ZONE
2. MEASURE SPACING AND MARK MID POINTS BETWEEN HEADS.
3. PLACE WATER MEASURING RECEPTACLES.
4. TAKE READINGS OF WATER LEVEL IN RECEPTACLES AND RECORD RESULTS.
5. MEASURE HEAD PRESSURE IN EACH ZONE AND RECORD RESULTS.
6. AFTER COMPLETING ZONE ADVANCE TO NEXT ZONE AND REPEAT PROCEDURE.
7. SUBMIT THE RESULTS OF THE AUDIT TO THE PROJECT ARCHITECT.

THE IRRIGATION MAINTENANCE SCHEDULE TASKS LISTED BELOW ARE INTENDED AS MINIMUM STANDARDS AND MORE FREQUENT ATTENTION MAY BE REQUIRED DEPENDING ON THE PARTICULAR SITE CONDITIONS.

MAINTENANCE TASK

1. CONTROLLER CABINET - OPEN CABINET AND CLEAN OUT DEBRIS AND REPLACE BATTERY AS NECESSARY. CHECK WIRING AND REPAIR AS NEEDED AND CHECK CLOCK AND RESET IF NECESSARY.
FREQUENCY: QUARTERLY

2. IRRIGATION SCHEDULE - ADJUST SCHEDULE FOR SEASONAL VARIATIONS AND OTHER CONDITIONS WHICH MAY AFFECT THE AMOUNT OF WATER NEEDED TO MAINTAIN PLANT HEALTH ADJUST AS NECESSARY.
FREQUENCY: MONTHLY

3. POC - VISUALLY INSPECT COMPONENTS FOR LEAKS, PRESSURE SETTINGS, SETTLEMENT OR OTHER DAMAGE AFFECTING THE OPERATION OF A COMPONENT. REPAIR AS NEEDED.
FREQUENCY: QUARTERLY

4. REMOTE CONTROL VALVES, ISOLATION VALVES AND QUICK COUPLER VALVES - VISUALLY INSPECT FOR LEAKS, SETTLEMENT, WIRE CONNECTIONS AND PRESSURE SETTINGS. REPAIR OR ADJUST AS NEEDED.
FREQUENCY: QUARTERLY

5. MAINLINE & LATERALS - VISUALLY INSPECT FOR LEAKS OR SETTLEMENT OF TRENCH.
FREQUENCY: QUARTERLY

6. SPRINKLERS - VISUALLY CHECK FOR ANY BROKEN MISALIGNED OR CLOGGED HEADS. HEADS WITH INCORRECT ARC, INADEQUATE COVERAGE OR OVERSPRAY AND LOW HEAD DRAINAGE. REPAIR AS NEEDED.
FREQUENCY: WEEKLY

7. FILTERS AND STRAINERS - VISUALLY CHECK FOR LEAKS, BROKEN FITTING, CLEAN AND FLUSH SCREENS.

AUDIT SHALL BE IN ACCORDANCE WITH THE LATEST STATE OF CALIFORNIA LANDSCAPE WATER MANAGEMENT PROGRAM AS DESCRIBED IN THE LATEST LANDSCAPE IRRIGATION AUDITOR HANDBOOK. THE LANDSCAPE IRRIGATION AUDITS TO BE CONDUCTED BY A QUALIFIED INDIVIDUAL AND THE AUDIT SCHEDULE SHALL BE CONDUCTED AT LEAST ONCE EVERY FIVE YEARS IN ACCORDANCE WITH THE REQUIREMENTS OF TITLE 20, DIVISION 1 OF THE LOS ANGELES COUNTY CODE.

MAINTENANCE SCHEDULES. A REGULAR MAINTENANCE SCHEDULE SATISFYING THE FOLLOWING CONDITIONS SHALL BE SUBMITTED AS PART OF THE LANDSCAPE DOCUMENTATION PACKAGE.

LANDSCAPE SHALL BE MAINTAINED TO ENSURE WATER EFFICIENCY. A REGULAR MAINTENANCE SCHEDULE SHALL INCLUDE, BUT NOT BE LIMITED TO, CHECKING, ADJUSTING, AND REPAIRING IRRIGATION EQUIPMENT, RESETTING THE AUTOMATIC CONTROLLER, AERATING AND DETHATCHING TURF AREAS, REPLENISHING MULCH, FERTILIZING, PRUNING, AND WEEDING IN ALL LANDSCAPE AREAS.

WHENEVER POSSIBLE, REPAIR OF IRRIGATION EQUIPMENT SHALL BE DONE WITH THE ORIGINALLY SPECIFIED MATERIALS OR THEIR EQUIVALENTS.

A LANDSCAPE IRRIGATION AUDIT SCHEDULE AS REQUIRED IN CHAPTER 20.09 OF TITLE 20 MAY BE RECOMMENDED. THE MAXIMUM PERIOD BETWEEN AUDITS SHALL BE FIVE YEARS.

LANDSCAPE IRRIGATION AUDIT SCHEDULES. A SCHEDULE OF LANDSCAPE IRRIGATION AUDITS OF AT LEAST EVERY FIVE YEARS MUST BE ESTABLISHED, FOR ALL BUT SINGLE-FAMILY RESIDENCES, AND OTHER PROJECTS WITH LANDSCAPE AREA LESS THAN 1 ACRE (0.405 HA). AS REQUIRED IN CHAPTER 20.09 OF TITLE 20 (UTILITY CODES), AN AUDIT SATISFYING THE FOLLOWING CONDITIONS SHALL BE SUBMITTED TO THE COUNTY AS PART OF THE LANDSCAPE DOCUMENTATION PACKAGE.

AT A MINIMUM, AUDITS SHALL BE IN ACCORDANCE WITH THE LATEST STATE OF CALIFORNIA LANDSCAPE WATER MANAGEMENT PROGRAM AS DESCRIBED IN THE LANDSCAPE IRRIGATION AUDITOR HANDBOOK, PREPARED FOR THE CALIFORNIA DEPARTMENT OF WATER RESOURCES, WATER CONSERVATION OFFICE, THE ENTIRE DOCUMENT, WHICH IS HEREBY INCORPORATED BY REFERENCE.

THE SCHEDULE SHALL PROVIDE FOR LANDSCAPE IRRIGATION AUDITS TO BE CONDUCTED BY A QUALIFIED INDIVIDUAL AS DETERMINED BY THE DIRECTOR AT LEAST ONCE EVERY FIVE YEARS IN ACCORDANCE WITH THE REQUIREMENTS OF TITLE 20, DIVISION 1 OF THE LOS ANGELES COUNTY CODE.

CONTRACTOR TO PROTECT AND PRESERVE IN PLACE ALL EXISTING SURVEY MONUMENTS. ANY MONUMENTS DISTURBED SHALL BE RESET BY A LICENSED LAND SURVEYOR AND THE APPROPRIATE CORNER RECORD MUST BE FILED WITH THE COUNTY OF LOS ANGELES.

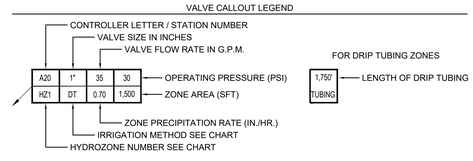
IRRIGATION NOTES

1. ALL LOCAL MUNICIPAL AND STATE LAWS, RULES AND REGULATIONS GOVERNING OR RELATING TO ANY PORTION OF THIS WORK ARE HEREBY INCORPORATED INTO AND MADE A PART OF THESE SPECIFICATIONS AND THEIR PROVISIONS SHALL BE CARRIED OUT BY THE CONTRACTOR.
2. THE CONTRACTOR SHALL VERIFY THE LOCATIONS OF ALL EXISTING UTILITIES, STRUCTURES AND SERVICES BEFORE COMMENCING WORK. THE LOCATIONS OF UTILITIES, STRUCTURES AND SERVICES SHOWN IN THESE PLANS ARE APPROXIMATE ONLY. ANY DISCREPANCIES BETWEEN THESE PLANS AND ACTUAL FIELD CONDITIONS SHALL BE REPORTED TO THE OWNER'S REPRESENTATIVE.
3. THE CONTRACTOR SHALL OBTAIN THE PERTINENT ENGINEERING OR ARCHITECTURAL PLANS BEFORE BEGINNING WORK.
4. THE CONTRACTOR SHALL OBTAIN ALL NECESSARY PERMITS REQUIRED TO PERFORM THE WORK INDICATED HEREIN BEFORE BEGINNING WORK.
5. THIS DESIGN IS DIAGRAMMATIC. ALL EQUIPMENT SHOWN IN PAVED AREAS IS FOR DESIGN CLARITY ONLY AND IS TO BE INSTALLED WITHIN PLANTING AREAS.
6. THE CONTRACTOR SHALL NOT WILLFULLY INSTALL ANY EQUIPMENT AS SHOWN ON THE PLANS WHEN IT IS OBVIOUS IN THE FIELD THAT UNKNOWN CONDITIONS EXIST THAT WERE NOT EVIDENT AT THE TIME THESE PLANS WERE PREPARED. ANY SUCH CONDITIONS SHALL BE BROUGHT TO THE ATTENTION OF THE OWNER'S REPRESENTATIVE PRIOR TO ANY WORK OR THE IRRIGATION CONTRACTOR SHALL ASSUME ALL RESPONSIBILITY FOR ANY FIELD CHANGES DEEMED NECESSARY BY THE OWNER.
7. INSTALL ALL EQUIPMENT AS SHOWN IN THE DETAILS AND SPECIFICATIONS. CONTRACTOR SHALL BE RESPONSIBLE TO COMPLY WITH LOCAL CITY, COUNTY AND STATE REQUIREMENTS FOR BOTH EQUIPMENT AND INSTALLATION.
8. ACTUAL LOCATION FOR THE INSTALLATION OF THE BACKFLOW PREVENTER AND THE AUTOMATIC CONTROLLER IS TO BE DETERMINED IN THE FIELD BY THE OWNER'S AUTHORIZED REPRESENTATIVE.
9. CONTRACTOR IS TO PROVIDE AN ADDITIONAL PILOT WIRE FROM CONTROLLER ALONG ENTIRETY OF MAIN LINE TO THE LAST RCV ON EACH AND EVERY LEG OF MAIN LINE. LABEL SPARE WIRES AT BOTH ENDS.
10. ALL PIPE UNDER PAVED AREAS TO BE INSTALLED IN SLEEVING TWICE THE DIAMETER OF THE PIPE CARRIED. SEE LEGEND FOR TYPE. ALL WIRE UNDER PAVED AREAS TO BE INSTALLED IN A SCH. 40 SLEEVE THE SIZE REQUIRED TO EASILY PULL WIRE THROUGH. ALL SLEEVES TO BE INSTALLED WITH A MINIMUM DEPTH AS SHOWN ON THE SLEEVING DETAILS. SLEEVES TO EXTEND AT LEAST 12" PAST THE EDGE OF THE PAVING.
11. ALL QUICK COUPLER AND REMOTE CONTROL VALVES TO BE INSTALLED IN SHRUB OR GROUND COVER AREAS WHERE POSSIBLE. ALL QUICK COUPLER AND REMOTE CONTROL VALVES TO BE INSTALLED AS SHOWN ON THE INSTALLATION DETAILS. INSTALL ALL QUICK COUPLER AND REMOTE CONTROL VALVES WITHIN 18" OF HARDSCAPE.
12. ALL HEADS ARE TO BE INSTALLED WITH THE NOZZLE, SCREEN AND ARCS SHOWN ON THE PLANS. ALL HEADS ARE TO BE ADJUSTED TO PREVENT OVERSPRAY ONTO BUILDINGS, WALLS, FENCES AND HARDSCAPE. THIS INCLUDES, BUT NOT LIMITED TO, ADJUSTMENT OF DIFFUSER PIN OR ADJUSTMENT SCREW, REPLACEMENT OF PRESSURE COMPENSATING SCREENS, REPLACEMENT OF NOZZLES WITH MORE APPROPRIATE RADIUS UNITS AND THE REPLACEMENT OF NOZZLES WITH ADJUSTABLE ARC UNITS.
13. CONTRACTOR SHALL INSTALL ADDITIONAL CHECK VALVES TO HEADS AND LATERALS AS REQUIRED TO PREVENT LOW HEAD DRAINAGE.
14. THE CONTRACTOR SHALL USE PROPER GROUNDING TECHNIQUES FOR GROUNDING THE CONTROLLER AND RELATED EQUIPMENT PER MANUFACTURERS SPECIFICATIONS. SWEENEY AND ASSOCIATES RECOMMENDS MEASURING FOR PROPER GROUND AT LEAST ONCE ANNUALLY, AND NECESSARY ADJUSTMENTS MADE TO COMPLY WITH MANUFACTURER SPECIFICATIONS.

IRRIGATION MATERIAL LEGEND

SYMBOL Q	T	H	F	MANUFACTURER	MODEL NO. / DESCRIPTION	FLOW RATE (GPM)	PSI	RADIUS	P.R. (TRI.)	DETAIL
				TORO	570Z-12P-PRX-COM 12" POP-UP SHRUB HEAD WITH 10Q/10T/10H/10F "O" NOZZLES	.23, .34, .51, 1.03	30	10 FT	1.00 IN./HR.	A
				TORO	570Z-12P-PRX-COM 12" POP-UP SHRUB HEAD WITH 12Q/12T/12H/12F "O" NOZZLES	.37, .49, .74, 1.48	30	12 FT	1.00 IN./HR.	A
				TORO	570Z-12P-PRX-COM 12" POP-UP SHRUB HEAD WITH 15Q/15T/15H/15F "O" NOZZLES	.58, .77, 1.16, 2.31	30	15 FT	1.00 IN./HR.	A
▼				TORO	570Z-6P-PRX-COM 6" POP-UP BUBBLER HEAD WITH A SB-90-PC2 STREAM NOZZLE . EACH SYMBOL REPRESENTS ONE BUBBLER PER SHRUB. SHRUBS SPACED AT 24" O.C TYPICAL.	.21	30	1.5 FT	0.47 IN./HR. (F)	A
▽				TORO	570Z-6P-PRX-COM 6" POP-UP BUBBLER HEAD WITH A 2B-90-PC2 STREAM BUBBLER NOZZLE. EACH SYMBOL REPRESENTS TWO (2) BUBBLERS PER TREE OR PALM. PLACE BUBBLERS AT EDGE OF ROOT BALL ON OPPOSITE SIDES OF TREE OR PALM, TYPICAL. ADJUST BUBBLER STREAMS TO WET THE ROOT BALL AND AMENDED SOIL WITHOUT HITTING THE TRUNK OF THE TREE OR PALM.	.21 (.42 TOTAL)	30	1.5 FT	0.47 IN./HR. (F)	A,B
	B			WILKINS	975XLS, 2" R/P BACK FLOW PREVENTION DEVICE WITH WYE STRAINER, INSTALL WITH BRASS NIPPLES, UNIONS AND FITTINGS, SIZED PER DEVICE					C
NO SYMBOL				WILKINS	500XL-HLR 2" BRONZE, HIGH LOW RANGE (10-125 PSI) PRESSURE REGULATOR, WITH SINGLE UNION FIPT X FIPT CONNECTIONS, INSTALL PRESSURE REGULATOR ON THE DOWNSTREAM SIDE OF THE BACK FLOW DEVICE. SET WATER PRESSURE TO 10 PSI ABOVE DESIGN PRESSURE SHOWN ON POC NOTES.					C
NO SYMBOL				V.I.T.	STRONG BOX SBBC-45SS "SMOOTH TOUCH" STAINLESS STEEL BACK FLOW DEVICE ENCLOSURE					C
	V			BUCKNER	3300-150 1 1/2" NORMALLY OPEN, BRASS MASTER CONTROL VALVE. WIRE MCV TO THE CONTROLLER USING A SEPARATE PILOT AND GROUND WIRE, ROUTE INSIDE CONDUIT WITH FLOW SENSOR WIRE. INSTALL INSIDE A STANDARD RECTANGULAR VALVE BOX.					D
	F			CALSENSE	FM-1.5B, 1 1/2" BRASS FLOW SENSOR, WIRE TO CONTROLLER USING TWO (2) #14UF AWG WIRES INSIDE A 1" CONDUIT, INSTALL PER MANUFACTURER'S RECOMMENDATIONS.					E
				WATTS	FBC-3C BRONZE BALL VALVE, SIZE TO MATCH MAINLINE SIZE					F
				RAIN BIRD	HQ-44RC, 1" QUICK COUPLER VALVE, INSTALL WITHIN 10" ROUND VALVE BOX , INSTALL WATTS 11/2" FBC-3C BALL VALVE UPSTREAM OF QCV					G
				SUPERIOR	950 SERIES BRASS REMOTE CONTROL VALVE, SIZE AS SHOWN (1" AND 1 1/2" SIZES). INSTALL A WATTS FBC-3C, FULL PORT BRONZE BALL VALVE ON THE UPSTREAM SIDE OF EACH RCV, SIZE PER RCV SIZE.					H
				SUPERIOR	SUPERIOR 950I SERIES, SIZE AS SHOWN (1" AND 1 1/2" SIZES). INSTALL A DISC FILTER AND AN INLINE PRESSURE REGULATOR ON THE DOWNSTREAM SIDE OF EACH DRIP REMOTE CONTROL VALVE (DRCV). FOR 1" DRCV'S INSTALL A RAIN BIRD LCRBY-100D DISC FILTER AND A SENNINGER 1" PMR-40-MF PRESSURE REGULATOR. FOR 1 1/2" DRCV'S INSTALL A RAIN BIRD LCRBY-150D DISC FILTER AND A SENNINGER 1 1/4" PMR-40-HF PRESSURE REGULATOR. USE A 1 1/2" SCH. 40 PVC THREADED COUPLING, A 1 1/2" X 1 1/4" PVC THREADED REDUCER BUSHING, AND A 1 1/4" X 2" SCH. 80 PVC NIPPLE AS REQUIRED TO CONNECT THE 1 1/4" REGULATOR TO THE DOWNSTREAM SIDE OF THE 1 1/2" FILTER. INSTALL THE DRCV ASSEMBLY INSIDE A JUMBO RECTANGULAR VALVE BOX. INSTALL A WATTS FBC-3C, FULL PORT BRONZE BALL VALVE ON THE UPSTREAM SIDE OF EACH RCV, SIZE PER RCV SIZE.					H,I
				EXISTING	EXISTING REMOTE CONTROL VALVE, PROTECT IN PLACE UNLESS OTHERWISE NOTED					A
	C			I.T.S. CALSENSE	IMPERIAL TECHNICAL SERVICES CALSENSE CONTROLLER ASSEMBLY, CONTROLLER 'C' MOD.# ICA1-CS3-48/CSTP110/CS3EN/CS3POC/FM15B/3300-150 COORDINATE CAT 5 OR 6 CABLE WITH A RJ-45 JACK IN CONDUIT BETWEEN THE CONTROLLER AND THE NEAREST ROUTER. RUN NOT TO EXCEED 328' INCLUDING BENDS AND TWISTS. CONTACT DARYL GREEN @ 949.584.7311 AT IMPERIAL TECHNICAL SERVICES					J
NO SYMBOL				PAIGE ELECTRIC	THE CONTROLLER SHALL BE GROUNDED USING A #182000 5/8" X 8 FOOT COPPER CLAD GROUND ROD, A #182005 CAST BRONZE ROD CLAMP AND THE REQUIRED LENGTH OF #6AWG BARE, SINGLE STRAND COPPER GROUND WIRE.					K
	E			N/A	120 VOLT ELECTRICAL POWER FOR CONTROLLER, PROVIDED BY ELECTRICIAN, VERIFY ACTUAL LOCATION IN FIELD					N/A
				AS APPROVED	PVC PIPE 3/4" - 1 1/2" SCH. 40, SOLVENT WELD WITH SCH. 40 PVC FITTINGS, AS LATERAL LINES INSTALLED 12" BELOW FINISHED GRADE					L
				AS APPROVED	PVC PIPE 2" - 3" CL. 315, SOLVENT WELD WITH SCH. 80 PVC FITTINGS, AS MAINLINES. 2" MAINLINES INSTALLED 18" BELOW FINISHED GRADE, 3" MAINLINES INSTALLED 24" BELOW FINISHED GRADE.					L,N
		EX		EXISTING	EXISTING IRRIGATION MAINLINE, PROTECT IN PLACE					N/A
				AS APPROVED	PVC PIPE SCH. 40 AS SLEEVING, 2 TIMES THE DIAMETER OF PIPE OR WIRE BUNDLE CARRIED (2" MINIMUM SIZE) INSTALL ALL PIPE AND WIRE UNDER PAVING, HARDSCAPE, ETC. (OR AS DIRECTED BY OWNER'S AUTHORIZED REPRESENTATIVE) INSIDE SLEEVES. SLEEVES UNDER PEDESTRIAN PAVING SHALL BE INSTALLED 24" BELOW FINISHED GRADE. SLEEVES UNDER VEHICULAR PAVING SHALL BE INSTALLED 36" BELOW FINISHED GRADE.					M
NO SYMBOL				LASCO	ALL FITTINGS USED WITH SOLVENT WELD MAINLINE PIPE SHALL BE SCH. 80 PVC FITTINGS, GRAY IN COLOR, AND SIZED TO MATCH THE MAINLINE PIPE. ALL FITTINGS USED WITH SOLVENT WELD LATERAL LINE PIPE SHALL BE SCH. 40 PVC, WHITE IN COLOR, AND SIZED TO MATCH THE LATERAL LINE PIPE. ALL THREADED PVC NIPPLES SHALL BE SCH. 80 PVC PIPE, DARK GRAY IN COLOR, WITH MOLDED THREADS.					N/A
NO SYMBOL				AS APPROVED	ALL SOLVENT WELD CONNECTIONS FOR BOTH MAINLINE AND LATERAL LINE SHALL BE MADE USING THE TWO-STEP PROCESS OF PRIMER AND SOLVENT CEMENT. PRIMER SHALL BE LOW VOC "PURPLE PRIMER". MAINLINE SOLVENT CEMENT SHALL BE LOW VOC, "GRAY-HEAVY BODY" CEMENT. LATERAL LINE SOLVENT CEMENT SHALL BE LOW VOC, GRAY OR BLUE COLORED MEDIUM BODIED CEMENT. USE DAUBERS SIZED AT LEAST ONE-HALF THE SIZE OF THE LARGEST PIPE BEING JOINED. ALL SOLVENT CEMENTED JOINTS SHALL BE MADE PER THE PIPE AND FITTING MANUFACTURER'S RECOMMENDATIONS.					N/A
NO SYMBOL				AS APPROVED	ALL SOLVENT WELD MAINLINES ABOVE 2" IN SIZE SHALL HAVE CONCRETE THRUST BLOCKING INSTALLED AT ALL DIRECTIONAL CHANGES INCLUDING ELBOWS (45° AND 90°) AND TEES. MAINLINE PIPES UNDER 2" SIZE AND ALL LATERAL LINES DO NOT REQUIRE THRUST BLOCKING.					N
				AS APPROVED	TYPE 'K' COPPER PIPING ROUTED BETWEEN PLANTERS UNDER STEPPED PAVING. COPPER PIPING SHALL BE INSTALLED BY THE LANDSCAPE CONTRACTOR. COPPER PIPING SHOWN IS FOR REFERENCE ONLY. VERIFY LOCATION, SIZE AND STUB-OUTS OF COPPER PIPING IN THE FIELD PRIOR TO STARTING WORK.					N/A
				AS APPROVED	CONNECTION POINT BETWEEN COPPER PIPING AND PVC IRRIGATION PIPING. COPPER PIPE STUB-OUT SHALL HAVE A LINE SIZED SWEAT X FIPT COPPER ADAPTER PROVIDED FOR CONNECTION TO THE IRRIGATION PIPING. USE A LINE SIZED X 6" SCH. 80 T.O.E. PVC NIPPLE AND A LINE SIZED PVC COUPLING FOR THE CONNECTION. VERIFY LOCATION, SIZE AND STUB-OUTS OF COPPER PIPING IN THE FIELD PRIOR TO STARTING WORK.					N/A
NO SYMBOL				PAIGE ELECTRIC	P7079D POLYETHYLENE INSULATED, SOLID COPPER CONDUCTOR IRRIGATION CONTROL WIRE #14UF AWG DIRECT BURIAL (U.L. APPROVED). PILOT WIRES SHALL BE RED IN COLOR, COMMON GROUND WIRE SHALL BE WHITE IN COLOR, SPARE WIRES SHALL BE YELLOW IN COLOR. THE CONTRACTOR SHALL ROUTE TWO (2) SPARE CONTROL WIRES (YELLOW) FROM THE CONTROLLER ALONG THE MAINLINE IN ALL DIRECTIONS AWAY FROM THE CONTROLLER. LOOP SPARE WIRES UP AND INTO EACH VALVE BOX ALONG THE MAINLINE, PROVIDING A 3 FOOT MINIMUM LOOP. WHERE MULTIPLE CONTROLLERS ARE USED ON THE PROJECT, EACH CONTROLLER SHALL HAVE A DIFFERENT COLOR FOR PILOT WIRES.					L,M,O
NO SYMBOL				GPH IRRIGATION	GDBRY6 DIRECT BURIAL, 100% SILICONE GEL, WATER-PROOF WIRE CONNECTORS FOR USE ON ALL WIRE SPLICES AND CONNECTIONS					O
NO SYMBOL				NDS (K.B.I.)	KSC-XXX-S SWING CHECK VALVE, LATERAL LINE SIZE, INSTALL ONE (1) ON THE DOWNSTREAM SIDE OF EACH RCV WHEN THE RCV IS LOWER THAN THE SPRINKLERS, BUBBLERS OR DRIP EMITTERS. INSTALL WITHIN SPRINKLER / BUBBLER / DRIP ZONES AS REQUIRED TO PREVENT LOW HEAD DRAINAGE.					N/A
NO SYMBOL				NDS (K.B.I.)	KC-XXX-S SPRING CHECK VALVE, LATERAL LINE SIZE, INSTALL ONE (1) ON THE DOWNSTREAM SIDE OF EACH RCV WHEN THE RCV IS HIGHER THAN THE SPRINKLERS, BUBBLERS OR DRIP EMITTERS. INSTALL WITHIN SPRINKLER / BUBBLER / DRIP ZONES AS REQUIRED TO PREVENT LOW HEAD DRAINAGE.					N/A
NO SYMBOL				CARSON	VALVE BOXES, SIZE PER EQUIPMENT LEGEND, WITH T-COVER LIDS AND CAPTIVE BOLT AND LOC-KIT. FOR ROUND FLUSH VALES AND AIR RELIEF VALVES USE MODEL 708, 10" ROUND SHALL BE MODEL 910, 12" STANDARD RECTANGULAR, SHALL BE MODEL 1220, SUPER JUMBO SHALL BE MODEL 1324, AND SUPER JUMBO XL SHALL BE MODEL 1730. VALVE BOXES SHALL HAVE GREEN HDPE BODY AND GREEN LIDS IN TURF, GREEN LIDS IN SHRUB BEDS, AND TAN LIDS IN ROCK MULCH. FOR USE IN NON-VEHICULAR TRAFFIC SITUATIONS ONLY. DO NOT INSTALL IN CONCRETE OR ASPHALT.					P

VALVE CALLOUT LEGEND



HYDROZONE DESCRIPTION CHART			
NUMBER	DESCRIPTION OF THE HYDROZONE	WUCOLS	PLANT FACTOR
HZ 1	LOW WATER USE PLANTINGS	L	0.30
HZ 2	MODERATE WATER USE PLANTINGS	M	0.40
HZ 3	LOW WATER USE TREES	L	0.30

IRRIGATION METHOD DESCRIPTION CHART			
LETTERS	DESCRIPTION OF THE IRRIGATION	TYPE	IR. EFFICIENCY
S	SPRAY HEADS	SPRAY	0.75
SB	SHRUB BUBBLERS	DRIP	0.81
TB	TREE BUBBLERS	DRIP	0.81

I AGREE TO COMPLY WITH THE REQUIREMENTS OF THE CITY OF MALIBU WATER EFFICIENT LANDSCAPE ORDINANCE NO. 461 AND SUBMIT A COMPLETE LANDSCAPE DOCUMENTATION PACKAGE

SIGNATURE: DATE: 10-02-25

I HAVE COMPLIED WITH THE CRITERIA OF THE IRRIGATION GUIDELINES AND APPLIED THEM ACCORDINGLY FOR THE EFFICIENT USE OF WATER IN THE IRRIGATION DESIGN PLAN

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sweeney + associates
IRRIGATION DESIGN AND CONSULTING
30730 Sky Canyon Drive, Suite C
Murrieta, Ca 92563
e: info@sweeneyassoc.com t: (951) 461-6850
w: www.sweeneyassoc.com f: (951) 461-6850

RECOMMENDED TREE WATERING SCHEDULE

TREE TRUNK WIDTH SIZE	RECOMMENDED WATER VOLUME	WATERING FREQUENCY BASED ON SPECIES	MONTHS APRIL TO OCTOBER	MONTHS NOVEMBER TO MARCH
NEWLY PLANTED (LESS THAN 5")*	10 TO 20 GALLONS	NEWLY PLANTED TREE	WEEKLY	BI-WEEKLY
AVERAGE STREET TREE (16")*	160 GALLONS	MINIMAL	ONCE OR TWICE A MONTH	NONE
SMALL (5" TO 12")*	80 GALLONS	MINIMAL	ONCE OR TWICE A MONTH	NONE
		MODERATE	TWICE TO THREE TIMES A MONTH	ONCE A MONTH
		HIGH	WEEKLY	ONCE TO TWICE A MONTH
MEDIUM (13" TO 21")*	160 GALLONS	MINIMAL	ONCE OR TWICE A MONTH	NONE
		MODERATE	TWICE TO THREE TIMES A MONTH	ONCE A MONTH
		HIGH	WEEKLY	ONCE TO TWICE A MONTH
LARGE (22" TO 30")*	260 GALLONS	MINIMAL	ONCE OR TWICE A MONTH	NONE
		MODERATE	TWICE TO THREE TIMES A MONTH	ONCE A MONTH
		HIGH	WEEKLY	ONCE TO TWICE A MONTH
VERY LARGE (31" AND OVER)*	310 GALLONS	MINIMAL	ONCE OR TWICE A MONTH	NONE
		MODERATE	TWICE TO THREE TIMES A MONTH	ONCE A MONTH
		HIGH	WEEKLY	ONCE TO TWICE A MONTH

* WIDTH OF TREE TRUNK AT FOUR FEET FROM GROUND LEVEL

WATER EFFICIENT LANDSCAPE WORKSHEET

This worksheet is filled out by the project applicant and it is a required element of the Landscape Documentation Package

Project Name: Malibu MS & HS Ph2
Project Address: 30215 Morning View Dr. Malibu, California 90265

s+a sweeney + associates IRRIGATION DESIGN AND CONSULTING

Reference Evapotranspiration (ETo) 44.1 In./Yr. **Residential Project?** No

Hydrozone # / Planting Description*	Plant Factor	Irrigation Method*	Irrigation Efficiency (IE)*	ETAF (PF / IE)	Landscape Area (Sq. Ft.)	ETAF x Area	Estimated Total Water Use (ETWU)*
Regular Landscape Areas							
1. Low Water Use Plantings	0.30	Drip	0.81	0.38	27,238	10,350	283,002
2. Moderate Water Use Plantings	0.40	Drip	0.81	0.50	1,113	557	15,216
3. Low Water Use Trees	0.30	Bubblers	0.81	0.38	2,125	808	22,079
				Totals:	**30,476**	**11,714**	
				Totals:	**0**	**0**	
				Estimated Total Water Use (ETWU) Total:			**320,296**
				Maximum Applied Water Allowance (MAWA)*:			**374,974**

* Hydrozone # / Planting Description	* Irrigation Method	* Irrigation Efficiency
E.g.	*Overhead Spray of*	*0.75 for Spray*
1.) Front Lawn	*Drip*	*0.81 for Drip*
2.) Low Water Use Plantings		
3.) Medium Water Use Plantings		

** ETWU (Annual Gallons Required) = ETo x 0.62 x ETAF x Area*
Where 0.62 is a conversion factor that converts acre-inches/acre/year to gallons/square foot/year.

** MAWA (Annual Gallons Allowed) = ETo x 0.62 x [(ETAF x LA) + ((1 - ETAF) x SLA)]*
Where 0.62 is a conversion factor that converts acre-inches/acre/year to gallons/square foot/year,
LA is the total landscape area in square feet, SLA is the total special landscape area in square feet,
and ETAF is 0.55 for residential projects and 0.45 for non-residential projects.

Evapotranspiration Adjustment Factor (ETAF) Calculations

This non-residential project complies with the WELO and its average ETAF is less than 0.45

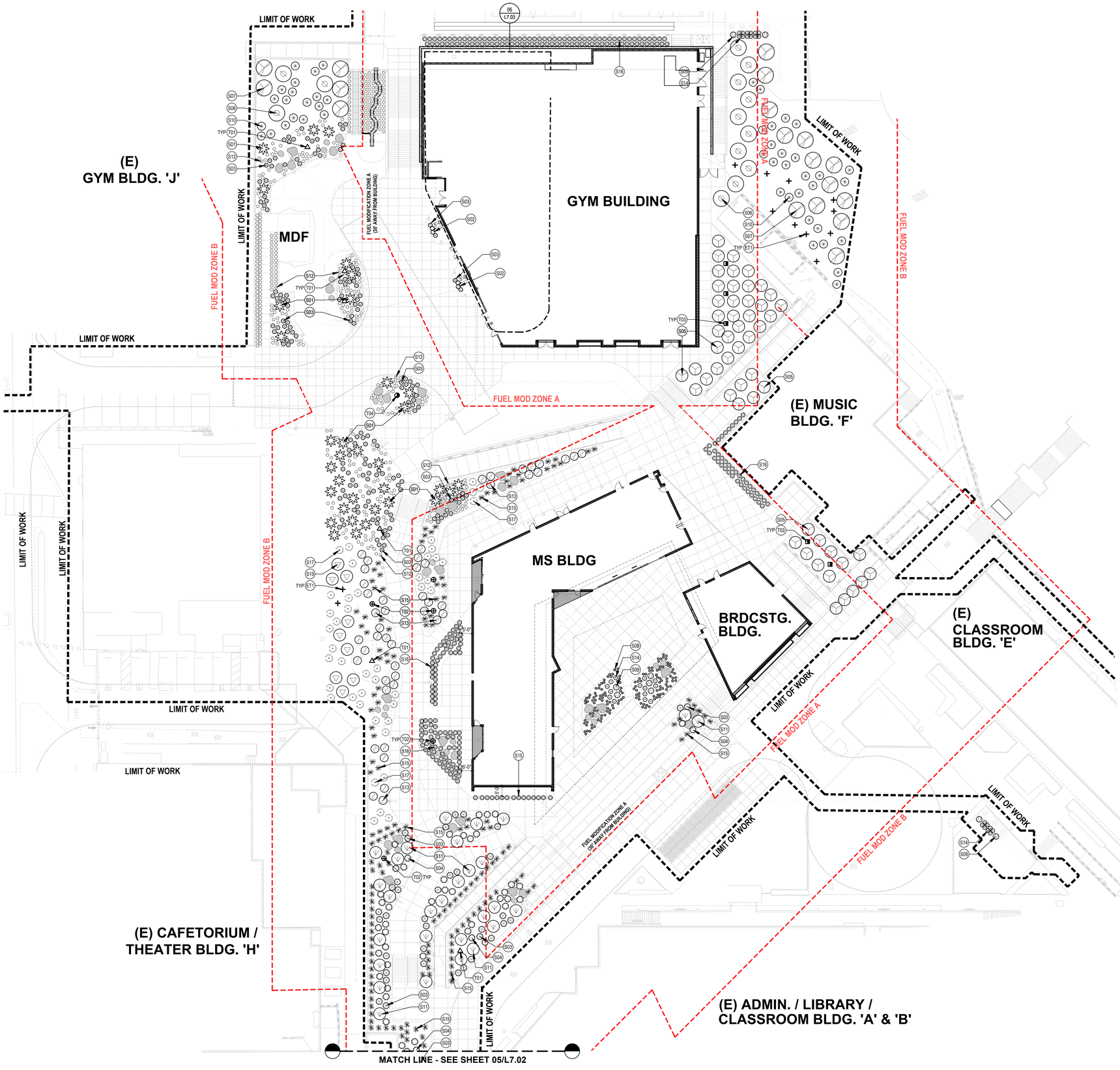
Regular Landscape Areas (Excludes Special Landscape Areas)	
Total ETAF x Area	11,714
Total Area	30,476
Average ETAF	**0.38**

All Landscape Areas (Includes Special Landscape Areas)	
Total ETAF x Area	11,714
Total Area	30,476
Average ETAF	**0.38**

IRRIGATION CONTROLLER RUN TIMES

POC or Controller		JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	Total / Avg.
A	**ETo / Month (Inches):**	1.79	2.12	3.30	4.49	4.73	5.03	5.40	5.38	3.94	3.40	2.42	2.22	**44.22**
	ETo / Day (Inches):	0.06	0.08	0.11	0.15	0.15	0.17	0.17	0.17	0.13	0.11	0.08	0.07	**0.12**
	Irrigation Days / Week:	3	4	4	4	5	5	5	5	4	4	4	3	

Plant / Irrig. Type	AKc	Pr Rate	IE	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	
Low Water Us Plantings	0.30	0.47	0.81	6.4	6.3	8.8	12.4	10.1	11.1	11.5	11.5	10.9	9.1	6.7	7.9	Min./Day/Zone
Bubblers	**Number of Zones:**		14	**89.2**	**87.7**	**123.3**	**173.4**	**141.4**	**155.4**	**161.4**	**160.8**	**152.1**	**127.0**	**93.4**	**110.6**	**Total Min./Day**
Low Water Us Plantings	0.30	0.70	0.75	4.6	4.5	6.4	9.0	7.3	8.0	8.4	8.3	7.9	6.6	4.8	5.7	Min./Day/Zone
Spray	**Number of Zones:**		12	**55.4**	**54.5**	**76.6**	**107.8**	**87.9**	**96.6**	**100.3**	**100.0**	**94.6**	**79.0**	**58.1**	**68.7**	**Total Min./Day**
Moderate Water Us Planti	0.40	0.47	0.81	8.5	8.4	11.7	16.5	13.5	14.8	15.4	15.3	14.5	12.1	8.9	10.5	Min./Day/Zone
Bubblers	**Number of Zones:**		2	**17.0**	**16.7**	**23.5**	**33.0**	**26.9**	**29.6**	**30.7**	**30.6**	**29.0**	**24.2**	**17.8**	**21.1**	**Total Min./Day**
Low Water Use Trees	0.30	0.47	0.81	6.4	6.3	8.8	12.4	10.1	11.1	11.5	11.5	10.9	9.1	6.7	7.9	Min./Day/Zone



PLANTING LEGEND

TREE LIST

REF.	SYM.	QTY.	BOTANICAL NAME/ COMMON NAME	WUCOLS	SIZE/ SPACING
T01	△	6	ARBUTUS 'MARINA' MARINA STRAWBERRY TREE	L	24" BOX STD. PER PLAN
T02	⊕	5	CERCIS OCCIDENTALIS WESTERN REDBUD	L	24" BOX STD. PER PLAN
T03	◨	5	HETEROMELES ARBUTIFOLIA TOYON	L	24" BOX STD. PER PLAN
T04	◑	1	QUERCUS AGIFOLIA COAST LIVE OAK	L	60" BOX STD. PER PLAN
ET1	+	14	EXISTING TREE PROTECT IN PLACE	-	-

SHRUB LIST

S01	✳	34	AGAVE ATTTENUATA FOXTAIL AGAVE	L	5-GAL/ 6' O.C PER PLAN
S02	◯	25	ALOE 'BLUE ELF' BLUE ELF ALOE	L	1-GAL/ 24" O. PER PLAN
S03	◌	200	ALOE RUDIKOPPE LITTLE RED RIDING HOOD ALOE	L	5-GAL/ 3' O.C PER PLAN
S04	◯	48	ALOE VERA MEDICINAL ALOE	L	5-GAL/ 3' O.C PER PLAN
S05	Y	53	ARCTOSTAPHYLOS EDMUNDSII 'CARMEL SUR' CARMEL SUR MANZANITA	L	5-GAL/ 6' O.C PER PLAN
S06	⊙	13	BACCHARIS PILULARIS 'PIGEON PT.' PIGEON PT. DWARF COYOTE BRUSH	L	5-GAL/ 8' O.C PER PLAN
S07	Y	18	CEANOTHUS GRISEUS 'YANKEE PT.' YANKEE PT. CARMEL CREEPER	L	5-GAL/ 8' O.C PER PLAN
S08	○	144	CERASTIUM TOMENTOSUM SNOW-IN-SUMMER	L	5-GAL/ 12" O. PER PLAN
S09	/	9	CHONDROPETALUM TECTORUM SMALL CAPE RUSH	L	5-GAL/ 3' O.C PER PLAN
S10	✳	46	DASYLIRION WHEELERI GREY DESERT SPOON	L	5-GAL/ 4' O.C PER PLAN
S11	V	29	DELOSPERMA COOPERI HARDY ICE PLANT	L	5-GAL/ 6' O.C PER PLAN
S12	○	418	FESTUCA CINERA BLUE FESCUE	L	5-GAL/ 18" O. PER PLAN
S13	✓	47	HESPERALOE PARVIFLORA RED YUCCA	L	5-GAL/ 4' O.C PER PLAN
S14	⊖	34	JUNCUS PATENS CALIFORNIA GRAY RUSH	L	5-GAL/ 24" O. PER PLAN
S15	✳	179	LEYMUS CONDENSATUS 'CANYON PRINCE' CANYON PRINCE WILD RYE	L	5-GAL/ 3' O.C PER PLAN
S16	◇	373	LIRIOPE SPICATA CREEPING LILY TURF	M	5-GAL/ 24" O. PER PLAN
S17	·	44	MUHLENBERGIA RIGENS DEER GRASS	L	5-GAL/ 4' O.C PER PLAN
S18	◇	29	SEDUM NUSSBAUMERIANUM COPPERTONE STONECROP	L	5-GAL/ 24" O. PER PLAN
S19	V	9	YUCCA RECURVIFOLIA CURVE-LEAF YUCCA	L	5-GAL/ 6' O.C PER PLAN

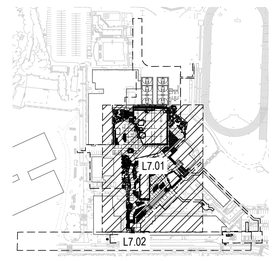
MISCELLANEOUS SYMBOLS

LINEAR ROOT BARRIER

SOIL SAMPLE LOCATION (6 TOTAL)

KEYMAP

SCALE=1"=250'-0"



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5301 California Avenue, Suite 100
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REGISTERED LANDSCAPE ARCHITECT
ANDREW TOBIN #5
STATE OF CALIFORNIA

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MALIBU MIDDLE SCHOOL
INCREMENT 02

30215 Morning View Dr.
Malibu, CA 90265
APN: 4469-017-900
Developed for
SANTA MONICA - MALIBU UNIFIED SCHOOL DISTRICT

Revision	Date

Submittal	Date
SCHEMATIC DESIGN	09/04/2024
50% DESIGN DEVELOPMENT	12/13/2024
95% DESIGN DEVELOPMENT	03/14/2025
CDP SUBMITTAL	06/16/2025
50% CONSTRUCTION DOCS	06/27/2025
DSA SUBMITTAL	09/08/2025
2ND CDP SUBMITTAL	10/03/2025
3RD CDP SUBMITTAL	10/30/2025

Job Number	31722
Checked By	
Scale	1" = 20'

PLANTING PLAN

L7.01

PLANTING LEGEND

TREE LIST

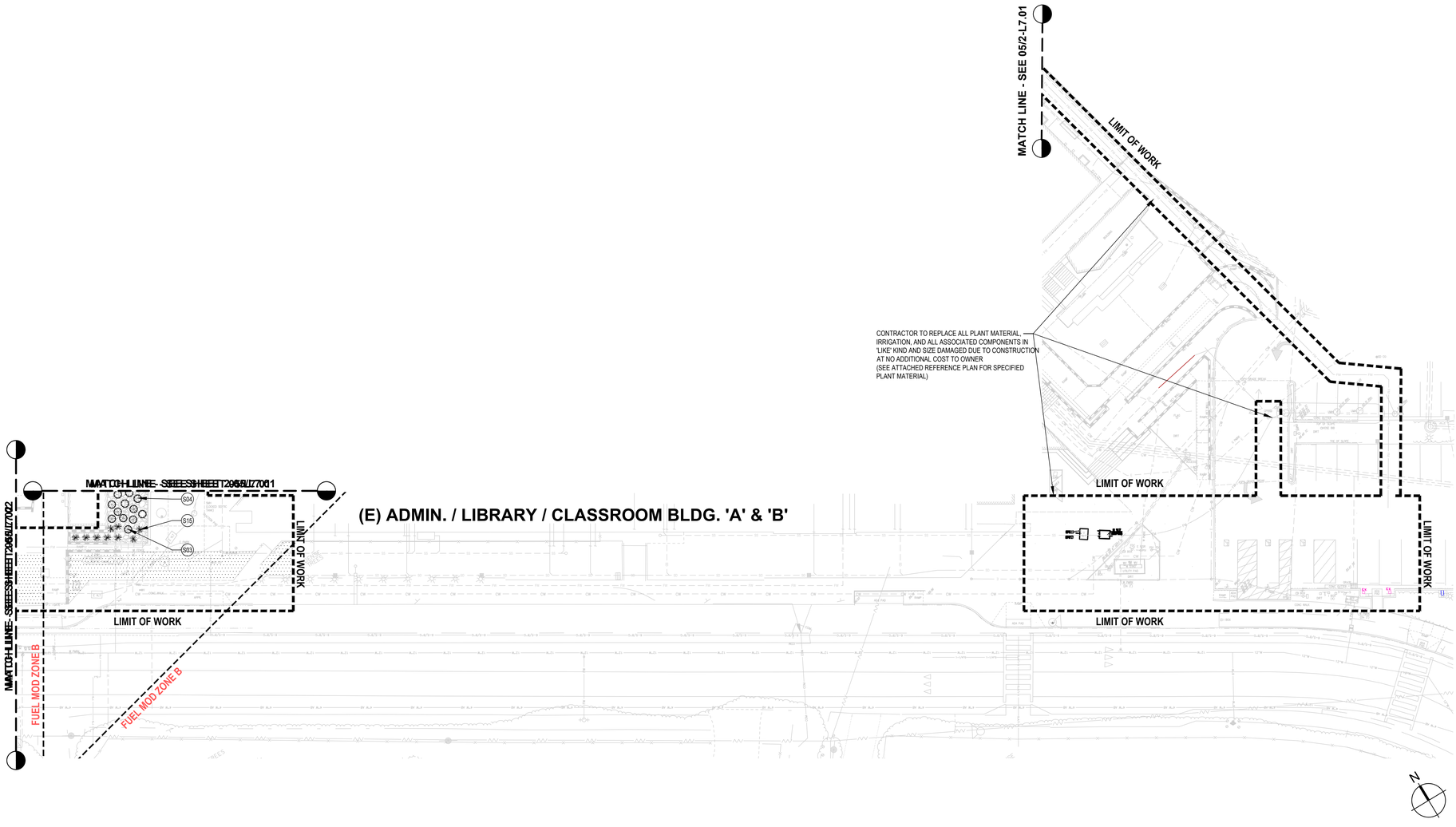
REF.	SYM.	QTY.	BOTANICAL NAME/ COMMON NAME	WUCOLS	SIZE/ SPACING	COMMENTS/ DET
T01	△	6	ARBUTUS 'MARINA' MARINA STRAWBERRY TREE	L	24" BOX STD / PER PLAN	09/ 2-L7.04
T02	⊕	5	CERCIS OCCIDENTALIS WESTERN REDBUD	L	24" BOX STD / PER PLAN	09/ 2-L7.04
T03	◨	5	HETEROMELES ARBUTIFOLIA TOYON	L	24" BOX STD / PER PLAN	09/ 2-L7.04
T04	◑	1	QUERCUS AGIFOLIA COAST LIVE OAK	L	60" BOX STD / PER PLAN	01/ 2-L7.04
ET1	+	14	EXISTING TREE PROTECT IN PLACE	-	-	16/ 2-L7.04

SHRUB LIST

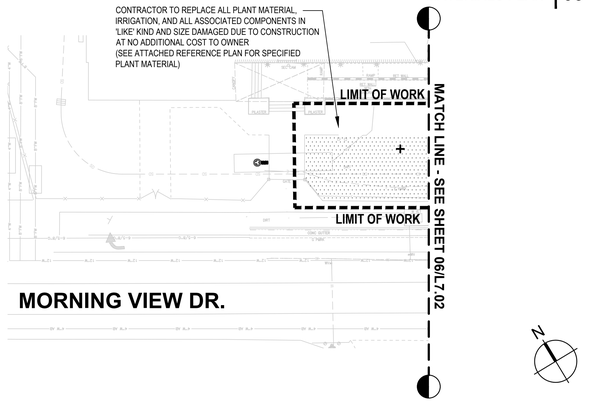
S01	✳	34	AGAVE ATTTENUATA FOXTAIL AGAVE	L	5-GAL/ 6' O.C. PER PLAN	08, 11/ 2-L7.04
S02	◯	25	ALOE 'BLUE ELF' BLUE ELF ALOE	L	1-GAL/ 24" O.C. PER PLAN	08, 11/ 2-L7.04
S03	◯	200	ALOE RUDIKOPPE LITTLE RED RIDING HOOD ALOE	L	5-GAL/ 3' O.C. PER PLAN	08, 11/ 2-L7.04
S04	◯	48	ALOE VERA MEDICINAL ALOE	L	5-GAL/ 3' O.C. PER PLAN	08, 11/ 2-L7.04
S05	Y	53	ARCTOSTAPHYLOS EDMUNDSII 'CARMEL SUR' CARMEL SUR MANZANITA	L	5-GAL/ 6' O.C. PER PLAN	08, 11/ 2-L7.04
S06	S	13	BACCHARIS PILULARIS 'PIGEON PT.' PIGEON PT. DWARF COYOTE BRUSH	L	5-GAL/ 8' O.C. PER PLAN	08, 11/ 2-L7.04
S07	Y	18	CEANOTHUS GRISEUS 'YANKEE PT.' YANKEE PT. CARMEL CREEPER	L	5-GAL/ 8' O.C. PER PLAN	08, 11/ 2-L7.04
S08	◯	144	CERASTIUM TOMENTOSUM SNOW-IN-SUMMER	L	5-GAL/ 12" O.C. PER PLAN	08, 11/ 2-L7.04
S09	/	9	CHONDROPETALUM TECTORUM SMALL CAPE RUSH	L	5-GAL/ 3' O.C. PER PLAN	08, 11/ 2-L7.04
S10	✳	46	DASYLIRION WHEELERI GREY DESERT SPOON	L	5-GAL/ 4' O.C. PER PLAN	08, 11/ 2-L7.04
S11	V	29	DELOSPERMA COOPERI HARDY ICE PLANT	L	5-GAL/ 6' O.C. PER PLAN	08, 11/ 2-L7.04
S12	◯	418	FESTUCA CINERA BLUE FESCUE	L	5-GAL/ 18" O.C. PER PLAN	08, 11/ 2-L7.04
S13	Y	47	HESPERALOE PARVIFLORA RED YUCCA	L	5-GAL/ 4' O.C. PER PLAN	08, 11/ 2-L7.04
S14	—	34	JUNCUS PATENS CALIFORNIA GRAY RUSH	L	5-GAL/ 24" O.C. PER PLAN	08, 11/ 2-L7.04
S15	✳	179	LEYMUS CONDENSATUS 'CANYON PRINCE' CANYON PRINCE WILD RYE	L	5-GAL/ 3' O.C. PER PLAN	08, 11/ 2-L7.04
S16	◯	373	LIRIOPE SPICATA CREEPING LILY TURF	M	5-GAL/ 24" O.C. PER PLAN	08, 11/ 2-L7.04
S17	·	44	MUHLENBERGIA RIGENS DEER GRASS	L	5-GAL/ 4' O.C. PER PLAN	08, 11/ 2-L7.04
S18	◯	29	SEDUM NUSSBAUMERIANUM COPPERTONE STONECROP	L	1-GAL/ 24" O.C. PER PLAN	08, 11/ 2-L7.04
S19	V	9	YUCCA RECURVIFOLIA CURVE-LEAF YUCCA	L	5-GAL/ 6' O.C. PER PLAN	08, 11/ 2-L7.04

MISCELLANEOUS SYMBOLS

------	LINEAR ROOT BARRIER	12/ 2-L7.04
	SOIL SAMPLE LOCATION (6 TOTAL)	



MATERIALS PLAN 06



MATERIALS PLAN 05

KEYMAP

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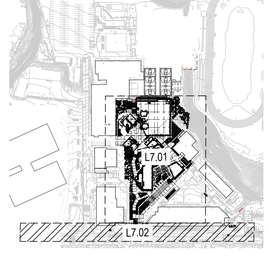

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LANDSCAPE ARCHITECTURE PLANNING

949-261-1001 Office

LPADesignStudios.com

5301 California Avenue, Suite 100
Irvine, California 92617

REGISTERED LANDSCAPE ARCHITECT ANTHONY TOBIN No. 5030 STATE OF CALIFORNIA

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MALIBU MIDDLE SCHOOL
INCREMENT 02

30215 Morning View Dr.
Malibu, CA 90265
APN: 4469-017-900

Developed for
SANTA MONICA - MALIBU UNIFIED SCHOOL DISTRICT

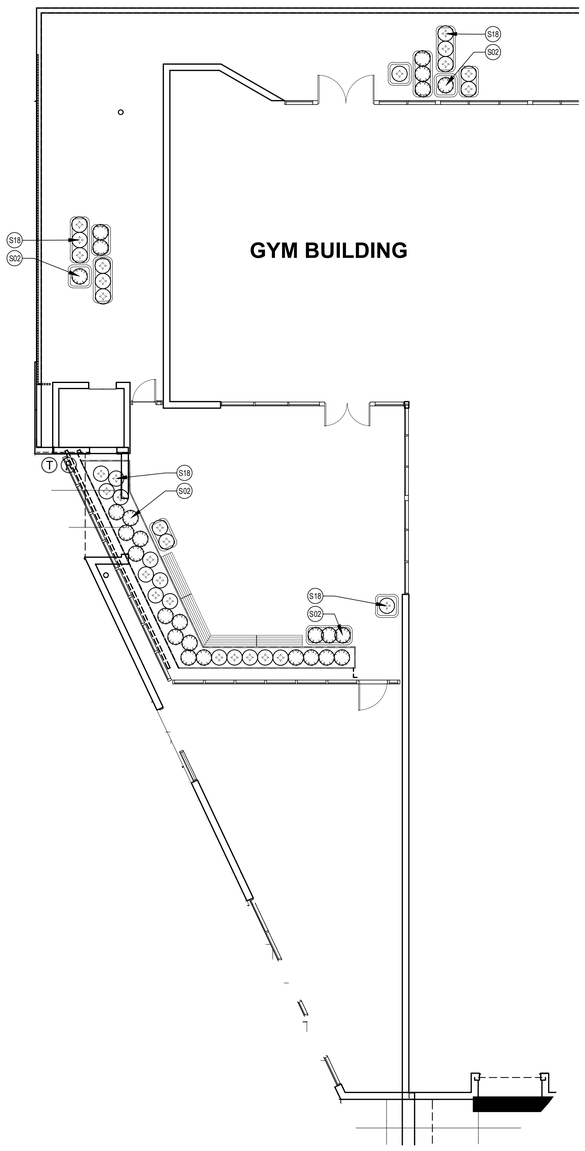
Revision	Date

Submittal	Date
SCHEMATIC DESIGN	09/04/2024
50% DESIGN DEVELOPMENT	12/13/2024
100% DESIGN DEVELOPMENT	01/14/2025
CDP SUBMITTAL	06/16/2025
50% CONSTRUCTION DOCS	06/27/2025
DSA SUBMITTAL	09/08/2025
2ND CDP SUBMITTAL	10/03/2025

Job Number	31722
Checked By	
Scale	1"=20'

PLANTING PLAN

2-L7.02



PLANTING LEGEND

TREE LIST

REF.	SYM.	QTY.	BOTANICAL NAME/ COMMON NAME	WUCOLS	SIZE/ SPACING	COMMENTS/ DET
T01	△	6	ARBUTUS 'MARINA' MARINA STRAWBERRY TREE	L	24" BOX STD / PER PLAN	09/ 2-L7.04
T02	⊕	5	CERCIS OCCIDENTALIS WESTERN REDBUD	L	24" BOX STD / PER PLAN	09/ 2-L7.04
T03	◨	5	HETEROMELES ARBUTIFOLIA TOYON	L	24" BOX STD / PER PLAN	09/ 2-L7.04
T04	◑	1	QUERCUS AGIFOLIA COAST LIVE OAK	L	60" BOX STD / PER PLAN	01/ 2-L7.04
ET1	+	-	EXISTING TREE PROTECT IN PLACE	-	-	16/ 2-L7.04

SHRUB LIST

S01	✳	AS REQ'D	AGAVE ATTTENUATA FOXTAIL AGAVE	L	5-GAL/ 6' O.C. PER PLAN	08, 11/ 2-L7.04
S02	◯	AS REQ'D	ALOE 'BLUE ELF' BLUE ELF ALOE	L	1-GAL/ 24" O.C. PER PLAN	08, 11/ 2-L7.04
S03	◌	AS REQ'D	ALOE RUDIKOPPE LITTLE RED RIDING HOOD ALOE	L	5-GAL/ 3' O.C. PER PLAN	08, 11/ 2-L7.04
S04	◯	AS REQ'D	ALOE VERA MEDICINAL ALOE	L	5-GAL/ 3' O.C. PER PLAN	08, 11/ 2-L7.04
S05	Y	AS REQ'D	ARCTOSTAPHYLOS EDMUNDSII 'CARMEL SUR' CARMEL SUR MANZANITA	L	5-GAL/ 6' O.C. PER PLAN	08, 11/ 2-L7.04
S06	⊙	AS REQ'D	BACCHARIS PILULARIS 'PIGEON PT.' PIGEON PT. DWARF COYOTE BRUSH	L	5-GAL/ 8' O.C. PER PLAN	08, 11/ 2-L7.04
S07	Y	AS REQ'D	CEANOTHUS GRISEUS 'YANKEE PT.' YANKEE PT. CARMEL CREEPER	L	5-GAL/ 8' O.C. PER PLAN	08, 11/ 2-L7.04
S08	○	AS REQ'D	CERASTIUM TOMENTOSUM SNOW-IN-SUMMER	L	5-GAL/ 12" O.C. PER PLAN	08, 11/ 2-L7.04
S09	/	AS REQ'D	CHONDROPETALUM TECTORUM SMALL CAPE RUSH	L	5-GAL/ 3' O.C. PER PLAN	08, 11/ 2-L7.04
S10	✳	AS REQ'D	DASYLIRION WHEELERI GREY DESERT SPOON	L	5-GAL/ 4' O.C. PER PLAN	08, 11/ 2-L7.04
S11	V	AS REQ'D	DROSANTHEMUM FLORIBUNDUM ICE PLANT	L	5-GAL/ 6' O.C. PER PLAN	08, 11/ 2-L7.04
S12	○	AS REQ'D	FESTUCA CINERA BLUE FESCUE	L	5-GAL/ 18" O.C. PER PLAN	08, 11/ 2-L7.04
S13	/	AS REQ'D	HESPERALOE PARVIFLORA RED YUCCA	L	5-GAL/ 4' O.C. PER PLAN	08, 11/ 2-L7.04
S14	—	AS REQ'D	JUNCUS PATENS CALIFORNIA GRAY RUSH	L	5-GAL/ 24" O.C. PER PLAN	08, 11/ 2-L7.04
S15	✳	AS REQ'D	LEYMUS CONDENSATUS 'CANYON PRINCE' CANYON PRINCE WILD RYE	L	5-GAL/ 3' O.C. PER PLAN	08, 11/ 2-L7.04
S16	◇	AS REQ'D	LIRIOPE SPICATA CREEPING LILY TURF	M	5-GAL/ 24" O.C. PER PLAN	08, 11/ 2-L7.04
S17	·	AS REQ'D	MUHLENBERGIA RIGENS DEER GRASS	L	5-GAL/ 4' O.C. PER PLAN	08, 11/ 2-L7.04
S18	◇	AS REQ'D	SEDUM NUSSBAUMERIANUM COPPERTONE STONECROP	L	1-GAL/ 24" O.C. PER PLAN	08, 11/ 2-L7.04
S19	V	AS REQ'D	YUCCA RECURVIFOLIA CURVE-LEAF YUCCA	L	5-GAL/ 6' O.C. PER PLAN	08, 11/ 2-L7.04

MISCELLANEOUS SYMBOLS

- - -	LINEAR ROOT BARRIER	12/ 2-L7.04
	SOIL SAMPLE LOCATION (6 TOTAL)	

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MALIBU MIDDLE SCHOOL
INCREMENT 02

30215 Morning View Dr.
Malibu, CA 90265
APN: 4469-017-900
Developed for
SANTA MONICA - MALIBU UNIFIED SCHOOL DISTRICT

Revision	Date

Submittal	Date
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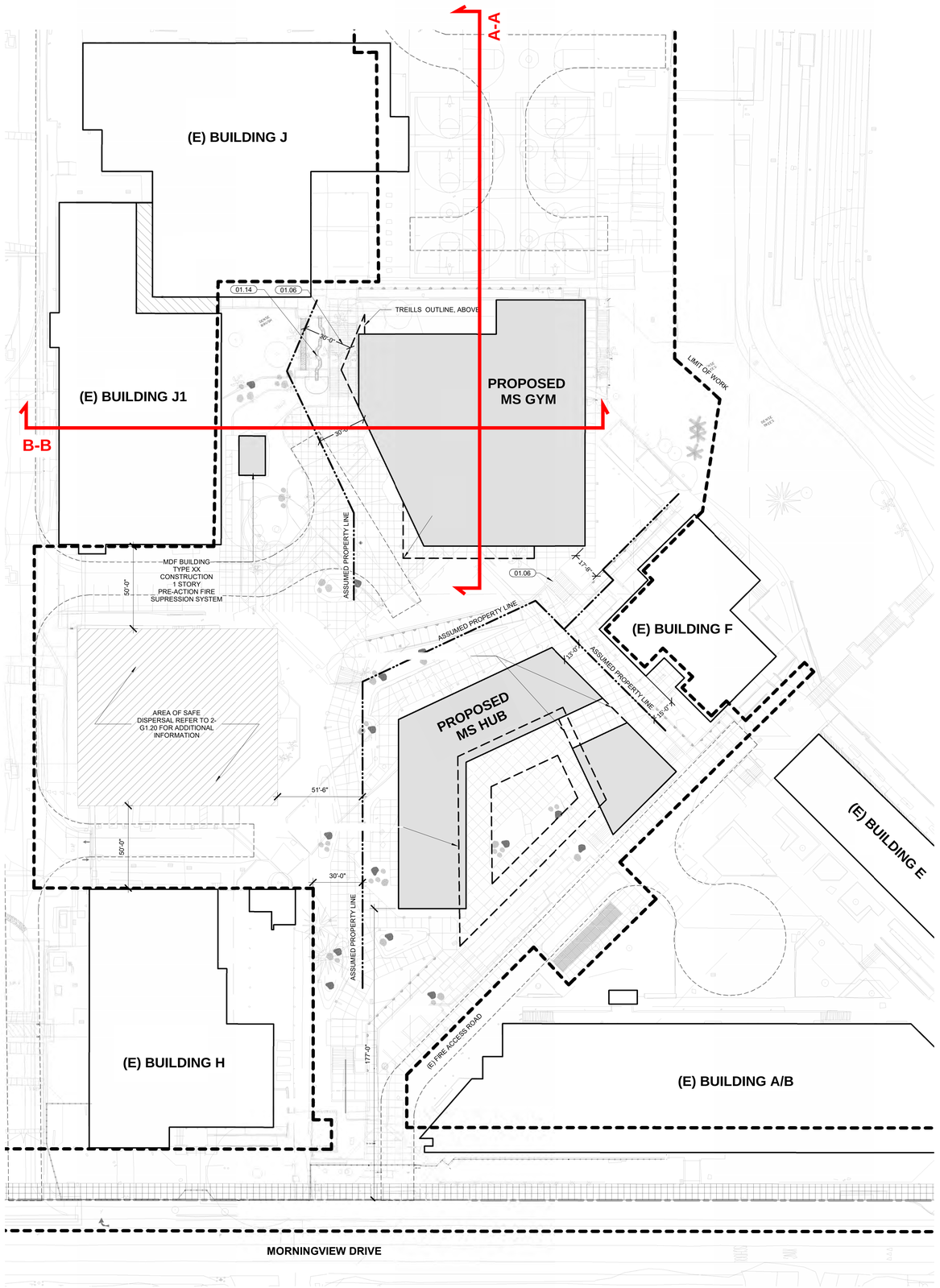
50% CONSTRUCTION DOCS	06/27/2025
DSA SUBMITTAL	09/08/2025

Job Number	31722
Checked By	
Scale	1/8" = 1'

PLANTING PLAN ENLARGEMENT PLAN

2-L7.03

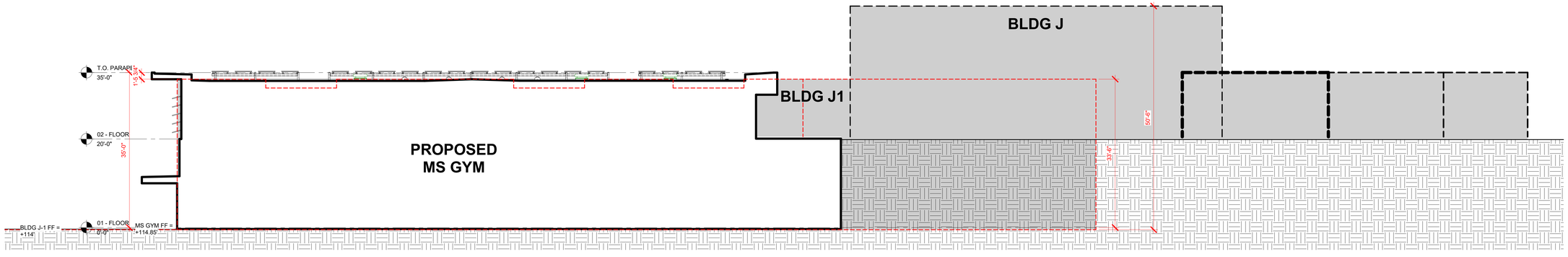


ATTACHMENT 3

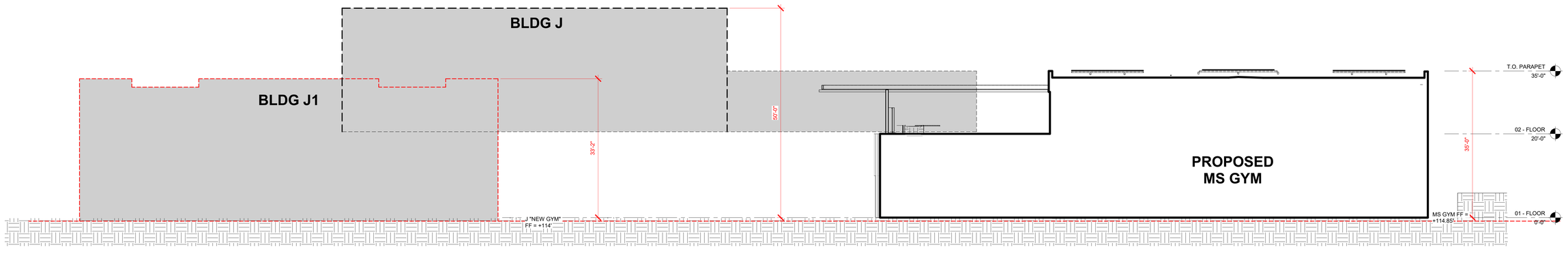
TRUE NORTH

PROJECT NORTH

SITE PLAN | 1" = 30'-0" | 2-A0.21 | 05



NORTH/SOUTH SITE SECTION - WITH EXISTING GYM
SCALE: 1"=10'



EAST/WEST SITE SECTION - WITH EXISTING GYM
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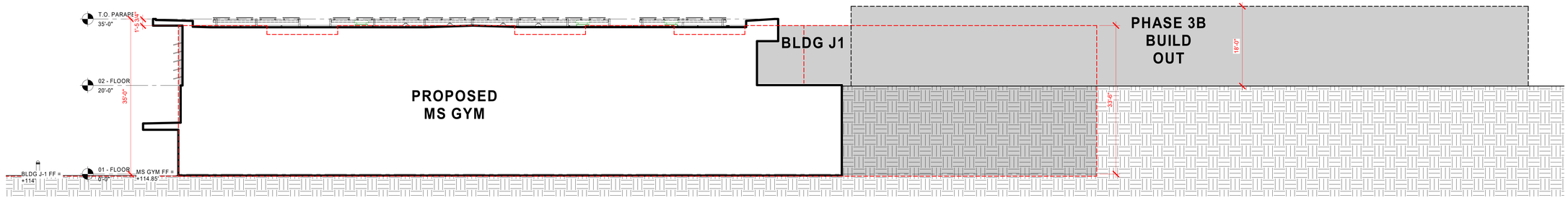
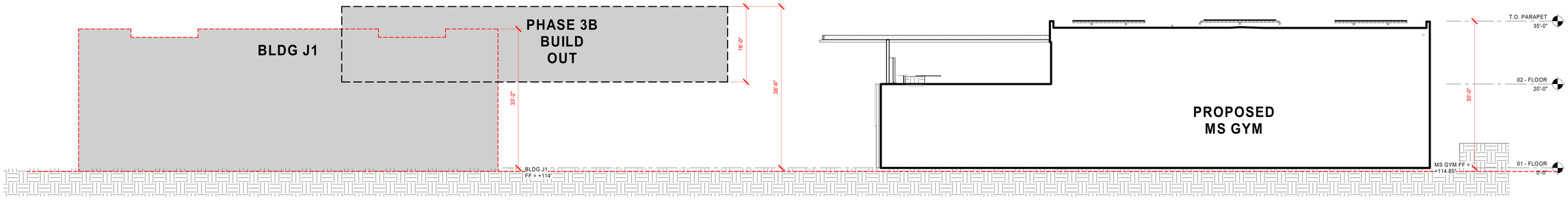


NORTH/SOUTH SITE SECTION - PHASE 3B
SCALE: 1"=10'



EAST/WEST SITE SECTION - PHASE 3B
SCALE: 1"=10'



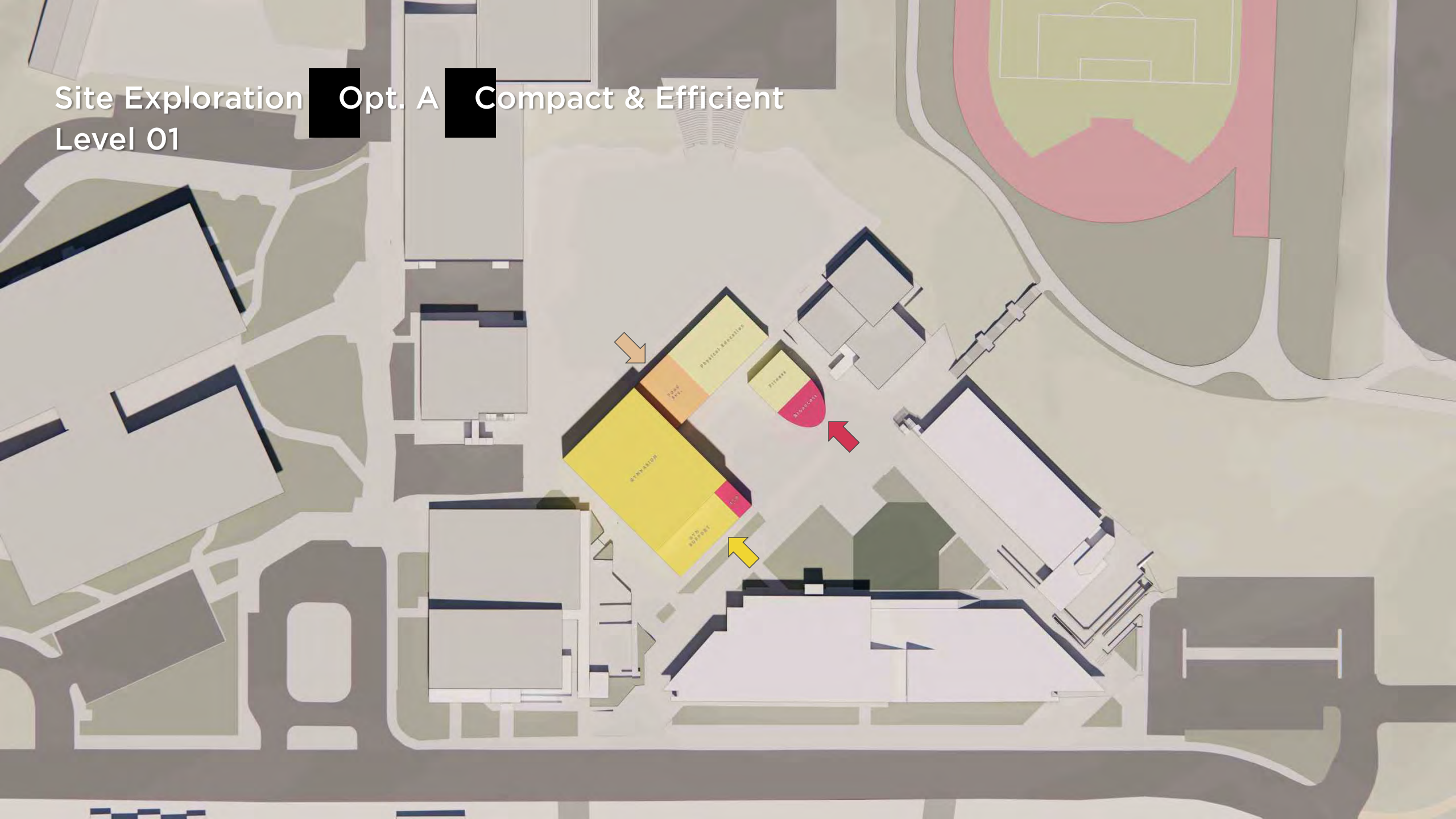
Malibu Middle School Phase 2

Conceptual Design Meeting

May 03, 2024

Site Exploration [redacted] Opt. A [redacted] Compact & Efficient

Level 01



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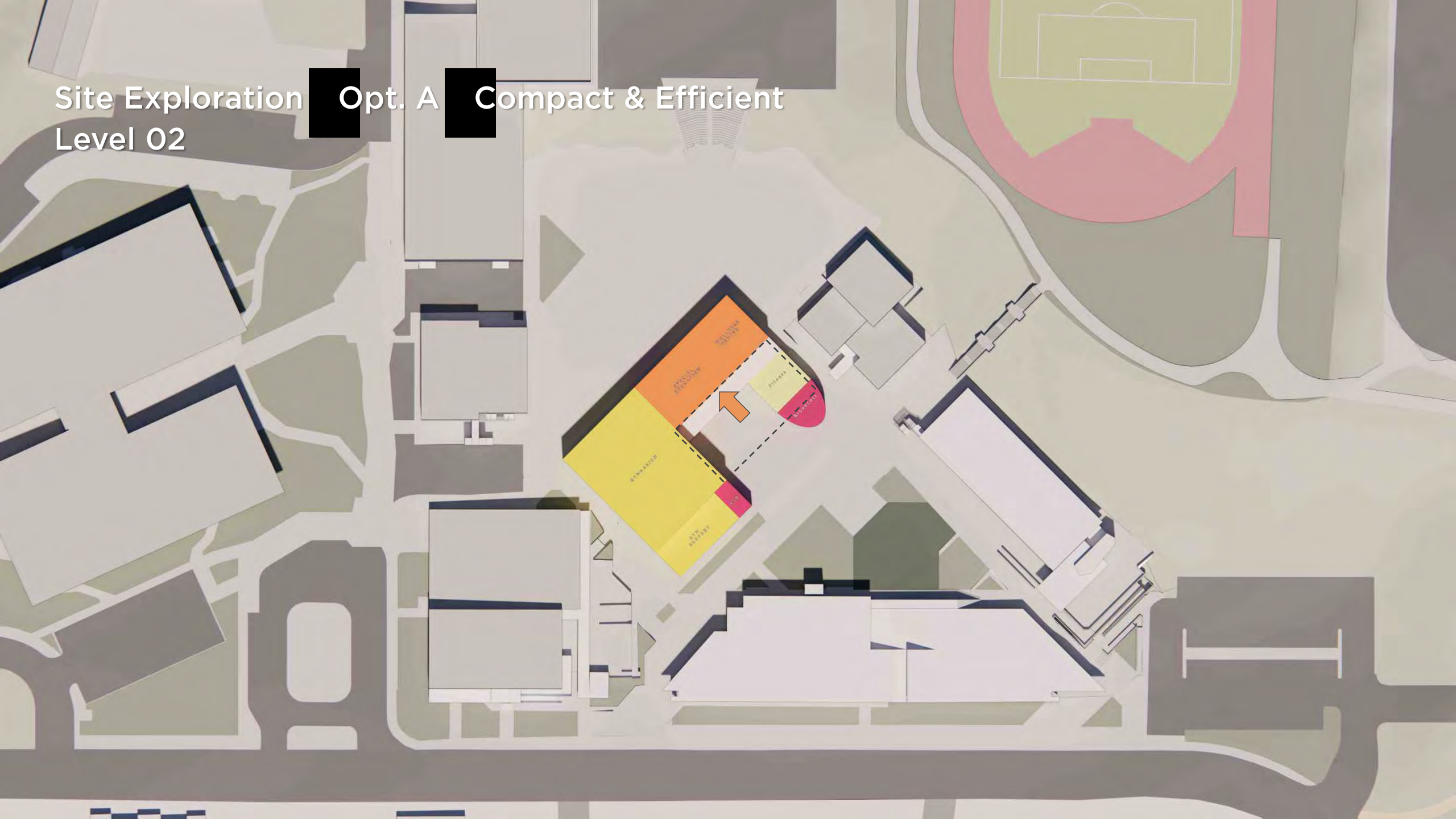
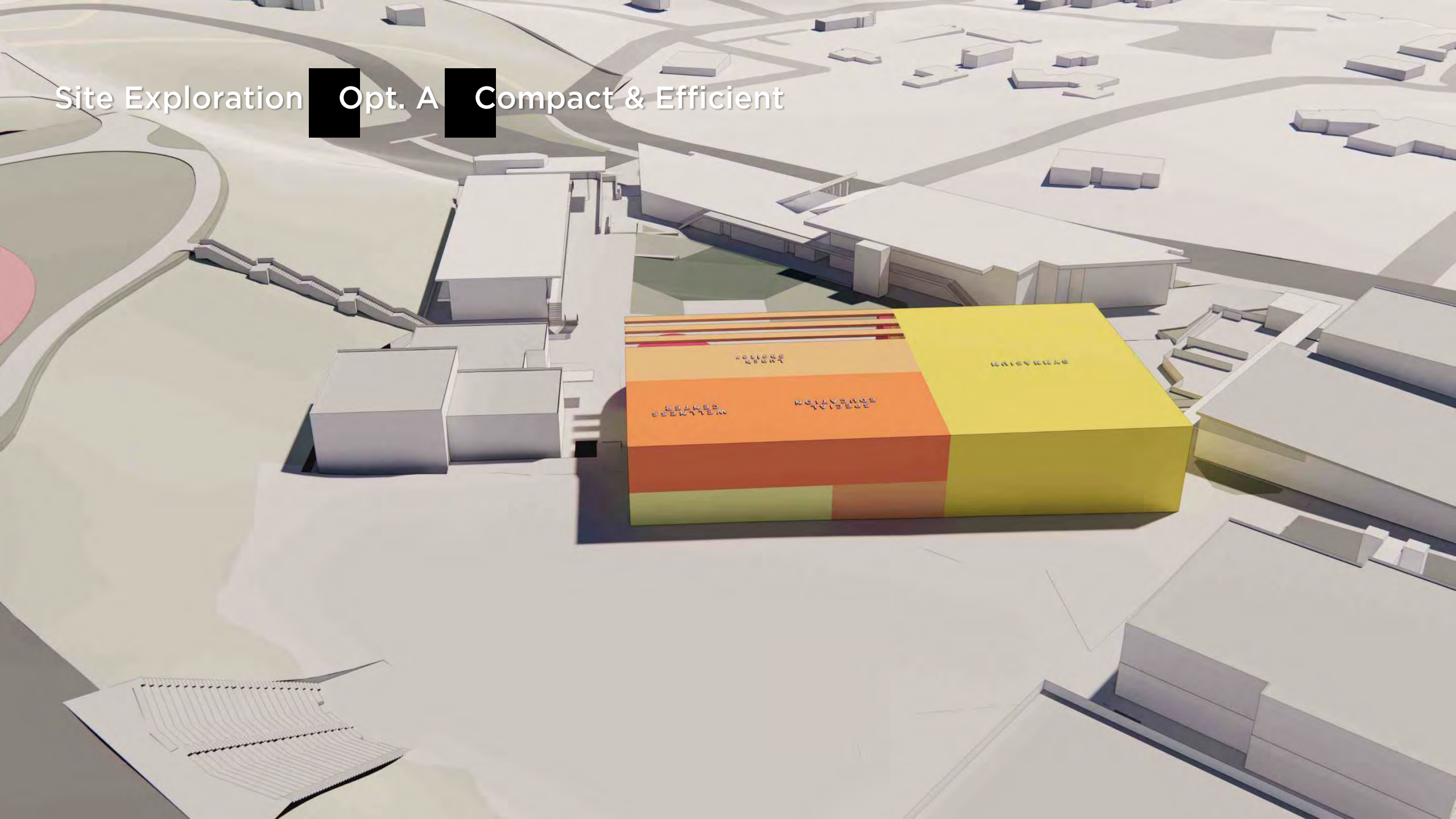
Level 02



Site Exploration | Opt. A | Compact & Efficient



Site Exploration [redacted] Opt. A [redacted] Compact & Efficient



Site Exploration | Opt. A | Compact & Efficient



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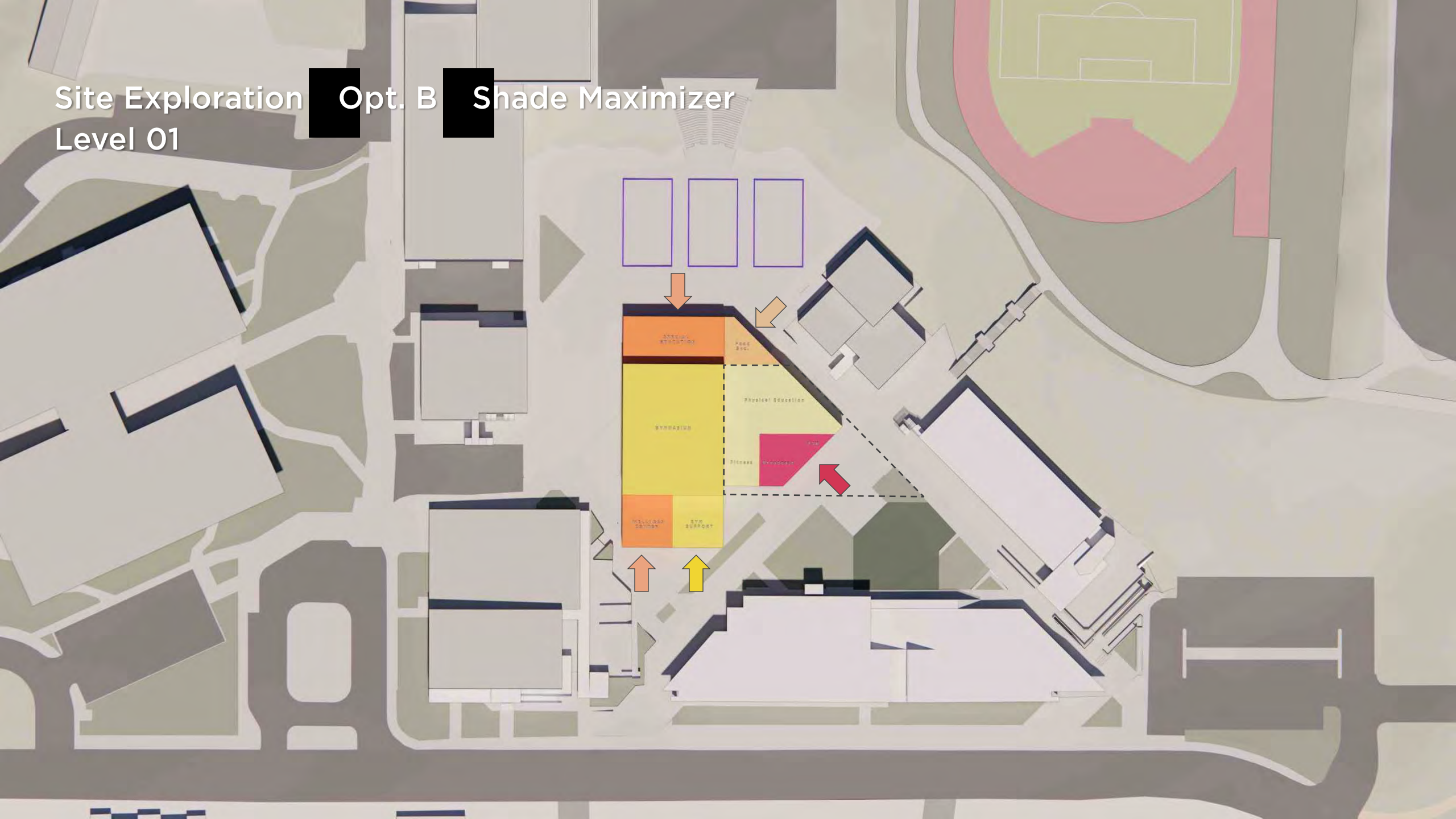
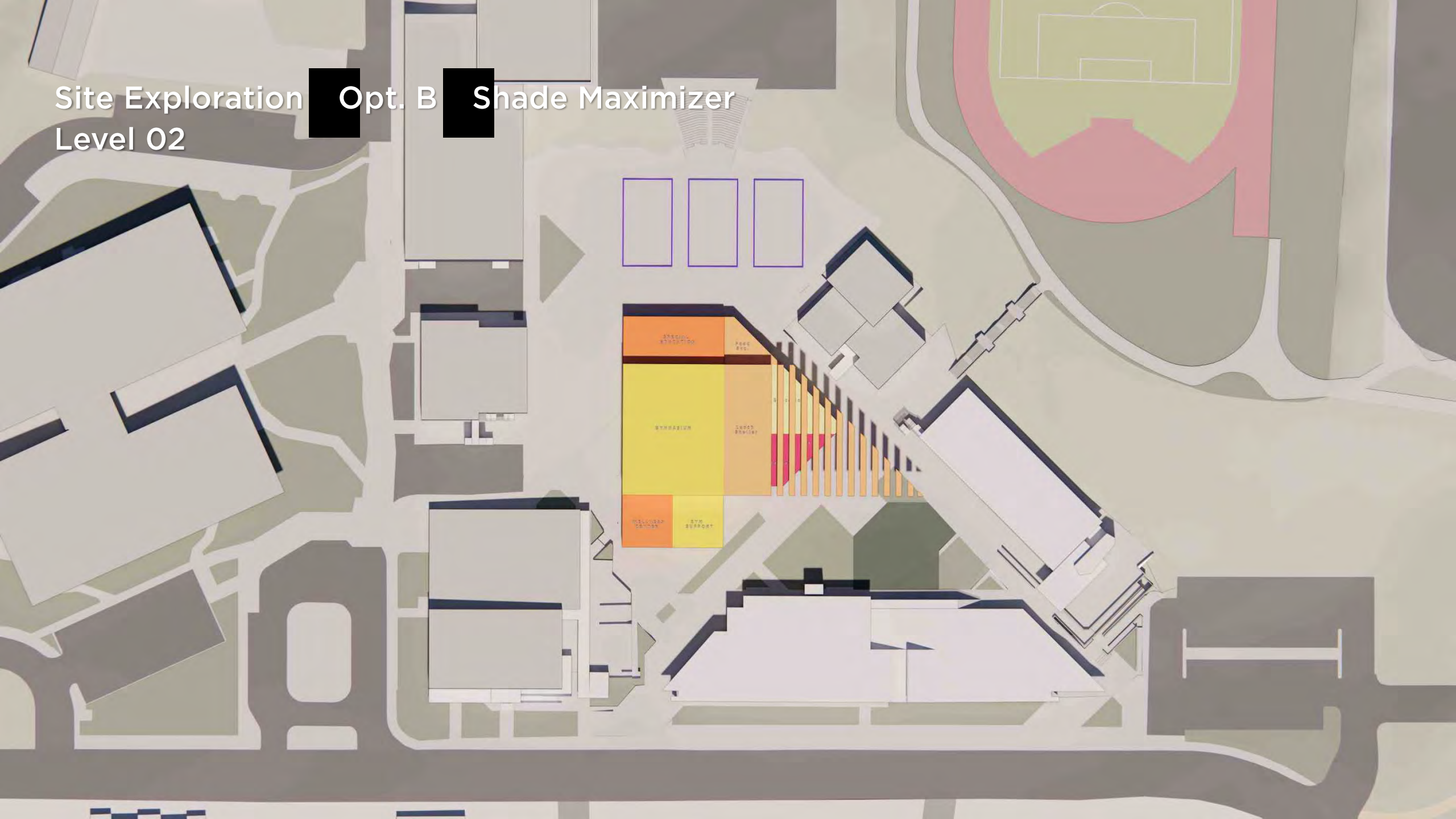
Level 01



Site Exploration | Opt. B | Shade Maximizer

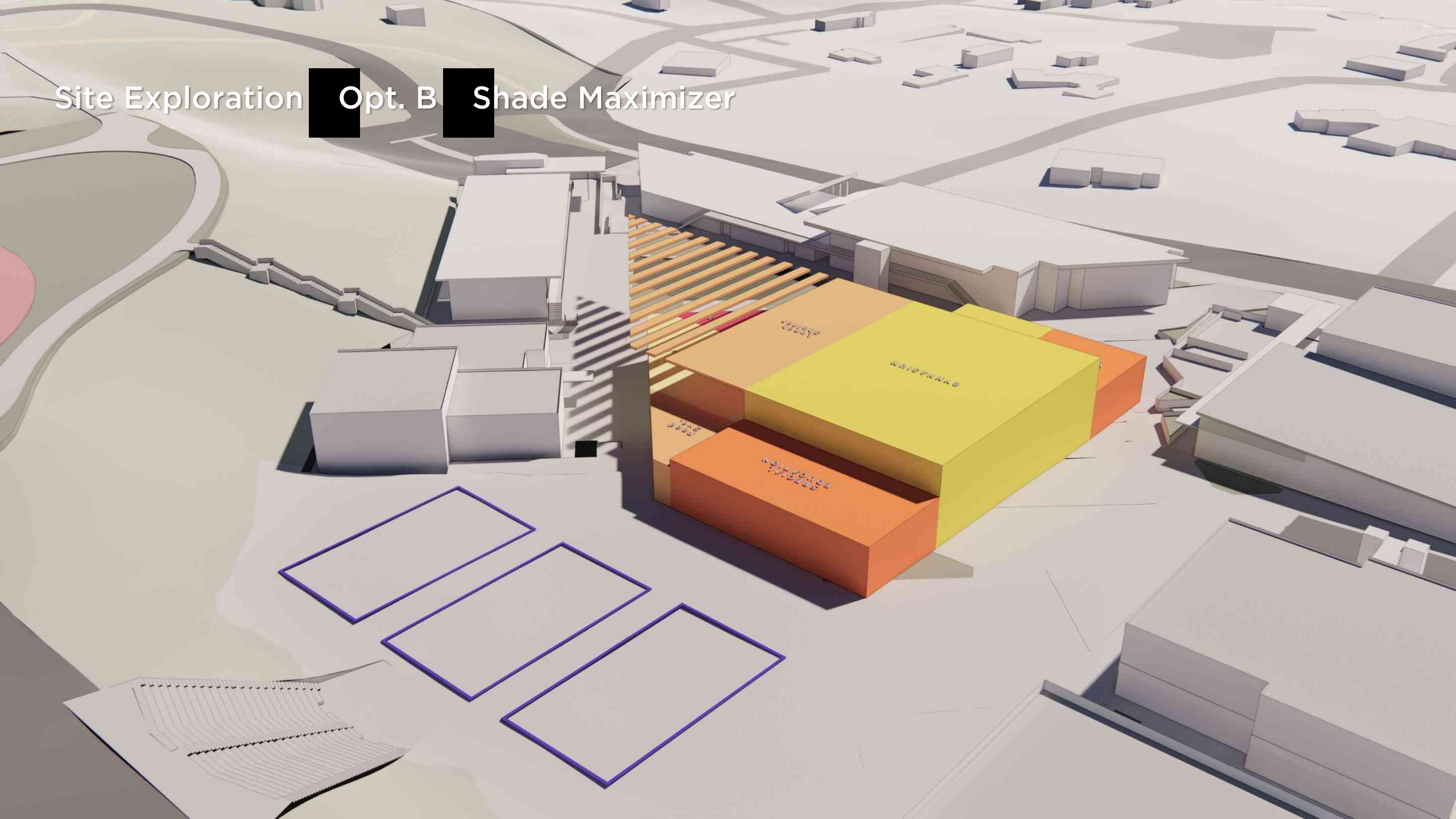
Level 02



Site Exploration | Opt. B | Shade Maximizer



Site Exploration [redacted] Opt. B [redacted] Shade Maximizer



Site Exploration | Opt. B | Shade Maximizer



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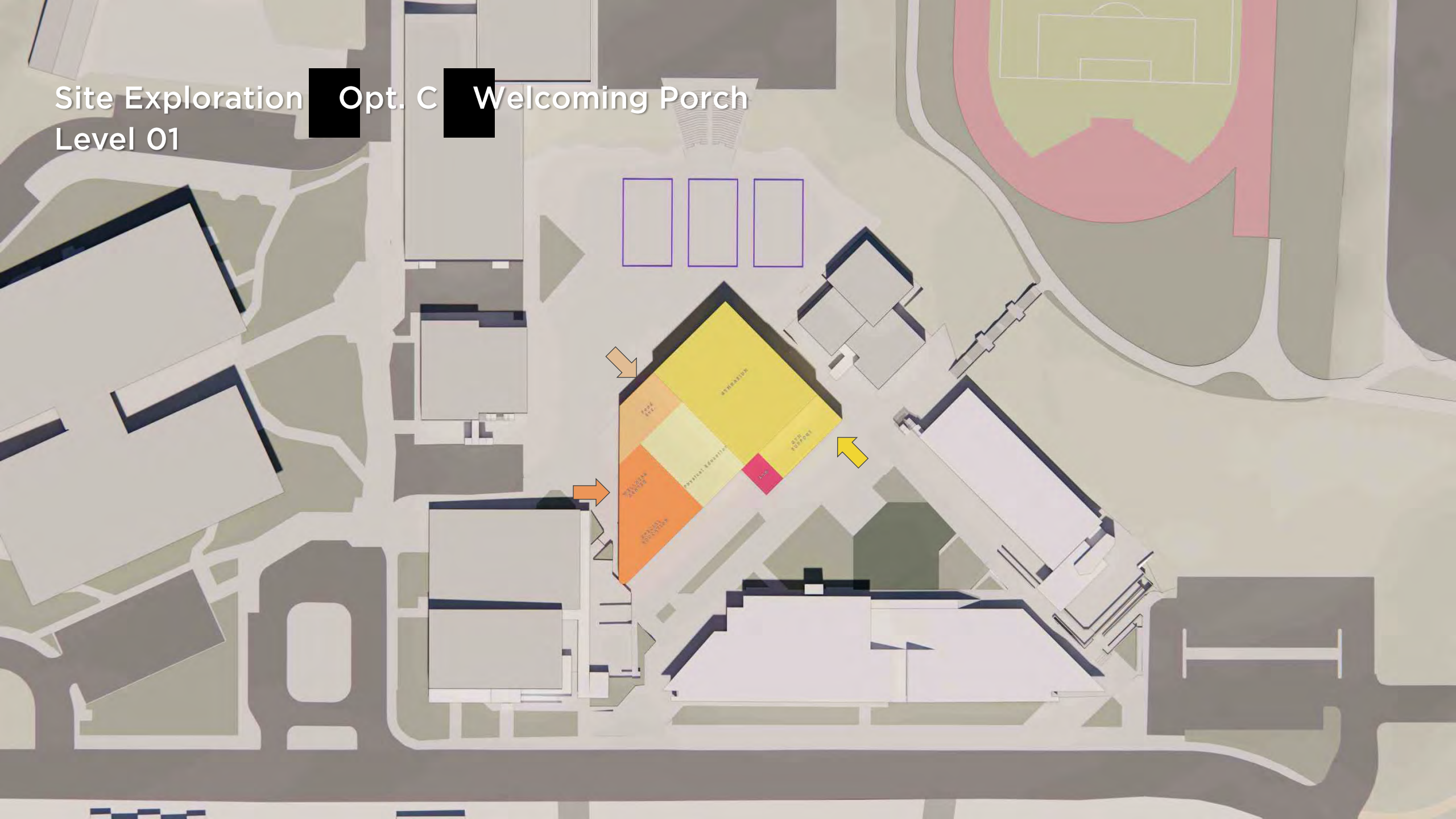
Level 01



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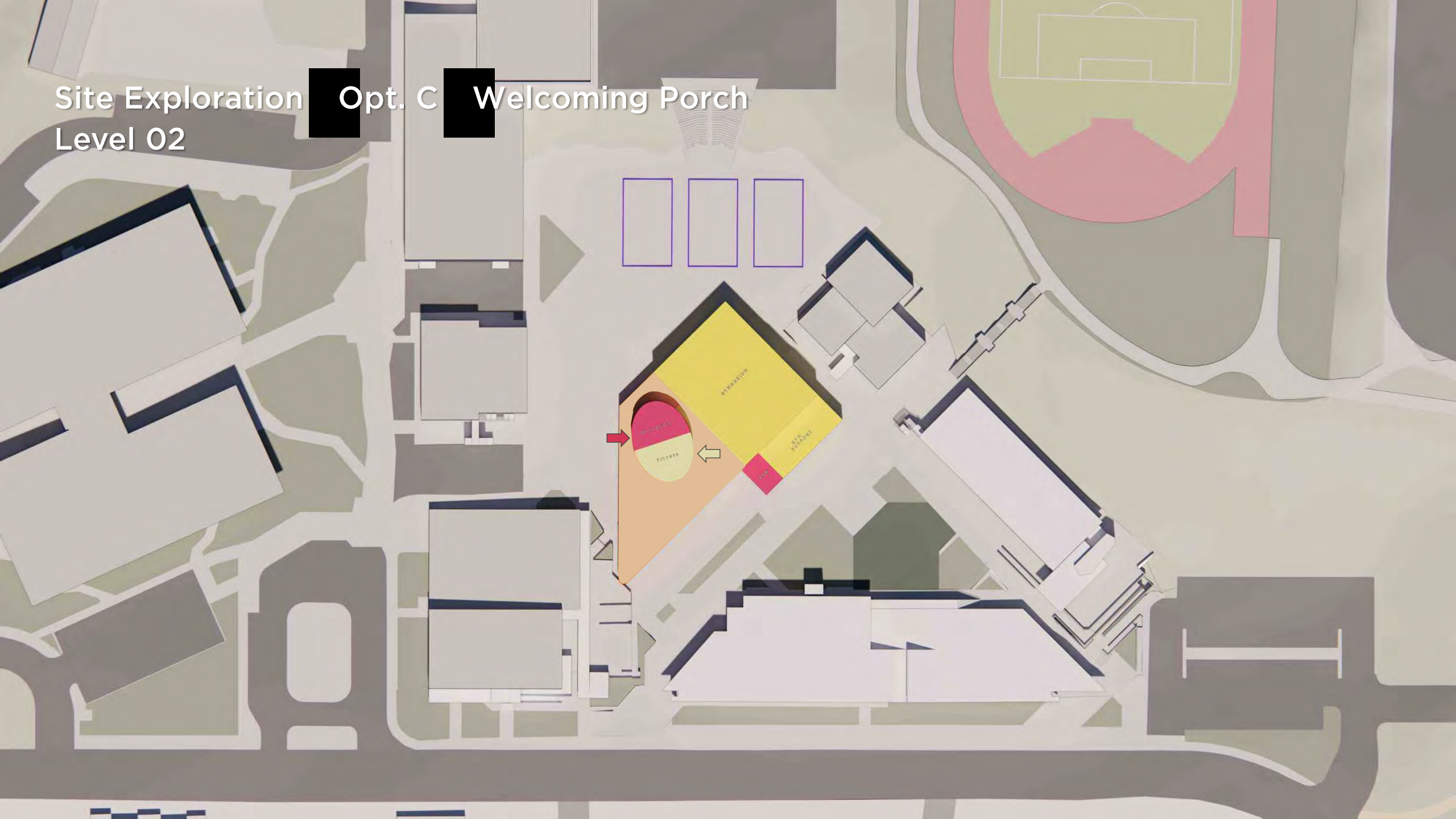
Level 02



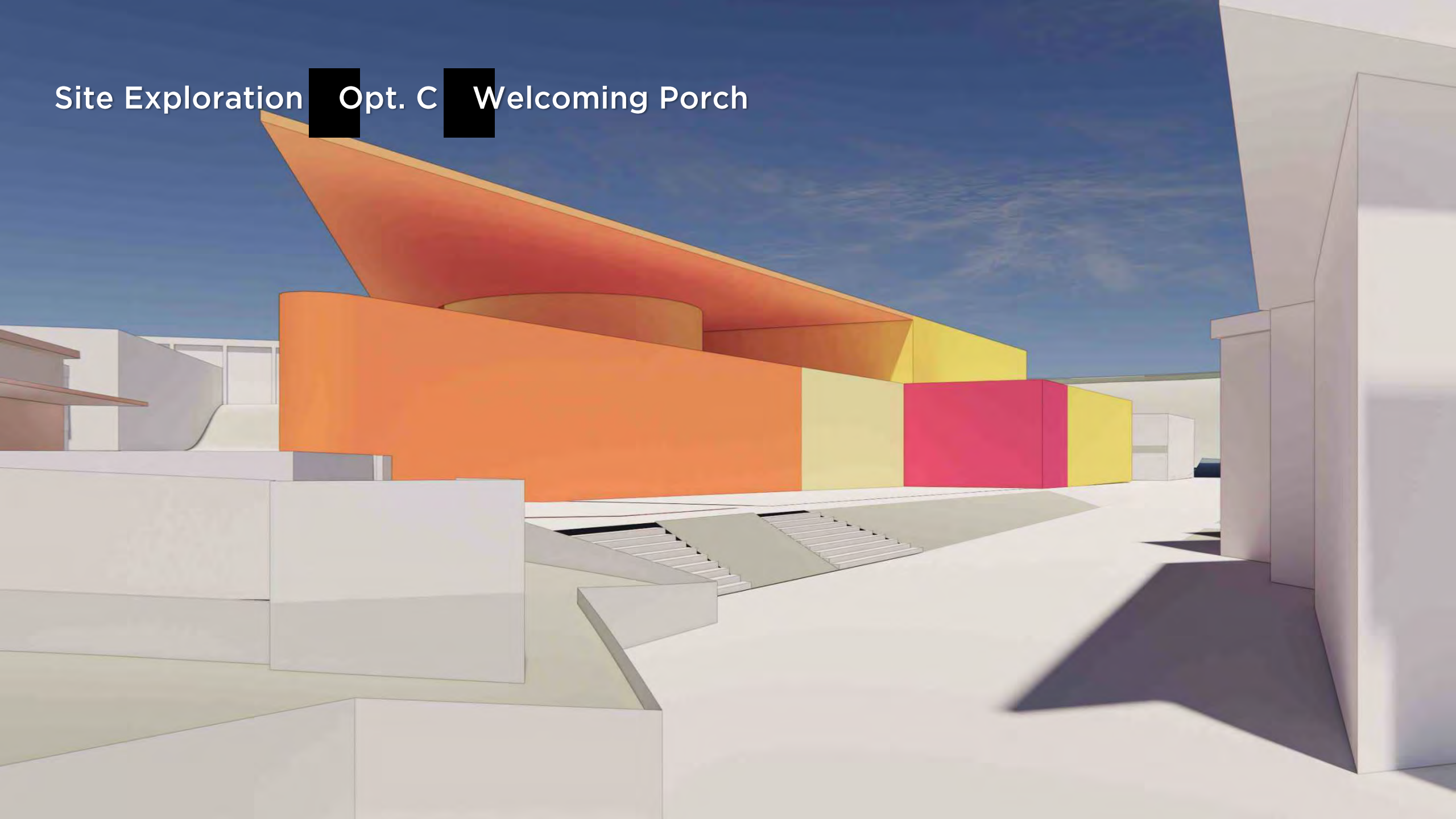
Site Exploration | Opt. C | Welcoming Porch



Site Exploration | Opt. C | Welcoming Porch



Site Exploration | Opt. C | Welcoming Porch



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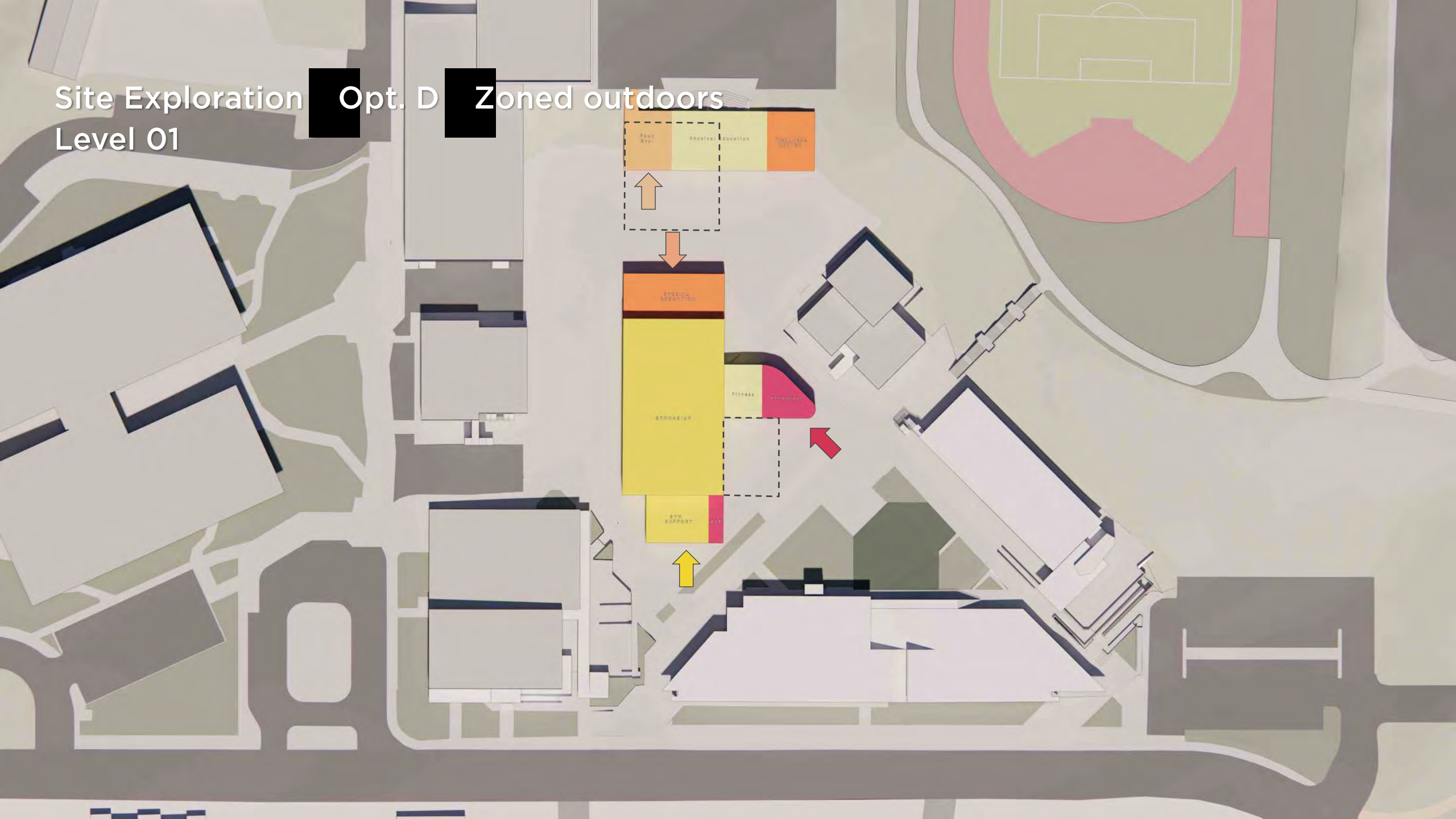
Level 01



Site Exploration | Opt. D | Zoned outdoors



Site Exploration | Opt. D | Zoned outdoors



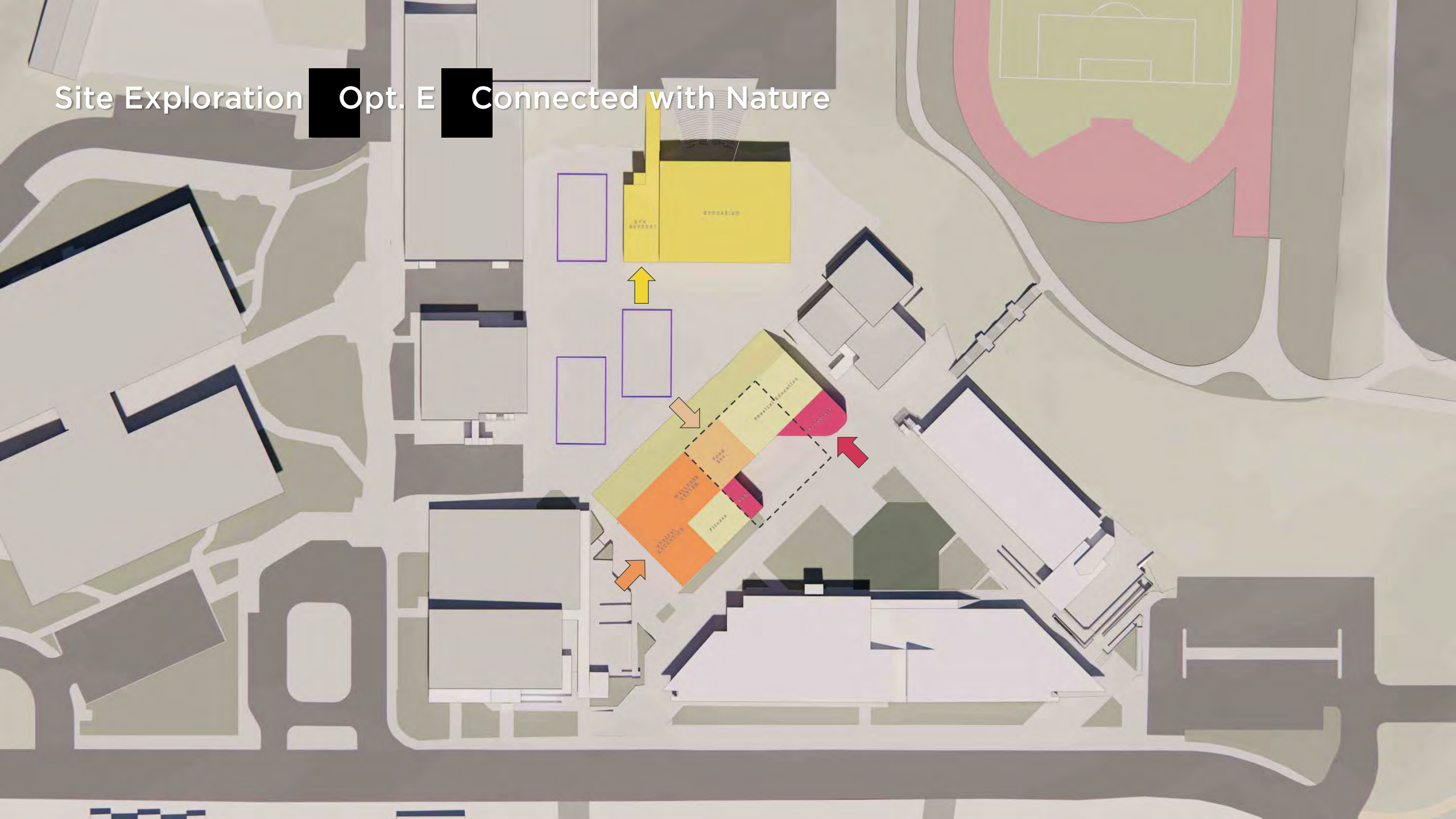
Site Exploration [redacted] Opt. D [redacted] Zoned outdoors



Site Exploration | Opt. D | Zoned outdoors



Site Exploration Opt. E Connected with Nature



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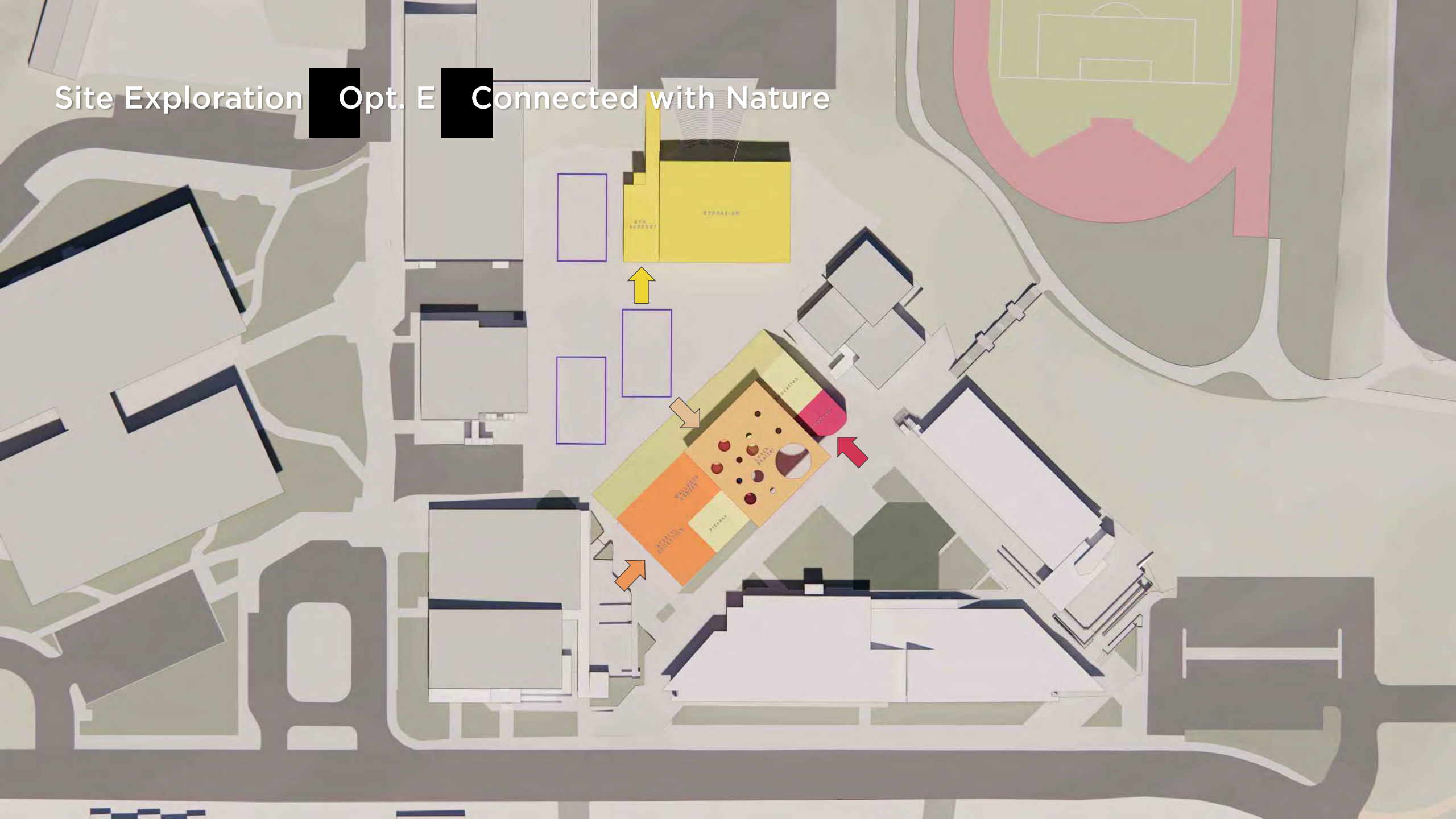


Site Exploration | Opt. E | Connected with Nature



Site Exploration | Opt. E | Connected with Nature



Site Exploration [redacted] Opt. E [redacted] Connected with Nature



Site Exploration Opt. E Connected with Nature





Malibu Middle School Phase 2

Pre Design Review

June 13, 2024

Malibu HS & MS Campus Plan - Phase 2

High School

1. Classrooms / Student Support Services / Administrative and Campus Support (Phase 1)
2. Building J – New Gymnasium (existing)
3. Building J – Old Gymnasium (existing)
4. Building J – Locker Rooms (existing)

Middle School

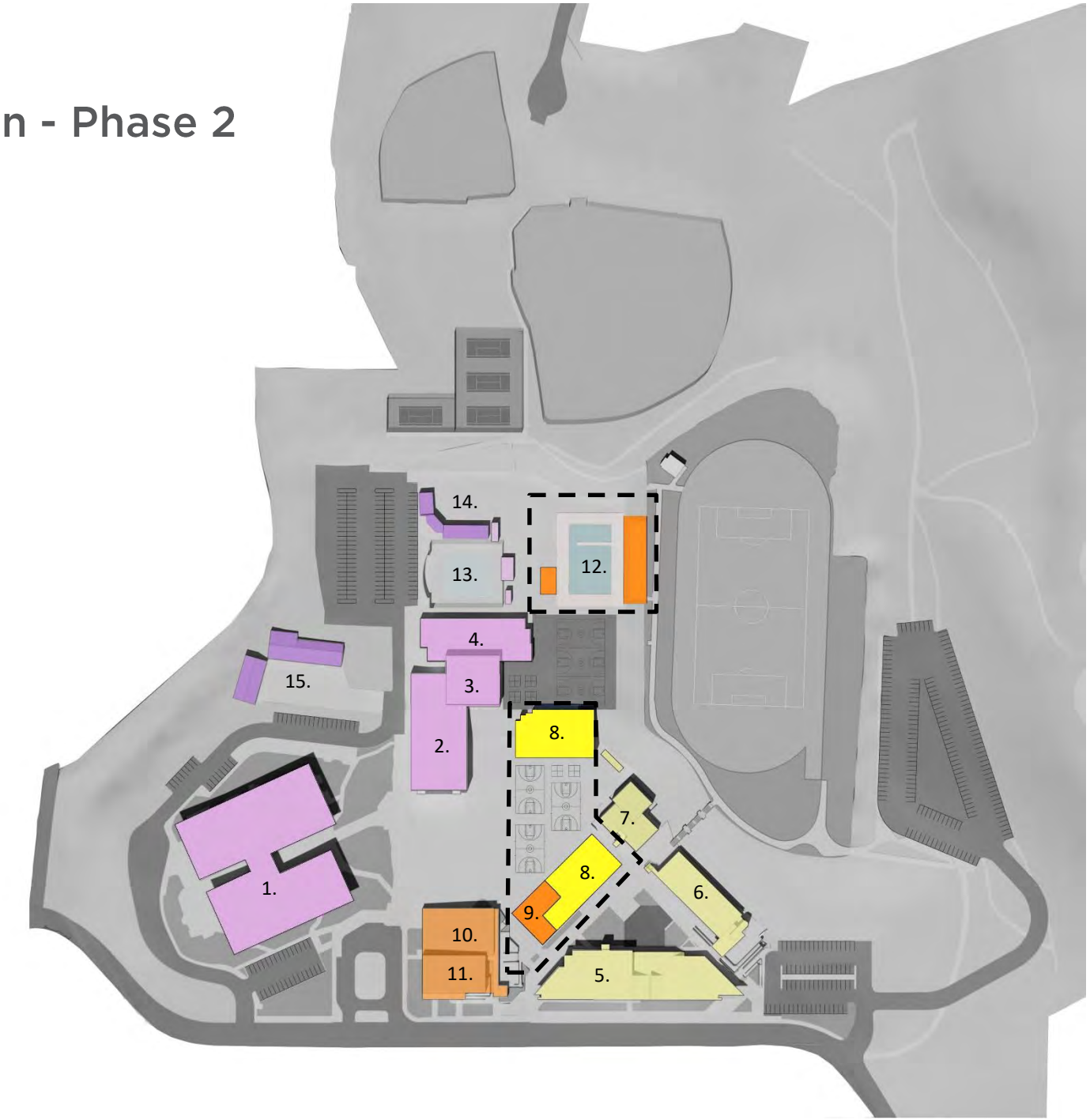
5. Building A/B – Administration / Library / Classrooms (existing)
6. Building E – Classrooms (existing)
7. Building F – Music (existing)
8. **Building D – Gymnasium / Fitness / PE / Student Activities / Food Service**

Shared Uses

9. **Living Skills and Campus Wellness Center**
10. Food Service & Auditorium Support
11. Auditorium
12. **Aquatics Center / Field House**

Other

13. Pool (existing)
14. Boys & Girls Club (existing)
15. Bus Barn – (existing)



Malibu HS & MS Campus Plan - Phase 3

High School

1. Classrooms / Student Support Services / Administrative and Campus Support (Phase 1)
2. **Gymnasium Lobby**
3. Building J – Gymnasium (existing)
4. **Weight Room & Dance**
5. **Locker Rooms / Athletic Sports Programs**

Middle School

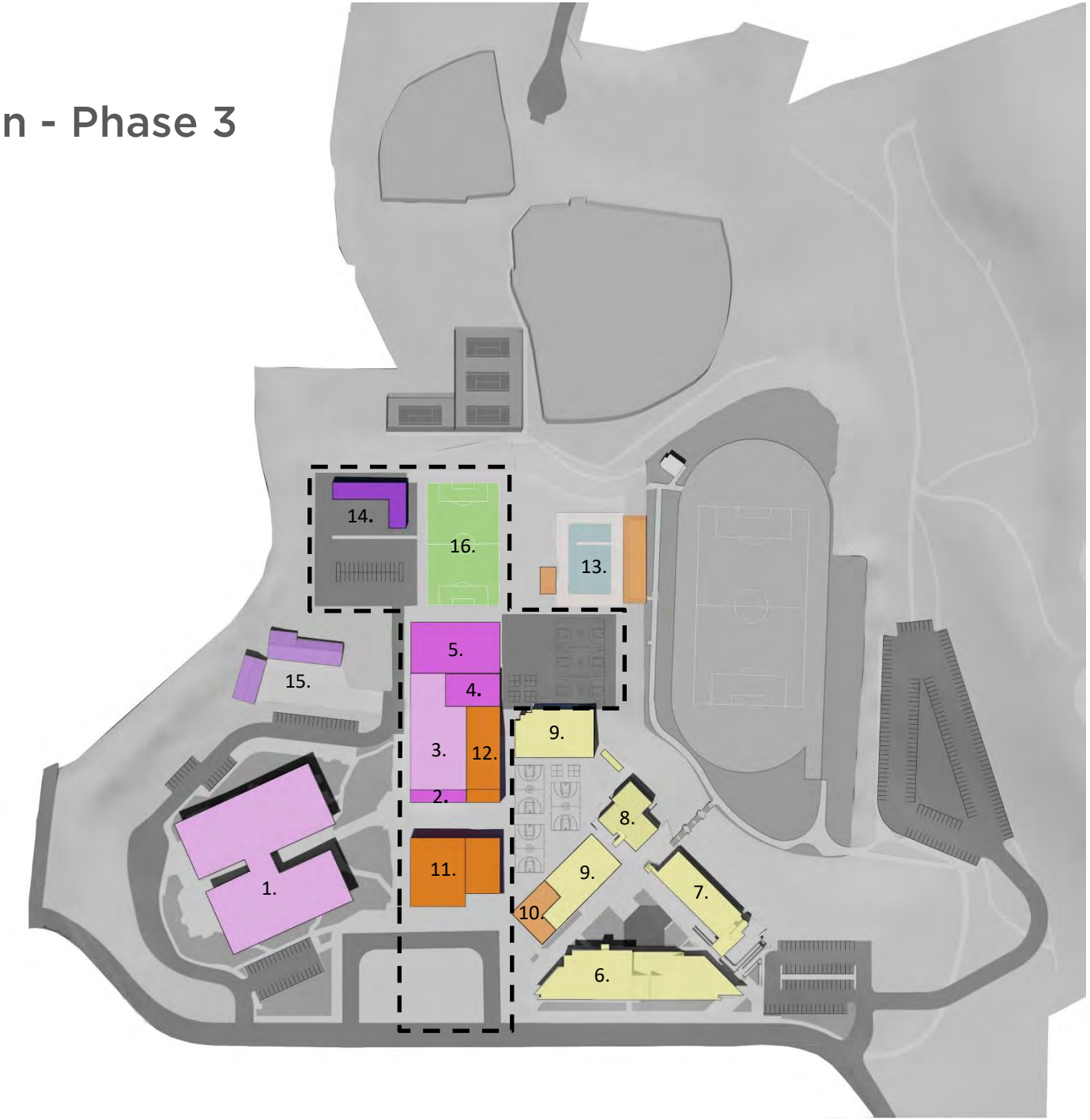
6. Building A/B – Administration / Library / Classrooms (existing)
7. Building E – Classrooms (existing)
8. Building F – Music (existing)
9. Building D – Gymnasium / Fitness / PE / Student Activities / Food Service (Phase 2)

Shared Uses

10. Living Skills and Campus Wellness Center (Phase 2)
11. **Theatre**
12. **Performing Arts (Music, Drama, Video Production)**
13. Aquatics Center / Field House (Phase 2)

Other

14. **Boys and Girls Club**
15. Bus Barn – (existing)
16. **Practice Field**



Malibu HS & MS Campus Plan - Phase 4

High School

1. Classrooms / Student Support Services / Administrative and Campus Support (Phase 1)
2. Gymnasium Lobby
3. Building J – Gymnasium (existing)
4. Weight Room & Dance
5. Locker Rooms / Athletic Sports Programs

Middle School

6. Building A/B – Administration / Library / Classrooms (existing)
7. Building E – Classrooms (existing)
8. Building D – Gymnasium / Fitness / PE / Student Activities / Food Service (Phase 2)

Shared Uses

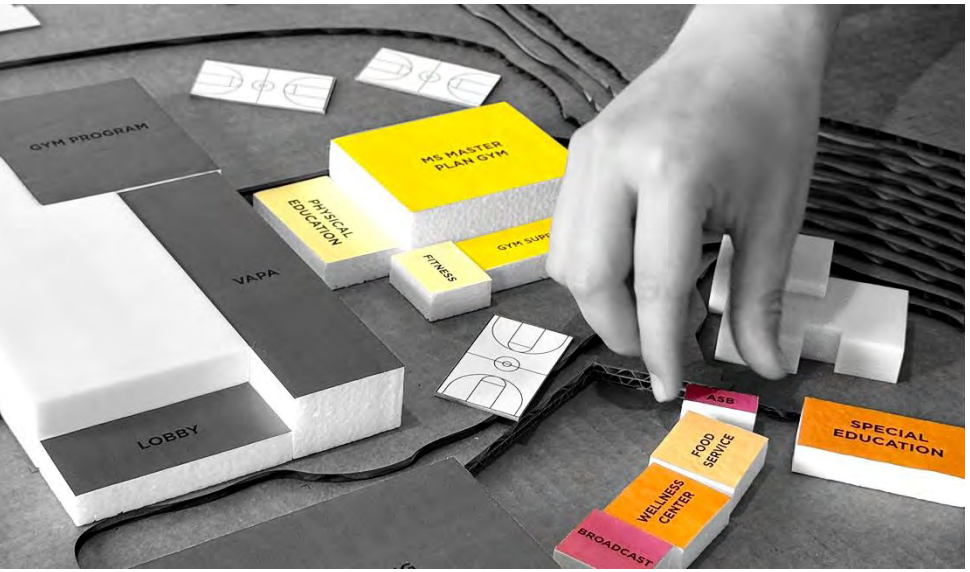
9. Living Skills and Campus Wellness Center (Phase 2)
10. Theatre (Phase 3)
11. Performing Arts (Music, Drama, Video Production) (Phase 3)
12. Aquatics Center / Field House (Phase 2)
13. **Stadium Bleachers**

Other

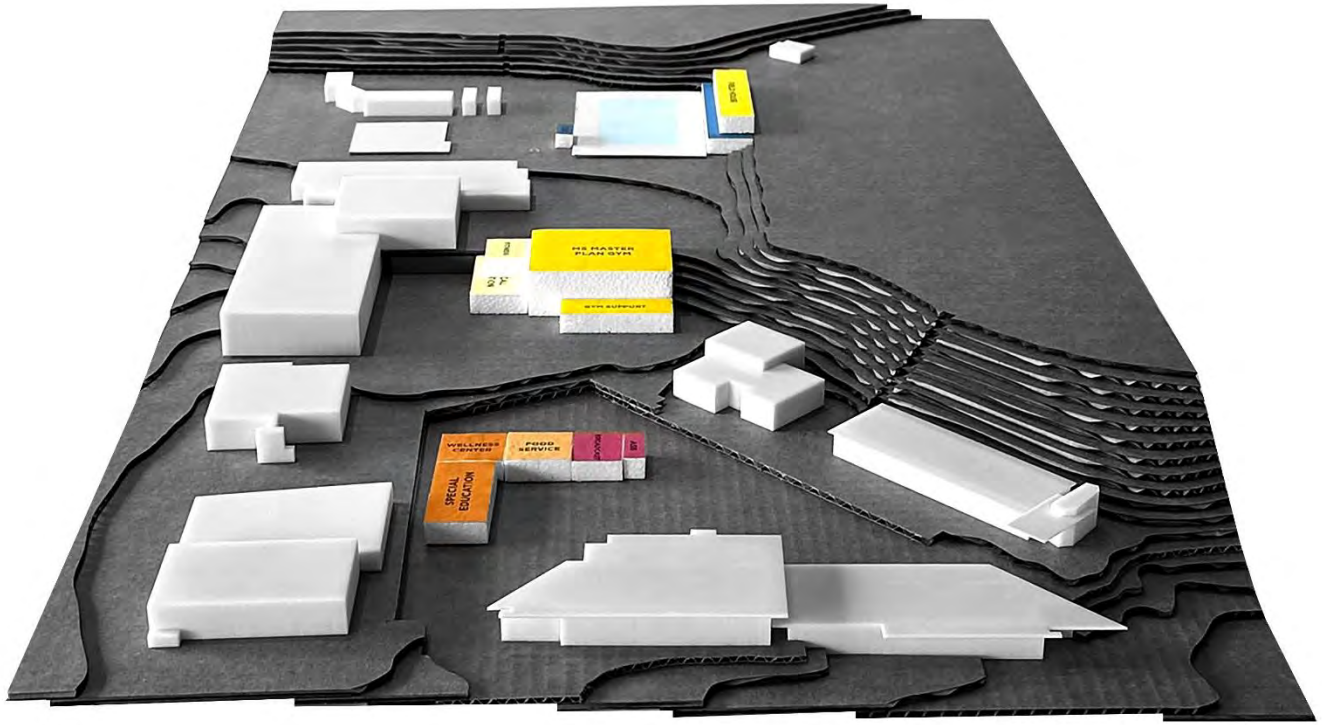
14. Boys and Girls Club (Phase 3)
15. **New Parking (80 stalls)**
16. Practice Field (Phase 3)



Site Exploration – Physical Model

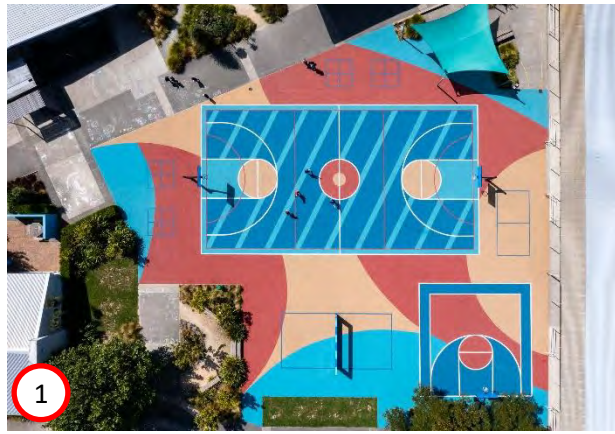






Malibu MS – Phase 2 | Site Exploration







Malibu MS – Phase 2 | Site Exploration









Malibu MS – Phase 2 | Site Exploration







Malibu MS/HS – Phase 2 | Site Exploration – Aquatic Complex











Malibu Middle School Phase 2

Schematic Design Meeting 02

July 11, 2024

Malibu HS & MS Campus Plan - Phase 2

High School

1. Classrooms / Student Support Services / Administrative and Campus Support (Phase 1)
2. Building J – New Gymnasium (existing)
3. Building J – Old Gymnasium (existing)
4. Building J – Locker Rooms (existing)

Middle School

5. Building A/B – Administration / Library / Classrooms (existing)
6. Building E – Classrooms (existing)
7. Building F – Music (existing)
8. **Building D – Gymnasium / Fitness / PE / Student Activities / Food Service**

Shared Uses

9. **Living Skills and Campus Wellness Center**
10. Food Service & Auditorium Support
11. Auditorium
12. **Aquatics Center / Field House**

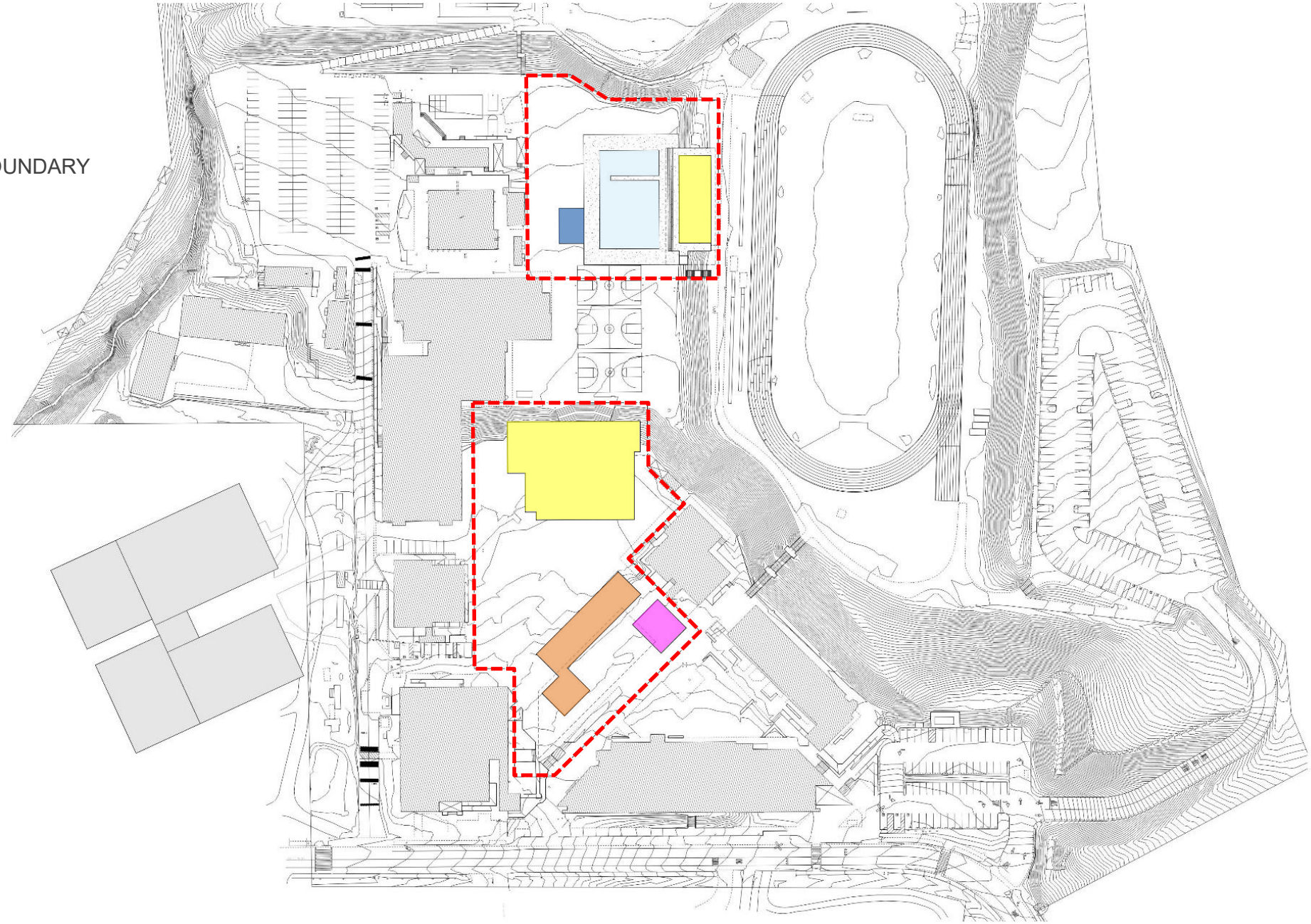
Other

13. Pool (existing)
14. Boys & Girls Club (existing)
15. Bus Barn – (existing)

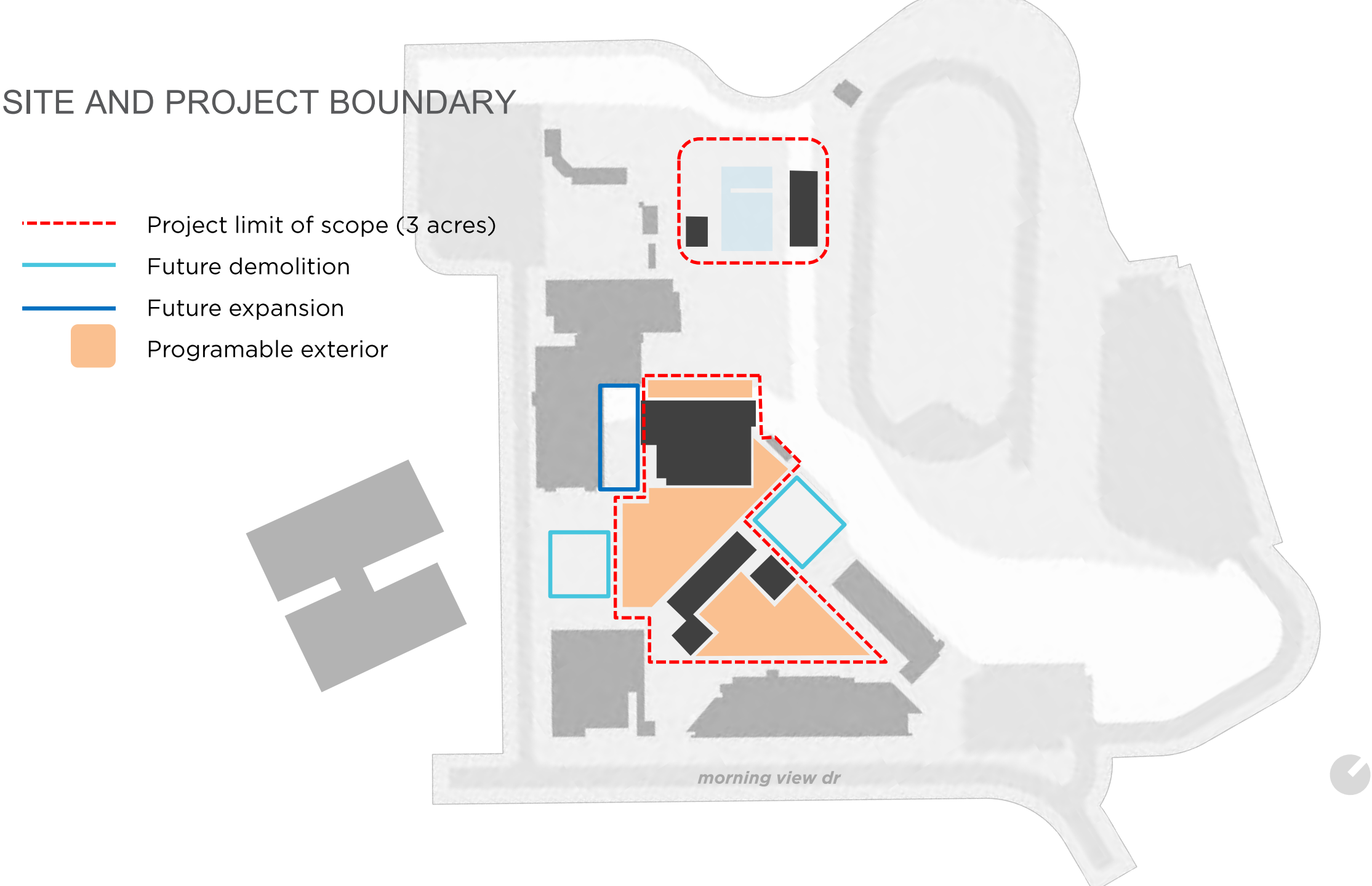


PHASE 2

PROJECT BOUNDARY



SITE AND PROJECT BOUNDARY



CONCEPT A – MS GYM – LEVEL 1

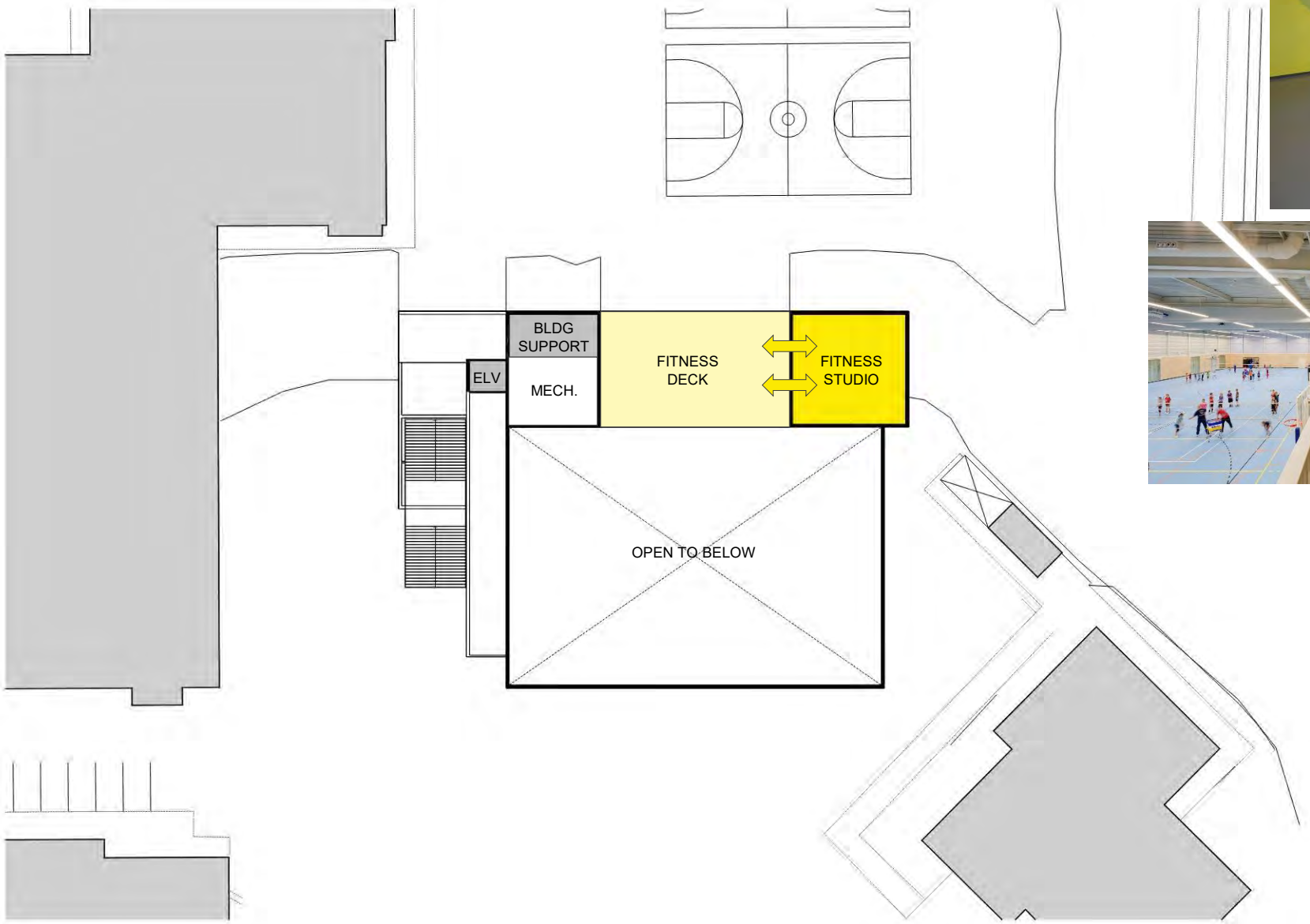






Main Entry
Physical Education
Gymnasium
Public
Support

CONCEPT A – MS GYM – LEVEL 2









- Main Entry
- Physical Education
- Gymnasium
- Public
- Support

CONCEPT A – MIDDLE SCHOOL



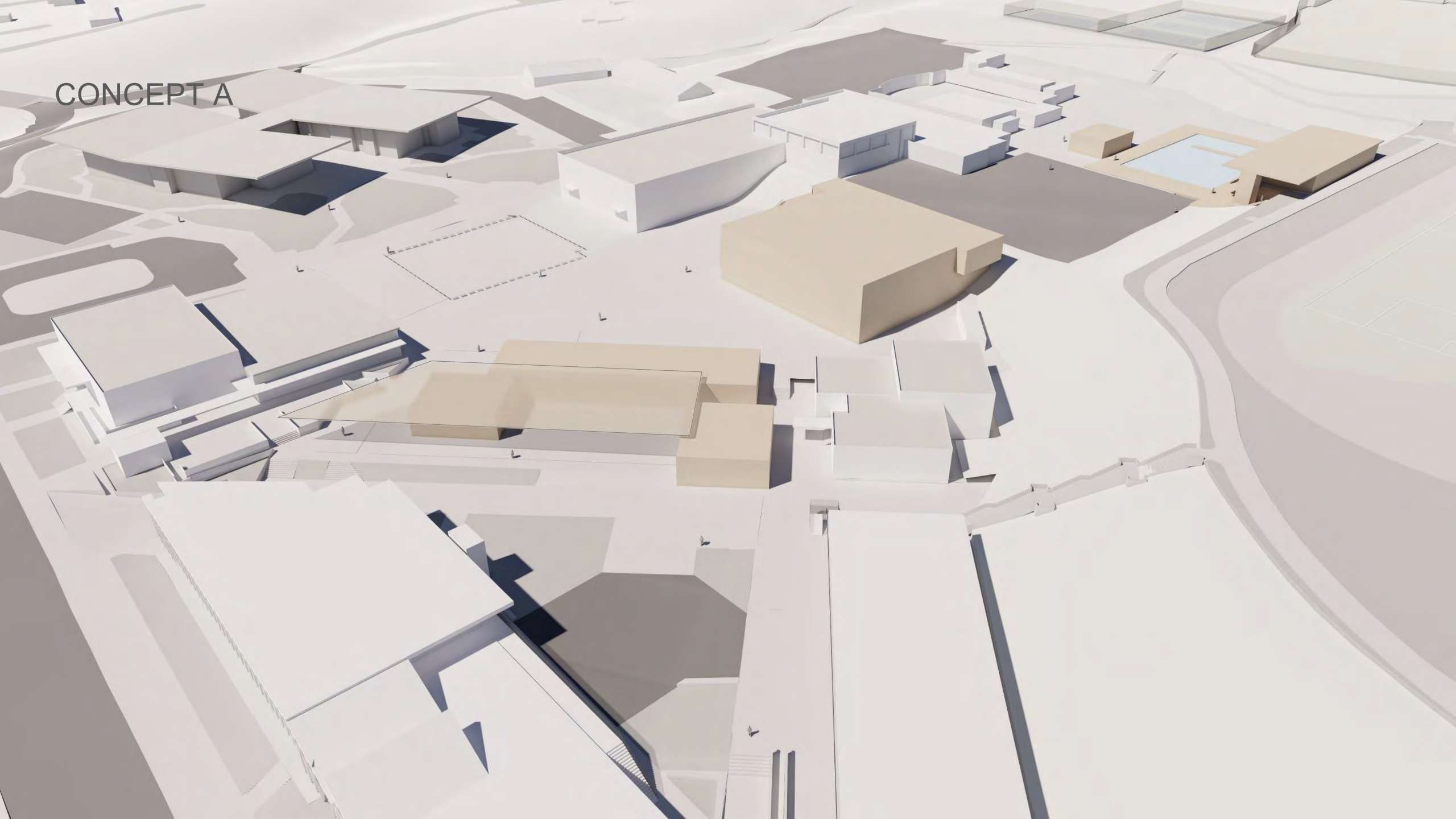




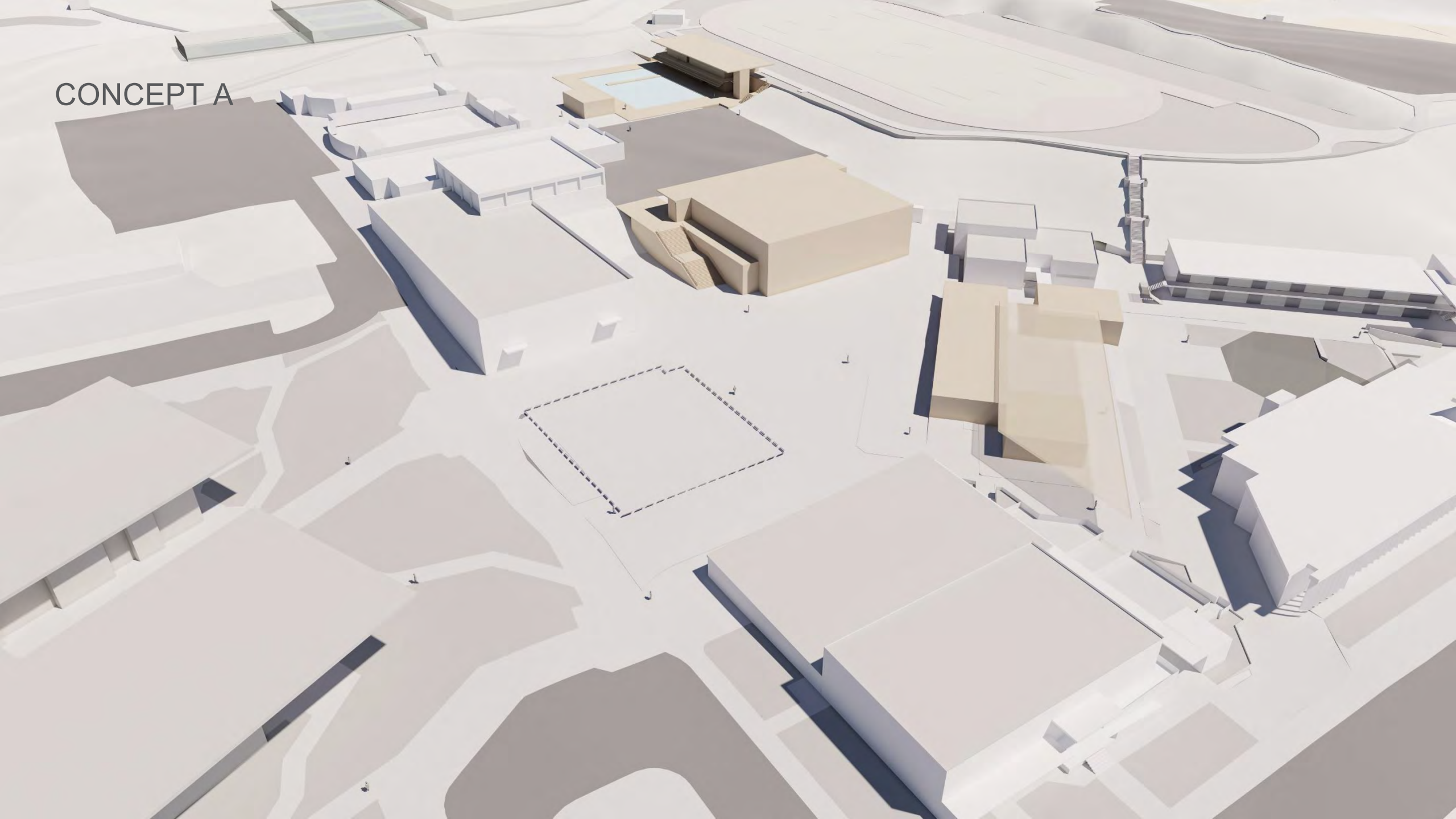


- Wellness / Special Education
- Food Service
- ASB / Broadcast
- Support
- Lunch / Shade Canopy Above

CONCEPT A



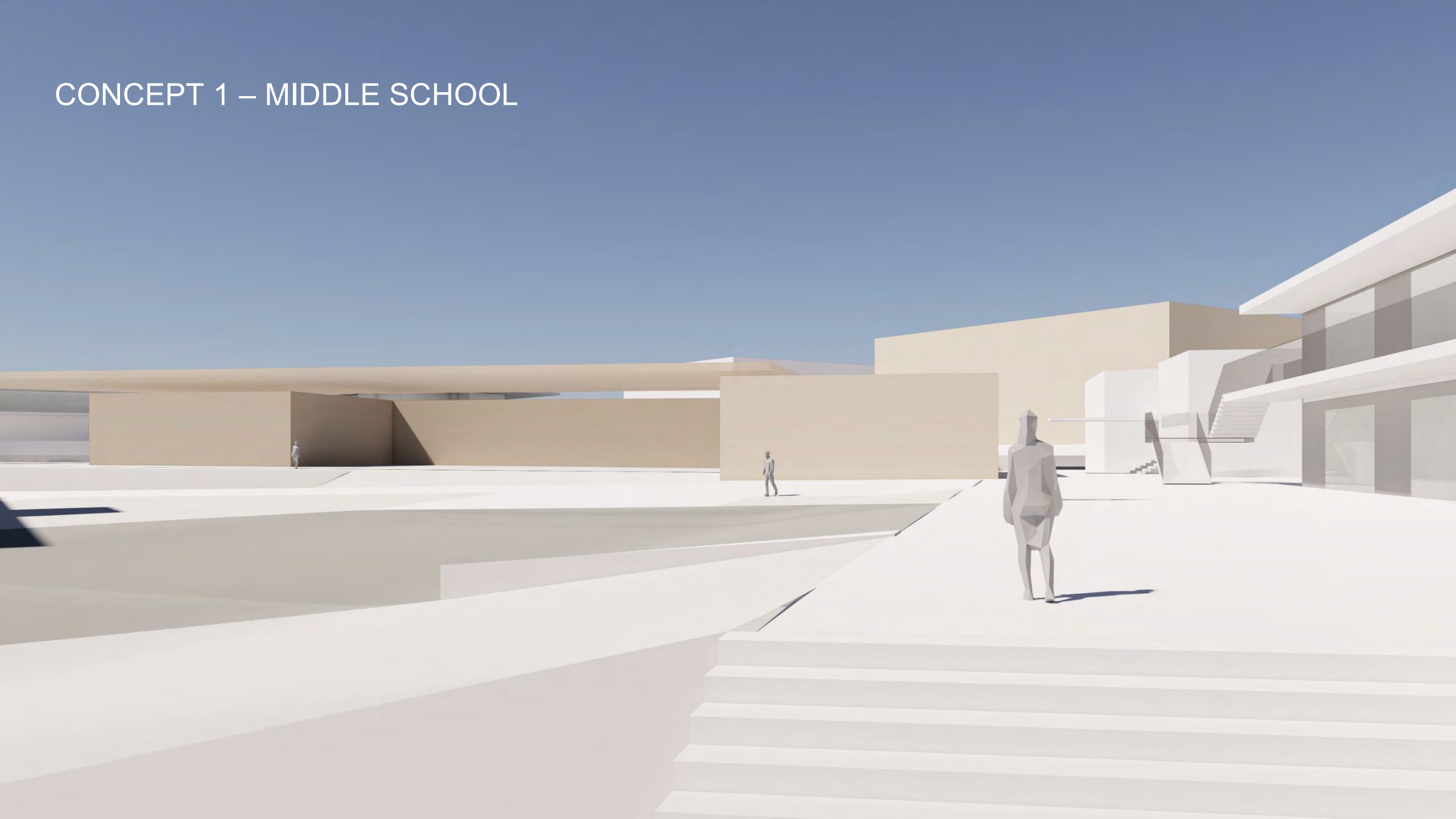
CONCEPT A



CONCEPT A – MS GYM



CONCEPT 1 – MIDDLE SCHOOL

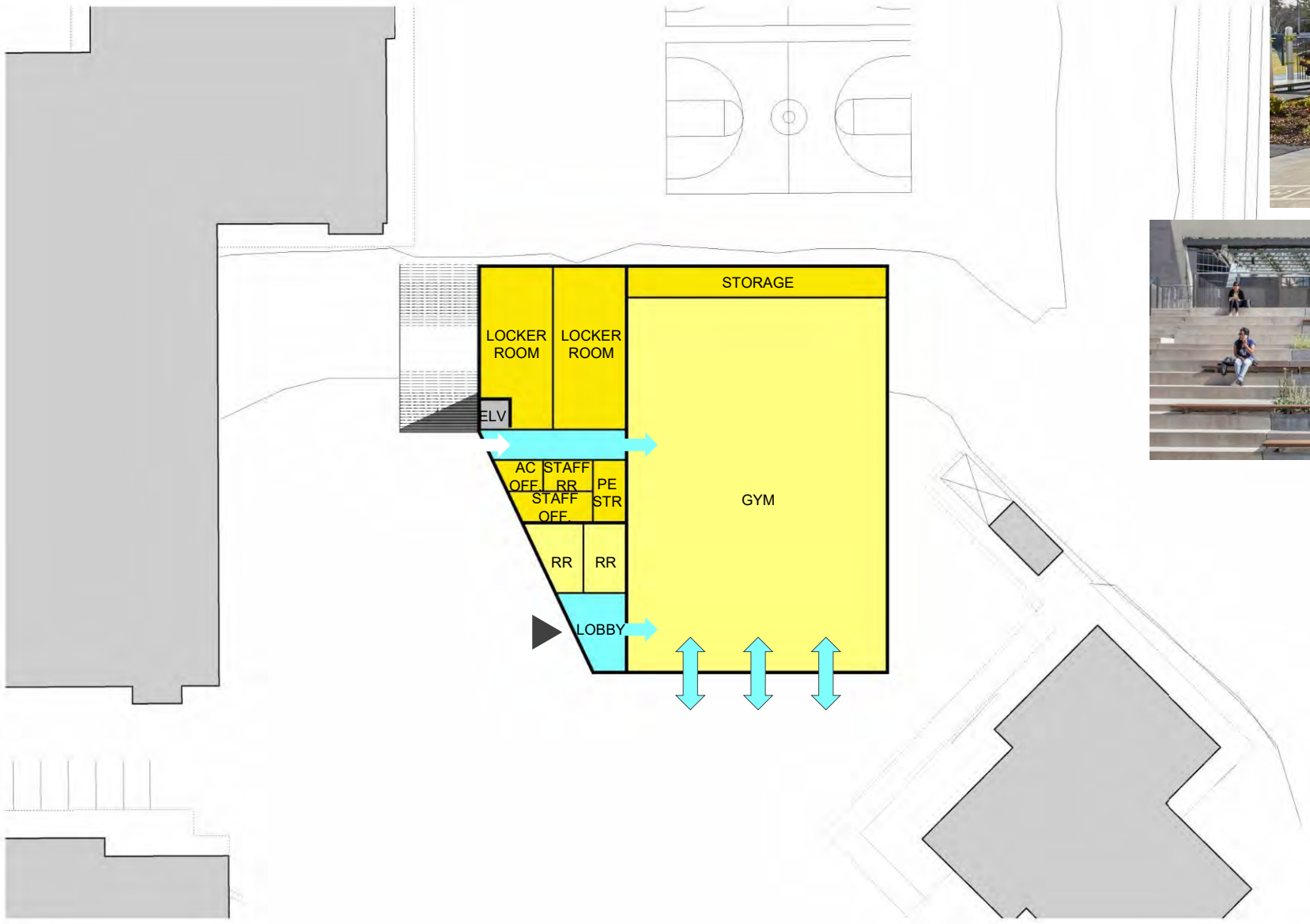


CONCEPT B – MS GYM – LEVEL 1



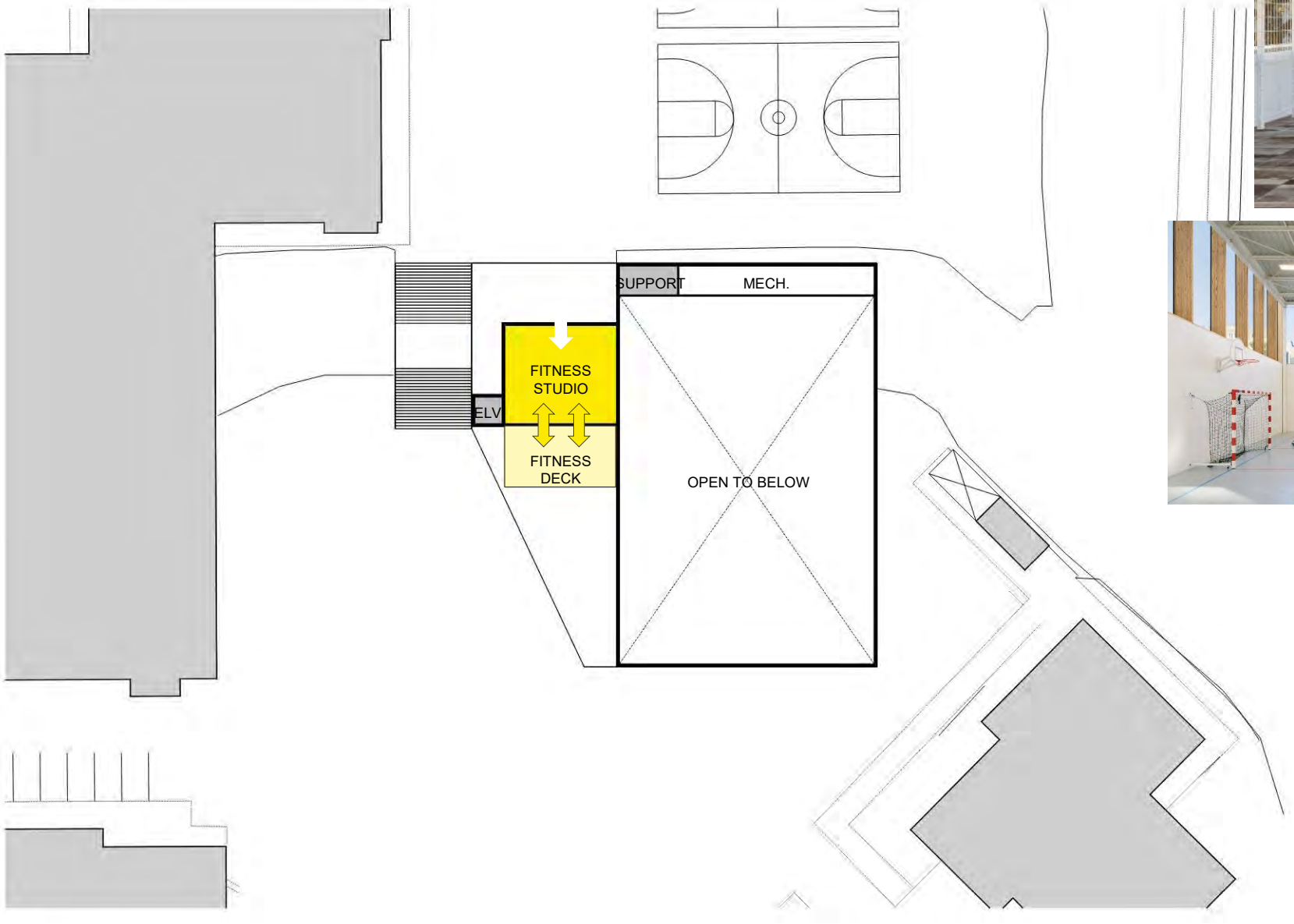






- Main Entry
- Physical Education
- Gymnasium
- Public
- Support

CONCEPT B – MS GYM – LEVEL 2









- Main Entry
- Physical Education
- Gymnasium
- Public
- Support

CONCEPT 1 – MIDDLE SCHOOL

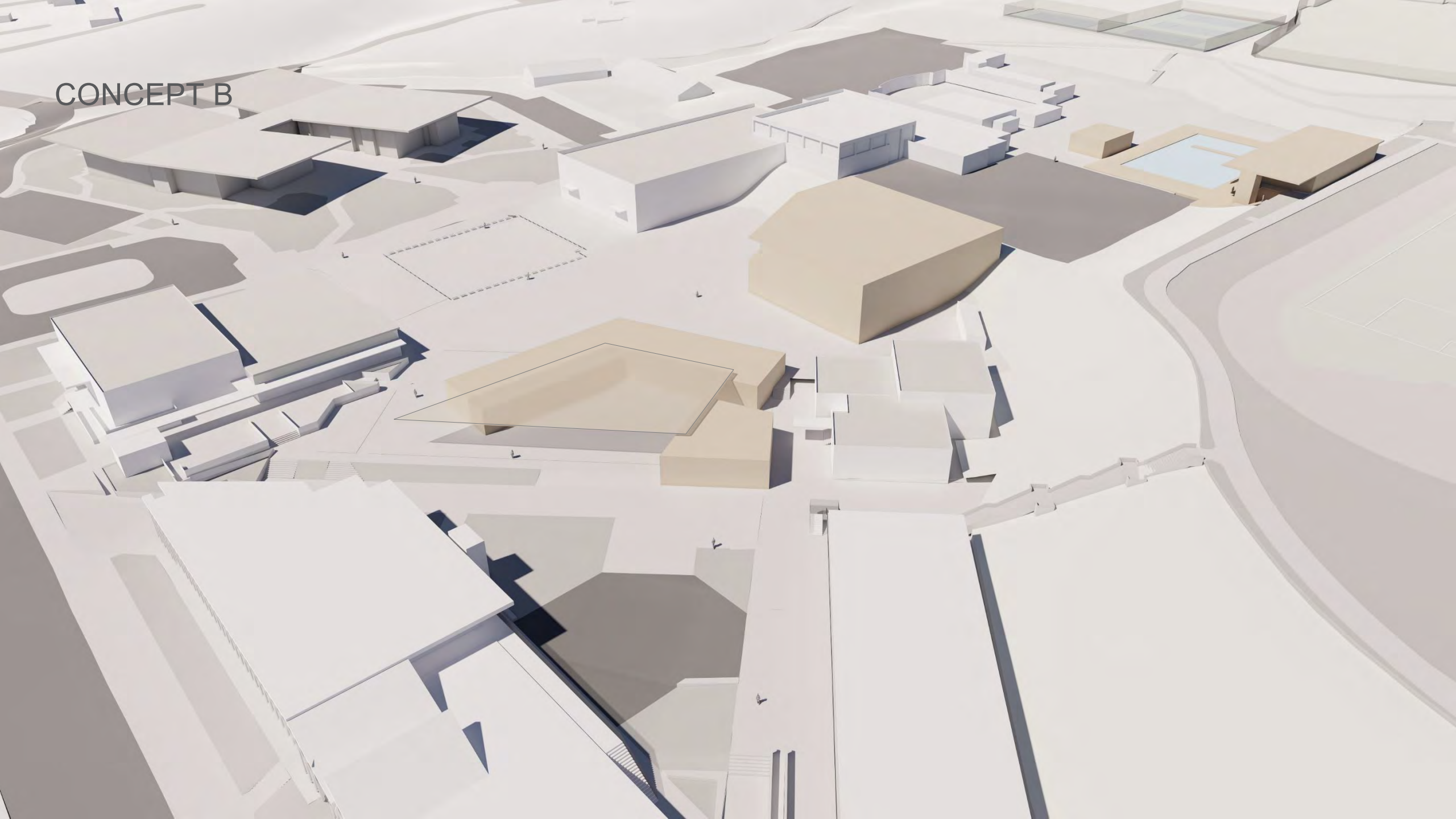




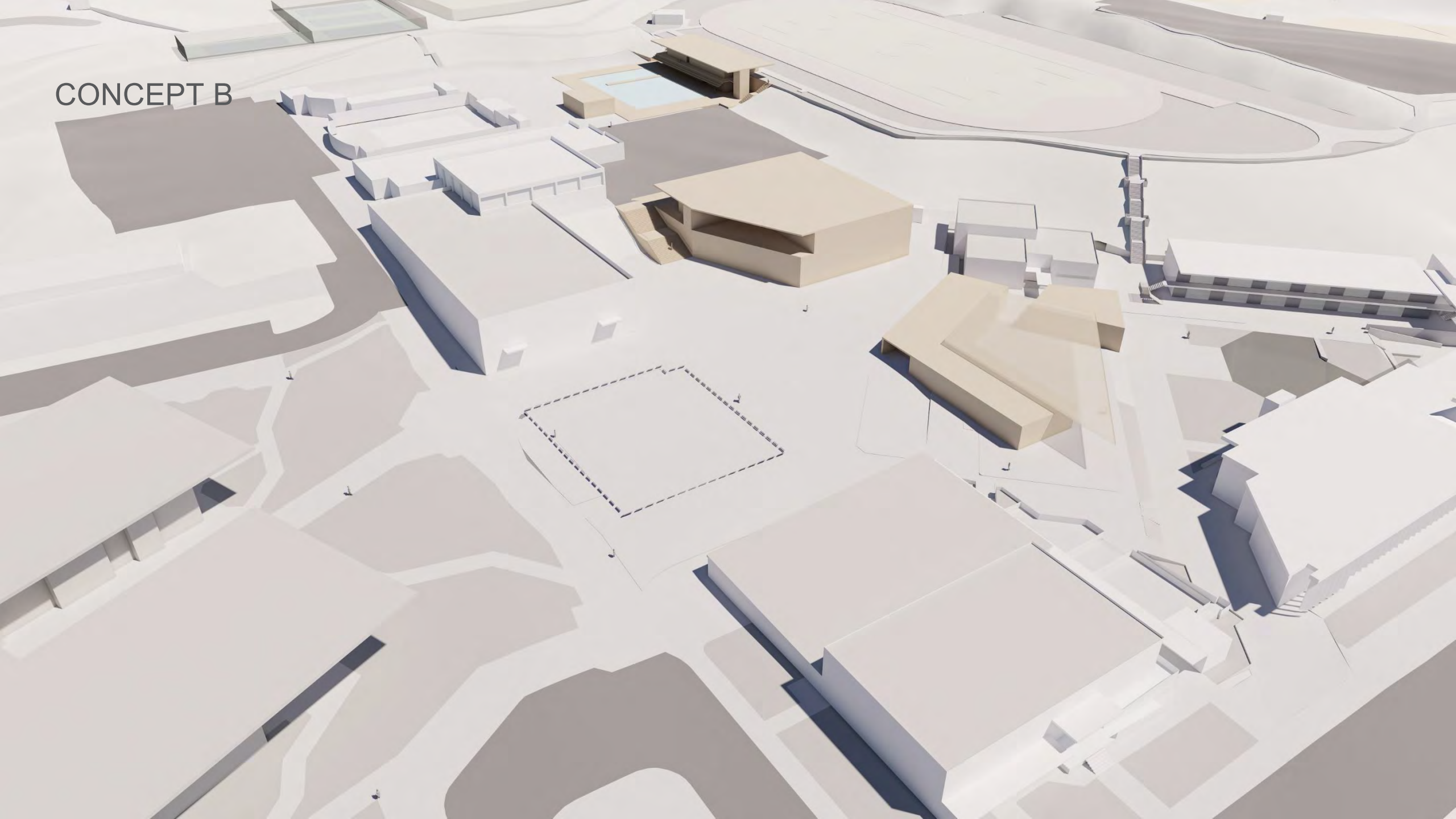


- Wellness / Special Education
- Food Service
- ASB / Broadcast
- Support
- Lunch / Shade Canopy Above

CONCEPT B



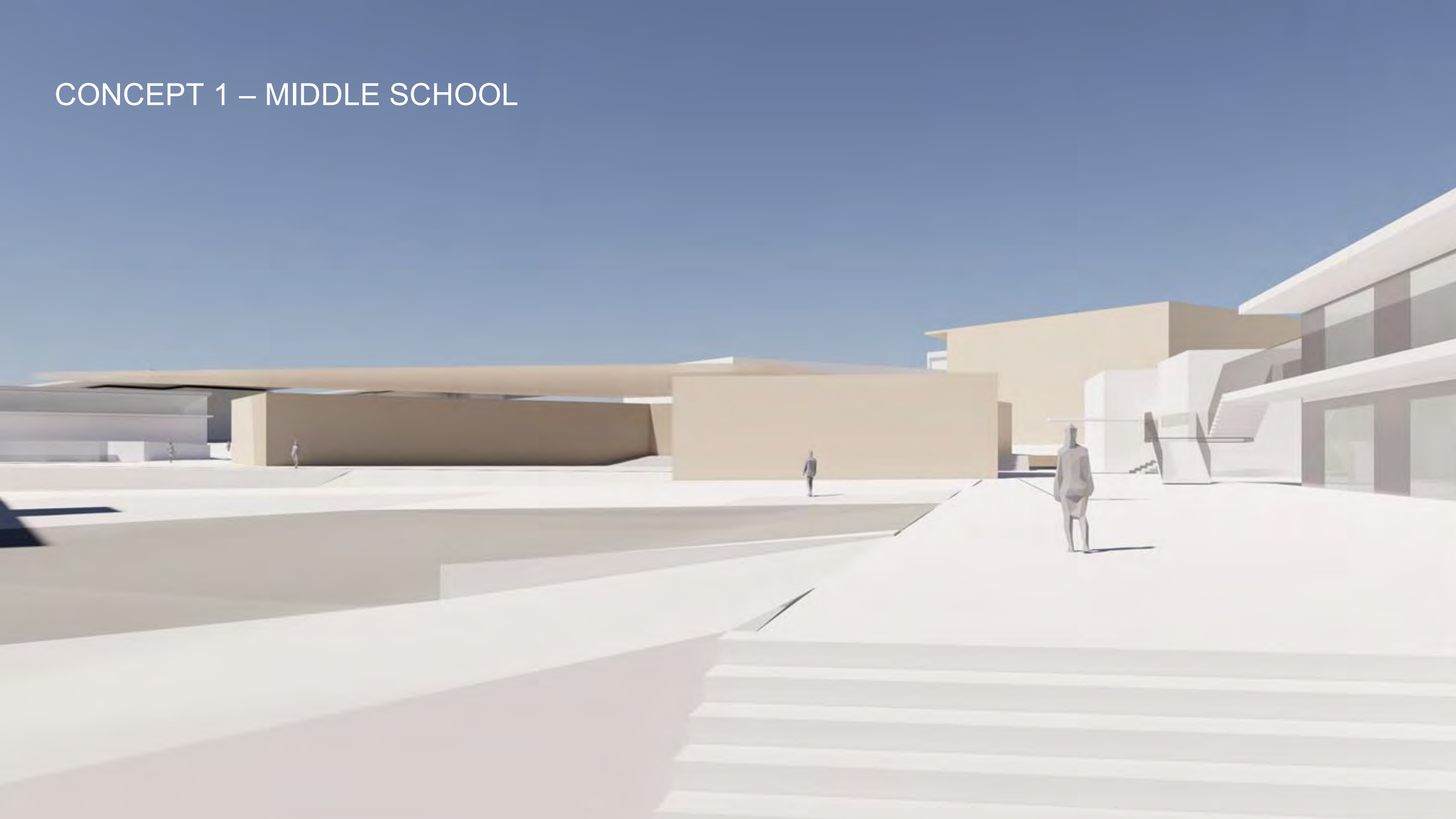
CONCEPT B



CONCEPT B – MS GYM



CONCEPT 1 – MIDDLE SCHOOL





Malibu Middle School Phase 2

Schematic Design Meeting 03

July 26, 2024

campus plan | phase 2

High School

1. Classrooms / Student Support Services / Administrative and Campus Support (Phase 1)
2. Building J – New Gymnasium (existing)
3. Building J – Old Gymnasium (existing)
4. Building J – Locker Rooms (existing)

Middle School

5. Building A/B – Administration / Library / Classrooms (existing)
6. Building E – Classrooms (existing)
7. Building F – Music (existing)
8. **Building D – Gymnasium / Fitness / PE**
9. **Student Activities / Food Service**

Shared Uses

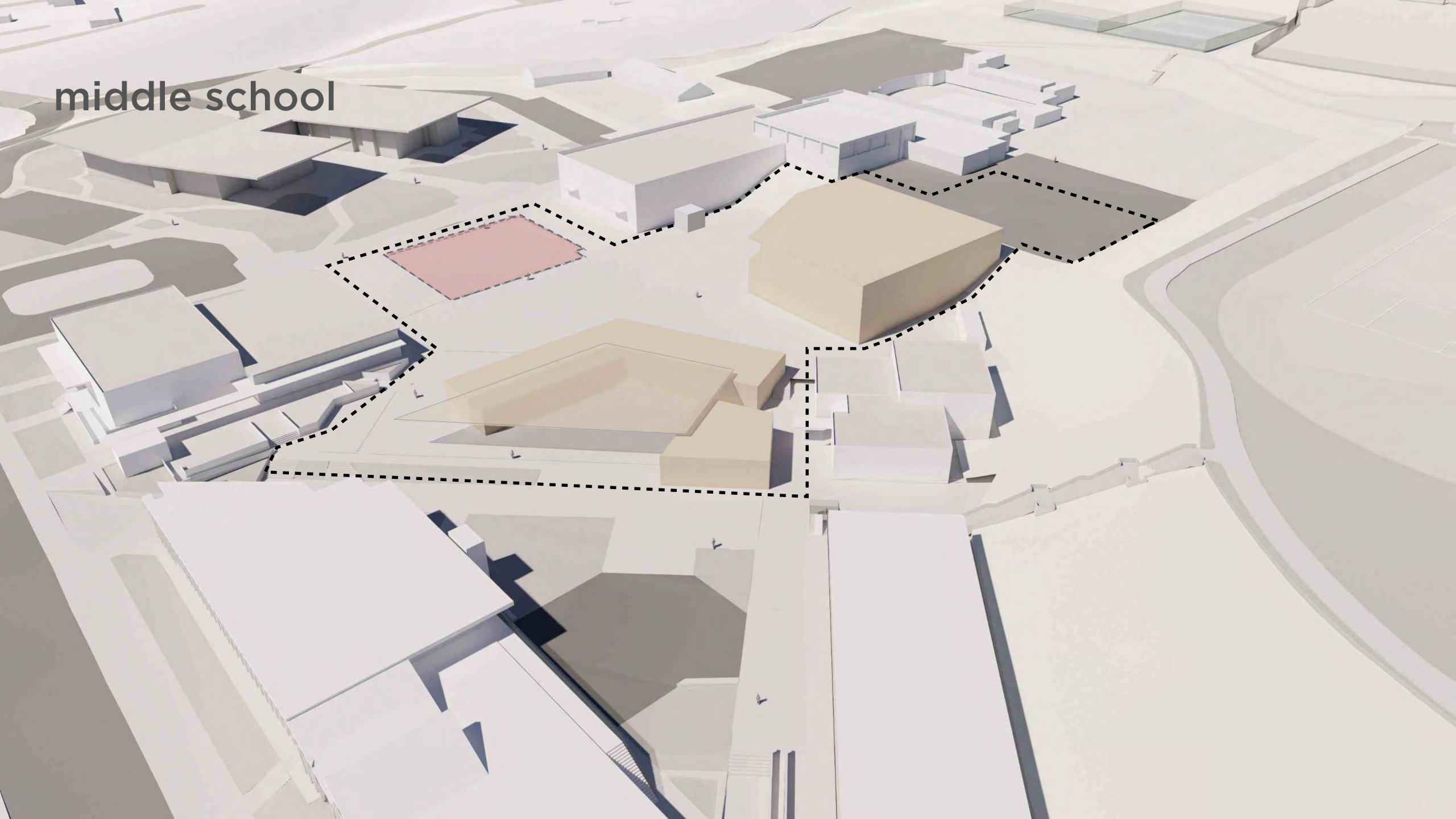
9. **Living Skills and Campus Wellness Center**
10. Food Service & Auditorium Support
11. Auditorium

Other

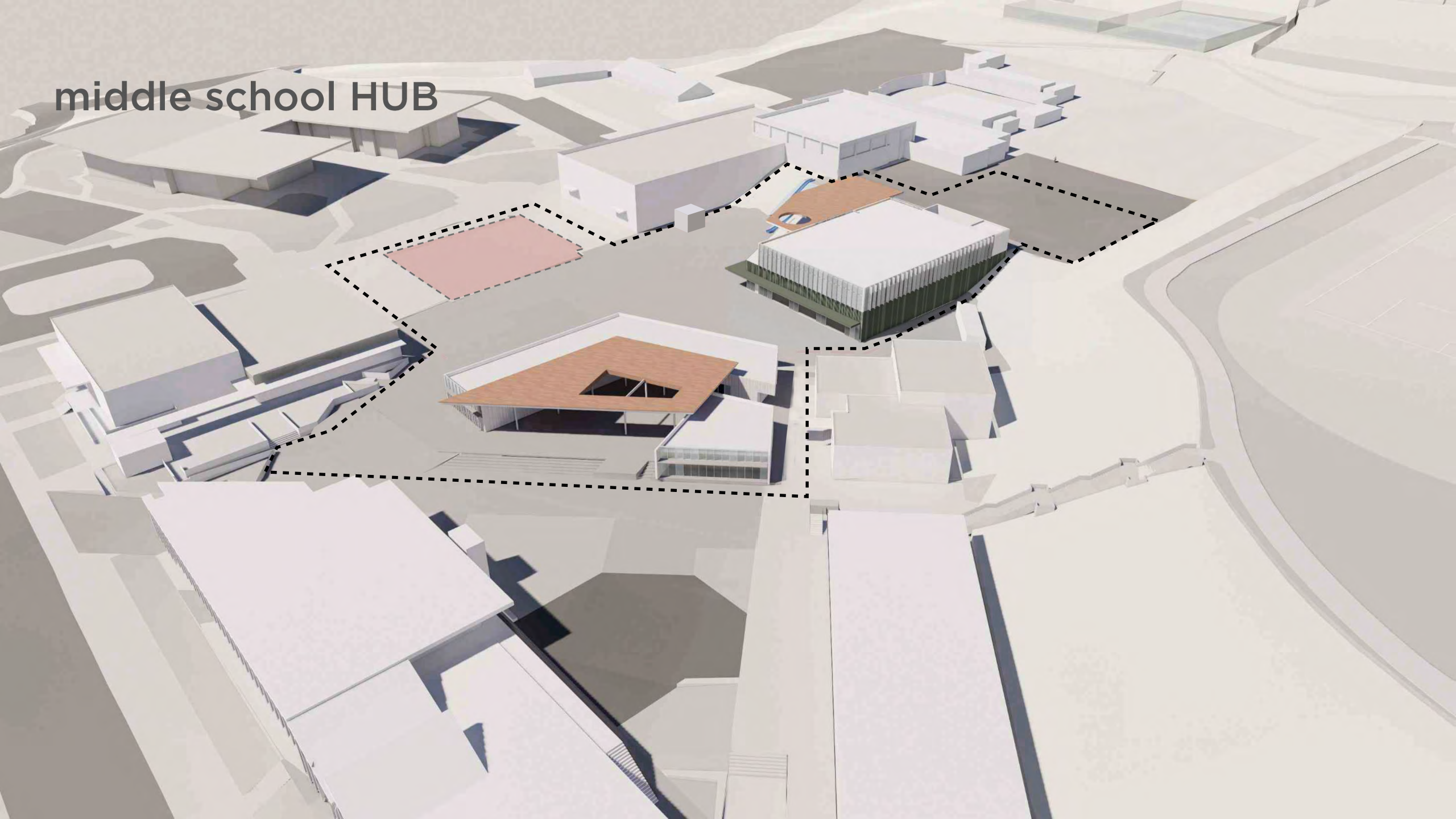
13. Pool (existing)
14. Boys & Girls Club (existing)
15. Bus Barn – (existing)

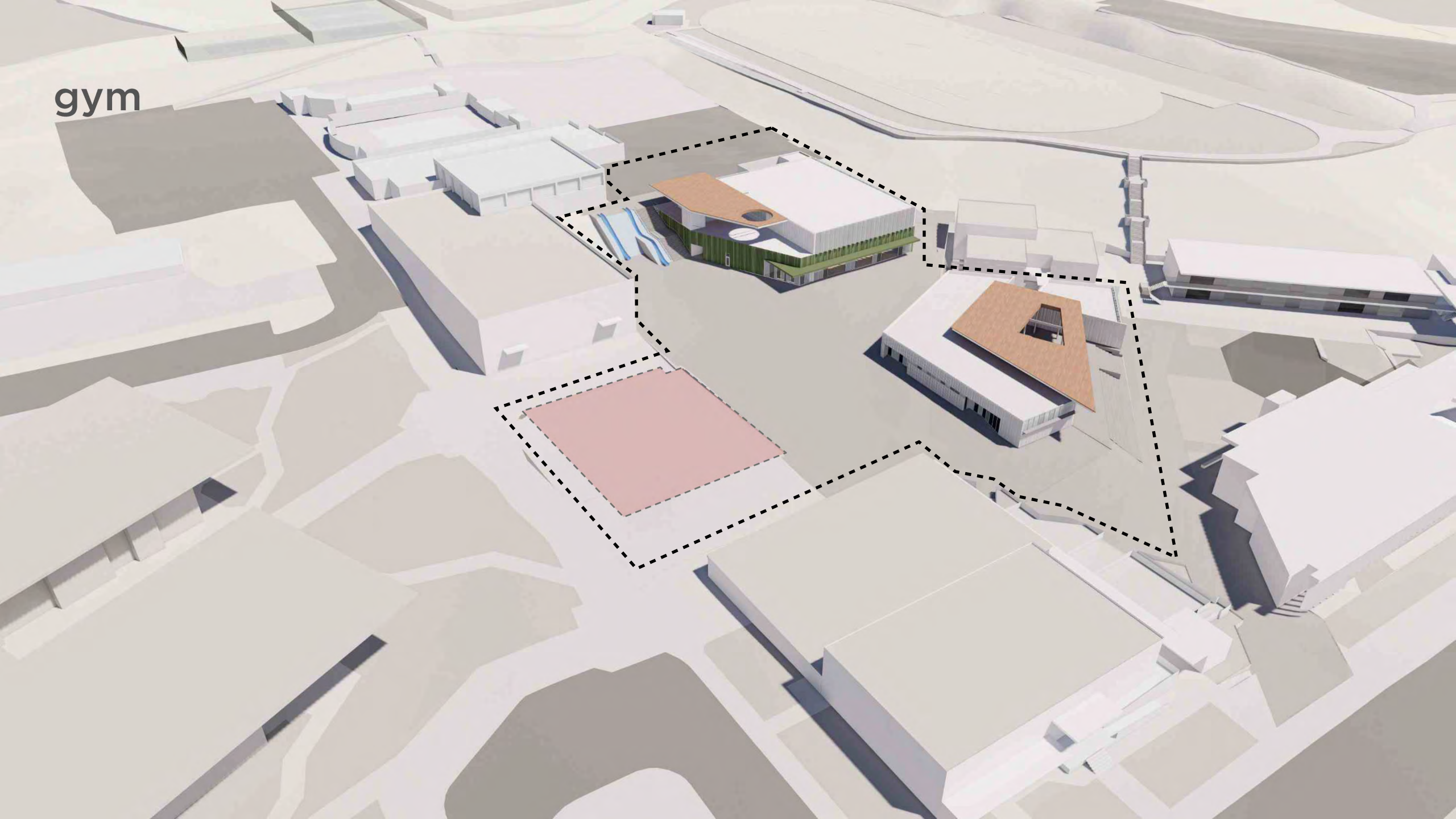


middle school



middle school HUB




gym

City of Malibu

23825 Stuart Ranch Rd., Malibu, California CA 90265-4804
(310) 456-2489 FAX (310) 456-7650

BIOLOGY REVIEW REFERRAL SHEET

TO: City of Malibu Biologist

FROM: City of Malibu Planning Department **REVISED DATE** 11/19/2025

PROJECT NUMBER: CDP 25-032

JOB ADDRESS: 30215 MORNING VIEW DR

APPLICANT / CONTACT: Elisa Younger, LPA Design Studios

APPLICANT EMAIL: eyounger@lpadesignstudios.com

PLANNER: Richard Greenbauer

PROJECT DESCRIPTION: Phase II of the Malibu Middle and High School Specific Plan: construction of three new buildings with associated landscaping and site utilities, OWTS with connections to the new and existing buildings

REVISION:

TO: Malibu Planning Department and/or Applicant

FROM: City Biologist, Courtney McCammon

_____ **The project review package is INCOMPLETE and; CANNOT proceed through Final Planning Review until corrections and conditions from Biological Review are incorporated into the proposed project design** (See Attached).

X _____ **The project is APPROVED, consistent with City Goals & Policies associated with the protection of biological resources and CAN proceed through the Planning process.**

Building Plan Check (BPC) Required ☐ Yes ☐ No BPC Fees Req'd $_____

_____ **The project may have the potential to significantly impact the following resources, either individually or cumulatively: Sensitive Species or Habitat, Watersheds, and/or Shoreline Resources and therefore Requires Review by the Environmental Review Board (ERB).**

Courtney McCammon 11/25/25

Signature Date

Additional requirements/conditions may be imposed upon review of plan revision

Contact Information:

Courtney McCammon, City Biologist, biology@malibucity.org, (310) 456-2489, extension 277

City of Malibu

Biology • Planning Department
23825 Stuart Ranch Road · Malibu, California · 90265-4861
Phone (310) 456-2489 · Fax (310) 456-3356 · www.malibucity.org

BIOLOGY REVIEW SHEET

PROJECT INFORMATION

Applicant: (name and email)	Elisa Younger, LPA Design Studios eyounger@lpadesignstudios.com	
Project Address:	**30215 MORNING VIEW DR** Malibu, CA 90265	
Planning Case No.:	CDP 25-032	
Project Description:	Phase II of the Malibu Middle and High School Specific Plan: construction of three new buildings with associated landscaping and site utilities, OWTS with connections to the new and existing buildings	
Date of Review:	November 25, 2025	
Reviewer:	Courtney McCammon	Signature: Courtney McCammon
Contact Information:	Phone: (310) 456-2489 ext 277	Email: biology@malibucity.org

SUBMITTAL INFORMATION

Site Plan:	
Site Survey:	
Landscape Plan:	11/19/25
Hydrozone Plan:	11/19/25
Irrigation Plan:	11/19/25
Fuel Modification Plan:	11/19/25
Grading Plan:	
OWTS Plan:	
Bio Assessment:	
Bio Inventory:	
Native Tree Survey:	
Native Tree Protection Plan:	
Miscellaneous:	
Previous Reviews:	8/12/25 (Incomplete), 9/17/25 (Incomplete), 10/19/25 (Incomplete)

REVIEW FINDINGS

Review Status:	☐	**INCOMPLETE**: Additional information and/or a response to the listed review comments is required.
	☒	**APPROVED**: The project has been approved with regards to biological impacts.
	☐	**CANNNOT APPROVE AS SUBMITTED**: The proposed project does not conform to the requirements of the MMC and/or LCP.
	☐	**ERB**: This project has the potential to impact ESHA and may require review by the Environmental Review Board pursuant to LIP Section 4.4.4

Recycled Paper

DISCUSSION:

1. The Maximum Applied Water Allowance (MAWA) for this project totals 374,974 gallons per year (gpy). The Estimated Applied Water Use (EAWU) totals 320,296 gpy. Therefore, the project meets the Landscape Water Conservation Ordinance Requirements.

RECOMMENDATIONS:

1. The project is recommended for **APPROVAL** with the following conditions:

   A. Prior to installation of any landscaping, the applicant shall obtain plumbing permit for the proposed irrigation system from the Building Safety Division.

   B. Prior to or at the time of a Planning final inspection, the property owner/applicant shall submit to the case planner a copy of the plumbing permit for the irrigation system installation that has been signed off by the Building Safety Division.

   C. Prior to final Planning inspection or other final project sign off (as applicable), the applicant shall submit to the Planning Director for review and approval a certificate of completion in accordance with the Landscape Water Conservation Ordinance (MMC 17.53). The certificate shall include the property owner's signed acceptance of responsibility for maintaining the landscaping and irrigation in accordance with the approved plans and MMC 17.53. (form attached)

   D. Prior to Final Plan Check Approval, if your property is serviced by the Los Angeles County Waterworks District No. 29, please provide landscape water use approval from that department. For approval contact:

      LA County Waterworks District 29
      Address: 23533 Civic Center Way, Malibu, CA 90265
      Email: wwsmaeng@dpw.lacounty.gov
      Phone: (310) 317 – 0209

      Please note: submit plans through EPIC-LA using the "Waterworks Division Landscape Water Efficiency Approval" application. This action may require several weeks. As such, the applicant should submit their approved landscape plans as soon as feasible in order to avoid a delay at plan check.

   E. Vegetation forming a view impermeable condition (hedge), serving the same function as a fence or wall, occurring within the side or rear yard setback shall be maintained at or below six feet in height. View impermeable hedges occurring within the front yard setback serving the same function as a fence or wall shall be maintained at or below 42 inches in height. Three sequential violations of this condition will result in a requirement to permanently remove the vegetation from the site.

F. Vegetation shall be situated on the property so as not to obstruct the primary view from private property at any given time (given consideration of its future growth).

G. Invasive plant species, as determined by the City of Malibu, are prohibited.

H. No vegetation is permitted within 5 feet of any structure.

I. No non-native plant species shall be approved greater than 50 feet from the residential structure.

J. The landscape plan shall prohibit the use of building materials treated with toxic compounds such as creosote and copper arsenate.

K. Grading/excavation/vegetation removal scheduled between February 1 - September 15 will require nesting bird surveys by a qualified biologist prior to initiation of such activities. Surveys shall be completed no more than five days from proposed initiation of site preparation activities. Should active nests be identified, a buffer area no less than 150 feet (300 feet for raptors) shall be fenced off until it is determined by a qualified biologist that the nest is no longer active. A report discussing the results of the surveys shall be turned in to the City within two business days of completion of surveys.

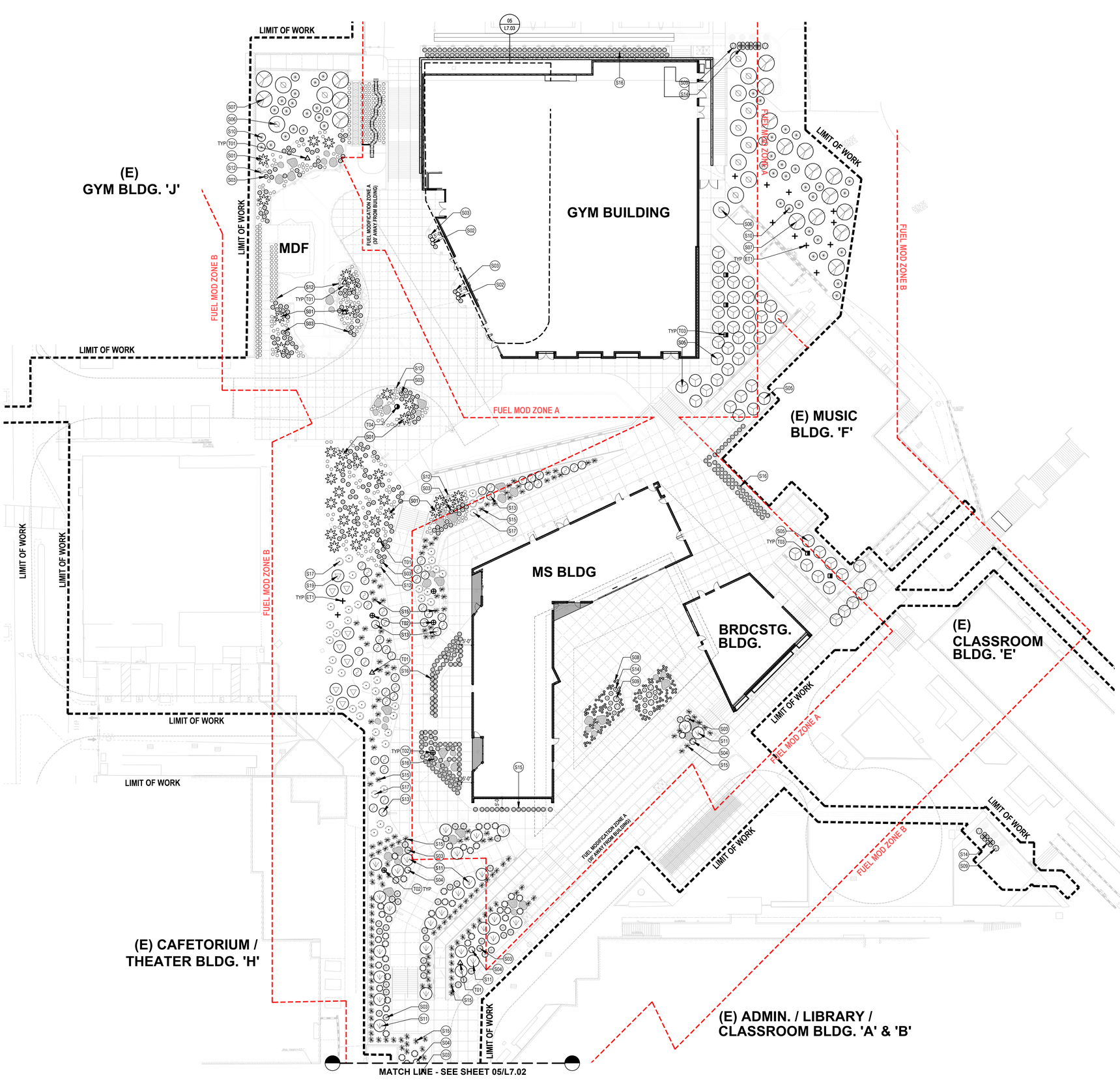
L. Night lighting from exterior and interior sources shall be minimized. All exterior lighting shall be low intensity and shielded so it is directed downward and inward so that there is no offsite glare or lighting of natural habitat areas. Up-lighting is prohibited.

2. **PRIOR TO ISSUING A CERTIFICATE OF OCCUPANCY**, the City Biologist shall inspect the project site and determine that all planning conditions to protect natural resources are in compliance with the approved plans.

-o0o-

If you have any questions regarding the above requirements, please contact the City Biologist office at your earliest convenience.

cc: Planning Project file
Planning Department



PLANTING LEGEND

TREE LIST

REF.	SYM.	QTY.	BOTANICAL NAME/ COMMON NAME	WUCOLS	SIZE/ SPACING
T01	△	6	ARBUTUS 'MARINA' MARINA STRAWBERRY TREE	L	24" BOX STD. PER PLAN
T02	⊕	5	CERCIS OCCIDENTALIS WESTERN REDBUD	L	24" BOX STD. PER PLAN
T03	◨	5	HETEROMELES ARBUTIFOLIA TOYON	L	24" BOX STD. PER PLAN
T04	◑	1	QUERCUS AGIFOLIA COAST LIVE OAK	L	60" BOX STD. PER PLAN
ET1	+	14	EXISTING TREE PROTECT IN PLACE	-	-

SHRUB LIST

S01	✳	34	AGAVE ATTTENUATA FOXTAIL AGAVE	L	5-GAL/ 6' O.C PER PLAN
S02	◯	25	ALOE 'BLUE ELF' BLUE ELF ALOE	L	1-GAL/ 24" O. PER PLAN
S03	◌	200	ALOE RUDIKOPPE LITTLE RED RIDING HOOD ALOE	L	5-GAL/ 3' O.C PER PLAN
S04	◯	48	ALOE VERA MEDICINAL ALOE	L	5-GAL/ 3' O.C PER PLAN
S05	Y	53	ARCTOSTAPHYLOS EDMUNDSII 'CARMEL SUR' CARMEL SUR MANZANITA	L	5-GAL/ 6' O.C PER PLAN
S06	⊙	13	BACCHARIS PILULARIS 'PIGEON PT.' PIGEON PT. DWARF COYOTE BRUSH	L	5-GAL/ 8' O.C PER PLAN
S07	Y	18	CEANOTHUS GRISEUS 'YANKEE PT.' YANKEE PT. CARMEL CREEPER	L	5-GAL/ 8' O.C PER PLAN
S08	○	144	CERASTIUM TOMENTOSUM SNOW-IN-SUMMER	L	5-GAL/ 12" O. PER PLAN
S09	/	9	CHONDROPETALUM TECTORUM SMALL CAPE RUSH	L	5-GAL/ 3' O.C PER PLAN
S10	✳	46	DASYLIRION WHEELERI GREY DESERT SPOON	L	5-GAL/ 4' O.C PER PLAN
S11	V	29	DELOSPERMA COOPERI HARDY ICE PLANT	L	5-GAL/ 6' O.C PER PLAN
S12	○	418	FESTUCA CINERA BLUE FESCUE	L	5-GAL/ 18" O. PER PLAN
S13	V	47	HESPERALOE PARVIFLORA RED YUCCA	L	5-GAL/ 4' O.C PER PLAN
S14	⊖	34	JUNCUS PATENS CALIFORNIA GRAY RUSH	L	5-GAL/ 24" O. PER PLAN
S15	✳	179	LEYMUS CONDENSATUS 'CANYON PRINCE' CANYON PRINCE WILD RYE	L	5-GAL/ 3' O.C PER PLAN
S16	◇	373	LIRIOPE SPICATA CREEPING LILY TURF	M	5-GAL/ 24" O. PER PLAN
S17	·	44	MUHLENBERGIA RIGENS DEER GRASS	L	5-GAL/ 4' O.C PER PLAN
S18	^	29	SEDUM NUSSBAUMERIANUM COPPERTONE STONECROP	L	5-GAL/ 24" O. PER PLAN
S19	V	9	YUCCA RECURVIFOLIA CURVE-LEAF YUCCA	L	5-GAL/ 6' O.C PER PLAN

MISCELLANEOUS SYMBOLS

LINEAR ROOT BARRIER

SOIL SAMPLE LOCATION (6 TOTAL)

CITY OF MALIBU
PLANNING DEPARTMENT

CITY BIOLOGIST APPROVAL

DATE 1/25/25

PLANNING REVIEW NO. CDP 25-032

SIGNATURE Casey McLean

PRINT NAME

Any changes to the approved plans shall be submitted to the City Biologist for review and approval prior to implementation. This action does not constitute final approval by the Environmental and Community Development Department.

KEYMAP

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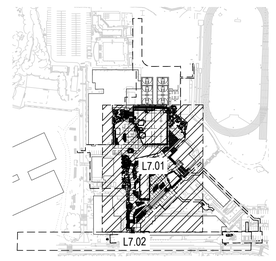

LPA
ARCHITECTURE ENGINEERING INTERIOR DESIGN
LANDSCAPE ARCHITECTURE PLANNING
949-261-1001 Office
LPADesignStudios.com
5301 California Avenue, Suite 100
Irvine, California 92617

REGISTERED LANDSCAPE ARCHITECT
ANTHONY DE TOBIN #5
STATE OF CALIFORNIA

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MALIBU MIDDLE SCHOOL
INCREMENT 02

30215 Morning View Dr.
Malibu, CA 90265
APN: 4469-017-900
Developed for
SANTA MONICA - MALIBU UNIFIED SCHOOL DISTRICT

Revision	Date

Submittal	Date
SCHEMATIC DESIGN	09/04/2024
50% DESIGN DEVELOPMENT	12/13/2024
90% DESIGN DEVELOPMENT	03/14/25
CDP SUBMITTAL	06/16/2025
50% CONSTRUCTION DOCS	06/27/2025
DSA SUBMITTAL	09/08/2025
2ND CDP SUBMITTAL	10/03/2025
3RD CDP SUBMITTAL	10/30/2025

Job Number	31722
Checked By	
Scale	1" = 20'

PLANTING PLAN

L7.01

CITY OF MALIBU
PLANNING DEPARTMENT

CITY BIOLOGIST APPROVAL

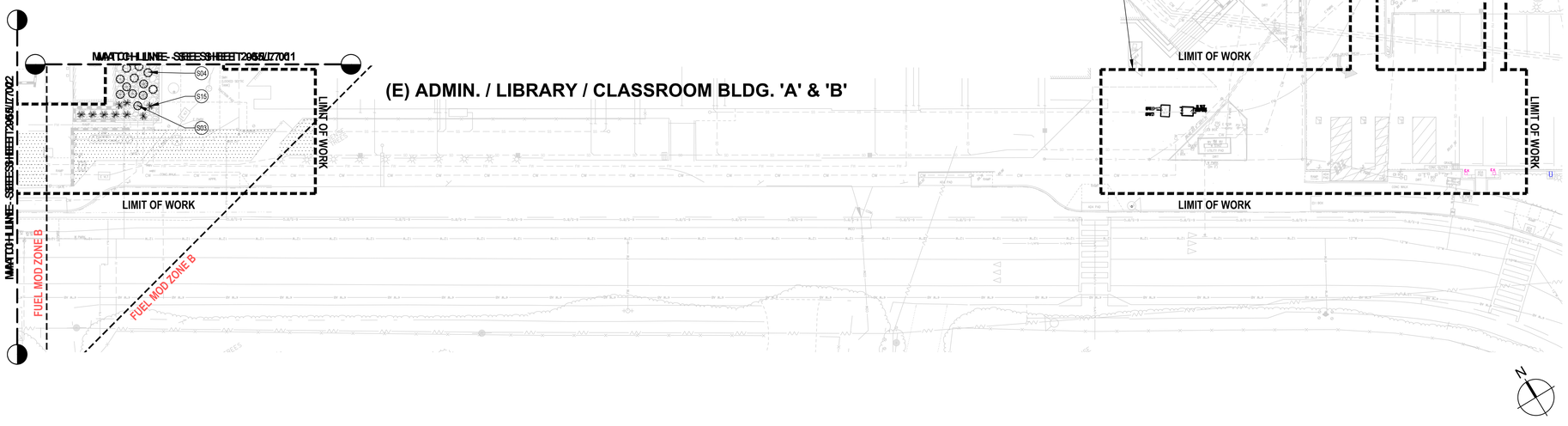
DATE 11/25/25

PLANNING REVIEW NO. CDP 25-032

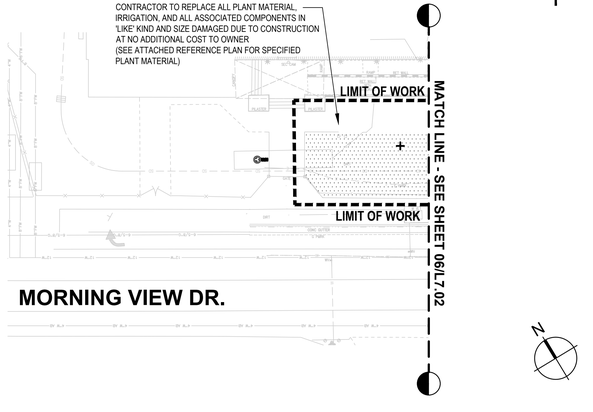
SIGNATURE Carsyn Mclean

PRINT NAME

Any changes to the approved plans shall be submitted to the City Biologist for review and approval prior to implementation. This action does not constitute final approval by the Environmental and Community Development Department.



MATERIALS PLAN 06



MATERIALS PLAN 05

PLANTING LEGEND

TREE LIST

REF.	SYM.	QTY.	BOTANICAL NAME/ COMMON NAME	WUCOLS	SIZE/ SPACING	COMMENTS/ DET
T01	△	6	ARBUTUS 'MARINA' MARINA STRAWBERRY TREE	L	24" BOX STD / PER PLAN	09/ 2-L7.04
T02	⊕	5	CERCIS OCCIDENTALIS WESTERN REDBUD	L	24" BOX STD / PER PLAN	09/ 2-L7.04
T03	◨	5	HETEROMELES ARBUTIFOLIA TOYON	L	24" BOX STD / PER PLAN	09/ 2-L7.04
T04	◑	1	QUERCUS AGIFOLIA COAST LIVE OAK	L	60" BOX STD / PER PLAN	01/ 2-L7.04
ET1	+	14	EXISTING TREE PROTECT IN PLACE	-	-	16/ 2-L7.04

SHRUB LIST

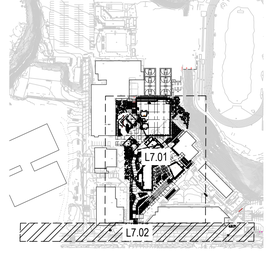
S01	✲	34	AGAVE ATTTENUATA FOXTAIL AGAVE	L	5-GAL/ 6' O.C. PER PLAN	08, 11/ 2-L7.04
S02	◯	25	ALOE 'BLUE ELF' BLUE ELF ALOE	L	1-GAL/ 24" O.C. PER PLAN	08, 11/ 2-L7.04
S03	◯	200	ALOE RUDIKOPPE LITTLE RED RIDING HOOD ALOE	L	5-GAL/ 3' O.C. PER PLAN	08, 11/ 2-L7.04
S04	◯	48	ALOE VERA MEDICINAL ALOE	L	5-GAL/ 3' O.C. PER PLAN	08, 11/ 2-L7.04
S05	Y	53	ARCTOSTAPHYLOS EDMUNDSII 'CARMEL SUR' CARMEL SUR MANZANITA	L	5-GAL/ 6' O.C. PER PLAN	08, 11/ 2-L7.04
S06	S	13	BACCHARIS PILULARIS 'PIGEON PT.' PIGEON PT. DWARF COYOTE BRUSH	L	5-GAL/ 8' O.C. PER PLAN	08, 11/ 2-L7.04
S07	V	18	CEANOTHUS GRISEUS 'YANKEE PT.' YANKEE PT. CARMEL CREEPER	L	5-GAL/ 8' O.C. PER PLAN	08, 11/ 2-L7.04
S08	O	144	CERASTIUM TOMENTOSUM SNOW-IN-SUMMER	L	5-GAL/ 12" O.C. PER PLAN	08, 11/ 2-L7.04
S09	/	9	CHONDROPETALUM TECTORUM SMALL CAPE RUSH	L	5-GAL/ 3' O.C. PER PLAN	08, 11/ 2-L7.04
S10	✳	46	DASYLIRION WHEELERI GREY DESERT SPOON	L	5-GAL/ 4' O.C. PER PLAN	08, 11/ 2-L7.04
S11	V	29	DELOSPERMA COOPERI HARDY ICE PLANT	L	5-GAL/ 6' O.C. PER PLAN	08, 11/ 2-L7.04
S12	◯	418	FESTUCA CINERA BLUE FESCUE	L	5-GAL/ 18" O.C. PER PLAN	08, 11/ 2-L7.04
S13	/	47	HESPERALOE PARVIFLORA RED YUCCA	L	5-GAL/ 4' O.C. PER PLAN	08, 11/ 2-L7.04
S14	—	34	JUNCUS PATENS CALIFORNIA GRAY RUSH	L	5-GAL/ 24" O.C. PER PLAN	08, 11/ 2-L7.04
S15	✳	179	LEYMUS CONDENSATUS 'CANYON PRINCE' CANYON PRINCE WILD RYE	L	5-GAL/ 3' O.C. PER PLAN	08, 11/ 2-L7.04
S16	◯	373	LIRIOPE SPICATA CREEPING LILY TURF	M	5-GAL/ 24" O.C. PER PLAN	08, 11/ 2-L7.04
S17	·	44	MUHLENBERGIA RIGENS DEER GRASS	L	5-GAL/ 4' O.C. PER PLAN	08, 11/ 2-L7.04
S18	◯	29	SEDUM NUSSBAUMERIANUM COPPERTONE STONECROP	L	1-GAL/ 24" O.C. PER PLAN	08, 11/ 2-L7.04
S19	V	9	YUCCA RECURVIFOLIA CURVE-LEAF YUCCA	L	5-GAL/ 6' O.C. PER PLAN	08, 11/ 2-L7.04

MISCELLANEOUS SYMBOLS

------	LINEAR ROOT BARRIER		12/ 2-L7.04
	SOIL SAMPLE LOCATION (6 TOTAL)		

KEYMAP

SCALE=1"=250'-0"



LPA
ARCHITECTURE ENGINEERING INTERIOR DESIGN
LANDSCAPE ARCHITECTURE PLANNING
949-261-1001 Office
LPADesignStudios.com
5301 California Avenue, Suite 100
Irvine, California 92617

LICENSED LANDSCAPE ARCHITECT
ANDREW TOBIN
No. 5030
STATE OF CALIFORNIA

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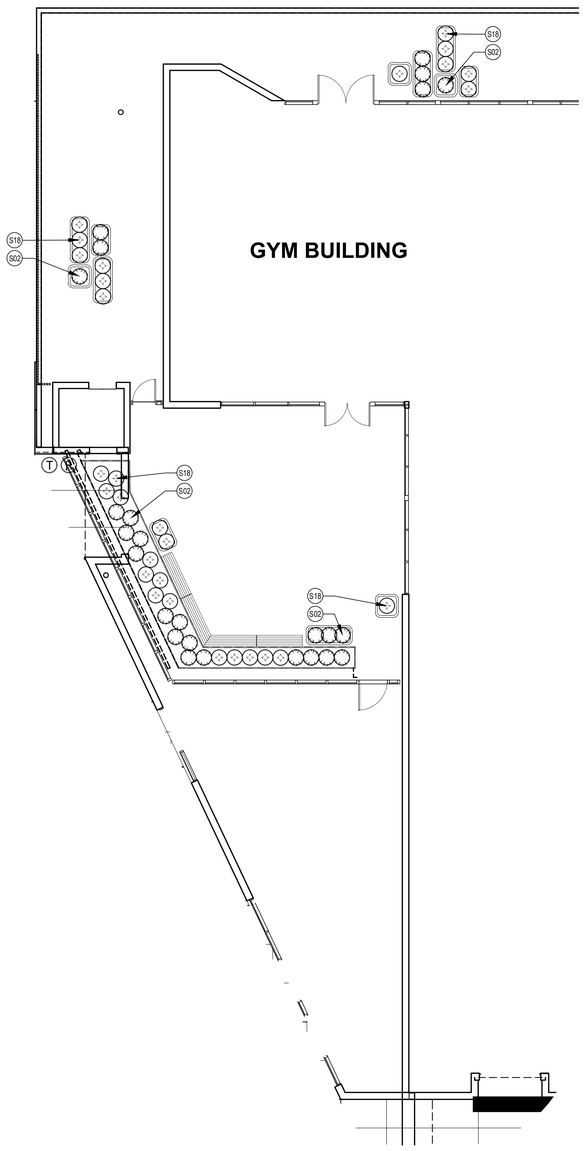
2ND CDP SUBMITTAL	10/03/2025

Job Number	31722
Checked By	
Scale	1"=20'

PLANTING PLAN

2-L7.02



PLANTING LEGEND

TREE LIST

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SHRUB LIST

S01	✳	AS REQ'D	AGAVE ATTTENUATA FOXTAIL AGAVE	L	5-GAL/ 6' O.C. PER PLAN	08, 11/ 2-L7.04
S02	◯	AS REQ'D	ALOE 'BLUE ELF' BLUE ELF ALOE	L	1-GAL/ 24" O.C. PER PLAN	08, 11/ 2-L7.04
S03	◌	AS REQ'D	ALOE RUDIKOPPE LITTLE RED RIDING HOOD ALOE	L	5-GAL/ 3' O.C. PER PLAN	08, 11/ 2-L7.04
S04	◯	AS REQ'D	ALOE VERA MEDICINAL ALOE	L	5-GAL/ 3' O.C. PER PLAN	08, 11/ 2-L7.04
S05	Y	AS REQ'D	ARCTOSTAPHYLOS EDMUNDSII 'CARMEL SUR' CARMEL SUR MANZANITA	L	5-GAL/ 6' O.C. PER PLAN	08, 11/ 2-L7.04
S06	S	AS REQ'D	BACCHARIS PILULARIS 'PIGEON PT.' PIGEON PT. DWARF COYOTE BRUSH	L	5-GAL/ 8' O.C. PER PLAN	08, 11/ 2-L7.04
S07	Y	AS REQ'D	CEANOTHUS GRISEUS 'YANKEE PT.' YANKEE PT. CARMEL CREEPER	L	5-GAL/ 8' O.C. PER PLAN	08, 11/ 2-L7.04
S08	○	AS REQ'D	CERASTIUM TOMENTOSUM SNOW-IN-SUMMER	L	5-GAL/ 12" O.C. PER PLAN	08, 11/ 2-L7.04
S09	/	AS REQ'D	CHONDROPETALUM TECTORUM SMALL CAPE RUSH	L	5-GAL/ 3' O.C. PER PLAN	08, 11/ 2-L7.04
S10	✳	AS REQ'D	DASYLIRION WHEELERI GREY DESERT SPOON	L	5-GAL/ 4' O.C. PER PLAN	08, 11/ 2-L7.04
S11	V	AS REQ'D	DROSANTHEMUM FLORIBUNDUM ICE PLANT	L	5-GAL/ 6' O.C. PER PLAN	08, 11/ 2-L7.04
S12	◯	AS REQ'D	FESTUCA CINERA BLUE FESCUE	L	5-GAL/ 18" O.C. PER PLAN	08, 11/ 2-L7.04
S13	/	AS REQ'D	HESPERALOE PARVIFLORA RED YUCCA	L	5-GAL/ 4' O.C. PER PLAN	08, 11/ 2-L7.04
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S17	·	AS REQ'D	MUHLENBERGIA RIGENS DEER GRASS	L	5-GAL/ 4' O.C. PER PLAN	08, 11/ 2-L7.04
S18	◇	AS REQ'D	SEDUM NUSSBAUMERIANUM COPPERTONE STONECROP	L	1-GAL/ 24" O.C. PER PLAN	08, 11/ 2-L7.04
S19	V	AS REQ'D	YUCCA RECURVIFOLIA CURVE-LEAF YUCCA	L	5-GAL/ 6' O.C. PER PLAN	08, 11/ 2-L7.04

MISCELLANEOUS SYMBOLS

- - -	LINEAR ROOT BARRIER	12/ 2-L7.04
	SOIL SAMPLE LOCATION (6 TOTAL)	

CITY OF MALIBU
PLANNING DEPARTMENT

CITY BIOLOGIST APPROVAL

DATE 11/25/25

PLANNING REVIEW NO. CDP 25-032

SIGNATURE Carsyn Mclean

PRINT NAME

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N PLAN NORTH

N TRUE NORTH

LPA
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949-261-1001 Office
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5301 California Avenue, Suite 100
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LICENSED LANDSCAPE ARCHITECT TIMOTHY TOBIN PLATT 5052 STATE OF CALIFORNIA

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DSA SUBMITTAL	09/08/2025

Job Number	31722
Checked By	
Scale	1/8" = 1'

PLANTING PLAN ENLARGEMENT PLAN

2-L7.03

City of Malibu

23825 Stuart Ranch Rd., Malibu, California CA 90265-4861
(310) 456-2489 website: www.malibucity.org

ENVIRONMENTAL HEALTH REVIEW
REFERRAL SHEET

TO: City of Malibu Environmental Health Staff

FROM: City of Malibu Planning Staff **REVISED DATE** 10/14/2025

PROJECT NUMBER: CDP 25-032

JOB ADDRESS: 30215 MORNING VIEW DR

APPLICANT / CONTACT: Elisa Younger, LPA Design Studios

APPLICANT EMAIL: eyounger@lpadesignstudios.com

PROJECT DESCRIPTION: Phase II of the Malibu Middle and High School Specific Plan: construction of three new buildings with associated landscaping and site utilities, OWTS with connections to the new and existing buildings

REVISION:

TO: Malibu Planning Department and/or Applicant

FROM: Malibu Environmental Health Staff

✓ **Conformance Review Complete** for project submittals reviewed with respect to the City of Malibu Local Coastal Plan/Local Implementation Plan (LCP/LIP) and Malibu Municipal Code (MMC). The Conditions of Planning conformance review and plan check review comments listed on the attached review sheet(s) (or else handwritten below) shall be addressed prior to plan check approval.

Building Plan Check (BPC) Required ☐ Yes ☑ No BPC Fees Req'd $

_____ **Conformance Review Incomplete** for the City of Malibu LCP/LIP and MMC. The Planning stage review comments listed on the City of Malibu Environmental Health review sheet(s) shall be addressed prior to conformance review completion.

OWTS Plot Plan: ☐ **NOT REQUIRED**

☑ **REQUIRED (attached hereto)** ☐ **REQUIRED (not attached)**

Matthew Thomas 11/19/2025

Signature **Date**

The applicant must submit to City of Malibu Environmental Health Staff to determine whether or not an onsite wastewater treatment system (OWTS) Plot Plan approval is required.

Public Counter hours for Environmental Health staff are Tuesdays and Thursdays, 8:00 AM – 12:00 PM.

City of Malibu

Environmental Health ● Environmental Sustainability Department
23825 Stuart Ranch Road · Malibu, California · 90265-4861
Phone (310) 456-2489 · Fax (310) 456-7650 · www.malibucity.org

ENVIRONMENTAL HEALTH REVIEW SHEET

PROJECT INFORMATION

Applicant: (name and email address)	Noemi Avila Zamudio navila-zamudio@smmusd.org		
Project Address:	**30215 Morning View Drive** Malibu, California 90265		
Planning Case No.:	CDP 25-032		
Project Description:	Phase II of the Malibu Middle and High School Specific Plan: construction of three new buildings with associated landscaping and site utilities, OWTS with connections to the new and existing buildings		
Date of Review:	November 19, 2025		
Reviewer:	Matt Janousek	Signature:	
Contact Information:	Phone: (310) 456-2489	Email:	mjanousek@malibucity.org

SUBMITTAL INFORMATION

Architectural Plans:	NAC: Plans dated 10-22-2021, 6-3-2024 LPA: Plans dated 6-16-2025, **9-8-2025**
Grading Plans:	PSOMAS: Plans dated 10-22-2021
Landscape Plans:	NAC: Plans dated 10-22-2021
OWTS Plan:	Ensitu: OWTS plans dated 5-29-2024, 1-23-2025, 6-15-2025, **9-8-2025** AHSIRT: OWTS plan dated 12-7-2021.
OWTS Report:	Ensitu: OWTS Design Report dated 5-30-2024, **10-14-2025** AHSIRT: OWTS Design Report dated 12-7-2021.
Geology Report:	Leighton Consulting: Geotechnical Exploration report dated 1-15-2021; Seepage Pit Percolation Testing report dated 10-1-2021 (rev. 12-7-2024); Response to City of Malibu Review Comment Onsite Wastewater Treatment System (OWTS) dated 12-7-2024;
Miscellaneous:	Los Angeles RWQCB: General WDR Requirements Report dated **8-7-2025**; Active WDR w/ LA RWQCB as of 11-19-2012; Last WDR report submitted 1-11-2022. AHSIRT: 2nd Quarter 2024 Monitoring Report dated 7-3-2024. Low-flow specs for Sloan 2.3/A water closet. C.W. Driver: Onsite Wastewater Treatment System O&M Manual dated 11-26-2024. Covenant for Advanced OWTS signed 2-10-2025. City of Malibu: EH Conformance Review for CDPA 24-005 for new OWTS.
Previous Reviews:	8-26-2025, 10-14-2024; EH CRC for CDP 21-068 dated 4-20-2022

REVIEW FINDINGS

Planning Stage:	☒	**CONFORMANCE REVIEW COMPLETE** for the City of Malibu Local Coastal Program (LCP)/Local Implementation Plan (LIP) and Malibu Municipal Code (MMC). The listed conditions of Planning stage conformance review and plan check review comments shall be addressed prior to plan check approval.
	☐	**CONFORMANCE REVIEW INCOMPLETE** for the City of Malibu LCP/LIP and MMC. The listed Planning stage review comments shall be addressed prior to conformance review completion.
OWTS Plot Plan:	☐	**NOT REQUIRED**
	☒	**REQUIRED (attached hereto)** ☐ **REQUIRED (not attached)**

Based upon the project description and submittal information noted above, a **conformance review** was completed for a new advanced onsite wastewater treatment system (OWTS) proposed to serve the disposal needs of the subject property. The proposed advanced OWTS meets the minimum requirements of the Malibu Municipal Code (MMC) and the City of Malibu Local Coastal Program (LCP)/Local Implementation Plan (LIP).

Conditions of Planning Conformance Review:

1) **Waste Discharge Requirements:** *Monitoring and reporting parameters required under MRP No. CI-10846 of the Waste Discharge Requirements by the Regional Water Quality Control Board (RWQCB) shall be submitted to the Los Angeles RWQCB on the effective date of coverage under the General WDRs.*

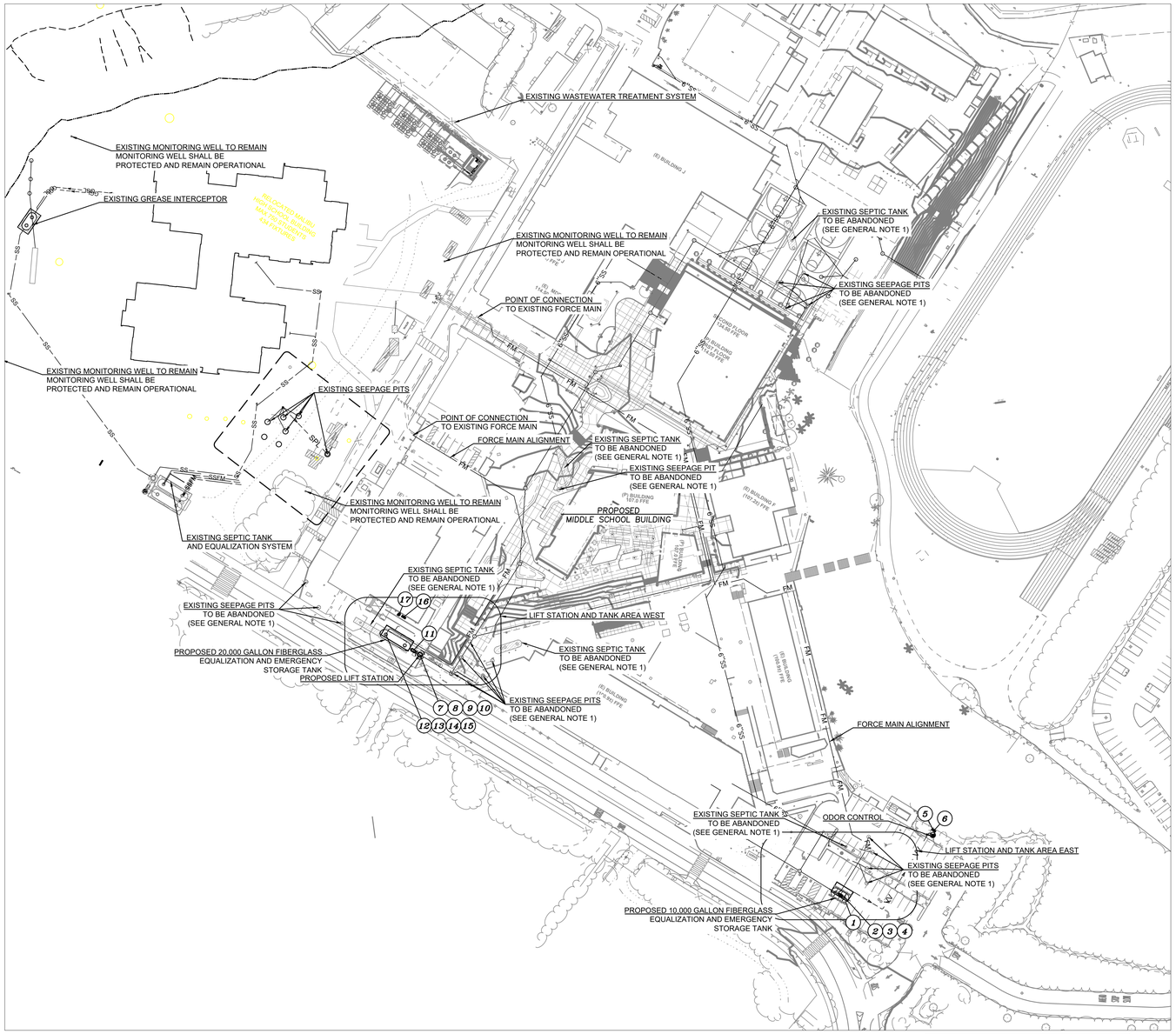
   No further Environmental Health review is required.

-o0o-

If you have any questions regarding the above requirements, please contact the Environmental Health office at your earliest convenience.

cc: Environmental Health file
Planning Department

Recycled Paper



02 / PW-02 — *PW-OVERALL SITE PLAN EXISTING AND PROPOSED*
SCALE: 1"=0060'

Project: 817-01 Malibu Middle School
Address: 817-01 Malibu Middle School

Designed By: JNY **Checked By** JNY **Des Date:** October 7, 2025 **Ch Date:** October 7, 2025

Type of Plumbing Fixture	BUILDING A EX	BUILDING A PRO	Building E EX	Building E PRO	Building F EX	Building F PRO	Building H EX	Building H PRO	Buiding J/I EX	Buiding J/I PRO	PH 2 HUB EX	PH 2 HUB PRO	PH2 GYM EX	PH2 GYM PRO	Existing Fixtures "A"	+	Proposed Fixtures "B"	=	Total Fixtures "A + B"	x	Unit Value "C"	=	Total Existing Fixture Units "A x C"	Total Proposed (Future) Fixture Units "(A + B) x C"
Drinking Fountain	3	3					2	2	6	6		1		1	11	+	2	=	13	x	1	=	11	13
Urinal			3	3					9	9		2		5	12	+	7	=	19	x	2	=	24	38
Bar Sink (Public)	1	1					1	1	2	2		1			4	+	1	=	5	x	2	=	8	10
Clothes Washer							1	1					1	1	1	+	1	=	2	x	3	=	3	6
Dishwasher							1	1							1	+		=	1	x	2	=	2	2
Laundry Sink							1	1							1	+		=	1	x	2	=	2	2
Lavatory (Wash Basin)	24	24	18	18	2	2	2	2	22	22		7		15	68	+	22	=	90	x	1	=	68	90
Kitchen Sink							2	2				1			2	+	1	=	3	x	2	=	4	6
Shower (Single Head)							1	1	14	14		1		1	15	+	2	=	17	x	2	=	30	34
Additional Shower Head to Common Drain									51	51					51	+		=	51	x	1	=	51	51
Water Closet (Flush Toilet, Less than 1.6 GPF)	23	23	15	15			2	2	35	35		7		18	75	+	25	=	100	x	4	=	300	400
Other Table 702.1 CPC)-Emergency Floor Drain	16	16							12	12		9		8	28	+	17	=	45	x	0	=	0	0
Other Table 702.1 CPC)-Floor Sink	2	2							1	1		6			3	+	6	=	9	x	2	=	6	18
Other Table 702.1 CPC)-Service Sink/Mop Basin	3	3					1	1	3	3		1		1	7	+	2	=	9	x	3	=	21	27
Other Table 702.1 CPC)-Lab Sink	18	18													18	+		=	18	x	1	=	18	18
Bedrooms																								

Fixture Units Summary Middle School		
Total Existing Fixture Units	548	
Total Proposed Fixture Units	167	
Total Fixture Units	715	
Malibu High School		
Total Fixture Units	312	
Malibu High School and Middle School		
Total Fixture Units	1027	
Flow Calculations Proposed (Q_P)		
Peak Flow, Q_P	12375	gpd
Average Flow, Q_A	10000	gpd
Design Flow, Q_P	10000	gpd
Influent Characteristics		
BOD5 (mg/l)	300	
TSS (mg/l)	300	
TN (mg/l)	75	
Effluent Characteristics		
BOD5 (mg/l)	20	
TSS (mg/l)	20	
TN (mg/l)	10	

G3 / PW-02 — *FIXTURE COUNT SUMMARY TABLE*
NO SCALE

MicroSepTec Design		
Design Flow	10,000	gpd
Design Influent BOD	300	mg/L
Design Effluent BOD	20	mg/L
Design Organic Loading BOD	23.37	lb BOD_5
MicroSepTec Model Specified	CS25	
MicroSepTec Tank Volume	7540	gal
MicroSepTec ES25 Base Organic Removal (1)	4.17	lb BOD_5
Minimum Number of MicroSepTec ES25 Required	6	units
PROPOSED MST DESIGN		
Actual Number of MicroSepTec ES25 Provided	6	units
Design Organic Removal	25.04	lb BOD_5
Design Tank Volume	45240	gal
Maximum Effluent Flow Based on Organic loading	10715	gpd
Maximum Effluent Flow Based on Hydraulic Loading	15000	gpd
Maximum Fixtures Based on Design Tank Volume	1566	

G6 / PW-02 — *TREATMENT SYSTEM SUMMARY TABLE*
NO SCALE

SITE PLAN TAG AND MAJOR EQUIPMENT LIST

Site Plan Tag	Tag	Description	Site Location	Physical Location	Manufacturer	Model Number	Supplier
0001	TK-0100	EQUALIZATION TANK	LIFT STATION AND TANK AREA EAST	LIFT STATION AND TANK AREA EAST	XERXES	10' DIA 10,000 GAL SINGLE WALL	CONTRACTOR SUPPLIED EQUALIZATION TANK TK-0100
0002	FV-0100	BIOTUBE PUMP VAULT	LIFT STATION AND TANK AREA EAST	INTEGRAL TO EQUALIZATION TANK TK-0100	ORENCO SYSTEMS		CONTRACTOR SUPPLIED COMPONENT OF EQUALIZATION TANK TK-0100
0003	P-0100	EQUALIZATION PUMP	LIFT STATION AND TANK AREA EAST	INTEGRAL TO EQUALIZATION TANK TK-0100	ORENCO SYSTEMS	PF500534-30	CONTRACTOR SUPPLIED COMPONENT OF EQUALIZATION TANK TK-0100
0004	P-0110	EQUALIZATION PUMP	LIFT STATION AND TANK AREA EAST	INTEGRAL TO EQUALIZATION TANK TK-0100	ORENCO SYSTEMS	PF500534-30	CONTRACTOR SUPPLIED COMPONENT OF EQUALIZATION TANK TK-0100
0005	PLC-0100	PROGRAMMABLE LOGIC CONTROLLER	LIFT STATION AND TANK AREA EAST	LIFT STATION AND TANK AREA EAST			CONTRACTOR SUPPLIED COMPONENT OF EQUALIZATION TANK TK-0100
0006	OCU-0100	DRUM ODOR SCRUBBER	LIFT STATION AND TANK AREA EAST	LIFT STATION AND TANK AREA EAST	PURAFIL	DS-100	CONTRACTOR SUPPLIED DRUM SCRUBBER OCU-0100
0007	LS-0300	LIFT STATION	LIFT STATION AND TANK AREA WEST	LIFT STATION AND TANK AREA WEST	XERXES		CONTRACTOR SUPPLIED LIFT STATION LS-0300
0008	P-0300	SUBMERSIBLE GRINDER PUMP AND GUIDERAILS	LIFT STATION AND TANK AREA WEST	INTEGRAL TO LIFT STATION VAULT LS-0300	TSURUMI	TOS50MG22.2	CONTRACTOR SUPPLIED COMPONENT OF LIFT STATION LS-0300
0009	P-0310	SUBMERSIBLE GRINDER PUMP AND GUIDERAILS	LIFT STATION AND TANK AREA WEST	INTEGRAL TO LIFT STATION VAULT LS-0300	TSURUMI	TOS50MG22.2	CONTRACTOR SUPPLIED COMPONENT OF LIFT STATION LS-0300
0010	P-0350	SUBMERSIBLE CHOPPER PUMP AND GUIDERAILS	LIFT STATION AND TANK AREA WEST	INTEGRAL TO LIFT STATION VAULT LS-0300	TSURUMI	TOS50CG2.75	CONTRACTOR SUPPLIED COMPONENT OF LIFT STATION LS-0300
0011	V-0300	VALVE VAULT 17"X30"X24"	LIFT STATION AND TANK AREA WEST	INTEGRAL TO LIFT STATION VAULT LS-0300	ARMORCAST	A6001640TAX24 H20 LOADING	CONTRACTOR SUPPLIED COMPONENT OF LIFT STATION LS-0300
0012	TK-0200	EQUALIZATION TANK	LIFT STATION AND TANK AREA WEST	LIFT STATION AND TANK AREA WEST	XERXES	10' DIA 20,000 GAL SINGLE WALL	CONTRACTOR SUPPLIED EQUALIZATION TANK TK-0200
0013	FV-0200	BIOTUBE PUMP VAULT	LIFT STATION AND TANK AREA WEST	INTEGRAL TO EQUALIZATION TANK TK-0200	ORENCO SYSTEMS		CONTRACTOR SUPPLIED COMPONENT OF EQUALIZATION TANK TK-0200
0014	P-0200	EQUALIZATION PUMP	LIFT STATION AND TANK AREA WEST	INTEGRAL TO EQUALIZATION TANK TK-0200	ORENCO SYSTEMS	PF500534-30	CONTRACTOR SUPPLIED COMPONENT OF EQUALIZATION TANK TK-0200
0015	P-0210	EQUALIZATION PUMP	LIFT STATION AND TANK AREA WEST	INTEGRAL TO EQUALIZATION TANK TK-0200	ORENCO SYSTEMS	PF500534-30	CONTRACTOR SUPPLIED COMPONENT OF EQUALIZATION TANK TK-0200
0016	PLC-0200	PROGRAMMABLE LOGIC CONTROLLER	LIFT STATION AND TANK AREA WEST	LIFT STATION AND TANK AREA WEST			CONTRACTOR SUPPLIED COMPONENT OF LIFT STATION LS-0300 AND EQUALIZATION TANK TK-0200
0017	OCU-0200	DRUM ODOR SCRUBBER	LIFT STATION AND TANK AREA WEST	LIFT STATION AND TANK AREA WEST	PURAFIL	DS-100	CONTRACTOR SUPPLIED DRUM SCRUBBER OCU-0200

G2 / PW-02 — *PW-SITE PLAN EQUIPMENT LIST*
NO SCALE

Septic Tank (ST) Calculations		
Total Proposed Fixture Units	167	
Total Fixture Units	1027	
Minimum Septic Tank Size based on Fixtures	26675	gal
Design Flow, Q	10000	
Minimum Septic Tank Size based on Design Flow, Vol	8625	gal
Minimum Septic Tank Size	26675	gal
Design Septic Tank Size	50000	gal
Seepage Pit Calculations		
Minimum Seepage Pit Capacity Based On Design Flow Tank Size (Volx3)	25875	gal
Minimum Seepage Pit Capacity Based On Wastewater Design Flow (Qx3)	30000	gal
Minimum Seepage Pit Capacity	30000	gal
Design Present Seepage Pit Capacity	34752	gal
Design Expansion Seepage Pit Capacity	33816	gal

G4 / PW-02 — *SEPTIC TANK SIZE AND REQUIRED SEEPAGE PIT CAPACITY TABLE*
NO SCALE

Boring Number	Cap Depth ft	Depth Below Inlet ft	Total Depth ft	Dia. ft	Test Pit Capacity gal	Seepage Pit	Dia. ft	Cap Depth ft	Depth Below Inlet ft	Total Depth ft	Pit Capacity gal/day
Present Seepage Pits											
SP-1	6	24	30	2	2524	SP-1	6	6	24	30	7572
SP-2	6	23	29	2	2905	SP-2	6	6	23	29	8715
SP-3	6	24	30	2	3968	SP-3	6	6	24	30	11904
SP-4	6	24	30	2	2187	SP-4	6	6	24	30	6561
Total					11584						34752
Expansion Seepage Pits											
SP-5	6	24	30	2	7590	EP-1	6	6	24	30	22770
SP-6	6	24	30	2	3682	EP-2	6	6	24	30	11046
Total					11272						33816

G5 / PW-02 — *SEEPAGE PIT SUMMARY TABLE*
NO SCALE

CITY OF MALIBU
ENVIRONMENTAL SUSTAINABILITY DEPT.
ENVIRONMENTAL HEALTH
CONFORMANCE REVIEW
SIGNATURE: DATE 11/19/2025
THIS IS NOT AN APPROVAL. FINAL APPROVAL IS REQUIRED PRIOR TO THE ISSUANCE OF ANY CONSTRUCTION PERMITS

MALIBU HIGH SCHOOL (CDP 25-032)
MIDDLE SCHOOL / GYM (CDPA 24-005)

30215 MORNING VIEW DRIVE
MALIBU, CA 90265

MALIBU HIGHSCHOOL / MALIBU MIDDLE SCHOOL:
TOTAL 750 Students/85 Staff

HIGH SCHOOL:	1 Building (E)
FIXTURE UNITS:	312 Fixture Units (E)
GREASE INTERCEPTOR:	5,000 Gallon (E)
EQUALIZATION TANK:	20,000 Gallon (E)
PRIMARY TANK:	20,000 Gallon (E)
MIDDLE SCHOOL/GYM:	7 Buildings (N)
FIXTURE UNITS:	715 Fixture Units (N)
EQUALIZATION/EMERGENCY STORAGE:	1 - 20,000 Gallon Tank(N)
LIFT STATION:	1 - Xerxes (N)
EQUALIZATION/ EMERGENCY STORAGE	1 - 10,000 Gallon Tank (N)
LIFT STATION:	1 - Xerxes (N)
TREATMENT TANKS:	6 - 7,540 Gallon MicroSepTec CS25 w/UV Disinfection (E)
ACTIVE:	**6' x 24' BI w/6' Cap (SP-1)(E)
	6' x 23' BI w/6' Cap (SP-2)(E)
	6' x 24' BI w/6' Cap (SP-3)(E)
	6' x 24' BI w/6' Cap (SP-4)(E)
FUTURE:	6' x 24' BI w/6' Cap (SP-5,EP-1)(F)
	6' x 24' BI w/6' Cap (SP-6,EP-2)(F)
PERCOLCATION RATE:	7,572 gpd (SP-1)
	8,715 gpd (SP-2)
	11,904 gpd (SP-3)
	6,561 gpd (SP-4)
TOTAL ACTIVE RATE:	34,752 gpd (SP-1 to SP-4)
	22,770 gpd (SP-5, EP-1)
	11,046 gpd (SP-6, EP-2)
TOTAL FUTURE RATE:	33,816 gpd (SP-5,SP-6)
REFERENCES:	Ensitu: OWTS design reports dated 5-30-2024, 7-3-2025, 10-14-2025
	Leighton: Percolation test report dated 10-1-2021, 5-22-2025
WASTEWATER FLOW:	10,000 gpd
DESIGNER:	John Yaroslaski, RCE

NOTES:

1. This conformance review is for a new a new middle school, gym, 2 equalization/storage tanks, and 2 lift stations, to be connected to the advanced onsite wastewater system (OWTS) under the City of Malibu Planning case #CDPA 24-005.

2. This review relates only to the minimum requirements of the MMC and the Local Coastal Program, and does not include an evaluation of any geological, or other potential problems, which may require an alternative method of wastewater treatment.

3. This review is valid for one year, or until the Local Coastal Program and/or Administrative Policy changes render it noncomplying.

4. ***The proposed OWTS must conform to the monitoring and reporting parameters required under MRP No. CI-10846 of the Waste Discharge Requirements by the Regional Water Quality Control Board. Specifically, the minimum required separation to groundwater must be maintained.*

LPA
ARCHITECTURE ENGINEERING INTERIOR DESIGN
LANDSCAPE ARCHITECTURE PLANNING
949-261-1001 Office
LPADesignStudios.com
5301 California Avenue, Suite 100
Irvine, California 92617

REGISTERED PROFESSIONAL ENGINEER
JOHN N. YAROSLASKI
60149
EXP. 06/2026
STATE OF CALIFORNIA

ENSITU
"Dedicated to achieving higher standards in onsite and decentralized wastewater systems."
ENSITU ENGINEERING, INC.
7475 Carmelita Ave.
Atascadero, CA 93422
Tel: 805.772.0150
ENSITU@ensitu.com

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MALIBU MIDDLE & HIGH SCHOOL PHASE 2
30215 MORNING VIEW DRIVE
MALIBU, CALIFORNIA

Developed for SMMUSD

Revision	Date

Submittal	Date
SCHEMATIC DESIGN	09/04/2024
90% DESIGN DEVELOPMENT	12/13/2024
100% DESIGN DEVELOPMENT	03/03/2025
CDP SUBMITTAL	06/16/2025
50% CONSTRUCTION DOCS	06/27/2025
DSA SUBMITTAL	09/08/2025

Job Number	817-01
Checked By	JNY
Scale	

SITE PLAN AND TABLES

PW-02

City of Malibu

23825 Stuart Ranch Road • Malibu, California 90265-4861
(310) 456-2489 • Fax (310) 456-3356 • www.malibucity.org

GEOTECHNICAL REVIEW SHEET

Project Information

Date: November 3, 2025 **Review Log #:** **5347**

Site Address: 30215 Morning View Drive

Lot/Tract/PM #: **Planning #:** **CDP 25-032 P2**

Applicant/Contact: Noemi Avila-Zamudio, navila-zamudio@smmusd.org
Elisa Younger, eyounger@lpadesignstudios.com **BPC/GPC #:**

Contact Phone #: (949) 701-4115 **Fax #:** **Planner:** **Richard Greenbauer**

Project Type: Phase II of the Malibu Middle and High School Specific Plan: construction of three new buildings with associated landscaping and site utilities, new OWTS with connections to the new and existing buildings

Submittal Information

Consultant(s) / Report Date(s):
*(Current submittal(s) in **Bold**.)*

Leighton, A Verdantas Company (Roe, CEG 2456; Kim, GE 2620): **10-03-2025**; 10-16-2024 (revised 5-23-2025)
Leighton Consulting, Inc. (Roe, CEG 2456, Gath, CEG 1292): 3-9-2021
Ref: Leighton Consulting, Inc.: 12-7-2024, 3-21-2022, 10-20-2020 (revised 1-15-2021): 10-1-2021 (OWTS supporting geologic report)
Ensitu Engineering, Inc. (Yaroslaski, RCE 30149): **10-14-2025**, 5-30-2024

2nd Coastal Development Permit Submittal
Architectural plans prepared by LPA Design Studios dated June 16, 2025.
Civil plans prepared by LPA Design Studios dated September 8, 2025.
Total Grading Yardage Verification Certificate prepared by Kathereen Shinkai dated October 3, 2025.
Malibu MS/HS – Solar PV plans prepared by Schneider Electric dated October 17, 2024.
Structural plans for Excavation for Malibu HS Gym Building prepared by Cefali & Associates, Inc. dated June 13, 2025.
Structural plans for Malibu Middle & High School Phase 2 prepared by LPA Design Studios dated June 16, 2025.
Ref: Malibu High School Phase 1, Increment 1 OWTS plans prepared by EnSitu Engineering, Inc. dated July 3, 2025.

Previous Reviews: 08-27-2025; Ref: 6-27-2025, 10-29-2024 (for CDPA 24-005); 6-15-2022, 3-21-2022, 3-3-2022 (for CDP 21-068); Environmental Health Review Sheets dated 8-26-2025, 8-15-2025, 4-17-2025, 10-14-2024 (for CDPA 24-005)

Review Findings

Coastal Development Permit Review

☒ The project is **ACCEPTABLE** from a geotechnical perspective.

☐ The project is **NOT ACCEPTABLE** from a geotechnical perspective. The listed 'Review Comments' shall be addressed prior to acceptance.

Project submittals were reviewed from a geotechnical perspective for conformance with applicable codes, guidelines, and standards of practice, including the following current City adopted standards:

- City of Malibu Local Coastal Program – Land Use Plan and Local Implementation Plan (LCP-LUP and LCP-LIP)
- Malibu Municipal Code – Title 15, Buildings and Construction
- City of Malibu Guidelines for the Preparation of Geotechnical Reports and Procedures for Report Submittal (November 2013) referred to herein as Geotechnical Report Guidelines

In the case of conflicting requirements between the Geotechnical Guidelines and any other referenced standards, the latest standard will apply. The Applicant is responsible for complying with the submittal requirements for all Planning variances, as appropriate; any questions regarding variances should be directed to the case Planner.

Remarks:

The project geotechnical review by the City is Planning-stage only for Local Coastal Program (LCP) conformance, pursuant to the submitted Coastal Development Permit application. The proposed project is regulated by the Division of State Architect-Structural Safety (DSA-SS) provisions within the 2022 California Building Code (CCR Title 24, Part 2). Building plan check review and building permit issuance are not within the City's purview.

The referenced response geotechnical report, response OWTS design report, and civil plans were reviewed by the City's consultants from a geotechnical perspective. This phase of the proposed development includes the demolition of the existing relocatable buildings, demolition of buildings K and I, and the construction of three new buildings, a 9,952 square foot one-story special education and campus wellness center, a new 31,846 square foot two-story gymnasium with offices and storage, and a new 265 square foot MDF building (technology building) connected by canopies and shade structures, along with a perimeter drive access for building access (fire lane), paved parking, utilities, hardscape and pavers. Grading consists of 8,140 yards of cut and 4,303 yards of fill, non-exempt, 6,028 yards of remedial and 3,837 yards of export.

Infiltration testing was performed at two locations from approximately 15 to 30 feet and yielded results that infiltration was not feasible at the locations tested.

Based on the submitted information, the new Malibu High School buildings will be serviced by a new advanced onsite wastewater treatment system (OWTS) consisting of a new 20,000-gallon Xerxes primary tank, 20,000-gallon Xerxes equalization tank, 5,000-gallon Xerxes grease interceptor, and four MicroSepTec EnviroServer ES25 treatment tanks housed in fiberglass reinforced plastic (FRP) tanks with effluent filters and UV disinfection systems. Effluent will be disposed in four present 6' diameter x 24' BI seepage pits with 6' caps (SP-1 thru SP-4) and an existing 6' diameter x 24' BI seepage pit with a 6' cap (SP-5) with 100% expansion consisting of two 6' diameter x 24' BI seepage pits with 6' caps (SP-5 and SP-6). The existing OWTS components on the property that will not be re-used for the new OWTS will be properly abandoned.

NOTE: The EIR for the Malibu Middle and High School Campus Specific Plan Project prepared by Placeworks, concludes, based on the Fault Rupture hazard Investigation prepared by Leighton Consulting, Inc. dated March 9, 2021, that, " … *no evidence of active faulting was identified during the Fault Rupture*

Hazard Investigation (Leighton Consulting, Inc. 2021b). The potential for fault rupture at the Project Site is considered low during the life of the school, and the student risk factor is therefore also considered low…the Escondido Thrust Fault is a potentially active fault that is mapped as traversing the Project Site (also known as the Malibu Coast Fault, Paradise Cove Fault, Rodriguez Canyon Fault, Ramirez Fault, and Escondido Thrust). It is likely more than 300,000 years old and poses no planning constraints to the Proposed Project."

NOTE: The referenced geotechnical report for the Phase II project includes the aquatics Center. However, the undersigned engineering geologic reviewer discussed the scope of the Phase II project with the Project Architect, and the aquatics center is **NOT** a part of the Phase II project.

Planning Level Geotechnical Review Comments:

None.

Notes for the Plans:

1. Please include the total grading yardage verification certificate on the civil plans.
2. The Project Geotechnical Consultant has recommended that additional Expansion Index testing be performed after the completion of grading to quantify the EI values presented in the report. Please include this comment as a note on the plans.

Please direct questions regarding this review sheet to the City's Geotechnical consultants listed below.

Engineering Geology Review by: _____ 11-3-2025

Christopher Dean, C.E.G. #1751, Exp. 9-30-26 Date
Engineering Geology Reviewer (408-656-3210)
Email: cdean@malibucity.org

Geotechnical Engineering Reviewed by: _____ 11-3-2025

Sheryl Shatz, PE 44033, GE 2288 exp. 6-30-27 Date
Geotechnical Engineering Reviewer (805-358-6813)
Email: sshatz@malibucity.org

This review sheet was prepared by representatives of Cotton, Shires and Associates, Inc., as an agent of the City of Malibu.

COTTON, SHIRES AND ASSOCIATES, INC.
CONSULTING ENGINEERS AND GEOLOGISTS

City of Malibu

23825 Stuart Ranch Rd., Malibu, California CA 90265-4804
(310) 456-2489 FAX (310) 456-7650

FIRE DEPARTMENT REVIEW
REFERRAL SHEET

TO: Los Angeles County Fire Department

FROM: City of Malibu Planning Division **DATE:** 08/05/2025

PROJECT NUMBER:	CDP 25-032
JOB ADDRESS:	30215 MORNING VIEW DR
APPLICANT / CONTACT:	Elisa Younger, LPA Design Studios
APPLICANT ADDRESS:	5301 California Ave, Suite 100 Irvine, CA 92617
APPLICANT PHONE #:	(949) 701-4115
APPLICANT FAX #:	
PROJECT DESCRIPTION:	Phase II of the Malibu Middle and High School Specific Plan: construction of three new buildings with associated landscaping and site utilities, OWTS with connections to the new and existing buildings

---

TO: Malibu Planning Division and/or Applicant
FROM: Fire Prevention Engineering Assistant

Compliance with the conditions checked below is required prior to Fire Department approval.

The project DOES require Fire Department Plan Review and Developer Fee payment	✓
The project DOES NOT require Fire Department Plan Review	—
The required fire flow for this project is 1,500 gallons per minute at 20 pounds per square inch for a 1 hour duration. (Provide flow information from the water dept.)	✓
The project is required to have an interior automatic fire sprinkler system.	✓
Final Fuel Modification Plan Approval is required prior to Fire Department Approval	✓

Conditions below marked "not approved" shall be corrected on the site plan and resubmitted for Fire Department approval.

	App'd	N/app'd
Required Fire Department vehicular access (including width and grade %) as shown from the public street to the proposed project.	✓	
Required and/or proposed Fire Department Vehicular Turnaround	✓	
Required 5 foot wide Fire Department Walking Access (including grade %)	✓	
Width of proposed driveway/access roadway gates	✓	

*County of Los Angeles Fire Department Approval Expires with City Planning permits expiration, revisions to the County of Los Angeles Fire Code or revisions to Fire Department regulations and standards.

**Minor changes may be approved by Fire Prevention Engineering, provided such changes achieve substantially the same results and the project maintains compliance with the County of Los Angeles Fire Code valid at the time revised plans are submitted. Applicable review fees shall be required.

J. Mann — 11/06/2025

SIGNATURE **DATE**

Additional requirements/conditions may be imposed upon review of complete architectural plans.
The Fire Prevention Engineering may be contacted by phone at (818) 880-0341or at the Fire Department Counter:
26600 Agoura Road, Suite 110, Calabasas, CA 91302; Hours: Monday – Thursday between 7:00 AM and 11:00 AM

Rev 04/21/10 mr

City of Malibu

23825 Stuart Ranch Rd., Malibu, California CA 90265-4861
(310) 456-2489 FAX (310) 456-7650

PUBLIC WORKS REVIEW
REFERRAL SHEET

TO: Public Works Department

FROM: City of Malibu Planning Department **REVISED DATE** 10/08/2025

PROJECT NUMBER:	CDP 25-032
JOB ADDRESS:	30215 MORNING VIEW DR
APPLICANT / CONTACT:	Elisa Younger, LPA Design Studios
APPLICANT EMAIL:	eyounger@lpadesignstudios.com
PROJECT DESCRIPTION:	Phase II of the Malibu Middle and High School Specific Plan: construction of three new buildings with associated landscaping and site utilities, OWTS with connections to the new and existing buildings
REVISION:	

TO: Malibu Planning Department and/or Applicant

FROM: Public Works Department

_____ **The following items described on the attached memorandum shall be addressed and resubmitted.**

X **The project was reviewed and found to be in conformance with the City's Public Works and LCP policies and CAN proceed through the Planning process.**

Building Plan Check (BPC) Required ☒ Yes ☐ No BPC Fees Req'd $_____

SIGNATURE

10/28/2025
DATE

Rev 120910

City of Malibu
MEMORANDUM

To: Community Development Department, Planning Division

From: Public Works Department
Kevin Chang, Assistant Civil Engineer

Date: October 27, 2025

Re: Proposed Conditions of Approval for 30215 Morning View Dr, CDP 25-032

The Public Works Department has reviewed the plans submitted for the above referenced project. Based on this review sufficient information has been submitted to confirm that conformance with the Malibu Local Coastal Plan (LCP) and the Malibu Municipal Code (MMC) can be attained. Prior to the issuance of building and grading permits, the applicant shall comply with the following conditions.

GRADING AND DRAINAGE

1. Clearing and grading during the rainy season (extending from November 1 to March 31) shall be prohibited for development LIP Section 17.3.1 that:
    - Is located within or adjacent to ESHA, or
    - Includes grading on slopes greater than 4:1
    - Approved grading for development that is located within or adjacent to ESHA or on slopes greater than 4:1 shall not be undertaken unless there is sufficient time to complete grading operations before the rainy season. If grading operations are not completed before the rainy season begins, grading shall be halted and temporary erosion control measures shall be put into place to minimize erosion until grading resumes after March 31, unless the City determines that completion of grading would be more protective of resources

2. Exported soil from a site shall be taken to the County Landfill or to a site with an active grading permit and the ability to accept the material in compliance with the City's LIP Section 8.3. **A note shall be placed on the project that addresses this condition.**

3. A grading and drainage plan shall be approved containing the following information prior to the issuance of grading permits for the project.

- Public Works Department General Notes
- The existing and proposed square footage of impervious coverage on the property shall be shown on the grading plan (including separate areas for buildings, driveways, walkways, parking, tennis courts and pool decks).
- The limits of land to be disturbed during project development shall be delineated on the grading plan and a total area shall be shown on the plan. Areas disturbed by grading equipment beyond the limits of grading, areas disturbed for the installation of the septic system, and areas disturbed for the installation of the detention system shall be included within the area delineated.
- The grading limits shall include the temporary cuts made for retaining walls, buttresses, and over excavations for fill slopes and shall be shown on the grading plan.
- If the property contains trees that are to be protected they shall be highlighted on the grading plan.
- If the property contains rare and endangered species as identified in the resources study the grading plan shall contain a prominent note identifying the areas to be protected (to be left undisturbed). Fencing of these areas shall be delineated on the grading plan if required by the City Biologist.
- Private storm drain systems shall be shown on the grading plan. Systems greater than 12-inch diameter shall also have a plan and profile for the system included with the grading plan.
- Public storm drain modifications shown on the grading plan shall be approved by the Public Works Department prior to the issuance of the grading permit.

STORMWATER

4. A Storm Water Pollution Prevention Plan shall be provided prior to the issuance of the Grading/Building permits for the project. This plan shall include an Erosion and Sediment Control Plan (ESCP) that includes, but not limited to:

Erosion Controls	Hydraulic Mulch
	Hydroseeding
	Soil Binders
	Straw Mulch
	Geotextiles and Mats
	Wood Mulching
Sediment Controls	Fiber Rolls
	Gravel Bag Berm
	Street Sweeping and/ or Vacuum
	Storm Drain Inlet Protection
	Scheduling
	Check Dam
Additional Controls	Wind Erosion Controls
	Stabilized Construction Entrance/ Exit

	Stabilized Construction Roadway
	Entrance/ Exit Tire Wash
Non-Stormwater Management	Vehicle and Equipment Washing
	Vehicle and Equipment Fueling
	Vehicle and Equipment Maintenance
Waste Management	Material Delivery and Storage
	Spill Prevention and Control

All Best Management Practices (BMP) shall be in accordance to the latest version of the California Stormwater Quality Association (CASQA) BMP Handbook. Designated areas for the storage of construction materials, solid waste management, and portable toilets must not disrupt drainage patterns or subject the material to erosion by site runoff.

5. Prior to the approval of any permits and prior to the applicant submitting the required Construction General Permit documents to the State Water Quality Control Board, the applicant shall submit to the Public Works Department for review and approval an Erosion and Sediment Control Plan (ESCP). The ESCP shall contain appropriate site-specific construction site BMPs and developed and certified by a Qualified SWPPP Developer (QWD). All structural BMPs must be designed by a licensed California Engineer. The ESCP must address the following elements:

   - Methods to minimize the footprint of the disturbed area and to prevent soil compaction outside the disturbed area.
   - Methods used to protect native vegetation and trees.
   - Sediment/Erosion Control.
   - Controls to prevent tracking on and off the site.
   - Non-storm water controls.
   - Material management (delivery and storage).
   - Spill Prevention and Control.
   - Waste Management
   - Identification of site Risk Level as identified per the requirements in Appendix 1 of the Construction General Permit.
   - Landowner must sign the following statement on the ESCP:

     "I certify that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to ensure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system or those persons directly responsible for gathering the information, to the best of my knowledge and belief, the information submitted is true, accurate and complete. I am aware that submitting false and/or inaccurate information, failing to update the ESCP to reflect current conditions, or failing to properly and/or adequately implement the ESCP

may result in revocation of grading and/or other permits or other sanctions provided by law."

6. A State Construction activity permit is required for this project due to the disturbance of more than one acre of land for development. Provide a copy of the letter from the State Water Quality Control Board containing the WDID number prior to the issuance of grading or building permits.

7. A Storm Water Management Plan (SWMP) is required for this project. Storm drainage improvements are required to mitigate increased runoff generated by property development. The applicant shall have the choice of one method specified within the City's Local Implementation Plan Section 17.3.2.B.2. The SWMP shall be supported by a hydrology and hydraulic study that identifies all areas contributory to the property and an analysis of the predevelopment and post development drainage of the site. The SWMP shall identify the Site design and Source control Best Management Practices (BMP's) that have been implemented in the design of the project (See LIP Chapter 17 Appendix A). The SWMP shall be reviewed and approved by the Public Works Department prior to the issuance of the grading/building permits for this project.

8. A Water Quality Mitigation Plan (WQMP) is required for this project. The WQMP shall be supported by a hydrology and hydraulic study that identifies all areas contributory to the property and an analysis of the predevelopment and post development drainage of the site. The WQMP shall meet all the requirements of the City's current Municipal Separate Stormwater Sewer System (MS4) permit. The following elements shall be included within the WQMP:
    - Site Design Best Management Practices (BMP's)
    - Source Control BMP's
    - Treatment Control BMP's that retains on-site the Stormwater Quality Design Volume (SWQDv). Or where it is technical infeasible to retain on-site, the project must biofiltrate 1.5 times the SWQDv that is not retained on-site.
    - Drainage Improvements
    - A plan for the maintenance and monitoring of the proposed treatment BMP's for the expected life of the structure.
    - A copy of the WQMP shall be filed against the property to provide constructive notice to future property owners of their obligation to maintain the water quality measures installed during construction prior to the issuance of grading or building permits.
    - The WQMP shall be submitted to Public Works Department and the fee applicable at time of submittal for the review of the WQMP shall be paid prior to the start of the technical review. The WQMP shall be approved prior to the Public Works Department's approval of the grading and drainage plan and or building plans. The Public Works Department will tentatively approve the plan and will keep a copy until the completion of the project. Once the project is completed, the applicant shall verify the installation of the BMP's, make any revisions to the WQMP, and resubmit to the Public Works Department for approval. The original signed and

notarized document shall be recorded with the County Recorder. A copy of the WQMP shall be submitted to the Public Works Department prior to the certificate of occupancy.

MISCELLANOUS

9. The developer's consulting engineer shall sign the final plans prior to the issuance of permits.

City of Malibu

23825 Stuart Ranch Rd., Malibu, California CA 90265-4804
(310) 456-2489 FAX (310) 456-3356 www.malibucity.org

LOS ANGELES COUNTY WATERWORKS DISTRICTS REVIEW
REFERRAL SHEET

FROM: City of Malibu Planning Department **DATE: 08/05/2025**

PROJECT NUMBER:	**CDP 25-032**
JOB ADDRESS:	**30215 MORNING VIEW DR**
APPLICANT / CONTACT:	**Elisa Younger, LPA Design Studios**
APPLICANT EMAIL:	**eyounger@lpadesignstudios.com**
APPLICANT PHONE #:	**(949) 701-4115**
PLANNER:	**Richard Greenbauer**
PROJECT DESCRIPTION:	**Phase II of the Malibu Middle and High School Specific Plan: construction of three new buildings with associated landscaping and site utilities, OWTS with connections to the new and existing buildings**

TO: Malibu Planning Department and/or Applicant

FROM: LACWD No. 29, Malibu

Compliance with the conditions checked below is required prior to Waterworks District approval

The project **DOES NOT** require any system improvements for domestic and/or fire flow conditions	X*
The project **DOES NOT** require capital improvement fees and/or participation fees	X*
The project **DOES** require a Will Serve Letter ***(Final Waterworks Districts approval)***	X*
The project **DOES** require capital improvement fees and/or participation fees	
The project **DOES** require the owner to execute an agreement and participate financially in the design and construction of a future water system to increase local storage and conveyance capacity in the event of an interruption of the primary water supply	
The project **DOES** require private contract water system improvements for domestic and/or fire flow conditions	

The required fire flow for this project set by the Fire Department is 1,500** gallons per minute at 20 pounds per square inch for a 1** hour duration

Scope of water system improvements required:

*Necessary improvements completed and fees paid through specification WWD 29-885 (PC).
**FEPC2025-0779.

Note: Los Angeles County Waterworks District No. 29, Malibu approval expires upon the earliest of the following: 1) Two years from the date of this form; 2) Expiration date of the City Planning permit(s), or 3) Date County adopts changes to the county of Los Ange/es Fire Code an makes revisions to appli le ire Department regulations and standards.

SIGNATURE

1-6-2026
DATE

Additional requirements/conditions may be imposed upon review of complete architectural plans.
Los Angeles County Waterworks District No. 29, Malibu may be contacted by phone at (310) 317-1389 or at the Waterworks Public Counter:
23533 Civic Center Way, Malibu CA 90265; Hours: Monday-Thursday 8:00am – 12:00pm

LOS ANGELES COUNTY WATERWORKS DISTRICTS *

P. O. Box 1460
Alhambra, CA 91802
Telephone: (626) 300-3306

260 East Avenue K-8
Lancaster, CA 93535
Telephone: (661) 942-1157

23533 Civic Center Way
Malibu, CA 90265
Telephone: (310) 317-1389

TO:

☐ Los Angeles County
Department of Public Health
Environmental Health:
Drinking Water / Land Use Program
5050 Commerce Drive
Baldwin Park, CA 91706-1423

☐ Los Angeles County
Department of Public Works
Building & Safety Division

☐ Los Angeles County
Fire Department

☐ City of Lancaster
Building Department
44933 N. Fern Ave.
Lancaster, CA 93534

☒ City of Malibu
Building Department
23815 W. Stuart Ranch Rd.
Malibu, CA 90265

☐ City of Palmdale
Building Department
38300 N. Sierra Hwy.
Palmdale, CA 93550

RE: **30215 Morning View Drive** (Address) **MALIBU** (City) **90265** (Zip Code)

APN # 4469-017-901

Los Angeles County Waterworks District No. 29

***Will serve* water to the above *single lot* property subject to the following conditions:**

☐	Annexation of the property into Los Angeles County Waterworks District is required. **Water service to this property will not be issued until the annexation is completed.**
☐	The appropriate fees must be paid to the District and other related water agencies.
☒	The appropriate service connection fees have been paid to Waterworks Districts for the existing 4" service connection.
☒	The property has an existing 4" compound water meter. Meter and service upgrade may be required to comply with WWD Rules and Regulations 1-H-16d.
☐	The appropriate connection fees have been paid to Waterworks Districts for the proposed service.
☐	Water system improvements will be required to be installed by the developer subject to the requirements set by the Fire Department and the District.
☒	Water meter serving the property must be installed in accordance with Waterworks' District standards.
☒	Public water system and sewage disposal system must be in compliance with Health Department separation requirements.
☐	A portion of the existing fronting water main may be required to be replaced or upgraded if the water service tap cannot be made or if damage occurs to the water main.
☒	Property may experience low water pressure and / or shortage in high demand periods.
☐	The District **CAN NOT** serve water to this property at this time.
☒	Must comply with and satisfy City of Malibu requirements in order to obtain Water Service.
☒	A USC approved backflow device is required for this property and is to be installed and maintained by the property owner and tested annually.
☒	This Will Serve Letter is for phase II of the Malibu Middle and High School Plan including construction of three new buildings only. FEPC2025-0779. Fire Flow = 1,500 gpm for 1 hour.

By:	William Johnson	(310) 317-6243	1-6-2026
Signature	Print Name	Phone Number	Date

**** THIS WILL SERVE LETTER WILL EXPIRE ONE YEAR AFTER THE DATE OF ISSUANCE.***

CITY OF MALIBU
PLANNING DEPARTMENT
FINAL APPROVAL

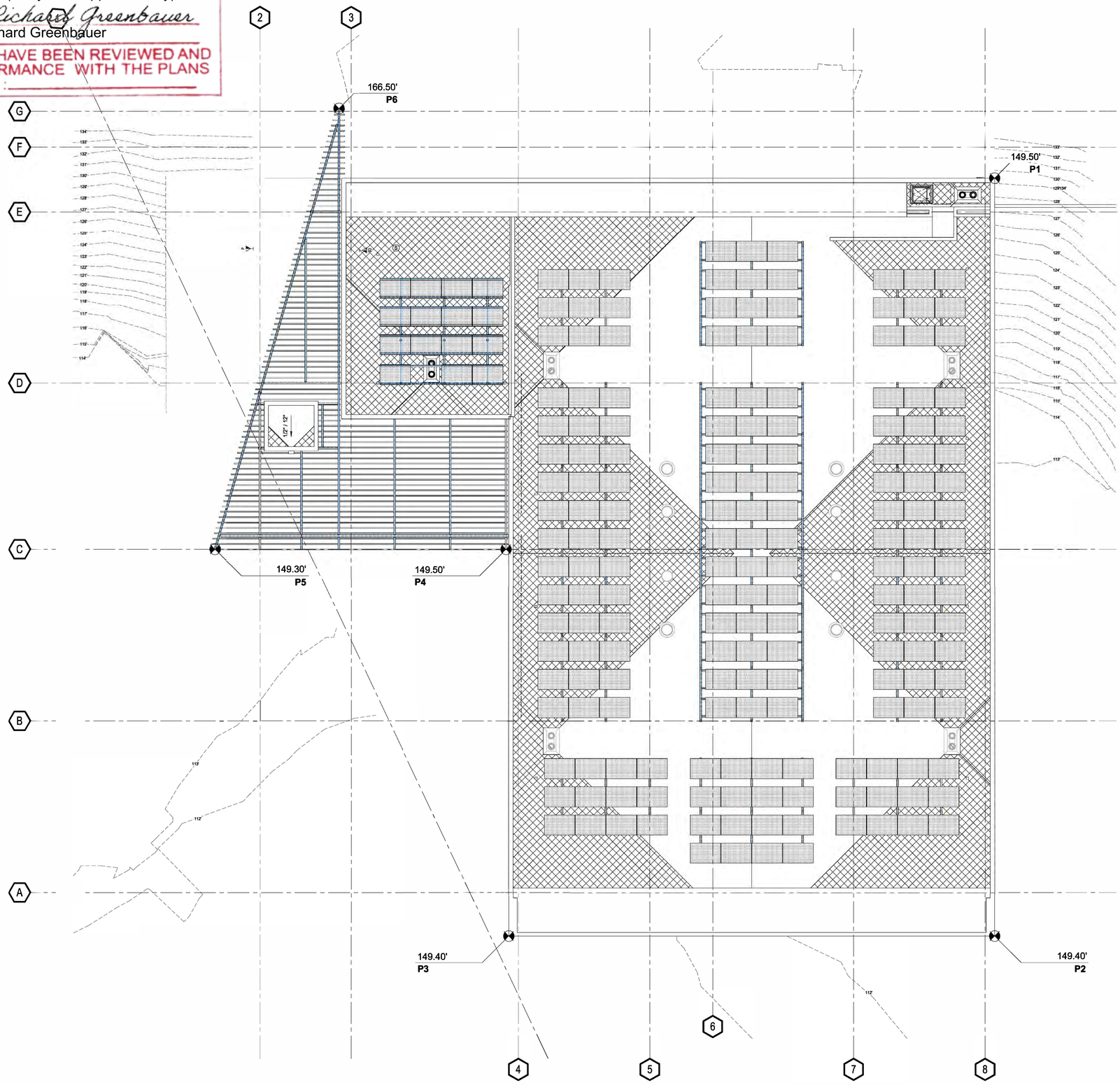
PLANNING REVIEW NO. CDP25-032

DATE 12/19/2025 (Story Pole Approval Only)

SIGNATURE Richard Greenbauer

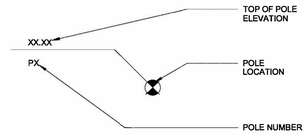
PRINT NAME Richard Greenbauer

THESE PLANS HAVE BEEN REVIEWED AND ARE IN CONFORMANCE WITH THE PLANS APPROVED ON :



GYM - BALLOON PLAN | 1/8" = 1'-0" | 2-G2-0.42 | 05

LEGEND



STORY POLES LOCATIONS

STORY POLE ID NUMBER	NATURAL GRADE	FINISH GRADE	POLE TOP ELEVATION	POLE HEIGHT (FROM NATURAL GRADE)
P1	128.4	114.5	149.5	21.1
P2	112.0 *	114.4	149.5	37.5
P3	111.5	114.4	149.5	38.0
P4	112.0	114.5	149.5	37.5
P5	114.5 **	114.3	149.5	35.0
P6	134.1	134.5	149.5	15.4

*Denotes FF of existing building I
**Denotes FF of existing relo building

GENERAL NOTES

1. CONTRACTOR SHALL VERIFY (E) NATURAL GRADE @ BASES OF POLES, AND POLE HEIGHTS RELATIVE TO TOP OF POLE ELEVATION.
2. THE TOP ONE FOOT OF THE STORY POLES SHALL BE PAINTED WITH A CLEARLY VISIBLE BLACK PAINT.** MARKINGS SHALL ALSO BE MADE AT 18 FEET ABOVE FINISHED OR NATURAL GRADE, WHICHEVER RESULTS IN A LOWER BUILDING HEIGHT, AND AT ONE FOOT INCREMENTS ABOVE 18 FEET.
3. BRIGHT PERIMETER MARKER PENNANT FLAGS COLOR INDICATED ON PLAN, APPROXIMATELY ONE FOOT IN WIDTH SHALL BE PLACED CONNECTING POLES TO SHOW ALL PROPOSED ROOF AND RIDGELINES.
4. IF AT ANY TIME THE STORY POLES BECOME UNSAFE, THEY SHALL BE REPAIRED AND RESET IMMEDIATELY. THE STORY POLES SHALL BE REMOVED IMMEDIATELY IF DETERMINED BY THE CITY TO BE A PUBLIC SAFETY RISK.

** BALLOON METHOD IN LIEU OF TYPICAL STORY POLES TO BE USED FOR INSTALLATION.

BLACK BALLOONS TO BE USED TO INDICATE THE TOP ONE FOOT OF STORY POLES.

WAIVER OF RISK
I HEREBY ABSOLVE THE CITY OF ANY LIABILITY ASSOCIATED WITH THE CONSTRUCTION OF, OR DAMAGE CAUSED BY, THE PLACEMENT OF THE APPROVED STORY POLES.

SIGNATURE: Carey W. Upton DATE: Digitally signed by Carey W. Upton DN: cn=Carey W. Upton, o=Santa Monica-Malibu Unified School District, ou=Chief Operations Officer, email=cupton@smmusd.org, c=US Date: 2025.12.12 11:07:12 -08'00'

ATTACHMENT 5

LPA
ARCHITECTURE ENGINEERING INTERIOR DESIGN
LANDSCAPE ARCHITECTURE PLANNING
949-261-1001 Office
LPADesignStudios.com
5301 California Avenue, Suite 100
Irvine, California 92617

LICENSED ARCHITECT RICHARD MUSTO No. C19639 REN 12/31/2025 STATE OF CALIFORNIA

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Project documents describe the design intent of the work and are not a representation of as-built or existing conditions. LPA is not responsible for any discrepancies between the project documents and the existing conditions.

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MALIBU MIDDLE SCHOOL
INCREMENT 02

30215 MORNING VIEW DR.,
MALIBU, CA 90265
APN: 4469-017-900

Developed for
SANTA MONICA - MALIBU UNIFIED SCHOOL DISTRICT

Revision Date

Submittal Date

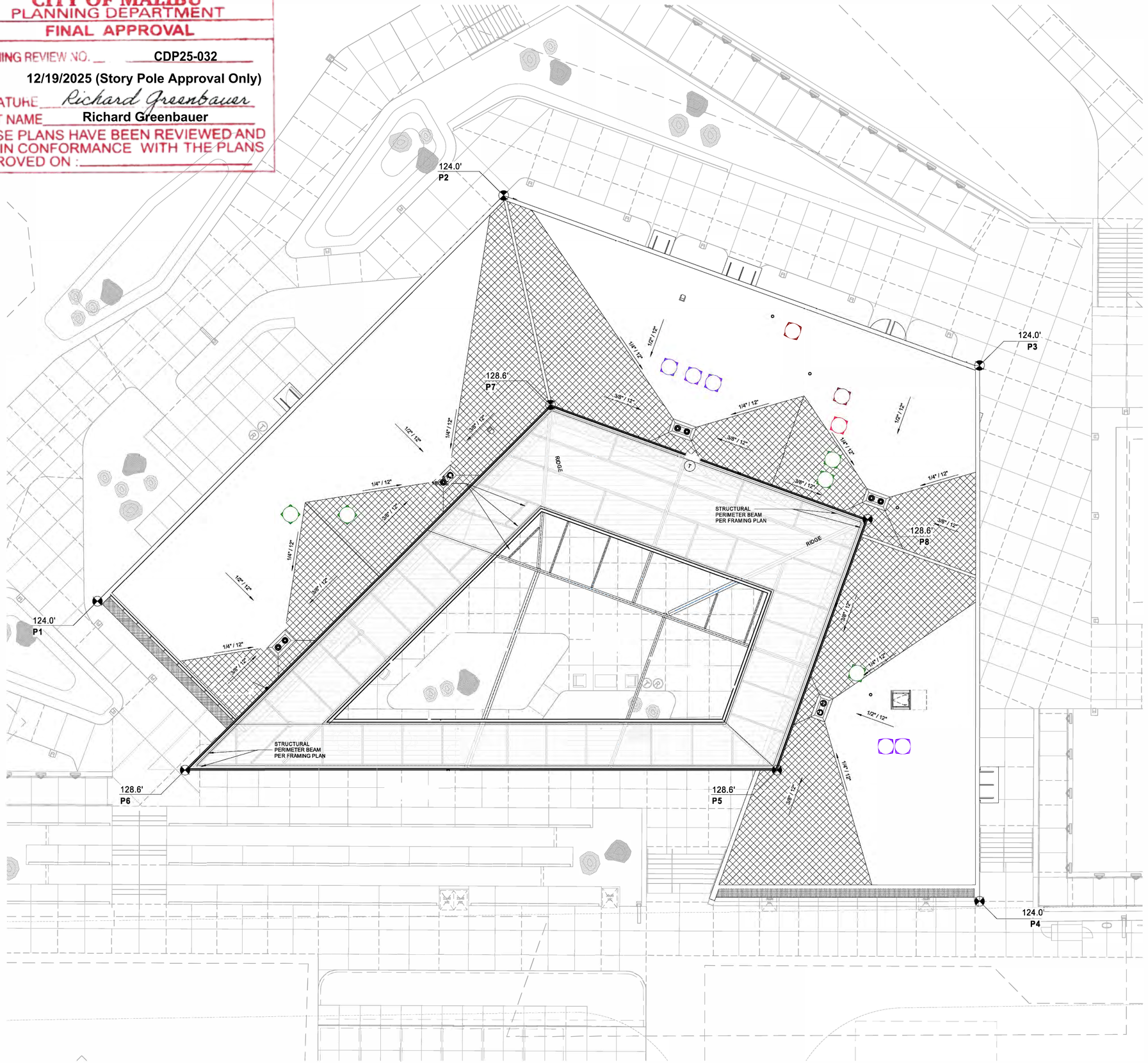
Job Number	31722
Checked By	Checker
Scale	1/8" = 1'-0"

GYM - STORY POLE PLAN

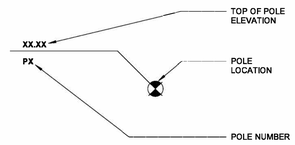
2-G2-0.42

CITY OF MALIBU
PLANNING DEPARTMENT
FINAL APPROVAL

PLANNING REVIEW NO. CDP25-032
DATE 12/19/2025 (Story Pole Approval Only)
SIGNATURE Richard Greenbauer
PRINT NAME Richard Greenbauer
THESE PLANS HAVE BEEN REVIEWED AND ARE IN CONFORMANCE WITH THE PLANS APPROVED ON :



LEGEND



STORY POLES LOCATIONS

STORY POLE ID NUMBER	NATURAL GRADE	FINISH GRADE	POLE TOP ELEVATION	POLE HEIGHT (FROM NATURAL GRADE)
P1	104.6	107.0**	124.0	19.4
P2	111.2*	107.0**	124.0	12.8
P3	110.2	107.0**	124.0	13.8
P4	103.3	103.2	124.0	20.7
P5	103.9	107.0**	128.6	24.7
P6	103.6	106.8	128.6	25.0
P7	107.1	107.0**	128.6	21.5
P8	105.7	107.0**	128.6	22.9

*Denotes FF of existing relo building
**Proposed FF of the HUB Building

GENERAL NOTES

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SIGNATURE: Carey W. Upton DATE: Digitally signed by Carey W. Upton DN: cn=Carey W. Upton, o=Santa Monica-Malibu Unified School District, ou=Chief Operations Officer, email=cupton@smmusd.org, c=US 2025.12.12 11:05:54 -08'00'

LPA
ARCHITECTURE ENGINEERING INTERIOR DESIGN
LANDSCAPE ARCHITECTURE PLANNING
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MALIBU HIGH SCHOOL
INCREMENT 02

30215 Morning View Dr.,
Malibu, CA 90265
APN: 4469-017-900

Developed for
SANTA MONICA - MALIBU UNIFIED SCHOOL DISTRICT

Revision	Date

Submittal	Date

Job Number	31722
Checked By	Checker
Scale	1/8" = 1'-0"

MS HUB - STORY POLE PLAN

2-G1-0.42








SPEED
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30
















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22G1




































MAIN ENTRANCE




PASSENGER LOADING ONLY





SANTA MONICA-MALIBU UNIFIED SCHOOL DISTRICT

CAREY UPTON
CHIEF OPERATIONS OFFICER

310-450-8338 x79383
cupton@smmusd.org

DATE: January 6, 2026

TO: Joseph Smith, AICP, Contract Principal Planner, City of Malibu

FROM: Carey Upton, Chief Operating Officer

SUBJECT: CDP 25-032 / 30215 Morning View Dr.

SANTA MONICA – MALIBU UNIFIED SCHOOL DISTRICT'S CEQA GUIDELINES SECTION 15162 EVALUATION OF THE MALIBU MIDDLE AND HIGH SCHOOL CAMPUS PLAN PHASE 2 PROJECT (COASTAL DEVELOPMENT PERMIT NO. 25-032)

On December 6, 2024, Santa Monica–Malibu Unified School District staff met with the District's environmental consultant, PlaceWorks, and District legal counsel to review the proposed design for the Malibu Middle and High School Campus Plan – Phase 2 Project (Project) and to evaluate whether additional environmental review would be required pursuant to State CEQA Guidelines Section 15162 prior to initiating the entitlements process.

Prior to the District's meeting with the City of Malibu, PlaceWorks conducted an independent evaluation of the Phase 2 Project and determined that the environmental impacts associated with the Project had been adequately disclosed, analyzed, and mitigated, as appropriate, in the Malibu Middle and High School Specific Plan and Local Coastal Program (LCP) Amendment Project Final Environmental Impact Report (EIR) (State Clearinghouse No. 020080350). The Final EIR was certified by the Santa Monica–Malibu Unified School District on January 26, 2022, approved by the City of Malibu on October 23, 2023, and approved by the California Coastal Commission on November 17, 2023. Based on this analysis, no additional environmental review is required under CEQA for the Phase 2 Project.

On January 29, 2025, District staff, PlaceWorks, and District legal counsel met with the City of Malibu to review the proposed Phase 2 Project. At that meeting, it was further confirmed that no additional CEQA review or action would be required. The City's Senior Planner concurred with this determination, and a timeline for processing the Phase 2 Coastal Development Permit (CDP) was discussed and agreed upon.

Based on the determination that no additional environmental review was required, the District proceeded with the planning and permitting process for the Project. CEQA was not brought forward as a separate item to the Board of Education because no discretionary action was required. Once District staff, the District's Environmental Consultant, and District legal counsel confirmed that no

further CEQA review or action was necessary, no additional environmental steps were required to proceed.

On December 19, 2024, the Board of Education took action to approve the Lease-Leaseback Agreement with C.W. Driver, LLC, authorizing the District to proceed with Preliminary Construction Services and, subsequently, construction of the Phase 2 Project.

CEQA Guidelines Section 15162 states that when an EIR has been certified or a negative declaration adopted for a project, no subsequent or supplemental EIR need be prepared for the project unless the lead agency determines, on the basis of substantial evidence in the light of the whole record, one or more of the following:

- Substantial changes are proposed in the project which will require major revisions of the previous EIR or negative declaration due to the involvement of new significant environmental effects or a substantial increase in the severity of previously identified significant effects;
- Substantial changes occur with respect to the circumstances under which the project is undertaken which will require major revisions of the previous EIR or negative declaration due to the involvement of new significant environmental effects or a substantial increase in the severity of previously identified significant effects; or
- New information of substantial importance, which was not known and could not have been known with the exercise of reasonable diligence at the time the previous EIR was certified as complete or the negative declaration was adopted, shows any of the following:
- The project will have one or more significant effects not discussed in the previous EIR or negative declaration;
- Significant effects previously examined will be substantially more severe than shown in the previous EIR;
- Mitigation measures or alternatives previously found not to be feasible would in fact be feasible and would substantially reduce one or more significant effects of the project, but the project proponents decline to adopt the mitigation measure or alternative; or
- Mitigation measures or alternatives which are considerably different from those analyzed in the previous EIR would substantially reduce one or more significant effects on the environment, but the project proponents decline to adopt the mitigation measure or alternative. (CEQA Guidelines Section 15162[a]).

Factors used in determining whether subsequent environmental review is required include, but are not limited to, consistency of the later activity with the type of allowable land use, overall planned density and building intensity, geographic area analyzed, and covered infrastructure described in the Final EIR. The Phase 2 project falls within the parameters of the certified Specific Plan and would not require an amendment to the Specific Plan or the City of Malibu's Local Coastal Program. Based on the evaluation of staff, PlaceWorks and legal counsel, the District determined that the Phase 2 Project is within the scope of the program section of the Final EIR. Pursuant to CEQA Guidelines section 15162, no subsequent EIR is required because the circumstances under which the Phase 2 Project will be undertaken have not substantially changed such that new or more severe impacts would occur. Lastly, no new initial study would be required per CEQA Guidelines section 15168(c)(1) because the Phase 2 Project would not have effects that were not examined in the Final EIR.

Should you have any further questions, please contact me at 424-581-5426.

Sincerely,

Carey W. Upton

Digitally signed by Carey W. Upton
DN: cn=Carey W. Upton, o=Santa Monica-Malibu Unified School District, ou=Chief Operations Officer, email=cupton@smmusd.org, c=US
Date: 2026.01.07 16:34:29 -08'00'

Carey Upton
Chief Operations Officer
Santa Monica-Malibu Unified School District

MEMORANDUM

DATE	December 22, 2025
TO	Noemi Avila-Zamudio
FROM	Addie Farrell, Principal Environmental Services
SUBJECT	Phase 2 Malibu Middle School Hub and Gym Project

This memorandum demonstrates that environmental impacts associated with Coastal Development Permit Application (CDP) NO.25-032 for the Malibu Middle and High School Campus Plan Phase 2 Project (project) have been adequately disclosed, evaluated, and mitigated as appropriate in the Final Environmental Impact Report (EIR) (State Clearinghouse No. 020080350) that was certified by the Santa Monica-Malibu Unified School District (District or SMMUSD), approved by the City of Malibu, and approved by the California Coastal Commission (CCC).

CDP No. 25-032 is Phase 2 of the Specific Plan (Phase 2). Phase 2 includes the following components; demolition of Building K: Classroom Building (12,698sf) and Building I: Classroom Building (11,761sf), the removal of eight portable classroom buildings, construction of a new Middle School Building (MS HUB), construction of new Middle School gym building, construction of a new Main Distribution Framework (MDF) Building, new fire lane for new building access, a new Solar Farm, connections to the recently completed wastewater treatment system to the Phase 2 buildings, and associated grading and underground utility work and site improvements.

As stated in Section 1.2.2, *Type and Purpose of this DEIR,* "Consistent with the requirements set forth in State CEQA Guidelines Section 15168(c), later activities (i.e., Phase 2) would be examined in light of the information in this DEIR to determine whether an additional environmental document must be prepared. It is the intent of the District to use this DEIR for later phases to determine whether additional tiered analysis is necessary under Section 15152 of the State CEQA Guidelines. Factors to be used in determining whether subsequent environmental review is required include but are not limited to consistency of the later activity with the type of allowable land use, overall planned density and building intensity, geographic area analyzed, and covered infrastructure described in this DEIR."

The following analysis indicates that the project does not require further environmental review pursuant to State CEQA Guidelines Section 15162 of the State CEQA Guidelines, which states that when an EIR has been certified or a negative declaration adopted for a project, no subsequent or supplemental EIR need be prepared for the project unless the lead agency determines, on the basis of substantial evidence in the light of the whole record, one or more of the following:

- Substantial changes are proposed in the project which will require major revisions of the previous EIR or negative declaration due to the involvement of new significant environmental effects or a substantial increase in the severity of previously identified significant effects;
- Substantial changes occur with respect to the circumstances under which the project is undertaken which will require major revisions of the previous EIR or negative declaration due to the involvement of new significant environmental effects or a substantial increase in the severity of previously identified significant effects; or

» New information of substantial importance, which was not known and could not have been known with the exercise of reasonable diligence at the time the previous EIR was certified as complete or the negative declaration was adopted, shows any of the following:

- The project will have one or more significant effects not discussed in the previous EIR or negative declaration;
- Significant effects previously examined will be substantially more severe than shown in the previous EIR;
- Mitigation measures or alternatives previously found not to be feasible would in fact be feasible and would substantially reduce one or more significant effects of the project, but the project proponents decline to adopt the mitigation measure or alternative; or
- Mitigation measures or alternatives which are considerably different from those analyzed in the previous EIR would substantially reduce one or more significant effects on the environment, but the project proponents decline to adopt the mitigation measure or alternative. (CEQA Guidelines Section 15162[a]).

TABLE 1 PHASE 2 EIR ANALYSIS

EIR Resource Area	Consistency With Certified EIR Analysis
Aesthetics	Consistent. Implementation of the Phase 2 Project would be developed in the same footprint identified in the EIR. The EIR contemplated Phase 2 to be designed as one building; however, the current design calls for development of two buildings, the Middle School Gym and the Middle School Hub. The Middle School Gym would have a maximum height of 35 feet, and the Middle School Hub would have a maximum height of 17 feet, both of which comply with the height restrictions evaluated in the EIR. All new lighting will implement Mitigation Measures MM AES-1 through MM AES-5, which would require new lighting be designed with low-intensity, full cut-off shielded light fixtures that maintain safe light levels while avoiding off-site lighting and night sky pollution, as required by the Specific Plan and the City of Malibu Dark Sky Ordinance. Therefore, the Phase 2 Project would not result in any new or substantially more severe significant impacts related to aesthetics.
Air Quality	Consistent. The EIR included calculation of construction and operational air emissions for the development of the MMHS Specific Plan and determined that it would not exceed applicable Southern California Air Quality Management District (SCAQMD) significance criteria. The EIR further determined that the project site is consistent with the SCAQMD's Air Quality Management Plan, would not alter any climate factors, and would not create objectionable odors. Construction emissions are anticipated to be similar to the emissions estimated in the EIR, which were substantially below the SCAQMD thresholds. Additionally, during construction of the Phase 2 Project the District will implement Mitigation Measure AQ-1, which would ensure that significant impacts do not occur to nearby sensitive receptors, including MMHS students and staff. Therefore, the Phase 2 Project would not result in any new or substantially more severe significant impacts related to air quality.
Biological Resources	Consistent. The EIR determined that with the implementation of mitigation measures, impacts to biological resources would be less than significant. With the exception of the proposed Solar Farm, the footprint of the Phase 2 Project is on land already developed with buildings and paved areas and is located at least 125 feet from the ESHA. Construction related activities are required to comply with Mitigation Measures MM BIO-2 through MM BIO-4 regarding nesting bird and special status vegetation, particularly during construction of the proposed Solar Farm. Additionally, the project will implement Mitigation Measure

TABLE 1 PHASE 2 EIR ANALYSIS

EIR Resource Area	Consistency With Certified EIR Analysis
	BIO-6 to ensure conformity to the City of Malibu's Local Coastal Program Native Tree Protection Ordinance. The District is required to comply with these mitigation measures for the proposed project, which would ensure impacts on sensitive species would not be significant. Therefore, no new or substantially more severe significant impacts to biological resources would occur.
Cultural Resources	Consistent. The EIR determined that there are no eligible historic resources located on the MMHS campus. The potential for archeological and paleontological resources does exist and implementation of Mitigation Measure CUL-1 will ensure that if such resources were discovered all grading and construction efforts that would disturb the site shall cease and the resource(s) shall be evaluated and managed in accordance with CEQA Guidelines Section 15064.5. Therefore, the Phase 2 Project would not result in any new or substantially more severe significant impacts related to cultural resources.
Energy	Consistent. The EIR determined that the construction and operation of the MMHS Specific Plan would not result in wasteful, inefficient, or unnecessary consumption of energy resources, nor would the Specific Plan conflict with or obstruct a state or local plan for renewable energy or energy efficiency. The Phase 2 Project has been designed to be consistent with the project contemplated in the EIR. Therefore, the Phase 2 Project would not result in any new or substantially more severe significant impacts related to energy resources.
Geology and Soils	Consistent. The EIR determined that the MMHS campus is located in a site that could be subject to strong seismic ground shaking. As required by Mitigation Measure GEO-1, the Phase 2 Project is required to have a site-specific geotechnical report that would include design recommendations, including, but not limited to seismic design parameters, foundation design, retaining wall, grading, and trenching. Development of the Phase 2 Project would be required to comply with the California Building Code (CBC), the Field Act, and the Division of the State Architect's review to ensure that all seismic requirements under Title 24 of the CBC for school buildings are met. Implementation of these regulations would ensure that impacts related to groundshaking, liquefaction, or subsidence would be less than significant. Therefore, the Phase 2 Project would not result in any new or substantially more severe significant impacts related to geology and soils.
Greenhouse Gas Emissions	Consistent. The EIR determined that implementation of the MMHS Specific Plan would not generate significant GHG emissions. Since student capacity, staffing, and other community-related uses on the campus would not increase or change with implementation of the Phase 2 Project, it would not result in an increase in emissions from mobile sources, solid waste generation, water use, or wastewater generation. Construction emissions were determined not to exceed the SCAQMD threshold. The Phase 2 Project similarly will not conflict with an applicable plan, policy, or regulation adopted for the purpose of reducing the emissions of GHGs. Therefore, the Phase 2 Project would not result in any new or substantially more severe significant impacts related to greenhouse gas emissions.
Hazards and Hazardous Materials	Consistent. The EIR for the MMHS Specific Plan determined that, as an educational use, the project would not involve the routine use of hazardous materials beyond small quantities required for normal maintenance and landscaping activities and would not create any health hazards. The EIR also determined that the project would not involve changes to circulation or site access and would not interfere with emergency plans. The Phase 2 Project would include the same uses as those evaluated in the EIR and would be constructed at the same location. Therefore, the Phase 2 Project would not result in any

TABLE 1 PHASE 2 EIR ANALYSIS

EIR Resource Area	Consistency With Certified EIR Analysis
	new or substantially more severe significant impact related to hazards and hazardous materials. With implementation of fire protection building and design features and compliance with existing current standards, regulations, and code requirements, the Phase 2 Project would not result in a significant risk of loss, injury, or death involving wildland fires.
Hydrology and Water Quality	Consistent. Prior to construction of the Phase 2 Project, the District would be required to prepare and implement site specific BMPs consistent with its Construction General NPDES Permit, Construction SWPPP, and MMC § 13.04.100, which are in place to control sediment and pollution from entering waterways. During operation, the new storm drain system would be designed to accommodate a 50-year storm, and the design would comply with the City's MS4 Permit and Municipal Code Chapter 13.04 (Stormwater Management and Discharge Control). The Phase 2 Project would result in the decommissioning of existing septic systems and sizing and replacement with tie-ins to the new wastewater treatment system infrastructure. The Phase 2 Project would result in a minor increase to impervious surfaces compared to existing conditions and would not result in substantial erosion or siltation on or off-site. The project would install new stormwater retention basins that would be developed to infiltrate and treat runoff from the new buildings and paved areas. As described in the EIR, groundwater levels beneath the campus are 50 to 70 feet below ground surface. Therefore, project construction would have no potential to intercept the underlying aquifer or otherwise alter the direction, rate, or flow of groundwater. Therefore, the Phase 2 Project would not result in any new or substantially more severe significant impacts related to hydrology.
Land Use	Consistent. The Phase 2 Project would continue the existing public educational use for the site. The project would be consistent with the goals and policies identified in the General Plan's Land Use Element, the City's LCP, and the City's Municipal Code that have been adopted for the purposes of avoiding or mitigating environmental impacts. The Specific Plan was developed to establish the development standards and plan for the redevelopment of campus facilities in multiple phases to enhance and modernize facilities and improve campus circulation. With adoption of the Specific Plan, these standards became the regulations against which all phases of campus development, including the Phase 2 Project, would be reviewed by the City. Where the Specific Plan does not identify development standards, development under the Specific Plan is required to conform to all existing development standards under § 17.40.110 of the City's Municipal Code for Institutional Development and § 3.9 of the City's LIP. Therefore, the Phase 2 Project would not result in any new or substantially more severe significant impacts related to land use and planning.
Noise	Consistent. The EIR concluded that the MMHS Specific Plan would potentially increase existing noise levels at the project site during construction even with the implementation of Mitigation Measure N-1. Construction activities would be temporary and would comply with existing City regulations which limit hours of construction to normal working hours and regulate equipment maintenance and use as well as the allowable level of ambient noise (Section 8.24.050 of the City of MMC). Mitigation Measure N-1 will ensure that temporary noise barriers are erected when construction activities would be within the screening distance of 100 feet from the sensitive receptor property line; however, noise levels could exceed the City's construction noise limit and were found to be significant and

TABLE 1 PHASE 2 EIR ANALYSIS

EIR Resource Area	Consistency With Certified EIR Analysis
	unavoidable. Some Phase 2 construction related activities could occur within 100 feet or adjacent residential uses. Operation of the Phase 2 Project would not increase noise levels beyond existing noise levels as there would be no increase in student population and activities would be similar to existing activities. Noise levels during construction may exceed the City of Malibu's noise limits; however, not at a level significantly greater than what was identified in the EIR. Therefore, the Phase 2 Project would not result in any new or substantially more severe significant impacts related to noise.
Public Services	Consistent. The EIR determined that the MMHS Specific Plan would incrementally increase demand for some public services; however, the impact to the associated service providers would be less than significant. The Phase 2 Project would not increase the requirement for fire protection facilities and personnel, would not adversely affect the LACoFD's ability to provide adequate service, and would not require new or expanded police facilities that could result in adverse environmental impacts. Therefore, the Phase 2 Project would not result in any new or substantially more severe impacts related to public services.
Recreation	Consistent. The Phase2 Project includes the construction of improved recreational facilities with the development of the Middle School Gym. The Middle School Gym would serve MMHS students, and the community would be available for public use, as permitted in the 2019 Master Agreement between SMMUSD and the City of Malibu Regarding the Joint Use of School District Facilities. The Phase 2 Project would include enhancements to and expansion of the MMHS recreational facilities and would not result in any new or substantially more severe significant impacts related to recreation.
Transportation	Consistent. The Phase 2 Project would be confined to the MMHS campus and would not construct or modify the surrounding circulation network, including roads transit, bicycle, and pedestrian facilities. Therefore, the Proposed Project would not conflict with any regulations set forth by the City of Malibu's General Plan and/or LCP, nor with a program, plan, ordinance, or policy regarding public transit, roadway, bicycle, or pedestrian facilities, or otherwise decrease the performance or safety of such facilities. Construction activities would generate a temporary increase in traffic and an increase in Vehicle Miles Traveled (VMT). However, the increase in trips and the subsequent increase in VMT to the MMHS Campus would be temporary and vary with the level of effort necessitated by each phase of construction. During operation, development of the Phase 2 Project would not increase the student or employment population at MMHS, and the attendance boundaries of the school would not change; therefore, the Phase 2 Project would not result in more vehicle trips to and from the school during operation of the project when compared to existing conditions. During Phase 2 construction, the majority of construction traffic during the peak hours would consist of construction workers and vendors traveling to and from the MMHS. In addition, during Phase 2, the newly constructed drop-off and pick-up areas in Parking Lots C and D would be available, and the school would continue to use Parking Lot B and the new Parking Lots D and E that have been constructed during Phase 1. Mitigation measures T-1 and T-3 would be implemented during Phase 2. Once operational, the Phase 2 Project would continue to utilize the new drop-off and pick-up areas, and the new parking lots constructed during the Phase 1 Project. Therefore, the

TABLE 1 PHASE 2 EIR ANALYSIS

EIR Resource Area	Consistency With Certified EIR Analysis
	proposed project revision would not result in any new or substantially more severe significant impacts related to transportation/traffic.
Utilities and Service Systems	Consistent. All utility infrastructure improvements necessary for the implementation of the Phase 2 Project (specifically water, electrical, natural gas, telecommunications) would be developed internal to the Project Site during construction. Additionally, the new structures would be developed with modernized building materials and fixtures meeting current code requirements, resulting in a more efficient use of utilities. Therefore, the Phase 2 Project would not result in any new or substantially more severe significant impacts related to utilities and service systems.
Wildfire	Consistent. The MMHS campus is located within a very high fire hazard severity zone (VHFHSZ) with a high likelihood of exposure to a wildland fire and secondary effects of wildland fires. The Phase 2 Project would not require the installation of new power lines or other off-site utilities, including infrastructure for emergency/fire water lines. The proposed domestic and fire water lines would connect to the existing 12-inch public water main on Morning View Drive, and water would be supplied by the Los Angeles County Waterworks District No. 29. Project construction activities could result in exacerbated fire risks due to sparks, dry vegetation, and weather, particularly in areas where construction activities are in proximity to surrounding open space areas. Given the high potential for wildland fires and associated risks in the project area, construction-related impacts are considered potentially significant. Mitigation Measure W-1 would ensure fire prevention requirements are in place during all phases of construction activities. Mitigation Measure W-1 would reduce potential impacts associated with wildfire risks during construction to a level that is less than significant through implementation of fire prevention measures. Mitigation Measure GEO-1 would require adherence to design recommendations in the final Geotechnical Report for the Phase 2 Project. These recommendations include industry-proven standards to prevent soil erosion and unstable soils. Therefore, the Phase 2 Project would not result in any new or substantially more severe significant impacts related to wildfire risk.

As demonstrated in the preceding analysis, all environmental impacts associated with construction and operation of Phase 2 (the project) were adequately evaluated and mitigated. The standards set forth in State CEQA Guidelines Section 15162 are met, and no further environmental review is required.

NOTICE OF PUBLIC HEARING
CITY OF MALIBU
PLANNING COMMISSION

The Malibu Planning Commission will hold a public hearing on **TUESDAY, January 20, 2026, at 6:30 p.m.** in the Council Chambers, Malibu City Hall, 23825 Stuart Ranch Road, Malibu, CA on the project identified below.

Public comment can be submitted ahead of the public hearing to planningcommission@malibucity.org for inclusion in the public record. To participate during the public hearing, please review the meeting agenda posted at MalibuCity.org/AgendaCenter and follow the directions for public participation.

MALIBU MIDDLE AND HIGH SCHOOL CAMPUS SPECIFIC PLAN

Coastal Development Permit No. 25-032, Site Plan Review No. 25-039, And Demolition Permit No. 25-027 - An application to implement the Malibu Middle and High School Campus (MMHS) Campus Specific Plan (Phases 2, 3a, and 4a) with the construction of a new two-story 18,911 square-foot middle school gym (Building D) and outdoor sports courts, one-story 9,243 square-foot middle school student activity, food service, and special education building with canopy (Building D/I), one-story 333 square foot broadcasting/media arts building, middle school quad and walkways, site improvements, landscaping, on-grade solar installation, grading, and underground utility work, including a site plan review for a height increase over 18 feet, not to exceed 36 feet as allowed in the MMHS Specific Plan and a demolition permit for the demolition of existing classroom Buildings K and I, seven portable classroom buildings, and one portable restroom building

Location:	30215 Morning View Drive
APN:	4469-017-901
Zoning:	Institutional (I) and MMHS Campus Specific Plan Overlay District
Applicant:	LPA, Inc.
Owner:	Santa Monica-Malibu Unified School District (SMMUSD)
Appealable to:	City Council
Application Filed:	August 5, 2025
Case Planner:	Richard Greenbauer, Contract Planner (949) 489-1442, extension 132 greenbauer@civicsolutions.com

In accordance with the California Environmental Quality Act (CEQA) and CEQA Guidelines Section 15051 (State Clearinghouse [SCH] No. 202008350), the SMMUSD Board of Education (Board) adopted a Final Environmental Impact Report (EIR) for the MMHS Campus Specific Plan on January 26, 2022, which included all phases of development including the scope of work proposed in CDP No. 25-032. The EIR identified potential significant environmental impacts from the MMHS Campus Specific Plan but found that mitigation measures would reduce most impacts to less-than-significant levels. A Mitigation Monitoring and Reporting Program (MMRP) was adopted for the project. The EIR also identified significant and unavoidable impacts on aesthetics (light and glare) and noise (sensitive receptors). The Board weighed the benefits of the project against the unavoidable impacts and determined that the benefits outweigh them. A Statement of Overriding Considerations (SOC) was adopted as part of the Final EIR. The Board, acting as the lead agency for the proposed project, consulted with responsible agencies, including the City, during the preparation of the EIR. On July 11, 2022, the City Council adopted Resolution No. 22-32 certifying the adequacy of the Final EIR. The Final EIR, MMRP, SOC, and accompanying materials are available on the City's website

at: https://www.malibucity.org/397/Malibu-Middle-High-School-Improvements.

As the decision-making body for Coastal Development Permit No. 25-032, the City must review and consider the Final EIR before acting upon or approving the proposed Project. Pursuant to CEQA Guidelines Section 15162 and 15163, and based on the review of the entire record, including without limitation, the Final EIR, the Community Development Director finds that the proposed Project does not require further environmental review as: 1) no substantial changes are proposed to the Project and no substantial changes have occurred that require major revisions to the Final EIR due to the involvement of new significant environmental effects or an increase in severity of previously identified significant effects; and 2) no new information of substantial important has come to light that (a) shows the Project will have one or more significant effects not discussed in the Final EIR, (b) identifies significant impacts would not be more severe than those analyzed in the Final EIR, (c) shows that mitigation measures or alternatives are now feasible that were identified as infeasible and those mitigation measures or alternatives would reduce significant impacts, and (d) no changes or mitigation measures or alternatives have been identified or required. Pursuant to CEQA Guidelines Sections 15050(c), 15162(b), and 15163, the Community Development Director finds and recommends that no further environmental analysis or environmental documentation is necessary. Accordingly, the proposed Project is merely a step in furtherance of the MMHS Campus Specific Plan for which environmental review was performed and adopted by the Board. The Board further found that no supplemental or subsequent CEQA has been triggered by the proposed Project requiring additional environmental review.

A written staff report will be available at or before the hearing for the project. All persons wishing to address the Commission regarding this matter will be afforded an opportunity in accordance with the Commission's procedures.

Copies of all related documents can be reviewed by any interested person at City Hall during regular business hours. Oral and written comments may be presented to the Planning Commission on, or before, the date of the meeting.

LOCAL APPEAL – A decision of the Planning Commission may be appealed to the City Council by an aggrieved person by written statement setting forth the grounds for appeal. An appeal shall be filed with the City Clerk within ten days following the date of action (15 days for tentative maps) for which the appeal is made and shall be accompanied by an appeal form and filing fee, as specified by the City Council. Appeal forms may be found online at www.malibucity.org/planningforms or in person at City Hall, or by calling (310) 456-2489, extension 246.

IF YOU CHALLENGE THE CITY'S ACTION IN COURT, YOU MAY BE LIMITED TO RAISING ONLY THOSE ISSUES YOU OR SOMEONE ELSE RAISED AT THE PUBLIC HEARING DESCRIBED IN THIS NOTICE, OR IN WRITTEN CORRESPONDENCE DELIVERED TO THE CITY, AT OR PRIOR TO THE PUBLIC HEARING.

Yolanda Bundy, Community Development Director

Publish Date: December 25, 2025

Commission Agenda Report

Planning Commission Meeting 01-20-26

Item 5.B.

To: Chair Riddick and Members of the Planning Commission

Prepared by: Patrick Achis, AICP, Senior Planner

Reviewed by: Joseph Smith, AICP, Contract Principal Planner

Approved by: Yolanda Bundy, MS, PE, CBO, CFCO, Community Development Director and Tyler Eaton, Assistant Community Development Director

Date prepared: January 8, 2026 Meeting date: January 20, 2026

Subject: Zoning Text Amendment No. 25-003 – A revised amendment incorporating new state law and clarifications to Title 17 (Zoning) of the Malibu Municipal Code to update regulations related to Accessory Dwelling Units

Applicant: City of Malibu
Location: Citywide

RECOMMENDED ACTION: Adopt Planning Commission Resolution No. 26-03 (Attachment 1) recommending that the City Council approve revised Zoning Text Amendment (ZTA) No. 25-003, an amendment to Title 17 (Zoning) of the Malibu Municipal Code (MMC) to update regulations related to Accessory Dwelling Units (ADU) and Junior ADUs (JADU).

DISCUSSION: The item before the Planning Commission is a recommendation to the City Council on amendments to the City's ADU ordinance in MMC Chapter 17.44. The draft ordinance was previously reviewed by the Commission on August 18, 2025. However, it was not yet adopted by the City Council. Since that hearing, staff identified additional State ADU/JADU law that has taken effect or will take effect in 2026.[1] The proposed ordinance before the Commission is a consolidated amendment that implements recommendations provided by the California Department of Housing and Community Development (HCD)

[1] AB 462 (urgency measure, effective upon signature in 2025), AB 1154 (effective January 1, 2026), SB 9 (2025) and SB 543 (effective January 1, 2026), and SB 1211 (effective January 1, 2025) each amend portions of State ADU/JADU law implemented by this ordinance.

and updates to MMC Chapter 17.44 reflecting the latest State ADU/JADU statutes. The ordinance is presented as Exhibit A to Attachment 1, and Exhibit A-1 contains the full amended text of Chapter 17.44 of the Malibu Municipal Code and constitutes the operative ordinance text recommended for adoption. Attachment 2 provides a redline version of Chapter 17.44 for reference, illustrating all proposed amendments. Blue text reflects changes made after the August 18, 2025 Planning Commission meeting, and red text reflects revisions recommended by the Planning Commission at that meeting.

The proposed ordinance responds to a letter issued by HCD on November 13, 2024, regarding the City's prior ADU ordinance amending the MMC (Ordinance No. 511) and reflects recent changes to State ADU/JADU law.[2] HCD found that the City would need to revise its ordinance to include mandatory statutory corrections and interpretive clarifications reflecting HCD's current implementation of ADU law statewide. The proposed ordinance includes the Commission's recommendations from its August 18, 2025, hearing related to the 20-foot street-width and the relationship between the Local Coastal Program (LCP) and MMC when applied to ADUs.

Existing ADU Ordinance and Prior Planning Commission Meetings

On January 8, 2024, the City Council adopted Ordinance Nos. 510 and 511, which updated second-unit regulations and established the ADU/JADU framework in the LCP (Ordinance No. 510) and the MMC (Ordinance No. 511). The LCP amendments (LCPA) were transmitted to the California Coastal Commission (CCC) on March 19, 2024 for processing and CCC staff continues to work toward certification. While the LCPA remains pending, staff is requesting the City Council adopt an updated ordinance to amend Title 17 (Zoning) of the MMC. The proposed ordinance would replace Ordinance No. 511. This effort is anticipated to be considered by the Planning Commission and City Council in 2026.

Pursuant to Government Code Section 66326, Ordinance No. 511 (MMC) was transmitted to HCD for review on January 8, 2024. On November 13, 2024, HCD issued a written findings letter specifying ten issues requiring amendment or clarification (Attachment 3). The issues cited outdated Government Code references, the 20-foot ingress/egress standard, a prohibition on attached ADUs on multifamily lots, the treatment of the LCP, processing timelines, separate-sale and deed-restriction language, unit size and height

[2] Under Government Code section 66326, jurisdictions are required to submit adopted ADU ordinances to HCD within 60 days of adoption, and HCD has statutory authority to review local ADU ordinances and issue findings letters regarding consistency with State ADU law. State law requires jurisdictions either to amend their ordinance to address HCD's findings or to adopt findings explaining why they believe their ordinance complies despite HCD's comments. Objective 1.e in the City's Housing Element also provides that the ADU ordinance must be updated within six months of receipt of comments from HCD or within six months of adoption of the Housing Element, whichever occurs later.

limits, and a parking cross-reference. Staff has coordinated with HCD over the past year to revise the ordinance consistent with these findings.

State ADU Law Changes

Since Ordinance Nos. 510 (LCP) and 511 (MMC) were adopted, several bills have further amended State ADU/JADU law. Some of the provisions of these bills were not in the City's ordinances but are included in the proposed ordinance and are summarized below. Any changes related to the LCP will be discussed at a later time.

- **AB 462** requires Coastal Development Permits (CDPs) for ADUs to be processed on the same 60-day timeline as the ADU, eliminates appeals of ADU CDPs to the CCC, and provides a narrow exception allowing certificates of occupancy for detached ADUs to be issued before the primary dwelling in certain disaster-related circumstances.

- **AB 1154** revises JADU owner-occupancy standards so that an owner must reside on the property only when the JADU shares sanitation facilities with the primary dwelling, and codifies the prohibition on JADUs from being used for short-term rentals of less than 30 days.

- **SB 9 (2025)** strengthens HCD's oversight of local ADU ordinances by authorizing HCD to invalidate non-compliant ordinances and default jurisdictions to State ADU standards until they implement remedial measures.

- **SB 543** clarifies that ADU/JADU size must be measured as *interior livable space*, aligns fee exemptions with these size definitions, and extends certain ADU enforcement and nullification provisions to JADUs.

- **SB 1211** increases the number of detached ADUs permitted on lots with an existing multifamily dwelling from two to up to eight detached ADUs (provided the number of detached ADUs does not exceed the number of primary dwelling units on the lot) and prohibits requiring replacement of certain uncovered off-street parking spaces when converted for ADUs.

More detailed descriptions of these laws are provided in Attachment 4. The proposed ordinance addresses these statutory changes and incorporates revisions in alignment with recommendations from the City Attorney and HCD.

Summary of Proposed Amendments

The proposed amendments are summarized below and categorized by section. Any changes made since the August 18, 2025 meeting are noted. The Commission may

recommend the City Council revise the draft ordinance, provided that the revisions comply with State law and are not more restrictive than State law allows.

MMC §17.44.040 – Definitions

The definitions section is updated to add and refine terms such as “accessory structure,” “livable space,” “living area,” “public transit,” and “very high fire hazard severity zone.” Several definitions were added verbatim from State law.

- *Proposed Changes Since the August 18, 2025 Meeting:* The JADU definition is revised to clarify that the 500-square-foot limit is based on interior livable space (per SB 543) and further clarification related to the internal connection to the main residence and sanitation.

MMC §17.44.050 – Permitted Locations

This section clarifies that ADUs are allowed on multifamily lots consistent with the State’s categories for converted and detached units and removes the prior prohibition on attached multifamily ADUs (due to inconsistency with State law).

The primary amendment to this section relates to the 20-foot street-width standard for ingress and egress. This requirement has historically been included in the City’s ADU ordinance. This is because the entire City of Malibu is located within a Very High Fire Hazard Severity Zone (VHFHSZ) and the City has a history of large, destructive wildfires resulting in significant property damage and loss of life. At its August 18, 2025 meeting, the Commission recommended adding the clause “except as required by State law” to ensure that the 20-foot standard does not operate as a blanket prohibition in situations where State ADU law mandates approval of an ADU.

HCD has consistently taken the position across California jurisdictions that a fixed minimum roadway width cannot be applied in a manner that precludes ADUs in otherwise eligible residential areas. HCD has maintained that position for Malibu’s ordinance and has not accepted the current language. In response, staff has worked with HCD to clarify the City’s fire-safety concerns and the operational reasons for the 20-foot standard. As part of this effort, staff evaluated the extent of parcels potentially affected by the requirement. All public roads in Malibu are at least 20 feet wide, meaning that the 20-foot requirement would only apply to properties served by narrower private roads. Approximately 334 residential units (or roughly six percent of the City’s housing stock) are located on narrow private roads.

- *Proposed Changes Since the August 18, 2025 Meeting:* The draft retains the phrase “except as required by State law” so the 20-foot minimum street-width standard for emergency access is not applied in a way that would block ADUs in cases where State

law requires approval. HCD has advised staff that this exception may still be too general and could be interpreted as limiting ADUs more than State law allows. The Planning Commission can either (1) keep the current language, understanding HCD may reject the ordinance, or (2) direct staff to revise the provision to more clearly reflect the fire and emergency requirements that support the 20-foot standard, and plainly state that roadway width alone will not be used to deny an ADU that must be approved under State law.

MMC §17.44.060 – Approvals (Class 1 and Class 2 ADUs)

This section reorganizes the approval structure into two ministerial categories. Class 1 "Statutorily Regulated" ADUs and JADUs correspond to the State-mandated scenarios, including one internal conversion ADU or JADU and one detached ADU on single-family lots and both converted and detached ADUs on multifamily lots. In all cases, compliant ADUs and JADUs are processed ministerially through an ADU permit (which replaces the prior discretionary Administrative Plan Review (APR) model for ADUs) and a building permit. Consistent with SB 1211, lots with an existing multifamily dwelling can have up to eight detached ADUs, or as many detached ADUs as there are primary dwelling units on the lot, whichever is less. The section also clarifies that applications are reviewed for compliance with both the MMC and the LCP and confirms that, if an ADU application is exempt from the need to obtain a CDP, then only the MMC would apply. Class 2 "Locally Regulated" ADUs encompass additional ADU configurations authorized by the City within the State's framework. Both the Class 1 and Class 2 category updates were recommended for adoption by the Planning Commission at the August 18, 2025 meeting. New proposed changes for State law consistency are explained below.

- *Proposed Changes Since the August 18, 2025 Meeting:* Allowable ADU combinations are updated pursuant to SB 543. For single-family lots, an ADU conversion and JADU may be combined with one detached ADU. For multifamily lots, detached ADUs can be combined with converted ADUs, subject to existing unit-count limits.

MMC §17.44.070 – Process and Timing

The section replaces the prior requirement to "act on" an application with the statutory requirement to "approve or deny" a complete application within 60 days, with applications deemed approved if the City does not act and no statutory exception applies.

- *Proposed Changes Since the August 18, 2025 Meeting:* For consistency with SB 543, new language was added to reflect that the City must determine completeness of ADU applications within 15 business days, provide a written list of any missing items, and limit subsequent requests to those items. Resubmittals are reviewed within another 15 business days, and applications are deemed complete if the City does not respond

within the deadline. Applicants may appeal completeness determinations and denials to the Commission, which must issue a final written decision within 60 business days.

MMC §17.44.080 – General ADU and JADU Requirements

This section clarifies zoning eligibility for Class 1 and Class 2 ADUs and confirms that JADUs may be created only on lots zoned for single-family residences. Deed restriction provisions are narrowed by removing certain conditions. HCD flagged these deed restrictions as inconsistent with State law. These provisions are focused on recorded covenants on new changes to State-defined terms, including for JADUs.

- *Proposed Changes Since the August 18, 2025 Meeting:* The section adds JADU owner-occupancy exceptions consistent with AB 1154, including exceptions when the JADU has separate sanitation from the single-family residence or the property is owned by a public agency, land trust, or housing organization. To maintain consistency with the City's existing floor area limits (referred to as Total Development Square Footage or TDSF), the proposed ordinance introduces a 38 percent Floor Area Ratio (FAR) for ADUs on lots subject to the City's ADU standards. However, this FAR limit could not be used to deny a minimum 800-square-foot ADU allowed by State law (Class 1 ADUs).

Under AB 462, a certificate of occupancy for a detached ADU may be issued before a certificate of occupancy for the primary dwelling if specific requirements are met, including the primary dwelling was substantially damaged or destroyed by an event referenced in the Governor's state of emergency proclamation.

MMC §17.44.090 – Specific Requirements for Class 2 ADUs

This section applies only to Class 2 (locally regulated) ADUs. For MMC §17.44.090(A)(1) regarding maximum allowed floor area, staff is recommending the removal of the language regarding how floor area is calculated to avoid confusion since those requirements are found elsewhere in the MMC including MMC §17.44.090(A)(2) and (3) that were amended to ensure, pursuant to State law, that a minimum 800-square-foot attached ADU would be allowed regardless of any other regulations related to the size of the residence.

This section has also been updated to add standards for lot coverage as state law allows jurisdictions to regulate the size of ADUs beyond the 800-square-foot minimum, based on lot coverage and open space. The City has existing lot coverage standards in the form of "impermeable coverage" which have been added to the ADU ordinance. The lot coverage criteria for ADUs will be consistent with what is required for impermeable coverage elsewhere in the MMC.

- *Proposed Changes Since the August 18, 2025 Meeting:* Consistent with current ADU statutes, the ordinance maintains a 1,000-square-foot maximum floor area but clarifies that attached ADUs may be *allowed* at least 800 square feet of interior livable space, regardless of percentage-based limits or FAR/lot-coverage standards. It specifies the state-law allowance for the reconstruction of an ADU in the footprint of a legally demolished accessory structure. The section further clarifies that required parking is one space per ADU or per bedroom, whichever is less, and specifies that replacement parking may not be required when covered or uncovered parking spaces are converted or demolished to create an ADU.

MMC §17.44.100 – Fees and Utilities

- *Proposed Changes Since the August 18, 2025 Meeting:* Per SB 543, the fee section now clarifies that ADUs and JADUs under 500 square feet of interior livable space do not increase assessable area for school impact fee purposes. Utility-connection provisions are reorganized to specify when separate connections and capacity charges may be required and to ensure that any such charges are proportionate to the additional burden created by the ADU and do not exceed the reasonable cost of service.

General Cleanup

In addition to responding to the items in the HCD comment letter and recent State law, the draft ordinance includes clarifying text consistent with recommendations from the City Attorney and HCD. Examples include references to State statutes such as the reorganized ADU laws and internal cross-references.

ENVIRONMENTAL REVIEW: The project is exempt from the requirements of CEQA pursuant to Public Resources Code Section 21080.17, which states that CEQA does not apply to the adoption of local ordinances regulating the construction of second units and by CEQA Guidelines Section 15282(h) that exempts adoption of an ordinance regarding second units in single-family and multifamily residential zones.

Furthermore, the Community Development Director has analyzed the proposed amendments. CEQA applies only to projects which have the potential for causing a significant effect on the environment. Pursuant to CEQA Guidelines Section 15061(b)(3), where it can be seen with certainty that there is no possibility that the activity in question may have a significant effect on the environment, the activity is not subject to CEQA. The Community Development Director determined that the proposed amendments are required by state law and will not result in changes from existing development standards, such as density limits and environmental resource protection standards; consequently,

there is no possibility the amendment will have a significant effect on the environment and accordingly the exemption set forth in Section 15061(b)(3) applies.

PUBLIC NOTICE: Notice for this item was provided in accordance with City policies and the Brown Act. The City published a Notice of Public Hearing in a newspaper of general circulation within the City of Malibu on December 25, 2025 (Attachment 5). Additionally, the interested parties lists for ADUs and Zoning Text Amendments were sent a courtesy email with the date of the agendized Planning Commission item and instructions for participation. The City's ADU webpage (www.malibucity.org/adu) was also updated with notification of this meeting. As of the writing of the report, staff has not received public comments.

SUMMARY AND NEXT STEPS: It is recommended that the Planning Commission adopt Resolution No. 26-03 recommending the City Council adopt the proposed Zoning Text Amendment modifying ADU regulations within MMC Chapter 17.44. Following City Council adoption, the ordinance will be transmitted to HCD for its required review. If HCD provides additional comments, staff will work with the agency to address the comments consistent with State law and the City's Housing Element obligations. As part of the City's Housing Element Implementation Program, staff will continue work on Program 4.1. (Support Development of Accessory Dwelling Units), including creating a preapproved program ("plans off-the-shelf"), monitoring trends, and implementing additional actions if ADU production is lacking. Notably, the City issued permits for five new ADUs in 2025, a pace on track with the Housing Element's projections of 28 ADUs over the 2021–2029 cycle.

ATTACHMENTS:

1. Planning Commission Resolution No. 26-03
   Exhibit A: Draft Ordinance
   Exhibit A-1: Amended MMC Chapter 17.44
2. Proposed Redline Amendments to MMC Chapter 17.44 (Reference)
3. November 13, 2024 HCD Letter
4. Summary of Recent ADU State Law Changes
5. Public Hearing Notice

CITY OF MALIBU PLANNING COMMISSION
RESOLUTION NO. 26-03

A RESOLUTION OF THE PLANNING COMMISSION OF THE CITY OF MALIBU RECOMMENDING THAT THE CITY COUNCIL APPROVE ZONING TEXT AMENDMENT NO. 25-003, AN AMENDMENT TO TITLE 17 (ZONING) OF THE MALIBU MUNICIPAL CODE TO UPDATE ACCESSORY DWELLING UNIT REGULATIONS TO UPDATE REGULATIONS RELATED TO ACCESSORY DWELLING UNITS AND JUNIOR ACCESSORY DWELLING UNITS

The Planning Commission of the City of Malibu does hereby find, order and resolve as follows:

SECTION 1. Recitals.

A. On January 8, 2024, the City transmitted Ordinance No. 511 to the California Department of Housing and Community Development (HCD) for review pursuant to Government Code section 66326.

B. On November 13, 2024, HCD issued a written findings letter identifying required amendments and clarifications to ensure consistency with State Accessory Dwelling Unit (ADU) and Junior Accessory Dwelling Unit (JADU) law.

C. On July 24, 2025, a Notice of Planning Commission Public Hearing was published in a newspaper of general circulation within the City of Malibu regarding Zoning Text Amendment (ZTA) No. 25-003.

D. On August 11, 2025, the City Council adopted Resolution No. 25-41 to: 1) initiate ZTA No. 25-003 to update accessory dwelling unit regulations consistent with State law, and 2) direct the Planning Commission to schedule a public hearing regarding the ZTA and provide a recommendation to the Council whether to approve, modify, or reject the amendment.

E. On August 18, 2025, the Planning Commission held a duly noticed public hearing on ZTA No. 25-003 and reviewed the agenda report, written materials, public testimony, and all evidence in the record.

F. To remain valid and enforceable, the City's ADU ordinance must be updated to reflect the most recent changes to State ADU and JADU law.

G. Since the August 18, 2025 hearing, ZTA No. 25-003 was not adopted so that the City could revise the amendment to reflect additional State ADU and JADU legislation has taken effect or will take effect through 2026, including, but not limited to, Assembly Bill (AB) 462, AB 1154, Senate Bill (SB) 9 (2025), SB 543, and SB 1211.

H. On December 25, 2026, a Notice of Planning Commission Public Hearing was published in a newspaper of general circulation within the City of Malibu regarding the revised ZTA No. 25-003.

I. On January 20, 2026, the Planning Commission held a duly noticed public hearing on the revised draft of ZTA No. 25-003 incorporating new state law and clarifications; and

reviewed the agenda report, written materials, public testimony, and all evidence in the record.

J. The proposed amendments are necessary to implement recent changes to State law and to address HCD's November 13, 2024 findings letter pursuant to Government Code section 66326.

K. The proposed amendments are consistent with the goals, objectives, and policies of the City's General Plan and Housing Element Program 4.1 (Support Development of Accessory Dwelling Units), and corresponding amendments to the Local Coastal Program will be processed separately for Coastal Commission certification.

SECTION 2. Environmental Review.

The project is exempt from the requirements of the California Environmental Quality Act (CEQA) pursuant to Public Resources Code Section 21080.17, which states that CEQA does not apply to the adoption of local ordinances regulating the construction of second units and by CEQA Guidelines Section 15282(h) that exempts adoption of an ordinance regarding second units in single-family and multifamily residential zones.

Furthermore, the Community Development Director has analyzed the proposed amendments. CEQA applies only to projects which have the potential for causing a significant effect on the environment. Pursuant to CEQA Guidelines Section 15061(b)(3), where it can be seen with certainty that there is no possibility that the activity in question may have a significant effect on the environment, the activity is not subject to CEQA. The Community Development Director determined that the proposed amendments are required by State law and will not result in changes from existing development standards, such as density limits and environmental resource protection standards; consequently, there is no possibility the amendment will have a significant effect on the environment and accordingly, and the exemption set forth in Section 15061(b)(3) applies.

SECTION 3. Zoning Text Amendment Findings.

Pursuant to Malibu Municipal Code (MMC) Section 17.74.040, the Planning Commission hereby makes the following findings and recommends to the City Council that the MMC be amended as stated in Exhibit A of this resolution.

A. The subject ZTA is consistent with the objectives, policies, general land uses and programs specified in the General Plan. The proposed amendment serves to enhance the Malibu General Plan Mission Statement, protect public safety and preserve Malibu's natural and cultural resources. Specifically, it fulfills programs specified in Housing Element Goal 1 (Adequate Housing for the Existing and Projected Needs of All Economic Segments of the Community), and Housing Element Program 4.1 (Support Development of Accessory Dwelling Units) and Objective 1.e (timely updates to the ADU ordinance to maintain compliance with State law). In addition, adoption of the Ordinance is consistent with the General Plan as a matter of law under Government Code section 66314(c).

B. The Planning Commission held a public hearing, reviewed the subject ZTA for compliance with the City of Malibu General Plan, Malibu Municipal Code and the Malibu Local Coastal Program, and finds that the ZTA is consistent and recommends approval.

SECTION 4. Planning Commission Action.

Based on the above findings, the Planning Commission hereby recommends that the City Council approve the Zoning Ordinance Amendments detailed in Exhibit "A".

SECTION 5. The Planning Commission shall certify the adoption of this Resolution.

PASSED, APPROVED AND ADOPTED this 20th day of January, 2026.

ELIZABETH RIDDICK, Planning Commission Chair

ATTEST:

REBECCA EVANS, Recording Secretary

I CERTIFY THAT THE FOREGOING RESOLUTION NO. 26-03 was passed and adopted by the Planning Commission of the City of Malibu at the Regular meeting thereof held on the 20th day of January, 2026, by the following vote:

AYES:
NOES:
ABSTAIN:
ABSENT:

REBECCA EVANS, Recording Secretary

Exhibit A: Draft Ordinance

ORDINANCE NO. XXX

AN ORDINANCE OF THE CITY OF MALIBU APPROVING ZONING TEXT AMENDMENT NO. 25-003 AN AMENDMENT TO TITLE 17 (ZONING) OF THE MALIBU MUNICIPAL CODE TO UPDATE ACCESSORY DWELLING UNIT REGULATIONS AND DETERMINING THE AMENDMENTS ARE EXEMPT FROM THE CALIFORNIA ENVIRONMENTAL QUALITY ACT

The City Council of the City of Malibu does ordain as follows.

SECTION 1. Recitals.

A. State law authorizes cities to act by ordinance to provide for the creation and regulation of accessory dwelling units ("ADUs") and junior accessory dwelling units ("JADUs").

B. On January 8, 2024, the City transmitted Ordinance No. 511 to the California Department of Housing and Community Development (HCD) for review pursuant to Government Code section 66326.

C. On November 13, 2024, HCD issued a written findings letter identifying required amendments and clarifications to ensure consistency with State ADU and JADU law.

D. On August 11, 2025, the City Council adopted Resolution No. 25-41 to: 1) initiate Zoning Text Amendment (ZTA) No. 25-003 to update accessory dwelling unit regulations consistent with State law, and 2) direct the Planning Commission to schedule a public hearing regarding the ZTA and provide a recommendation to the Council whether to approve, modify, or reject the amendment.

E. On August 18, 2025, the Planning Commission held a duly noticed public hearing on the proposed ADU amendments on ZTA No. 25-003, reviewed and considered the agenda report, reviewed and considered written reports, public testimony, and other information on the record and recommended approval of the amendments with some modifications.

F. To remain valid and enforceable, the City's ADU ordinance must be updated to reflect the most recent changes to State ADU and JADU law.

G. Since the August 18, 2025 hearing, ZTA No. 25-003 was not adopted so that the City could revise the amendment to incorporate additional State ADU and JADU legislation has taken effect or will take effect through 2026, including, but not limited to, Assembly Bill (AB) 462, AB 1154, Senate Bill (SB) 9 (2025), SB 543, and SB 1211.

H. On January 20, 2026, the Planning Commission held a duly noticed public hearing on the revised draft of ZTA No. 25-003 incorporating new state law and clarifications; and reviewed the agenda report, written materials, public testimony, and all evidence in the record.

I. On _____, 2026, a Notice of City Council Public Hearing was published in a newspaper of general circulation within the City of Malibu and mailed to interested parties.

J. On _____, 2026, the City Council held a duly noticed public hearing on the proposed ZTA No 25-003, reviewed and considered the agenda report, reviewed and considered written reports, public testimony, and other information on the record.

SECTION 2. Environmental Review.

The project is exempt from the requirements of the California Environmental Quality Act (CEQA) pursuant to Public Resources Code Section 21080.17, which states that CEQA does not apply to the adoption of local ordinances regulating the construction of second units and by CEQA Guidelines Section 15282(h) that exempts adoption of an ordinance regarding second units in single-family and multifamily residential zones.

Furthermore, the Community Development Director has analyzed the proposed amendments. CEQA applies only to projects which have the potential for causing a significant effect on the environment. Pursuant to CEQA Guidelines Section 15061(b)(3), where it can be seen with certainty that there is no possibility that the activity in question may have a significant effect on the environment, the activity is not subject to CEQA. The Community Development Director determined that the proposed amendments are required by State law and will not result in changes from existing development standards, such as density limits and environmental resource protection standards; consequently, there is no possibility the amendment will have a significant effect on the environment and accordingly, and the exemption set forth in Section 15061(b)(3) applies.

SECTION 3. Zoning Text Amendment Findings.

Pursuant to Malibu Municipal Code Section 17.74.040, the City Council hereby makes the following findings:

A. The subject ZTA is consistent with the objectives, policies, general land uses and programs specified in the General Plan. The proposed amendment serves to enhance the Malibu General Plan Mission Statement, protect public safety and preserve Malibu's natural and cultural resources. Specifically, it fulfills programs specified in Housing Element Goal 1 (Adequate Housing for the Existing and Projected Needs of All Economic Segments of the Community), and Housing Element Program 4.1 (Support Development of Accessory Dwelling Units) and Objective 1.e (timely updates to the ADU ordinance to maintain compliance with State law). In addition, adoption of the Ordinance is consistent with the General Plan as a matter of law under Government Code section 66314(c).

B. The City Council held a public hearing, reviewed the subject ZTA for compliance with the City of Malibu General Plan, Malibu Municipal Code and the Malibu Local Coastal Program, and finds that the ZTA is consistent and recommends approval.

SECTION 4. Zoning Text Amendment No. 25-003, Amendments to the Malibu Municipal Code (MMC).

The City Council hereby amends Title 17 - Zoning in the MMC as follows:

A. Chapter 17.44 is amended in its entirety as shown in Exhibit A, attached hereto and incorporated herein by reference.

SECTION 5. HCD Submittal.

In accordance with Government Code sections 66326 and 66333.5, the City Clerk is directed to submit a copy of this Ordinance to the California Department of Housing and Community Development within 60 days after adoption.

SECTION 5. Effective Date.

In accordance with California Government Code section 36937, this Ordinance shall become effective on the 30th day following its passage and adoption.

SECTION 6. Severability.

Should any section, subsection, clause, or provision of this Ordinance for any reason be held to be invalid or unconstitutional, such invalidity or unconstitutionality shall not affect the validity or constitutionality or the remaining portions of this Ordinance; it being hereby expressly declared and this Ordinance, and each section, subsection, sentence, clause, and phrase hereof would have been prepared, proposed, approved, and ratified irrespective of the fact that any one or more sections, subsections, sentences, clauses, or phases be declared invalid or unconstitutional.

SECTION 7. Certification.

The City Clerk shall certify to the passage and adoption of this Ordinance.

PASSED, APPROVED, and ADOPTED this _____ day of _____ 2026.

_____
MARIANNE RIGGINS, Mayor

ATTEST:

_____
KELSEY PETTIJOHN, City Clerk
(seal)

APPROVED AS TO FORM:

_____
TREVOR RUSIN, City Attorney

Exhibit A-1: Zoning Text Amendments to Chapter 17.44 of the Zoning Code (Accessory Dwelling Units)

EXHIBIT A-1

Zoning Text Amendments to Chapter 17.44 of the Zoning Code

(ACCESSORY DWELLING UNITS)

CHAPTER 17.44

ACCESSORY DWELLING UNITS

§ 17.44.010. Title.

This chapter shall be known as the "Malibu Accessory Dwelling Unit Ordinance."

§ 17.44.020. Purpose.

The purpose of this chapter is to allow and regulate accessory dwelling units (ADUs) and junior accessory dwelling units (JADUs) in compliance with Chapter 13 of Division 1 of Title 7 of the California Government Code. The entire city of Malibu is located in a designated “Very High Fire Hazard Severity Zone,” and this chapter ensures that ADUs and JADUs are developed and operated on adequate sites, at proper and desirable locations, and that the goals and objectives of the general plan are observed.

§ 17.44.030. Effect of conforming.

An ADU or JADU that conforms to the standards in this chapter will be:

A. Deemed to be consistent with the city's general plan and zoning designation for the lot on which the ADU or JADU is located.

B. Deemed not to exceed the allowable density for the lot on which the ADU or JADU is located.

C. Considered not to be subject to the application of any local ordinance, policy, or program to limit residential growth.

D. Approved without requiring the correction of a nonconforming zoning condition. This does not prevent the city from enforcing compliance with applicable building standards in accordance with Health and Safety Code Section 17980.12. For purposes of this chapter, "nonconforming zoning condition" means a physical improvement on a property that does not conform with current zoning standards.

§ 17.44.040. Definitions.

A. "Accessory dwelling unit" means an attached or a detached residential dwelling unit that provides complete independent living facilities for one or more persons and is located on a lot with a proposed or existing primary residence. An accessory dwelling unit also includes the following:

    1. An efficiency unit, as defined by Section 17958.1 of the California Health and Safety Code; and

    2. A manufactured home, as defined by Section 18007 of the California Health

and Safety Code.

B. “Accessory structure” means a structure that is accessory and incidental to a dwelling located on the same lot.

C. “Complete independent living facilities” means permanent provisions for living, sleeping, eating, cooking, and sanitation on the same parcel as the single-family or multifamily dwelling is or will be situated.

D. "Efficiency kitchen" means a kitchen that satisfies all of the following:

1. A cooking facility with appliances;

2. A food preparation counter and storage cabinets that are of a reasonable size in relation to the size of the JADU.

E. "Junior accessory dwelling unit" means a residential unit that

1. Is no more than 500 square feet of interior livable space in size;

2. Is contained entirely within an existing or proposed single-family structure; an enclosed use within the residence, such as an attached garage, is considered to be a part of and contained within the single-family structure;

3. Has an independent exterior entrance, apart from that of the primary dwelling;

4. Either includes its own separate sanitation facilities or shares sanitation facilities with the existing or proposed single-family structure, and if the latter, the JADU includes an interior entrance to the main living area of the existing or proposed single-family structure in addition to the exterior entrance to the JADU; and

5. Includes an efficiency kitchen, as defined in this subsection D.

F. “Livable space” means a space in a dwelling intended for human habitation, including living, sleeping, eating, cooking, or sanitation.

G. “Living area” means the interior habitable area of a dwelling unit, including basements and attics, but does not include a garage or any accessory structure.

H. "Passageway" means a pathway that is unobstructed clear to the sky and extends from a street to one entrance of the accessory dwelling unit or junior accessory dwelling unit.

I. "Proposed dwelling" means a dwelling that is the subject of a permit application and that meets the requirements for permitting.

J. "Public transit" means a location, including, but not limited to, a bus stop or train station, where the public may access buses, trains, or subways and other forms of transportation that charge set fares, run on fixed routes, and are available to the public.

K. "Tandem parking" means that two or more automobiles are parked on a driveway or in

any other location on a lot, lined up behind one another.

L. "Very high fire hazard severity zone" means zone as defined by Government Code Section 51177 and designated by Ordinance No. 299 and the City's adopted Local Responsibility Area Fire Hazard Severity Zone Maps, as may be amended from time to time.

§ 17.44.050. Permitted locations.

A. ADUs and JADUs under Section 17.44.060(A) are allowed on lots that are in a residential or mixed-use zone.

B. ADUs under Section 17.44.060(B) are allowed on lots zoned to allow single-family or multifamily dwelling residential use.

C. Areas with Adequate Ingress and Egress. Since the entire city is located in a designated "Very High Fire Hazard Severity Zone," consistent with Los Angeles County Fire Department requirements to ensure adequate ingress and egress for fire safety, except as required by state law, a minimum street width of 20 feet shall be required. ADUs are not allowed on parcels that do not have ingress and egress to a street at least 20 feet in width.

§ 17.44.060. Approvals.

The following approvals apply to ADUs and JADUs developed under this chapter. Because the city of Malibu lies entirely within the Coastal Zone, ADU applications may be subject to the requirements in the Local Coastal Program (LCP) in addition to the provisions of this chapter. If an ADU application is exempt from the need to obtain a coastal development permit, then only this chapter governs.

A. Class 1: Statutorily Regulated. Class 1 ADUs and JADUs are approved under Government Code Section 66323. If an ADU or JADU complies with each of the general requirements in Section 17.44.080 below, it is allowed subject to an ADU permit and a building permit in the following scenarios provided in this subsection (A). An ADU and JADU approved under subsection (A)(1) may be combined with an ADU approved under subsection (A)(2), and ADUs approved under subsection (A)(3) may be combined with ADUs approved under subsection (A)(4).

    1. Converted on a Lot with Single-Family. One ADU as described in this subsection (A)(1) and one JADU on a lot with a proposed or existing single-family dwelling on it, where the ADU or JADU:

        a. Is either: within the space of a proposed single-family dwelling; within the existing space of an existing single-family dwelling; or (in the case of an ADU only) within the existing space of an accessory structure, plus up to 150 additional square feet if the expansion is limited to accommodating ingress and egress; and

b. Has exterior access that is independent of that for the single-family dwelling; and

c. Has side and rear setbacks sufficient for fire and safety, as dictated by applicable building and fire codes.

d. The JADU complies with the requirements of Government Code Sections 66333 through 66339.

2. Limited Detached on a Lot with Single-Family. One detached, new-construction ADU on a lot with a proposed or existing single-family dwelling (in addition to any JADU that might otherwise be established on the lot under subsection (A)(1) above if the detached ADU satisfies each of the following limitations:

a. The side- and rear-yard setbacks are at least four feet.

b. The total floor area is 800 square feet or smaller.

c. The peak height above grade does not exceed the applicable height limit in subsection 17.44.080(K) below.

3. Converted on a Lot with Multifamily. One or more ADUs within portions of existing multifamily dwelling structures that are not used as livable space, including, but not limited to, storage rooms, boiler rooms, passageways, attics, basements, or garages, if each converted ADU complies with state building standards for dwellings. Under this subsection (A)(3) at least one converted ADU is allowed within an existing multifamily dwelling, up to a quantity equal to 25 percent of the existing multifamily dwelling units.

4. Limited Detached on a Lot with Multifamily. No more than two detached ADUs on a lot that has a proposed multifamily dwelling, or up to eight detached ADUs on a lot with an existing multifamily dwelling, if each detached ADU satisfies both of the following limitations:

a. The side- and rear-yard setbacks are at least four feet. If the existing multifamily dwelling has a rear or side yard setback of less than four feet, the city will not require any modification to the multifamily dwelling as a condition of approving the ADU.

b. The peak height above grade does not exceed the applicable height limit provided in subsection 17.44.080(K) below.

c. If the lot has an existing multifamily dwelling, the quantity of detached ADUs does not exceed the number of primary dwelling units on the lot.

B. Class 2: Locally Regulated. Class 2 ADUs are approved under Government Code sections 66314–66322.

1. Except as allowed under subsection A, all ADUs require an ADU permit and a building permit and must comply with the standards set forth in Sections 17.44.080 and 17.44.090.

2. The city may charge a fee to reimburse it for costs incurred in processing ADU permits, including the costs of adopting or amending the city's ADU ordinance. The ADU permit processing fee is determined by the city council by resolution.

§ 17.44.070. Process and timing.

A. Completeness.

1. Determination in 15 days. The city will determine whether an application to create or serve an ADU or JADU is complete and will provide written notice of the determination to the applicant within 15 business days after the city receives the application submittal.

2. Incomplete items. If the city's determination under subsection (A)(1) above is that the application is incomplete, the city's notice must list the incomplete items and describe how the application can be made complete.

3. Cure. After receiving a notice that the application is incomplete, the applicant may cure and address the items that were deemed by the city to be incomplete.

4. Subsequent submittals. If the applicant submits additional information to address incomplete items, within 15 business days of the subsequent submittal the city will determine in writing whether the additional information remedies all the incomplete items that the city identified in its original notice. The city may not require the application to include an item that was not included in the original notice.

5. Deemed complete. If the city does not make a timely determination as required by this subsection (A), the application or resubmitted application is deemed complete for the purposes of subsection (C) below.

6. Appeal of incompleteness. An applicant may appeal the city's determination that the application is incomplete by submitting a written appeal to the city clerk. The planning commission will review the written appeal and affirm or reverse the completeness determination and provide a final written determination to the applicant within 60 business days after receipt of the appeal.

B. No Discretion or Hearing. An ADU permit is considered and approved ministerially by the community development director without discretionary review or a hearing.

C. Deadline to Approve or Deny Ministerial Approvals. The city must approve or deny an application to create an ADU or JADU within 60 days from the date that the city receives a complete application. If the city has not approved or denied the completed application within 60 days, the application is deemed approved, unless either:

1. The applicant requests a delay, in which case the 60-day time period is tolled for the period of the requested delay, or

2. When an application to create an ADU or JADU is submitted with a permit application to create a new single-family or multifamily dwelling on the lot, the city may delay ~~acting on~~ approving or denying the permit application for the ADU or JADU until the city acts on the permit application to create the new single-family or multifamily dwelling, but the application to create the ADU or JADU will still be considered ministerially without discretionary review or a hearing.

D. Denial. If the city denies an application to create an ADU or JADU, the city must provide the applicant with comments that include, among other things, a list of all the defective or deficient items and a description of how the application may be remedied by the applicant. Notice of the denial and corresponding comments must be provided to the applicant within the 60-day time period established by subsection C above.

E. Appeal of Denial. An applicant may appeal the city's denial of the application by submitting a written appeal to the city clerk. The planning commission will review the written appeal and affirm or reverse the denial and provide a final written determination to the applicant within 60 business days after receipt of the appeal.

F. Concurrent Review of Demolition**.** A demolition permit for a detached garage that is to be replaced with an ADU is reviewed with the application for the ADU and issued at the same time.

§ 17.44.080. General requirements.

The following requirements apply to all Class 1 and Class 2 ADUs and JADUs:

A. Zoning.

1. A Class 1 Statutorily Regulated ADU approved under Section 17.44.060(A) may be created on a lot in a residential or mixed-use zone.

2. A Class 2 Locally Regulated ADU approved under Section 17.44.060(B) may be created on a lot that is zoned to allow single-family dwelling residential use or multifamily dwelling residential use.

3. In accordance with Government Code section 66333(a), a JADU may only be created on a lot zoned to allow single-family residences.

B. Rental Term. An ADU or JADU may not be rented for a term that is shorter than 30 days. This prohibition applies regardless of when the ADU or JADU was created.

C. Rental Rate Reporting. To facilitate the city's obligation to identify adequate sites in accordance with Government Code Sections 65583.1 and 66330, and to help ADUs

and JADUs to count towards the city's Regional Housing Needs Assessment (RHNA) requirements, within 90 days after each January 1 following issuance of the building permit, the owner shall report the actual rent charged for the ADU or JADU during the prior year.

D. No Separate Conveyance. An ADU or JADU may be rented, but, except as otherwise provided in Government Code Section 66341, no ADU may be sold or otherwise conveyed separately from the lot and the primary dwelling (in the case of a single-family lot) or from the lot and all of the dwellings (in the case of a multifamily lot). A JADU may not be sold or otherwise conveyed separately from the lot and the primary dwelling.

E. Septic System. If the ADU or JADU will connect to an on-site water treatment system, the owner must include with the application a percolation test completed within the last five years or, if the percolation test has been recertified, within the last 10 years.

F. Fire Sprinklers.

1. Fire sprinklers are required in an ADU if sprinklers are required in the primary residence.

2. The construction of an ADU does not trigger a requirement for fire sprinklers to be installed in the existing primary dwelling.

G. Owner Occupancy with JADU.

a. Generally. As required by state law, ~~all~~ JADUs are generally subject to an owner-occupancy requirement. A natural person with legal or equitable title to the property must reside on the property, in either the primary dwelling or JADU, as the person's legal domicile and permanent residence.

b. Exceptions. The owner-occupancy requirement in this subsection (G) does not apply in either of the following situations:

1. The JADU has separate sanitation facilities (i.e., does not share sanitation facilities with the existing primary dwelling unit structure).

2. The property is entirely owned by another governmental agency, land trust, or housing organization.

c. ADUs. ADUs are not subject to an owner-occupancy requirement.

H. Deed Restriction. Prior to issuance of a certificate of occupancy for a JADU, a deed restriction must be recorded against the title of the property in the County Recorder's office and a copy filed with the Community Development Director. The deed restriction must run with the land and bind all future owners. The form of the deed restriction will be provided by the city and must provide that:

1. The JADU may not be sold separately from the primary dwelling.

2. A JADU created cannot be rented for less than 30 days.

3. The JADU is restricted to the approved size and to the other attributes allowed by this section.

4. The deed restriction runs with the land and may be enforced against future property owners.

5. The deed restriction is enforceable by the director or his or her designee for the benefit of the city. Failure of the property owner to comply with the deed restriction may result in legal action against the property owner, and the city is authorized to obtain any remedy available to it at law or equity, including, but not limited to, obtaining an injunction enjoining the use of the JADU in violation of the recorded restrictions or abatement of the illegal unit.

I. Building and Safety.

a. Must Comply With Building Code. Subject to subsection I)(b) below, all ADUs and JADUs must comply with all local building code requirements.

b. No Change of Occupancy. Construction of an ADU does not constitute a Group R occupancy change under the local building code, as described in Section 310 of the California Building

i.Code, unless the building official or Code Enforcement Division officer makes a written finding based on substantial evidence in the record that the construction of the ADU could have a specific, adverse impact on public health and safety. Nothing in this subsection (I)(b) prevents the city from changing the occupancy code of a space that was uninhabitable space or that was only permitted for nonresidential use and was subsequently converted for residential use in accordance with this section.

J. **Certificate of Occupancy Timing.**

a. Generally. No certificate of occupancy for an ADU or JADU may be issued before the certificate of occupancy is issued for the primary dwelling unit.

b. Limited Exception for State-Declared Emergencies. Notwithstanding subsection (J)(a) above, a certificate of occupancy for an ADU may be issued before a certificate of occupancy for the primary dwelling if each of the following requirements are met:

1. The county is subject to a proclamation of a state of emergency made by the California Governor on or after February 1, 2025.

2. The primary dwelling was substantially damaged or destroyed by an event

referenced in the Governor's state of emergency proclamation.

3. The ADU has been issued construction permits and has passed all required inspections.

4. The ADU is not attached to the primary dwelling.

K. Height.

a. No ADU subject to this chapter may exceed 16 feet in height above grade, except as provided in subsections (K)(b) through (K)(d) of this section.

b. A detached ADU may be up to 18 feet in height if it is created on a lot with an existing or proposed single-family or multifamily dwelling unit that is located within one-half mile walking distance of a major transit stop as those terms are defined in Section 21155 of the Public Resources Code, and the ADU may be up to two additional feet in height (for a maximum of 20 feet) if necessary to accommodate a roof pitch on the ADU that matches the roof pitch of the primary dwelling unit.

c. A detached ADU created on a lot with an existing or proposed multifamily dwelling that has more than one story above grade may not exceed 18 feet in height.

d. An ADU that is attached to the primary dwelling may not exceed 25 feet in height or the height limitation imposed by the underlying zone that applies to the primary dwelling, whichever is lower. Notwithstanding the foregoing, ADUs subject to this subsection (K)(d) may not exceed two stories.

§ 17.44.090. Specific ADU requirements.

The following requirements apply only to Class 2 - Locally Regulated ADUs under Section 17.44.060 (B) above. This section does not apply to Class 1 Statutorily Regulated ADUs and JADUs under Section 17.44.060 (A) above.

A. Size.

1. The maximum floor area of a detached or attached ADU is 1,000 square feet.

2. Notwithstanding subsection (A)(1), an ADU that is created on a lot with an existing primary dwelling and that is attached to the primary dwelling is limited to 50 percent of the floor area of the existing primary dwelling, subject to subsection (A)(3).

3. Application of other development standards in this Section might further limit the size of the ADU, but no application of the percent-based size limit in subsection A.2 or of a FAR, front-setback, lot-coverage, or open-space requirement may require the ADU to be less than 800 square feet of interior

livable space.

4. By definition, a JADU may not be larger than 500 square feet.

B. Setbacks.

1. The front yard setback of an ADU located on a non-beach front lot, subject to this Section, shall be at least 20 percent of the total depth of the lot, or 65 feet, whichever is less. On a beachfront lot, the front yard setback shall be 20 feet maximum or the average of the two immediate neighbors, whichever is less.

2. No part of any ADU that is subject to this Section may be located within four feet of a side or rear property line.

3. No setback is required for an ADU that is subject to this Section if the ADU is constructed in the same location and to the same dimensions as an existing structure.

C. Floor Area Ratio (FAR). No ADU subject to Section 17.44.090 may cause the total FAR of the lot to exceed 38 percent, subject to subsection 17.44.090(A)(3).

D. Lot Coverage. No ADU subject to this Section may cause the total lot coverage of the lot to exceed 45% for up to ¼ acre; 35% of the net area for lots ¼ to ½ acre and 30% of the net area up to a maximum of 25,000 square feet per parcel for lots ½ acre of more in size, subject to subsection 17.44.090(A)(3).

E. Passageway. No passageway, as defined by Section 17.44.040, is required for an ADU.

F. Parking.

1. Generally. One off-street enclosed or unenclosed parking space is required for each ADU or bedroom, whichever is less. Unenclosed parking spaces may be provided in setback areas or as tandem parking, as defined by Section 17.44.040.

2. Exceptions. No parking under subsection (F)(1) above is required in the following situations:

a. The ADU is located within one-half mile walking distance of public transit, as defined in Section 17.44.040.

b. The ADU is located within an architecturally and historically significant historic district.

c. The ADU is part of the proposed or existing primary residence or part of an existing accessory structure, under Section 17.44.060(A)(1).

d. When on-street parking permits are required but not offered to the occupant of the ADU.

e. When there is an established car share vehicle stop located within one block

of the ADU.

f. When the permit application to create an ADU is submitted with an application to create a new single-family or new multifamily dwelling on the same lot, provided that the ADU or the lot satisfies any other criteria listed in subsections (D)(2)(a) through (D)(2)(f).

3. No Replacement Parking Required. When a garage, carport, covered parking structure, or uncovered parking space is: (a) demolished in conjunction with the construction of an ADU; or (b) converted to an ADU, those off-street parking spaces are not required to be replaced. If replacement parking is proposed by the owner, the parking must be located on hardscape.

G. Internal Connection. An attached ADU shall not be connected internally to the main residence. A detached ADU shall not be connected internally to any accessory structure except to a legally established garage that serves the ADU.

§ 17.44.100. Fees.

A. Impact Fees.

1. No impact fee shall be charged for an ADU that is less than 750 square feet of interior livable space.

2. Any impact fee that is required for an ADU that is 750 square feet or more of interior livable space must be charged proportionately in relation to the floor area of the primary dwelling unit. (e.g., the square footage of the ADU, divided by the square footage of the primary dwelling, times the typical fee amount charged for a new dwelling.)

3. A JADU or ADU with less than 500 square feet of interior livable space does not increase assessable space by 500 square feet for purposes of Education Code section 17620(a)(1)(C), and is therefore not subject to school fees under Education Code section 17620.

4. For purposes of this Section, "impact fee" means a "fee" under the Mitigation Fee Act (Government Code Section 66000(b)) and a fee under the Quimby Act (Government Code Section 66477). It does not include any connection fee or capacity charge for water or sewer service.

B. Utility Fees.

1. An ADU that is constructed with a single-family dwelling shall be subject to standard utility-connection requirements and fees for a new residential use.

2. Converted ADUs created under Section 17.44.060(A)(1) are not required to

have a new or separate utility connection directly between the ADU and the utility. Nor is a connection fee or capacity charge required unless the ADU is constructed with a new single-family home (per subsection (B)(1) above).

3. All ADUs not covered by subsection (B)(1) or (B)(2) above require a new, separate utility connection directly between the ADU and the utility for any utility service that is provided by the City.

    a. All utilities that are not provided by the City are subject to the connection and fee requirements of the utility provider.

    b. The connection is subject to a connection fee or capacity charge that is proportionate to the burden created by the ADU, based on either the square footage or the number of drainage-fixture units (DFU) values, as defined by the Uniform Plumbing Code, upon the water or sewer system. The fee or charge may not exceed the reasonable cost of providing this service.

§ 17.44.110. Nonconforming Zoning Code conditions, Building Code violations, and unpermitted structures.

A. Generally. The city will not deny an ADU or JADU application due to a nonconforming zoning condition, building code violation, or unpermitted structure on the lot that does not present a threat to the public health and safety and that is not affected by the construction of the ADU or JADU.

B. Unpermitted ADUs and JADUs Constructed Before 2020.

1. Permit to Legalize. As required by state law, the city may not deny a permit to legalize an existing but unpermitted ADU or JADU that was constructed before January 1, 2020, if denial is based on either of the following grounds:

    a. The ADU or JADU violates applicable building standards, or

    b. The ADU does not comply with the state ADU or JADU law or with this Chapter 17.44.

2. Exceptions:

    a. Notwithstanding subsection (B)(1) above the city may deny a permit to legalize an existing but unpermitted ADU or JADU that was constructed before January 1, 2020, if the city makes a finding that correcting a violation is necessary to comply with the standards specified in California Health and Safety Code Section 17920.3.

    b. Subsection (B)(1) above does not apply to a building that is deemed to be substandard in accordance with California Health and Safety Code Section 17920.3.

Legend

Black Text – Currently adopted MMC language that is not proposed for change
Red Text/~~Strikethrough~~ – Proposed additions and deletions to MMC (Reviewed at the August 19, 2025 Planning Commission Meeting)
Blue Text/~~Strikethrough~~ – Changes made since the August 19, 2025 Planning Commission Meeting

CHAPTER 17.44
ACCESSORY DWELLING UNITS

§ 17.44.010. Title.

This chapter shall be known as the "Malibu Accessory Dwelling Unit Ordinance."

§ 17.44.020. Purpose.

The purpose of this chapter is to allow and regulate accessory dwelling units (ADUs) and junior accessory dwelling units (JADUs) in compliance with Chapter 13 of Division 1 of Title 7 of the California Government Code ~~Sections 65852.2 and 65852.22~~. The entire city of Malibu is located in a designated "Very High Fire Hazard Severity Zone," and this chapter ensures that ADUs and JADUs are developed and operated on adequate sites, at proper and desirable locations, and that the goals and objectives of the general plan are observed.

§ 17.44.030. Effect of conforming.

An ADU or JADU that conforms to the standards in this chapter will be:

A. Deemed to be consistent with the city's general plan and zoning designation for the lot on which the ADU or JADU is located.

B. Deemed not to exceed the allowable density for the lot on which the ADU or JADU is located.

C. Considered not to be subject to the application of any local ordinance, policy, or program to limit residential growth.

D. ~~Permitted to maintain~~Approved without requiring the correction of a nonconforming zoning condition. This does not prevent the city from enforcing compliance with applicable building standards in accordance with Health and Safety Code Section 17980.12. For purposes of this chapter, "nonconforming zoning condition" means a physical improvement on a property that does not conform with current zoning standards.

§ 17.44.040. Definitions.

A. "Accessory dwelling unit" means an attached or a detached residential dwelling unit that provides complete independent living facilities for one or more persons and is located on a lot with a proposed or existing primary residence. An accessory dwelling unit also includes the following:

a. An efficiency unit, as defined by Section 17958.1 of the California **Health and Safety**

Code ~~and the California Building Code~~; and

b. A manufactured home, as defined by Section 18007 of the California **Health and Safety Code**.

B. "Accessory structure" means a structure that is accessory and incidental to a dwelling located on the same lot.

C. "Complete independent living facilities" means permanent provisions for living, sleeping, eating, cooking, and sanitation on the same parcel as the single-family or multifamily dwelling is or will be situated.

D. "Efficiency kitchen" means a kitchen that satisfies all of the following:

a. A cooking facility with appliances;

b. A food preparation counter and storage cabinets that are of a reasonable size in relation to the size of the JADU.

E. "Junior accessory dwelling unit" means a residential unit that

a. Is no more than 500 square feet of interior livable space in size;

b. Is contained entirely within an existing or proposed single-family structure; an enclosed use within the residence, such as an attached garage, is considered to be a part of and contained within the single-family structure;

c. Has an independent exterior entrance, apart from that of the primary dwelling;

d. ~~Includes~~Either includes its own separate sanitation facilities or shares sanitation facilities with the existing or proposed single-family structure, and if the latter, the JADU includes an interior entrance to the main living area of the existing or proposed single-family structure in addition to the exterior entrance to the JADU; and

e. Includes an efficiency kitchen, as defined in this subsection D.

F. "Livable space" means a space in a dwelling intended for human habitation, including living, sleeping, eating, cooking, or sanitation.

G. "Living area" means the interior habitable area of a dwelling unit, including basements and attics, but does not include a garage or any accessory structure.

H. "Passageway" means a pathway that is unobstructed clear to the sky and extends from a street to one entrance of the accessory dwelling unit or junior accessory dwelling unit.

I. "Proposed dwelling" means a dwelling that is the subject of a permit application and that meets the requirements for permitting.

J. "Public transit" means a location, including, but not limited to, a bus stop or train station, where the public may access buses, trains, or subways and other forms of transportation that ~~charges~~charge set fares, run on fixed routes, and are available to the public.

K. "Tandem parking" means that two or more automobiles are parked on a driveway or in any other location on a lot, lined up behind one another.

L. "Very high fire hazard severity zone" means zone as defined by Government Code Section 51177 and designated by Ordinance No. 299 and the City's adopted Local Responsibility Area Fire Hazard Severity Zone Maps~~.~~, as may be amended from time to time.

§ 17.44.050. Permitted locations.

A. ~~ADUS~~ADUs and JADUs under Section 17.44.060(A) ~~shall be~~are allowed on lots that are in a residential or mixed-use zone.

B. ADUs under Section 17.44.060(B) ~~shall be~~are allowed on lots zoned to allow single-family or multifamily dwelling residential use. ~~These zones include Rural Residential (RR), Single Family (SF) Multifamily (MF), Multifamily Beach Front (MFBF), and Planned Development (PD).~~

C. Areas with Adequate Ingress and Egress. Since the entire city ~~is located within~~ is located in a designated "Very High Fire Hazard Severity Zone," consistent with Los Angeles County Fire Department requirements to ensure adequate ingress and egress for fire safety, except as required by state law, a minimum street width of 20 feet shall be required. ADUs are not allowed on parcels that do not have ingress and egress to a street at least 20 feet in width.

~~D. Multifamily Lots. ADUs are allowed on multifamily lots pursuant to 17.44.060(A)(3) and (A)(4). New attached ADUs are not allowed.~~

§ 17.44.060. Approvals.

The following approvals apply to ADUs and JADUs developed under this chapter. Because the city of Malibu lies entirely within the Coastal Zone, ~~every~~ ADU applications may be ~~in the city is~~ subject to the requirements in ~~an analysis for compliance with~~ the Local Coastal Program (LCP) in addition to the provisions of ~~and Coastal Act before it is reviewed for compliance with~~ this chapter. If an ADU application is exempt from the need to obtain a coastal development permit, then only this chapter governs.~~If an application for an ADU is not subject to Both~~ the LCP~~, then~~ ~~and this Chapter~~ ~~governs. State~~ ~~apply to ADUs, in accordance with state law.~~ ~~law is explicit about the Coastal Act not being preempted by the State's ADU statute (Government Code Section 65852.2, subdivision (1)).~~ ~~The provisions of this chapter apply when not in conflict with the City's LCP.~~

A. ~~Building Permit Only~~Class 1: Statutorily Regulated. Class 1 ADUs and JADUs are approved under Government Code Section 66323. If an ADU or JADU complies with each of the general requirements in Section17.44.080 below, it is allowed ~~with only a~~ subject to an ADU permit and a building permit in the following scenarios provided in this subsection (A)~~:~~. An ADU and JADU approved under subsection (A)(1) may be combined with an ADU approved under subsection (A)(2), and ADUs approved under subsection (A)(3) may be combined with ADUs approved under subsection (A)(4).

1. Converted on ~~Single-Family~~a Lot with Single-Family. One ADU as described in this subsection (A)(1) and one JADU on a lot with a proposed or existing single-family dwelling on it, where the ADU or JADU:

    a. Is either: within the space of a proposed single-family dwelling; within the existing space of an existing single-family dwelling; or (in the case of an ADU only) within the existing space of an accessory structure, plus up to 150 additional square feet if the expansion is limited to accommodating ingress and

egress; and

b. Has exterior access that is independent of that for the single-family dwelling; and

c. Has side and rear setbacks sufficient for fire and safety, as dictated by applicable building and fire codes.

d. The JADU complies with the requirements of Government Code Sections ~~65852.22~~ 66333 through 66339.

2. Limited Detached on ~~Single-family~~a Lot with Single-Family. One detached, new-construction ADU on a lot with a proposed or existing single-family dwelling (in addition to any JADU that might otherwise be established on the lot under subsection (A)(1) above if the detached ADU satisfies each of the following limitations:

   a. The side- and rear-yard setbacks are at least four feet.

   b. The total floor area is 800 square feet or smaller.

   c. The peak height above grade does not exceed the applicable height limit in subsection 17.44.080(~~I~~ K) below.

3. Converted on ~~Multifamily~~a Lot with Multifamily. One or more ADUs within portions of existing multifamily dwelling structures that are not used as livable space, including, but not limited to, storage rooms, boiler rooms, passageways, attics, basements, or garages, if each converted ADU complies with state building standards for dwellings. Under this subsection (A)(3) at least one converted ADU is allowed within an existing multifamily dwelling, up to a quantity equal to 25 percent of the existing multifamily dwelling units.

4. Limited Detached on ~~Multifamily~~a Lot with Multifamily. No more than two detached ADUs on a lot that has ~~an existing or~~a proposed multifamily dwelling, or up to eight detached ADUs on a lot with an existing multifamily dwelling, if each detached ADU satisfies both of the following limitations:

   a. The side- and rear-yard setbacks are at least four feet. If the existing multifamily dwelling has a rear or side yard setback of less than four feet, the city will not require any modification to the multifamily dwelling as a condition of approving the ADU.

   b. The peak height above grade does not exceed the applicable height limit provided in subsection 17.44.080(~~I~~K) below.

   c. If the lot has an existing multifamily dwelling, the quantity of detached ADUs does not exceed the number of primary dwelling units on the lot.

B. ~~Administrative Plan Review Permit (APR)~~Class 2: Locally Regulated. Class 2 ADUs are approved under Government Code sections 66314–66322.

1. Except as allowed under ~~this~~ subsection A, ~~no~~ all ADUs ~~may be created without~~ require an ADU permit and a building permit ~~and an APR~~ ~~in compliance~~ and must comply with the standards set forth in Sections 17.44.080 and 17.44.090.

2. The city may charge a fee to reimburse it for costs incurred in processing ~~APR~~ADU permits, including the costs of adopting or amending the city's ADU ordinance. The ~~APR permit~~ADU permit processing fee is determined by the city council by resolution.

§ 17.44.070. Process and timing.

A. Completeness.

1. Determination in 15 days. The city will determine whether an application to create or serve an ADU or JADU is complete and will provide written notice of the determination to the applicant within 15 business days after the city receives the application submittal.

2. Incomplete items. If the city's determination under subsection (A)(1) above is that the application is incomplete, the city's notice must list the incomplete items and describe how the application can be made complete.

3. Cure. After receiving a notice that the application is incomplete, the applicant may cure and address the items that were deemed by the city to be incomplete.

4. Subsequent submittals. If the applicant submits additional information to address incomplete items, within 15 business days of the subsequent submittal the city will determine in writing whether the additional information remedies all the incomplete items that the city identified in its original notice. The city may not require the application to include an item that was not included in the original notice.

5. Deemed complete. If the city does not make a timely determination as required by this subsection (A), the application or resubmitted application is deemed complete for the purposes of subsection (C) below.

6. Appeal of incompleteness. An applicant may appeal the city's determination that the application is incomplete by submitting a written appeal to the city clerk. The planning commission will review the written appeal and affirm or reverse the completeness determination and provide a final written determination to the applicant within 60 business days after receipt of the appeal.

B. No Discretion or Hearing. An ~~APR~~ADU permit is considered and approved ministerially by the community development ~~planning~~ director without discretionary review or a hearing.

C. Deadline to Approve or Deny Ministerial Approvals. The city must approve or deny an application to create an ADU or JADU within 60 days from the date that the city receives a complete application~~,~~. If the city has not approved or denied the completed application within 60 days, the application is deemed approved, unless either:

1. The applicant requests a delay, in which case the 60-day time period is tolled for the period of the requested delay, or

2. When an application to create an ADU or JADU is submitted with a permit application to create a new single-family or multifamily dwelling on the lot, the city may delay ~~acting on~~ approving or denying the permit application for the ADU or JADU until the city acts on the permit application to create the new single-family or multifamily dwelling, but the application to create the ADU or JADU will still be considered ministerially without discretionary review or a hearing.

D. Denial. If the city denies an application to create an ADU or JADU, the city must provide the applicant with comments that include, among other things, a list of all the defective or deficient items and a description of how the application may be remedied by the applicant. Notice of the denial and corresponding comments must be provided to the applicant within the 60-day time period established by subsection C above.

E. Appeal of Denial. An applicant may appeal the city's denial of the application by submitting a written appeal to the city clerk. The planning commission will review the written appeal and affirm or reverse the denial and provide a final written determination to the applicant within 60 business days after receipt of the appeal.

F. Concurrent Review of Demolition. A demolition permit for a detached garage that is to be replaced with an ADU is reviewed with the application for the ADU and issued at the same time.

§ 17.44.080. General ~~ADU and JADU~~ requirements.

The following requirements apply to all Class 1 and Class 2 ADUs and JADUs: ~~that are approved under Section 17.44.060.~~

A. Zoning.

1. A Class 1 Statutorily Regulated ADU approved under Section 17.44.060(A) may be created on a lot in a residential or mixed-use zone.

2. A Class 2 Locally Regulated ADU approved under Section 17.44.060(B) may be created on a lot that is zoned to allow single-family dwelling residential use or multifamily dwelling residential use.

3. In accordance with Government Code section 66333(a), a JADU may only be created on a lot zoned to allow single-family residences.

B. Rental Term. An ADU or JADU may not be rented for a term that is shorter than 30 days. This prohibition applies regardless of when the ADU or JADU was created.

C. Rental Rate Reporting. To facilitate the city's obligation to identify adequate sites in accordance with Government Code Sections 65583.1 and ~~65852.2~~66330, and to ~~allow~~help ADUs and JADUs to count towards the city's Regional Housing Needs Assessment (RHNA) requirements, within 90 days after each January 1 following issuance of the building permit, the owner shall report the actual rent charged for the ADU or JADU during the prior year.

D. No Separate Conveyance. An ADU or JADU may be rented, but, except as otherwise provided in Government Code Section ~~65852.26~~66341, no ADU ~~or JADU~~may be sold or otherwise conveyed separately from the lot and the primary dwelling (in the case of a single-family lot) or from the lot and all of the dwellings (in the case of a multifamily lot). A JADU may not be sold or otherwise conveyed separately from the lot and the primary dwelling.

E. Septic System. If the ADU or JADU will connect to an on-site water treatment system, the owner must include with the application a percolation test completed within the last five years or, if the percolation test has been recertified, within the last 10 years.

F. Fire Sprinklers.

1. Fire sprinklers are required in an ADU if sprinklers are required in the primary residence.

2. The construction of an ADU does not trigger a requirement for fire sprinklers to be installed in the existing primary dwelling.

G. ~~F.~~Owner Occupancy with JADU.

a. Generally. As required by state law, ~~all~~ JADUs are generally subject to an owner-occupancy requirement. A natural person with legal or equitable title to the property must reside on the property, in either the primary dwelling or JADU, as the person's legal domicile and permanent residence. ~~However, the owner-occupancy requirement in this subsection D does not apply if the property is entirely owned by another governmental agency, land trust, or housing organization, in accordance with state law.~~

b. Exceptions. The owner-occupancy requirement in this subsection (G) does not apply in either of the following situations:

1. The JADU has separate sanitation facilities (i.e., does not share sanitation facilities with the existing primary dwelling unit structure).

2. The property is entirely owned by another governmental agency, land trust, or housing organization.

c. ADUs. ADUs are not subject to an owner-occupancy requirement.

H. Deed Restriction. Prior to issuance of a ~~building permit~~ certificate of occupancy for ~~an ADU or~~ a JADU, a deed restriction must be recorded against the title of the property in the County Recorder's office and a copy filed with the Community Development Director. The deed restriction must run with the land and bind all future owners. The form of the deed restriction will be provided by the city and must provide that:

1. ~~Except as otherwise provided in Government Code Section 65852, 26, the ADU or~~The JADU may not be sold separately from the primary dwelling.

~~2. The ADU or JADU must remain an ADU unless city approval is obtained to convert the structure to a different accessory structure.~~

~~3.~~2. ~~An ADU or~~ A JADU created cannot be rented for less than 30 days.

~~4.~~3. The ~~ADU or~~ JADU is restricted to the approved size and to the other attributes allowed by this section.

~~6.~~4. The deed restriction runs with the land and may be enforced against future property owners.

~~5. The JADU must be reconverted to be part of the primary residence if the owner does not reside on the property.~~

~~7. The deed restriction may be removed if the owner eliminates the ADU or JADU, as evidenced by, for example, removal of the kitchen facilities. To remove the deed restriction, an owner may make a written request of the director, providing evidence that the ADU or JADU has in fact been eliminated. The director may then determine whether~~

~~the evidence supports the claim that the ADU or JADU has been eliminated. Appeal may be taken from the director's determination consistent with other provisions of this code. If the ADU or JADU is not entirely physically removed but is only eliminated by virtue of having a necessary component of an ADU or JADU removed, the remaining structure and improvements must otherwise comply with applicable provisions of this code.~~

~~8.~~5. The deed restriction is enforceable by the director or his or her designee for the benefit of the city. Failure of the property owner to comply with the deed restriction may result in legal action against the property owner, and the city is authorized to obtain any remedy available to it at law or equity, including, but not limited to, obtaining an injunction enjoining the use of the ~~ADU or~~ JADU in violation of the recorded restrictions or abatement of the illegal unit.

I. ~~G.~~ Building and Safety.

a. ~~1.~~Must Comply With Building Code. Subject to subsection ~~(H)(2)~~(I)(b) below, all ADUs and JADUs must comply with all local building code requirements.

b. ~~2.~~No Change of Occupancy. Construction of an ADU does not constitute a Group R occupancy change under the local building code, as described in Section 310 of the California Building

1. Code, unless the building official or Code Enforcement Division officer makes a written finding based on substantial evidence in the record that the construction of the ADU could have a specific, adverse impact on public health and safety. Nothing in this subsection ~~(H)(2)~~(I)(b) prevents the city from changing the occupancy code of a space that was uninhabitable space or that was only permitted for nonresidential use and was subsequently converted for residential use in accordance with this section.

J. **Certificate of Occupancy Timing.**

a. Generally. No certificate of occupancy for an ADU or JADU may be issued before the certificate of occupancy is issued for the primary dwelling unit.

b. Limited Exception for State-Declared Emergencies. Notwithstanding subsection (J)(a) above, a certificate of occupancy for an ADU may be issued before a certificate of occupancy for the primary dwelling if each of the following requirements are met:

i. The county is subject to a proclamation of a state of emergency made by the California Governor on or after February 1, 2025.

ii. The primary dwelling was substantially damaged or destroyed by an event referenced in the Governor's state of emergency proclamation.

iii. The ADU has been issued construction permits and has passed all required inspections.

iv. The ADU is not attached to the primary dwelling.

K. ~~H.~~ Height.

a. ~~1.~~No ADU subject to this chapter may exceed 16 feet in height above grade, ~~as measured from existing or finished legal grade, whichever results in the lower building height~~ except as provided in subsections ~~(I)(2)~~ (K)(b) through ~~(I)(4)~~ (K)(d) of this section.

b. ~~2.~~A detached ADU may be up to 18 feet in height if it is created on a lot with an existing or proposed single-family or multifamily dwelling unit that is located within one-half mile walking distance of a major transit stop as those terms are defined in Section 21155 of the Public Resources Code, and the ADU may be up to two additional feet in height (for a maximum of 20 feet) if necessary to accommodate a roof pitch on the ADU that ~~is aligned~~ matches the roof pitch of the primary dwelling unit.

c. ~~3.~~A detached ADU created on a lot with an existing or proposed multifamily dwelling that has more than one story above grade may not exceed 18 feet in height.

d. ~~4.~~An ADU that is attached to the primary dwelling may not exceed 25 feet in height or the height limitation imposed by the underlying zone that applies to the primary dwelling, whichever is lower. Notwithstanding the foregoing, ADUs subject to this subsection ~~(I)(4)~~ (K)(d) may not exceed two stories.

§ 17.44.090. Specific ADU requirements.

The following requirements apply only to ~~ADUs that require an APR permit under Section 17.44.060(B) above.~~Class 2 - Locally Regulated ADUs under Section 17.44.060 (B) above. This section does not apply to Class 1 Statutorily Regulated ADUs and JADUs under Section 17.44.060 (A) above.

A. Size.

1. The maximum ~~square footage of an~~ floor area of a detached or attached ADU ~~shall be~~is 1,000 square feet. ~~The maximum square footage shall include interior and exterior walls, finished and unfinished basements, mezzanines, storage space, and any space with a height clearance (floor to ceiling height dimension) above six feet. The area of a garage (400 square feet maximum) provided as part of accessory dwelling unit and exterior decks or overhangs that are attached to the structure shall not be included in the 850 to 1,000 square foot limit.~~

2. Notwithstanding subsection (A)(1), an ADU that is created on a lot with an existing primary dwelling and that is attached to the primary dwelling is ~~further~~ limited to 50 percent of the floor area of the existing primary dwelling, subject to subsection (A)(3).

3. Application of other development standards in this Section ~~17.44.090~~ might further ~~the~~ limit the size of the ADU, but no application of the percent-based size limit in subsection A.2 or of a~~n~~ FAR, front-setback, lot-coverage, or open-space requirement may require the ADU to be less than 800 square feet of interior livable space.

4. By definition, a JADU may not be larger than 500 square feet.

B. Setbacks.

1. The front yard setback of an ADU located on a non-beach front lot, subject to this Section ~~17.44.090~~, shall be at least 20 percent of the total depth of the lot, or 65 feet, whichever is less. On a beachfront lot, the front yard setback shall be 20 feet maximum

or the average of the two immediate neighbors, whichever is less.

2. No part of any ADU that is subject to this Section ~~17.44.090~~ may be located within four feet of a side or rear property line.

3. No ~~additional~~ setback is required for an ADU that is subject to this Section ~~17.44.090~~ if the ADU is constructed in the same location and to the same dimensions as an ~~existing legally established~~ ~~accessory~~ structure ~~that was is legally demolished and then replaced with the ADU~~.

C. Floor Area Ratio (FAR). No ADU subject to Section 17.44.090 may cause the total FAR of the lot to exceed 45 percent, subject to subsection 17.44.090(A)(3).

D. ~~C.~~ Lot Coverage. No ADU subject to this Section may cause the total lot coverage of the lot to exceed 45% for up to ¼ acre; 35% of the net area for lots ¼ to ½ acre and 30% of the net area up to a maximum of 25,000 square feet per parcel for lots ½ acre of more in size, subject to subsection ~~(A)(3) above~~ 17.44.090(A)(3).

E~~C.~~Passageway. No passageway, as defined by Section 17.~~02~~44.0~~6~~40, is required for an ADU.

F~~D.~~Parking.

1. Generally. One off-street enclosed or unenclosed parking space is required for each ADU or bedroom, whichever is less. Unenclosed parking spaces may be provided in setback areas or as tandem parking, as defined by Section 17.~~02~~44.040.

2. Exceptions. No parking under subsection (F~~D~~)(1) above is required in the following situations:

   a. The ADU is located within one-half mile walking distance of public transit, as defined in Section 17.~~02.~~44.040.

   b. The ADU is located within an architecturally and historically significant historic district.

   c. The ADU is part of the proposed or existing primary residence or part of an existing accessory structure, under Section 17.44.060(A)(1).

   d. When on-street parking permits are required but not offered to the occupant of the ADU.

   e. When there is an established car share vehicle stop located within one block of the ADU.

   f. When the permit application to create an ADU is submitted with an application to create a new single-family or new multifamily dwelling on the same lot, provided that the ADU or the lot satisfies any other criteria listed in subsections (F~~D~~)(2)(a) through (F~~D~~)(2)(f).

3. No Replacement ~~of~~ Parking Required. When a garage, carport, ~~or~~ covered parking structure, or uncovered parking space is: (a) demolished in conjunction with the construction of an ADU; or (b) converted to an ADU, those off-street parking spaces

are not required to be replaced. If replacement parking is proposed by the owner, the parking must be located on hardscape.

GE. Internal Connection. An attached ADU shall not be connected internally to the main residence. A detached ADU shall not be connected internally to any accessory structure except to a legally established garage that serves the ADU.

§ 17.44.100. Fees.

A. Impact Fees.

1. No impact fee shall be charged for an ADU that is less than 750 square feet in size of interior livable space.

2. Any impact fee that is required for an ADU that is 750 square feet or larger in size more of interior livable space must be charged proportionately in relation to the square footagefloor area of the primary dwelling unit. (E.e.g., the square footage of the ADU, divided by the square footage of the primary dwelling, times the typical fee amount charged for a new dwelling.) "Impact fee" here does not include any connection fee or capacity charge for water or sewer service.

3. A JADU or ADU with less than 500 square feet of interior livable space does not increase assessable space by 500 square feet for purposes of Education Code section 17620(a)(1)(C), and is therefore not subject to school fees under Education Code section 17620.

4. For purposes of this sSection 17.44.100, "impact fee" means a "fee" under the Mitigation Fee Act (Government Code Section 66000(b)) and a fee under the Quimby Act (Government Code Section 66477). It does not include any connection fee or capacity charge for water or sewer service.

B. Utility Fees.

1. ADUs An ADU that is constructed with a single-family dwelling shall be subject to standard utility-connection requirements and fees for a new primary dwelling residential use.

2. Converted ADUs created under Section 17.44.060(A)(1) are not required to have a new or separate utility connection directly between the ADU and the utility. Nor is a connection fee or capacity charge required unless the ADU is constructed with a new single-family home (per subsection (B.)(1) above).

C. All ADUs not covered by Section 17.44.100 subsection (B)(1) or (B)(2) above require a new, separate utility connection directly between the ADU and the utility. for any utility service that is provided by the City. The connection is subject to a connection fee or capacity charge that is proportionate to the burden created by the ADU, based on either the square footage or the number of drainage fixture units (DFU) values, as defined by the Uniform Plumbing Code, upon the water or sewer system. The fee or charge may not exceed the reasonable cost of providing this service.

a. All utilities that are not provided by the City are subject to the connection and fee

requirements of the utility provider.

b. The connection is subject to a connection fee or capacity charge that is proportionate to the burden created by the ADU, based on either the square footage or the number of drainage-fixture units (DFU) values, as defined by the Uniform Plumbing Code, upon the water or sewer system. The fee or charge may not exceed the reasonable cost of providing this service.

§ 17.44.110. Nonconforming Zoning Code conditions, Building Code violations, and unpermitted structures.

A. Generally. The city will not deny an ADU or JADU application due to a nonconforming zoning condition, building code violation, or unpermitted structure on the lot that does not present a threat to the public health and safety and that is not affected by the construction of the ADU or JADU.

B. Unpermitted ADUs and JADUs Constructed Before ~~2018~~2020.

1. Permit to Legalize. As required by state law, the city may not deny a permit to legalize an existing but unpermitted ADU or JADU that was constructed before January 1, ~~2018~~2020, if denial is based on either of the following grounds:

   a. The ADU or JADU violates applicable building standards, or

   b. The ADU does not comply with the state ADU ~~law (Government Code Section 65852.2) or this ADU~~or JADU laws or with this Chapter 17.44.

2. Exceptions:

   a. Notwithstanding subsection (B)(1) above the city may deny a permit to legalize an existing but unpermitted ADU or JADU that was constructed before January 1, ~~2018~~2020, if the city makes a finding that correcting a violation is necessary to ~~protect the health and safety of the public or of occupants of the structure~~comply with the standards specified in California Health and Safety Code Section 17920.3.

   b. Subsection (B)(1) above does not apply to a building that is deemed to be substandard in accordance with California Health and Safety Code Section 17920.3.

DEPARTMENT OF HOUSING AND COMMUNITY DEVELOPMENT
DIVISION OF HOUSING POLICY DEVELOPMENT
651 Bannon Street, Suite 400 Sacramento, CA 95811
(916) 263-2911 / FAX (916) 263-7453
www.hcd.ca.gov

November 13, 2024

Salvador Lopez, Jr.
Interim Assistant Planning Director
City of Malibu
23825 Stuart Ranch Road
Malibu, California 90265-4861

Dear Salvador Lopez, Jr:

RE: Review of Malibu's Accessory Dwelling Unit (ADU) Ordinance under State ADU Law (Gov. Code, §§ 6631 - 66342)

Please Note: As of March 25, 2024, with the Chaptering of Senate Bill (SB) 477 (Chapter 7, Statutes of 2024), the sections of Government Code relevant to State ADU and junior accessory dwelling unit (JADU) Law have been re-numbered (Enclosure 1).

Thank you for submitting the City of Malibu (City) ADU Ordinance No. 511 (Ordinance), adopted January 8, 2024, to the California Department of Housing and Community Development (HCD). The Ordinance was received on February 1, 2024. HCD has reviewed the Ordinance and submits these written findings pursuant to Government Code section 66326, subdivision (a). HCD finds that the Ordinance does not comply with State ADU and junior accessory dwelling unit (JADU) Laws in the manner noted below. Pursuant to Government Code section 66326, subdivision (b)(1), the City has up to 30 days to respond to these findings. Accordingly, the City must provide a written response to these findings no later than December 13, 2024.

The Ordinance addresses many statutory requirements; however, HCD finds that the Ordinance does not comply with State ADU Law in the following respects:

1. *Statutory Numbering* – The Ordinance contains several references to code sections that were deleted by SB 477, effective March 25, 2024. These include Government Code sections 65852.2, 65852.22 and 65852.26. The contents of these sections were relocated to Government Code, Title 7, Division 1, Chapter 13 (sections 66310-66342, see Enclosure). The City must amend the Ordinance to refer to the correct code sections.

2. Section 17.44.050(C) – *Ingress and Egress* – The Ordinance states, "Areas with Adequate Ingress and Egress. Since the entire City is located within [sic] a designated "Very High Fire Hazard Severity Zone," (VHFHSZ) consistent with Los

Angeles County Fire Department requirements to ensure adequate ingress and egress for fire safety, a minimum street width of 20 feet shall be required. ADUs are not allowed on parcels that do not have ingress and egress to a street at least 20 feet in width."

However, Government Code section 66314, subdivision (a) states that an ordinance shall "Designate areas within the jurisdiction of the local agency where accessory dwelling units may be permitted. The designation of areas may be based… on the adequacy of water and sewer services and the impact of accessory dwelling units on traffic flow and public safety." The ordinance does not designate the specific areas where ADUs are prohibited in accordance with Government Code section 66314, subdivision (a). Additionally, Government Code section 66315 states, "Section 66314 establishes the maximum standards that a local agency shall use to evaluate a proposed accessory dwelling unit on a lot that includes a proposed or existing single-family dwelling. No additional standards, other than those provided in Section 66314, shall be used or imposed…" The City of Malibu's adopted Fire Code is the 2022 California Fire Code (CFC), not The Los Angeles County Fire Code, as mentioned. These additional standards on single-family ADU development imposed by other policies or regulations are not compliant with State ADU Law.

Further, while the California Department of Forestry and Fire Protection (CALFIRE) maps establish the VHFHSZ boundaries, the purpose of these maps is not to limit the locations where ADUs or other dwellings may be permitted. Rather, the CALFIRE maps identify areas in which hazard mitigating building design standards will apply. The City may not restrict ADUs pursuant to Government Code section 66314 et seq. while simultaneously allowing, through its building and zoning codes, other new residential development, and therefore, the City must remove this requirement.

Section 17.44.050(D) – *Multifamily ADUs* – The Ordinance states, "New attached ADUs are not allowed" on multifamily lots. However, Government Code section 66314, subdivision (d)(3) states "A local agency may, by ordinance, provide for the creation of accessory dwelling units in areas zoned to allow single-family or multifamily dwelling residential use. The ordinance shall… Require the accessory dwelling units to comply with all of the following:

The accessory dwelling unit is either attached to, or located within, the proposed or existing primary dwelling, including attached garages, storage areas or similar uses, or an accessory structure or detached from the proposed or existing primary dwelling and located on the same lot as the proposed or existing primary dwelling, including detached garages."

ADUs may be attached, converted from existing space, or detached from both single-family and multifamily dwellings. Prohibiting the construction of ADUs

attached to multifamily dwellings would not be compliant with State ADU Law. Therefore, the City must remove this provision.

3. Section 17.44.060 – *Approvals* – The Ordinance states, "Because the City of Malibu lies entirely within the Coastal Zone, every ADU application in the City is subject to an analysis for compliance with the Local Coastal Program (LCP) and Coastal Act before it is reviewed for compliance with this Chapter. If an application for an ADU is not subject to the LCP, then this Chapter governs." While it is true that Government Code section 66329 states that State ADU Law shall not be "…construed to supersede or in any way alter or lessen the effect or application of the California Coastal Act of 1976…" the City must review all ADU applications for any provisions or attributes which are not addressed within the LCP in compliance with State ADU Law. Only applying the provisions of the LCP to ADU applications is not in compliance with State ADU Law. Therefore, the City must amend this section to clarify that the provisions within State ADU Law are applicable to an application wherever those provisions are not directly in conflict with the provisions of an approved LCP.

4. Section 17.44.070 (B)(2) – *Action on Application* – The Ordinance states, "When an application to create an ADU or JADU is submitted with a permit application to create a new single-family or multifamily dwelling on the lot, the city may delay acting on the permit application for the ADU or JADU until the city acts on the permit application to create the new single-family or multifamily dwelling…" However, Government Code section 66317, subdivision (a) states, "If the permit application to create or serve an accessory dwelling unit or a junior accessory dwelling unit is submitted with a permit application to create a new single-family or multifamily dwelling on the lot, the permitting agency may delay approving or denying the permit application for the accessory dwelling unit or the junior accessory dwelling unit until the permitting agency approves or denies the permit application to create the new single-family or multifamily dwelling, but the application to create or serve the accessory dwelling unit or junior accessory dwelling unit shall be considered without discretionary review or hearing." As of January 1, 2023, this provision was amended to clarify that a local agency must "approve or deny" an application within the 60-day timeframe, rather than simply "act" on it. Therefore, the City should amend this section to reflect the requirement to "approve or deny" an application in accordance with State ADU Law.

5. Section 17.44.080 (F)(1) – *Separate Sale* – The Ordinance states, "Except as otherwise provided in Government Code Section 65852,26, the ADU or JADU may not be sold separately from the primary dwelling." However, Government Code section 66341, (formerly Government Code section 65852.26), does not include any provisions for the separate sale of JADUs. JADUs may not be sold separately from the primary structure under State ADU Law. Therefore, the City should clarify that there are no circumstances within State ADU Law which allow for the separate sale of a JADU.

6. Section 17.44.080 (F)(2), (4), (5), and (7) – *Deed Restrictions* – The Ordinance states, "Prior to issuance of a building permit for an ADU or JADU, a deed restriction must be recorded against the title of the property…" and lists several restrictions which are not in compliance with State ADU Law. Those not in compliance include:

   "2. The ADU or JADU must remain an ADU unless City approval is obtained to convert the structure to a different accessory structure.

   4. The ADU or JADU is restricted to the approved size.

   5. The JADU must be reconverted to be part of the primary residence if the owner does not reside on the property.

   7. The deed restriction may be removed if the owner eliminates the ADU or JADU, as evidenced by, for example, removal of the kitchen facilities. To remove the deed restriction, an owner may make a written request of the Director, providing evidence that the ADU or JADU has in fact been eliminated. The Director may then determine whether the evidence supports the claim that the ADU or JADU has been eliminated. Appeal may be taken from the Director's determination consistent with other provisions of this Code. If the ADU or JADU is not entirely physically removed but is only eliminated by virtue of having a necessary component of an ADU or JADU removed, the remaining structure and improvements must otherwise comply with applicable provisions of this Code."

   However, no deed restrictions, other than for those items explicitly mentioned within Articles 2, 3, and 4 of Chapter 13, Division 1, Title 7 of the Government Code may be applied to ADUs or JADUs. Government Code section 66333, subdivision (b), removes the owner-occupancy requirement for JADUs when the owner is a governmental agency, land trust, or housing organization. JADU deed restrictions may include a maximum size of 500 square feet for a JADU, among other restrictions on attributes which conform to article 3, pursuant to Government Code section 66333, subdivision (c). Therefore, the City must remove these excessive deed restriction requirements.

7. Section 17.44.080 (I) – *Height* – The Ordinance states, "No ADU subject to this Chapter may exceed 16 feet in height above grade, as measured from existing or finished legal grade, whichever results in the lower building height…" However, section 202 of the 2022 California Building Code (CBC) defines 'Height, Building' as "The vertical distance from grade plane to the average height of the highest roof surface." Additionally, the City of Malibu Municipal Code does not amend this definition pursuant to section 1.8.6 of the CBC and may not erroneously apply it exclusively to the construction of ADUs. Therefore, the City must amend this section to reflect a definition of "height" that is consistent with the CBC.

8. Section 17.44.090 (A)(1) – *Ceiling Height* – The Ordinance states, "The maximum square footage shall include interior and exterior walls, finished and unfinished basements, mezzanines, storage space, and any space with a height clearance

(floor to ceiling height dimension) above six feet." However, section 1208.2 of the CBC states "Occupiable spaces, habitable spaces and corridors shall have a ceiling height of not less than 7 feet 6 inches above the finished floor. Bathrooms, toilet rooms, kitchens, storage rooms and laundry rooms shall have a ceiling height of not less than 7 feet above the finished floor."

Additionally, Section R305.1 of the 2022 California Residential Code (CRC), which applies to one- and two-family dwellings, states, "Habitable space, hallways and portions of basements containing these spaces shall have a ceiling height of not less than 7 feet. Bathrooms, toilet rooms and laundry rooms shall have a ceiling height of not less than 6 feet 8 inches." The City of Malibu Municipal Code does not include amendments to these provisions pursuant to section 1.8.6 of the CBC and may not erroneously apply it exclusively to the construction of ADUs. Therefore, the City must amend this section to reflect a size calculation that is consistent with the CBC/CRC.

9. Section 17.44.090 (A)(2), (A)(3) – *Size, Attached* – The Ordinance states, "An ADU that is attached to the primary dwelling is limited to 50 percent of the existing primary dwelling …. Application of other development standards in this Section 17.44.090 might further the [sic] limit the size of the ADU, but no application of an FAR, front-setback, lot-coverage, or open-space requirement may require the ADU to be less than 800 square feet." However, Government Code section 66321, subdivision (b)(3) states, "a local agency shall not establish by ordinance… Any requirement for a zoning clearance or separate zoning review or any other minimum or maximum size for an accessory dwelling unit, size based upon a percentage of the proposed or existing primary dwelling, or limits on lot coverage, floor area ratio, open space, front setbacks, and minimum lot size, for either attached or detached dwellings that does not permit at least an 800 square foot accessory dwelling unit with four-foot side and rear yard setbacks to be constructed in compliance with all other local development standards." An attached ADU may be 800 square feet in size regardless of the size of the primary unit, as long as it remains compliant with other objective development standards other than those listed. Restricting the size of attached ADUs to less than 800 square feet directly conflicts with Government Code section 66321, subdivision (b)(3). Therefore, the City must amend this section to reflect the 800 square foot exemption.

10. Section 17.44.090 (D)(2) – *Parking Exceptions* – The Ordinance states, "No parking under subsection (E)(1)[sic] above is required in the following situations…" However, there is no subsection (E)(1) to reference. The general parking standards appear to be subsection (D)(1). Therefore, the City should amend this section to correct the reference.

Please note that the City has two options in response to this letter.[1] The City can either amend the Ordinance to comply with State ADU Law[2] or adopt the Ordinance without changes and include findings in its resolution adopting the Ordinance that explain the reasons the City believes that the Ordinance complies with State ADU Law despite HCD's findings.[3] If the City fails to take either course of action and bring the Ordinance into compliance with State ADU Law, HCD must notify the City and may notify the California Office of the Attorney General that the City is in violation of State ADU Law.[4]

HCD appreciates the City's efforts in the preparation and adoption of the Ordinance and welcomes the opportunity to assist the City in fully complying with State ADU and JADU Law. Please feel free to contact Tyler Galli, of our staff, at (916) 776-7613 or at Tyler.Galli@hcd.ca.gov.

Sincerely,

Jamie Candelaria

Jamie Candelaria
Senior Housing Accountability Manager
Housing Policy Development Division

Enclosure

[1] Gov. Code, § 66326, subd. (c)(1).
[2] Gov. Code, § 66326, subd. (b)(2)(A).
[3] Gov. Code, § 66326, subd. (b)(2)(B).
[4] Gov. Code, § 66326, subd. (c)(1).

State ADU/JADU Law Statutory Conversion Table

New Government Code Sections	Previous Government Code Sections
Article 1. General Provisions	
66310	65852.150 (a)
66311	65852.150 (b)
66312	65852.150 (c)
66313	General Definition Section 65852.2 (j) 65852.22 (j)
Article 2. Accessory Dwelling Unit Approvals	
66314	65852.2(a)(1)(A), (D)(i)-(xii), (a)(4)-(5)
66315	65852.2 (a)(8)
66316	65852.2 (a)(6)
66317	65852.2 (a)(3), (a)(7)
66318	65852.2 (a)(9), 65852.2 (a)(2)
66319	65852.2 (a)(10)
66320	65852.2 (b)
66321	65852.2 (c)
66322	65852.2 (d)
66323	65852.2 (e)
66324	65852.2 (f)
66325	65852.2 (g)
66326	65852.2 (h)
66327	65852.2 (i)
66328	65852.2 (k)
66329	65852.2 (l)
66330	65852.2 (m)
66331	65852.2 (n)
66332	65852.23.
Article 3. Junior Accessory Dwelling Units	
66333	65852.22 (a)
66334	65852.22 (b)
66335	65852.22 (c)
66336	65852.22 (d)
66337	65852.22 (e)
66338	65852.22 (f)-(g)
66339	65852.22 (h)
Article 4. Accessory Dwelling Unit Sales	
66340	65852.26 (b)
66341	65852.26 (a)
66342	65852.2 (a)(10)

Summary of ADU State Law Changes

The following summarizes recent State laws governing accessory dwelling units that require amendments to MMC Chapter 17.44 to maintain consistency with State law.

AB 462 – Coastal Development Permits; Disaster-Affected Areas

Existing law requires many ADUs proposed in the Coastal Zone to obtain a Coastal Development Permit (CDP) in addition to other local ADU permit requirements. Historically, the CDP for an ADU was not subject to state ADU law's 60-day shot clock to approve or deny a complete ADU application. Additionally, local permitting decisions on a CDP for an ADU could be appealed to the California Coastal Commission if the underlying property was subject to the Coastal Commission's appeals jurisdiction (as set forth in Public Resources Code 30603).

AB 462 alters the status quo on numerous fronts. Most notably, local agencies with a certified local coastal program (LCP) must now approve or deny a CDP application for an ADU within 60 days of receiving a complete application. The local agency's review of the CDP application must also take place "concurrently with the process to approve or deny" any other permit required to approve the ADU (i.e., an ADU permit and building permit). (Gov. Code, § 66329(a).) AB 462 also eliminates the ability to appeal a CDP for an ADU to the Coastal Commission. If a local agency does not have a certified LCP, then it now must "immediately notify" the Coastal Commission when an ADU application is submitted. Subject to limited exceptions, the Coastal Commission's review of the CDP application is subject to the same 60-day shot clock that applies to local agencies with a certified LCP. (Id., at (b)(1)-(5).)

Beyond changes to CDP processing, AB 462 modifies the rules governing the issuance of a certificate of occupancy (CofO) for an ADU. Historically, state law has prohibited a local agency from issuing a CofO for an ADU before one is issued for the primary dwelling (i.e., the primary dwelling must have a CofO before the ADU can receive one).

AB 462 creates a narrow exception to this prohibition for detached ADUs when all of the following conditions are satisfied: (1) the Governor has declared a state of emergency for the county on or after February 1, 2025; (2) the primary dwelling was substantially damaged or destroyed by an event referenced in the state of emergency proclamation; and (3) the ADU has been issued construction permits and passed all required inspections. (Gov. Code, § 66328(b).) If these conditions are satisfied, the detached ADU can receive a CofO before the primary dwelling. In all other scenarios, the primary dwelling still needs a CofO before one can be issued for an ADU.

AB 462 was enacted as an urgency measure that took effect immediately when signed by the Governor (on October 10, 2025).

AB 1154, SB 9 (2025), and SB 543 were enacted as non-urgency measures and take effect on January 1, 2026.

AB 1154 – JADU Owner-Occupancy; Short-Term Rental

When a JADU is developed, existing state law requires a property owner to reside in the JADU or remaining portion of the single-family dwelling. AB 1154 narrows this requirement to now only apply when a JADU shares sanitation facilities (bathroom) with the single-family dwelling. If the JADU has its own bathroom, then the property owner does not have to reside on the property at all. (See amended Gov. Code, § 66333(b).)

AB 1154 also expressly prohibits JADUs from being used as short-term rentals (i.e., rented for a term shorter than 30 days). (See amended Gov. Code, § 66333(g).) Most ADU ordinances already included this prohibition (as well as prohibiting ADUs from being used as short-term rentals). But now it's required by state law.

SB 9; SB 543 – Ordinance Submittal to HCD; Approval

Under existing law, local agencies are required to submit a copy of their ADU ordinance to the California Department of Housing and Community Development (HCD) within 60 days of adoption.

This year's SB 9[1] and SB 543 create a penalty for failing to do so by rendering null and void any local ordinance that is not submitted to HCD within 60 days of adoption. (See amended Gov. Code, § 66326(d); new Gov. Code, § 66333.5(d).) The bills further specify that a local ADU ordinance is null and void if HCD issues findings that the ordinance does not comply with state law and the local agency fails to respond to HCD within 30 days. (*Id*.)

SB 543 – ADU Size; Number of ADUs; Impact Fees; Application Timeline

SB 543 makes numerous changes and clarifications to state ADU law, the most notable of which are summarized below.

ADU & JADU Size

Existing law limits the maximum size of a JADU to 500 square feet and prohibits local ADU ordinances from imposing certain development standards that would prevent an ADU created under Government Code section 66314 through 66322 from being at least 800 square feet.

[1] Not to be confused with the SB 9 of 2021 (Stats. 2021, Ch. 162) regarding urban lot splits and second primary dwelling units.

SB 543 amends state ADU law to specify that allowable square footage of an ADU or JADU refers to square footage of "interior livable space." (See amended Gov. Code, § 66313(d), 66321(b)(2).)

Impact Fees

Existing law exempts ADUS that are 750 square feet or smaller from development impacts fees (DIFs).

SB 543 clarifies that DIFs may not be imposed on an ADU that has 750 or fewer square feet of *interior* livable space or on a JADU with 500 or fewer square feet of interior livable space.

The bill also exempts an ADU or JADU with less than 500 square feet of interior livable space from school impact fees. (See amended Gov. Code, § 66311.5.)

Quantity of ADUs Created Under Government Code Section 66323

Existing state law creates four categories of ADUs that must be approved if they comply with the limited standards provided in Government Code section 66323(a)(1)–(4). These are:

(1) a converted ADU and JADU created on a lot with a proposed or existing single-family dwelling (Gov. Code, § 66323(a)(1));

(2) a detached ADU created on a lot with a proposed or existing single-family dwelling (Gov. Code, § 66323(a)(2));

(3) converted ADUs created in an existing multifamily dwelling (Gov. Code, § 66323(a)(3)); and

(4) detached ADUs created on a lot with a proposed or existing multifamily dwelling.

For some time, there has been uncertainty as to whether ADUs created under Government Code section 66323 could be combined. Some practitioners interpreted the statute to not require local agencies to allow combinations. Initially, HCD took the same position, in its 2020 ADU Handbook. But for the last few years, HCD has taken the opposite position: that yes, combinations are permitted. (See HCD January 2025 ADU Handbook, at p. 19 ["[P]ursuant to Government Code section 66323, subdivision (a), local governments must allow units created pursuant to subparagraphs (1) and (2) together or (3) and (4) together"].)

SB 543 codifies HCD's most recent interpretation by amending Government Code section 66323 to specifically allow combinations. Thus, a lot with a multifamily dwelling can now

have a converted ADU or ADUs created under section 66323(a)(3) *and* detached ADUs created under section 66323(a)(4). And a lot with a single family dwelling can now have a converted ADU and a JADU created under section 66323(a)(1) *and* a detached ADU created under section 66323(a)(2).

ADU Permitting Process

Existing law has long required local agencies to approve or deny an ADU application within 60 days of receiving a complete application. However, state law was silent with respect to incompleteness determinations, subsequent resubmittals, and appealing local decisions on ADU applications.

SB 543 requires local agencies to now:

(1) determine whether an ADU application is complete within 15 business days of submittal;

(2) if the application is if incomplete, within the same 15 days provide the applicant with a list of incomplete items and how to address them;

(3) review a resubmitted application for completeness within 15 business days;

(4) provide the applicant with a written appeal process for any incompleteness determination or denial (to the Planning Commission or City Council, or both); and

(5) provide a final written determination on the appeal within 60 business days of receiving the appeal). (See amended Gov. Code, §§ 66317 [ADUs], 66335 [JADUs].)

SB 1211 – Ministerial Approval

Before SB 1211, state law prohibited cities from requiring off-street parking spaces to be replaced when a garage, carport, or covered parking structure is demolished with the construction of, or conversion to, an ADU. SB 1211 amended this prohibition to also bar cities from requiring replacement parking when an uncovered parking space is demolished for or replaced with an ADU.

For some time, state law has required cities to ministerially approve qualifying building permit applications for ADUs within portions of existing multifamily dwelling structures that are not used as livable space. The term "livable space" was not defined by state ADU law. SB 1211 changed this by adding a new definition stating "'livable space' means a space in a dwelling intended for human habitation, including living, sleeping, eating, cooking, or sanitation."

SB 1211 also increased the number of detached ADUs that lots with an existing multifamily dwelling can have. Previously, lots with an existing or proposed multifamily dwelling could have up to two detached ADUs. Following SB 1211, lots with an existing multifamily dwelling can have

up to eight detached ADUs or as many detached ADUs as there are primary dwelling units on the lot, whichever is less. SB 1211 did not alter the number of ADUs that lots with proposed multifamily dwellings can have — they remain limited to two detached ADUs.

NOTICE OF PUBLIC HEARING
CITY OF MALIBU
PLANNING COMMISSION

The Malibu Planning Commission will hold a public hearing on **TUESDAY, January 20, 2026, at 6:30 p.m. in the Council Chambers, Malibu City Hall**, 23825 Stuart Ranch Road, Malibu, CA on the project identified below.

Public comment can be submitted ahead of the public hearing to planningcommission@malibucity.org for inclusion in the public record. To participate during the public hearing, please review the meeting agenda posted at MalibuCity.org/AgendaCenter and follow the directions for public participation.

ACCESSORY DWELLING UNIT ORDINANCE

Zoning Text Amendment No. 25-003 – Consider a revised amendment incorporating new state law and clarifications to Title 17 (Zoning) of the Malibu Municipal Code to update regulations related to Accessory Dwelling Units and make a recommendation to the City Council

The draft amendment was previously reviewed by the Commission on August 18, 2025, but was not adopted by the City Council. Since that hearing, staff identified additional state ADU/JADU laws that have taken effect or will take effect in 2026. The proposed ordinance before the Commission is a consolidated amendment that implements recommendations provided by the California Department of Housing and Community Development (HCD) and updates to MMC Chapter 17.44 reflecting the latest State ADU/JADU statutes.

Location:	Citywide Project
Case Planner:	Patrick Achis, AICP, Senior Planner (310) 456-2489, extension 247 pachis@malibucity.org

Zoning Text Amendment No. 25-003 is Statutorily Exempt from the requirements of the California Environmental Quality Act (CEQA) pursuant to Public Resources Code Section 21080.17 and CEQA Guidelines Section 15282(h), which state that CEQA does not apply to the adoption of local ordinances regulating the construction of second units in single-family and multifamily residential zones. Furthermore, the Community Development Director has analyzed the proposed amendments. CEQA applies only to projects that have the potential for causing a significant effect on the environment. Pursuant to CEQA Guidelines Section 15061(b)(3), where it can be seen with certainty that there is no possibility that the activity in question may have a significant effect on the environment, the activity is not subject to CEQA. The Community Development Director determined that the proposed amendments are required by state law and will not have a significant effect on the environment.

ATTACHMENT 5

A written staff report will be available at or before the hearing for the project. All persons wishing to address the Commission regarding this matter will be afforded an opportunity in accordance with the Commission's procedures.

Copies of all related documents can be reviewed by any interested person at City Hall during regular business hours. Oral and written comments may be presented to the Planning Commission on, or before, the date of the meeting.

For more information, view the City's Accessory Dwelling Units website at www.malibucity.org/adu.

IF YOU CHALLENGE THE CITY'S ACTION IN COURT, YOU MAY BE LIMITED TO RAISING ONLY THOSE ISSUES RAISED AT THE PUBLIC HEARING DESCRIBED IN THIS NOTICE, OR OTHERWISE HELD BY THE CITY, OR IN WRITTEN CORRESPONDENCE DELIVERED TO THE CITY, EITHER AT OR PRIOR TO THE PUBLIC HEARING.

Yolanda Bundy, Community Development Director

Publish Date: December 25, 2025