Council Agenda Report

City Council Meeting
11-18-26
Item 1.A.

To: Mayor Silverstein and Honorable Members of the City Council

Prepared by: Didier Murillo, Principal Planner

Reviewed by: Yolanda Bundy, Community Development Director
Tyler Eaton, Assistant Community Development Director

Approved by: Joseph D. Irvin, City Manager

Date prepared: October 8, 2026 Meeting date: November 18, 2026

Subject: Appeal of Planning Commission Resolution No. 26-05 Regarding Coastal Development Permit No. 19-012 (25200 Pacific Coast Highway, APNs 4459-013-021 and 4459-014-018; Owner, PAR PCH, LLC; Appellant, Jun Hall for Concerned Citizens of Malibu Road, Inc.)

RECOMMENDED ACTION: Either: 1) Adopt Resolution No. 26-55 (Exhibit A) denying Appeal (AP) No. 26-007 (Exhibit B), 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 (sf.), one-story, single-family residence, including a 1,000 square-foot (sf.) subterranean two-car garage, 1,523 sf. basement, 676 sf. gym, swimming pools, spa, driveways, decks, landscape, water features, hardscape, grading, retaining walls, and onsite wastewater treatment system (OWTS), including Lot Merger (LM) No. 24-002 to consolidate two existing parcels identified as Assessor Parcel Numbers (APNs) (4459-013-021 and 4459-014-018) into one parcel, and Certificate of Compliance (COC) No. 21-004 to recognize the combined parcel, located in the Rural Residential, Two-Acre (RR-2) Zoning District at 25200 Pacific Coast Highway (PCH) (PAR PCH, LLC); or 2) Direct staff to bring back a resolution consistent with the City Council's decision.

FISCAL IMPACT: There is no fiscal impact associated with the recommended action.

STRATEGIC PLAN IMPLEMENTATION: N/A.

DISCUSSION: The matter is an appeal of the Planning Commission's approval of CDP No. 19-012, LM No. 24-002, and COC No. 21-004, an application for the construction of a one-story residence and other associated development. The appellant, Jun Hall for

Concerned Citizens of Malibu Road, Inc., filed an appeal of the Planning Commission's decision to approve the project. The appellant resides south of the subject parcels.

This item was previously published for the August 19, 2026 Special City Council meeting. The hearing was subsequently cancelled at the request of the applicant. Since that time, no new evidence, correspondence, or substantive information has been received or added to the record. This staff report and the resolution have been updated to reflect the new hearing date and re-noticing of the public hearing. Additionally, correspondence previously included across multiple staff reports has been consolidated into a single attachment for ease of reference (Exhibit F). No new correspondence has been added.

Project Background

This project was scheduled for review by the Planning Commission several times from 2024 to 2026. The project was scheduled for hearing on May 20, 2024, and continued to a date uncertain. The project was scheduled for hearing on July 21, 2025, and the meeting was cancelled and continued to August 18, 2025. On August 18, 2025, the project was continued to a date uncertain. The project was scheduled for hearing on December 16, 2025, and continued to January 20, 2026 prior to opening the public hearing. The project was heard on January 20, 2026 and continued to February 17, 2026 for the applicant to make changes to the project. Ultimately, the project was approved at the February 17, 2026 Planning Commission meeting. All staff reports for hearings held on this item are available at malibucity.org/agendacenter.[1] The video for the hearing regarding the Commission's deliberation is available here – Planning Commission February 17, 2026 meeting.

Planning Commission Hearing on January 20, 2026

At its January 20, 2026 meeting, the Planning Commission deliberated on the Project, including a discussion of the impacts of the Project on public bluewater views from PCH and the Local Coastal Program (LCP) Local Implementation Plan (LIP) requirements to minimize impacts on views from public scenic areas. The Planning Commission continued the item to February 17, 2026, to provide time for the applicant to consider revising the project to further preserve public bluewater views over the subject parcel from PCH.

Planning Commission Hearing on February 17, 2026

At its February 17, 2026 meeting, the Planning Commission deliberated on a revised project that (1) reduced the maximum height elevation of portions of the residence by two feet by lowering the building pad and (2) eliminated a proposed guest house from the design. The Planning Commission received testimony from the public, including the project

[1] Previously published agenda reports for February 17, 2026, January 20, 2026, December 16, 2025, August 18, 2025, and July 21, 2025, are available online in the Agenda Center (https://www.malibucity.org/agendacenter) and also in OnBase (malibucity.org/OnBase).

appellant. The revised project was approved on a 3-2 vote, with the addition of the following conditions to ensure public view protection and address potential adverse effects from grading and earthwork[2]:

PC Condition 35: The development shall not block views of the horizon line of the Pacific Ocean nor views of the western Santa Monica Bay as seen by travelers going westbound, also known as northbound, along Pacific Coast Highway.

PC Condition 36: The applicant shall incorporate vibration monitoring during construction of the proposed residence if such testing is determined to be beneficial by the City.

PC Condition 150: Any future improvements to the single-family residence and related development authorized by this shall require an additional coastal development permit.

After review by the City Attorney, staff recommends that Planning Commission Condition 150 be revised to avoid conflict with other laws in the event future development is proposed that would be exempt from a CDP (e.g., structure destroyed by a natural disaster). The recommended revised condition is as follows, and has been included in the Resolution (Exhibit A):

Condition 150: Any future improvements to the single-family residence and related development approved under this permit that modify height or mass shall require a CDP.

Project Overview

The subject parcels are vacant and would be 6.36 acres in size once merged (east parcel is APN 4459-014-018 and west parcel is APN 4459-013-021). The parcels are located at the top of a terraced slope on the south side of PCH, north and east of Bayshore Drive, north of Malibu Road, and west of Puerco Canyon Road (Figure 1). The terraced slope is a result of prior grading on the property. The parcels are within the Appeal Jurisdiction of the California Coastal Commission (CCC) as depicted on the Post-LCP Certification Permit and Appeal Jurisdiction Map and confirmed per the definition of Appealable Coastal Development Permit in LIP Section 2.1.

[2] The conditions of approval are listed in Planning Commission Resolution No. 26-05 (Exhibit C).

Figure 1 – Project Site and Vicinity Map



Source: City of Malibu GIS, 2026

The parcels are in an area primarily developed with one-story and two-story single-family residences and similarly zoned RR-2 between Malibu Road and PCH. The parcels are bordered on the south, west, and east by single-family residences, and to the north by PCH. North of PCH is comprised of public open space and single-family residences are located to the northeast in the RR-5 zone. A small flag segment of the east parcel is adjacent to Malibu Road.

The applicant has requested a Lot Merger (LM) to consolidate the two parcels into one and a Conditional Certificate of Compliance (COC) to recognize the merged parcel as one. A COC is being processed with the CDP to legalize the single parcel pursuant to the Subdivision Map Act.

The project consists of the construction of a one-story, flat-roofed single-family residence with a gym, basement, subterranean garage, active outdoor spaces (i.e., outdoor kitchen and other rooms, pools/spas, and decks), retaining and freestanding walls, driveways, fences, parking, hardscape, landscape, and an OWTS. The residential development is framed by a permeable driveway and fire access along the northern border of the project site, parallel to PCH, that leads to a subterranean garage and outdoor parking area on the east end of the project site, and a southern grasscrete fire access driveway connecting with the northern driveway on the east.

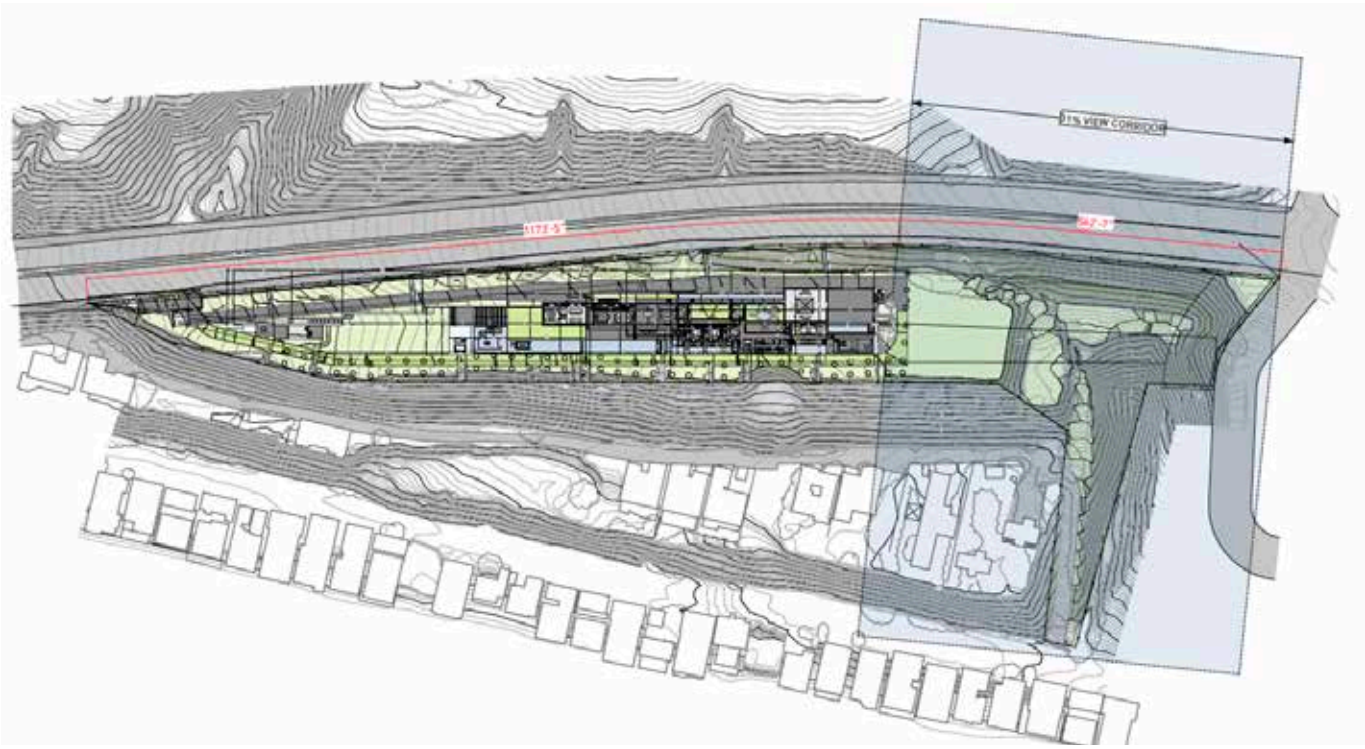
The merged parcel is a narrow, irregularly shaped lot with 1,692 feet (ft.) of linear frontage along PCH. An earthen berm constructed by the California Department of Transportation (Caltrans) is located along most of the north side of the merged parcel bordering PCH. Approximately two-thirds of the merged parcel contains slopes flatter than 4 to 1 (25 percent). However, a jurisdictional stream with slopes ranging from 2.5 to 1 (40 percent) to 1 to 1 is in the eastern area of the merged parcel. Slopes with a gradient of 1 to 1 or less are located south of the project site.

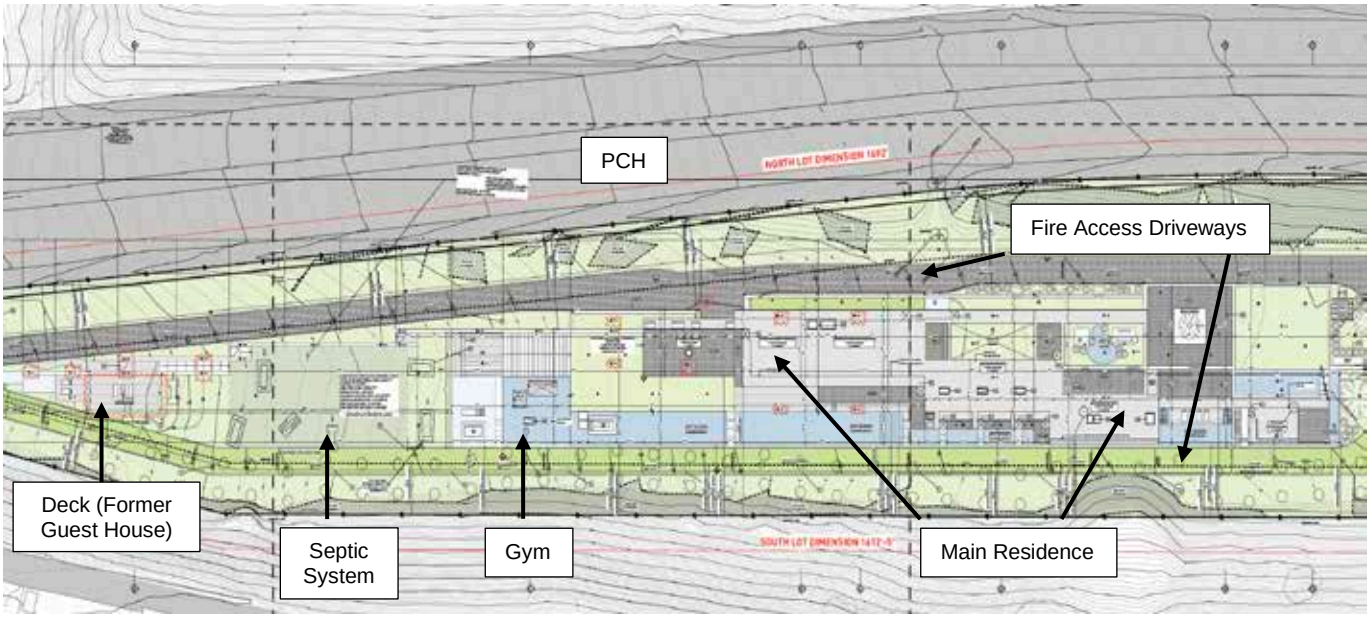
The LCP Environmentally Sensitive Habitat Area (ESHA) Overlay Map delineates a blueline stream within the parcel boundaries. A site-specific biological assessment was prepared for the merged parcel and confirmed most of the vegetation on the project site has been disturbed, except for vegetation in the stream. The proposed development is intentionally sited on the west of the merged parcel and away from the stream. This allows the proposed development, including the required fuel modification area, to be located outside the ESHA stream and 100 ft. ESHA buffer on the east end of the merged parcel. As such, the ESHA development standards required in LIP Section 4.6 do not apply because no development would occur within the ESHA or 100 ft. ESHA buffer.

The proposed development would be visible from PCH, which is a designated scenic road in the LCP Land Use Plan (LUP). Despite various design revisions to the project to reduce and/or eliminate public bluewater view impacts from PCH, the project would still result in some disruption of public views across the project site due to portions of the residence and gym that would extend above the PCH road grade elevation. As required by LIP Section 6.5(E)(2), a public view corridor must be provided onsite equivalent to a minimum of 20 percent (339 ft.) of the merged parcel's street frontage on PCH (1,692 ft.). The applicant has proposed a public view corridor of 31 percent (525 ft.) on the easterly portion of the merged parcel in the area containing ESHA, 100 ft. ESHA buffer, and jurisdictional drainage, exceeding the LIP's minimum width by 186 ft. Note that by eliminating the proposed guest house from the west portion of the merged parcel, approximately 500 linear ft. of additional area would be available for public views of the ocean from PCH, although not contiguous or part of the designated public view corridor.

As designed, the project does not include any discretionary requests for relief from development standards. The project plans approved by the Planning Commission in February 2026 are included as Exhibit D. The proposed site plan is shown in Figure 2 - an overall site plan followed by a detailed site plan.

Figure 2 – Project Site Plans





APPEAL TO THE CITY COUNCIL

The appellant, Jun Hall for Concerned Citizens of Malibu Road, Inc., filed an appeal on February 27, 2026 (Exhibit B). According to information contained in the appeal application, Concerned Citizens of Malibu Road is an organization in the City's Malibu Beach neighborhood that is directly south and downslope from the merged parcel in the Multi-Family Beachfront (MFBF) zone. Jun Hall provided written testimony and other members of Concerned Citizens of Malibu Road, Inc. provided written and oral testimony during the public hearing before the Planning Commission. In the appeal, the appellant contends that the findings or conditions are not supported by the evidence and that the decision is not supported by the findings, as well as that the decision was contrary to law.

In particular, the appellant states that the following are unsupported by evidence:

Appeal Claim 1:	The Planning Commission's findings for issuance of a CDP in LIP Sections 13.9 identified as Findings A.2 and A.3 (in Planning Commission Resolution No. 26-05); and the Planning Commission findings relating to scenic and visual resources in LIP Section 6.4(A), identified as Findings B.1 and B.2;
Appeal Claim 2:	The Planning Commission's findings relating to hazards in LIP Section 9.3(A), identified as Findings C.1, C.2, C.5, and C.6;
Appeal Claim 3:	The Planning Commission's findings relating to blufftop development in LIP Section 9.3(A), generally;
Appeal Claim 4:	The Planning Commission's findings relating to land divisions in LIP Section 15.2, identified as Findings D.1, D.2, and D.3; and
Appeal Claim 5:	The Planning Commission's findings relating to the use of a Class 3 exemption pursuant to CEQA.

The specific appellant claims are summarized below in italics. The full text of the appeal claims can be found in Exhibit B. A response by the Planning Division is provided following each of the appellant's claims below.

Appeal Item 1. The Planning Commission's approval of findings A.2 and A.3 (LIP Chapter 13. Coastal Development Permits), and B.1 and B.2 (LIP Chapter 6. Scenic, Visual, and Hillside Resource Protection Ordinance) in Commission Resolution No. 26-05 is unsupported by substantial evidence and the Commission's decision was contrary to law. The Commission's deliberations on public view impacts focused on the westbound scenic view of Point Dume and the west end of Santa Monica Bay, not Catalina Island, the Palos Verdes Peninsula, and the Pacific horizon line abutting these natural scenes. Public views of these landmarks are entirely obscured by the project.

The project is not the least environmentally damaging alternative, and there is no substantial evidence to support that there are no feasible alternatives to development that would avoid or substantially lessen any significant adverse impacts on scenic and visual resources. The applicant's choices to lower the building pad elevation and eliminate

the proposed guest house, and the Commission's Condition of Approval No. 35, fail to mitigate such impacts.

Resolution No. 26-05 and the Commission staff report only analyzed, and determined infeasible, alternatives such as clustering development, relocation of buildings, or substantial slope grading that would set the buildings fully below the PCH grade. Although potential reduction in the total development square footage (TDSF) was considered by the Commission and in the staff report, it was concluded that, even if producing less impact, it would still produce some level of adverse impact (such as reducing but not eliminating the loss of views). However, Section 6.4(A)(4) of the LIP requires that there be, "no feasible alternatives to development that would avoid or substantially lessen any significant adverse impacts on scenic and visual resources." Even if adverse impacts cannot be eliminated entirely, it is possible to substantially reduce such impacts through a smaller project size. The Commission ignores the reality of LIP Section 6.4((B) that the project "shall be modified, by special condition, relative to height size, design, or location on the site…to avoid or minimize the adverse scenic impacts of the proposed development." LIP Section 6.4(B) not only gives the City the express authority to reduce the project's height and size but mandates it. The City can – and must – require that the project's footprint is further reduced in a manner that is most protective of Malibu's scenic and visual resources. The City could allow the project to retain a TDSF the same or similar as that proposed, but with a condition that further reduces maximum building height. It would not require lowering the building pad further or additional grading or slope encroachment, would not change building locations on the narrow lot, and would not impede designated ESHA or ESHA buffer. Neither this alternative, nor an alternative that would keep the lots separate, were ever meaningfully analyzed in the staff reports or by the Commission.

Staff Response – Appeal Item 1

LIP Section 13.9 requires four findings be made to issue a CDP. The second and third findings referenced in the appeal state:

LIP Section 13.9(B): If the project is located between the first public road and the sea, that the project is in conformity with the public access and recreation policies of Chapter 3 of the Coastal Act of 1976 (commencing with Sections 30200 of the Public Resources Code).

LIP Section 13.9(C): The project is the least environmentally damaging alternative.

LIP Section 6.4(A) requires five findings be made for projects that are located along, within, or provide views to or are visible from any scenic area, scenic road, or public viewing area. The first and second findings referenced in the appeal state:

LIP Section 6.4(A)(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.

LIP Section 6.4(A)(2): The project, as conditioned, will not have significant adverse scenic or visual impacts due to required project modifications, landscaping or other conditions.

Ø Response to Findings A.2 (LIP 13.9(B)), A.3 (LIP 13.9(C)), B.1 (LIP 6.4(A)(1)), and B.2 (LIP 6.4(A)(2)) Claims:

In evaluating alternatives to the project that are the least environmentally damaging, many alternatives were evaluated, including the following factors: biological resources and ESHA, grading and slopes, public scenic views, and site design and location.

The proposed project is sited to avoid impacts to ESHA, ESHA buffer, and sensitive biological resources within a jurisdictional stream on the east portion of the merged parcel, 320 feet from ESHA at its closest point. Since the project will not affect the ESHA or the 100 ft. ESHA buffer, including the required fuel modification, the project complies with LIP Section 4.6.1 to provide vegetation buffers from habitat to new development, and no impacts to biological resources would occur. LIP Section 4.6.4(C) states that the protection of ESHA and public access shall take priority over other development standards and where there is any conflict between general development standards and ESHA and/or public access protection, the standards that are most protective of ESHA and public access shall take precedence. As such the project is sited in its location specifically to avoid ESHA which is the most protected coastal resource identified in the LCP.

To minimize grading to the maximum extent feasible (including environmentally damaging impacts to the hillside), the development is proposed to be sited on the flattest area of the parcel which is generally in the center of the parcel. The project site is relatively flat, consisting mostly of a 4 to 1 slope with a few areas between 4 to 1 to 3 to 1 that are less than 30 percent grade. Other portions of the parcel have steeper slopes (up to 1 to 1). Due to their steepness, these areas were avoided for development.

The LIP allows the placement of structures on slopes 3 to 1 (33 percent) or flatter for residential development. The project is consistent with the LIP Chapter 8 (Grading Ordinance) grading standards and would not exceed the maximum quantities of non-exempt grading allowed by the LIP. The project involves 742 cubic yards of non-exempt grading, less than the maximum 1,000 cubic yards permitted. Consistent with LIP Section 8.3(E) (Design of Grading), the grading will conform to the natural topography and landforms. There are no less environmentally damaging alternatives to the grading proposed for the project.

Coupled with the design that protects ESHA and significant landform alteration, scenic and visual resource would be protected by lowering portions of the building pad for

portions of the residence and removing a proposed detached guest house. Lowering portions of the building pad would necessitate additional grading and impacts to the hillside. The guest house was removed per the Planning Commission's request, which reduces the amount of grading required. The revised project complies with the grading requirements of LIP Chapter 8 (Grading), including the requirements of Section 8.3 (Development Standards).

LIP Section 6.5(E)(1) requires that where the topography of a project site along the ocean side of PCH descends from the roadway, new development shall be sited and designed to preserve bluewater ocean views over the approved structures. LIP Section 6.5(E)(2) further states that 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. As described further below, it is infeasible to site the project completely below road grade while avoiding significant landform alteration. As a result, and as required by LIP Section 6.5(E)(2), a public view corridor must be provided onsite equivalent to a minimum of 20 percent (339 ft.) of the merged parcel's street frontage on PCH (1,692 ft.). The applicant has proposed a public view corridor of 31 percent (525 ft.) on the easterly portion of the parcel in the area containing ESHA and an ESHA buffer. The extended public view corridor exceeds the LIP's minimum width by 11 percent (186 ft.). As designed and conditioned, the project would exceed the minimum public view corridor requirements of LIP Section 6.5(E)(2).

To eliminate all obstructions to public bluewater views, the buildings would need to be lowered to a height that is below the PCH road grade and the adjacent Caltrans earthen berms. That is, the buildings would need to be below approximately three to seven feet in most areas, although could be higher at the eastern end of the project site, where there is up to a 21-foot difference between the development surface and the roadway/berm grade for a small segment. This small segment would be inadequate to site the full building.

The building heights have been reduced twice. As revised, the tallest building heights range from 15 ft., 7 in. to 16 ft., 10 in., while some building portions are as low as 10 ft, 2 in., from the lower of existing/finished grade. Since PCH and the Caltrans berms are at a higher elevation than the project site, approximately 3 ft., 3 in. to 6 ft., 5 in. of building height would encroach into the public's bluewater view from the PCH road grade, with the remainder of the parcel open to public views.

Lowering building pad elevations further as a means to reducing visible building height would require substantial earthwork, resulting in non-exempt grading beyond the LIP's maximum allowed 1,000 cubic yards (c.y.) and more retaining walls that could exceed the 6 ft. height maximum. As designed, the project does not include any discretionary requests for relief from development standards. To lower the building pad elevations with shorter retaining walls, or without walls, would require an increase in development at the edges of the lowered building pad which could not be fully accommodated within the property limits, unless it is expected that the house be subterranean with little access to light and air. To provide light and air in this potential design, which would require substantially more

earthwork, the steep hillside would need to be cut, triggering the need for a variance on steep slopes. This alternate design 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.

Alternatives were analyzed and it was determined that there are no other feasible locations on the parcel to accommodate the proposed development that would entirely avoid scenic and visual impacts to public views without encroaching into ESHA and ESHA buffer and/or substantially increasing grading and variances. Amongst the alternatives considered are:

- The applicant considered reconfiguring all buildings on the eastern portion of the project site (i.e., the area of the eastern part of the main residence), where the PCH grade and/or berms are highest and provide the most screening for the development (up to a 21-ft. difference between the project site and PCH grade/berms). However, because the project site is narrow and the area where there is the most potential screening is limited, locating all development in this area is infeasible if an economically viable use is to be provided.

- Another option of locating development in the eastern portion of the property (beyond the proposed project site), which is wider, would result in encroachment into the ESHA, ESHA buffer, and jurisdictional drainage area, and would require grading of steep slopes (over 30 percent), and shifting fuel modification zones off-site, which would be inconsistent with LIP Chapters 4 (Environmentally Sensitive Habitat Area) and 8 (Grading) for the protection of ESHA and biological habitat and for grading. The LCP prioritizes the protection of ESHA over other coastal resources, including scenic and visual resources, whereby a proposed development has incorporated design revisions to minimize and/or avoid impacts to the maximum extent feasible so long as the protection of ESHA is maintained.

The total development square footage (TDSF) was reduced from 11,121 sf. to 10,656 sf. with the removal of the guest house. This is below the maximum allowed TDSF for the parcel of 11,172 sf. Of the 6.36-acre parcel (277,041 sf.), the proposed TDSF represents a development area of approximately 3.8 percent of the parcel's lot size. Reducing the TDSF further would not alone result in a project that further decreases intrusions into bluewater views from PCH as it is the height of the structure, not the size, that affects the bluewater water view. A lower TDSF would not result in a less environmentally damaging project in this case.

The following revisions were made by the applicant and approved by the Planning Commission on February 17, 2026, to reduce and/or avoid the project's impact on public bluewater views from PCH.

- Residence Height Lowered: Applicant lowered the building pad by 2 ft. in the communal areas (outdoor kitchen, kitchen, family room, living room, dining room, and beneath the subterranean areas).
- Guest House Removed: Applicant removed a proposed 10 ft. tall, 465 sf. detached guest house in the west portion of the project site which eliminated public view impacts across this area of the parcel.
- Wall Height Reduced: Applicant reduced the height of walls near the previously proposed guest house at the west end of the project site from a maximum of 10 ft, 3 in. to 6 ft. As revised, no walls extend into the public's view.

Figure 3 – Proposed View Corridor



By eliminating the proposed guest house from the west portion of the merged parcel, approximately 500 linear ft. of additional area would be available for public views of the ocean from PCH. Additionally, fencing along the front yard near PCH would be 42 in. tall and view permeable, and not visible from PCH. The project has been conditioned so that landscaping would not block public views from PCH.

At the February 17, 2026 Planning Commission hearing, Condition No. 35 was added that prohibits the development from blocking views of the horizon line of the Pacific Ocean and

views of the western Santa Monica Bay as seen by travelers going westbound (considered northbound to many) along PCH. As such, overall views of the Pacific Ocean are protected. Additionally, the area of western Santa Monica Bay was specifically identified, as it is understood to represent the most important views over the subject parcel, with the backdrop of the ocean shoreline and Point Dume. The condition was added by the Planning Commission as a protective measure to ensure no significant adverse view impacts would occur but does not change the project design. Therefore, LIP Section 6.4(B), which addresses conditions necessary to make the project conform with the LCP and stipulates that mitigation shall not be permitted to substitute for implementation of a feasible project alternative that would lessen or avoid impacts to scenic and visual resources, does not apply.

As revised and conditioned, the proposed project is considered the least environmentally damaging alternative in accordance with all the requirements of the LCP. There are no feasible alternatives to the development that would further avoid or substantially lessen impacts on coastal resources. The potential alternatives explored are either infeasible or would create further environmental impacts and/or be inconsistent with the LIP. The project, as proposed and conditioned, will have bluewater impacts to some extent, but will not have significant adverse scenic or visual impacts. The last finding of LIP Section 6.4(A) states, “Development in a specific location on the site may have adverse scenic and visual impacts but will eliminate or otherwise contribute to conformance to sensitive resource protection policies contained in the certified LCP.” The project protects ESHA and ESHA buffer and minimizes impacts to landform alteration and scenic and visual resources.

<u>Appeal Item 2.</u> The Planning Commission’s approval of findings C.1, C.2, C.5, and C.6 regarding geological hazards (LIP Chapter 9. Hazards) in Resolution No. 26-05 is unsupported by substantial evidence and the Commission’s decision was contrary to law. The Commission violated LIP Sections 13.9 (Chapter 13. Coastal Development Permits – required findings) and 9.3 (Chapter 9. Hazards – required findings) as the project as proposed or as conditioned is not the least environmentally damaging alternative. The findings state that the project is the least environmentally damaging alternative and that it will not have any significant adverse impacts on site stability or structural integrity from geologic or flood hazards due to project design, location, modifications, landscaping, and other conditions. The findings also state that there are not preferable feasible project alternatives to improve site stability or structural integrity beyond that of the proposed project.

The applicant’s geotechnical analyses relied on a factor of safety of 1.5 and assumed soldier pile locations as a stabilization technique that have since been materially altered and shifted north, thereby leaving critically important slide zones without any kind of support or stabilization. The February 14, 2023, City Geotechnical Review noted that the revised soldier pile locations were not acceptable from a geotechnical perspective and potentially required revised slope stability analyses. Hence, the project does not demonstrate that it would not impact site stability or structural integrity and the project threatens to induce downslope failures directly toward adjacent properties on Malibu Road

and Bayshore Drive. The applicant should recalculate and the City review new analyses and studies that calculate geologic stability based on this material alteration of the project's stabilization system now. The project was approved without this recalculation, with the City geotechnical consultant reviewers indicating in the April 11, 2023 City Geotechnical Review Sheet that the applicant shall recalculate the slope stability analysis for the revised soldier pile locations during the project plan check stage.

Staff Response

While the original project design showed proposed soldier piles and tiebacks on the slope just below the project site, the structural design was revised in 2023 and the soldier piles and tiebacks were relocated to be within the project site, which is northerly and upslope of the prior location. The factors of safety (FOS) were calculated for the original location on the slope and found to meet the requirements of LIP Section 10.4(D) (1.5 static and 1.1 pseudostatic), and the City's 2013 updated methodology of computing the seismic FOS (1.0). The City's geotechnical consultant reviewers noted that relocating the soldier piles further upslope and into the project site would result in less load that must be retained than the increased loads further downslope. The City geotechnical consultant reviewers approved the project for consistency with the LCP and from a feasibility of development standpoint. During Building Safety plan check, the City geotechnical consultant reviewers will further account for constructability of the project and further assess slope stability. This includes ensuring the project is designed for worst case design assumptions (e.g., lowest shear strength, highest groundwater level, etc.). Further, the City geotechnical consultant reviewers will require that testing be conducted during the initial construction stage by the applicant's geotechnical engineer to confirm stabilization before the project site can be developed with structures.

As described in the staff response to Appeal Item 1, the project is the least environmentally damaging alternative. As revised and conditioned, the project is also considered the least environmentally damaging alternative from a geotechnical standpoint because soldier piles and tiebacks often require a smaller excavation footprint. Based on review of the project plans and associated project geotechnical and other reports by the City geotechnical consultant reviewers, these specialists determined that adverse impacts to the project site and offsite parcels related to the proposed development are not expected. The project will neither be subject to nor increase the instability of the project site and offsite parcels from geologic or flood 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.

The soldier piles and other geotechnical slope stabilization measures to be employed will ensure the safety of the slope that is south of the subject parcel. Conditions of approval require that all recommendations contained in the geotechnical reports and conditions required by the City geotechnical review consultants are incorporated into the project. Moreover, there are no 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 parcel outside of steep slopes and will not be located within a flood hazard area. Retaining walls are consistent with the maximum 6 ft. height requirement.

Appeal Item 3. The Planning Commission's approval of Resolution No. 26-05 is not supported by the findings, as the Commission failed to make any findings under LIP Chapter 10 (Shoreline and Bluff Development Ordinance) for new blufftop development and the Commission's decision was contrary to law. The subject property exactly fits the LIP definition for a coastal bluff, as it is on a site that is very steep in vertical extent with a rounded cliff face overlooking the Pacific Ocean. Therefore, findings must be made regarding the development standards and other requirements of LIP Chapter 10. The applicant indicated that other homes located closer to the shoreline than the project have previously not been found to be bluff projects. The applicant's reliance on homes closer to the shoreline is irrelevant, as those homes were all found to be at lower elevations than the project site.

Staff Response

LIP Chapter 2 (Definitions) provides multiple definitions related to bluffs, including:

> BLUFF EDGE - For coastal and canyon bluffs, the bluff edge shall be defined as the upper termination of a bluff, cliff, or seacliff. In cases where the top edge of the cliff is rounded away from the face of the cliff as a result of erosional processes related to the presence of the steep cliff, the bluff edge shall be defined as that point nearest the cliff beyond which the downward gradient of the surface increases more or less continuously until it reaches the general gradient of the cliff. In a case where there is a steplike feature at the top of the cliff face, the landward edge of the topmost riser shall be taken to be the bluff edge. Where a coastal bluff curves landward to become a canyon bluff, the termini of the coastal bluff edge, shall be defined as a point reached by bisecting the angle formed by a line coinciding with the general trend of the coastal bluff line along the seaward face of the bluff, and a line coinciding with the general trend of the bluff line along the canyon facing portion of the bluff. Five hundred feet (500′) shall be the minimum length of bluff line or edge to be used in making these determinations.
>
> CLIFF - any high, very steep to perpendicular or overhanging face of rock, a precipice.
>
> COASTAL BLUFF - a high bank or bold headland, ten feet (10′) or more in vertical extent, with a broad, precipitous, sometimes rounded cliff face overlooking a body of water.

Considering both "cliff" and "coastal bluff" definitions, a coastal bluff is characterized as a precipice or precipitous, both conveying steepness. Consistent with MMC Section 17.40.040(A)(6)(e), a 1:1 slope (45 degrees or 100 percent slope) is considered to be

attributable to a bluff. The slope along the southern edge of the subject parcel has a maximum slope of 1.35:1 (36.5 degrees or 74 percent slope), which would not be classified as a bluff pursuant to the MMC.

The Post-LCP Permit and Appeal Jurisdiction Map delineates the subject parcel as partially within two CCC appeal zones due to the distance from a beach and stream, but specifically not a coastal bluff. The southern edge of the parcel's west side is within 300 ft. from the beach, and the eastern end of the parcel is within 100 ft. from a stream. Some parcels are identified as appealable to the CCC due to being identified as a coastal bluff. However, as the Post-LCP Permit and Appeal Jurisdiction Map does not identify a coastal bluff on or within the vicinity of the subject parcel, and the slope below the subject parcel is not precipitous, nor subject to wave action, does not meet the definitions of a bluff in either the LCP or MMC definitions and thus it has been determined that project site is not considered a bluff, let alone a coastal bluff. The City geotechnical consultant reviewers have concurred with this determination. Therefore, no further analyses or findings for coastal bluffs in LIP Chapter 10 (Shoreline and Bluff Development Ordinance) are required, and development standards applicable to coastal bluffs do not apply to the project.

Appeal Item 4. The Planning Commission's approval of findings D.1, D.2, and D.3 (LIP Chapter 15. Land Division) in Resolution No. 26-05 is unsupported by substantial evidence and the Commission's decision was contrary to law. The finding that the project, as conditioned, is safe from flooding, erosion, geologic, and extreme fire hazards is unsupported for the reasons stated in Appeal Item 2 above. The finding that the project site enables impacts to visual resources, including bluewater views, to be minimized to the extent feasible and that the lot merger is consistent with all policies and standards of the LCP that protect ESHA or visual resources of the coastal zone are also unsupported for the reasons stated in Appeal Item #1. The project failed to adequately analyze the development alternative of keeping the two lots separate and denying the lot merger. Smaller lots have the potential to allow smaller, safer homes on each parcel, reduced grading and stabilization demands, greater open space retention, and greater preservation of bluewater views, and greater escape or egress during an emergency.

Staff Response

The appellant suggests that the property be kept as two separate parcels, claiming that allowing for one residential development per parcel would reduce impacts to public bluewater views and other coastal resources. However, two lots could result in more density and disruptions to the ESHA on the eastern lot. This project was designed to minimize impacts on coastal resources. It also meets the requirements for a lot merger.

The project is consistent with LUP Chapter 5 (New Development), Section C. "Land Use Policies, Item 8 Land Division." LUP Policy 5.33 defines land divisions as including lot mergers. LUP Policy 5.37 reads:

> Land Divisions shall be designed to cluster development, including building pads, if any, in order to minimize site disturbance, landform alteration, and removal of native vegetation, to minimize fuel modification, and to maximize open space.

The claim that development of two residences, one on each parcel, is preferable environmentally or otherwise, is speculative and unsupported by evidence since the specific design of each residence and development site is unknown. It is possible that two residences could result in more impacts to public bluewater views, geologic issues, grading and slope stabilization, less open space, and the same or less effective emergency evacuation, and would require two onsite wastewater treatment systems.

Once the parcels are merged, the development of one residence clustered on the merged parcel would allow a design that avoids various development constraints, such as steep slopes. It also allows development to be sited in an area to protect priority coastal resources (ESHA) to the maximum extent available, while minimizing impacts to other coastal resources such as scenic and visual resources and landform alteration. Should development occur on both parcels, it is anticipated that development on the eastern parcel would result in encroachment into ESHA, ESHA buffer, and steep slopes.

As listed in LIP Section 15.4.1(B), the LM must be consistent with any policy or standard of the LCP that protects ESHA and/or visual resources of the coastal zone (Findings D.1, D.2, and D.3 referenced by the appellant). As described above in the staff response to Appeal Item 1, the findings for LIP Chapter 6 (Scenic, Visual, and Hillside Resource Protection Ordinance) can be supported as the project prioritizes protection of ESHA above all other coastal resources, and as revised in its design, the project would be consistent with the scenic and visual resource requirements to the maximum extent feasible. The subject parcel was determined to accommodate development, including fuel modification, outside of the ESHA and ESHA buffer. Fuel modification Zone C, which is 200 feet east of the main residence, would terminate 20 feet from the ESHA buffer at its nearest point. Therefore, the main residence is 220 feet from the required 100 ft. ESHA buffer and 320 feet from ESHA at its closest point.

As described in the staff response to Appeal Item 2, the project is considered the least environmentally damaging alternative from a geologic/geotechnical hazard standpoint, and the findings for LIP Chapter 9 (Hazards) can be supported. The City geotechnical consultant reviewers have approved the project, with recommendations and conditions to be implemented in final design during building plan check and construction. The proposed project site provides for development that avoids any work within slopes steeper than 3.3 to 1 (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. Development of the subject parcel 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 center to

westerly half of the parcel to minimize site disturbance and maximize open space on the eastern side of the parcel within ESHA, the jurisdictional drainage, and steep slopes.

Appeal Item 5. The Planning Commission's decision was contrary to law because the Commission approved a legally unsupported exemption of the project from the California Environmental Quality Act (CEQA). The Class 3 categorical exemption from CEQA is inappropriate. The project's TDSF renders it completely outside the scope of the Class 3 exemption. An analysis of the unusual circumstances exception, as well as the location exception and the scenic highways exception, preclude the project's reliance on Class 3.

The project's massive size and unstable landslide location constitute unusual circumstances that distinguish it from other projects that have relied upon its exemption. Staff and the project geotechnical engineer have stated that the applicant's slope stability improvements help the project meet the appropriate factor of safety threshold. These improvements are mitigation measures constituting conditions of approval that are imposed to mitigate the significant effects and make the project quality for an exemption. This is contrary to the language that exemptions should be provided to projects that are "determined to not have a significant effect on the environment (CEQA Guidelines Section 15300). Mitigation measures cannot be the basis for a categorical exemption and must instead be evaluated through proper environmental review. The location exception and scenic highways exception apply. The project is located in an environmentally sensitive area in which public views, as environmental resources of public importance, will be impacted by the project. PCH has been designated in the LUP as a protected scenic road and will face significant adverse impacts to public bluewater views.

Staff Response

The project was determined to qualify for a CEQA Class 3 Categorical Exemption (CE) under CEQA Guidelines Section 15303(a), which reads in part:

> 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 numbers of structures described in this section are the maximum allowable on any legal parcel. Examples of this exemption include but are not limited to:
>
> (a) One single-family residence, or a second dwelling unit in a residential zone. In urbanized areas, up to three single-family residences may be constructed or converted under this exemption.
>
> …
>
> (e) Accessory (appurtenant) structures including garages, carports, patios, swimming pools, and fences.

The project consists of one single-family residence in a residential zone. The Class 3 CE does not define the size of a residence, nor does it impose a size limit and has been used by hundreds of single-family residential development projects within Malibu's history where there is no significant environmental impact. There are no unusual circumstances or a reasonable possibility of a significant environmental effect, and none of the exceptions in CEQA Guidelines Section 15300.2, which would render CE 15303(a) inapplicable, as listed below, were found to apply.

CEQA Guidelines Section 15300.2 reads:

> (a) Location. Classes 3, 4, 5, 6, and 11 are qualified by consideration of where the project is to be located--a project that is ordinarily insignificant in its impact on the environment may in a particularly sensitive environment be significant. Therefore, these classes are considered to apply in all instances, except where the 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.
> (b) Cumulative Impact. All exemptions for these classes are inapplicable when the cumulative impact of successive projects of the same type in the same place, over time is significant.
> (c) Significant Effect. A categorical exemption shall not be used for an activity where there is a reasonable possibility that the activity will have a significant effect on the environment due to unusual circumstances.
> (d) Scenic Highways. A categorical exemption shall not be used for a project 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. This does not apply to improvements which are required as mitigation by an adopted negative declaration or certified EIR.
> (e) Hazardous Waste Sites. A categorical exemption shall not be used for a project located on a site which is included on any list compiled pursuant to Section 65962.5 of the Government Code.
> (f) Historical Resources. A categorical exemption shall not be used for a project which may cause a substantial adverse change in the significance of a historical resource.

The only item listed above that could even be considered is subsection (d) of the above. All the other criteria are inapplicable, including subsection (c) which was evaluated by the substantial evidence listed earlier. The project would not result in significant adverse scenic resource impacts per the discussion of Finding B.1 in Appeal Item No. 1. The project, along with any other project in the City where applicable, is required to implement the design and view criteria in LIP Section 6.5(E)(2) to protect scenic and visual resources. As the development is proposed on a parcel identified in the General Plan and LCP for residential use and would be limited to one single-family residence, there would be no

cumulative impacts from the development. The parcel is not a hazardous waste site and the parcel does not contain, nor is it adjacent to, a historical resource.

While portions of public bluewater views over the parcel would be obstructed, other portions of the parcel would have no view obstruction, including the western end of the parcel and within a 31 percent designed view corridor on the eastern part of the parcel. As outlined in staff's response to Appeal Item 1, the project is consistent with LIP Chapter 6 (Scenic, Visual, and Hillside Resource Protection Ordinance) and identified impacts to public scenic views were avoided and/or minimized by design revisions and conditions.

ENVIRONMENTAL REVIEW: Pursuant to the authority and criteria contained in the CEQA, the Planning Division and Planning Commission analyzed the proposed project. The Planning Division and 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 and categorically exempt from the provisions of CEQA according to CEQA Guidelines Section 15303(a) and (e) – New Construction. The Planning Division and Planning Commission further determined that none of the six exceptions to the use of a categorical exemption applies to this project (CEQA Guidelines Section 15300.2).

Should the City Council choose to uphold the appeal and deny the project, pursuant to CEQA Guidelines Section 15270, CEQA does not apply to projects that a public agency rejects or disapproves.

PUBLIC CORRESPONDENCE: Correspondence submitted through the January 2026 meeting are attached to previous agenda reports. The applicant's response to the appeal is attached hereto as Exhibit E and correspondence submitted for the February 17, 2026 meeting are attached hereto as Exhibit F.

PUBLIC NOTICE: On October 15, 2026, a Notice of City Council Public Hearing was published in a newspaper of general circulation within the City and a public notice was mailed to the owners and occupants of all properties within a radius of 500 ft. of the subject parcel (Exhibit G).

SUMMARY: Based on information in this report, provided with the agenda reports presented to the Planning Commission, project plans, and other documents, the City Council shall either adopt the attached resolution denying the appeals and approving the project or direct the Planning Division to return with a resolution consistent with the City Council's decision.

EXHIBITS:

A. Resolution No. 26-55
B. Appeal No. 26-007
C. Adopted Planning Commission Resolution No. 26-05
D. Project Plans Approved by Planning Commission

E. Applicant's Response to Appeal
F. Correspondence Considered by the Planning Commission
G. Notice of Public Hearing

The previously published agenda reports for February 17, 2026, January 20, 2026, December 16, 2025, August 18, 2025, and July 21, 2025, are available online in the Agenda Center (https://www.malibucity.org/agendacenter). All meeting materials including staff reports, correspondence, and presentations are available in OnBase (malibucity.org/onbase).

RESOLUTION NO. 26-55

A RESOLUTION OF THE CITY COUNCIL OF THE CITY OF MALIBU, DENYING APPEAL NO. 26-007, 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, 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 City Council 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, Certificate of Compliance (COC) No. 19-009, and Lot Merger (LM) No. 24-002 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 and all interested parties.

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, and continued the item to the February 17, 2026, Regular Planning Commission meeting to provide time for the applicant to make project revisions to further preserve public bluewater views through the subject property from Pacific Coast Highway. The applicant offered to lower the building pad for portions of the main residence by two feet, thereby reducing the maximum height elevation of the residence, and eliminate the proposed guest house from the design.

O. On February 17, 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, and adopted Planning Commission Resolution No. 25-05 approving the project entitlements with additional conditions.

P. On February 27, 2026, Jun Hall for Concerned Citizens of Malibu Road, Inc. filed an appeal of the Planning Commission's action (Appeal No. 26-007).

Q. On July 16, 2026, a Notice of City Council 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 radius of 500 feet from the subject property and all interested parties.

R. On July 27, 2026, at the applicant's request, a Notice of City Council Public Hearing Cancellation for the August 19, 2026 Special City Council Public meeting was published.

S. On October 15, 2026, a Notice of City Council 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 radius of 500 feet from the subject property and all interested parties.

T. On November 18, 2026, the City Council held a duly noticed public hearing on the subject appeal, reviewed and considered the agenda report, reviewed and considered written reports including the agenda report for the February 17, 2026, Planning Commission meeting, 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 in the area. This project, along with any other project in the City, is required to implement the criteria in Local Coastal Program (LCP) Local Implementation Plan (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 for hazardous materials and no historical resources are located on or adjacent to the property.

SECTION 3. Appeal of Action.

The appellant contends that the Planning Commission's findings or conditions are not supported by the evidence and that the Planning Commission's decision is not supported by the findings, as well as that the decision was contrary to law. In particular, the appellant states that the following are unsupported by evidence: findings of LIP Sections 13.9(A) and 13.9(C); findings A.2 and A.3 of Resolution No. 26-05; and the Commission findings relating to scenic and visual resources (LIP Chapter 6), hazards (LIP Chapter 9), blufftop development (LIP Chapter 10), and land divisions (LIP Chapter 15).

Based on the evidence in the record, as detailed below, in the August 19, 2026, City Council agenda report, in the Planning Commission agenda reports dated July 21, 2025, August 18, 2025, December 16, 2025, January 20, 2026, and February 17, 2026, and at the hearing on the matter, the City Council has determined that the project conforms to the LCP and Malibu Municipal Code (MMC), denying the appeal and approving the project. The Council finds that the evidence supports the findings and is consistent with the City's past application of the applicable provisions of the LIP.

SECTION 4. Findings Denying the Appeal.

A. Least Environmentally Damaging Alternative

The proposed project, as designed and conditioned, is the least environmentally damaging feasible alternative and there is no evidence that an alternative project would substantially lessen any potential significant adverse impacts of development beyond that of the proposed project. In evaluating alternatives to the project that are the least environmentally damaging, the following factors were considered: biological resources Environmentally Sensitive Habitat Area (ESHA), grading and slopes, public scenic views, and site design and location. These findings are supported by facts in the City Council and Planning Commission staff reports and resolutions as described below.

The proposed project is sited to avoid impacts to ESHA, ESHA buffer, and sensitive biological resources within a jurisdictional stream on the east portion of the merged parcel, 320 feet from ESHA at its closest point. Since the project would not affect the ESHA or 100 ft. ESHA buffer, including the required fuel modification, the project complies with LIP Section 4.6.1 to provide vegetation buffers from habitat to new development, and no impacts to biological resources would occur. LIP Section 4.6.4(C) states that the protection of ESHA and public access shall take priority over other development standards and where there is any conflict between general development standards and ESHA and/or public access protection, the standards that are most protective of ESHA and public access shall take precedence. As such the project is sited in its location specifically to avoid ESHA which is the most protected coastal resource identified in the LCP.

Since the project will not affect the ESHA or 100 ft. ESHA buffer, including the required fuel modification, the project complies with LIP Section 4.6.1 to provide vegetation buffers from habitat to new development, and no impacts to biological resources would occur. The City's Biological Consultant reviewed the site-specific biological assessment and conceptually approved the project for consistency with the relevant provisions of the LIP related to biological resources. As designed and sited, the project does not require compliance with the ESHA development standards in LIP Section 4.7.1.

To minimize grading to the maximum extent feasible, proposed development will be sited on the flattest area of the parcel which is generally in the center of the parcel. The project site is relatively flat, consisting mostly of a 4 to 1 slope with a few areas between 4 to 1 to 3 to 1 that are less than 30 percent grade. Other portions of the parcel have steeper slopes up to 1 to 1. Due to their steepness, these areas were avoided for development.

The LIP allows the placement of structures on slopes 3 to 1 (33 percent) or flatter for residential development. The project is consistent with the LIP Chapter 8 (Grading Ordinance) grading standards and would not exceed the maximum quantities of non-exempt grading allowed by the LIP. The project involves 742 cubic yards of non-exempt grading, less than the maximum 1,000 cubic yards permitted. Consistent with LIP Section 8.3(E) (Design of Grading), the grading will conform to the natural topography and landforms. There are no less environmentally damaging alternatives to the grading proposed for the project.

Scenic and visual resource will be protected to the maximum extent feasible by lowering portions of the building pad for portions of the residence and removing a proposed detached guest house. However, lowering portions of the building pad would necessitate additional grading, whereas removing the guest house would reduce the amount of grading required. As revised, the total amount of grading increased from 6,688 cubic yards (c.y.) to 10,341 c.y., while the non-exempt grading decreased from 979 c.y. to 742 c.y., which is below the 1,000 c.y. maximum allowed in LIP Section 8.3 for development on a residential parcel. The revised project complies with the grading requirements of LIP Chapter 8 (Grading), including the requirements of Section 8.3 (Development Standards).

LIP Section 6.5(E)(1) requires that where the topography of a project site along the ocean side of PCH descends from the roadway, new development shall be sited and designed to preserve bluewater ocean views over the approved structures. LIP Section 6.5(E)(2) further states that 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. As described further below, it is infeasible to site the project completely below road grade while avoiding significant landform alteration. As a result, and as required by LIP Section 6.5(E)(2), a public view corridor must be provided onsite equivalent to a minimum of 20 percent (339 ft.) of the merged parcel's street frontage on PCH (1,692 ft.). The applicant has proposed a public view corridor of 31 percent (525 ft.) on the easterly portion of the parcel in the area containing ESHA and an ESHA buffer. The extended public view corridor exceeds the LIP's minimum width by 11 percent (186 ft.). As designed and conditioned, the project would exceed the minimum public view corridor requirements of LIP Section 6.5(E)(2).

To eliminate all obstructions to public bluewater views, the buildings would need to be lowered to a height that is below the PCH road grade and the adjacent Caltrans earthen berms. That is, the buildings would need to be below approximately three to seven feet in most areas, although could be higher at the eastern end of the project site, where there is up to a 21-foot difference between the development surface and the roadway/berm grade for a small segment. This small segment would be inadequate to site the full building.

The tallest building heights range from 15 ft., 7 in. to 16 ft., 10 in., while some building portions are as low as 10 ft, 2 in., from the lower of existing/finished grade. Since PCH and the Caltrans berms are at a higher elevation than the project site, approximately 3 ft., 3 in. to 6 ft., 5 in. of building height would encroach into the public's bluewater view from the PCH road grade, with the remainder of the parcel open to public views.

Lowering building pad elevations further as a means to reducing visible building height would require substantial earthwork, resulting in non-exempt grading beyond the LIP's maximum allowed 1,000 cubic yards (c.y.) and more retaining walls that could exceed the 6 ft. height maximum. As designed, the project does not include any discretionary requests for relief from development standards. To lower the building pad elevations with shorter retaining walls, or without walls, would require an increase in development at the edges of the lowered building pad and grading beyond the property boundaries unless it is expected that the house be subterranean with little access to light and air. To provide light and air in this potential design, which would require substantially more earthwork, the steep hillside would need to be cut, triggering the need for a variance on steep slopes. This alternate design 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.

There are no other feasible locations on the parcel to accommodate the proposed development that would entirely avoid scenic and visual impacts to public views without encroaching into ESHA and ESHA buffer and/or substantially increasing grading. Alternatives were analyzed and it was determined that there are no other feasible locations on the parcel to accommodate the proposed development that would entirely avoid scenic and visual impacts to public views without encroaching into ESHA and ESHA buffer and/or substantially increasing grading and variances. The total development square footage (TDSF) was reduced from 11,121 sf. to 10,656 sf. with the removal of the guest house. This is below the maximum allowed TDSF for the parcel of 11,172 sf. Of the 6.36-acre parcel (277,0411 sf.), the proposed TDSF represents a development area of approximately 3.8 percent of the parcel's lot size. Reducing the TDSF further would not necessarily result in a project that further decreases intrusions into bluewater views from PCH. This is because the amount of development captured by TDSF does not necessarily equate to building height. The proposed impermeable coverage would be 21,294 sf. and the project meet the maximum allowable impermeable coverage of 25,000 sf. pursuant to LIP Section 3.6(I)(1).

As conditioned, the proposed project is considered the least environmentally damaging alternative in accordance with the findings of LIP Sections 13.9(C) and 6.4(A). There are no feasible alternatives to the development that would further avoid or substantially lessen impacts to coastal resources. The potential alternatives explored are either infeasible or would create further environmental impacts and/or be inconsistent with the LIP. The project, as proposed and conditioned, will have bluewater impacts to some extent, but will not have significant adverse scenic or visual impacts. The last finding of LIP Section 6.4(A) states, "Development in a specific location on the site may have adverse scenic and visual impacts but will eliminate or otherwise contribute to conformance to sensitive resource protection policies contained in the certified LCP." The project protects ESHA and ESHA buffer and minimizes impacts to landform alteration and scenic and visual resources.

B. Scenic and Visual Impacts

The project will not have a significant adverse scenic or visual impact. Through several design iterations, the project has been revised to minimize the potential for public bluewater view impacts from PCH, an LCP Land Use Plan (LUP) scenic roadway, by lowering building heights and the building pad elevation, and eliminating the 10-foot-high detached guest house. The project was originally proposed with a maximum building height of 18 feet and two stories. The applicant has reduced the number of stories to one and has lowered the building height and/or the building pad elevation multiple times to reduce potential public view impacts as seen from PCH.

Pursuant to LIP Section 6.2, the policies, standards, and provisions of the Scenic, Visual, and Hillside Resource Protection Ordinance apply because the project site is located along PCH, which is a designated scenic road in the LUP. The upper portions of certain building walls and roofs would be visible from PCH, with most of the development situated below the road grade and adjacent Caltrans berms. Even at the lower heights proposed, portions of the buildings extending above the road grade would block some existing public bluewater views from PCH, triggering the requirement for the public view corridor. LIP Section 6.5(E)(1) requires that where the topography

of a project site along the ocean side of PCH descends from the roadway, new development shall be sited and designed to preserve bluewater ocean views over the approved structures. LIP Section 6.5(E)(2) further states that 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. As required by LIP Section 6.5(E)(2), a public view corridor must be provided onsite equivalent to a minimum of 20 percent (339 ft.) of the merged parcel's street frontage on PCH (1,692 ft.). The applicant has proposed a public view corridor of 31 percent (525 ft.) on the easterly portion of the parcel in the area containing ESHA and an ESHA buffer. The extended public view corridor exceeds the LIP's minimum width by 11 percent (186 ft.). As designed and conditioned, the project would exceed the minimum public view corridor requirements of LIP Section 6.5(E)(2).

Earlier iterations of the project application included a variance (VAR) and site plan review (SPR). The VAR was for construction of retaining walls exceeding the maximum allowed height of six ft. for a single wall. The retaining walls were intended to accommodate a required fire lane north of and parallel to the proposed residence. To avoid the VAR request, an alternate design was incorporated into the project that realigned the driveway closer to the residence, resulting in single retaining walls that comply with the LIP's height allowance. The SPR was for construction of freestanding walls onsite that were originally proposed to allow for a maximum height of 10 ft., 3 inches (in.). To avoid the SPR request, an alternate design was incorporated into the project that lowered the wall height, resulting in freestanding walls that comply with the LIP's maximum 6 ft. allowance within a setback. Earlier iterations of the residence proposed taller buildings, in some cases reaching up to 18 ft. in height. The building heights have been reduced twice to improve views from PCH. The tallest building heights are at the main residence and range from 15 ft., 7 in. to 16 ft., 10 in. from the lower of existing/finished grade. The heights of other portions of the main residence are as low as 10 feet and two inches and the gym height is 12 feet. Since PCH and the adjacent Caltrans berms are at a higher elevation than the project site, approximately 3 ft., 3 in. to 6 ft., 5 in. of building height would encroach into the public's bluewater view from the PCH road grade, with the remainder of the parcel open to public views. The retaining walls and freestanding walls will not be visible from the PCH roadway grade and would not block public bluewater views from PCH due to the lower heights incorporated into the design.

To eliminate all obstructions to public bluewater views, the proposed buildings would need to be lowered even further, to a height that is below the PCH road grade and the adjacent Caltrans berms. These further reductions to height are considered infeasible as the building height would need to be below approximately 3 ft. to 7 ft. in most areas. To lower the building pad elevations with shorter retaining walls, or without walls, would require an increase in development at the edges of the lowered building pad, unless it is expected that the house be subterranean with little access to light and air. To provide light and air in this potential design, which would require substantially more earthwork, the steep hillside would need to be cut, triggering the need for a variance on steep slopes.

The project minimizes and substantially reduces adverse public view impacts through lowering of building heights and the building pad and therefore the amount of building protrusion above the PCH grade and Caltrans berms adjacent to the property, removal of the guest house, provision of a view corridor exceeding that required by the LIP, and compliance with the above-noted Planning Commission condition of approval. As such, impacts to public and scenic views will not be significant.

C. Geotechnical Review

While the original project design showed proposed soldier piles and tiebacks on the slope just below the project site, the structural design was revised in 2023 and the soldier piles and tiebacks were relocated to be within the project site, which is northerly and upslope of the prior location. The factors of safety (FOS) were calculated for the original location on the slope and found to meet the requirements of LIP Section 10.4(D) (1.5 static and 1.1 pseudostatic), and the City's 2013 updated methodology of computing the seismic FOS (1.0). The City's geotechnical consultant reviewers noted that relocating the soldier piles further upslope and into the project site would result in less load that must be retained than the increased loads further downslope. The City geotechnical consultant reviewers approved the project for consistency with the LCP and from a feasibility of development standpoint. During Building Safety plan check, the City geotechnical consultant reviewers will further account for constructability of the project and further assess slope stability. This includes ensuring the project is designed for worst case design assumptions (e.g., lowest shear strength, highest groundwater level, etc.). Further, the City geotechnical consultant reviewers will require that testing be conducted during the initial construction stage by the applicant's geotechnical engineer to confirm stabilization before the project site can be developed with structures.

As described in the staff response to Appeal Item 1, the project is the least environmentally damaging alternative. As revised and conditioned, the project is also considered the least environmentally damaging alternative from a geotechnical standpoint because soldier piles and tiebacks often require a smaller excavation footprint. Based on review of the project plans and associated project geotechnical and other reports by the City geotechnical consultant reviewers, these specialists determined that adverse impacts to the project site and offsite parcels related to the proposed development are not expected. The project will neither be subject to nor increase the instability of the project site and offsite parcels from geologic or flood 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.

The soldier piles and other geotechnical slope stabilization measures to be employed will ensure the safety of the slope that is south of the subject parcel. Conditions of approval require that all recommendations contained in the geotechnical reports and conditions required by the City geotechnical review consultants are incorporated into the project. Moreover, there are no 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 parcel outside of steep slopes and would not be located within a flood hazard area. Retaining walls are consistent with the maximum 6 ft. height requirement.

D. Bluff Classification

Considering both "cliff" and "coastal bluff" definitions in the LIP, a coastal bluff is characterized as a precipice or precipitous, both conveying steepness. Consistent with MMC Section 17.40.040(A)(6)(e), a 1:1 slope (45 degrees or 100 percent slope) is considered to be attributable to a bluff. The slope along the southern edge of the subject parcel has a maximum slope of 1:35:1 (36.5 degrees or 74 percent slope), which would not be classified as a bluff pursuant to the MMC.

The Post-LCP Permit and Appeal Jurisdiction Map delineates the subject parcel as partially within two California Coastal Commission (CCC) appeal zones due to the distance from a beach and stream, but specifically not a coastal bluff. The southern edge of the parcel's west side is within 300 ft. from the beach and the eastern end of the parcel is within 100 ft. from a stream. Some parcels are identified as appealable to the CCC due to being identified as a coastal bluff. However, as the Post-LCP Permit and Appeal Jurisdiction Map does not identify a coastal bluff on or within the vicinity of the subject parcel, and the slope below the subject parcel is not precipitous, nor subject to wave action, does not meet the definitions of a bluff in either the LCP or MMC definitions and thus it has been determined that project site is not considered a bluff, let alone a coastal bluff. Therefore, no further analyses or findings for coastal bluffs in LIP Chapter 10 (Shoreline and Bluff Development Ordinance) are required, and development standards applicable to coastal bluffs do not apply to the project.

E. Lot Merger

The project is consistent with LUP Chapter 5 (New Development), Section C. "Land Use Policies, Item 8 Land Division." LUP Policy 5.33 defines land divisions as including lot mergers. LUP Policy 5.37 reads:

> Land Divisions shall be designed to cluster development, including building pads, if any, in order to minimize site disturbance, landform alteration, and removal of native vegetation, to minimize fuel modification, and to maximize open space.

The claim that development of two residences, one on each parcel, is preferable environmentally or otherwise, is speculative since the specific design of each residence and development site is unknown. It is possible that two residences could result in more impacts to public bluewater views, geologic issues, grading and slope stabilization, less open space, and the same or less effective emergency evacuation, and would require two onsite wastewater treatment systems.

Once the parcels are merged, the development of one residence clustered on the merged parcel would allow a design that avoids various development constraints, such as steep slopes. It also allows development to be sited in an area to protect priority coastal resources (ESHA) to the maximum extent available, while minimizing impacts to other coastal resources such as scenic and visual resources and landform alteration. Should development occur on both parcels, it is anticipated that development on the eastern parcel would result in encroachment into ESHA, ESHA buffer, and steep slopes.

As listed in LIP Section 15.4.1(B), the LM must be consistent with any policy or standard of the LCP that protects ESHA and/or visual resources of the coastal zone (Findings D.1, D.2, and D.3 referenced by the appellant). The findings for LIP Chapter 6 (Scenic, Visual, and Hillside Resource Protection Ordinance) can be supported as the project prioritizes protection of ESHA above all other coastal resources, and as revised in its design, the project would be consistent with the scenic and visual resource requirements to the maximum extent feasible. The subject parcel was determined to accommodate development, including fuel modification, outside of the ESHA and ESHA buffer. Fuel modification Zone C, which is 200 feet east of the main residence, would terminate 20 feet from the ESHA buffer at its nearest point. Therefore, the main residence is 220 feet from the required 100 ft. ESHA buffer and 320 feet from ESHA at its closest point.

F. CEQA Exemption

The project qualifies for a CEQA Class 3 Categorical Exemption (CE) under CEQA Guidelines Section 15303(a). The project consists of one single-family residence in a residential zone. The project consists of one single-family residence in a residential zone. The Class 3 CE does not define the size of a residence nor does it impose a size limit and has been used by hundreds of single-family residential development projects within Malibu's history where there is no significant environmental impact. There are no unusual circumstances or a reasonable possibility of a significant environmental effect, and none of the exceptions in CEQA Guidelines Section 15300.2, which would render CE 15303(a) inapplicable, as listed below, were found to apply.

The only item listed above that could even be considered is subsection (d) of the above. All the other criteria are inapplicable, including subsection (c) which was evaluated by the substantial evidence listed earlier. The project would not result in significant adverse scenic resource impacts per the discussion of Finding B.1 in Appeal Item No. 1. The project, along with any other project in the City where applicable, is required to implement the design and view criteria in LIP Section 6.5(E)(2) to protect scenic and visual resources. As the development is proposed on a parcel identified in the General Plan and LCP for residential use and would be limited to one single-family residence, there would be no cumulative impacts from the development. The parcel is not a hazardous waste site and the parcel does not contain, nor is it adjacent to, a historical resource.

While portions of public bluewater views over the parcel would be obstructed, other portions of the parcel would have no view obstruction, including the western end of the parcel and within a 31 percent designed view corridor on the eastern part of the parcel. As outlined in staff's response to Appeal Item 1, the project is consistent with LIP Chapter 6 (Scenic, Visual, and Hillside Resource Protection Ordinance) and identified impacts to public scenic views were avoided and/or minimized by design revisions and conditions.

SECTION 4. Coastal Development Permit Findings.

Based on substantial evidence contained within the record (including the analysis, findings of fact, and conclusions set forth by staff in the August 19, 2026 Council Agenda Report and Planning Commission Agenda Reports July 21, 2025, August 18, 2025, November 20, 2025, December 16, 2025, January 20, 2026, and February 17, 2026, as well as the testimony and materials considered by the Planning Commission and City Council), and pursuant to LIP Section 13.7(B) and Title 17 (Zoning) of the MMC, the City Council makes the findings of fact below, 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, 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 COC and LM, the project has been determined to be consistent with all applicable LCP codes, standards, goals, and policies. The required findings are made herein.

SECTION 5. Findings Approving the Project.

A. General Coastal Development Permit (LIP Chapter 13)

1. That the project as described in the application and accompanying materials, as modified by any conditions of approval, conforms with certified City of Malibu Local Coastal Program.

The project is 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. As described further herein, the project also meets the required LIP standards for scenic and visual resource protection (LIP Chapter 8), hazards (LIP Chapter 9), and land division (LIP Chapter 15).

2. If the project is located between the first public road and the sea, that the project is in conformity with 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 subject property is located along PCH. There are two roadways south and downslope of the property, Bayshore Drive and Malibu Road, that are parallel to the shoreline. Since the subject property does not have access to the shoreline, the proposed development will not interfere with public access to the shoreline and along the coast. Nearby Malibu Road provides direct public access to the shoreline.

3. The project is the least environmentally damaging alternative.

The proposed project, as designed and conditioned, is the least environmentally damaging feasible alternative and there is no evidence that an alternative project would substantially lessen any potential significant adverse impacts of development beyond that of the proposed project. In evaluating alternatives to the project that are the least environmentally damaging, the following factors were considered: biological resources and ESHA, grading and slopes, public scenic views, and site design and location. These findings are supported by facts in the City Council and Planning Commission staff reports and resolutions as described below.

The proposed project, including required fuel modification, avoids impacts to ESHA, ESHA buffer, and sensitive biological resources within a jurisdictional drainage on the east portion of the merged parcel. Fuel modification Zone C, which is 200 feet east of the main residence, would terminate 20 feet from the ESHA buffer at its nearest point. Therefore, the main residence is 220 feet from the required 100 ft. ESHA buffer and 320 feet from ESHA at its closest point.

Since the project will not affect the ESHA or 100 ft. ESHA buffer, including the required fuel modification, the project complies with LIP Section 4.6.1 to provide vegetation buffers from

habitat to new development, and no impacts to biological resources would occur. The City's Biological Consultant reviewed the site-specific biological assessment and conceptually approved the project for consistency with the relevant provisions of the LIP related to biological resources. As designed and sited, the project does not require compliance with the ESHA development standards in LIP Section 4.7.1.

To minimize grading to the maximum extent feasible, proposed development will be sited on the flattest area of the parcel which is generally in the center of the parcel. The project site is relatively flat, consisting mostly of a 4 to 1 slope with a few areas between 4 to 1 to 3 to 1 that are less than 30 percent grade. Other portions of the parcel have steeper slopes up to 1 to 1 (100 percent). Due to their steepness, these areas were avoided for development.

The LIP allows the placement of structures on slopes 3 to 1 (33 percent) or flatter for residential development. The project is consistent with the LIP Chapter 8 (Grading Ordinance) grading standards and would not exceed the maximum quantities of non-exempt grading allowed by the LIP. The project involves 742 cubic yards of non-exempt grading, less than the maximum 1,000 cubic yards permitted. Consistent with LIP Section 8.3(E) (Design of Grading), the grading will conform to the natural topography and landforms. There are no less environmentally damaging alternatives to the grading proposed for the project.

Scenic and visual resource would be protected to the maximum extent feasible by lowering portions of the building pad for portions of the residence and removing a proposed detached guest house. However, lowering portions of the building pad would necessitate additional grading, whereas removing the guest house would reduce the amount of grading required. As revised, the total amount of grading increased from 6,688 cubic yard (c.y.) to 10,341 c.y., while the non-exempt grading decreased from 979 c.y. to 742 c.y., which is below the 1,000 c.y. maximum allowed in LIP Section 8.3 for development on a residential parcel. The revised project complies with the grading requirements of LIP Chapter 8 (Grading), including the requirements of Section 8.3 (Development Standards).

To eliminate all obstructions to public bluewater views, the buildings would need to be lowered even further, to a height that is below the PCH road grade and the adjacent Caltrans earthen berms. Further reductions to height are considered infeasible as the building height would need to be no more than 3 ft. to 7 ft. in most areas. Lowering building pad elevations further would require substantial earthwork, resulting in non-exempt grading beyond the LIP's maximum allowed 1,000 c.y. and more retaining walls that could exceed the 6 ft. height maximum. As designed, the project does not include any discretionary requests for relief from development standards. To lower the building pad elevations 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 design would require grading on steep slopes that would exceed the LIP's allowance for placement on structures on slopes 3 to 1 or flatter and may require grading outside of the parcel's boundaries. It would also be inconsistent with the required COC findings for avoidance of steep slopes. This alternate design 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.

There are no other feasible locations on the parcel to accommodate the proposed development that would entirely avoid scenic and visual impacts to public views without encroaching into ESHA and ESHA buffer and/or substantially increasing grading. The applicant considered reconfiguring all buildings on the eastern portion of the project site (i.e., the area of the eastern part of the main residence), where the PCH grade and/or berms are highest and provide the most screening for the development (up to a 21-ft. difference between the project site and PCH grade/berms). However, because the project site is narrow and the area where there is the most potential screening is limited, locating all development in this area is infeasible.

Another option of locating development in the eastern portion of the property (beyond the proposed project site), which is wider, would result in encroachment into the ESHA, ESHA buffer, and jurisdictional drainage area, and would require grading of steep slopes (over 30 percent), and shifting fuel modification zones off-site, which would be inconsistent with LIP Chapters 4 (Environmentally Sensitive Habitat Area) and 8 (Grading) for the protection of ESHA and biological habitat and for grading. The LCP prioritizes the protection of ESHA over other coastal resources, including scenic and visual resources, whereby a proposed development has incorporated design revisions to minimize and/or avoid impacts to the maximum extent feasible so long as the protection of ESHA is maintained.

As revised, the total development square footage (TDSF) was reduced from 11,121 sf. to 10,656 sf. with the removal of the guest house. This is below the maximum allowed TDSF for the parcel of 11,172 sf. Of the 6.36-acre parcel (277,0411 sf.), the proposed TDSF represents a development area of approximately 3.8 percent of the parcel's lot size. Reducing the TDSF further would not necessarily result in a project that further decreases intrusions into bluewater views from PCH. This is because the amount of development captured by TDSF does not necessarily equate to building height. The proposed impermeable coverage would be 21,294 sf. and the project meet the maximum allowable impermeable coverage of 25,000 sf. pursuant to LIP Section 3.6(I)(1).

As conditioned, the proposed project is considered the least environmentally damaging alternative in accordance with the findings of LIP Sections 13.9(C) and 6.4(A). There are no feasible alternatives to the development that would further avoid or substantially lessen impacts to coastal resources. The potential alternatives explored are either infeasible or would create further environmental impacts and/or be inconsistent with the LIP. The project, as proposed and conditioned, will not have significant adverse scenic or visual impacts. The last finding of LIP Section 6.4(A) states, "Development in a specific location on the site may have adverse scenic and visual impacts but will eliminate or otherwise contribute to conformance to sensitive resource protection policies contained in the certified LCP." The project protects ESHA and ESHA buffer and minimizes impacts to landform alteration and scenic and visual resources.

4. If the project is located in or adjacent to an environmentally sensitive habitat area pursuant to Chapter 4 of the 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 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. Therefore, this finding is inapplicable.

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

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.

Scenic and visual resource would be protected to the maximum extent feasible by the project. The project site is below the grade of the adjacent PCH roadway, the building and driveway pads average approximately one foot below grade, while in other areas of the main residence the building pad has been lowered two feet below grade, and the 10-foot-high guest house is no longer proposed to further maximize public bluewater views through the subject property from PCH. The applicant has also located the development in the least visible portion of the site where the height difference between the building pad and roadway/berms is highest, has designed a single story development of a maximum height of 16 feet, 10 inches to step down the hillside to the west, has minimized grading by not exceeding the maximum allowed non-exempt grading yards, and has designed the structures as one-story buildings with flat roofs to blend into the natural hillside setting.

The upper portions of the main residence and gym will be visible from public views from PCH and impede upon bluewater views for those areas of the subject property. The upper 3-7 feet of the main residence would protrude above PCH and the berms at the most, while some residence portions would not be visible above the PCH and berms. The gym would protrude a maximum of 2 feet and 7 inches about the PCH and berms. There will be no bluewater view impacts for the portion of the property west of the gym.

It is infeasible to further lower the project site and structures to be fully below the PCH grade. 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. To eliminate all obstructions to public bluewater views, the buildings would need to be lowered even further, to a height that is below the PCH road grade and the adjacent Caltrans earthen berms. Further reductions to height are considered infeasible as the building height would need to be no more than 3 ft. to 7 ft. in most areas. Lowering building pad elevations further would require substantial earthwork, resulting in non-exempt grading beyond the LIP's maximum allowed 1,000 c.y. and more retaining walls that could exceed the 6 ft. height maximum. As designed, the project does not include any discretionary requests for relief from development standards. To lower the building pad elevations 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 design would require grading on steep slopes that would exceed the LIP's allowance for placement on structures on slopes 3 to 1 or flatter and may require grading outside of the parcel's boundaries. It would also be inconsistent with the required COC findings for avoidance of steep slopes. This alternate design 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.

There are no other feasible locations on the parcel to accommodate the proposed development that would entirely avoid scenic and visual impacts to public views without encroaching into ESHA and ESHA buffer and/or substantially increasing grading. The applicant considered reconfiguring all buildings on the eastern portion of the project site (i.e., the area of the eastern part of the main residence), where the PCH grade and/or berms are highest and provide the most screening for the development (up to a 21-ft. difference between the project site and PCH grade/berms). However, because the project site is narrow and the area where there is the most potential screening is limited, locating all development in this area is infeasible.

Another option of locating development in the eastern portion of the property (beyond the proposed project site), which is wider, would result in encroachment into the ESHA, ESHA buffer, and jurisdictional drainage area, and would require grading of steep slopes (over 30 percent), and shifting fuel modification zones off-site, which would be inconsistent with LIP Chapters 4 (Environmentally Sensitive Habitat Area) and 8 (Grading) for the protection of ESHA and biological habitat and for grading. The LCP prioritizes the protection of ESHA over other coastal resources, including scenic and visual resources, whereby a proposed development has incorporated design revisions to minimize and/or avoid impacts to the maximum extent feasible so long as the protection of ESHA is maintained.

Consistent with LIP Section 6.5(E)(2), an onsite view corridor 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. While a view corridor of 20 percent of the width of the parcel is required, the project includes a 31 percent view corridor. Additionally, the portion of the parcel west of the gym would remain free of bluewater view obstructions, an area of approximately 500 feet wide.

Project materials and colors will be required to be compatible with the natural environment through conditions of approval, therefore will be compatible with the character of the surrounding neighborhood. Although retaining and other freestanding 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. 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. 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 have a maximum height at maturity to not extend above the PCH grade/Caltrans berms, and shall be maintained to ensure they do not extend above PCH and the berms. To further reduce bluewater view impacts, the development will not block views of the horizon line of the Pacific Ocean nor views of the Santa Monica Bay as seen by travelers going westbound, also known as northbound, along the PCH, as conditioned.

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 16 feet, 10 inches, consistent with the LIP requirements. As described above, the buildings, walls, and driveways will be required to use earthtone colors and contain materials to blend with the natural environment and landscaping, 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 16 feet, 10 inches in height.

Therefore, the project will not result in significant adverse impacts to scenic and visual resources from PCH, including bluewater views.

2. The project, as conditioned, will not have significant adverse scenic or visual impacts due to required project modifications, landscaping or other conditions.

The project modifications described in Finding B.1 above that are incorporated into the proposed project have reduced bluewater view impacts from PCH. Conditions described in Finding 1 above will reduce scenic and visual impacts. Therefore, the project will not result in significant adverse impacts to scenic and visual resources, including bluewater views.

3. The project, as proposed or as conditioned, is the least environmentally damaging alternative.

As described in Finding A.3 above, the project, as conditioned, is the least damaging environmentally feasible alternative. The jurisdictional drainage area, areas of steep slopes, and ESHA and ESHA buffer areas on the subject property will be protected. Coastal resources, such as public scenic views, will be protected to the extent feasible, consistent with LIP Chapter 6. The required project conditions described in Finding 1 above, will further reduce scenic and visual impacts.

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 in Finding A.3 above, the proposed project, as conditioned, is considered the least environmentally damaging alternative in accordance with the findings of LIP Sections 13.9(C) and 6.4(A). There are no feasible alternatives to the development that would further avoid or substantially lessen impacts to coastal resources. The potential alternatives explored and addressed in Finding A.3 are either infeasible or would create further environmental impacts and/or be inconsistent with the LIP. The project, as proposed and conditioned, will not have significant adverse scenic or visual impacts.

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.

As described in the above Findings, the project will not have a significant adverse impact on scenic or visual resources as viewed from PCH or the public viewing areas in the hillside above PCH. Nonetheless, the last finding of LIP Section 6.4(A) states, "Development in a specific location on the site may have adverse scenic and visual impacts but will eliminate or otherwise contribute to conformance to sensitive resource protection policies contained in the certified LCP." The project protects ESHA and ESHA buffer and minimizes impacts to landform alteration and scenic and visual resources.

C. Hazards (LIP Chapter 9)

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.

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. Stabilization methods, including but not limited to soldier piles, will ensure the safety of the slope just below the project site.

While the original project design showed proposed soldier piles and tiebacks on the slope just below the project site, the structural design was revised in 2023 and the soldier piles and tiebacks were relocated to be within the project site, which is northerly and upslope of the prior location. The factors of safety (FOS) were calculated for the original location on the slope and found to meet the requirements of LIP Section 10.4(D) (1.5 static and 1.1 pseudostatic), and the City's 2013 updated methodology of computing the seismic FOS (1.0). The City's geotechnical consultant reviewers indicated that the re-calculation of FOS for the revised location within the project site would be addressed in the Building Safety plan check phase, which is standard practice for all development projects in the City to reaffirm structural safety prior to building permit issuance. The City's geotechnical consultant reviewers noted that relocating the soldier piles further upslope and into the project site would result in less load that must be retained than the increased loads further downslope. As is standard practice during the review stage for CDP applications, the City geotechnical consultant reviewers conceptually approved the project for consistency with the LCP and from a feasibility of development standpoint. During Building Safety plan check, the City

geotechnical consultant reviewers will confirm constructability of the project and further assess slope stability, which is typical for review of development projects. This includes ensuring the project is designed for worst case design assumptions (e.g., lowest shear strength, highest groundwater level, etc.). Further, the City geotechnical consultant reviewers will require that testing be conducted during the initial construction stage by the applicant's geotechnical engineer to confirm stabilization before the project site can be developed with structures.

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.

The City is served by the LACFD, as well as the California Department of Forestry, and Fire Protection, 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.

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 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, flood, or fire hazards due to project design, location, modifications, landscaping, and other conditions. Geologic-, flood-, and fire-related conditions will ensure there are no significant adverse impacts. Such conditions include those required by the project geologist/geotechnical engineer and by the City geologic consultant reviewers.

3. The project, as proposed or as conditioned, is the least environmentally damaging alternative.

As discussed in Finding A.3 above, the project is the least environmentally damaging alternative. As revised and conditioned, the project is also considered the least environmentally damaging alternative from a geotechnical standpoint because the development will occur on the flattest portion of the property and soldier piles and tiebacks often require a smaller excavation footprint. Based on review of the project plans and associated project geotechnical and other reports by the City geotechnical consultant reviewers, these specialists determined that adverse impacts to the project site and offsite parcels related to the proposed development are not expected. The soldier piles, tiebacks, and other geotechnical slope stabilization measures to be employed will ensure the safety of the slope that is south of the subject parcel. The project will neither be subject to nor increase the instability of the project site and offsite parcels from geologic or flood 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. Retaining walls are consistent with the maximum 6 ft. height requirement. The project, as conditioned, will 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.

Conditions of approval require that all recommendations contained in the geotechnical reports and conditions required by the City geotechnical review consultants are incorporated into the project. Conditions of approval will ensure project compliance with all required standards and measures to minimize hazards.

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 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. Proposed soldier piles, tiebacks, and other geotechnical measures are proposed to ensure the stability of the site and areas below the site.

As described in Finding C.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. The drainage area, areas of steep slopes, and the ESHA and ESHA buffer areas onsite, as well as the stability of the slope below the project site, will be protected as part of the project through the use, in part, of soldier piles on the subject site. Soldier piles are a slope stabilization method that minimizes excavation. The development will be located on the flattest portion of the parcel outside of steep slopes and would not be located within a flood hazard area.

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 described in Finding C.1 above, the project will not result in adverse impacts to hazards from development. Soldier piles, tiebacks, and other geotechnical measures to be employed will help stabilize the subject property and areas downslope. The use of such measures will minimize excavation on the subject property and avoid project activities in steep slopes, ESHA, and the jurisdictional drainage, and will not adversely affect coastal resources, including scenic views.

D. Land Division (LIP Chapter 15)

LIP Chapter 15 states that a land division shall not be approved unless the City finds that the proposed land division meets each of the following:

1. Does not create any parcels that do not contain an identified building site that: (a) Could be developed consistent with all policies and standards of the LCP; (b) Is safe from flooding,

erosion, geologic and extreme fire hazards; and (c) Is not located on slopes over 30% and will not result in grading on slopes over 30%.

The project includes a LM to combine two parcels into a single parcel. As described in the Findings in Section IV, Items A, B, and C, the parcel can be developed in accordance with the LCP. As described in Finding C.1, the parcel can be developed safe from flooding, erosion, geologic, and extreme fire hazards. The project site is within a maximum 4:1 slope (25 percent) in most areas, with a few small areas of 4:1 to 3:1 slope that are less than a 30 percent slope.

2. Is designed to cluster development, including building pads, if any, to maximize open space and minimize site disturbance, erosion, sedimentation and required fuel modification.

By merging two parcels, development will be clustered on a single parcel. Open space will be maximized. The Total Development Square Footage (TDSF) is 10,656 square feet, less than the 11,172 sq. ft. maximum allowed. Of the 6.36-acre or 277,041 sq.-ft. property, the TDSF represents a development area of 3.8 percent of the property area. Development will be clustered in the middle and western portions of the property to minimize site disturbance and maximize open space on the east side of the property in ESHA, a jurisdictional drainage, and in steep slopes. The subject property can accommodate development, including fuel modification, outside of the ESHA and ESHA buffer. The eastern portion of the property will be preserved as open space with a 31 percent view corridor, where no development is allowed. From the proposed gym westward to the west border of the property, an approximately 500-ft. wide swath will be free of buildings. As described above in Finding D.1, the development, including grading, will avoid steep slopes. As conditioned, development is safe from flooding, erosion, geologic, and extreme fire hazards

3. Does not create any parcels where a safe, all-weather access road and driveway cannot be constructed that complies with all applicable policies of the LCP and all applicable fire safety regulations; is not located on slopes over 30% and does not result in grading on slopes over 30%.

The project includes an LACFD-approved fire access driveway surrounding the development, which will not be located on slopes over 30 percent and will not require grading on slopes over 30 percent. The fire access drive will be made of permeable surfaces, including grasscrete in portions.

4. Does not create any parcels without the legal rights that are necessary to use, improve, and/or construct an all-weather access road to the parcel from an existing, improved public road.

The fire access driveway surrounding the development will be entirely on the subject property and will connect to PCH to provide ingress and egress to the project site.

5. Is designed to minimize impacts to visual resources by complying with the following: (a) Clustering the building sites to minimize site disturbance and maximize open space; (b) Prohibiting building sites on ridgelines; (c) Minimizing the length of access roads and driveways; (d) Using shared driveways to access development on adjacent lots; (e) Reducing the maximum allowable density in steeply sloping and visually sensitive areas; (f) Minimizing grading and alteration of natural landforms, consistent with Chapter 8 of the Malibu LIP; (g) Landscaping or revegetating all cut and fill slopes and other disturbed areas at the completion of grading,

consistent with Section 3.12 of the Malibu LIP; and (h) Incorporating interim seeding of graded building pad areas, if any, with native plants unless construction of approved structures commences within 30 days of the completion of grading.

As discussed in Section IV, Item B, the project has been designed to minimize visual resource impacts. The development would occur on an already graded terrace that is the flattest portion of the property, away from steep slopes and sensitive resources, and grading will be consistent with LIP Chapter 8 to minimize movement of soil and alteration of natural landforms. As described in Finding D.2, development would be clustered and open space maximized. The project is not located on any ridgelines. The landscape plan includes native species around the development, and conditions for revegetation and other erosion protection measures are required. The fire access driveway loop, approved by the LACFD, is the minimum feasible length to meet fire standards. There are no other undeveloped adjacent lots with which to share access driveways.

6. Avoids or minimizes impacts to visual resources, consistent with all scenic and visual resources policies of the LCP.

As described in the Findings of Section IV, Item B, the project minimizes impacts to visual resources, including bluewater views from PCH and views from public areas in the hillsides above PCH, and is consistent with all scenic and visual resource policies of the LCP. Impacts to scenic and visual resources will not be significant.

7. Does not create any additional parcels in an area where adequate public services are not available and will not have significant effects, either individually or cumulatively, on coastal resources.

The subject property will be served by adequate public services, including water and utilities. An OWTS is proposed onsite. As described in the Findings of Section IV, Item B, the project will not have significant effects on coastal resources, including bluewater views from PCH. The project is a single-family residence on a single merged parcel zoned for single-family residential use. The parcel zoning and land use designation are consistent with the General Plan. Therefore, the residential development was anticipated in the General Plan and no cumulative effects are anticipated. The project does not include any requests for relief from MMC or LIP standards and is consistent with all regulations and standards of the LIP and MMC.

8. Does not create any parcels without the appropriate conditions for a properly functioning onsite
wastewater treatment system or connection to the Civic Center Wastewater Treatment Facility (if applicable), or without an adequate water supply for domestic use.

Los Angeles County Waterworks District 29 and the City Environmental Health have approved the project for water availability and the OWTS, respectively. The project is required to comply with conditions of approval for the OWTS.

9. Is consistent with the maximum density designated for the property by the Land Use Plan map and the slope density criteria (pursuant to Section 15.6 of the Malibu LIP).

The property is designated Rural Residential, Two-Acre (RR-2) on the LCP Land Use Map and Zoning Map, which allows one single-family residence on a minimum 2-acre lot. The proposed project is one single family residence on 6.36-acre property. Therefore, the project is consistent with the maximum density designated.

10. Does not create any parcels that are smaller than the average size of surrounding parcels.

The LM will create a single parcel of 6.36 acres. Surrounding parcels are zoned RR-2 and RR and range from 0.24 to 6.62 acres. The average parcel is 0.78 acre. Therefore, the subject parcel is one of the larger in the surrounding area.

11. Does not subdivide a parcel that consists entirely of ESHA and/or ESHA buffer or create a new parcel that consists entirely of ESHA and/or ESHA buffer.

The LM will create a single parcel from two parcels, one of which is characterized mostly by ESHA or ESHA buffer and steep slopes. Therefore, through the LM, the ESHA and ESHA buffer will be located on the subject parcel and will be protected from development, including grading and fuel modification, and will be sited within the required 31 percent view corridor where development is not allowed.

12. Does not create any new parcels without an identified, feasible building site that is located outside of ESHA and the ESHA buffer required in the LCP and that would not require vegetation removal
or thinning for fuel modification in ESHA and/or the ESHA buffer.

As described in Finding D.12 above, the LM will create a parcel with a feasible building site located outside of ESHA and ESHA buffer, and for which all grading and required fuel modification can be accomplished outside of the ESHA and ESHA buffer. The fuel modification activities (outer Zone C) will be no closer than 20 feet from the ESHA buffer.

13. Does not result in construction of roads and/or driveways in ESHA, ESHA buffer, on a coastal bluff or on a beach.

No development, including roads or driveways, are proposed in the ESHA or ESHA buffer on the property. As described in Section III, Item D, the property is not a coastal bluff. The property is adjacent to PCH and is not on a beach. Properties along Malibu Road downslope of the subject property front the beach.

14. Does not create any parcel where a shoreline protection structure or bluff stabilization structure would be necessary to protect development on the parcel from wave action, erosion or other hazards at any time during the full 100 year life of such development.

The subject property is not along the shoreline, and the project does not require a shoreline protection structure or bluff stabilization structure. The subject property borders PCH on the north, and the closest roadway to the south is Bayshore Drive, which is above Malibu Road. Parcels along Malibu Road front the shoreline. Consistent with Section III, Item D, the property is not a bluff.

Soldier piles, tiebacks, and other geotechnical mechanisms are proposed onsite as part of the project and will stabilize the slope just south of the subject property.

15. If located on a beachfront parcel, only creates parcels that contain sufficient area to site a dwelling or other principal structure, onsite wastewater treatment system, if necessary, and any other necessary facilities without development on sandy beaches or bluffs.

The subject property is not a beachfront parcel, rather is upslope from the shoreline. It borders PCH on the north, and the closest roadway to the south is Bayshore Drive, which is above Malibu Road. Parcels along Malibu Road front the shoreline.

16. Includes the requirement to acquire transfer of development credits in compliance with the provisions of the LCP, when those credits are required by the Land Use Plan policies of the LCP.

As described in Section III, Item E, a transfer of development credits is not required of the project, as the project includes a LM to combine two parcels into a single parcel, whereby one single-family residence is allowed on the property.

SECTION 6. City Council Action.

Based on the foregoing findings and evidence contained within the record, the City Council hereby approves CDP No. 19-012, COC No. 19-009, and LM No. 24-002, subject to the conditions in Section 6.

SECTION 7. 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. Swimming pools and spa;
    d. OWTS, including a 7,540-gallon septic tank;
    e. New landscaping and hardscape, including permeable driveways;

f. Perimeter fencing not to exceed 42 inches in height along the north property line and an entry gate;
g. Retaining walls up to six feet in height; and
h. 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 No. 2 and depicted on the following plans on file with the Planning Division:

a. Architectural dated April 16, 2025, except as amended by sheets FS100, Z102, Z106, Z107, Z112, Z113, A100 through A107, A200 through A207, and A300 through A303, dated January 27, 2026.
b. Civil dated January 27, 2026.
c. Landscape dated August 11, 2021.
d. Fire access plan stamped approved by the LACFD December 30, 2021.
e. Fuel modification plan stamped approved by the LACFD November 22, 2023.

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. In no instance shall onsite vegetation block views protected in Condition No. 35.

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

33. All project plan sheets (including architectural, civil, landscape, fire access, and fuel modification) shall be made consistent with the revised plan Sheets FS100, Z102, Z106 through Z107, Z112 through Z113, A100 through A107, A200 through A207, and A300 through A303, dated January 27, 2026, prior to Building Safety plan check review.

34. Public bluewater views from Pacific Coast Highway through the subject property shall be maintained to the maximum extent feasible and consistent with Plan Sheets Z112 through Z113 and A200 through A207, dated January 27, 2026. No roof equipment, parapet, or other rooftop appurtenances or structures shall be permitted so as to impede upon public bluewater views from PCH.

35. The development shall not block views of the horizon line of the Pacific Ocean nor views of the western Santa Monica Bay as seen by travelers going westbound, also known as northbound, along Pacific Coast Highway.

36. The applicant shall incorporate vibration monitoring during construction of the proposed residence if such testing is determined to be beneficial by the City.

Certificate of Compliance/Lot Merger

37. 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.

38. 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

39. 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.

40. Prior to final Planning approval, the applicant shall submit an application to 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

41. 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.

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

43. 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.

44. 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.

45. 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.

46. 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.

47. 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

48. 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.

49. 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

50. 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.

51. 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.

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

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

54. 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). In no instance shall onsite vegetation block public views protected in Condition No. 35.

55. 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. In no instance shall onsite vegetation block public views protected in Condition No. 35.

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

57. 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).

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

59. 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.

60. 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.

61. 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.

62. 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.

63. 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.

64. 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.

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

66. 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.

67. 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.

68. 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.

69. 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.

70. 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.

71. 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.

72. 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

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

Street Improvements (Public Works)

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

75. 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.

76. 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.

77. 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.

78. 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.

Grading/Drainage (Public Works)

79. 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.

80. 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.

81. 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.

82. 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.

83. 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.

84. 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.

85. 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.

86. 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.

87. 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)

88. 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.

89. 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 with 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.

90. 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."

91. 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.

92. 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.

93. 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 biofiltrate 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.

94. 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.

95. 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.

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

Other Public Works

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

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

99. 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.

100. 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.

101. 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.

102. 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

103. 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.

104. 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

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

106. 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).

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

108. 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)

109. 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.

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

Onsite Wastewater Treatment System (OWTS)

111. 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.

112. 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 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).

113. 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).

114. 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.

115. 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.

116. 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.

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

118. 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.

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

120. 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.

121. 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.

122. 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.

123. 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.

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

125. 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.

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

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

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

129. 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.

130. 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.

131. 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 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).

132. 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.

133. 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.

134. 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

135. 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.

136. 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.

137. 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.

138. 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

139. 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.

140. 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.

141. 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.

142. 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.

143. 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

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

145. 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

146. 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.

147. 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.

148. The garage area shall be limited to accessory use as defined by the City of Malibu Local Coastal Pall be 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.

149. 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 (342 feet, 7 inches) of property width shall be established and maintained, as stipulated in Condition No. 39 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.

150. Any future improvements to the single-family residence and related development approved under this permit that modify height or mass shall require a CDP.

SECTION 7. The City Clerk shall certify to the passage and adoption of this resolution and enter it into the book of original resolutions.

PASSED, APPROVED AND ADOPTED this 18th Day of November 2026.

_____
BRUCE SILVERSTEIN, Mayor

ATTEST:

_____
KELSEY PETTIJOHN, City Clerk
(seal)

APPROVED AS TO FORM:

_____
TREVOR RUSIN, Interim City Attorney

COASTAL COMMISSION APPEAL – An aggrieved person may appeal the City Council's approval of the Coastal Development Permit 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 in person at the Coastal Commission South Central Coast District office located at 89 South California Street in Ventura, 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.

CITY OF MALIBU
RECEIVED
FEB 27 2026
PLANNING DIVISION

City of Malibu

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

PLANNING DIVISION
COASTAL DEVELOPMENT PERMIT
NOTICE OF APPEAL CHECKLIST

Actions Subject to Local Appeal: Pursuant to Local Coastal Program (LCP) Local Implementation Plan (LIP) Section 13.20.1 (Local Appeals), a decision or any portion of the decision of the Community Development Director may be appealed to the Planning Commission by an aggrieved person, and any decision of the Planning Commission may be appealed to the City Council by an aggrieved person.

Deadline and Fees: Pursuant to LIP Section 13.20.1, an appeal shall be filed with the City Clerk within 10 days following the date of action for which the appeal is made, as indicated in the decision. If the tenth day falls on a weekend or a City-recognized holiday, the deadline shall extend to the close of business at City Hall on the first business day (whether whole or partial) following the weekend or a City-recognized holiday. Appeals shall be accompanied by the filing fee of $750 as specified by the City Council.

To perfect an appeal, the form must be completed, together with all the necessary attachments, and must be timely received by the City Clerk either in person or by mail addressed to City of Malibu, Attn: City Clerk, 23825 Stuart Ranch Road, Malibu, CA 90265. For more information, contact Patricia Salazar, Development and Operations Manager, at (310) 456-2489, extension 245.

Part I. Project Information

1. What is the file number of the Coastal Development Permit you are appealing?
   CDP No. 19-012 / Planning Commission Resolution No. 26-05
2. On what date was the decision made which you are appealing?
   February 17, 2026
3. Who made the decision you are appealing?

   ☐ Community Development Director ☒ Planning Commission

4. What is the address of the project site at issue?
   25200 Pacific Coast Hwy, Malibu, CA 90265

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Part II. Appeal Summary

1. Indicate your interest in the decision by checking the appropriate box.

   ☐ I am the Applicant for the project

   ☒ I am the neighbor

   ☐ Other (describe)

   _____

   _____

2. If you are not the applicant, please indicant the applicant's name:
   PAR PCH, LLC & 180 PCH, LLC

3. Indicate the nature of your appeal.

   a) Are you appealing the ☒ approval or ☐ the denial of the application or ☐ a condition of approval?

   b) Each approval is accompanied by a list of specific conditions. If you are appealing one or more of the conditions of approval, list the condition number and state the grounds for your appeal. (Attach extra sheets if necessary.)

   _____

   _____

4. Check the appropriate box(es) to indicate which of the following reasons forms the basis of your appeal:

   ☒ The findings or conditions are not supported by the evidence, or the decision is not supported by the findings: or

   ☐ There was a lack of fair or impartial hearing: or

   ☒ The decision was contrary to law.

   You must next provide a specific statement in support of each of the bases for appeal that you have checked above. Appeals that are stated in generalities, legal or otherwise, are not adequate. (Attach extra sheets if necessary.)

   The findings required by Malibu Local Implementation Plan sections 13.9(A) and 13.9(C), requiring that the Project conforms with the City's Local Coastal Program and that the Project is the least environmentally damaging

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Each coastal development permitting decision made by the Community Development Director or the Planning Commission is accompanied by written findings. The written findings set forth the basis for the decision. If you have checked the first box in this section as a ground for your appeal, you must indicate the specific finding(s) you disagree with and give specific reasons why you believe the finding(s) is/are not supported by the evidence or why the decision is not supported by the findings. Appeals stated in generalities, legal or otherwise, are not adequate. (Attach extra sheets if necessary.)

alternative, respectively, are unsupported by the evidence. In particular, this corresponds to Findings A.2 and A.3 of Planning Commission Resolution No. 26-05. Additionally, the Commission's findings relating to scenic and visual resources (LIP Chapter 6), hazards (LIP Chapter 9), blufftop development (LIP Chapter 10), and land divisions (LIP Chapter 15) are similarly unsupported by the evidence. For the reasons explained in our comments to the Commission (Angel Law letter, dated 12/16/2025), the Project is noncompliant with the applicable Malibu LCP. For further detail on specific findings and reasons, please see Attachment A.

Part III. Appeal Checklist

ALL of the following must be timely filed to perfect an appeal.

1. ☒ Completed Appeal Checklist (This form with appellant's signature)

2. ☒ Appeal Fee $750

   The appeal fee must be submitted in the form of a check or money order made payable to the City of Malibu. Cash will not be accepted.

3. ☒ Mailing Labels and Radius Maps for Public Notice to Property Owners and Occupants

   Public Notice of an appeal must conform to the manner in which the original notice was given. The notice radius for appealable CDPs and non-appealable CDPs that do not require a public hearing is 100 feet for property owners and residents. The notice radius for non-appealable CDPs that require a public hearing is 300 feet for property owners and 100 feet for residents.

   The mailing labels and radius map **must be certified** by the preparer (a form is available at the public counter): certification may not be more than six months prior to the date of submittal; the radius map must be provided on an 8½" x 11" paper; the mailing labels must be printed on 8½" x 11" paper, 3 columns, 10 rows (e.g. Avery 5160).

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Part IV. Signature and Appellant Information

I hereby certify that the appeal submittal contains all of the above items. I understand that if any of the items are missing or otherwise deficient, the appeal is ineffective and the filing fee may be returned. IN ORDER TO PERFECT AN APPEAL, ALL APPEAL SUBMITTALS MUST BE COMPLETE BY THE DEADLINE. NO EXTENSIONS WILL BE ALLOWED FOR APPELLANTS WHO ONLY PARTIALLY COMPLY WITH THESE REQUIREMENTS AS OF THE DEADLINE. IF AN APPEAL IS NOT PERFECTED BY THE DEADLINE, THE DECISION BECOMES FINAL.

Jun Hall for
Concerned Citizens of Malibu Road, Inc.
PRINT APPELLANT'S NAME

[redacted]
TELEPHONE NUMBER

APPELLANT'S SIGNATURE

February 27, 2026
DATE

Appellant's mailing address: [redacted]

Appellant's email address: [redacted]

OFFICE USE ONLY

Action Appealed: CDP 19-012 / AP No. 26-007

Appeal Period: 2/18/26 - 2/27/26

Date Appeal Form and required documents submitted: 2/27/26 Received by: Adriana Peralta

Appeal Completion Date: 2/27/26 by: Rebecca Evans, Senior Management Analyst
(Name, Title)

Doc ID: 9fec4c6ee4443f039484ff2ff4dfe3a5c5b70df7

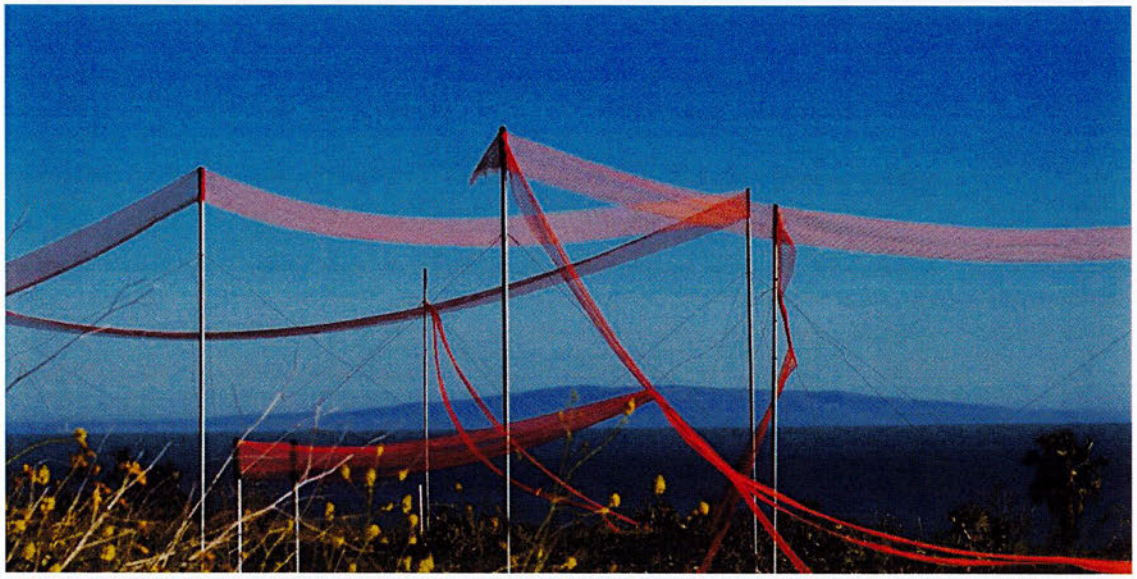
ATTACHMENT A TO APPEAL OF CONCERNED CITIZENS OF MALIBU ROAD, INC. FROM MALIBU PLANNING COMMISSION DECISION (RESOLUTION NO. 26-05)

I. Basis for Appeal No. 1 Ctd. ("The findings or conditions are not supported by the evidence, or the decision is not supported by the findings."):

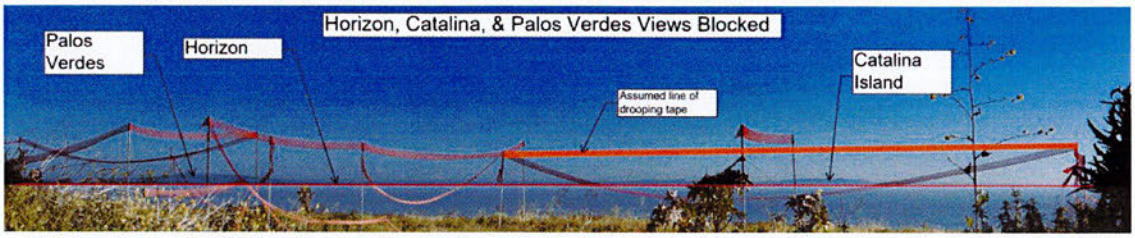
a. Scenic, Visual, and Hillside Resource Protection

The Planning Commission's (**Commission**) Findings related to scenic, visual, and hillside resource protection are unsupported by substantial evidence. This specifically includes Finding B.1 that "there are no other feasible alternatives to development…that would avoid scenic and visual impacts including bluewater views," and that the Project "will not result in significant adverse impacts to scenic and visual resources from PCH, including bluewater views." (Resolution No. 26-05 (**Resolution**) at p. 6.) Likewise, Finding B.2, which states that "the project is the least damaging environmentally feasible alternative," is not supported by evidence. (*Id.* at p. 7.)

The Commission's deliberation of public view impacts during the January 20, 2026, and February 17, 2026, public hearings primarily focused on the westbound scenic view of Point Dume and the west end of Santa Monica Bay. These discussions, however, failed to meaningfully include the Project's significant adverse impacts on public views of Catalina Island and the Palos Verdes Peninsula, as well as the Pacific horizon line abutting these natural scenes. As shown in the images below, iconic public views of these landmarks are entirely obscured by the Project's story poles. The Applicant's choices to lower the building pad in communal areas of the main residence by two feet and to eliminate the proposed guest house, and the Commission's amendments to Condition of Approval No. 35, fail to mitigate such impacts.



Public views of Catalina Island, as seen from PCH, are completely blocked by the Project.



Public views of the Palos Verdes Peninsula, Catalina Island, and the Pacific horizon line are completely blocked by the Project.

Furthermore, the Resolution and the staff reports only analyzed, and determined infeasible, alternatives such as clustering development, relocation of buildings, or substantial slope grading that would set buildings fully below PCH grade.[1] Although a larger reduction in Total Development Square Footage (**TDSF**) was considered both by Commissioner Kamins and by the staff reports, Commissioners Peak and Leonard concluded that a house with a smaller TDSF, even if producing less impact, would still produce some level of adverse impacts (i.e., it would reduce, but not eliminate, the loss of views). (January 20, 2026, Hearing Video, at 03:17:31.)

These statements fundamentally misconstrue the requirement of Malibu Local Implementation Plan (**MLIP**) section 6.4(A)(4), which require that there must be "no feasible alternatives to development that would avoid *or substantially lessen* any significant adverse impacts on scenic and visual resources.[2] (Italics added.) In other words, even if adverse impacts cannot be eliminated entirely, the fact remains that it is possible to substantially reduce such impacts through a smaller Project size. Commissioner Peak corroborated this reality by agreeing that a substantially smaller house would be a feasible alternative, but that such a project is "not what's in front of us." (January 20, 2026, Hearing Video, at 03:18:30.) Likewise, the Resolution itself considered reducing the Project's TDSF, but ultimately concluded that this alternative would not necessarily decrease bluewater view impacts because "the building heights could continue to be up to 18 feet in height, consistent with LIP allowances."[3] The Commission ignores the reality of MLIP section 6.4(B): that the Project "shall be modified, by special condition, relative to *height*, *size*, design, or location on the site…to avoid or *minimize* the adverse scenic impacts of the proposed development." (Italics added.) Section 6.4(B) thus not only gives the City the express authority to reduce the Project's height and size, but it mandates that the City do so. Even if the Project "in front of" the Commission proposes a large development, and even if the MLIP by default allows for greater maximum heights, the City can -- and must -- require that the Project's footprint is further reduced in a manner that is most protective of Malibu's critically important scenic and visual resources.

The Applicant's representative claimed that the requirement of a substantially smaller 2,000 to 3,000 square foot house could potentially create a regulatory taking. (February 17, 2026, Hearing Video, at

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[1] Resolution at pp. 4–6.
[2] The view corridor required by MLIP section 6.5(E)(2) for projects that cannot be set entirely below low grade is a requirement that exists in addition to section 6.4(A)(4), not as a replacement for it.
[3] Resolution at p. 5.

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01:59:02.) This assertion ignores the possibility that the City could allow the Project to retain a TDSF that is the same or similar as the TDSF proposed, but with a special condition that further reduces maximum building height. This option could avoid the problems identified in other alternatives, as it would not require lowering the building pad further or require additional grading and slope encroachment, it would not change building locations on the narrow lot, nor would it impede designated ESHA or the ESHA buffer. Neither this alternative, or an alternative that would keep the lots separate, were ever meaningfully analyzed in the staff reports or by the Commission itself.

As a result, the Planning Commission's approval of the Project, including Findings A.2, A.3, B.1, and B.2, was unsupported by evidence. The Commission proceeded in violation of MLIP sections 13.9 and 6.4, as the Project as proposed and conditioned is not the least environmentally damaging alternative. The Commission fully retains the authority to substantially lessen significant adverse impacts on scenic and visual resources by conditioning the Project to reduce its maximum height, without lowering the building pad further through excessive grading or otherwise changing the buildings' configuration.

b. Geological Hazards

The Commission's findings regarding geological hazards -- in particular Findings C.1, C.2, C.5, and C.6 -- are not supported by substantial evidence. These findings include, among other things, statements that the Project is the "least environmentally damaging alternative"; that the Project "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"; and that "there are no preferable feasible project alternatives to improve site stability or structural integrity beyond that of the proposed project."[4]

MLIP section 9.4(A) requires that the Project must be "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." Likewise, as stated in the letter submitted to the Commission by Angel Law on December 16, 2025 (additionally provided herein as **Attachment B**), the Malibu 2013 Geotechnical Report Guidelines require that the Project address the effects of the proposed development on adjacent properties over time. This includes a finding under MLIP section 9.4(D) that the Project has achieved a static factor of safety of at least 1.5.

In addition to the arguments and evidence detailed in Attachment B, the record demonstrates that the Applicant's original geotechnical analyses on March 25, 2021, and November 18, 2021, relied on stabilization techniques such as 100-foot-deep soldier piles, specifically placed along the steeper 3-to-1 downslope area of the property. The achievement of the required 1.5 factor of safety assumed this engineering configuration in order to stabilize the mapped and historic landslide masses present on the property. As of the January 6, 2023, Feffer geotechnical report, however, as many as 20 of these soldier

[4] Resolution, at pp. 8–9.

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piles and 37 of the 77 caissons have been shifted north by at least 20 feet to the top of the slope, toward the flat building pad. According to the City's Geotechnical Review Sheet dated February 14, 2023, these revised soldier pile locations were *not acceptable* from a geotechnical perspective and potentially required revised slope stability analyses. This disagreement from City staff makes sense; the relocation means that the portion of the property between the new soldier pile sites and the property line -- exactly where landslide risks are the greatest due to identified historic slide masses -- is no longer supported. At this upslope placement, the soldier piles' depths are now too shallow to intercept the landslide planes documented by prior project geologists. The piles are shallower than the slide planes that extend into and under the subject property, including the mass identified below the main residence's primary bedroom.

Removing support from where it is most critically needed for an unstable slope, especially for such a large development, threatens to induce downslope failures directly toward adjacent properties on Malibu Road and Bayshore Drive. The fact that the slopes are far steeper in the piles' original locations is precisely why support is needed there. Instead moving the piles upslope to avoid needing a variance for steep slope construction is inappropriate and antithetical to the safeguards required by MLIP sections 9.3 and 9.4. At the very minimum, the Applicant must re-calculate and the City must review new analyses and studies that calculate geologic stability based on this material alteration of the Project's stabilization system.

This has not been done. The Applicant's March 17, 2023, Feffer geotechnical report instead memorialized a verbal agreement with City geotechnical reviewers that additional calculations, if required, could be addressed during the plan check phase. Feffer went on to state in this report that "[i]t is our opinion that due to the very conservative design of the slope stabilization system…the movement of this system slightly north, to stay off of the descending slope, will not negatively impact the site's overall gross stability." Not only was this opinion made without any additional calculations or analyses regarding the factor of safety, but it also exclusively refers to confidence in stability for the subject property site alone. It fails to ensure, as required by MLIP section 9.4(A) and the Malibu 2013 Geotechnical Report Guidelines, that this change will in no way contribute to instability on or off the subject site.

The City's April 11, 2023, Geotechnical Review Sheet, as well as the staff presentation by Allison Cook on January 20, 2026, both confirm that the project was approved without the Applicant's recalculation of the slope stability analysis for the revised soldier pile locations, and that this info will only later be required at the plan check stage. As a result, no new analyses demonstrate that this revised configuration meets the 1.5 static factor of safety required by MLIP section 9.4(D), even after substantially changing the system upon which the Project's original geotechnical approval relied. It is simply not enough for the City to claim that the new pile locations and designs will be looked at during plan check "to make sure they're going to be deep and wide enough with possible tie backs to meet the required factor of safety." (February 17, 2026, Hearing Video, at 02:24:29.) The Project must demonstrate that it already achieves the appropriate factor of safety now, not based on outdated plans.

In sum, the Commission's approval of the Project, including Findings A.2, A.3, C.1, C.2, C.5, and C.6, was unsupported by evidence. The Commission proceeded in violation of MLIP sections 13.9 and 9.3, as the

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Project as proposed and conditioned is not the least environmentally damaging alternative. The Project was approved from a geotechnical standpoint only by assuming soldier pile locations that have since been materially altered, thereby leaving critically important slide zones without any kind of support or stabilization. Amid a myriad of urgent safety concerns regarding geology, the evidence is insufficient to demonstrate that "the proposed project does not impact site stability or structural integrity."[5]

c. Blufftop Development

The Commission's approval of Resolution No. 26-05 is not supported by the findings, as the Commission failed to make any findings under to MLIP Chapter 10 for new blufftop developments. The Applicant represented to the Commission that the Project site is not on a coastal bluff, and that other homes located closer to the shoreline than the Project have previously not been found to be bluff projects. (January 20, 2026, Hearing Video, at 02:35:20.) These assertions ignore the reality set forth by the MLIP, which expressly defines a "coastal bluff" as including "a high bank or bold headland, ten feet (10') or more in vertical extent, with a broad, precipitous, sometimes rounded cliff face overlooking a body of water." (MLIP, § 2.1.) The Applicant's reliance on homes closer to the shoreline is irrelevant here, as those homes were all found to be at lower elevations than the Project site in question. Here, the subject property exactly fits the MLIP definition for a coastal bluff: it is on a site that is very steep in vertical extent, with a rounded cliff face overlooking the Pacific Ocean.

Accordingly, findings must be made regarding the development standards and other requirements of MLIP Chapter 10. Specifically, MLIP section 10.4(B) requires that new development on oceanfront bluffs must be sited outside areas that would be subject to hazards "at any time during the full projected 100 year economic life of the development." The Project's development plans must be designed to ensure long-term stability over 100 years, including by considering hazards that both currently affect the property "as well as hazards that can be anticipated over the life of the structure," (Malibu Land Use Plan (**LUP**), Policy 4.23), such as slope instability and expected erosion during that time frame. (MLIP, § 10.4(D)(2).) Although the January 20, 2026, staff presentation indicated that the Project will generally demonstrate long-term stability and feasibility, these statements were (1) made with geotechnical approvals that assume the former soldier pile locations, as explained above, and (2) without making Chapter 10's specific findings, including the 100-year analysis of instability and erosion. Ultimately, the approval of Resolution No. 26-05 is not supported by the findings, as the Commission failed to apply MLIP Chapter 10 relating to new developments proposed atop coastal blufftops.

d. Land Division

The Commission's findings regarding the Lot Merger, including Findings D.1, D.2, and D.3, are not supported by substantial evidence. Finding D.1, stating that "as conditioned, development is safe from flooding, erosion, geologic, and extreme fire hazards," is unsupported for the reasons stated above in our

[5] Resolution, at pp. 8–9.

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discussion of geologic hazards. Moreover, the Project failed to adequately analyze the development alternative of keeping the two lots separate (i.e., denying the lot merger alone.) Smaller lots have the potential to allow smaller, safer homes on each parcel, reduced grading and stabilization demands, greater open space retention, and greater preservation of bluewater views. Compared to the unusually longer main residence proposed by the Project, which might block people's escape or egress during an emergency event, two smaller lots with separate structures would provide residents or visitors on the property with gaps to safely escape the lot.

Findings D.2 and D.3, which provide that the "project site enables impacts to visual resources, including bluewater views, to be minimized to the extent feasible," and that the Lot Merger "is consistent with all policies and standards of the LCP that protect ESHA or visual resources of the coastal zone," are similarly unsupported for the reasons stated above in our discussion of scenic, visual, and hillside resource protection. As a result, these findings, and therefore Findings A.2 and A.3 regarding Local Coastal Program consistency and the least environmentally damaging alternative, fail to support the Project's approval.

II. Basis for Appeal No. 3 ("The decision was contrary to law."):

The Planning Commission's decision was contrary to law for the reasons stated in Section 1 above. It was also contrary to law because the Commission approved a legally unsupported exemption of the Project from the California Environmental Quality Act. (**CEQA**; Pub. Resources Code, § 21000.)

The Resolution adopted by the Planning Commission states:

> "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."

(Resolution, § 2, at p. 2.) This language is unchanged from previous versions of the Resolution, including the version provided in the December 16, 2025, staff report. Angel Law's letter in Attachment B provided substantial comments to the City, incorporated by reference in this appeal, explaining why the Class 3 categorical exemption from CEQA is inappropriate. Upon review of published case law, the Project's total TDSF -- which still occupies as much as 95 percent of the maximum allowable TDSF, even after removal of the guest house -- renders it completely outside of the scope of the Class 3 exemption. The required narrow interpretation of CEQA exemptions should not allow a Project of this size to be avoid even an Initial Study under an exemption category that explicitly applies to the new development of "small" structures.

The Commission and its staff never mentioned, much less responded to, Angel Law's comments concerning the CEQA exemption, whether in the two subsequent staff reports or in either public hearing date. The staff presentation on January 20, 2026, when summarizing public comments received by the City, did not list or reference any comments made regarding the CEQA exemption.

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The Commission and its staff similarly never responded to, rebutted, or otherwise addressed Angel Law's comments responding to the Resolution's finding that none of the exceptions to the use of a categorical exemption apply. (Resolution, § 2, at pp. 2–3.) As discussed at length in Attachment B, both alternative analyses of the unusual circumstances exception, as well as the location exception and the scenic highways exception, preclude the Project's reliance on Class 3.

The Project's massive size and its unstable landslide location, as designated by both the state and the city, constitute unusual circumstances that distinguish it from other projects that have relied upon this exemption. 90% of the City's 272 publicly available Notices of Exemption on the state CEQAnet Web Portal proposed a TDSF lower than 7,500 square feet, and only one other project proposed a TDSF greater than 8,555 square feet. Furthermore, city staff throughout both hearing dates repeatedly stated that the geotechnical factor of safety is met through mitigation and engineering improvements such as soldier piles, caissons, and tiebacks. On January 20, Tyler Eaton and geotechnical consultant Josh Feffer stated that the Applicant's slope stability improvements help the Project to meet the appropriate factor of safety threshold. (January 20, 2026, Hearing Video, at 03:04:50, 03:14:58.) This means that without such measures, the threshold cannot be met, and significant slope instability will occur. As mentioned in Attachment B, these mitigation measures 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 language that exemptions should be provided to projects that are "determined not to have a significant effect on the environment." (CEQA Guidelines, § 15300.) Mitigation measures cannot be the basis for a categorical exemption and must instead be evaluated through proper environmental review.[6]

Moreover, the location exception and scenic highways exception apply as discussed in Attachment B. The Project is located in an environmentally sensitive area in which public views, as environmental resources of public importance, will be impacted by the Project. The Pacific Coast Highway, which Malibu has designated as a protected Scenic Road under the Malibu Land Use Plan, Policy 6.3(a), is faced with significant adverse impacts to public bluewater views.

As a result, the Planning Commission's decision to exempt the Project from CEQA is contrary to law, and therefore must be reversed by the City Council of Malibu.

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[6] *Salmon Protection & Watershed Network v. County of Marin* (2004) 125 Cal.App.4th 1098, 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).]

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ATTACHMENT B TO APPEAL OF CONCERNED CITIZENS OF MALIBU ROAD, INC. FROM MALIBU PLANNING COMMISSION DECISION (RESOLUTION NO. 26-05)

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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]

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[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

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[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.

The Planning Commission Should Reject the Class 3 CEQA Exemption

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

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[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

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[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)

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[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:

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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

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TEL (760) 473-4117 Email Rnkjeffery@SBCGlobal.net

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Pacific Coast Land Consulting
Engineering Geologic Services

December 12, 2025

FN: 25200LS-25-100

Ralph K. Jeffery, CEG 1183
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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

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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

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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.

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Pacific Coast Land Consulting

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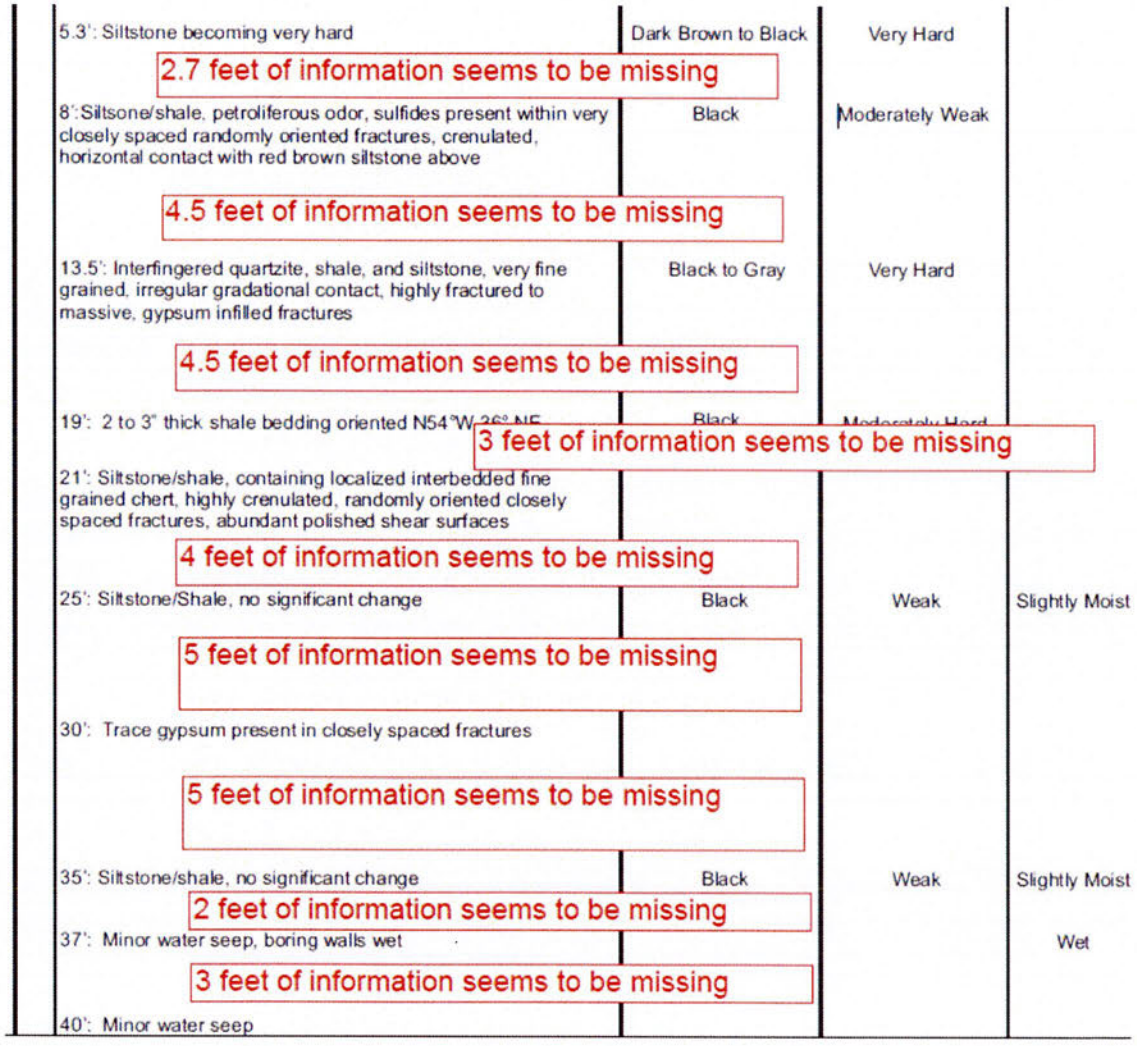

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40': Minor water seep		
~4 feet of information seems to be missing		
44.4-48': 2-3" thick clay bedding oriented N80°W 27°N, clay is very plastic, very sticky, abundant gravels and fractured bedrock at base of clay bed, continuous around boring	Gray 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

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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, 26° 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	Slighty 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	Slighty 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

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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 Aug
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
40		R: d. 30SE						slide at 19' ancient
								@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 surfaces, very strong odor. Shearing dips northerly.
50		(6-12-79)	7	24	85.2	25.9	CL	@49' Concretionary layer. Below still very sheared siltstone to caving. Must log every inch, slide planes could be 1/4"
		Caving and standing H_2O (6-14-79)						(Down hole logged to at 53.5'; Hole caved to 54'
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)					BEDROCK

T.D. 60.5'
Downhole logged to 57'
Seepage at 32.2', standing water at 53.5' and
Hole [illegible] at 54' [illegible] standing H_2O @ 50' and

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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.

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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

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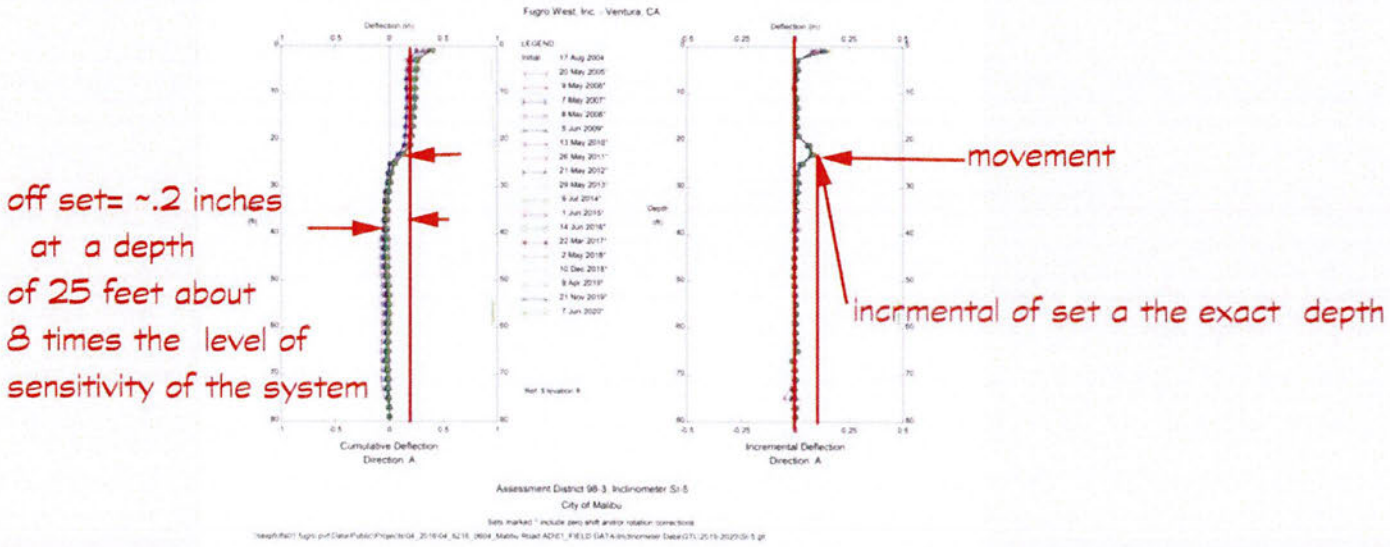
subparallel to the slope of the land consequently is substantially higher, than that which was analyzed.

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)

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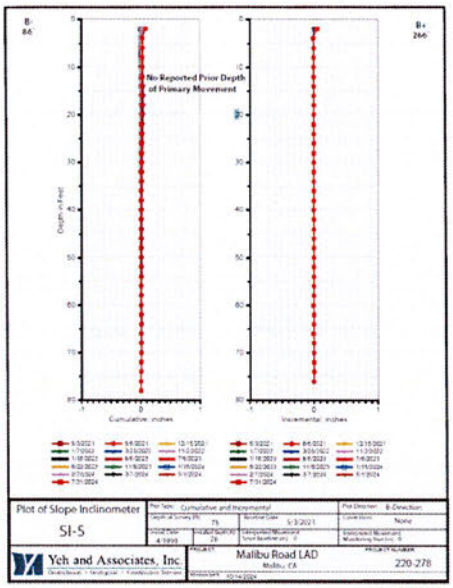

3.4 DEVELOPMENT OF A STRUCTURE CONTOUR MAP AND CITY OF MALIBU ASSESSMENT DISTRICT NO.98-3 MALIBU ROAD AND ASSESSMENT FEES

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

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- 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.

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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

ATTACHMENT C TO APPEAL OF CONCERNED CITIZENS OF MALIBU ROAD, INC. FROM MALIBU PLANNING COMMISSION DECISION (RESOLUTION NO. 26-05)

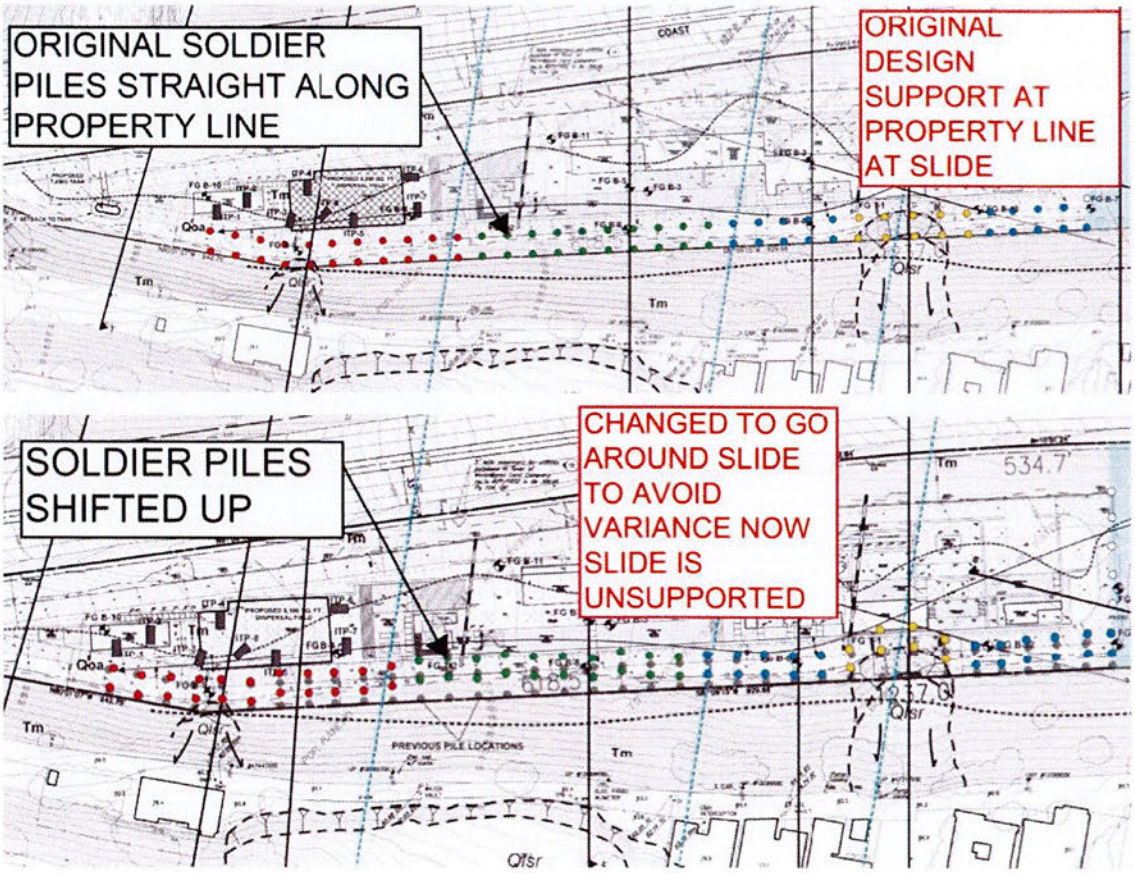
Pacific Coast Land Consulting
Engineering Geologic Services

City of Malibu **February 16, 2026**

Subject: Slope Stabilization and Protection of Residents

25200PCH Soldier Piles relocated North no longer providing Safety Factor due to the shift

When the soldier piles were moved uphill per January 6, 2023,Feffer report, they were shifted uphill from the property line without a new analysis of the unsupported area. The shift created an area between the property line and soldier piles that does not add any stabilization to meet the required safety factor. Moreover, by relocating the piles outside of the two recent landslides slide Qlsr, the piles no longer function to stabilize the identified slide mass north of the property line within the property 25200 PCH. **This will changes the stability analysis and will now require a variance.**



1525 Pepper Tree Place-Fallbrook CA
TEL (760) 473-4117-Email Rnkjeffery@SBCGlobal.net

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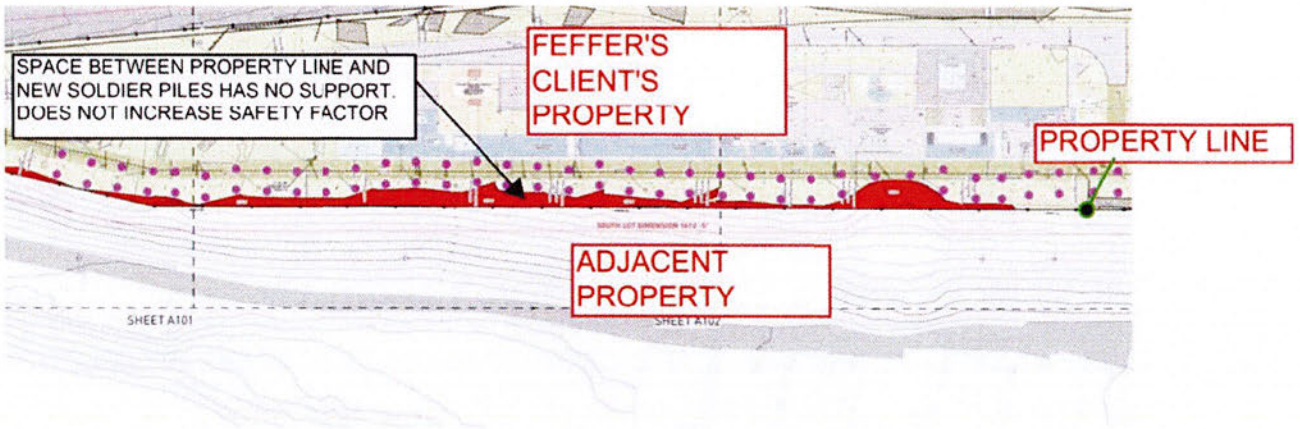

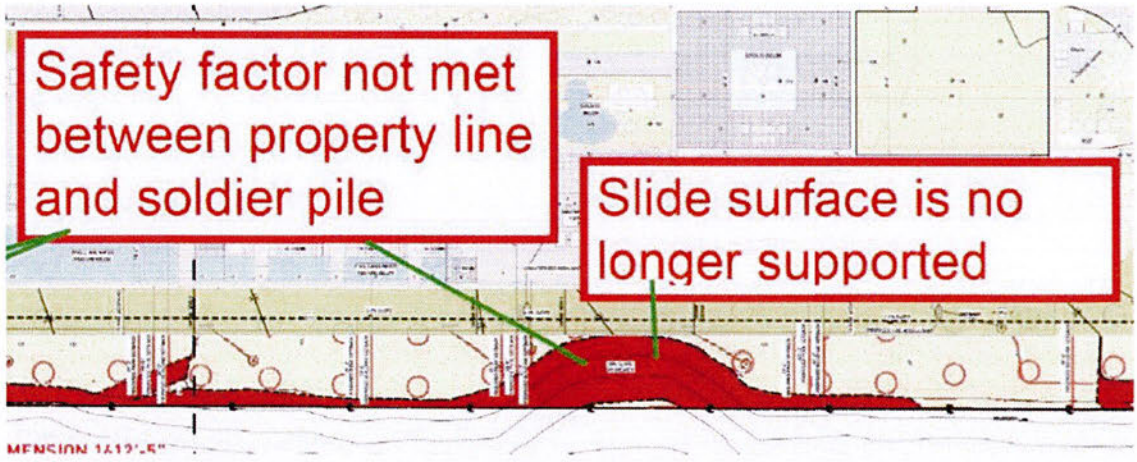

There are already 2 failures on the slope that originate from the subject property. That are not addressed nor stabilized.

The lack of stabilization withing the subject property coupled with the future infiltration of water presents an elevated risk of failure and a threat to property and life for residents below the proposed development.



Ralph Jeffery

Pacific Coast Land Consulting

CEG 1183 RG 3815

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FEFFER
GEOLOGICAL CONSULTING

January 6, 2023 File No. 1992-75

Weintraub Real Estate Group
P.O. Box 6528
Malibu, CA 90264

Subject: **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

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

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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:

As requested, Feffer Geological Consulting is providing this addendum letter to address the proposed soldier pile and tieback stabilization system required for site development. This firm previously prepared slope stability analyses to evaluate the overall gross static and seismic stability of the descending slope. Based on multiple iterations of the slope stability analyses under worst-case scenarios and evaluation by the City reviewers, we determined that the site could be stabilized by utilizing two rows of soldier piles and tieback anchors.

Originally, the soldier piles and tieback anchors were planned to be located along the southern property line, and therefore some of the piles would be located on a small portion of the descending slope. It is our understanding that the construction of the stabilization system on the descending slope would require a variance from the City of Malibu.

In order to remove the need for a variance and allow development to move forward, the proposed stabilization system will be shifted slightly north and to the top of the slope. Based on a detailed review of the updated plans and discussions with the project structural engineer, it is our opinion that the minor shift in location for the proposed stabilization system will not impact the proposed development and will not negatively impact or reduce the integrity of the stabilization system. The slight adjustment in pile locations will not negatively affect the overall gross stability of the site.

The proposed stabilization system has been conservatively designed for worst-case scenarios under both static and seismic conditions. The depths and widths of the proposed stabilization piles are not expected to change substantially. However, the final design details will be thoroughly reviewed by this firm and the structural engineer during plan

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check. Therefore, the proposed location for the stabilization system is acceptable from a geotechnical perspective.

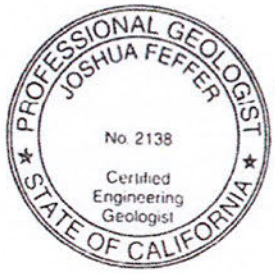
The site map illustrating the location of the previous pile locations, and the new pile locations is attached. A copy of the updated plans showing the location of the soldier piles and tieback anchors is attached at the back of this letter for reference.

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.

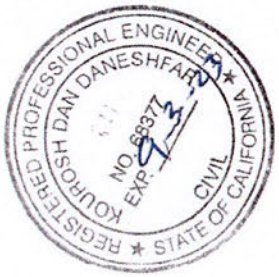
Sincerely,

FEFFER GEOLOGICAL CONSULTING, INC.

Joshua R. Feffer
Principal Engineering Geologist
C.E.G. 2138



Dan Daneshfar
Principal Engineer
P.E. 68377



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FEFFER
GEOLOGICAL CONSULTING

January 6, 2023 File No. 1992-75

Weintraub Real Estate Group
P.O. Box 6528
Malibu, CA 90264

Subject: **ADDENDUM LETTER 1**
Proposed Soldier Pile and Tieback Stabilization System
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APN: 4459-013-021, 4459-014-018

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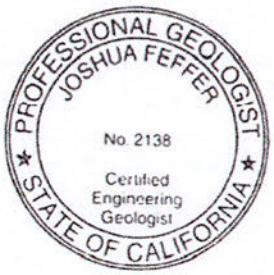

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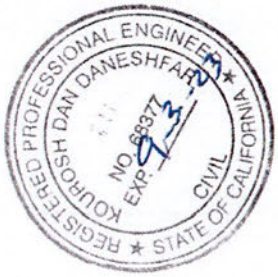

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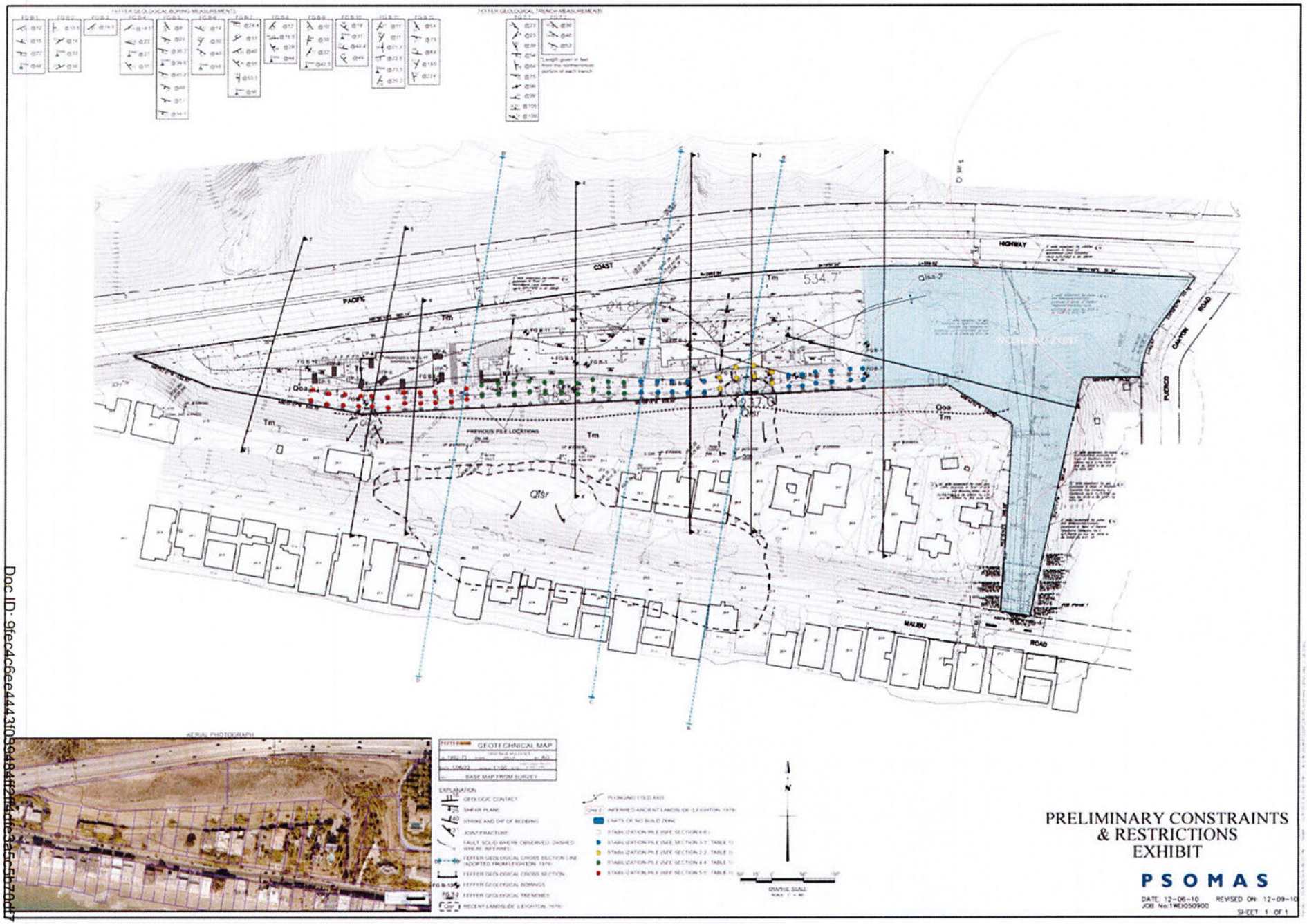

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CITY OF MALIBU GRADING NOTES

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 CONTINUATORY DRAINAGE AT ALL TIMES.
5. SECURE PERMISSION FROM CITY ENGINEER, EASEMENT GRANTEE, STATE HIGHWAY DEPARTMENT, AND/OR HOMEOWNER'S 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 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 2:1 HORIZONTAL TO 1:1 VERTICAL (2:1), EXCEPT WHERE SPECIFICALLY APPROVED OTHERWISE.
8. WHERE 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 REVIEWED 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 SYSTEMS SHALL BE REMOVED OR CAPPED, 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 COMPLETED AT THE BEGINNING OF THE SUBDRAIN CONSTRUCTION. THE LOCATION OF THE SUBDRAIN OUTLETS SHALL BE SURVEYED IN THE FIELD FOR LINE (TOWER AND REFLECTIVE) 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.
16. ALL CUT SLOPES SHALL BE INVESTIGATED BOTH DURING AND AFTER GRADING BY THE ENGINEERING GEOLOGIST TO DETERMINE IF ANY SLOPE STABILITY PROBLEMS EXISTED. SHOULD EXCAVATION DISCLOSE ANY GEOLOGICAL HAZARDS, THE ENGINEERING GEOLOGIST SHALL SUBMIT RECOMMENDED REMEDIATION TO THE BUILDING OFFICIAL FOR APPROVAL.
17. 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 DESIGN LOCATIONS, AND CALCULATIONS TO THE BUILDING OFFICIAL PRIOR TO CONSTRUCTION. THE ENGINEERING GEOLOGIST AND SOILS ENGINEER SHALL INSPECT AND CONTROL CONSTRUCTION OF THE BUTTRESSING AND CERTIFY TO THE STABILITY OF THE SLOPE AND ADJACENT STRUCTURES UPON COMPLETION.
18. WHEN CUT PADS ARE BROUGHT TO NEAR GRADE, THE ENGINEERING GEOLOGIST SHALL DETERMINE IF THE BEDROCK IS EXTENSIVELY FRACTURED OR FAULTED AND WILL REQUIRE TRANSITION MATERIAL. IF SUBDRAINS NECESSARY BY THE ENGINEERING GEOLOGIST AND SOIL ENGINEER, A COMPLETED FILL BLANKET WILL BE PLACED.
19. THE ENGINEERING GEOLOGIST SHALL PERFORM PERIODIC INSPECTIONS AND SUBMIT A COMPLETE REPORT AND MAP UPON COMPLETION OF THE ROUGH GRADING.
20. 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 OR EACH TEST.
21. THE GRADING CONTRACTOR SHALL SUBMIT A WRITTEN STATEMENT OBSERVING 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 (PREPARER) THAT THIS GRADING PLAN WAS PREPARED UNDER HIS SUPERVISION IN ACCORDANCE WITH SECTION 3318.1 OF THE MALIBU BUILDING CODE. ALL SOILS ENGINEERS' AND ENGINEERING GEOLOGISTS' RECOMMENDATIONS MUST BE INCORPORATED IN THE PLAN. THIST BE SIGNED AND DATED BY THE DESIGN ENGINEER.)
25. GRADING OPERATIONS MUST BE CONDUCTED UNDER PERIODIC GEOLOGIC INSPECTION. WRITTEN 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 DEPTAL STATING THAT THE WORK DONE IN COMPLIANCE WITH THE APPROVED GRADING PLAN.
29. TWO COPIES OF 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 INSTALLED. FURTHER, IN ANY CASE, NO PERMITS SHALL BE HELD LIABLE FOR ANY DAMAGE DUE TO OBSTRUCTING NATURAL PATTERNS.
31. GRADING OPERATIONS, INCLUDING MAINTENANCE OF EQUIPMENT, SHALL BE ACCOMPLISHED WITHIN THE LIMITATIONS OF THE NOISE ORDINANCE AND POLICIES OF THE CITY OF MALIBU.
32. ROOF GUTTERS SHALL BE INSTALLED TO PREVENT ROOF DRAINAGE FROM FALLING ON UNPROTECTED SLOPES. ROOF DRAINAGE SHALL BE CONDUCTED TO THE STREET, OR ANOTHER METHOD ACCEPTABLE TO THE BUILDING OFFICIAL.
33. ANY EXCAVATIONS ADJACENT OTHER PROPERTIES AND 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 WORK

34. ALL CUT AND FILL SLOPES SHALL 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 IN PLACE WITHIN 30 DAYS OF THE FINAL GRADING.
35. THE PLANS FOR A DESIGNED IRRIGATION SYSTEM FOR FULL COVERAGE OF ALL PLANTING ON 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 LICENSED LANDSCAPE ARCHITECT.
37. FINISH GRADING WILL BE COMPLETED AND APPROVED AND SLOPE PLANTING, IRRIGATION SYSTEMS INSTALLED BEFORE OCCUPANCY OF BUILDINGS.

FILL NOTES

38. FILE PERMITTEE, OR HIS AGENT SHALL NOTIFY THE BUILDING OFFICIAL 24 HOURS BEFORE THE GRADING OPERATION IS READY FOR THE INSPECTIONS. (THE PERMITTEE NEED NOT WAIT FOR THE INSPECTION TO APPEAR BEFORE PROCEEDING WITH THE WORK.)
39. FILL SHALL BE COMPACTED TO A MINIMUM OF 90 PERCENT OF MAXIMUM DENSITY PER ASTM D1557-LATEST VERSION IN THE ORDINANCE (LATEST SOILS FIELD DENSITY SHALL BE DETERMINED BY THE SAND CONE METHOD ASTM D 1556-LATEST VERSION, OR THE CALIFORNIA METHOD 231-C, OR OTHER METHODS APPROVED BY THE BUILDING OFFICIAL. ALL FILLS SHALL BE COMPACTED IN SUCH A MANNER AS TO ENSURE THAT UP TO THE MAXIMUM DENSITY OBTAINABLE WITH THE SPECIFIED COMPACTION EFFORT, EFFECTIVE TREATMENT IS OBTAINED THROUGHOUT THE ENTIRE PORTION OF THE FILL. [3311.2]
   a. A MINIMUM RELATIVE COMPACTION OF 90% OF MAXIMUM DRY DENSITY WITHIN 40 FT. BELOW FINISH GRADE.
   b. 95% OF MAXIMUM DRY DENSITY DEEPER THAN 40 FT. BELOW FINISH GRADE.
40. FIELD DENSITY SHALL BE DETERMINED BY SAND CONE METHOD ASTM D1557-LATEST VERSION IN THE ORDINANCE (LATEST SOILS FIELD DENSITY SHALL BE DETERMINED BY THE SAND CONE METHOD ASTM D 1556-LATEST VERSION, OR THE CALIFORNIA METHOD 231-C, OR OTHER METHODS APPROVED BY THE BUILDING OFFICIAL. [3311.2] AT LEAST ONE TEST SHALL BE PROVIDED FOR EACH 2 FEET IN HEIGHT OF COMPACTED FILL, BUT NOT LESS THAN ONE TEST FOR EACH 1,000 CUBIC YARDS OF MATERIAL PLACED. ONE TEST SHALL 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.
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. [33-A] ONE (1) FIELD DENSITY TEST (LOCATION AND DEPTH) 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. PERSONAL 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 AS EXISTING IN 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. (ALL COMPACTION REPORTS 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 INSPECTION TO APPEAR BEFORE PROCEEDING WITH THE WORK.)
   a. INITIAL INSPECTION, AFTER THE AREA HAS BEEN CLEARED OF VEGETATION AND UNAPPROVED FILL AND IT HAS BEEN SCARIFIED, BENCHED OR OTHERWISE PREPARED, AND BEFORE ANY FILL IS PLACED.
   b. KEY INSPECTION, AFTER THE EXCAVATION IS STARTED AND BEFORE THE DEPTH OF EXCAVATION EXCEEDS 10 FEET.
   c. ROUGH INSPECTIONS, WHEN APPROPRIATE FINAL ELEVATIONS HAVE BEEN ESTABLISHED, DRAINAGE TERRACE, SWALES AND OTHER DRAINAGE DEVICES NECESSARY FOR THE PROTECTION OF THE BUILDING AND OTHER IMPROVEMENTS HAVE BEEN INSTALLED AT THE TOP OF SLOPES, SUBMIT THE REQUIRED "ROUGH GRADING RECORDS". THE EXCAVATION SHALL BE EXAMINED UNTIL THE BUILDING OFFICIAL HAS APPROVED ROUGH GRADING.
   d. FINAL INSPECTION, WHEN GRADING HAS BEEN COMPLETED, ALL DRAINAGE DEVICES INSTALLED, SLOPE PLANTING ESTABLISHED, SLOPE PLANTING ESTABLISHED AND ALL IRRIGATION SYSTEM INSTALLED, SUBMIT THE REQUIRED "AS-BUILT GRADING PLAN" AND "NOTIFICATION OF COMPLETION".
   i. 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. [3315.3]
   ii. FILL INSTALLATION.
      1. AFTER THE FILL EMPLACEMENTS IS STARTED AND BEFORE THE VERTICAL HEIGHT OF THE LIFTS EXCEEDS TEN. [3315.2]
      2. DURING PREPARATION OF NATURAL GROUND AND PLACEMENT AND COMPACTION FILL. THE SOILS ENGINEER SHALL BE PRESENT DURING THE ENTIRE FILL PLACEMENT AND COMPACTION OF FILLS THE FILL EXCEEDS A VERTICAL HEIGHT OF DEPTH OF 30FT. OR RESULTS IN A SLOPE SURFACE STEEPER THE 2 HORIZONTAL 1 VERTICAL [2:1] 3.7
   iii. GRADING SHALL REQUIRE INSPECTION AFTER FORMS AND PIPES ARE IN PLACE AND BEFORE ANY CONCRETE IS POURED.
   iv. ROUGH GRADING. WHEN ALL ROUGH GRADING HAS BEEN COMPLETED AND EROSION CONTROL 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 CONTRACTOR'S RESPONSIBILITY TO NOTIFY THE PROJECT CIVIL ENGINEER OF ANY DISCREPANCIES OR REQUIRED DESIGN CHANGES BY THE APPROPRIATE CHANGES CAN BE MADE.
51. THE CONTRACTOR SHALL ENSURE THAT ALL UTILITIES AND EASEMENTS ARE ADEQUATELY PROTECTED.
52. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ALL UNDERGROUND UTILITIES. UNDERGROUND ALERT SHALL BE NOTIFIED A MINIMUM OF 48 HOURS PRIOR TO GRADING.
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 TIME OF FOOTING INSPECTION OF CONCRETE FOR THE CONSTRUCTION.
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 SOIL CONDITIONS ASSUMED IN THE CONCEPTS OF THE REPORT AS WELL AS SPECIFIC RECOMMENDATIONS FOR SLAB REINFORCEMENT AND THICKNESS SHOULD BE SUBMITTED TO THE CITY FOR REVIEW AT THAT TIME.
59. AN EVALUATION OF SOIL CORROSIVITY SHALL BE MADE IN ACCORDANCE WITH SECTION 4.2.1 OF THE CITY OF MALIBU'S GEOTECHNICAL GUIDELINES AT THE COMPLETION OF GRADING BY THE PROJECT GEOTECHNICAL CONSULTANT, AND 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 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 AND CONFIRMATION OF THE RESULTS OF ALL TESTING PERFORMED TO VERIFY COMPETENT BOTTOMS, AND LOCATIONS AND ELEVATIONS, IF 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 (3:1) UNLESS A SOILS ENGINEER OR AN ENGINEERING GEOLOGY REPORT STATING THAT SLOPES STEEPER THAN 3:1 WILL BE SATISFACTORY AND WILL NOT CREATE A HAZARD, PROVIDES 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 PROPERLY BALANCE THE GRADING OF THE PROJECT SITE. ONLY THOSE SOILS THAT ARE SO DESIGNATED ON THE PLANS "CUT MATERIAL MAY ONLY BE EXPORTED TO AN APPROVED LANDFILL OR A SITE PERMITTED TO ACCEPT MATERIAL.
63. MINIMUM GRADE OF CUT OR FILL SLOPE IS 2%.
   a. 1:1 FOR AREAS CREATED 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 PLANTING, TEMPORARY CONTROL BLANKETS, SOIL STABILIZERS OR OTHER APPROVED MEANS.
65. PROVIDE WAY AIR OR OTHER MEDIUM AT DISCHARGE END OF DRAINS NOT CONNECTED TO A PERMANENT SYSTEM. SHOW DETAIL. [3314.2]
66. ALL STORM DRAIN WORK IS TO BE DONE UNDER CONTINUOUS INSPECTION BY THE ENGINEER WITNESS 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 WINTER SEASON MUST BE SUBMITTED PRIOR TO OCTOBER 1. THE EROSION CONTROL DEVICES 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 CONSULTANTS 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 SLOP 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 (COMMO "GREEN BOOK").
74. CONTRACTORS SHALL COMPLY WITH ALL APPLICABLE DIVISION OF INDUSTRIAL REGULATIONS (CCR) (OSHA) SAFETY STANDARDS. IF REQUESTED BY THE INSPECTOR, THE CONTRACTOR SHALL PROVIDE PROOF OF A PERMIT FROM SAID DIVISION.
75. CONTRACTOR SHALL NOTIFY THE PUBLIC WORKS INSPECTOR AT (310) 456-2489, EXT. 335 FOR PRE-CONSTRUCTION MEETING PRIOR TO THE COMMENCEMENT OF ANY CONSTRUCTION OR GRADING OPERATIONS. CONTRACTOR SHALL NOTIFY THE THE PUBLIC WORKS INSPECTOR 48 HOURS PRIOR TO COMMENCING ANY CONSTRUCTION AND 24 HOURS IN ADVANCE OF REQUIRED INSPECTIONS. NO WORK SHALL BE DONE WITHOUT INSPECTION 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 WITHIN 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 IN THE WORK AREA. PRIOR TO BEGINNING CLEARING AND GRUBBING, 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.
81. THE CONTRACTOR SHALL BE RESPONSIBLE FOR PROTECTING ALL PUBLIC AND PRIVATE PROPERTY ADJACENT AS IT MAY BE AFFECTED BY THESE OPERATIONS.
82. EXISTING TRAFFIC SIGNS ARE NOT TO BE REMOVED WITHOUT PRIOR TO NOTIFICATION AND APPROVAL FROM THE CITY ENGINEER. ALL CONSTRUCTION SIGNING, ZONE TRAFFIC SIGNS AND STRIPING SHALL BE IN ACCORDANCE WITH THE MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES (MUTCD) (THE MUTCH MANUAL"), PUBLISHED BY SNI 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 NPDES 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 ANY CONCRETE.
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"x10 W.W.M. AND SHALL BE EITHER SEMICIRCULAR OR TRAPEZOIDAL CROSS SECTION. CONCRETE COLOR SHALL BE "CHARCOAL" OR APPROVED EQUIVALENT.
91. GRADING QUANTITIES

CUT	4,434 CU. YDS.	FILL	1,798 CU. YDS.
EXPORT	2,636 CU. YDS.	IMPORT	0 CU. YDS.

92. GROSS LOT AREA: 4.82 ACRES = 209,959 SQ. FT.
    NET LOT AREA: 4.82 ACRES = 209,959 SQ. FT.
    PROPOSED IMPERMEABLE COVERAGE: 69,370 SQ. FT.
    MAXIMUM ALLOWABLE COVERAGE: 25,000 SQ. FT.
    TOTAL DISTURBED AREA: 122,155 SQ. FT.
    % OVER / UNDER THE ALLOWABLE: 44,370 SQ. 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

CONTRACTORS NOTE:

THE EARTHWORK QUANTITIES ARE PROVIDED AS A COURTESY AND CONVENIENCE TO THE OWNERS, AND ARE FOR BIDDING AND PLAN CHECK PURPOSES ONLY. THE VARIANCE TROUPS SHOWN ARE APPROXIMATE CALCULATED QUANTITIES BASED ON THE DIFFERENCE BETWEEN EXISTING GROUND ELEVATIONS AND DESIGNED ROUGH GRADE ELEVATIONS. THE CALCULATIONS MADE IN PREPARATION FOR ESTIMATING, BIDDING, PLANNING OR ANY OTHER CONDITION NOT IMPLIED FROM THIS NOTICE, IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO REVIEW THE PROJECTS SOILS ENGINEER AND GEOLOGIC INVESTIGATIONS, AND TO DETERMINE FOR HIMSELF, THE QUANTITIES OF EARTH WORKING THAT WILL BE REQUIRED TO COMPLETE THIS PROJECT.

STARTING DATE: 30 DAYS AFTER PERMIT ISSUANCE 2022

COMPLETION DATE: 90 DAYS AFTER PERMIT ISSUANCE 2022

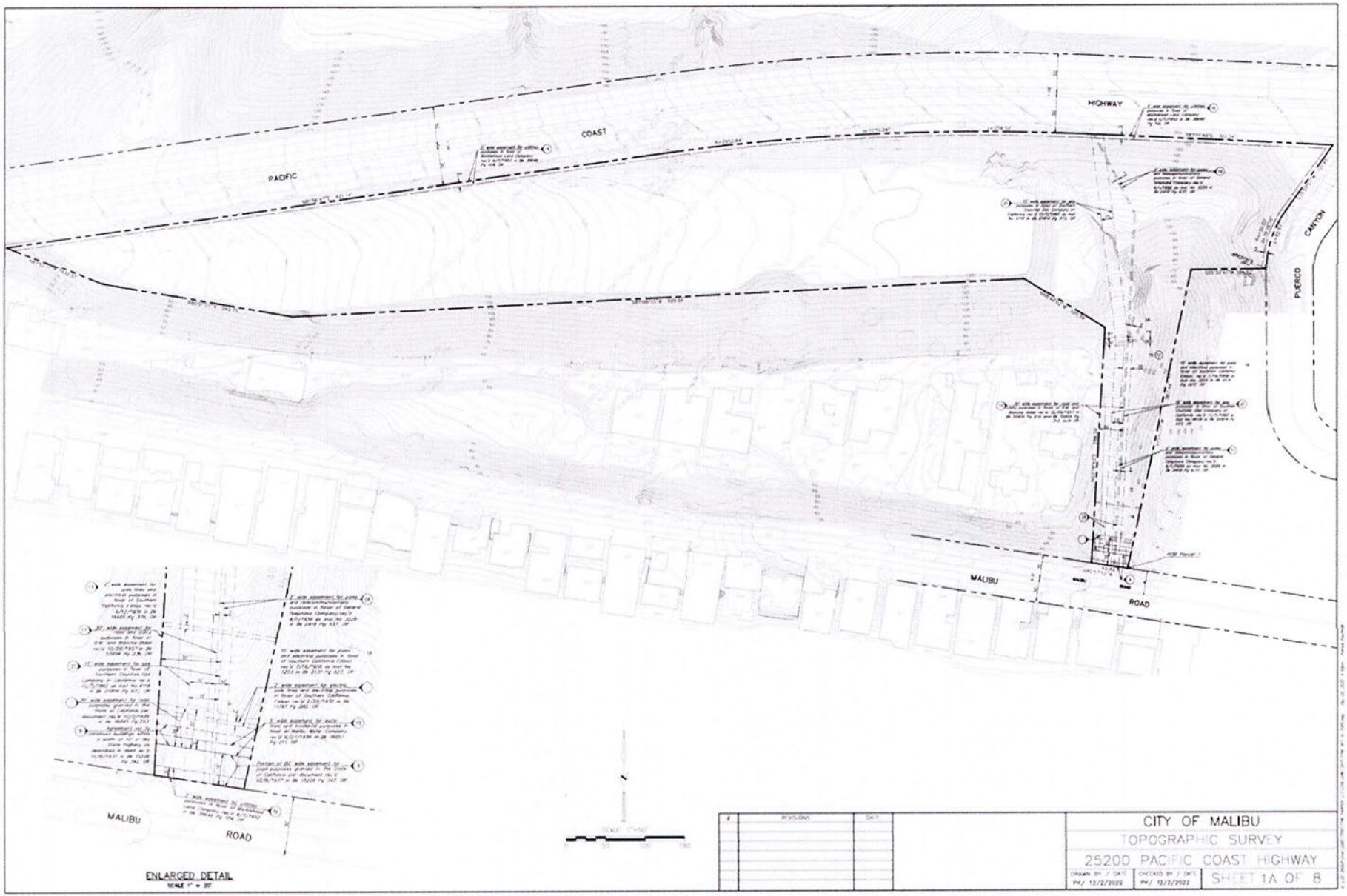
NOTE: GRADING PERMITS SHALL NOT BE ISSUED BETWEEN NOVEMBER 1 AND MARCH 31 EACH YEAR PER LIP SECTION 17.3.2. PROJECT APPROVED FOR GRADING PERMIT SHALL NOT RETAIN GRADING PERMITS UNLESS THE PROJECT CAN BE FINISH GRADED BEFORE NOVEMBER 1.

NOTE: EXPORTED SOIL FROM A SITE SHALL BE TAKEN TO THE COUNTY LANDFILL OR TO A SITE WITH AN ACTIVE GRADING PERMIT AND THAT IS ABLE TO ACCEPT THE MATERIAL IN COMPLIANCE WITH THE CITY'S SOILS 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-MOISTENING 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.

MAXIMUM AMOUNT OF IMPERMEABLE COVERAGE

PERCENTAGES
UP TO 5% ACRE: 45% OF THE NET AREA
5 ACRE TO 1 ACRE: 15% OF THE NET AREA
1 ACR



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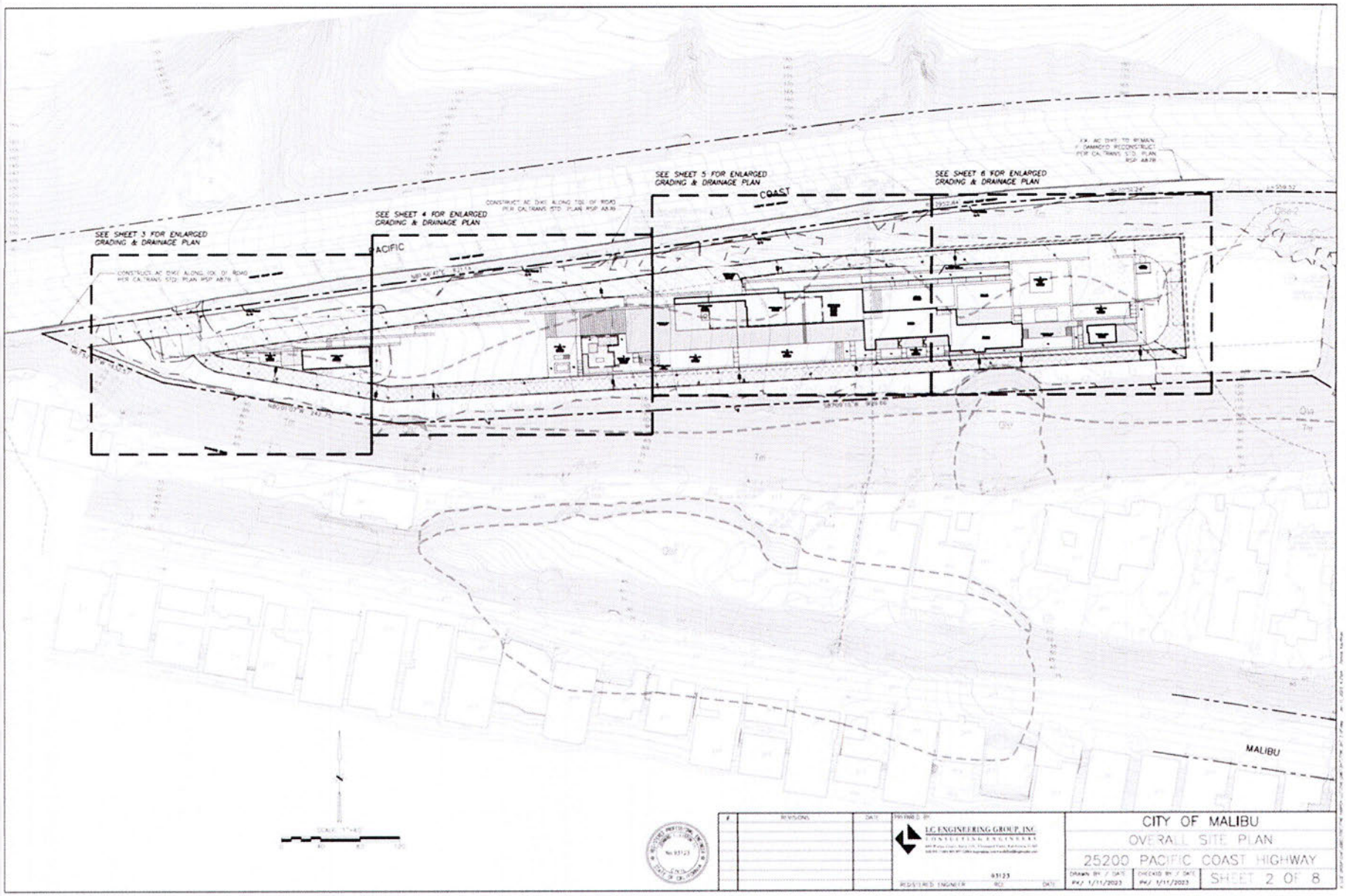

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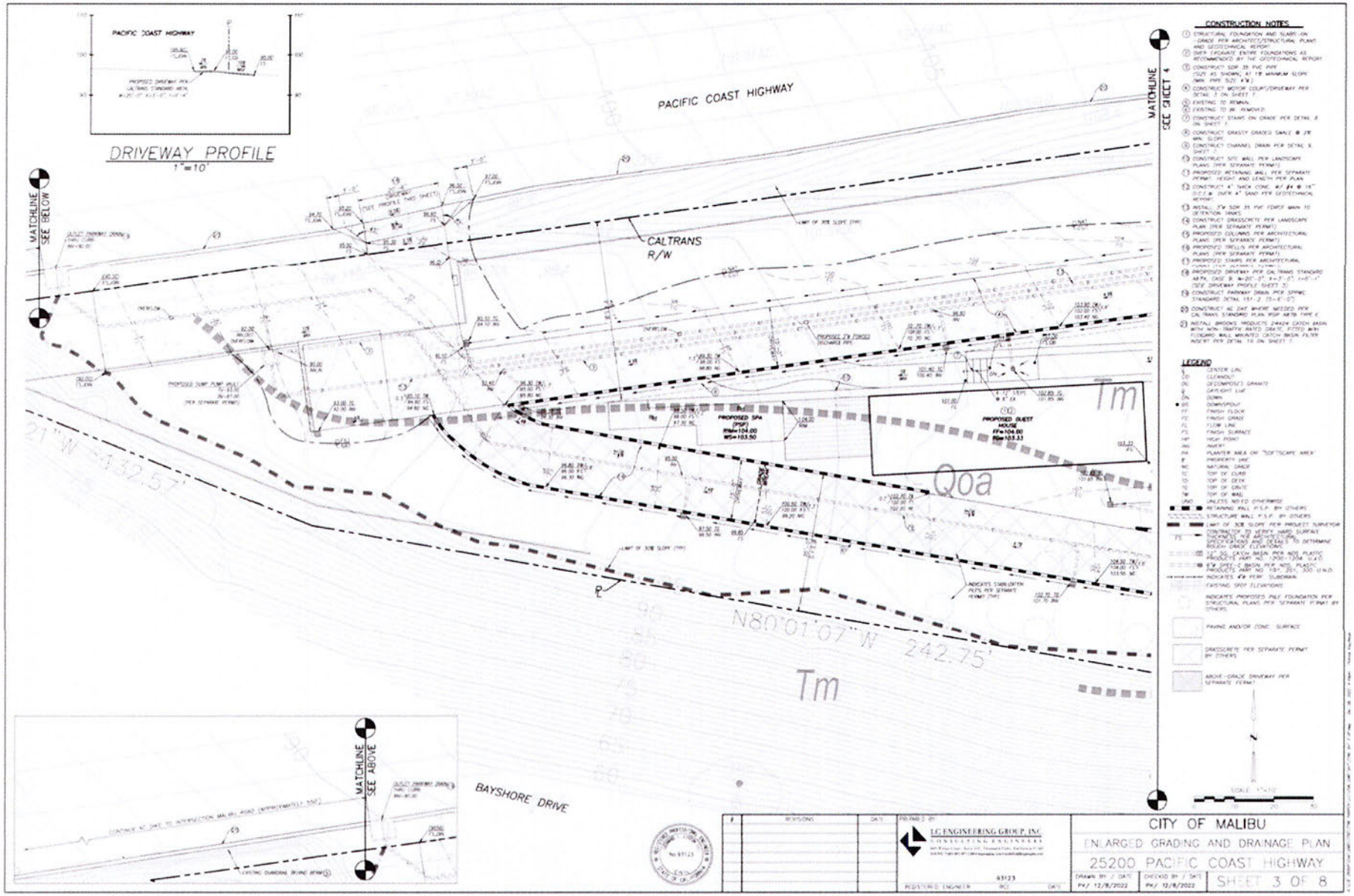

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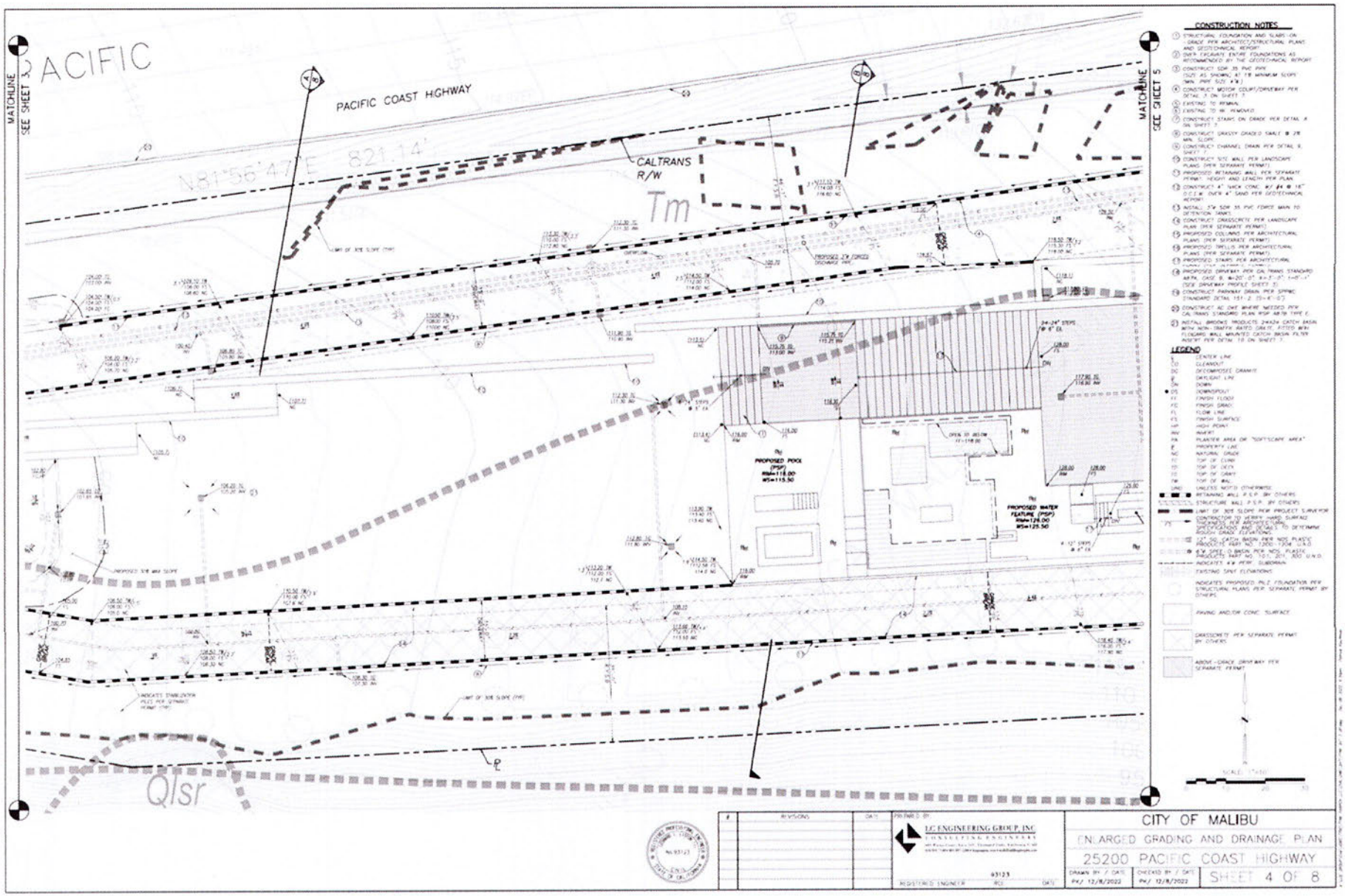

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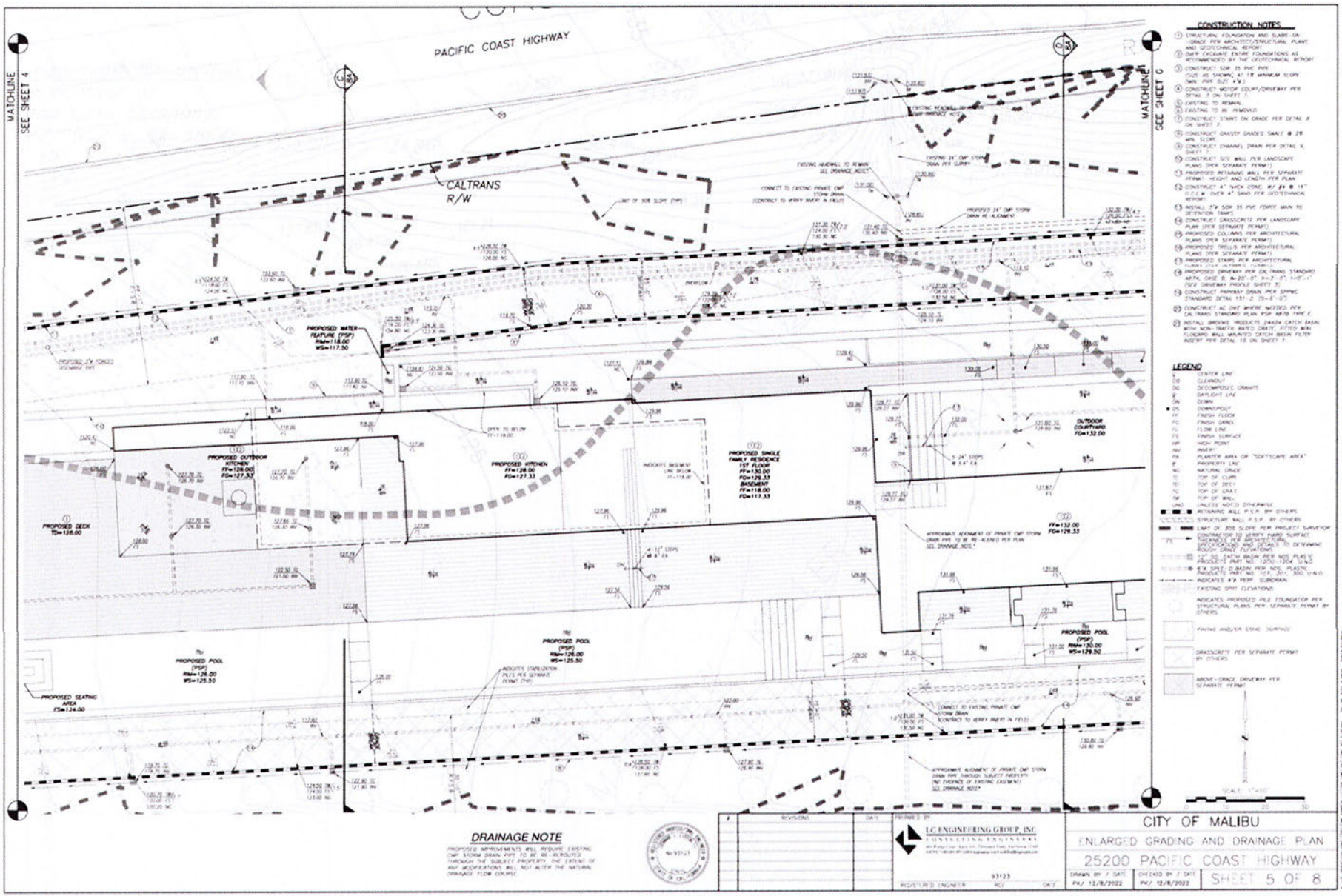

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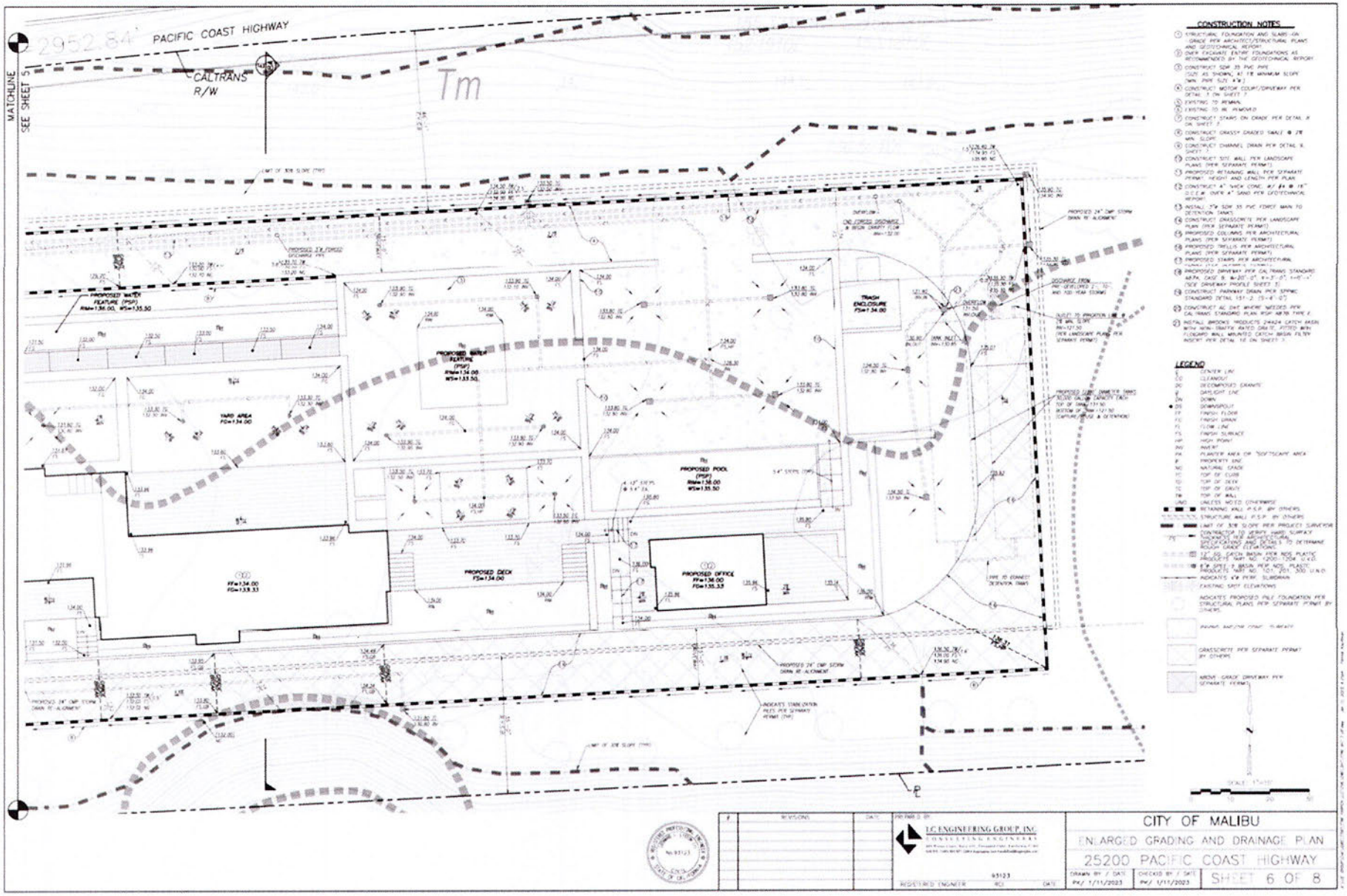

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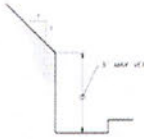

DETAIL NO. 1 TEMPORARY EXCAVATION
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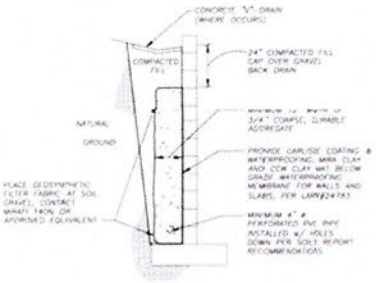

DETAIL NO. 2 BACKFILL
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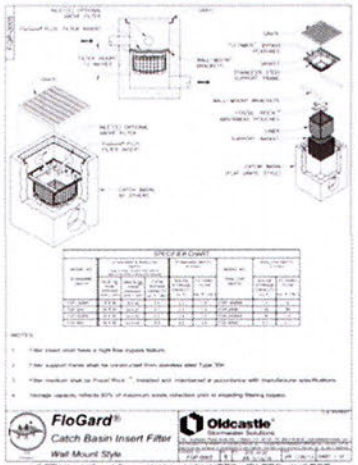

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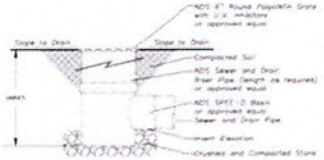

DETAIL NO. 4 6" ROUND GRATE
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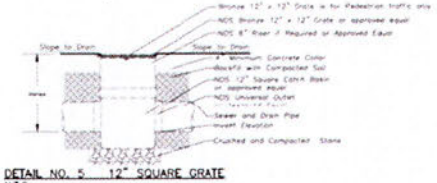

DETAIL NO. 5 12" SQUARE GRATE
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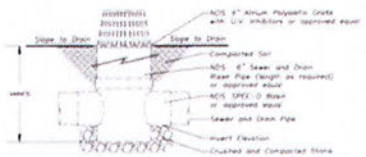

DETAIL NO. 6 6" ATRIUM GRATE
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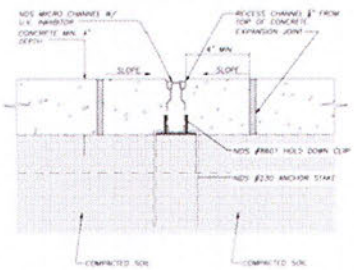

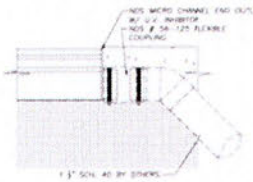

DETAIL NO. 9 CHANNEL DRAIN
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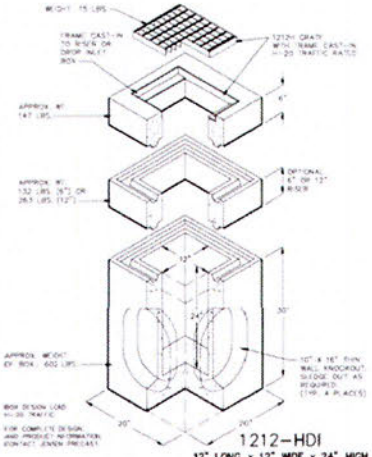

1212-HDI
12" LONG x 12" WIDE x 24" HIGH
DROP INLET WITH
CAST-IN FRAME & GRATE

DETAIL NO. 7 12" CATCH BASIN
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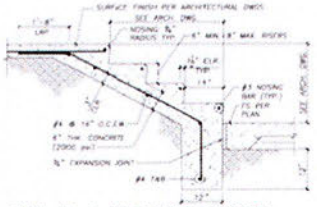

DETAIL NO. 8 CONC. STAIRS ON GRADE
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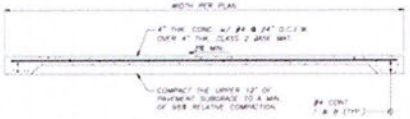


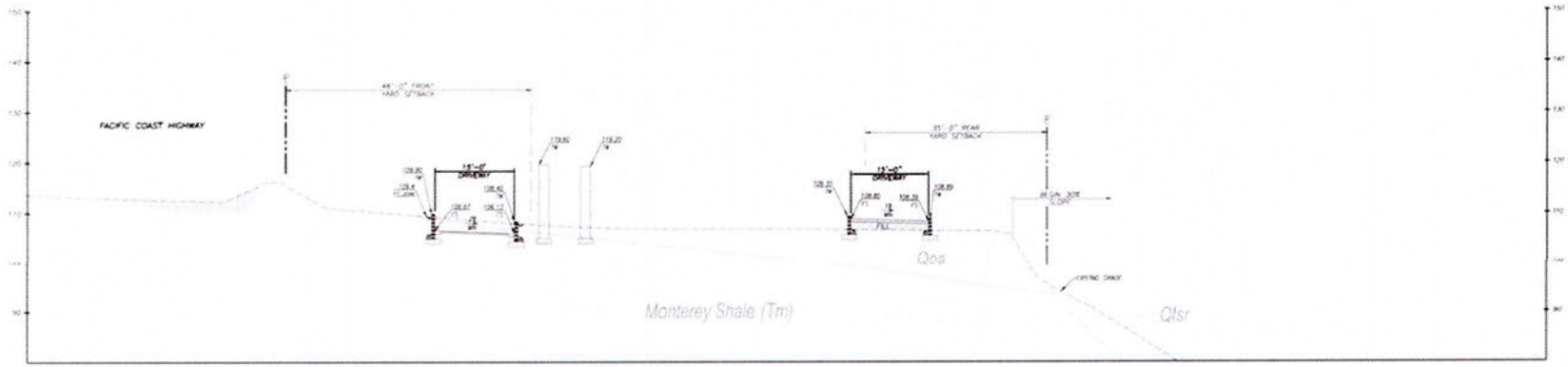
DETAIL NO. 3 CONCRETE DRIVEWAY
N.T.S.

#	REVISIONS	DATE

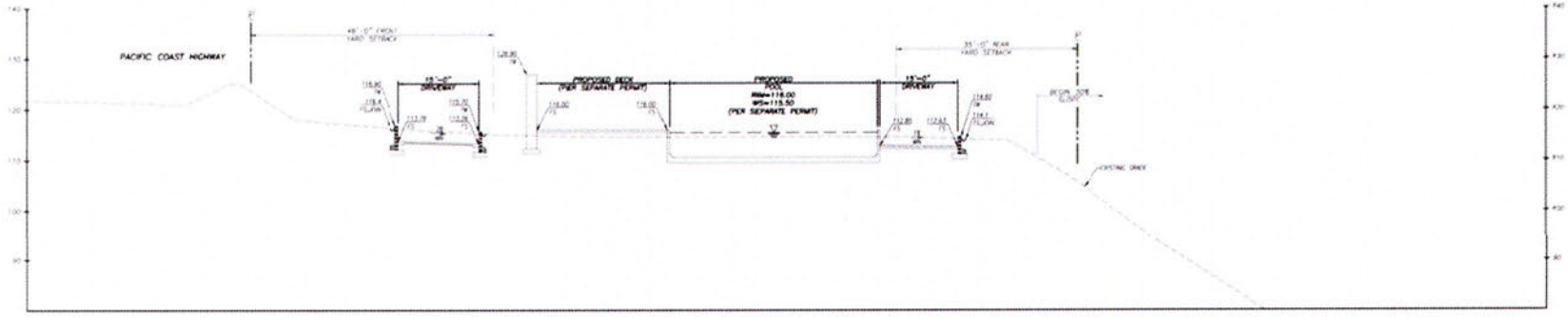
PREPARED BY:
LC ENGINEERING GROUP, INC
CIVIL ENGINEERING
93123
REGISTERED ENGINEER — RCE — DATE

CITY OF MALIBU
DETAILS
25200 PACIFIC COAST HIGHWAY
DRAWN BY / DATE: PK / 12/2/2022
CHECKED BY / DATE: PK / 12/2/2022
SHEET 7 OF 8

Doc ID: 9fec4c6ee4443f039484ff2ff4dfe3a5c5b70df7



SECTION A
1"=10'



SECTION B
1"=10'

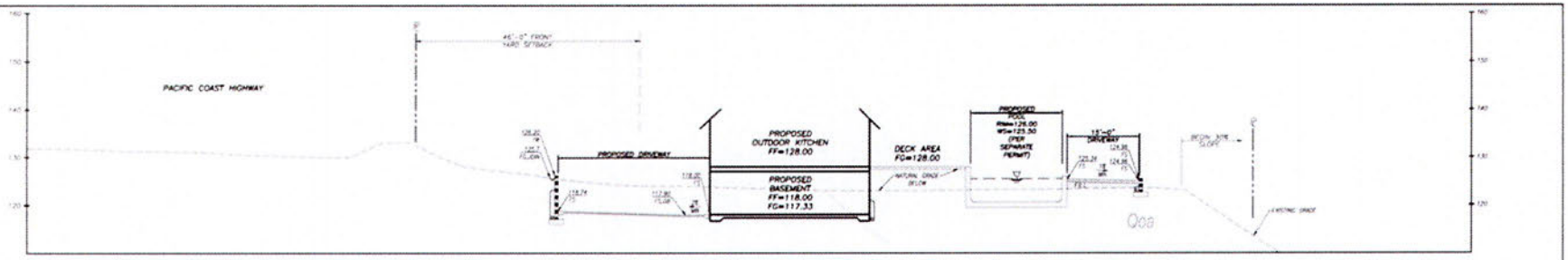
#	REVISIONS	DATE

PREPARED BY:
LC ENGINEERING GROUP, INC.
CONSULTING ENGINEERS
65123
REGISTERED ENGINEER — DATE

CITY OF MALIBU
CROSS SECTIONS
25200 PACIFIC COAST HIGHWAY

DRAWN BY / DATE	CHECKED BY / DATE	SHEET
PK/ 12/2/2022	PK/ 12/2/2022	SHEET 8 OF 8

Doc ID: 9fec4c6ee4443f039484ff2ff4dfe3a5c5b70df7



SECTION C
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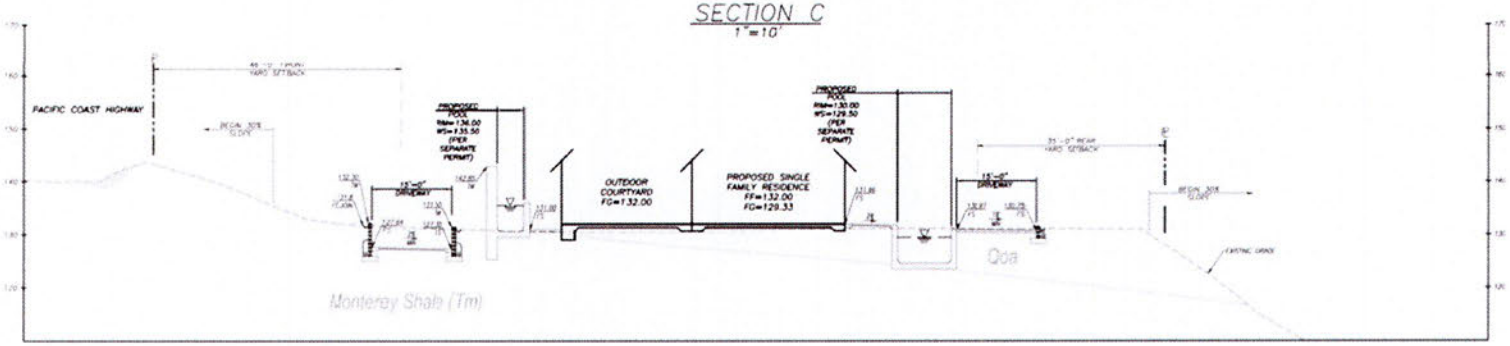

SECTION D
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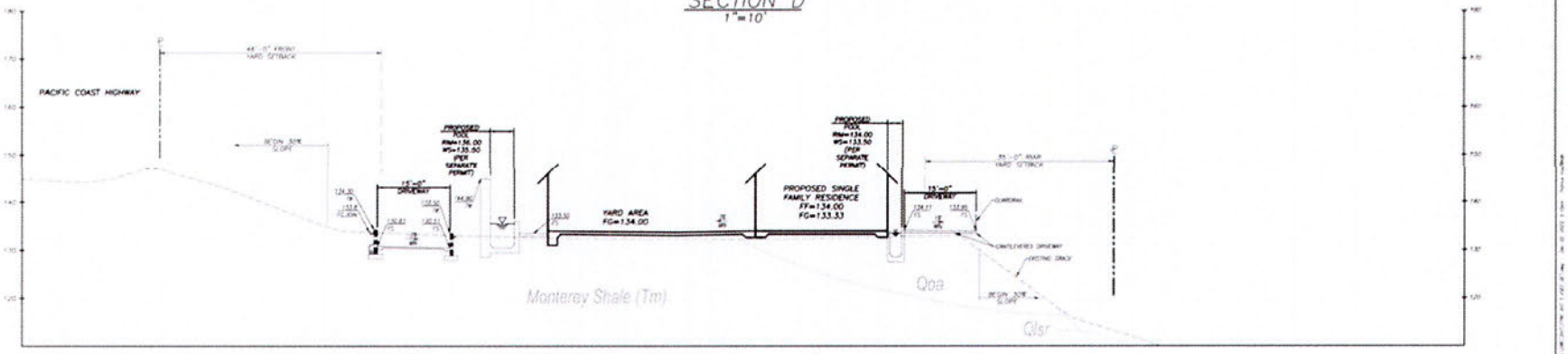

SECTION E
1"=10'

#	REVISIONS	DATE

PREPARED BY:
LC ENGINEERING GROUP, INC
CIVIL ENGINEERING CONSULTANTS
93123
REGISTERED ENGINEER — RCE — DATE

CITY OF MALIBU
CROSS SECTIONS (CONT)
25200 PACIFIC COAST HIGHWAY

DRAWN BY / DATE	CHECKED BY / DATE	SHEET
PK / 12/3/2022	PK / 12/3/2022	SHEET 8A OF 8

Doc ID: 9fec4c6ee4443f039484ff2ff4dfe3a5c5b70df7

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, 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, and continued the item to the February 17, 2026 Regular Planning Commission meeting to provide time for the applicant to make project revisions to further preserve public bluewater views through the subject property from Pacific Coast Highway (PCH). The applicant offered to lower the building pad for portions of the main residence by two feet, thereby reducing the maximum height elevation of the residence, and eliminate the proposed guest house from the design.

O. On February 17, 2026, the Planning Commission held a duly noticed public hearing on the subject application, as revised, 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 hearings on January 20, 2026 and February 17, 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, 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 public 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, 7 inches (kitchen area) and one story, and the guest house (previously reduced from a height of 15 feet, 8 inches to 10 feet) has now been eliminated. The proposed location of development is 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 public bluewater views from PCH, all proposed buildings would need to be at 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 was proposed at a height of 17 feet, 7 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. The applicant has further reduced the prior maximum height of the main residence (kitchen area) to 15 feet, 7 by lowering the building pad by two feet in the communal areas of the main residence (outdoor kitchen, kitchen, dining room, family room, living room, and beneath the subterranean areas) to minimize bluewater view impacts. The resulting maximum height of the main residence is 16 feet and 10 inches (master bedroom area), as the master bedroom area height has not changed from the prior design. The amount that the communal areas of the main residence will protrude above the PCH/berms has been reduced by 2 feet to a maximum of 6 feet and 5 inches (kitchen). For the non-communal areas, the maximum amount of the main residence that will protrude above the PCH and Caltrans berms will continue to be 7 feet, 6 inches (secondary bedrooms). The applicant has also revised the project design to eliminate the previously proposed, 10-foot-high, detached guest house, resulting in no public bluewater view impacts west of the proposed gym building. In lieu and in accordance with LIP Section 6.5(E)(2), the project would also 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 development site, 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. Additionally, 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. Along with removing the proposed guest house, the applicant has reduced the height of the building walls that were proposed to be attached to it to a maximum height of six feet. The walls will not obstruct public bluewater views through the site.

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. The project site is below the grade of the adjacent PCH roadway, the building and driveway pads average approximately one foot below grade, the 10-foot-high guest house is no longer proposed, and the building pad has been lowered an additional two feet for portions of the main residence to further maximize public bluewater views through the subject property from PCH. The upper portions of the main residence and gym will be visible from public views from PCH and impede upon bluewater views for those areas of the subject property, but the impacts to bluewater views will be reduced by lowering the building pad. There will be no bluewater view impacts for the portion of the property west of the gym. 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. The upper 6 feet, 5 inches of the main residence kitchen area will be visible from public views along PCH, which has been reduced from 8 feet, 5 inches by lowering the building pad by two feet. The upper 7 feet, 6 inches of the master bedroom area of the main residence will continue to be visible from PCH, which will be the highest portion of the project visible from PCH. The applicant has implemented design revisions, including lowering building heights and eliminating a portion of the proposed development. The applicant has also located the development in the least visible portion of the site where the height difference between the building pad and roadway/berms is highest, has designed a single story development of a maximum height of 16 feet, 10 inches (master bedroom area) to step down the hillside to the west, has broken up the massing of the structures, has minimized grading by not exceeding the maximum allowed non-exempt grading yards, and has designed the structures as one-story buildings with flat roofs to blend into the natural hillside setting.

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 and other 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 16 feet, 10 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 165 feet, 10 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 and 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. Development further east on the property beyond the proposed project site would result in direct impacts to ESHA and ESHA buffer as well as the jurisdictional drainage, and grading in steep slopes.

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, and Fire Protection, 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. Swimming pools and spa;
    d. OWTS, including a 7,540-gallon septic tank;
    e. New landscaping and hardscape, including permeable driveways;
    f. Perimeter fencing not to exceed 42 inches in height along the north property line and an entry gate;
    g. Retaining walls up to six feet in height; and
    h. 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 No. 2 and depicted on plans on file with the Planning Division date stamped (Architectural dated April 16, 2025, Civil dated October 17, 2025, Landscape dated August 11, 2021, fire access plan stamped approved by the LACFD December 30, 2021, and fuel modification plan stamped approved by the LACFD November 22, 2023, as amended by revised plan Sheets FS100, Z102, Z106 through Z107, Z112 through Z113, A100 through A107, A200 through A207, and A300 through A303, dated January 27, 2026, and updated accordingly for consistency). 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. In no instance shall onsite vegetation block views protected in Condition No. 35.

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

33. All project plan sheets (including architectural, civil, landscape, fire access, and fuel modification) shall be made consistent with the revised plan Sheets FS100, Z102, Z106 through Z107, Z112 through Z113, A100 through A107, A200 through A207, and A300 through A303, dated January 27, 2026, prior to Building Safety plan check review.

34. Public bluewater views from Pacific Coast Highway through the subject property shall be maintained to the maximum extent feasible and consistent with Plan Sheets Z112 through Z113 and A200 through A207, dated January 27, 2026. No roof equipment, parapet, or other rooftop appurtenances or structures shall be permitted so as to impede upon public bluewater views from PCH.

35. The development shall not block views of the horizon line of the Pacific Ocean nor views of the western Santa Monica Bay as seen by travelers going westbound, also known as northbound, along Pacific Coast Highway.

36. The applicant shall incorporate vibration monitoring during construction of the proposed residence if such testing is determined to be beneficial by the City.

Certificate of Compliance/Lot Merger

37. 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.

38. 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

39. 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.

40. Prior to final Planning approval, the applicant shall submit an application to 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

41. 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.

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

43. 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.

44. 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.

45. 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.

46. 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.

47. 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

48. 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.

49. 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

50. 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.

51. 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.

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

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

54. 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). In no instance shall onsite vegetation block public views protected in Condition No. 35.

55. 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. In no instance shall onsite vegetation block public views protected in Condition No. 35.

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

57. 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).

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

59. 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.

60. 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.

61. 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.

62. 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.

63. 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.

64. 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.

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

66. 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.

67. 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.

68. 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.

69. 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.

70. 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.

71. 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.

72. 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

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

Street Improvements (Public Works)

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

75. 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.

76. 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.

77. 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.

78. 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.

Grading/Drainage (Public Works)

79. 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.

80. 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.

81. 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.

82. 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.

83. 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.

84. 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.

85. 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.

86. 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.

87. 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)

88. 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.

89. 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.

90. 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."

91. 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.

92. 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.

93. 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.

94. 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.

95. 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.

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

Other Public Works

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

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

99. 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.

100. 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.

101. 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.

102. 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

103. 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.

104. 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

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

106. 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).

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

108. 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)

109. 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.

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

Onsite Wastewater Treatment System (OWTS)

111. 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.

112. 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).

113. 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).

114. 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.

115. 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.

116. 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.

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

118. 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.

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

120. 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.

121. 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.

122. 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.

123. 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.

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

125. 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.

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

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

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

129. 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.

130. 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.

131. 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).

132. 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.

133. 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.

134. 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

135. 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.

136. 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.

137. 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.

138. 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

139. 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.

140. 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.

141. 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.

142. 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.

143. 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

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

145. 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

146. 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.

147. 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.

148. 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.

149. 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.

150. Any future improvements to the single-family residence and related development authorized by this shall require an additional coastal development permit.

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

PASSED, APPROVED AND ADOPTED this 17th day of February 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 17th day of February 2026 by the following vote:

AYES:	3	Commissioners: Riddick, Leonard, Peak
NOES:	2	Commissioners: Mazza, Kamins
ABSTAIN:	0	
ABSENT:	0	

Rebecca Evans

REBECCA EVANS, Recording Secretary

VILLA COLEAVA

PLANNING SUBMITTAL SET

1/27/26

OPPENHEIM ARCHITECTURE

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Project Address
VILLA COLEAVA
25200 Pacific Coast Hwy.
Malibu, California, USA

Property Owner
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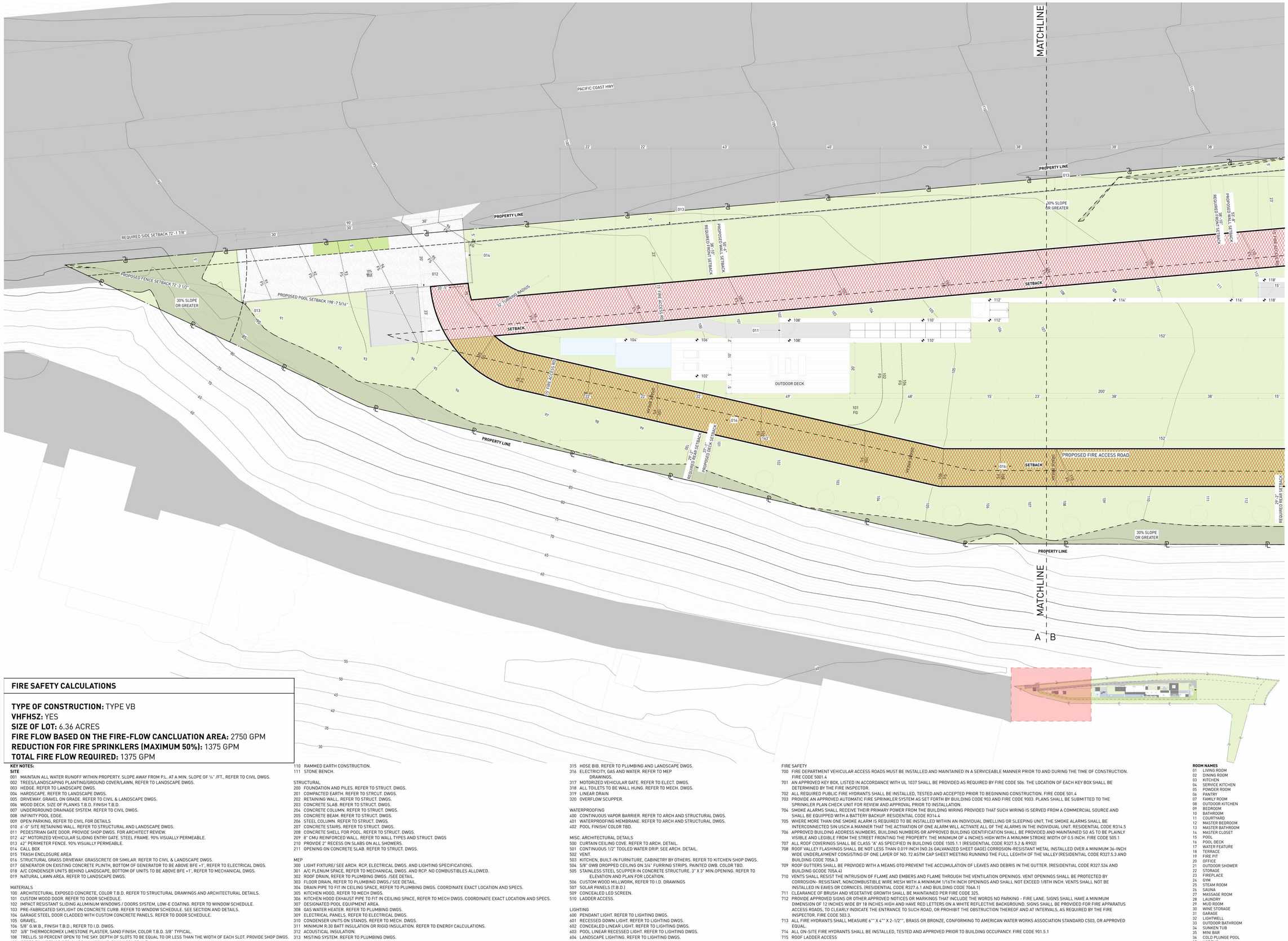

FIRE SAFETY CALCULATIONS

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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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

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F 305 576 8433
W oppenoffice.com

Landscape Architect
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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 lcegroupinc.com

Revisions

Mark	Date	Description

Title
FIRE ACCESS ROAD A

1/16" = 1'-0"

NOT FOR CONSTRUCTION

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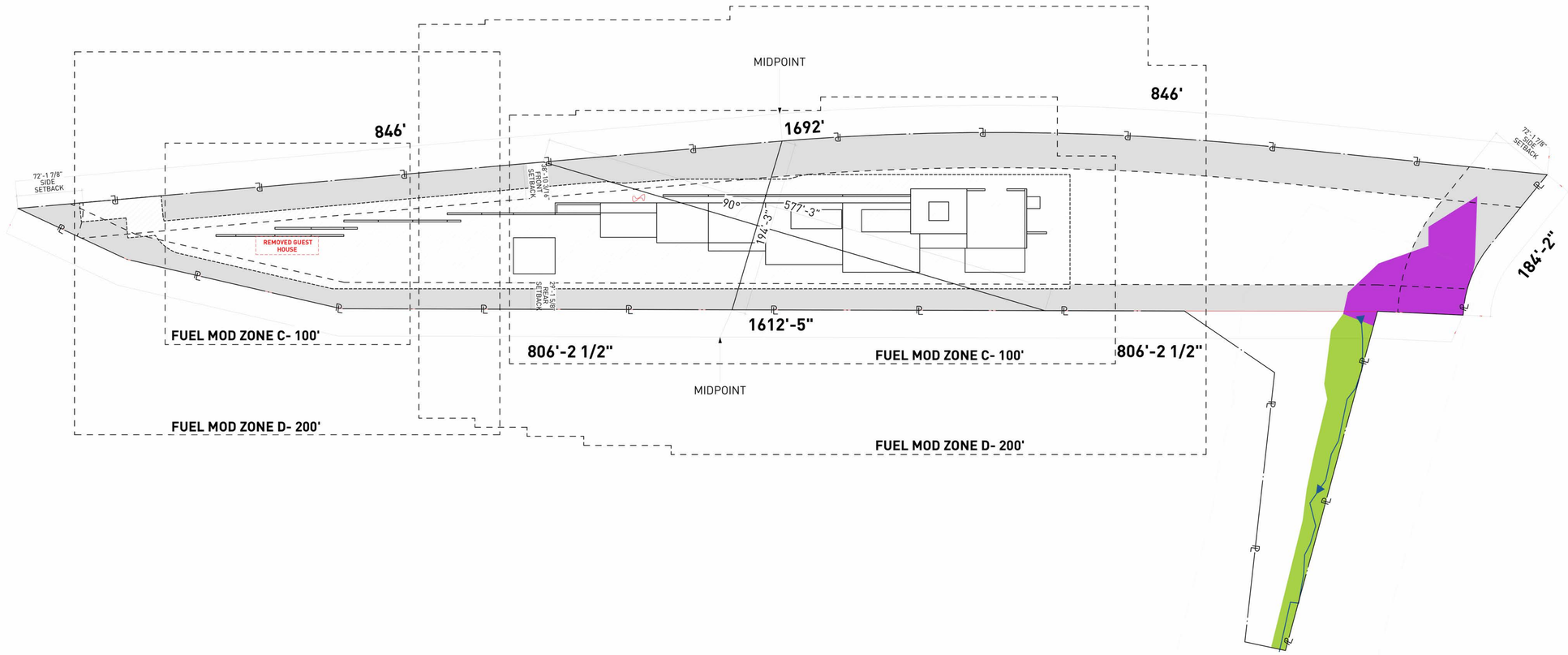
1813
VILLA COLEAVA

Drawing Issued on 1/27/26

FS100



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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Project No

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Project Address
25200 Pacific Coast Hwy.
Malibu, California, USA

Property Owner
PAR PCH, LLC
PO Box 6528
Malibu, CA 90265

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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

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FUEL MOD DIAGRAM

1/64" = 1'-0"

N

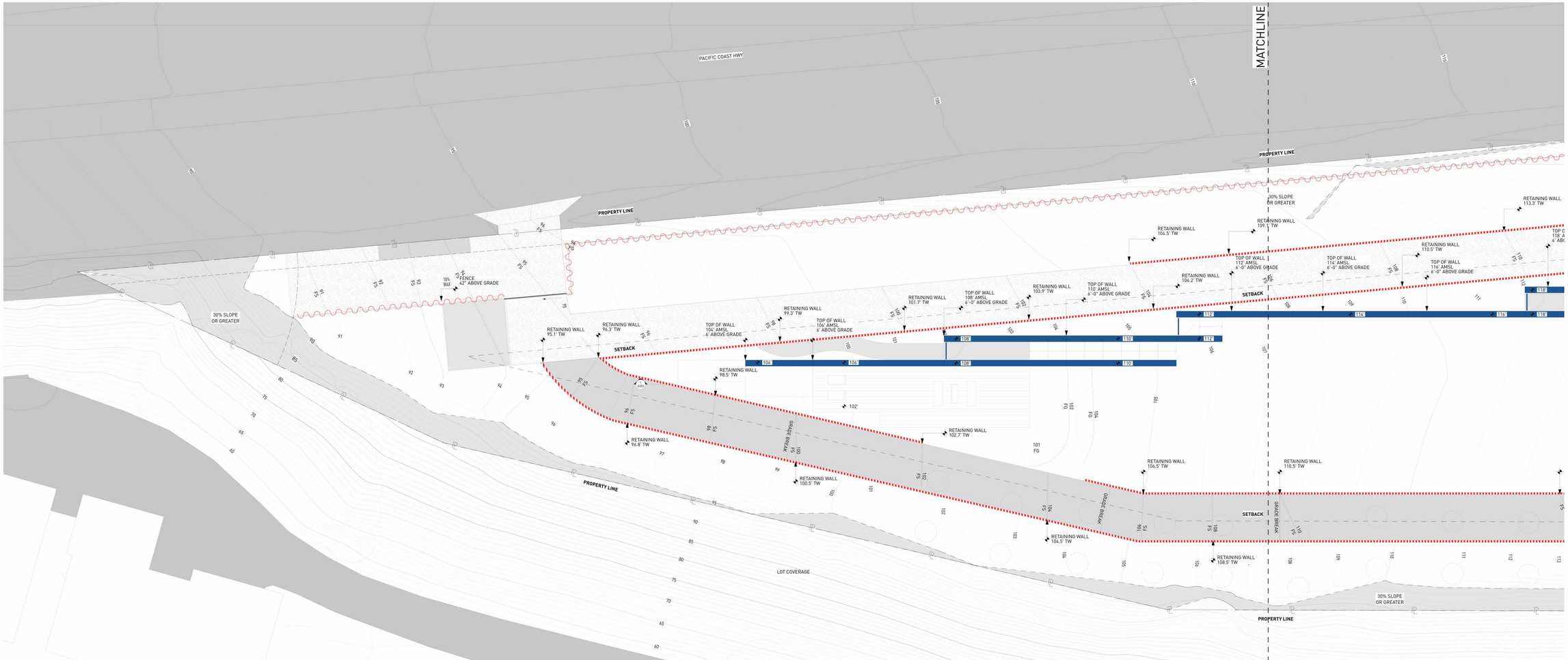
NOT FOR CONSTRUCTION

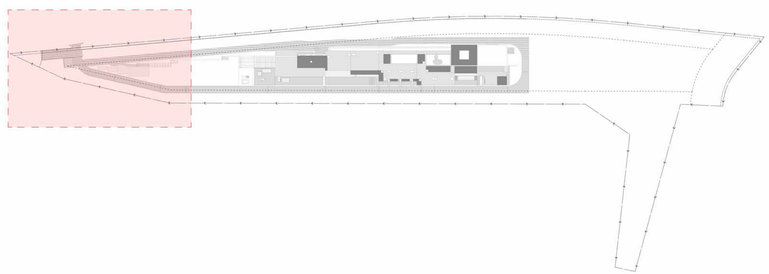
Design Development

1813
VILLA COLEAVA

Drawing Issued on 1/27/26

Z102





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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.

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.
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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.
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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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509 CONCEALED LED SCREEN.
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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
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W plac-e.com

Civil Engineers
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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"

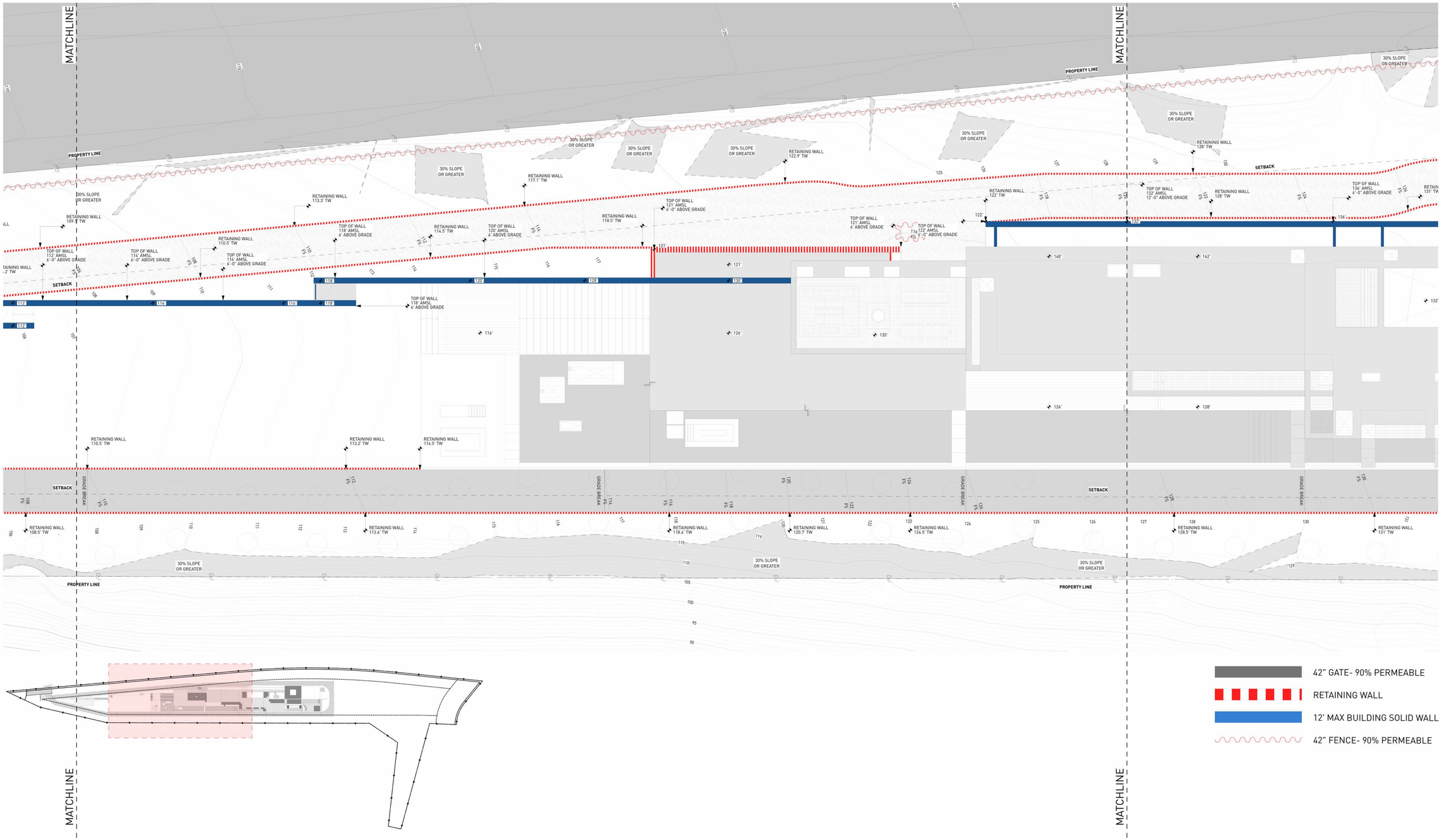
NOT FOR CONSTRUCTION

Design Development

1813
VILLA COLEAVA

Drawing Issued on 1/27/26

Z106



42" GATE- 90% PERMEABLE

RETAINING WALL

12' MAX BUILDING SOLID WALL

42" FENCE- 90% PERMEABLE

KEY NOTES:

SITE

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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
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PO Box 6528
Malibu, CA 90265

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W oppenoffice.com

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W plac-e.com

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P 805-497-1244
P 818-991-7148
W lcegroupinc.com

Revisions

Mark	Date	Description

Title
WALL AND FENCE PLAN B

1/16" = 1'-0"

N

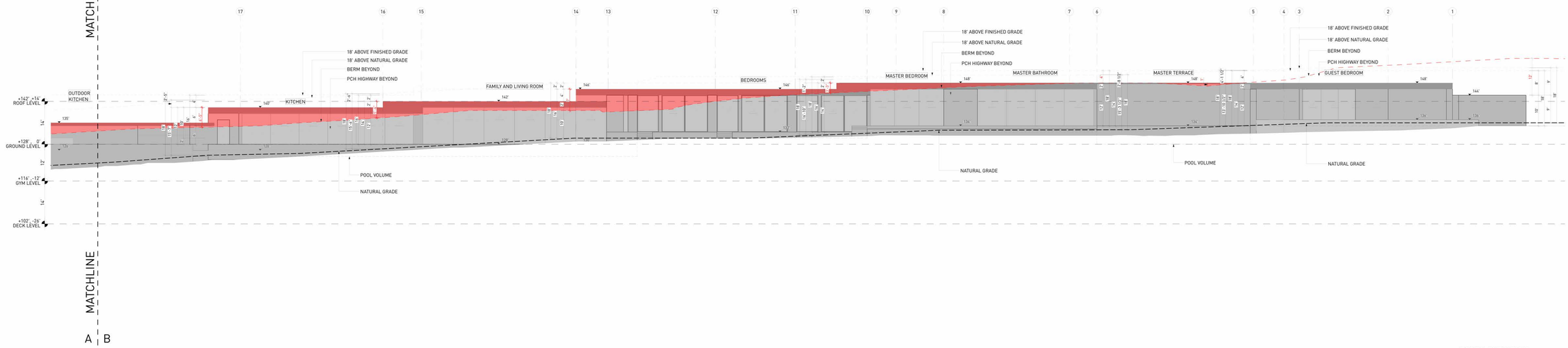
NOT FOR CONSTRUCTION

Design Development

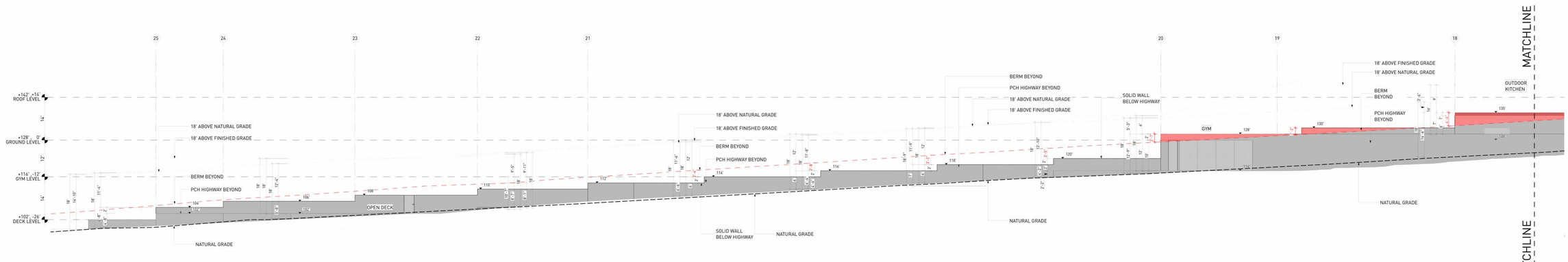
1813
VILLA COLEAVA

Drawing Issued on 1/27/26

Z107



2 SOUTH ELEVATION
1/16" = 1'-0"



1 SOUTH ELEVATION
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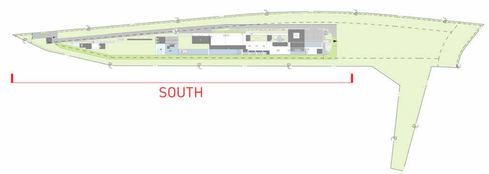
BELOW PACIFIC COAST HIGHWAY PROTRUSION ABOVE BERM



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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.

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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.
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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.
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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
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604 LANDSCAPE LIGHTING. 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 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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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
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P 818-991-7148
W lcegroupinc.com

Revisions

Mark	Date	Description

Title
PROTRUSION ABOVE PCH HIGHWAY
1/16" = 1'-0"

N

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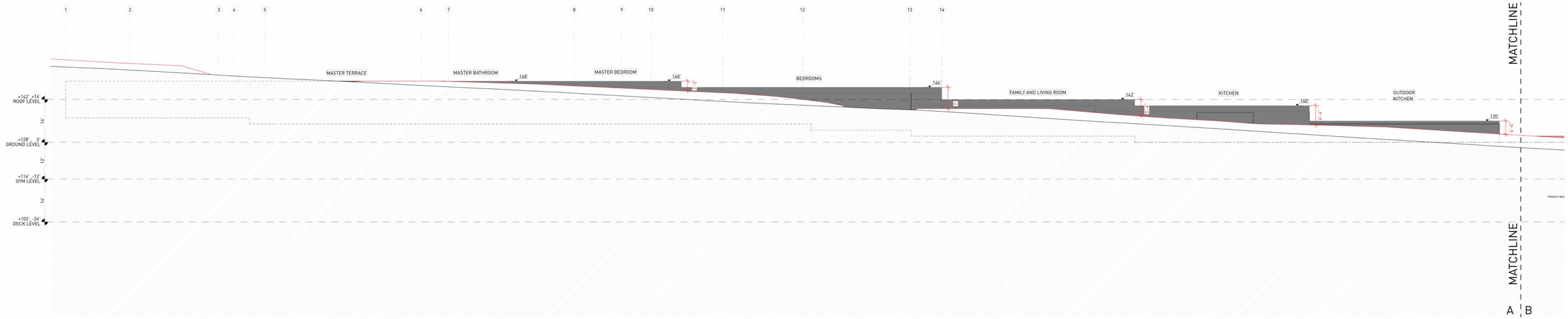
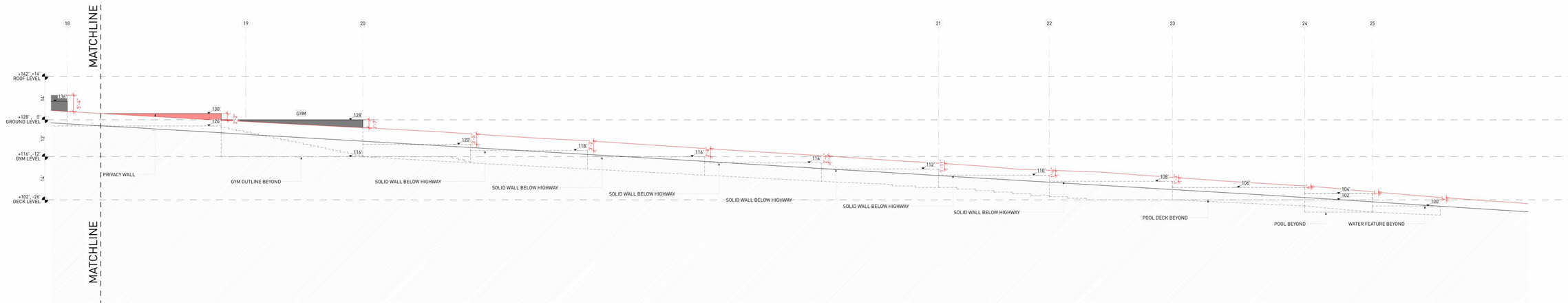
1813
VILLA COLEAVA

Drawing Issued on 1/27/26

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

KEY NOTES:

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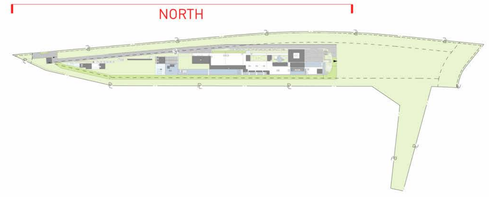

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Project Address
25200 Pacific Coast Hwy.
Malibu, California, USA

Property Owner
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W plac-e.com

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LC Engineering Group
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Thousand Oaks, CA 91360
P 805-497-1244
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Revisions

Mark	Date	Description

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1/16" = 1'-0"

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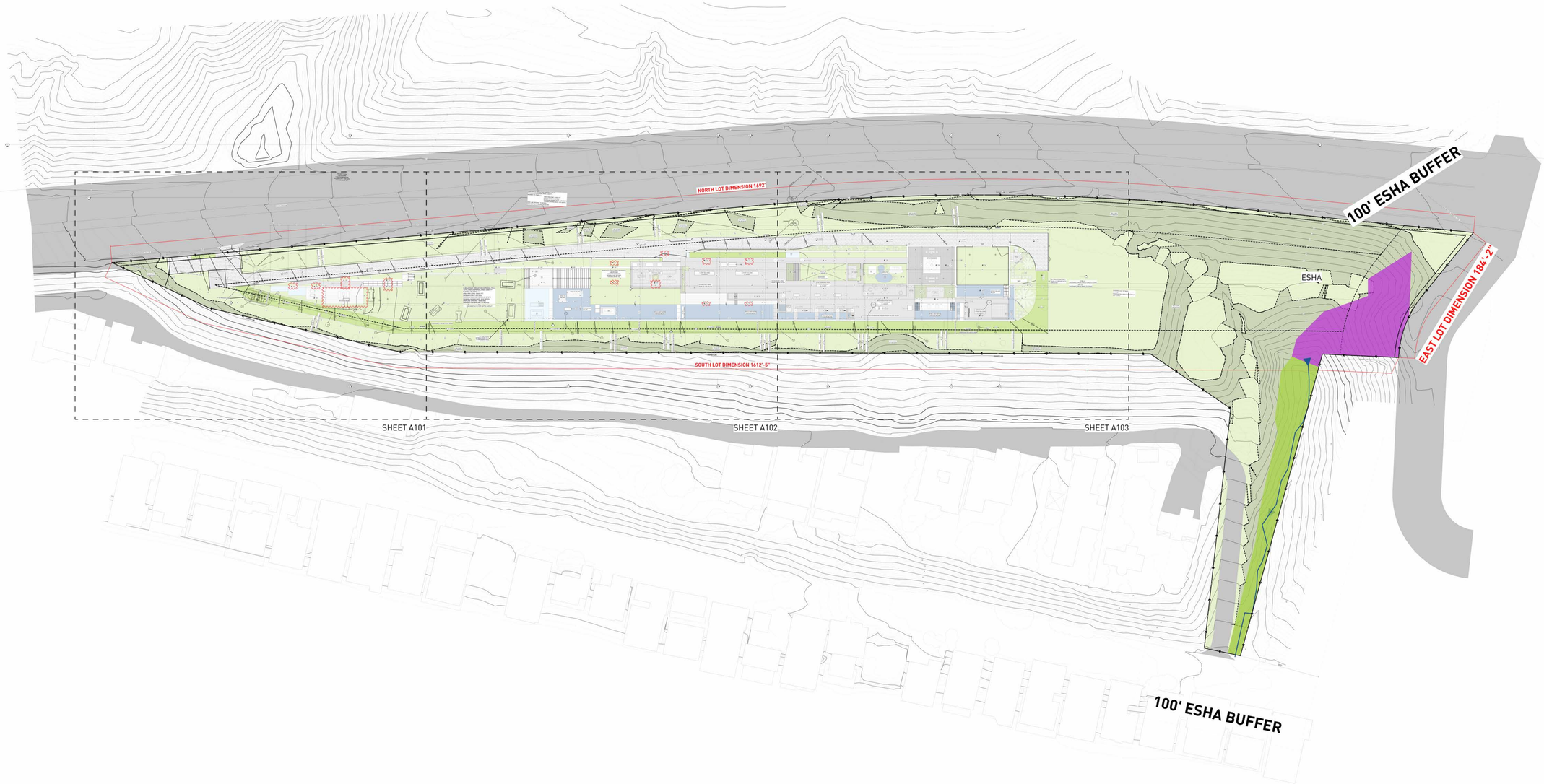

SALIX LASIOLEPIS SHRUBLAND ALLIANCE 0.20 ACRES
DISTURBED ERIOGONUM ELONGATUM VAR. ELONGATUM - SALVIA APIANA SHRUBLAND ALLIANCE (0.24 ACRE)

100'-0" ESHA BUFFER

JURISDICTIONAL WATER FEATURE

ASSESOR PARCEL #: 4459-013-021, 4459-014-018

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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.
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400 CONTINUOUS VAPOR BARRIER. REFER TO ARCH AND STRUCTURAL DWGS.
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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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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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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)
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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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Project No

1813

Project Name
VILLA COLEAVA

Project Address
25200 Pacific Coast Hwy.
Malibu, California, USA

Property Owner
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Civil Engineers
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Thousand Oaks, CA 91360
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P 818-991-7148
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Revisions

Mark	Date	Description

Title
SITE PLAN

1/64" = 1'-0"

N

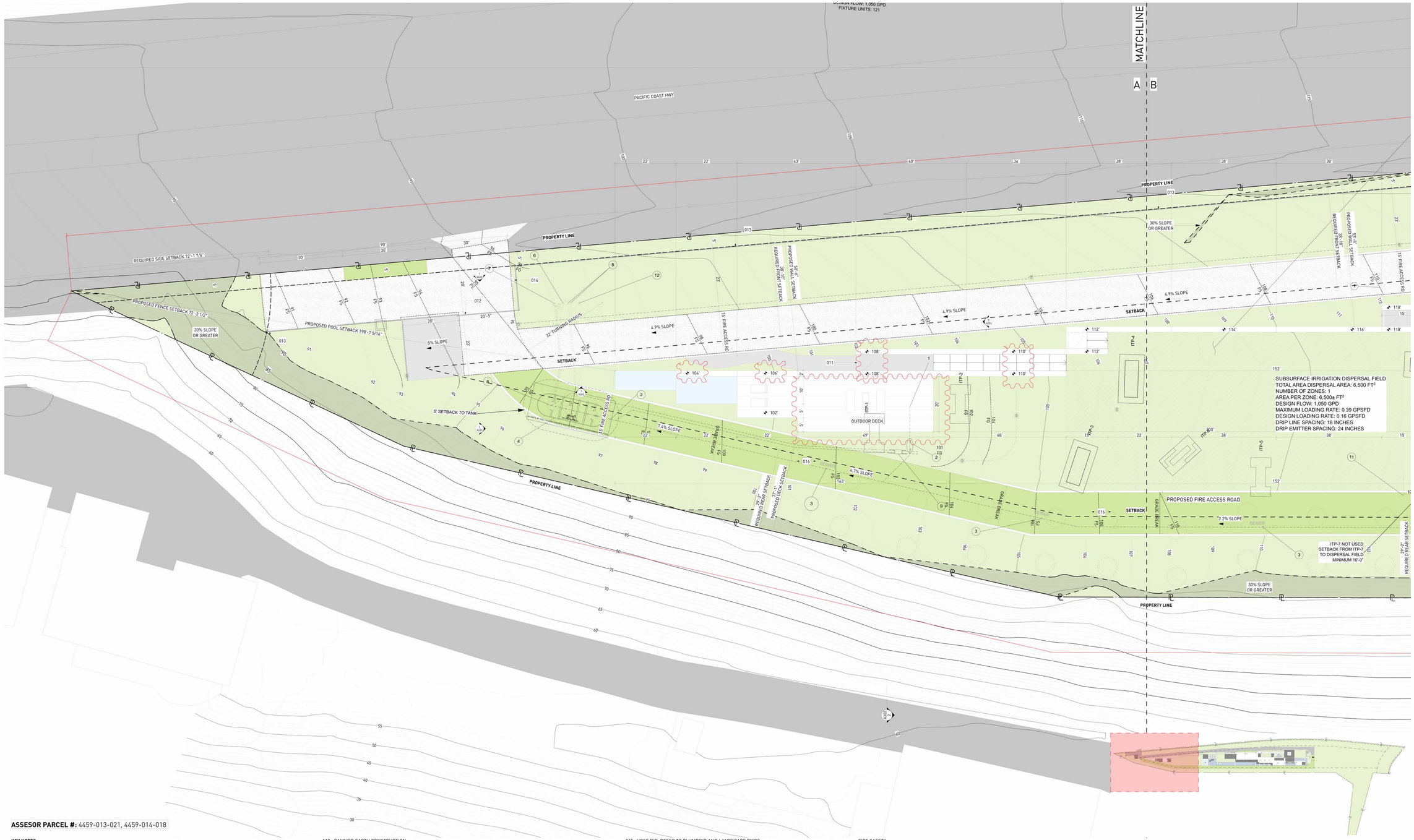
NOT FOR CONSTRUCTION

Design Development

1813
VILLA COLEAVA

Drawing Issued on 1/27/26

A100



ASSESOR PARCEL #: 4459-013-021, 4459-014-018

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MATERIALS

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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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Miami FL 33137
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F 305 576 8433
W oppenoffice.com

Landscape Architect
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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
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Revisions

Mark	Date	Description

Title
ENLARGED SITE PLAN A

1/16" = 1'-0"

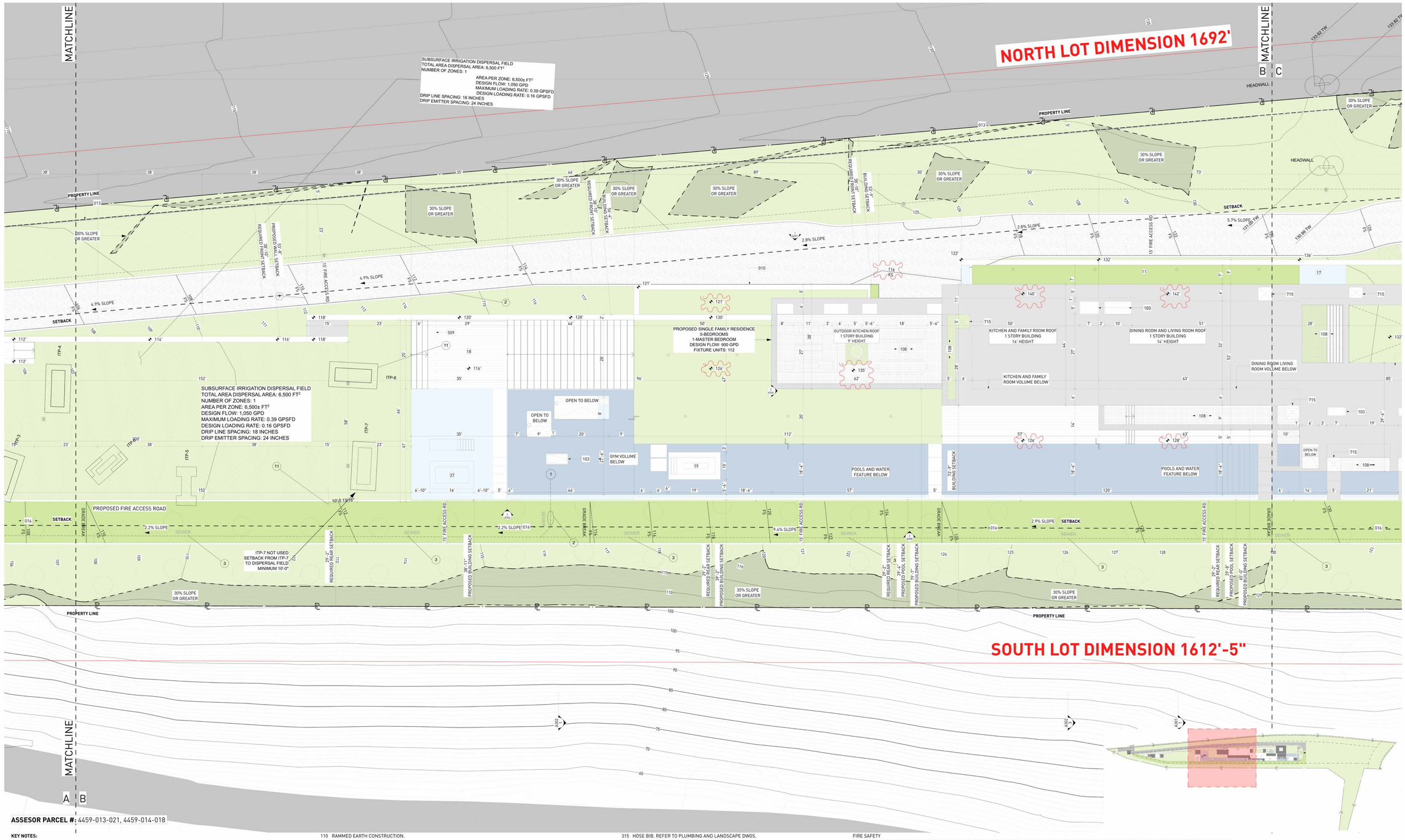
NOT FOR CONSTRUCTION

Design Development

1813
VILLA COLEAVA

Drawing Issued on 1/27/26

A101



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Project No

1813

Project Name
VILLA COLEAVA

Project Address
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Malibu, California, USA

Property Owner
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Civil Engineers
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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 B

1/16" = 1'-0"

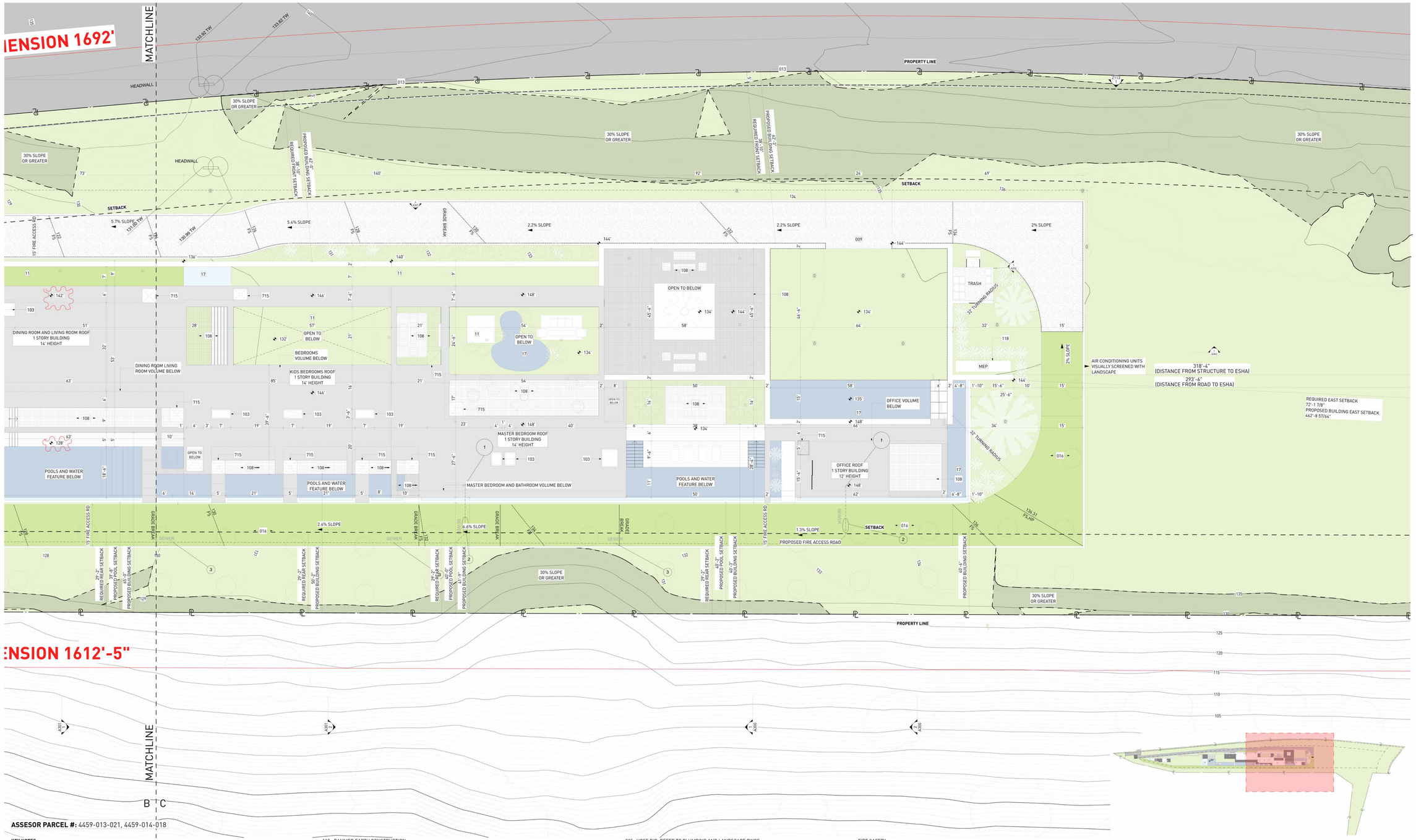
NOT FOR CONSTRUCTION

Design Development

1813
VILLA COLEAVA

Drawing Issued on 1/27/26

A102



ASSESOR PARCEL #: 4459-013-021, 4459-014-018

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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.
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MATERIALS

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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.
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210 PROVIDE 2" RECESS ON SLABS ON ALL SHOWERS.
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Project Address
25200 Pacific Coast Hwy.
Malibu, California, USA

Property Owner
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F 305 576 8433
W oppenoffice.com

Landscape Architect
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Los Angeles, CA 90016
P 310-450-8100
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Civil Engineers
LC Engineering Group
889 Pierce Ct., Ste. 101
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Revisions

Mark	Date	Description

Title
ENLARGED SITE PLAN C

1/16" = 1'-0"

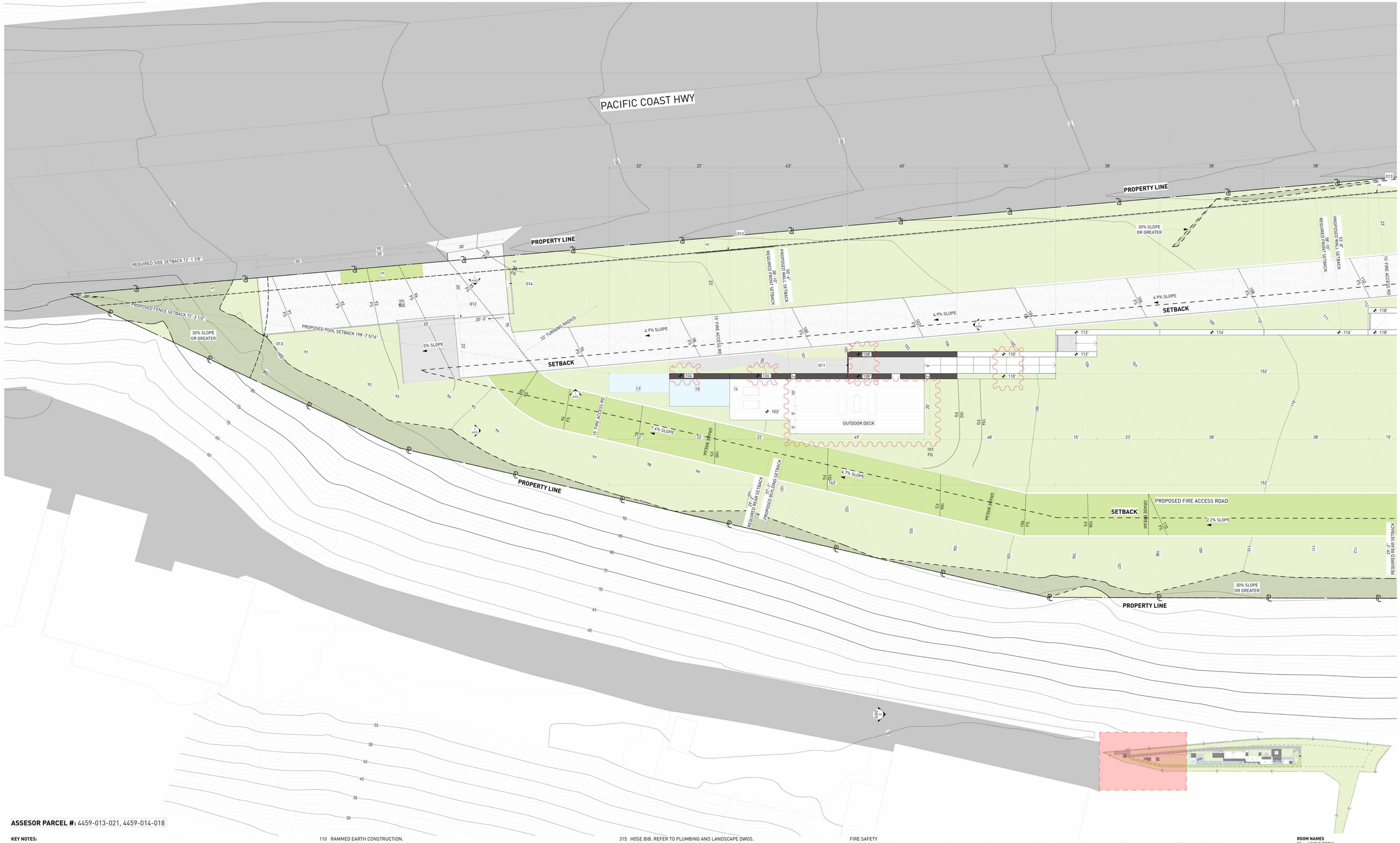
NOT FOR CONSTRUCTION

Design Development

1813
VILLA COLEAVA

Drawing Issued on 1/27/26

A103



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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
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Los Angeles, CA 90016
P 310-450-8100
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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
OUTDOOR DECK LEVEL

1/16" = 1'-0"

N

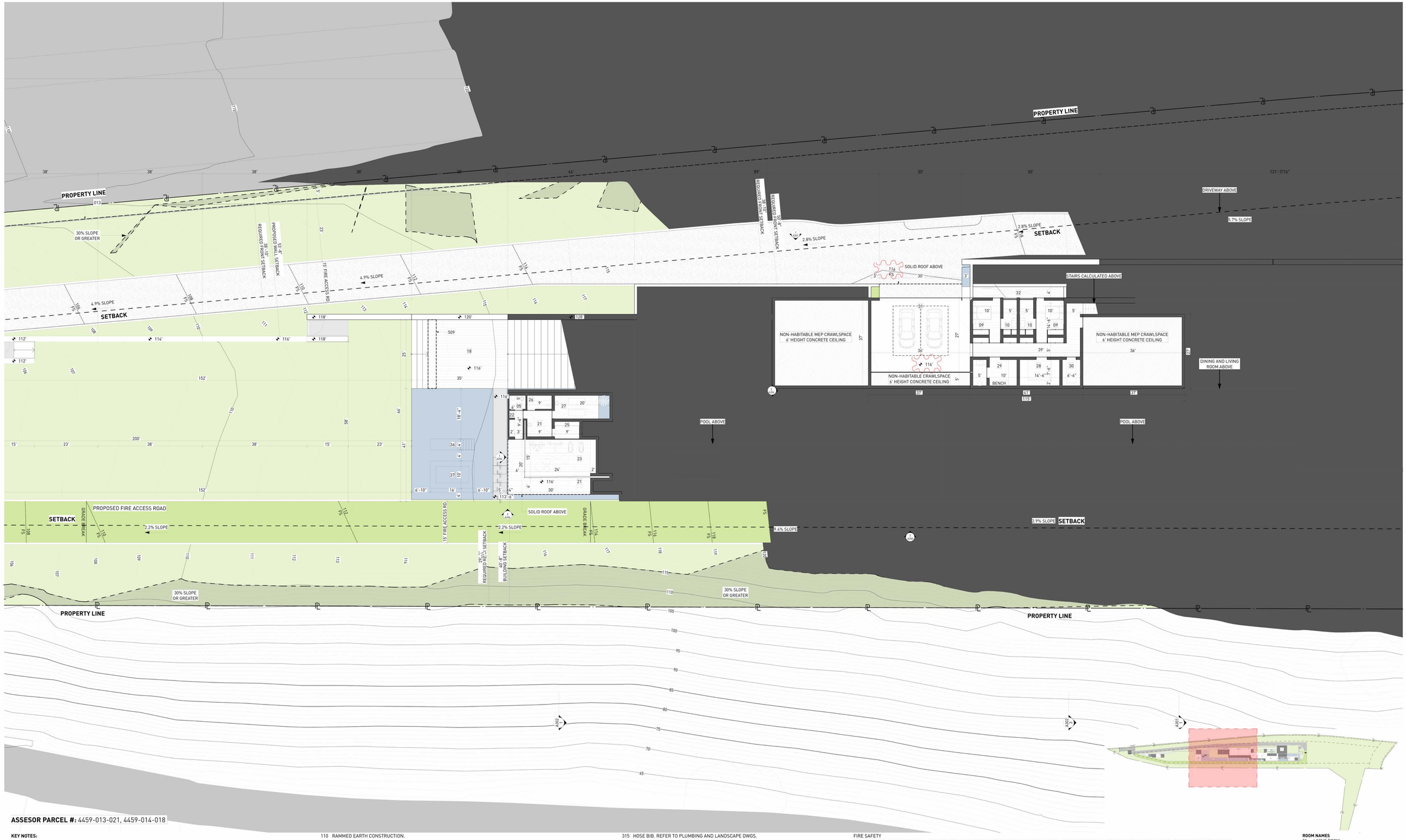
NOT FOR CONSTRUCTION

Design Development

1813
VILLA COLEAVA

Drawing Issued on 1/27/26

A104



ASSESOR PARCEL #: 4459-013-021, 4459-014-018

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Revisions

Mark	Date	Description

Title
GYM + BASEMENT LEVEL

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1813
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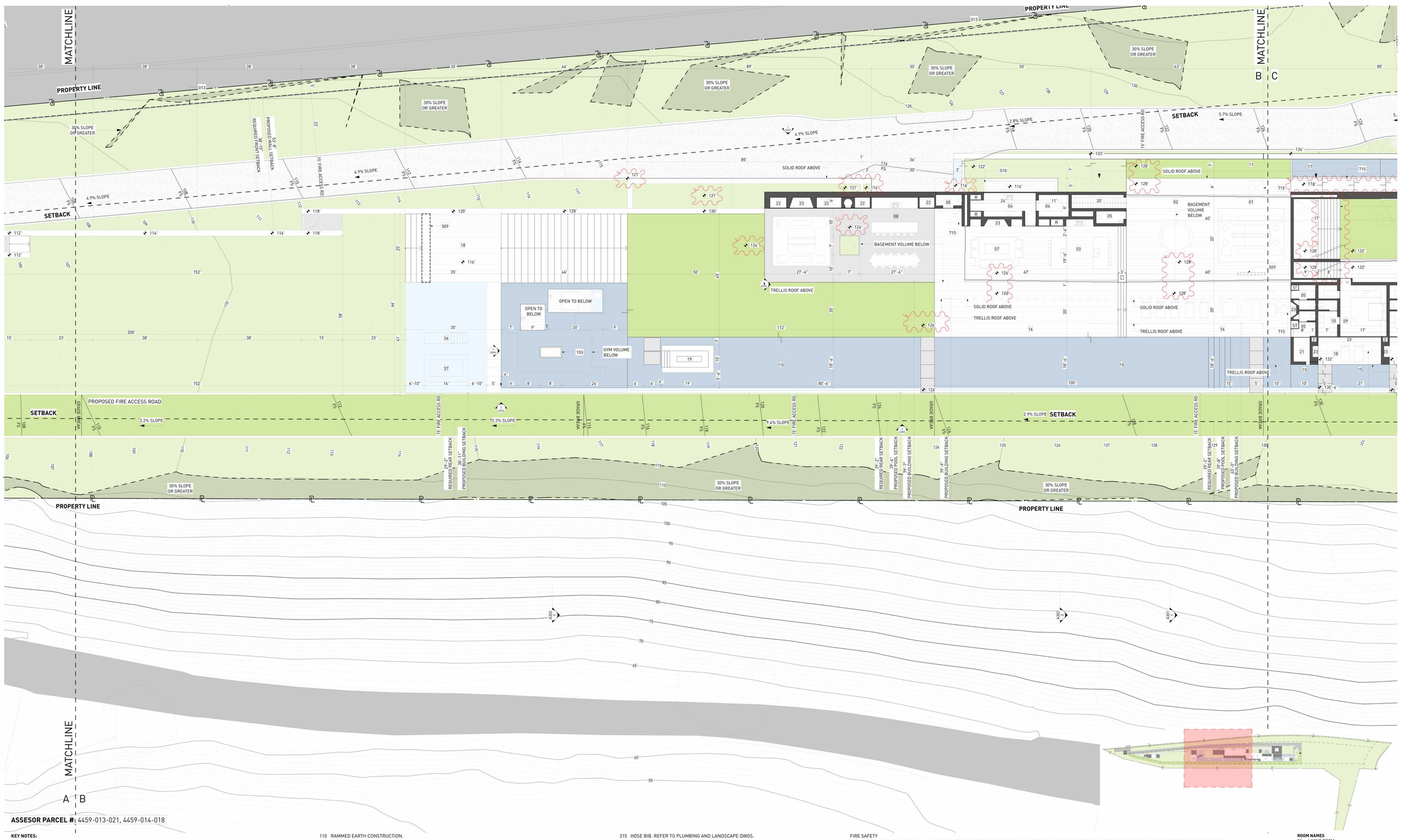
Drawing Issued on 1/27/26

A105



ASSESOR PARCEL #: 4459-013-021, 4459-014-018

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ROOM NAMES

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09 BEDROOM
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11 COURTYARD
12 MASTER BEDROOM
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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
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
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W oppenoffice.com

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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"

N

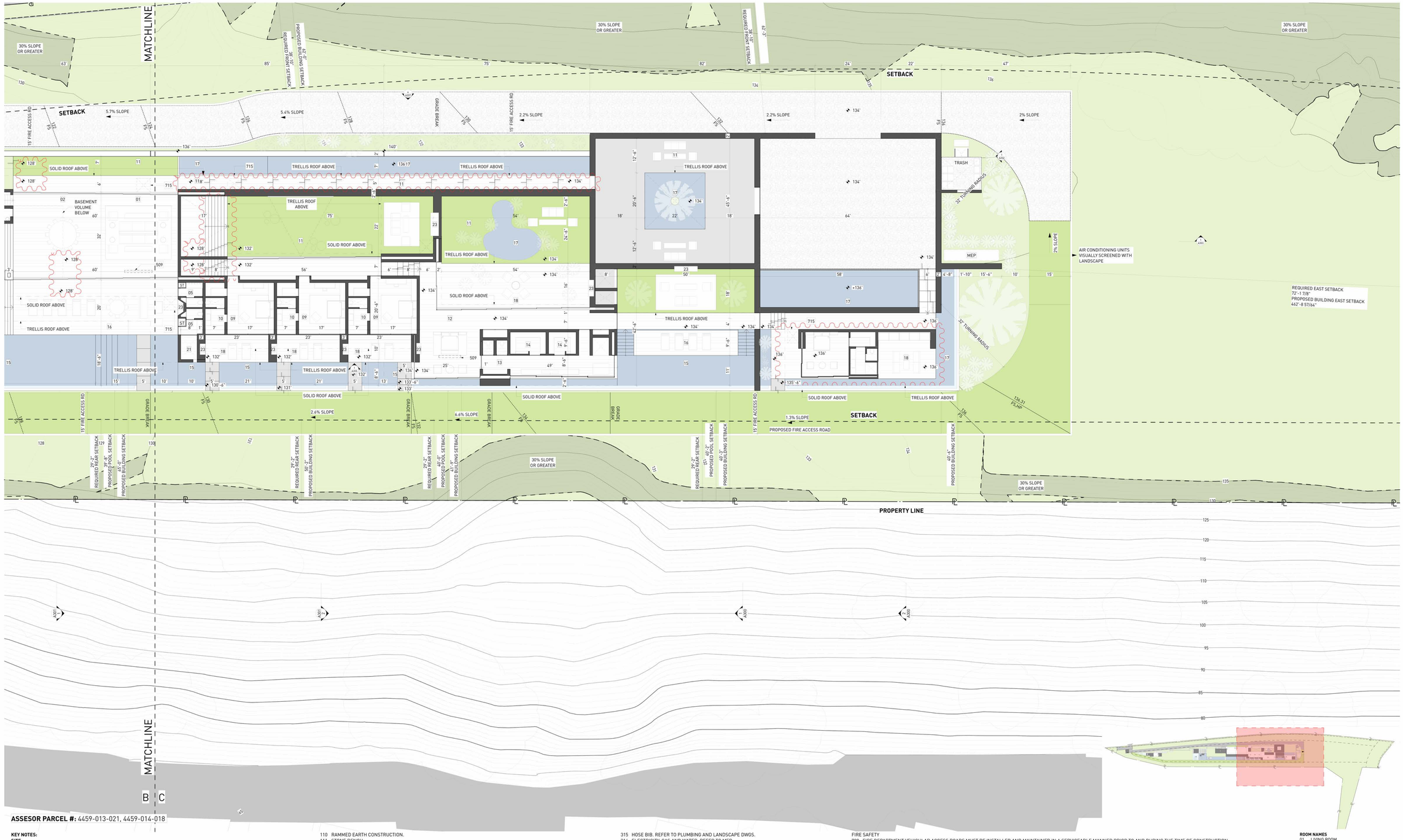
NOT FOR CONSTRUCTION

Design Development

1813
VILLA COLEAVA

Drawing Issued on 1/27/26

A106



ASSESOR PARCEL #: 4459-013-021, 4459-014-018

KEY NOTES:

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009 OPEN PARKING, REFER TO CIVIL FOR DETAILS
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MATERIALS

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109 REFER TO INTERIOR DESIGN DRAWINGS AND FINISH SCHEDULE.
110 RAMMED EARTH CONSTRUCTION.
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400 CONTINUOUS VAPOR BARRIER. REFER TO ARCH AND STRUCTURAL DWGS.
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MISC. ARCHITECTURAL DETAILS

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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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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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Revisions

Mark	Date	Description

Title
GROUND LEVEL C

1/16" = 1'-0"

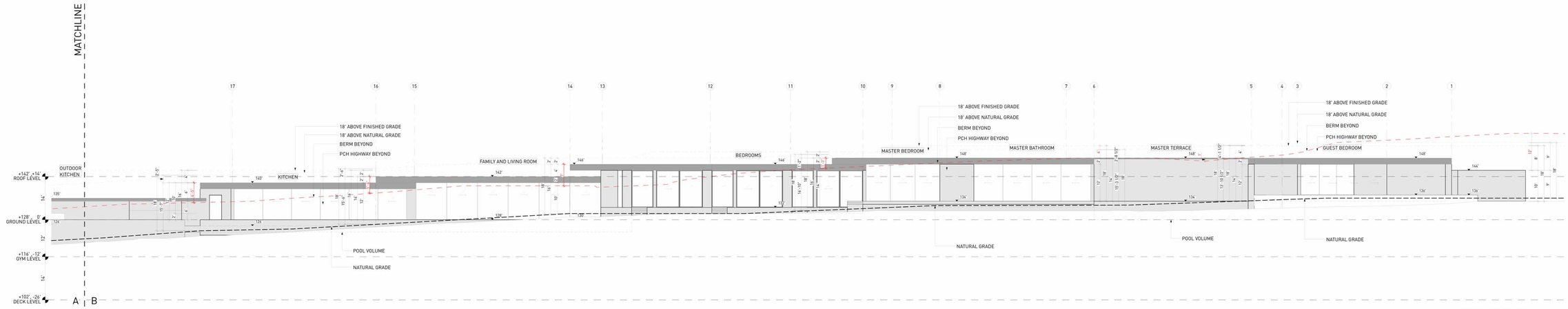
NOT FOR CONSTRUCTION

Design Development

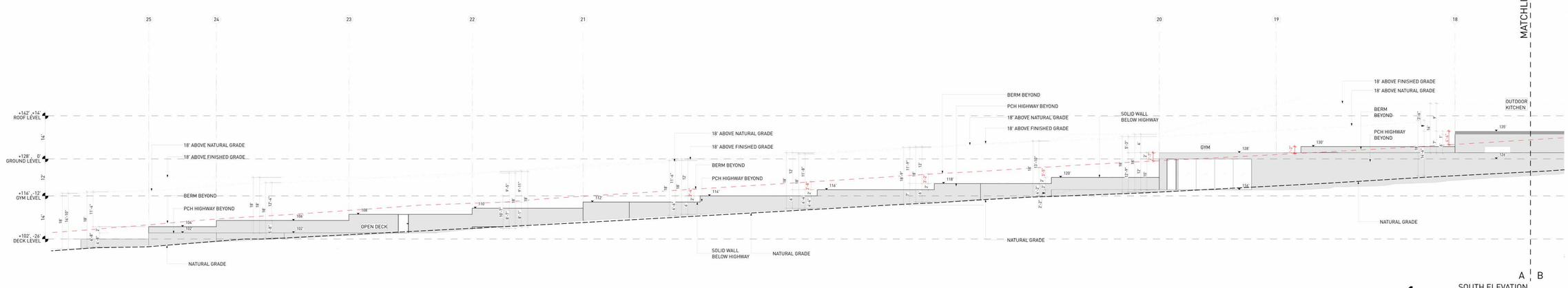
1813
VILLA COLEAVA

Drawing Issued on 1/27/26

A107



2 SOUTH ELEVATION
1/16" = 1'-0"



1 SOUTH ELEVATION
1/16" = 1'-0"

18' ABOVE PROPOSED GRADE
18' ABOVE NATURAL GRADE
EXISTING BERM
PCH HIGHWAY
WALLS
ROOF

SECTION LINE THROUGH TERRAIN



KEY NOTES:

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715 ROOF LADDER ACCESS

Project No

1813

Project Name
VILLA COLEAVA

Project Address
25200 Pacific Coast Hwy.
Malibu, California, USA

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Civil Engineers
LC Engineering Group
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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"

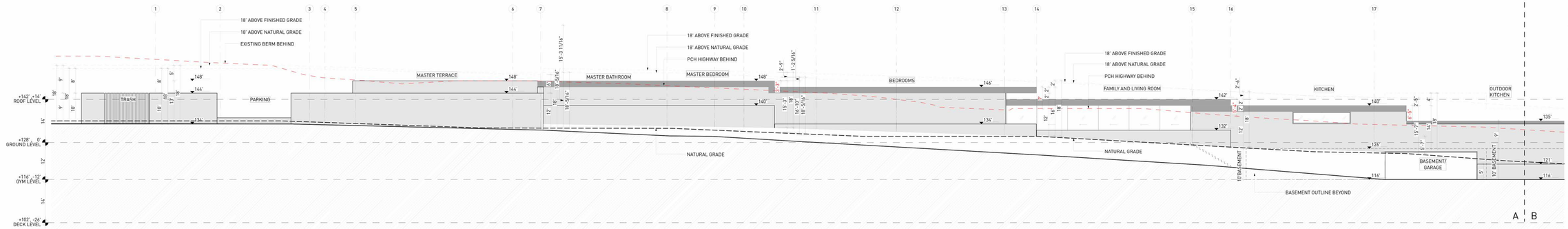
NOT FOR CONSTRUCTION

Design Development

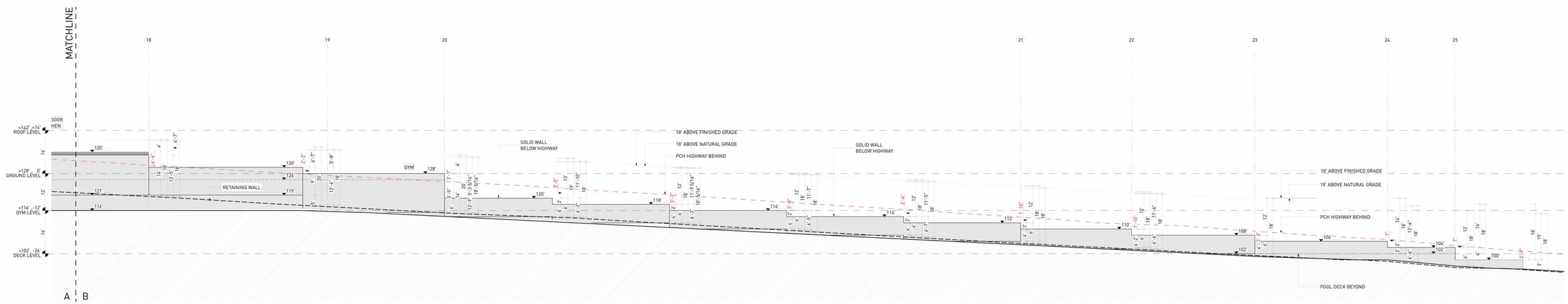
1813
VILLA COLEAVA

Drawing Issued on 03/01/19

A200



2 NORTH ELEVATION
1/16" = 1'-0"



1 NORTH ELEVATION
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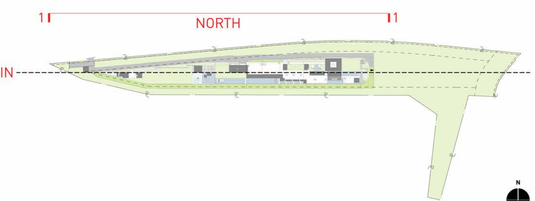
18' ABOVE PROPOSED GRADE
18' ABOVE NATURAL GRADE
EXISTING BERM
WALLS
ROOF



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012 42" MOTORIZED VEHICULAR SLIDING ENTRY GATE. STEEL FRAME. 90% VISUALLY PERMEABLE.
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014 CALL BOX
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.
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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
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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
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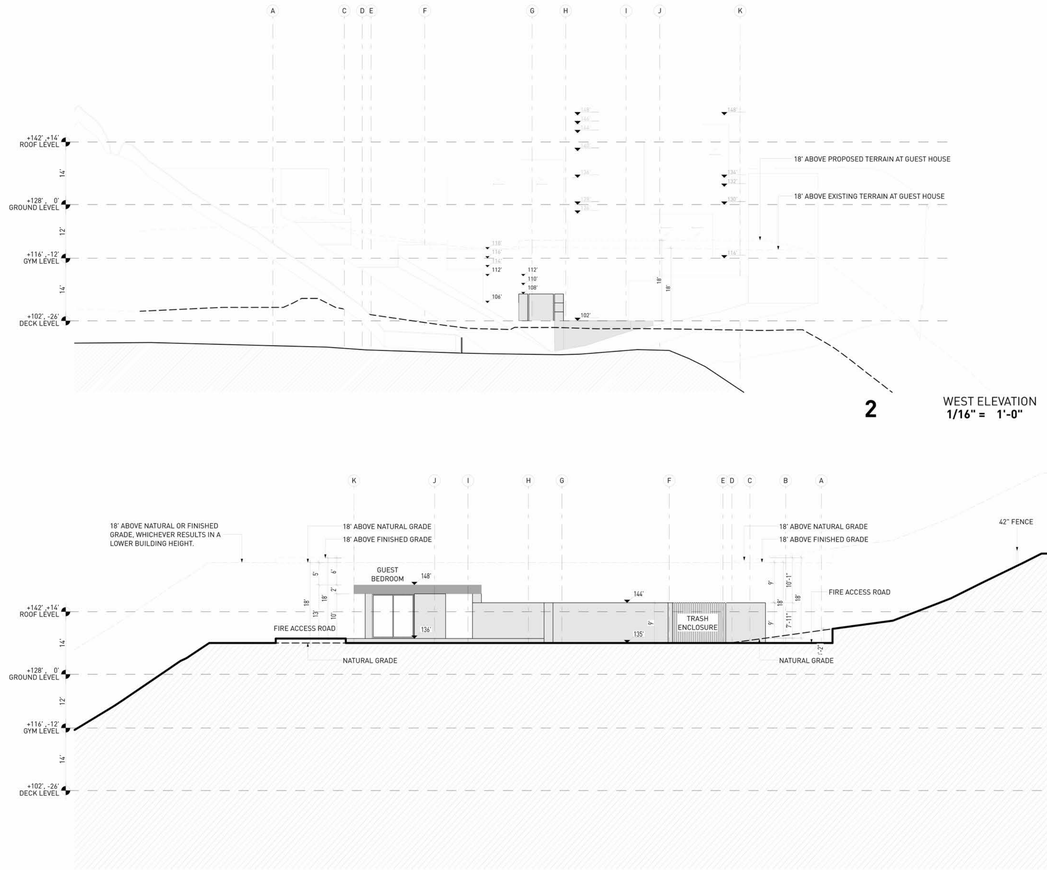

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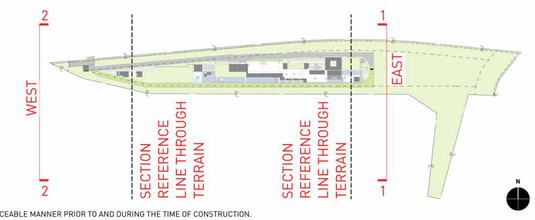
WALLS
ROOF



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

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245 NE 37 Street
Miami FL 33137
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LC Engineering Group
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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"

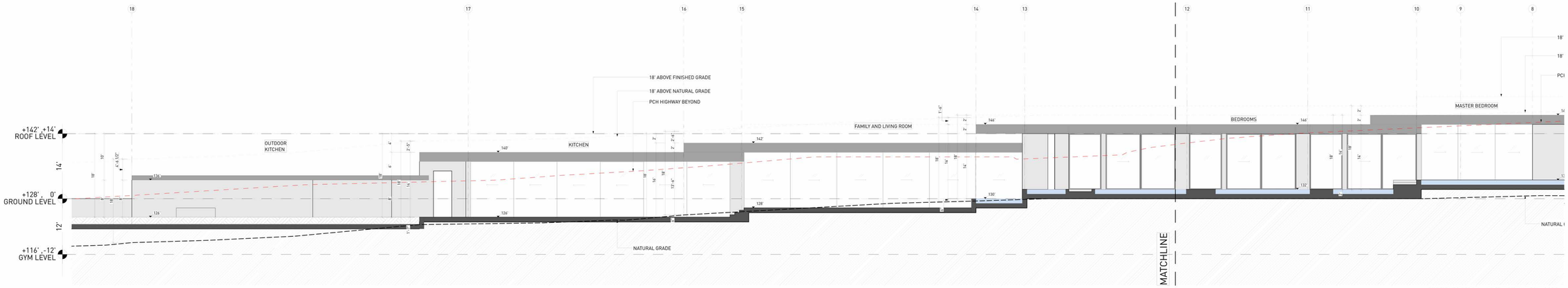
NOT FOR CONSTRUCTION

Design Development

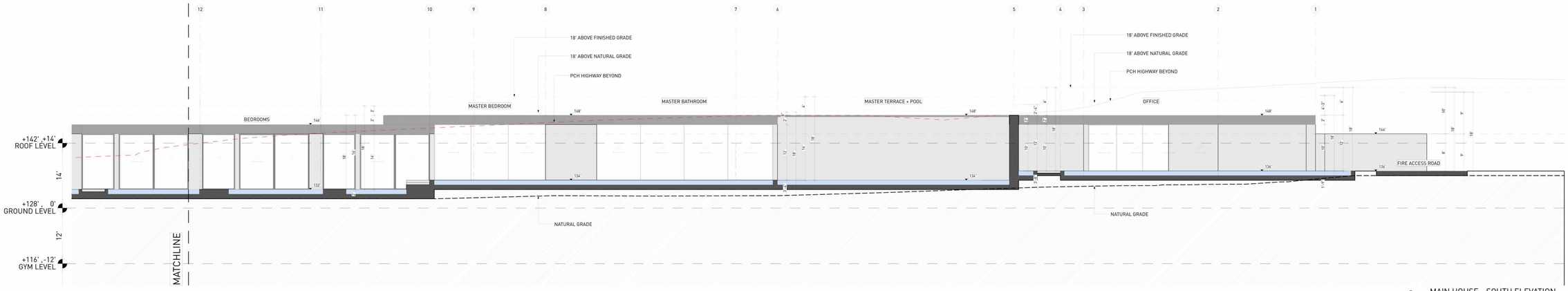
1813
VILLA COLEAVA

Drawing Issued on 03/01/19

A202

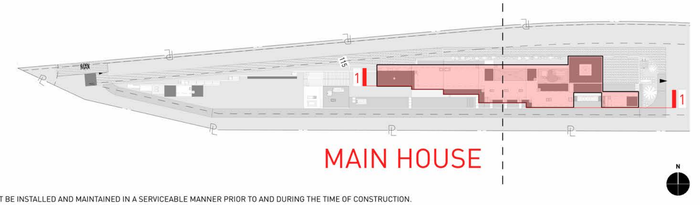


2 MAIN HOUSE - SOUTH ELEVATION
3/32" = 1'-0"



1 MAIN HOUSE - SOUTH ELEVATION
3/32" = 1'-0"

18' ABOVE PROPOSED GRADE
18' ABOVE NATURAL GRADE
EXISTING BERM
WALLS
ROOF



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 1/16TH 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

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Revisions

Mark	Date	Description

Title
ENLARGED MAIN HOUSE ELEVATIONS
3/32" = 1'-0"

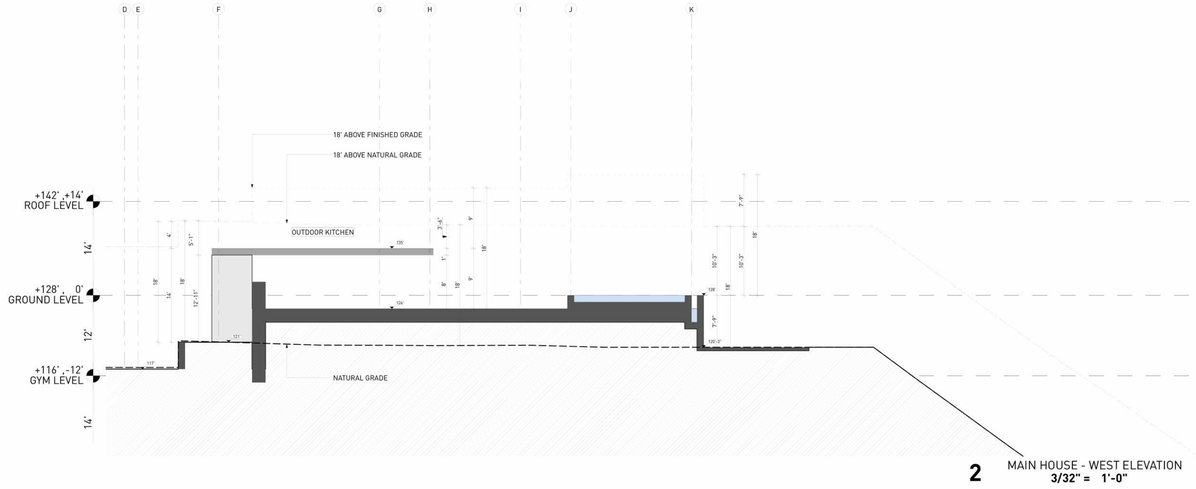
NOT FOR CONSTRUCTION

Design Development

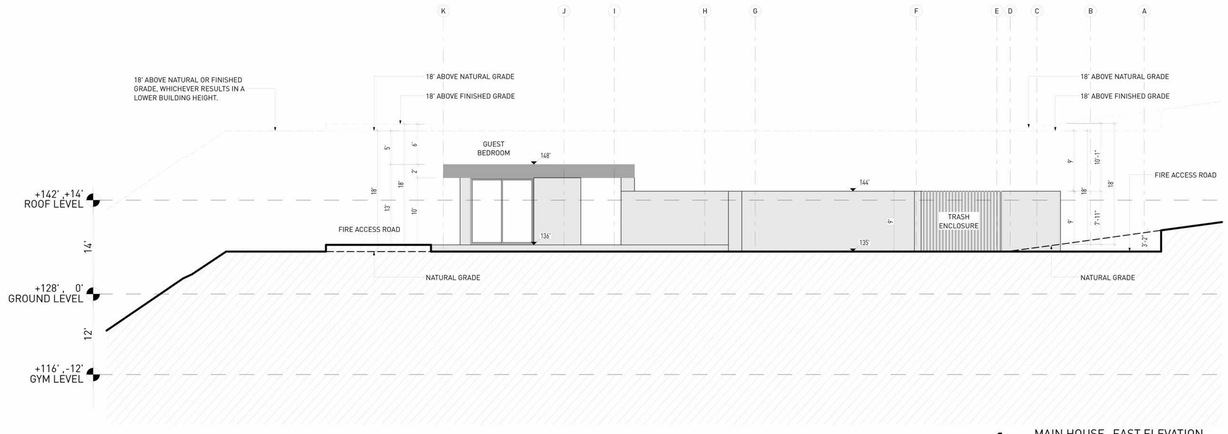
1813
VILLA COLEAVA

Drawing Issued on 03/01/19

A205



2 MAIN HOUSE - WEST ELEVATION
3/32" = 1'-0"



1 MAIN HOUSE- EAST ELEVATION
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KEY NOTES:
SITE
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WATERPROOFING
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503 KITCHEN, BUILT-IN FURNITURE, CABINETRY BY OTHERS. REFER TO KITCHEN SHOP 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
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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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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.
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18' ABOVE PROPOSED GRADE
18' ABOVE NATURAL GRADE
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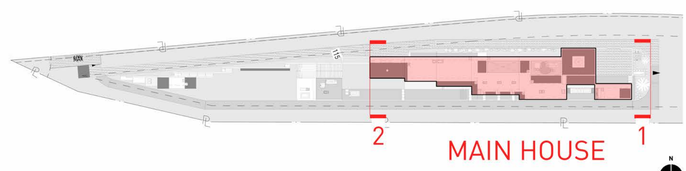

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Project Address
25200 Pacific Coast Hwy.
Malibu, California, USA

Property Owner
PAR PCH, LLC
PO Box 6528
Malibu, CA 90265

Design Architect
Oppenheim Architecture
245 NE 37 Street
Miami FL 33137
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P 310-450-8100
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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"

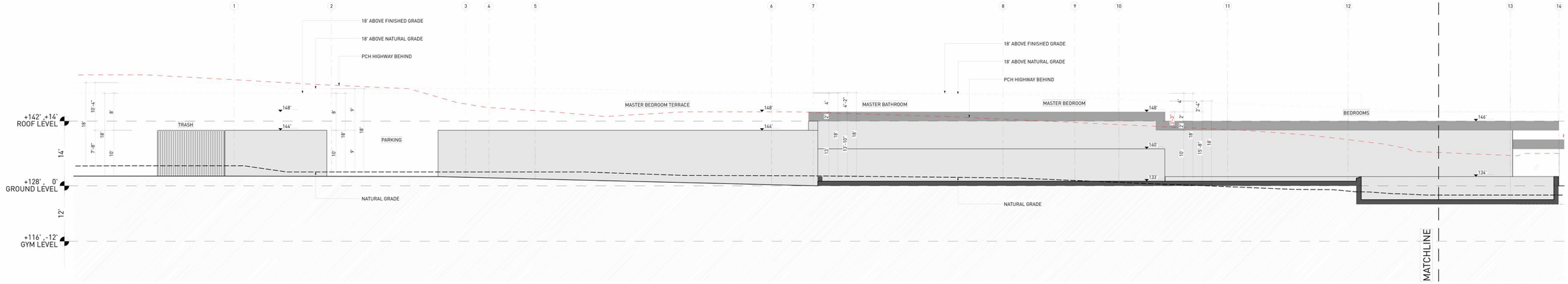
NOT FOR CONSTRUCTION

Design Development

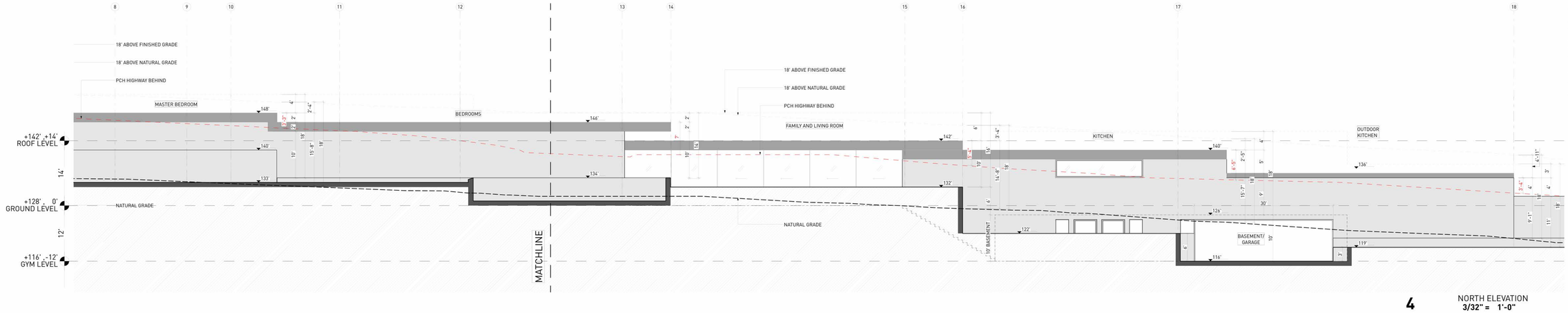
1813
VILLA COLEAVA

Drawing Issued on 03/01/19

A206



3 NORTH ELEVATION
3/32" = 1'-0"



4 NORTH 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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011 PEDESTRIAN GATE DOOR. PROVIDE SHOP DWGS. FOR ARCHITECT REVIEW.
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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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101 CUSTOM WOOD DOOR. REFER TO DOOR SCHEDULE.
102 IMPACT RESISTANT SLIDING ALUMINUM WINDOWS / DOORS SYSTEM, LOW-E COATING. REFER TO WINDOW SCHEDULE.
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504 5/8" GWB DROPPED CEILING ON 3/4" FURRING STRIPS. PAINTED GWB. COLOR TBD.
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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)
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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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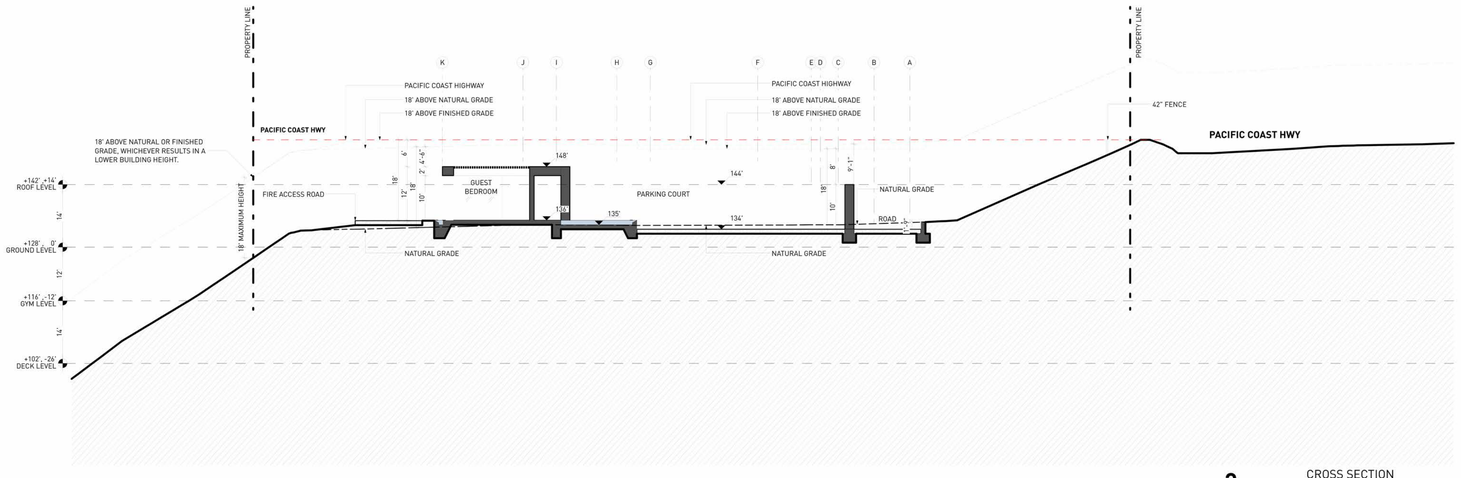

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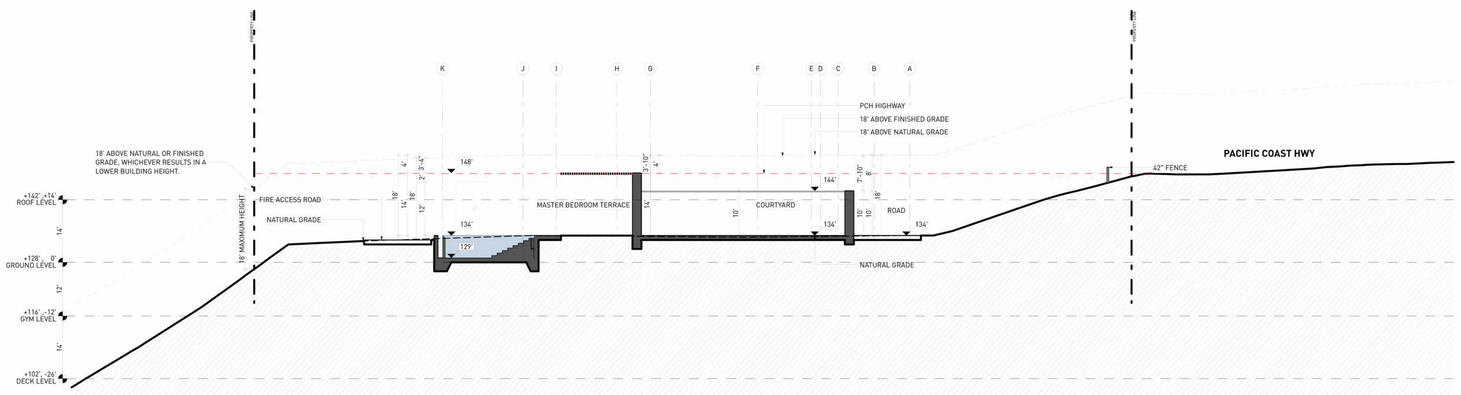

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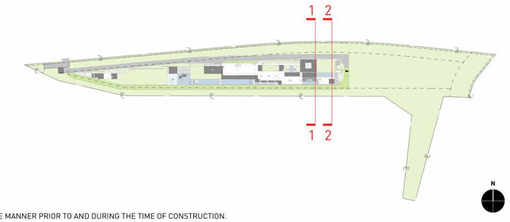

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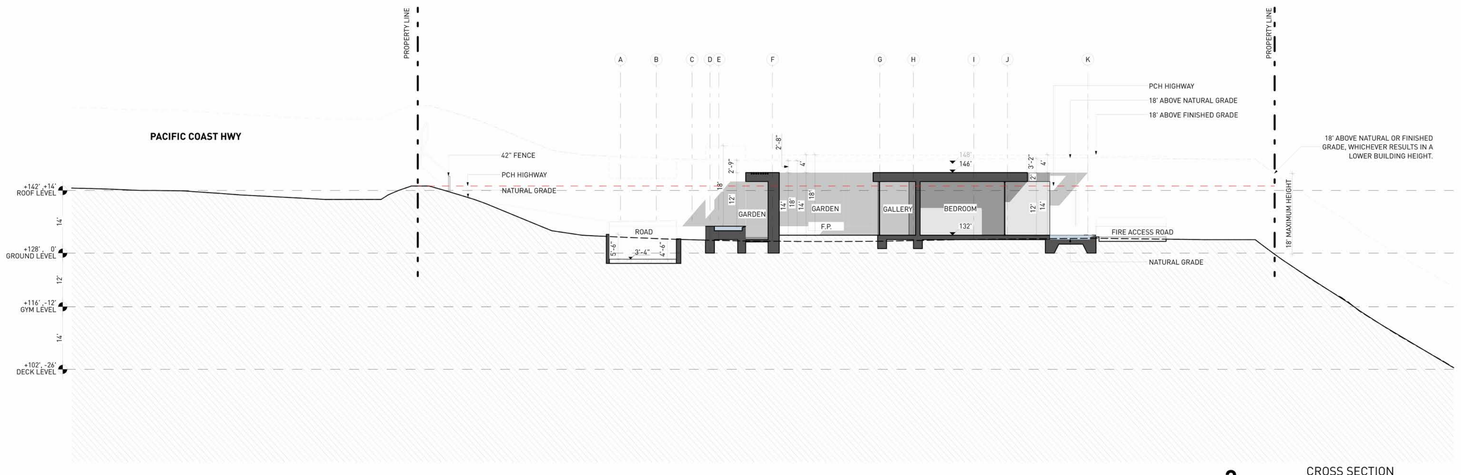
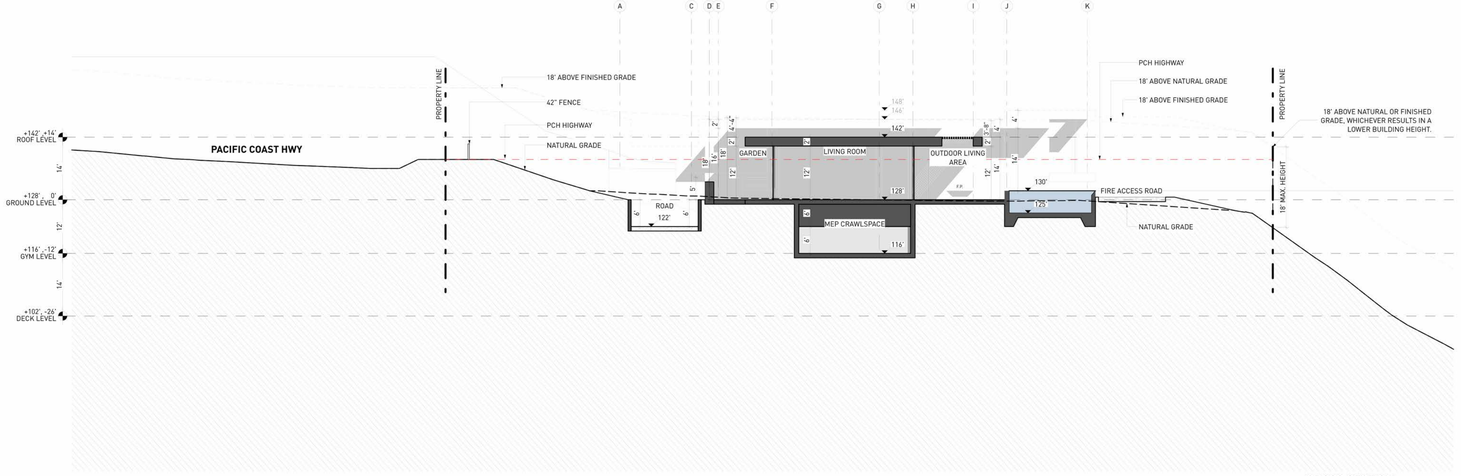
Drawing Issued on 03/01/19

A300



2 CROSS SECTION
1/16" = 1'-0"



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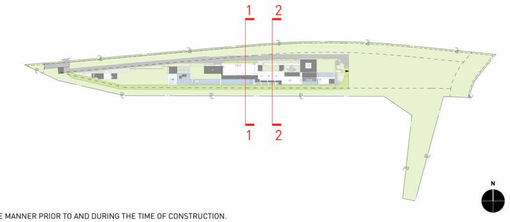
18' ABOVE PROPOSED GRADE
18' ABOVE NATURAL GRADE
EXISTING BERM



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009 OPEN PARKING, REFER TO CIVIL FOR 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
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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
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Malibu, CA 90265

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W plac-e.com

Civil Engineers
LC Engineering Group
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Thousand Oaks, CA 91360
P 805-497-1244
P 818-991-7148
W lcegroupinc.com

Revisions

Mark	Date	Description

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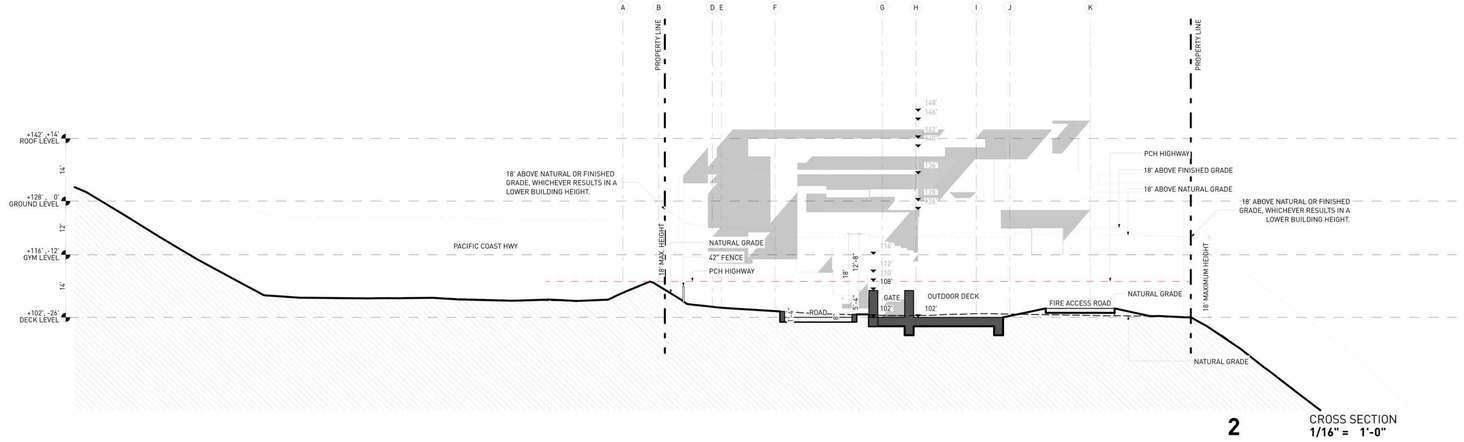

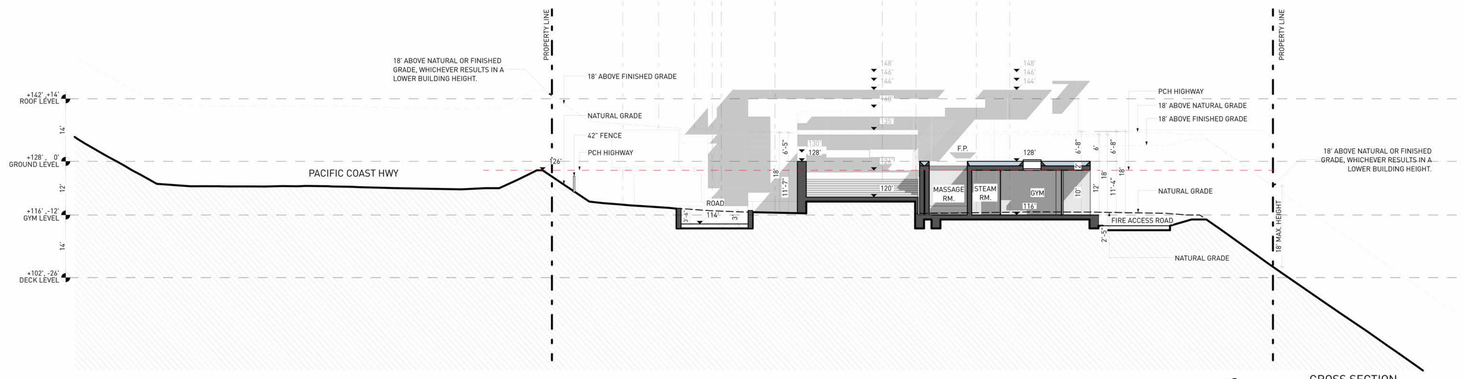

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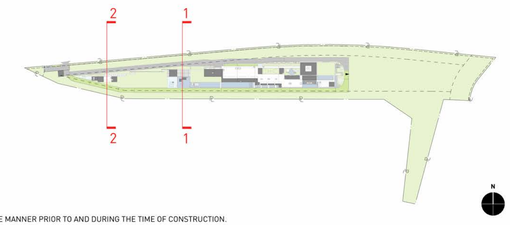

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Project Address
25200 Pacific Coast Hwy.
Malibu, California, USA

Property Owner
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Revisions

Mark	Date	Description

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Drawing Issued on 03/01/19

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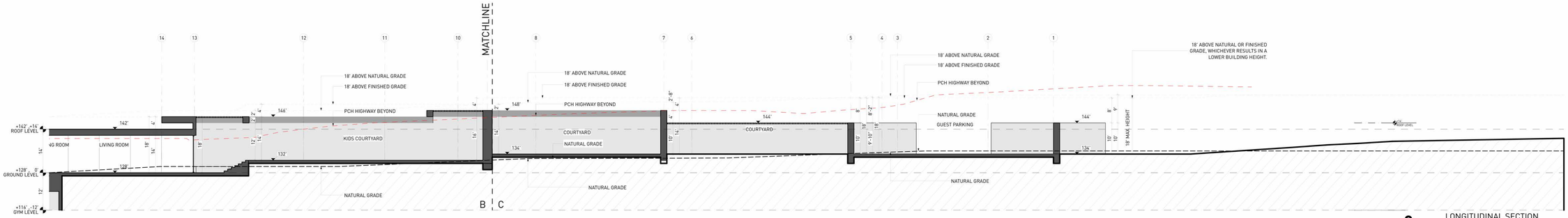
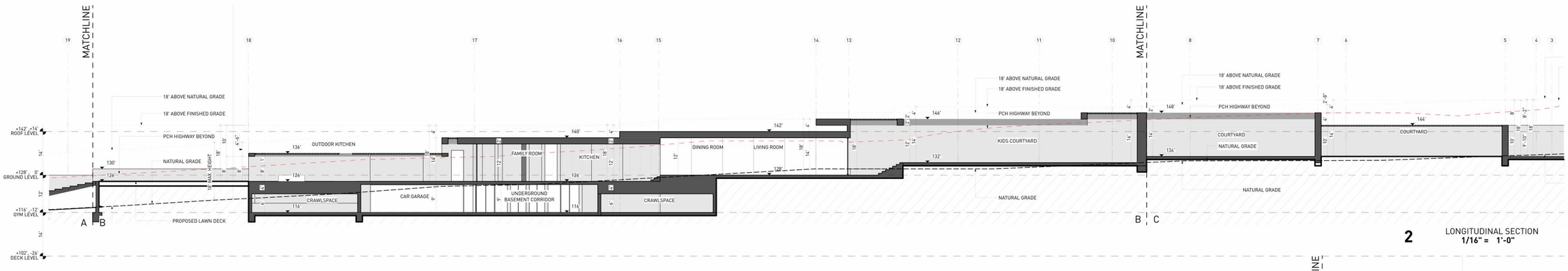
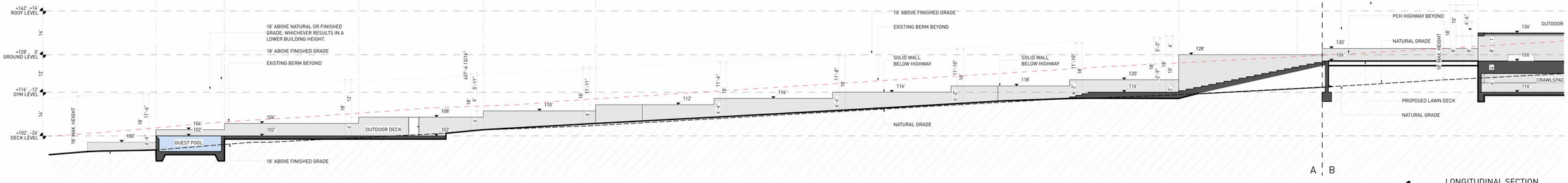


3 LONGITUDINAL SECTION
1/16" = 1'-0"

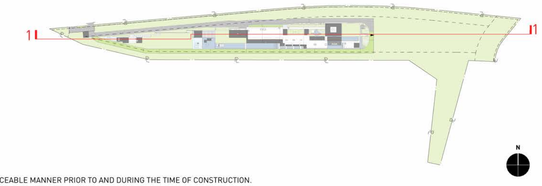


2 LONGITUDINAL SECTION
1/16" = 1'-0"



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.
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
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

Project No

1813

Project Name
VILLA COLEAVA

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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

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". FOUNDATION 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: 7,507 CU. YDS. FILL: 2,834 CU. YDS.
    EXPORT: 4,673 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 ,2026

COMPLETION DATE 90 DAYS AFTER PERMIT ISSUANCE ,2026

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

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 ADDRES

PACIFIC COAST HIGHWAY

PUERCO CANYON

MALIBU ROAD

MATTHEW KELLER BY PATENT RECORDED IN BOOK 31 PAGE 402 ET SEQ. OF PATENTS

TOPANGA MALIBU SCOUT CAMP

N81°56'47"E 821.14'

N8°57'21"W 332.57'

N80°01'07"W 242.75'

S87°09'15"W 929.66'

N26°42'06"W 120.39'

R=2952.84'

Δ=10°51'24"

L=559.52'

S87°11'49"E 311.34'

R=150.00'

Δ=56°28'10"

L=147.89'

S89°33'41"E

(Rad)

S89°33'41"E 194.52'

S35°39'51"W 107.40'

N03°18'43"E 266.68'

N21°17'17"W 521.27'

N80°57'52"W 43.82'

POB Parcel 1

1) 5' wide easement for utilities purposes in favor of Marblehead Land Company rec'd 4/7/1952 in Bk 38646 Pg 104, OR

2) 5' wide easement for utilities purposes in favor of Marblehead Land Company rec'd 4/7/1952 in Bk 38646 Pg 104, OR

3) 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

4) 15' wide easement for gas purposes in favor of Southern Counties Gas Company of California rec'd 11/2/1962 as Inst No 4118 in Bk D1814 Pg 973, OR

5) 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

6) 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

7) 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

8) 15' wide easement for gas purposes in favor of Southern Counties Gas Company of California rec'd 11/2/1962 as Inst No 4118 in Bk D1814 Pg 973, OR

9) 2' wide easement for pole lines and electrical purposes in favor of Southern California Edison rec'd 12/25/1932 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

11) 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

12) 5' wide easement for utilities purposes in favor of Marblehead Land Company rec'd 4/7/1952 in Bk 38646 Pg 104, OR

13) 2' wide easement for pole lines and electrical purposes in favor of Southern California Edison rec'd 6/12/1939 in Bk 16485 Pg 374, OR

14) 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

15) 15' wide easement for gas purposes in favor of Southern Counties Gas Company of California rec'd 11/2/1962 as Inst No 4118 in Bk D1814 Pg 973, OR

16) 20' wide easement for road purposes granted to the State of California per document rec'd 10/2/1939 in Bk 16845 Pg 253

17) 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

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

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

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/ 1/26/2026	PK/ 1/26/2026	

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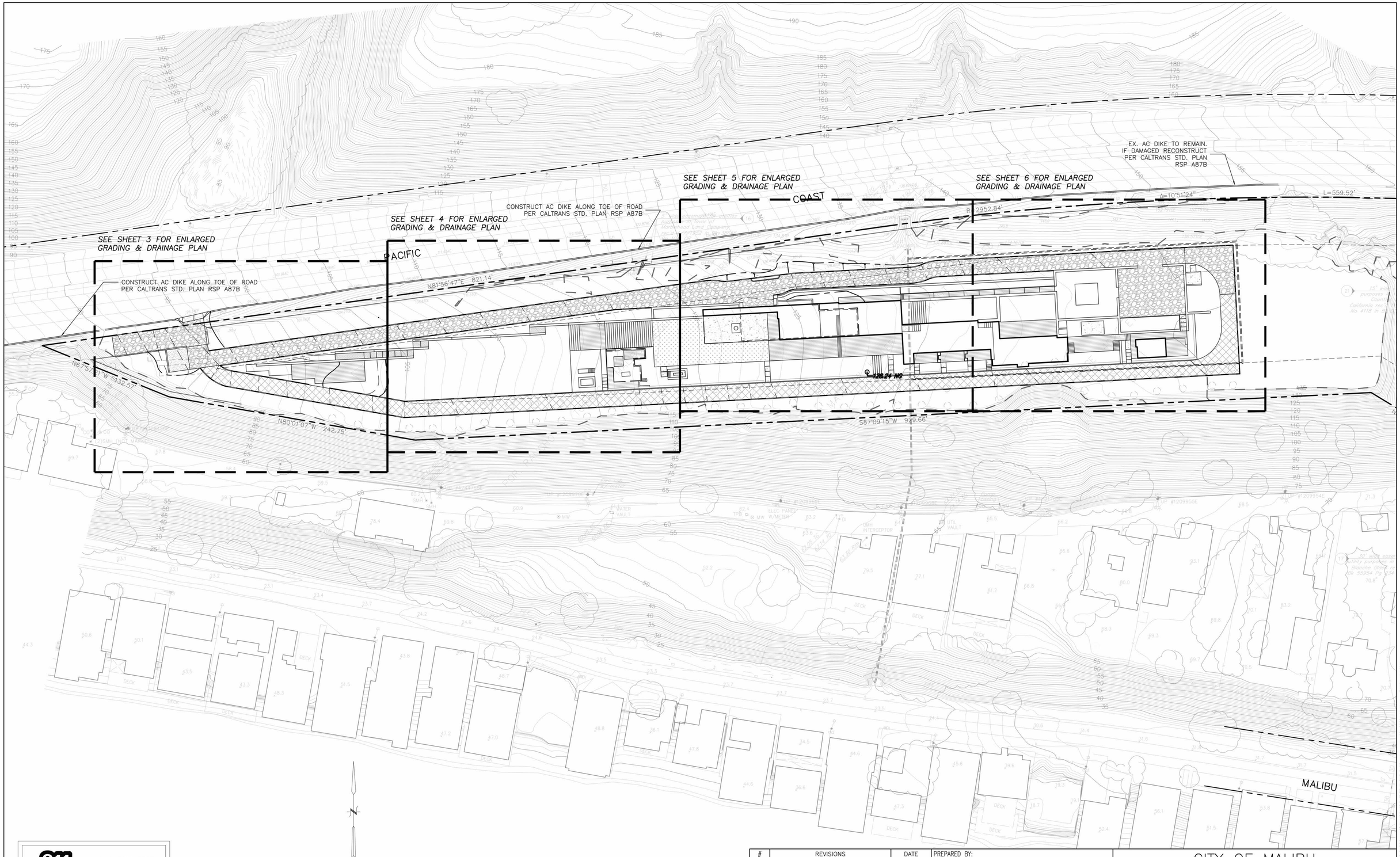

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REGISTERED PROFESSIONAL ENGINEER LEONARD T. LISTON IV No.93123 CIVIL STATE OF CALIFORNIA

#	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 • lcegroupinc.com • workfiles@lcegroupinc.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/ 1/26/2026	PK/ 1/26/2026	

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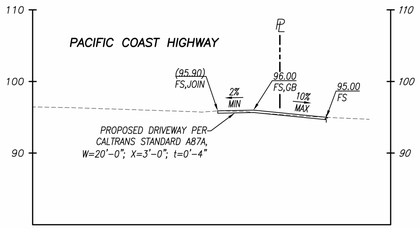


DRIVEWAY PROFILE
1"=10'

CONSTRUCTION NOTES

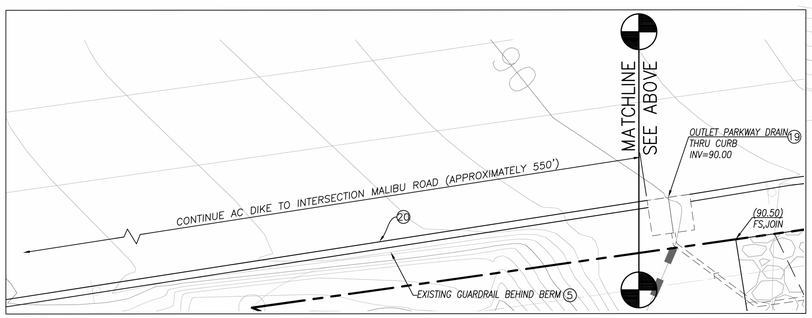
1. STRUCTURAL FOUNDATION AND SLABS–ON–GRADE PER ARCHITECT/STRUCTURAL PLANS AND GEOTECHNICAL REPORT.
2. OVER EXCAVATE ENTIRE FOUNDATIONS AS RECOMMENDED BY THE GEOTECHNICAL REPORT.
3. CONSTRUCT SDR 35 PVC PIPE (SIZE AS SHOWN) AT 1% MINIMUM SLOPE (MIN. PIPE SIZE 4"ø.)
4. CONSTRUCT PERMEABLE GRAVEL MOTOR 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



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818-991-7148 • 805-497-1244 • lcegroupinc.com • wcehlke@lcegroupinc.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/ 1/26/2026	PK/ 1/26/2026	

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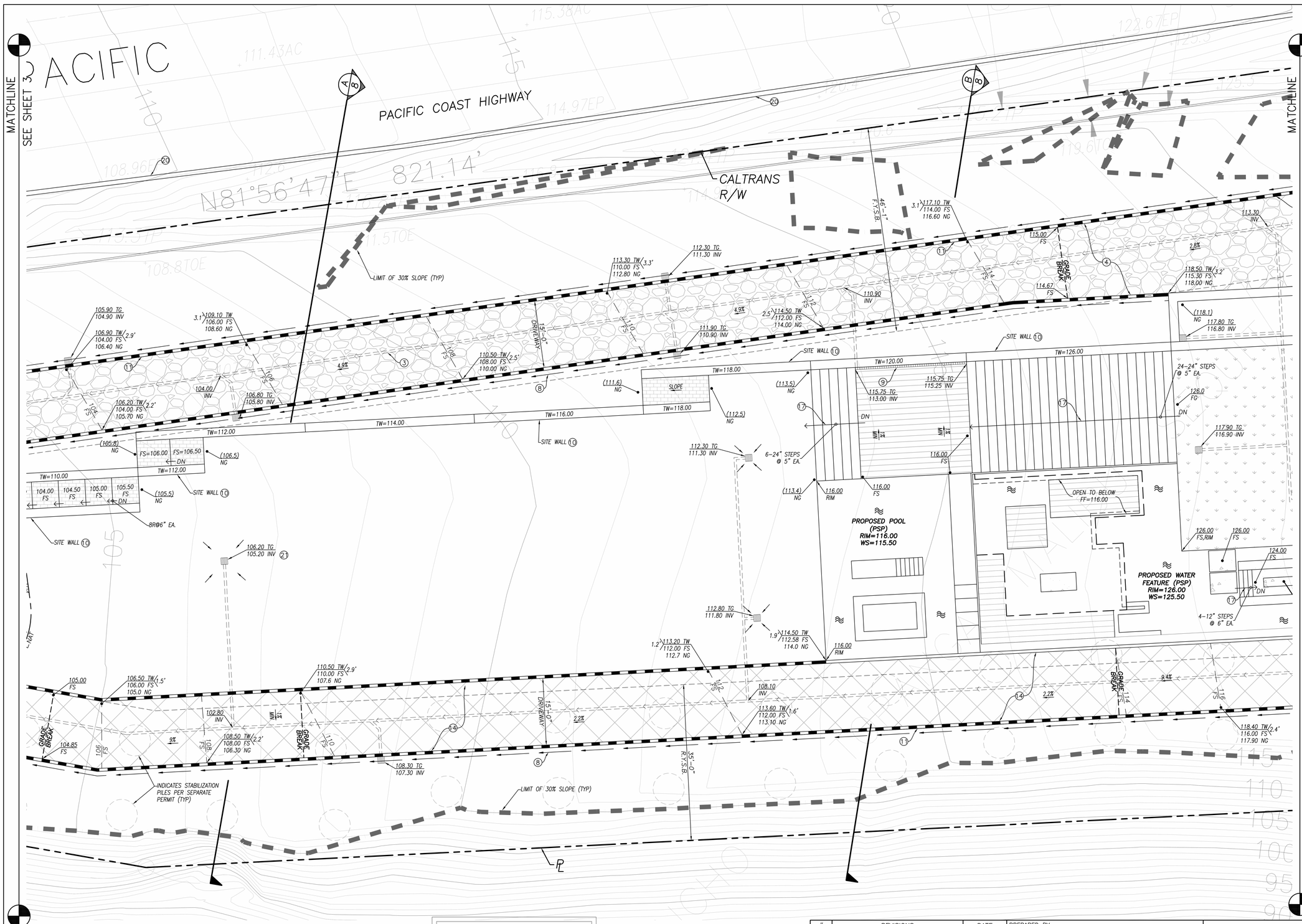

CONSTRUCTION NOTES

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 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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DIAL TOLL FREE 811
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/ 1/26/2026	PK/ 1/26/2026	

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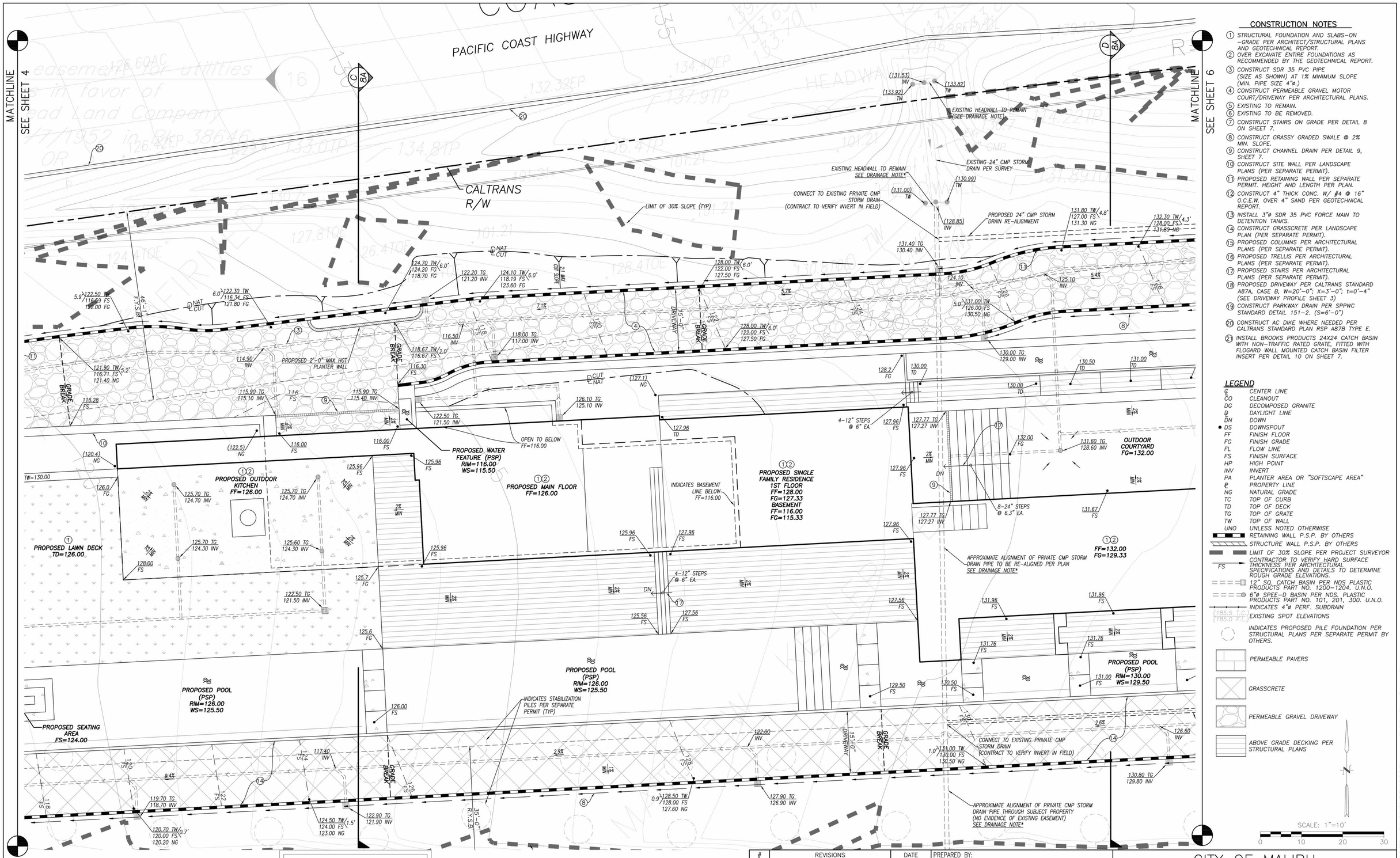

CONSTRUCTION NOTES

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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. LISTON III No.93123 CIVIL STATE OF CALIFORNIA

#	REVISIONS	DATE

PREPARED BY:
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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/ 1/26/2026	PK/ 1/26/2026	

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MATCHLINE
SEE SHEET 5

PACIFIC COAST HIGHWAY
CALTRANS R/W
2952.84'
LIMIT OF 30% SLOPE (TYP)
46'-1" F.S. S.B.
15'-0" DRIVEWAY
GRADE BREAK
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)
PROPOSED 24" CMP STORM DRAIN RE-ALIGNMENT
INDICATES STABILIZATION PILES PER SEPARATE PERMIT (TYP)
35'-0" R.1.S.B.
(132.00) NG
134.16TOE
136.57TOE
152.19TOE
153.18TOE
155.42TOE
156.58TOE

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REGISTERED PROFESSIONAL ENGINEER LEONARD T. LISOWYJ No.93123 CIVIL STATE OF CALIFORNIA

#	REVISIONS	DATE

PREPARED BY:
LC ENGINEERING GROUP, INC.
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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/ 1/26/2026	PK/ 1/26/2026	

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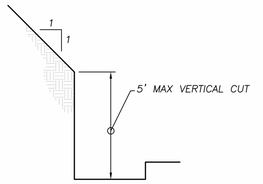

DETAIL NO. 1 TEMPORARY EXCAVATION
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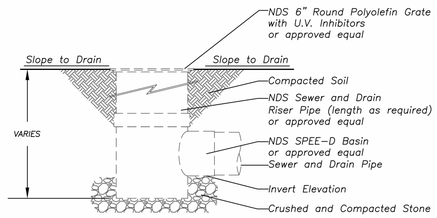

DETAIL NO. 4 6" ROUND GRATE
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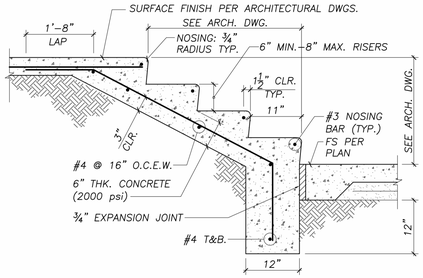

DETAIL NO. 8 CONC. STAIRS ON GRADE
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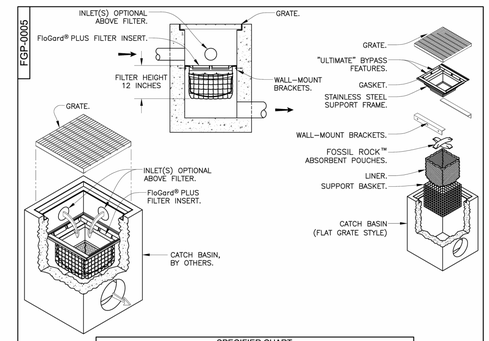

SPECIFIER CHART								
MODEL NO.	STANDARD & SHALLOW DEPTH (Data in these columns is the same for both STANDARD & SHALLOW versions)			STANDARD DEPTH (30 Inches)		MODEL NO.	SHALLOW DEPTH (12 Inches)	
STANDARD DEPTH	INLET ID Inside Dimension (NxS x HxW)	GRATE OD Outside Dimension (NxS x HxW)	TOTAL BYPASS 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-1836WS	1.3	.9
FGP-24W	24 X 24	24 X 27	6.1	2.2	1.5	FGP-24WS	1.25	.85
FGP-2436W	24 X 36	24 X 40	8.0	3.4	2.0	FGP-2436WS	1.95	1.15
FGP-48W	48 X 48	54 X 54	18.6	8.8	4.8	FGP-48WS	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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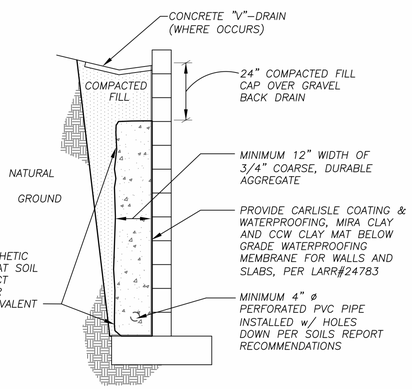
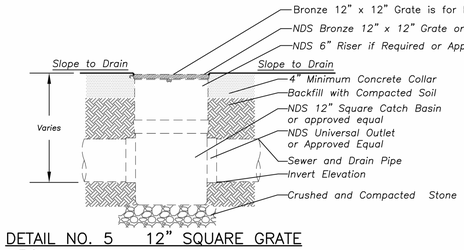
DRAWING NO.	REV.	ECO	DATE
FGP-0005	B	ECO-0142 JPR 7/13/16	JPR 1/25/13

SHEET 1 OF 1

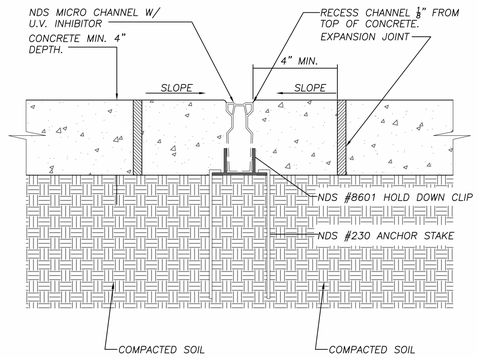
DETAIL NO. 10 WALL MOUNTED FILTER INSERT
N.T.S.

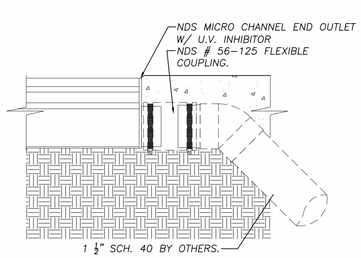


DETAIL NO. 2 BACKFILL
N.T.S.

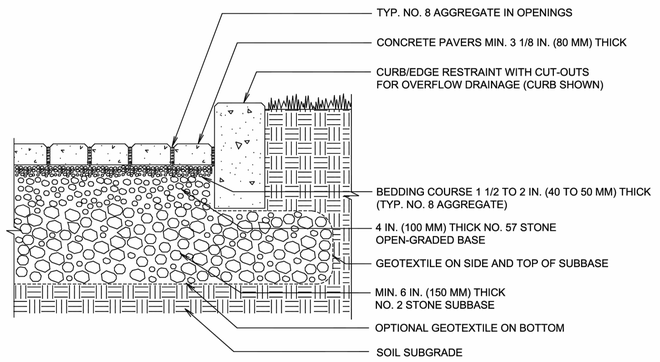


DETAIL NO. 5 12" SQUARE GRATE
N.T.S.





DETAIL NO. 9 CHANNEL DRAIN
N.T.S.

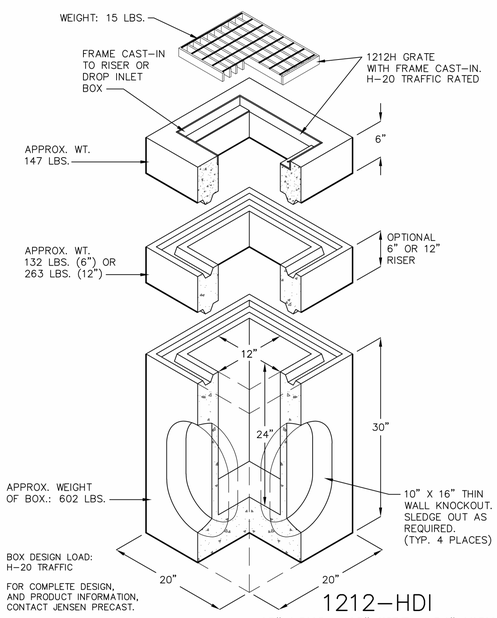


NOTES:
1. 2 3/8 IN. (60 MM) THICK PAVERS MAY BE USED IN PEDESTRIAN APPLICATIONS.
2. NO. 2 STONE SUBBASE THICKNESS VARIES WITH DESIGN. CONSULT ICPI PERMEABLE INTERLOCKING CONCRETE PAVEMENT MANUAL.

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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DETAILS
25200 PACIFIC COAST HIGHWAY

DRAWN BY / DATE	CHECKED BY / DATE	SHEET 7 OF 8
PK/ 1/26/2026	PK/ 1/26/2026	

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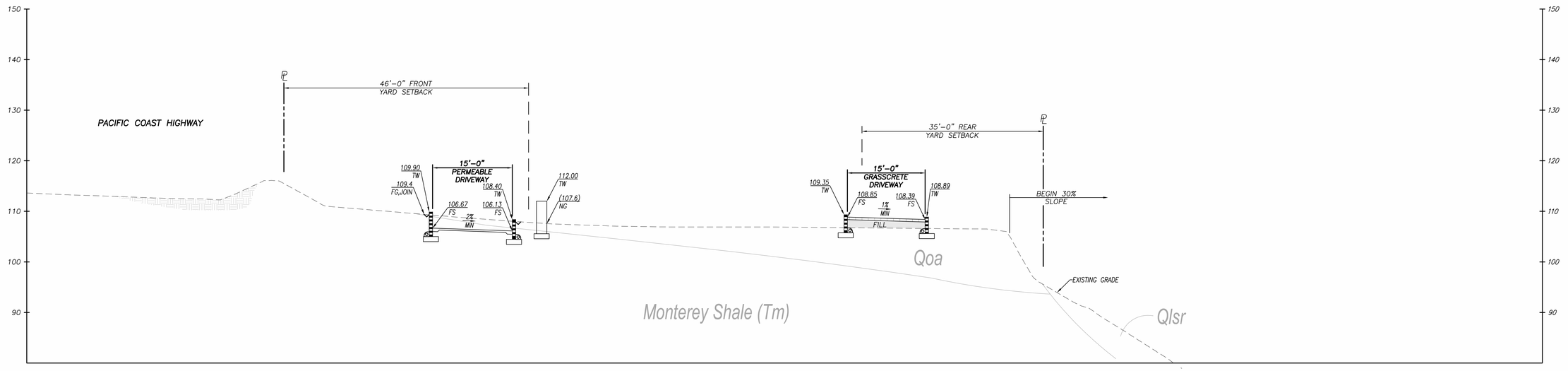
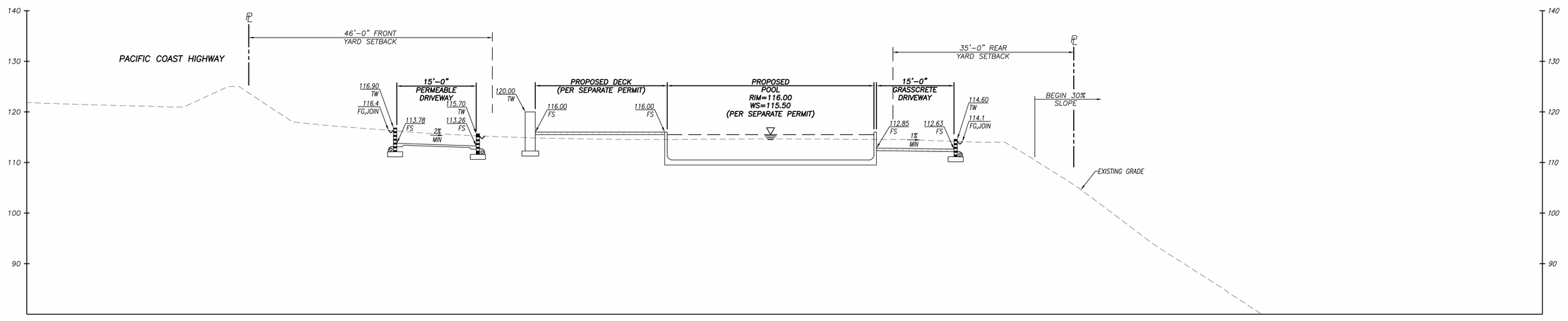


SECTION A
1"=10'



SECTION B
1"=10'

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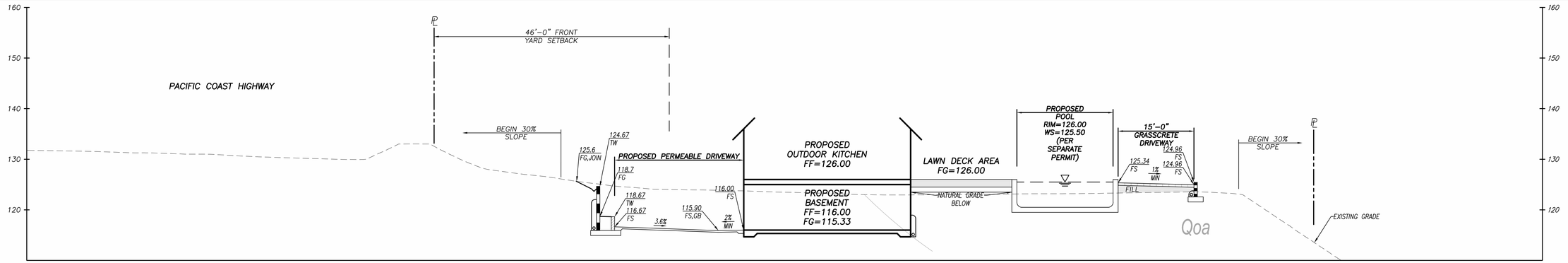
CONSULTING ENGINEERS
889 Pierce Court, Suite 101, Thousand Oaks, California 91360
818-991-7148 • 805-497-1244 • leegroupinc.com • workfiles@leegroupinc.com

93123
REGISTERED ENGINEER RCE DATE

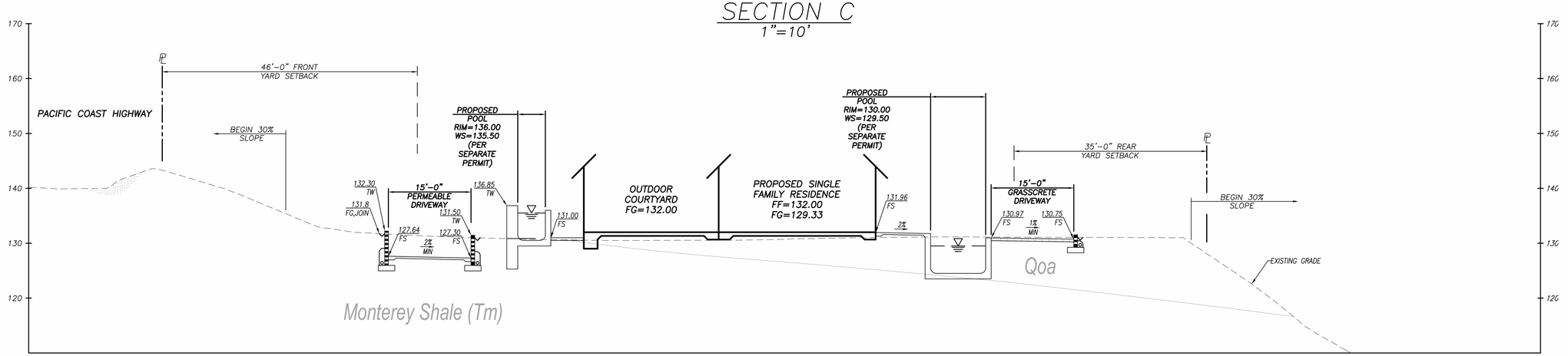
CITY OF MALIBU
CROSS SECTIONS
25200 PACIFIC COAST HIGHWAY

DRAWN BY / DATE	CHECKED BY / DATE	SHEET 8 OF 8
PK/ 1/26/2026	PK/ 1/26/2026	

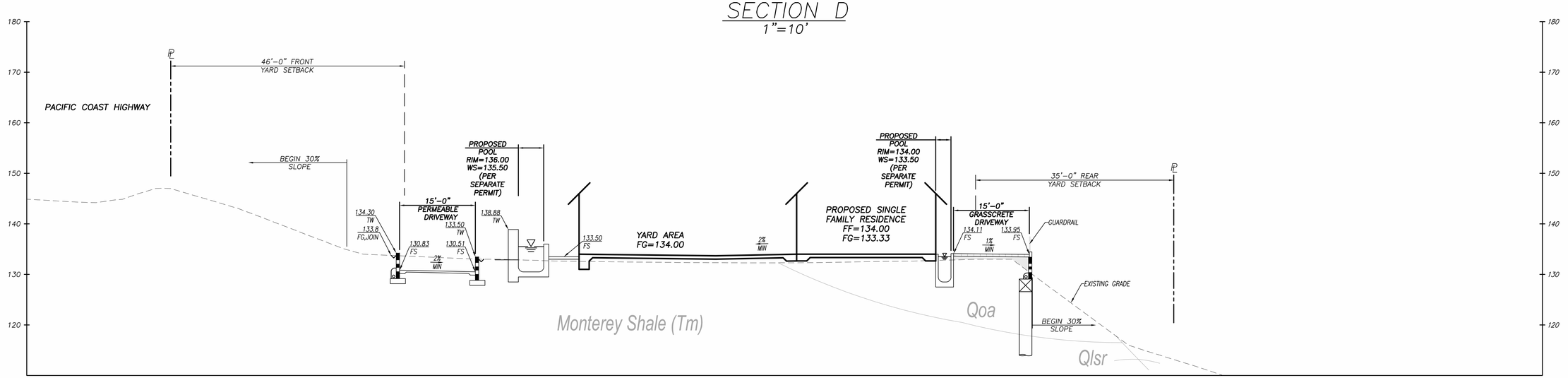
A:\LC GROUP\Civil\JOBS\7000\7748 PARRISH LLC\CIVIL\DWG\SHT\7748 SHT 5 XSEC GET.dwg Jan 26, 2026, 1:08pm Patrick Kaufman



SECTION C
1"=10'



SECTION D
1"=10'



SECTION E
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 — LEONARD I. LISON II — 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 • lcegroupinc.com • wcefiles@lcegroupinc.com

93123
REGISTERED ENGINEER RCE DATE

CITY OF MALIBU
CROSS SECTIONS (CONT)
25200 PACIFIC COAST HIGHWAY

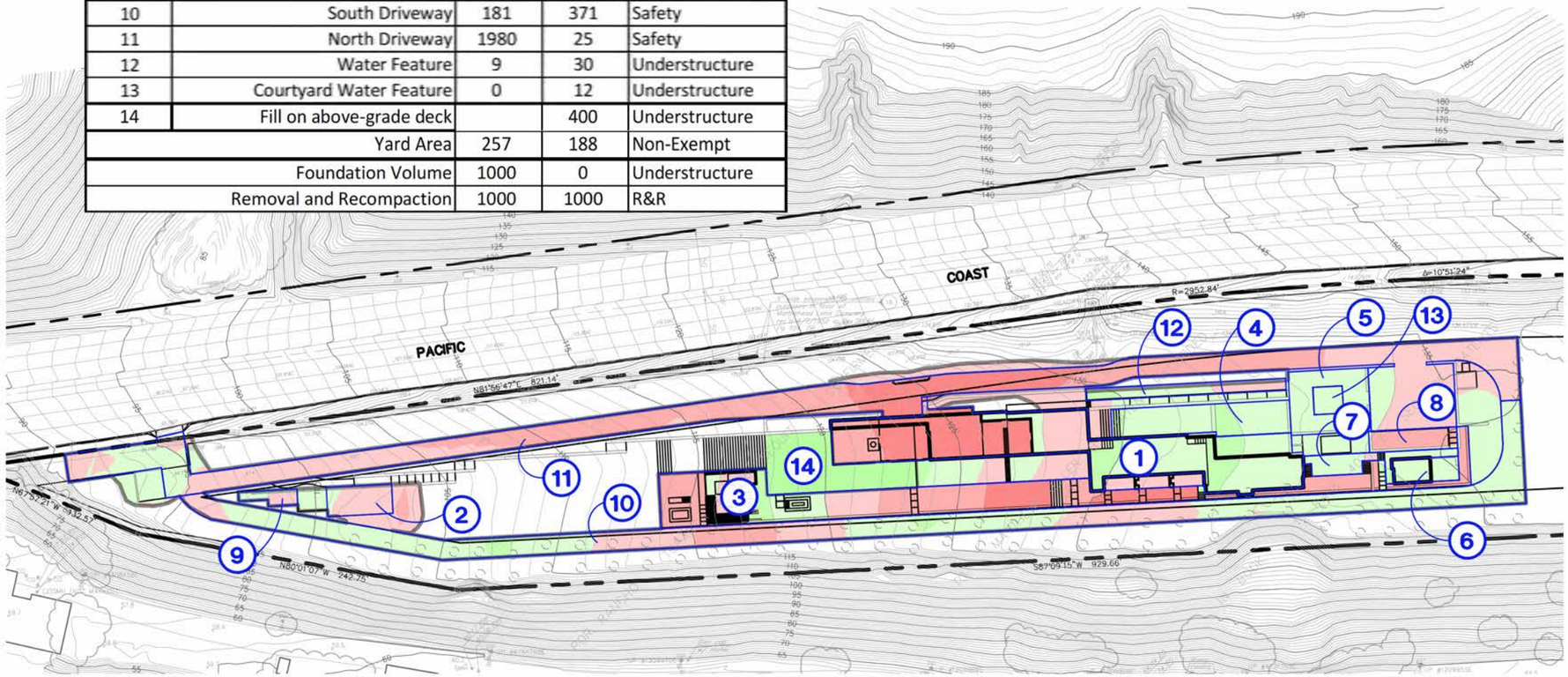
DRAWN BY / DATE	CHECKED BY / DATE	SHEET 8A OF 8
PK/ 1/26/2026	PK/ 1/26/2026	

X: \LCE GROUP\Civil\JOBS\7700\7748 PARMOV LLC\CIVIL\DWG\SHT\7748 SHT 5 XSEC DET.dwg Jan 26, 2026, 1:08pm Patrick Kaufman

No.	Subareas	Cut (CY)	Fill (CY)	Grading Type
1	Main House	1485	329	Understructure
2	Deck	37	1	Non-Exempt
3	Main Pool	1409	152	Understructure
4	Courtyard #1	0	165	Non-Exempt
5	Courtyard #2	0	56	Non-Exempt
6	Office	0	49	Understructure
7	Office Deck	0	38	Non-Exempt
8	Office Pool	144	9	Understructure
9	Pool	5	9	Understructure
10	South Driveway	181	371	Safety
11	North Driveway	1980	25	Safety
12	Water Feature	9	30	Understructure
13	Courtyard Water Feature	0	12	Understructure
14	Fill on above-grade deck		400	Understructure
	Yard Area	257	188	Non-Exempt
	Foundation Volume	1000	0	Understructure
	Removal and Recompaction	1000	1000	R&R

EARTHWORK QUANTITIES

	Exempt			Non-Exempt	Remedial	Total
	R&R	Understructure	Safety			
Cut	1,000	4,052	2,161	294	0	7,507
Fill	1,000	990	396	448	0	2,834
Total	2,000	5,042	2,557	742	0	10,341
Import	0	0	0	154	0	0
Export	0	3,062	1,765	0	0	4,673



CUT / FILL LEGEND:

CUT

- −20' TO −12'
- −12' TO −6'
- −6' TO −2'
- −2' TO 0'

FILL

- 0' TO 2'
- 2' TO 6'
- 6' TO 12'

100' 50' 0' 100' 200'

GRAPHIC SCALE: 1"=100'

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EARTHWORK EXHIBIT

25200 PACIFIC COAST HIGHWAY
MALIBU, CA

Jan 27, 2026 4:19pm Patrick Kauffman
X:\LCE GROUP\Civil\JOBS\7700\7746 PARDEE\CIVIL\DWG\01 GRADING EXHIBIT\7746 EW EXHIBIT.dwg

June 12, 2026

Attn: Allison Cook, Contract Planner
City of Malibu
23805 Stuart Ranch Road,
Malibu, CA, 90265

Re: Applicant's Response to Appeal of CDP 19-012, 25200 Pacific Coast Highway,

Dear Allison:

On behalf of the owners of 25200 Pacific Coast Highway, PAR PCH, LLC, we provide the following response to Appeal 26-007 filed contesting the approval of Coastal Development Permit (CDP) 19-012, approved by the Malibu Planning Commission on February 17, 2026. The response to this appeal covers items raised by the appellant, Concerned Citizens of Malibu Road, Inc.

A. Scenic, Visual & Hillside Resource Protection Arguments

Appellant's Argument #1 (Nature, Location and Extent of View Blockage): The project blocks views of Catalina and significantly and adversely impacts public blue water views in violation of LIP Chapter 6.

Applicant's Response

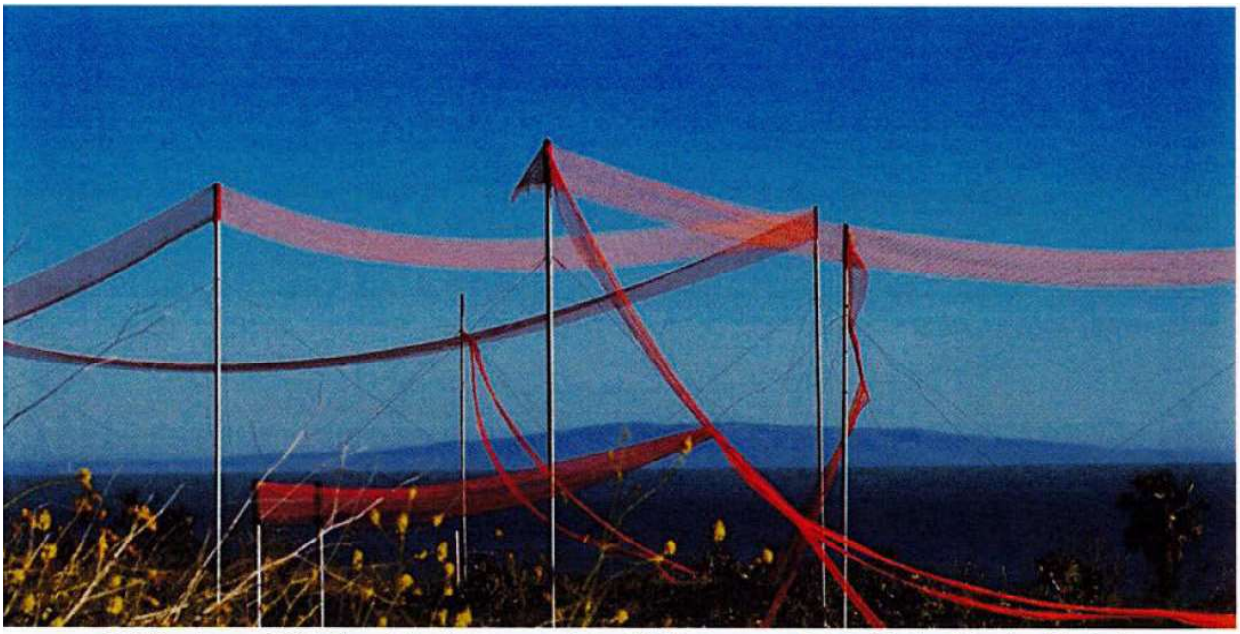
I. **The Appellant's photos are inaccurate and were not taken from the Pacific Coast Highway. Their arguments are not supported by evidence. The applicant's photos, however, demonstrate that the home will have only minor blue water view obstructions and only when vehicles are driving immediately north of the home (peek-a-boo view).**

The photos provided by the appellant in support of their position are highly inaccurate and grossly misleading. They appear to have been taken directly from the building pad adjacent to the buildings, not from PCH as is stated in the photo caption. The applicant has provided photos below from the same general area, only from a vantage point on Pacific Coast Highway at eye level. The comparison makes it immediately obvious that the appellant's photos were taken from a significantly lower elevation; several feet lower than the PCH road grade and likely from the development pad grade. The appellant's photos appear to show story poles that range from approximately 8-11' higher than the elevation of the camera eye. Provided that the prior house design as shown in these photos, was a maximum of 18' in height[1] and that the elevation of the top of the berm on PCH is at least 11' above the building pad, it becomes completely obvious that these photos were taken from a position on the building pad, possibly from a crouched position.

[1] Note that the story poles in this picture also show the home prior to the 2' height reduction required and approved by the Planning Commission

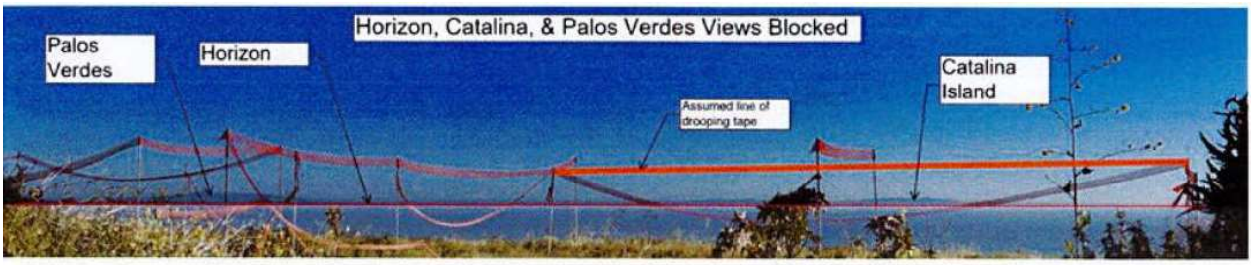
Of course, the exact location of the photo cannot be confirmed as the shot was so zoomed in. This is not the correct way to assess potential public view impacts. The correct way is to take photos at eye level from PCH; this was not done. The appellant is clearly trying to mislead the City Council with photos misrepresented as being taken 'from PCH' when they are not.

APPELLANT PHOTOS



Public views of Catalina Island, as seen from PCH, are completely blocked by the Project.

Applicant Note: The above photo (pad level**) shows the **Palos Verdes Peninsula**, not Catalina as the appellant states.*

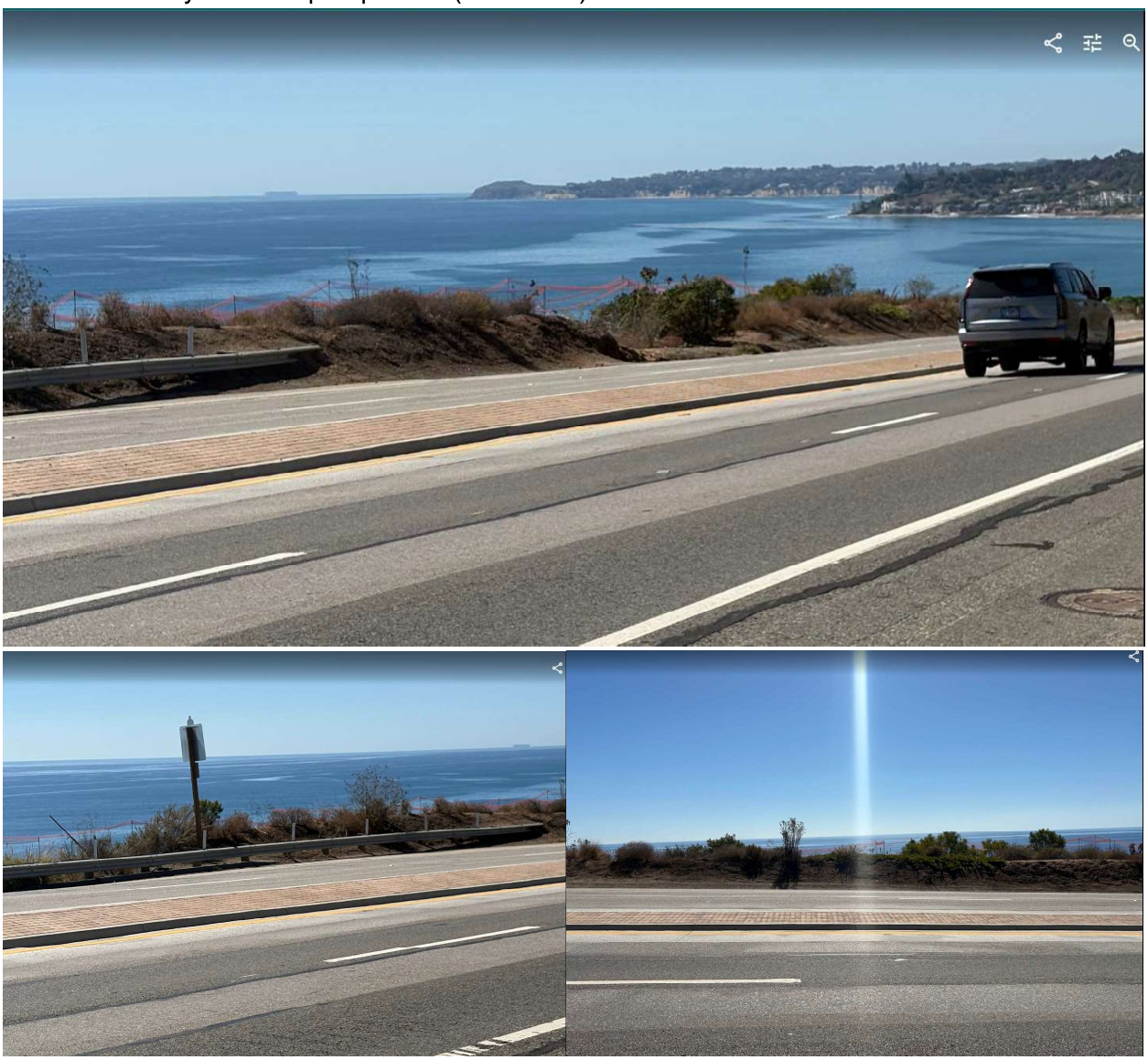


Public views of the Palos Verdes Peninsula, Catalina Island, and the Pacific horizon line are completely blocked by the Project.

***Figures 7 & 8:** Appellant's photos which are clearly taken from the applicant's property and not from PCH, as is claimed in figure 8.*

Again, the applicant's photos accurately show the relevant elevations of the story poles vis a vis the PCH roadway and berm. The applicant's photos below and the project rendering provide a clear picture of the minimal view blockage of the house design. Planning staff viewed the poles from PCH, photo documented the same and reviewed the applicant's renderings and have found them reliable and accurate as verified by staff's visits to the property. The appellants assertion

that the house blocks all views of Catalina and Palos Verdes is a contrivance supported by photos taken +-11' below PCH. The photos immediately below, taken by the applicant's representatives, show an entirely different perspective (from PCH).



Figures 1, 2 and 3: *Applicant's photos of the residence from just east of the home (looking southwest) and looking directly south towards the ocean show very minor view blockage. Note that the applicant's photos shown depict the story poles* ***before*** *the 2' reduction in height which was required by the Planning Commission to approve the project. The photos above were taken prior to the Planning Commission approval; most of the home is now 2' lower than depicted in these photographs.*



Figures 4, 5 & 6: *Additional Photos of the residence from the north side of PCH looking southwest.*

Conclusion

The photos below were taken by the appellant **while standing on the applicant's property** near the proposed residence (Trespassing). The use of the appellant's photos is inappropriate, as it is not taken from PCH where public view impacts are legally assessed. It is taken several feet below the elevation of PCH, when the photo should have been taken at eye level on PCH. The photo is also highly zoomed-in to further exaggerate the appearance of blue water view blockage.

On the other hand, the photos taken by the applicant from PCH (shown above) demonstrate that when viewed from PCH, the proposed residence would only result in minor blockage of blue water views at very few locations/perspectives. It is important to note that 75% of the lot frontage will

be an established view corridor and only 25% of the frontage will be developed. This significantly reduces the visibility of the residence when viewed from PCH.

Appellant Argument #2 (Criteria for Significant Adverse View Impact): The project poses significant adverse visual impacts from PCH towards the ocean.

Applicant Response: The project does <u>not</u> pose any *significant adverse* impacts to public views & the LCP Chapter 6 required findings support the Planning Commission's approval of the project.

LIP sec. 6.4(A) (Findings), provides the required findings that must be made to determine compliance with the view impact policies of the LCP. This section provides in pertinent part as follows,

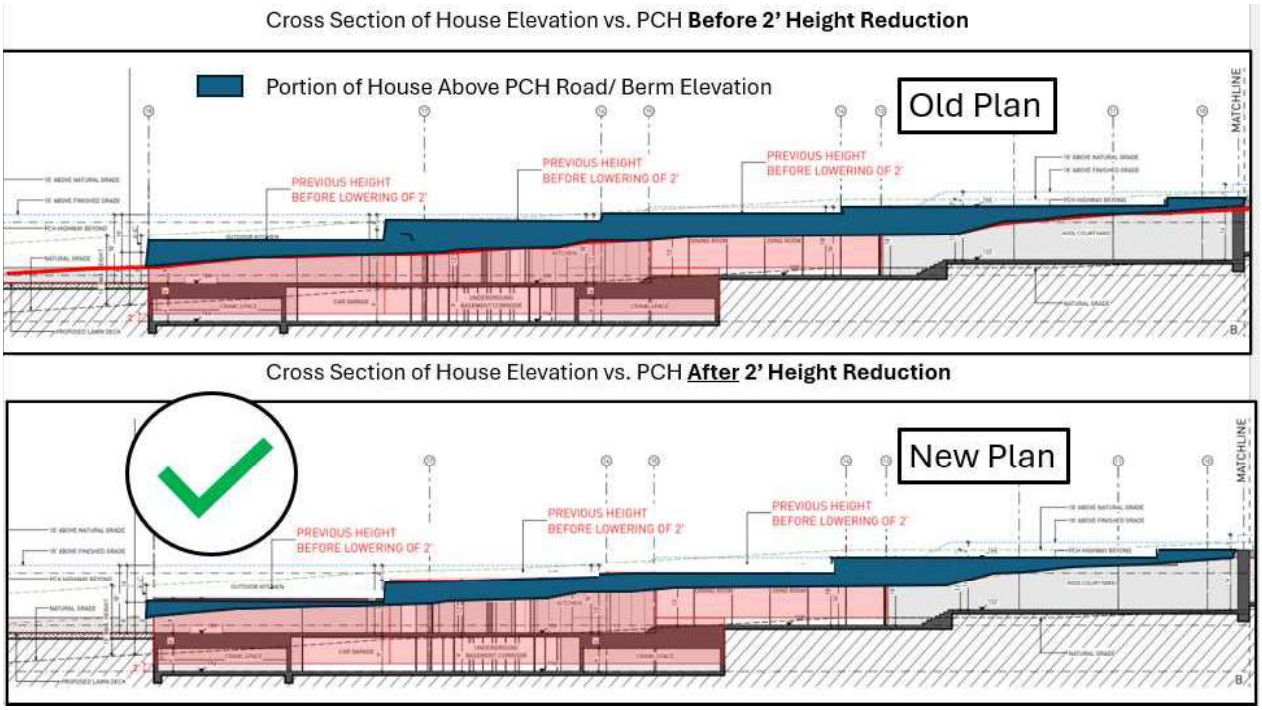
> *A Coastal Development Permit for the proposed development shall only be granted if the City's decision-making body is able to find that:*
>
> 1. *The project, as proposed, will have no significant adverse scenic or visual impacts due to project design, location on the site or other reasons.*
>
> 2. *The project, as conditioned, will not have significant adverse scenic or visual impacts due to required project modifications, landscaping, or other conditions.*

The use of the words "significant adverse...impact" in LIP 6.4 is of significance (Pun intended). Were the LCP to intend that "<u>any</u>" impact to scenic views be considered "significant" and "adverse," the LCP would have omitted the words 'significant' and 'adverse,' or the findings language above would have stated that the project , as conditioned, will not have 'any impact' to views. The finding, however, uses the modifiers 'significant' and 'adverse' to distinguish between that which is significant and adverse and that which is not. The Term "Significant Adverse Impact" is a term of art found in the California Environmental Quality Act (CEQA) and the LCP[2]. In land use, environmental law, and in practice, this term has a well-defined and consistently applied meaning. The term is defined as follows, "[A] Significant effect on the environment" means a substantial, or potentially substantial, adverse change in any of the physical conditions within the area affected by the project, including land, air, water, minerals, flora, fauna, ambient noise, and objects of historic or aesthetic significance." LIP section 13.6.4(M) contains this exact language, taken from CEQA, and directs the applicant to prepare an alternatives analysis that assesses whether any such impact might occur, as per this definition, and if so, what measures might be employed to avoid or mitigate these impacts. As illustrated in the graphic below, the residence has been stepped into the grade below PCH and limited in height, with broken massing, to eliminate the potential for significant adverse visual impacts **(See Figures 7,8 & 9 below)**. In addition to

[2] LIP 13.6.4(M) defines the terms "Significant adverse impact" and provides citation to the CEQA Guidelines.

stepping downward in [pad] elevation towards the west to mimic the changes in the elevation of PCH, the mass of the buildings becomes smaller as the design moves west to further minimize the project's visibility from PCH (See Figure 6 Below). The residence and accessory structures have been limited to one story in height and range between 9' and 16'10" in height to minimize visibility from PCH. Only very small portions of the residence will be visible from PCH looking South towards the Ocean. Along the majority of the easterly and westerly approaches on PCH, the house will not cause any blue water view impacts whatsoever.

The house has been sensitively designed to preserve blue water views from PCH. The project, as designed, does not materially alter the viewshed or the character of the area. The low-profile flat roofs and stepped design ensure that the house blends into the natural terrain and is not viewed as "prominent" against the backdrop of the ocean. The existing Cal Trans earth berm further screens the house from view along PCH. As discussed further below, the house also meets the development standards in 6.5(E)(2), by providing a **75% view corridor (rather than the required 20%)** For these reasons, and those below, the project will not have a significant and adverse impact upon public views, and the Chapter 6 required findings can and should be made.



Figures 7&8. *Updated cross-sections of the residence from the ocean side of PCH looking directly north towards PCH. These cross sections depict the home before (Figure 7) after the 2' reduction in height (Figure 8) required and approved by the Planning Commission. The blue area above represents that portion of the house that will protrude above the elevation of PCH/ Berm.*



Figure 9. *Rendering of the Applicant's Project as Approved by the Planning Commission on February 17, 2026*

<u>Appellant's argument #3</u>: The Project is not the least environmentally damaging alternative.

Applicant's Response: The project applicant has gone above and beyond what the code requires to meet the development standards in LIP Chapter 6, and the project is the least environmentally damaging alternative.

The applicant notes that the purpose of an Alternatives Analysis is to assess alternatives that would either serve to "Substantially" avoid or lessen any "Significant Adverse Impact[3]." As discussed above, the residence has been sensitively designed to avoid any such ***Significant Adverse*** Impacts in the first instance. The residence has been organically designed to complement the natural landscape and topography, not to overwhelm it. Obstructions to blue water views have been minimized to the maximum extent necessary to avoid a "Significant adverse impact" to blue water views. While the lack of impacts moots the need for such an alternatives analysis, we nonetheless evaluated several alternatives to demonstrate that the

[3] See LIP 6.4(A)(4) which required findings states, *"There are no feasible alternatives to development that would avoid or* ***substantially lessen*** *any significant adverse impacts on scenic and visual resources."*

project, as designed, is the environmentally superior Alternative, with the least amount of blue water obstruction.

a. Site Constraints:

Before an applicant or political body can entertain any alternatives analysis, the physical, regulatory, and legal constraints of a project must be analyzed. Physical constraints are geographic or environmental in nature. Regulatory constraints are constraints imposed by rules, and legal constraints relate to the applicant's property rights or those who have rights which may constraint the applicant's use of its property. Land Use Planners generally define site constraints as those constraints which are considered to be immovable forces or factors, things that cannot simply be (reasonably) eliminated or substantially altered; they are hard and fast and must be forefront in the mind of any architect or planner.

For example, you cannot get Cal Trans to change the elevation of PCH or reposition its line of site to the Ocean across the applicant's property and you cannot lower the existing pad elevation on the property. These and other constraints are discussed further below and were closely considered and analyzed by the applicant, the city staff, and the city Planning Commissioners.

i. Constraint #1: The elevation of the property relative to the elevation of PCH (Scenic Highway):

Given the nominal difference in elevation between Pacific Coast Hwy and building site (physical constraint), and in light of the other site constraints discussed further herein, it is not feasible to site the project entirely below PCH road grade; therefore, any residence design on this property must keep maintain a 20% view corridor to mitigate the impacts to blue water views from those portions of the residence that are taller than adjacent road grade (regulatory constraint). mitigation strategy required by the code. The elevation of the development pad vis a vis the elevation of PCH simply does not allow for any home, however well designed, however small, tall, or wide, to be sited below the elevation of PCH. One way or the other, the project will be at least partially visible along PCH.

The development standards in LIP 6.5(E) require an applicant to provide a continuous view corridor leaving 20 percent of the lot frontage unobstructed by development or landscaping where it is infeasible to locate the entire residence below adjacent road grade. This is the most significant constraint to development siting on the applicant's property and must be considered first and foremost both during design and while assessing feasible alternatives.

Alternatives Considered & Implemented to address this constraint: The applicant agreed to cluster development to the east where the elevation differential between PCH and the pad is the greatest and reduce the development footprint along the entire length of the property frontage. Rather than leaving only 20% of the property frontage undeveloped, the applicant revised its project to eliminate the guest house, restrict landscaping heights and locations, reduce wall and fence

heights, and reduce structure heights in order leave **75% of the property frontage undeveloped with unobstructed ocean views**. While the grade elevations of the pad and the highway are unchangeable, the house has been designed as far east as possible and 'stepped' down into the grade as much as feasible to shield most of the home from view as one drives along PCH. The garage was also made completely subterranean to further minimize view impacts.

ii. Constraint #2: Environmentally Sensitive Habitat Area (ESHA)

The project site has a stream running from north to south along its eastern side. All development has been setback 100' from the stream as required by the LCP. ESHA is prioritized over visual resources and all other considerations.

Alternatives Considered: While it might be physically feasible to shift the house further to the east (note that there are also geological constraints), the stream ESHA protections do not allow it, and variance findings cannot be supported as preventing ESHA impacts is prioritized by the Coastal Act and LCP over Visual Impacts. Moving the house further east was considered but was rejected as not feasible due to regulatory and environmental constraints.

iii. Constraint #3: Geology

The property is surrounded by a series of landslides which impact the stability of the site. The easternmost portion of the existing pad is adjacent to one of the landslides and has been deemed to be a no build area by the project geologist with concurrence from the city geologist. This area is also an ESHA buffer area.

Alternatives Considered: Siting the house further to the east and closer to the landslide was considered and rejected as infeasible as it was unsafe to do. While locating the house closer to this landslide would minimize view impacts, the safety and ESHA constraints preclude it from being a viable alternative. Moving development further to the south (ocean) or towards the west would increase visual impacts; moreover, it was not feasible due to the area taken up by the Fire Department access road. For these reasons, shifting the house footprint was considered but rejected as an inferior or otherwise infeasible project alternative.

iv. Constraint #4: Steep Slopes

Between PCH and the existing flat pad are steep slopes. Moving the house closer to PCH and locating the driveway on those slopes would precipitate large retaining walls and increased grading. This would precipitate variances for development on steep slopes; amount of grading; wall heights, yard setbacks (walls) and would not reduce the projects visibility from PCH. Development on these slopes was not considered for these reasons.

v. Constraint #5: Fire Department Access, Narrow Lot Width, & Yard Setbacks

Another significant site constraint was the long and narrow shape of the lot. Because the house needed to be sited as eastward as possible to minimize visual impacts, this constraint resulted in

the need for a relatively long and circular access road. The access road takes up a very large portion of the narrow property, leaving an extremely narrow pad area upon which to design a home. Yard setbacks also reduce pad area and limit the design of the home to a longer narrower home. These constraints, in addition to those described above, provided very little 'wiggle room' to relocate or restructure building location and massing. The house could not be shifted further to the north or south due to these constraints, shifting the house west was not an option as this would increase visual impacts and the residence could not be further clustered on the eastern side due to the aforementioned ESHA and Geologic constraints. Altogether, the five constraints discussed above created a 'box' withing which to design the home. Following the consideration of these constraints, the applicant's architects developed a plan for the home which was submitted. After the project was submitted on March 7, 2019, significant further analysis of alternatives followed, and additional changes were made to the home's design as discussed below. The alternatives considered were guided by the city's LCP policies and development standards referenced below.

I. Specific Alternative Design Measures Considered & Implemented

The applicant, Planning Department and the Planning Commission followed the guidelines in LIP 6.5(B) – "Development Design" – to 'avoid' significant adverse visual impacts through use of the following avoidance and mitigation strategies:

1. **Limiting the number of stories to 1**
2. **Lowering originally planned building heights to a maximum of 16'10**". **Most of the home and accessory development has been materially lowered to less than 16'10"' in height.** The applicant modified the height of the residence and accessory structures several times at the request of the Planning Department and the Commission.
3. **Reducing the size of walls and fences near PCH by 50%.** The applicant voluntarily modified its project to reduce its proposed 12' tall freestanding walls to 6' in height. These walls were designed for sound attenuation from the highway as well as for privacy and security. The taller walls were located outside of yard setbacks and were consistent with code; however, the applicant agreed to reduce their heights.
4. **Breaking up the massing of the residence** and accessory structures and staggering the development closer to PCH to minimize project visibility and reduce blue water view blockage to a nominal amount.
5. **Modifying the landscape plans** to eliminate landscaping taller than the PCH road grade and creating project conditions to limit the mature growth/ height of all vegetation to an elevation below PCH road grade (Requirement to run with the property).
6. **Reducing the Total Development Square Footage (TDSF) of the project by eliminating the 465 sq. Ft. Guest House entirely.** Previously the Planning Department directed that the guest house be lowered two separate times; the applicant complied. The project went to hearing, and the Commission requested the house be lowered 2 feet in height; the applicant complied.

7. **Leaving 75% of the lot frontage undeveloped** with direct views towards the ocean completely unobstructed. Note that the code only requires that 20% of the lot frontage remains undeveloped.
8. **Agreeing to Work with Cal Trans to remove a portion of the Cal Trans berm within the PCH right of way** to remove *existing* impediments to blue water views across the site. The applicant did not construct the berm or create the obstruction but has been conditioned to remove it all the same.
9. **Lowering the Outdoor Kitchen Roof Height from its original 11.5' in height to 9' in height above finished grade.**
10. **Using earth tone colors and non-glare glass** for the home and all project development.

II. Specific Alternatives Considered & Rejected

Alternative #1: Develop the two lots separately with two homes rather than one. The original lot was subdivided into two lots long ago. While the Subdivision Map Act would allow these lots to be legalized with two conditional certificates of compliance allowing for two new homes to be located on each lot, the applicant considered and rejected this alternative as it would have greater view impacts by far than the proposed single lot development.

Alternative #2: Lower the Building Pad Elevation to locate the entire development below road grade. It is not feasible to further lower the pad elevation on the property due to the site topography and narrowness of the lot. The southerly property boundary is situated just below the top of a large steep downslope. Were the pad elevation to be graded lower than is proposed, this would precipitate a variance for development on steep slopes. Additionally, the volume of grading that would be required to lower the existing pad and adjacent access road by several feet, would precipitate a variance for grading well in excess of 1000 CY. All this excess cut would then need to be trucked to a nearby landfill. **Perhaps most importantly, the existing pad grade is largely flat from the north side of the house towards the southerly property line. Any lowering of the building pad would require grading on the adjacent property to the south (offsite) and the property of the neighbors and is therefore not feasible. The proposed pad has been lowered as much as is feasible.** (See Figure 10 below).

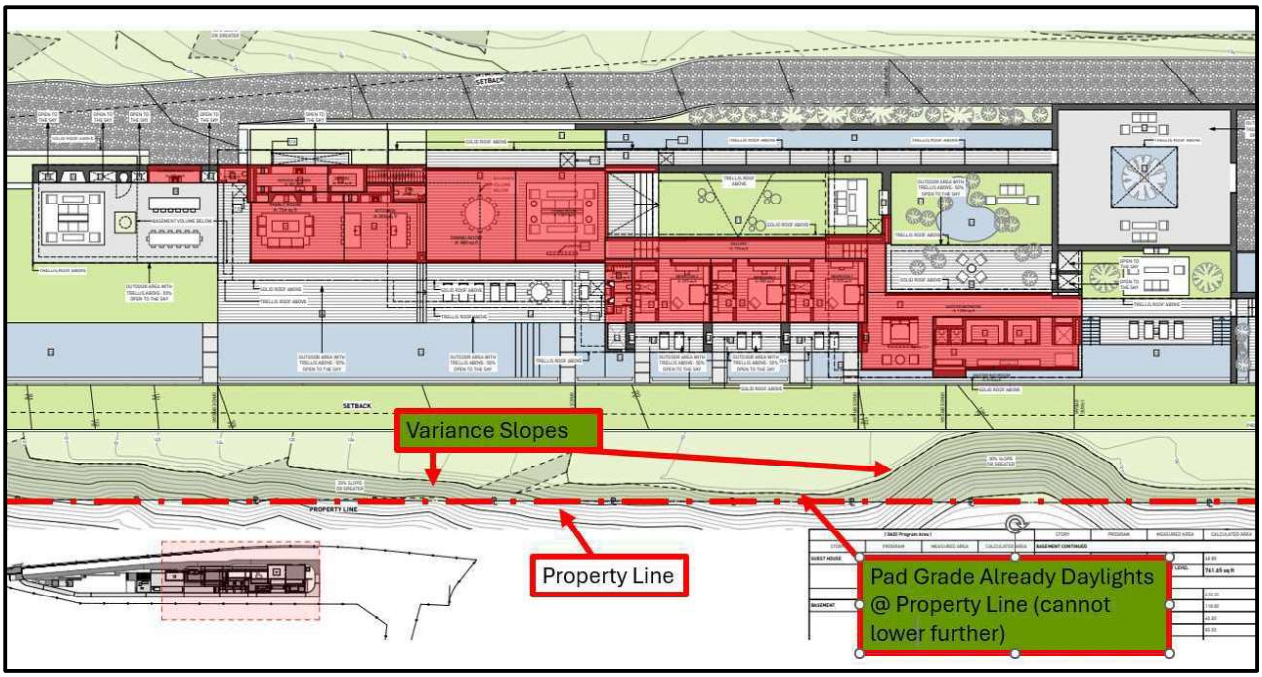


Figure 10: Plan Graphic Depicting Site Constraints Preventing the Further Lowering of the Grade or the Further Clustering of the Development Footprint.

III. Conclusion

In sum, the original plan for the residence was respectful of the policies and provisions of the city's LCP and MMC. Notwithstanding this, the applicant voluntarily agreed to make numerous significant revisions, over a period of years, to address city and neighbor concerns. The applicant restricted its development rights and reduced the size, height, footprint, and square footage of its development. The appellant claims that the applicant has not reduced TDSF in accordance with 6.4(B) of the LIP; this is not true. The applicant reduced the project TDSF by eliminating the guest house which was the structure most prominently visible on the property when viewed from PCH. While not required by code to do so, the applicant has in fact applied every single avoidance and mitigation strategy provided for in LIP 6.4(B) to maximize view protection.

<u>Appellant's argument #4</u>: The Project is not safe from a geological perspective, would require a Variance to allow for a factor of safety less than 1.1 (Pseudostatic) and 1.5 (Static)

Applicant's response: The project complies with the LIP Chapter 9 requirements and meets the minimum required factors of safety as designed; no Variance is required. The appellant's arguments related to safety are unsubstantiated and have been decisively refuted by the project geologist and city geologist. The applicant's geologist, Feffer Geotechnical, has previously addressed these arguments in a written response to comments from the appellant's geologic consultant. That response is attached **(Attachment 1: Feffer Response to Ralph Geoffrey comments).** It should also be noted that the core matter of confusion here seems to be that the appellant is under the impression that the code required geologic factors of safety

(FOS) apply to the *'existing'* property conditions prior to development. The FOS standards, rather, are calculated based upon post development conditions with all recommendations and engineering specifications having been implemented. With the implementation of the geologist's conditions and recommendations during and after construction, the project site will meet the code-required FOS.

Appellant's argument #5: The project does not meet the blufftop setback requirements in LIP Chapter 10.

Applicant's response: The Chapter 10 blufftop setback requirements do not apply to the project. Chapter 10 of the LIP only applies to properties located on the beach or atop a coastal bluff. The property is not located on the beach or on a coastal bluff; therefore, the appellant's arguments do not have merit.

Appellant's argument #6: Two smaller homes on two separate lots would have less impact on blue water views.

Applicant's response: Two smaller homes would most assuredly have more significant impacts upon blue water views and is an environmentally inferior alternative. The existing 2 lot configuration, if developed on both lots, would push development and massing from the easternmost part of the property, significantly further west towards Point Dume. The western portion of the property is the most visually exposed to PCH since the elevation differential on the western portion is at or just below PCH road grade. This alternative was evaluated by the applicant and city staff and was determined to be far more impactful to ocean views and thus an inferior alternative. By siting a single home as far east as possible on the property, the majority of the house is allowed to be placed below Pacific Coast Hwy. with far less visibility.

Appellant's argument #7: The project is not exempt from CEQA; an EIR must be processed.

Applicant's response: The project is categorically exempt from CEQA and the exception to the exclusion for unusual circumstances does not apply; the Planning Commission properly approved the CEQA exemption for the project. This argument was considered and rejected by the Planning Commission. The appellant's legal arguments are inaccurate and misleading. The applicant's attorney, Fred Gaines, has previously addressed this argument in writing to the Commission. That correspondence is **attached as Exhibit 2.**

Conclusion

The applicant's project was submitted in 2019, seven years ago. Since submittal, the applicant has worked extensively with all city departments to address the project's consistency with code. Numerous plan revisions were made to reduce the height, size, and location of the residence; to reduce the visibility of the house to a point where staff and the Planning Commission both agreed

that the house would not have any significant adverse impacts upon scenic resources. The applicant has worked long and hard with the city staff to present a project that was worthy of approval. The applicant has worked with his neighbors to assuage all their concerns and has garnered support from a significant number of them. The stability of the slope above Bayshore Drive will be substantially improved after the construction of the residence than it currently is as it sits vacant. The applicant has agreed to spend hundreds of thousands of dollars to replace existing stormwater pipes leading across the property and off site down through Bayshore Dr. and all the way to Malibu Rd. The applicant has further agreed to install other significant infrastructure to garner the support of his neighbors. The project that was before the Planning Commission, and which is before the Council now, is a well thought out and well planned residence; a residence that took 7 years to get to the Planning Commission for approval. The appellant's arguments have no merit. We respectfully request that the Council uphold the decision of the Planning Commission, Deny the appeal, and approve the project.

Sincerely,

Schmitz & Associates, Inc.

Christopher M. Deleau, JD, AICP

Principal Planner

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]; Mari Ellen [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:

EXHIBIT F

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]

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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>

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] as 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]

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.

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
07/21/25
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.

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

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: TpqfbEfCWwhKUqjd.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: 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

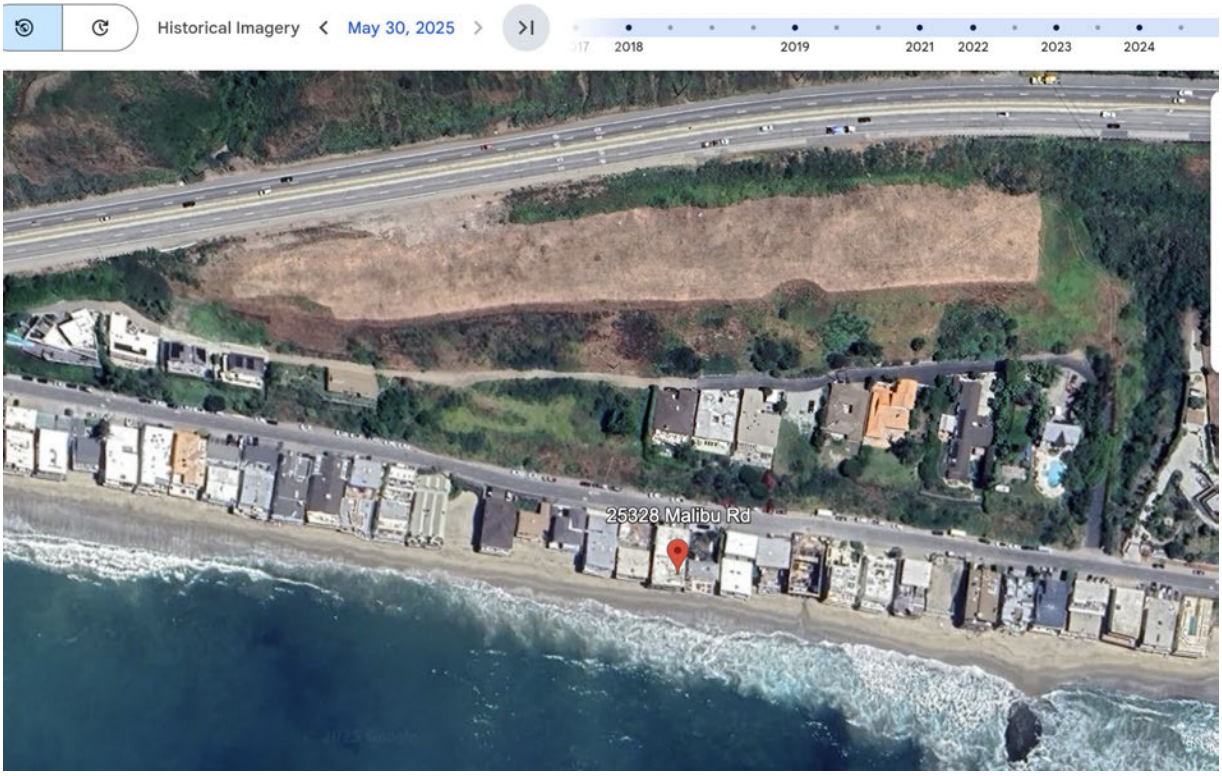
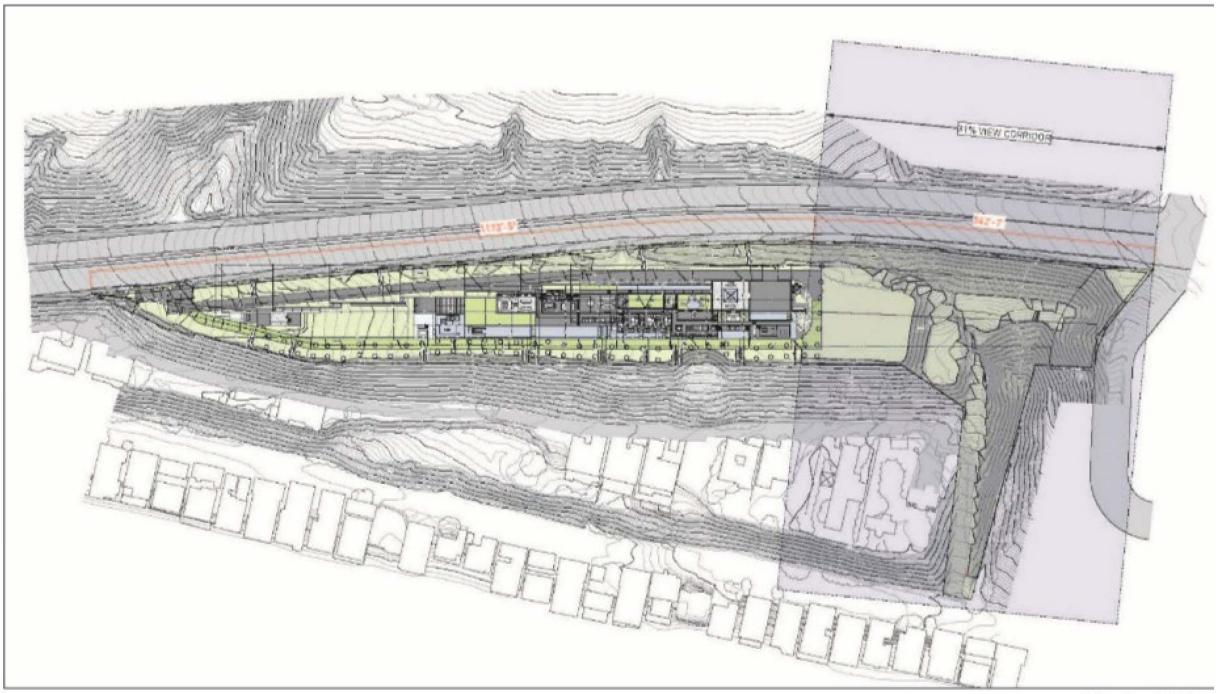




Figure 2 –Proposed Site Plan



Source: Project Plan

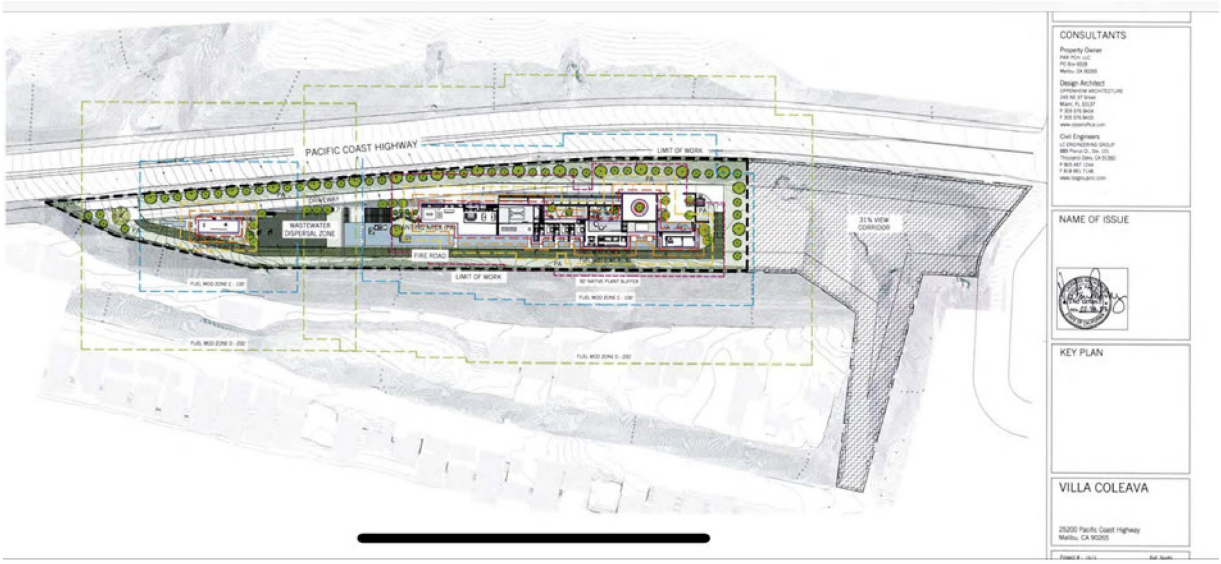


ZONING INFORMATION

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
DRIVEWAY
WASTEWATER DISPERSAL ZONE
FIRE ROAD
LIMIT OF WORK
31% VIEW CORRIDOR
CONSULTANTS
NAME OF ISSUE
KEY PLAN
VILLA COLEAVA
25200 Pacific Coast Highway
Malibu, CA 90265


[place]
PACIFIC COAST HIGHWAY
CONSULTANTS
NAME OF ISSUE
KEY PLAN
VILLA COLEAVA
25200 Pacific Coast Highway
Malibu, CA 90265
OVERALL SITE PLANTING LEGEND
FUEL MOD LEGEND
OVERALL

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

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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

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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

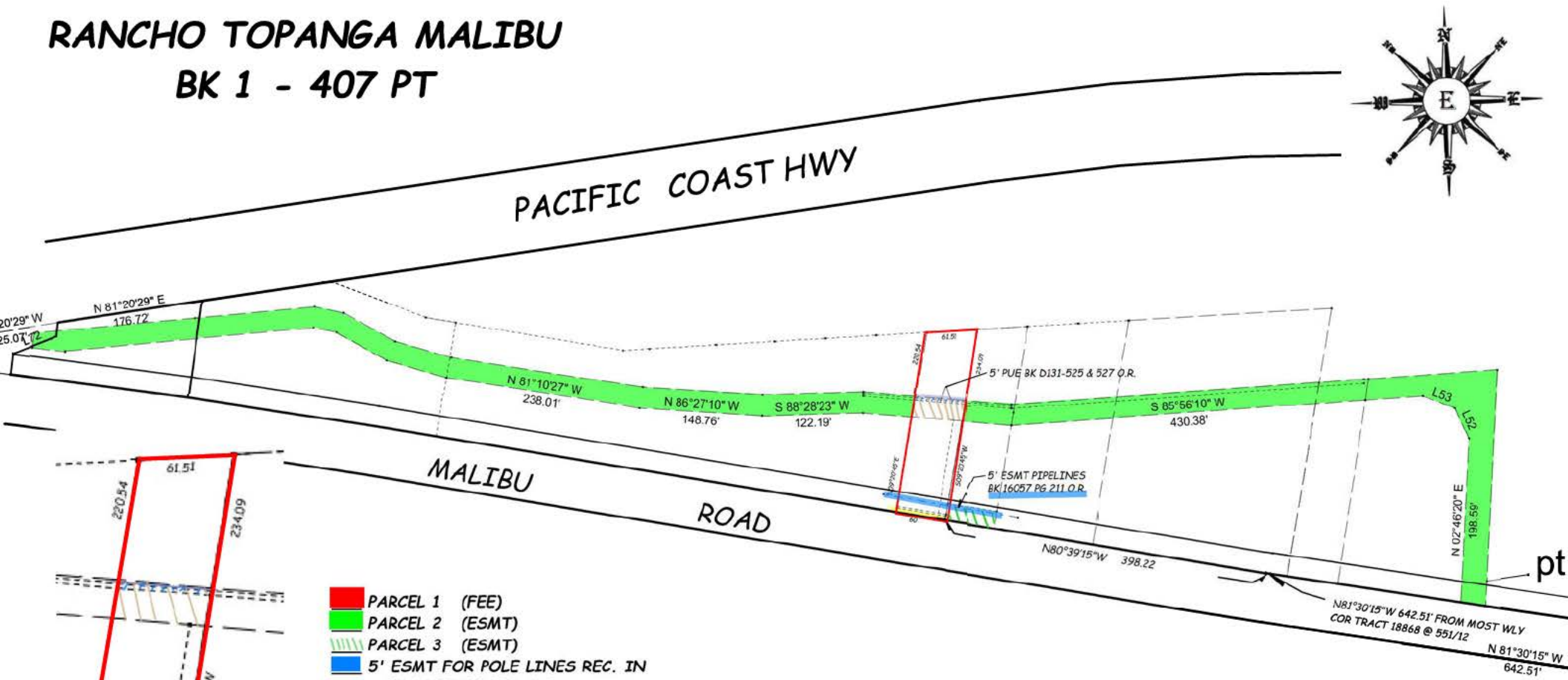
Assistant

Office of Irene Dazzan-Palmer

(310) 866-8191 - Cell

www.IreneDazzan-Palmer.com

RANCHO TOPANGA MALIBU
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

EQUITY TITLE®
COMPANY
Part of the TRG Family of Companies

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: 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
Agenda Item No. 5A
Total No. of Pages 13

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,

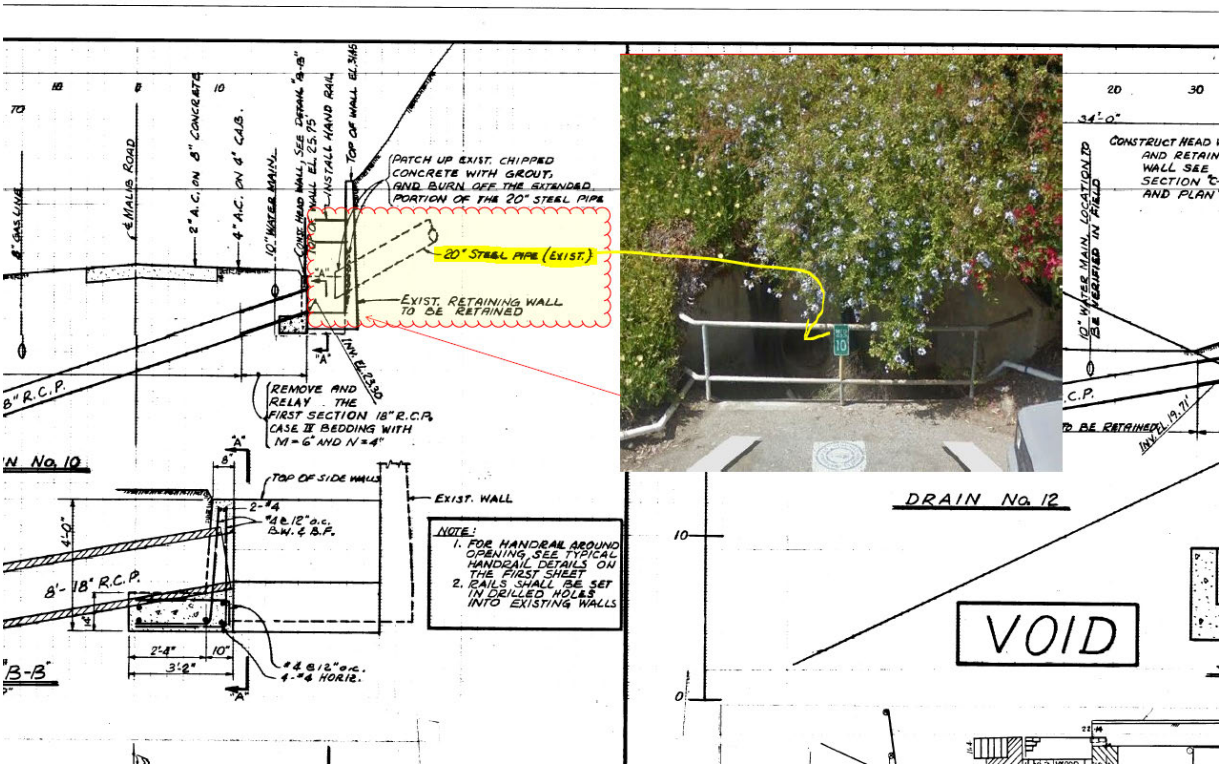
Valerie Esparza, MPA

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

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:

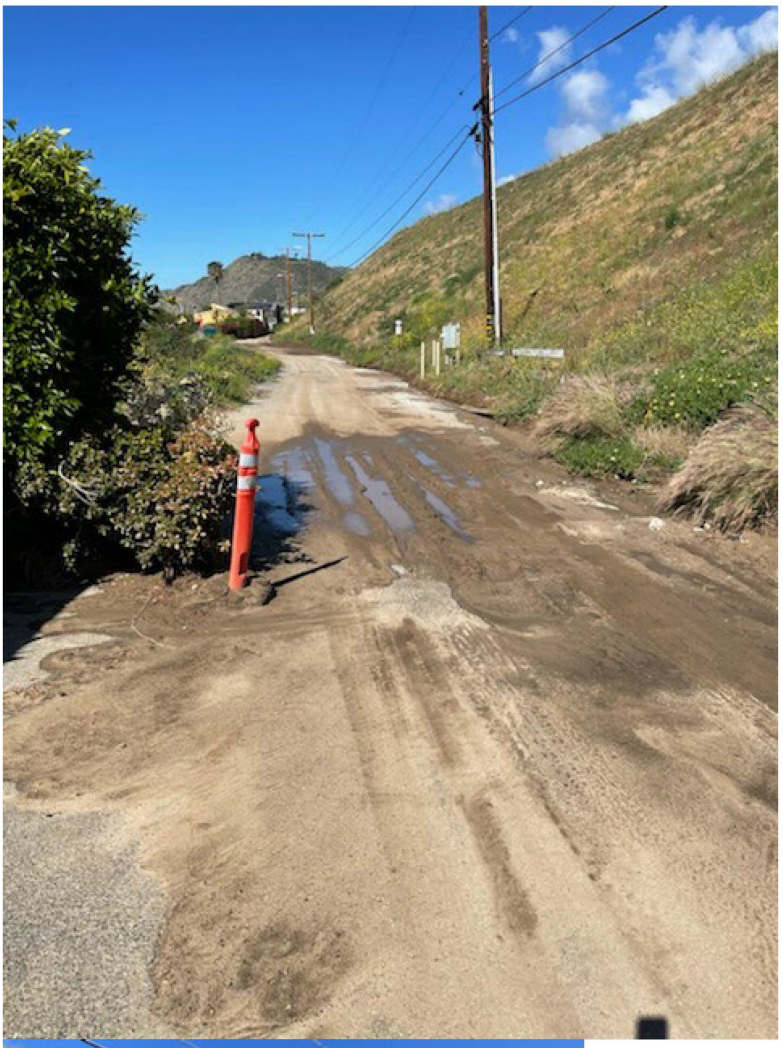
From: Malibu Township Council <info@malibutownshipcouncil.org>
Date: July 15, 2025 at 9:46:08 AM GMT+1
To: Yolanda Bundy <ybundy@malibucity.org>
Cc: Tyler Eaton <teaton@malibucity.org>, Bruce Silverstein <bsilverstein@malibucity.org>, Steve Uhring <suhring@malibucity.org>, Patt Healy [redacted] Bill 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

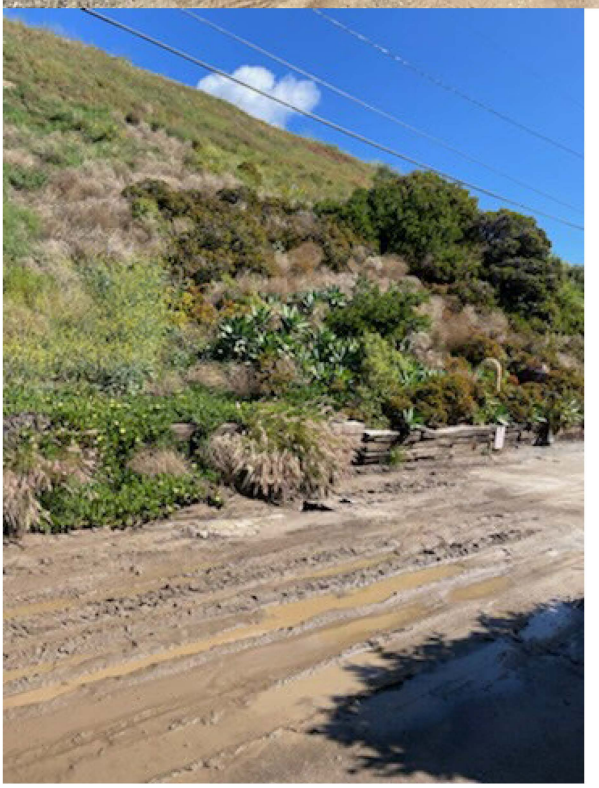
Sorry - for some reason the other photos that went with my email from April 2022 did not attach - ty, Jo

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)

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 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



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
07/18/25
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
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
07/21/25
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
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

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.



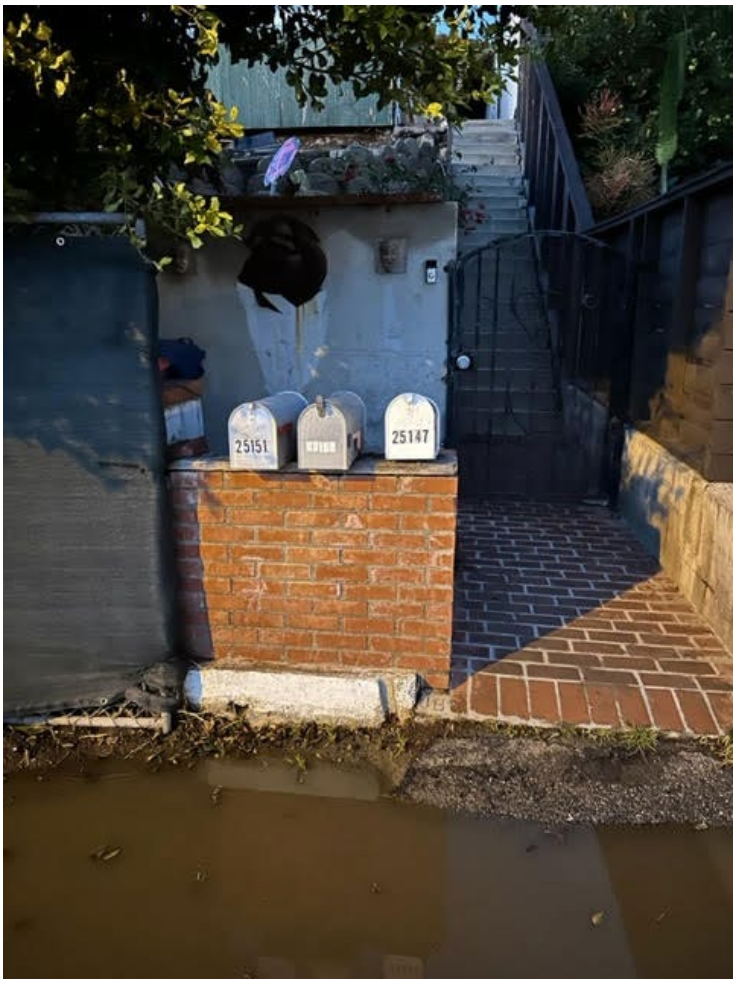
This empty A-frame ^^^lot is also on pg 15 of

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
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

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

7/20/25

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.

From:	Devavani Conroy
To:	Planning Commission
Cc:	Yolanda Bundy
Subject:	25200 pch
Date:	Monday, July 21, 2025 1:41:30 PM

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.

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!

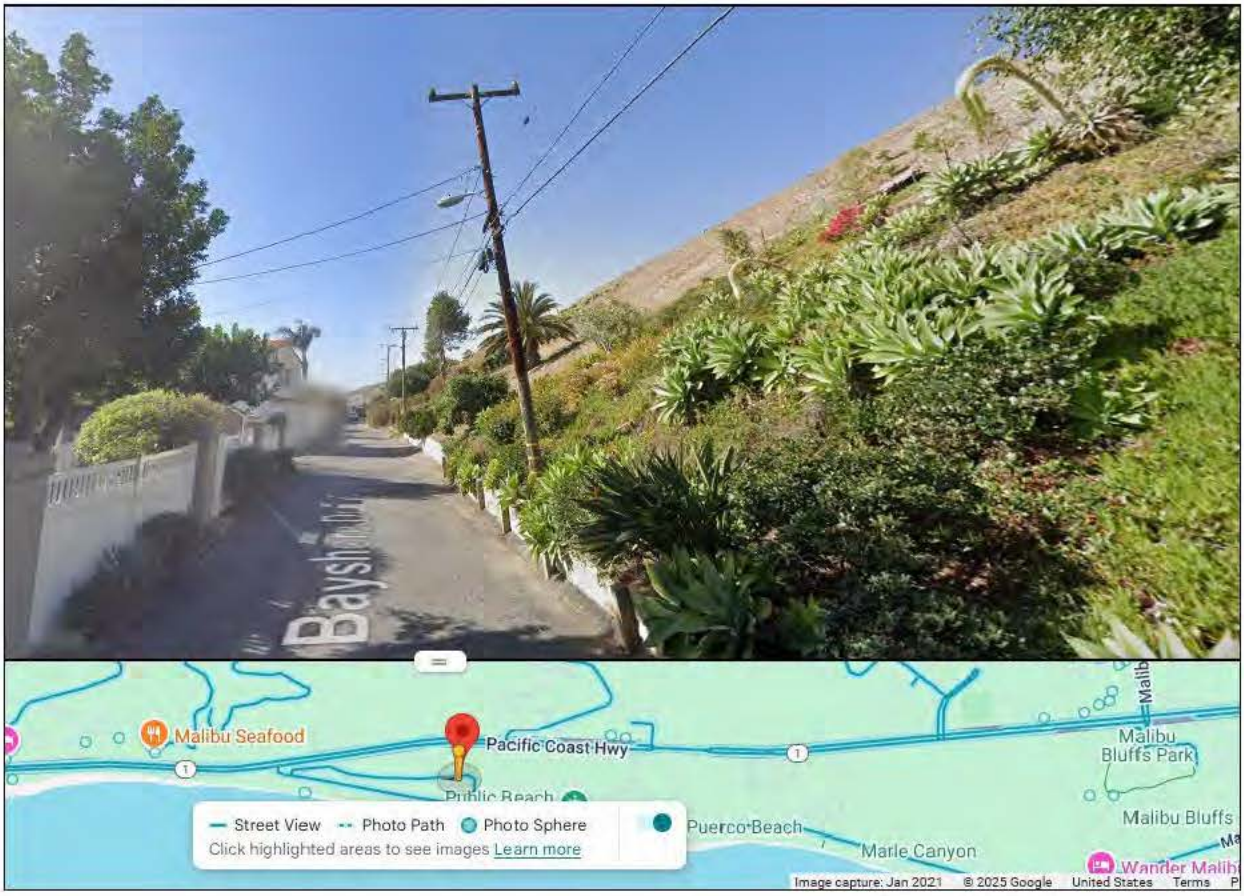
Please do not turn a blind eye to the repercussions down the road just to get planning/building numbers up. There is a reason no one has built. That too is a no brainer!

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]

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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.

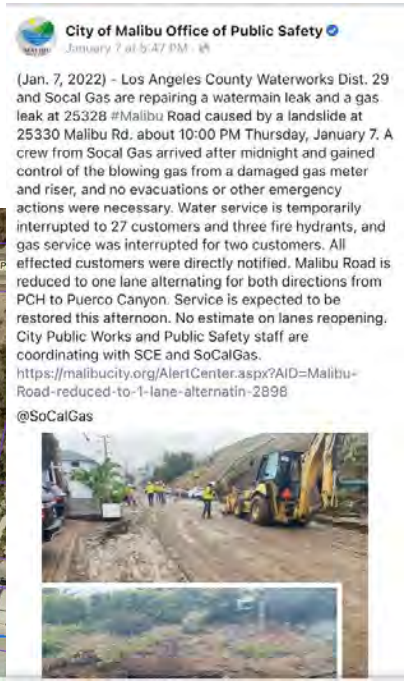
Thank you,

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

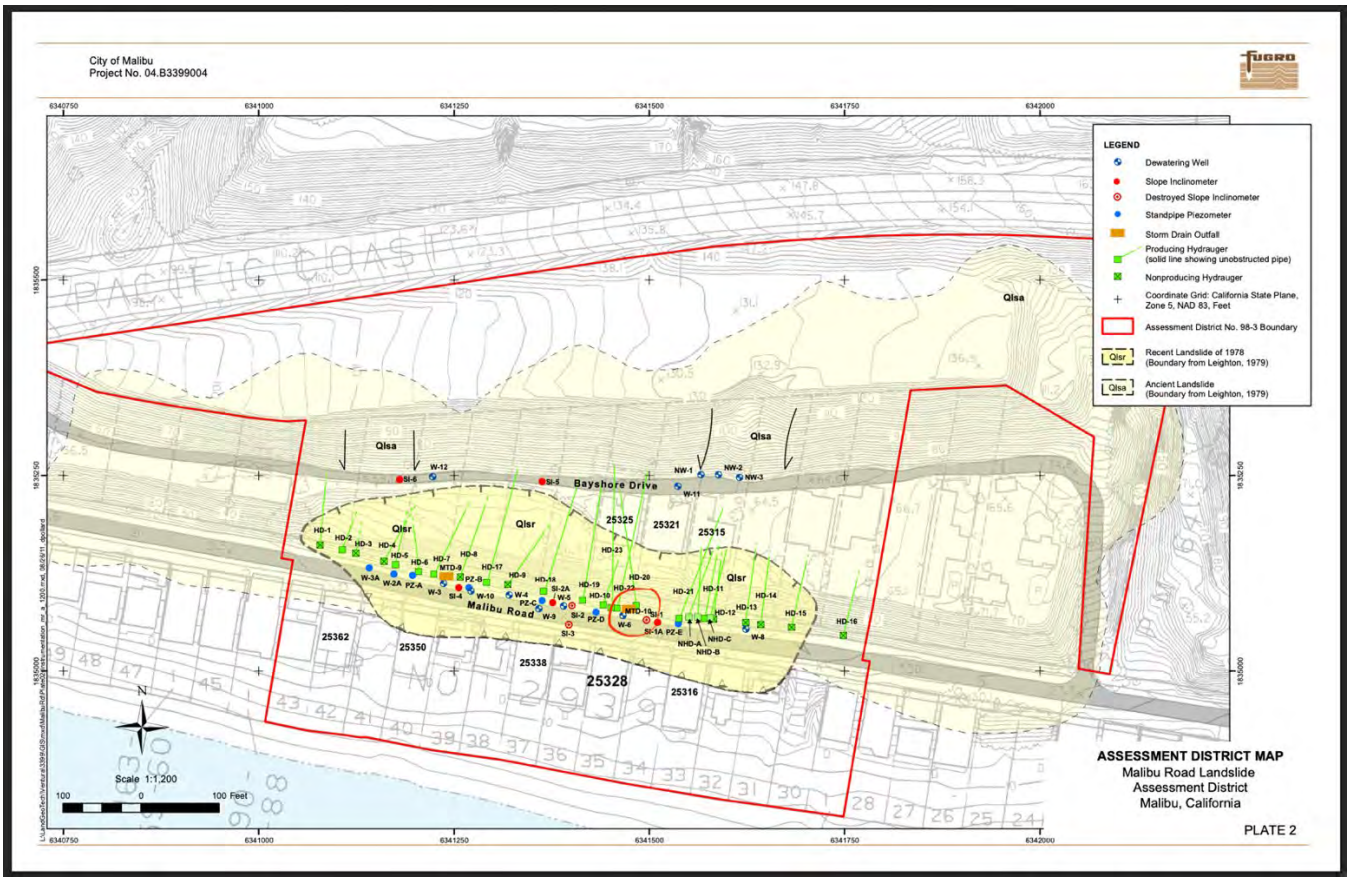
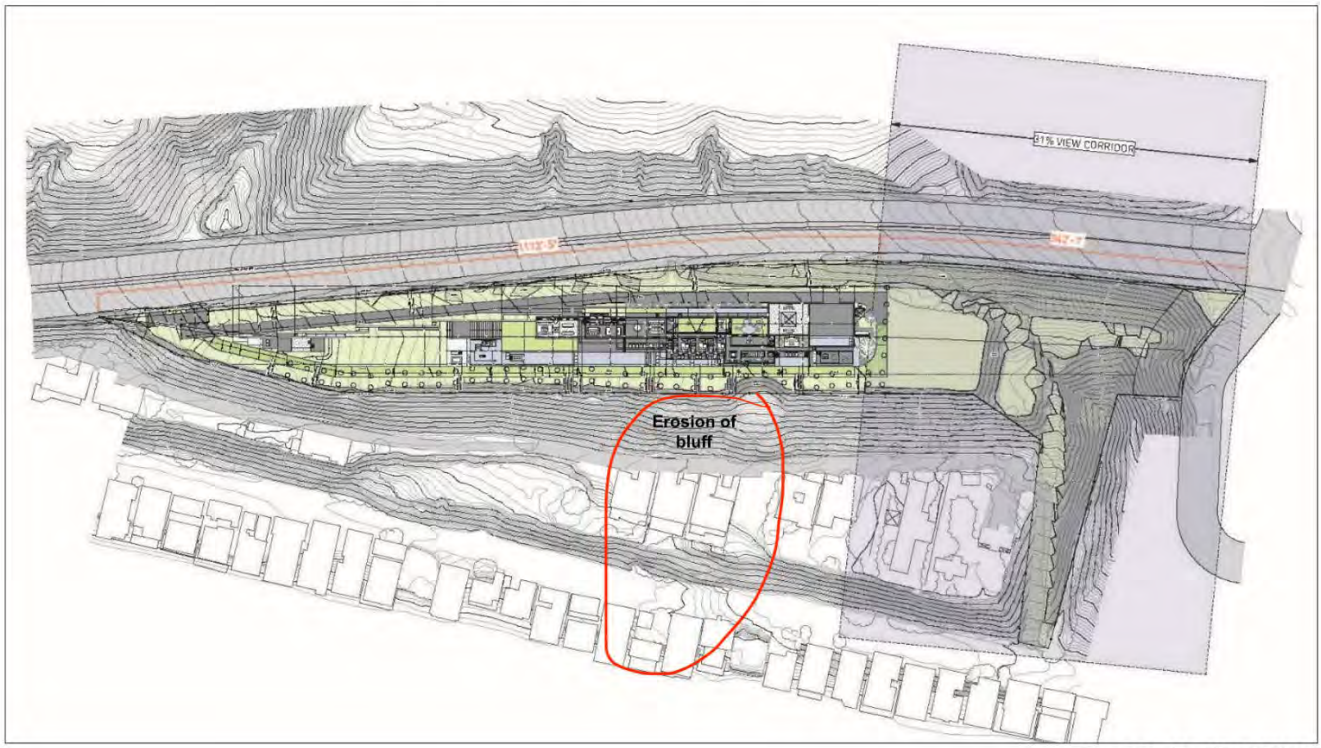
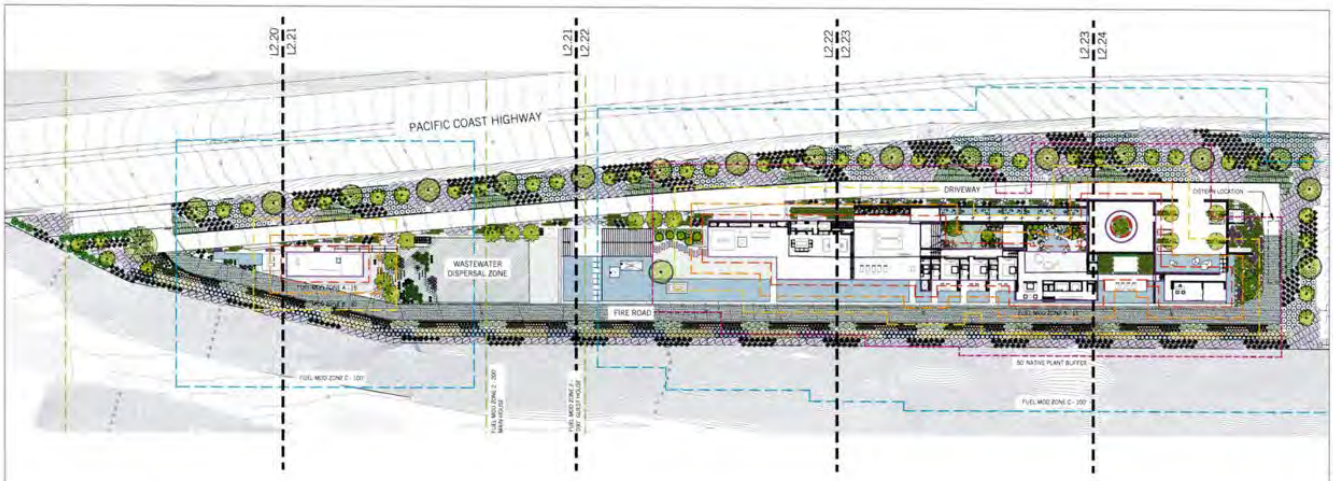


Figure 2 –Proposed Site Plan



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]

From:	Alex Hall
To:	Planning Commission
Cc:	Jun Fujita
Subject:	25200 Pacific Coast Highway Comment
Date:	Monday, August 18, 2025 3:55:37 PM
Attachments:	_geotech analysis_rev212.pdf

Received
8/18/25
Planning Div.

Please find attached comments for 25200 Pacific Coast Highway
Thank you,
Alex Hall

CC: Planning Commission, PD,

Recording Secretary, File

Date Received 8/18/25 Time 3:55 PM
Planning Commission meeting of 8/18/25
Agenda Item No. 4A
Total No. of Pages 87

August 18, 2025

Formal Objection – Proposed Development at 25200 Pacific Coast Highway - Coastal Development Permit No. 19-012 | Conditional Certificate of Compliance No. 21-003 | Lot Merger No. 24-002 (APN 4459-013-021 & APN 4459-014-018)

We are mostly homeowners that share a property line with the new proposed development at 25200 Pacific Coast Highway and so we have a vested interest in health and safety concerns with the proposed development. We are mostly concerned with life safety as well as property damage if the proper measures are not met in the engineering of the development. Also included in the signatures are other concerned citizens and residents of Malibu. No one wants to see another disastrous mud land slide that results in loss of life or property such as the one in 1978 which some of us remember houses washing away. In addition, the proposed cantilever at the eroded area at the landslide area on the southside of the development creates a new viewshed along the ridge that will now include a visible concrete structure along the ridge. We have retained Pacific Coast Land Consulting(PCLC), to review the **Geotechnical Report prepared by Feffer Geological Consulting and has stated the following:**

-Feffer boring logs for 25200 PCH identified the material as bedrock despite older boring by several geotechnical consultants from available geotechnical reports identifying a series of older and active slides.
-The Feffer report for 25200 PCH does not address previously existing and well documented sliding.-- The pile system is too shallow to accommodate an active upper slide surface and a lower slide surface.
-Based on our review and analysis of the Feffer report the site does not possess an adequate factor of safety against sliding.
-Additional subsurface work is needed by the Applicant/Owner of 25200 PCH. This should include slope inclinometer on the upper pad and appropriate monitoring period through at least one wet winter.
-The piles system of the new development at 25200 PCH should be redesigned to include stabilization against landsliding.

We urge the City not to approve Coastal Development Permit No. 19-012, Conditional Certificate of Compliance No. 21-003,Lot Merger No. 24-002 (APN 4459-013-021 & APN 4459-014-018) and further require the Applicant to

-substantiate that Feffer's report identifies soil that has historically been identified as landslide soil in historic geotechnical reports as being labeled as bedrock.
-substantiate the length of piles that PCLC has identified as too shallow due to accurate slide plane not shown, Inclinometer SI-5 and SI-6 not shown, limiting area of slide
-substantiate the factor of safety against sliding as adequate with this new information
-provide the missing information in the boring logs, identified by PCLC as being incomplete, there is 4 feet and three feet of information missing where other logs show approximately every inch.
-collect additional information identified as required by PCLC such as the installation of additional inclinometers and measured one wet season.
-significant erosion landslide area is not addressed and new road runs straight through the erosion area, project plan does not acknowledge the slide area by setting back the footprint of the plan. The cantilever proposed creates a new viewshed of concrete structure along the ridge which is not presented in any of the visualizations.(see attached)
-we object to the mass of the structure and the lot merger, the existing egress path to PCH is now blocked due to the lot merger in case of a life or death emergency event such as a major landslide.

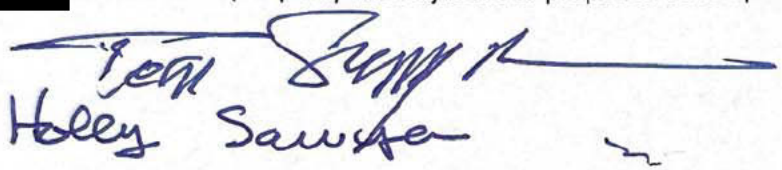
Alex Hall email: [redacted]

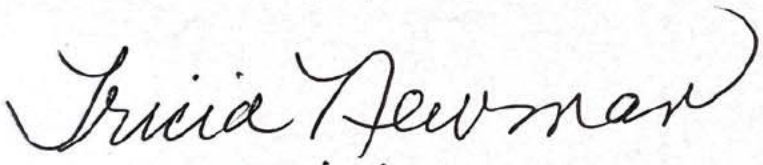
[redacted] Malibu Road(Property line adjacent to proposed development)



Tom and Holly Sawyer

[redacted] Malibu Road(Property line adjacent to proposed development)





Tricia Newman TRICIA

[redacted] Malibu Road(Property line adjacent to proposed development)

Mira Backus

[redacted] Malibu Road(Property line adjacent to development)

Christopher Backus

[redacted] Malibu Road(Property line adjacent to development)

SECTION E CROSS SECTIONS

FROM FEFFER GEOLOGICAL CONSULTING ANUAR 6 2023

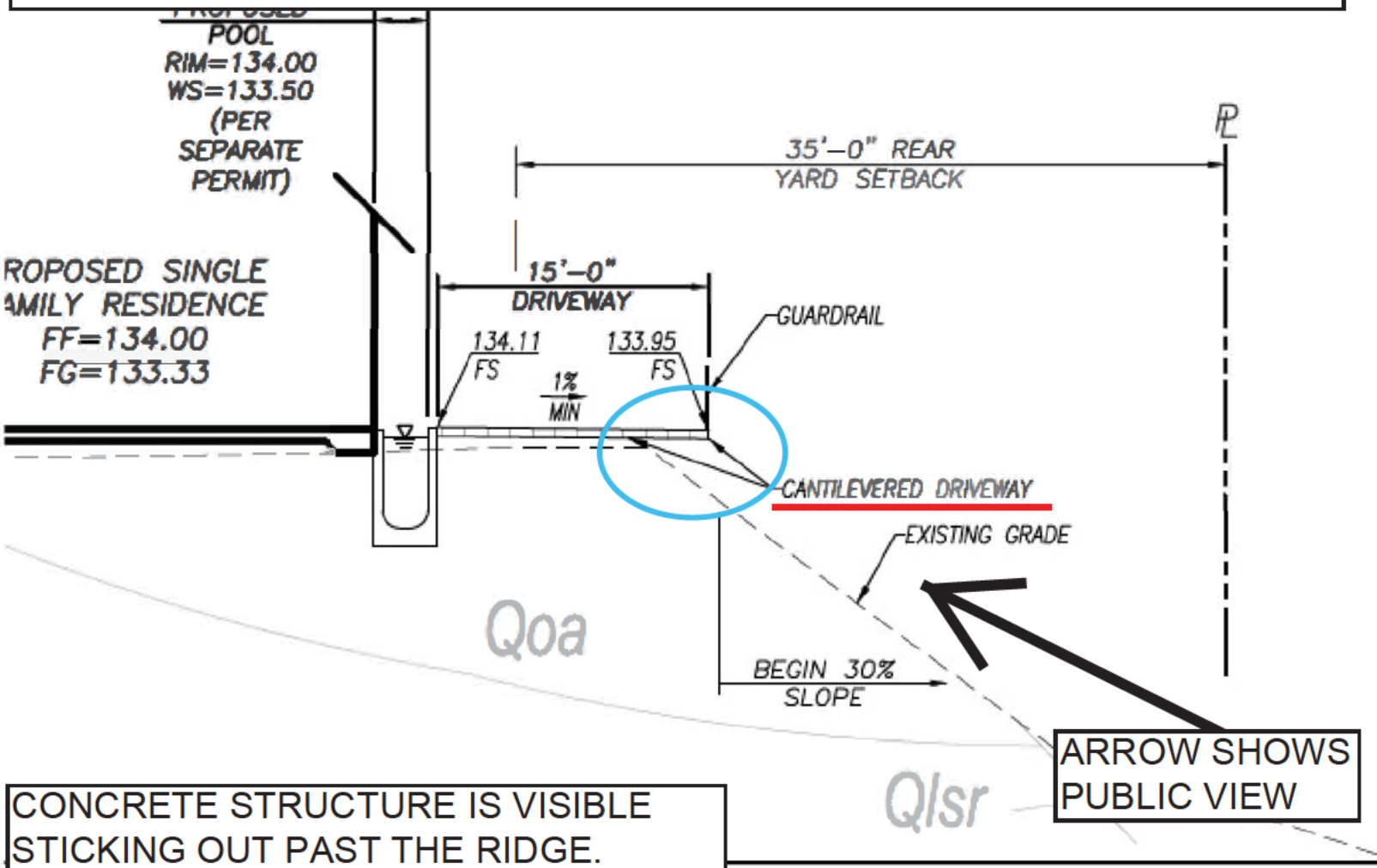
ADDENDUM LETTER 1

1 PAGE

COMMENTS REGARDING PUBLIC VIEW OF CONCRETE

ROAD ON RIDGELINE AT LANDSLIDE EROSOIN AREA

PUBLIC VIEW OF CONCRETE ROAD AT RIDGE INTERRUPS RIDGE- THIS SHOWS CANTELEVERED CONCRETE ROAD IS VISIBLE TO THE PUBLIC AND WHERE THERE IS LANDSLIDE EROSION AND INTERRUPS RIDGE, UNDERSIDE OF CONCRETE ROAD IS VISIBLE TO PUBLIC ON SOUTH SIDE OF DEVELOPMENT



ARROW SHOWS PUBLIC VIEW

CONCRETE STRUCTURE IS VISIBLE STICKING OUT PAST THE RIDGE. DOES NOT FOLLOW NATURAL CONTOUR OF SITE

Pacific Coast Land Consulting
Engineering Geologic Services

Preliminary Review of Feffer Report
25200 Pacific Coast Highway
Malibu CA,

August 15, 2025 FN 25200ls-25-100

August 15, 2025
FN 25200LS-25-100

Subject: REVIEW OF FEFFER GEOTECHNICAL REPORT for 25200 PCH
25200 Pacific Coast Highway
Malibu, CA

1.0 INTRODUCTION

The purpose of this evaluation is to examine the work performed in relationship to stabilizing site. Upon review, the Feffer report for 25200 Pacific Coast Highway did not recognize or acknowledge past landsliding data. The Feffer report assumes no sliding as is presented by the logs within the report and substantially ignores older reports conclusions. The older previous reports have identified active older and ancient sliding and assumes the configuration of the slides is rotational. There is ample data to suggest that the slide may be complex in nature a combination of rotational and translational.

2.0 Scope of Work

The scope of services for this project to review the Feffer report included the following:

- Review of all available geotechnical reports and inclinometer reports including GEOTECHNICAL REVIEW SHEET City of Malibu Review Approval Letter Dated November 11, 2022, GEOTECHNICAL REVIEW SHEET City of Malibu Review Letter Dated July 5, 2022 Response By: Feffer Geological, Dated September 28, 2022, GEOTECHNICAL REVIEW SHEET City of Malibu Review Letter Dated February 28, 2022 Response By: Feffer Geological, Dated April 28, 2022, GEOTECHNICAL REVIEW SHEET Response By: Feffer Geological, Dated November 18, 2021, GEOTECHNICAL REVIEW SHEET By: City of Malibu, Dated August 4, 2020 Response By: Feffer Geological, Dated June 18, 2020, GEOTECHNICAL REVIEW SHEET City of Malibu, Dated January 30, 2020, GEOTECHNICAL REVIEW SHEET

By: City of Malibu, Dated January 14, 2019 , Response By: Feffer Geological, Dated December 17, 2019, GEOTECHNICAL REVIEW SHEET By: City of Malibu Dated August 27, 2018, Response By: Feffer Geological, Dated November 20, 2018, PRELIMINARY GEOTECHNICAL FEASIBILITY By: Feffer Geological Consulting, Dated May 21, 2018, ADDENDUM LETTER I(Soldier Pile and Tieback Stabilization System) (SEE ATTACHED LOGS AND COMMENTS)

- Review of all available boring logs(SEE ATTACHED LOGS AND COMMENTS)
- Development of a structure contour analysis.
- Plotting of the structure contours on base map
- Review of shear strengths used
- Review of stability calculations
- Preliminary conclusions

3.0 Notations/Observation

Borings by Stone in 1962, identified land slide material (described as crushed). And slide planes

Boring by Stone in 1968 identified land slide material (described as crushed), And slide planes (sometimes described as a shear).

Pacific Soils report characterized the site as land slide (logs are not available)

Leighton work was confined to the lower area below and identified active ancient an basal (bottom) landslide.

CY and associates did not identify the correct geology

Feffer boring logs for 25200 PCH identified the material as bedrock despite older boring by several geotechnical consultants from available historical data identifying a series of older and active slides.

Feffer boring logs were not specific at depth with gaps in the observations. They make no identification of any landslide deposits.

Shear strength used are an average of strengths from different borings.

There is no analysis of slide conditions. There is a table in the back of the report, where re-sheared values are presented. These are around 12.5^0 and would be appropriate for use in a user specified failure surface analysis .

In the Feffer report, a re-sheared value of 8.5^0 was available but not used in any analysis.

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

4.0 CONCLUSIONS

The Feffer report for 25200 PCH does not address previously existing and well documented sliding.

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.

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.

There is inclinometer monitoring data that indicates the active slide is much larger and deeper that has been previously analyzed.

Based on our review and analysis of the Feffer report the site does not possess and adequate factor of safety against sliding.

5.0 RECOMMENDATIONS

Additional subsurface work is needed by the Applicant/Owner of 25200 PCH. This should include slope inclinometer on the upper pad and appropriate monitoring period through at least 1 wet winter.

An analysis of the slide configuration should be projected to the upper pad using the currently available data and any new data.

The piles system of the new development at 25200 PCH should be redesigned to include stabilization against landsliding.

6.0 CLOSURE AND LIMITATIONS

This is a limited scope of work performed on a review basis. Additional work should be performed. In accordance with CBC Chapter 17, Section 1704A, Pacific Coast Land Consulting cannot assume responsibility or liability for the adequacy of recommendations if we do not observe construction.

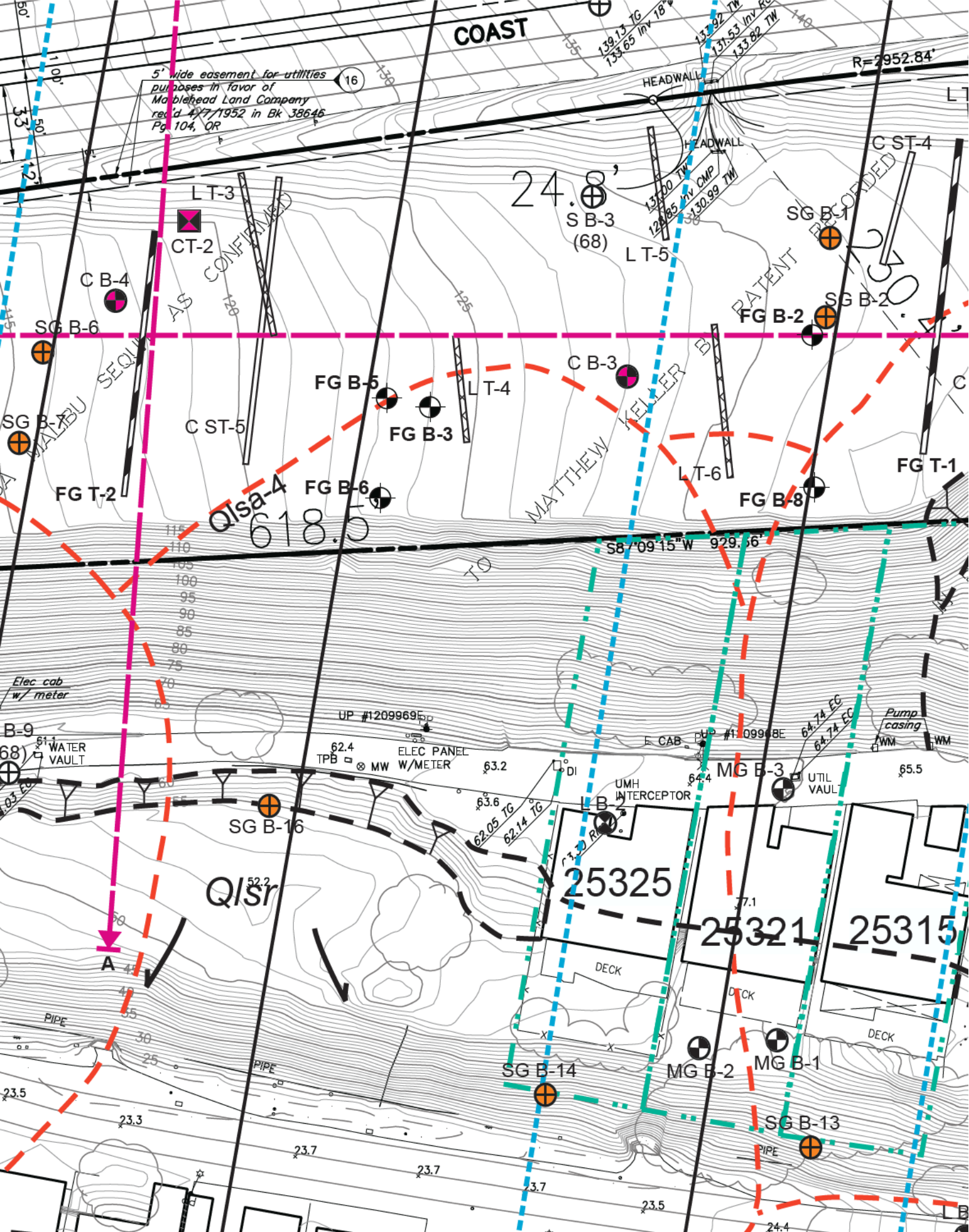


Ralph K. Jeffery
President CEG 1183
Pacific Coast Land Consulting

COMMENTS ON FEFFER PRELIMINARY CONSTRAINTS & RESTRICTIONS EXHIBIT FROM MAY 21, 2018 PRELIMINARY GEOTECHNICL FEASILITY INVESTIGATION.

MISSING INCLINOMETER READINGS SI-5 ANS SI-6 LIMITING AREA OF SLIDE

1 PAGE


COAST
5' wide easement for utilities purposes in favor of Marblehead Land Company rec'd 4/7/1952 in Bk 38646 Pg 104, OR
16
HEADWALL
HEADWALL
R=2952.84'
24.8'
S B-3
(68)
L T-5
L T-3
CT-2
C B-4
SG B-6
SG B-4
SG B-1
SG B-2
FG B-2
C ST-4
RECORDED
PATENT
C B-3
FG B-5
FG B-3
L T-4
C ST-5
FG T-2
FG B-6
L T-6
FG B-8
FG T-1
MATTHEW KELLER
MALIBU SEQUIT AS CONFIRMED
Qlsa-4
618.5
S8°09'15"W 929.56'
TO
Elec cab w/ meter
B-9
68)
WATER VAULT
UP #1209969E
ELEC PANEL W/METER
TPB
MW
DI
CAB
UP #1209968E
Pump casing
WM
UMH INTERCEPTOR
MG B-3
UTIL VAULT
L B-2
SG B-16
Qlsr
25325
25321
25315
DECK
DECK
DECK
A
PIPE
PIPE
SG B-14
MG B-2
MG B-1
SG B-13
PIPE

SI-5 AND SI-6

INCLINOMETER READINGS SHOWNG MOVEMENT FROM

FUGRO ANNUAL REPORT MALIBU LANDSLIDE

ASSESSMENT DISRICT & PCLC COMMENTS

3 PAGES

PCLC COMMENTS IN RED

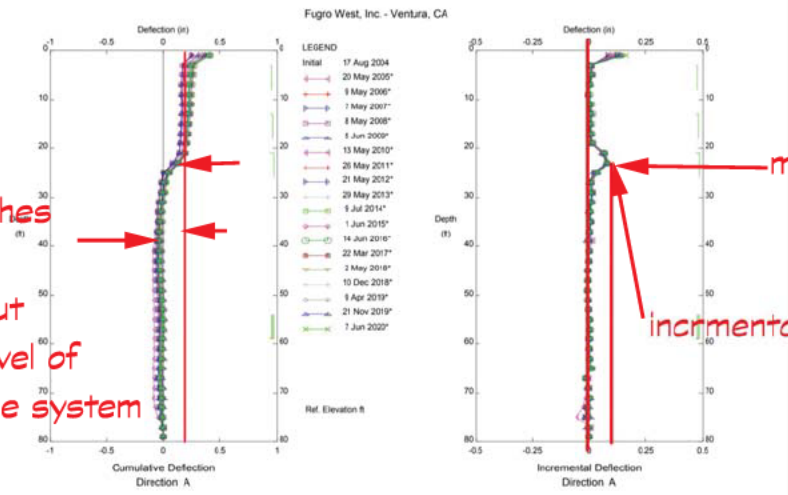
Notes from PCLC regarding reset of inclinometer readings

From the Yeh report June 2022

"**At the start of the monitoring year, inclinometer surveys were performed with a new DGSI AT system** inclinometer probe, cable and electronics to replace the DGSI classic system probe that had been in use by the previous consultant since at least 2004. The AT system inclinometer was chosen for more repeatable and accurate positioning of the probe on the casing. The introduction of a new probe and cable necessitated a new baseline survey for each of the useable inclinometer casings."

This has apparently reset the baseline and only reporting shows the most recent set of movements. Here are a couple of screen shots from just a random pick of the Fugro reports. The thing is once the slide moves there is measurable offset. Then it has a factor of safety of 1.0. It cannot of it is own accord increase to a 1.5 FACTOR OF SAFETY. By lowering water table it may get as high as 1.1 or 1.15 but well below the required 1.5 per code.

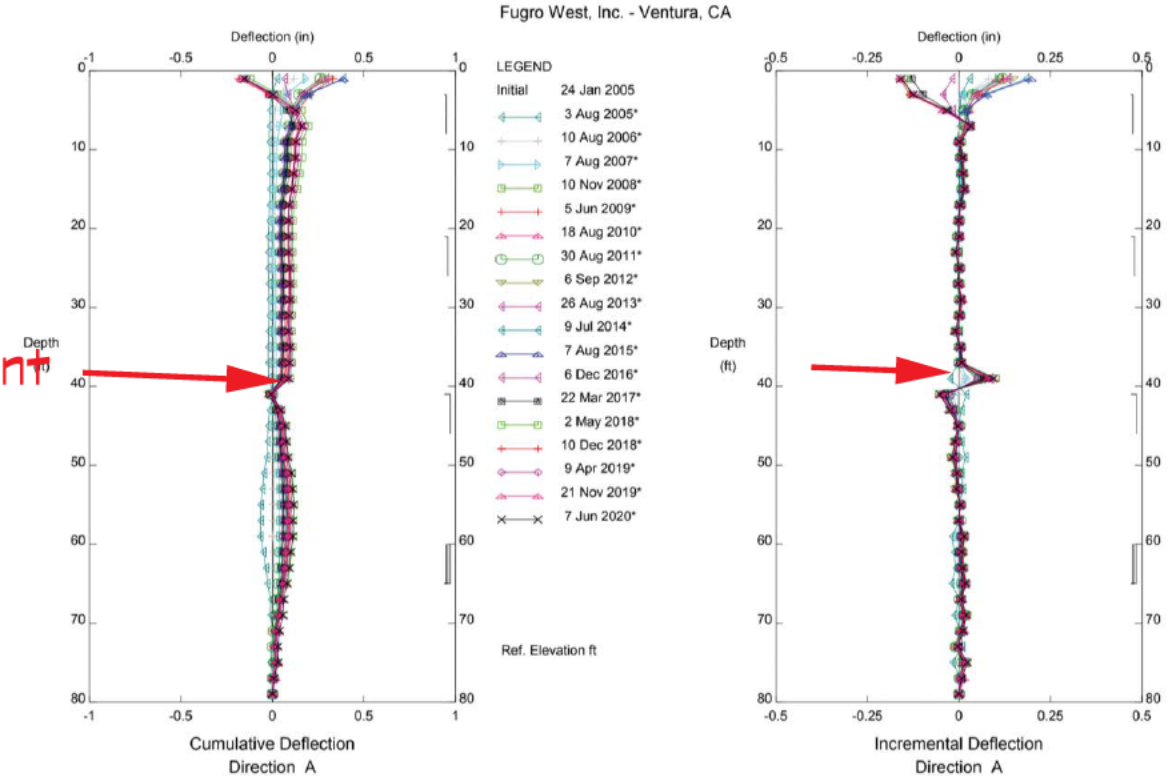
off set= ~.2 inches
at a depth
of 25 feet about
8 times the level of
sensitivity of the system



movement

incremental of set a the exact depth

movement



Assessment District 98-3, Inclinometer SI-6

City of Malibu

Sets marked * include zero shift and/or rotation corrections.

\\laxpfclfs01.fugro.pvt\Data\Public\Projects\04_2016\04_6216_0604_Malibu Road AD\01_FIELD DATA\Inclinometer Data\GTL\2019-2020\SI-6.gtl

FEFFER CROSS SECTION C-C WITH COMMENTS

1 PAGE

PCLC COMMENTS IN LARGE GREEN AND RED TEXT

FEFFER CROSS SECTION C-C WITH COMMENTS
PAGE 1 OF 1
PCLC COMMENTS IN LARGE GREEN AND RED TEXT

These are comments by PCLC on Feffer's exhibit in red and green.
Red line is slide slide plane not shown
Purple is another slide plane not shown shown (Purple line in Leighton and Associates logs not clear how far it goes up but there is enough data that it is planar)

Feffer proposes

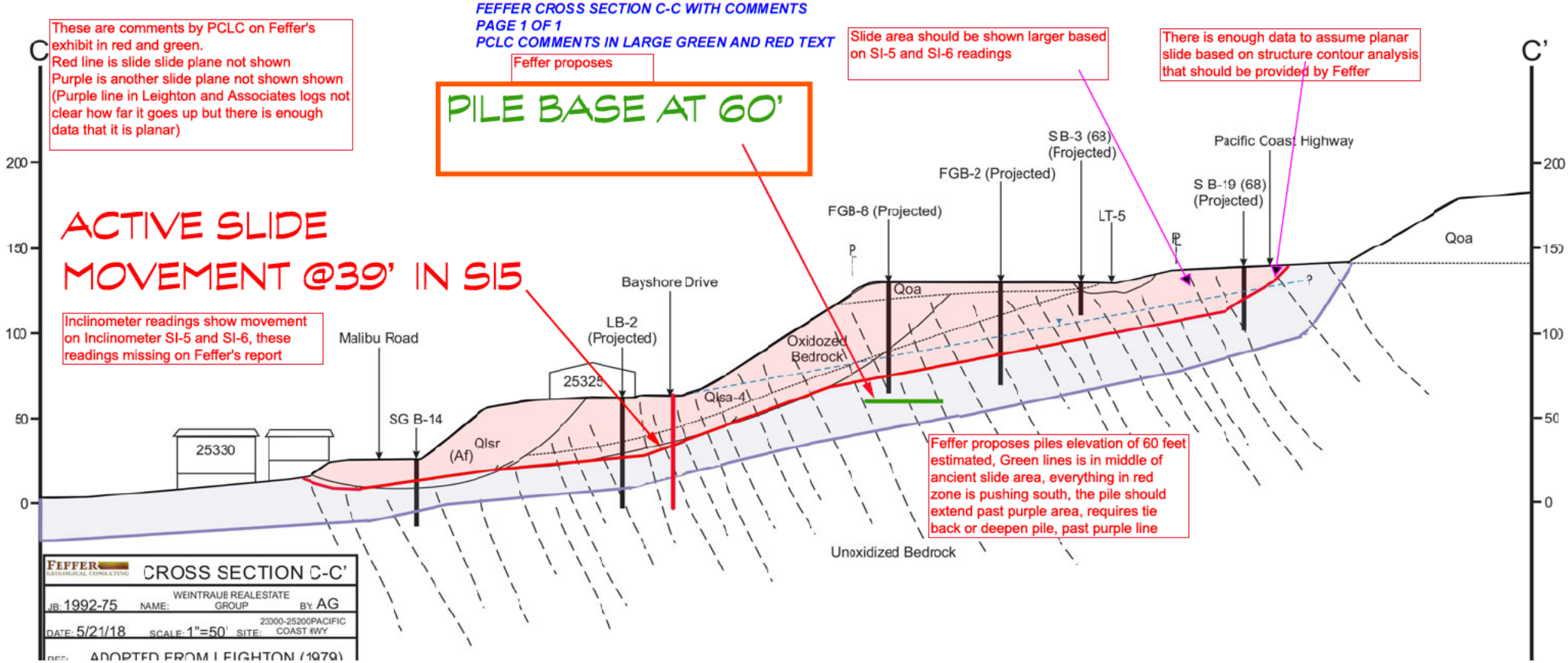
PILE BASE AT 60'

Slide area should be shown larger based on SI-5 and SI-6 readings

There is enough data to assume planar slide based on structure contour analysis that should be provided by Feffer

ACTIVE SLIDE MOVEMENT @39' IN SI5

Inclinometer readings show movement on Inclinometer SI-5 and SI-6, these readings missing on Feffer's report



Feffer proposes piles elevation of 60 feet estimated, Green lines is in middle of ancient slide area, everything in red zone is pushing south, the pile should extend past purple area, requires tie back or deepen pile, past purple line

FEFFER GEOLOGICAL CONSULTING — CROSS SECTION C-C'

JB: 1992-75	NAME: WEINTRAUB REALESTATE GROUP	BY: AG	
DATE: 5/21/18	SCALE: 1"=50'	SITE: 23000-25200 PACIFIC COAST HWY	
REF: ADOPTED FROM LEIGHTON (1979)			

FEFFER BORING LOG

18 PAGES

PCLC COMMENTS IN COLOR

LOG OF EXPLORATORY BORING

Job Number: 1992-75
Project: 25200 Pacific Coast Highway

Boring No: 1
Boring Location: See Site Map.

Date Performed: 10/17/2017

Drill Type: 24" Bucket Auger

Depth in Feet	Blows per 6"	Sample Type: Undisturbed	Sample Type: Bulk	Bedrock/ Soil Description	Color	Density	Moisture
				Alluvium/Terrace:			
				3': Gravelly sand, scattered clasts of sandstone	Orange/tan	Dense	Slightly moist
				4': Gravelly sand			
5	1	R		4.5': Sandy clay, sparse gravels, containing reddish sandstone fragments	Yellowish-red	Stiff	Slightly moist
				6': Interbedded medium grained sands	Dark brown	Dense	
				9': Silty clay with sand, grading into medium to coarse sand	Reddish brown		
10	1	R		9': Medium to coarse grained sand, weakly bedded, herring bone cross beds	Dark brown, brown	Strong	Slightly moist
				10': Silty clay with sand	Orange brown		
				12': Rounded clay nodules. Bedding Orientation N65°E 20°SE	Tan, tan/brown	Weak	Slightly moist
				13': 6-8" layer of clay, containing sandstone cobbles 1"-8" size	Reddish orange		
15	1	R		15': Weakly bedded sands. Bedding Orientation: N75°W 33°NE	Dark brown, brown	Moderately weak	Slightly moist
				16': Sandy clay, oxidized, 1-2" thick layer of rounded pebbles			
				19': Silty clay with sand, scattered oxidized clay nodules, localized fracturing filled with gypsum	Blue-gray/white gray	Medium stiff	Slightly moist
20	1	R		**Bedrock:**			
				20': Silstone/claystone, weathered	Dark brown, brown	Moderately Weak	Moist
				22': Siltstone layer 6-8" thick, sheared approximate displacement of 4", shear plane: N83°W 49°S	White/ white tan	Moderately Weak	Slightly moist
25	3	R		26': Claystone/shale, weakly bedded, fractured	Black to dark gray	Very strong	Slightly moist
				27.5': Gypsum filled fractures, friable	Dark brown, brown	Weak	Slightly moist
				29': highly fractured, limonite stains	Yellow and brown		
30	5	R		30': oxidation	Dark brown, brown, mottled yellowish red		Moist
				34': containing interbedded sands	Dark brown, brown	Weak	Slightly moist
35	3	R		35': Shale, petroliferous			Moist to wet
				38': Large Diabase cobble, 1' thick, no observed metamorphism	Gray to black	Very hard	Slightly moist
40							

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Figure

LOG OF EXPLORATORY BORING

Job Number: 1992-75
Project: 25200 Pacific Coast Highway

Boring No: 1 (Continued)
Boring Location: See Site Map.

Date Performed: 10/17/2017

Drill Type: 24" Bucket Auger

Depth in Feet	Blows per 6"	Sample Type: Undisturbed	Sample Type: Bulk	Bedrock/ Soil Description	Color	Density	Moisture
40	6	R		40': Shale, closely spaced fractures, petroliferous	Black to dark brown	Moderately strong	Slightly moist
				44': Water seep			Wet
45	5	R		45': Shale, petroliferous	Black to dark brown	Moderately weak	Wet
				46': Shale			
				48': Shale			
50	7	R		50': Shale 52': Shale	Black to dark brown	Moderately strong	Wet
55	10	R		55': Shale 56': Shale, becoming more competent	Black to dark brown	Moderately weak to strong	Wet
60	8	R		60': Shale	Gray to black	Strong	Moist
65				65': Shale	Black to dark brown	Moderately strong	Wet
				End At 65', 1' Water On Bottom, Seep At 44', No Caving			
70							
75							
80							

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Figure

LOG OF EXPLORATORY BORING

Job Number: 1992-75
Project: 25200 Pacific Coast Highway

Boring No: 2
Boring Location: See Site Map.

Date Performed: 10/18/2017

Drill Type: 24" Bucket Auger

Depth in Feet	Blows per 6"	Sample Type: Undisturbed	Sample Type: Bulk	Bedrock/ Soil Description	Color	Density	Moisture
				Sleeve Covering Upper 4' of Boring			
				Bedrock:			
5	2	R		4': Claystone, closely spaced fractures 5': Medium to fine grained claystone, gypsum observed 6': Claystone, closely spaced gypsum filled fractures	Yellowish red	Strong	Slightly moist
				7': Fine grained sand layer, ~2-3' thick	Tan, brown		
				9': Claystone, closely spaced fractures	Dark brown	Weak	Slightly moist
10	2	R		10': Claystone, containing medium to fine grained sand 10.5': Healed fault plane oriented: N-S 31°E	Mottled dark brown to brown tan	Strong	Slightly moist
				12': Sandstone cobble, ~1' diameter, massive, randomly oriented polished shear surfaces visible in claystone	Dark brown, brown	Very hard	Slightly moist
				14': Interfingered sandstones, Fracture: N55°E 65°NW	Tan brown	Hard	Moist
15	5	R		15':Claystone, containing thinly bedded fine grained sands, moderately weathered	Brown to dark brown, to white and orange	Moderately weak	Slightly moist
				18': Scattered cemented sandstone gravels	Dark gray to black brown		Slightly moist
20				~19-23': Concretionary layer, fine grained sandstone, massive,	Green to dark gray	Hard	Slightly moist
				22': Sandstone, abundant gravels and pebbles 1/2 -1" size,	Light gray	Very hard	
25	11	R		25': Claystone, closely spaced fractures	Black to dark gray	Very strong	Slightly moist
30				~29': Sandstone/low grade quartzite, concretionary layer, no sample taken	Greenish black	Very strong	
				32': Active water seep, very closely spaced fractures and polished surfaces			Wet
35				~36-37': Clay layer ~ 1" thick, continues around boring, shear plane: N65°E 25°NW	Tan, white tan	High plasticity	Wet
40							

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Figure

LOG OF EXPLORATORY BORING

Job Number: 1992-75
Project: 25200 Pacific Coast Highway

Boring No: 2 (Continued)
Boring Location: See Site Map.

Date Performed: 10/18/2017

Drill Type: 24" Bucket Auger

Depth in Feet	Blows per 6"	Sample Type: Undisturbed	Sample Type: Bulk	Bedrock/ Soil Description	Color	Density	Moisture
40	10	R		40': Claystone, closely spaced fractures, becoming very competent, hard to drill	Black, dark brown	Very stong	Moist
45				45': Concretionary, No sample taken			
				46': Claystone	Black, dark brown	Very hard	Wet
50	12	R		50': Claystone/shale,closely spaced fractures, petroliferous	Dark black	Very hard	Wet
55				55': Claystone/shale, No sample obtained, concretionary bedding	Black, dark brown	Very hard	Wet
60				60': Claystone/shale, No sample obtained, concretionary bedding	Black, dark brown	Very hard	Wet
				End At 63', Seep At 32', No Caving			
65							
70							
75							
80							

LOG OF EXPLORATORY BORING

Job Number: 1992-75
Project: 25200 Pacific Coast Highway

Boring No: 3
Boring Location: See Site Map.

Date Performed: 10/18/2017

Drill Type: 24" Bucket Auger

Depth in Feet	Blows per 6"	Sample Type: Undisturbed	Sample Type: Bulk	Bedrock/ Soil Description	Color	Density	Moisture
				Alluvium/Terrace:			
				2': Silty sand, contains rounded cobbles as large as 6", scattered angular clasts	Orange brown	Dense	Slightly moist
				3': Silty clay, contains scattered angular gravels	Dark brown	Stiff	Slightly moist
5	3	R		5': Silty clay with sand and gravel, contains sandstone conglomerate cobbles	Brown, reddish brown	Dense	Slightly moist
				7': Sandy clay	Light gray	Stiff	Slightly moist
10	1	R		10': Silty sand with clay, scattered gravels, grading into sands below	Brown, reddish brown	Soft	Moist
				12': Medium to coarse grained sand, weakly bedded, caving zone begins	Orange tan	Dense	Slightly moist
15	2	R		15': Medium grained sand, caving	Tan, yellow tan	Dense	Slightly moist
				19.5': Contact orientation N53°E 35°SE			
20	1	R		**Bedrock:** 20': Silty claystone with minor sand, 6" thick layer of clay that is continuous	Mottled brown, reddish brown, light gray	Strong	Slightly moist
25	10	R		25': Claystone, closely spaced fractures, few gypsum filled fractures, oxidized and weathered	Dark brown	Strong	Slightly moist
30	6	R		30': Claystone/shale, closely spaced fractures, moderate gypsum filled fractures	Reddish brown, dark brown	Moderately weak, to strong	Slightly moist
35	10	R		35': Shale, closely spaced fractures, weathered, abundant gypsum filled fractures, petroliferous	Dark black to brown	Moderately weak	Slightly moist
40							

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Figure

LOG OF EXPLORATORY BORING

Job Number: 1992-75
Project: 25200 Pacific Coast Highway

Boring No: 3 (Continued)
Boring Location: See Site Map.

Date Performed: 10/18/2017

Drill Type: 24" Bucket Auger

Depth in Feet	Blows per 6"	Sample Type: Undisturbed	Sample Type: Bulk	Bedrock/ Soil Description	Color	Density	Moisture
40	4	R		40': Shale, highly fractured, petroliferous	Dark black	Moderately weak	Moist
45	3	R		45': Shale, highly fractured, petroliferous	Dark black	Weak	Moist to wet
50	8	R		50': Shale, highly fractured, active seeps	Dark black	Weak	Wet
55				~55': ~1' thick layer of shale, concretionary no sample taken	Blue gray	Very Hard	
60	14	R		60': Shale, highly fractured	Dark black to brown	Moderately weak	Wet
65				End At 65', 1.5' Water At Bottom, Caving Began At 12' Downhole logging stopped ~23' due to caving sands. Remaining depth logged from samples			
70							
75							
80							

LOG OF EXPLORATORY BORING

Job Number: 1992-75
Project: 25200 Pacific Coast Highway

Boring No: 4
Boring Location: See Site Map.

Date Performed: 10/19/2017

Drill Type: 24" Bucket Auger

Depth in Feet	Blows per 6"	Sample Type: Undisturbed	Sample Type: Bulk	Bedrock/ Soil Description	Color	Density	Moisture
				Alluvium/Terrace:			
				0-2': Silty sand with minor gravel, contains 3" rounded cobbles	Yellowish brown	Dense	Dry
				2': Silty clay, contains gravels and fractured bedrock			
				4': Silty clay with sand, scattered gravels			
5	1	R		5': Silty clay with minor gravel	Dark brown, reddish brown	Medium stiff	Moist
				9': Becoming medium grained sand, angular gravels, limonite and calcite present			
10	1	R		10': Pebbly medium grained sand	Yellow orange	Dense	Moist
				12': Grading into silty clay, containing sandstone clasts	Whitish brown		Moist
15	1	R		15': Gravelly medium grained sand, contains scattered sandstone clasts	Brownish yellow	Dense	Moist
				16': Silty clay with sand, abundant gravels, oxidized	Reddish orange	Stiff	Moist
				18': Silty sand with clay, scattered sandstone and gravels	Tannish	Stiff	Moist
				Bedrock:			
20	1	R		18.5': Claystone/shale, 2" thick layer. Fracture: N55°E 19°SE	Gray	Moderately Weak	Moist
				20': Clayey sand, moderately weathered, oxidation stains, interbedded layers of sandstone and claystone, abundant gypsum filled fractures, gentle deformation/folding	Gray, Orange	Dense	Moist
				23': Claystone/shale, contact orientation: N75°W 30°N			
25	2	R		25': Claystone, abundant fractures, gypsum	Dark brown, mottled yellowish red	Moderately Weak	Moist
				25.5': Grading into more competent shale, petroliferous	Dark black to gray	Moderately Weak	Moist
				27': Active seep			Wet
30	3	R		30': Shale, petroliferous	Dark black to gray	Moderately strong	Moist
				31': Active seep, contact: returning to claystone	Dark brown	Moderately Weak	Wet
35	4	R		35': Shale/claystone, fractured, abundant polished shear surfaces	Dark black, dark brown	Moderately Weak	Wet
				35': Clay layer, 1-3" thick, shear plane: N35°W 15°NE	Gray	High plasticty	Wet
				36': Claystone/shale, closely spaced fractures	Dark brown	Moderately Weak	Wet
40							

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Figure

LOG OF EXPLORATORY BORING

Job Number: 1992-75
Project: 25200 Pacific Coast Highway

Boring No: 4 (Continued)
Boring Location: See Site Map.

Date Performed: 10/19/2017

Drill Type: 24" Bucket Auger

Depth in Feet	Blows per 6"	Sample Type: Undisturbed	Sample Type: Bulk	Bedrock/ Soil Description	Color	Density	Moisture
40	4	R		40': Shale/claystone, highly fractured, petroliferous, limonite 41': Becoming very competent, closely spaced fractures, limonite stains on fracture surfaces	Dark brown to black	Moderately weak	Slightly moist
45	6	R		45': Shale/claystone, closely spaced fractures, competent	Dark brown	Moderately strong	Moist
50	9	R		50': Shale/claystone, abundant closely spaced fractures 51': Shale/claystone	Dark brown Dark brown	Moderately weak to strong	Moist Slightly moist
55	5	R		55': Shale/claystone, closely spaced fractures, scattered sandstone fragments	Dark brown to olive	Moderately weak to strong	Slightly moist
60	8	R		60': Shale/claystone	Dark brown	Moderately weak	Moist
65	10	R		65': Shale/claystone, closely spaced fractures	Dark brown to black	Moderately strong	Wet
				End At 65.5', Seeps Begin At 27', 1' Water At Bottom, No Caving			
70							
75							
80							

LOG OF EXPLORATORY BORING

Job Number: 1992-75
Project: 25200 Pacific Coast Highway

Boring No: 5
Boring Location: See Site Map.

Date Performed: 10/30/2017

Drill Type: 24" Bucket Auger

Depth in Feet	Blows per 6"	Sample Type: Undisturbed	Sample Type: Bulk	Bedrock/ Soil Description	Color	Density	Moisture
				Alluvium/Terrace:			
				2': Silty sand, fine to medium, porous, scattered claystone fragments, scattered fine gravels to small cobbles	Tan brown, light brown	Dense	Slightly moist
5				5': Clayey sand with silt, ~3" fractured cobbles and gravels	Brown		Slightly moist
				8': Contact: N33°W 9°SW, clayey sand, fine to medium grained sparse sands, fine to coarse gravels, sandstone fragments	Dark brown		
10				11': Sandy clay, becoming more sandy with depth	Brown, light brown	Stiff	Slightly moist
				13.7': Fine to medium grained sand, weakly bedded, fining upward, friable	Orange brown	Dense	Slightly moist
15				17.6': Contact: N82°W 42°SW, scattered gravels at base	Light brown, gray brown	Dense	Slightly moist
				Bedrock: 17.6': Thinly bedded claystone/siltstone, top of contact contains 1/2" thick layer of plastic clay, internal shears randomly oriented	Gray	Soft	Slightly moist
20				19': Very well cemented layer limited to east side of hole within claystone bedrock		Very hard	
				22': Well cemented cherty layer, shattered, calcite or gypsum filled fractures within bedrock, ~8" thick			
				24': Bedding: N68°W 24°SW, Siltstone with closely spaced fractures filled with gypsum or calcite	Brown, dark brown		
25				26.5': Well cemented 6-10" bed, shattered, cherty, gypsum lined fracture surfaces	Brown, dark brown	Hard	Slightly moist
				28': Claystone, oxidized, abundant gypsum fractures	Brown, dark brown	Hard	
				29': Claystone, abundant gypsum fractures		Moderately strong	Slightly moist
30				32': Shale, petroliferous, closely spaced fractures with gypsum	Black, brown black		
				33': Shale, petroliferous, few gypsum filled fractures	Black	Moderately weak	Slightly moist
35				35.2': Bedding: N78°W 16°SW within a 10" thick cherty interval			
				36': Gyspum/calcite no longer observed within shale	Black	Moderately weak	Slightly moist
				39.6': Active Seeps			Wet
40							

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Figure

LOG OF EXPLORATORY BORING

Job Number: 1992-75
Project: 25200 Pacific Coast Highway

Boring No: 5 (Continued)
Boring Location: See Site Map.

Date Performed: 10/30/2017

Drill Type: 24" Bucket Auger

Depth in Feet	Blows per 6"	Sample Type: Undisturbed	Sample Type: Bulk	Bedrock/ Soil Description	Color	Density	Moisture
40				40': Shale, petroliferous 41': Active Seep	Dark black, gray	Moderately weak	Wet
45				45.8': 1/4" thick layer clay, bedding: N70°W 3°SW	Gray/gray brown	Soft	Wet
				49': Shear plane: N67°W 26°SW, black clay ~1" thick	Brownish gray	Soft/plastic	Wet
50				51': Shear plane, ~1/8" thick layer of clay, similar SW dipping orientation as above			
				54.5': Shear plane: N°80W 23°S, ~1" thick layer of clay	Gray	Soft/plastic	Slightly moist
55							
				60': Claystone/shale	Dark brown	Moderately weak	Wet
60				End At 60', Seeps At ~40', No Caving			
65							
70							
75							
80							

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Figure

LOG OF EXPLORATORY BORING

Job Number: 1992-75
Project: 25200 Pacific Coast Highway

Boring No: 6
Boring Location: See Site Map.

Date Performed: 10/30/2017

Drill Type: 24" Bucket Auger

Depth in Feet	Blows per 6"	Sample Type: Undisturbed	Sample Type: Bulk	Bedrock/ Soil Description	Color	Density	Moisture
				Alluvium/Terrace:			
				2': Silty sand, cobbles of white sandstone clasts	Yellowish brown	Dense	Slightly moist
5	1	R		5': Silty sand, minor rounded gravels, scattered rootlets	Yellowish red	Dense	Slightly moist
				6': Silty sand with clay, oxidation staining, scattered sandstone conglomerate gravels	Orange brown	Dense	Slightly moist
				8': Clayey sand, scattered clay nodules	Orange brown	Very Dense	Slightly moist
10	3	R		10': Silty medium grained sand with clay, angular sandstone fragments, porous	Reddish brown		
				12': Silty sand with clay, scattered white sandstone cobbles up to 4" diameter	Yellowish brown		
				14': Sandstone conglomerate, ~1' thick, bedding: N66°W 10°NE	White/tan	Very hard	
15	2	R		15': Silty sand with clay, containing sandstone gravels, porous, scattered gray clay nodules and gypsum	Brownish yellow	Dense	Slightly moist
				17': Medium to coarse grained sand, scattered clay nodules	Orange,tan	Dense	Slightly moist
20	1	R		20': Clayey sand, oxidized, containing interbedded clays	Brownish yellow, mottled gray/tan	Dense	Slightly moist
				22': Discontinuous ~1" layer of clay above claystone bedrock	Light gray	Soft	Moist
				Bedrock:			
				23': Gypsum begins appearing			
25	4	R		25': Claystone, weathered, abundant gypsum filled fractures	Reddish brown, dark brown	Weak	Slightly moist
				27': Claystone, closely spaced gypsum filled fractures	Reddish brown, dark brown	Moderately weak to strong	Slightly moist
30	4	R		30': Claystone, oxidized, closely spaced gypsum filled fractures, few polished shear surfaces	Reddish brown, dark brown	Moderately weak	Slightly moist
				30': ~1" thick layer of cemented claystone containing large gypsum crystals, bedding: N30°E 50°NW			
				32': Large cemented ~10" cobble, fractured, oxidation stains	Black	Very hard	Slightly moist
35	6	R		35': Claystone, fractured, randomly oriented polished shear surfaces, oxidized	Reddish brown	Moderately weak	Slightly moist
40	6	R		40': Claystone, closely spaced gypsum filled fractures	Reddish brown, dark brown	Moderately Strong	Slightly moist

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Figure

LOG OF EXPLORATORY BORING

Job Number: 1992-75
Project: 25200 Pacific Coast Highway

Boring No: 6 (Continued)
Boring Location: See Site Map.

Date Performed: 10/30/2017

Drill Type: 24" Bucket Auger

Depth in Feet	Blows per 6"	Sample Type: Undisturbed	Sample Type: Bulk	Bedrock/ Soil Description	Color	Density	Moisture
40				40': Bedding: N60°W 47°SW			
45	7	R		45': Claystone/shale, oxidized, closely spaced calcite/gyspum filled fractures	Reddish brown, black	Moderately strong	Slightly moist
				46': Claystone/shale, petroliferous	Black	Hard	Slightly moist
50	10	R		50': Claystone/shale, closely spaced fractures, petroliferous	Gray/black	Weak to moderately weak	Wet
55	6	R		55': Claystone/shale, fractured, petroliferous, Active seep	Black	Moderately weak to strong	Wet
				End At 55', Seep At 55', ~1.5' Water On Bottom, No Caving			
60							
65							
70							
75							
80							

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Figure

LOG OF EXPLORATORY BORING

Job Number: 1992-75
Project: 25200 Pacific Coast Highway

Boring No: 7
Boring Location: See Site Map.

Date Performed: 11/1/2017

Drill Type: 24" Bucket Auger

Depth in Feet	Blows per 6"	Sample Type: Undisturbed	Sample Type: Bulk	Bedrock/ Soil Description	Color	Density	Moisture
				Alluvium/Terrace:			
				2': Clayey sand, contains angular clasts	Yellowish brown	Dense	Dry
5				4.5': Silty sand	Orange brown to brown	Dense	Slightly moist
				6': Siltstone fragments			
				7': Silty sand with clay, scattered gravels and pebbles	Orange brown to brown	Dense	Slightly moist
10				10.5': Silty sand, fine to medium grained, containing scattered coarse sand and medium gravel	Yellowish brown to orange brown	Medium dense	Slightly moist
				11.6': Clayey sand, fine to medium grained with coarse to medium gravels	Brown	Dense	Slightly moist
15				14.5': ~1' thick layer clayey sand, containing carbon flecks	Brown	Dense	Slightly moist
				18': Clayey sand, scattered angular gravels and carbon flecks	Brown, reddish brown	Dense	Slightly moist
				19': Carbon flecks continue to 19', grading into silty clayey sand			
20				21.8': Sandstone conglomerate, concretionary bed, extending to 23.2'	White/tan	Hard	Slightly moist
				24.3': Becoming clayey sand, fine to medium grained with gravels	Yellowish brown	Dense	Slightly moist
25				24.4': Irregular contact: ~N82°W 15°SW, becoming clayey sand, sandstone/claystone			
				26': Grading into silty sand, fine to medium grained, scattered gravels, friable	Orange brown	Dense	Slightly moist
				28': Becoming clayey sand, oxidized, containing ~1' large sandstone conglomerate cobble	Mottled brown to gray	Dense	Slightly moist
30				**Bedrock:**			
				31.3': Highly irregular contact, claystone bedrock, 1" thick layer of siltstone, no measurable orientation			
35				33': Bedding: N58°E 47°NW, 1" thick layer of clay, oxidized horizon, closely spaced fractures	Gray	Plastic	Slightly moist
				38': Claystone, closely spaced fractures	Brown	Weak	Slightly moist
				39': Claystone, gypsum lined fractures begin to appear			
40							

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Figure

LOG OF EXPLORATORY BORING

Job Number: 1992-75
Project: 25200 Pacific Coast Highway

Boring No: 7 (Continued)
Boring Location: See Site Map.

Date Performed: 11/1/2017

Drill Type: 24" Bucket Auger

Depth in Feet	Blows per 6"	Sample Type: Undisturbed	Sample Type: Bulk	Bedrock/ Soil Description	Color	Density	Moisture
40				40': Claystone, bedding: N65°E 35°SE	Reddish brown	Weak	Slightly moist
				44': Claystone/shale, closely spaced fractures, slightly petroliferous, limonite staining	Brown to black	Moderately weak	Slightly moist
45				46': Claystone, well cemented interval, closely spaced fractures, limonite staining, gypsum lined fractures			
				48': Claystone/shale, petroliferous	Black	Moderately weak to strong	Slightly moist
50				50': Claystone/Shale, petroliferous, gypsum filled fractures	Black	Moderately weak to strong	Slightly moist
				52.5': Claystone, well cemented interval ~1.5' thick			
55				55': Shear plane: NW 36°NE, ~1" thick clay	Light gray	Soft/plastic	Moist
				55.5': Shear plane: N6°E 18°W, irregular 1" thick clay layer 56': Active seep			Wet
				58': Irregular contact with competent shale below			
60				60': Shale, fractured	Gray	Hard	Wet
65				End At 65', Seep At 56', No Caving			
70							
75							
80							

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Figure

LOG OF EXPLORATORY BORING

Job Number: 1992-75
Project: 25200 Pacific Coast Highway

Boring No: 8
Boring Location: See Site Map.

Date Performed: 11/1/2017

Drill Type: 24" Bucket Auger

Depth in Feet	Blows per 6"	Sample Type: Undisturbed	Sample Type: Bulk	Bedrock/ Soil Description	Color	Density	Moisture
				Alluvium/Terrace:			
				2': Silty sand with minor gravels	Brown, light brown	Very dense	Dry
5				5': ~1-2" thick layer of siltstone, oxidized	White/ tan		Slightly moist
				7': Silty sand, fine to medium grained, angular to rounded gravels	Orange	Dense	Slightly moist
10	1	R		**Bedrock:**			
				10': Claystone, fractures, containing randomly oriented polished surfaces, gypsum lined fractures	Reddish brown, mottled tan/yellow	Weak	Slightly moist
				11': Siltstone, shattered, gypsum lined fracture surfaces			
				12': Claystone, Bedding: N°40E 43°SE	Reddish brown	Moderately weak	Slightly moist
15				16': Shale	Gray	Very hard	
				16.5': Contact: N87°E 44°N, blocky, oxidized, fractured, gypsum filled fractures, jointed, caving zone begins			
20				20': Shale, very well cemented - concretionary: no sample taken	Gray	Very hard	Slightly moist
				23': Shale, toppling, massive, fractured, caving zone ends	Gray	Very hard	Slightly moist
25	8	R		25': Claystone/shale, abundant closely spaced gypsum filled fractures	Reddish brown	Hard	
				26.9': Claystone/shale, closely spaced fractures, gypsum filled fractures	Reddish brown	Hard	Slightly moist
				28': Shear zone, up to 12" thick, clay with limonite staining and pulverized gypsum, randomly oriented shear surfaces, oriented N30°W 16°NE	Brown/yellow brown	Plastic	Moist
30				33': Claystone/shale, closely spaced fractures with gypsum or calcite	Reddish brown	Weak	Moist
35	4	R		35': Claystone, very fractured, abundant gypsum filled fractures	Reddish brown	Moderately strong	Moist
				39': Gypsum/ calcite infilling no longer observed			
40							

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Figure

LOG OF EXPLORATORY BORING

Job Number: 1992-75
Project: 25200 Pacific Coast Highway

Boring No: 8 (Continued)
Boring Location: See Site Map.

Date Performed: 11/1/2017

Drill Type: 24" Bucket Auger

Depth in Feet	Blows per 6"	Sample Type: Undisturbed	Sample Type: Bulk	Bedrock/ Soil Description	Color	Density	Moisture
40				40': Sub-vertical shears with striations	Dark brown		Moist
				41.3-43.4': Shale/claystone, closely spaced fractures, healed shear surfaced/paleo shear zone dipping approximatley south	Dark brown	Weak	Moist
				44': Active seep			Wet
45	10	R		45': Shale/claystone, petroliferous, closely spaced fractures	Dark brown, black	Moderately strong	Moist
50							
				53': Shale	Gray/black	Hard	Moist
55	8	R		55': Shale, petroliferous, closely spaced fractures	Gray/black	Very hard	Moist
				59':Shale	Gray/black	Hard	Moist
60							
65	20	R		65': Shale, petroliferous, abundant closely spaced fractures	Gray/black	Hard	Moist
				End At 65', Seep At 44', Caving From ~16-23'			
70							
75							
80							

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Figure

LOG OF EXPLORATORY BORING

Job Number: 1992-75
Project: 25200 Pacific Coast Highway

Boring No: 9
Boring Location: See Site Map.

Date Performed: 11/2/2017

Drill Type: 24" Bucket Auger

Depth in Feet	Blows per 6"	Sample Type: Undisturbed	Sample Type: Bulk	Bedrock/ Soil Description	Color	Density	Moisture
				Alluvium/Terrace:			
				2': Silty sand, fine to medium grained, scattered angular gravels	Brown	Dense	Slightly moist
				4': Silty clay with sand, angular to rounded gravles	Brown	Stiff	Slightly moist
5							
				8': Clayey sand, angular to rounded gravles	Orange brown	Dense	Slightly moist
10	1	R		**Bedrock:**			
				10': Siltstone/claystone, closely spaced gypsum, filled fractures, Bedding: N35°W 37°SW	Brownish yellow, yellowish red	Weak	Slightly moist
				13': Siltstone, abundant gypsum filled fractures, short discontinuous fractures randomly oriented	Reddish Brown	Very weak	Slightly moist
15				15': Siltstone, thinly bedded, highly deformed	Mottled white/brown	Very weak	Slightly moist
				18': Claystone, closely spaced fractures	Reddish Brown	Weak	Slightly moist
20	2	R		20': Claystone, few gypsum filled fractures obeserved	Reddish brown	Moderately weak	Slightly moist
				22': Gypsum filled fractures becoming more abundant, closely spaced and randomly oriented			
25							
				27.4': Micaceous medium grained sandstone, oxidized, fractured, extending to ~29', irregular conact	Whitish tan	Hard	Slightly moist
30	5	R		30': Very fine grained siltstone, gypsum filled fractures, Shear plane: N12°E 44°E, clay with siltstone fragments	Mottled black and tan, olive gray	Very weak	Moist
				32': Claystone, closely spaced gypsum filled fractures, Fracture: N33°E 71°SE	Reddish brown	Moderately weak	Slightly moist
				33.5': Claystone/shale, randomly oriented polished shear surfaces, petroliferous	Black	Moderately weak	Slightly moist
35							
				39': Shale, petroliferous	Black	Hard	
40	11	R		40': Shale, highly fractured, polished shear surfaces	Black		Slightly moist

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Figure

LOG OF EXPLORATORY BORING

Job Number: 1992-75
Project: 25200 Pacific Coast Highway

Boring No: 9 (Continued)
Boring Location: See Site Map.

Date Performed: 11/2/2017

Drill Type: 24" Bucket Auger

Depth in Feet	Blows per 6"	Sample Type: Undisturbed	Sample Type: Bulk	Bedrock/ Soil Description	Color	Density	Moisture
40				42.5': Active seep 43.2': Active seep 44': Active seep			Wet
45				47': Shale, petroliferous	Black	Moderately strong	Moist
50	13	R		50': Shale, petroliferous, closley spaced fractures with randomly oriented shear surfaced	Black to brown black	Hard	Moist
55				54': Shale, petroliferous, fractured	Greenish Black	Hard	Moist
60	10	R		60': Shale, petroliferous, sheared and fractured End At 60', Seeps Begin ~42', ~2-4" Water At Bottom, No Caving	Black		Wet
65							
70							
75							
80							

Feffer Geological Consulting

Figure

ROBERT STONE & ASSOCIATES GEOTECHNICAL

1962 AND 1968 BORING LOG SHOWS SLIDE

LOCATIONS AND SOILS DESCRIPTIVE OF SLIDE

MOVEMENT

29 PAGES

PCLC COMMENTS IN COLOR

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Log No. 1

SUB-SURFACE DATA

PROJECT: Community Bank

Logged by MER

Job No. 68-154

Method of Drilling: 24" Bucket-auger

Location: See Map 136

Date Observed: 4/24/68

Ground Elevation:

Depth in Feet	Classification Unified Soil System	Symbol	Undisturbed Sample	Bulk Sample	Moisture Content %	In Place Dry Density lbs./cu.ft.	Description	Soil Test
				30.0	96		Brown SANDSTONE, blue gray SILTSTONE and CLAY SHALE and orange SILTSTONE interbeds (moist, slicked, soft-firm, intensely fractured)	(FM) Direct Shear Hydrometer
				20.6	95		Irregular discontinuous bedding, small slicked fault plane E-W 80°-85°S (limestone floater)	
5							Dark grey plastic CLAY (very moist, plastic, soft-firm) N65°E,28°NW	
							Merge to dark brown-black MUDSTONE (moist, intensely fractured, firm)	Direct Shear (FM)
10				25.5	87			
								Direct Shear (S)
15				25.5	92		Sample @ 15' contains streaks of green weathered glauconite SAND and some phosphatic pebbles. Approx. attitude @ 15' on trend of glauconite: N50°W,55°NE	
								Direct Shear (FM)
20				28.2	80		Hard, well cemented limey SANDSTONE bed @ 20'. Hard limestone @ bottom	
25							Total depth 23'. Stopped by hard rock.	
30								
35								

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SUB-SURFACE DATA

Log No. 1A

PROJECT: Community Bank

Method of Drilling: 24" Eucket-auger Logged by MER Job No. 68-154

Ground Elevation: Location: See Map 136 Date Observed: 4/24/68

Depth in Feet	Classification Unified Soil System	Symbol	Undisturbed Sample	Bulk Sample	Moisture Content %	In Place Dry Density lbs. cu. ft.	Description	Soil Test
0							6" Soil zone, brown SILT	
					4.6	99	Orange-tan, SAND with scattered gravel and cobbles (moist, medium dense)	
5							Hit boulders @ 2-2½'.	
							Total depth 2½'. Stopped by boulders @ 3' Relocated hole 15' west.	
10								
15								
20								
25								
30								
35								
40								

Robert Stone & Associates

Log No. 2

SUB-SURFACE DATA

PROJECT: Community Bank Job No. 68-154

Method of Drilling: 24" Bucket-auger Logged by MER Date Observed: 4/26/68

Ground Elevation: ..... Location: See Map 133.5

Depth in Feet	Classification Unified Soil System	Symbol	Undisturbed Sample	Bulk Sample	Moisture Content %	In Place Dry Density lbs. cu. ft.	Description	Soil Test
				17.1	86		Weathered MUDSTONE, brown and tan weathered, fractured limestone concretion (slightly moist,) Removed 18" fragment from hole	
							Probable bedding on base of concretion N60°E,40°NW	
5				29.3	86		Dark brown MUDSTONE (moist, weathered fractured)	
							Dark brown to black MUDSTONE (moist, slicked, intensely fractured but moderately hard) Occasional thin plastic clay seams in fractures (moist and soft)	(S) Direct Shear Consolidation
10				26.5	87			
15				18.7	100			
20							Dark brown to black MUDSTONE with thinly interbedded grey sandy SILTSTONE to silty SANDSTONE (moist, intensely fractured, brittle) Approx. bedding irregular @ 21': N55°W,25°NE	(S) Direct Shear Consolidation
25				24.2	86		Fault-joint plane @ 26':N80°E,65°NW	
30							33':N75°E,72°NW	
35				19.1	100			
							Total depth 36'. Seepage @ 26' in fracture zone. Some individual sloughing of fractured	

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SUB-SURFACE DATA

Log No. 3

PROJECT: Community Bank

Job No. 68-154

Method of Drilling: 24" Bucket-auger Logged by MER

Ground Elevation: Location: See Map 129.5 Date Observed: 4/26/68

Depth in Feet	Classification Unified Soil System Symbol	Undisturbed Sample	Bulk Sample	Moisture Content %	In Place Dry Density lbs/cu.ft.	Description	Soil Test
			27.6	82		MONTEREY FORMATION: Brown MUDSTONE with yellow weathered streaks, some fine gypsum crystals in fractures (moist, below 18", intensely fractured) Bedding @ 2':N65°W,45°NW	Direct Shear (FM) (S)
5			21.9	88		Merge to dark brown to black MUDSTONE (moderately hard but intensely fractured, moist) many slick faces on cuttings Bedding indistinct Limestone concretion or floater @ 12'.	Direct Shear Hydrometer
10							
15			22.2	92		Seepage @ 15'. 16': Yellow irregular clay-silt bed N80°W,30°NE	(FM) Direct Shear
20						Stopped by hard limestone @ 17½'.	
25							
30							
35							

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SUB-SURFACE DATA

Log No. 4

PROJECT: Community Bank

Method of Drilling: 24" Bucket-auger Logged by MER Job No. 68-154

Ground Elevation: Location: See Map 106.5 Date Observed: 4/26/68

Depth in Feet	Classification Unified Soil System	Symbol	Undisturbed Sample	Bulk Sample	Moisture Content %	In Place Dry Density lbs cu. ft.	Description	Soil Test
0				29.2	75		Brown MUDSTONE (slightly moist to moist, intensely fractured, weathered)	
5							Limy SILTSTONE (fractured, hard, slightly moist)	
				23.3	86		Dark brown-black MUDSTONE (moist, intensely fractured-shiny faces)	Direct Shear (S)
10								
15				15.5	93			
20								
25				25.7	88			Direct Shear (S)
							29-30': Limestone concretion or floater	
30							33':Limestone	
35							Continued @ 35'.	
40								

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SUB-SURFACE DATA

Log No. 4 (continued)

PROJECT: Community Bank

Method of Drilling: 24" Bucket-auger Logged by MER Job No. 68-154

Ground Elevation: See Map 106.5 Location: Date Observed: 4/26/68

Depth in Feet	Classification Unified Soil System	Symbol	Undisturbed Sample	Bulk Sample	Moisture Content %	In Place Dry Density lbs cu. ft.	Description	Soil Tests
35				23.6	93		Same as before	
40							Limestone concretion on North side of hole 1' thick N67°W,18-20°NE Yellow waxy clay ½ - 1" thick	
45				26.9	83		Limestone ledge @ 48'.	
50							Total depth 49'. Stopped on hard rock. Seepage @ 7, 29, 33 and 44'. No caving.	
55								
60								

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SUB-SURFACE DATA

Log No. 5

PROJECT: Community Bank

Method of Drilling: 24" Bucket-auger Logged by MER Job No. 68-154

Ground Elevation: Location: See Map 91.5 Date Observed: 4/29/68

Depth in Feet	Classification Unified Soil System	Symbol	Undisturbed Sample	Bulk Sample	Moisture Content %	In Place Dry Density lbs. cu. ft.	Description	Soil Test
0							Red brown sandy CLAY with mudstone fragments (dry-slightly moist, loose-medium dense)	
					27.1	76		
5					22.9	89		
							Same but moist to very moist	
10					33.5	76	Increasing amount of dark grey-black mudstone fragments in fill with depth	
15					22.1	85		
20							Same but very moist-wet	
25					36.6	71		
30					44.1	77	Dark red brown with some black MUDSTONE (very moist, highly fractured) gypsum grains in fractures	(FM) Direct Shear Hydrometer
35					44.9	73		
40							Continued @ 40'.	

Robert Stone & Associates

SUB-SURFACE DATA

Log No. 5 (continued)

PROJECT: Community Bank

Method of Drilling: 24" Bucket-auger Logged by MER Job No. 68-154

Ground Elevation: Location: See Map Date Observed: 4/29/68

Depth in Feet	CLASSIFICATION Unified Soil System	SYMBOL	UNDISTURBED SAMPLE	BULK SAMPLE	MOISTURE CONTENT %	IN PLACE DRY DENSITY lbs. cu. ft.	Description	Soil Test
40				36.4	80			Direct Shear (FM)
							Same but black with rusty fracture surfaces and gypsum grains forming in fractures (wet on surfaces	
45				34.1	81			Direct Shear (FM)
50				23.7	88			
							Total depth 51'. Seepage @ 43' No caving.	
55								

SUB-SURFACE DATA

Log No: 6

PROJECT: Community Bank

Method of Drilling: 24" Bucket-auger Logged by MER Job No. 68-154

Ground Elevation: Location See Map 70 Date Observed: 4/29/68

Depth in Feet	Classification Unified Soil System	Symbol	Undisturbed Sample	Bulk Sample	Moisture Content %	In Place Dry Density lbs/cu. ft.	Description	Soil Tests
0				9.1	117		Red brown clayey SAND to sandy CLAY. Fill	
5	SC CL			15.2	115		Mottled grey, yellow and reddish brown clayey SAND and sandy CLAY with some pebbles - (clay or phosphate pebbles)	Direct Shear (S)
10				15.3	109		Same but very moist, locally more sandy with disoriented sandstone fragments. Primarily SAND below 9'.	Hydrometer Direct Shear (FM)
15	CH			33.6	79		Grey to tan mudstone with weathered glauconite sand grains. (moist, brittle, highly fractured). Slide Plane	Direct Shear (FM)
20							Dark brown to black mudstone Bedrock (moist, moderately hard drilling, brittle, highly fractured)	
25							Bottom at 19'. Stopped by hard rock-problem limestone. No groundwater-No caving.	
30								
35								
40								

SUB-SURFACE DATA

Log No: 6-A

PROJECT: Community Bank

Method of Drilling: 24" Bucket-auger Logged by MER Job No. 68-154

Ground Elevation: Location See Map 70.1 Date Observed: 4/30/68

Depth in Feet	CLASSIFICATION Unified Soil System	SYMBOL	UNDISTURBED SAMPLE	BULK SAMPLE	MOISTURE CONTENT %	IN PLACE DRY DENSITY lbs/cu. ft.	DESCRIPTION	SOIL TESTS
0	CH						Brown silty CLAY (slightly moist, firm) Fill.	
	CL						Dark grey black fractured mudstone Bedrock. (Monterey Formation)	
5	SC						Buff limy sandstone (moist, moderately hard, blocky, fractured and loose)	
10	CL						Dark brown-black mudstone (highly fractured, moist, loose)	
15	SC						Dark grey brown sandy SILTSTONE (moist, moderately hard, not as badly fractured as mudstone)	
20				26.6	91			
	CH						Dark brown-black mudstone (moist, highly fractured and slicked with some gypsum veining).	
25				29.0	84			
							Seepage at 27'	
	SC						Dark grey-black siltstone with thin lenses and streaks of grey SAND (wet)	
30				15.7	109		to greenish grey sandy SILTSTONE Caving at 28'-30'.	
	CL						Generally black mudstone (highly sheared, wet, brittle) locally merges to siltstone and sandy siltstone.	
35				31.6	80			
40				33.9	78		Dark brown-black mudstone-sheared	
45				33.9	79		Dark brown mudstone	
							Base of weathered zone	
							Continued @ 50'.	

Robert Stone & Associates

SUB-SURFACE DATA

Log No: 6-A Continued

PROJECT: Community Bank

Method of Drilling: 24" Bucket-auger Logged by MER Job No. 68-154

Ground Elevation: Location See Map Date Observed: 4/30/68

Depth in Feet	CLASSIFICATION Unified Soil System	SYMBOL	UNDISTURBED SAMPLE	BULK SAMPLE	MOISTURE CONTENT %	IN PLACE DRY DENSITY lbs/cu. ft.	DESCRIPTION	SOIL TESTS
50	SC CL			13.2	118		Black clay with light blue SILT-SAND-TUFF (sugary) interbeds (very moist, moderately hard) Some slicked clay @ 51-52'. poss slide base 18'	Mech. Analyse Atterberg Lim Hydrometer
55				13.9	121		Merge to predominantly light blue grey sandstone with some clay (very moist, moderately tight)	
60							Stopped @ 57' in firm grey bedrock Groundwater level @ 29 to 31'. 30' 8" after standing over night Caving-mucking at intervals between 29 and 34'.	
65								

Pelton Shaw & Associates

SUB-SURFACE DATA

Log No: 7

PROJECT: Community Bank

Method of Drilling: 24" Bucket-auger Logged by MER Job No. 68-154

Ground Elevation: Location See Map 66' Date Observed: 4/30/68

Depth in Feet	Classification Unified Soil System	Symbol	Undisturbed Sample	Bulk Sample	Moisture Content %	In Place Dry Density lbs/cu. ft.	Description	Soil Tests
0	SC						Interbedded or mixed clayey SILTSTONE and SANDSTONE to silty fine grained SANDSTONE. colors grey, buff, orange, yellow (moist-very moist, firm)	
5				22.6	100		6'- orange sandstone with some clay pockets.	
							9'- plastic clay	
10				26.2	94			
	SC						Buff limey sandstone and siltstone with interbeds of dark brown mudstone (slightly moist-moist, brittle, fractured)	
15	CL						Dark brown mudstone (very moist, highly fractured)	
							Seepage 16'-18.5'.	(FN Direct Shear
20				19.5	101			
	SC						Green black glauconite SAND, clayey (very moist, moderately hard)	
	CH						Black MUDSTONE and CLAY (very moist, slightly fractured)	
25				22.1	93		fine pyrite crystals in sample	
	CH						Black mudstone interbedded with light blue grey SAND (very moist, moderately hard)	
				7.9	131			
30	CH			18.7	108		Dark grey CLAY (plastic, very moist, firm) with pockets and/or interbeds of blue grey SAND and SILT.	
							Stopped by hard grey sandstone. Water @ 16'. No caving.	
35								
40								
45								

Robert Stone & Associates

SUB-SURFACE DATA

Log No: 8

PROJECT: Community Bank

Method of Drilling: 24" Bucket-auger Logged by MER Job No. 68-154

Ground Elevation: Location See Map 31 Date Observed: 4/30/68

Depth in Feet	Classification Unified Soil System	Symbol	Undisturbed Sample	Bulk Sample	Moisture Content %	In Place Dry Density lbs/cu. ft.	Description	Soil Tests
0	SC CL						Reddish brown sandy CLAY (slightly moist 0-2', moist 2') contains scattered limestone fragments Fill.	
5					26.9	73		Direct Shear (S)
10	CH				35.0	82	Brown silty CLAY Fill.	
15	SC CL				42.1	74	Brown limy siltstone rock fragments (slightly moist-moist-loose) Some gypsum salts on fractures	Direct Shear (S)
							Brown-red brown clayey mudstone (moist, highly fractured)	
20	SC CL				32.1	86	Limy SILTSTONE (fractured, moist)	Direct Shear (FM)
	CL						Dark brown-black mudstone (moist-wet, brittle, highly fractured)	
25	CH				36.5	76	Black mudstone	Direct Shear (S)
30							hard rock on No. side of hole- limestone.	
35	SC CL				27.9 16.2	82 102	Interbedded or mixed dark grey CLAY and light blue grey SAND Probable slide plane in this interval	Direct Shear (FM) Direct Shear (FM)
40	SC CL				22.2	101	Merge to predominantly light blue grey SANDSTONE (moist, moderately hard) occasional clay lense. Light blue grey SANDSTONE-fine grained to medium grained (moist, mod. hard) Locally merges to siltstone and clayey siltstone.	
45								

SUB-SURFACE DATA

Log No: 8 Continued

PROJECT: Community Bank

Method of Drilling: 24" Bucket-auger Logged by: MER Job No. 68-154

Ground Elevation: Location: See Map Date Observed: 5/1/68

Depth in Feet	CLASSIFICATION Unified Soil System	SYMBOL	UNDISTURBED SAMPLE	BULK SAMPLE	MOISTURE CONTENT %	IN PLACE DRY DENSITY lbs/cu. ft.	DESCRIPTION	SOIL TESTS
50	SC CL				6.8	125		
55							Bottom @ 53'. No seepage. No caving.	

Robert Stone & Associates

SUB-SURFACE DATA

Log No: 9

PROJECT: Community Bank

Method of Drilling: 24" Bucket-auger Logged by MER Job No. 68-154

Ground Elevation: Location See Map 61 Date Observed: 5/1/68

Depth in Feet	Classification Unified Soil System	Symbol	Undisturbed Sample	Bulk Sample	Moisture Content %	In Place Dry Density lbs/cu. ft.	Description	Soil Tests
0							Red brown sandy CLAY with occasional rock fragments. Fill.	
5				23.9	98			Direct Shear
10				7.3	92		Merge to red brown silty CLAY with scattered siltstone fragments showing bedding-mixed up Bedrock.	(FM)
15				41.6	69		Buff limy siltstone-red all broken up	Direct Shear Slide Plane
							poss slide plane 45'	
							Buff crushed and rolled limey siltstone All broken up.	
20				47.3	67		Dark brown-red brown mudstone (highly fractured, moist, brittle)	
							Same but black, highly fractured-sheared. Seepage at 23'.	
25				26.9	84			
							Dark grey-black limy and silicious SILT-STONE (wet, very hard pieces, highly fractured)	
30							Seepage	
							Black mudstone (slightly moist, mod. hard, slicks not prominent)	
35							Bottom @ 35' on hard limestone rock Seepage as noted. No caving.	
40								
45								

Robert Stone & Associates

SUB-SURFACE DATA

Log No. 10

PROJECT: Community Bank

Method of Drilling: 24" Bucket-auger Logged by MER Job No. 68-154

Ground Elevation: See Map Location: 133.5 Date Observed: 5/7/68

Depth in Feet	Classification Unified Soil System	Symbol	Undisturbed Sample	Bulk Sample	Moisture Content %	In Place Dry Density lbs. cu. ft.	Description	Soil Test
0							TOPSOIL or FILL: Reddish brown silty SAND (moist, loose)	
				8.2	100		Light reddish tan SAND with sparsely scattered gravel (very moist-wet, loose-medium dense) Lamination in SAND: N65°E, 13°SE	
5				7.3	94			
							Contact N-S, 25°W	
10							Grey, yellow, orange MUDSTONE, SHALE (very moist, soft) Some slicked clays in cuttings 12-14'.	
15				54.2	68			
							Slightly darker-more brown in color, drills firmer	
20				50.1	61		Approx.: N30°W, 25°NE	
25							Black MUDSTONE (moist, highly fractured)	
30				30.0	80		Possible slide plane slide at 95.5'	Direct Shear (FM)
35				27.9	82			
				16.2	102		Fractured but hard and tight below 38'.	
40							Continued @ 40'.	

Robert Stone & Associates

SUB-SURFACE DATA

Log No. 10 (continued)

PROJECT: Community Bank

Method of Drilling: 24" Bucket-auger Logged by MER Job No. 68-154

Ground Elevation: Location: See Map 133.5' Date Observed: 5/8/68

Depth in Feet	Classification Unified Soil System	Symbol	Undisturbed Sample	Bulk Sample	Moisture Content %	In Place Dry Density lbs. cu. ft.	Description	Soil Test
40							Dark grey MUDSTONE (hard, tight, fractured)	
							Trend on phosphatic pebbles N20°W,70°NE	
45					22.8	81		
							Total depth 46'.	
							Some caving in terrace @ 5-10'.	
							Seepage @ 34'.	
							Probable slide plane @ 33-34'.	
50							Refusal @ 46½'.	
55								
60								

Robert Stone & Associates

SUB-SURFACE DATA

Log No. 11

PROJECT: Community Bank

Method of Drilling: 24" Bucket-auger Logged by MER Job No. 68-154

Ground Elevation: Location: See Map 137 Date Observed: 5/8/68

Depth in Feet	Classification Unified Soil System	Symbol	Undisturbed Sample	Bulk Sample	Moisture Content %	In Place Dry Density lbs cu. ft.	Description	Soil Test
0							FILL: Brown to yellow brown CLAY with shale fragments (dry, loose-medium dense)	
5					9.8	109	Red brown clayey SAND to silty SAND (moist-very moist, medium dense)	
10					9.5	117	Red brown sandy CLAY with shale fragments (very moist, firm)	
15								
20					14.6	112	TERRACE DEPOSITS: Red brown clayey SAND (slightly moist-moist, medium dense) porous	
25					8.7	101	Slightly porous, moist	
30								
35					12.3	117		
40							continued @ 35'.	

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SUB-SURFACE DATA

Log No. 11 (continued)

PROJECT: Community Bank

Method of Drilling: 24" Bucket-auger Logged by MER Job No. 68-154

Ground Elevation: Location: See Map Date Observed: 5/8/68

Depth in Feet	CLASSIFICATION Unified Soil System	SYMBOL	UNDISTURBED SAMPLE	BULK SAMPLE	MOISTURE CONTENT %	IN PLACE DRY DENSITY lbs cu. ft.	Description	Soil Test
35							Same as before	
40				43.2	74		MONTEREY FORMATION: Yellow, tan, white CLAY, SHALE, MUDSTONE, brown, light grey (very moist, soft-firm) Slicked white clay-waxy-thin ¼"± Contact @ 40½':N50°E,9-12°SE ½" clay bed @ 42½':N45°W,30°NE ¼" clay bed @ 49':N50°W,33°NE slicked clay 96.5	Direct Shear (FM) Hydrometer
45							Slicked grey clay-thin	
50				41.6	72		Dark brown and black MUDSTONE (moist, medium hard, fractured, some gypsum veins)	
55				32.4	76		Limey siltstone bed	
60							Total depth 58'. No ground water, no caving.	
65								

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SUB-SURFACE DATA

Log No. 12

PROJECT: Community Bank

Method of Drilling: 24" Bucket-auger Logged by MER Job No. 68-154

Ground Elevation: Location: See Map 115' Date Observed: 5/8/68

Depth in Feet	Classification Unified Soil System	Symbol	Undisturbed Sample	Bulk Sample	Moisture Content %	In Place Dry Density lbs./cu. ft.	Description	Soil Test
0							FILL: Layers of silty SAND scattered gravel (dry on top to moist and medium dense below)	
5					9.4	111		
10								
15					18.9	109	FILL: Red brown, brown and black sandy silty and organic CLAY layers with occasional clayey sand layers (moist to very moist, soft to firm)	
20					19.5	108		
25					20.1	100	Very moist	
30					17.5	110	Black organic CLAY (very moist) merges to dark brown	
35								
40					20.1	104	Black organic clay Continued @ 40'.	

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SUB-SURFACE DATA

Log No. 12 (continued)

PROJECT: Community Bank

Method of Drilling: 24" Bucket-auger Logged by MER Job No. 68-154

Ground Elevation: Location: See Map Date Observed: 5/9/68

Depth in Feet	CLASSIFICATION Unified Soil System	SYMBOL	UNDISTURBED SAMPLE	BULK SAMPLE	MOISTURE CONTENT %	IN PLACE DRY DENSITY lbs. cu. ft.	Description	Soil Test
40							Dark brown-black silty, sandy and organic CLAY	
45			▮▮▮▮		18.8	103		
50							Total depth @ 47½' Slight seepage below 26'. No caving.	
55								

Robert Stone & Associates

SUB-SURFACE DATA

Log No. 13

PROJECT: Community Bank

Method of Drilling: 24" Bucket-auger Logged by MER Job No. 68-154

Ground Elevation: Location: See Map 111 Date Observed: 5/9/68

Depth in Feet	Classification Unified Soil System	Symbol	Undisturbed Sample	Bulk Sample	Moisture Content %	In Place Dry Density lbs cu. ft.	Description	Soil Test
0							FILL: Light brown orange silty and clayey fine/medium SAND, dry loose to 18" (moist and loose below)	
5					19.8	99	Base of clay bed N75°E,11°NW Loose sand pocket laminated sands east side	
							TERRACE DEPOSITS: Silty SAND to sandy CLAY	
10					15.9	113	Grey and red brown sandy CLAY (very moist, firm)	
							Grey and red brown clayey SAND (moist-very moist, medium dense)	
15					12.2	109		
							Grey and red brown slightly clayey to silty SAND (very moist, medium dense)	
20							SAND and COBBLES	
							21': Contact N30°E,20-25°SE	
					29.8	73	Dark brown MUDSTONE with gypsum veins (slightly moist, highly fractured)	
25							25': Open fracture zone, open to 1" Approx. attitude:N15°W,60°NE	
30					31.1	70	Same but hard	
35							Continued @ 40'.	
40								

contact 90. south dipping

Robert Stone & Associates

SUB-SURFACE DATA

Log No. 13 (continued)

PROJECT: Community Bank

Method of Drilling: 24" Bucket-auger Logged by MER Job No. 68-154

Ground Elevation: Location: See Map Date Observed: 5/9/68

Depth in Feet	Classification Unified Soil System	Symbol	Undisturbed Sample	Bulk Sample	Moisture Content %	In Place Dry Density lbs. cu. ft.	Description	Soil Test
40				21.7	90		Black MUDSTONE (slightly moist, fractured, some slicken side fragments brittle) Approx. attitude: N60°W, 55°NE	
45				29.0	79			
50							Total depth @ 48½'. No ground water, no caving Some open fractures, hole has gas.	
55								

Robert Stone & Associates

SUB-SURFACE DATA

Log No. 14

PROJECT: Community Bank

Method of Drilling: 24" Bucket-auger Logged by MER Job No. 68-154

Ground Elevation: Location: See Map 61' Date Observed: 5/14/68

Depth in Feet	Classification Unified Soil System	Symbol	Undisturbed Sample	Bulk Sample	Moisture Content %	In Place Dry Density lbs. cu. ft.	Description	Soil Test
0							FILL: Dry brown silty CLAY with limey siltstone fragments 1-2'.	
5				13.9	120		Red brown silty CLAY with mudstone fragments (moist-very moist, stiff)	
10				60.5	61		MONTEREY FORMATION: Red brown MUDSTONE with gypsum veining and salts (slightly moist 10-12' to very moist highly fractured, highly weathered)	
15							15½': Possible slide plane N45°W,20-25°SW slide 46.5	
20				23.5	91		Dark brown-black MUDSTONE (moist, highly fractured, drills harder, less oxidized with depth) 21': slight seepage strong sulferous odor	Direct Shear (S)
25							Grey limey SILTSTONE (wet, hard, highly fractured, drills like crushed rock or gravel)	
30				27.3	83		Black MUDSTONE (moist, highly fractured and sheared, moderately hard)	Direct Shear (S)
35							Total depth 41'. No caving - seepage below 21'.	
40				12.7	113			

Robert Stone & Associates

SUB-SURFACE DATA

Log No. 15

PROJECT: Community Bank

Method of Drilling: 24" Bucket-auger Logged by MER Job No. 68-154

Ground Elevation: 60' Location: See Map Date Observed: 5/14/68

Depth in Feet	Classification Unified Soil System	Symbol	Undisturbed Sample	Bulk Sample	Moisture Content %	In Place Dry Density lbs cu. ft.	Description	Soil Test
0							FILL: Red brown sandy CLAY with scattered rock fragments (moist-very moist, stiff)	
5		▮▮▮▮▮		18.4	110			
10								
15		▮▮▮▮▮		43.0	68		MONTEREY FORMATION: Red brown MUDSTONE (slightly moist, highly oxidized, highly fractured, gypsum streaks)	
20							Merging to brown to black MUDSTONE (moist, highly fractured) Approx. N80°E,10°S, Possible slide plane slide at 38'	
25		▮▮▮▮▮					Slicked clay zone	Direct Shear (FM)
30								
35		▮▮▮▮▮		28.9	79		Attitude on slicks on rock N60°W,40°N Crushed slick rock zone	
40							Total depth 39' on hard rock. Seepage water @ 23'.	

Robert Stone & Associates

SUB-SURFACE DATA

Log No. 16

PROJECT: Community Bank

Method of Drilling: 24" Bucket-auger Logged by MER Job No. 68-154

Ground Elevation: Location: See Map 57' Date Observed: 5/14/69

Depth in Feet	CLASSIFICATION Unified Soil System	SYMBOL	UNDISTURBED SAMPLE	BULK SAMPLE	MOISTURE CONTENT %	IN PLACE DRY DENSITY lbs cu. ft.	Description	Soil Test
0							FILL: Red brown silty sandy CLAY with MUDSTONE fragments (moist, firm-stiff)	
5							Red brown MUDSTONE (highly fractured, highly oxidized, slightly moist, crumbly) Irregular contact, generally horizontal. 8': Possible slide plane, highly weathered N65°W, 40°SW slide at 49'	
10		▮▮▮▮			30.7	83	Same but darker brown - gypsum veining and salts	
15							Streaked brown and black mudstone Probable slide plane @ 15½' N18°E,35°SE slide at 41.5	
20		▮▮▮▮			27.0	85	Same but black, firmer	
25							Total depth 22½'. Hit limey rock and hard shale	
30								
35								
40								

Robert Stone & Associates

SUB-SURFACE DATA

Log No. 17

PROJECT: Community Bank

Method of Drilling: 24" Bucket-auger Logged by MER Job No. 68-154

Ground Elevation: Location: See Map 24.5 Date Observed: 5/15/68

Depth in Feet	Classification Unified Soil System	Symbol	Undisturbed Sample	Bulk Sample	Moisture Content %	In Place Dry Density lbs cu. ft.	Description	Soil Test
0							Brown silty SAND on surface	
							MONTEREY FORMATION: Brown MUDSTONE with SAND pockets (moist-very moist, slicked fractured)	
5				20.7	100		Yellow SANDSTONE	
				20.1	99		Mixed blue grey SANDSTONE and black merging to blue grey CLAY and MUDSTONE (moist)	
10				8.2	127		12½': Fairly continuous undulating slick plane. Approx. N68°E,35°SE	Direct Shear (FM)
				17.5	109		slide at 8.5	
15							16': Irregular clay bed, irregular glauconite bed. Approx. E-W, 15-20°S	
							18': Pinched out clay bed, possible bedding N35°W,30°NE	
20				14.7	118		20': N30°W,45°NE	
				19.0	110		24': Distorted clay bed Approx: N50°W,30-40°NE	
25				10.9	113			
30							Total depth 30'. No caving - seepage below 6'.	
35								
40								

Robert Stone & Associates

SUB-SURFACE DATA

Log No. 18

PROJECT: Community Bank

Method of Drilling: 24" Bucket-auger Logged by MER Job No. 68-154

Ground Elevation: Location: See Map 31.4 Date Observed: 5/15/68

Depth in Feet	CLASSIFICATION Unified Soil System	SYMBOL	UNDISTURBED SAMPLE	BULK SAMPLE	MOISTURE CONTENT %	IN PLACE DRY DENSITY lbs. cu. ft.	Description	Soil Test
0							Yellow brown and grey brown MUDSTONE, CLAY and some SANDSTONE (moist, fractured, oxidized	
5					12.5	110	South side open fractured limey rock 11½':N65°W,50°NE	
10					33.8	86	Grey and black MUDSTONE, CLAY, micaceous SILTSTONE with occasional green glauconite rich zones (moist, soft-firm bedrock, locally slicked and fractured) poss slide at 20.4	
15					14.4	111	15-16': Thin black micaceous bedding and grey SAND N40°W,60°NE	
20					22.1	107	Approx. bedding - vague: N70°W,48°NE	Direct Shear (FM)
25					17.3	109		Direct Shear (FM)
30							Total depth 26'. Water table @ 8', no caving.	
35								
40								

Robert Stone & Associates

SUB-SURFACE DATA

Log No. 19

PROJECT: Community Bank

Method of Drilling: 24" Bucket-auger Logged by PE Job No. 68-154

Ground Elevation: Location: See Map Date Observed: 6/17/68

Depth in Feet	CLASSIFICATION Unified Soil System	SYMBOL	UNDISTURBED SAMPLE	BULK SAMPLE	MOISTURE CONTENT %	IN PLACE DRY DENSITY lbs. cu. ft.	Description	Soil Test
0							FILL: Gravelly, clayey SAND, dry	
							MONTEREY FORMATION: Mudstone; reddish-brown with abundant gypsum veins near top grading into black without gypsum at about 8'; fractured but firm; not plastic; hard below about 10'.	
5							8': fault N60°E,25°NW	
10							11½': top of seeps; numerous seeps to bottom of hole	
							Intensely slicked but not plastic	
15							Slickensides common to bottom of hole.	
20							2 inch gray SANDSTONE bed oriented N45°W,35°NE	
25								
30							Intensely slickensided	
35							Total depth 34'. Unable to make progress due to hard mudstone.	
40								

LEIGHTON BORING LOGS SAMPLE SHOWLS LEVEL OF DETAIL NOT SHOWN IN FEFFER LOGS (THIS LOG IS NOT OF 25200 PCH, SHOWS NO GAPS SUCH AS THE FEFFER BORING LOG) SHOWS STANDARD OF CARE

GEOTECHNICAL BORING LOG

DATE 6-1-79 DRILL HOLE NO. 1 SHEET 1 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 1600lbs(0-25') 800lbs(25-50') DROP 12

ELEVATION TOP OF HOLE 58 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
0								FILL: Brown silt, slightly clayey and sandy, abundant pebble and cobble size rock and siltstone fragments, stiff, dry to damp.
5	af		① 1	2	108.1	18.5	CL	@4' Becomes moist and more clayey.
10								Small boulder @ 8', becomes very moist @ 9' Very moist to wet, dark brown.
								@13' OLD SOIL: Transition to weathered silty clay.
15			② 2	2	91.7	28.6	CL	@ 15.5' SILTSTONE: highly weathered and sheared, numerous randomly oriented gypsum stringers; Reddish brown to black, stiff, but loose and crumbly, damp. 12" long concretion.
		gypsum seam N82W, 49 SW						
			③ 3	4	66.9	37.8	ML	@19' Alternating highly weathered and sheared, clayey siltstone, and less clayey, sheared, siliceous siltstone; very poorly bedded to massive. Local 10" offset on SE dipping shears, with the SW side down. @21' 12" thick, highly fractured concretionary layer. @22.5' Clay lined rupture zone, 6-10" thick. Below, a concretionary layer.
20		generalized B?: N55-65W, 15-25SW						
		R: N82W, 85W						slide at 36.5
25			④ 4	12	82.5	24.4	ML	@27' Black, unoxidized clayey siltstone, highly sheared into 1/4" to 3/4" thick pieces, very brittle and crumbly, moist to damp, very strong H_2S odor. @27.5' Free H_2O
30								

FILL

ANCIENT SLIDE

505A(11/77)

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 I

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 surfaces, very strong odor. Shearing dips northerly.
50		(6-25-79)	7	24	85.2	25.9	CL	@49' Concretionary layer. Below, still very sheared siltstone. Walls belled due to caving.
		caving and standing H_2O (6-14-79)						(Down hole logged to 52', water standing at 53.5'; Hole caved to 54', 6-14-79)
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)					BEDROCK
								T.D. 60.5' Downhole logged to 52' Seepage at 32.2'; Standing water at 53.5' and Hole caved to 54' by 6-14-79; Standing H_2O @ 50 and caved to 51' by 6-25-79.

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GEOTECHNICAL BORING LOG

DATE 6-1-79 DRILL HOLE NO. 2 SHEET 1 OF 3

PROJECT Puerco Cyn Slide Study - Malibu PROJECT NO. 178250-01

DRILLING CO. Tri-Valley TYPE OF RIG Bucket Auger

HOLE DIAMETER 24" DRIVE WEIGHT 1600lbs(0-25')800lbs(25-50')1100lbs(50'+) DROP 12 "

ELEVATION TOP OF HOLE ~~664'~~ 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
0								FILL: brown sandy silt, slightly clayey, damp, scattered pebbles and cobbles.
5	af		①				FILL	
		generalized C: N45-55E, 35-45SE	1	3	65.3	36.4	CL	@8.4' Calcareous siltstone concretion, fractured on 1/2-3" spacings, traces of gypsum, and 1/8" thick caliche linings on fractures. Rusty brown clay rich siltstone, finely brecciated to maximum piece size of 3/4", massive, abundant gypsum, stringers and pods of jarosite.
10		generalized shearing d.45°SE						@12' Shearing appears to be SE dipping.
		For R: N72W, 38NE	2	11	103.0	17.9	CL	@15' Rupture surface or fault, clay laced with caliche stringers and pods; plastic, tan to rust, clay. Below, siliceous siltstone, locally brecciated and clay rich.
15								@16' Grades to unoxidized dark gray siltstone.
								@17' Hard, concretionary layer, very fractured, with Fe stain and abundant gypsum.
								@18' Reddish brown brecciated siltstone, as above.
20		For R: N70W, 31NE						
			3	4	67.6	49.8	CL	@21' 2-12" very moist to wet, plastic, tan to rust brown clay. Rupture surface or fault.
		(6-25-79)					ANCIENT SLIDE	
		▽(6-1-79)						@23' Traces of free water. Local randomly oriented clay seams.
25								@24' Seepage, while drilling. (Stopped drilling overnight, 0.5' water after 21hrs.)
								@24' Dark gray to black clayey siltstone, moist, stiff, but loose and crumbly, strong H_2S odor, very sheared.
								@26' Free water on all fracture surfaces.
								@27' Gray siliceous siltstone, highly fractured to finely brecciated, moist to wet with clay lined pods and stringers throughout.
		▽(6-13-79)						@28.5' Seepage, while logging.
30								

505A(11/77)

GEOTECHNICAL BORING LOG

DATE 6-2-79 DRILL HOLE NO. 2 SHEET 2 OF 3

PROJECT Puerco Cyn Slide Study - Malibu PROJECT NO. 178250-01

DRILLING CO. Tri-Valley TYPE OF RIG Bucket Auger

HOLE DIAMETER 24" DRIVE WEIGHT 1600lbs(0-25')800lbs(25-50')1100lbs(50'+) DROP 12 I

ELEVATION TOP OF HOLE 60' 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		caving and standing H_2O (6-13)	4	8	75.1	34.2	CL	ANCIENT SLIDE @31' Walls belled due to caving on 6-13-79. (Downhole logged to 33'; standing H_2O @ 34' and hole caved to 36.5', 6-13-79) ancinet slide to 29' (upper?)
35			5	17	120.1	13.1	ML	@35' Dark gray silty claystone, slightly plastic, fat, with 1/8"-1" thick light gray sandstone interbeds. Claystone is slightly sheared, but not brecciated. Probable basal rupture. @36' Light gray fine to coarse grained sandstone, dense, poorly cemented. @37.5' Dark gray fat claystone stiff, moist to damp, abundant clay shears ≈ 1/2" thick. @38' Light gray sandstone, dense.
40			(2)					BEDROCK
45			6	15	114.6	14.7		Sample has near vertical 1" thick black fat silty clay bed in gray sandstone.
50			chunk (3)					PROBABLE UNDISTURBED Scattered sheared clay beds in sandstone.
55			7	16	113.2	19.3	CL	@54' Dark gray fat clay, highly sheared, up to 1' thick; with minor sandstone, whitish green bentonitic clay, and fine grained pyrite associated. Rupture surface? Below interbedded light gray sandstone and gray silty claystone. posble basal surface 10'
60								@60' Very dense layer.

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GEOTECHNICAL BORING LOG

DATE 6-2-79 DRILL HOLE No. 2 SHEET 3 OF 3

PROJECT Puerco Cyn Slide Study - Malibu PROJECT No. 178250-01

DRILLING Co. Tri-Valley TYPE OF RIG Bucket Auger

HOLE DIAMETER 24" DRIVE WEIGHT 1600lbs (0-25') 800lbs (25-50') 1100lbs (50'+) DROP 12 "

ELEVATION TOP OF HOLE 60' REF. OR DATUM

LOGGED BY 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
60								Below, dense light gray sandstone with interbedded medium gray sheared claystone, waxy, greasy, stiff, damp.
								Grades to medium gray claystone.
			④					
			8	7	115.1	17.5	CL	@64' Minor seepage
65								@66' Hard cemented bed.
								PROBABLE UNDIST. BEDROCK
								T.D. 68.5'
								Seepage @ 24, 28.5' and 64'; Bottom of hole muddy after drilling; H_2O @ 34' and Hole caved to 36.6' by 6-13-79; H_2O @ 23.5' and hole caved to 29.5' by 6-25-79.
70								Down hole logged to 33'.
75								
80								
85								
90								

505A(11/77)

GEOTECHNICAL BORING LOG

DATE 6-1-79 DRILL HOLE NO. 3 SHEET 1 OF 3

PROJECT Puerco Cyn. Slide Study - Malibu PROJECT NO. 178250-01

DRILLING CO Tri-Valley TYPE OF RIG Bucket Auger

HOLE DIAMETER 24" DRIVE WEIGHT 1600lbs(0-25') 800lbs(25-45') 1100lbs(45'+) DROP 12 I:

ELEVATION TOP OF HOLE 63' 67' 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
0							FILL	FILL: Brown silt, dry and loose to moist and loose.
								@ 2' Brown silty clay, dry, loose, crumbly, with jarosite; old soil.
5								@5.2' 24" diameter, Very fractured siltstone block, with gypsum, surrounded by soil.
								@6' Grades to weathered siltstone, reddish brown, siliceous, stiff, but loose and crumbly, dry to moist, with gypsum and jarosite coatings on shear surfaces.
		contact N21W, 31-42NE	1	1	disturbed	26.4	SP	@9' Siltstone finely brecciated, maximum 1" size pieces, very friable, locally slightly clayey.
10								@9.8' rust brown, non-siliceous, silty clay, totally sheared, with caliche pods and occasional siliceous siltstone chips.
		sloughing N wall						@11.3' Dark brown silt, with abundant caliche stringers, very moist.
								@13' Highly sheared silty clay, no bedding, occasional pods of silty very fine sand, up to 3" thick.
								@13.6' Numerous siliceous Slt chips.
15		Contact N65E, 25 SE	2	6	72.6	43.6	CL	@14.3' Traces of free water, caliche zones to 1" thick, and occasional caliche pods to 3" diameter.
							SLIDE	@14.7' Free water on NW half of hole.
								@15' Strong odor; highly sheared siliceous siltstone, locally weathered silty clay, gray unoxidized appearance.
								@16' Reddish oily looking material seeping on west side of hole.
								@16.3' 2-4" thick sheared clay, discontinuous, on east wall only; west side highly sheared siltstone.
								@16.8' Occasional 3-4" diameter pods of silty clay
20								@18.5' Very wet, fat, sheared clay, approx. 4" thick, on west wall only; Very clayey siliceous slt to 21'.
								@19' Seepage.
								(downhole logged to 21.5'; standing H_2O @ 23')
		(6-13-79)						@21' Hard, greenish black volcanic breccia. Below, black clayey siltstone, with cemented or altered layers.
25			chunk (1)				ANCIENT	upper ? 41'
								@ 26' Black fat clay, sheared; possible rupture.
			3	32	112.7	17.3	CL	Sample, black siltstone with light gray sandstone lenses.
								@28' light gray Sandstone
30								

SOSA(11/77)

GEOTECHNICAL BORING LOG

DATE 6-1-79 DRILL HOLE NO. 3 SHEET 2 OF 3

PROJECT Puerco Cyn Slide Study - Malibu PROJECT NO. 178250-01

DRILLING CO. Tri-Valley TYPE OF RIG Bucket Auger

HOLE DIAMETER 24" DRIVE WEIGHT 1600lbs (0-25') 800lbs (25-45') 1100lbs (45-54') DROP 12 "

ELEVATION TOP OF HOLE 63' 67 REF. OR DATUM

LOGGED BY 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								@30' Black fat clay, sheared, with brownish black silty brecciated clay associated; Possible rupture. @31' Very hard cemented siltstone layer. (Stopped drilling overnight, 3' of H₂O after 12 hours.) Concretion approximately 3' thick, took 3 hours coring to penetrate. Below, black clay stone. slide 32'
								ANCIENT SLIDE
		?		?		?		
35		▽ 6-1-79	4	16	107.8	22.8	ML	@34.5' ± Green to light gray bentonitic clay, moist; possible rupture?. Below light gray clayey sand, and dark gray clayey siltstone, with fine grained pyrite. Water flowing freely into hole @35', from south wall. Water will fill hole to 35' quickly, if left standing. Bucket very muddy to T.D.
40			5	18 for 9"	108.4	20.7	CL	Sample has alternating claystone, and sandstone beds, dip approximately 50-70°
45								@44' Black silty claystone, very moist, slightly plastic.
			6	9 no recovery in bottom 6 rings	106.6	28.4	CL	Sample, dark gray claystone and very clayey siltstone, very sheared, damp to moist, stiff to very stiff, slightly plastic. little or no light gray sandstone beds below 48'.
50								BEDROCK
55			7	22	114.6	16.5	CL	@55' Becomes very hard, changed to 18" bucket. Dark gray to black clayey siltstone, very stiff to hard, damp, with minor light gray to green claystone and clayey sand stone beds, ¼" to 2" thick. Bedding dips 45° ±; less sheared than above.
60								

505A(11/77)

GEOTECHNICAL BORING LOG

DATE 6-2-79 DRILL HOLE NO. 3 SHEET 3 OF 3

PROJECT Puerco Cyn Slide Study PROJECT NO. 178250-01

DRILLING CO. Tri-Valley TYPE OF RIG Bucket Auger

HOLE DIAMETER 24" DRIVE WEIGHT 1600lbs(0-25')800lbs(25-45')1100lbs(45'+) DROP 12 "

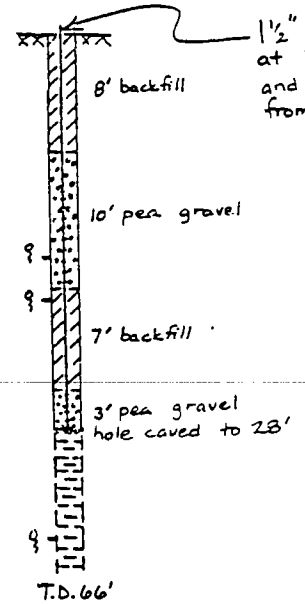
ELEVATION TOP OF HOLE 63' REF. OR DATUM

LOGGED BY 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
60								Clayey siltstone, as above.
65			8	11	114.7	18.7	CL	BEDROCK
								T.D. 66'
								Seepage @ 16' and 19'; Heavy flow @ 35'; sloughing @ 35'; muddy hole below 35'.
								Downhole logged to 21.5'.
70								Water standing @ 25.5', 6 days later.
								Water standing @ 23', caved to 33' T.D., 11 days later.
								Water standing @ 22', caved to 28' T.D, 23 days later.
75								
80								
85								
90								

PIEZOMETER Installation



505A(11/77)

GEOTECHNICAL BORING LOG

DATE 6-7-79 DRILL HOLE NO. 4 SHEET 1 OF 3

PROJECT Puerco Cyn Slide Study - Malibu PROJECT NO. 178250-01

DRILLING CO. Tri-Valley TYPE OF RIG Bixtet Auger

HOLE DIAMETER 24" DRIVE WEIGHT 2600lbs(0-23') 1600lbs(24-42') 800lbs(42'+) DROP 12 "

ELEVATION TOP OF HOLE 57'60' 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
0 (N)	af						FILL	FILL: Brown mottled dark brown and rust, slightly clayey silt, stiff, damp, porous, slightly sandy, with pebbles and cobbles.
5			1	1+tap	107.9	11.5	SC	
10			(1) 2	PUSH	84.6	26.4	CL	@6' Medium to dark brown silty clay, moderately stiff, non-porous, chips of silt and clst, caliche pods and stringers throughout, very moist, occasional roots and rootlets @ 7'; Colluvium/ Possible weathered Sltst. @7.5' 4" diameter concretion. @11' Roothairs in weathered soil.
15	R: N54E, 95E R: E-W, 19S		3	3	90.5	40.7	CL	@12' Transition to Siltstone; contact irregular but nearly horizontal; reddish brown, damp, crumbly; scattered small gypsum crystals. @13.3' Clay seam, rust to dark brown, plastic, sheared 5-10" thick overlying a concretionary layer; with abundant gypsum and grayish green to white bentonitic clay associated; Rupture Surface. Concretionary layer, 7" thick, irregular, fractured with tensional? cracks fill with plastic dark brown clay. @15' Very highly sheared siltstone, as above; abund. gypsum and caliche. @17' Generally South dipping shears, continuous around hole. @19' Traces of free water. @20' Shearing South dipping 30-50°; fractured concretion.
20	shear N34E, 33SE ? shear N43E, 21SE ?						SLIDE	@21' Siltstone becomes dark gray to black, unoxidized, very moist, very sheared, strong H_2S odor. @22' Seepage. @23' Sheared clay seam upper 37?
25	shear N65W, 90 shear d. 15-30S ?		4	8	81.1	30.0	CL	@24' Milky liquid seeping; locally hard calcareous cemented layers. @26' South dipping clay seam, approximately 2" thick. Also 1/8" clay lined vertical seams. @27' lg. concretions, maxium 20" diameter. Seepage.
30							ANCIENT	

GEOTECHNICAL BORING LOG

DATE 6-7-79 DRILL HOLE NO. 4 SHEET 2 OF 3

PROJECT Puerco Cyn Slide Study - Malibu PROJECT NO. 178250-01

DRILLING CO. Tri-Valley TYPE OF RIG Bucket Auger

HOLE DIAMETER 24" DRIVE WEIGHT 1600lbs(24-42') 800lbs(42'+) DROP 12 ft

ELEVATION TOP OF HOLE 57'60' REF. OR DATUM

LOGGED BY EC / TW

SAMPLED BY TW

DEPTH FEET (N / S)	GRAPHIC LOG	ATTITUDES	TUBE SAMPLE NO.	BLOWS PER FOOT	DRY DENSITY PCF	MOISTURE CONTENT, %	SOIL CLASS. (U.S.C.S.)	GEOTECHNICAL DESCRIPTION
30								@30' Shearing dips south @ 30-40°.
		R:N15E, 23 SE						@31.5' 3" thick sheared clay seam. Below, material is fresher and less clayey, but still finely brecciated.
		(6-25-79)						@32' 1-2" thick sheared clay, sub-parallel to seam above.
		R:N12E, 18SE						@34' 2" thick clay rupture.
35			5 (1s)	9	82.4	28.6	CL	@36.5' Rupture; 1' thick, dark gray, fat clay, damp, sheared with highly polished surfaces
		SE dipping						@38' Caving. slide 23.5
		caving and standing H2O (6-14-79)						(Downhole logged to 36.5'; Standing H2O @ 39', Caved to 44', 6-14-79.)
40								Below, light gray sandstone, clean, dense, with interbeds of dark gray silty claystone.
45			6	13	110.6	16.7	CL	
50								
								@54' large cemented concretionary layer. (used core bucket to penetrate.)
55			7	50 for 10"	124.0	11.0	CL	light gray, sandstone, silty, fine-grained, damp, dense; with 1/4-3" thick dark gray silty clay interbeds. Dip appears to be ≈ 60° in sample.
60								

ANCIENT SLIDE

BEDROCK

SOSA(11/77)

GEOTECHNICAL BORING LOG

DATE 6-7-79 DRILL HOLE NO. 4 SHEET 3 OF 3

PROJECT Puerco Cyn Slide Study - Malibu PROJECT NO. 178250-01

DRILLING CO. Tri-Valley TYPE OF RIG Bucket Auger

HOLE DIAMETER 24" DRIVE WEIGHT 800lbs (42'+) DROP 12 IN

ELEVATION TOP OF HOLE 57' 60' REF. OR DATUM

LOGGED BY 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
60								Sandstone and silty claystone, as above.
			8	44	132.4	7.3	ML	BEDROCK →
65								T.D. 64' Downhole logged to 36'. Seepage @ 22, 24, and 26'. No water on bottom of hole after drilling; H_2O @ 58' after 24 hours; H_2O @ 39' and hole caved to 44' by 6-14-79. H_2O @ 33' and hole caved to 37' by 6-25-79.
70								
75								
80								
85								
90								

505A(11/77)

GEOTECHNICAL BORING LOG

DATE 6-7-79 DRILL HOLE NO. 5 SHEET 1 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 2600lbs(0-23') 1600lbs(23'+) DROP 12 "

ELEVATION TOP OF HOLE 24' REF. OR DATUM off site west

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
0	af		①				FILL	FILL: Brown silt, dry to damp, stiff, porous, with abundant pebbles and siltstone chips. @ 3.5' Becomes dark red and clayey.
5			1	2	69.8	44.6	CL	@5' Transition zone; highly altered siltstone, reddish brown, moist, highly weathered, finely brecciated, 50% clay, relict silt textures, caliche pods and stringer to 8'
								@8' 50-75% plastic clay with silt chips and occasional pods of finely brecciated silt showing relict textures, dark brown to reddish brown to tan, very moist.
10		generalized B: N75W, 40-45SW; gnarled zone N80E, 40-50SE; R: N87W, 35-45SW	2	4	72.1	42.5	CL	@9' Steep irregular clay seam. @11' 1-2" thick gnarled zone, irregular; intersects with clay shear above on N wall.
								@12' Reddish brown finely brecciated clayey siltstone, moist, dense, highly sheared, caliche stringers and gypsum throughout.
								@13' Bentonitic clay seam, ½-2" thick, lt. grayish green to white. @14.6' Free water
15							ANCIENT SLIDE	@15' Grades to dark gray unoxidized siltstone, very sheared and brecciated; irregular randomly oriented bentonitic clay seams, ¼-½" thick. Strong H_2S smell. upper slide at 9
		▽ (6-25-79)		?		?		@18' High; sheared, locally clayey siltstone; clay content 30-80%, saturated. Seepage, while drilling. Possible base of slide.
20			3	1	83.1	34.4	CL	@21' Cemented silt or Ss blocks, 2-8" thick, N wall. @22' Bentonitic gnarled zone; below, Slt still very highly sheared, damp.
		▽ (6-13-79)						(Downhole logged to 23'±; standing H_2O @24' 6-13-79)
25							BEDROCK	@28' dark gray fat clay, plastic, medium stiff to stiff, moist, sheared and gouge, ≈ 1'th. Below lt gray sandstone, fine grained, damp, medium dense, w/ abundant sheared clay beds.
30								

505A(11/77)

GEOTECHNICAL BORING LOG

DATE 6-7-79 DRILL HOLE NO. 5 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 26001bs(0-23') 16001bs(24'+) DROP 12 IN.

ELEVATION TOP OF HOLE 24' REF. OR DATUM

LOGGED BY 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			(15) 4	10	115.6	16.0	CL	@30' 1/2-1' thick fat clay; solid, with continuous smooth polished surfaces in sample. Shear surfaces or bedding planes.
								ancient - 6'
								@31.5' Very dense; Sandstone becomes silty and locally laminated with clays.
							BEDROCK	@325' Dominantly clay with lt. gray sandstone.
35								T.D. 35'
								Down hole logged to 23'±. Seepage @ 18"; H_2O @ 24' and caved to 30'± by 6-13-79; H_2O @ 18' and caved to 26' by 6-25-79.

505A(11/77)

GEOTECHNICAL BORING LOG

DATE 6-7-79 DRILL HOLE No. 6 SHEET 1 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 26001bs(0-23') 16001bs(24'+) DROP 12 IN

ELEVATION TOP OF HOLE 22'25 REF. OR DATUM

LOGGED BY RL / 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
0	af							Asphalt @.5' FILL: Brown clay, moist, plastic, mixed with clayey sand, abundant siltstone chips, very jumbled.
			1	PUSH	91.2	30.3	CL	@4' Rusty brown and gray, soft, clayey sand, with soily clods & rounded pebbles; probably reworked Terrace.
5		C: N70W, 25,30NE						@5' Uniform yellowish rusty sand, with stringers of gray to tan soft clay, and abundant white specks. Clay stringers dip generally North. @6.5' Coarser rusty yellow sand with pebbles, pinches out on west side of hole.
			① 2	1	91.5	28.5	CL	@8' Brown and rusty yellowish silty clay; slight free water.
								@9.5' moderate seepage; slight caving, 6" zone of very fine gray sand. @9.7' dark gray plastic gougy clay; soft; well defined rupture surface.
10		R: N75E, 75E	chunk ②		upper slide 15'			Below, interbeds of light gray fine to medium grained sandstone, slightly silty; in dark gray, fat, sheared claystone.
		B: N20W, 25NE						@11' Joints, filled with fine grained pyrite. Fine grained sandstone, slightly clayey. @12.5' Increase in sand content, no bedding.
15								@14' Grades to a mixture of gray black silt & firm fine Ss. @14.5' Lense of brownish black material, looks carbonaceous.
			3	4	89.1	31.2	CL	@16-17' Free water on east wall, fine gray sand associated. Discontinuous sheared gray black soft clay at base. Below, dark gray clay mixed w/ fine light gray sand, tectonically sheared.
		C: N75W, 25-30SW						@19' Thick sand, gray, fine to medium; upper contact slightly irregular, dips SE. (No water in hole after 12 hrs, continued drilling 6-8) Increasing sand content with depth.
20								
		F: N80W, 75NE						@23' Cemented sandstone layer, 5't thick. @23.5' Coarser sand; minor fault down drops NE side of coarse sand contact.
25		B: N45W, 45NE	4	50	136.1	6.9	ML	@25' Medium grained sandstone under brownish black clayey siltstone.
								@28.5' Becoming silty and moist to damp. Brownish black silty clay with fine grained light gray sandstone.

RECENT SLIDE

BEDROCK

505A(11/77)

GEOTECHNICAL BORING LOG

DATE 6-8-79 DRILL HOLE NO. 6 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 26001bs (0-23') 16001bs (24'+) DROP 12 IN

ELEVATION TOP OF HOLE 22' REF. OR DATUM 25'

LOGGED BY RL / TW

SAMPLED BY TW

DEPTH FEET	GRAPHIC LOG (N / S)	ATTITUDES	TUBE SAMPLE NO.	BLOWS PER FOOT	DRY DENSITY PCF	MOISTURE CONTENT, %	SOIL CLASS. (U.S.C.S.)	GEOTECHNICAL DESCRIPTION
30							BEDROCK	@ 30' Dark gray fat clay interbeds, with greenish white sandy clay associated. @30.5' Concretionary nodules. @31.5' 3" wide zone of irregular soft clay seams dipping SE to S at 10-20°, discontinuous. Dark brown silty clay mixed with lt gray fine sand, fractured, no open fractures, no obvious bedding.
35			5	50	121.0	14.8	CL	Very hard concretion in tip of sample; pushed rings into waste barrel.
								T.D. 36' Downhole logged to T.D. on 6-8-79. Seepage @ 9.5' H_2O @ 34.5', and no caving by 6-25-79.
40								
45								
50								
55								
60								

ancinet slide 31

505A(11/77)

GEOTECHNICAL BORING LOG

DATE 6-8-79 DRILL HOLE No. 7 SHEET 1 OF 2

PROJECT Pierce Cyn Slide Study - Malibu PROJECT No. 178250-01

DRILLING CO Tri-Valley TYPE OF RIG Bucket Auger

HOLE DIAMETER 24" DRIVE WEIGHT 2600lbs(0-23') 1600lbs(24'+) DROP 12 IN

ELEVATION TOP OF HOLE 27' REF. OR DATUM 30'

LOGGED BY RL / 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
0	af		1					Asphalt @.5' Fill: mottled tan and brown clayey silty sand, abundant Slt chips, @1.5' Red brown clayey silty sand, moist; fairly sharp contact above, silty clay fragments on N wall. (reworked Qt ?)
			2					
5			1	PUSH	62.5	54.8	CL	@4' Grades to a mixture of gray rusty tan, mottled sandy clayey silt (slopewash ?) @5.5' Brown clayey silt with white caliche? streaks; somewhat dryer than above, with mottled tan and gray siltstone fragments. @6.5' Minor seepage.
10		B: N50W, 25-30SW						slide at 19' @11.2' Heavy caving 6-14-79. Hole belled to 4' diameter @11.5' Main zone of seepage on NE wall. 6" raveling zone above. Yellowish buff silicified layer above grades to dark brown very weathered siltstone below.
			3	2 3	101.7	11.5		
					76.6	35.2	CL	@13' Yellowish gray sandy siltstone. @13.5' Irregular concretionary zone. @14.0' Gray sheared fat silty clayst., interbedded with light gray silty sandstone, and sandy siltst.
15		B: N50W, 55NE						@15' Seepage with slight caving.
20		B: E-W, 60-65N		3 4	107.3	18.1	CL	Gray clayey siltstone, massive, slightly sheared; with lt gray sandstone and dark gray clay.
25								@25' Hard concretionary layer, 2-3" thick, with sheared greasy fat gray silty clay assoc.
30								@28' Very polished clay shears above a 1'± thick concretion layer. Below, dark gray, massive, clayey siltstone. basal. ?? @ 2'

RECENT SLIDE

BEDROCK

505A (11/77)

GEOTECHNICAL BORING LOG

DATE 6-8-79 DRILL HOLE NO. 7 SHEET 2 OF 2

PROJECT Pierce Cyn Slide Study - Malibu PROJECT NO. 178250-01

DRILLING CO. Tri-Valley TYPE OF RIG Bucket Auger

HOLE DIAMETER 24" DRIVE WEIGHT 1600 lbs (24'+) DROP 12 IN

ELEVATION TOP OF HOLE 27' REF. OR DATUM

DEPTH FEET	GRAPHIC LOG	ATTITUDES (N / S)	TUBE SAMPLE NO.	BLOWS PER FOOT	DRY DENSITY PCF	MOISTURE CONTENT, %	SOIL CLASS. (U.S.C.S.)	GEOTECHNICAL DESCRIPTION
30			4	9				LOGGED BY RL / TW SAMPLED BY TW Dark gray clayey siltstone, as above.
		B: N75E, 30NW					BEDROCK	
35								T.D. 35' Downhole logged to T.D. on 6-8-79. Seepage @ 6.5', 12'/15'; H_2O @ 14' and caved to 14.8' on 6-14-79; H_2O @ 12' and caved to 14' by 6-25-79. Water sample taken @ 12' for chemical analysis.
40								
45								
50								
55								
60								

505A(11/77)

GEOTECHNICAL BORING LOG

DATE 6-8-79 DRILL HOLE NO. 8 SHEET 1 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 26001bs(0-23') 16001bs(24'+) DROP 12 IN.

ELEVATION TOP OF HOLE 29' 32' REF. OR DATUM

LOGGED BY 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
0								@0' Brown clayey silt, w/ abundant siltstone fragments, some white caliche specks throughout; Old Colluvium and Slopewash. Possible Fill.
		(6-25-79) (6-14-79)	1					ANCIENT SLIDE
5								@4.5' Moderately heavy seepage. Grades to highly weathered Siltstone, reddish brown, highly sheared (very muddy)
								slide at 25'
								@7' Gray fat sheared clay; possible rupture. Below, light gray silty sandstone mixed with gray fat silty claystone, damp
			1	1	106.3	19.9	ML	
10								POSSIBLE OLDER SLIDE
15								@15' Becomes moist.
								@16' Very dense, silty fine grained sandstone bed, 2'+ thick.
								ancient slide 13'
20			2	2 for 5"	111.4	20.4	CL	@18' Mixed gray clayey siltst. and light gray silty fine grained sandstone.
								@19' Gray fat sheared clay interlayers.
								@21' dark gray clayey siltstone, massive.
25								@23' light gray, clean, silty fine grained sandstone, dense, moist to very moist, with minor silt lenses.
								BEDROCK
30								

505A(11/77)

GEOTECHNICAL BORING LOG

DATE 6-8-79 DRILL HOLE NO. 8 SHEET 2 OF 2

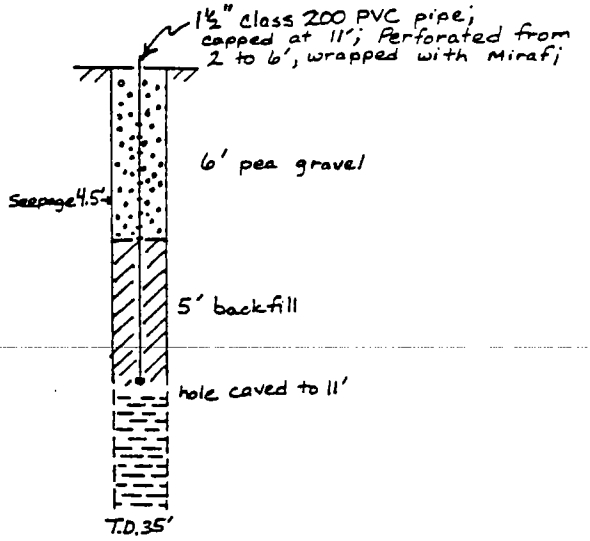
PROJECT Puerco Cyn Slide Study- Malibu PROJECT NO. 178250-01

DRILLING CO. Tri-Valley TYPE OF RIG Bucket Auger

HOLE DIAMETER 24" DRIVE WEIGHT 26001bs (0-23') 16001bs (24'+) DROP 12 IN

ELEVATION TOP OF HOLE 29' REF. OR DATUM

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			3	20	116.8 123.6	6.4 14.5	SM ML	LOGGED BY TW SAMPLED BY TW @31' Becomes siltier with depth, abundant clay beds or lenses, moist to wet.
35							BEDROCK	T.D. 35' Seepage @4.5' 2-3" H_2O after drilling; Standing H_2O @ 4' and Hole caved to T.D. of 12', 6-14-79; Standing H_2O @ 3.5' and caved to 11' by 6-25-79. Not downhole logged.
40								
45								PIEZOMETER INSTALLATION
50								
55								
60								



505A(11/77)

Received
08/11/25
Planning Div.

From: Beate
To: Planning Commission
Subject: Did anybody ck the height of Weintraub"s story poles for meeting???
Date: Saturday, August 9, 2025 5:24:43 PM

Illegal 11-ft walls, but also poles look higher than they were B4 the fires. We'll all be there on Monday the 18th!

--
The 5th World is the Age of Flowers ~ Mayan

All the Best, Beate Nilsen.
Malibu Rd

CC: Planning Commission, PD,

Recording Secretary, File

Date Received 08/11/25 Time 7:30 AM
Planning Commission meeting of 08/18/25
Agenda Item No. 4A
Total No. of Pages 1

Received
08/11/25
Planning Div.

From: Beate
To: Planning Commission
Subject: Re: Did anybody ck the height of Weintraub"s story poles for meeting???
Date: Sunday, August 10, 2025 8:24:25 AM

Re: Item 5A - 25200 PCH - CDP 19-012

Another thing, does it address 9.4D of the LIP? a VARIANCE for the factor of safety that EVERY new construction project that's over 10% in a landslide zone must apply for. This is a 100% brand-new project IN the Malibu Road Landslide Assessment District which is FINALLY noted in the current staff report, yet not one of the studies required by 9.4D were completed and which would show that the slope stability could not reach the required factor of safety of 1.5.

This was pointed out by Malibu Township Council over the weekend, but I've been writing to city since From: Beate [redacted]
Sent: Tuesday, **January 11, 2011** 12:01 PM
To: Jefferson Wagner; John Mazza; John Sibert; Laura Rosenthal; Lou La Monte; Pamela Conley Ulich
Subject: **newsmedia on Malibu Rd at dawn, landslide caused by house on PCH**

This is across the street from my house, 25136. Also, I'm a LOT worried about the properties farther down Malibu Rd (253-something) having story-poles up, when the house previously built there cracked in 1/2 during a landshift! 70s era, I believe. Also long bit of land on the other side of the street is continuously listed for sale and no mention of danger. Aren't they required to disclose?
Thu, **Jan 13, 2011** at 6:43 AM, Pamela Conley Ulich [redacted] wrote:

> Thanks for your e-mail. I understand that our City Manager responded to you regarding this.
>
> I have copied **Karen Clark, who has expert knowledge on land slides if you need any further assistance.**

From: Beate [mailto[redacted]]
Sent: Tuesday, **February 08, 2011** 12:18 PM
To: Craig George
Subject: Malibu Rd Landslide

Craig George <cgeorge@malibucity.org>
date: **Nov 16, 2012**, 8:09 AM
subject: Fwd: Malibu Rd landslide

jbauer@malibucity.org,
cdean@malibucity.org,
Craig George <cgeorge@malibucity.org>
date: **Apr 28, 2016, 8:20 AM**
subject: Malibu Road landslide

Re. 5 homes on Malibu Rd affected by 1-inch per day incremental motion of land into their backyards.

Just so you know, the "little people" of Malibu Road are not pleased if we have to suffer thru this again.
--

All the Best, Beate Nilsen.
Malibu Rd

On Sat, Aug 9, 2025 at 5:24 PM Beate[redacted]> wrote:

> Illegal 11-ft walls, but also poles look higher than they were B4 the fires. We'll all be there on Monday the 18th!
>
> --
> The 5th World is the Age of Flowers ~ Mayan
>
> All the Best, Beate Nilsen.
> Malibu Rd

CC: Planning Commission, PD,

Recording Secretary, File

Date Received 08/11/25 Time 7:30 AM
Planning Commission meeting of 08/18/25
Agenda Item No. 4A
Total No. of Pages 1

Received
8/15/2025
Planning Div.

From: Charlotte Frieze
To: Tyler Eaton; Yolanda Bundy; Bruce Silverstein; Steve Uhring; John Mazza; Planning Commission; Gail Duncan; Rebecca Evans
Subject: ITEM 4A August 18, 2025 Coastal Development Permit No. 19-012 / 25200 Pacific Coast Highway
Date: Friday, August 15, 2025 11:20:41 AM
Attachments: 2025-8-15 Weintraub Project.docx

Please see the attached letter requesting the Commission DENY Item 5A at the July 21, 2025 meeting.

Thank you very much,

Charlotte

--
Charlotte M. Frieze
Malibu, CA

[redacted]

CC: Planning Commission, PD,

Recording Secretary, File

Date Received 8/15/2025 Time 11:20am
Planning Commission meeting of 8/18/25
Agenda Item No. 4.A.
Total No. of Pages 3

CHARLOTTE M FRIEZE

To: Members of the Planning Commission

CC: Yolanda Bundy

Re: 25200 PCH item 5A

Date: 8-15-25

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.

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 the required geology reports and slope stability analysis. And coordinate with Public Works concerning possible leaks from a CALTRANS pipe before reviewing this project.

Thank you for your consideration.

Received
8/18/25
Planning Div.

From: [redacted]
To: Planning Commission
Subject: Fw: 25200 PCH 8-18-25 item 4A
Date: Friday, August 15, 2025 10:24:41 PM
Attachments: - pc weintraub 25200 pch 8-18-25-25 (7).docx

> Attached are Slow Growth's comments on the above referenced project.

CC: Planning Commission, PD,

Recording Secretary, File

Date Received 8/18/25 Time 7:30 AM
Planning Commission meeting of 8/18/25
Agenda Item No. 4A
Total No. of Pages 4

To: Members of the Planning Commission
From: Malibu Coalition for Slow Growth
Re: 25200 PCH item 4A
Date: 8-18-25

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

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
08/18/25
Planning Div.

From: Sam Hall Kaplan
To: Planning Commission
Subject: Item 4A and Item 5B
Date: Monday, August 18, 2025 3:57:53 AM

This also published in the local social media:

If Malibu City Hall was an organic element, a physical exam by a political/medical scientist I believe would reveal a grave hardening of the bureaucratic arteries and a cretinous cognitive condition Impairing its municipal duties

Prompting this dour portrait of the Malibu city governance was reading several items on the agenda (items 4a and 5B) of the upcoming City Planning Commission meeting concerning two proposed, questionable, residential projects, one on Point Dume, the other above the Colony edging the PCH,

The Planning Staff takes reams of bureaucratic babble to painstakingly try to rationalize its apparent favoring the projects: apparent because it is frankly difficult to wade through its bloviating report to the in which its tries nightly to put a mustache on these piggy projects, commission .

In my opinion as an immodest planning authority, staff fails to put the projects in a broader perspective consistent with the city's vision and mission statements, or more simply fails to look at the projects as if they lived next door. And just think of the time it took them to research and write the reports, while hundreds o

CC: Planning Commission, PD,

Recording Secretary, File

Date Received 08/18/25 Time 7:30 AM
Planning Commission meeting of 08/18/25
Agenda Item No. 4A
Total No. of Pages 3

applications for the Woolsey rebuild sit on staff desks, no doubt molding

Meanwhile, others, and the persevering, venerable Malibu Township Council will be calling for several sound reasons the rejection, of 25200 PCH, also known as the Weintraub Ruse, and 7352 Birdview Ave, the latter quite specifically for bloating to three times the size of house it is replacing and to 28 feet in height.

This in effect overwhelms the neighboring one story residence just 7 feet and inches away, thoroughly compromises its privacy, impacts its enjoyment, and, in no doubt reduces in value their property value and could make the city liable for the amount. The lawyers would love that.

But reason prevails. As the long-time residents of the house being impacted have suggested, their objection to the proposed Birdview project can be assuaged by the footprint being simply sited further away from their house.

I trust the applicant will amicably agree to this at or before the commission meeting, and with everybody signing off onthis as a condition of approval, let the project move forward.

Not so for 25200 PCH, that I fear no matter as promoted how attractive the architecture. if built will impair the view that warms my heart driving west on PCH and seeing revealed Malibu magnificent coastline and th Point Dune peninsula. Sunset seen

from this stretch of highway can be spectacular.

Also concerning, is that the project is being processed and presented as as a single family residence of 9,219 square feet, including 7 bedroom, 10 ½ baths, an office, a 1,000 square foot subterranean garage, a 1,523 square foot basement, a large gym, guest house, swimming pools, spa, decks and water features'

The project actually indicates not a single family residence but a drug and alcohol addiction rehab center or sober living facility. With 44 already located in Malibu, they are decried by the city and impacted neighborhoods, the fact is that these facilities once built and operating are protected by State laws that supersede local zoning.

Still, whatever the proposal is called, a residential or rehab structure, it fails to meet the paramount local building codes, and as indicated by the variances requested and my reading of neighborhood character, it should be opposed

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

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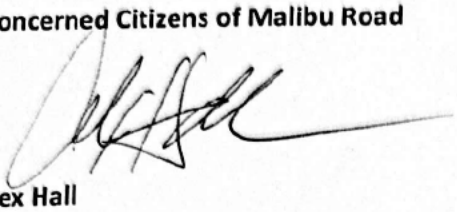
Thank you for your consideration.

Respectfully submitted,

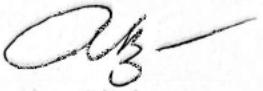
Concerned Citizens of Malibu Road

Respectfully Submitted,

Concerned Citizens of Malibu Road



Alex Hall
[redacted] Malibu Road



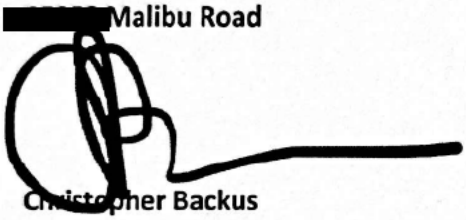
Alma Bliujus
[redacted] Malibu Rd.
Malibu, CA 90265



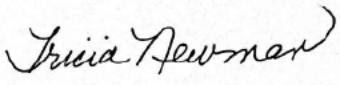
Mira Backus
[redacted] Malibu Road



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.

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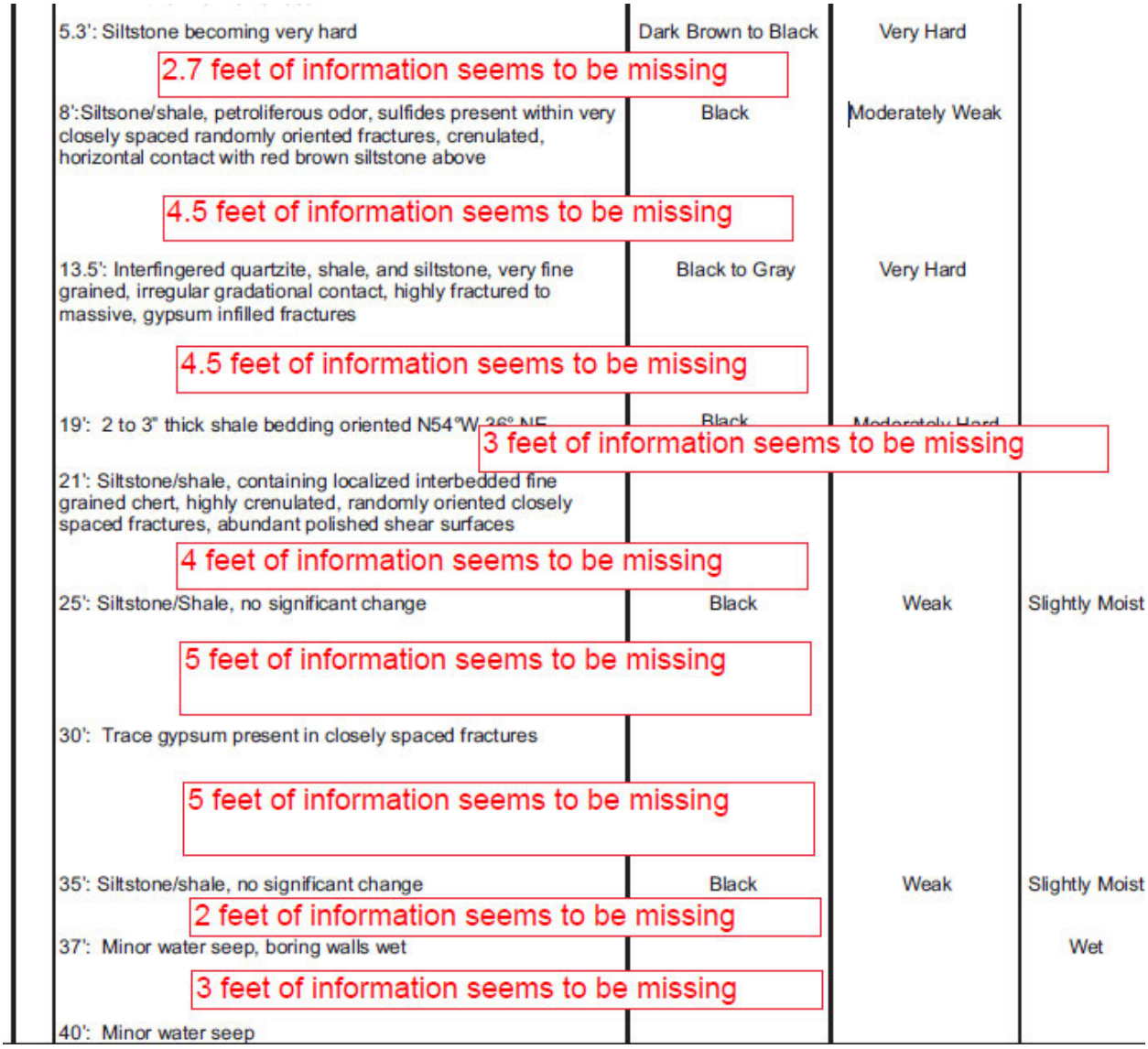

5.3': Siltstone becoming very hard	Dark Brown to Black	Very Hard	
2.7 feet of information seems to be missing			
8':Siltsone/shale, petroliferous odor, sulfides present within very closely spaced randomly oriented fractures, crenulated, horizontal contact with red brown siltstone above	Black	Moderately 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			

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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

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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	
				3 feet of information seems to be missing			
20	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

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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		(6-25-79)	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 54'
								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' by 6-25-79; standing H_2O @ 50' and

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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.

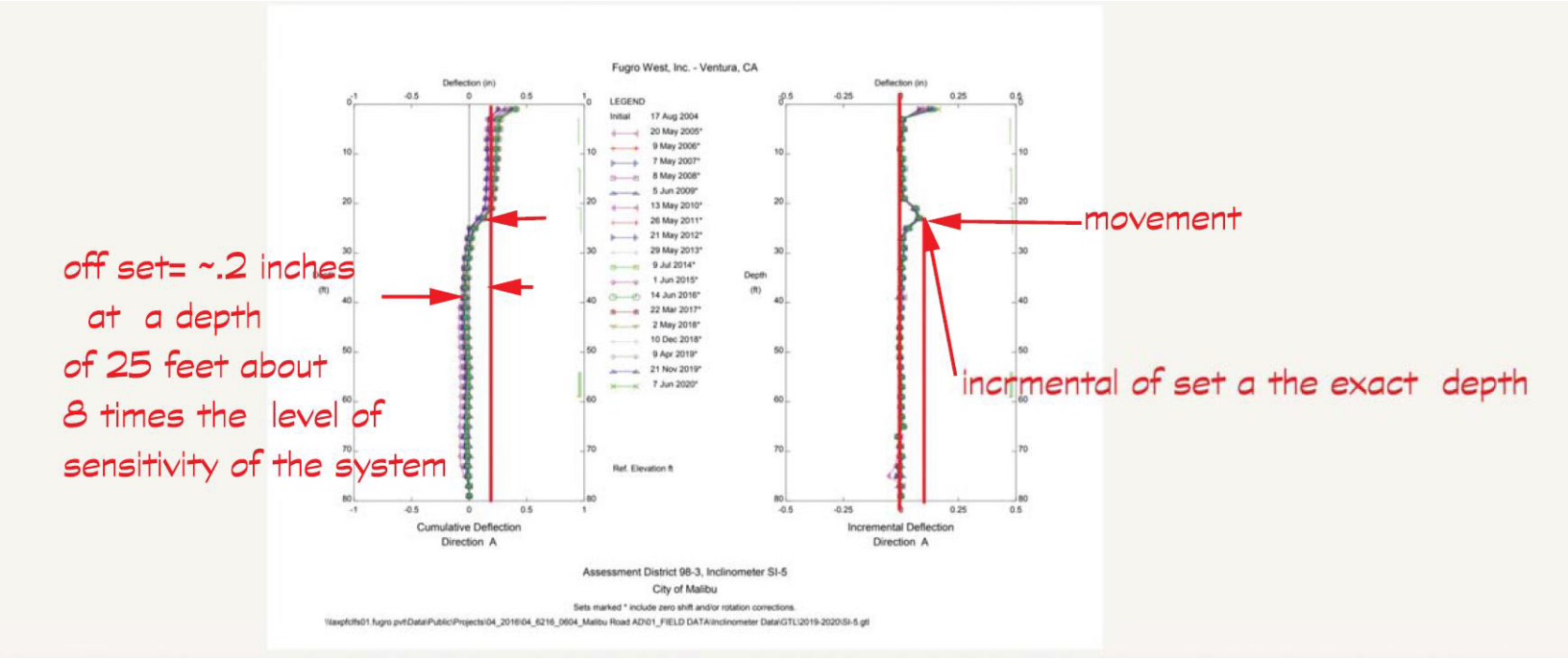
Feffer should address:

- 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.

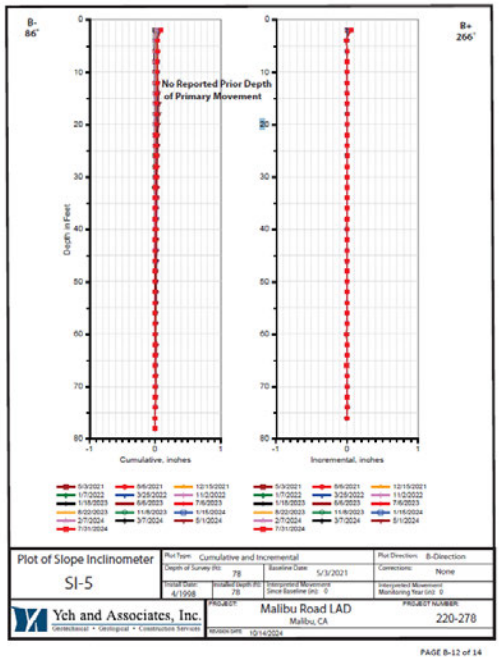
Inclinometers provide direct evidence of subsurface deformation. Movements as small as 0.1 inch over 100 feet are meaningful. Resetting baseline readings eliminates evidence of prior displacement and must be explicitly accounted for when interpreting results. The City should have Ye and Associates update 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.



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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

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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:

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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
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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.

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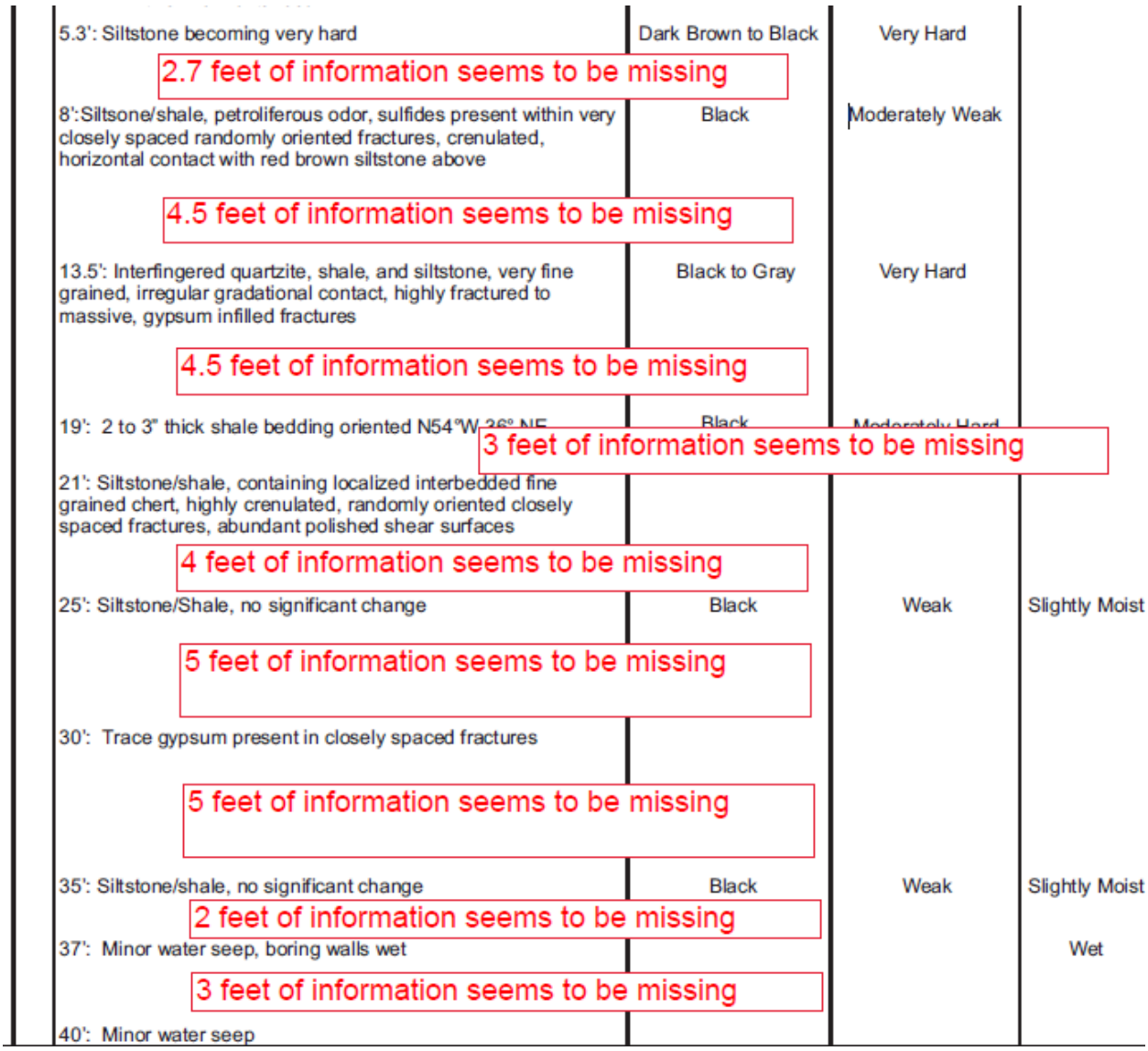

5.3': Siltstone becoming very hard	Dark Brown to Black	Very Hard	
2.7 feet of information seems to be missing			
8':Siltsone/shale, petroliferous odor, sulfides present within very closely spaced randomly oriented fractures, crenulated, horizontal contact with red brown siltstone above	Black	Moderately 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			

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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

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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	
				3 feet of information seems to be missing			
20	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

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Pacific Coast Land Consulting

Engineering Geologic Services

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 Aug
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		(6-25-79)	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 54'
								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' by 6-25-79; Standing H_2O @ 50 and

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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

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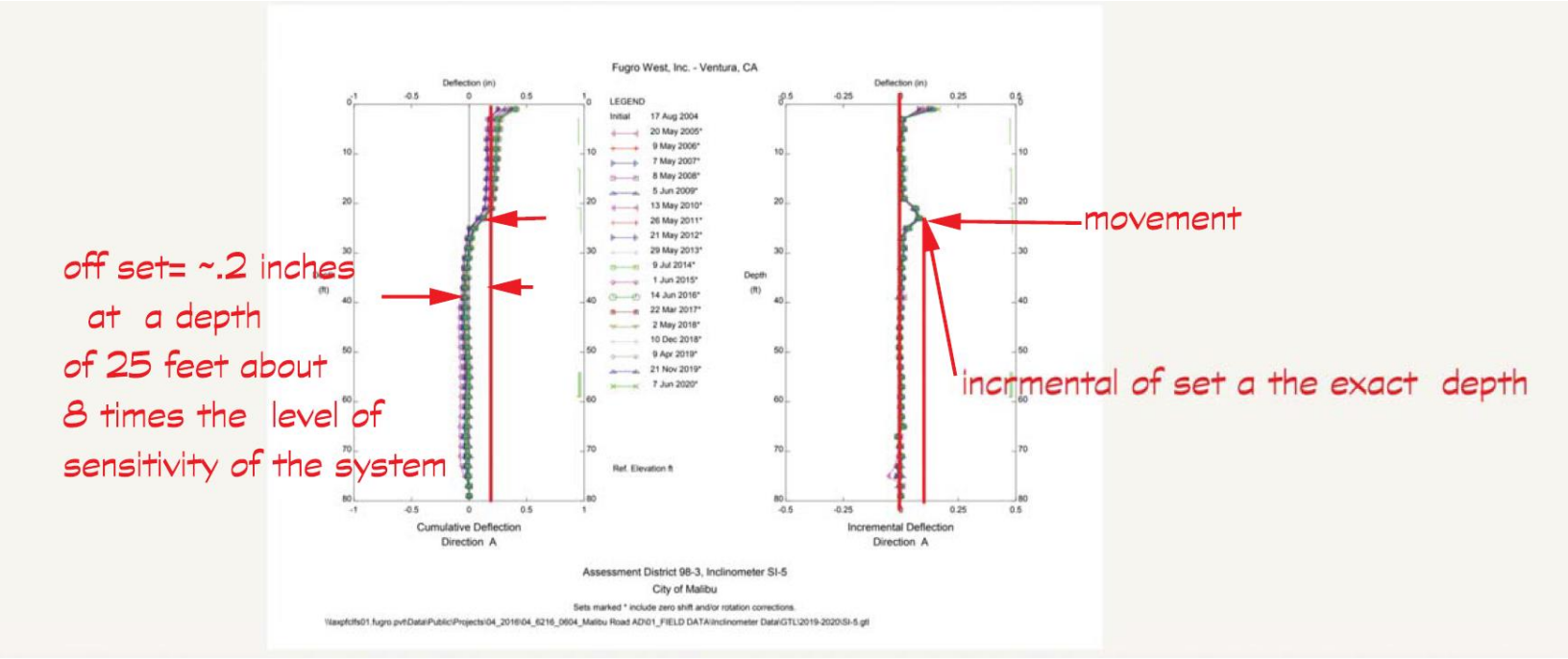
subparallel to the slope of the land consequently is substantially higher, than that which was analyzed.

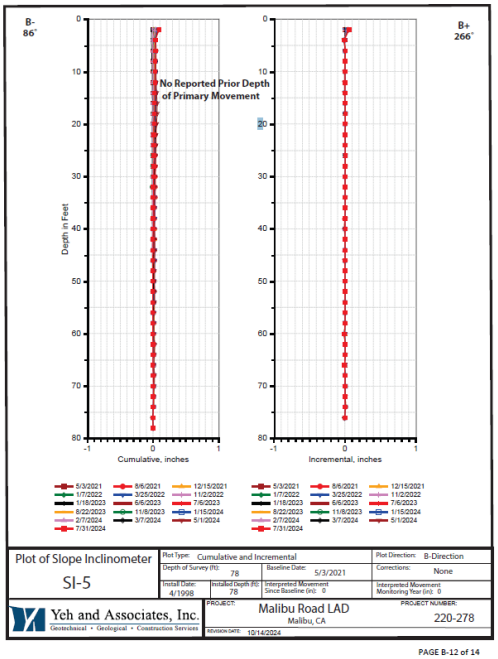
Inclinometers provide direct evidence of subsurface deformation. Movements as small as 0.1 inch over 100 feet are meaningful. Resetting baseline readings eliminates evidence of prior displacement and must be explicitly accounted for when interpreting results. The City should have Ye and Associates update 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)



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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

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.

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
12/16/25
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

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

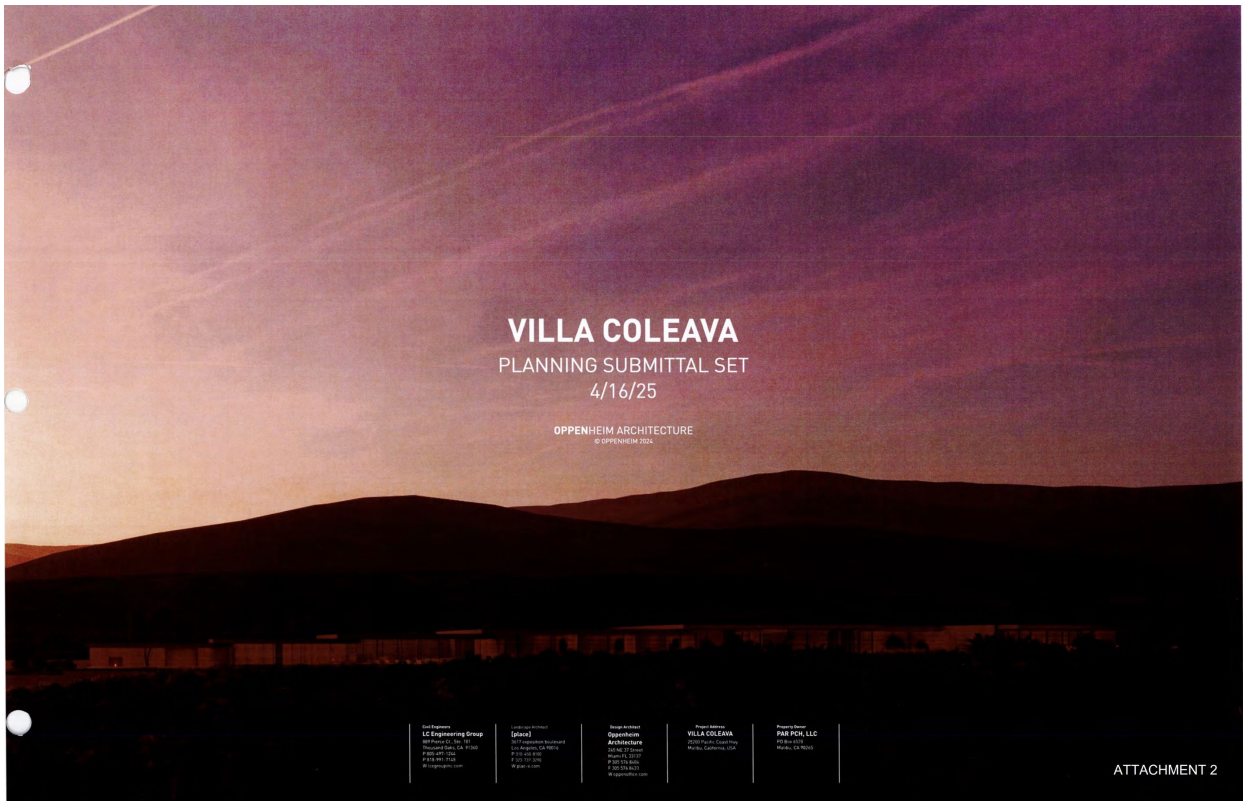
Hi Commissioners,

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
12/15/25
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.

---

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.

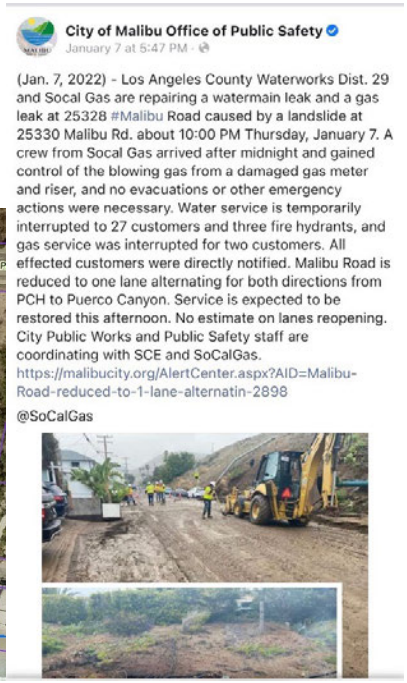
Thank you,

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

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

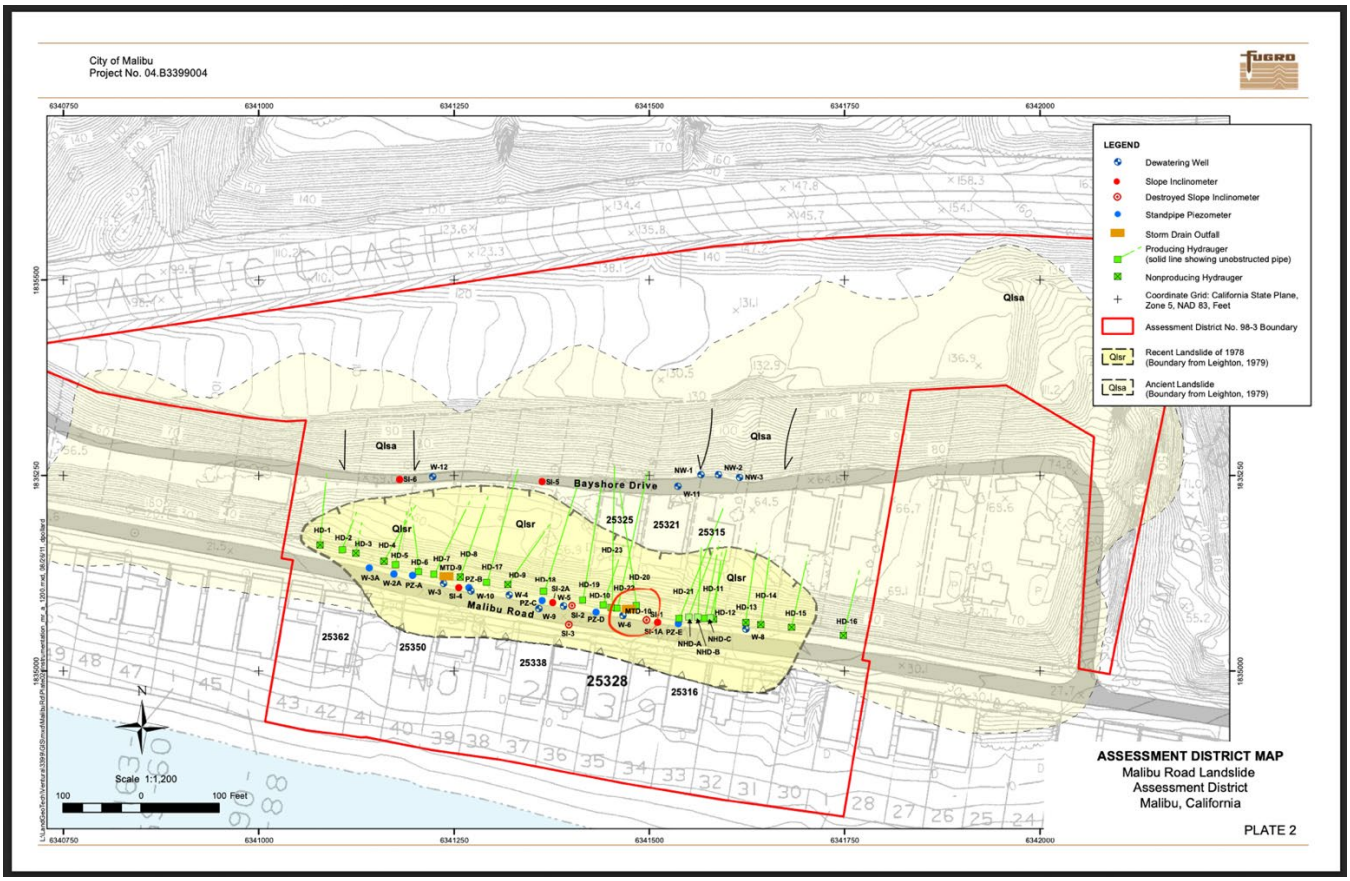
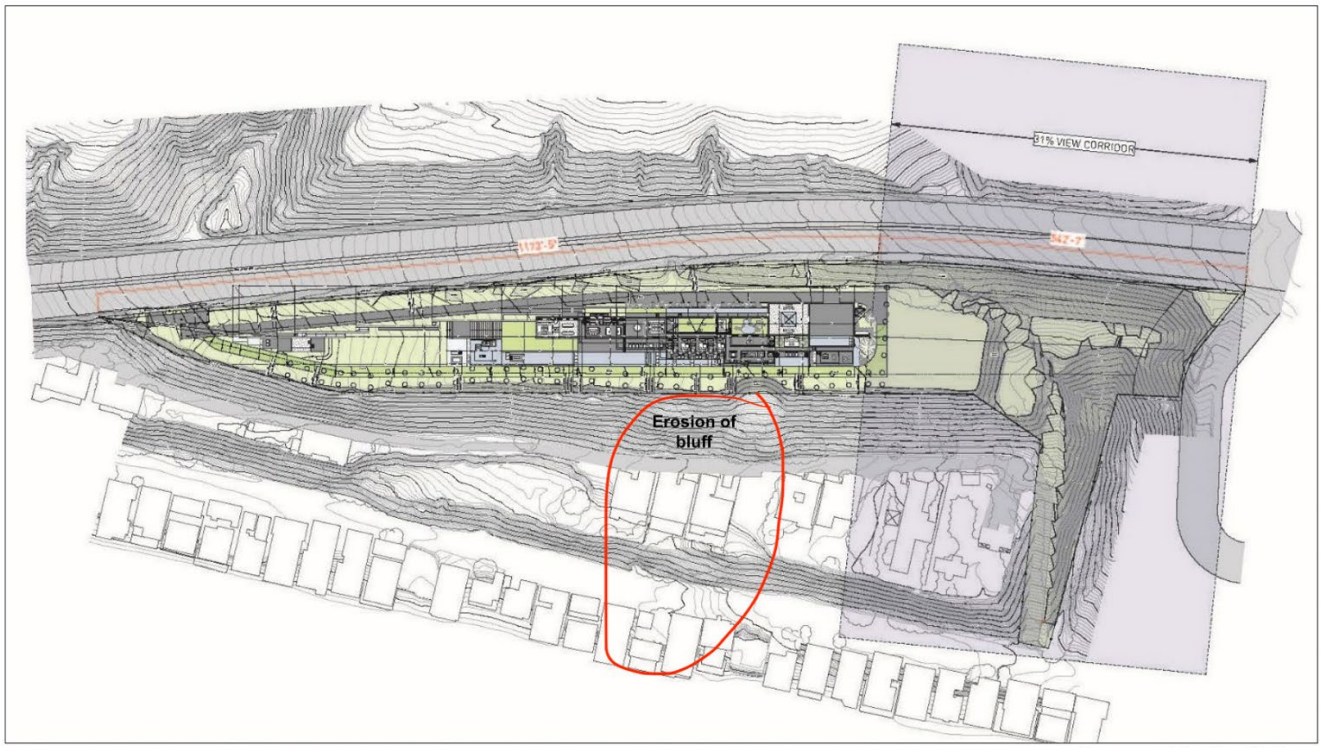
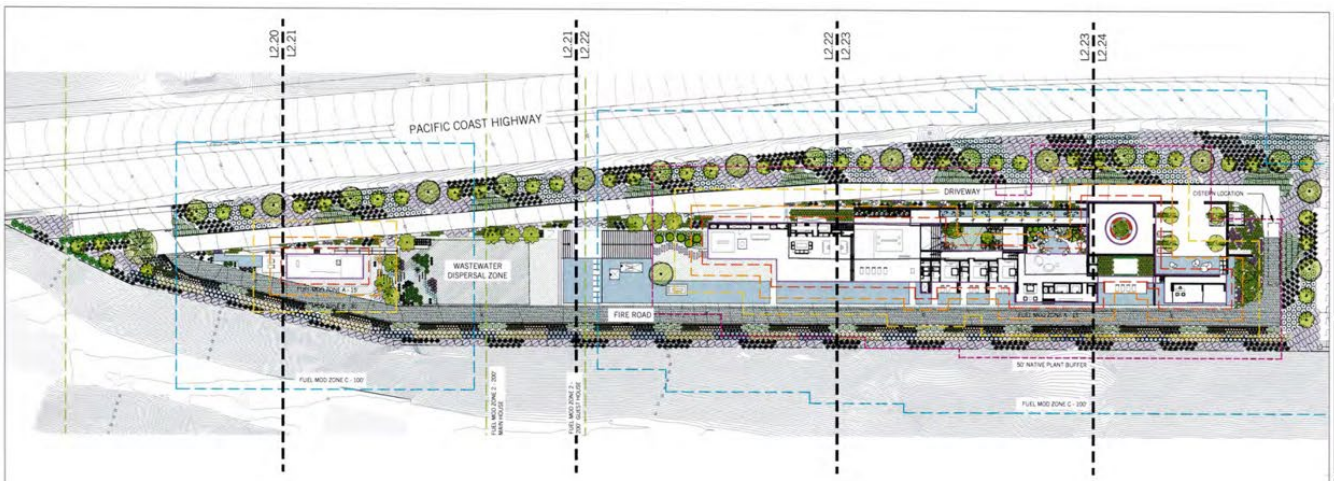


Figure 2 –Proposed Site Plan



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

SYMBOL	BOTANICAL NAME	COMMON NAME	SIZE	QTY	PLANT SIZE	SPACING	NOTES	MULCH	ORIGIN	'82' ZONE	FUEL ZONE
TREES											
	Acer saccharum	Japanese Maple	24" Box	1	15'-20'H x 8'-12'W	Per Plan	MASTER	MOD	NON NATIVE	INSIDE	A
	Arbutus 'Marina'	Marina Strawberry Tree Multi-Branch	48" Box	3	20'-40'H x 20'-30'W	Per Plan	ENTRY	LOW	NON NATIVE	INSIDE	B
	Dalbergia sissoo	Dragon Tree	36" Box	1	15'-25'H x 15'-25'W	Per Plan	ENTRY, KIDS GARDEN	V-LOW	NON NATIVE	INSIDE	A
	Dwarf Citrus		15 Gal.	3	6'-10'H x 6'-10'W	Per Plan	KITCHEN GARDEN	MOD	NON NATIVE	INSIDE	A-15
	Metrosideros 'Maiestic Beauty'	Pink Metrosideros	24" Box	17	15'-20'H x 8'-12'W	Per Plan	DRIVEWAY	LOW	NON NATIVE	OUTSIDE	A-15
	Olea europaea 'Majestic Beauty'	Olive Tree	36" Box	23	20'-30'H x 15'-25'W	Per Plan	DRIVEWAY, GUEST HOUSE	LOW	NON NATIVE	OUTSIDE	A-15
	Olea europaea 'Majestic Beauty' Multi-Trunk	Olive Tree	15G	1	20'-30'H x 15'-25'W	Per Plan	DRIVEWAY	LOW	NON NATIVE	OUTSIDE	A-15
	Plumeria rubra 'White'	Plumeria	15 gal.	3	15'-25'H x 15'-25'W	Per Plan	CENTER COURTYARD	LOW	NON NATIVE	INSIDE	A
	Quercus agrifolia	Coast Live Oak	24" Box	18	20'-70'H x 20'-70'W	Per Plan	ENTRY, KITCHEN GARDEN	V-LOW	NATIVE	OUTSIDE	B-30
	Citrus sinensis	Chinese Evn	36" Box	6	40'-80'H x 30'-40'	Per Plan	KITCHEN GARDEN, ENTRY COURT	MOD	NON NATIVE	INSIDE	UNKNOWN

SYMBOL	BOTANICAL NAME	COMMON NAME	SIZE	QTY	PLANT SIZE	SPACING	NOTES	MULCH	ORIGIN	'82' ZONE	FUEL ZONE
SHRUBS											
	Abelia x grandiflora 'Edward Goucher'	Little Flower Abelia	5 gal.	29	2'-3'H x 3'-4'W	Per Plan	ENTRY, KIDS GARDEN	MOD	NON NATIVE	INSIDE	UNKNOWN
	Agapanthus 'Dwarf Orange'	Dwarf Orange Agapanthus Flow	5 gal.	72	2'-3'H x 2'-3'W	Per Plan	KIDS GARDEN	MOD	NON NATIVE	INSIDE	UNKNOWN
	Artemisia 'Powis Castle'	Sagebrush	5 gal.	457	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 6'-8'W	Per Plan	DRIVEWAY	LOW	NATIVE	OUTSIDE	B
	Camellia sasanqua	Sasanqua Camellia	5 gal.	5	6'-10'H x 4'-10'W	Per Plan	MASTER	MOD	NON NATIVE	INSIDE	A-10
	Carissa macrocarpa 'Prostrata'	Prostrate Natal Plum	5 gal.	13	2'H x 6'-8'W	Per Plan	KITCHEN	LOW	NON NATIVE	INSIDE	A-10
	Ceanothus californicus 'Dwanah'	Dwanah Bush Anemone	5 gal.	10	4'-6'H x 3'-5'W	Per Plan	GUEST HOUSE	LOW	NON NATIVE	OUTSIDE	A-10
	Convolvulus cneorum	Bush Morning Glory	5 gal.	4	3'-5'H x 4'-6'W	Per Plan	ENTRY	MOD	NON NATIVE	INSIDE	A
	Encelia californica	Bush Sunflower	5 gal.	300	3'-6'H x 4'-7'W	Per Plan	DRIVEWAY	V-LOW	NATIVE	OUTSIDE	A-10
	Eschscholzia californica	California Poppy	4" pot	1465	1'-2'H x 1'-3'W	Per Plan	DRIVEWAY	V-LOW	NATIVE	OUTSIDE	UNKNOWN
	Heteromeles arbutifolia	Toyon	5 gal.	19	6'-20'H x 6'-20'W	Per Plan	DRIVEWAY	V-LOW	NATIVE	OUTSIDE	A-10
	Mimulus auranticus	Bush Monkey Flower	5 gal.	318	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.	23	2'-6'H x 2'-6'W	Per Plan	GUEST HOUSE	LOW	NON NATIVE	OUTSIDE	A-10
	Pittosporum crassifolium 'Compactum'	Dwarf Karo	5 gal.	2	4'-6'H x 4'-6'W	Per Plan	MASTER	MOD	NON NATIVE	INSIDE	UNKNOWN
	Polystichum munitum	Sword Fern	5 gal.	13	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 munstyhila	Purple Sage	5 gal.	420	2'-5'H x 4'-5'W	Per Plan	DRIVEWAY, GUEST HOUSE	V-LOW	NATIVE	OUTSIDE	B
	Trichostema lanatum	Woolly Blue Curls	5 gal.	203	3'-4'H x 4'-5'W	Per Plan	DRIVEWAY	V-LOW	NATIVE	OUTSIDE	B
	Verbena lilacina 'De La Mina'	Lilac Verbena	5 gal.	67	1'-2'H x 3'-4'W	Per Plan	DRIVEWAY	LOW	NON NATIVE	MOD TO INSIDE	A
	Westringia 'Blue Gem'	Blue Gem Coast Rosemary	5 gal.	28	4'-5'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.	90	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	MULCH	ORIGIN	'82' ZONE	FUEL ZONE
GRASSES, BAMBOO & PHORMIUMS											
	Berkeley Hubbie 'Golden Goddess'	Hedge Bamboo		6	8'-10'H x Clumping	Per Plan	MASTER	MOD	NON NATIVE	INSIDE	B-30
	Iris douglasiana	Douglas Iris	1 gal.	13	1'-2'H x 2'-3'W	Per Plan	MASTER	LOW	NON NATIVE	INSIDE	A
	Liriope 'Evergreen Giant' Variegated	Big Blue	1 gal.	213	2'-3'H x Spreading	Per Plan	DRIVEWAY, GUEST HOUSE	LOW	NATIVE	OUTSIDE	B
	Lomandra 'Lime Tuff'	Dwarf Mat Rush	1 gal.	109	1'-2'H x 2'-3'W	Per Plan	THROUGHOUT	UNKNOWN	NON NATIVE	MOSTLY INSIDE	UNKNOWN
	Muhlenbergia dubia	Pine Muhly	5 gal.	183	2'-3'H x Clumping	Per Plan	DRIVEWAY	UNKNOWN	NON NATIVE	INSIDE OUTSIDE	UNKNOWN
	Muhlenbergia rigens	Deer Grass	5 gal.	674	4'-5'H x 4'-5'W	Per Plan	DRIVEWAY	LOW	NATIVE	OUTSIDE	UNKNOWN
	Pennisetum 'Fairy Tails'	Evergreen Fountain Grass	5 gal.	22	3'-5'H x 3'-5'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	B
	Agave 'Blue Glow'	Blue Glow Agave	5 gal.	15	2'-3'H x 3'-4'W	Per Plan	GUEST HOUSE	LOW	NON NATIVE	OUTSIDE	A
	Dasylirion wheeleri	Desert Spoon/Sotol	15 gal.	42	4'-6'H x 3'-4'W	Per Plan	ENTRY CORRIDOR	UNKNOWN	NON NATIVE	INSIDE	UNKNOWN
	Euphorbia ingens	Candelabra Tree	15 gal.	4	15'-20'H x 5'-10'W	Per Plan	ENTRY CORRIDOR	LOW	NON NATIVE	INSIDE	A
WATER PLANTS											
	Galvezia speciosa	Firecracker	5 gal.	23	2'-3'H x 4'-5'W	Per Plan	ENTRY CORRIDOR	HIGH	NON NATIVE	INSIDE	UNKNOWN
	Nymphaeaceae	Water Lily	5 gal.	10		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, ENTRY COURT, COURTYARD	UNKNOWN	NATIVE	INSIDE OUTSIDE	A
	Poa p. 'nothoa	Kurapoa	flats	40 SF	1'-2'H x Spread	Per Plan	ENTRY COURTYARD	LOW	NON NATIVE	INSIDE	A
	Rosmarinus officinalis 'Prostratus Rosemary	Creeping Rosemary	flats	300 SF	1'-2'H x 6-8'W	Per Plan	KITCHEN GARDEN	LOW	NON NATIVE	INSIDE	A
MULCH											
	Shredded Bark			67,080 SF			DRIVEWAY				
	Fine Gravel			12,274 SF			WITH 25' STRUCTURE				

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]

[planning landscape and architecture collaborative]
3617 washington boulevard los angeles ca 90016
310 450 8100 fax 323 737 3290

CONSULTANTS

Property Owner
P&R PCH, LLC
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Malibu, CA 90265

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NAME OF ISSUE

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	
BID REVISIONS	04/05/21	1
BID REVISIONS	06/11/21	

PROJECT NO: 2021

These drawings, specifications, ideas, designs, and arrangements exhibited thereby, are the property of the Architect and shall not be used in whole or in part for any purpose whatsoever to whom 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 the Architect. Visual contact with these drawings or specifications shall constitute conclusive evidence of the acceptance of these restrictions.

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

File No: 1992-75
25200-25300 Pacific Coast Highway

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.

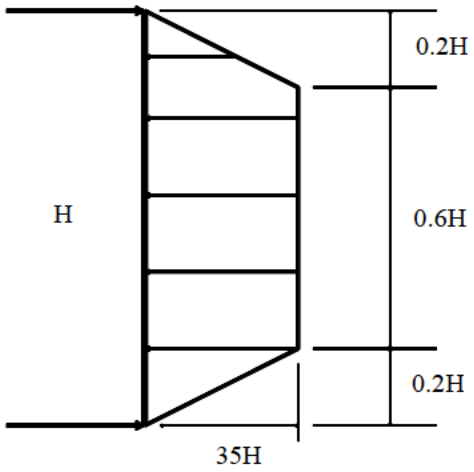
Note: The Project Geotechnical Consultant recommends in response to the above comment that, "Stacked retaining walls, where present, shall be designed such that the upper wall foundation extends below a 45-degree projection from the lowest retaining wall foundation. This will prevent the lateral surcharge 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

GeoDynamics, Inc.
Applied Earth Sciences
Geotechnical Engineering & Engineering Geology Consultants

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: 351 @19.5'

FG B-4: 149 @18.5' | 130 @23' | Steep @27' | 115 @35'

FG B-5: 98 @8' | 124 @24' | 116 @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' | 4411 @16.5' | 116 @28' | Steep @44'

FG B-9: 137 @10' | 144 @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' | 161 @22.6' | Steep @23.5' | 128 @25.2'

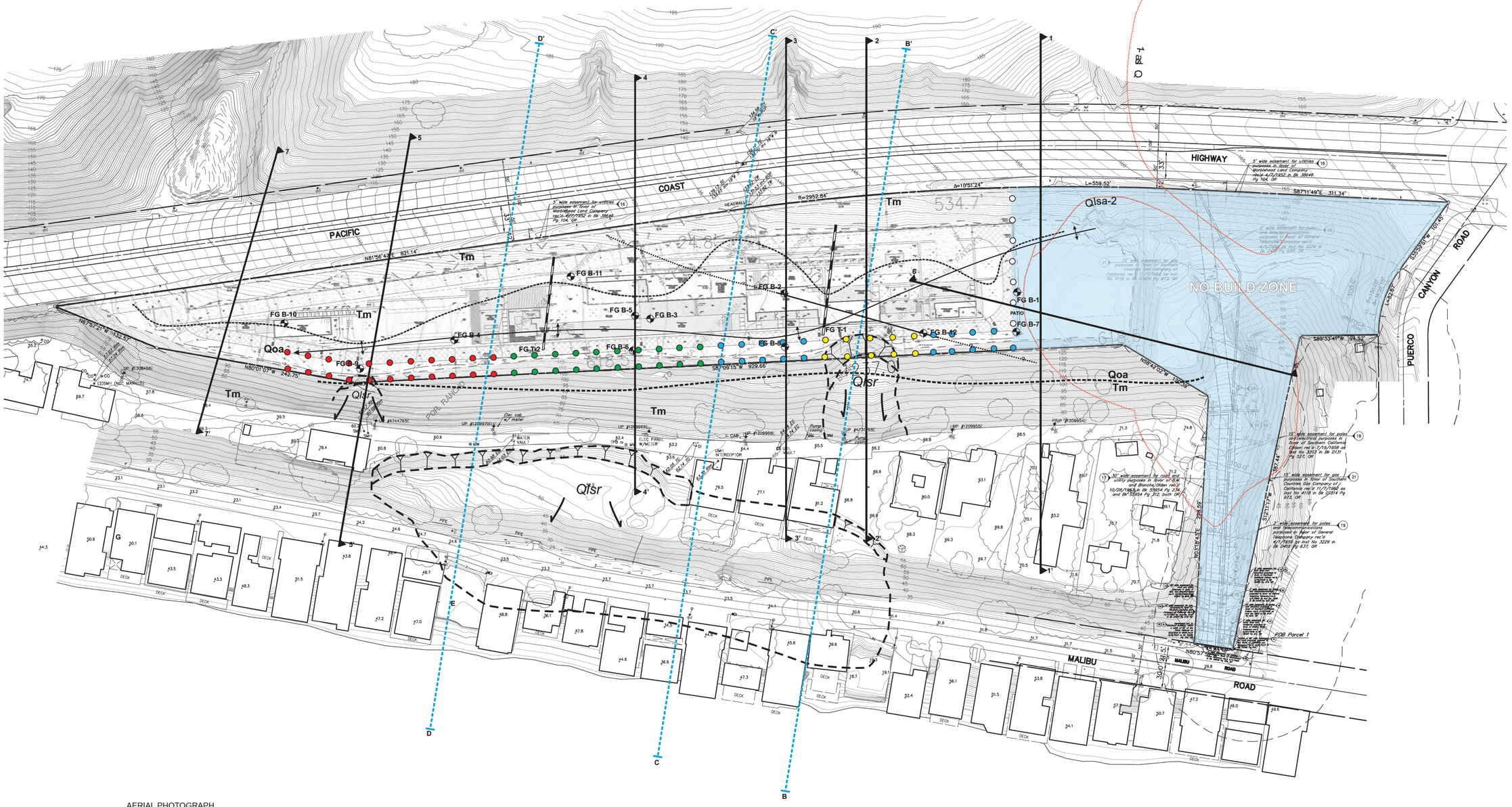
FG B-12: 133 @5.4' | 141 @7.3' | 109 @8.4' | 157 @18.5' | 132 @22.4'

FEFFER GEOLOGICAL TRENCH MEASUREMENTS

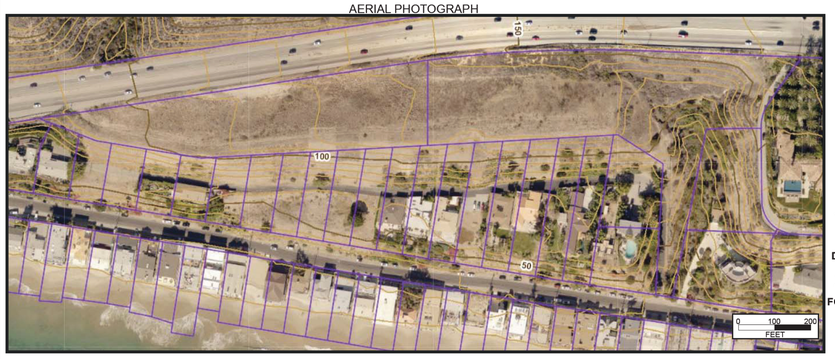
FG T-1: 177 @23' | 158 @23' | 180 @39' | 119 @54' | 176 @64' | 119 @75' | @96' | 169 @99' | 8-50 @105' | 174 @109'

FG T-2: 332 @36' | 247 @46' | 204 @53'

*Length given in feet from the northernmost portion of each trench



AERIAL PHOTOGRAPH



FEFFER GEOTECHNICAL MAP

JB: 1992-75 NAME: WE NTRAUB REALESTATE GROUP BY: AG

DATE: 11/18/21 SCALE: 1"=50' SITE: 25000-25200 PAC FIC COAST HWY

REF: BASE MAP FROM SURVEY

EXPLANATION

- GEOLOGIC CONTACT
- SHEAR PLANE
- STRIKE AND DIP OF BEDDING
- JOINT/FRACTURE
- FAULT: SOLID WHERE OBSERVED, DASHED WHERE INFERRED
- FEFFER GEOLOGICAL CROSS SECTION LINE (ADOPTED FROM LEIGHTON, 1979)
- FEFFER GEOLOGICAL CROSS SECTION
- FEFFER GEOLOGICAL BORINGS
- FEFFER GEOLOGICAL TRENCHES
- RECENT LANDSLIDE (LEIGHTON, 1979)
- PLUNGING FOLD AXIS
- INFERRED ANCIENT LANDSLIDE (LEIGHTON, 1979)
- LIMITS OF NO BUILD ZONE
- STABILIZATION PILE (SEE SECTION 6-6')
- STABILIZATION PILE (SEE SECTION 3-3'; TABLE 1)
- STABILIZATION PILE (SEE SECTION 2-2'; TABLE 1)
- STABILIZATION PILE (SEE SECTION 4-4'; TABLE 1)
- STABILIZATION PILE (SEE SECTION 5-5'; TABLE 1)

N

50' 25' 0' 50' 100'

GRAPHIC SCALE
SCALE: 1" = 50'

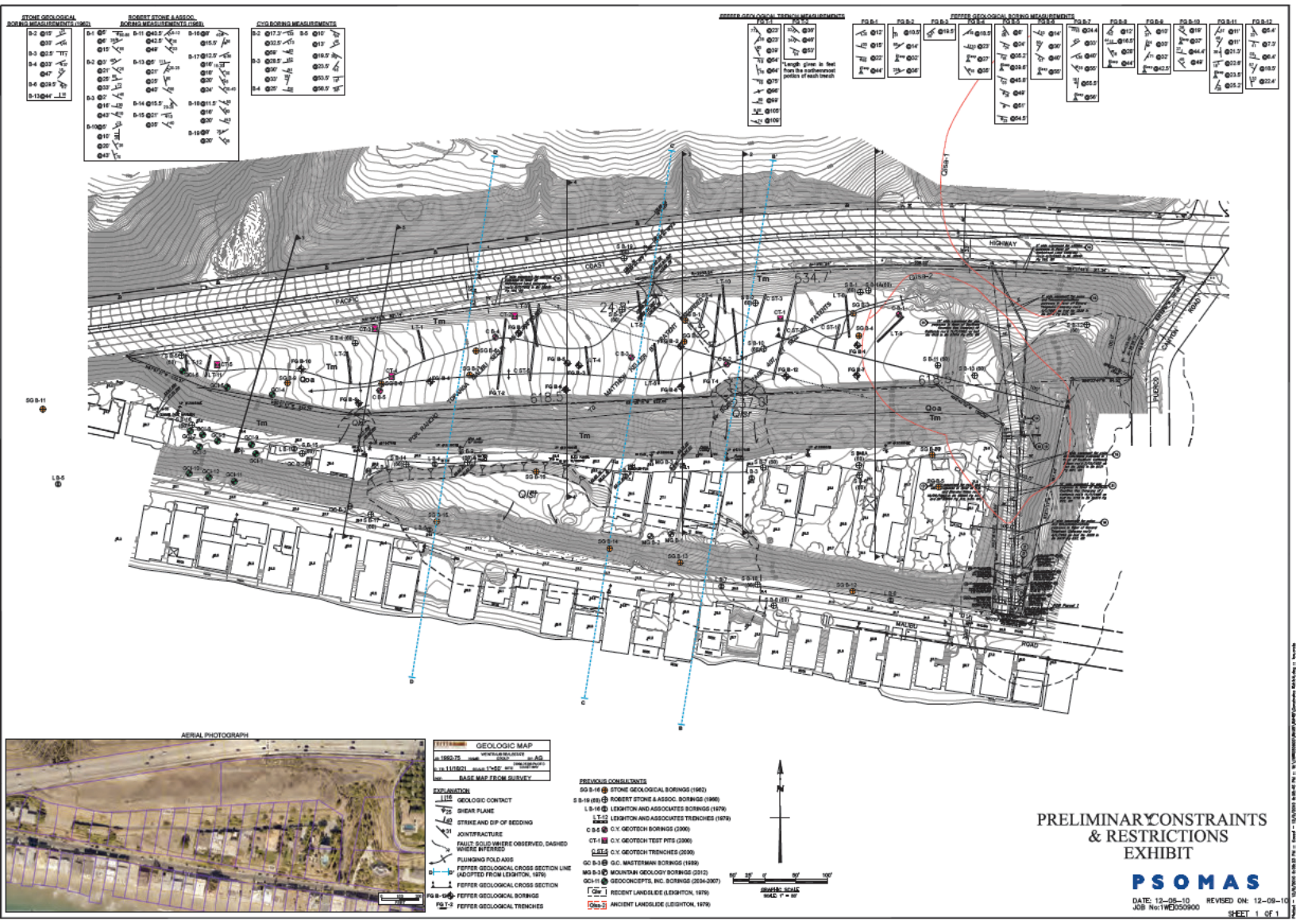
PRELIMINARY CONSTRAINTS & RESTRICTIONS EXHIBIT

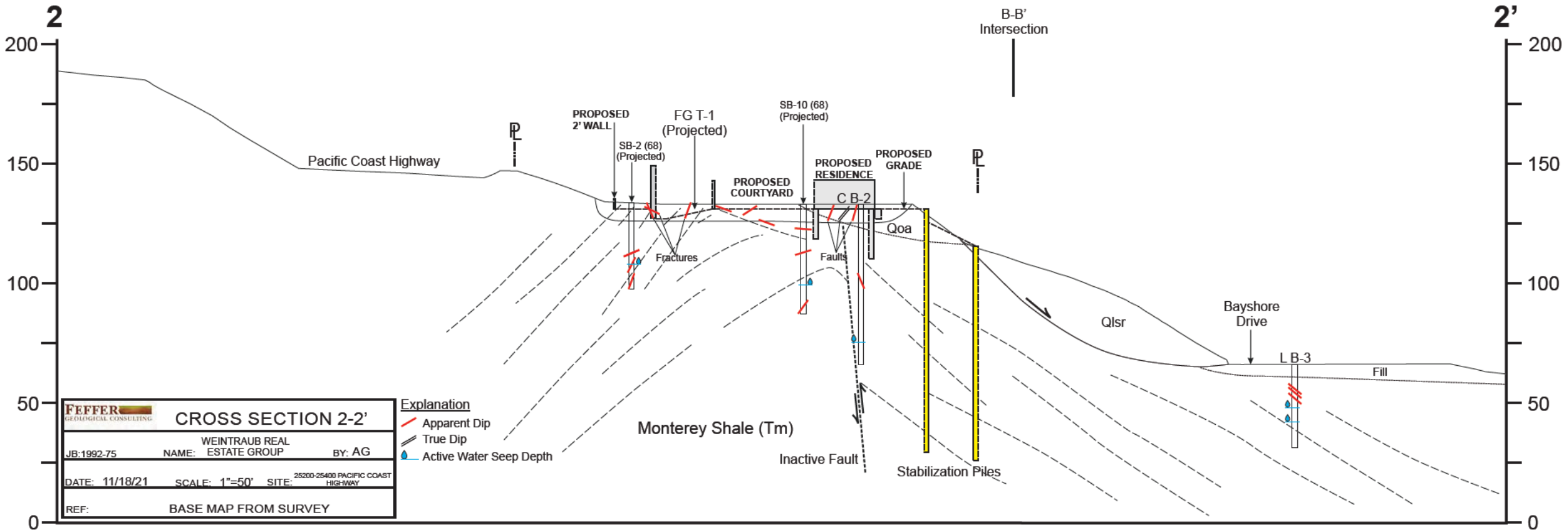
PSOMAS

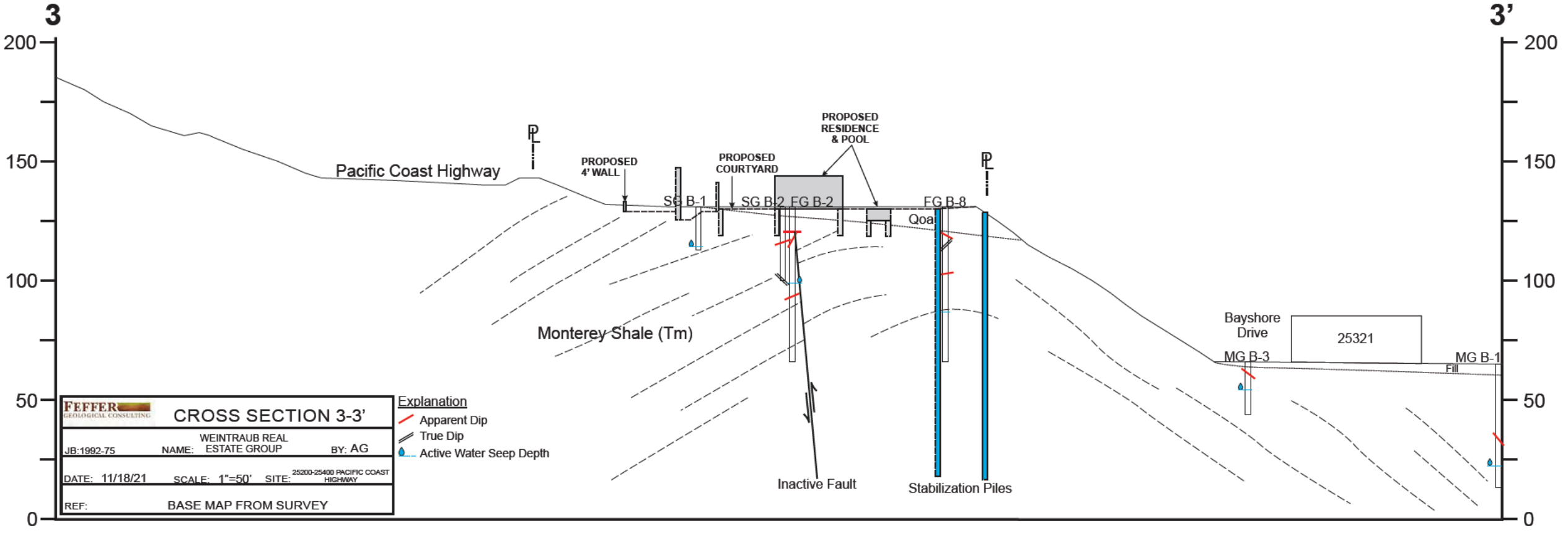
DATE: 12-06-10 REVISED ON: 12-09-10
JOB No:1WEI050900

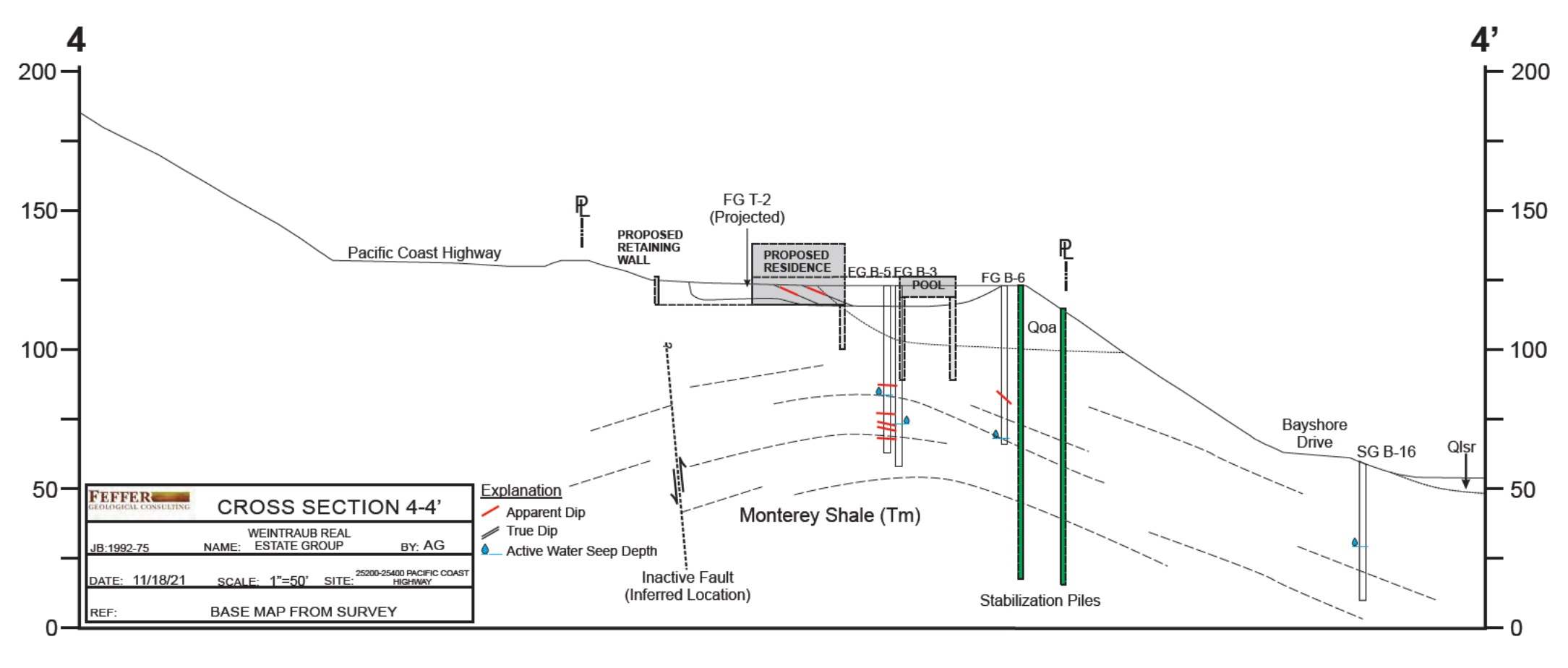
SHEET 1 OF 1

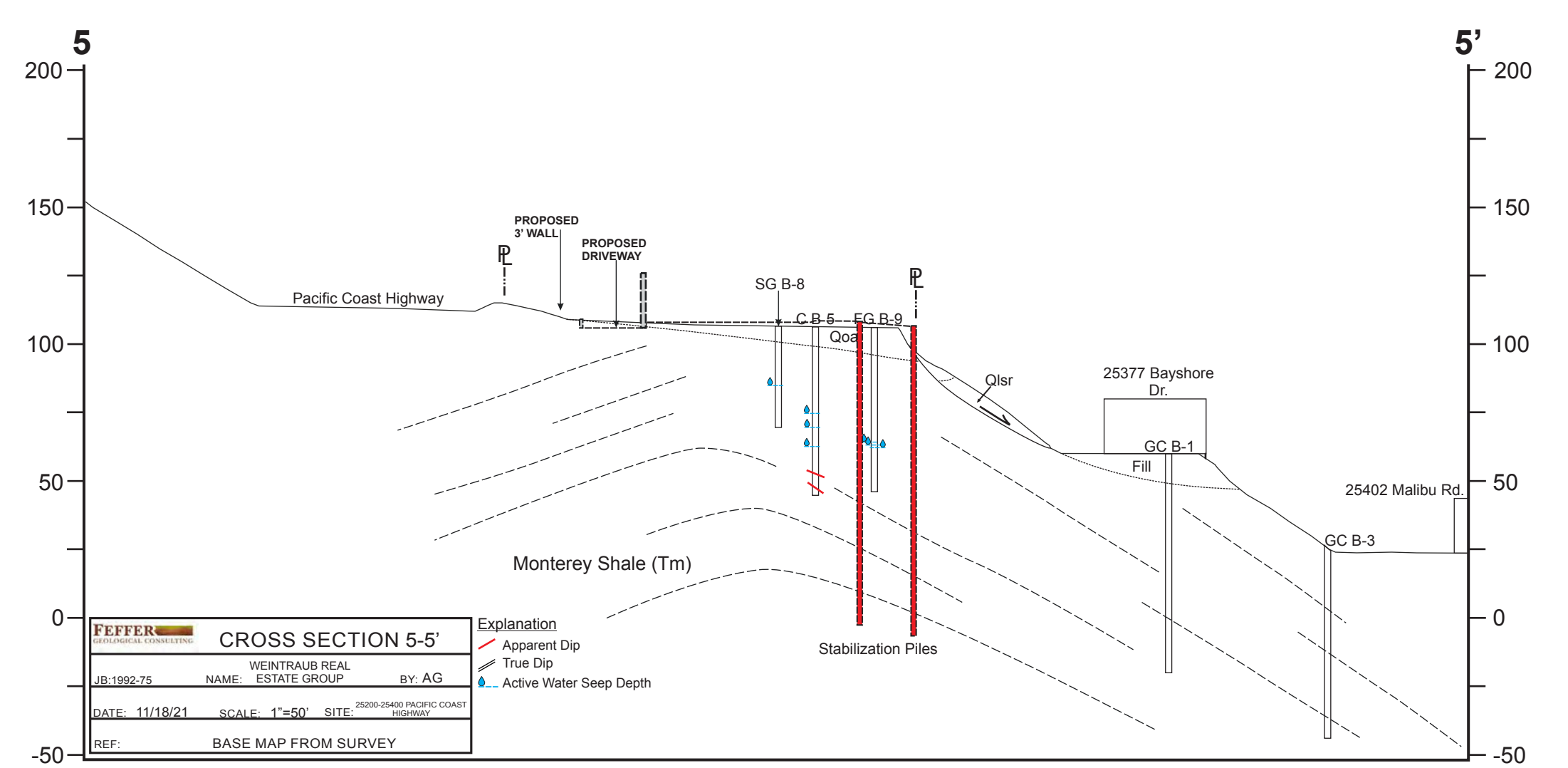
Plotted: 12/9/2010 6:06:23 PM :: Saved: 12/9/2010 6:05:45 PM :: W:\1WEI050900\ENGR\JOHB\Constraints Exhibit.dwg :: jon.cretu

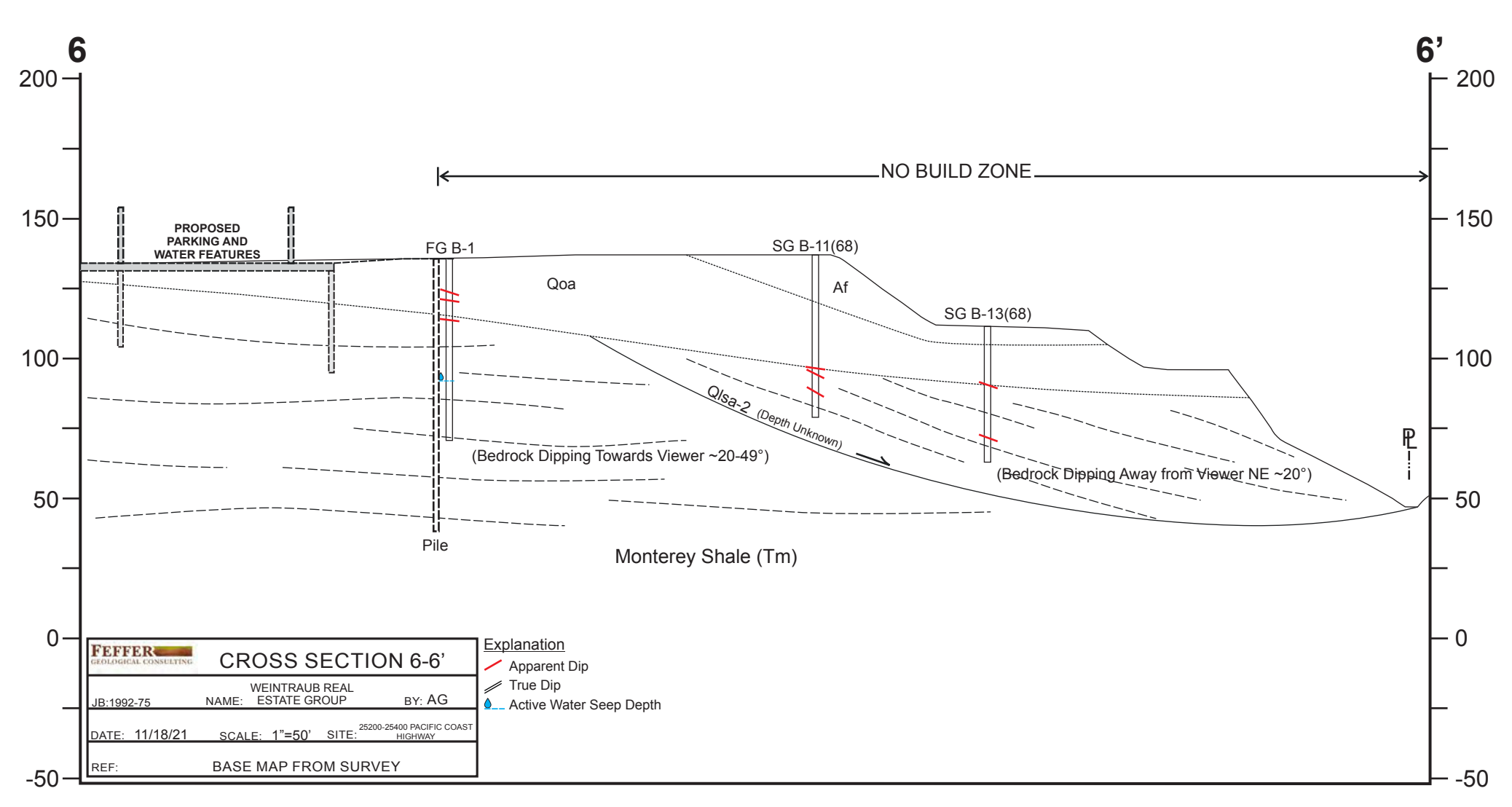

STONE GEOLOGICAL BORING MEASUREMENTS (1962)
ROBERT STONE & ASSOC. BORING MEASUREMENTS (1966)
CYD BORING MEASUREMENTS
FEFFER GEOLOGICAL TRENCH MEASUREMENTS (2014)
FEFFER GEOLOGICAL BORING MEASUREMENTS (2014)
*Length given in feet from the southernmost portion of each trench
HIGHWAY
PACIFIC COAST
MALIBU ROAD
Qls/s-1
Qls/s-2
Qls/s-3
Qoa
Tm
Qaf
Qls
Qlsr
634.7
618.5
617.8
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
STONE GEOLOGICAL BORINGS (1962)
ROBERT STONE & ASSOC. BORINGS (1966)
LEIGHTON AND ASSOCIATES BORINGS (1979)
LEIGHTON AND ASSOCIATES TRENCHES (1979)
C.Y. GEOTECH BORINGS (2000)
C.Y. GEOTECH TEST PITS (2000)
C.Y. GEOTECH TRENCHES (2000)
G.C. MASTERMAN BORINGS (1999)
MOUNTAIN GEOLOGY BORINGS (2012)
GEOCONCEPTS, INC. BORINGS (2004-2007)
RECENT LANDSLIDE (LEIGHTON, 1979)
ANCIENT LANDSLIDE (LEIGHTON, 1979)
N
DRAWING SCALE
SCALE: 1" = 80'
PRELIMINARY CONSTRAINTS & RESTRICTIONS EXHIBIT
PSOMAS
DATE: 12-08-10 REVISED ON: 12-09-10
JOB No:1WE050900
SHEET 1 OF 1


2
2'
200
150
100
50
0
B-B'
Intersection
Pacific Coast Highway
PROPOSED
2' WALL
SB-2 (68)
(Projected)
FG T-1
(Projected)
SB-10 (68)
(Projected)
PROPOSED
COURTYARD
PROPOSED
RESIDENCE
PROPOSED
GRADE
C B-2
Qoa
Fractures
Faults
Qlsr
Bayshore
Drive
L B-3
Fill
Monterey Shale (Tm)
Inactive Fault
Stabilization Piles
FEFFER
GEOLOGICAL CONSULTING
CROSS SECTION 2-2'
WEINTRAUB REAL
JB:1992-75 NAME: 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'
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
Explanation
Apparent Dip
True Dip
Active Water Seep Depth


4
4'
200
150
100
50
0
Pacific Coast Highway
PL
PROPOSED RETAINING WALL
FG T-2 (Projected)
PROPOSED RESIDENCE
FG B-5
FG B-3
POOL
FG B-6
PL
Qoa
Bayshore Drive
SG B-16
Qlsr
Explanation
Apparent Dip
True Dip
Active Water Seep Depth
Monterey Shale (Tm)
Inactive Fault (Inferred Location)
Stabilization Piles
FEFFER GEOLOGICAL CONSULTING
CROSS SECTION 4-4'
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


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

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

EX. AC DIKE TO REMAIN, IF DAMAGED RECONSTRUCT PER CALTRANS STD. PLAN RSP A87B

PACIFIC COAST HIGHWAY

BIXBY KNOLLS DRIVE

MALIBU

SCALE: 1"=40'

0 40 80 120

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 • lcengroupinc.com • workflow@lcengroupinc.com

57460
REGISTERED ENGINEER RCE DATE

CITY OF MALIBU

OVERALL SITE PLAN

25200 PACIFIC COAST HIGHWAY

DRAWN BY / DATE	CHECKED BY / DATE	SHEET 2 OF 7
PK/ 10/29/2020	PK/ 10/29/2020	

X:\LC 2020\P\Civil\2020\7760 PARPOV LLC\Civil\SHT\7746 SHT 3 GP.dwg Oct 29, 2020, 4:03pm Patrick Kaufman

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

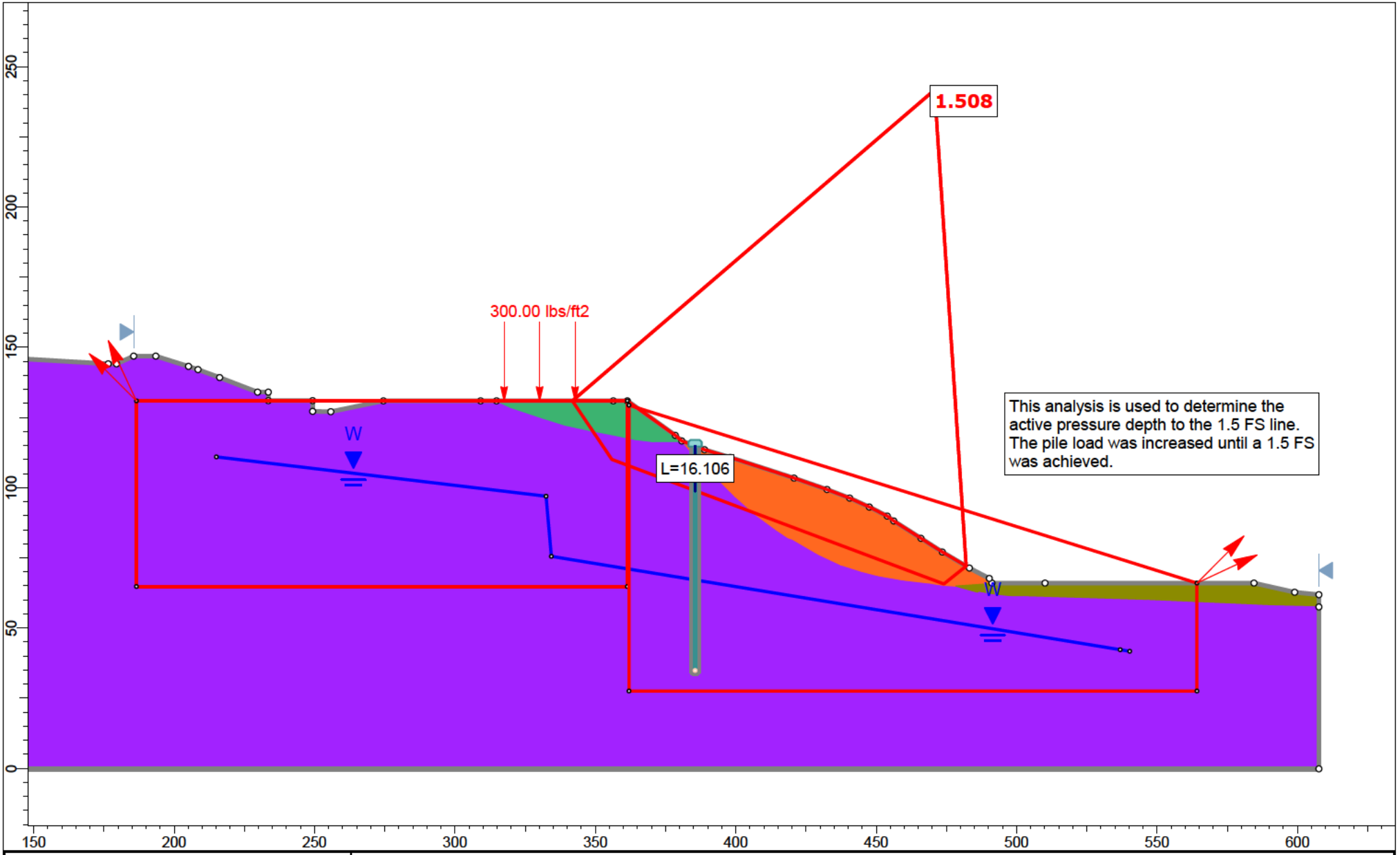
VERTICAL PSEUDO STATIC SEISMIC COEFFICIENT (k_v) 0 %g

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**

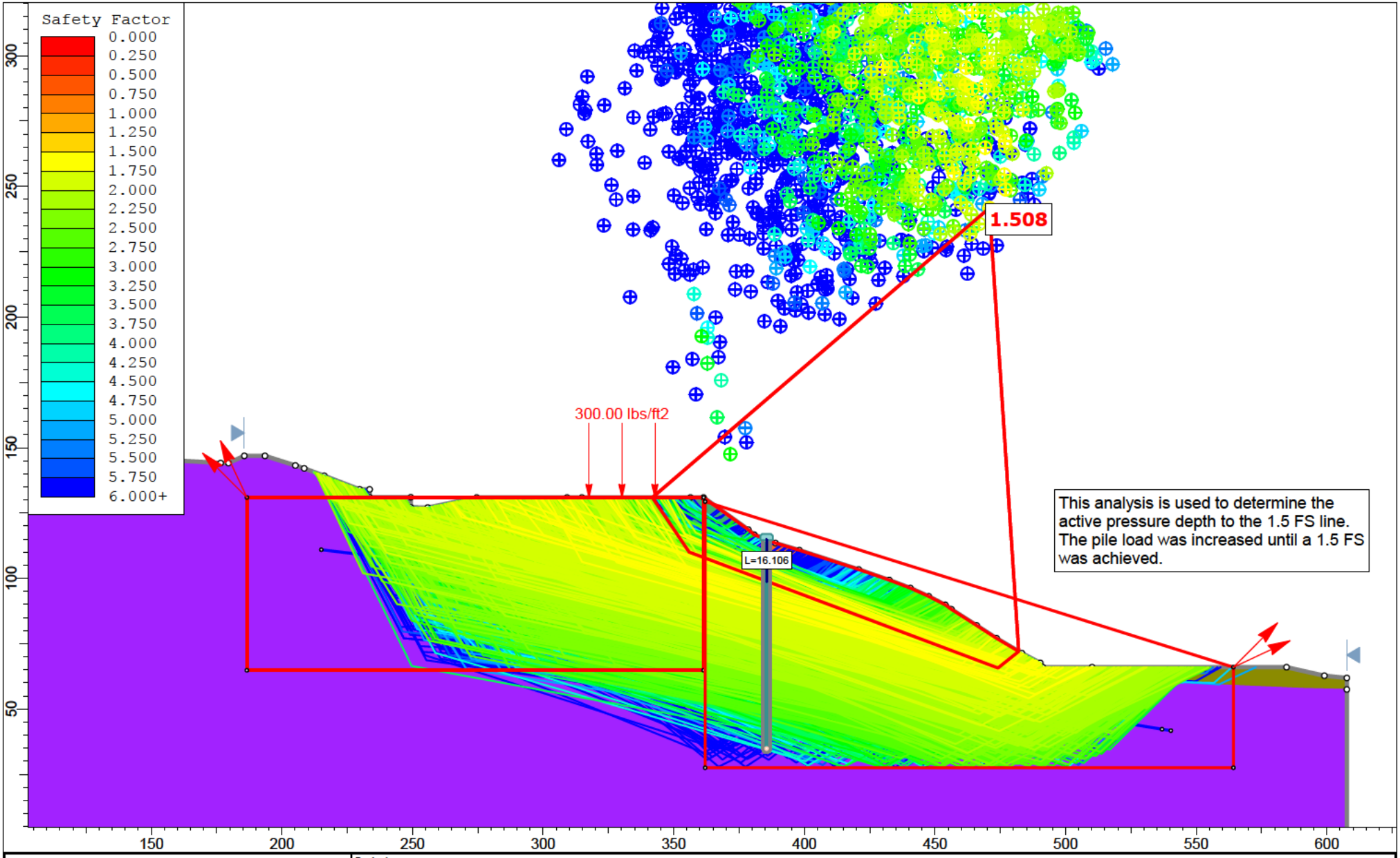
THE CALCULATION INDICATES THAT THE SEISMIC FORCE IS 1.05 KIPS WHICH IS LESS THAN THE STATIC RETAINING WALL PRESSURE. NO ADDITIONAL SEISMIC FORCE IS NEEDED.

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	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

SLIDEINTERPRET 9.018



rocscience

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

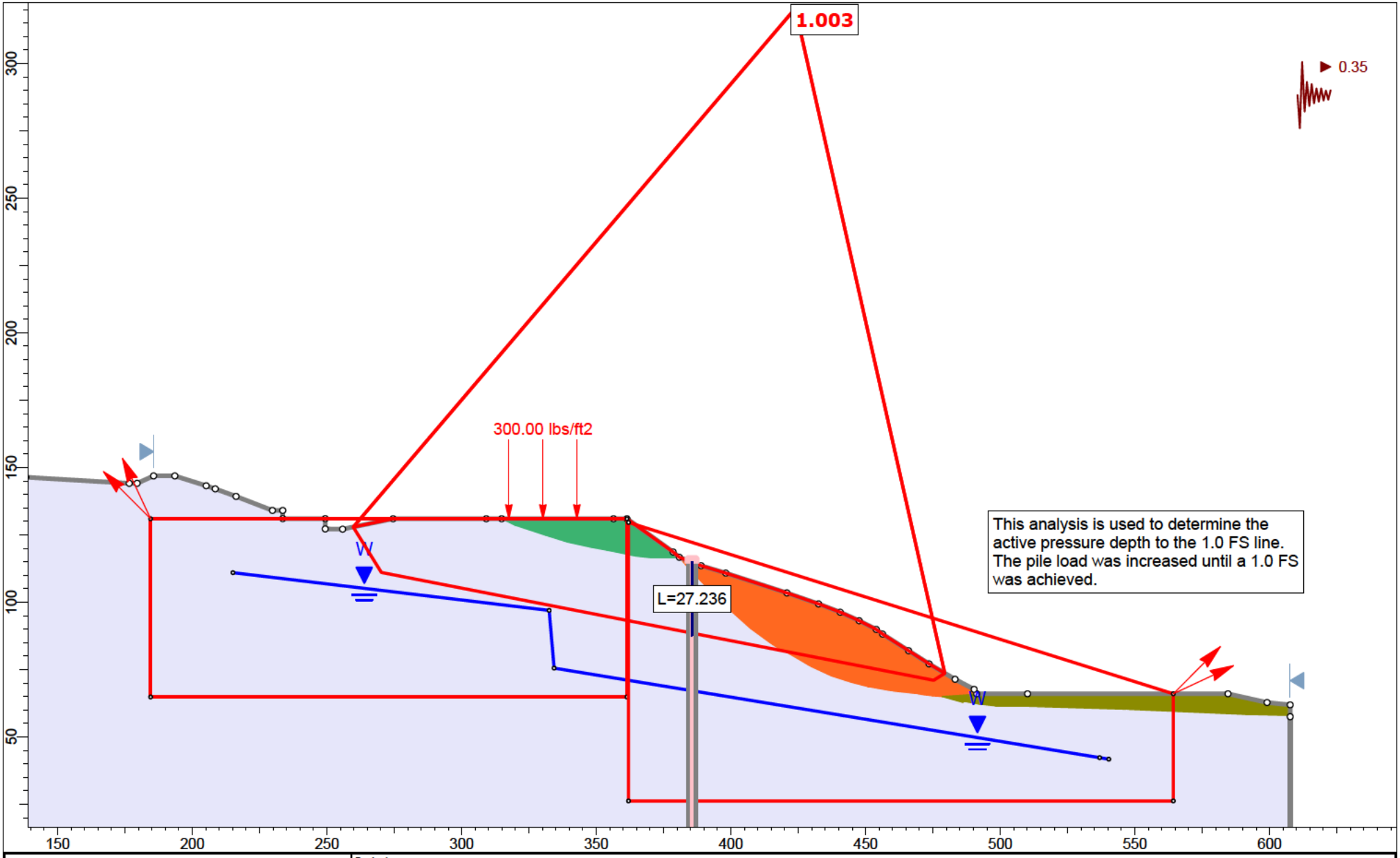
Type	Coordinates (x,y)

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

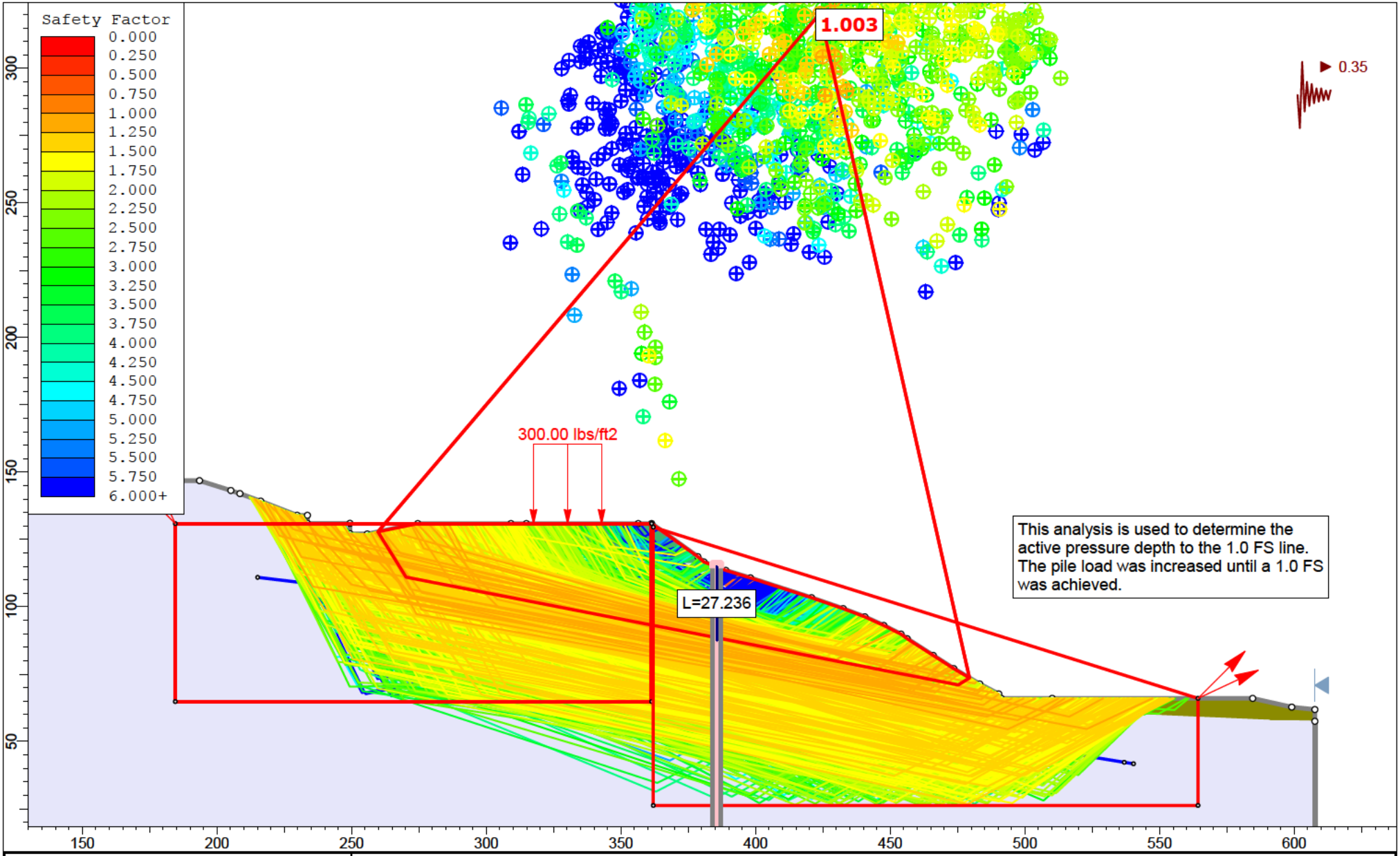
Type	Coordinates (x,y)	Master Scenario
Water Table	215.062, 110.934 332.462, 96.909 334.336, 75.504 536.885, 42.2379 540.294, 41.678	Assigned to: Anisotropic Bedrock (Tm) Ultimate
Distributed Load	342.792, 130.917 317.529, 130.917	Constant DistributionOrientation: Normal to boundaryMagnitude: 300 lbs/ft2Creates 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	



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



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

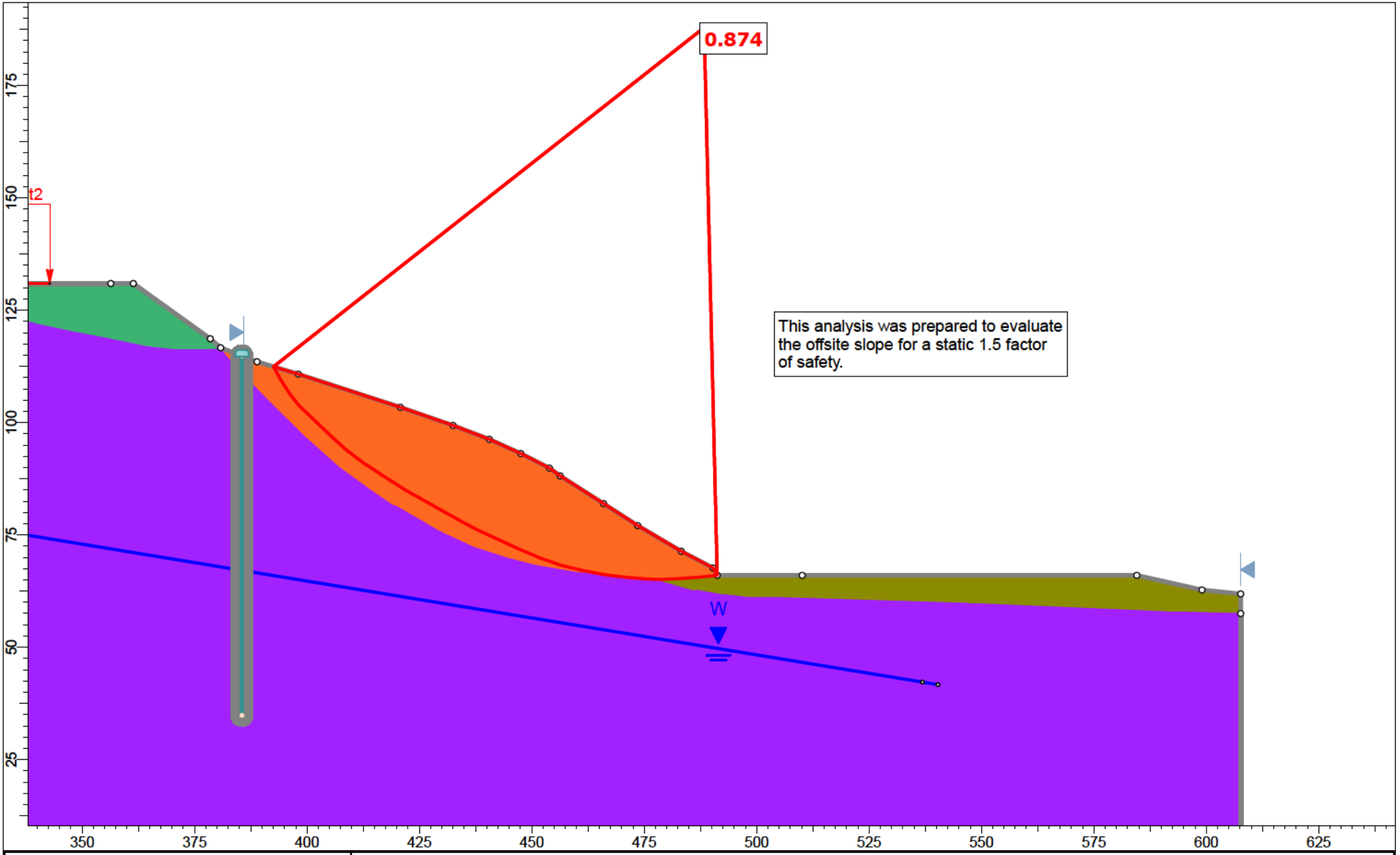
Shared Entities

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

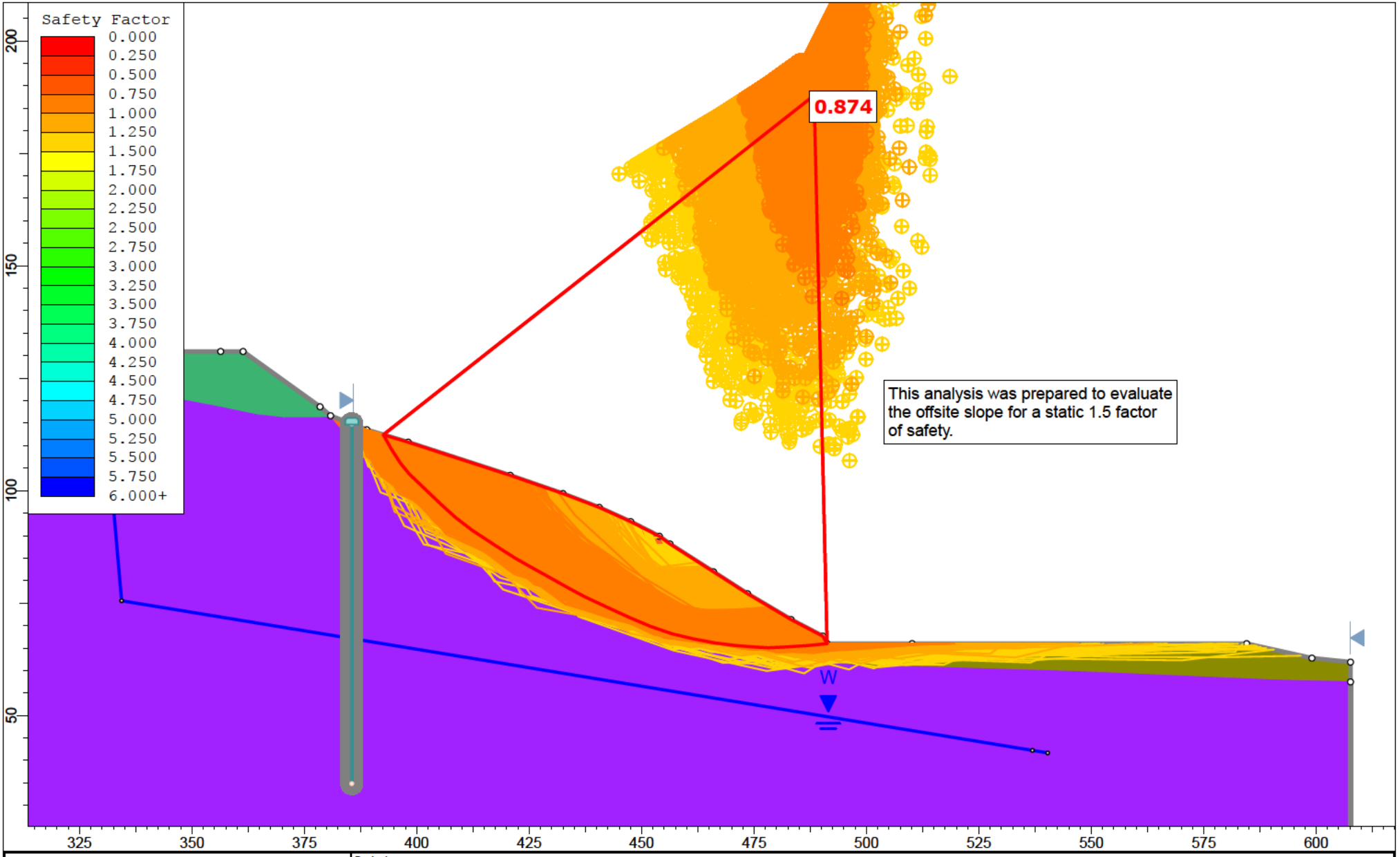
Material Boundary	380.809, 116.625 384.655, 112.071 391.766, 104.817 399.736, 96.943 407.228, 90.261 414.434, 85.012 419.875, 81.29 425.554, 77.997 429.228, 75.849 437.102, 72.175 444.547, 69.789 450.56, 68.214 459.627, 66.639 468.838, 65.589 478.382, 64.921 488.261, 65.589 491.224, 65.972
Material Boundary	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	



rocscience	Project	Section 2-2'		
	Analysis Description	Offiste Slope (Static)		
	Drawn By	A. Greene	Scale 1:354	Company Feffer Geological Consulting
SLIDEINTERPRET 9.018	Date			File Name Section 2-2' Translational Analysis_2.slmd



rocscience	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

SLIDEINTERPRET 9.018

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)

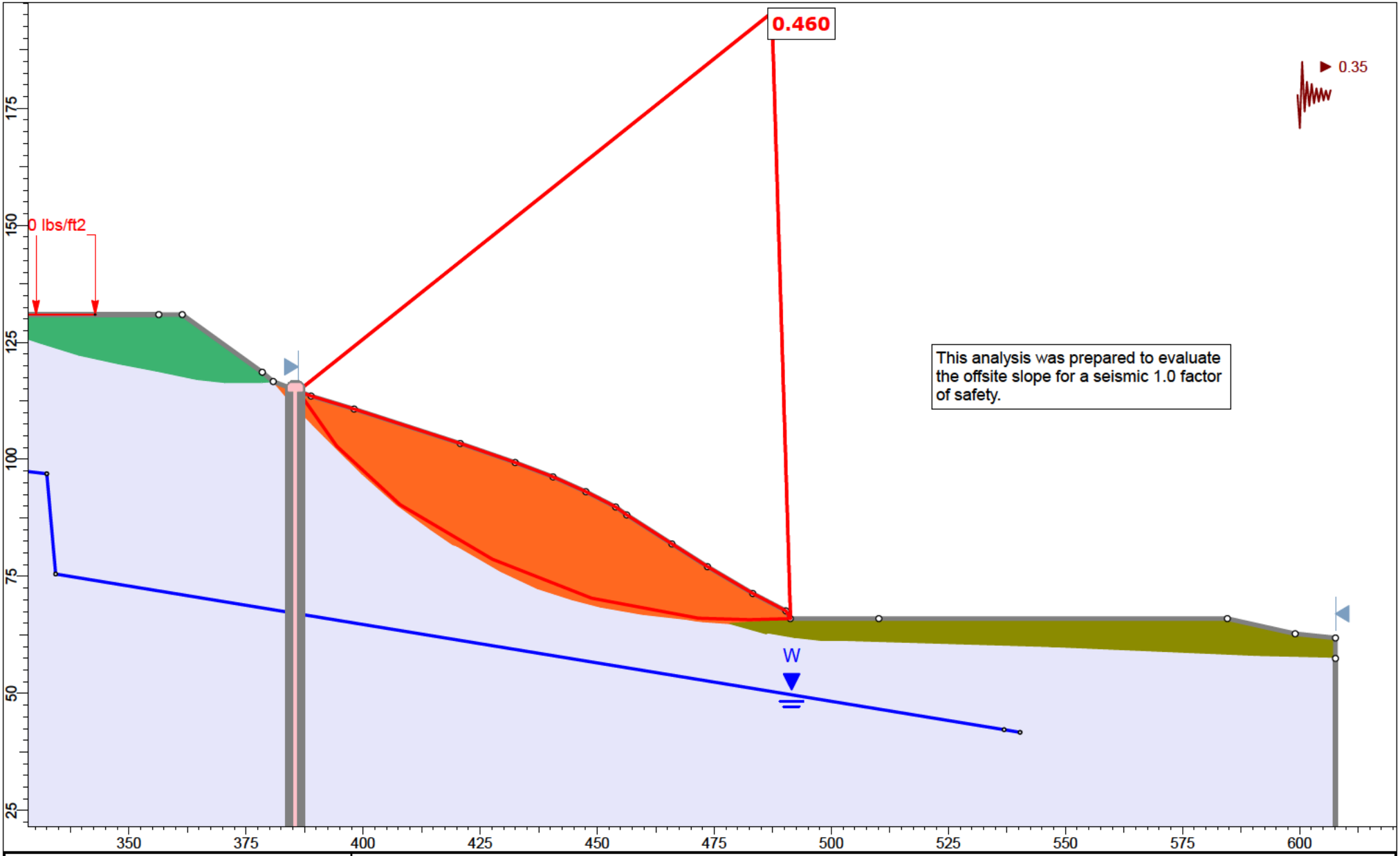
Shared Entities

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

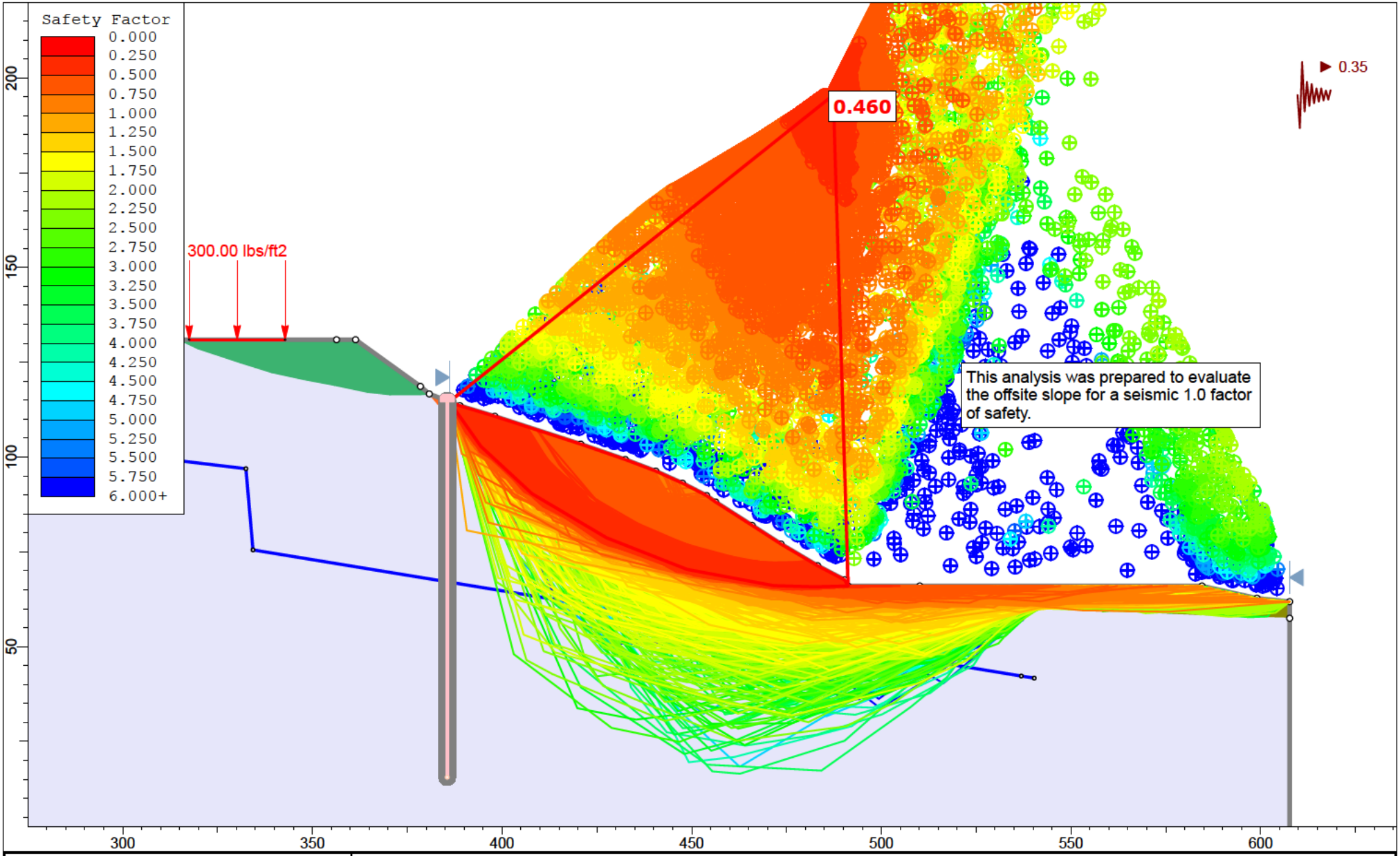
Type	Coordinates (x,y)	Master Scenario
Water Table	215.062, 110.934 332.462, 96.909 334.336, 75.504 536.885, 42.2379 540.294, 41.678	Assigned to: Anisotropic Bedrock (Tm) Ultimate
Distributed Load	342.792, 130.917 317.529, 130.917	Constant DistributionOrientation: Normal to boundaryMagnitude: 300 lbs/ft2Creates Excess Pore Pressure: No



rocscience

SLIDEINTERPRET 9.018

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



rocscience	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

SLIDEINTERPRET 9.018

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)

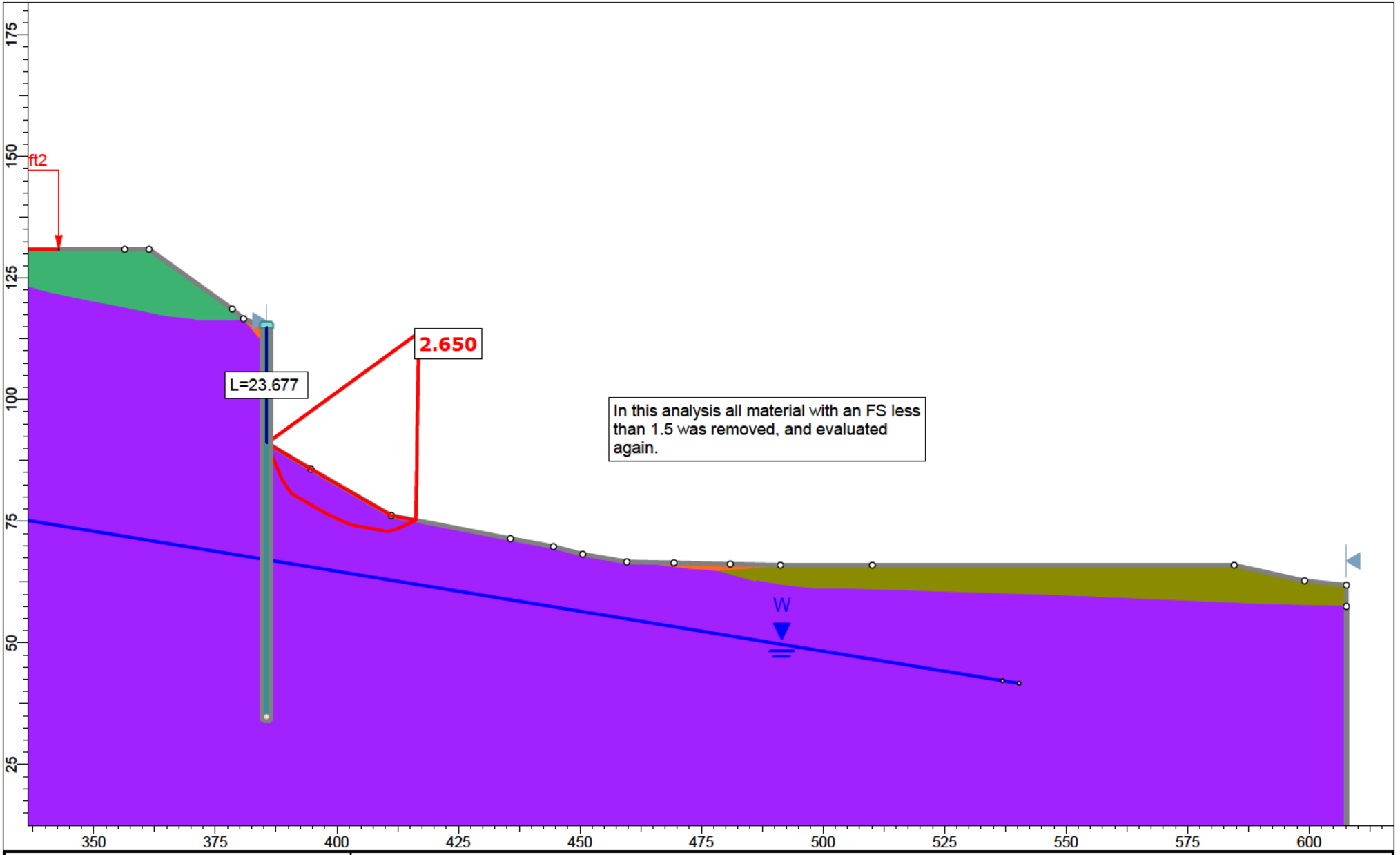
Shared Entities

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

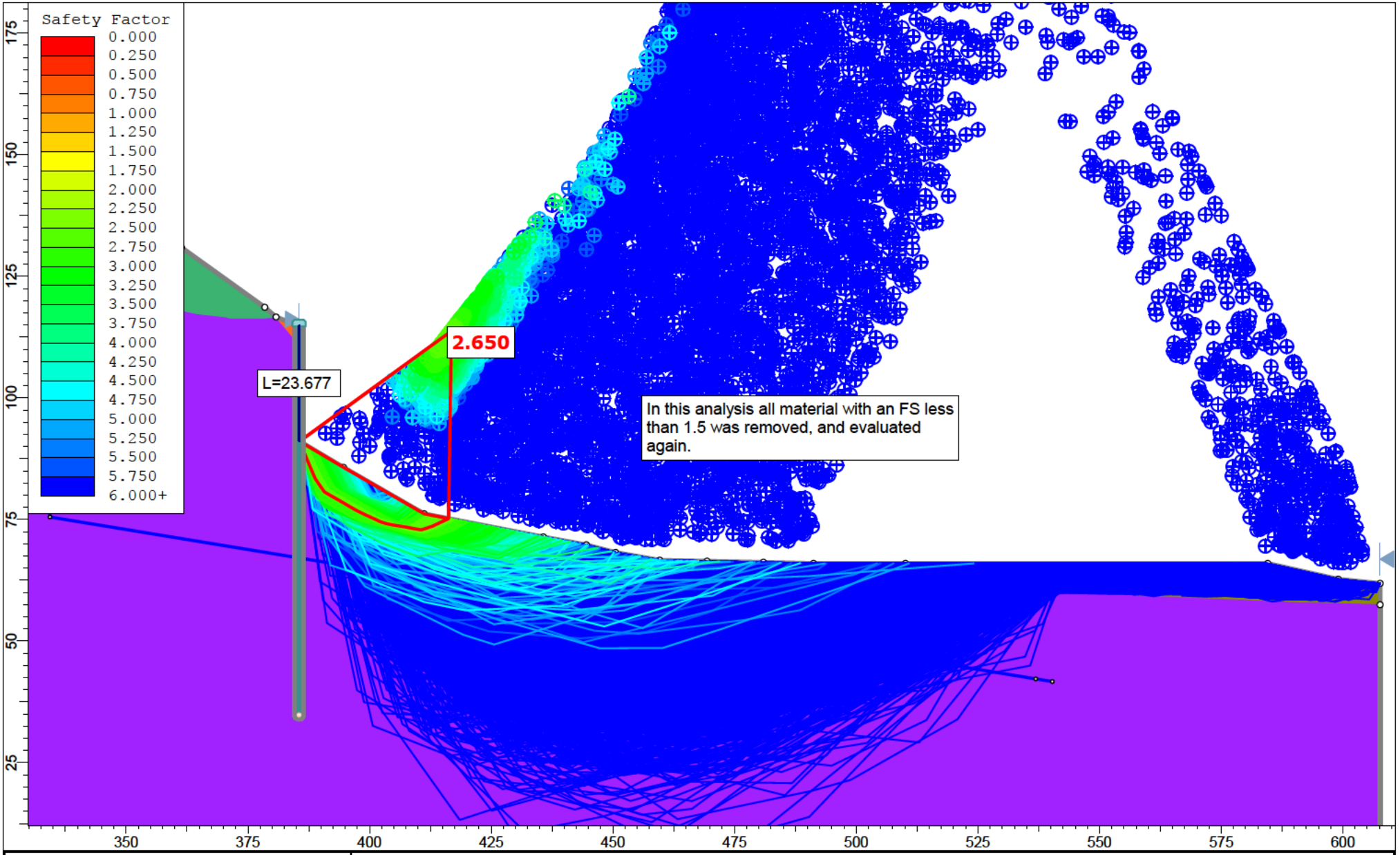
Type	Coordinates (x,y)	Master Scenario
Water Table	215.062, 110.934 332.462, 96.909 334.336, 75.504 536.885, 42.2379 540.294, 41.678	Assigned to: Anisotropic Bedrock (Tm) Peak
Distributed Load	342.792, 130.917 317.529, 130.917	Constant DistributionOrientation: Normal to boundaryMagnitude: 300 lbs/ft2Creates 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)

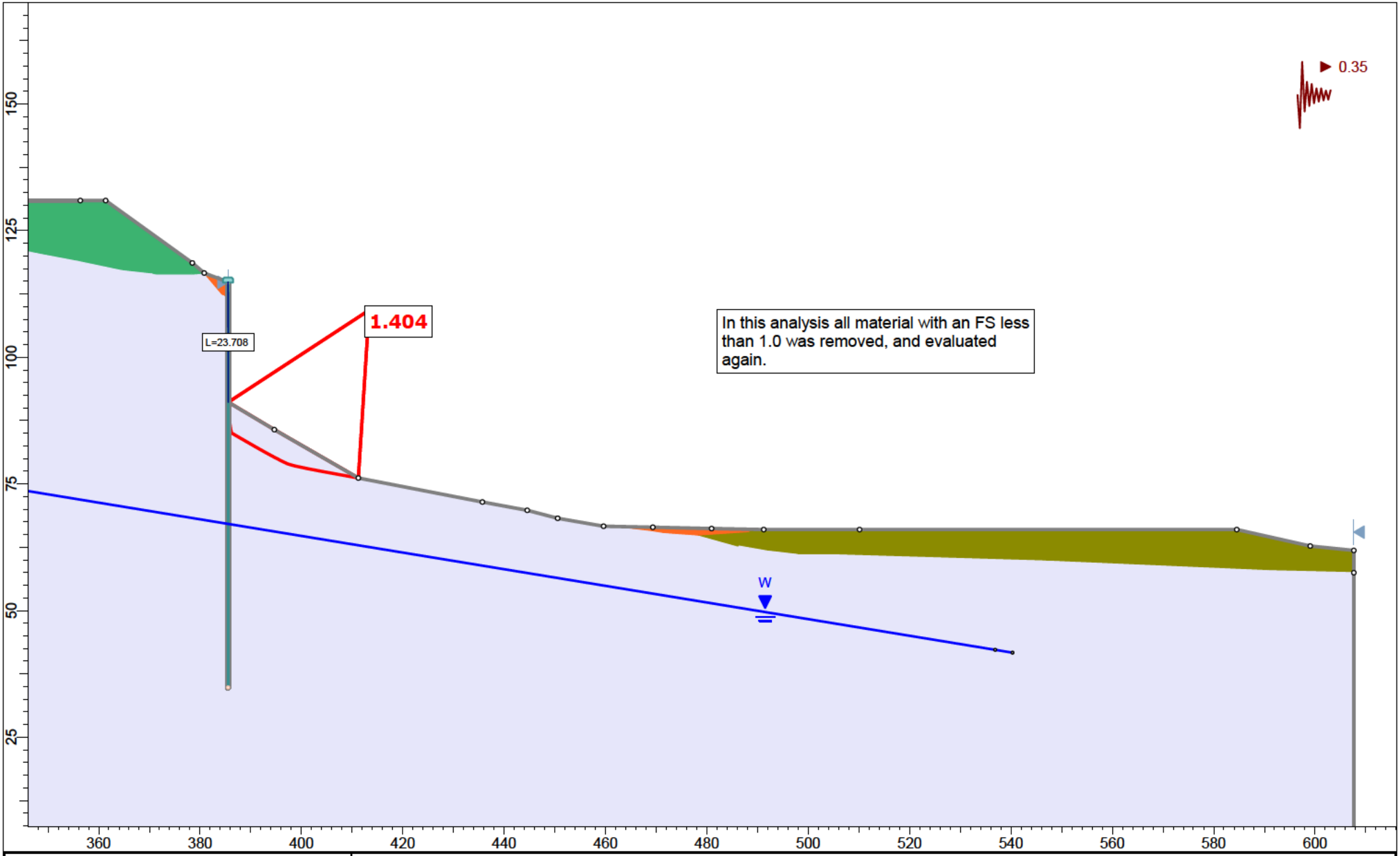
Shared Entities

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

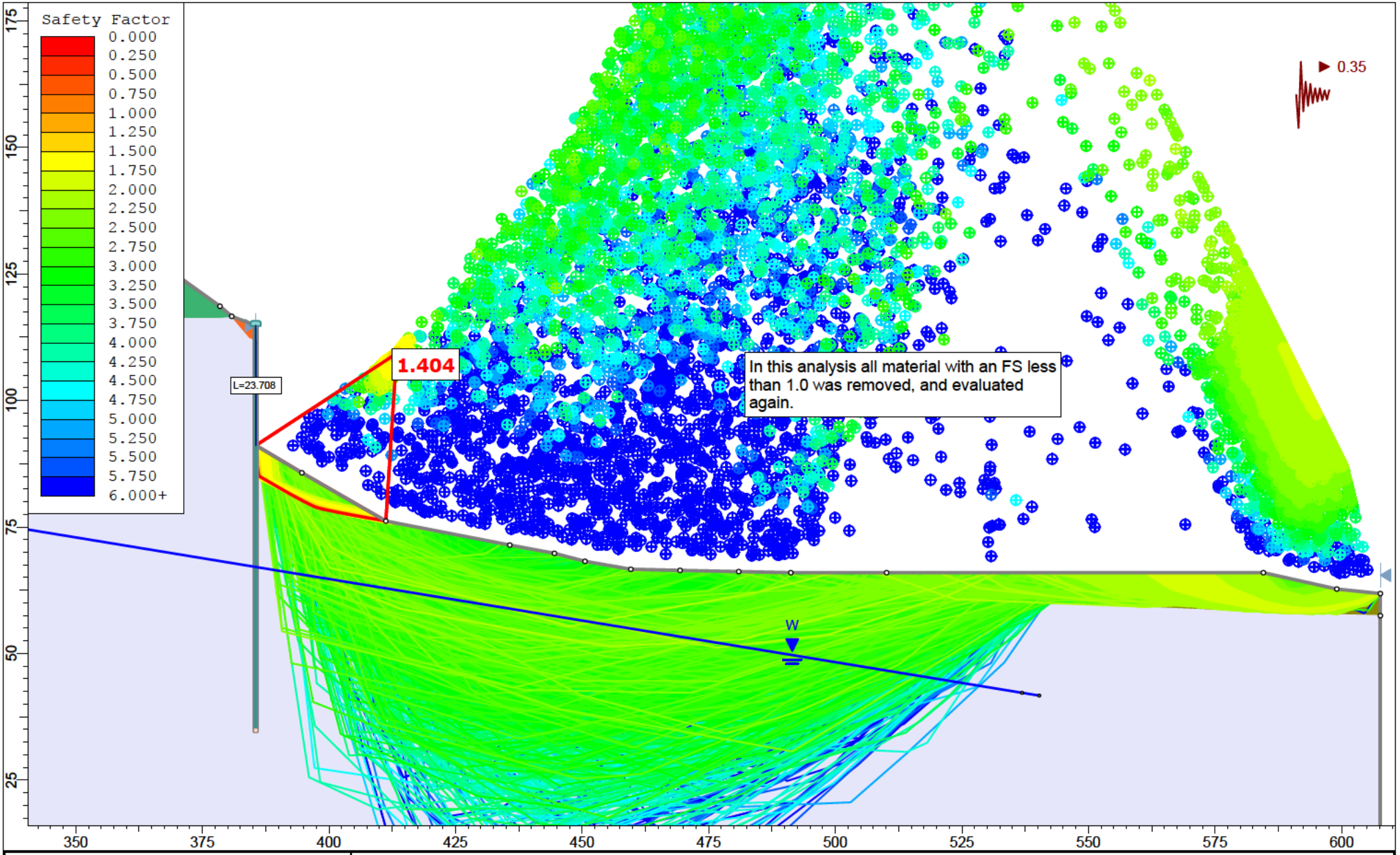
Type	Coordinates (x,y)	Master Scenario
Water Table	215.062, 110.934 332.462, 96.909 334.336, 75.504 536.885, 42.2379 540.294, 41.678	Assigned to: Anisotropic Bedrock (Tm) Ultimate
Distributed Load	342.792, 130.917 317.529, 130.917	Constant DistributionOrientation: Normal to boundaryMagnitude: 300 lbs/ft2Creates 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



rocscience	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

SLIDEINTERPRET 9.018

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)

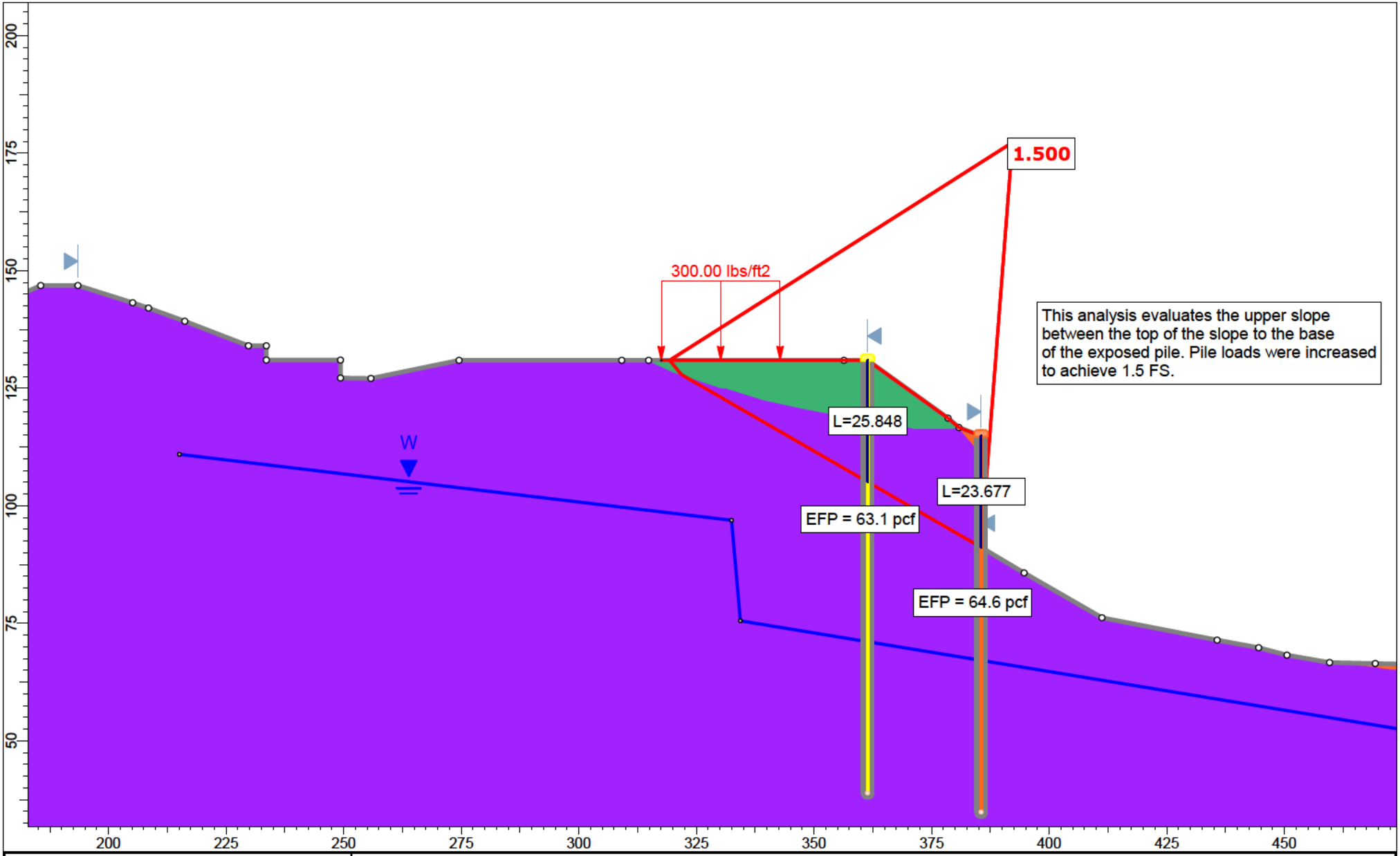
Shared Entities

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

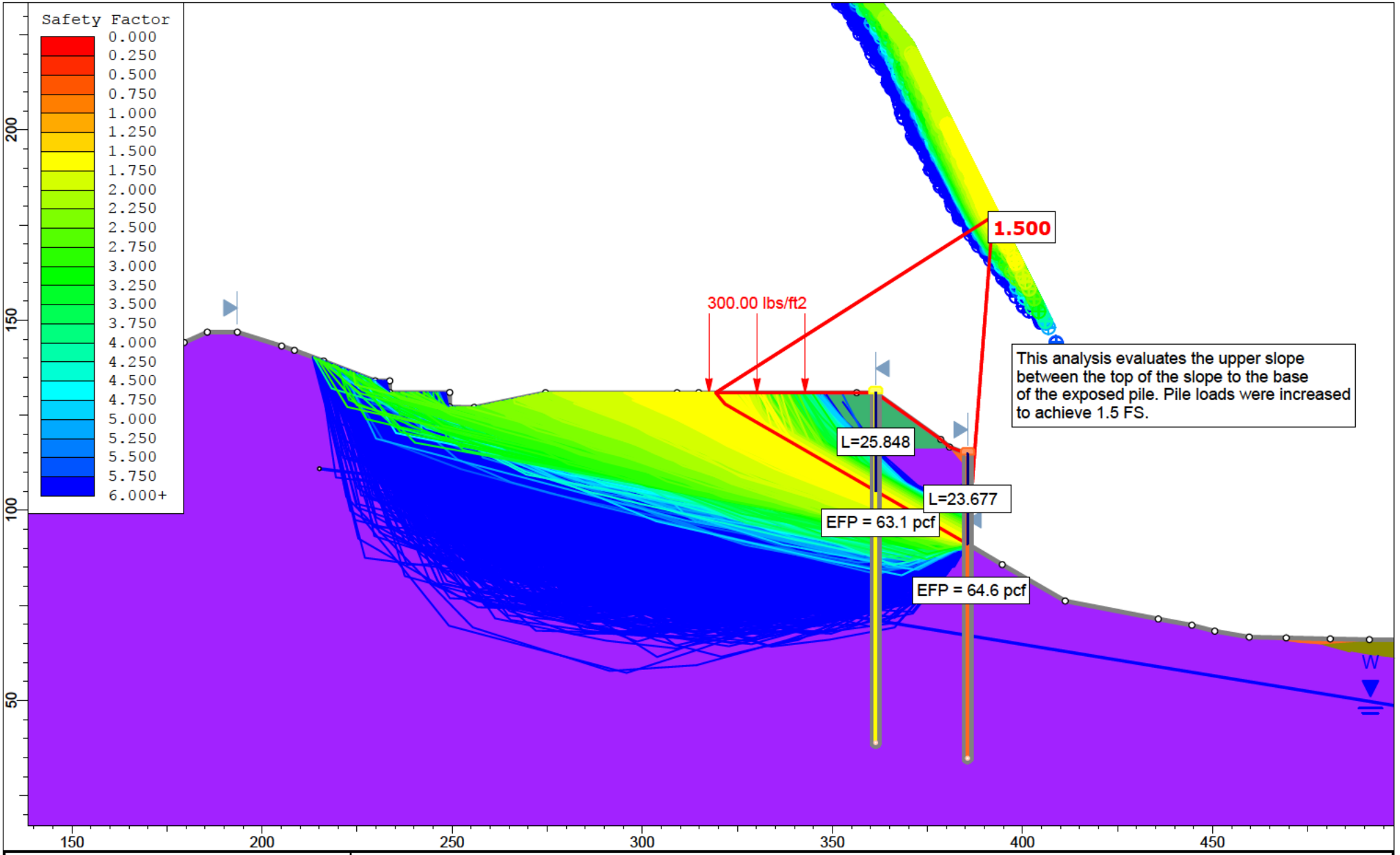
Scenario-based Entities

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	



rocscience	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

SLIDEINTERPRET 9.018



rocscience	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

SLIDEINTERPRET 9.018

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)

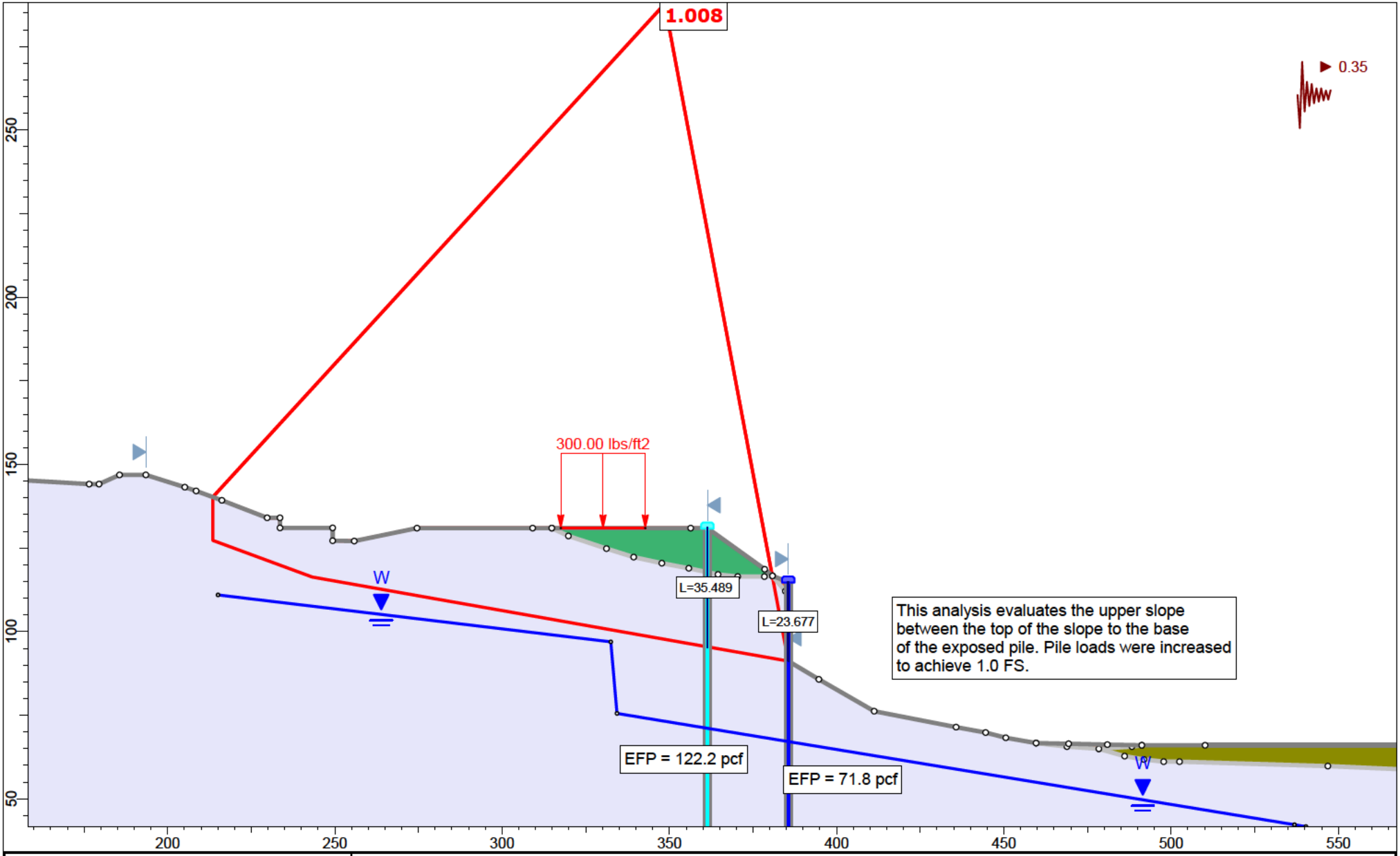
Shared Entities

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

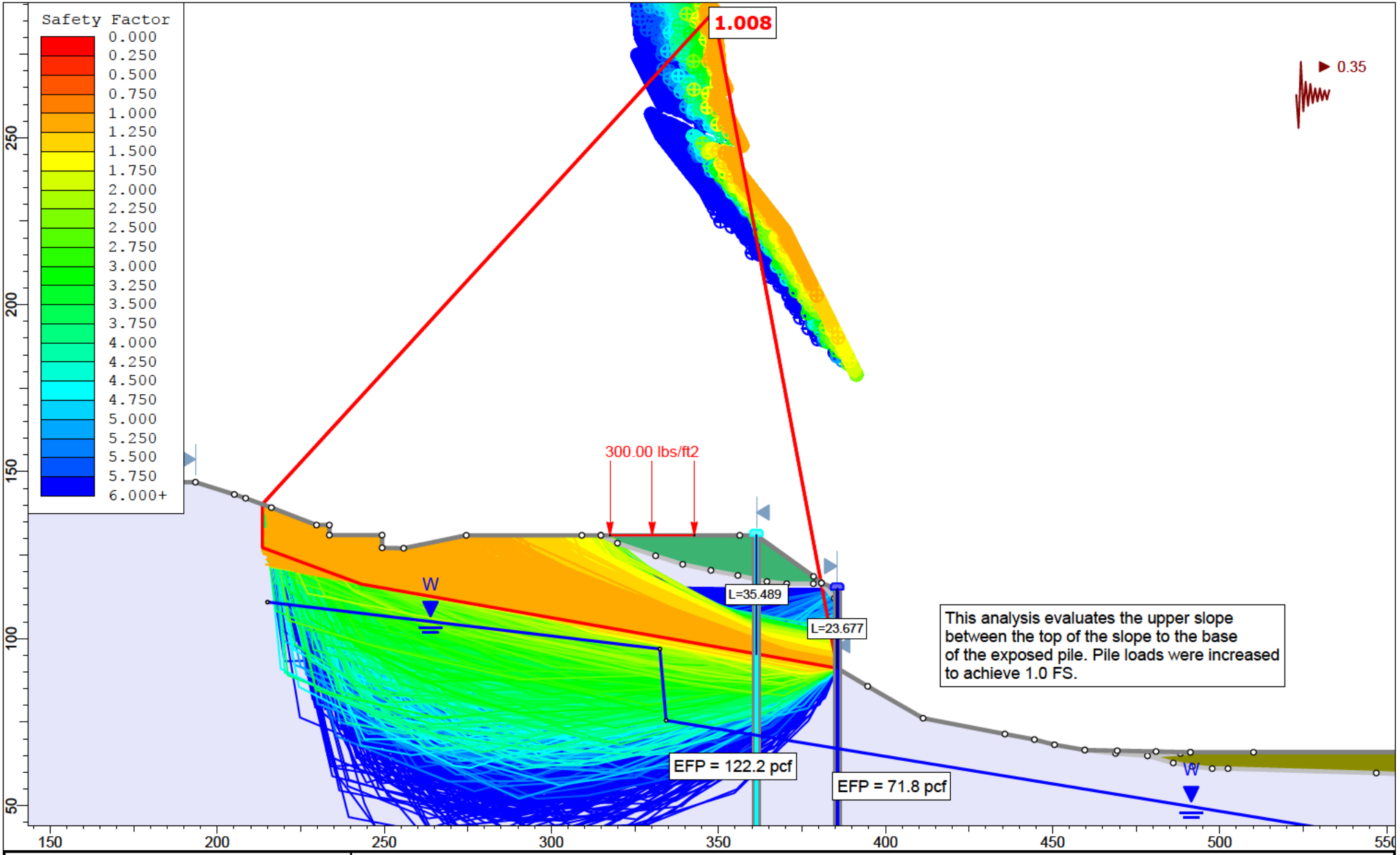
Scenario-based Entities

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	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

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)

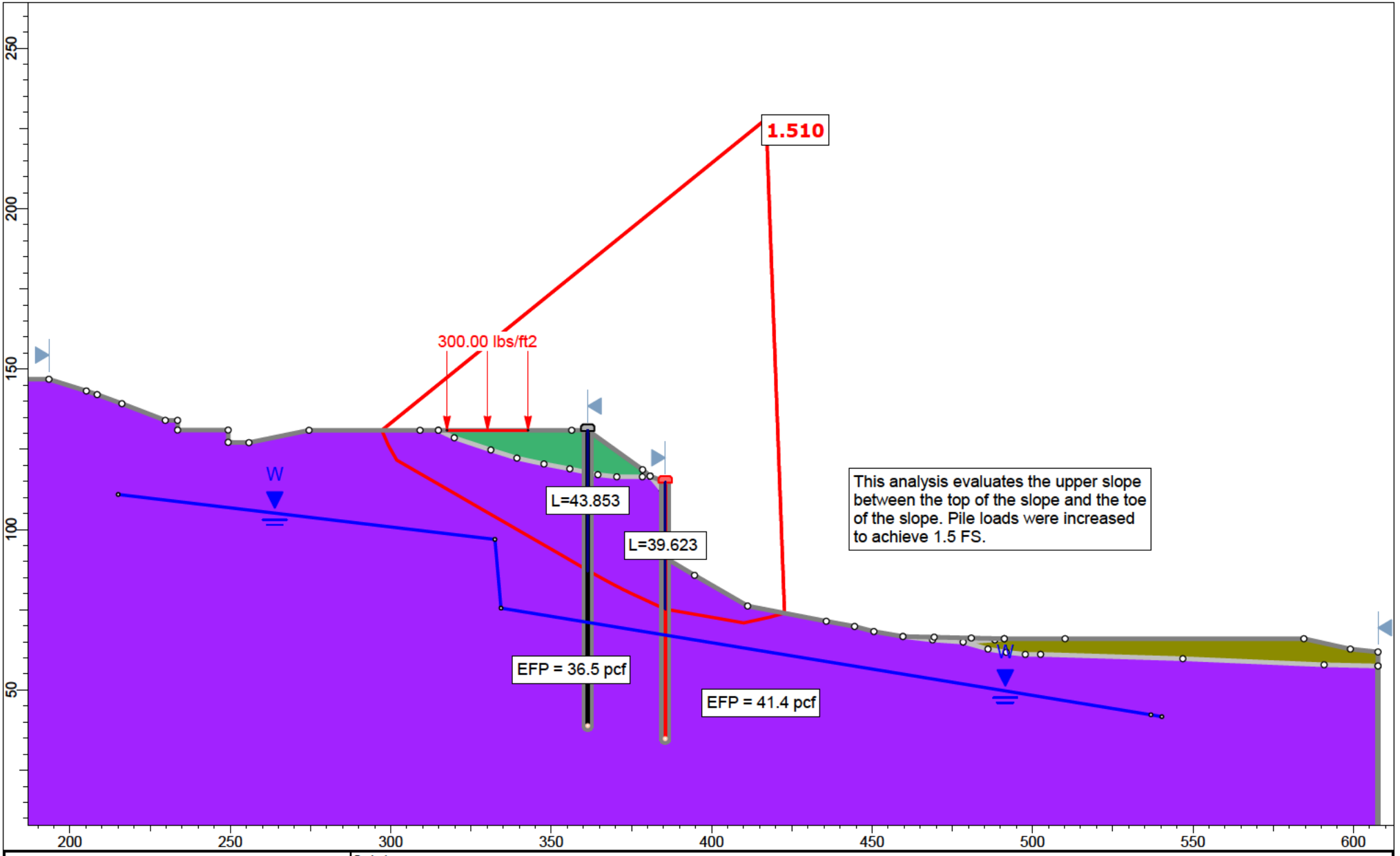
Shared Entities

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

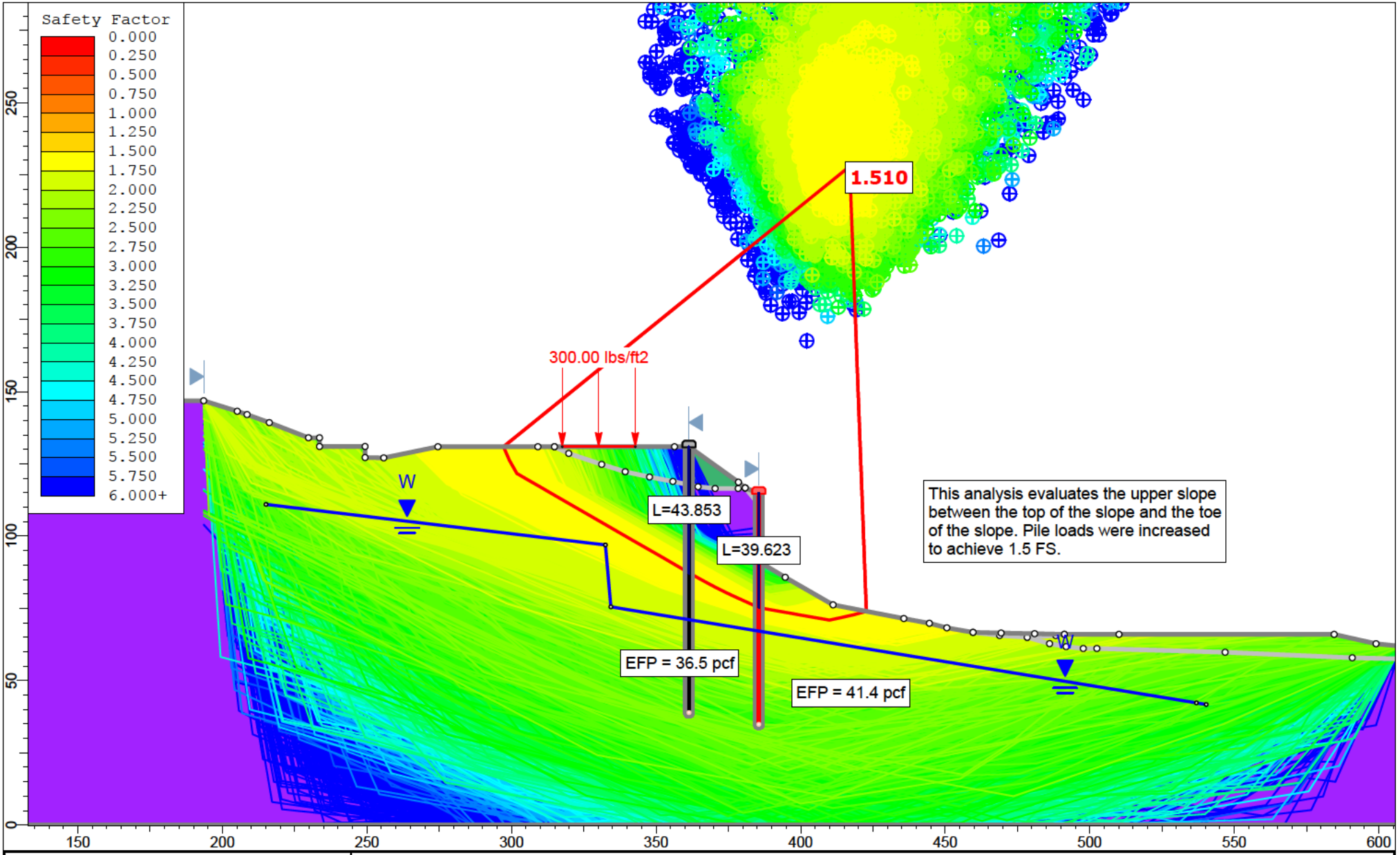
Type	Coordinates (x,y)	Master Scenario
Water Table	215.062, 110.934 332.462, 96.909 334.336, 75.504 536.885, 42.2379 540.294, 41.678	Assigned to: Anisotropic Bedrock (Tm) Peak
Distributed Load	342.792, 130.917 317.529, 130.917	Constant DistributionOrientation: Normal to boundaryMagnitude: 300 lbs/ft2Creates Excess Pore Pressure: No
Non-Circular Failure Surface	394.667, 85.7073 411.23, 76.1631	



rocscience

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



rocscience	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

SLIDEINTERPRET 9.018

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

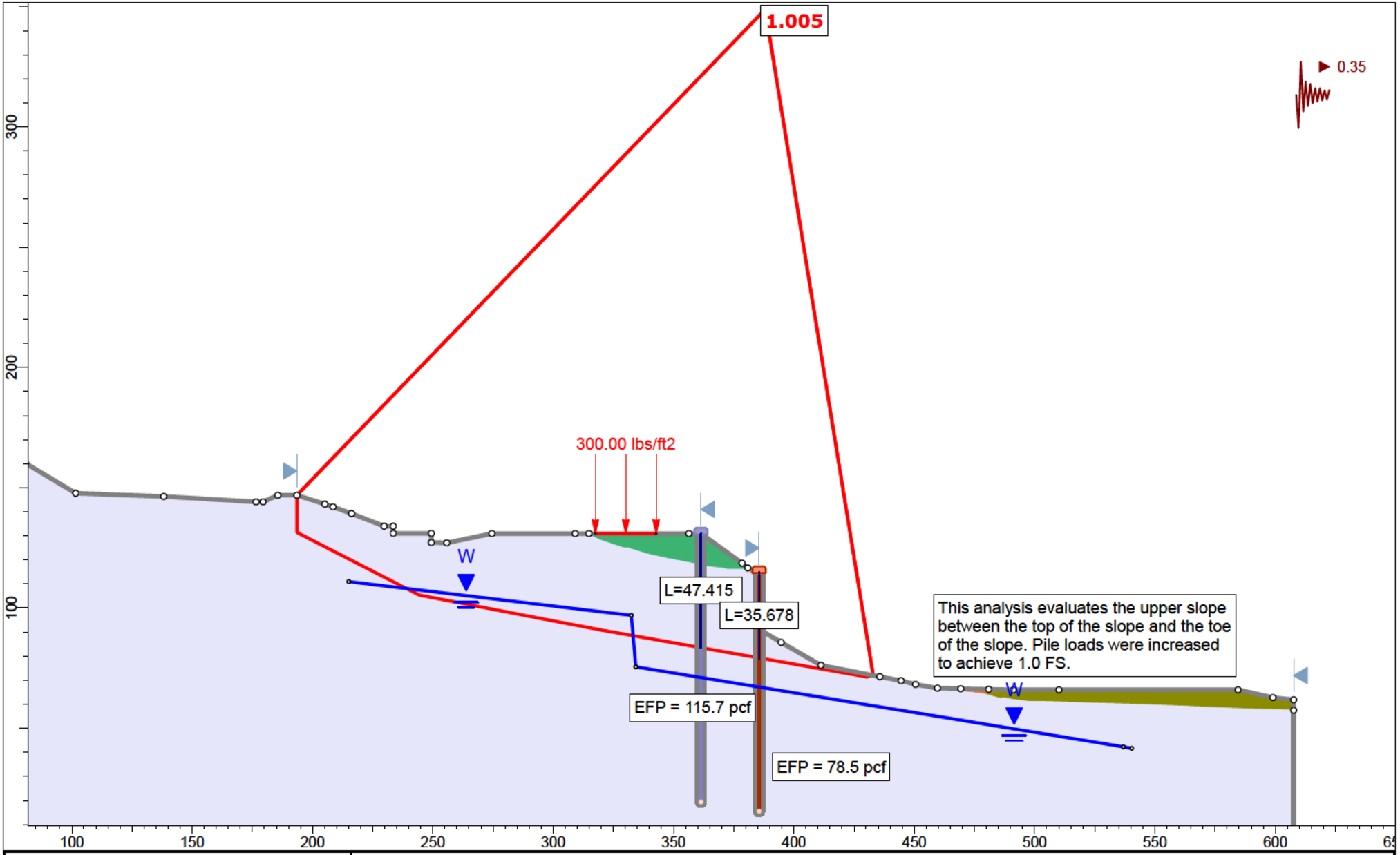
Shared Entities

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

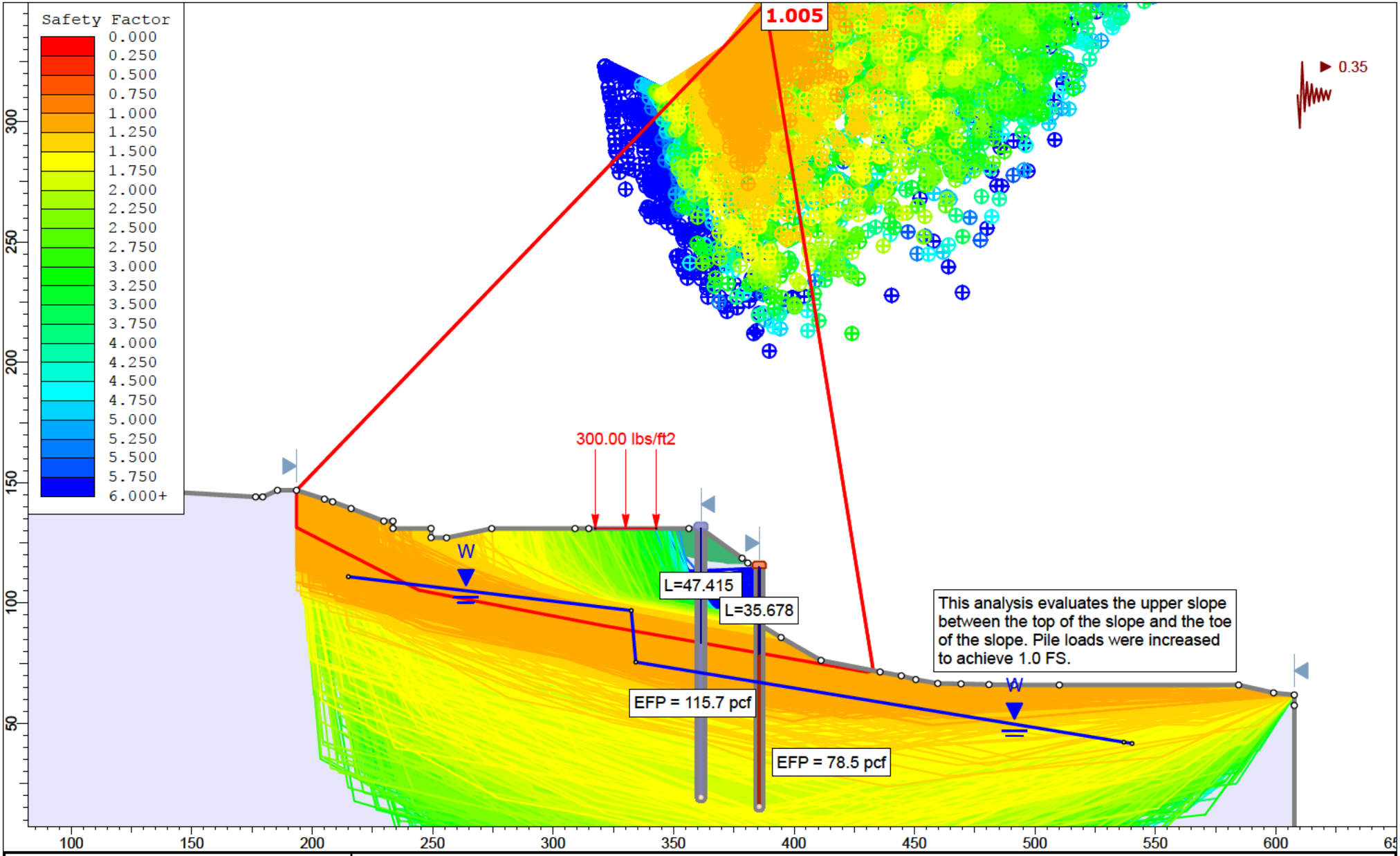
Scenario-based Entities

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

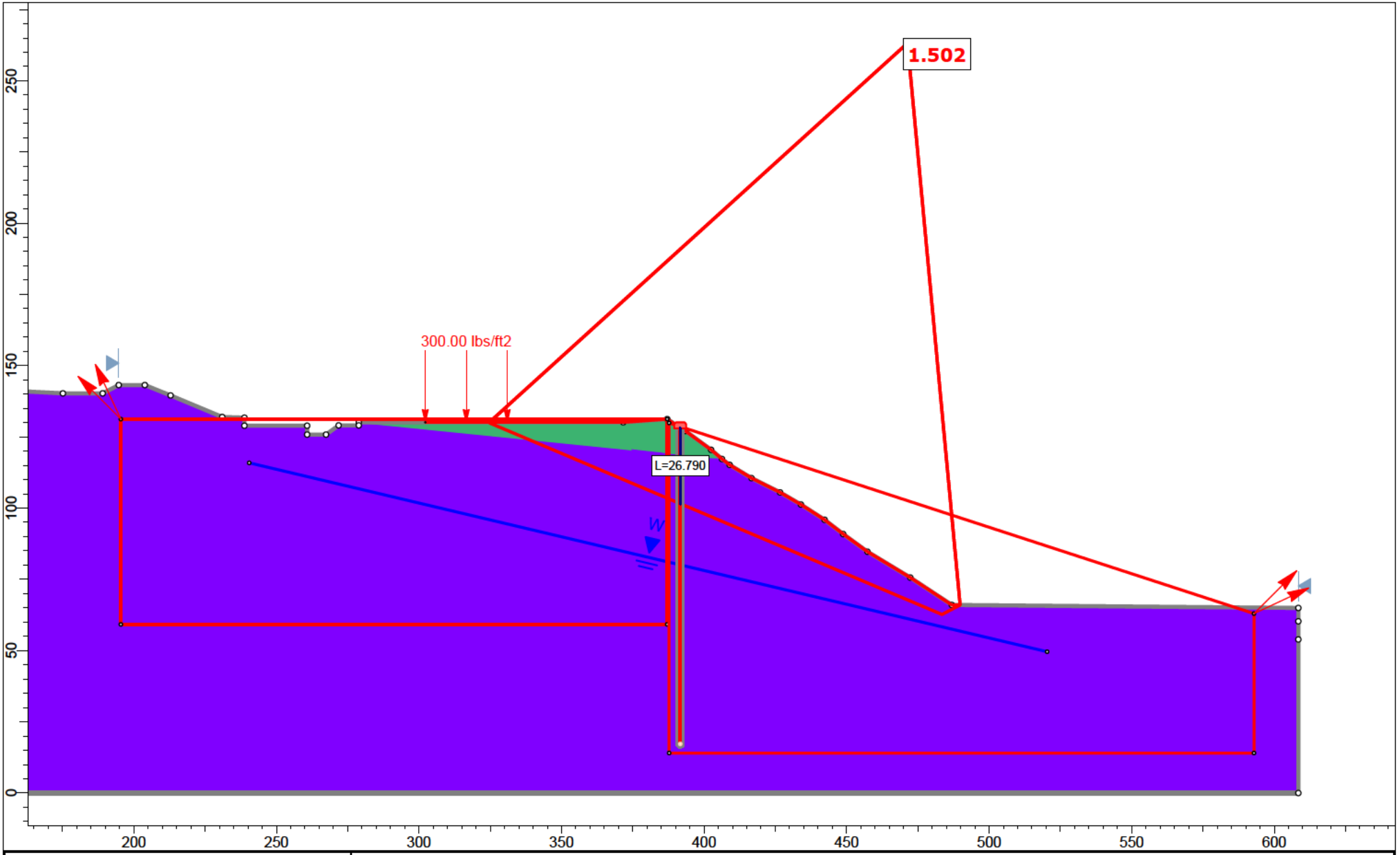
Shared Entities

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

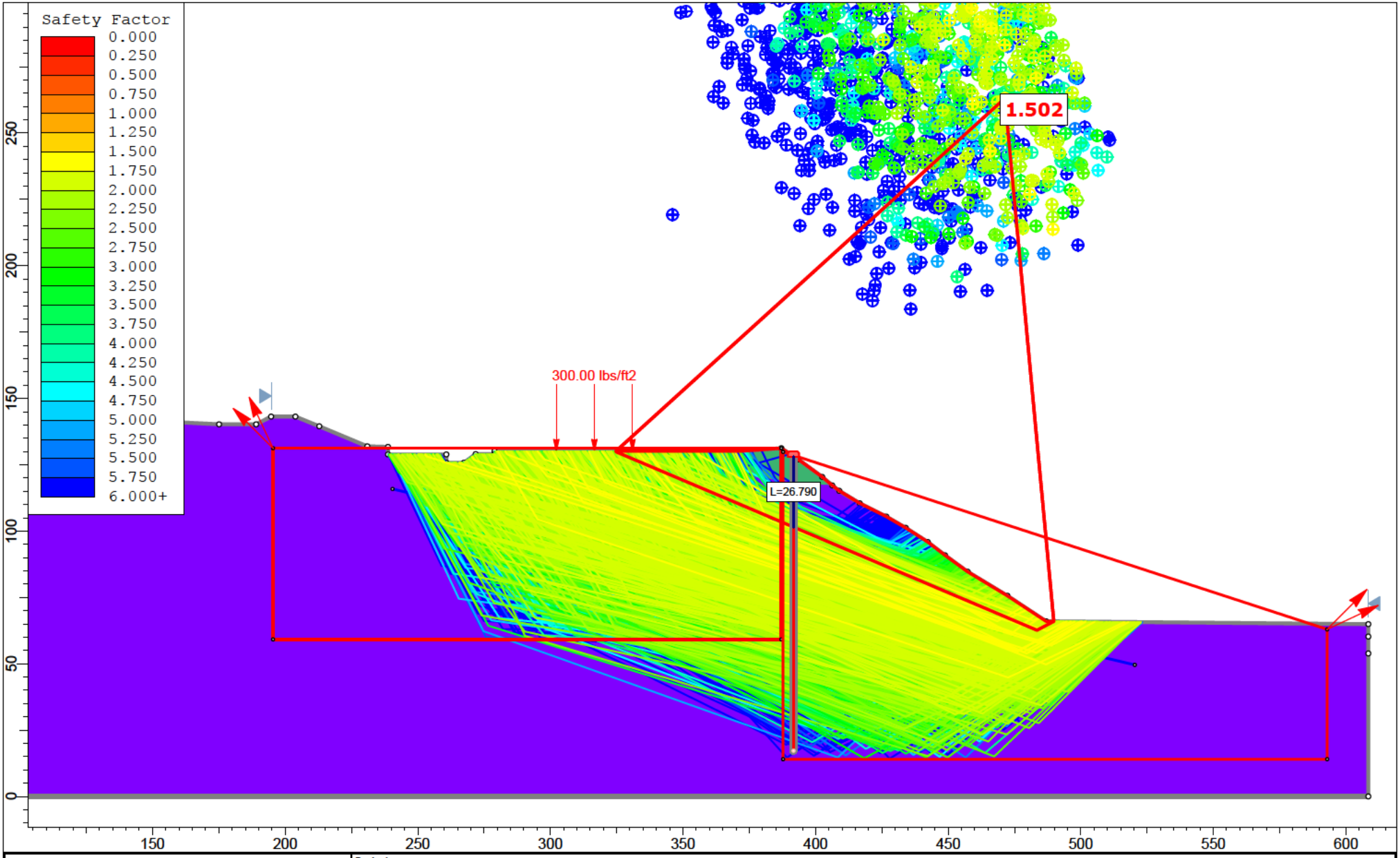
Type	Coordinates (x,y)	Master Scenario
Water Table	215.062, 110.934 332.462, 96.909 334.336, 75.504 536.885, 42.2379 540.294, 41.678	Not assigned to any materials
Distributed Load	342.792, 130.917 317.529, 130.917	Constant DistributionOrientation: Normal to boundaryMagnitude: 300 lbs/ft2Creates Excess 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

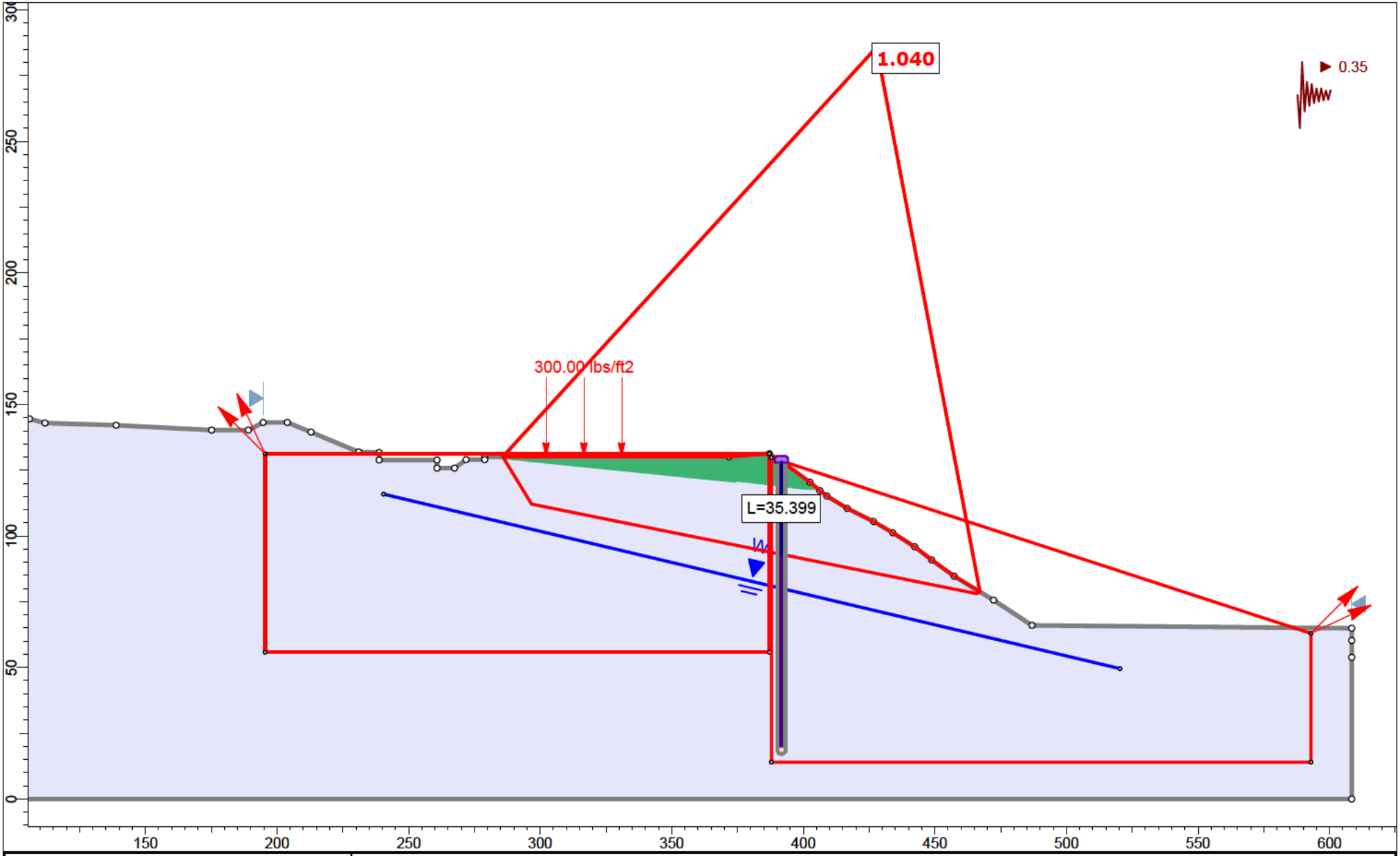
Type	Coordinates (x,y)

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

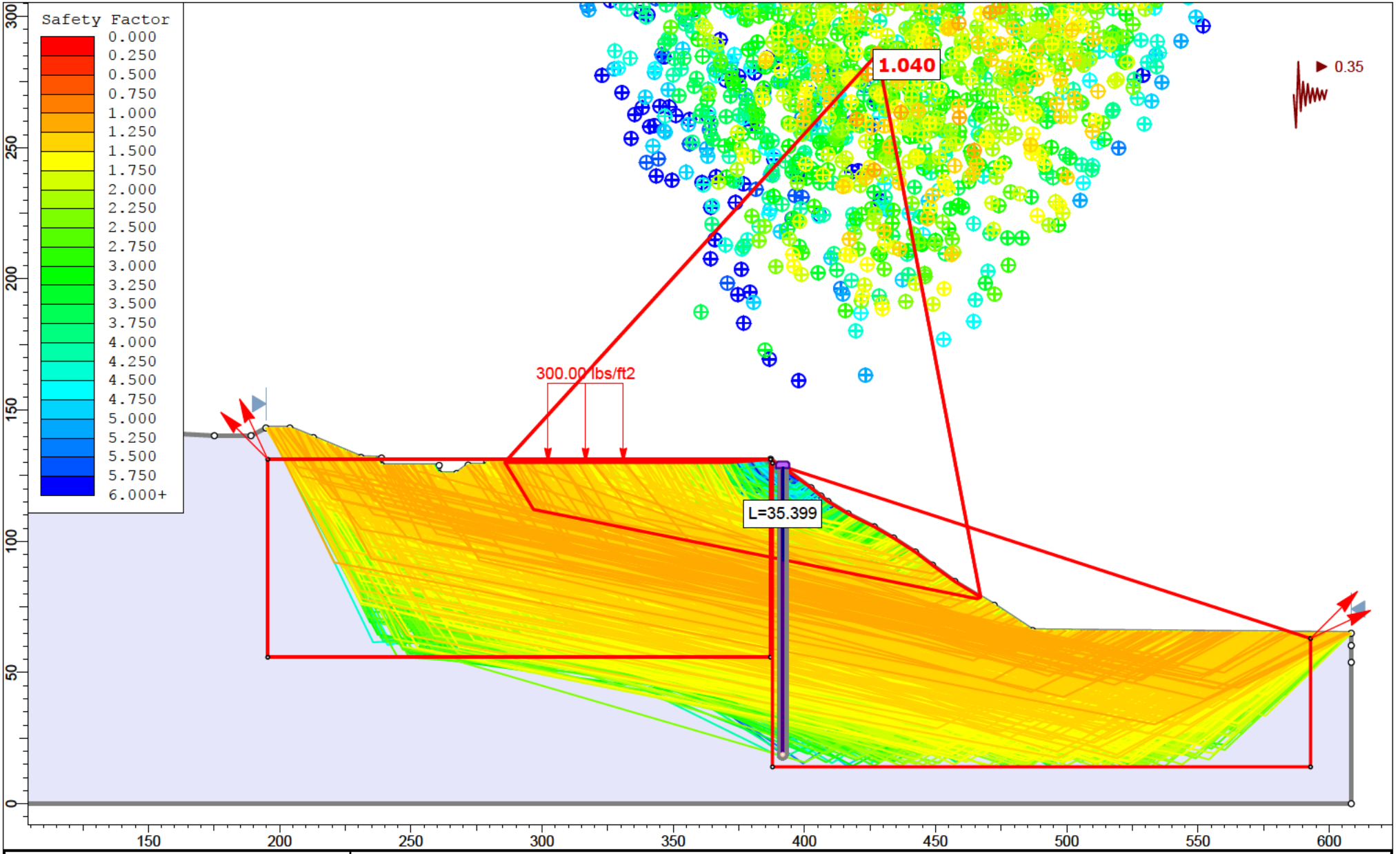
Scenario-based Entities

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

SLIDEINTERPRET 9.018



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

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:00.793s
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

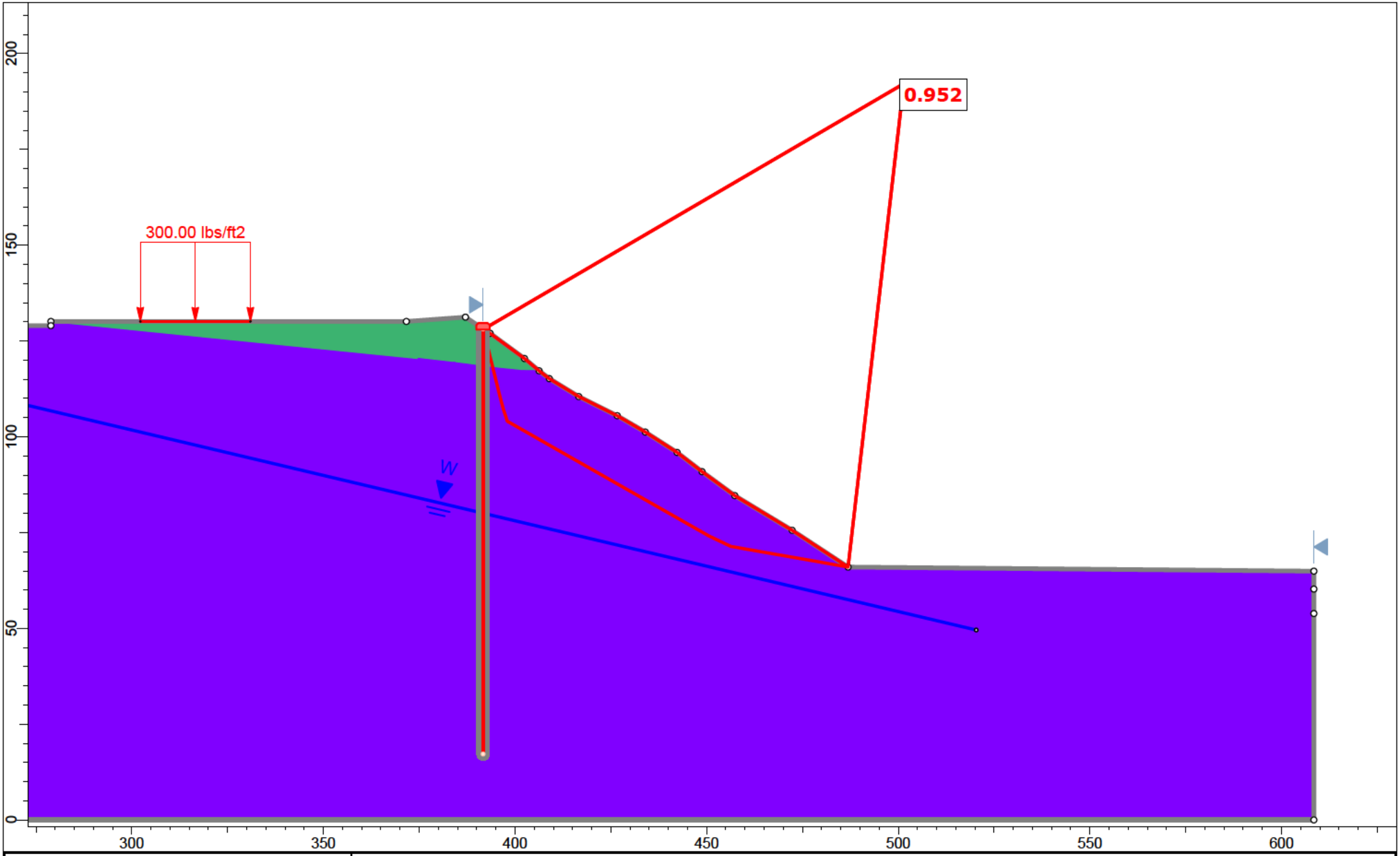
Type	Coordinates (x,y)

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

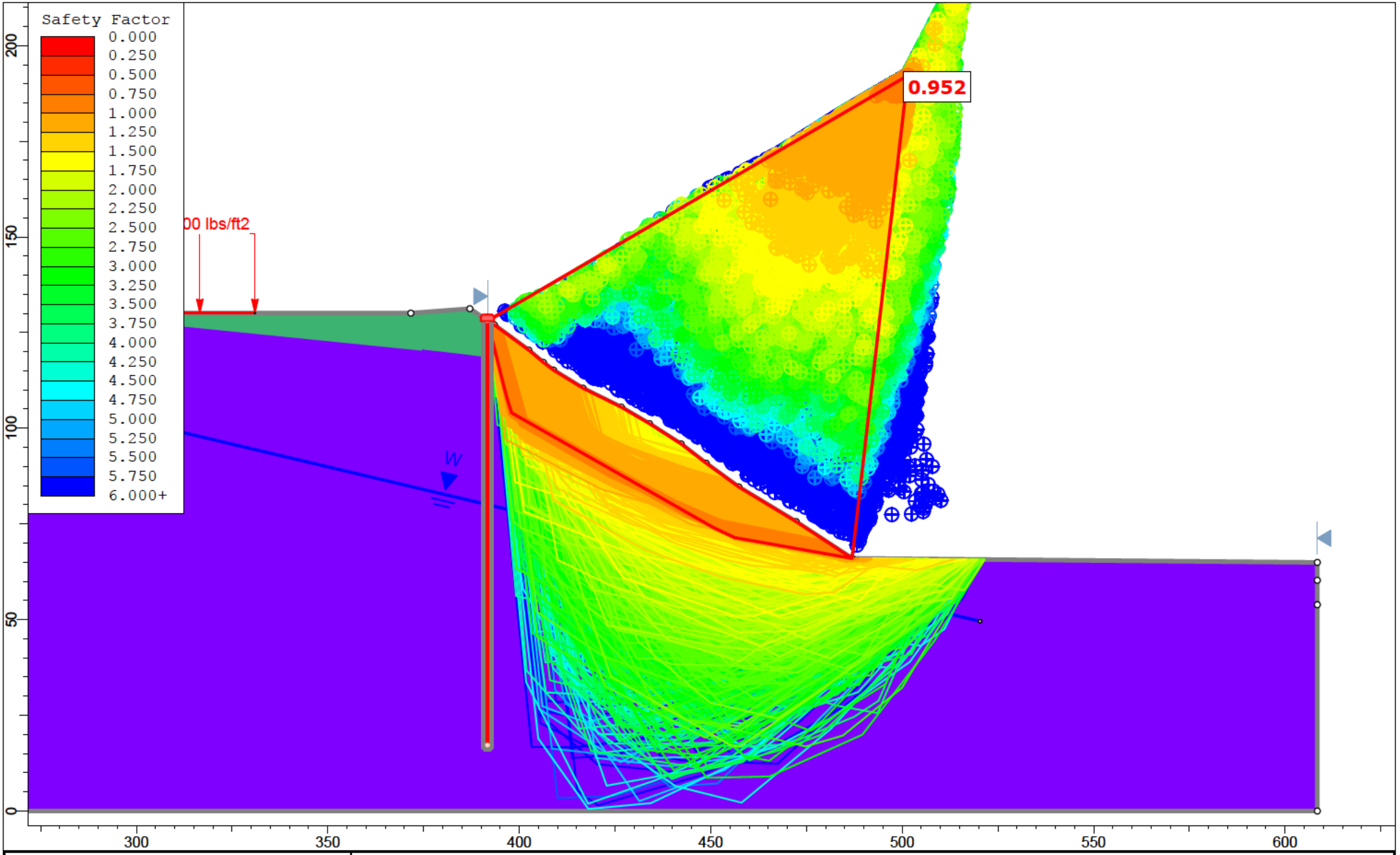
Type	Coordinates (x,y)	Master Scenario
Water Table	240.477, 115.859 520.344, 49.554	Not assigned to any materials
Distributed Load	330.957, 130.073 302.229, 130.073	Constant DistributionOrientation: Normal to boundaryMagnitude: 300 lbs/ft2Creates Excess Pore Pressure: No
Block Search Window	195.439, 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

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



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

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

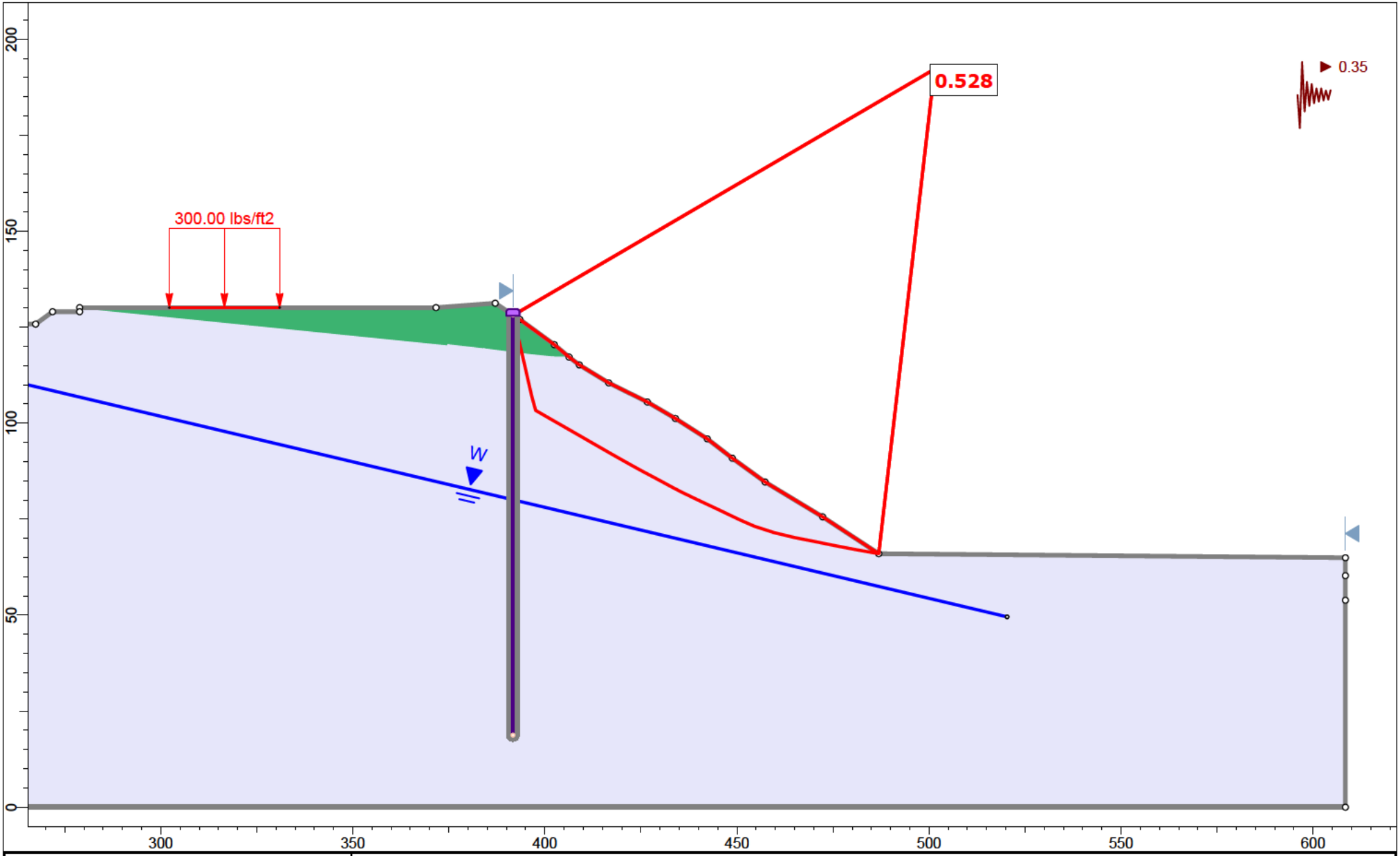
Type	Coordinates (x,y)

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

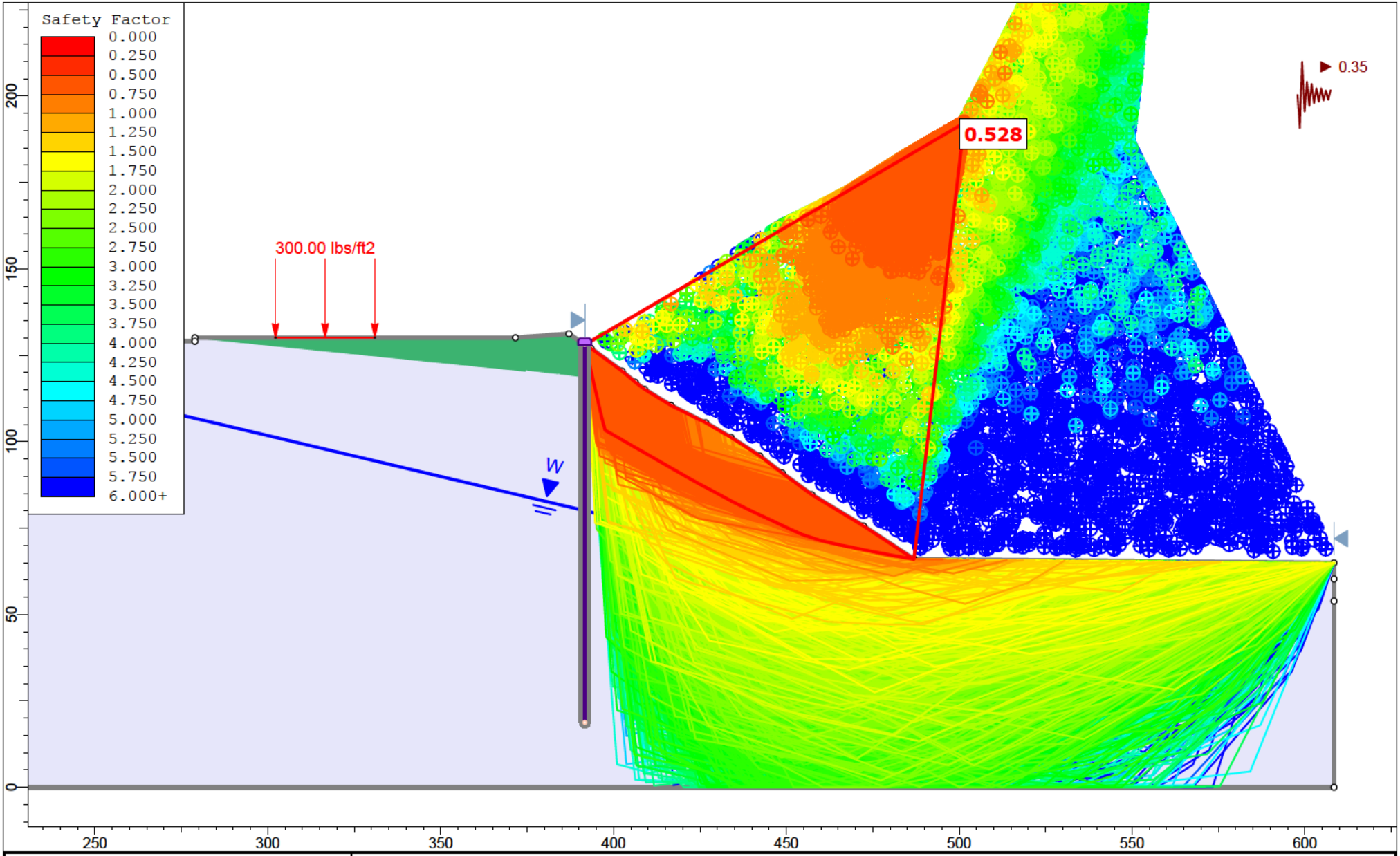
Scenario-based Entities

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

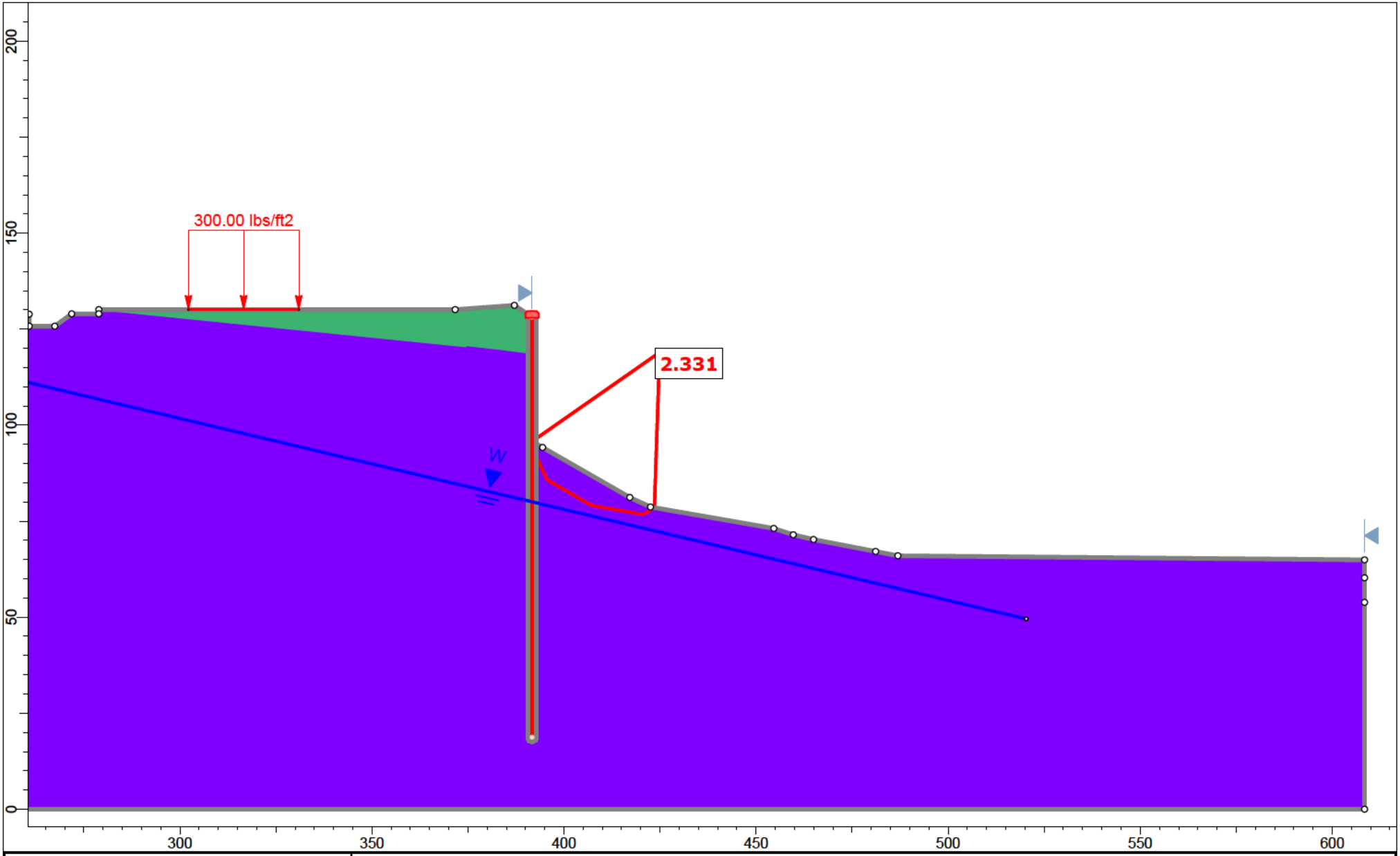
Type	Coordinates (x,y)

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

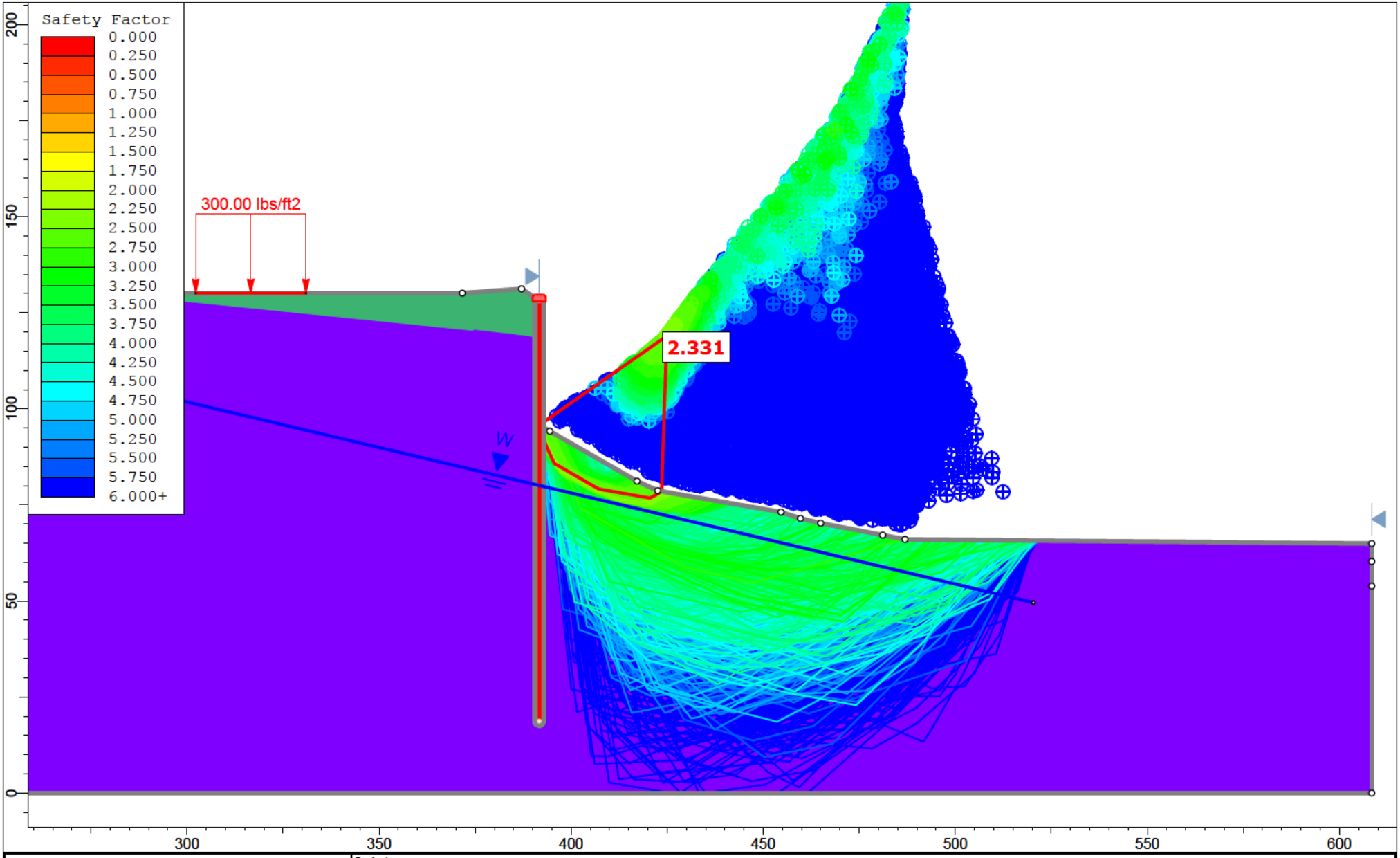
Scenario-based Entities

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)

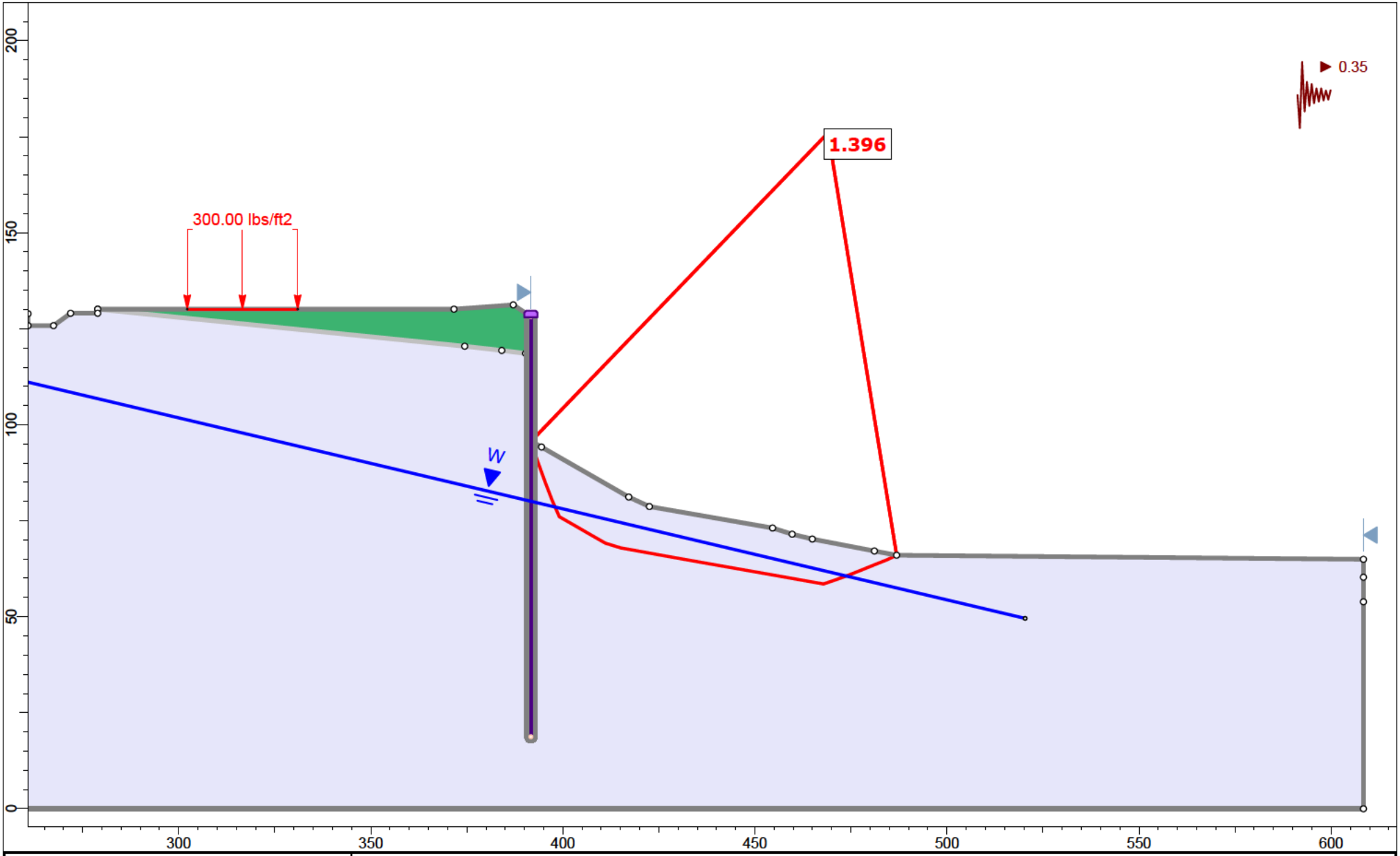
Shared Entities

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

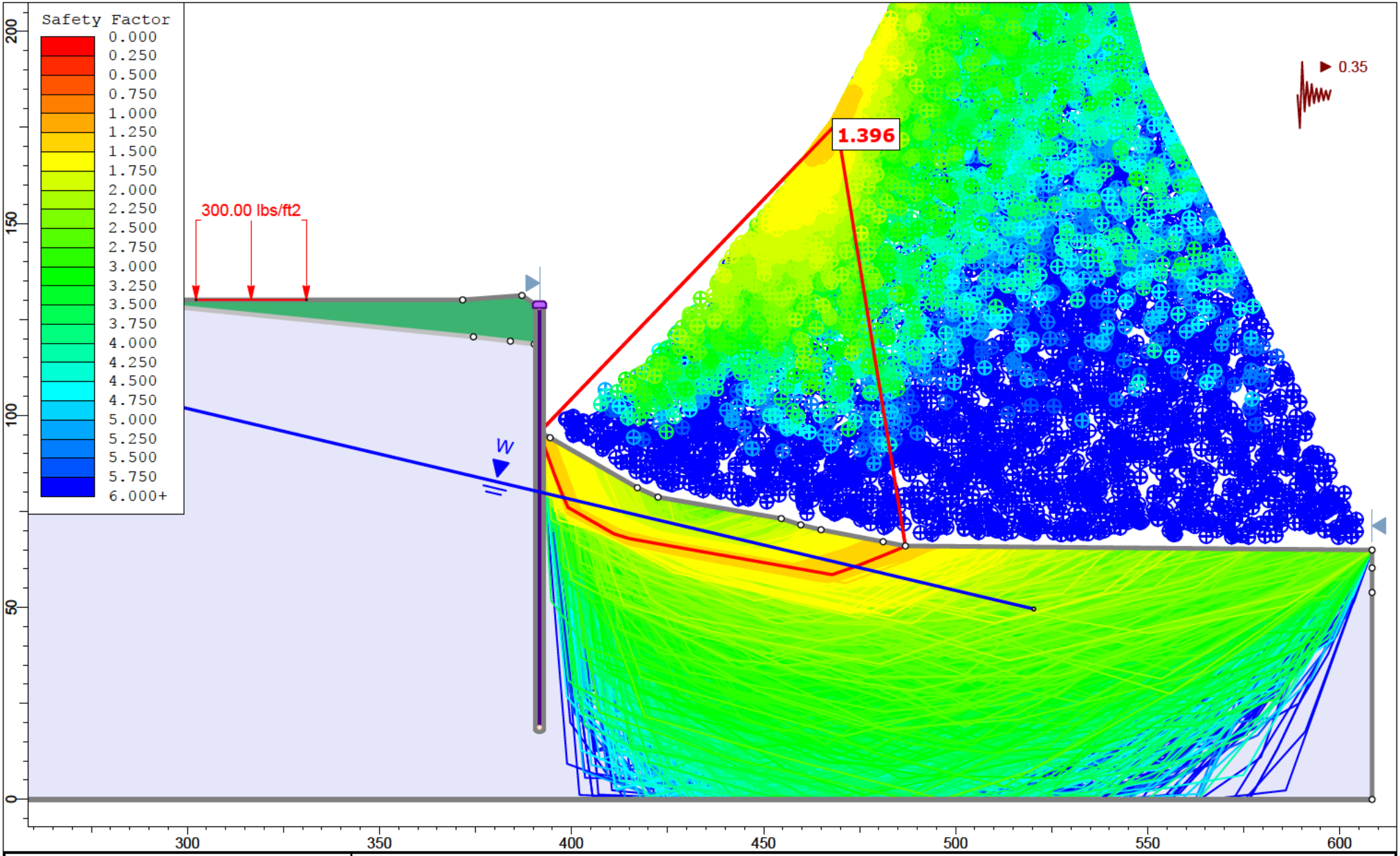
Scenario-based Entities

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	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

SLIDEINTERPRET 9.018



rocscience	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

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: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)

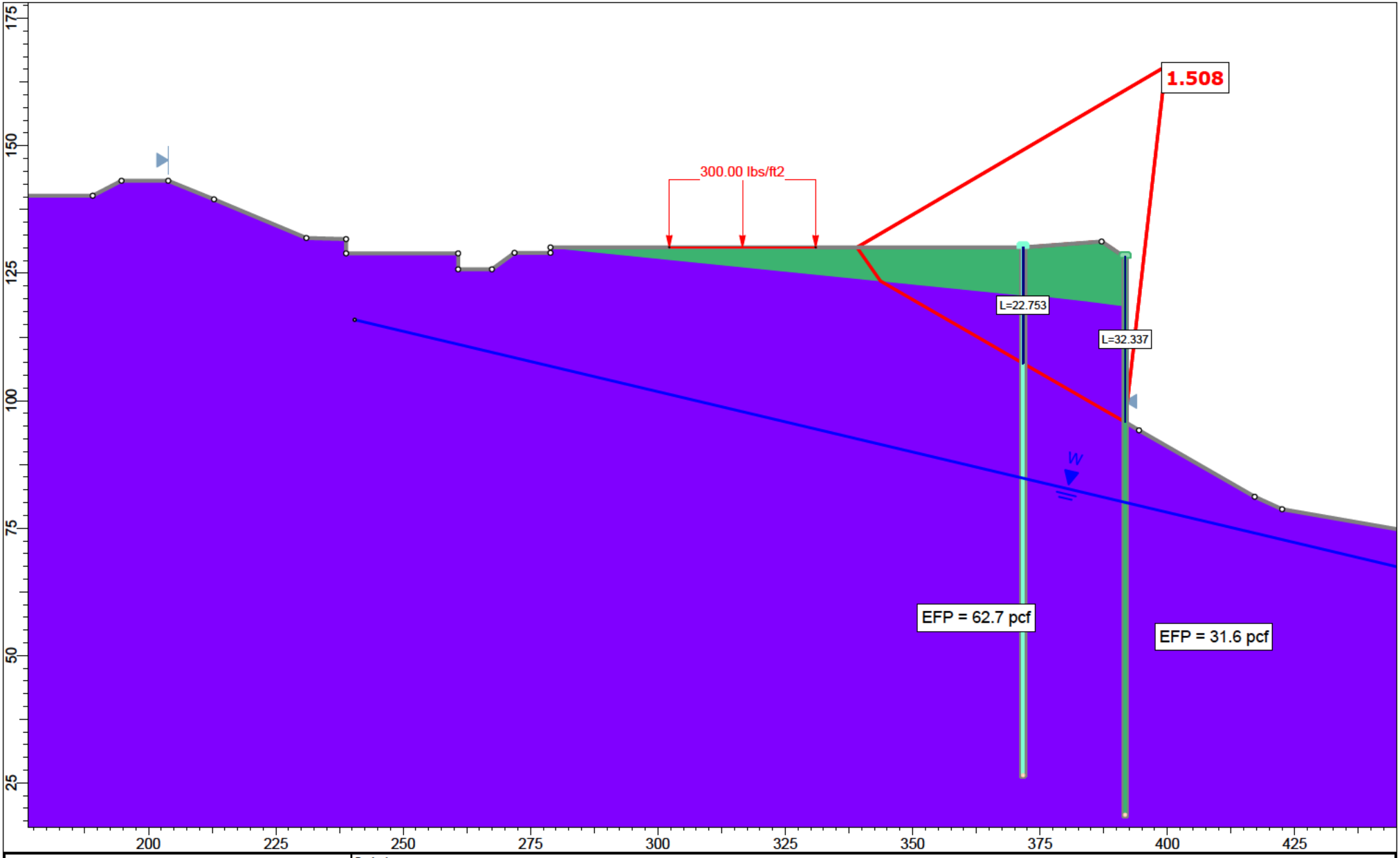
Shared Entities

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

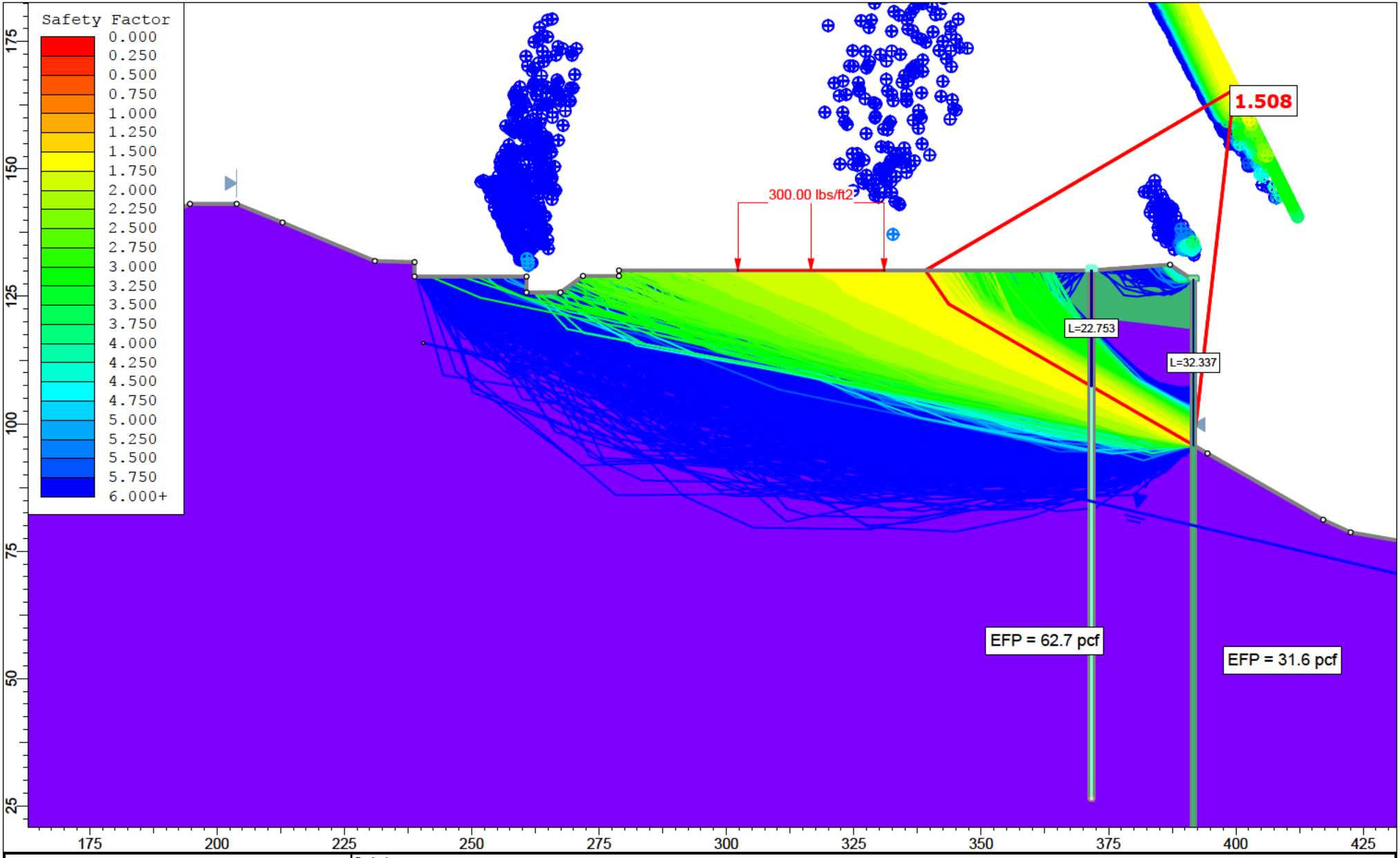
Scenario-based Entities

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	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

SLIDEINTERPRET 9.018



rocscience	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

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: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

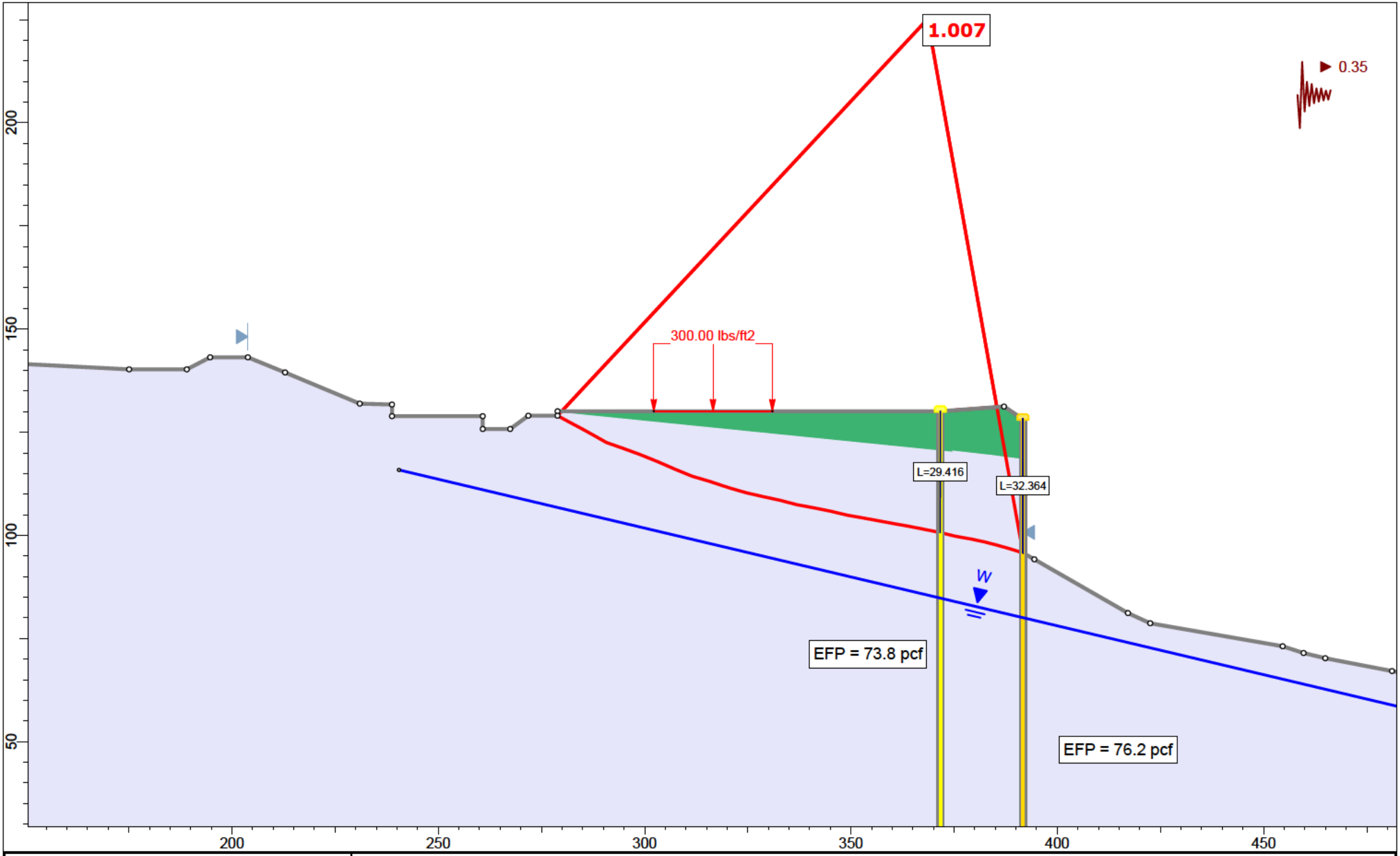
Type	Coordinates (x,y)

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

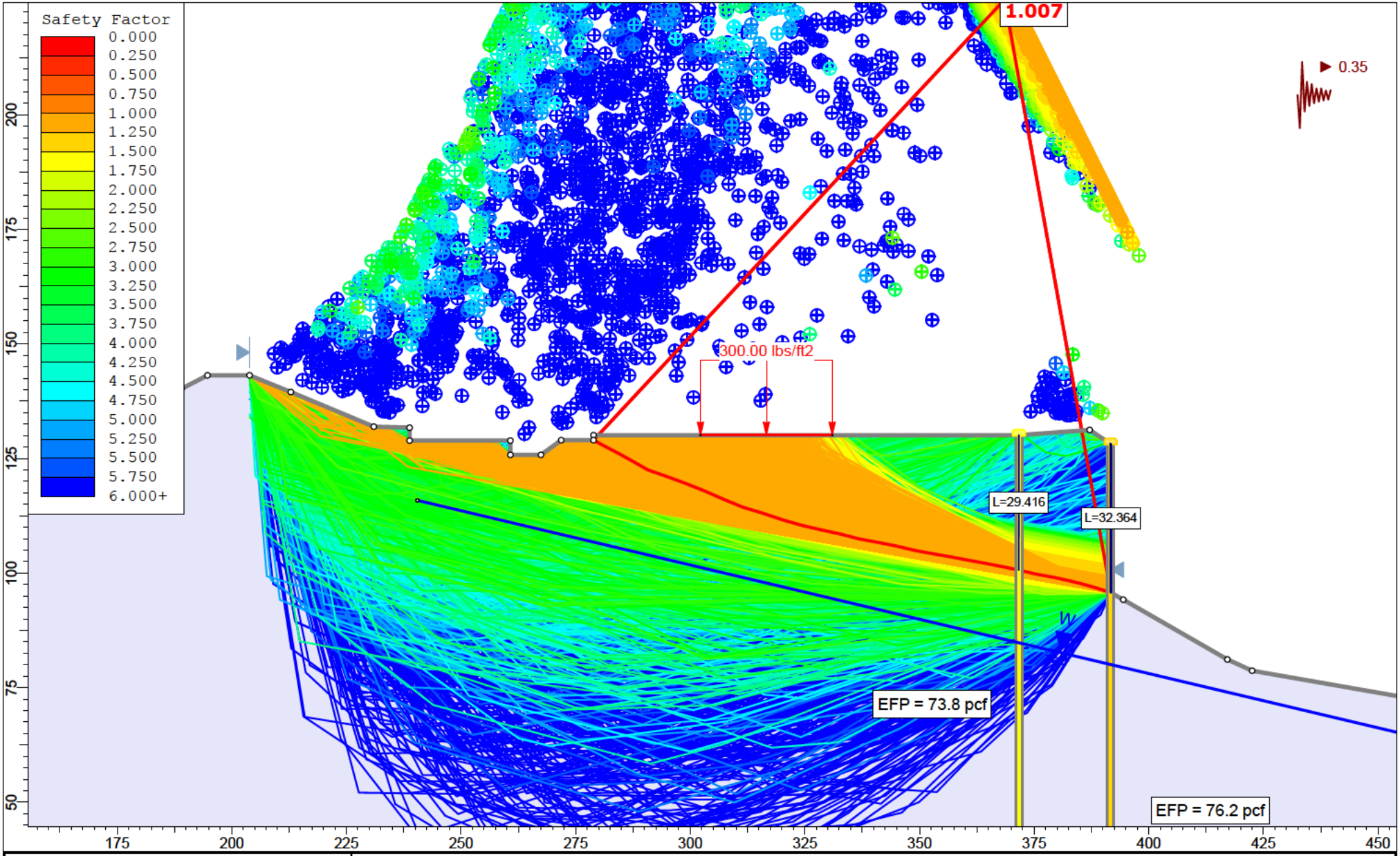
Scenario-based Entities

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	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

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: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

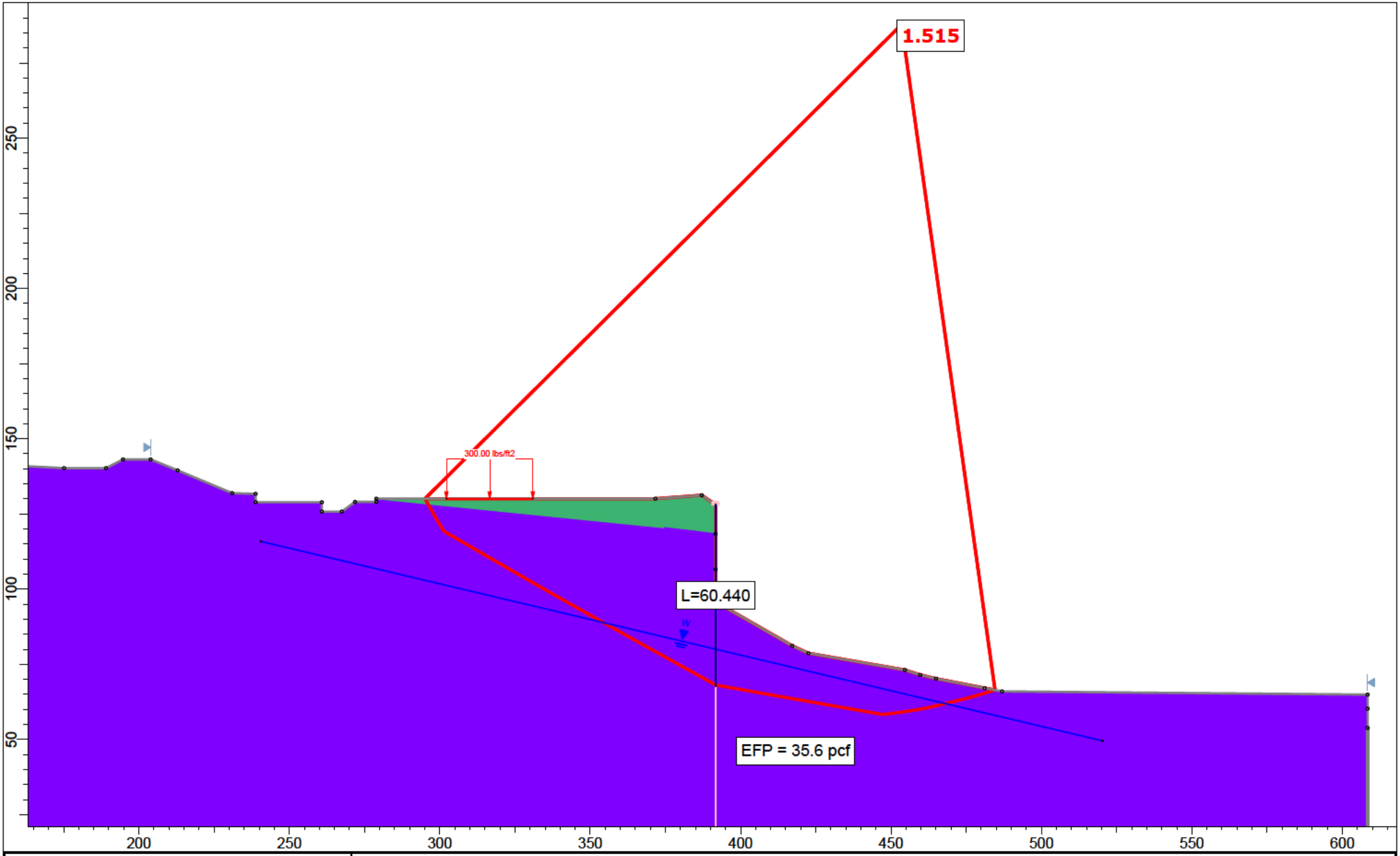
Type	Coordinates (x,y)

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

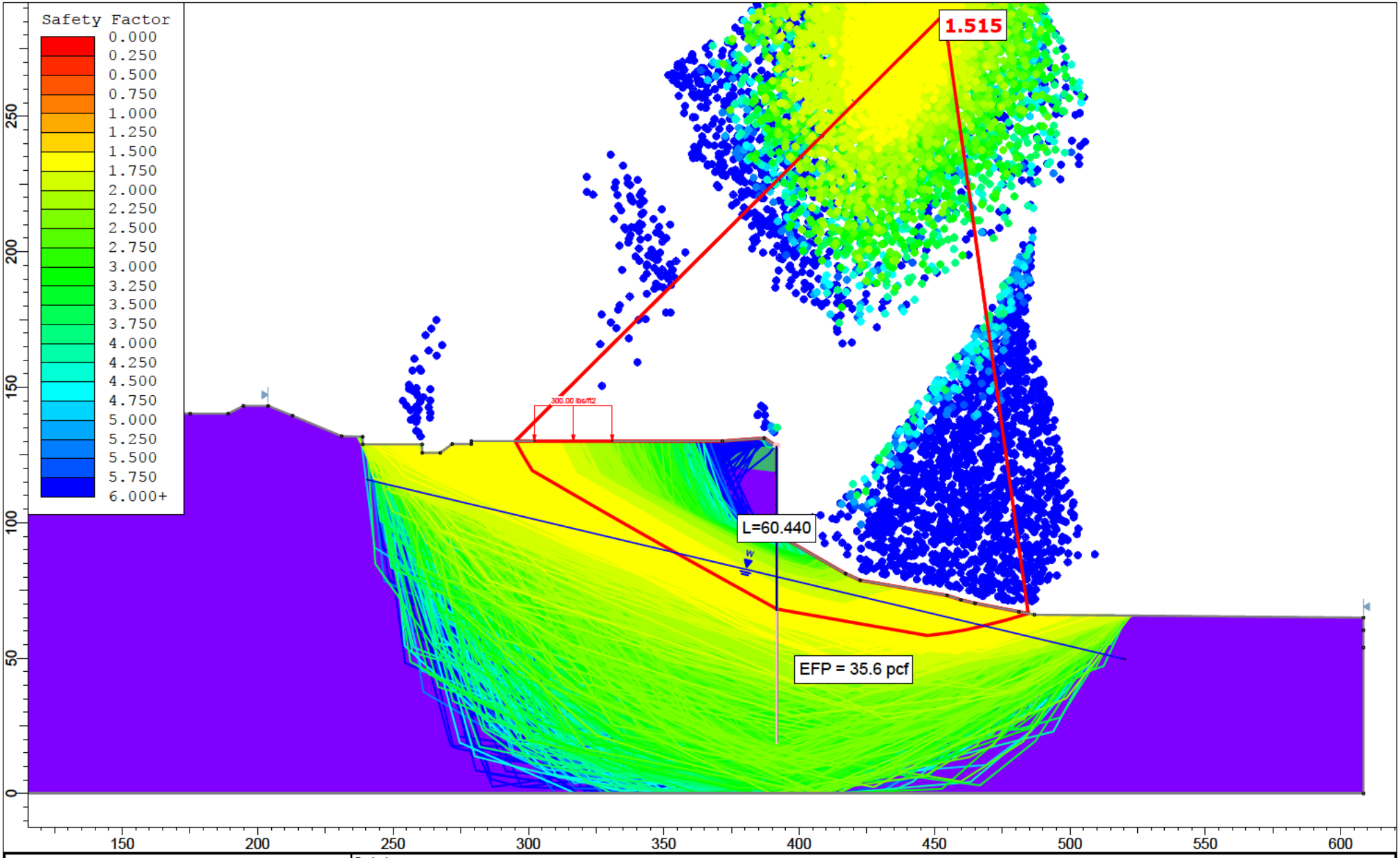
Scenario-based Entities

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	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

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: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)

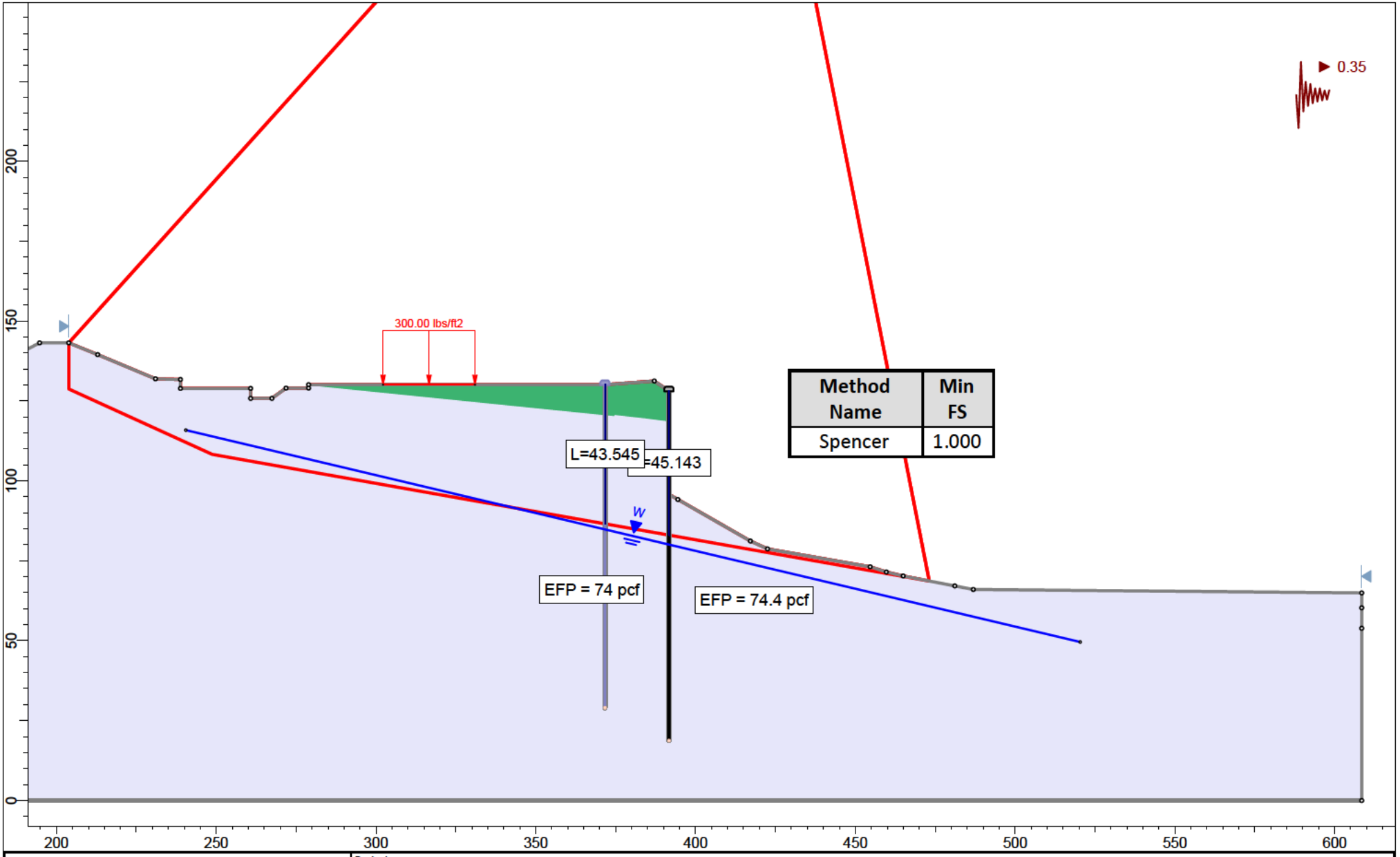
Shared Entities

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

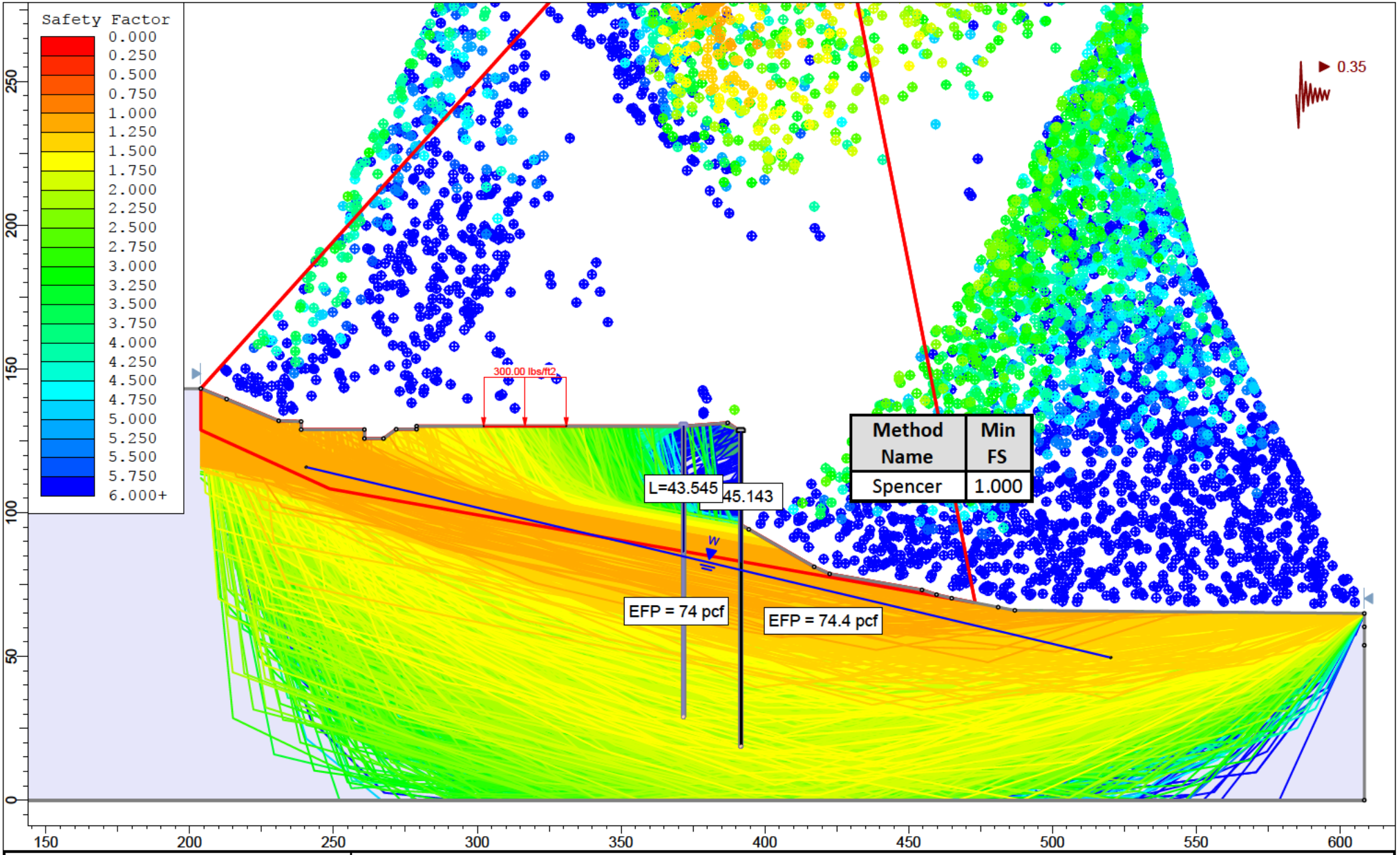
Type	Coordinates (x,y)	Master Scenario
Water Table	240.477, 115.859 520.344, 49.554	Assigned to:  Anisotropic Bedrock (Tm) Ultimate
Distributed Load	330.957, 130.073 302.229, 130.073	Constant DistributionOrientation: Normal to boundaryMagnitude: 300 lbs/ft2Creates Excess Pore Pressure: No



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



rocscience	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

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: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

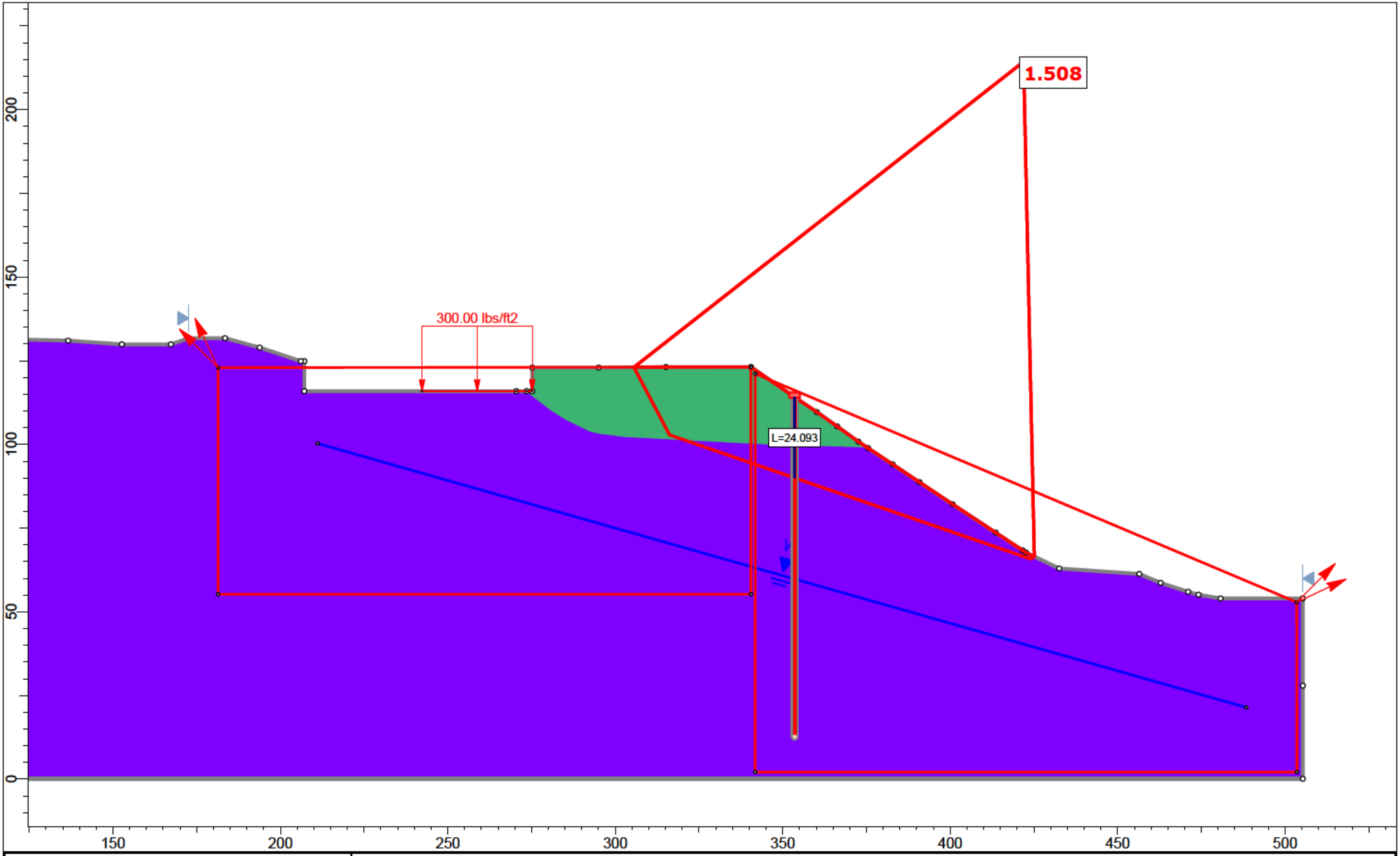
Type	Coordinates (x,y)

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

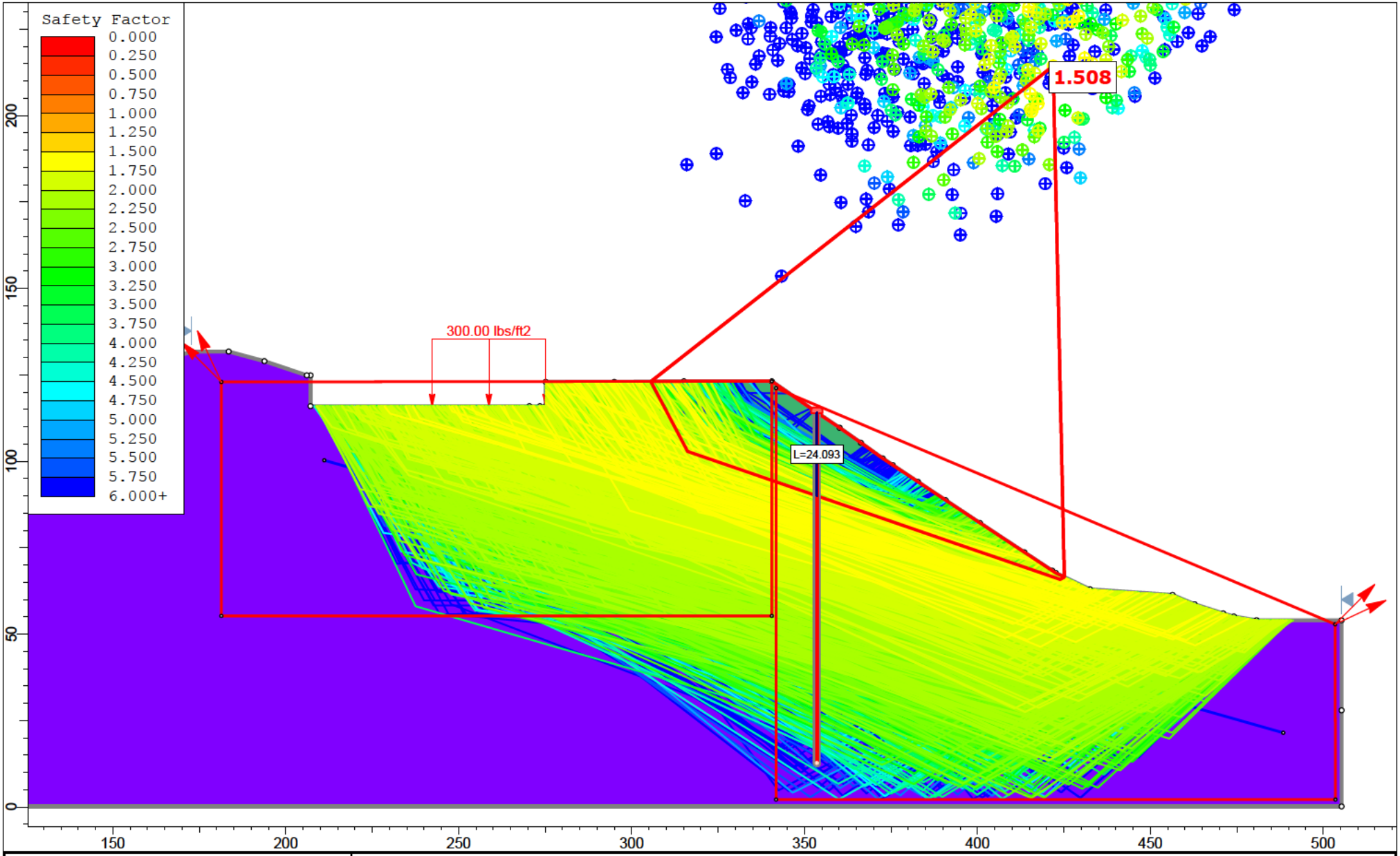
Scenario-based Entities

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	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

SLIDEINTERPRET 9.018



rocscience	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

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: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

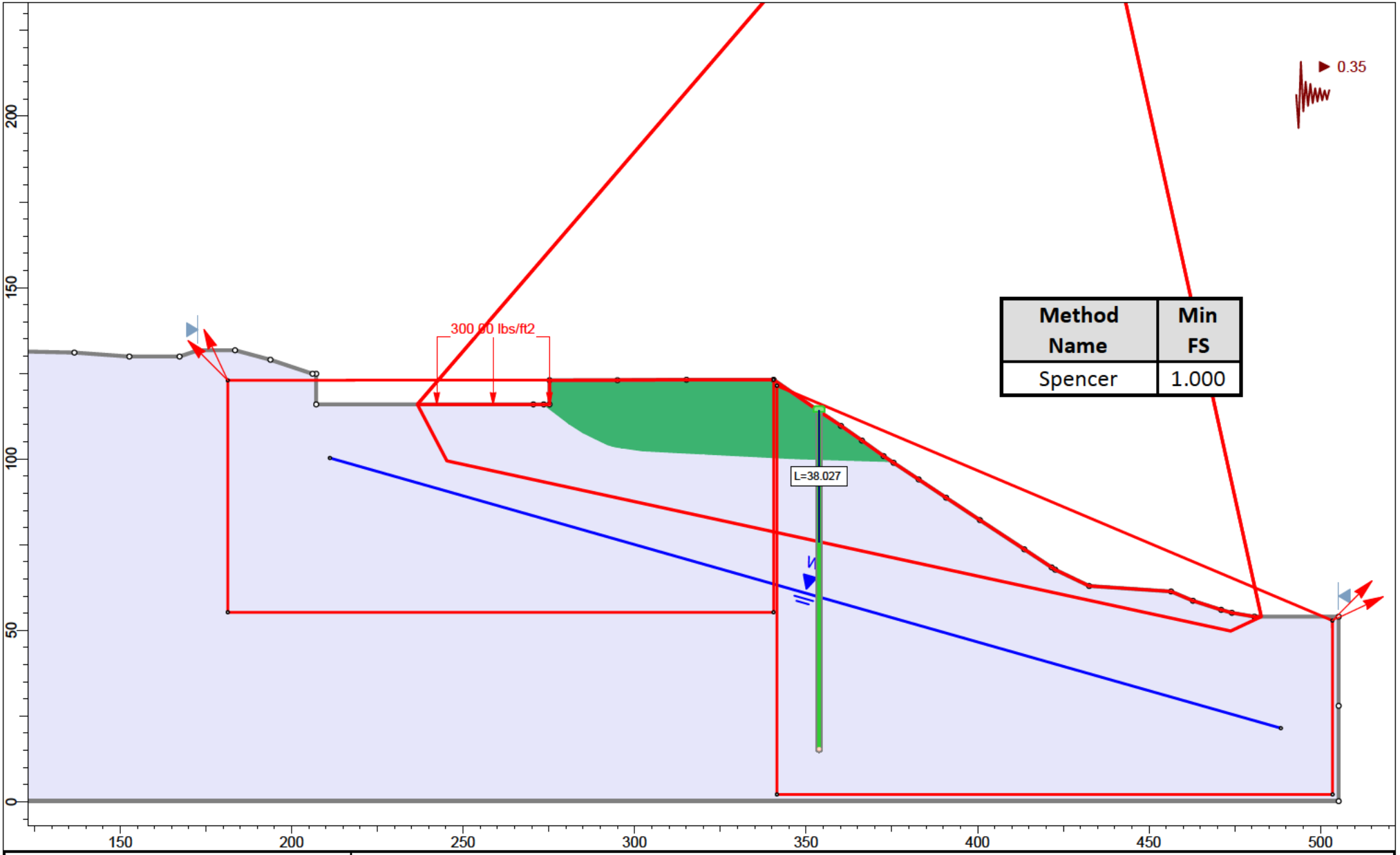
Type	Coordinates (x,y)

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

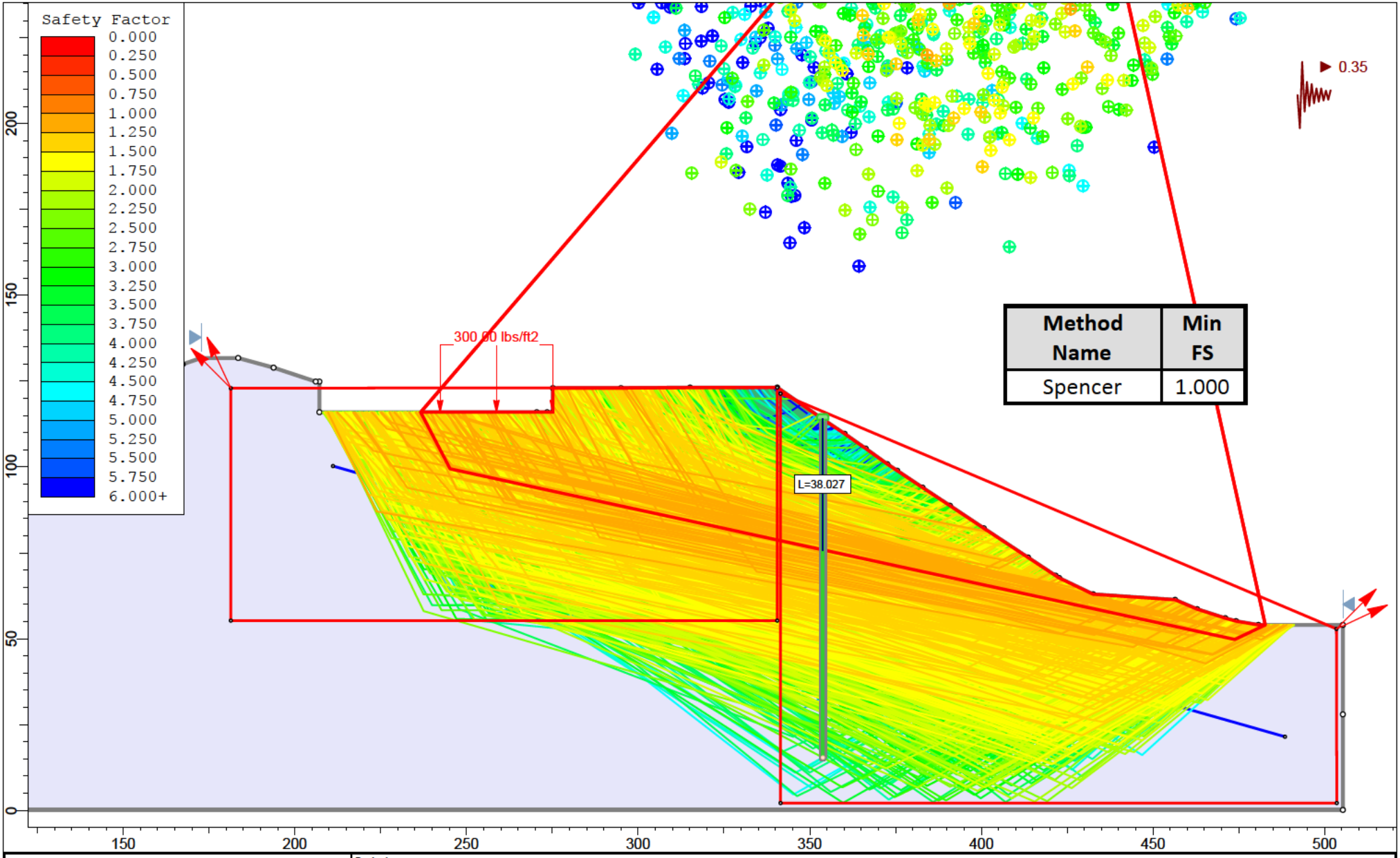
Type	Coordinates (x,y)	Master Scenario
Water Table	211.127, 100.268 488.448, 21.436	Assigned to:  Anisotropic Bedrock (Tm) Ultimate
Distributed Load	275.174, 115.923 273.496, 115.923 270.47, 115.923 242.316, 115.923	Constant DistributionOrientation: Normal to boundaryMagnitude: 300 lbs/ft2Creates Excess 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	



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



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)

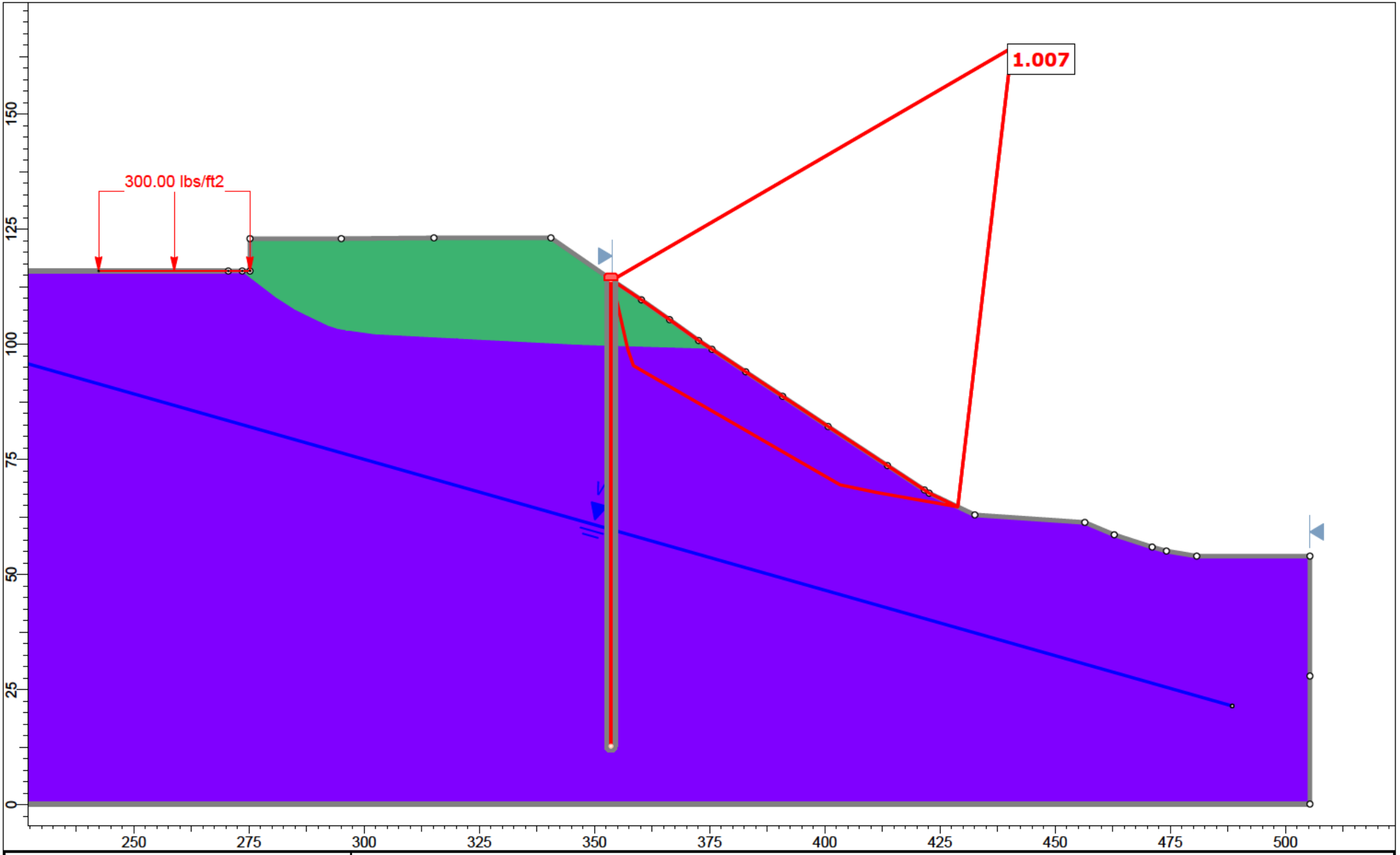
Shared Entities

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

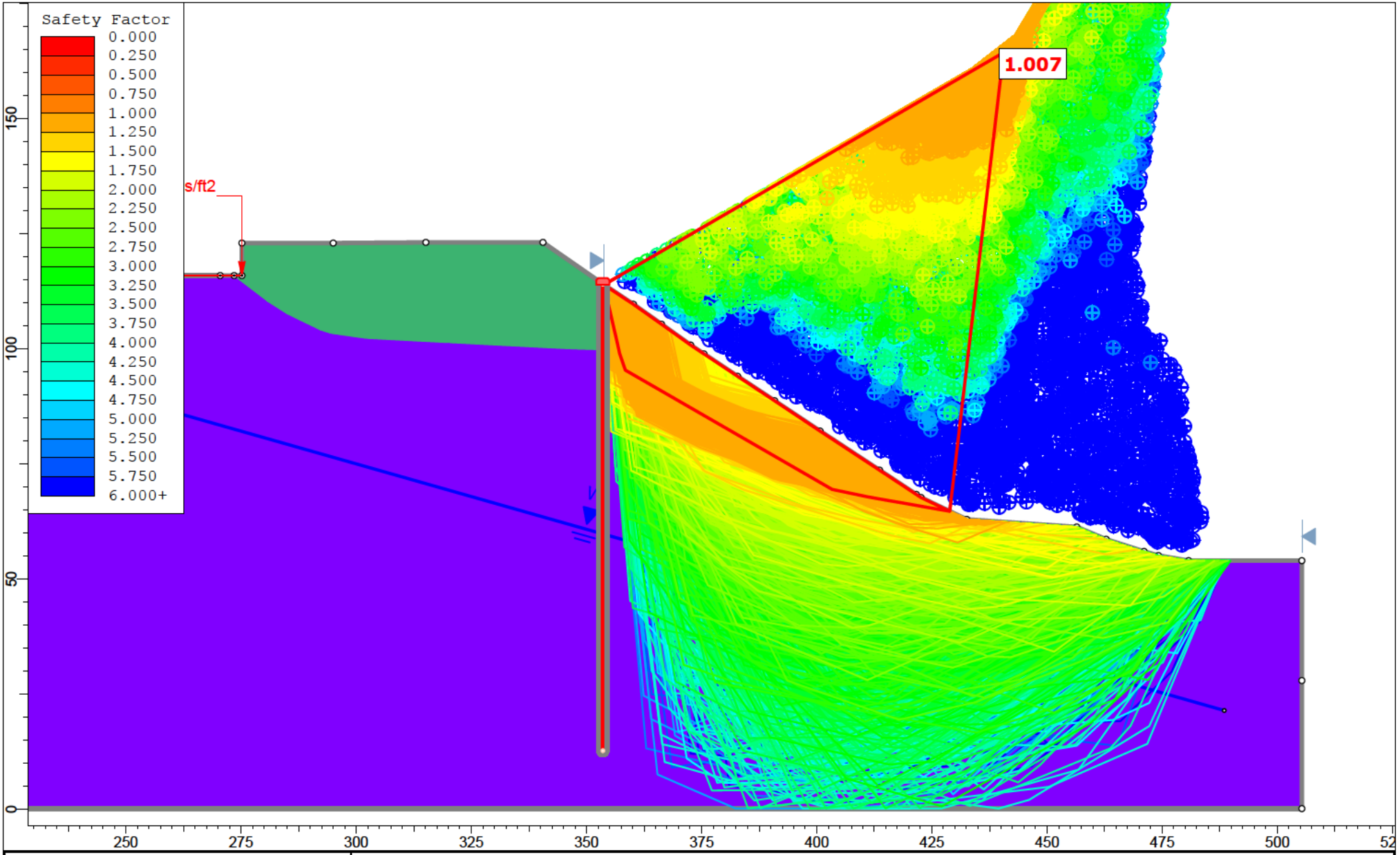
Type	Coordinates (x,y)	Master Scenario
Water Table	211.127, 100.268 488.448, 21.436	Assigned to: Anisotropic Bedrock (Tm) Peak
Distributed Load	275.174, 115.923 273.496, 115.923 270.47, 115.923 242.316, 115.923	Constant DistributionOrientation: Normal to boundaryMagnitude: 300 lbs/ft2Creates Excess Pore 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)

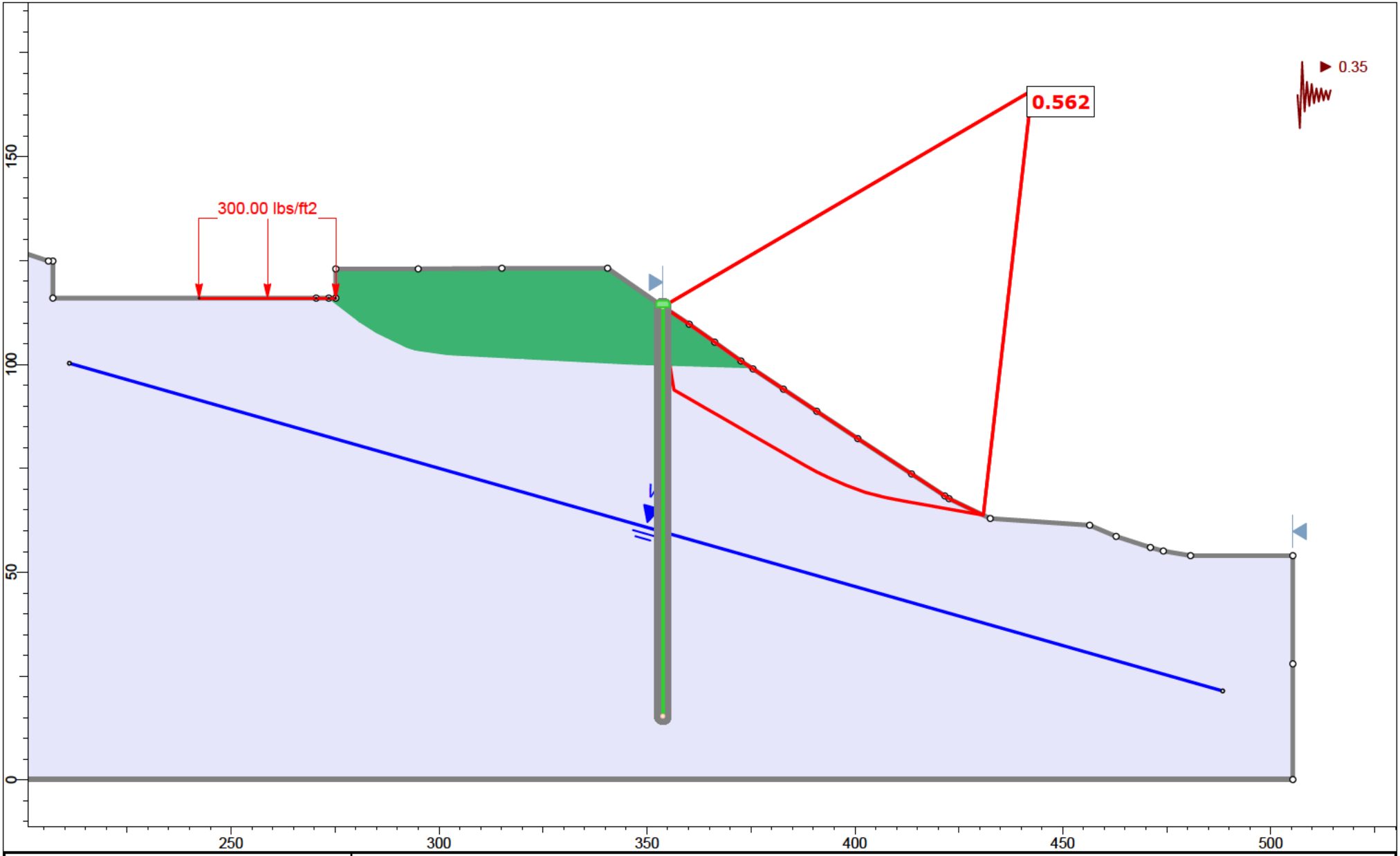
Shared Entities

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

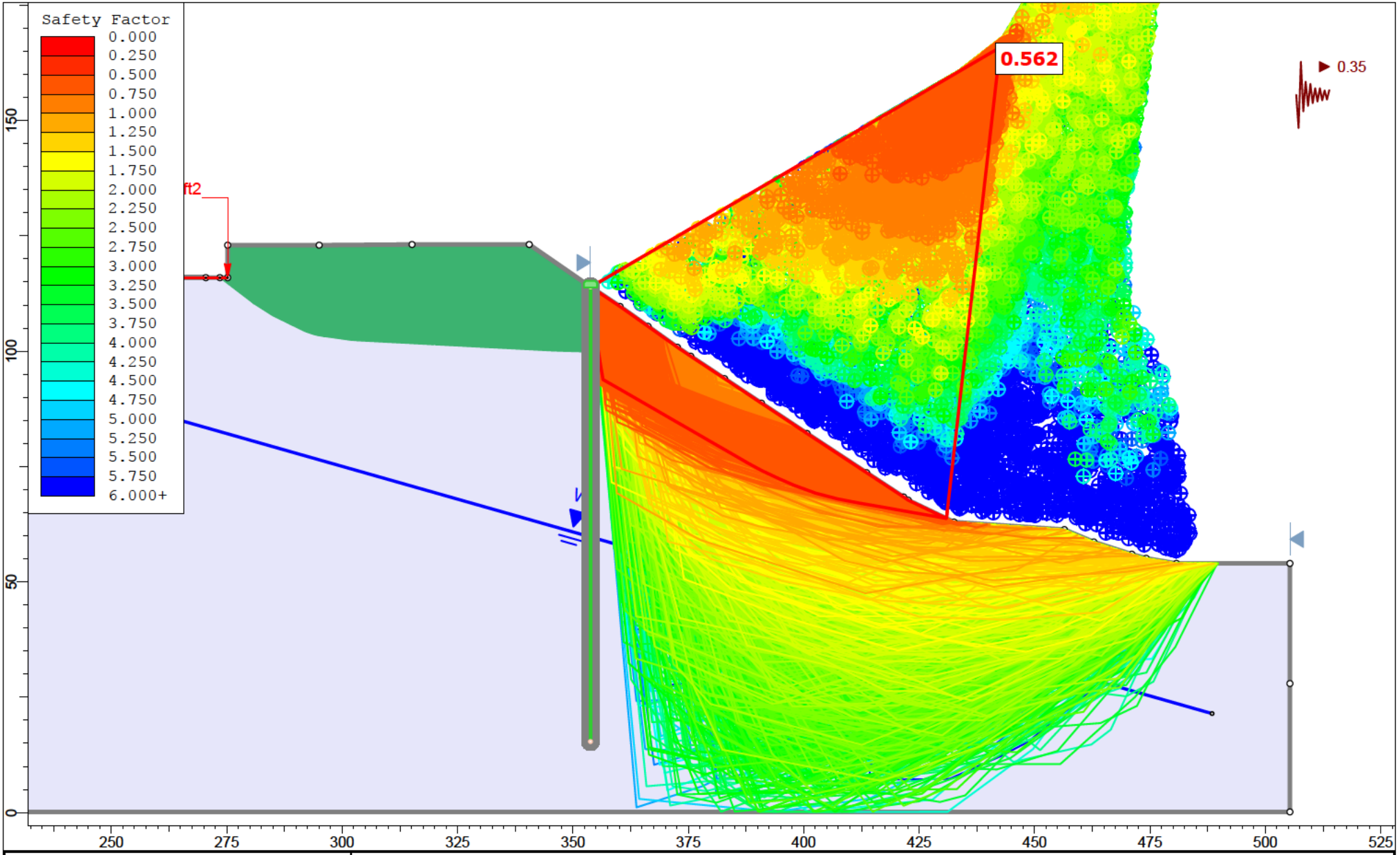
Scenario-based Entities

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	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

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:02.827s
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)

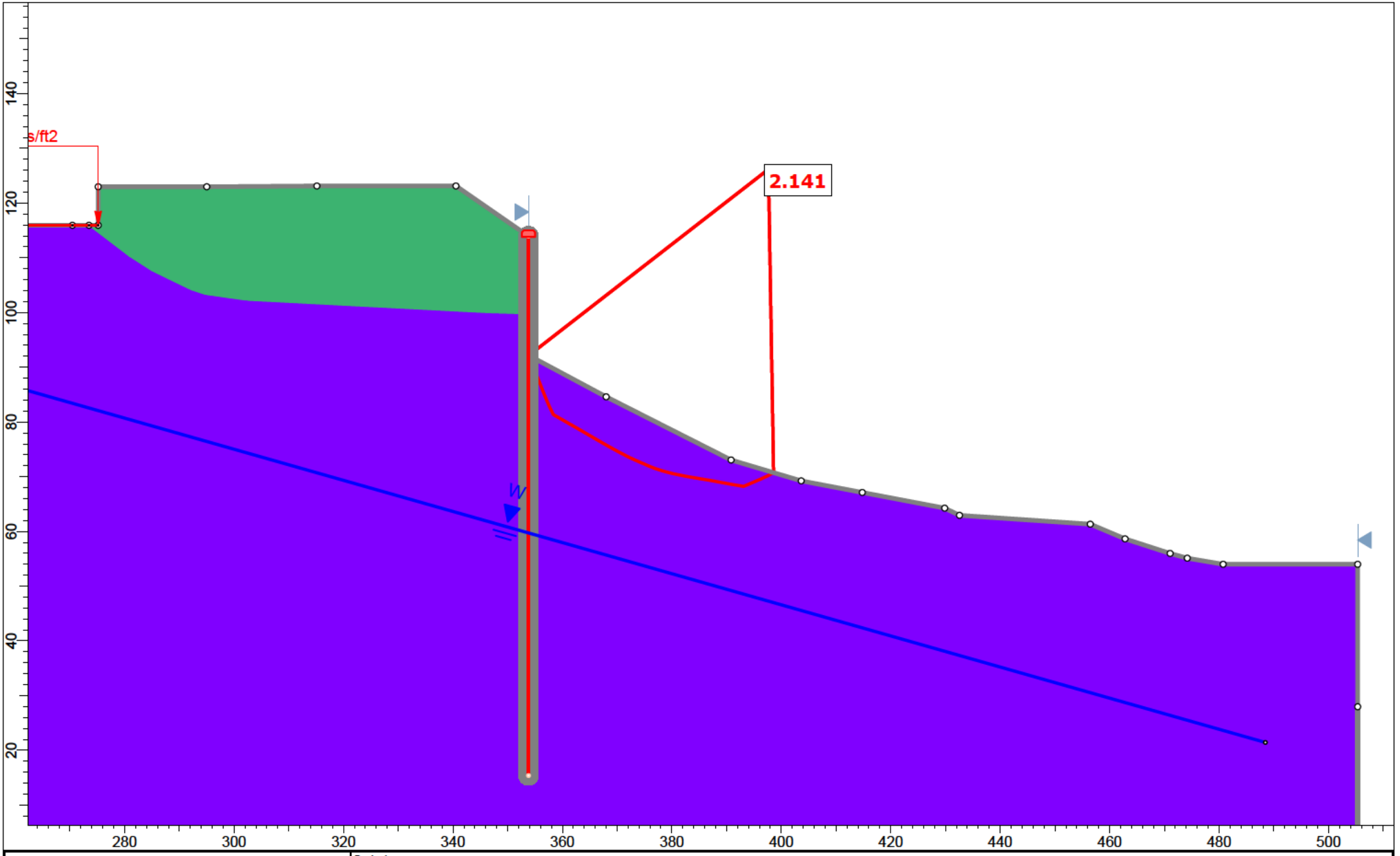
Shared Entities

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

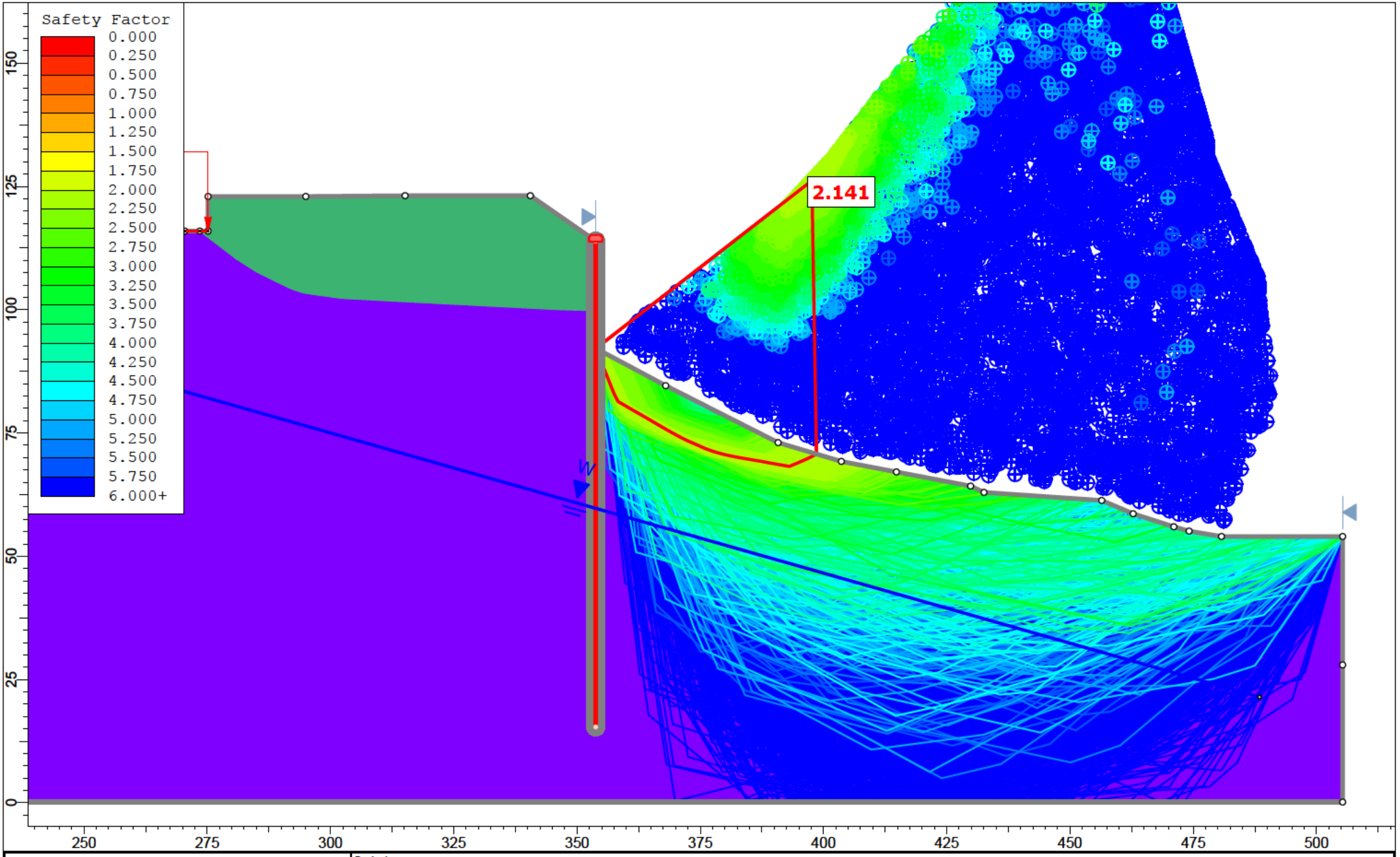
Type	Coordinates (x,y)	Master Scenario
Water Table	211.127, 100.268 488.448, 21.436	Assigned to: Anisotropic Bedrock (Tm) Peak
Distributed Load	275.174, 115.923 273.496, 115.923 270.47, 115.923 242.316, 115.923	Constant DistributionOrientation: Normal to boundaryMagnitude: 300 lbs/ft2Creates Excess Pore Pressure: No



rocscience

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



rocscience	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

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: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)

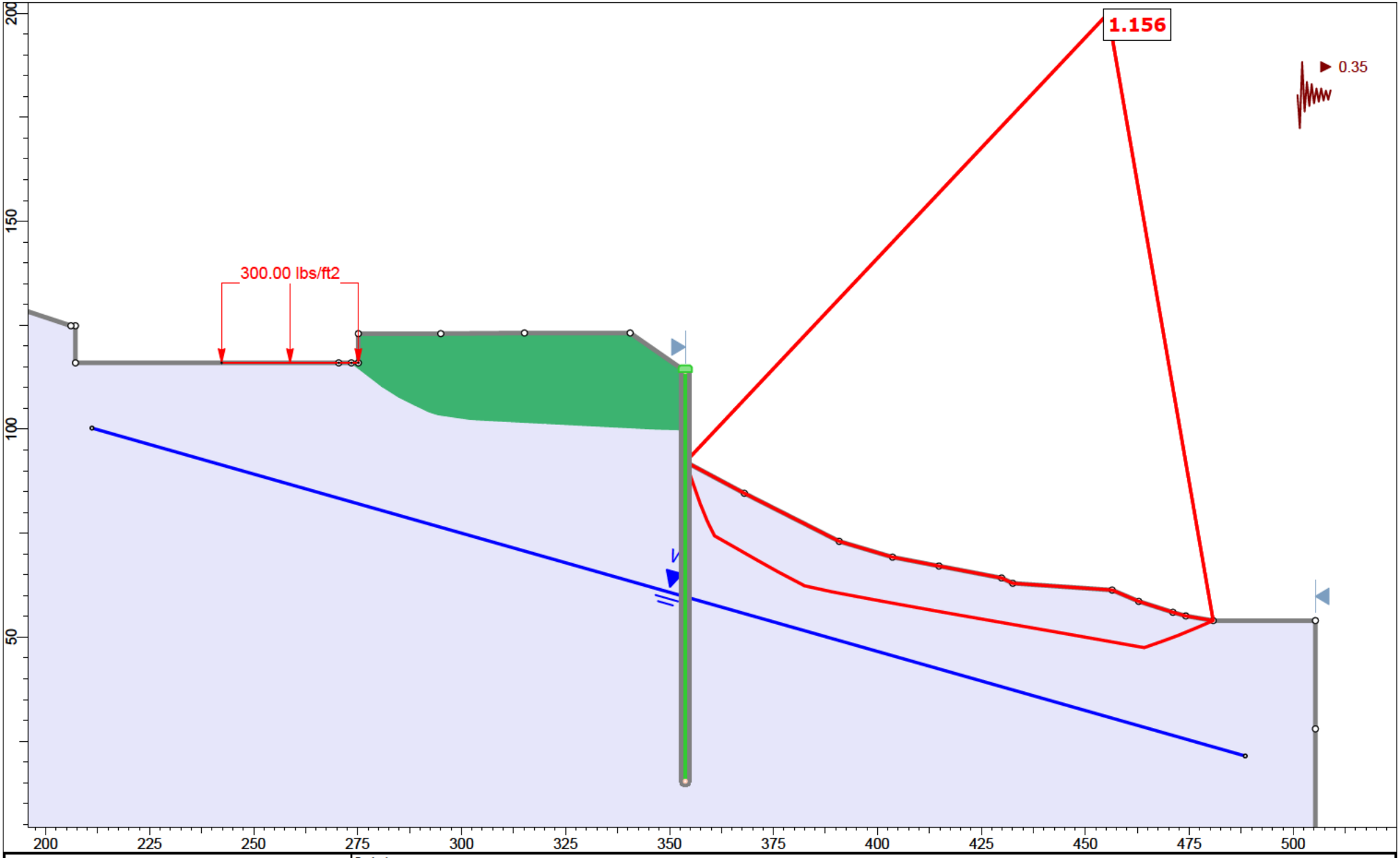
Shared Entities

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

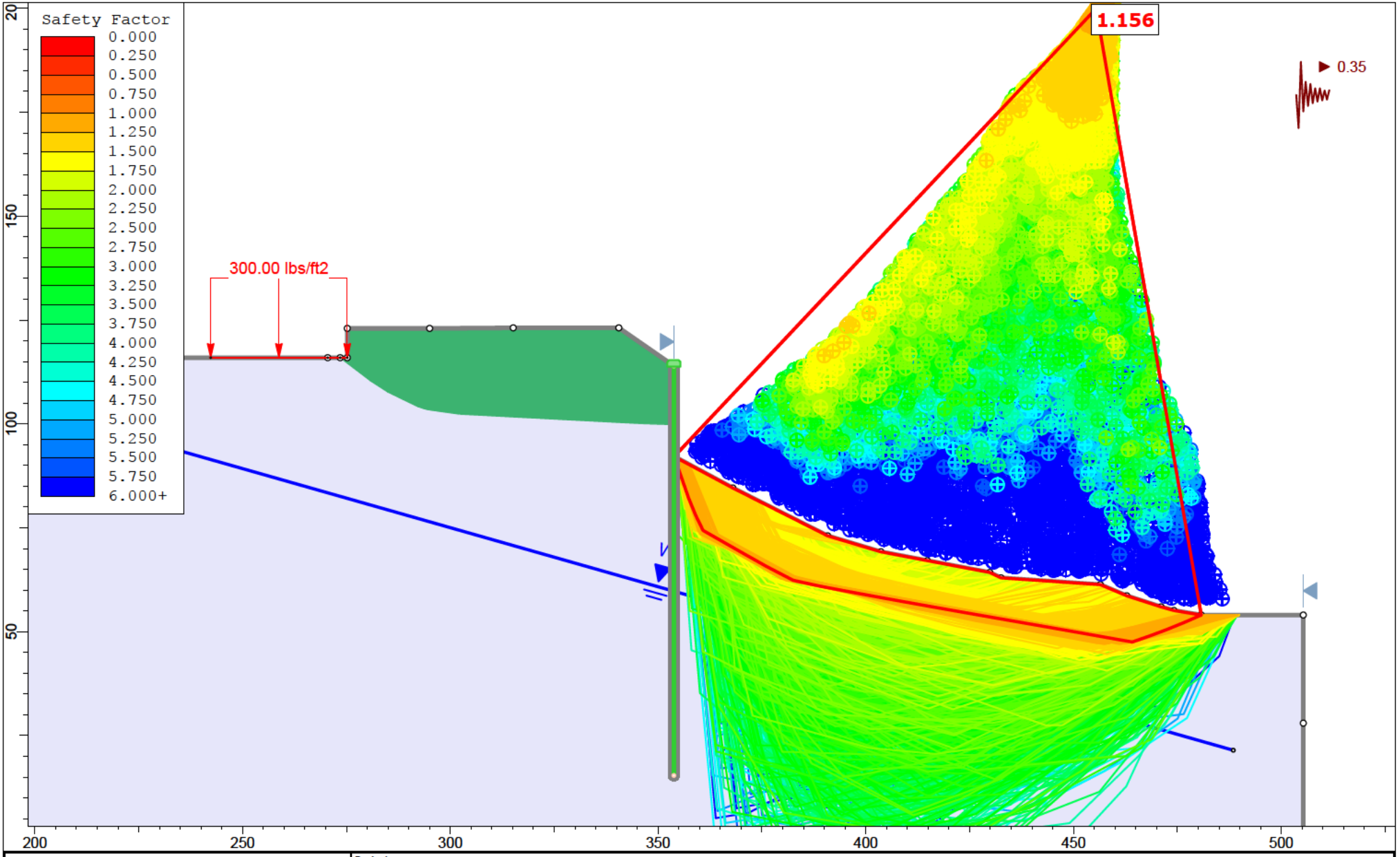
Type	Coordinates (x,y)	Master Scenario
Water Table	211.127, 100.268 488.448, 21.436	Not assigned to any materials
Distributed Load	275.174, 115.923 273.496, 115.923 270.47, 115.923 242.316, 115.923	Constant DistributionOrientation: Normal to boundaryMagnitude: 300 lbs/ft2Creates Excess Pore Pressure: No
Non-Circular Failure Surface	367.99, 84.5749 390.807, 73.03	



rocscience

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



rocscience	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

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: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)

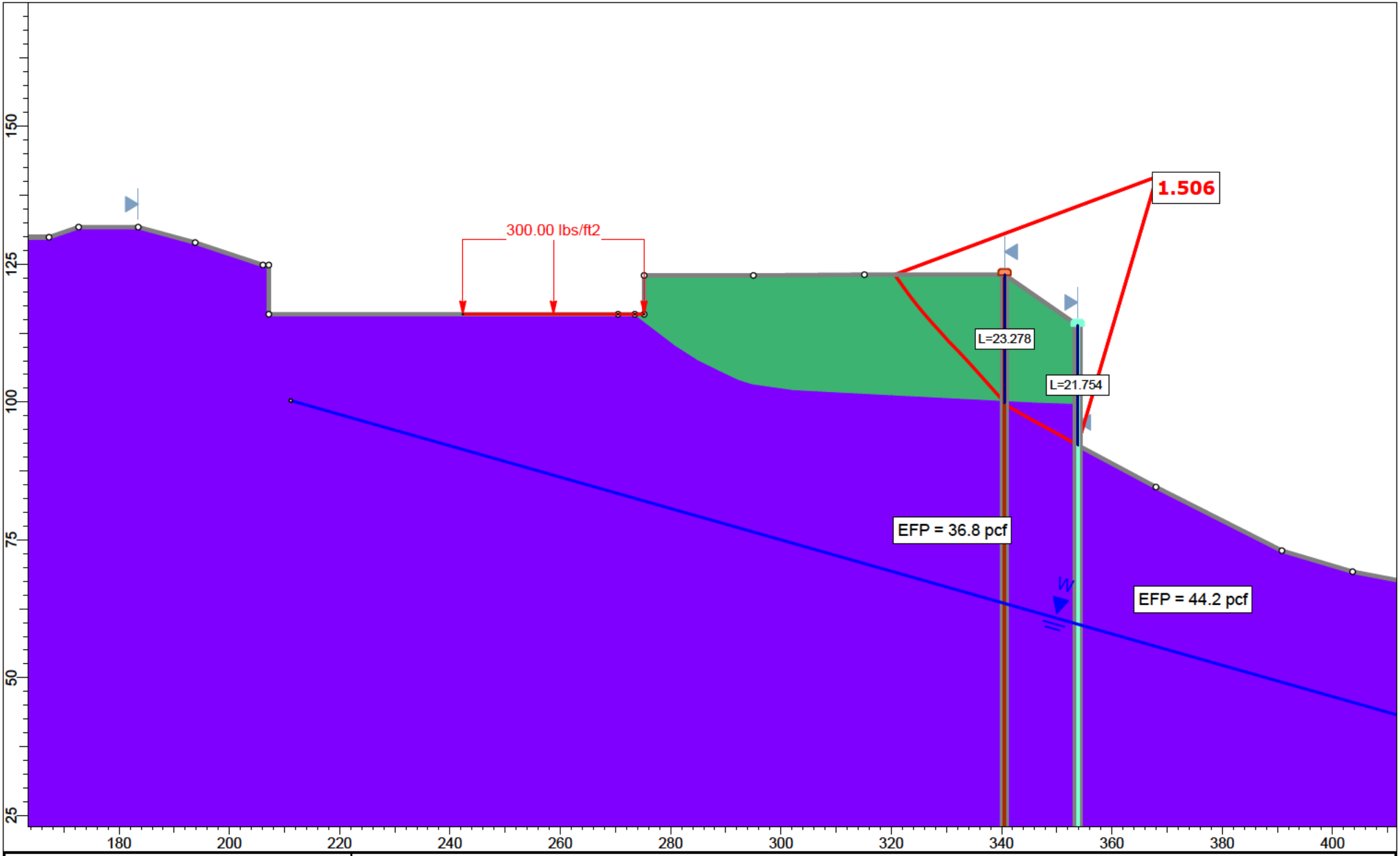
Shared Entities

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

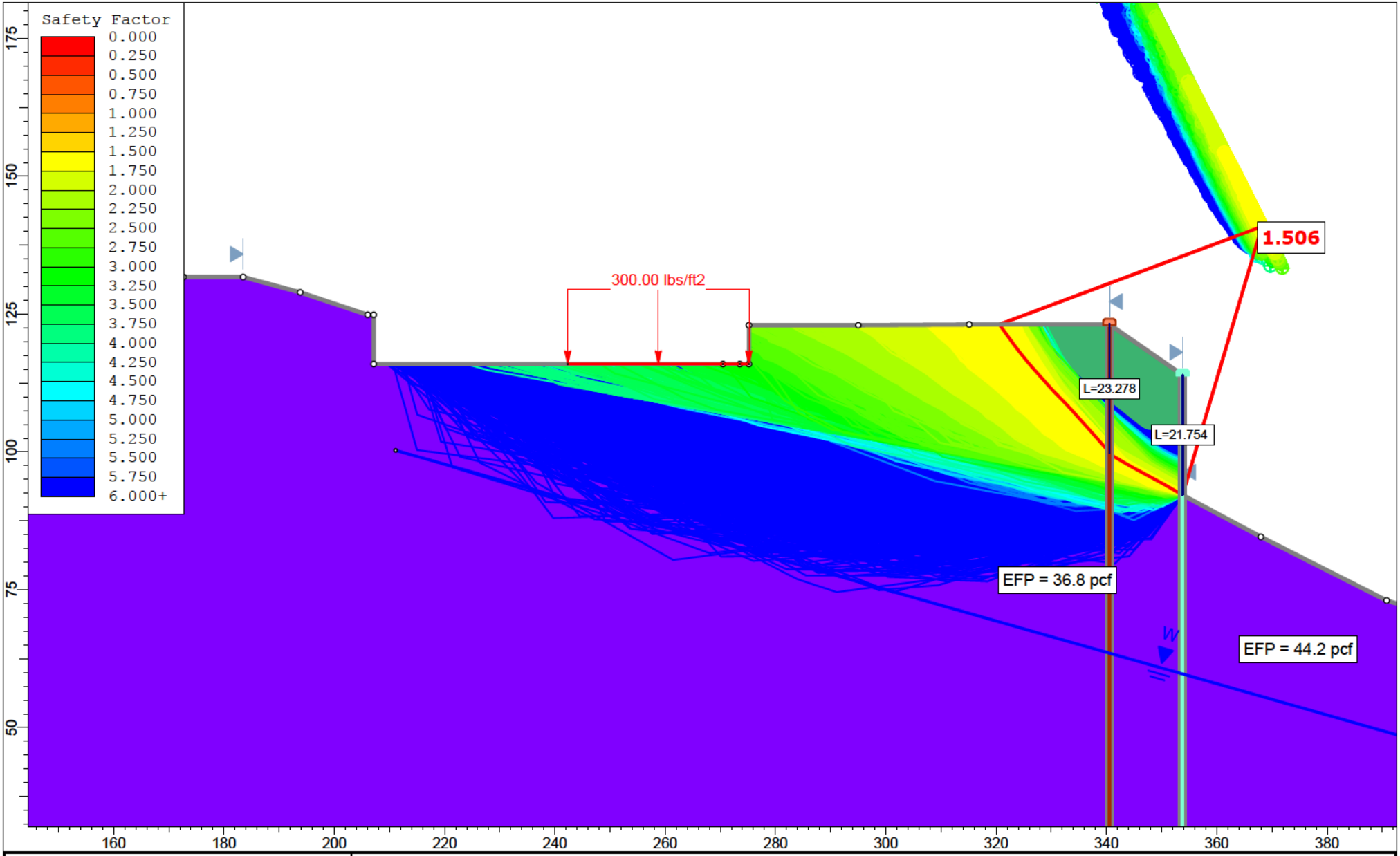
Type	Coordinates (x,y)	Master Scenario
Water Table	211.127, 100.268 488.448, 21.436	Assigned to: Anisotropic Bedrock (Tm) Peak
Distributed Load	275.174, 115.923 273.496, 115.923 270.47, 115.923 242.316, 115.923	Constant DistributionOrientation: Normal to boundaryMagnitude: 300 lbs/ft2Creates Excess Pore Pressure: No
Non-Circular Failure Surface	367.99, 84.5749 390.807, 73.03	



rocscience

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)

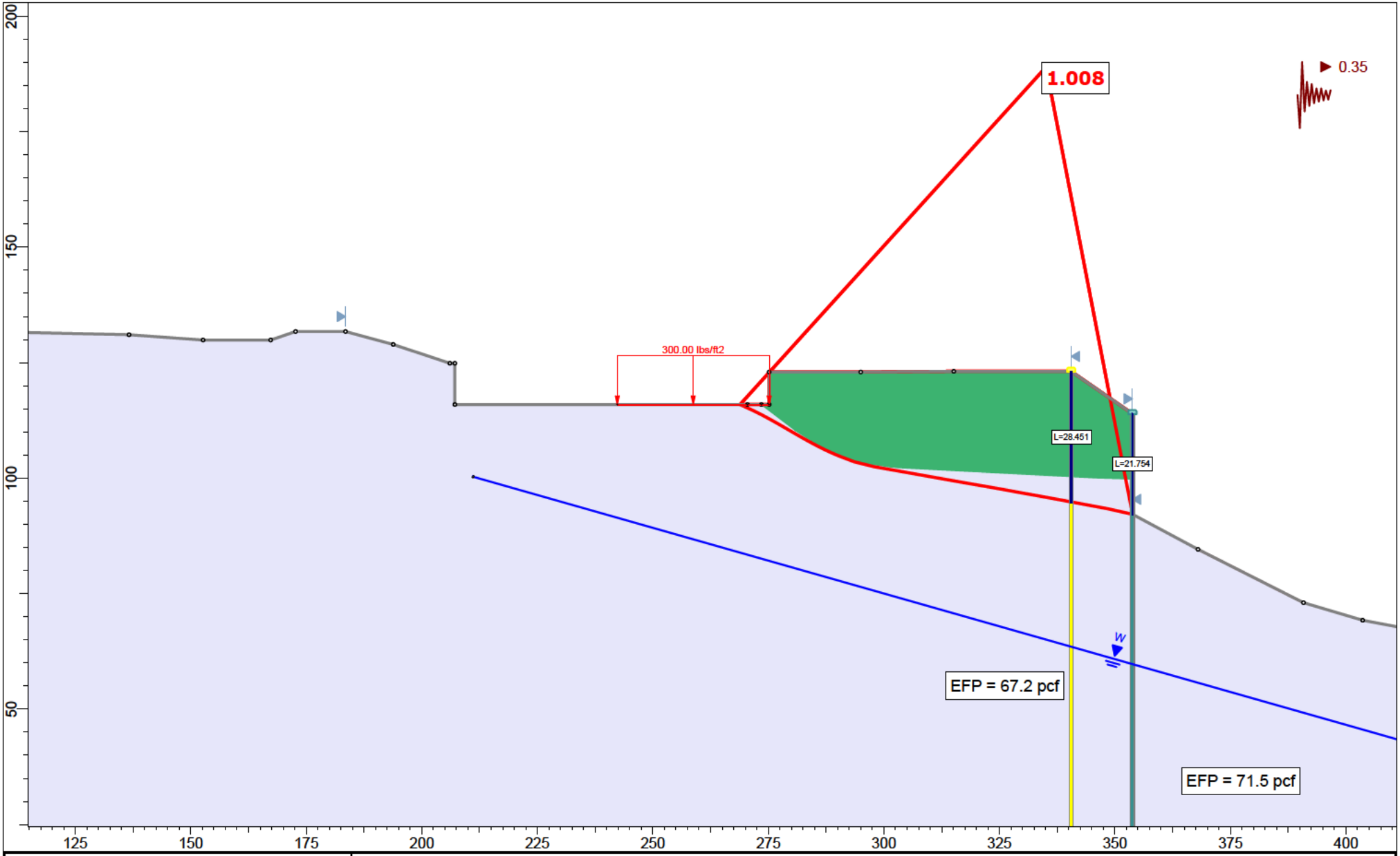
Shared Entities

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

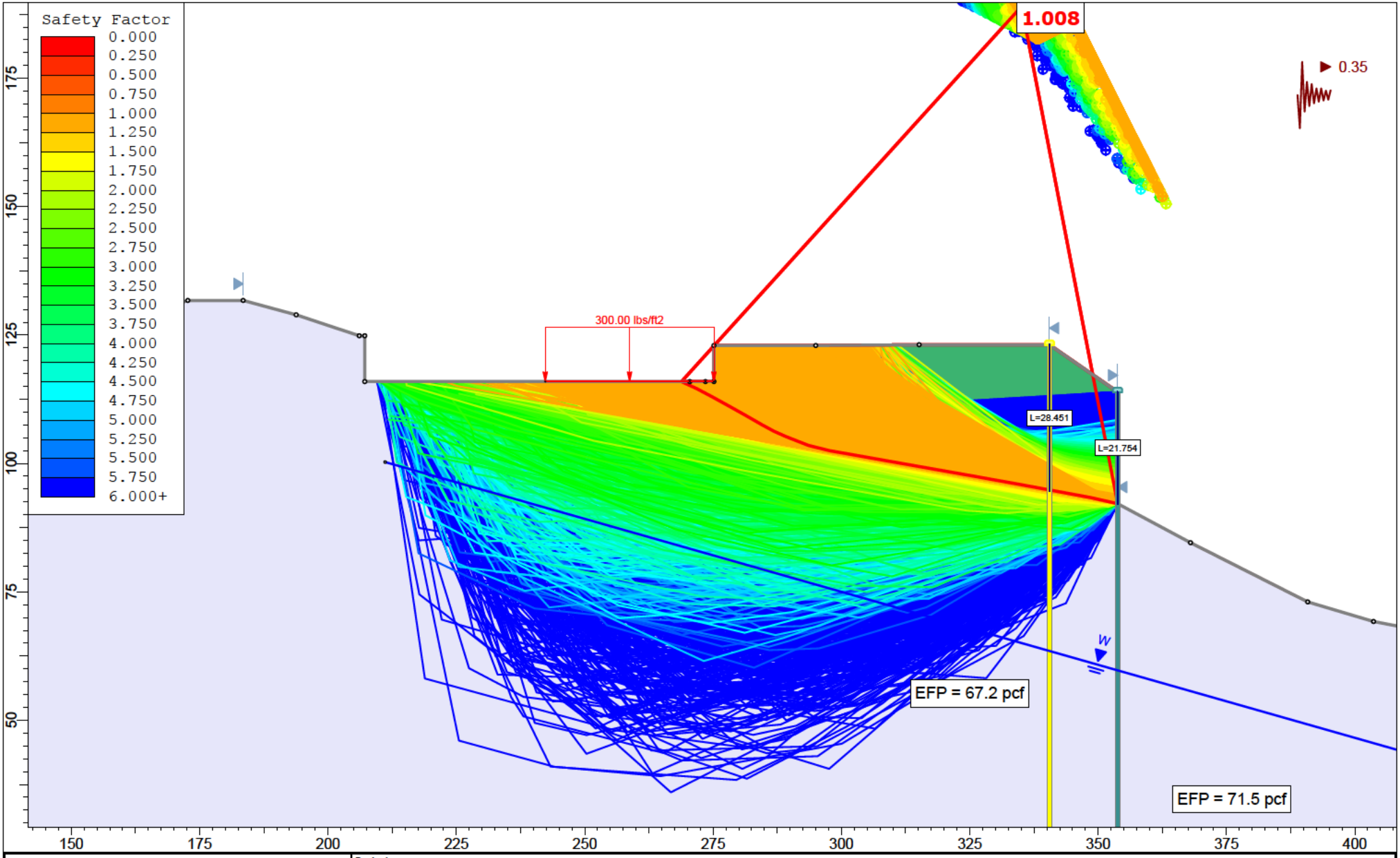
Scenario-based Entities

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)

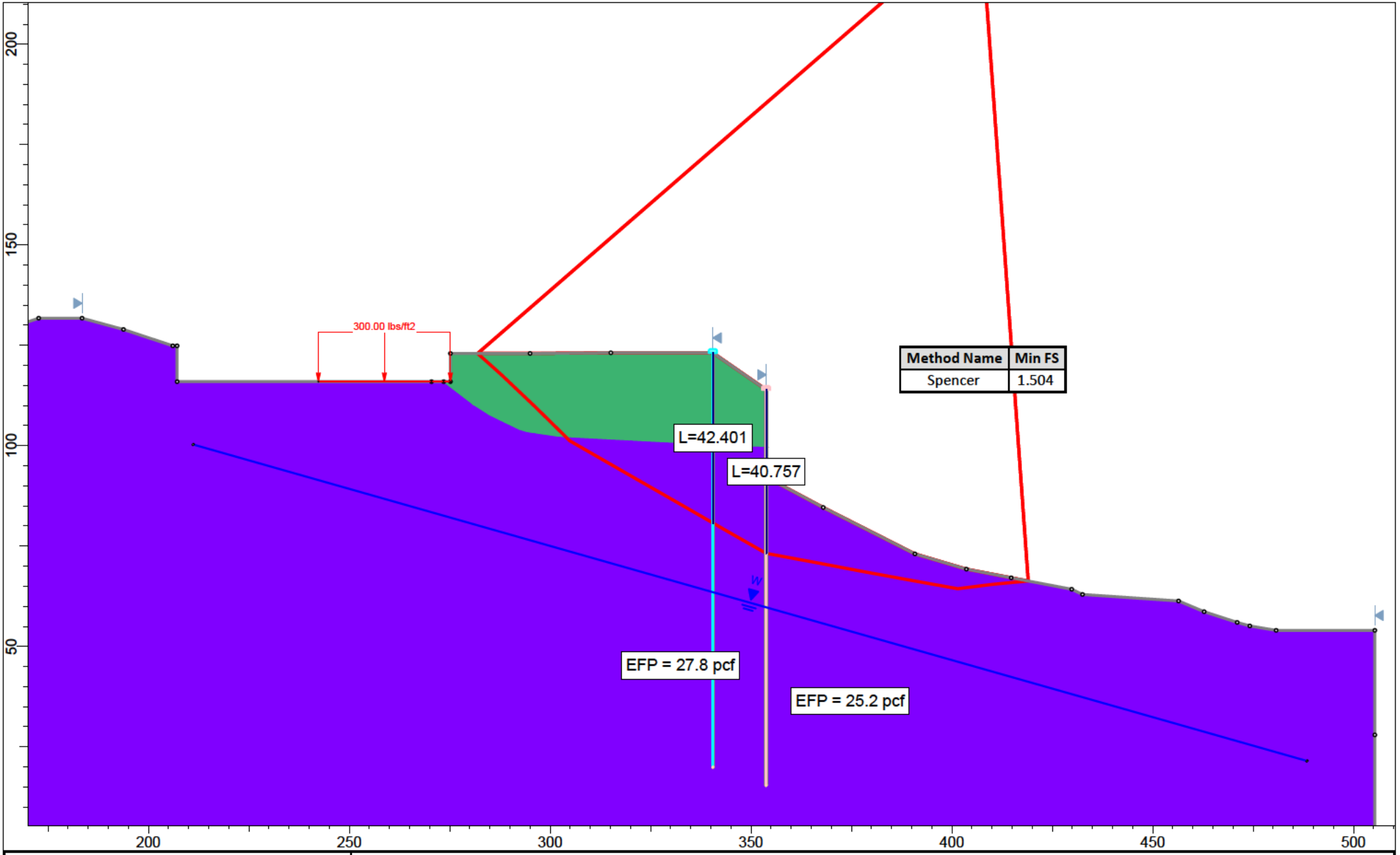
Shared Entities

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

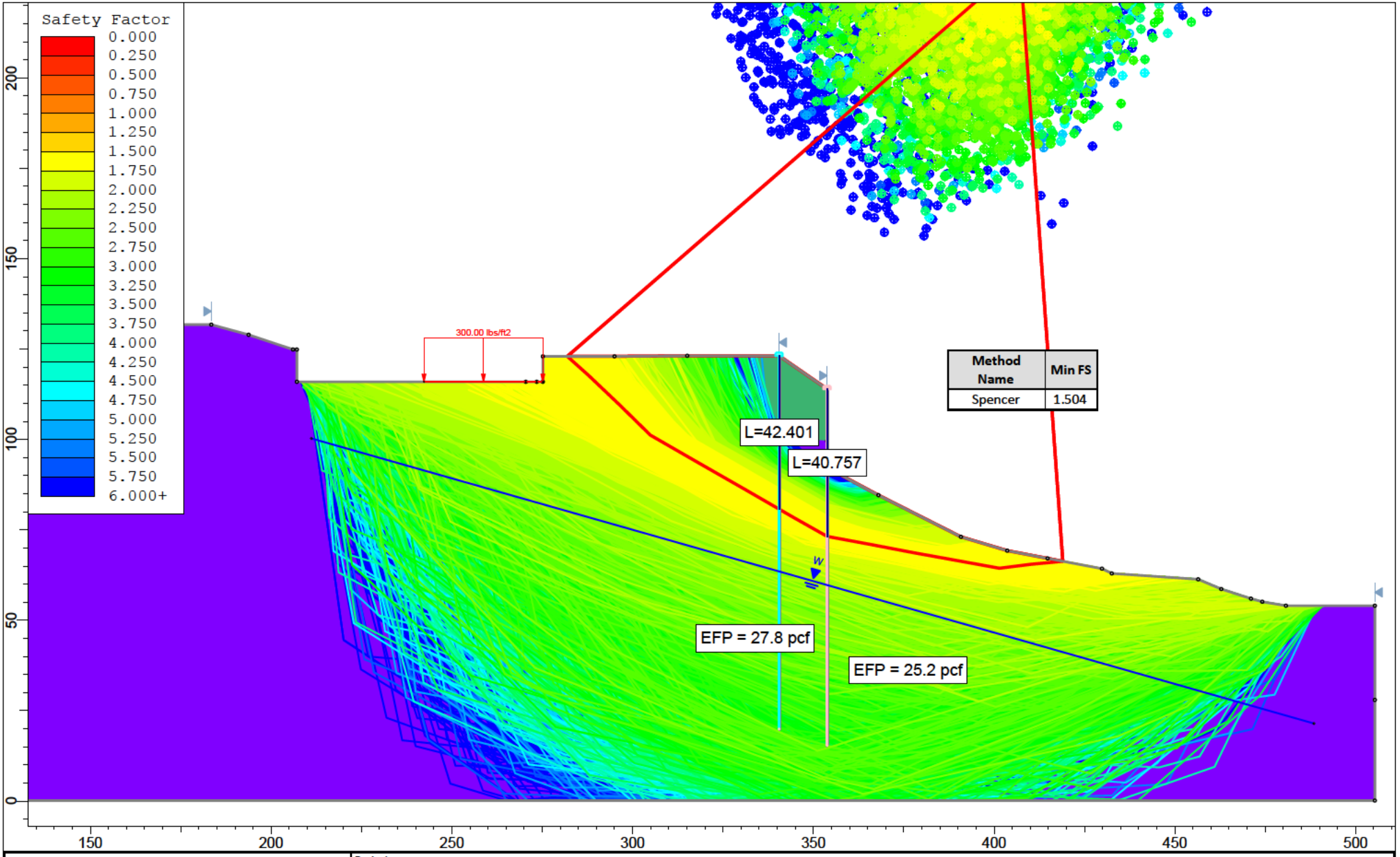
Type	Coordinates (x,y)	Master Scenario
Water Table	211.127, 100.268 488.448, 21.436	Assigned to: Anisotropic Bedrock (Tm) Peak
Distributed Load	275.174, 115.923 273.496, 115.923 270.47, 115.923 242.316, 115.923	Constant DistributionOrientation: Normal to boundaryMagnitude: 300 lbs/ft2Creates Excess Pore 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)

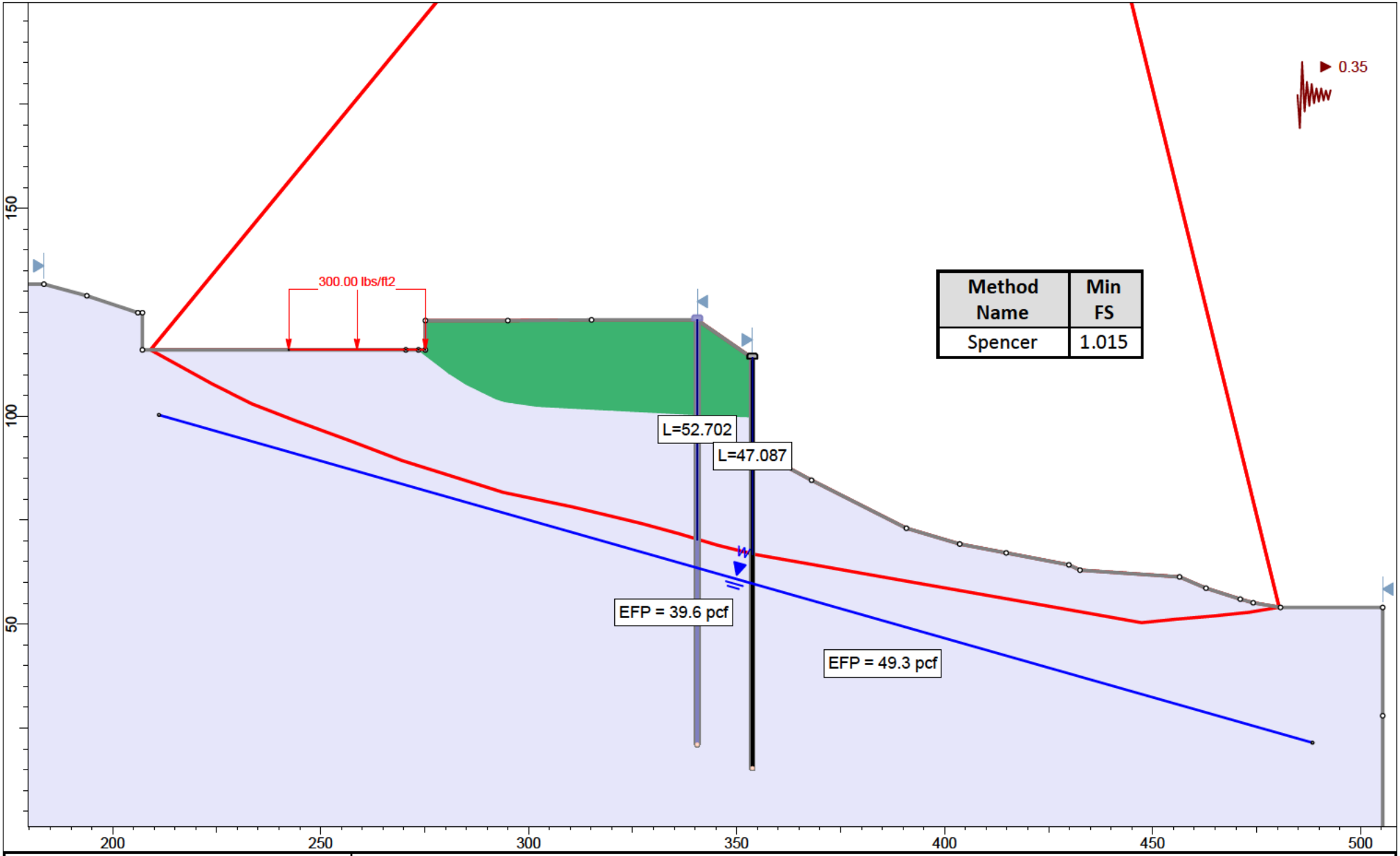
Shared Entities

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

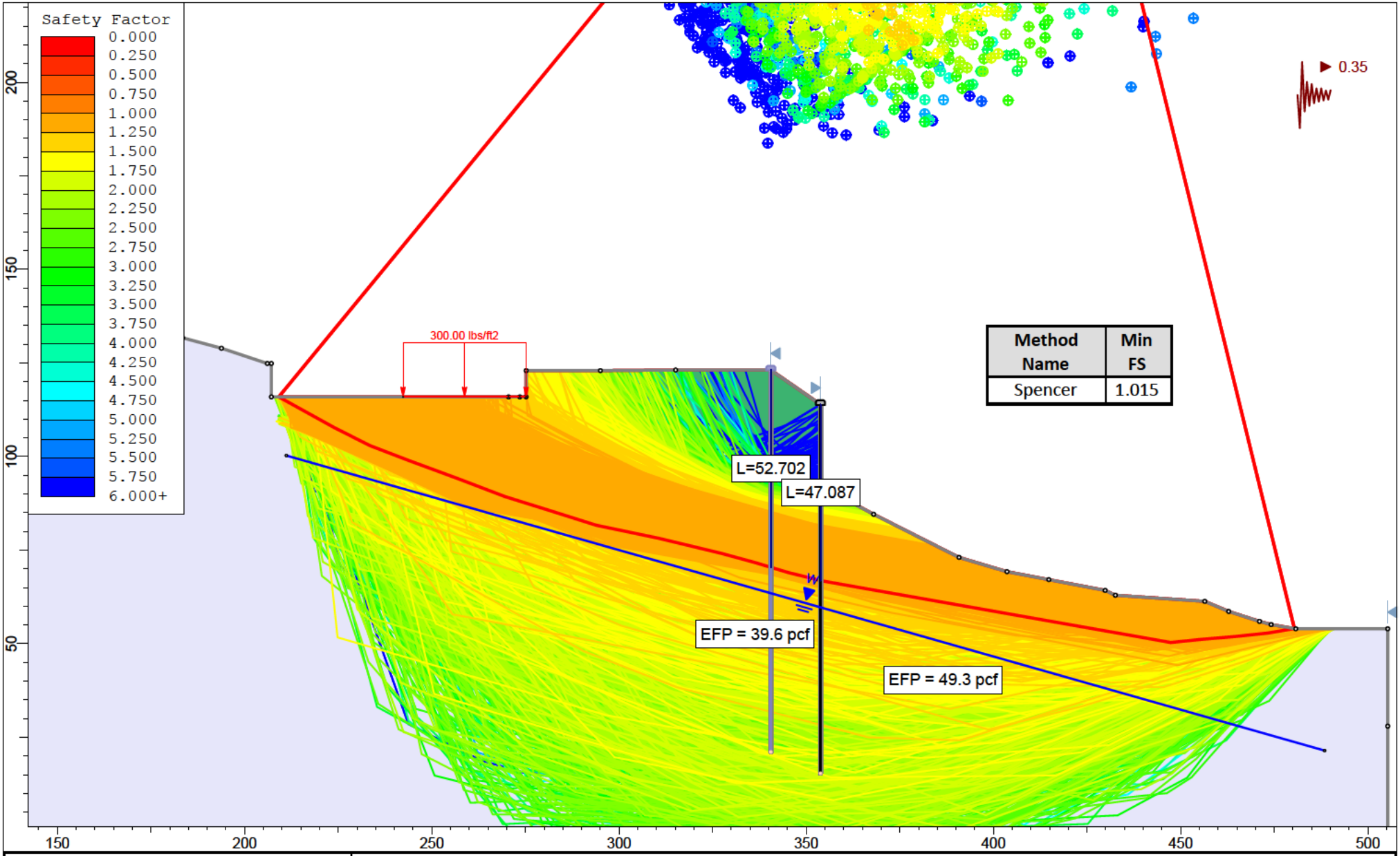
Type	Coordinates (x,y)	Master Scenario
Water Table	211.127, 100.268 488.448, 21.436	Assigned to:  Anisotropic Bedrock (Tm) Ultimate
Distributed Load	275.174, 115.923 273.496, 115.923 270.47, 115.923 242.316, 115.923	Constant DistributionOrientation: Normal to boundaryMagnitude: 300 lbs/ft2Creates Excess Pore Pressure: No
Non-Circular Failure Surface	367.99, 84.5749 390.807, 73.03	



rocscience

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



rocscience	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

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: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)

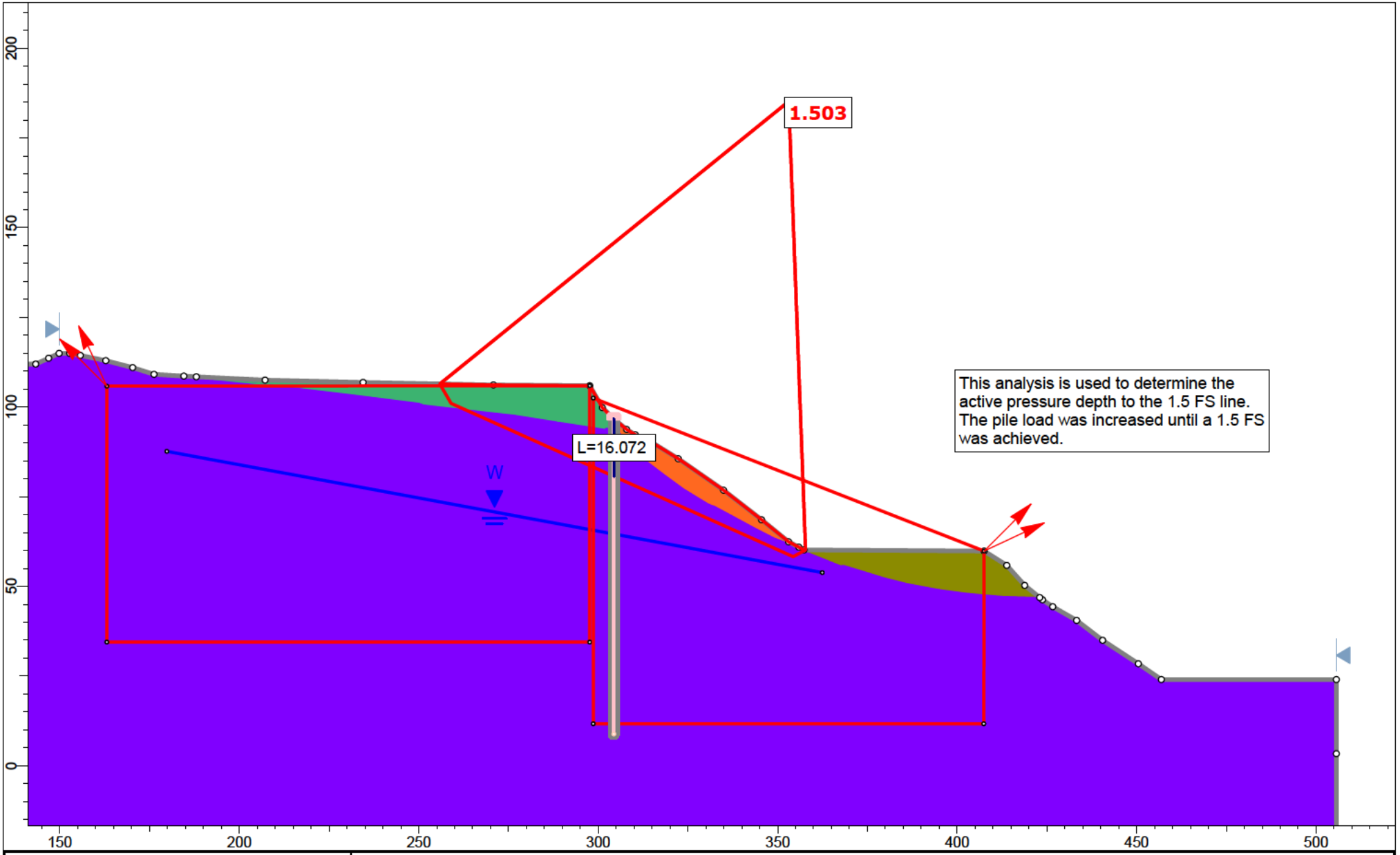
Shared Entities

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	



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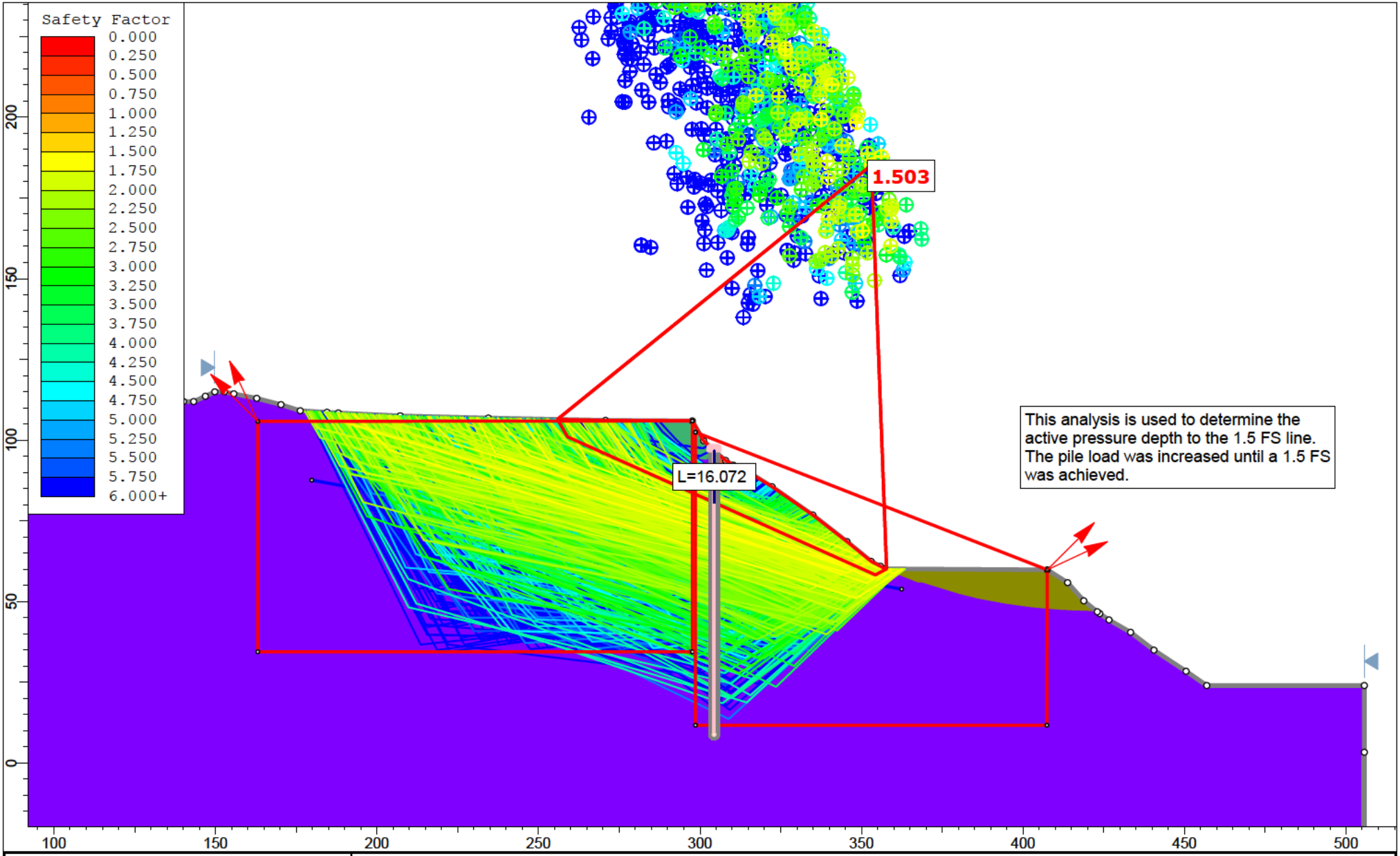
SLIDEINTERPRET 9.018

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



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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

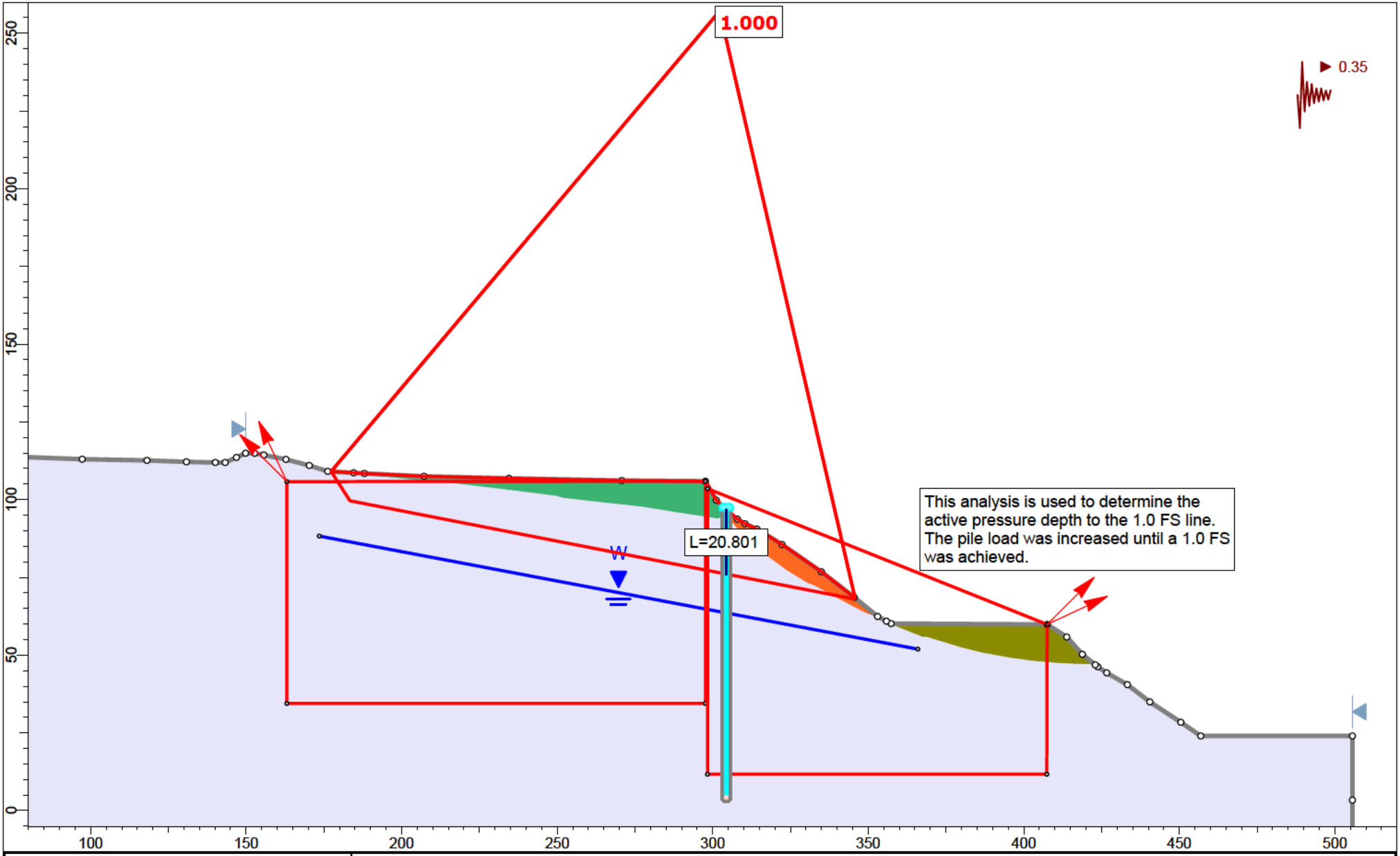
Type	Coordinates (x,y)

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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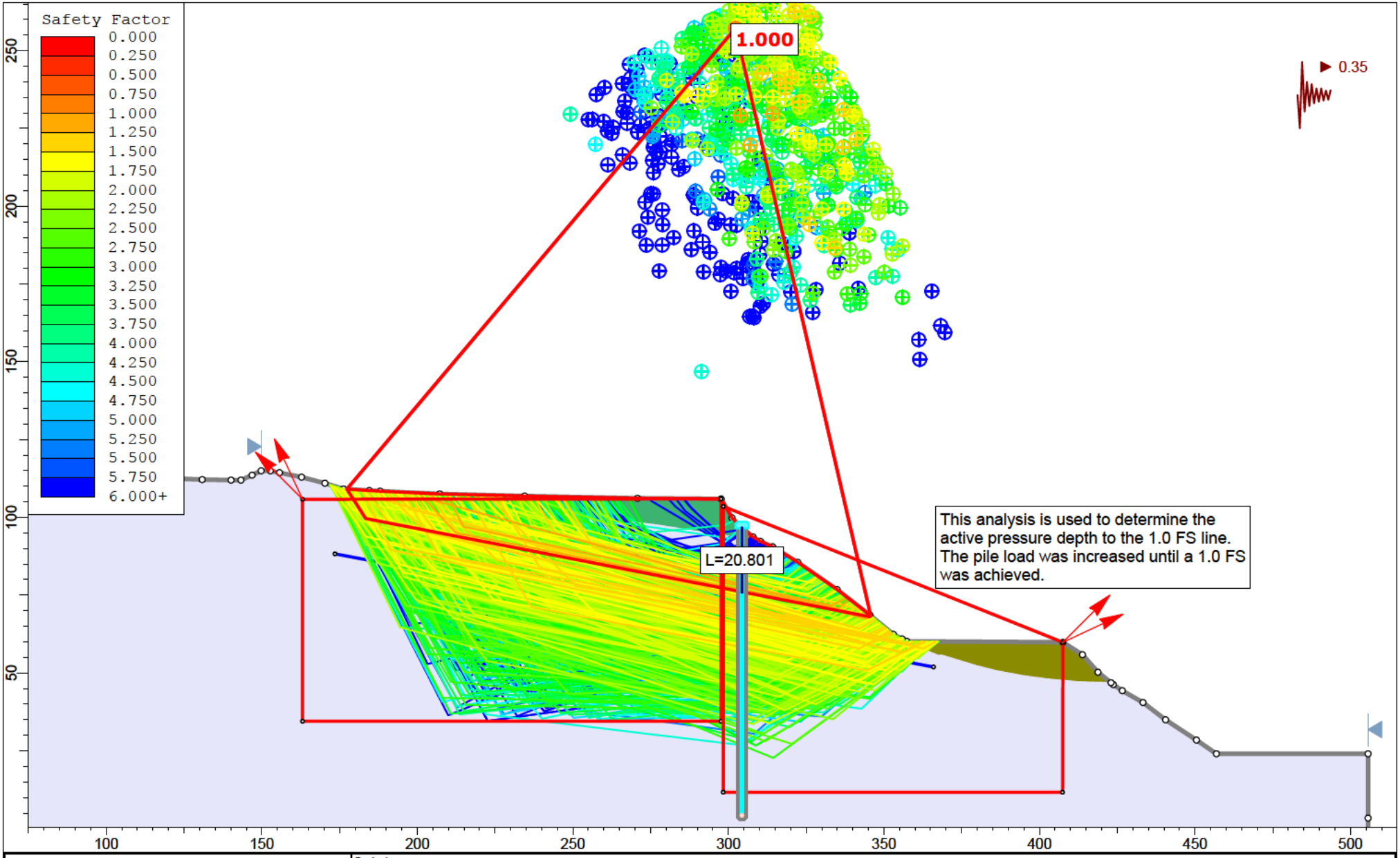
SLIDEINTERPRET 9.018

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



rocscience

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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)

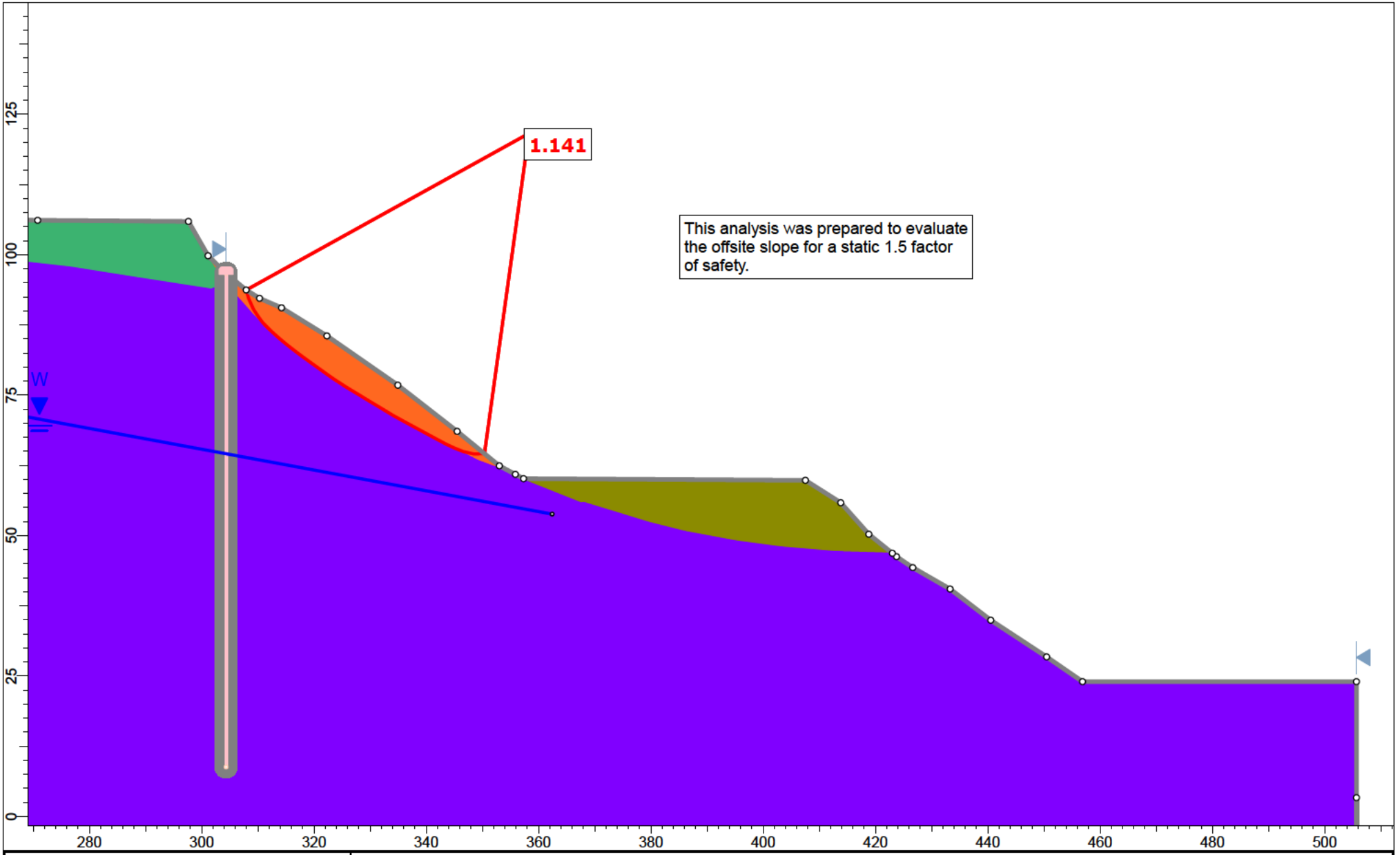
Shared Entities

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

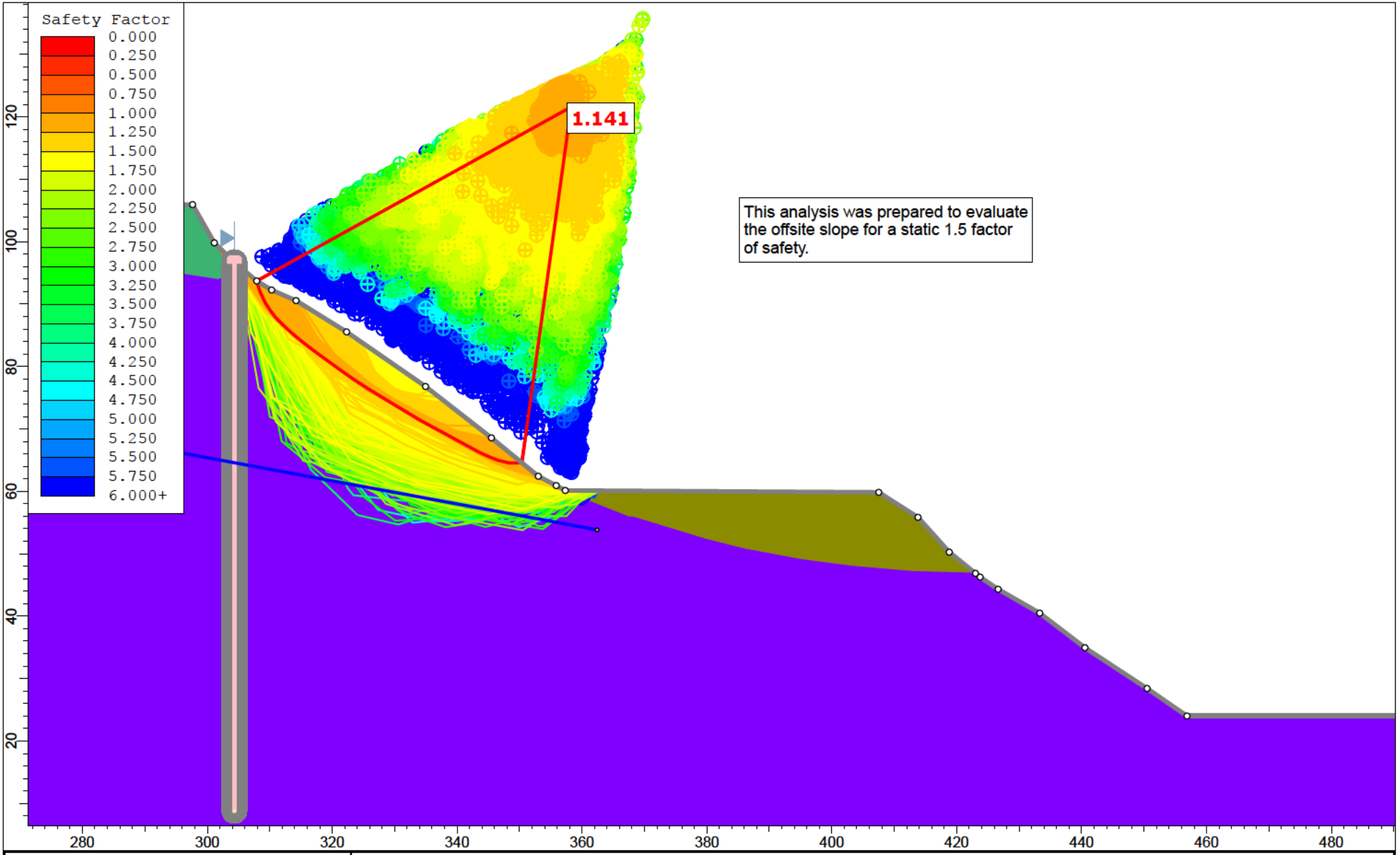
Scenario-based Entities

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	



rocscience	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

SLIDEINTERPRET 9.018



rocscience

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)

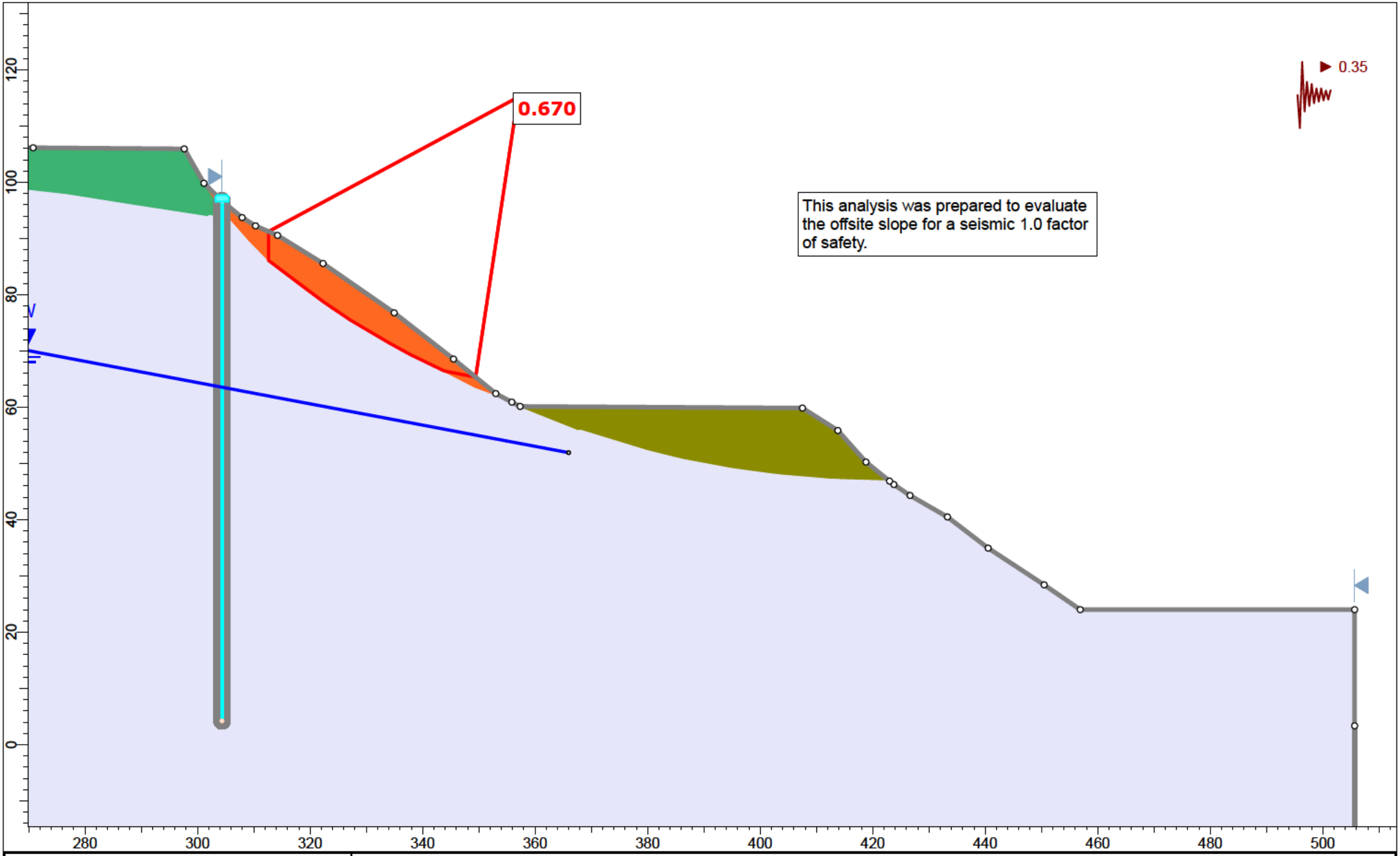
Shared Entities

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

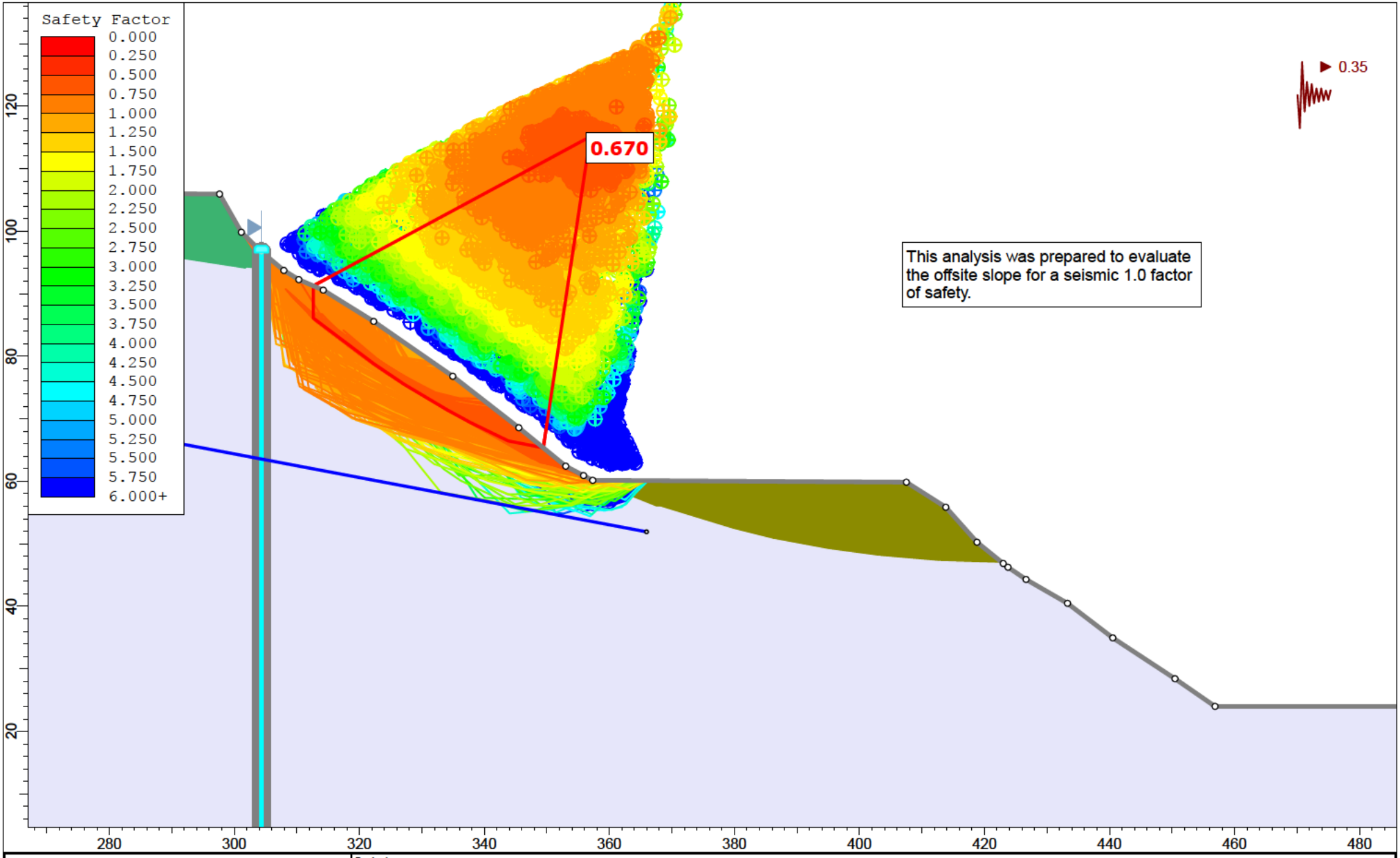
Scenario-based Entities

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	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

SLIDEINTERPRET 9.018



rocscience

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)

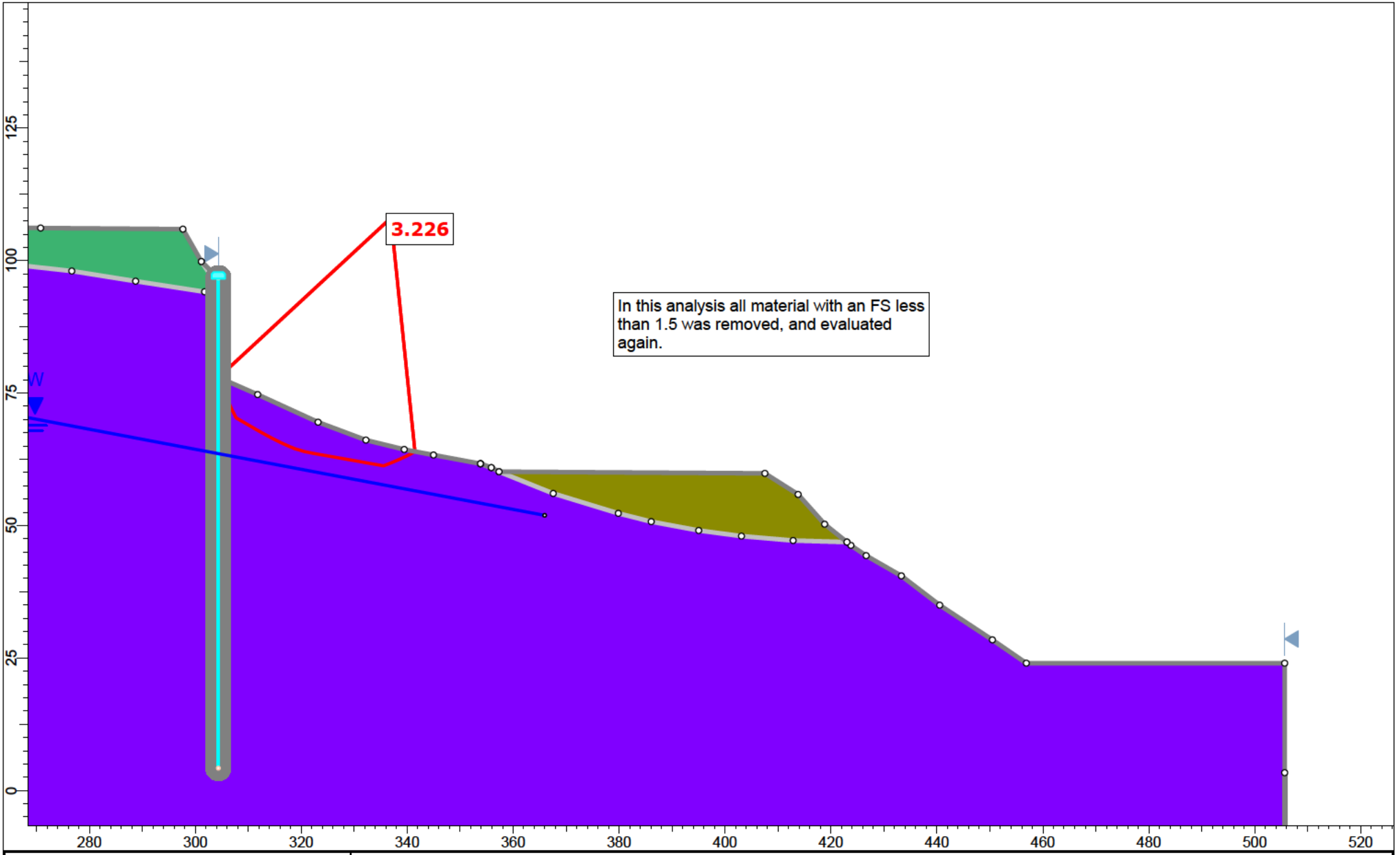
Shared Entities

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

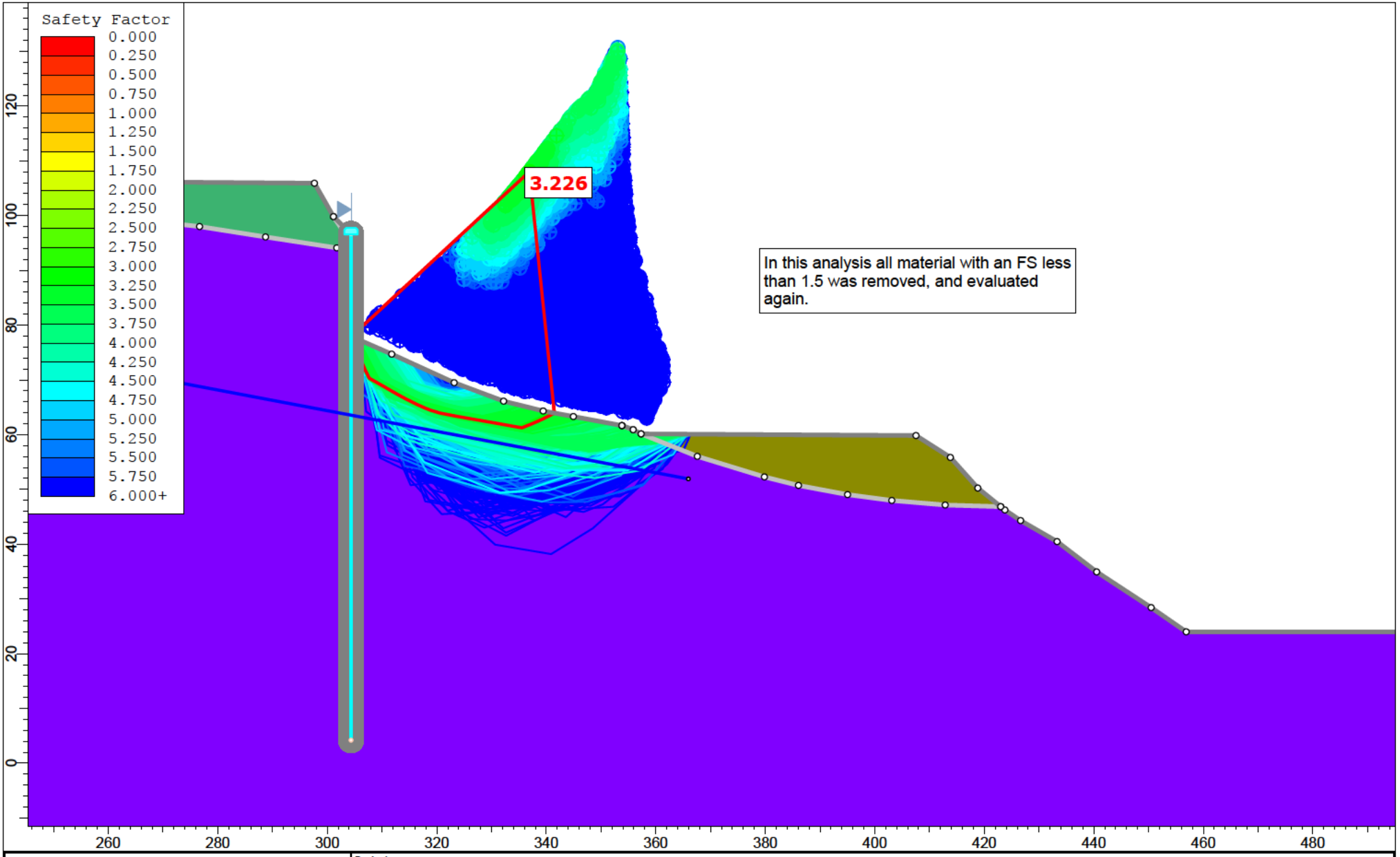
Scenario-based Entities

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



rocscience	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

SLIDEINTERPRET 9.018



rocscience

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)

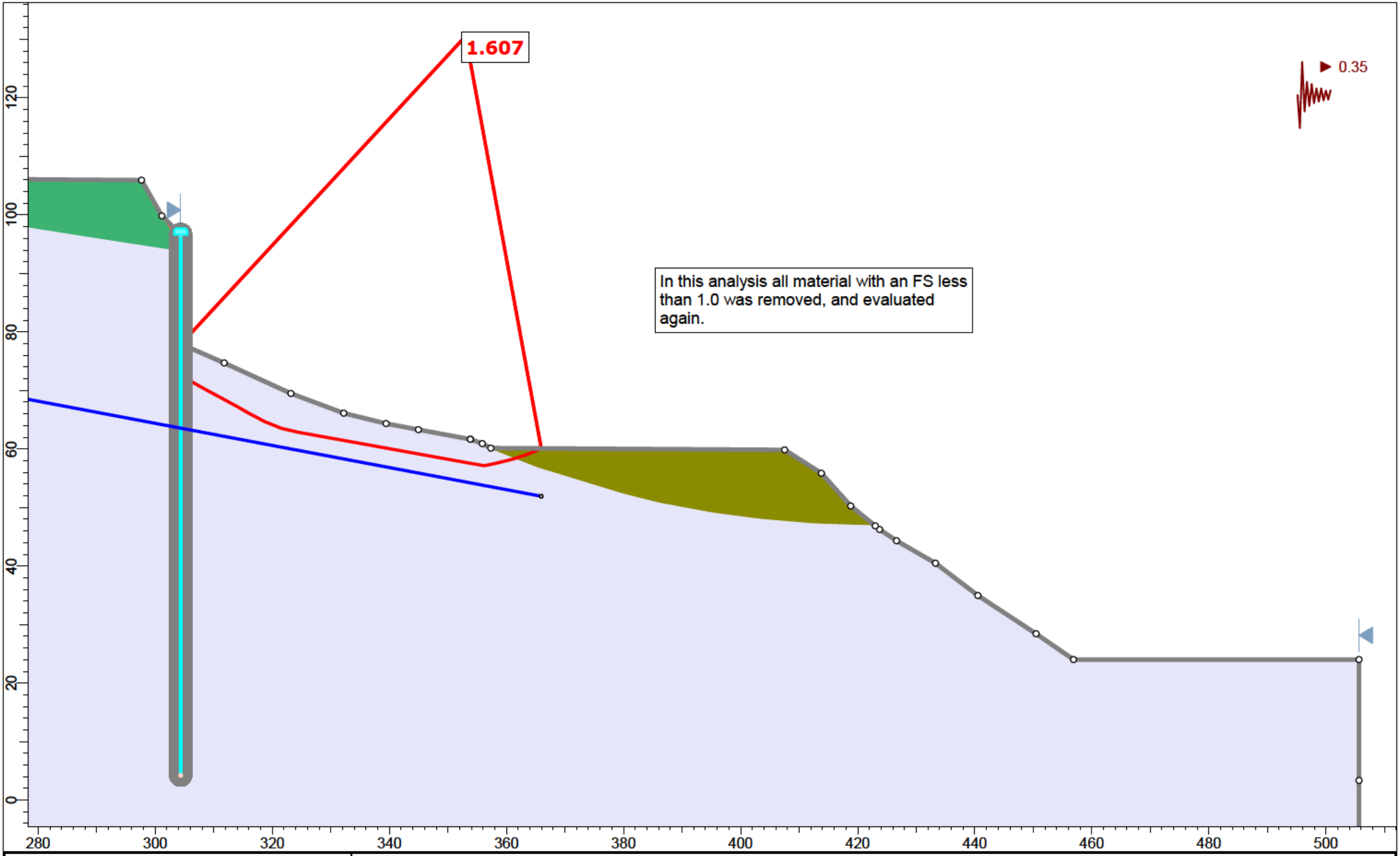
Shared Entities

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

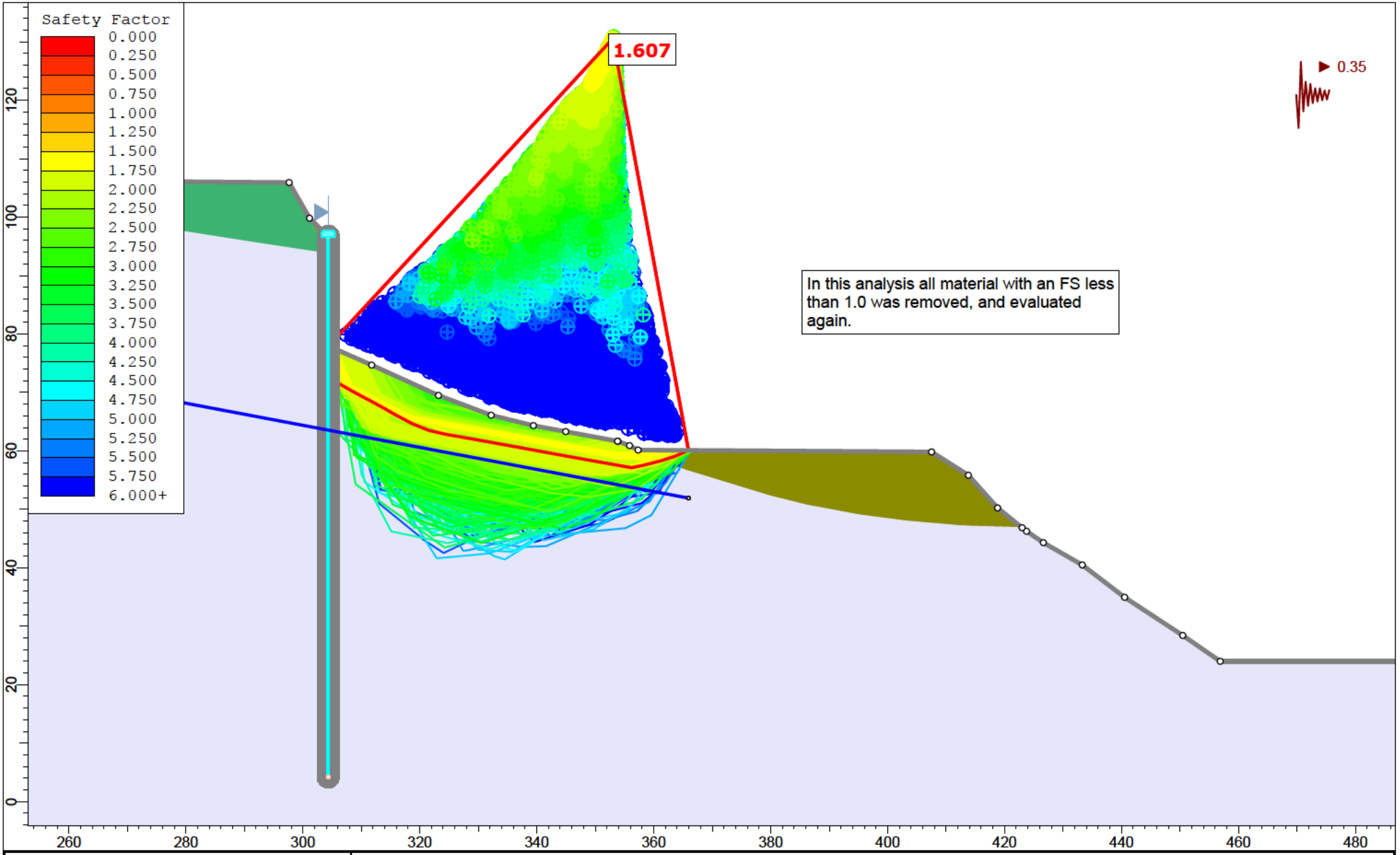
Type	Coordinates (x,y)	Master Scenario
Water Table	173.517, 88.262 365.949, 51.915	Assigned to: Terrace (Qoa) Qlsr Fill (Af) Anisotropic Bedrock (Tm) Ultimate



rocscience

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



rocscience

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)

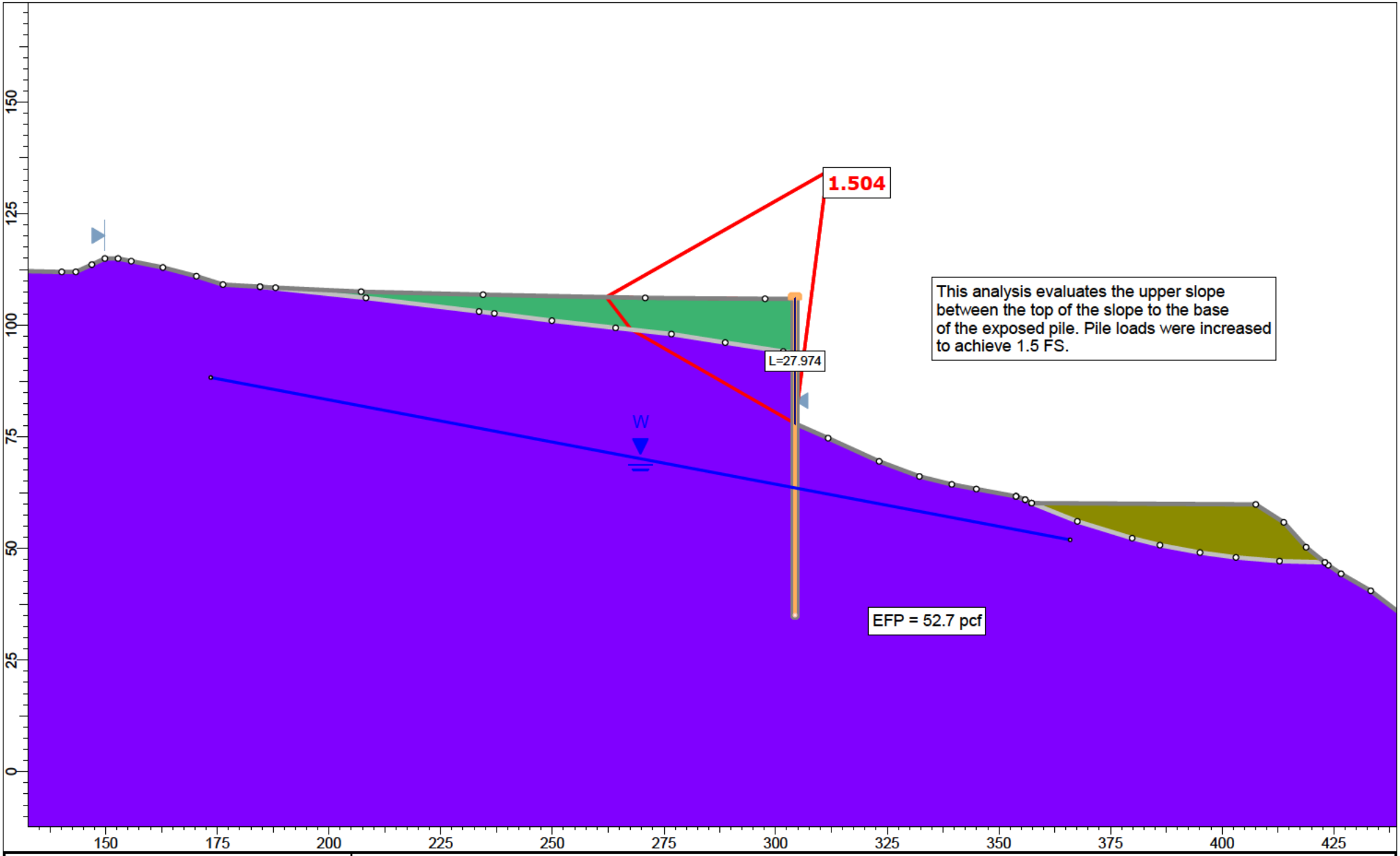
Shared Entities

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

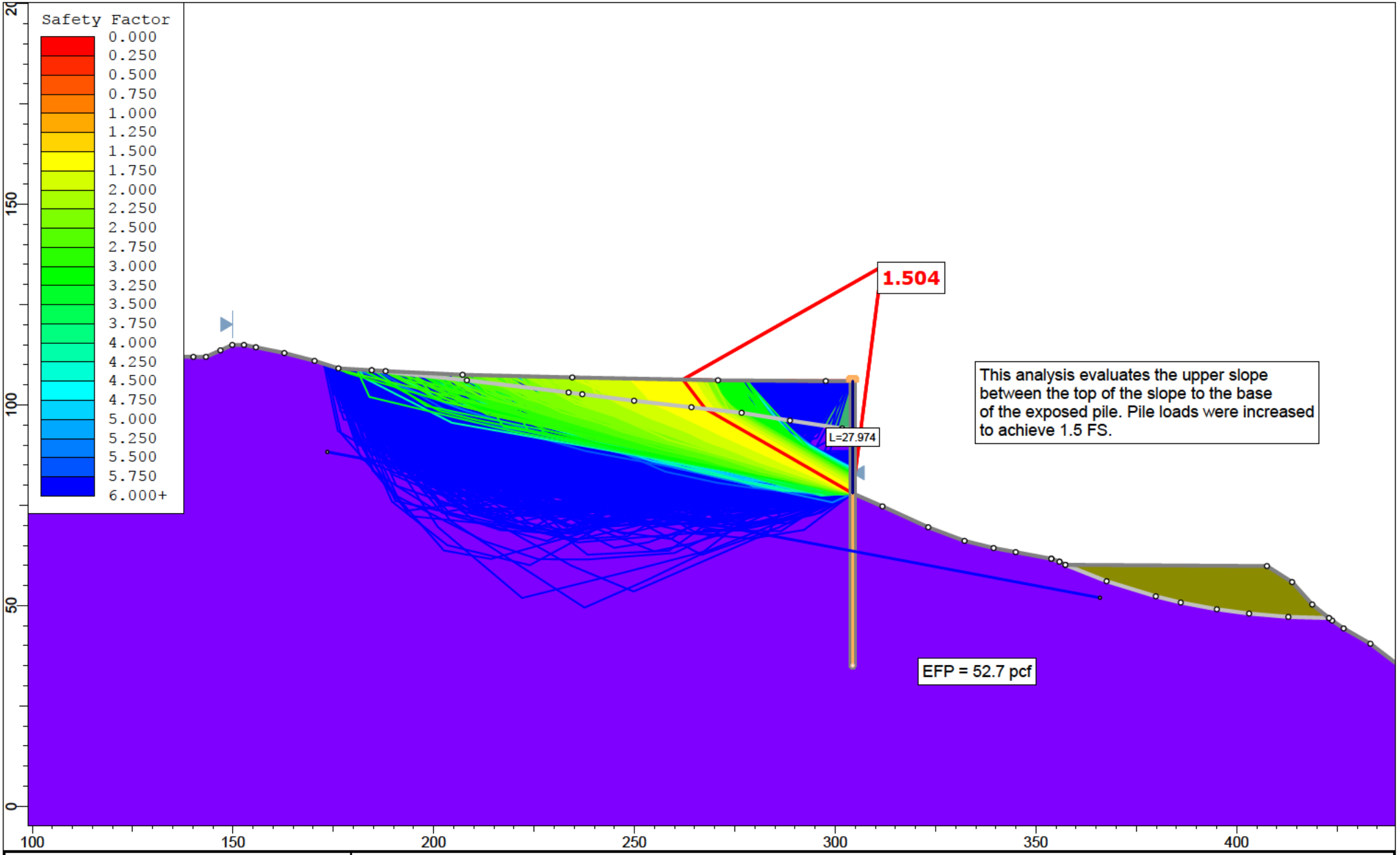
Type	Coordinates (x,y)	Master Scenario
Water Table	173.517, 88.262 365.949, 51.915	Assigned to: Terrace (Qoa) Qlsr Fill (Af) Anisotropic Bedrock (Tm) Peak



rocscience

SLIDEINTERPRET 9.018

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



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)

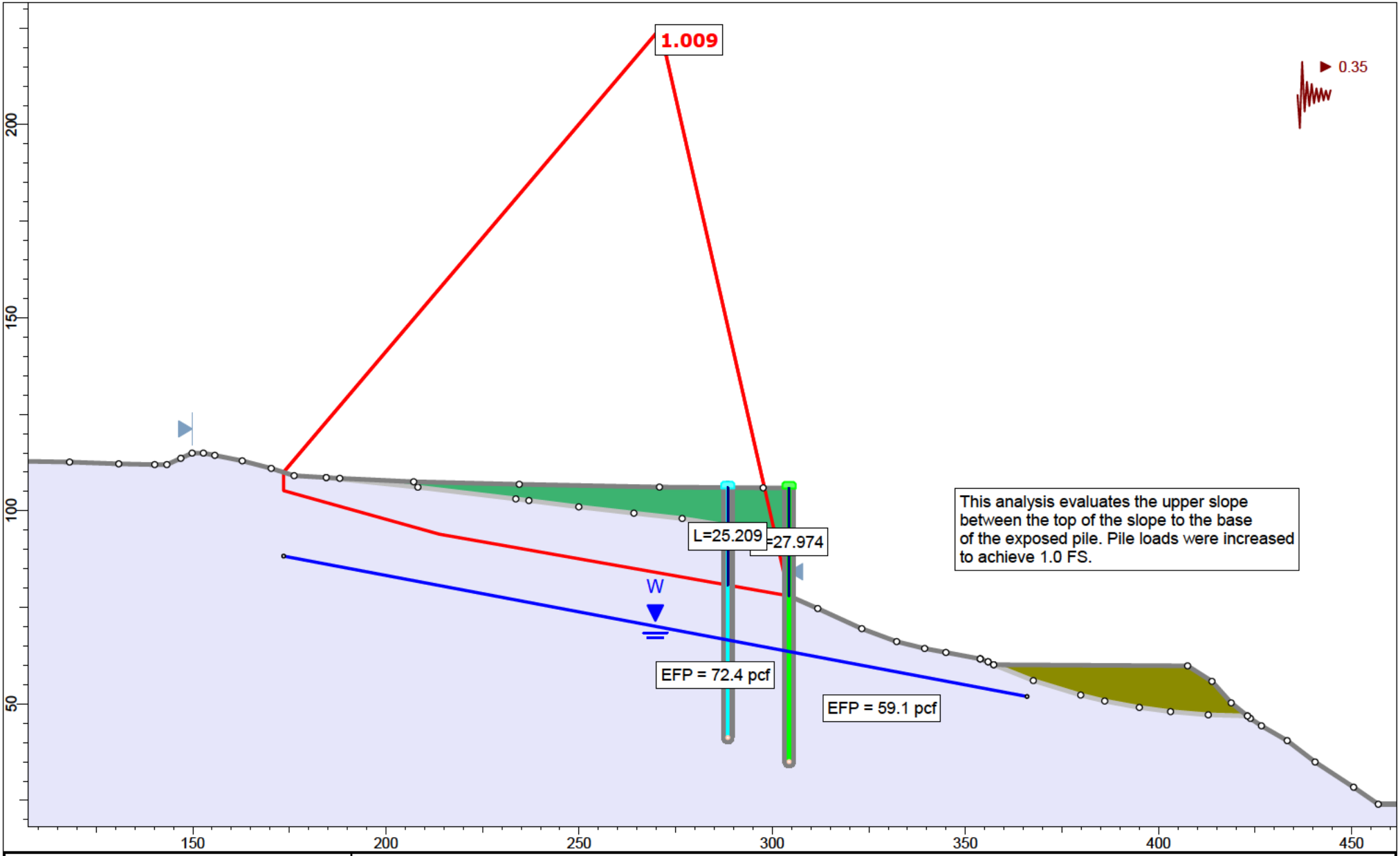
Shared Entities

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

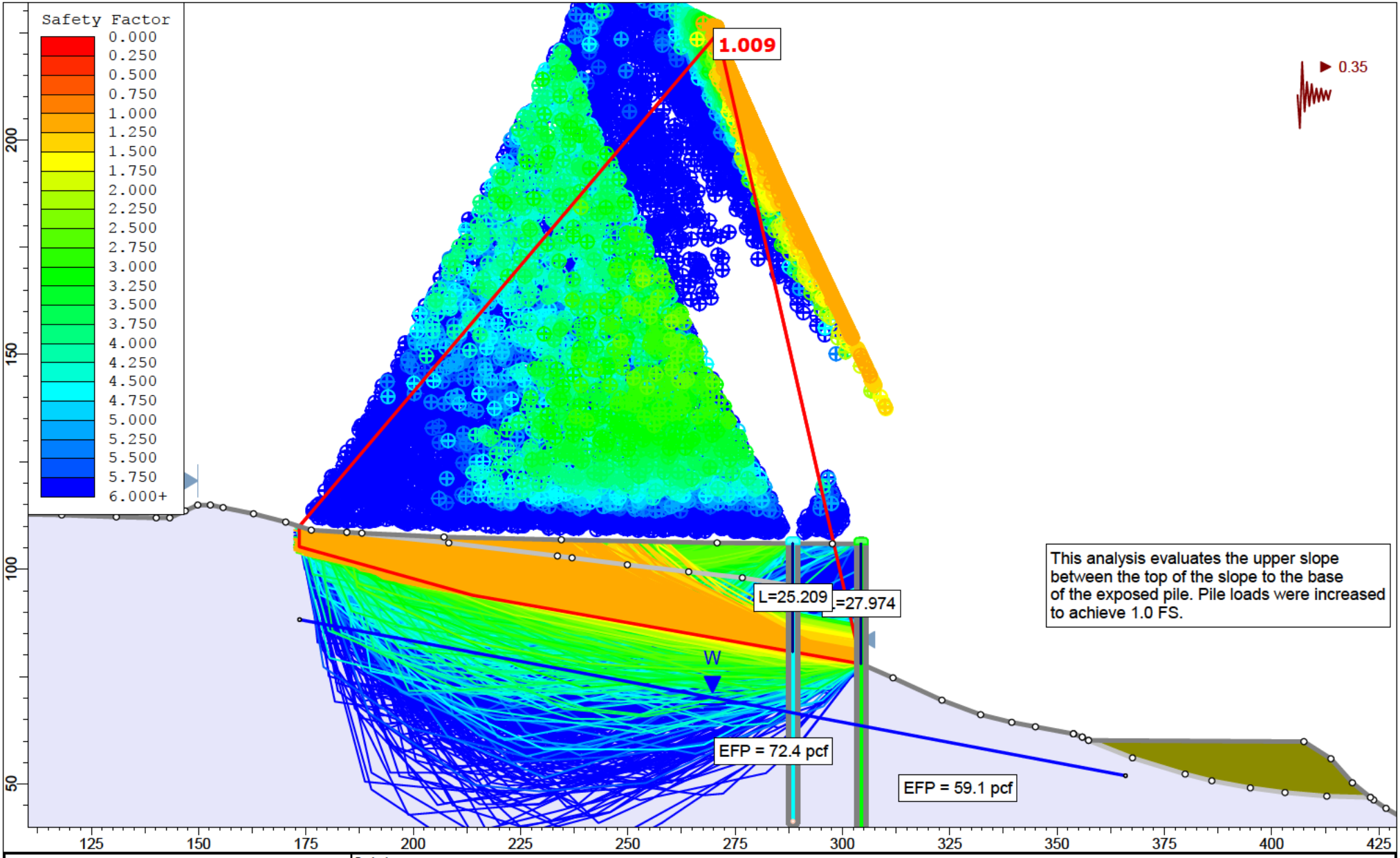
Scenario-based Entities

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



rocscience	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

SLIDEINTERPRET 9.018



rocscience

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)

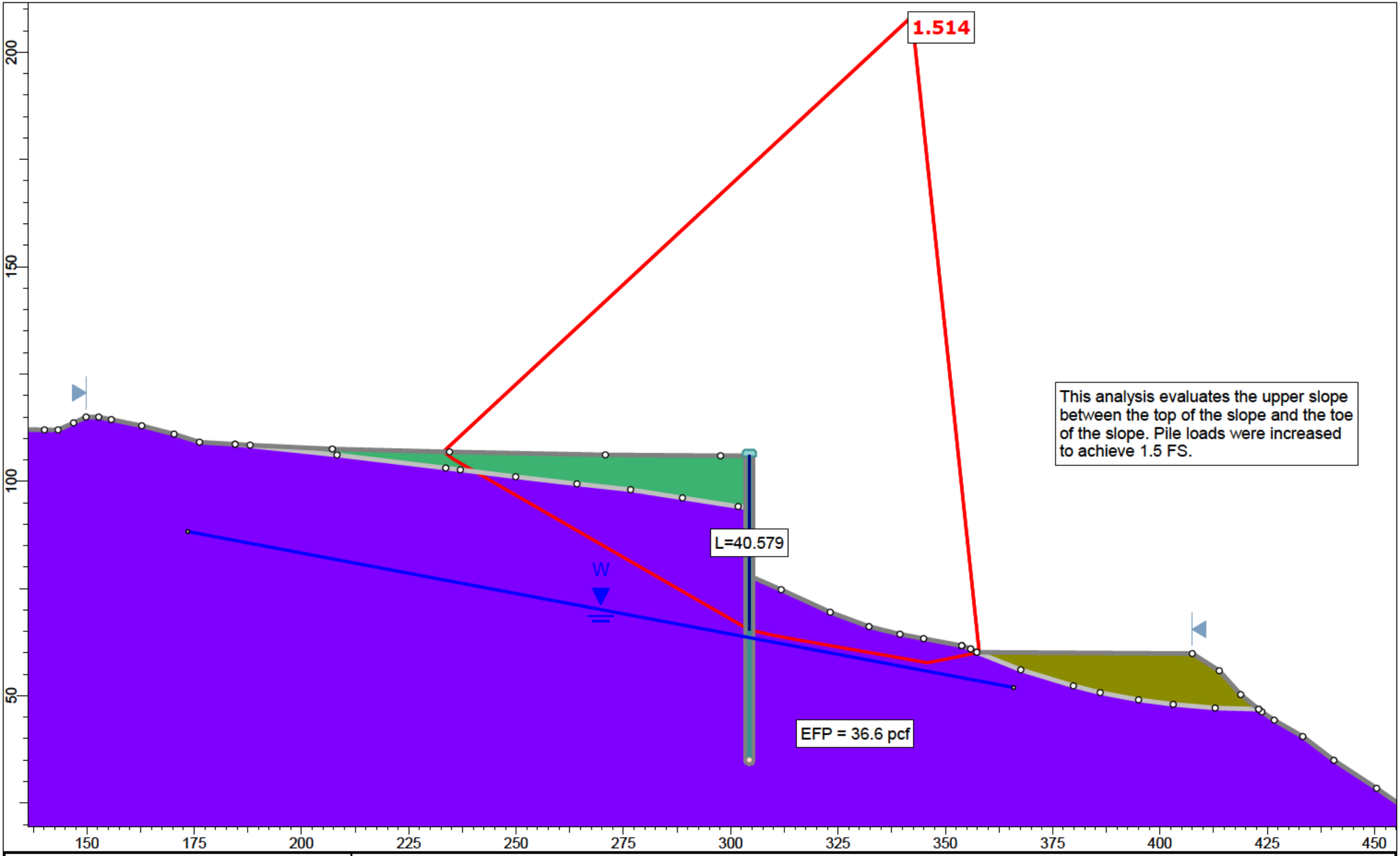
Shared Entities

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

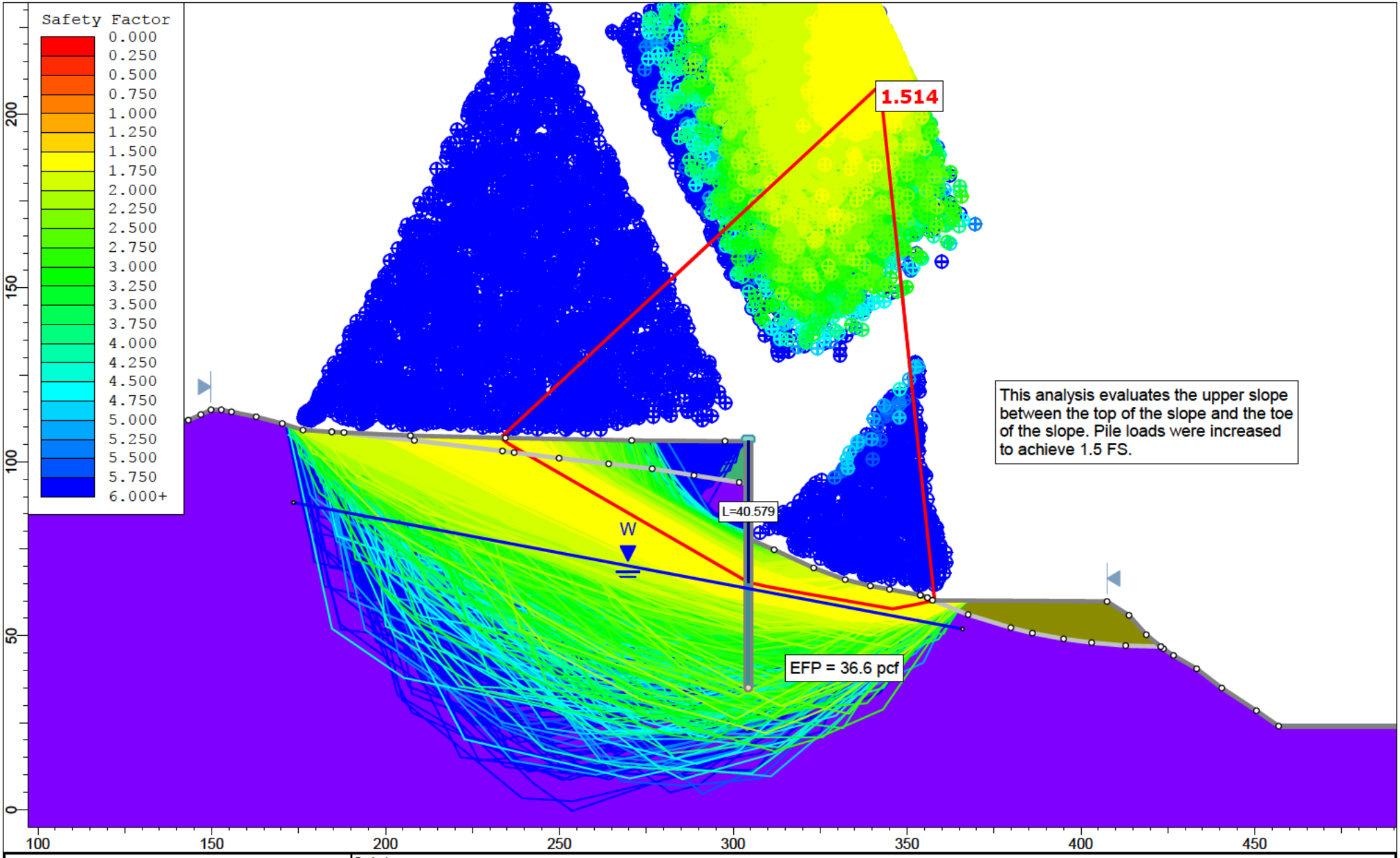
Scenario-based Entities

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

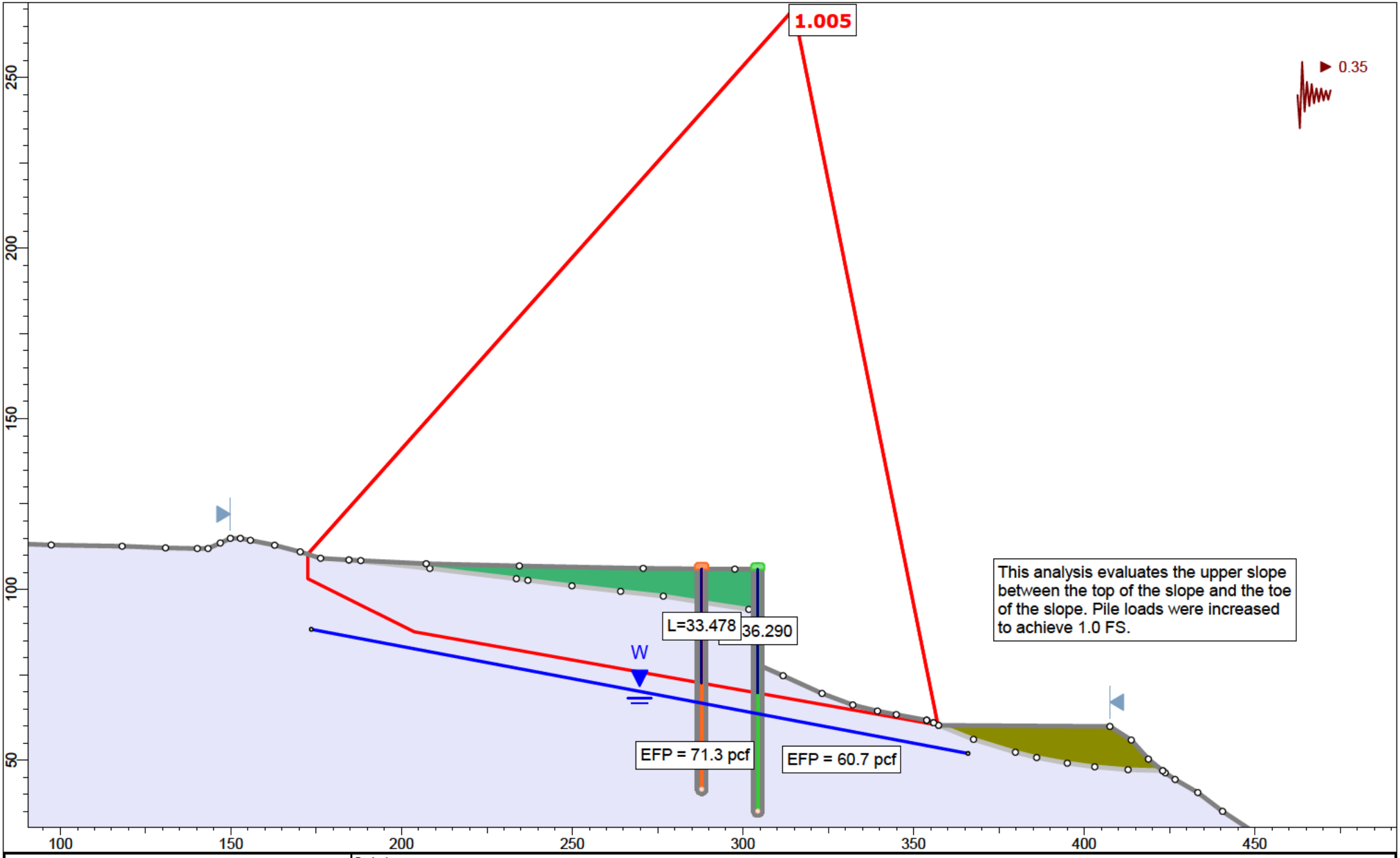
Shared Entities

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

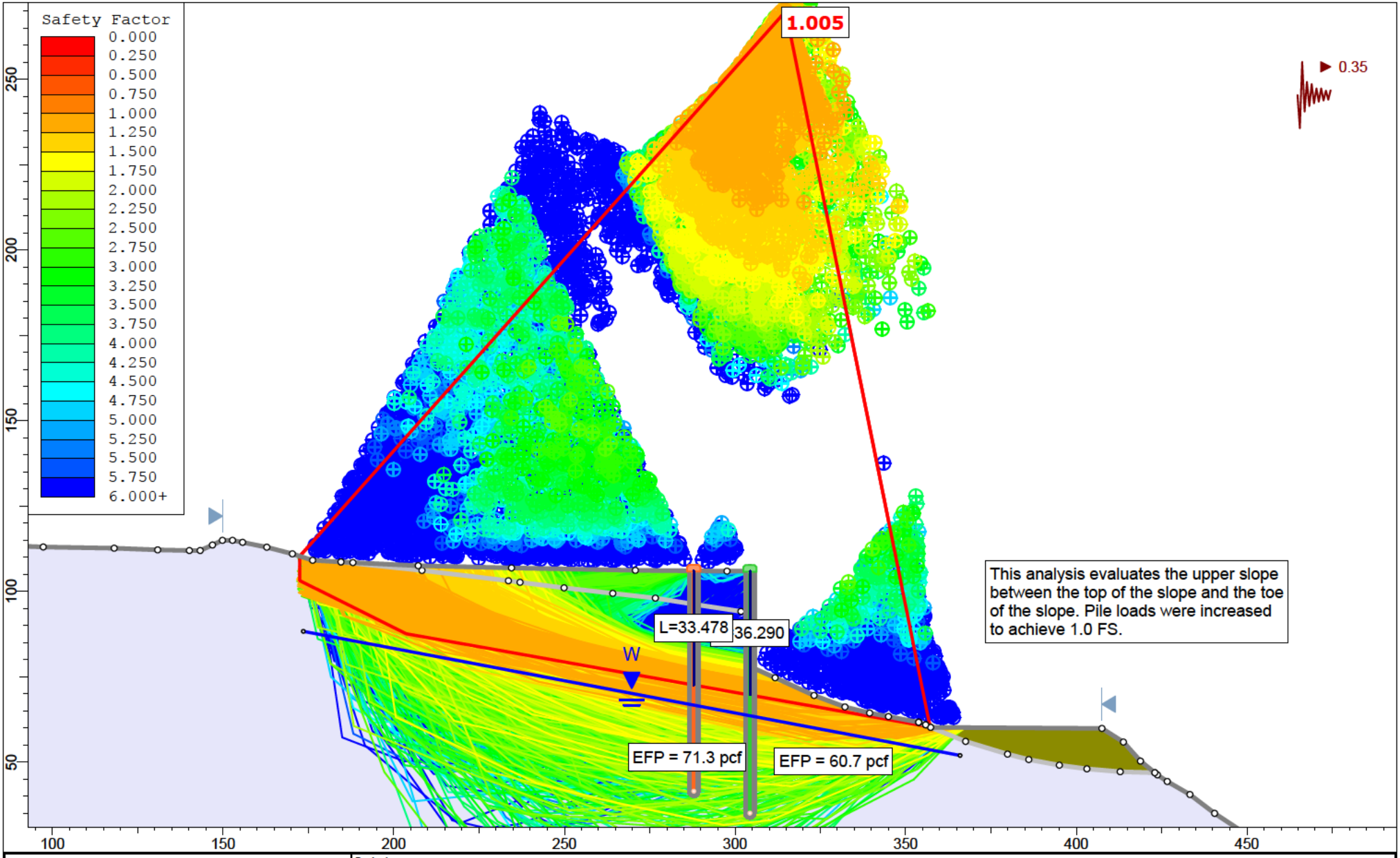
Scenario-based Entities

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	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

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

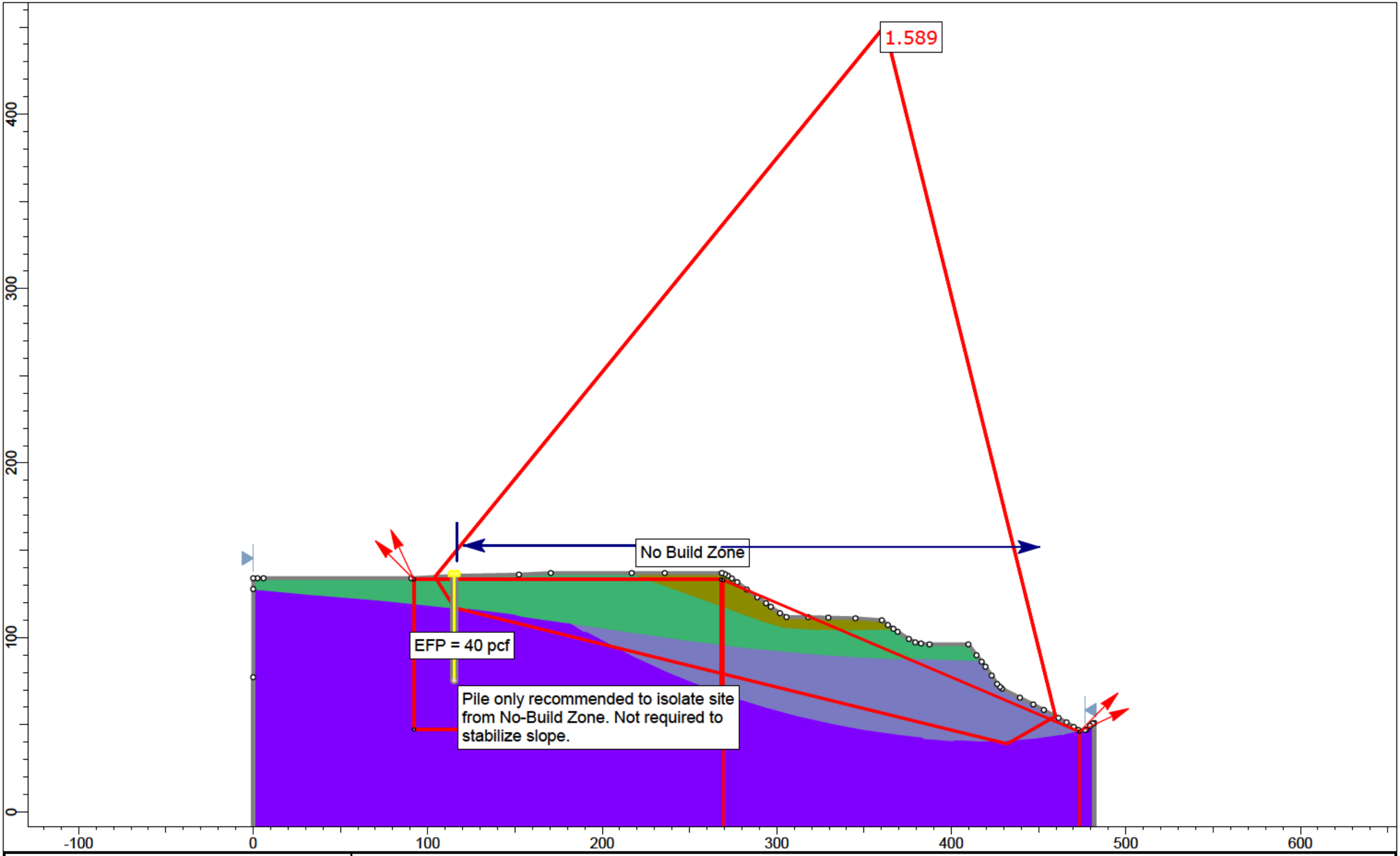
Shared Entities

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

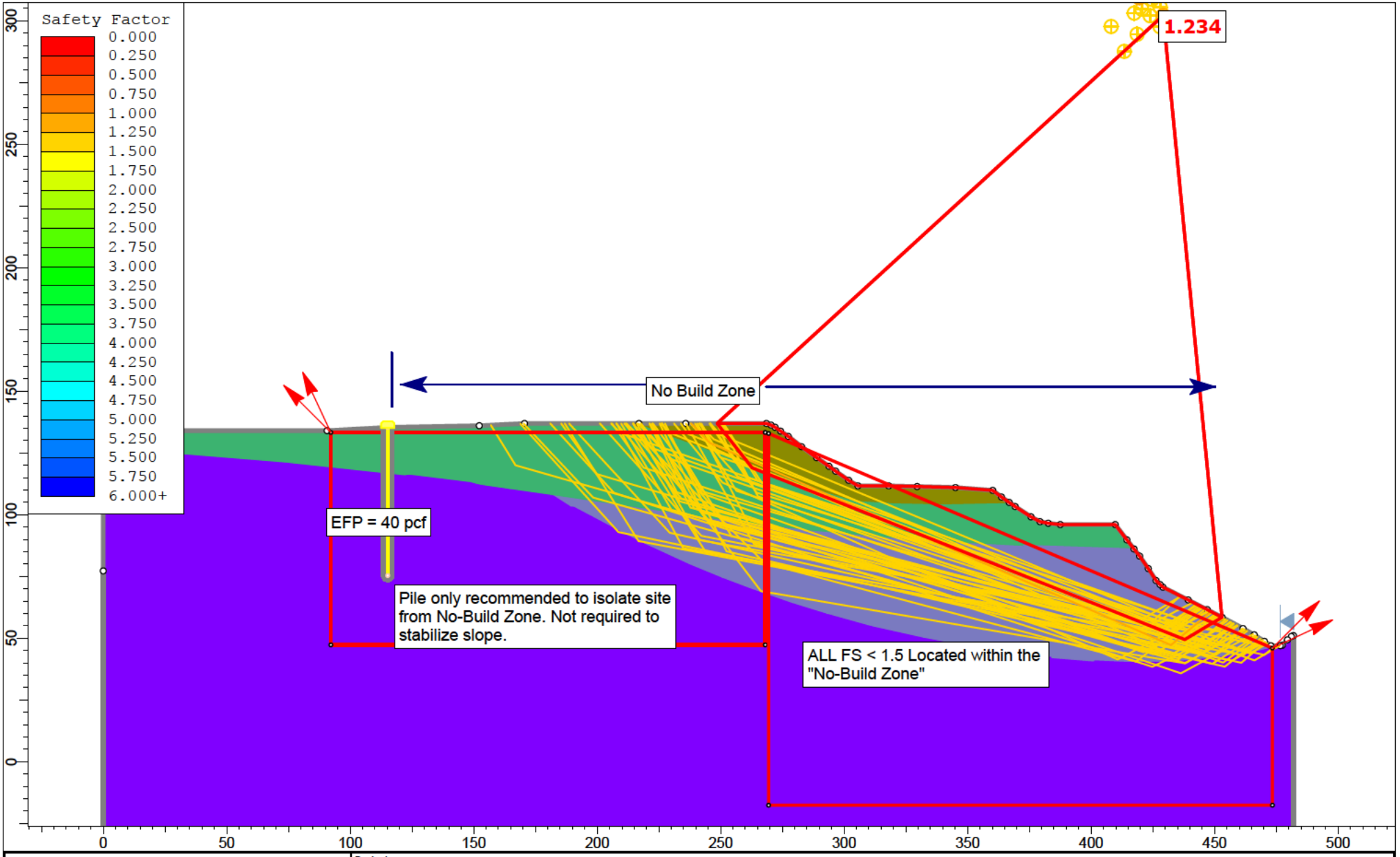
Type	Coordinates (x,y)	Master Scenario
Water Table	173.517, 88.262 365.949, 51.915	Assigned to: Terrace (Qoa) Qlsr Fill (Af) Anisotropic Bedrock (Tm) Peak



rocscience

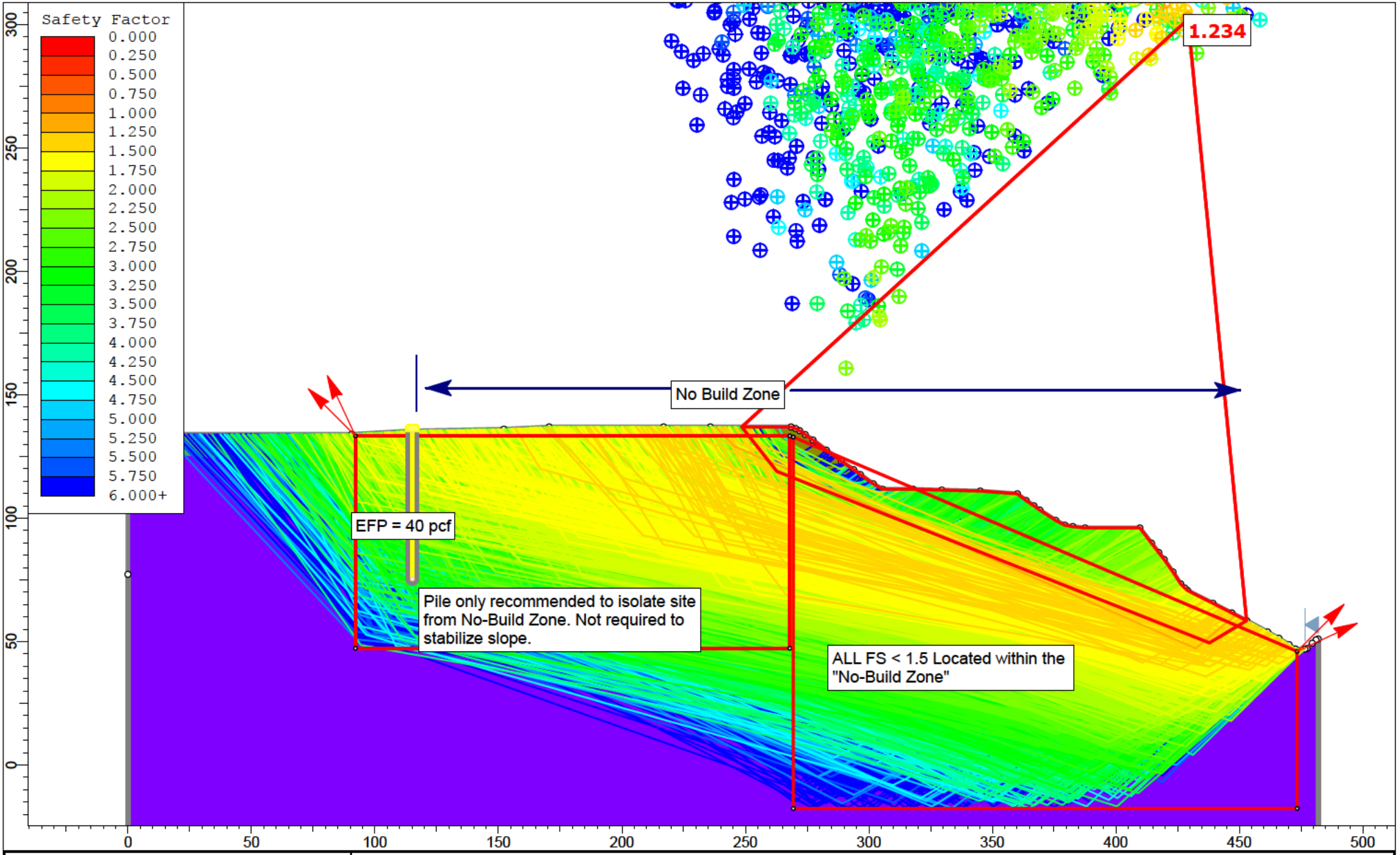
SLIDEINTERPRET 9.018

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	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

SLIDEINTERPRET 9.018



rocscience	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

SLIDEINTERPRET 9.018

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



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

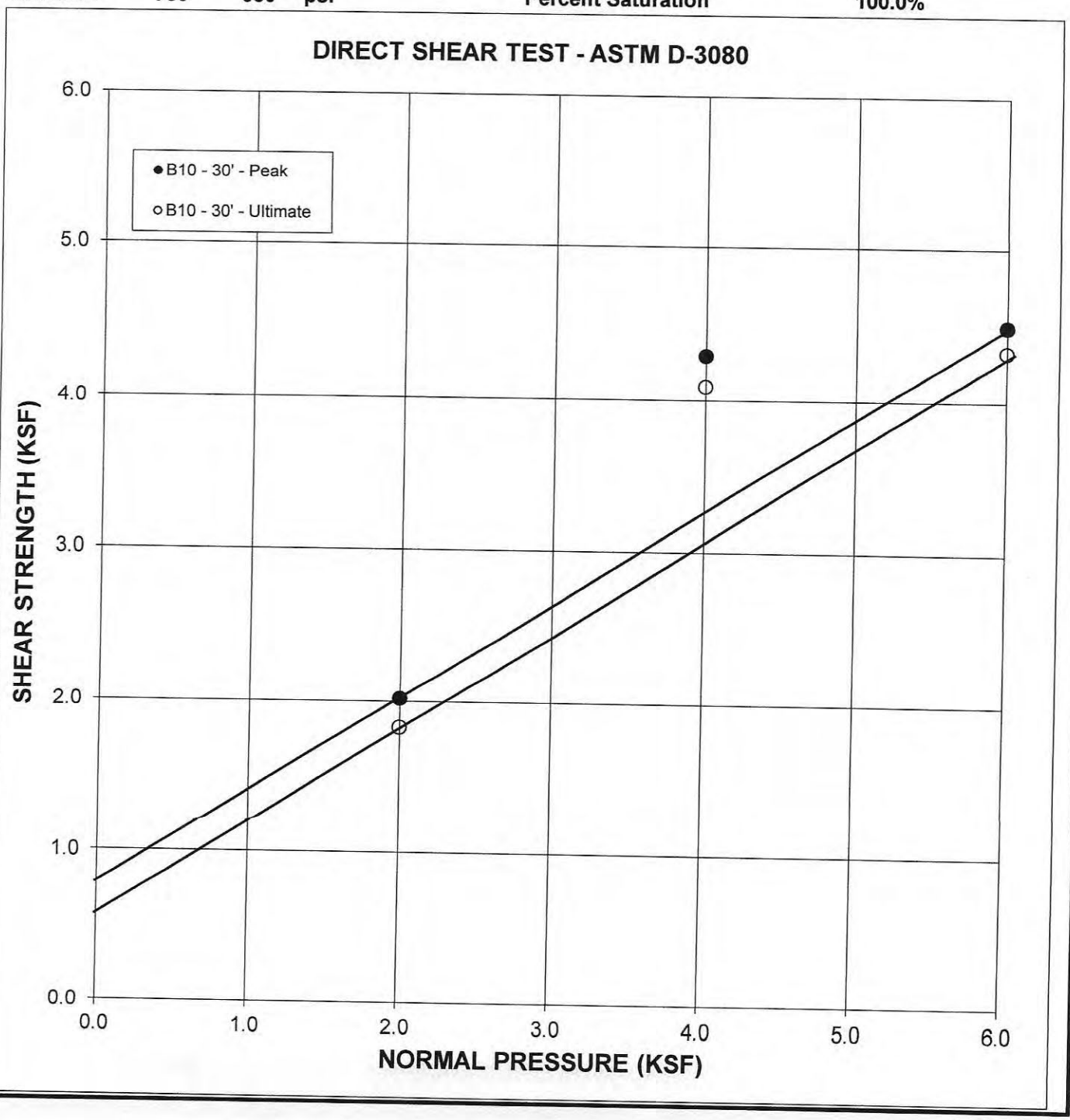
SHEAR DIAGRAM B-11

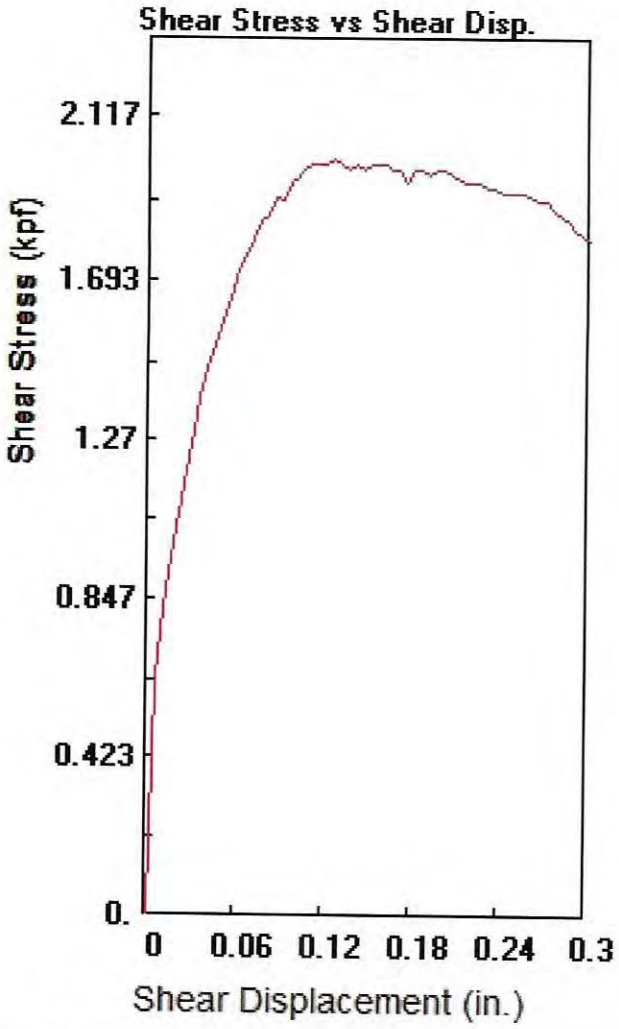
JN: SL17.2654 CONSULTANT JAI
CLIENT: Feffer/Colorea-25200-25300 Pacific Coast Wy

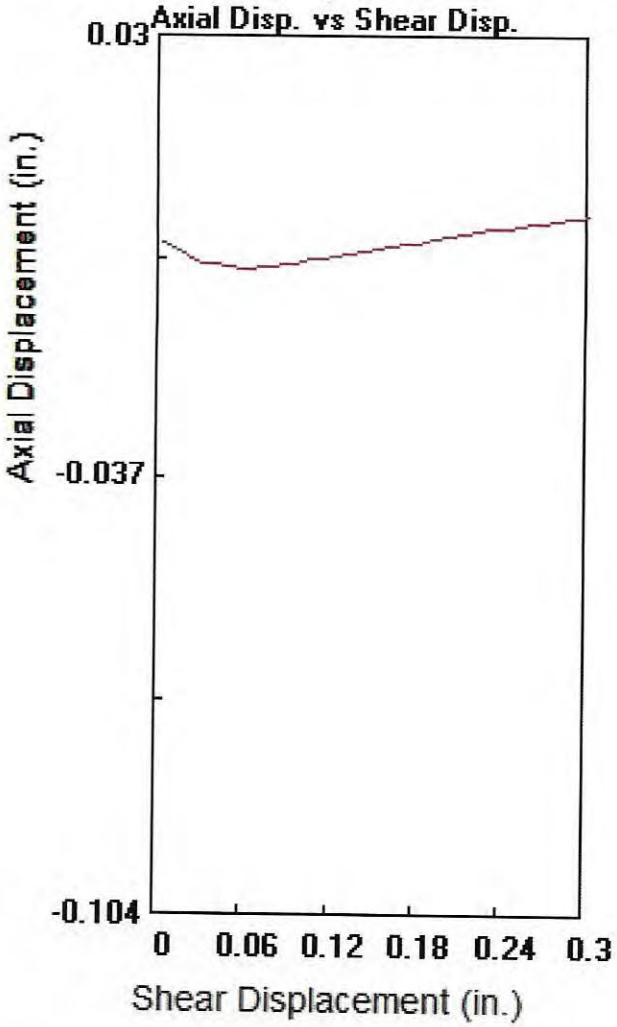
EARTH MATERIAL: BEDROCK

	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

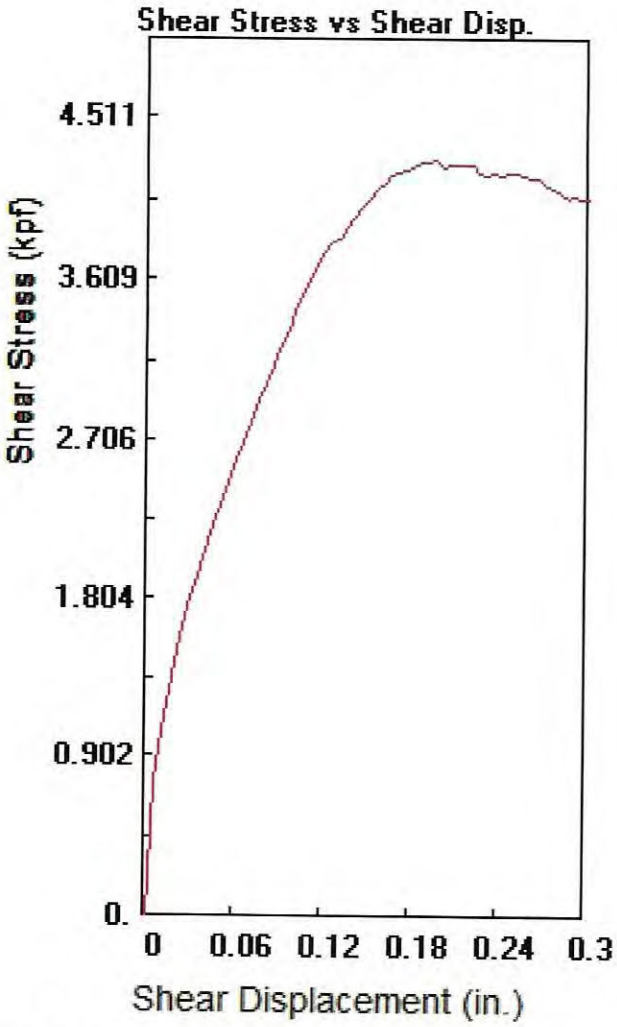
Shear Displacement at maximum Load

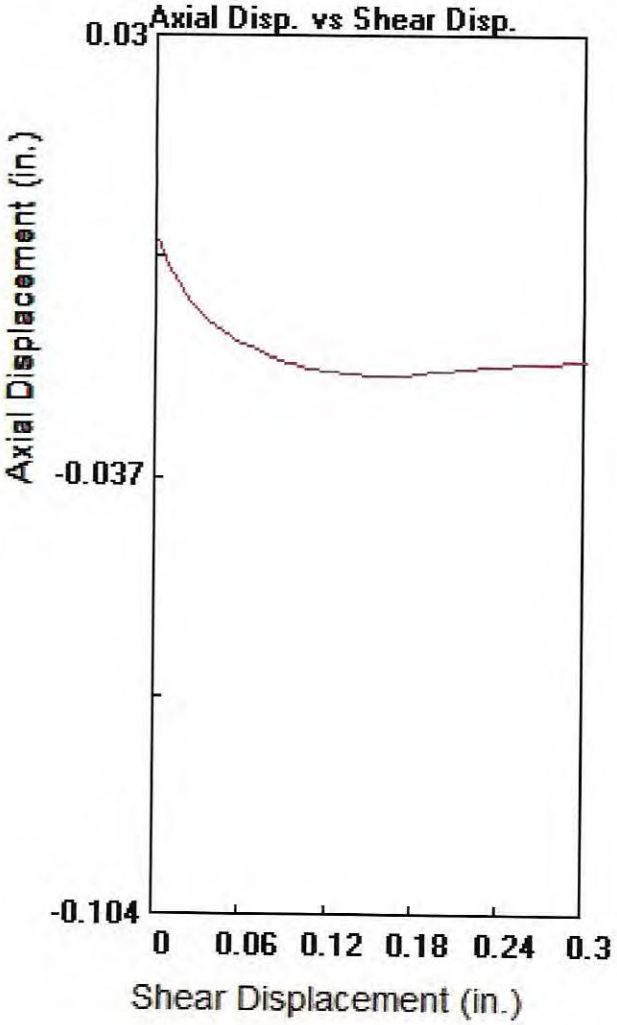
0.1252 in.

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

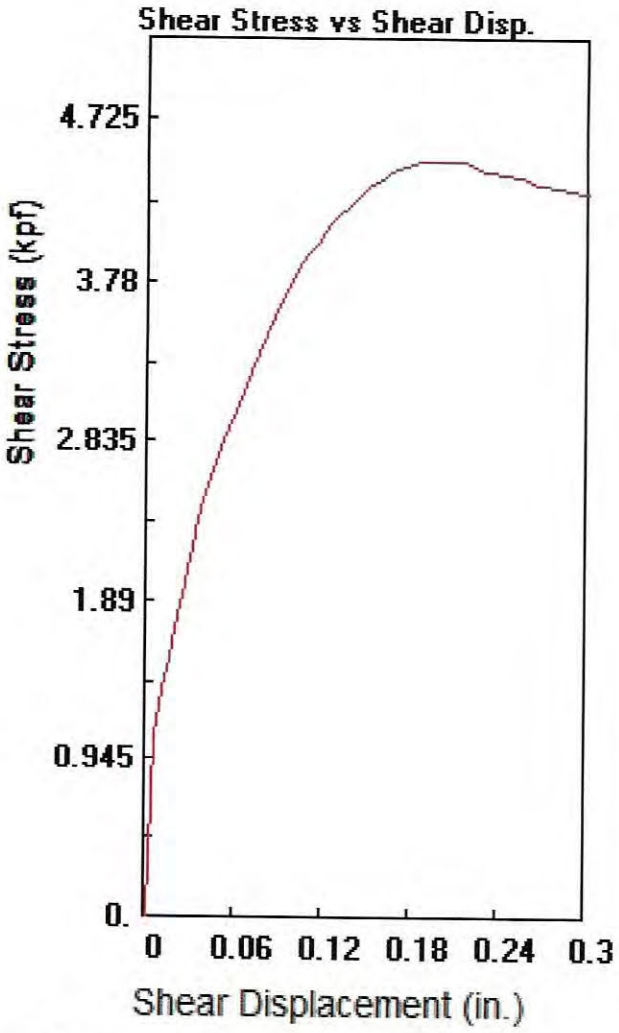
Shear Displacement at maximum Load

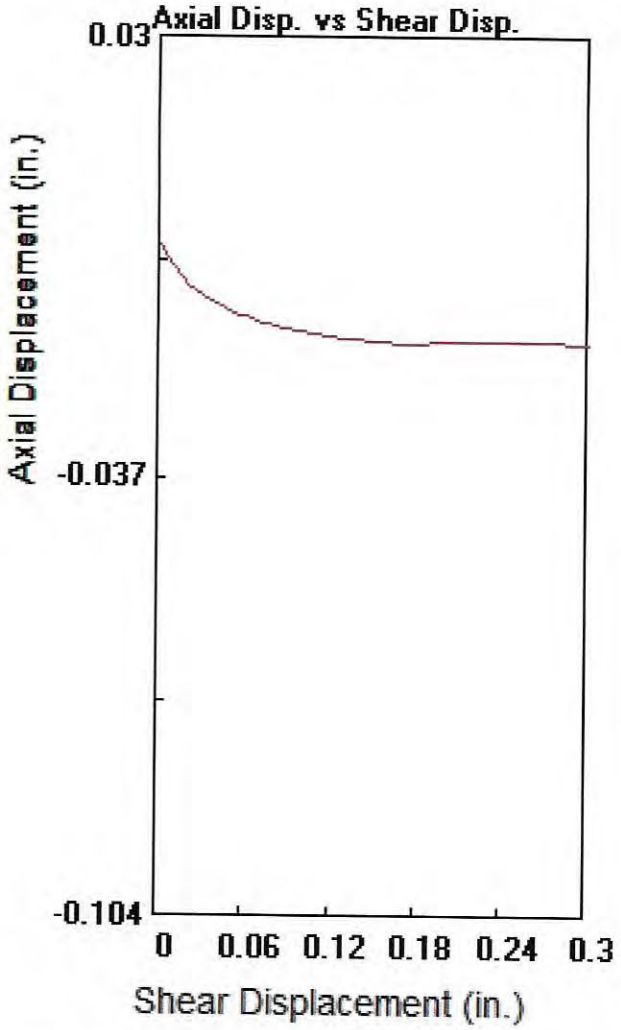
0.1952 in.

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

SOIL LABWORKS LLC

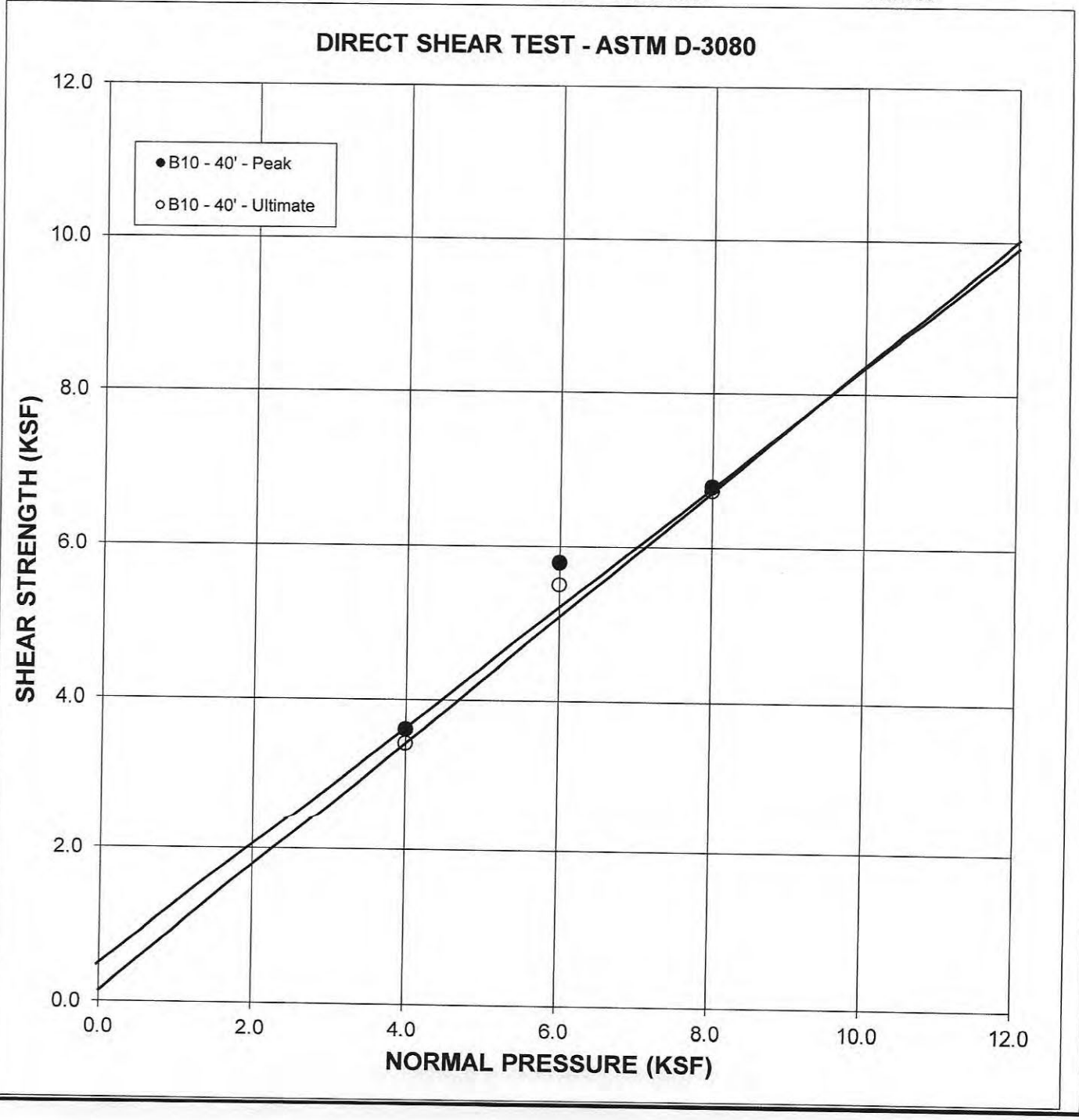
SHEAR DIAGRAM B-12

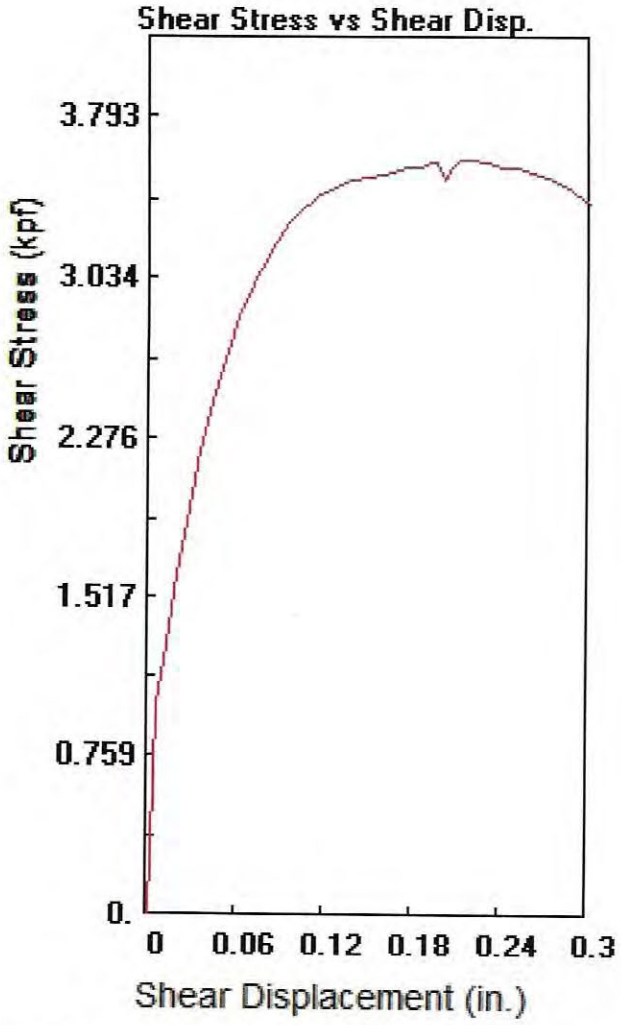
JN: **SL17.2654** CONSULTANT **JAI**
CLIENT: **Feffer/Colorea-25200-25300 Pacific Coast Wy**

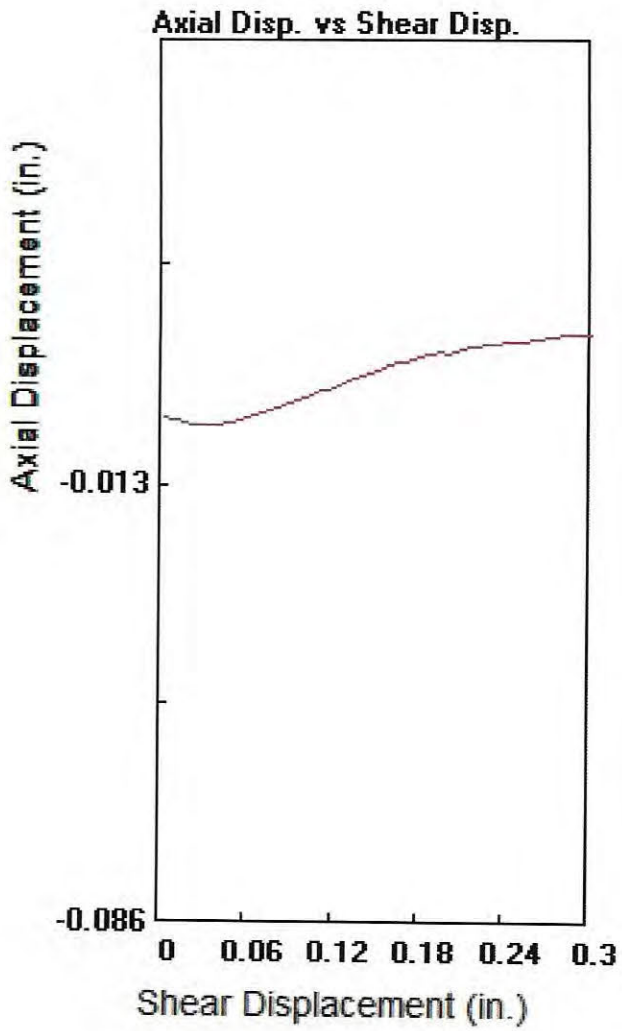
EARTH MATERIAL: **BEDROCK**

	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

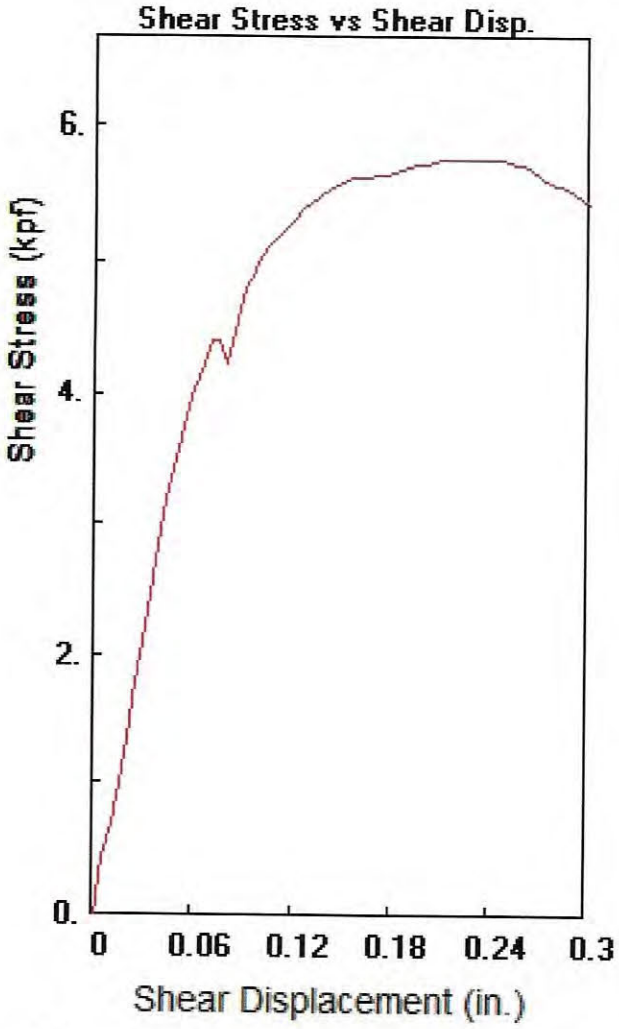
Shear Displacement at maximum Load

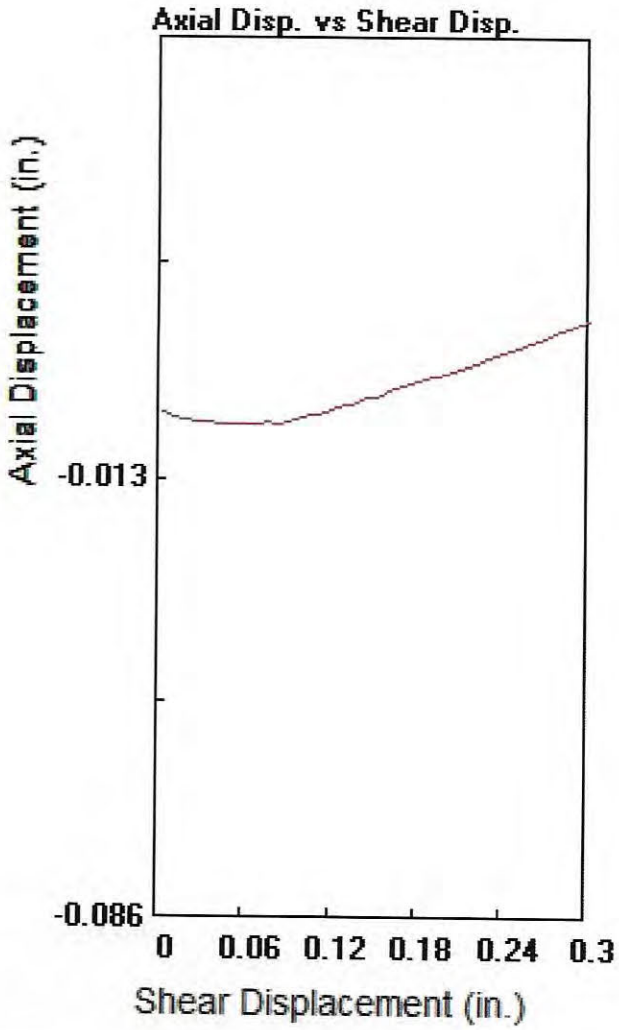
0.2103 in.

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

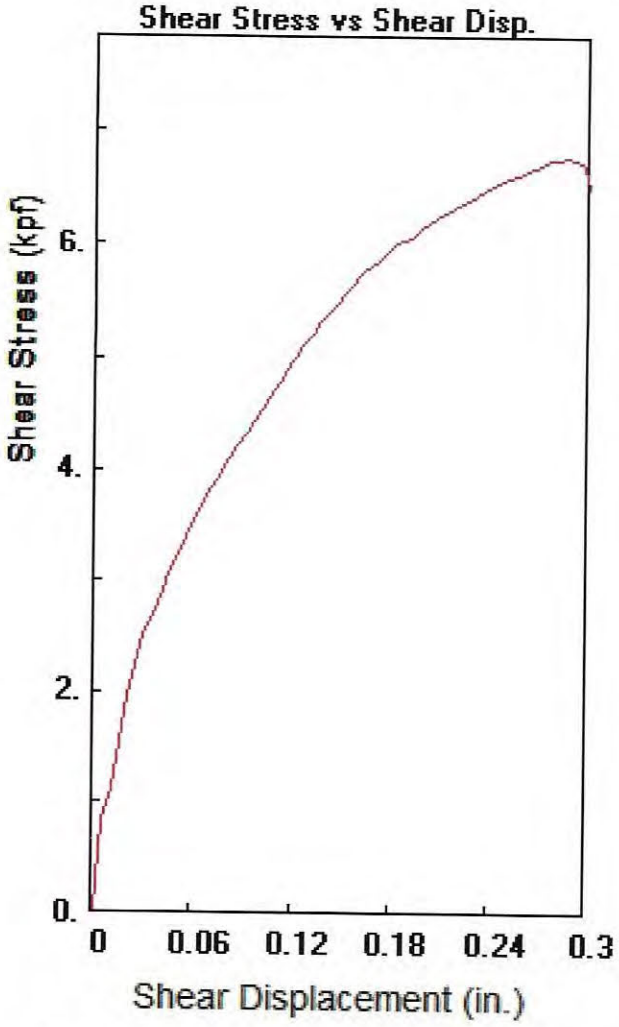
Shear Displacement at maximum Load

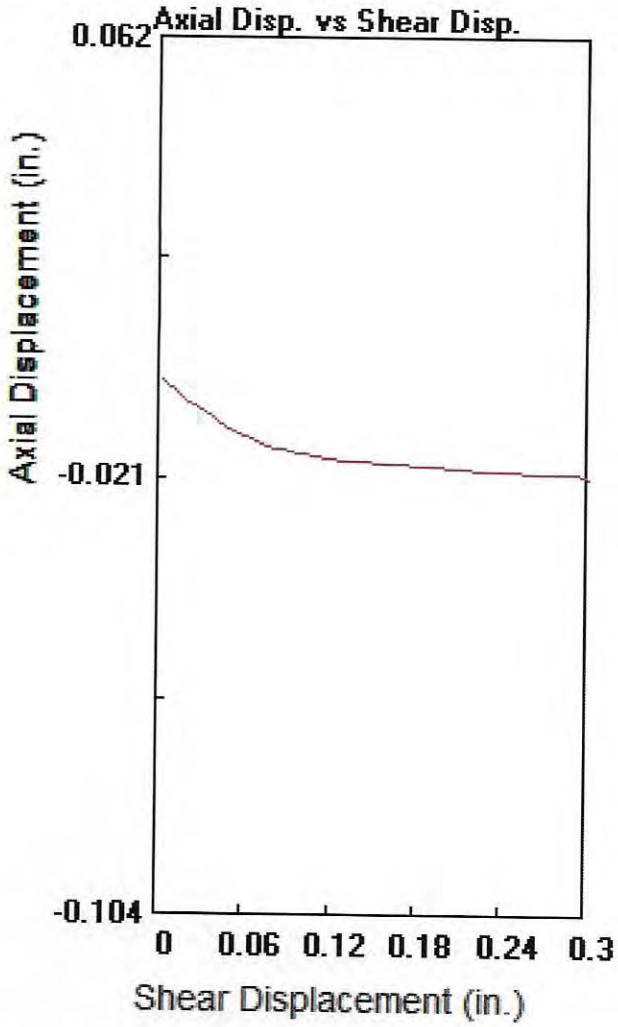
0.2104 in.

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

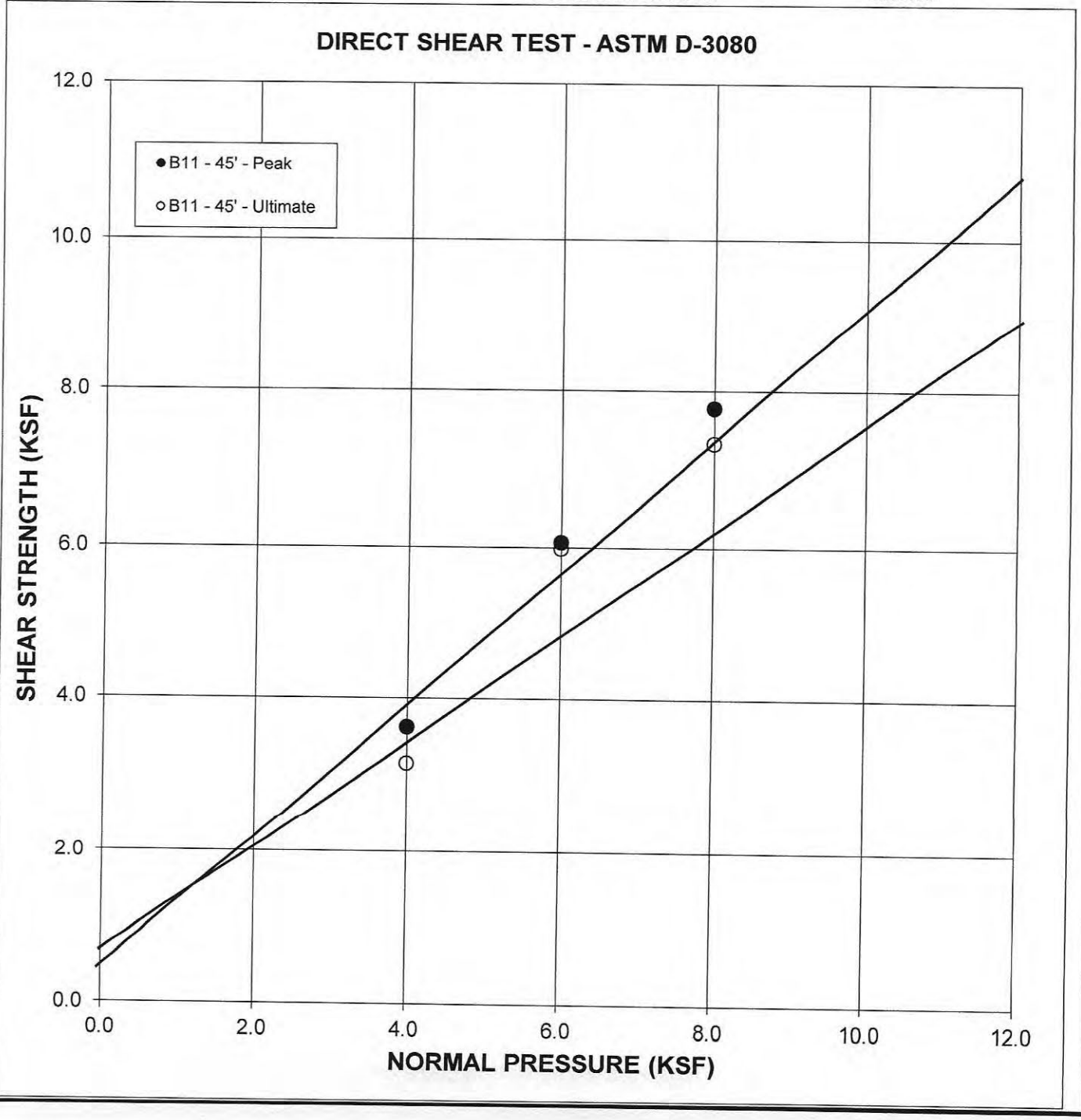
SHEAR DIAGRAM B-13

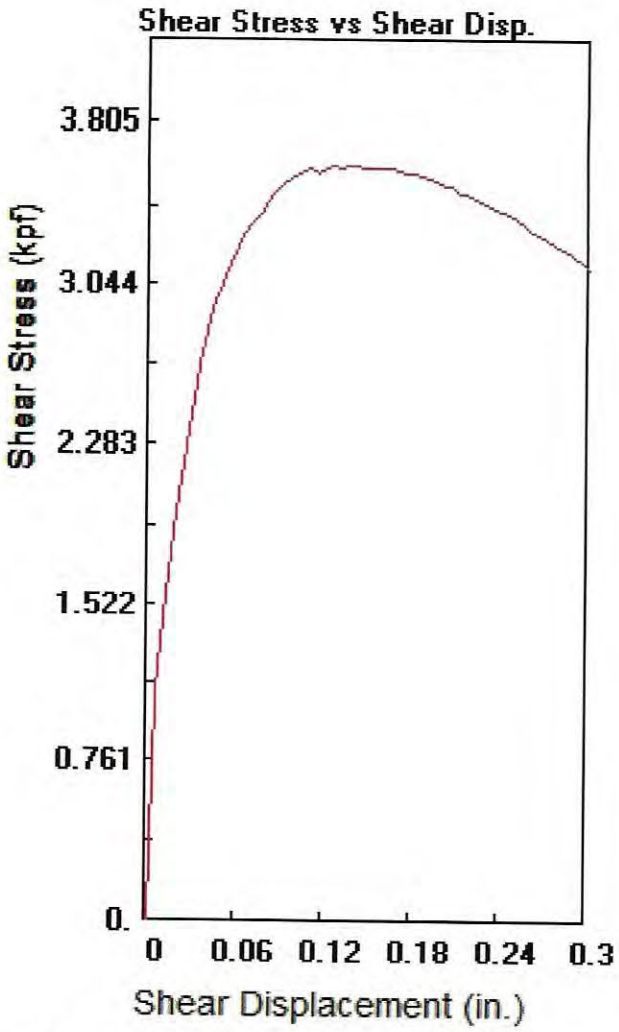
JN: **SL17.2654** CONSULTANT **JAI**
CLIENT: **Feffer/Colorea-25200-25300 Pacific Coast Wy**

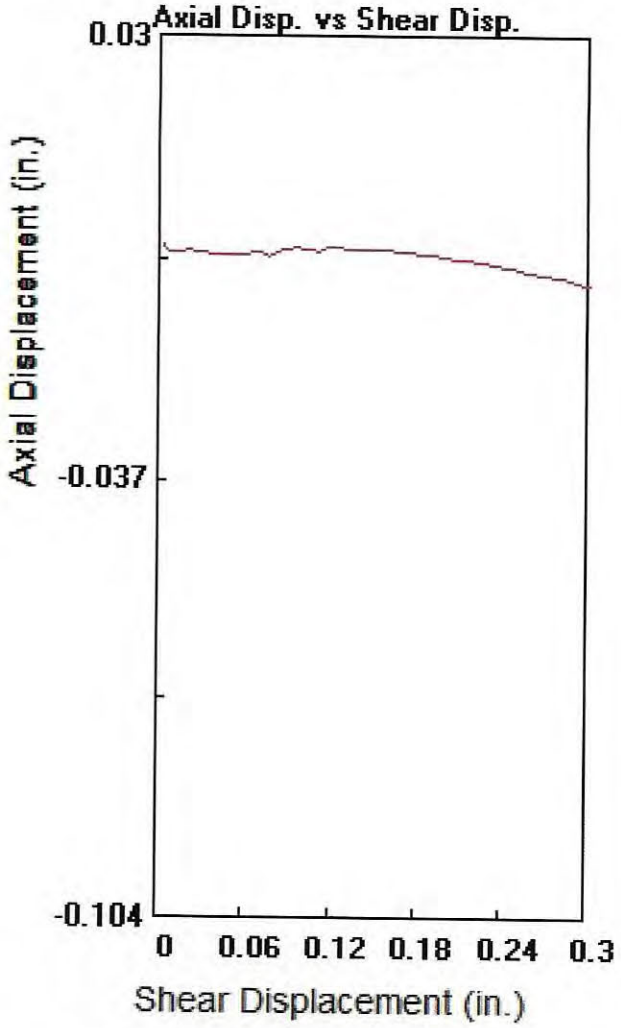
EARTH MATERIAL: **BEDROCK**

	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

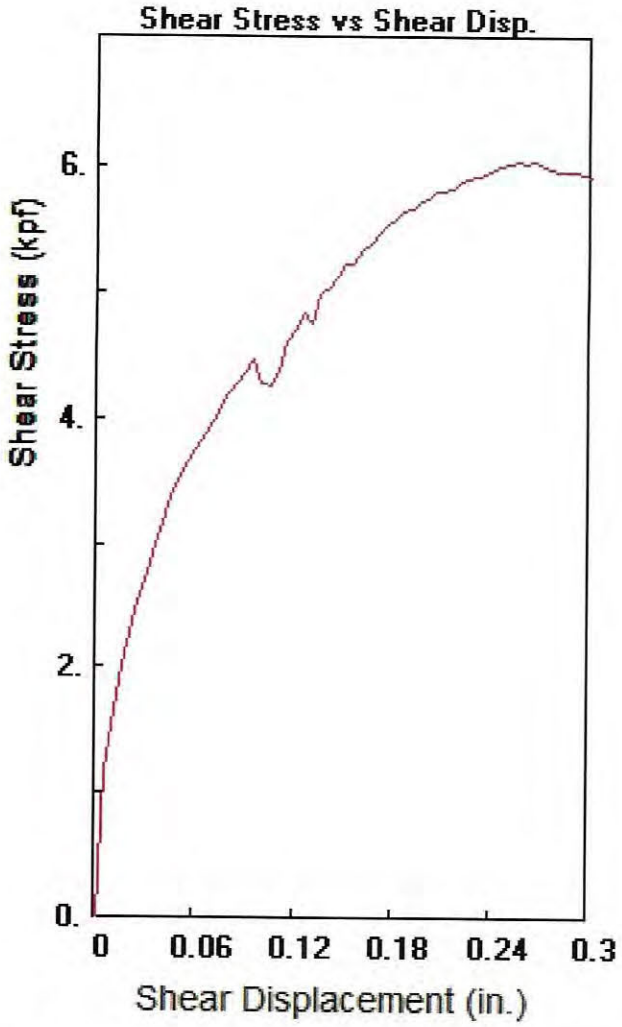
Shear Displacement at maximum Load

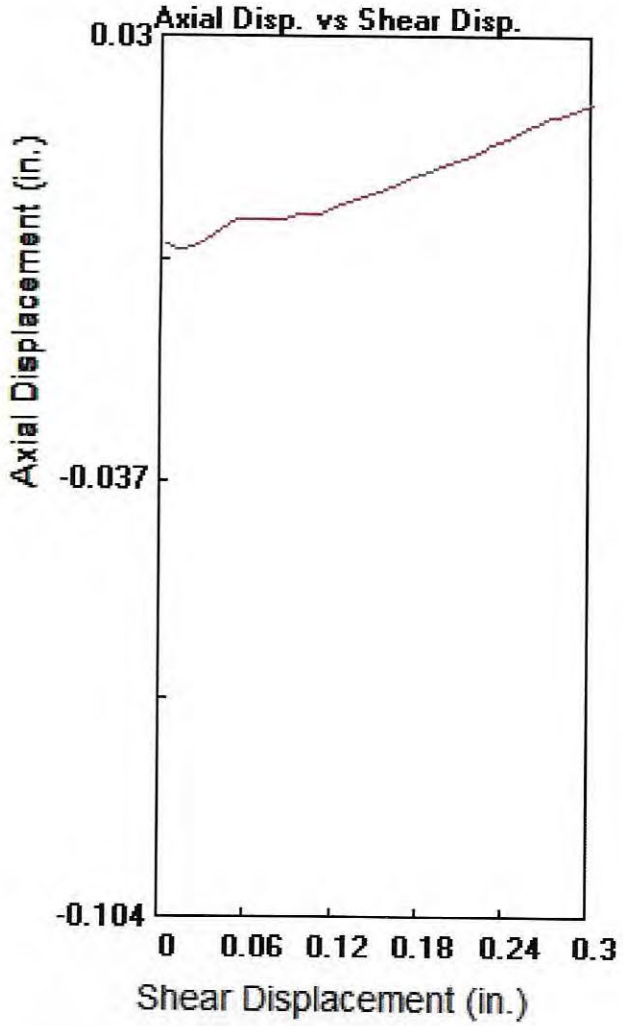
0.1253 in.

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

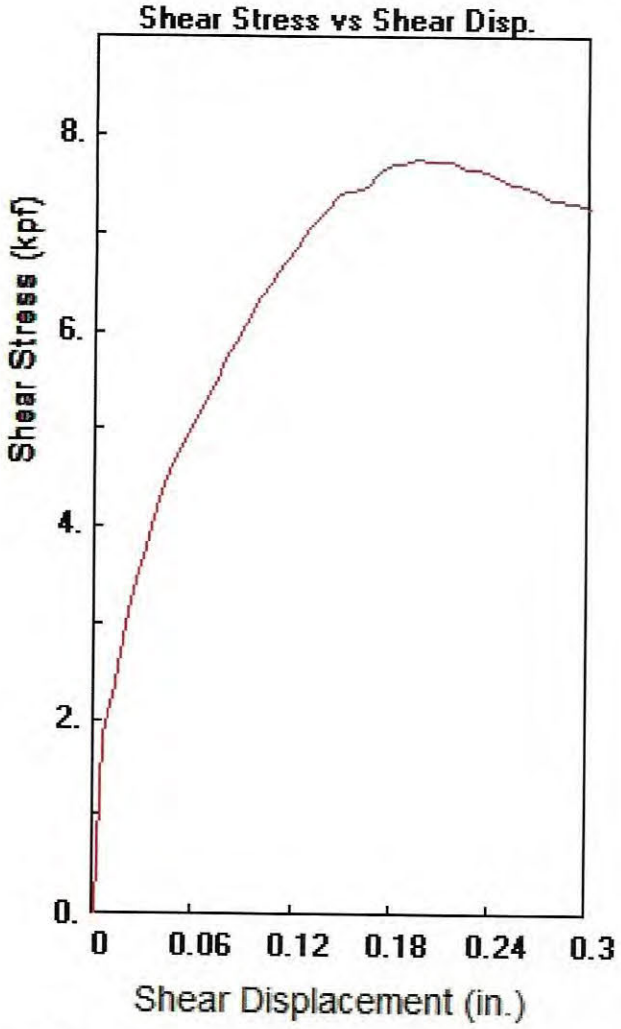
Shear Displacement at maximum Load

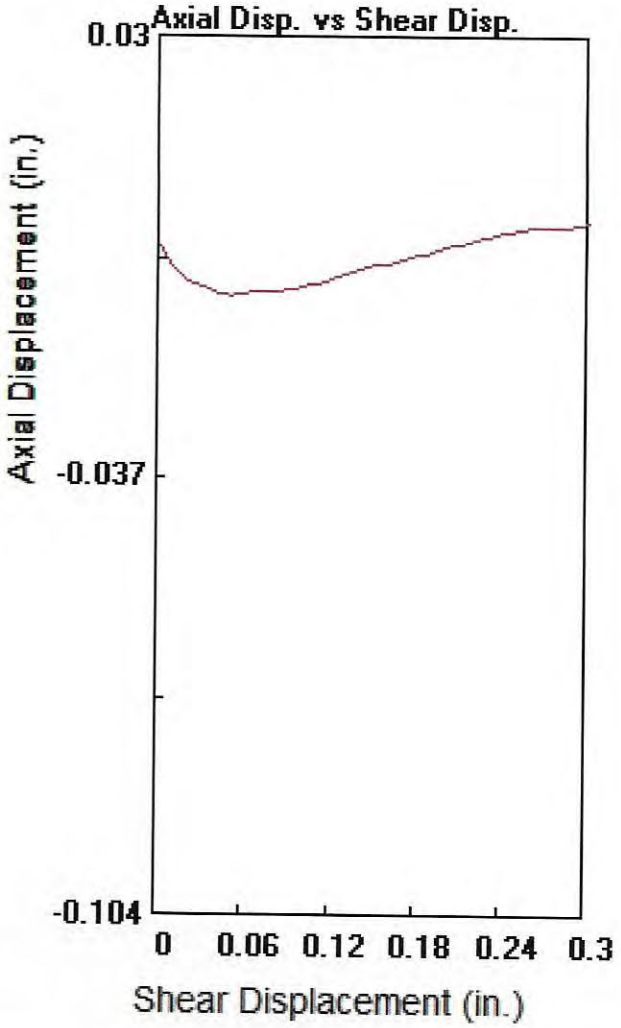
0.2552 in.

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

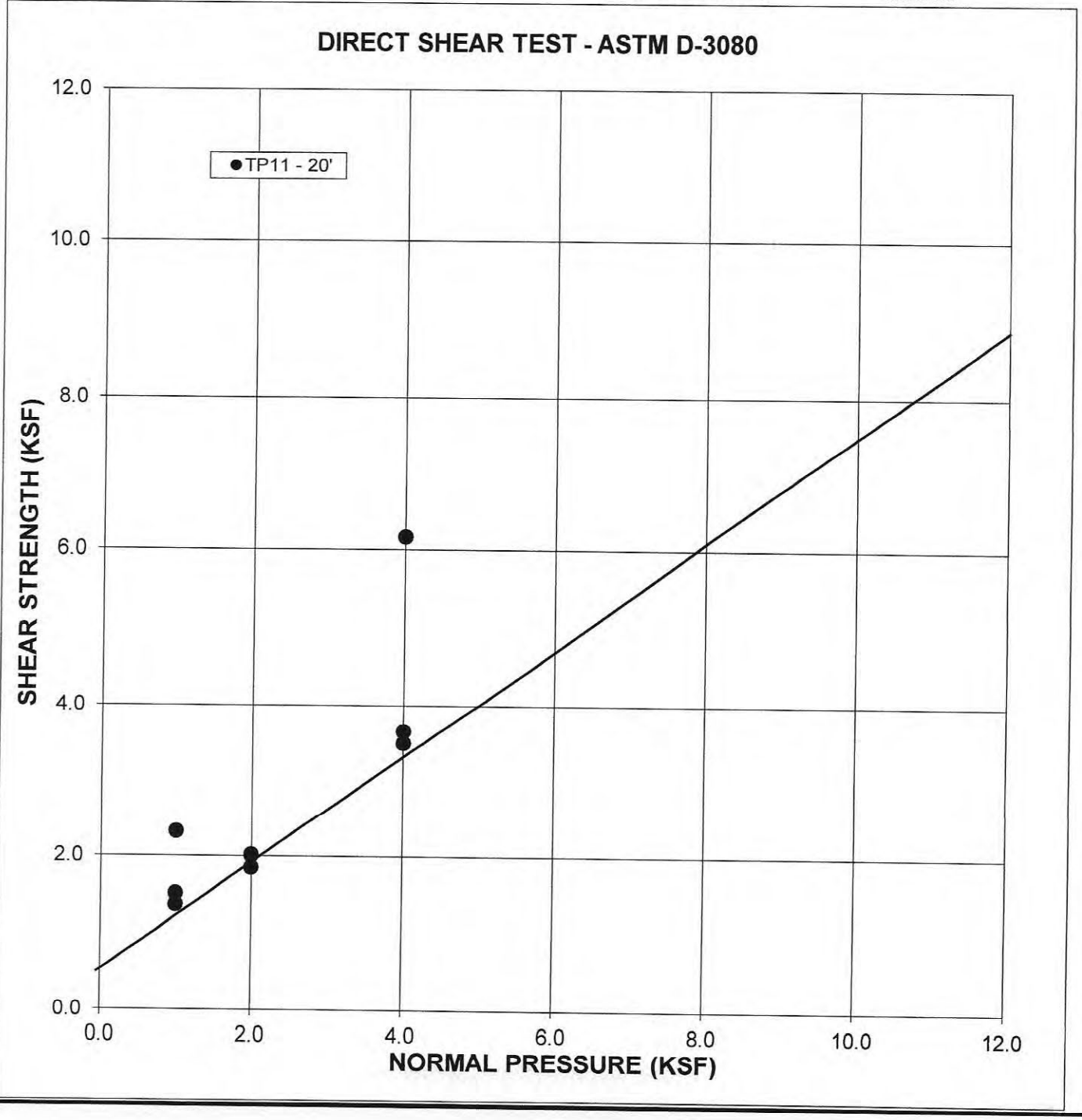
JN: **SL17.2654** CONSULTANT **JAI**
CLIENT: **Feffer/Colorea-25200-25300 Pacific Coast Hwy**

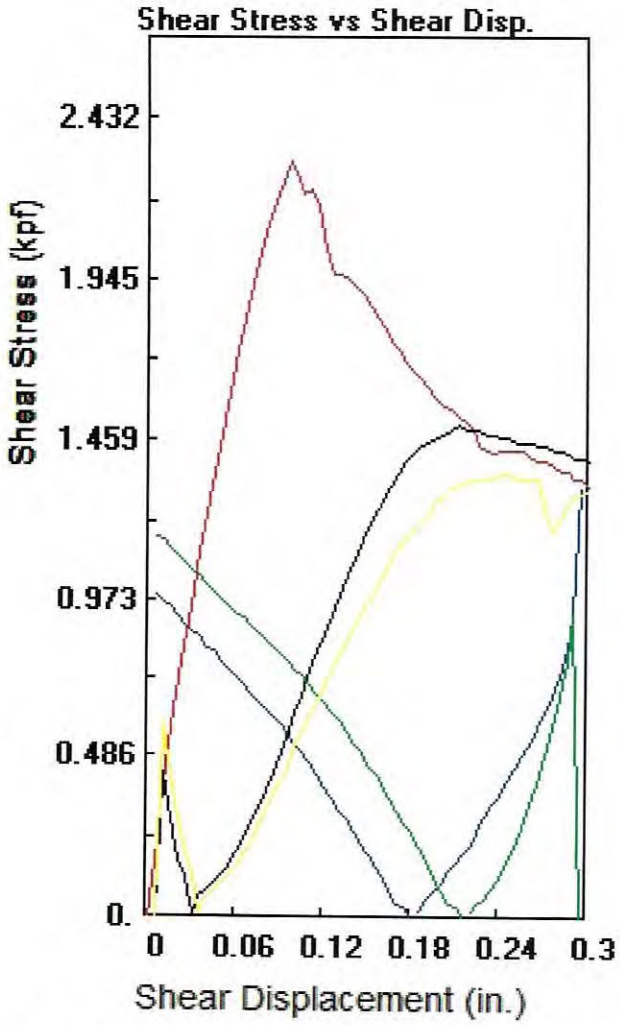
EARTH MATERIAL: **BEDROCK**

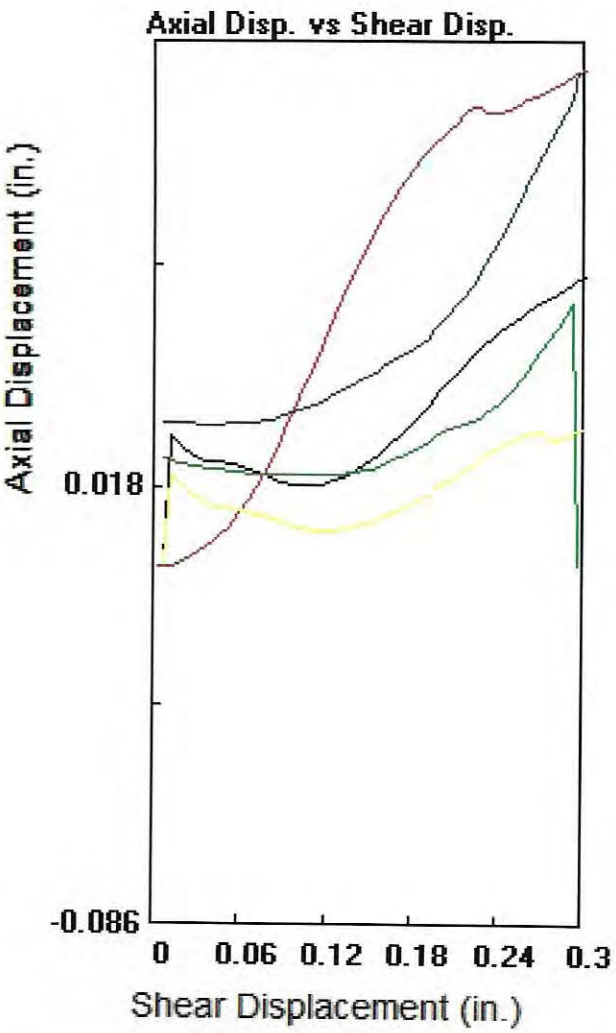
Sample repeatedly sheared to determine residual strength.

	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

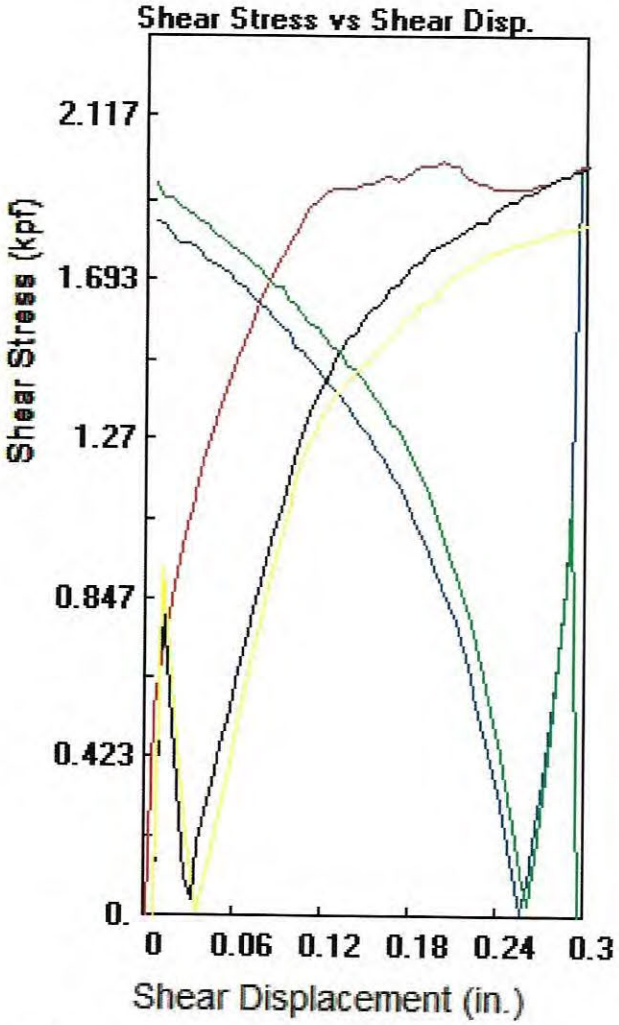
Shear Displacement at maximum Load

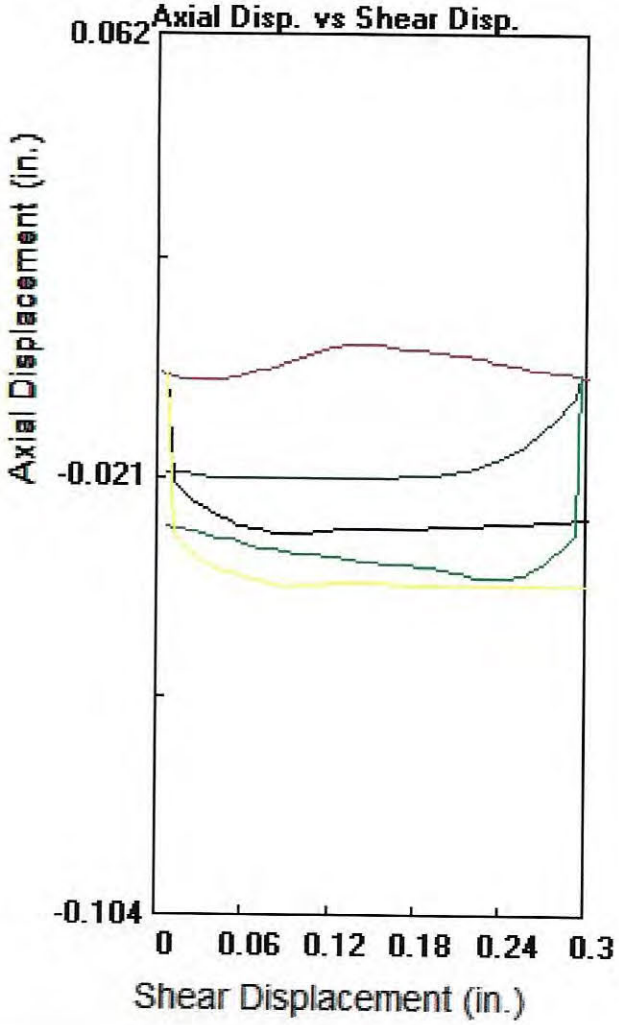
0.2403 in.

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

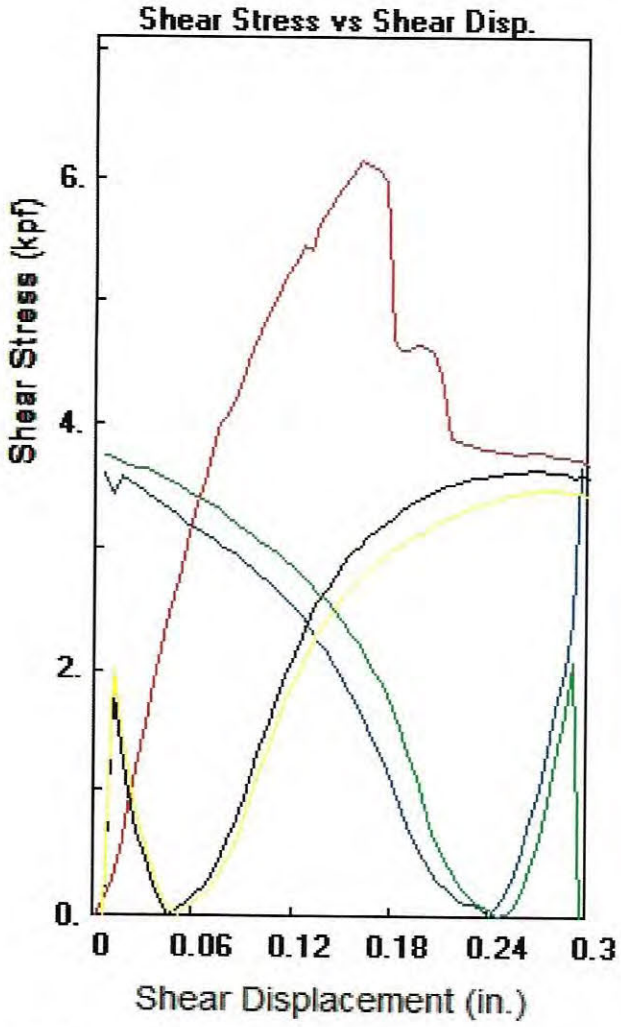
Shear Displacement at maximum Load

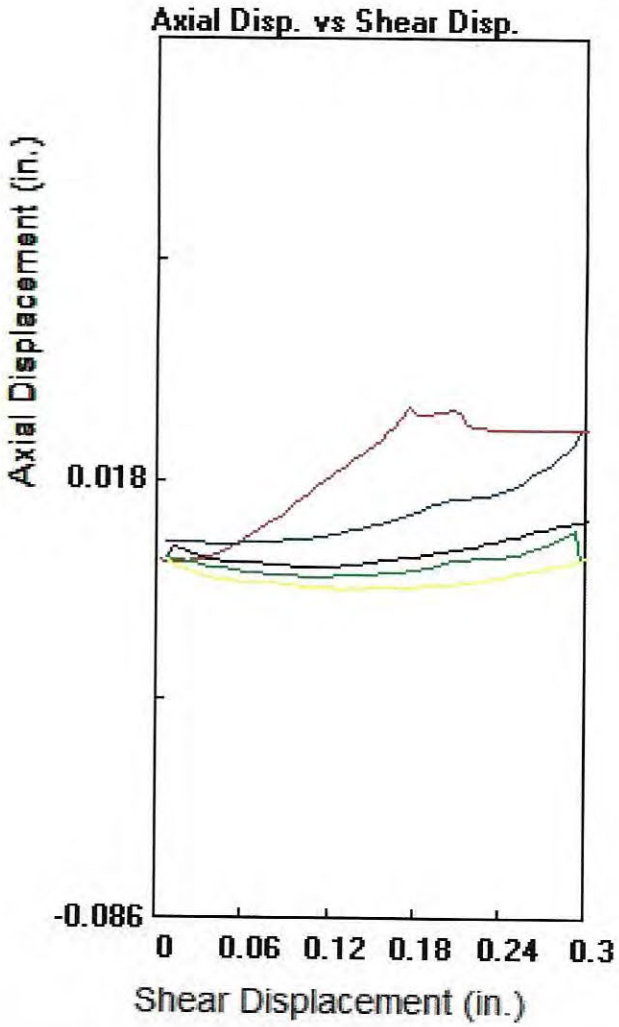
0.3002 in.

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

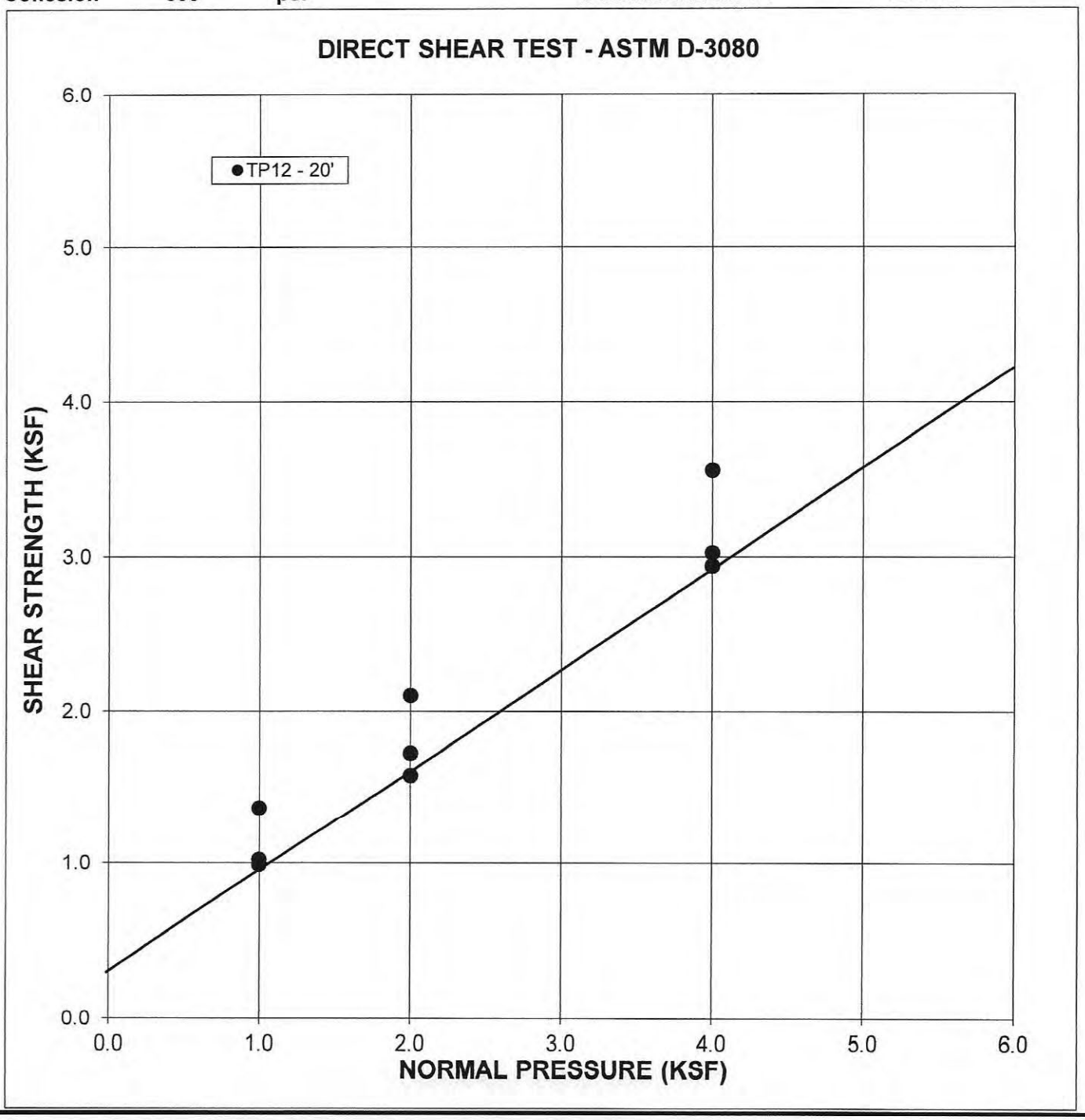
JN: **SL17.2654** CONSULTANT **JAI**
CLIENT: **Feffer/Colorea-25200-25300 Pacific Coast Hwy**

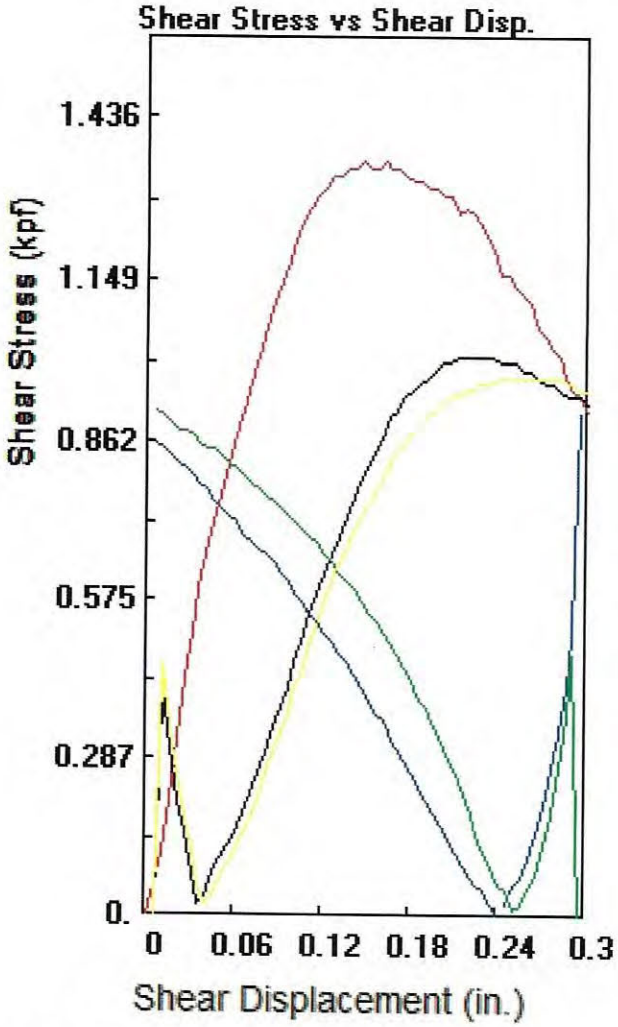
EARTH MATERIAL: **BEDROCK**

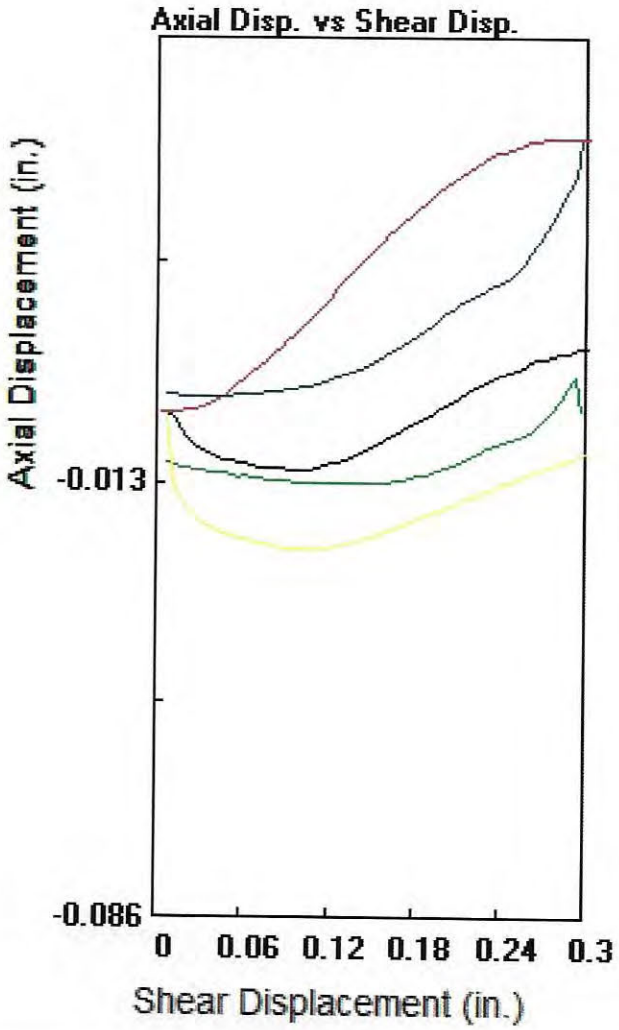
Sample repeatedly sheared to determine residual strength.

	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

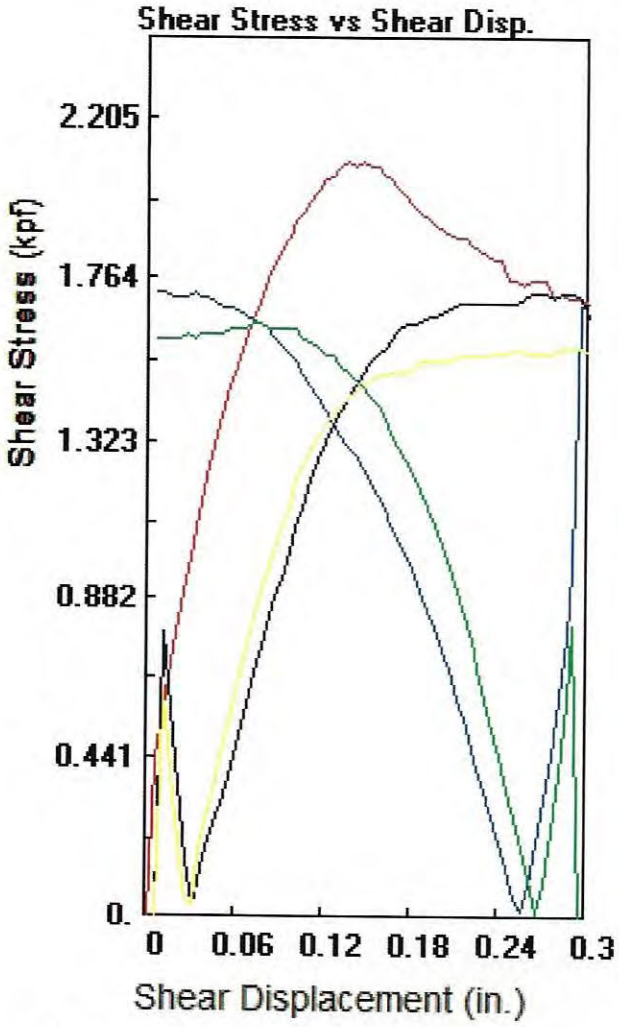
Shear Displacement at maximum Load

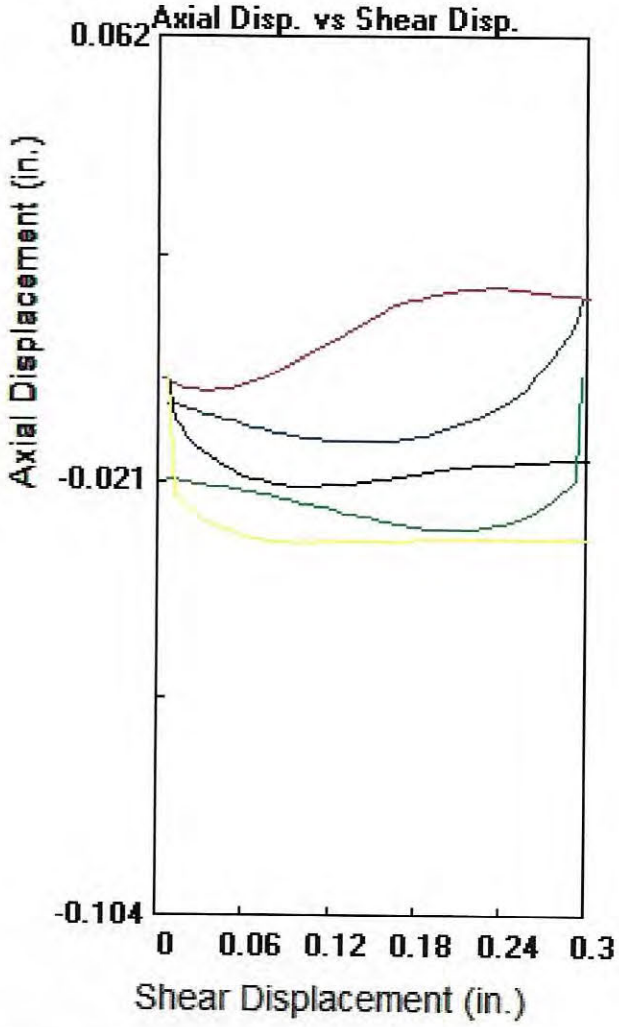
0.2402 in.

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

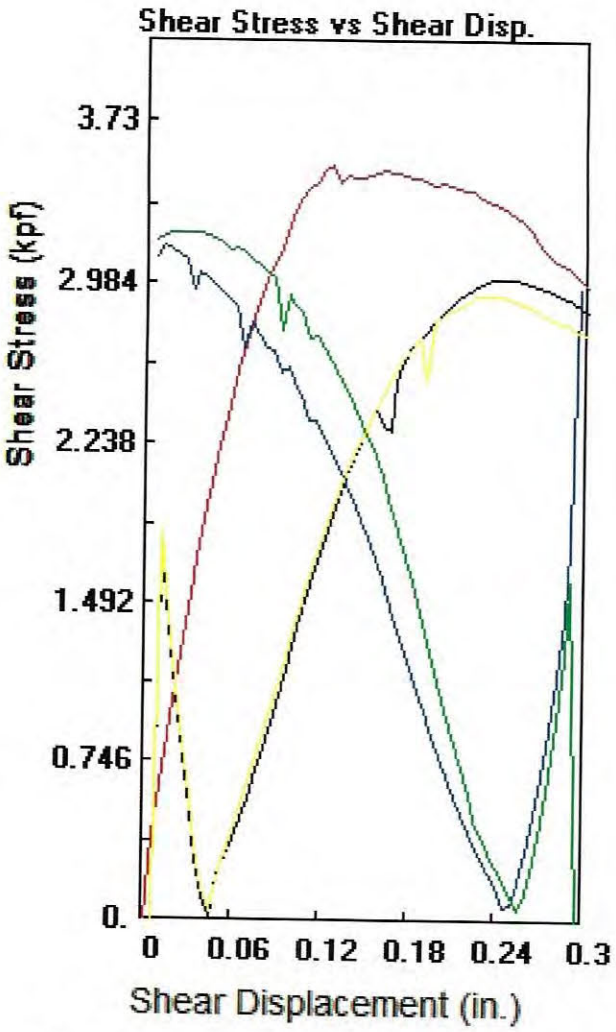
Shear Displacement at maximum Load

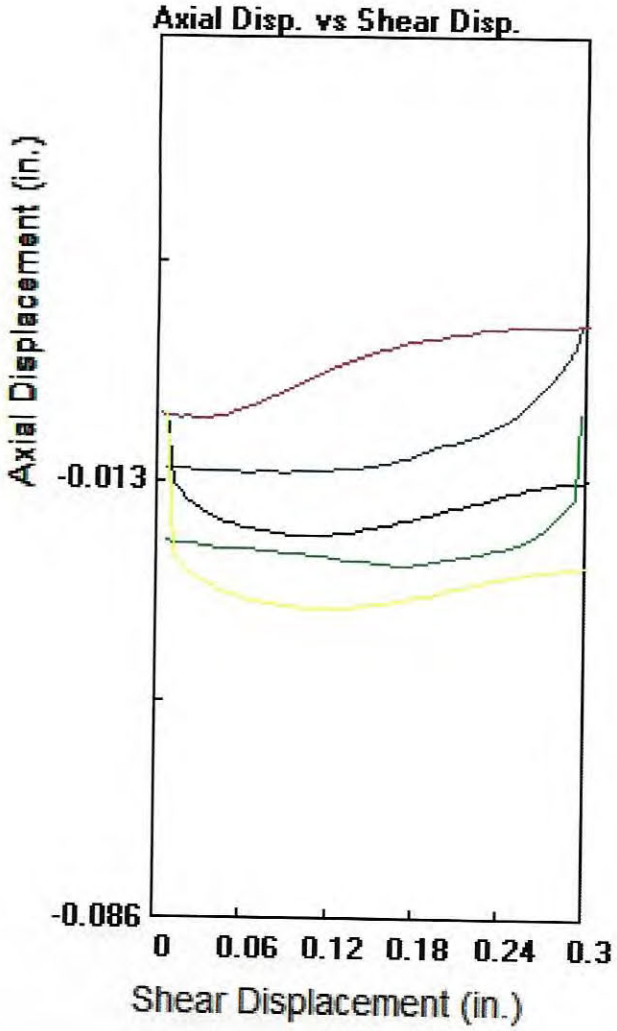
0.1352 in.

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

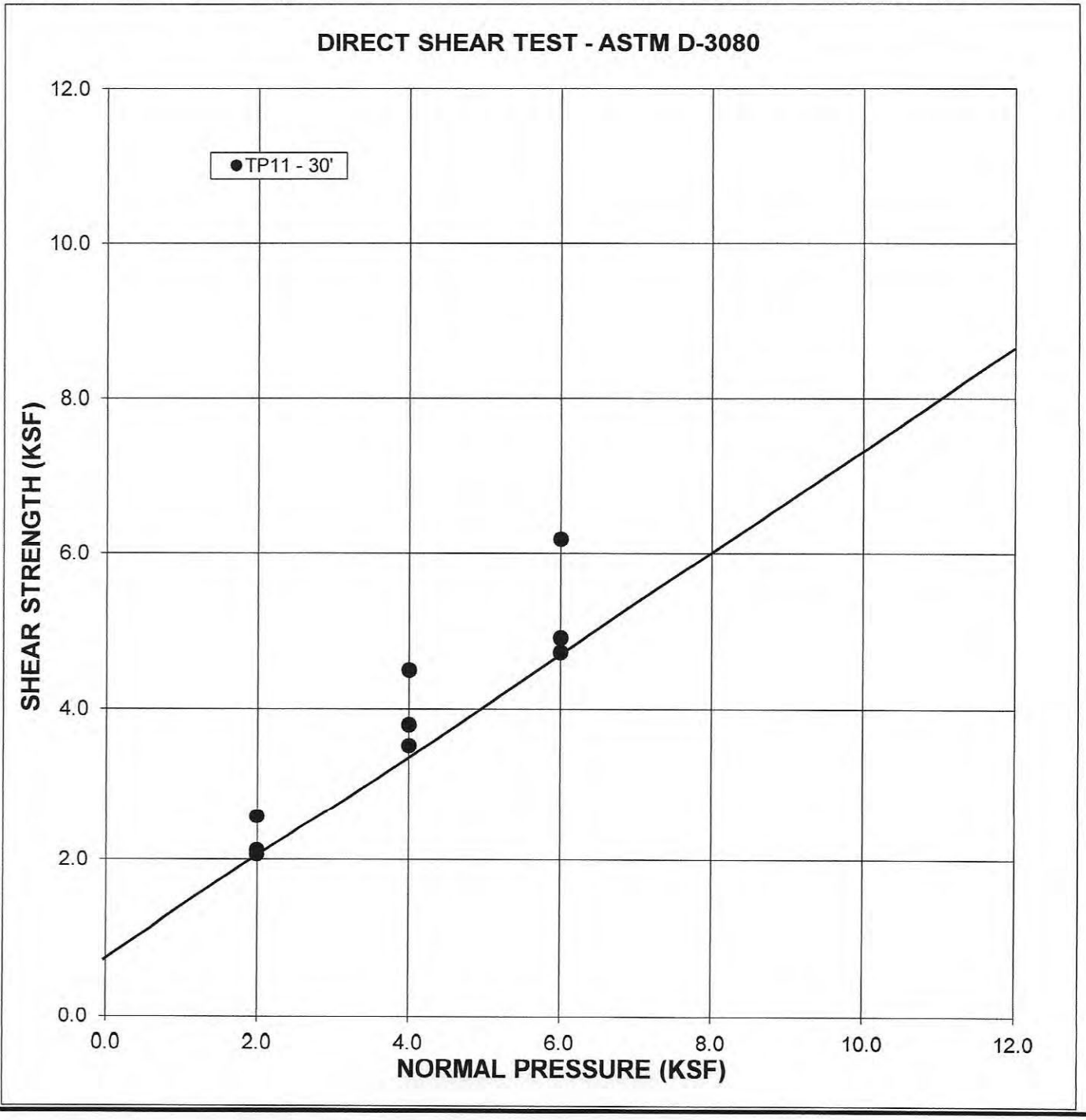
JN: **SL17.2654** CONSULTANT **JAI**
CLIENT: **Feffer/Colorea-25200-25300 Pacific Coast Hwy**

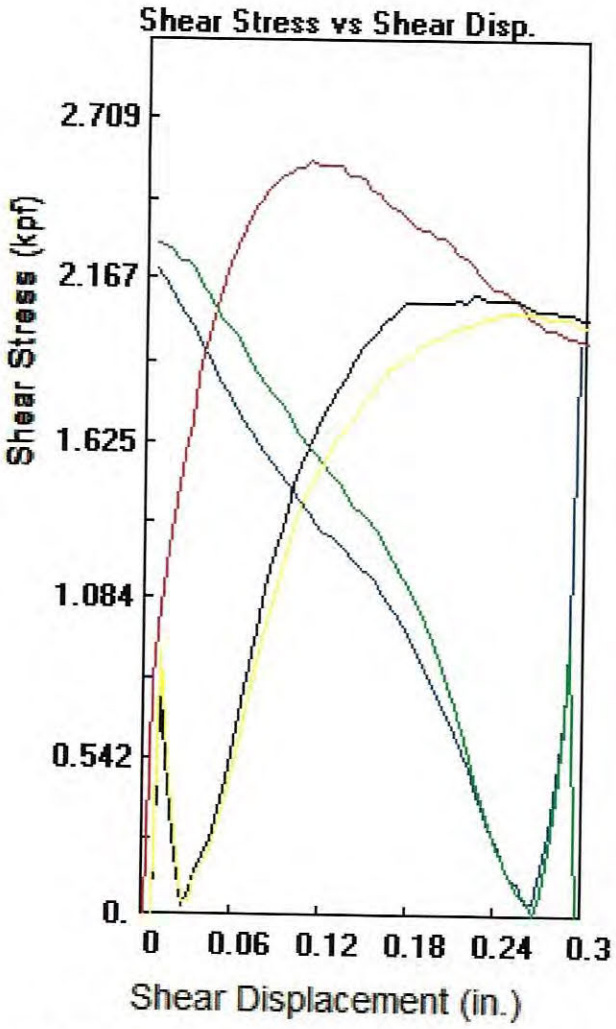
EARTH MATERIAL: **BEDROCK**

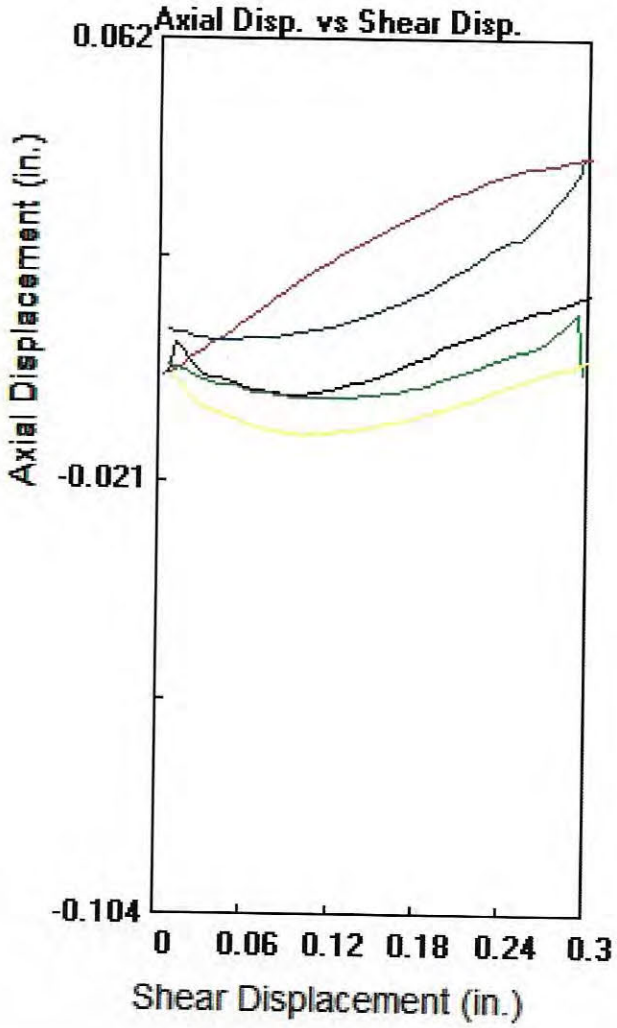
Sample repeatedly sheared to determine residual strength.

	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

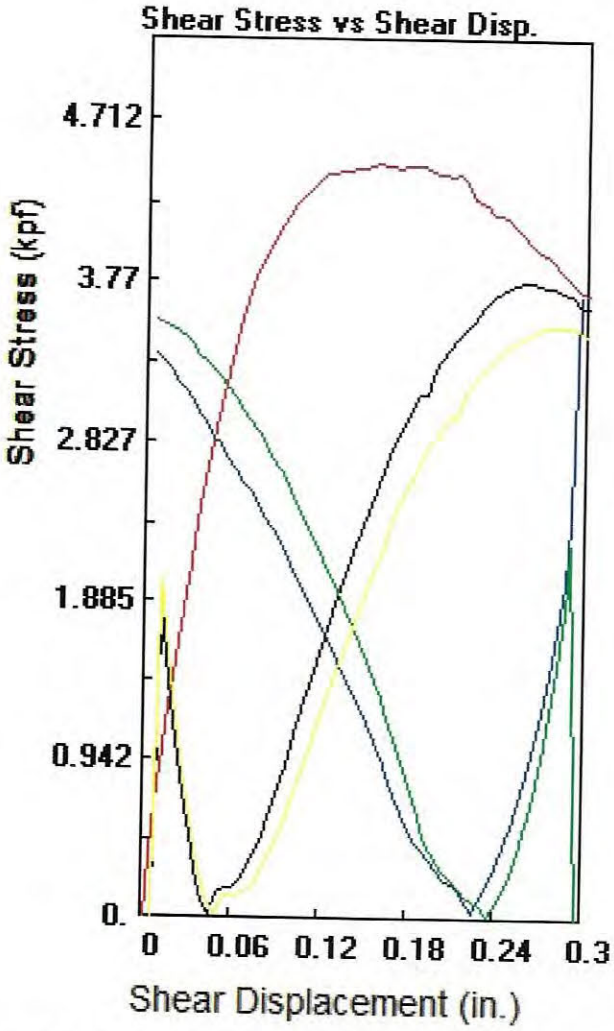
Shear Displacement at maximum Load

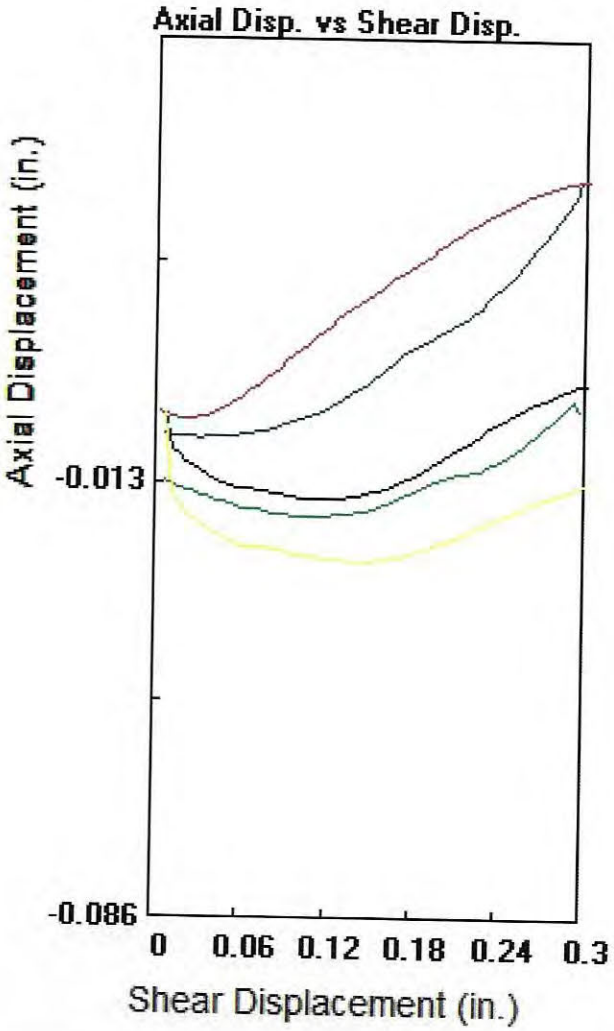
0.1102 in.

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

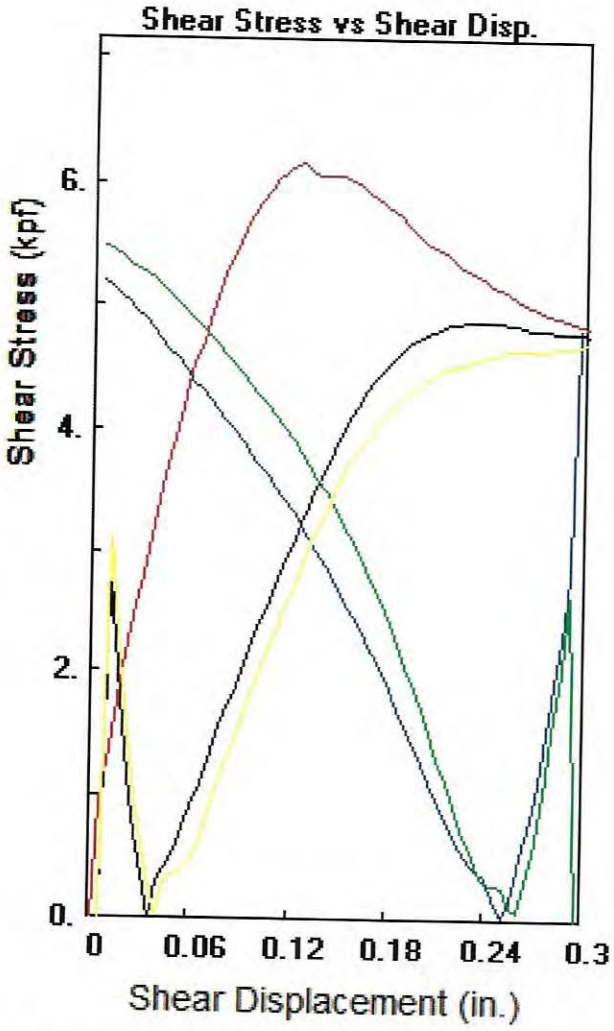
Shear Displacement at maximum Load

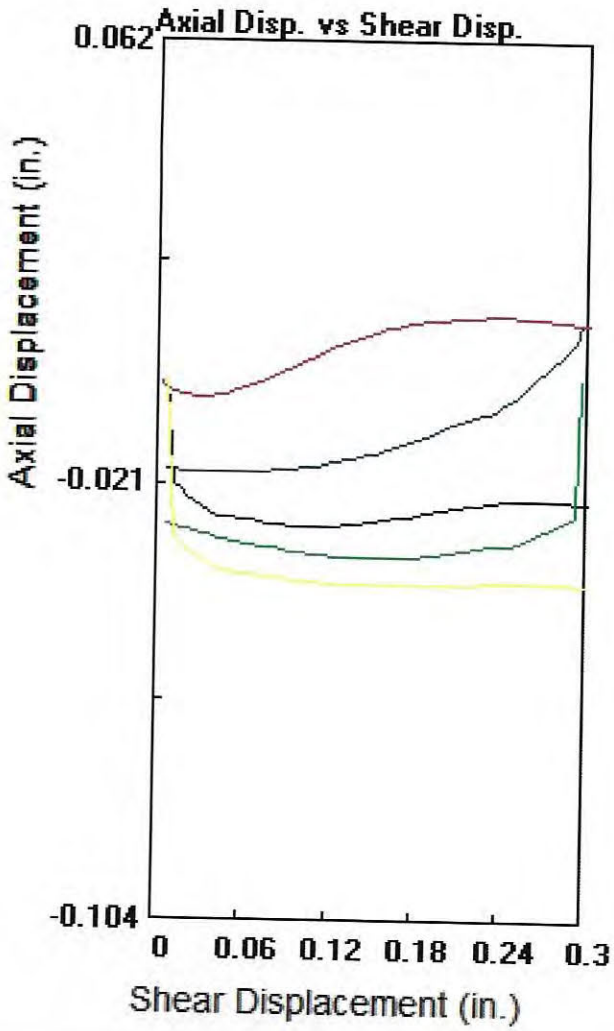
0.2554 in.

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

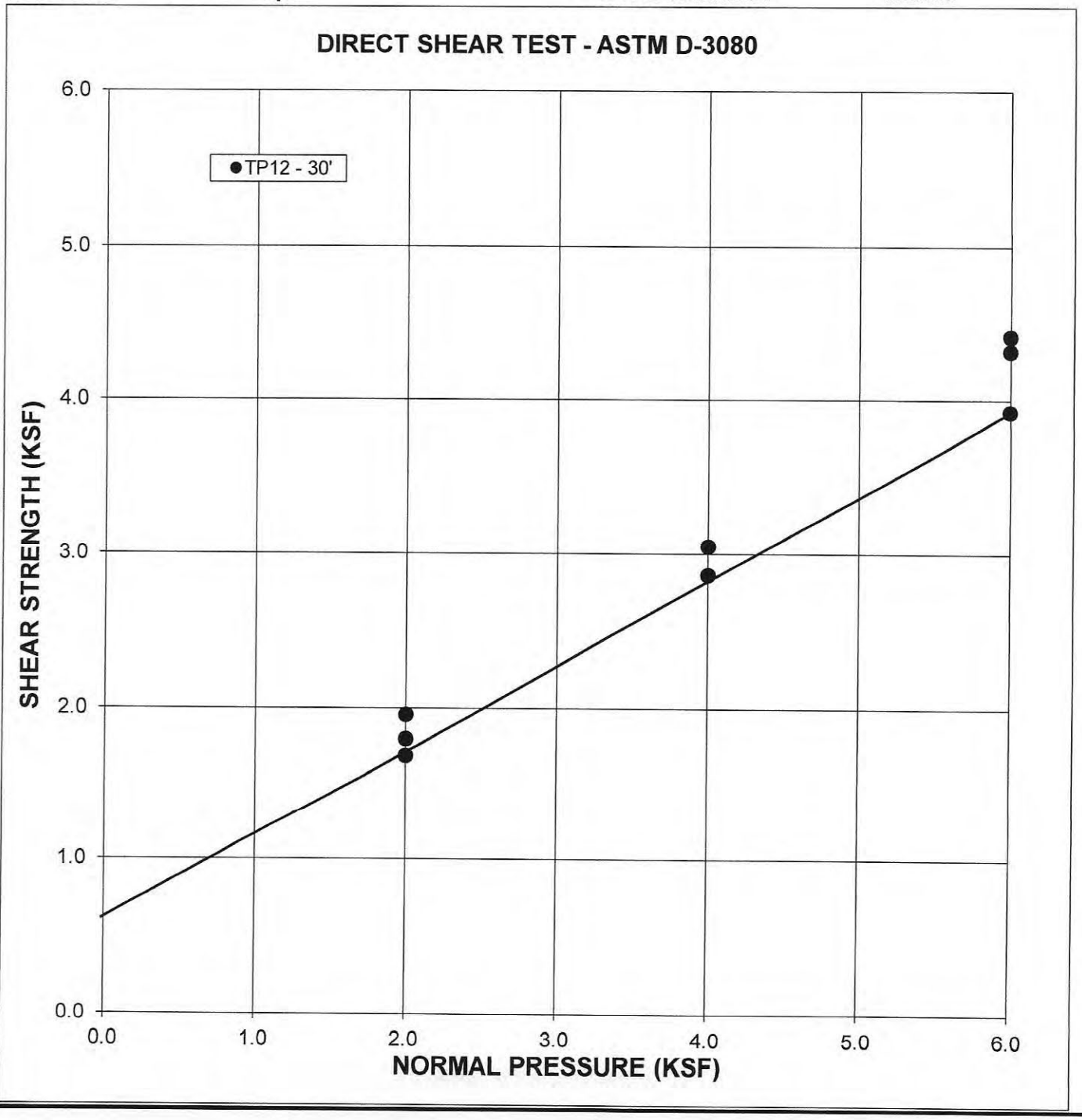
JN: **SL17.2654** CONSULTANT **JAI**
CLIENT: **Feffer/Colorea-25200-25300 Pacific Coast Hwy**

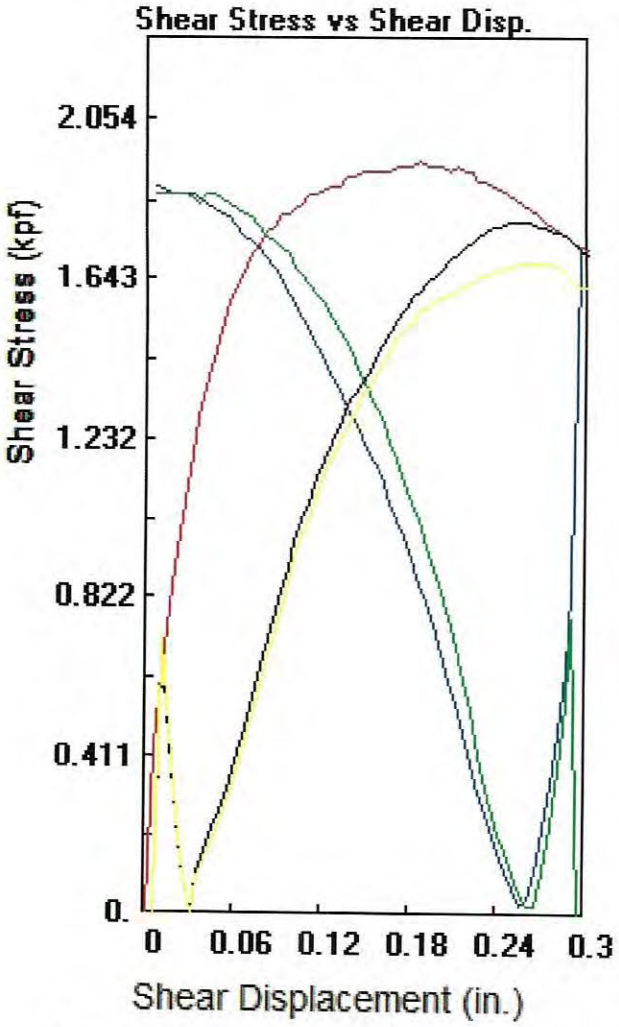
EARTH MATERIAL: **BEDROCK**

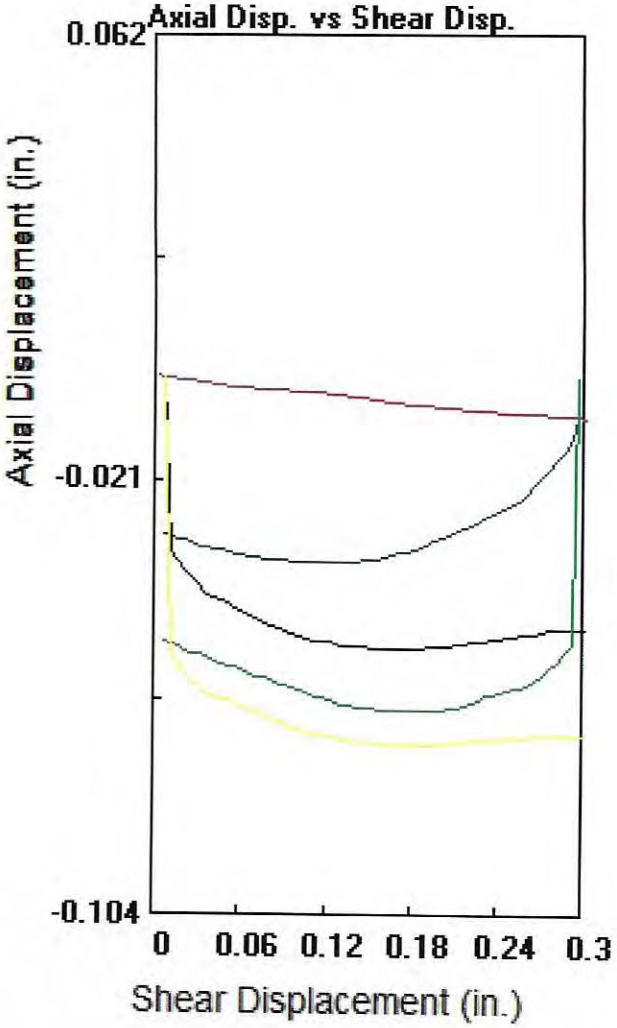
Sample repeatedly sheared to determine residual strength.

	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

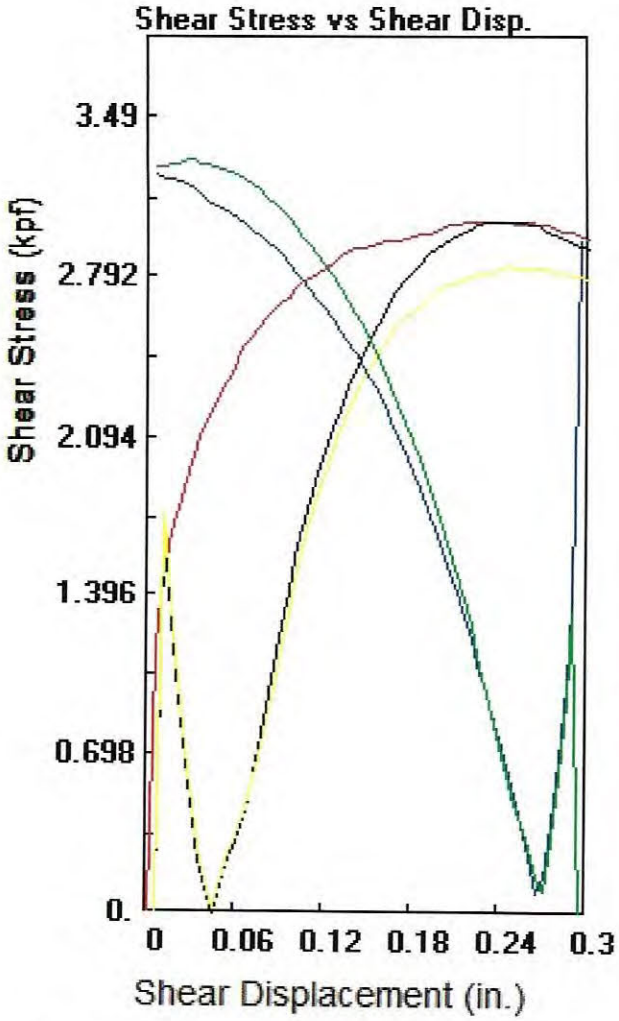
Shear Displacement at maximum Load

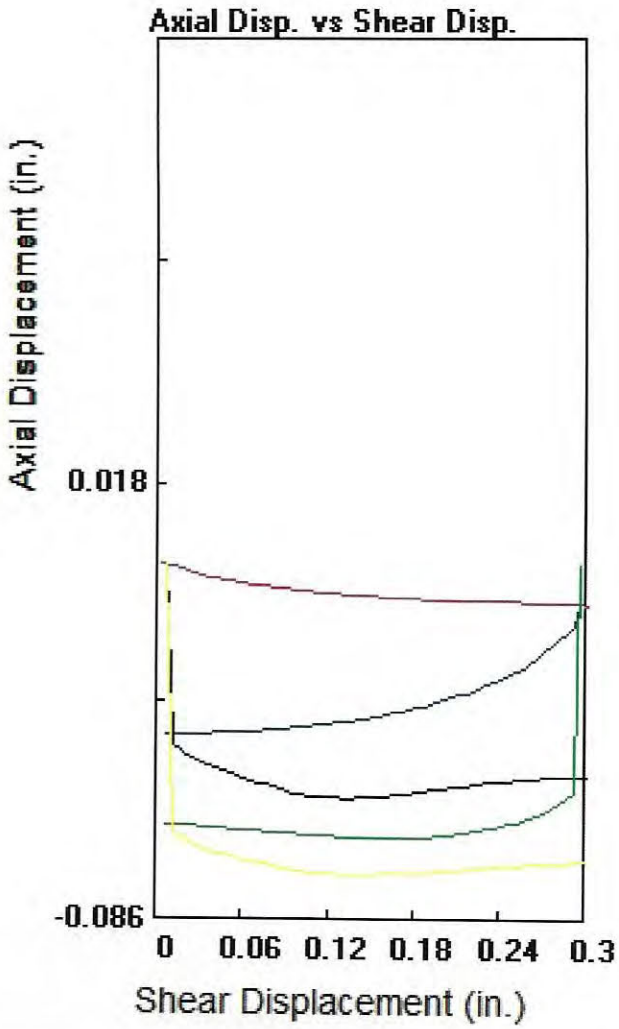
0.1853 in.

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

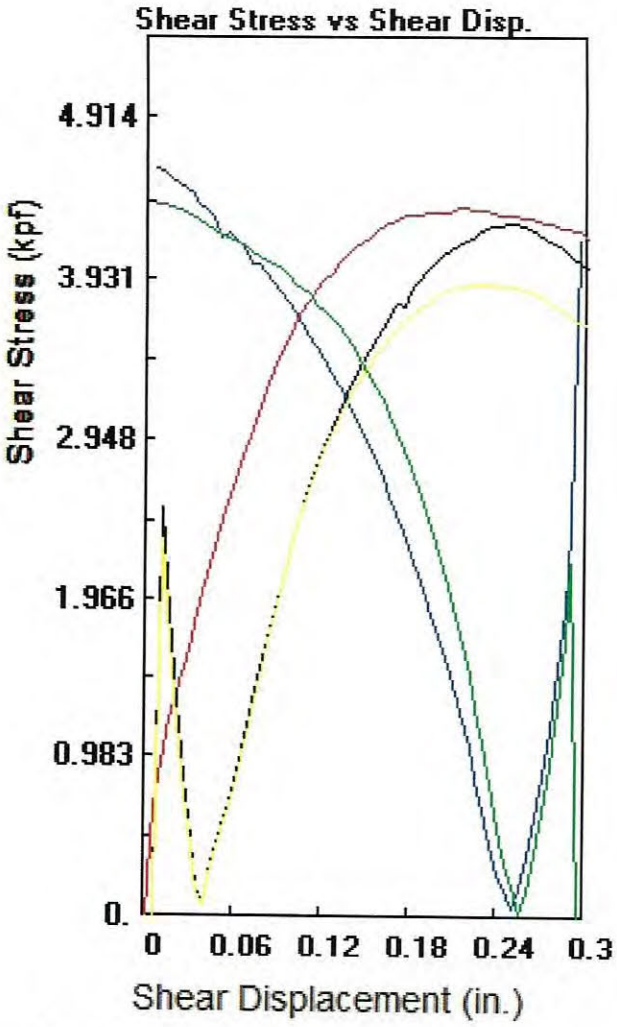
Shear Displacement at maximum Load

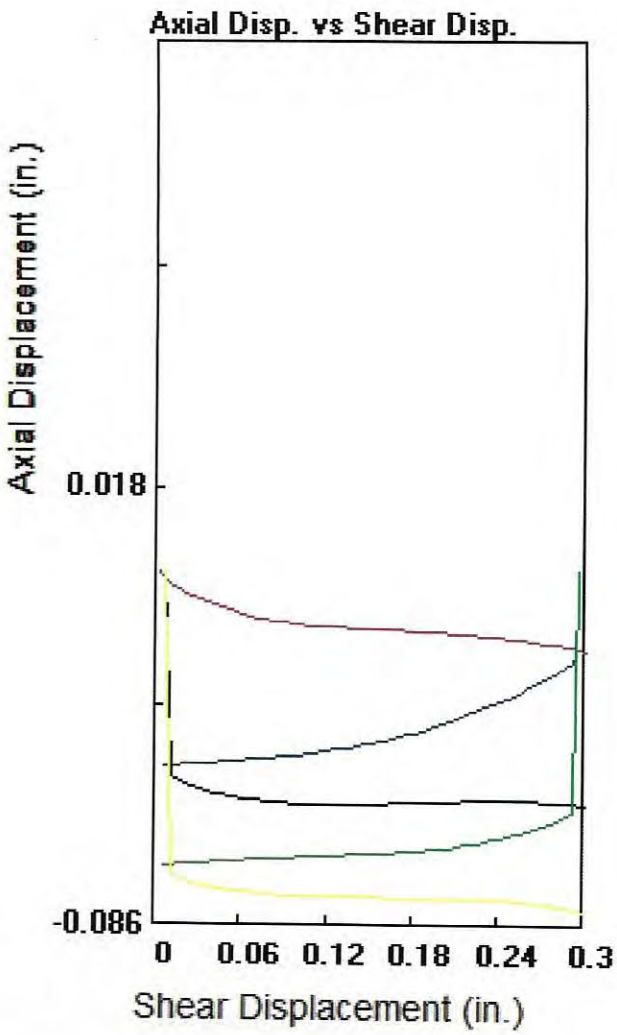
0.2153 in.

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

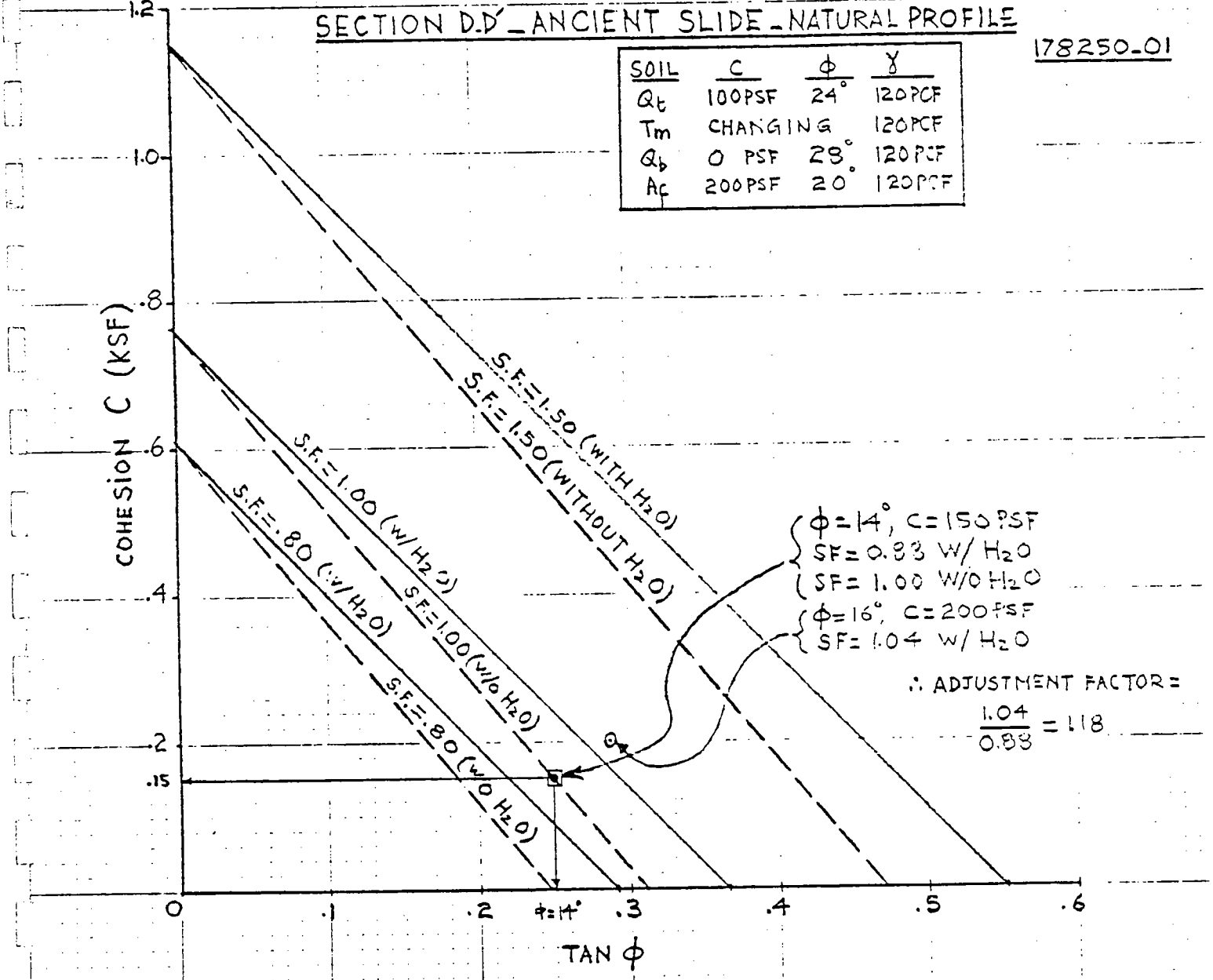
1/13/2021

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

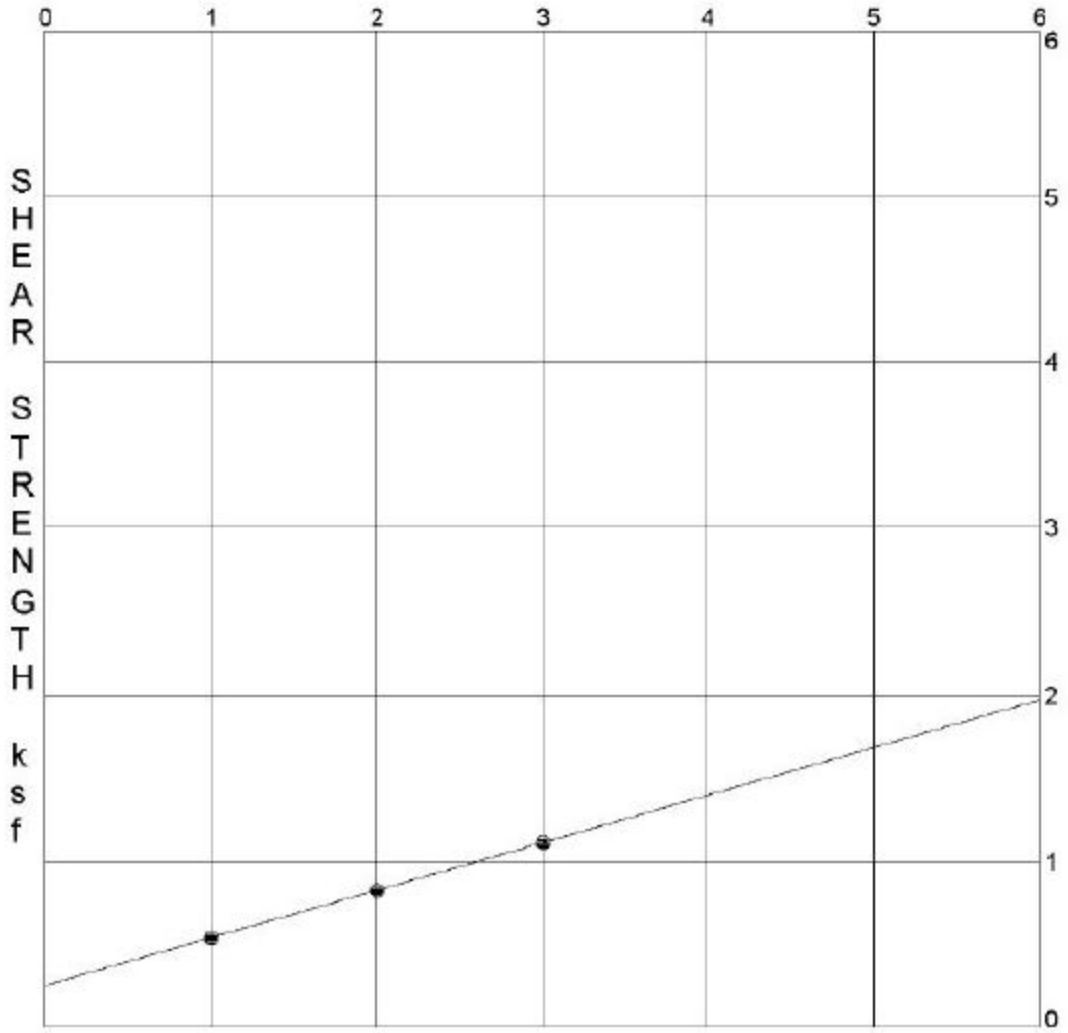


LABORATORY RECAPITULATION
PROJECT: 25447 Malibu Road
PROJECT NO.: 2684

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)

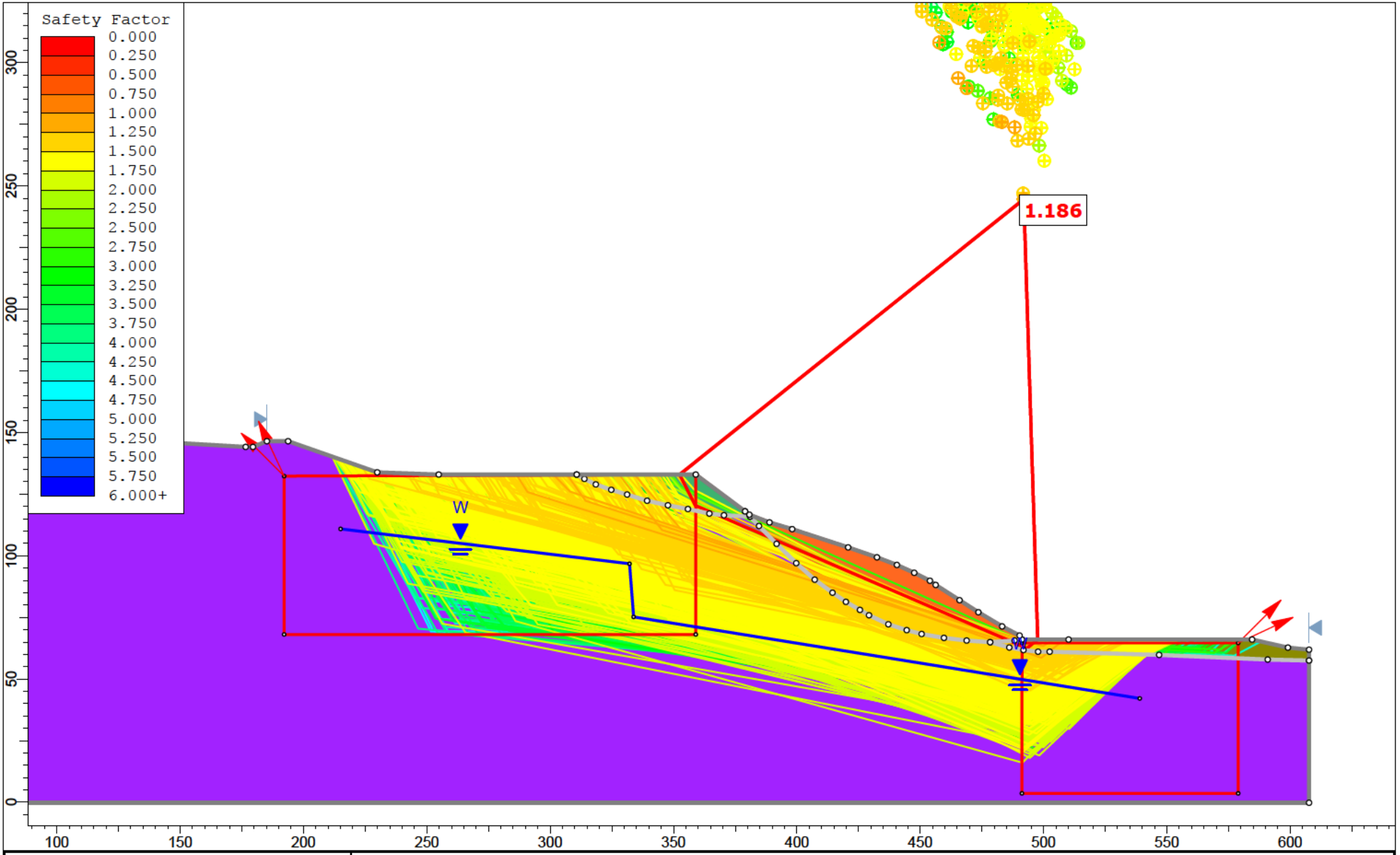


Test Results

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)

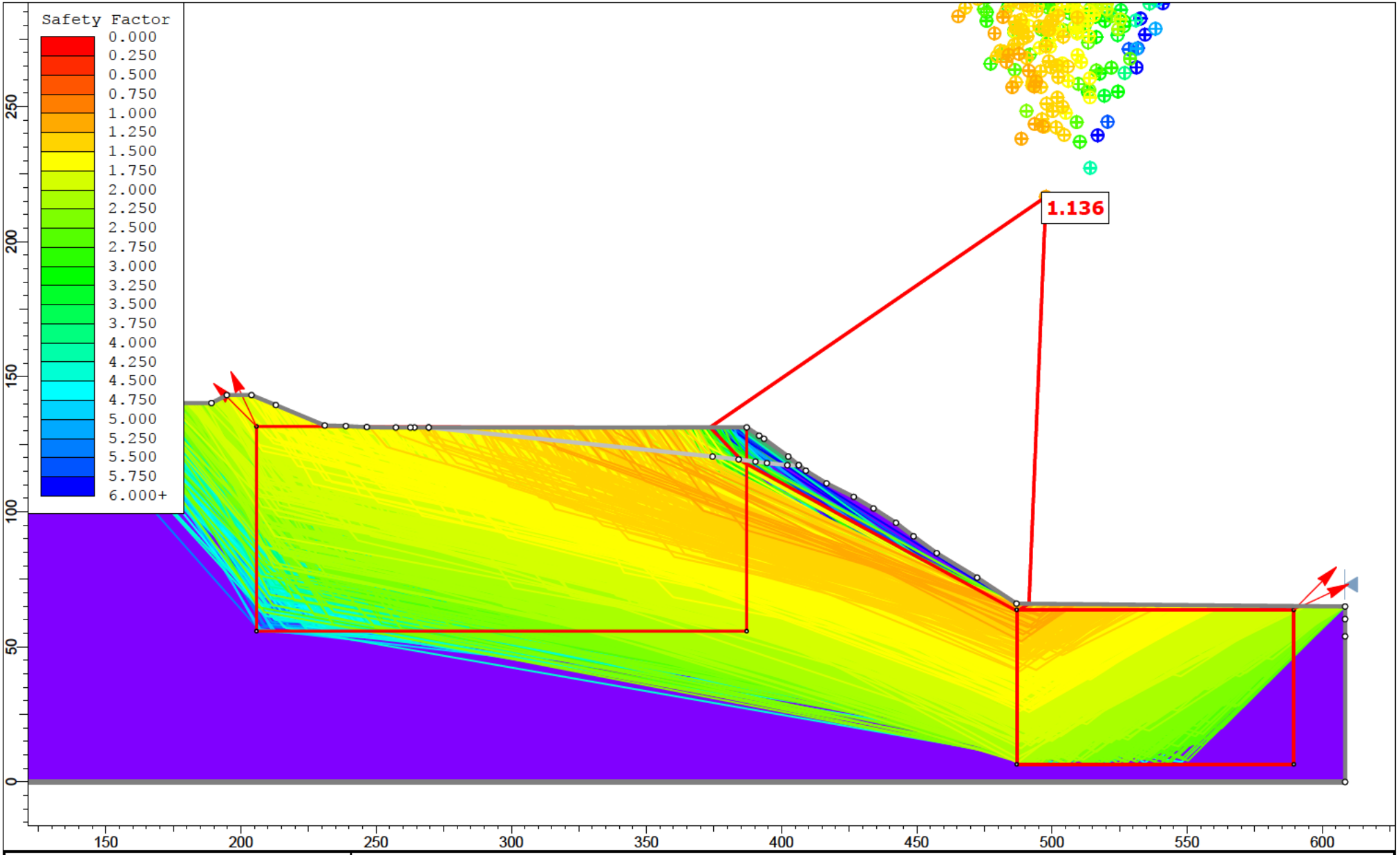
Shared Entities

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

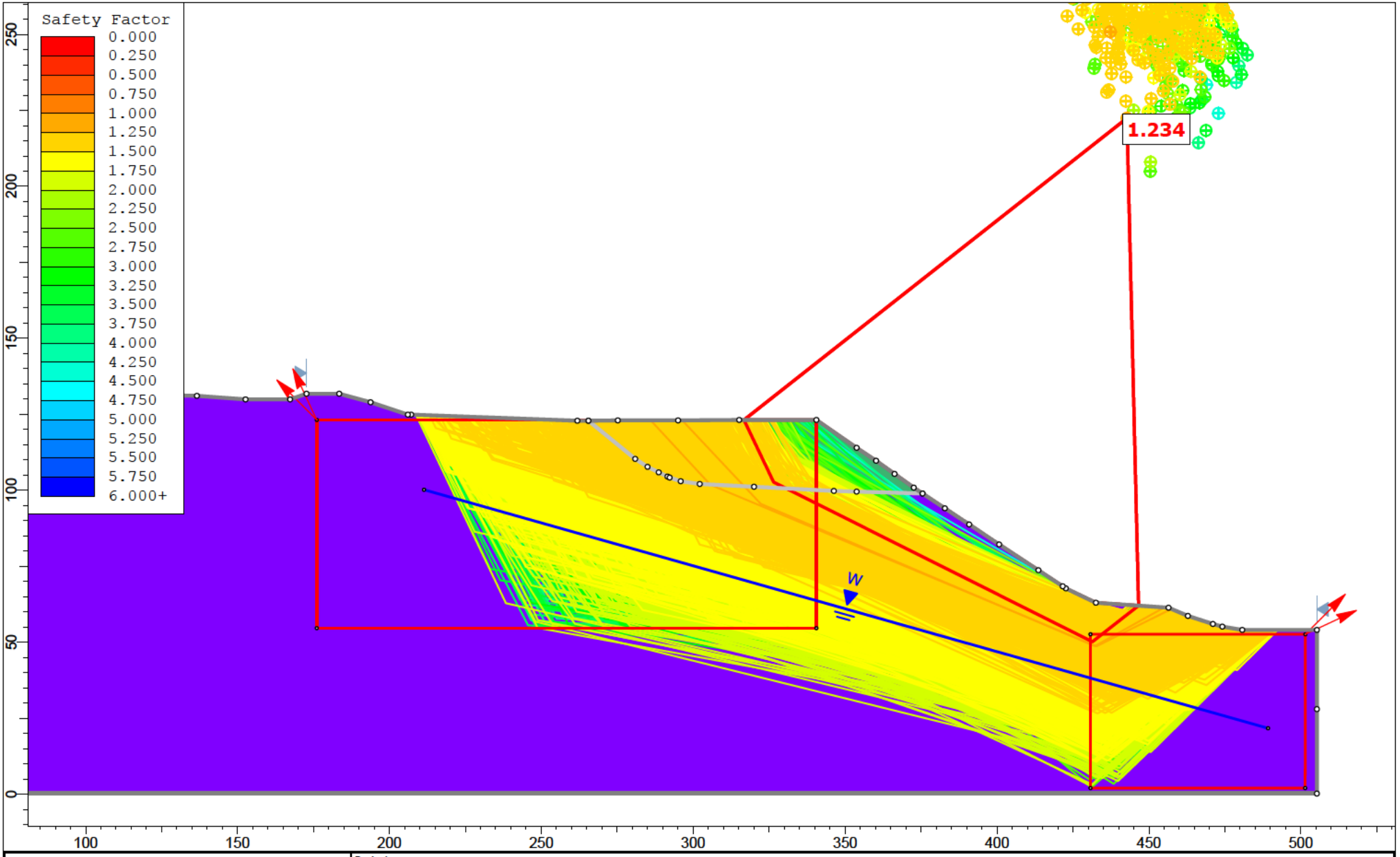
Type	Coordinates (x,y)

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

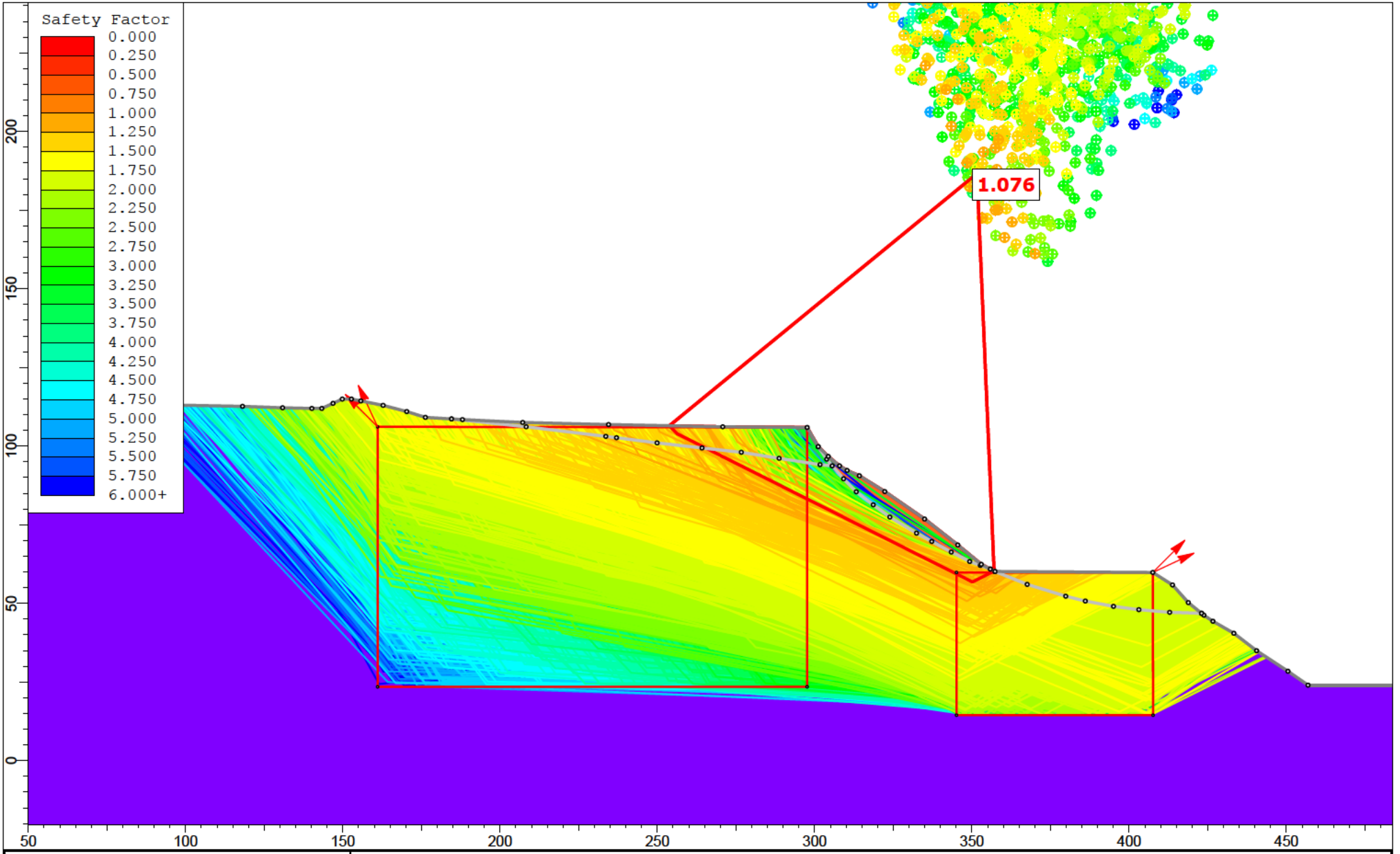
Type	Coordinates (x,y)

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

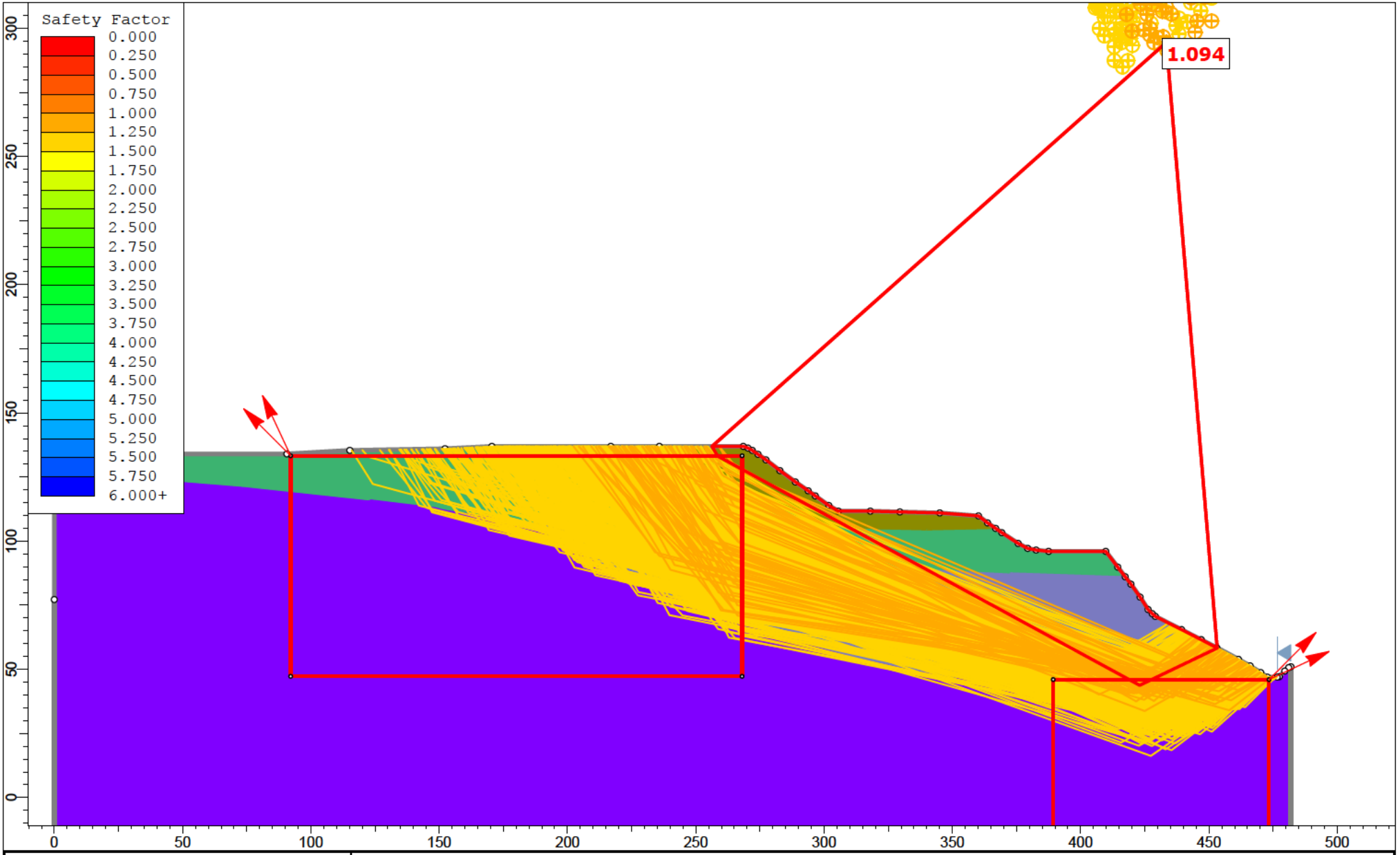
Type	Coordinates (x,y)

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.

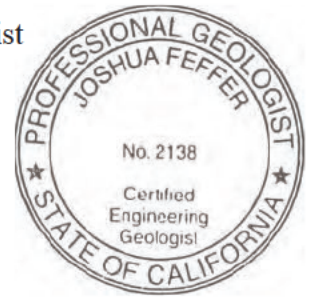
We appreciate the opportunity to be of service. Should you have any questions regarding the information contained in this report, please do not hesitate to contact us.

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'

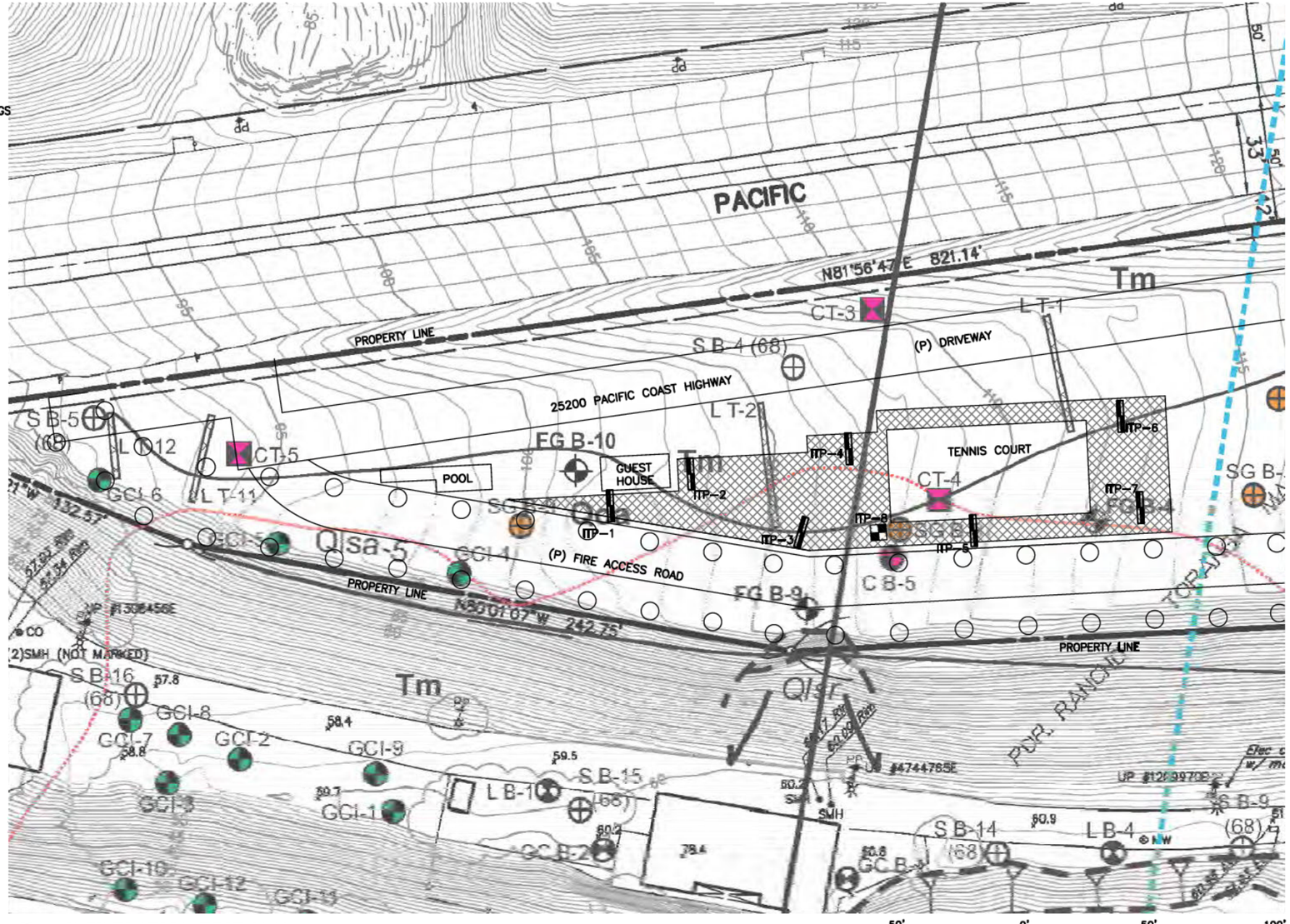
KEY:

- 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 PEFFER 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.

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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

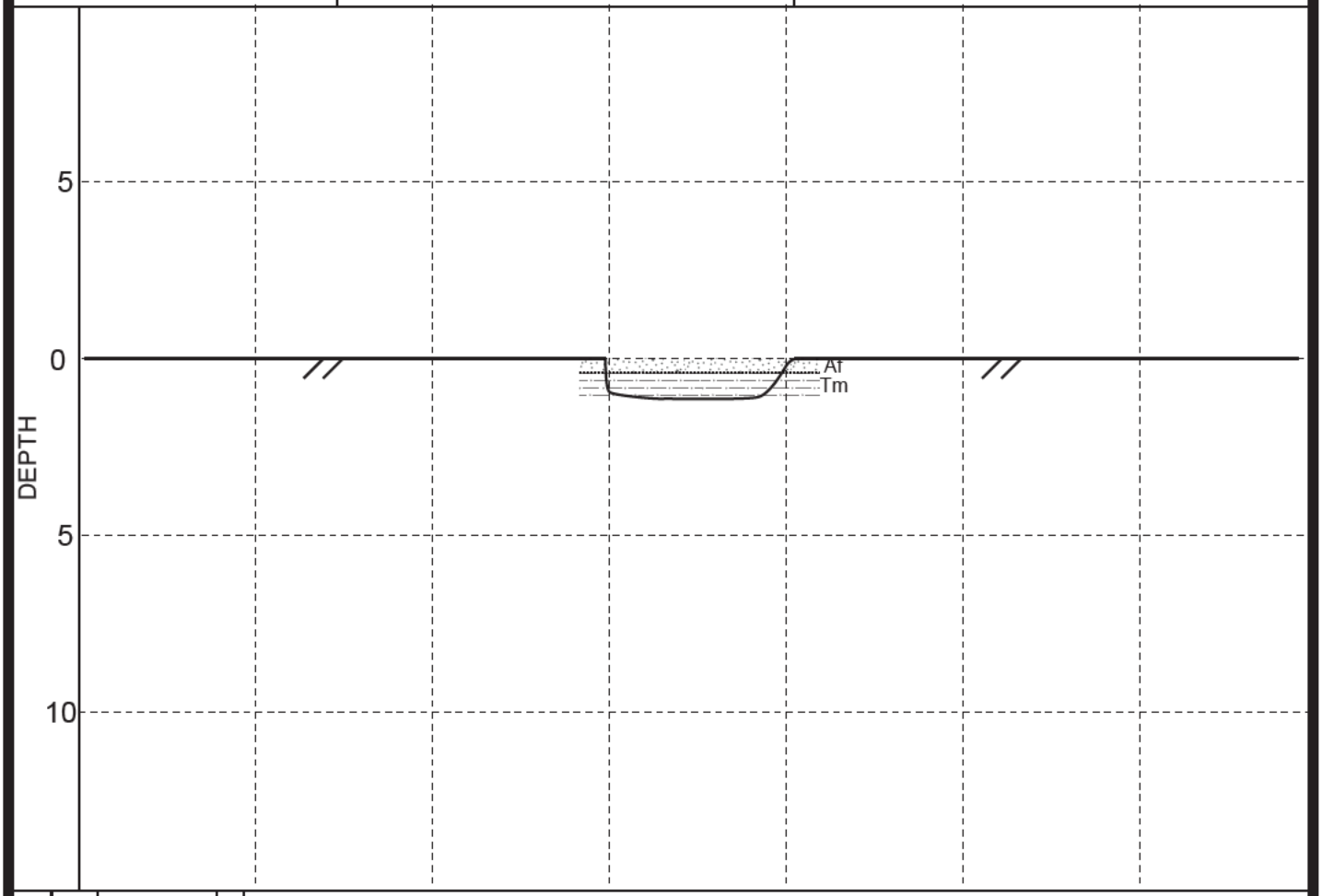
GRAPHIC LOG

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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		14		

FEFFER GEO CONSULTING | F.N. 1992-75

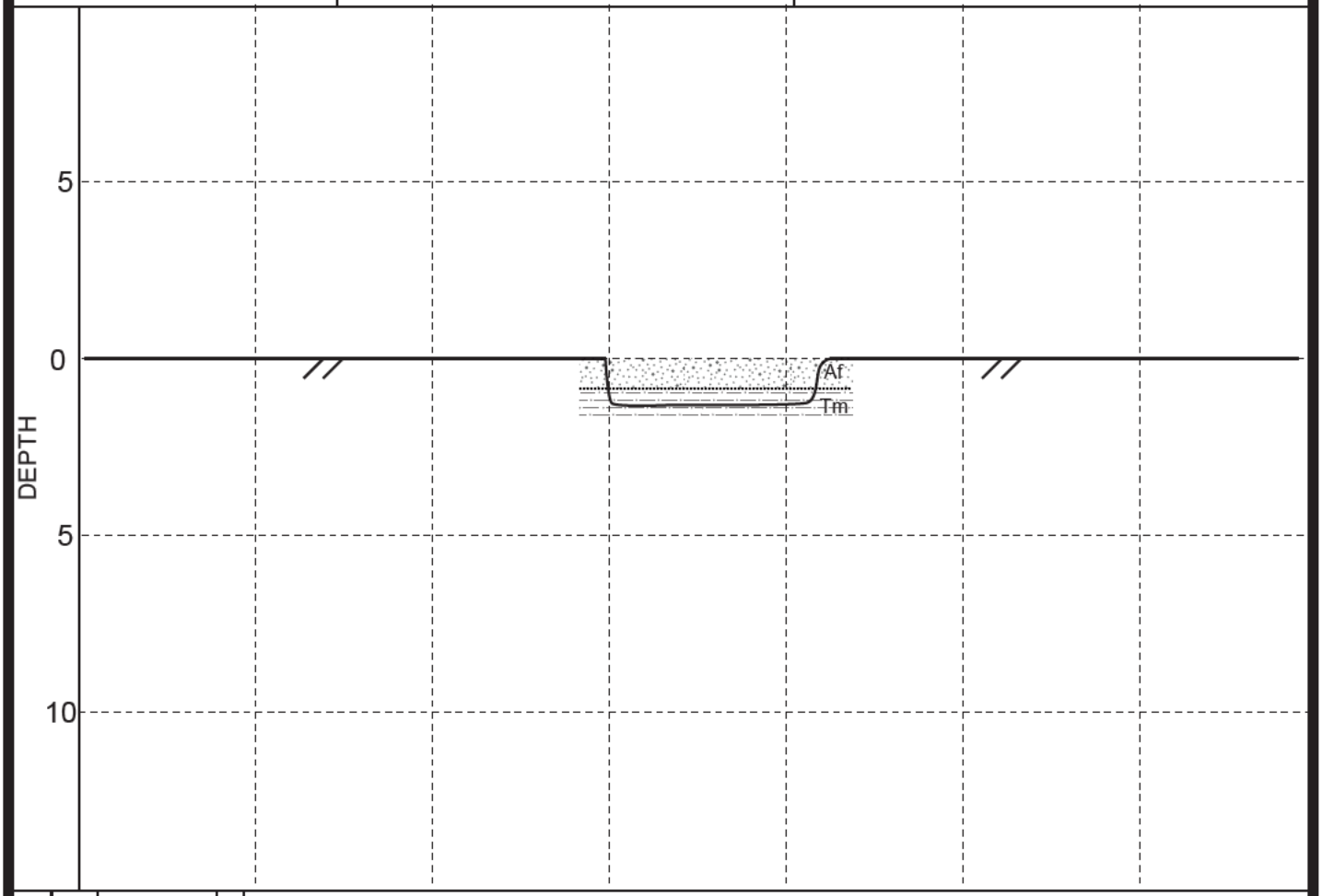
GRAPHIC LOG

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
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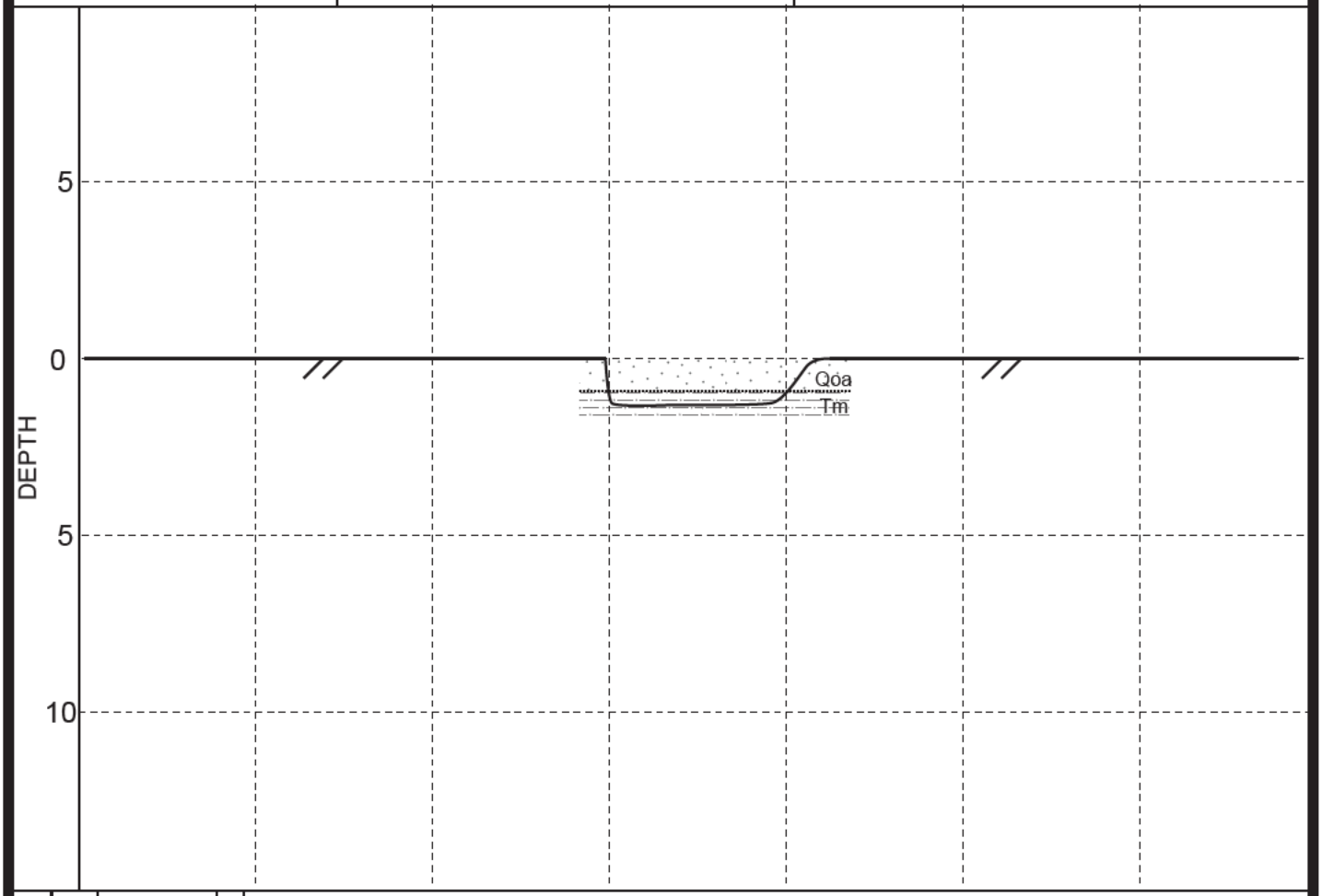
GRAPHIC LOG

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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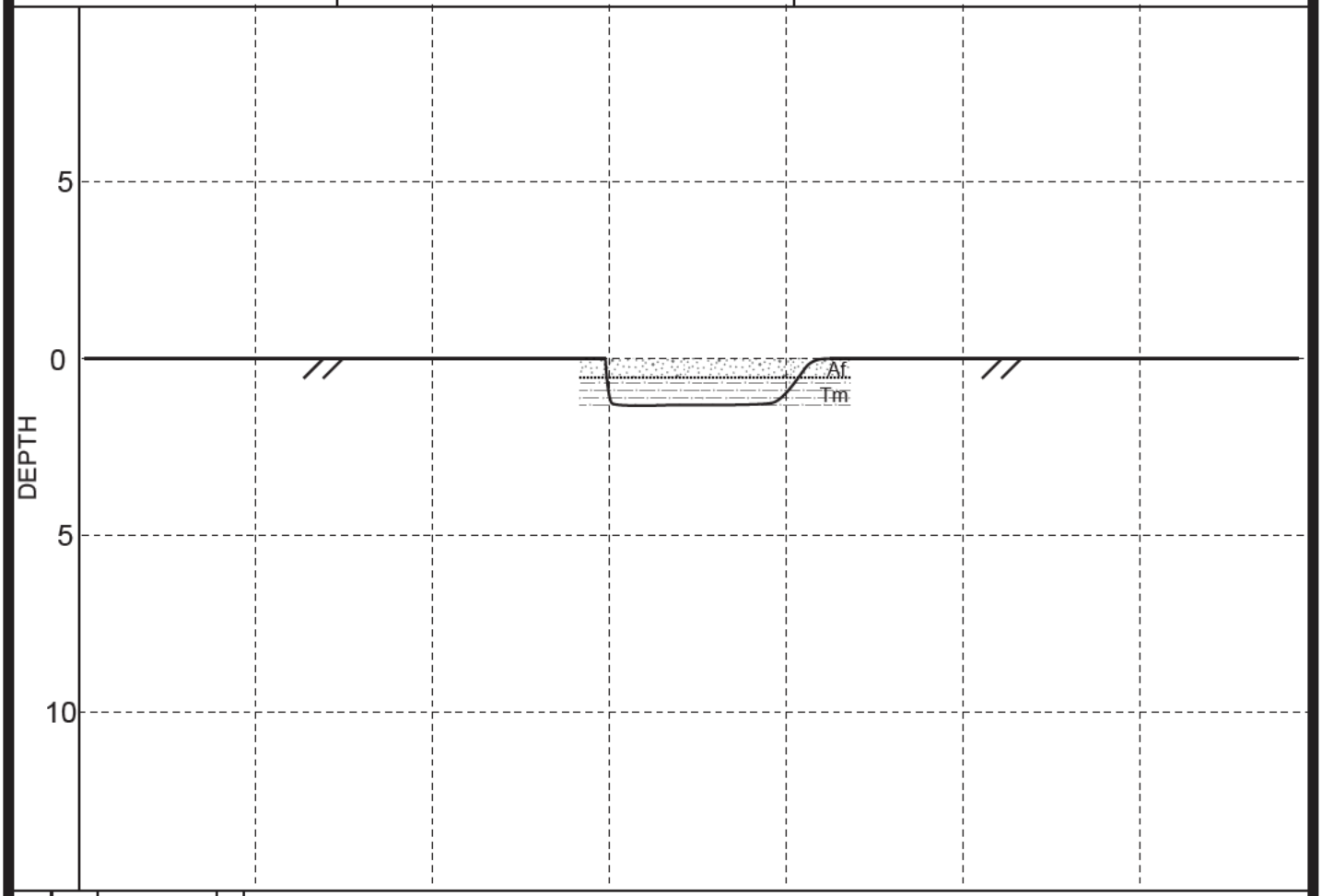
GRAPHIC LOG

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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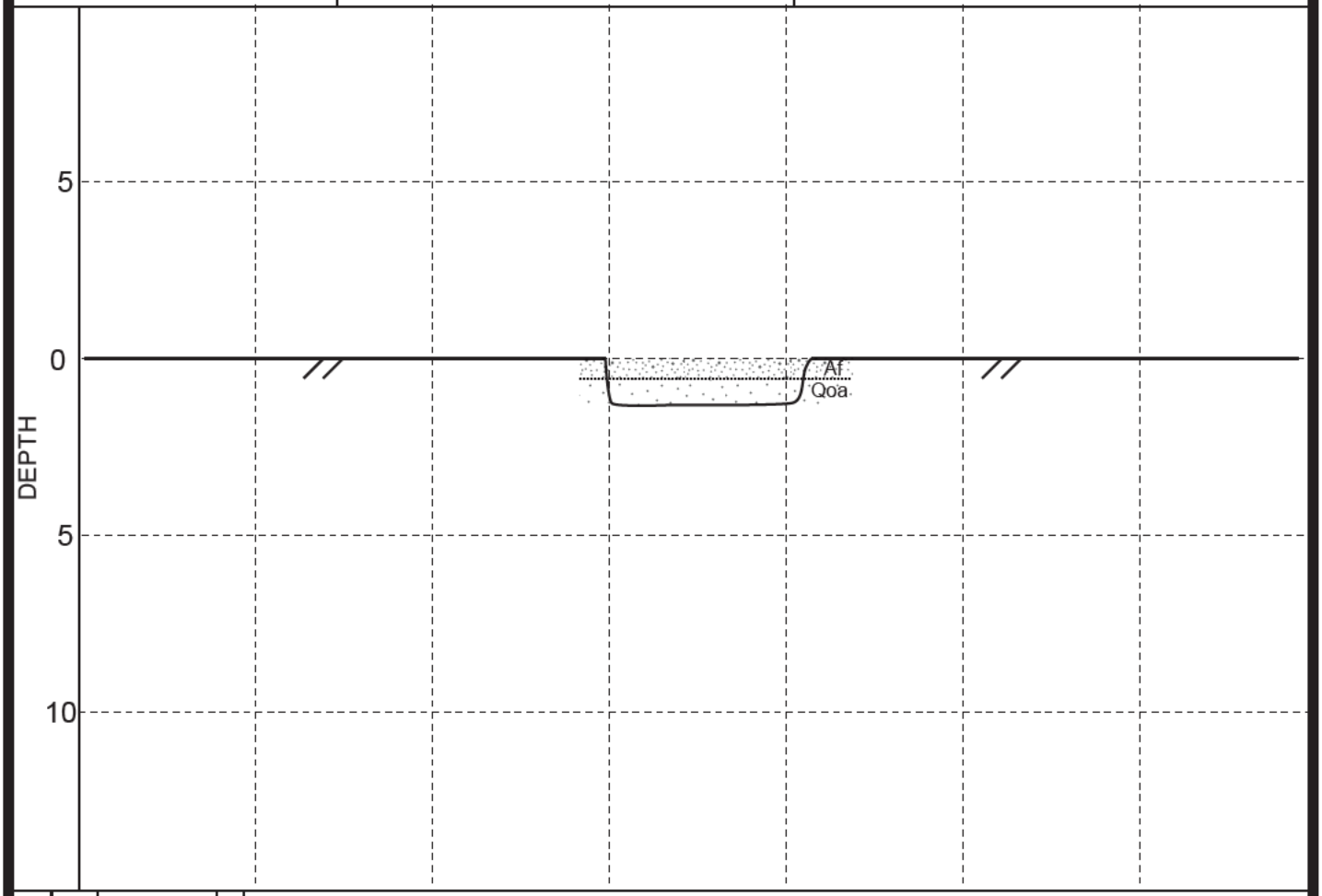
GRAPHIC LOG

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

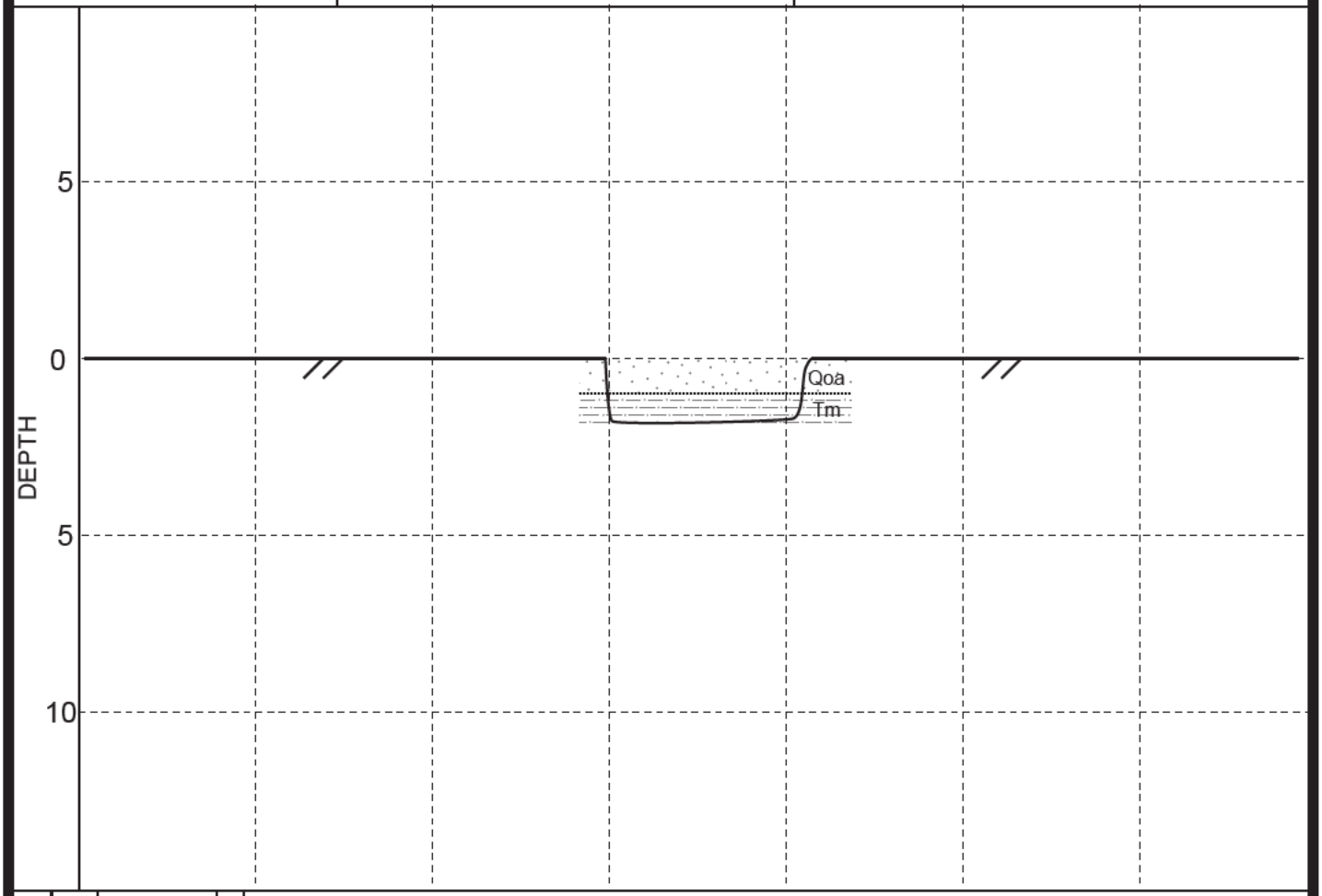
GRAPHIC LOG

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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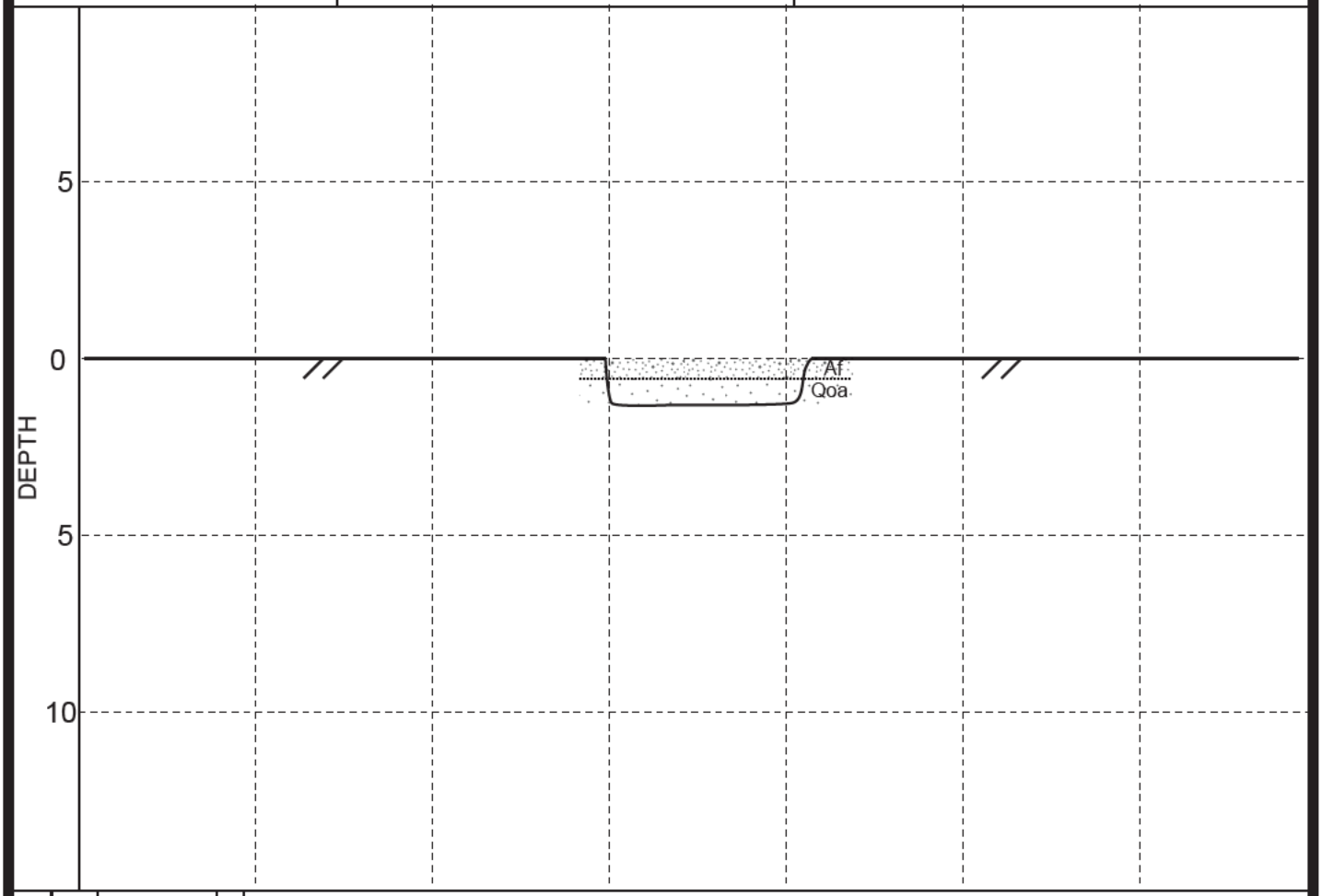
GRAPHIC LOG

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)
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FEFFER GEO CONSULTING | F.N. 1992-75

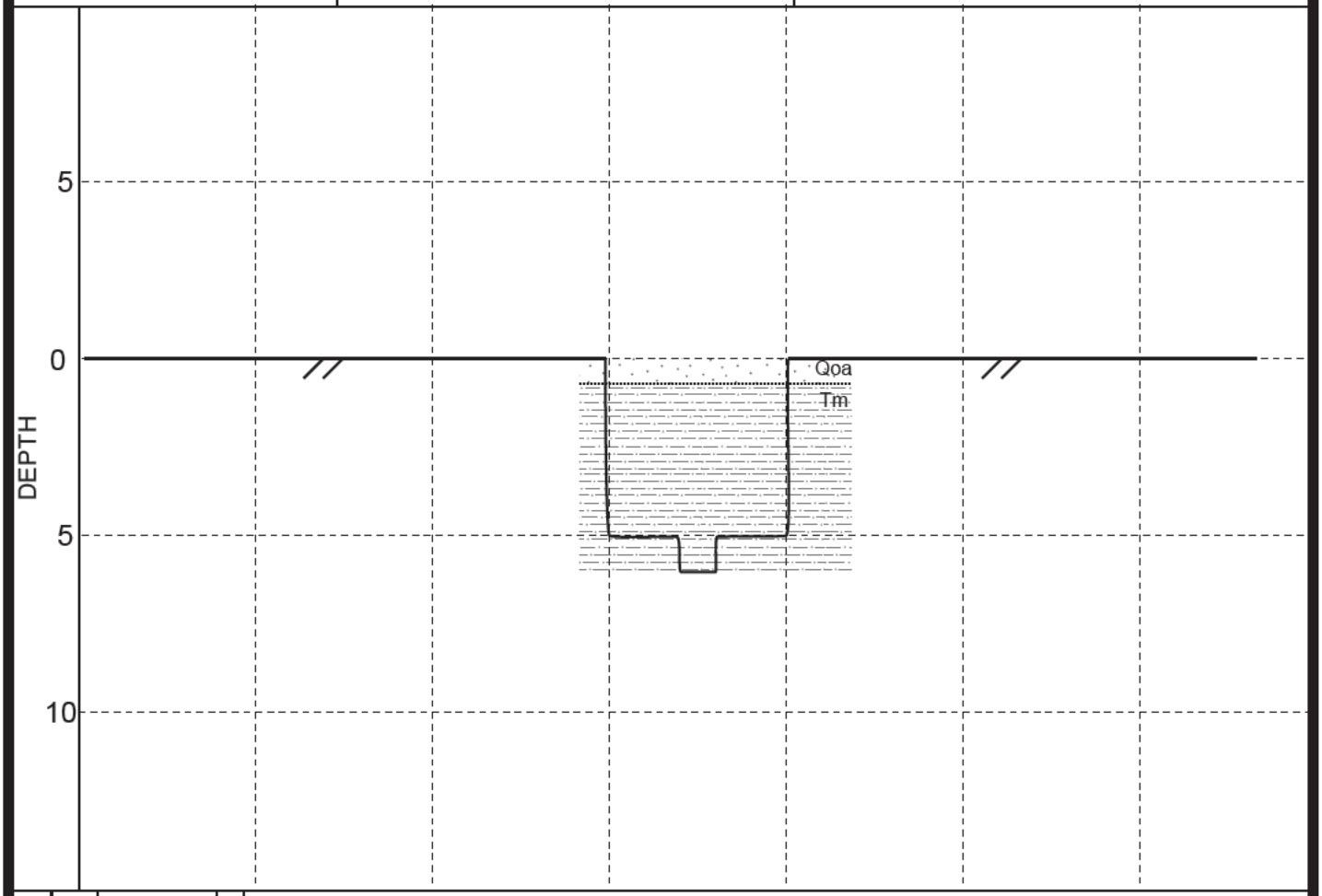
GRAPHIC LOG

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
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LOCATION : See Site Map

DESCRIPTION: Classification (USCS), color, moisture, consistency etc.

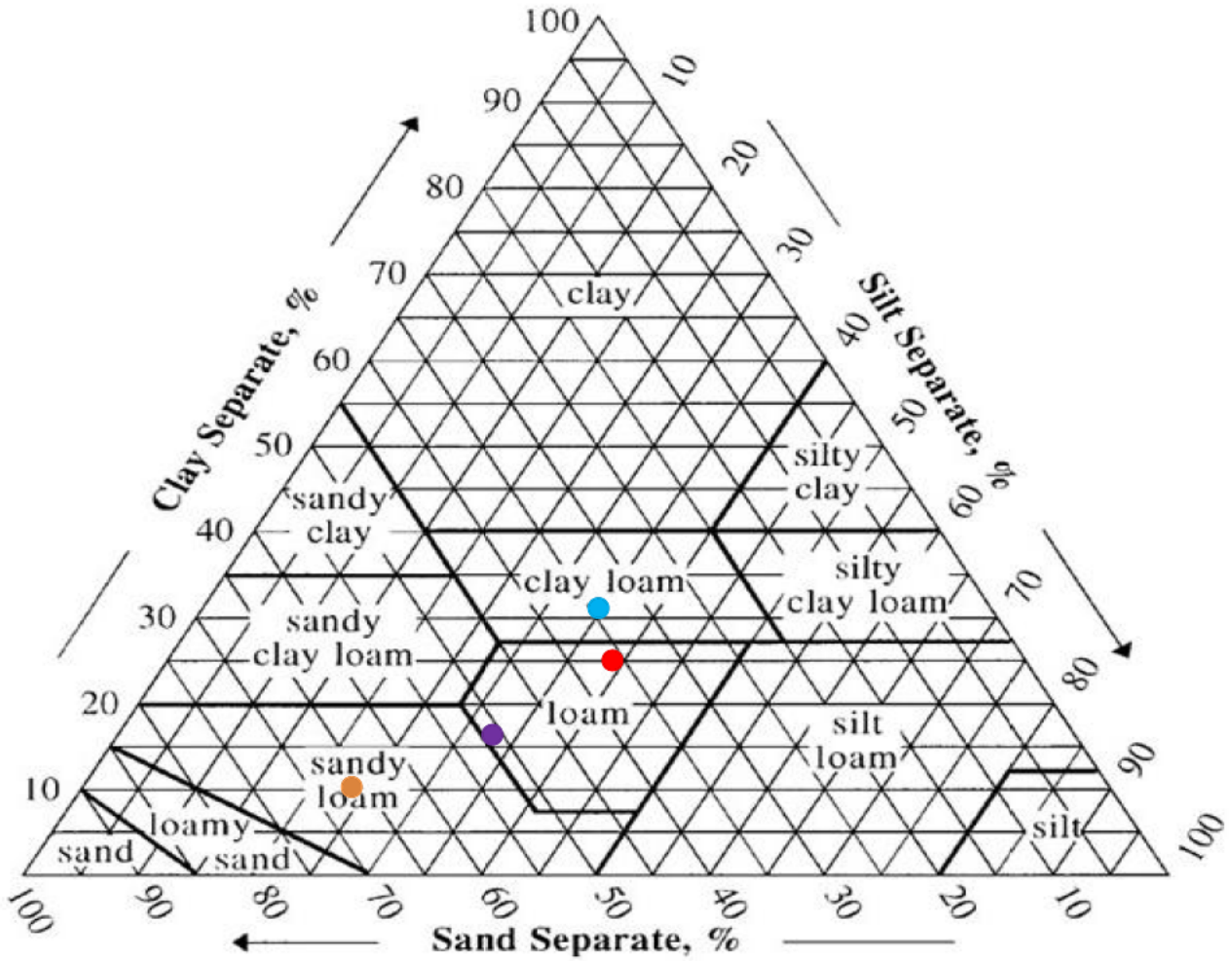
0-0.7' Alluvium (Qoa): Fine to medium grained clayey sand with silt (terrace), few scattered gravels, poorly sorted, massive to blocky, slightly moist, reddish brown (7.5 YR 2.5/3, 3/3)

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

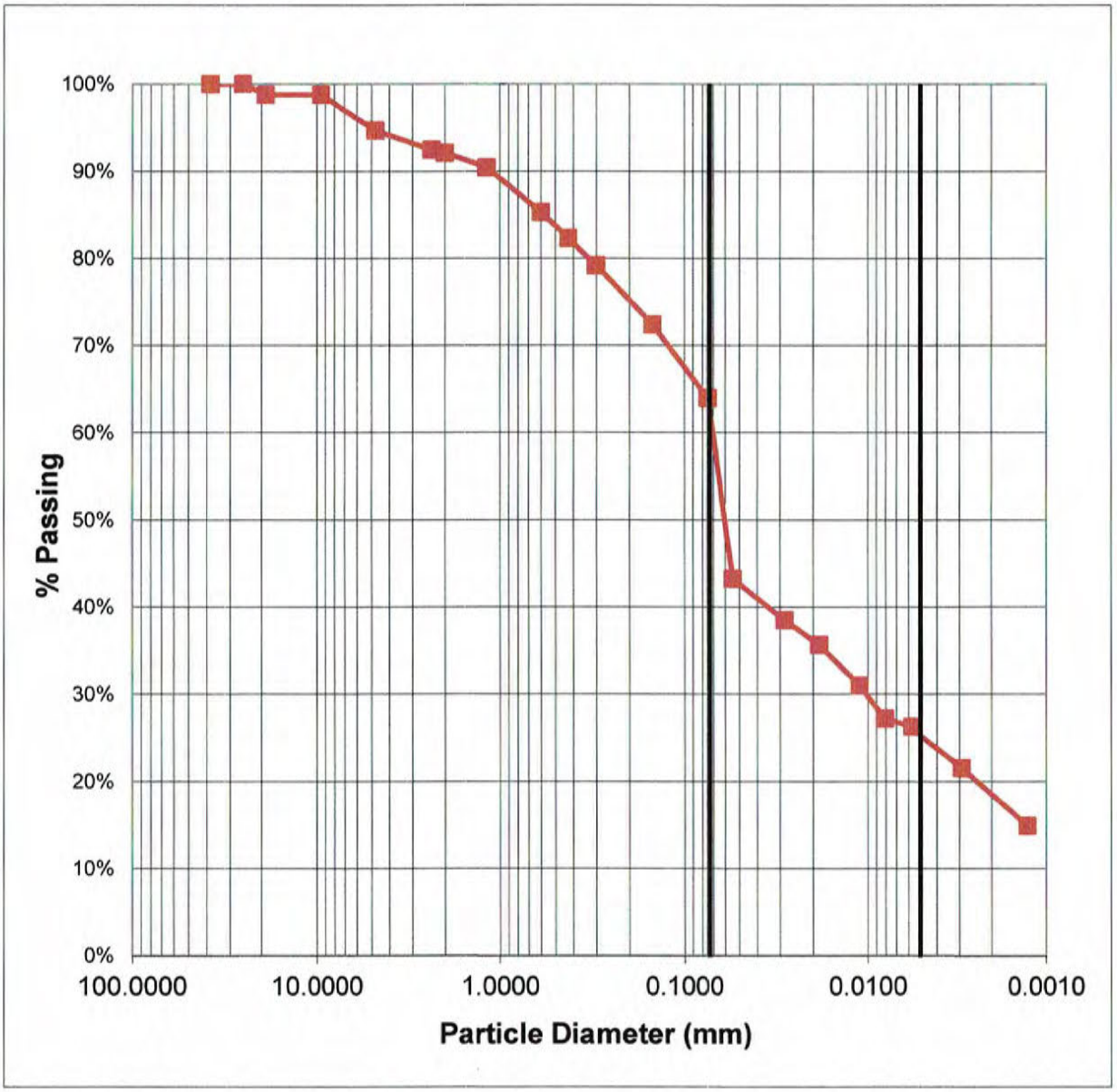
SOIL LABWORKS LLC

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		



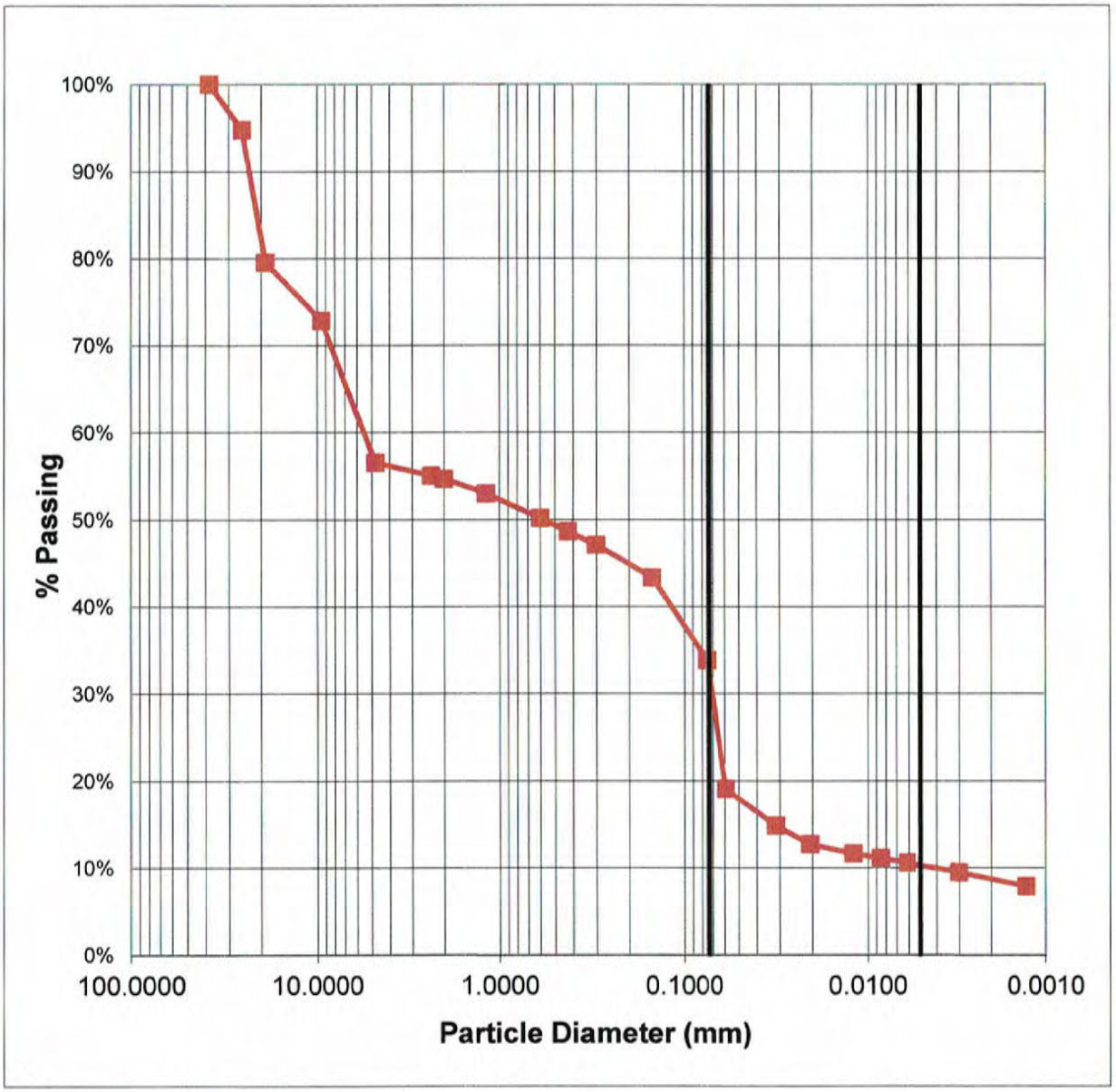
SOIL LABWORKS LLC

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		



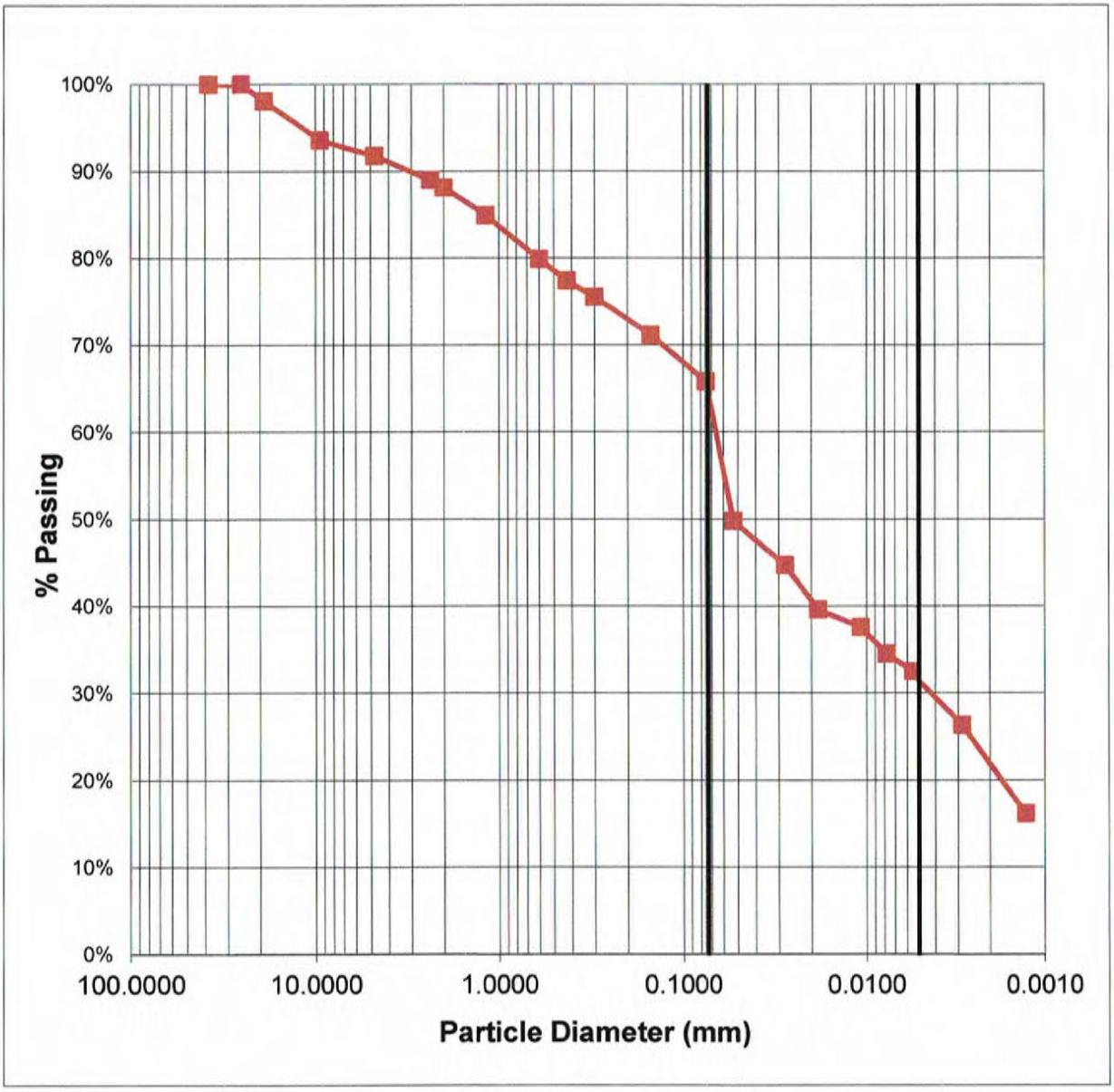
SOIL LABWORKS LLC

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		



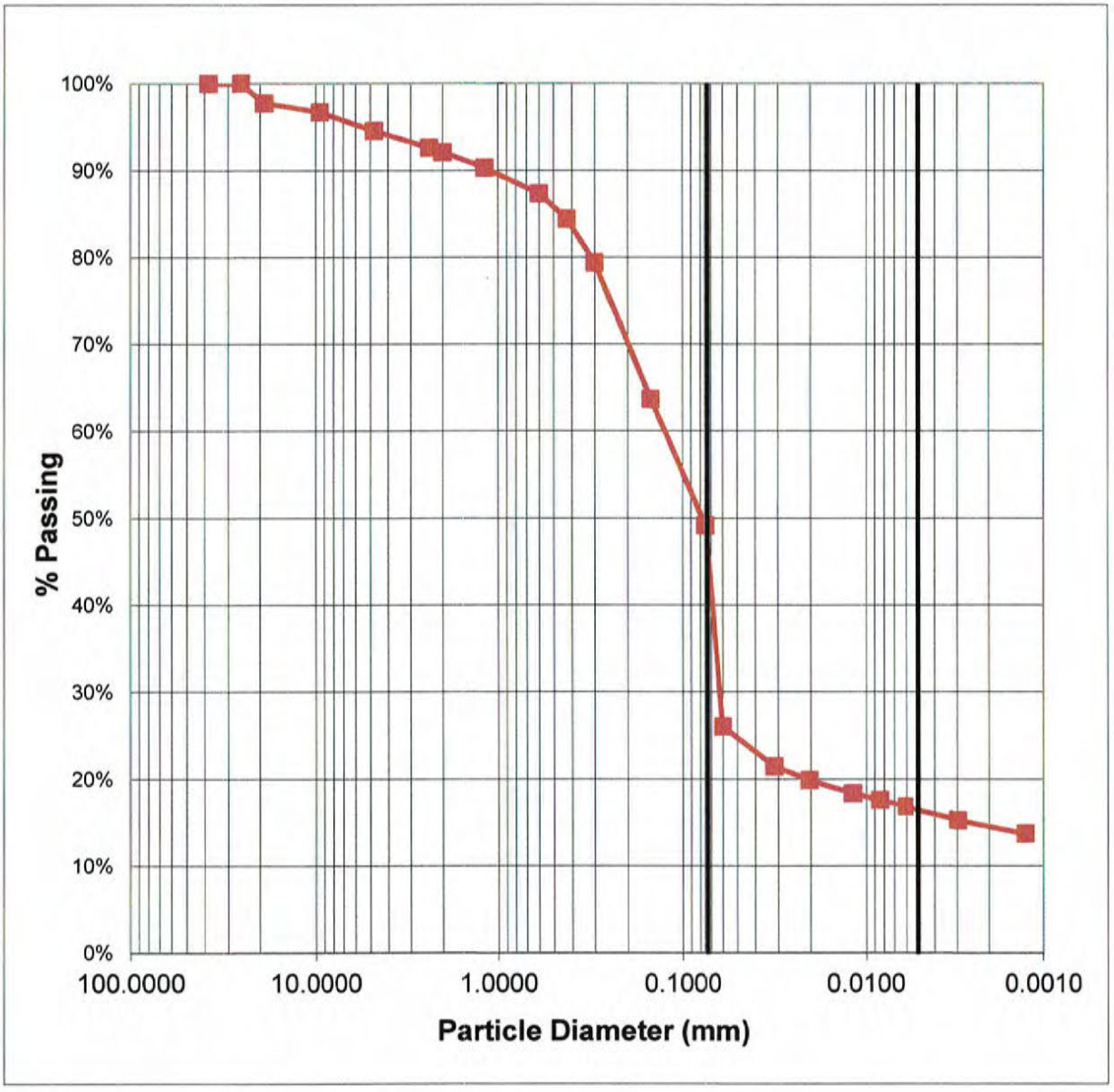
SOIL LABWORKS LLC

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

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
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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

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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

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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

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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

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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].

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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

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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.

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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.

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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
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Table 12 Maximum AOWTS Design Capacity 5
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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.

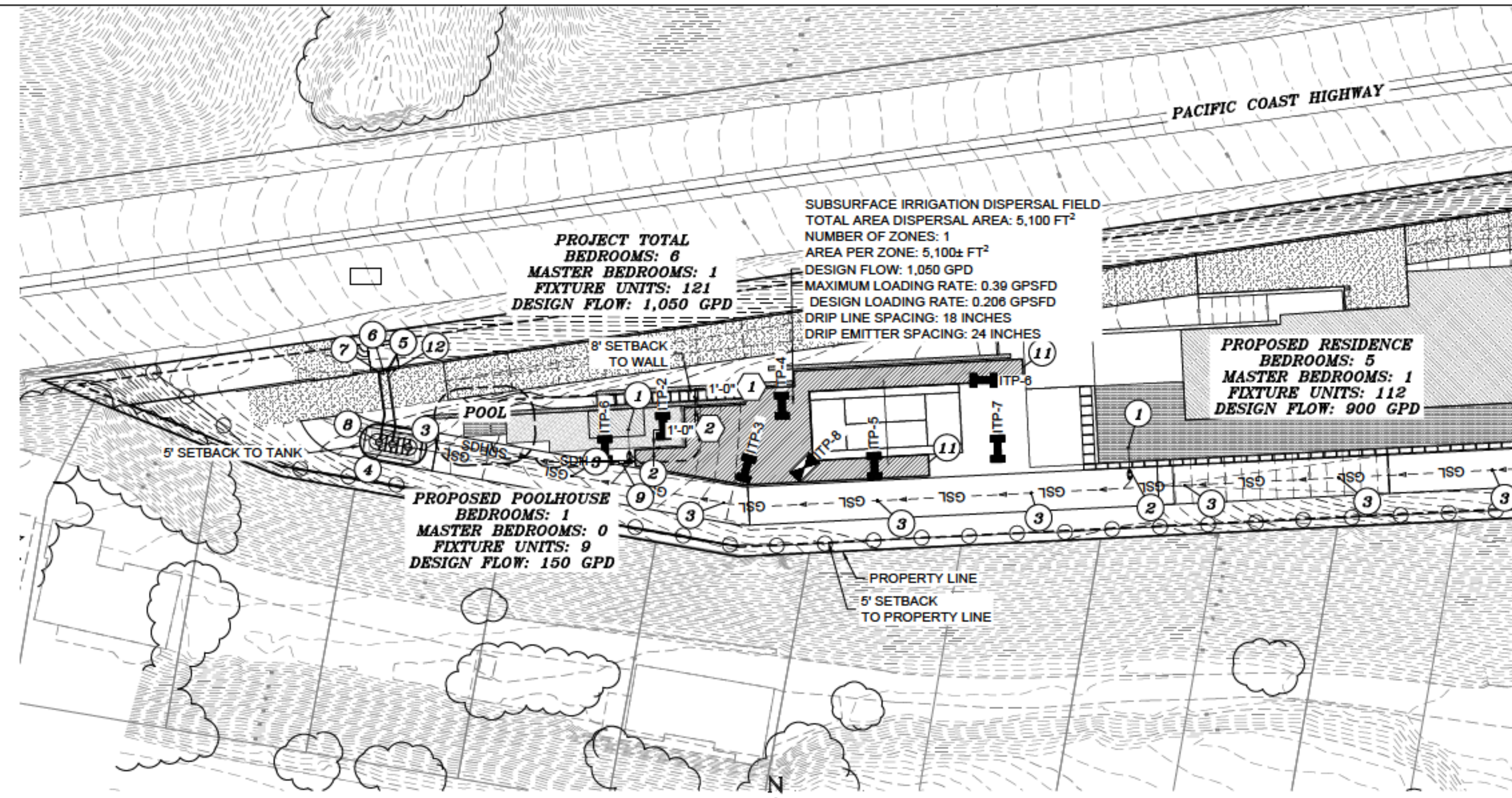
[7] City of Malibu Environmental Sustainability Department, "Onsite Wastewater Treatment System Manual; Siting, Design, Installation, and Operation Guidelines," City of Malibu Environmental Sustainability Department, Malibu, CA, 06/23/2018.

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

0 100' 200'

SCALE: 1" =100'-0"

N

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"

OWTS Capacity (Design and Maximum)				
Component	Description	Total Capacity	Design Capacity	Max Capacity
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

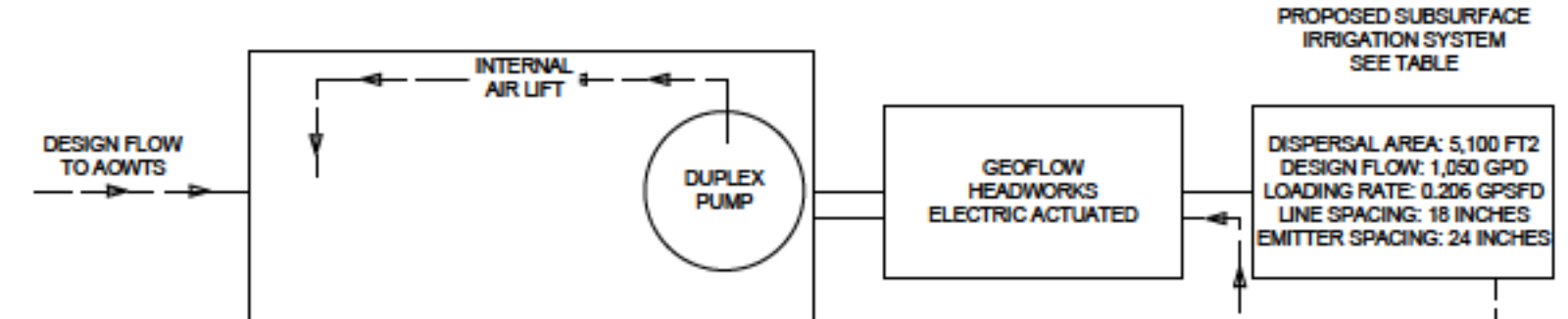
Fixture Units Summary		
Total Proposed Fixture Units	121	
Total Fixture Units	121	
Dwelling Units Summary		
Total Proposed Dwelling Units	1	
Proposed Bedroom Summary		
Total Proposed Bedrooms	6	bedrooms
Number of Proposed Master Bedrooms	1	bedrooms
Number of Proposed Standard	5	bedrooms
Flow Calculations (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_F	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	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

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_r	2693	ft^2
Preferred Square Feet of Leaching Area Required, A_p	2693	ft^2
Design Square Feet of leaching Area, A_d	5100	ft^2
Is Design Area Adequate (Is $A_d > A_r$)	Yes	
Actual Loading Rate, L_a	0.206	gpsfd

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

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	



PROPOSED MICROSEPTEC ENVIROSERVER FIBERGLASS TREATMENT TANK WITH UV DISINFECTION
MICROSEPTEC ENVIROSERVER MODEL ES25

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		

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

ITL-X	INFILTRATION TEST LOCATION
ITP-X	INFILTRATION TEST PIT LOCATION
	PROPOSED DISPERSAL FIELD
	BUILDINGS AND STRUCTURES
	SITE WALL
	DRIVEWAY
	POOL

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.		DATE	BY

ENSITU
ENSITU ENGINEERING, INC.
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ATASCADERO, CA 93422
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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

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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	

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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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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	5400 square feet at: 0.206 gallons per square foot per day	1,050 gpd	1,989 gpd

FIXTURE COUNT CERTIFICATION

ENSITU ENGINEERING INC. ("EEI") Certifies the fixture count worksheet based on the Floor Plans provided by the Client. EEI assumes the floor plans provided are the most accurate and representative. If changes are made to the floor plans or errors are found in the floor plan it is the responsibility of the client to inform EEI.

Note:
1. In completing this form, a room is considered a bedroom if it provides privacy, has an associated closet, and is in close proximity to a bathroom with bathtub and/or shower fixtures.
2. EEI considers any sink in close proximity to a stove or a sink in a designated kitchen a kitchen sink. If the sink does not meet these criteria it will be considered a bar sink.
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

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REVISIONS

NO.	DATE	BY

25200 PACIFIC COAST HIGHWAY; AOWTS CONFORMANCE REVIEW FIXTURE COUNT FC-FIXTURE UNIT SUMMARY AND TABLES-11x17
MALIBU, CALIFORNIA

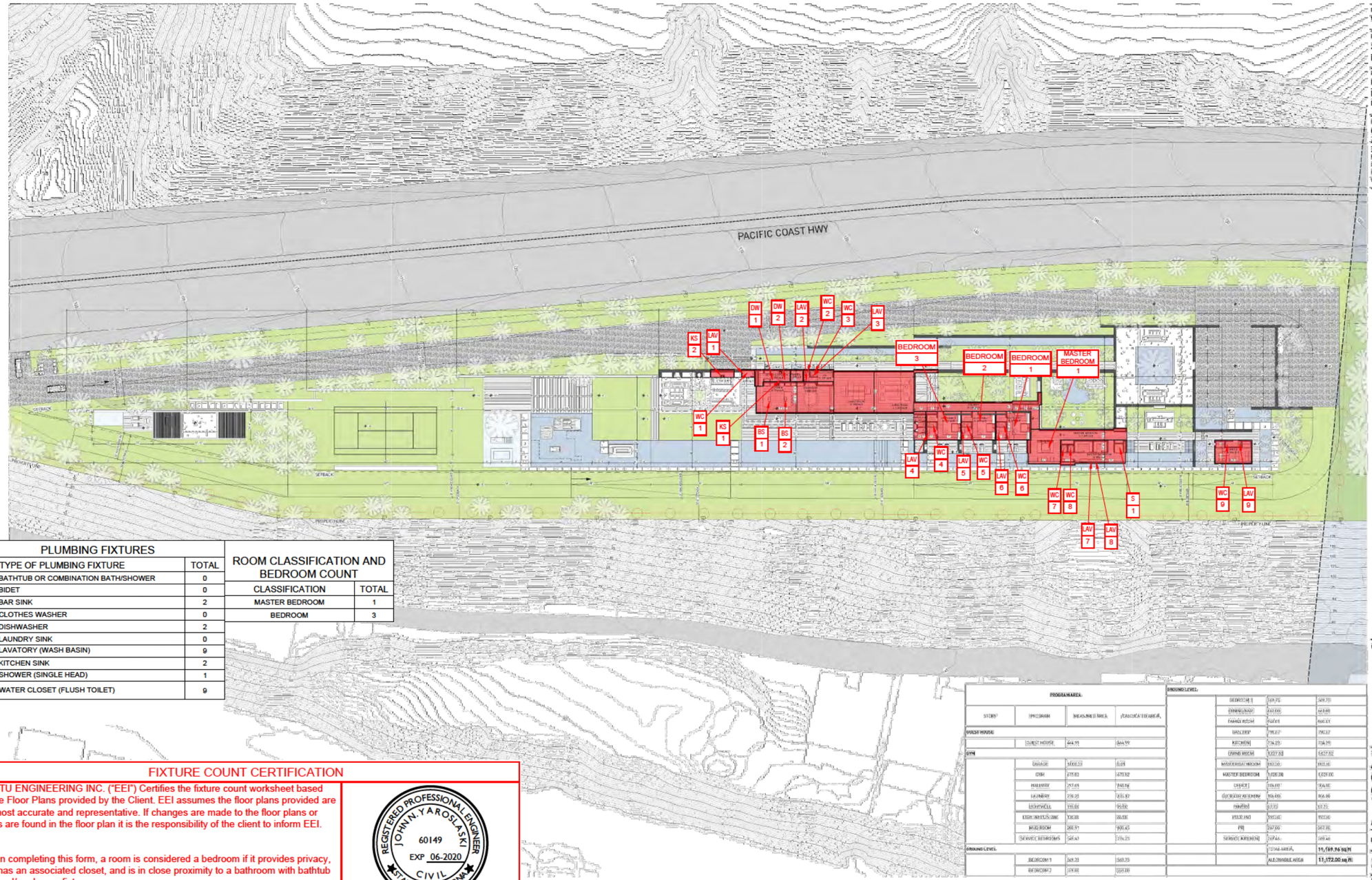
REGISTERED PROFESSIONAL ENGINEER JOHN N. YAROSLASKI 60149 EXP 06-2020 CIVIL STATE OF CALIFORNIA

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

ENSITU ENGINEERING INC. ("EEI") Certifies the fixture count worksheet based on the Floor Plans provided by the Client. EEI assumes the floor plans provided are the most accurate and representative. If changes are made to the floor plans or errors are found in the floor plan it is the responsibility of the client to inform EEI.

Note:
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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, 248 NE 37 Street, Miami FL 33137, P 305 576 8494, F 305 576 8433, W oppenoffice.com

PROGRAM AREAS

STORY	PROGRAM	MEASURED AREA	CALCULATED AREA
GUEST HOUSE			
	GUEST HOUSE	644.99	644.99
GYM			
	GARAGE	1,000.23	0.00
	GYM	470.83	470.82
	HALLWAY	257.69	240.94
	LAUNDRY	236.35	235.32
	LIGHTWELL	110.00	96.00
	LIGHTWELL 2BC	100.00	86.00
	MUD ROOM	200.91	190.45
	SERVICE BEDROOM 5	549.63	236.25
GROUND LEVEL			
	BEDROOM 1	569.35	569.35
	BEDROOM 2	549.88	549.88

GROUND LEVEL

BEDROOM 3	569.35	569.35
FAMILY ROOM	447.00	447.00
FAMILY ROOM	640.01	640.01
GALLERY	290.27	290.27
KITCHEN	734.35	734.35
GRAND ROOM	1,027.83	1,027.82
MASTER BEDROOM	883.00	883.00
MASTER BEDROOM	1,020.00	1,020.00
OFFICE	304.00	304.00
GUEST BEDROOM	304.00	304.00
PANTRY	93.75	93.75
STUDIO 1	330.00	330.00
PR	267.00	267.00
SERVICE KITCHEN	1,044.44	1,044.44
	TOTAL AREA:	11,169.96 sq ft
	ALLOWABLE AREA	11,172.00 sq ft

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

ENSITU ENGINEERING, INC. 780 MONTEREY AVE., STE. B, Morro Bay, CA 93442, Tel: 805.772.0160, Fax: 805.772.0613, ENSITU@calatlantic.com

"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-FLOOR PLAN-01-11x17
MALIBU, CALIFORNIA

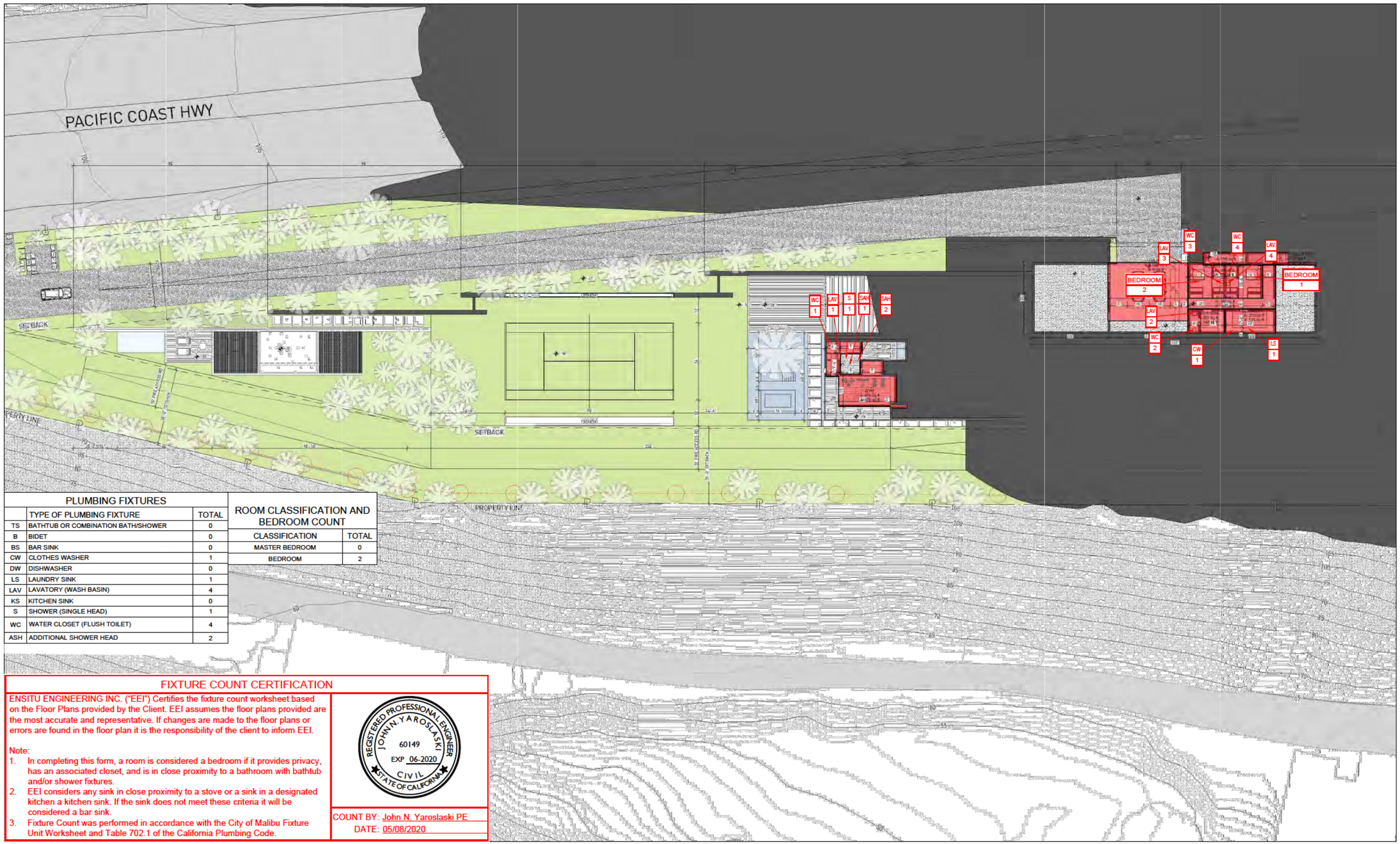
REGISTERED PROFESSIONAL ENGINEER JOHN N. YAROSLASKI 60149 EXP 06-2020 CIVIL STATE OF CALIFORNIA

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
DRAWING FILE: \444-05.010 25200 Pacific Coast Highway PWCBPC\Cad Design\Engineering\Cad Design\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 4:30:39 PM
PLOT TIME: Friday, May 29, 2020 4:45:58 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

ENSITU ENGINEERING INC. ("EEI") Certifies the fixture count worksheet based on the Floor Plans provided by the Client. EEI assumes the floor plans provided are the most accurate and representative. If changes are made to the floor plans or errors are found in the floor plan it is the responsibility of the client to inform EEI.

Note:
1. In completing this form, a room is considered a bedroom if it provides privacy, has an associated closet, and is in close proximity to a bathroom with bathtub and/or shower fixtures.
2. EEI considers any sink in close proximity to a stove or a sink in a designated kitchen a kitchen sink. If the sink does not meet these criteria it will be considered a bar sink.
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
DRAWING LOCATION: C:\Users\jny\Engineering\Cad Design\444-05.010 25200 Pacific Coast Highway PWCBPC\444-05.010 25200 PACIFIC COAST HIGHWAY; AOWTS FC-FLOOR PLAN-02-11x17.dwg
CREATION TIME: Friday, May 29, 2020 9:44:48 AM
MOD. TIME: Friday, May 29, 2020 4:30:59 PM
PLOT TIME: Friday, May 29, 2020 4:31:07 PM

ENSITU ENGINEERING

ENSITU ENGINEERING, INC. 780 MONTEREY AVE., STE. B
Morro Bay, CA 93442
Tel: 805.772.0140
Fax: 805.772.0613
ENSITU@calatlc.com

"Dedicated to achieving higher standards in onsite and decentralized wastewater systems."

REVISIONS

NO.	DATE	BY

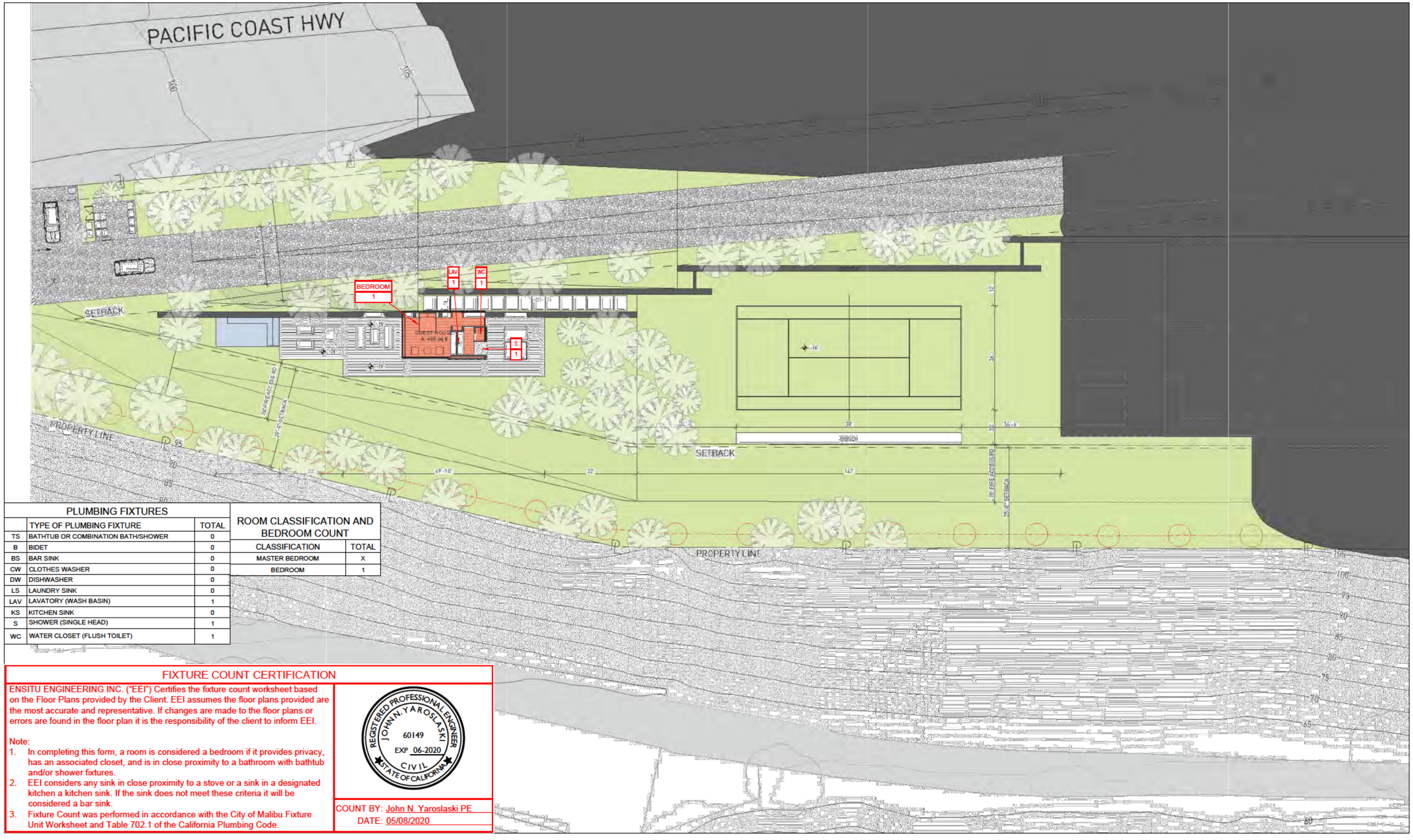
25200 PACIFIC COAST HIGHWAY; AOWTS CONFORMANCE REVIEW FIXTURE COUNT FC-FLOOR PLAN-02-11x17 MALIBU, CALIFORNIA

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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REGISTERED PROFESSIONAL ENGINEER JOHN N. YAROSLASKI 60149 EXP 06-2020 CIVIL STATE OF CALIFORNIA

COUNT BY: John N. Yaroslaski PE
DATE: 05/08/2020

ENSITU ENGINEERING, INC.
780 MONTEREY AVE., STE. B
MORRO BAY, CA 93442
TEL: 805.772.0140
FAX: 805.772.0613
ENSITU@calatlc.com

"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-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

Project Engineer: John N Yaroslaski PE # 60149
Drawing Name: S:\Projects\444-05.010 25200 Pacific Coast Highway PMCBRC\Civil Engineering\Cad Design\444-05.010 25200 Pacific Coast Highway PMCBRC-02.dwg
CREATION TIME: Friday, May 29, 2020 9:44:48 AM
MOD. TIME: Friday, May 29, 2020 4:30:59 PM
PLOT TIME: Friday, May 29, 2020 4:45:04 PM

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.

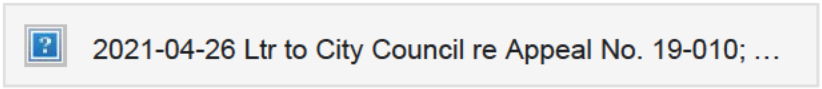
This is precisely the kind of egregious, non-compliant project that has contributed to Malibu's backlog and undermined public confidence during the city's rebuild recovery —just as occurred with the Malibu Inn Hotel, whose geotechnically unsound 55-foot retaining wall triggered extensive delays, appeals, 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.

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
[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.

CC: Planning Commission, PD,

Recording Secretary, File

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

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
1/20/26
Planning Div.

From: Beata
To: Planning Commission
Subject: Re: Coastal Development Permit (CDP) #19-012, Conditional Certificate of Compliance #21-004 and Lot Merger #24-002 25200 Pacific Coast Highway , APNs 4459-013-021 & 4459-014-018
Date: Monday, January 19, 2026 9:09:29 PM

>
> January 15th, 2026
>
> Dear Planning Commissioners,
>
> I am a resident of Old Bayshore Drive, directly below the proposed development at 25000 Pacific Coast Highway, and wish to express my concerns for new proposed project on top of the hill above my property.
>
> Putting such a massive compound on the hill above Old Bayshore Dr road will put all our homes on that road in jeopardy. There is already excessive amount of water in that hill, hence city installed dewatering pumps monitored on regular basis by city employees or subcontractors.
>
> Then, there is unresolved CalTrans water runoff intake from PCH that dumps water into that property and the hill bellow, which goes into broken, not fixable pipe. This issue is particularly alarming given the history of landslides and past lawsuit brought by the late Steve Karsh vs CalTrans, never addressed properly or fixed.
> The mentioned land movement goes from the property in question diagonal west to east all the way to empty lot on the beach, remains after one of the houses lost as a result of the slide, again not resolved.
> There has been no recent major movements due to no or minimal disturbance to current ecosystem.
>
> We do not want the repeat of unfortunate landslide caused by construction of Rappaporrt house on the bigger and more stable nearby lot of PCH.
> That massive construction and dirt removal to the point of offering free dirt, caused land slide which destroyed or damaged multiple houses below, making Malibu Rd landslide local and national news. We would like to prevent history repeating itself.
> Our Malibu Road neighbors and friends spent millions of dollars trying to protect their homes by putting temporary retention walls to stop dirt from coming into their homes and on lawyer's fees fighting the city and Mr Rappaport. Years of litigations drove a lot of people out of their homes and out of Malibu.
>
> In my opinion the construction is too massive and we (living below that hill) should be protected in case of any land movement towards our homes.
> There should be some kind of guarantee to protect our homes, i.e: retention walls build, funds put aside….
>
> Thank you for your attention and I hope that you will take our safety and environmental concerns into consideration.
>
> Sincerely,
> Beata Skulski
> [redacted]
>
>
>
>
>
> Sent from my iPhone

CC: Planning Commission, PD,

Recording Secretary, File

Date Received 1/20/26 Time 7:30 a.m.
Planning Commission meeting of 1/20/26
Agenda Item No. 4B
Total No. of Pages 1

Received
1/20/26
Planning Div.

From: Chris Deleau
To: Planning Commission; Allison Cook; Tyler Eaton; Patricia Salazar
Cc: Don Schmitz; Scott Hoeft; Schmitz and Associates; Catherine A. Lambert; Richard Weintraub; Jake Jesson
Subject: Fw: Applicant"s Response to Correspondence from Jo Drummond to Coastal Staff - CDP No. 19-012 (25200 PCH, Malibu, CA 90265 (PARPCH, LLC)
Date: Monday, January 19, 2026 4:49:43 PM
Attachments: Feffer Geological response to Ralph Jeffery Ltr to City of Malibu.pdf
2025.12.16 Applicant ResponseTo Jo Drummond Letter - ITEM 5.C. December 16, 2025 PC Hearing - 25200 PCH.pdf
Jo Drummond Correspondence to Coastal Commission re 25200 PCH CDP No. 19-02.pdf
Importance: High

Allison, our firm recently prepared and submitted a letter to the California Coastal Commission (CCC) in response to correspondence from Jo Drummond to the CCC. This correspondence is below with attachments above. If you could please forward this correspondence to staff and Planning Commissioners it would be greatly appreciated.

Best,

Chris Deleau, JD, AICP
Principal Planner, Schmitz and Associates

747.494.7293
schmitzandassociates.com
cdeleau@schmitzandassociates.net
28230 Agoura Rd. Suite 200, Agoura Hills, CA 91301

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From: Chris Deleau <cdeleau@schmitzandassociates.net>
Sent: Tuesday, December 30, 2025 5:34 PM
To: Gonzalez, Denise@Coastal <Denise.Gonzalez@coastal.ca.gov>
Cc: Gough, Gabriella@Coastal <gabriella.gough@coastal.ca.gov>; Don Schmitz <dons@schmitzandassociates.net>; Scott Hoeft <shoeft@schmitzandassociates.net>; Benjamin Suber <bsuber@schmitzandassociates.net>; Catherine A. Lambert <clambert@schmitzandassociates.net>; Diana Springer <dspringer@schmitzandassociates.net>
Subject: Applicant's Response to Correspondence from Jo Drummond to Coastal Staff - CDP No. 19-012 (25200 PCH, Malibu, CA 90265 (PARPCH, LLC)

Hi Denise,

CC: Planning Commission, PD,

Recording Secretary, File

Date Received 1/20/26 Time 7:30 a.m.
Planning Commission meeting of 1/20/26
Agenda Item No. 4B
Total No. of Pages 38

The purpose of this correspondence is to respond to a recent email from Jo Drummond (See attached) to Commission staff regarding CDP no. 19-012 (25200 PCH- Malibu). Our firm represents the applicant, PARPCH, LLC, on the processing of this application, which is currently pending hearing.

To begin with, it should be noted that Ms. Drummond is not a licensed geologist, geotechnical engineer, or civil engineer, rather; her background is in Public Relations & Media Consulting. Her comments regarding geology and site stability are reiterative of a comment letter to the city from geologist Ralph Jeffery. Mr. Jeffery's comments have been addressed by the applicant's geologist, Feffer Geological Consulting, in a response letter submitted to the city (See attached). The city Geologist and Geotechnical Engineer have reviewed Feffer's response and found no merit in Mr. Jeffery's comments, and the city is recommending approval of the project.

The remainder of Ms. Drummond's comments, which involve Planning, code, or CEQA issues, have been addressed in a letter this firm submitted to the city on December 16, 2025 (See attached).

The applicant's project has been painstakingly designed to comply with all LCP requirements and is consistent therewith. Should Commission staff have any questions about the applicant's project or wish to discuss it with our project team, including the project geologist or other project consultants, we would be pleased to do so.

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

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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
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28230 Agoura Rd. Suite 200, Agoura Hills, CA 91301

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

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.

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.

From: Gonzalez, Denise@Coastal <Denise.Gonzalez@coastal.ca.gov>
Sent: Tuesday, December 23, 2025 11:58:22 AM (UTC-08:00) Pacific Time (US & Canada)
To: Malibu Township Council [redacted]
Cc: Bill Sampson [redacted]; Patt Healy [redacted]com>; R N [redacted]; Tiffany Murray [redacted]; Jan Ravlich [redacted]; Rob Duboux <rduboux@malibucity.org>; Kraig Hill [redacted]; Bruce Silverstein <bsilverstein@malibucity.org>; Trevor Rusin <trevor.rusin@bbklaw.com>; Jyoti Drummond [redacted]; Tyler Eaton <teaton@malibucity.org>; Gough, Gabriella@Coastal <gabriella.gough@coastal.ca.gov>
Subject: Re: 25200 PCH - Weintraub property
Hi Jo,

I'm not sure you've received my email response from yesterday afternoon to your initial email below. To reiterate, Commission staff will review the City's staff report when this project is scheduled for a Planning Commission meeting and will provide any comments on the project if deemed necessary. We'll be sure to forward a copy of any comments or letters we submit to the City regarding this project.

Wishing you a wonderful holiday season!

Best,
Denise

Denise Gonzalez
District Supervisor
California Coastal Commission
South Central Coast District
89 South California Street, Suite 200
Ventura, CA 93001
Denise.Gonzalez@coastal.ca.gov | (805) 585-1800

From: Malibu Township Council [redacted]
Sent: Tuesday, December 23, 2025 8:57 AM
To: Gonzalez, Denise@Coastal <Denise.Gonzalez@coastal.ca.gov>
Cc: Bill Sampson [redacted]; Patt Healy [redacted]; R N [redacted]; Tiffany Murray [redacted]; Jan Ravlich [redacted]; Rob Duboux <rduboux@malibucity.org>; K Hill [redacted]; Bruce Silverstein <bsilverstein@malibucity.org>; Trevor Rusin <trevor.rusin@bbklaw.com>; Jyoti Drummond [redacted]; Tyler Eaton <teaton@malibucity.org>
Subject: Re: 25200 PCH - Weintraub property

Hi Denise!

I realize you might not get to this until the new year but if you can give an approximate time on when you can give an answer to the question about a variance requirement below that would be very helpful. The item is scheduled to be heard on Jan 12 or 19 and we need clarity by then.

Thanks very much! Jo Drummond
On behalf of MTC

On Dec 17, 2025, at 7:22 PM, Malibu Township Council [redacted] wrote:
Good morning Denise!

Hope all is well and you're ready for the upcoming holidays...:).

We have another question regarding a project at 25200 PCH, CDP 19-02. The project is for new construction of over 12000 sq ft including basement and underground garage, 10 pools and 12 bedrooms and bathrooms within the active Malibu Road Landslide Assessment District. As per the attached applicant's geotechnical report (three difft links below in case due to size) dated 11.18.2021 on p 563 the static factor of safety is calculated between 1.094 to 1.186 WELL BELOW the factor of safety threshold of 1.5. This would normally not meet Section 9.4 D of Malibu's LIP and require a variance for the factor of safety under Section 13.26.

HOWEVER, the City is NOT interpreting calculating the factor of safety at Worse Case scenario as required under Section 9.4D 2. and NOT requiring a VARIANCE for the factor of safety. This is BECAUSE the applicant's geotechnical consultant subsequently repeated a static and seismic slope stability test with fabricated values for using 100 ft piles to supposedly "mitigate" potential geologic instability and achieve a factor of safety of 1.5 static and 1.0 seismic. In fact on p 6 of the attached report dated 11.18.2021 it states: "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."

As per our issue a few years ago with Option 4 for Fire Rebuilds we are again seeing codes bent allowing future incomplete construction to justify approvals.

A variance is the only lawful mechanism through which proposed mitigation and construction measures on a landslide area may be evaluated, as required by LIP 13.26.5 (B) and Coastal Act 30253. Allowing mitigation to be counted in the baseline for slope stability would eliminate any meaningful "worse-case" analysis under 9.4D of the LIP and allow applicants to BYPASS the variance process entirely.

The proposed stabilization system includes multiple piles on the order of 100 feet in depth (p 152/164 attached) within a mapped landslide. Excavation and installation at that scale

have the potential to disturb the landslide mass and therefore must be evaluated through the required variance process, not assumed as a basis for approval.

We are concerned that this item is scheduled for approval at the Planning Commission hearing at the first meeting in January before mandatory LCP requirements have been satisfied. This interpretation must be rejected by the Coastal Commission in writing to ensure the appropriate variance is applied for by the City.

I want to be clear that I recognize how **overextended the Community Development Department** is, and I genuinely empathize with staff working under extraordinary workload pressure. That is precisely why **early, consistent code enforcement matters**—to reduce rework, appeals, and delays that ultimately slow Malibu's recovery.

As a fire victim myself, this issue is deeply important to me, to my family, and to the many Malibu families who are still trying to rebuild their lives. It affects our schools, our local businesses, and our long-term recovery. I am hopeful that the City's new leadership in Community Development will be supported in enforcing the LCP clearly and consistently at the outset. That process begins here with removing this item from the Planning Commission agenda and applying for the required variance. Without early, consistent enforcement at this level, these code requirements will continue to be violated, and Malibu's rebuilding efforts risk being stalled indefinitely.

Please let us know how the Coastal Commission would handle this case.

Thank you, Jo Drummond
on behalf of Malibu Township Council

https://cityofmalibuca.nextrequest.com/documents/55817576

https://acrobat.adobe.com/id/urn:aaid:sc:us:793034ba-bc3e-4423-b317-d1bd7315c103

https://drive.google.com/file/d/1SeYciflVyhIQ9neM9s1Kln5-iAdXgwKY/view?usp=sharing

Begin forwarded message:

From: Malibu Township Council [redacted]
Date: December 16, 2025 at 12:21:43 PM PST
To: capstonecityplan@gmail.com, Yolanda Bundy <ybundy@malibucity.org>, Tyler Eaton <teaton@malibucity.org>, Rob Duboux <rduboux@malibucity.org>, Trevor Rusin <trevor.rusin@bbklaw.com>, Kellan Martz <Kellan.Martz@bbklaw.com>
Cc: Frank Angel <fangel@angellaw.com>, Bill Sampson [redacted], Patt Healy [redacted] Jason Ernst <jernst@malibucity.org>, Gail Duncan <gduncan@malibucity.org>, John Mazza [redacted], Skylar Peak [redacted], Elizabeth Riddick [redacted], marni kamins [redacted], Drew Leonard

[redacted], Rebecca Evans <revans@malibucity.org>, jun@pacific-ae.com, cvo@angellaw.com, sleonard@angellaw.com, Tiffany Murray [redacted], Jan Ravlich [redacted], Emily [redacted], R N [redacted], Bruce Silverstein <bsilverstein@malibucity.org>, HayLynn Conrad <HConrad@malibucity.org>, Charlotte Frieze [redacted], Danny [redacted] K Hill [redacted], Hayley Mattson <hayley@13stars.media>, [redacted]
Subject: Re: 25200 PCH - Weintraub property

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.

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.

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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)

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.

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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 $\phi = 16°$, $c = 200$ 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.

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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; 20238 Piedra Chica Road.pdf
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], [redacted], [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

<25200 pch opposition revised comments.docx>

Received
1/20/26
Planning Div.

From: Alex Hall
To: Planning Commission
Subject: comments for 25200 PCH
Date: Tuesday, January 20, 2026 12:47:54 AM
Attachments: geotech review number2.pdf
25200pchcomments.pdf

CC: Planning Commission, PD,

Recording Secretary, File

Date Received 1/20/26 Time 7:30 a.m.
Planning Commission meeting of 1/20/26
Agenda Item No. 4B
Total No. of Pages 31

Subject: GEOTECHNICAL FINDINGS AND REQUEST FOR ADDITIONAL STUDY

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

Dear Malibu City Planning Commission,

We are writing to draw your attention to serious life-safety and slope stability concerns and to request the City's careful review and oversight of 25200 PCH.

Pacific Coast Land Consulting (PCLC) has carefully peer reviewed the Geotechnical Reports for 25200 PCH, and the available geotechnical information and has stated to us that the project geologist/engineer's landslide depth evaluation omits critical data from earlier site investigations, and so there is a reasonable probability that the slope stability analysis and the proposed stabilization piers are based on underestimated depth of movement; if **piers not founded in rigid, stable material, there is a significant risk that they deflect downslope rather than provide stabilization to adjacent properties.**

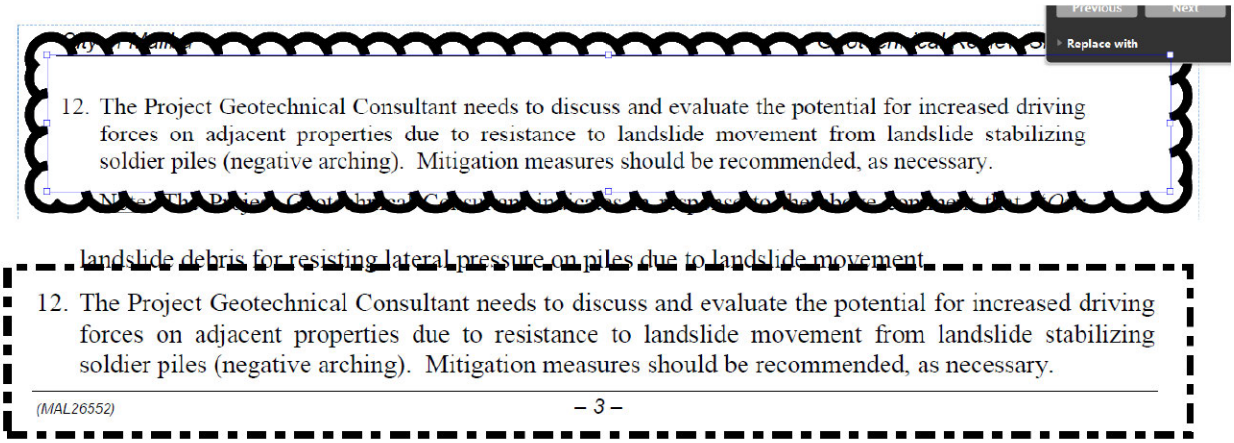
PCLC stated that incomplete analysis or insufficient design may result in continued or increased slope instability, placing the homes below at risk. This presents not only a potentially substantial adverse change to the environment; in the worst-case scenario, such instability may lead to structural failure, serious injury, or loss of life.

Malibu City Plan Check is the gatekeeper and steward for our lives and safety for this known landslide. **Please carefully review PCLC's comments regarding omission of data or use of incomplete data resulting in a shallower slide contour model. Chris Dean has stated to PCLC that the project uses only some of the data and not all of the data available. We respectfully request that the City's plan check review PCLC's written recommendation for additional study on instability caused by the project to adjacent properties. The Applicant's engineer has not responded to all of PCLC's peer review comments.**

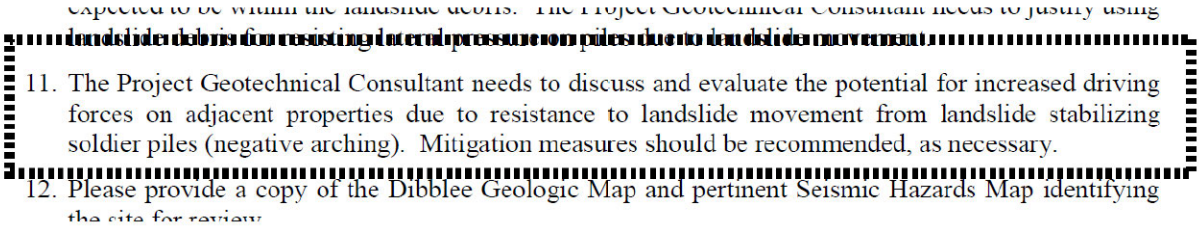
For other projects in the area, studies on instability to adjacent properties were required for 25341 Malibu Road and 25365 Malibu Road.

From City of Malibu Geotechnical plancheck reviewer comments for 25341 Malibu Road, "The Project Geotechnical Consultant needs to discuss and evaluate the potential for increased driving forces on adjacent properties due to resistance to landslide movement from landslide stabilizing soldier piles (negative arching). Mitigation measures should be recommended, as necessary. "

From 25341 Malibu Road Dec 13, 2024 and Dec 22, 2024 City's Geotechnical Review Plancheck Sheet requiring analysis on adjacent properties:



From 25365 Malibu Road, September 27, 2022 City's Geotechnical Plancheck Review Sheet requiring analysis on adjacent properties:



<u>We ask the City that this same city geotechnical plancheck review requirement from other nearby projects to address instability caused</u>

by the project to adjacent properties is also required on 25200 PCH.

(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". Applicant's engineer acknowledges (Dec 17, 2019) that "calculated failures occurred predominately offsite on the property below", "All calculated seismic failures occurred offsite and below the property line " and indicating that" the site itself would remain grossly stable, even if the offsite portion of the slope were to fail away during a seismic event." (Feffer's Dec 17, 2019 report page 7.)

We feel compelled to sound the alarm because this is fundamentally a life-safety matter. While the subject property may ultimately perform adequately due to modern foundations and stabilization systems, the same cannot be said for the older homes below to the extent the proposed development contributes to additional instability.

Any failure below the subject property may have broader community impacts, including damage to multiple residences, potential emergency response situations, and long-term habitability concerns. It may also adversely affect the subject property itself, including potential loss of value or regulatory action.

We believe that a properly designed and constructed slope stability system, based on complete and accurate data, will benefit everyone who lives on this slide-prone hillside. We would welcome a solution that genuinely improves long-term safety and stability for all affected properties.

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.

There is no way to track if the water table is worsened by 25200 PCH, we request that measuring equipment is required if the project is adding water to the water table, requiring additional water pumps to be provided by the Applicant as well as inclinometers. Please make sure the incremental water use in the post-development condition will not result in water moving under Bayshore into the toe of the slide.

Please see attached an alternate plan suggested by PCLC that would be better in many aspects. If any offsite instability is caused by the stabilization piers planned, additional two rows of piers would protect the adjacent properties. Easements would be required. Only one row may be required at the ridge. In addition, all volumes would be moved back as far away from the bluff/ridge and pools reduced to reduce the disturbance to the soil as well as avoiding pool leaks into the water table, with all landscaping to be placed in pots.

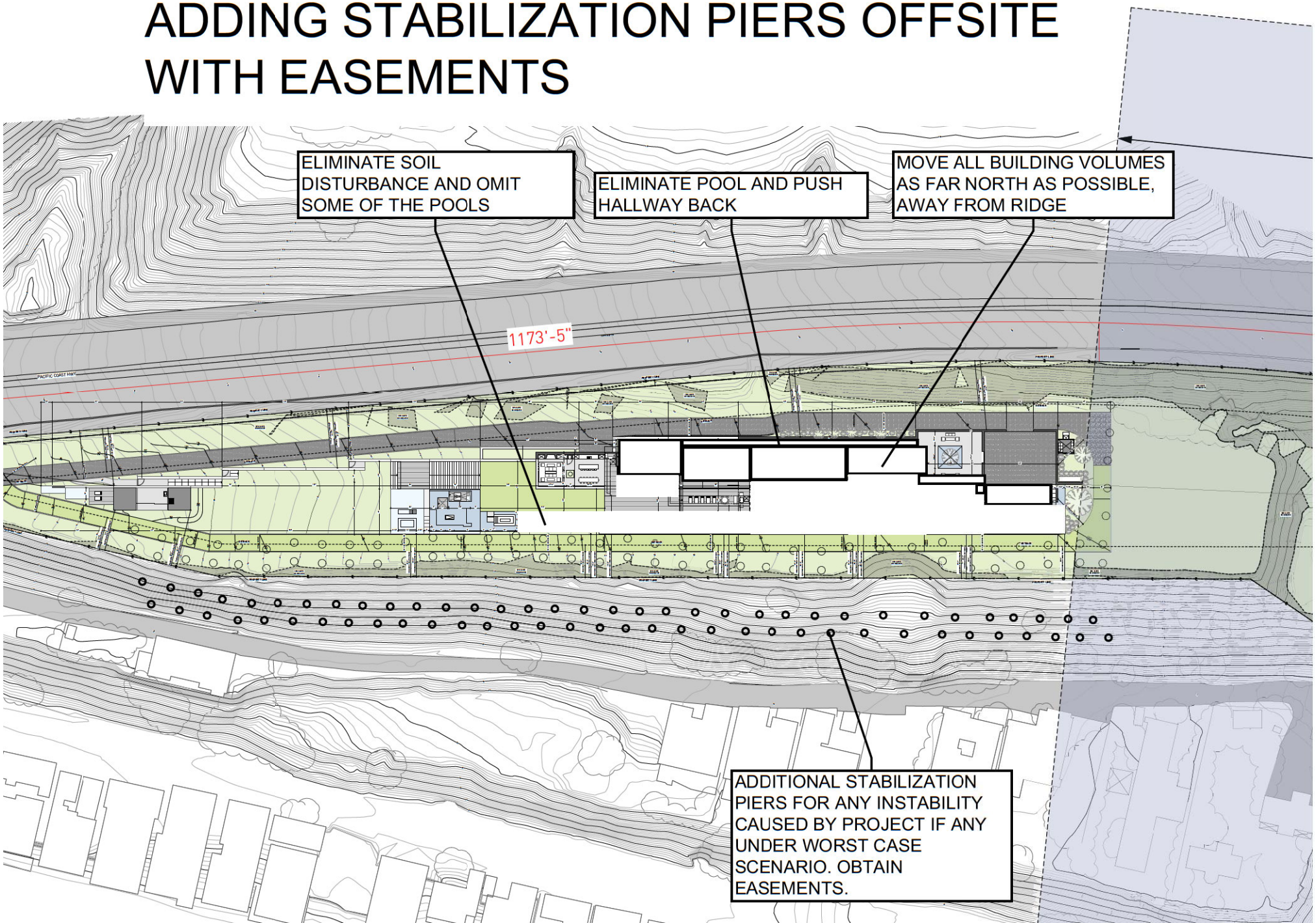
The 1998 rains washed away two houses, water seeped under Bayshore and washed away a house on Bayshore and one on the beach. Atmospheric rivers hitting home will only worsen in intensity as greenhouse gas emissions continue to increase in the years to come and accumulate in the atmosphere, leading to rising surface temperatures and increased moisture content in the air. Attached is the PCLC comments on Feffer's response for which we have not received a response and we have asked third parties if these items in question meets the standard of care. We have tried to warn and set off alarm bells to Richard Weintraub and Jake Jesson also that there may be a life safety issue.

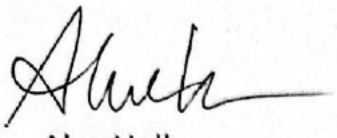
• Malibu LIP § 9.4(D) — requires development in hazardous areas to be designed to ensure *longterm stability over the economic life of the development [100 years]*. Analyses limited to short-term or static conditions do not satisfy this requirement. In our opinion the City is not able to make a finding based on the current information.

• 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*. We believe the unresolved landslide geometry and groundwater conditions prevent a determination by the City.

Concerned Citizens of Malibu Road, Inc

ALTERNATE PLAN MOVING BUILDING VOLUMES AWAY FROM RIDGE AND ADDING STABILIZATION PIERS OFFSITE WITH EASEMENTS

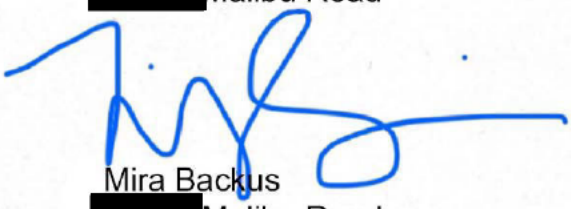




Alex Hall
[redacted] Malibu Road



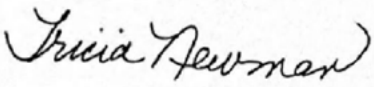
Beatta Skulski
[redacted] Malibu Road



Mira Backus
[redacted] Malibu Road



Jun Fujita Hall
[redacted] Malibu Road



Tricia Newman
[redacted] Malibu Road



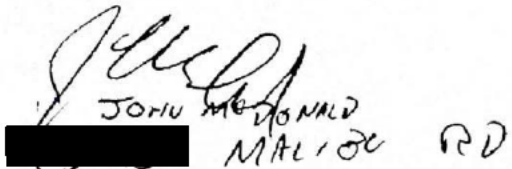
Christopher Backus
[redacted] Malibu Road



Alma Blilujus
[redacted] Malibu Road



Andrew Grombiner
[redacted] Malibu Road



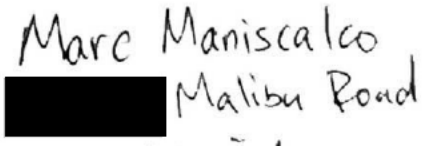
John McDonald
[redacted] Malibu Rd



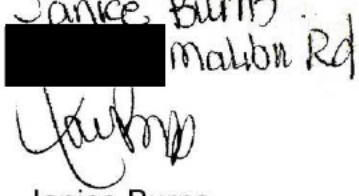
Sharone Karch
[redacted] Malibu Road



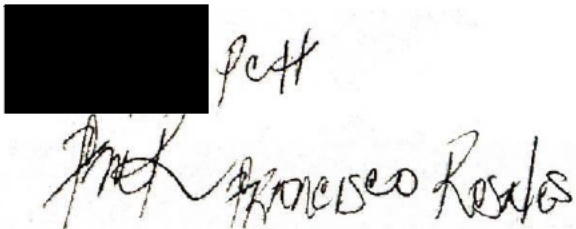
Annette Bator
[redacted] Malibu Road



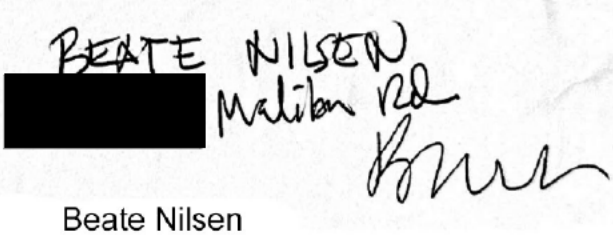
Mark Maniscalo
[redacted] Malibu Road



Janice Burns
[redacted] Malibu Road



Francisco Rosales
[redacted] Pacific Coast Highway



Beate Nilsen
[redacted] Malibu Road

Alan Martin.
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Alan Martin
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Alfreado Trento
[redacted] PCH Malibu

Alfredo Trento
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Graham Casden
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Graham Casden
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Amanda Goldberg
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Amanda Goldberg
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Charlotte Quinn
[redacted] Malibu Rd #3

Charlotte Quinn
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Mia Hall

Mia Hall
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[redacted] Malibu Rd Trust
[redacted] Malibu Rd

Goldberg Family [redacted] Malibu Road Trust
[redacted] Malibu Road

Robin Trento
[redacted] PCH. Malibu

Robin Trento
[redacted] Pacific Coast Highway

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

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Pacific Coast Land Consulting
Engineering Geologic Services

December 12, 2025

FN: 25200LS-25-100

Ralph K. Jeffery, CEG 1183
1525 Pepper Tree Place
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(760) 473-4117
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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.

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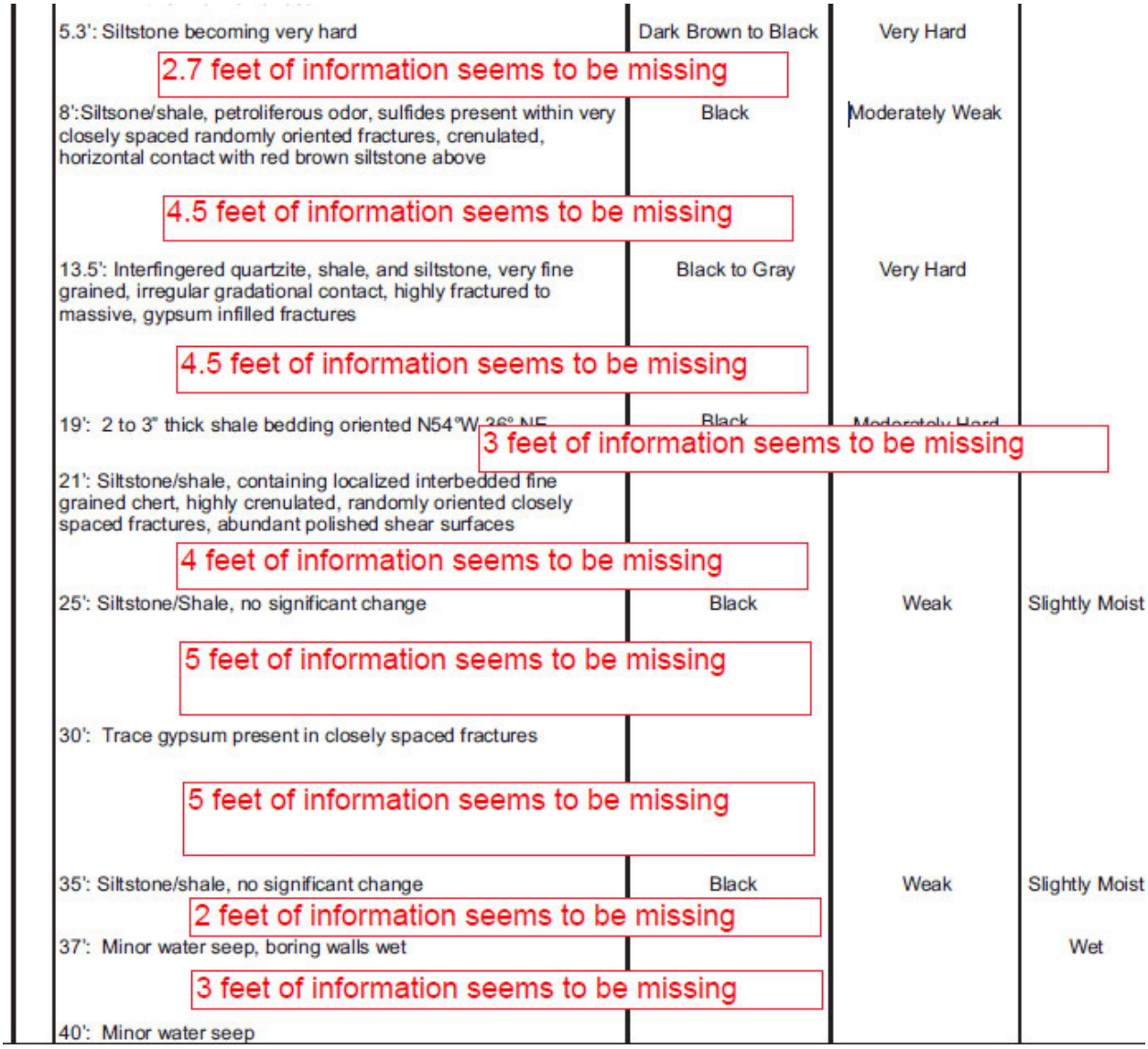

5.3': Siltstone becoming very hard	Dark Brown to Black	Very Hard	
2.7 feet of information seems to be missing			
8':Siltsone/shale, petroliferous odor, sulfides present within very closely spaced randomly oriented fractures, crenulated, horizontal contact with red brown siltstone above	Black	Moderately 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			

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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

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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	
				3 feet of information seems to be missing			
20	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

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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		(6-25-79)	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 54'
								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' by 6-25-79; standing H_2O @ 50' and

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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.

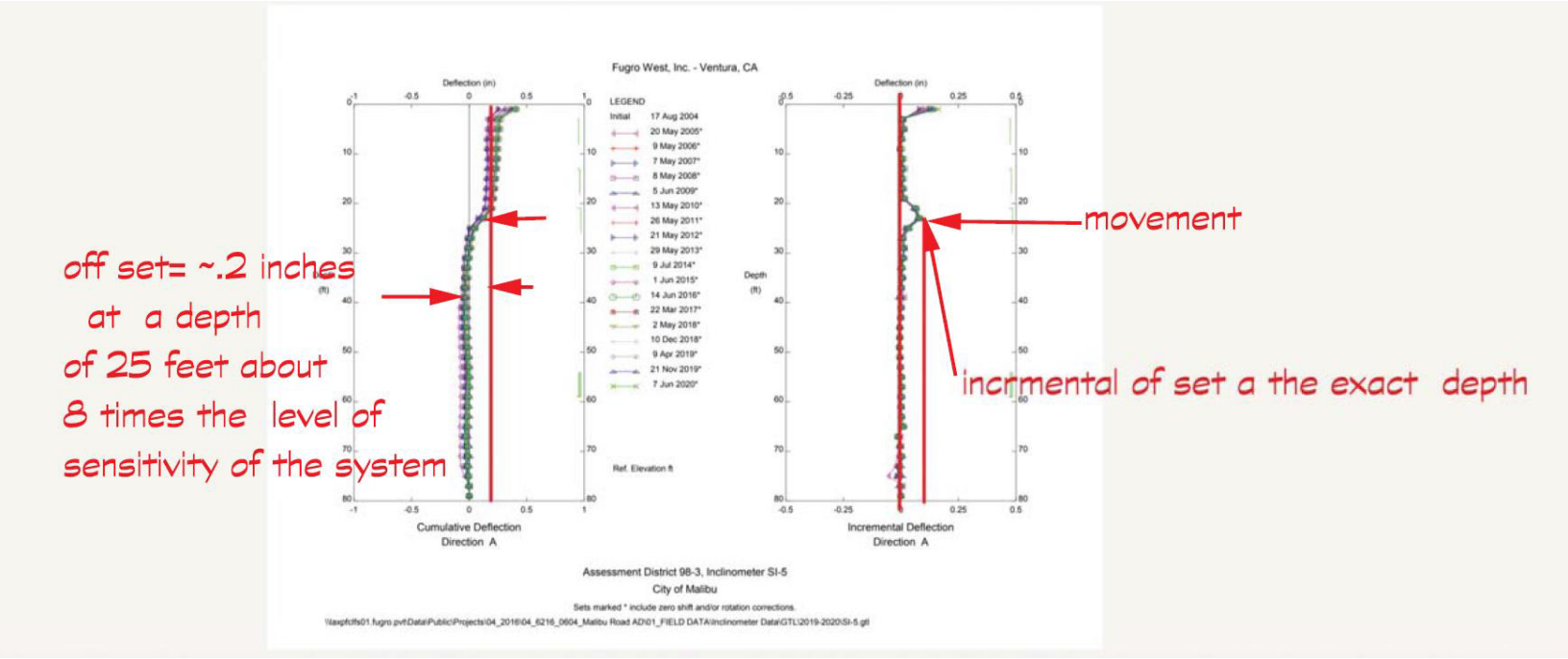
Feffer should address:

- 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.

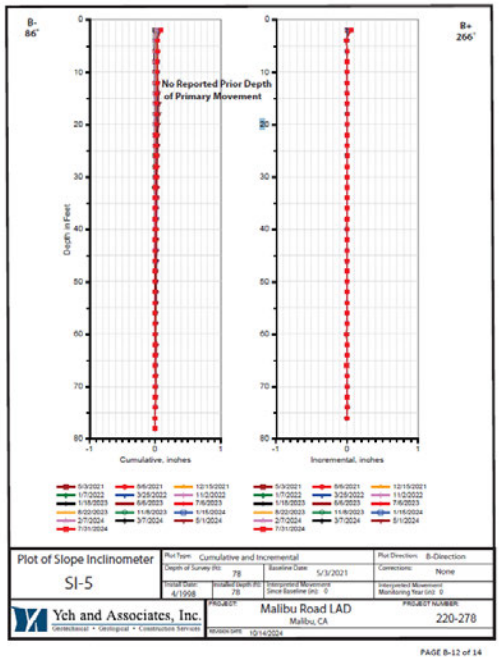
Inclinometers provide direct evidence of subsurface deformation. Movements as small as 0.1 inch over 100 feet are meaningful. Resetting baseline readings eliminates evidence of prior displacement and must be explicitly accounted for when interpreting results. The City should have Ye and Associates update 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

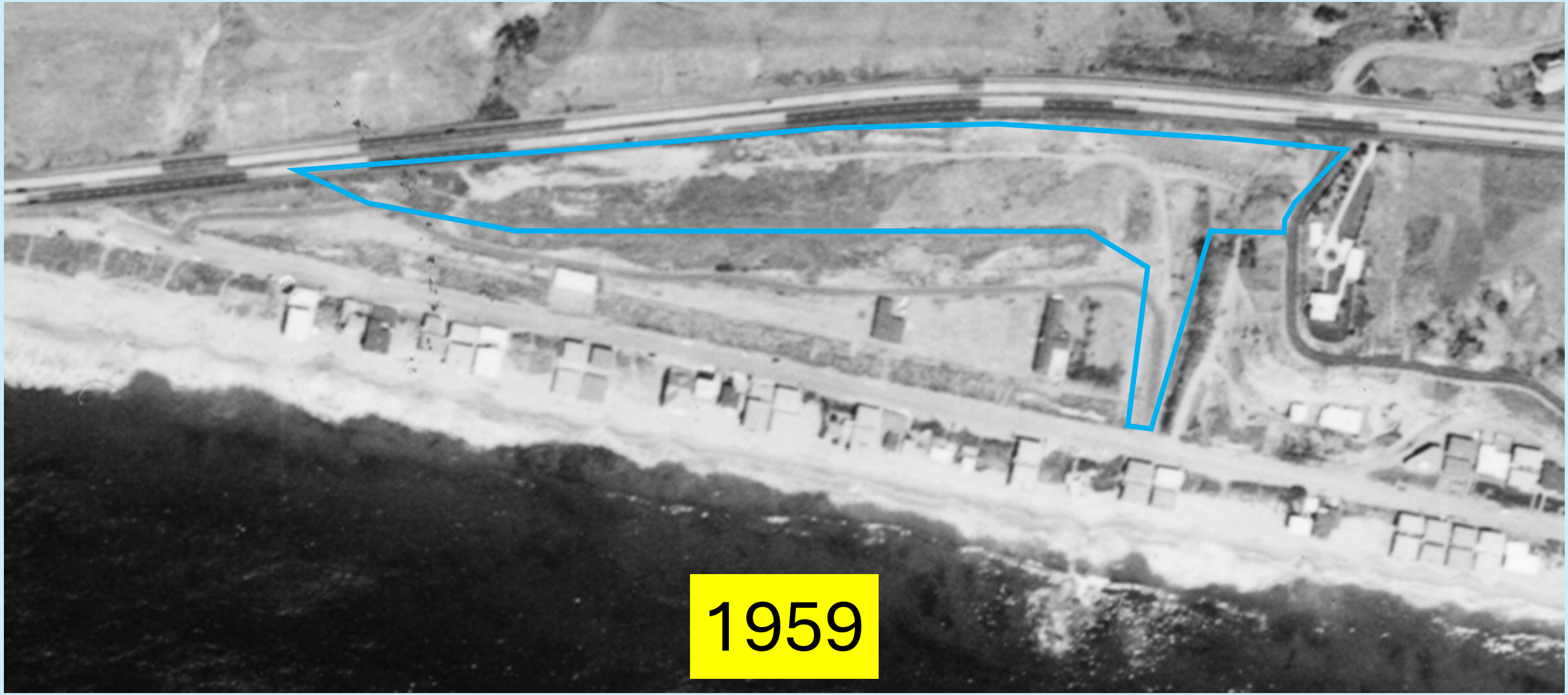
Item 5C - CDP 19-012 - 25200 Pacific Coast Hwy.



Presentation before the
Malibu Planning Commission
January 20, 2026

SCHMITZ & ASSOCIATES INC.

Property Historically Cleared



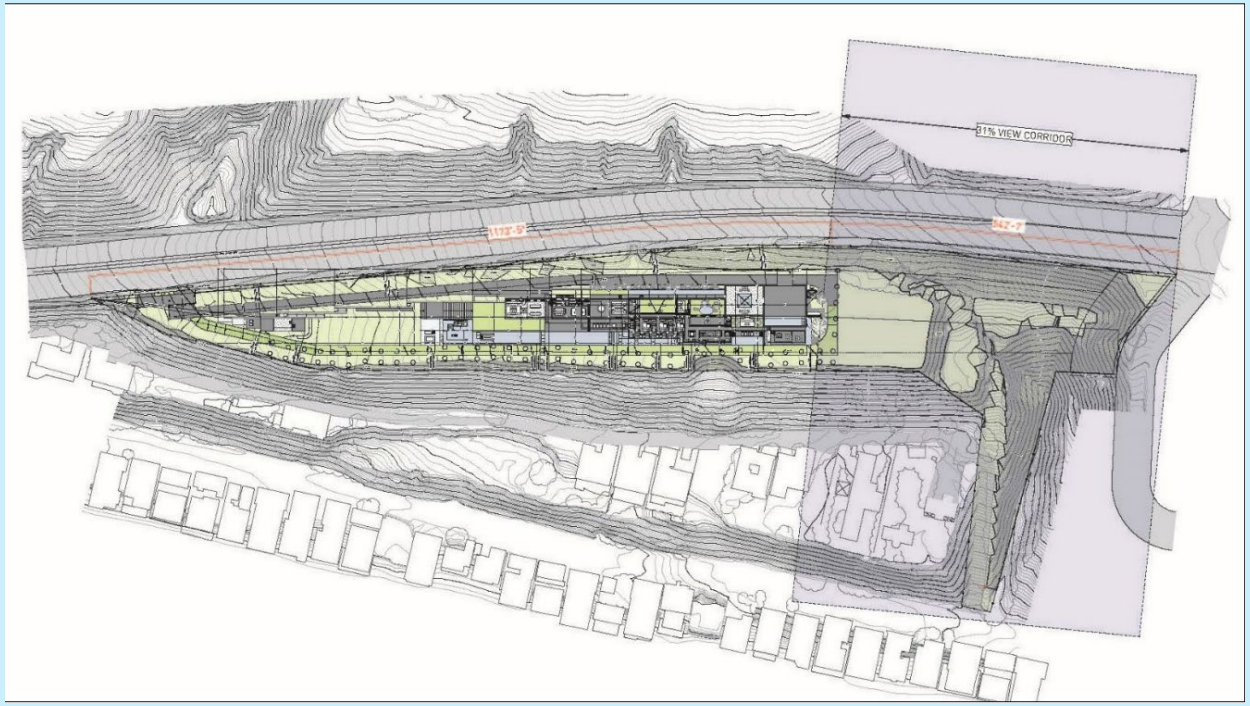
Property Historically Cleared



Proposed Project History

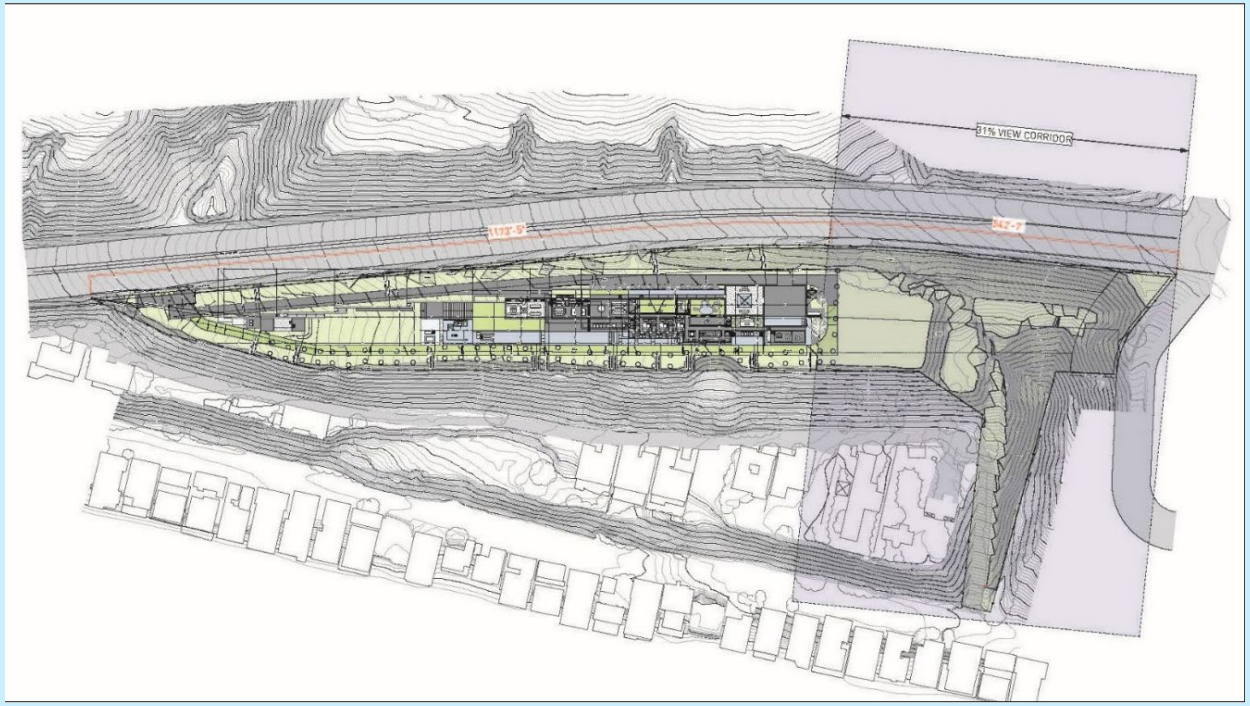
- CDP 19-012 Submitted **March 7, 2019,** for a new SFR with Basement/Garage, and a Guest House.
- Project Went Through Multiple Redesigns to Respond to Planning & Departmental Comments
- Project was to Appear at the May 20, 2024, Planning Commission Hearing. Item Postponed for Additional Reductions as Requested by Staff.
- Applicants Worked With Staff to Address Concerns before Returning to Hearing Tonight with a Recommendation of **Approval**.

Original CDP Application



- Project Originally Proposed an 18 Foot tall SFR and 15 Foot Tall Guest House
- Project Originally Contained Two Discretionary Requests:
- A Variance for Construction of Retaining Walls Over 6 Feet for the Fire Dept. Turnaround
- A Site Plan Review for Freestanding Walls Over 6 Feet

Revised CDP Application



Project revised in April 2025 to:

- Revised Retaining Wall from 8 Ft. to 6 ft. to Eliminate Variance
- Lower Freestanding Walls from 12 Ft. to 6 ft. to Eliminate Site Plan Review
- Lower Height of Outdoor Kitchen from 10.5’ to 9’
- Lower Height of Guest House from 12’9” to 11’9”

Constraints Map



Constraints Map



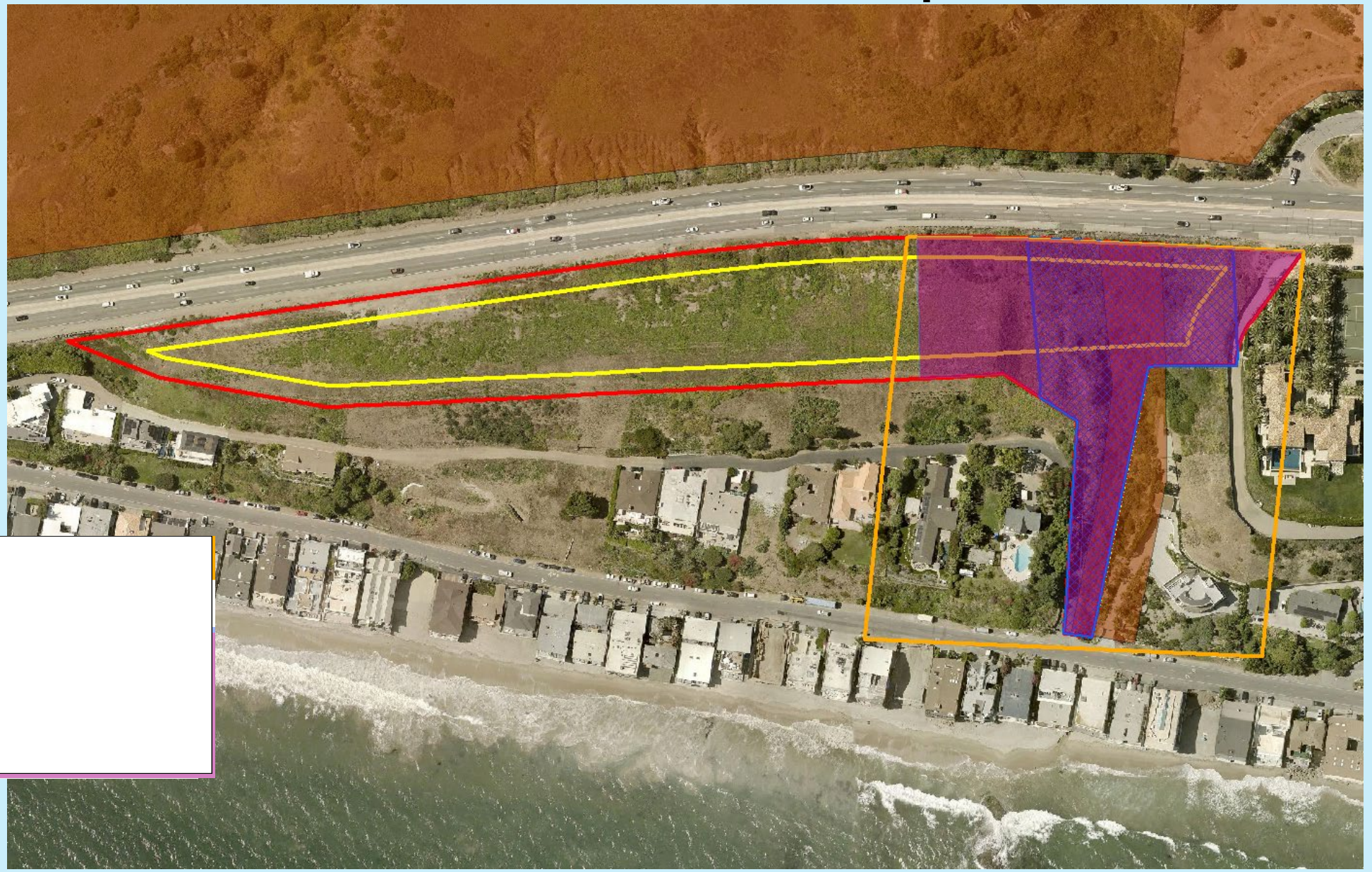
Constraints Map



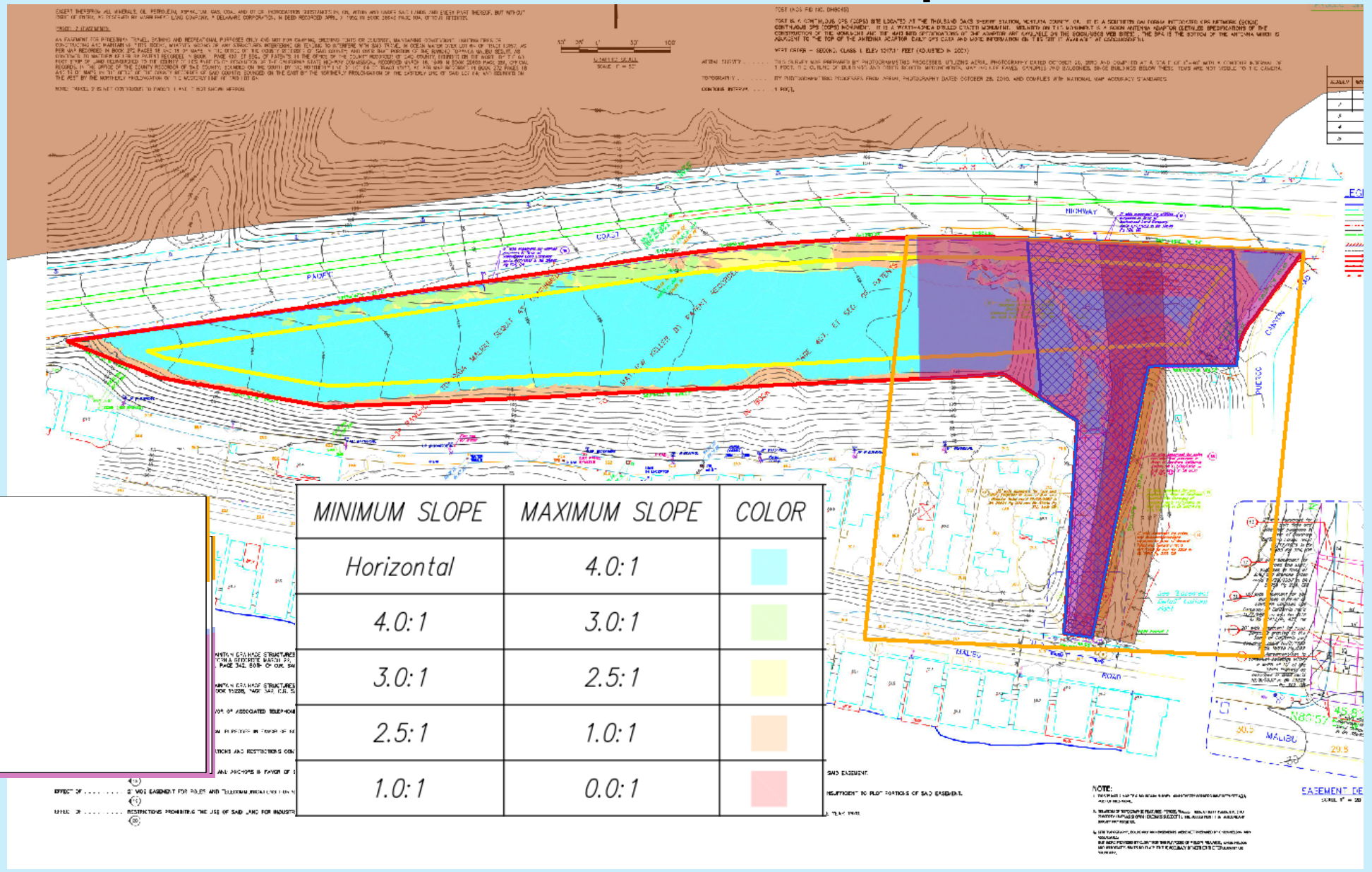
Constraints Map



Constraints Map

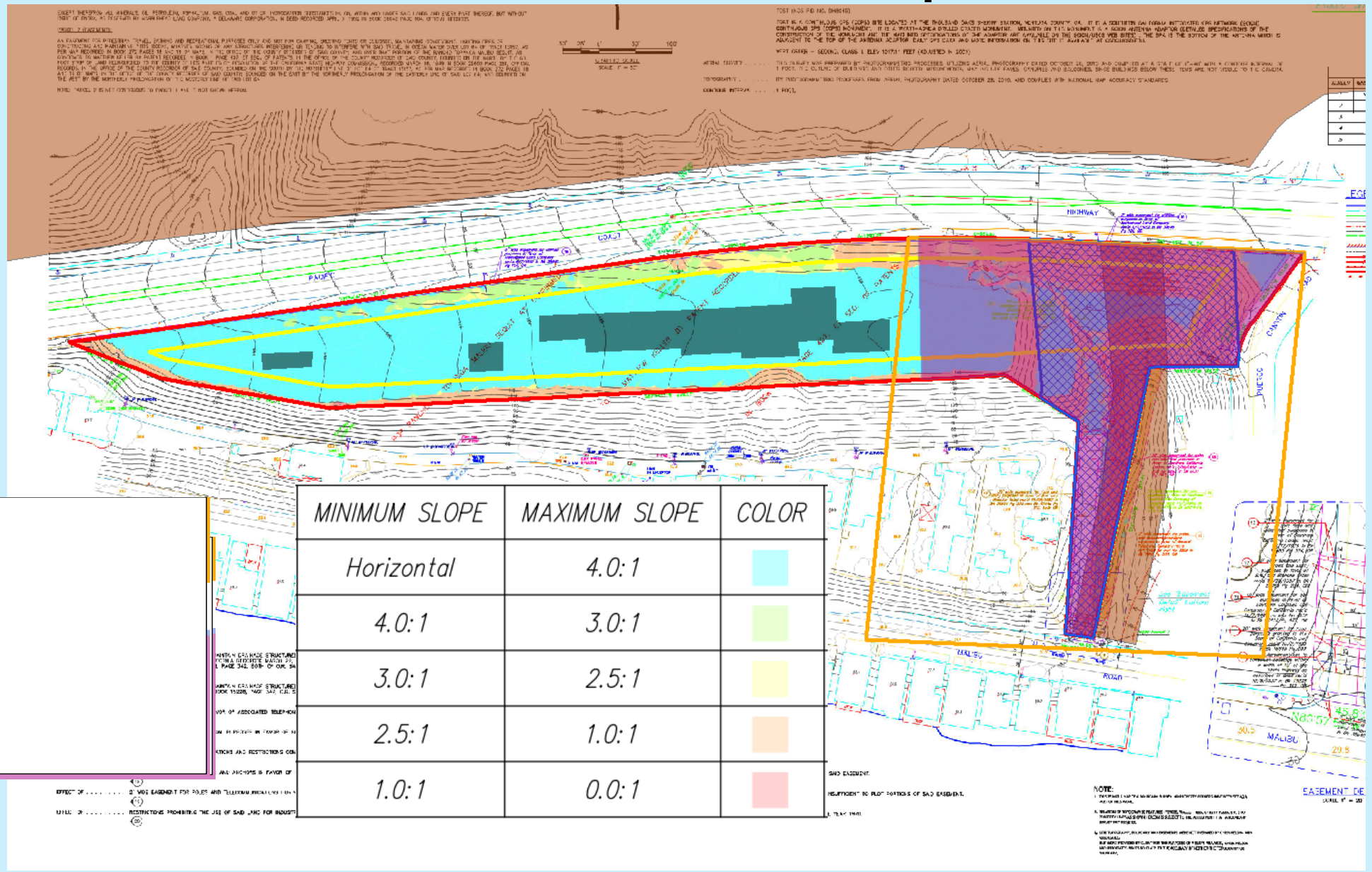


Constraints Map



MINIMUM SLOPE	MAXIMUM SLOPE	COLOR
Horizontal	4.0:1	
4.0:1	3.0:1	
3.0:1	2.5:1	
2.5:1	1.0:1	
1.0:1	0.0:1	

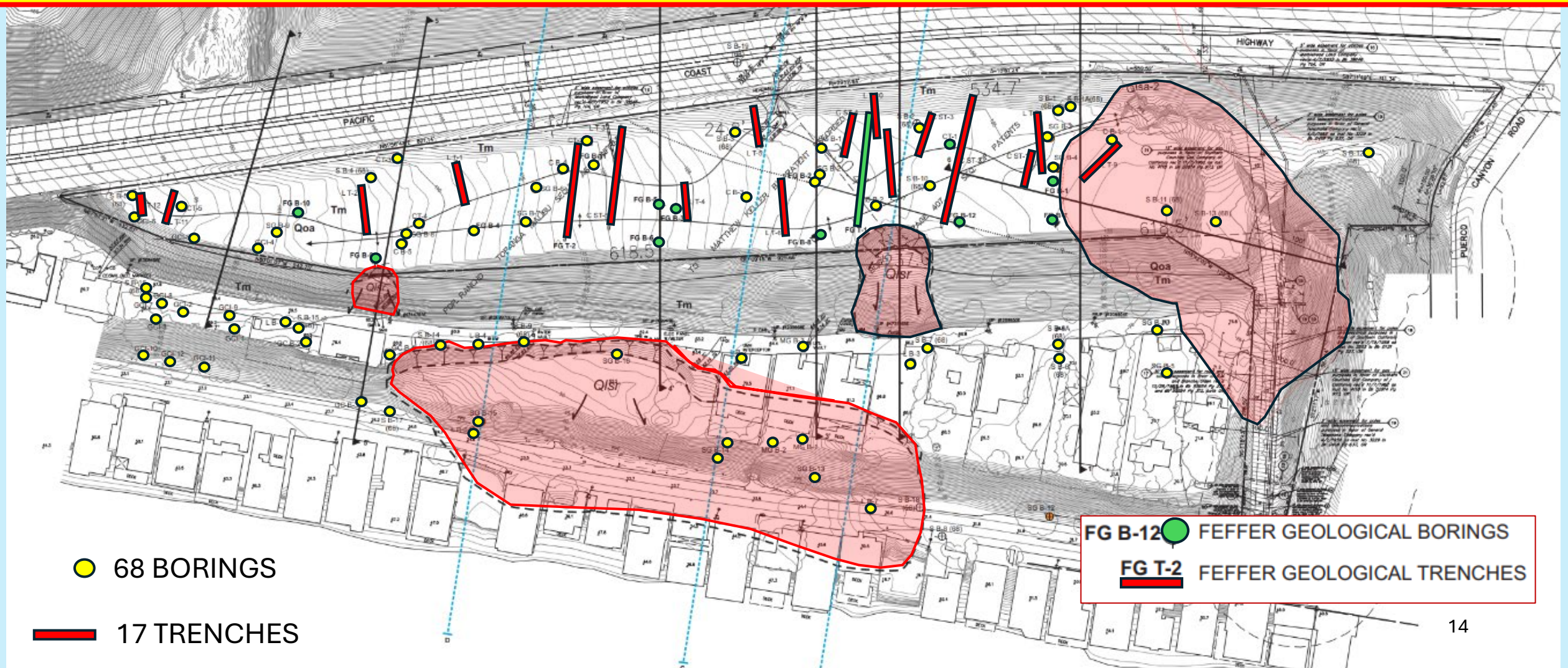
Constraints Map



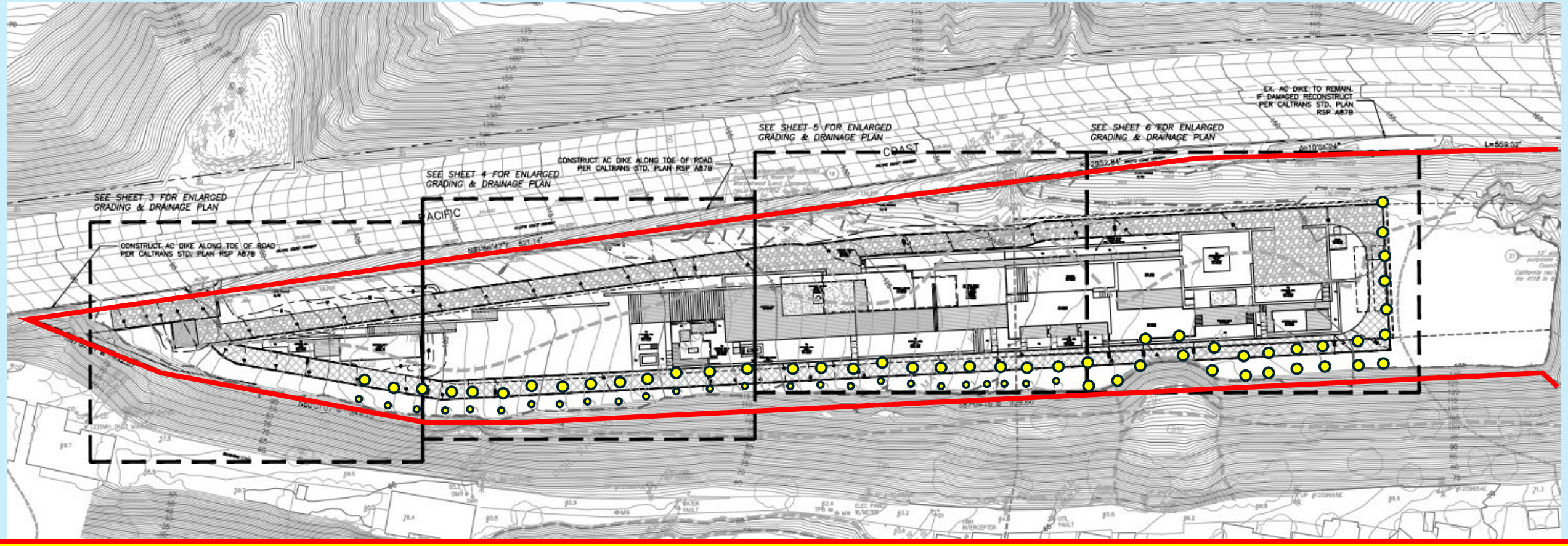
MINIMUM SLOPE	MAXIMUM SLOPE	COLOR
Horizontal	4.0:1	
4.0:1	3.0:1	
3.0:1	2.5:1	
2.5:1	1.0:1	
1.0:1	0.0:1	

25200 PCH Geology Map

HAVE CONDUCTED HALF MILLION DOLLARS WORTH OF INVESTIGATIONS

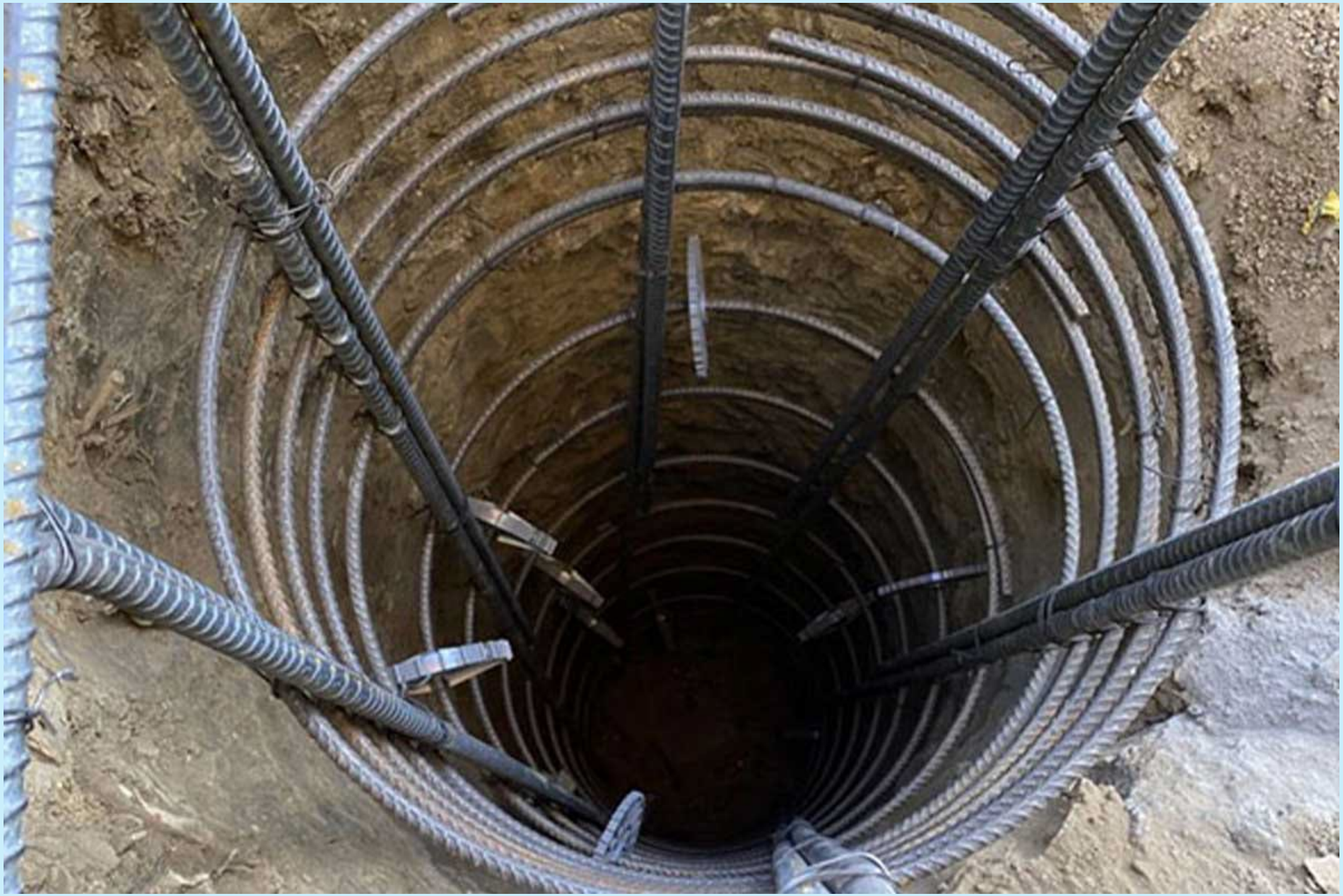


77 Caissons With Tiebacks



<u>Proposed Caissons Will Stabilize Building Site, Hillside to Bayshore Drive, and Pacific Coast Highway</u>

$10 Million Worth of Caissons



$10 Million Worth of Caissons



Geology Findings Are Made

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

C. Hazards (LIP Chapter 9)

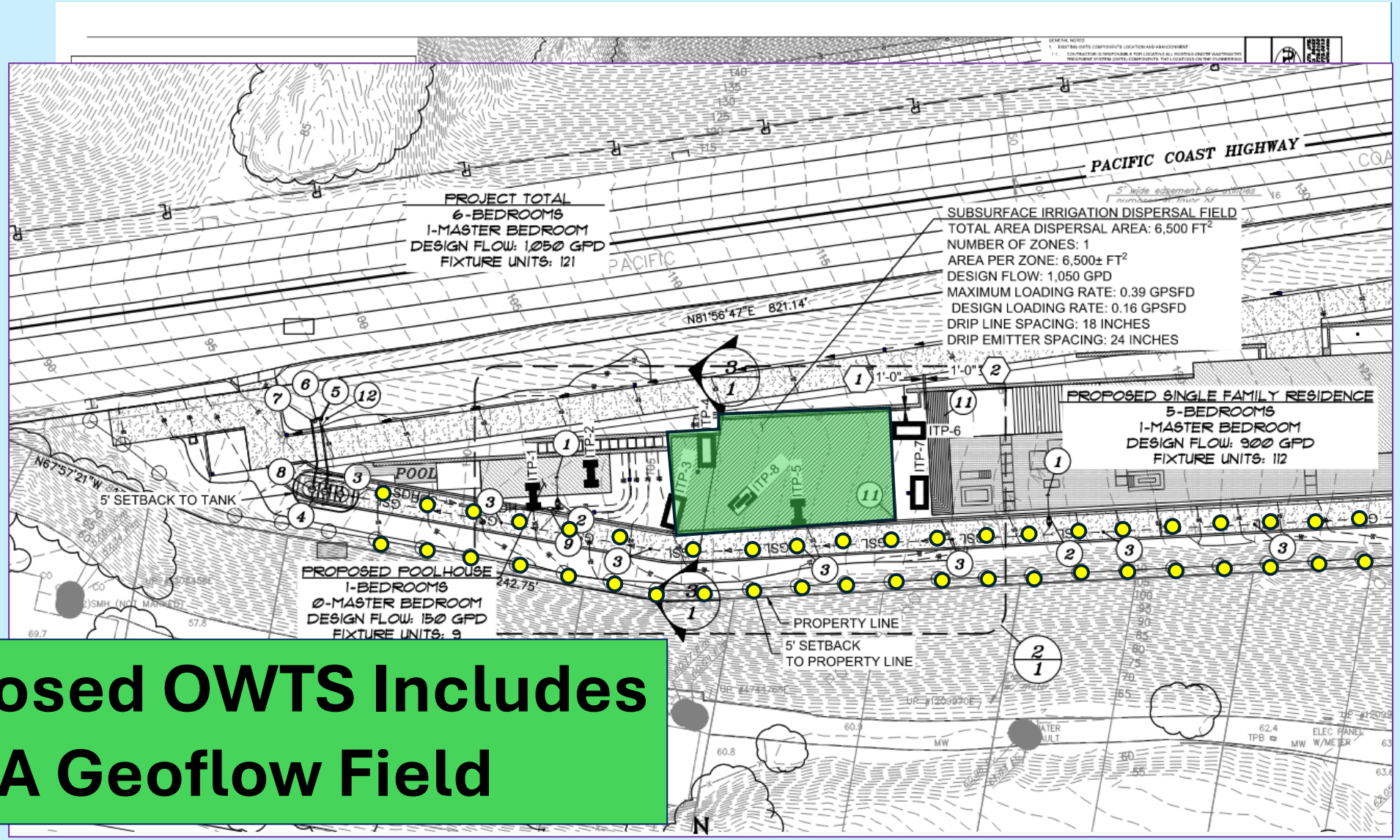
1. Based on review of the project plans and associated project geotechnical and other reports by the City geotechnical consultant reviewers, LACFD, City Environmental Health Administrator, and Public Works Department, these specialists determined that adverse impacts to the project site related to the 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.

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.

EXHIBIT 1

OWTS Located Outside of Landslides, Sited Behind Caissons, & *Microdoses* Effluent to Maximize Site Stability



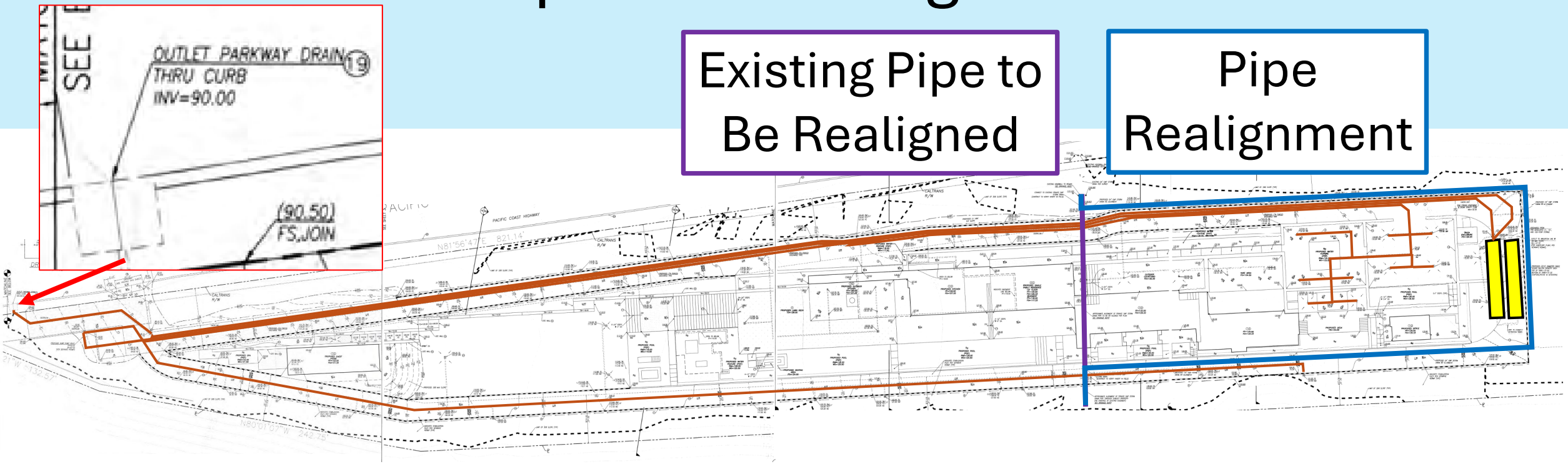
Proposed OWTS Includes A Geoflow Field

The proposed OWTS utilizes a subsurface drip dispersal system to Maximize Evapotranspiration





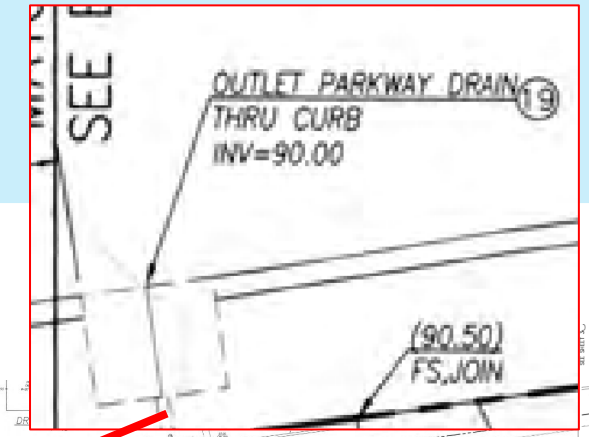
Proposed Drainage Plan

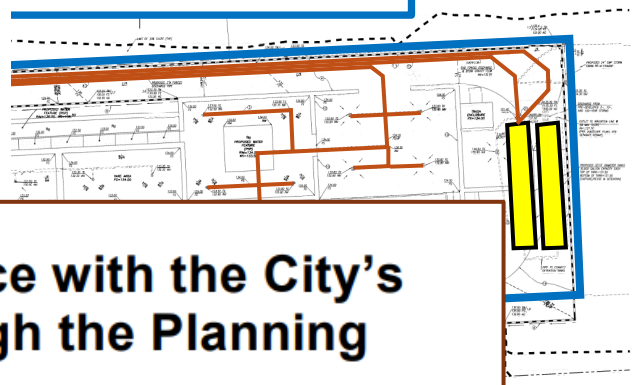


Revised Drainage Plan Discharges to PCH

Pr

Pipe
alignment





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

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

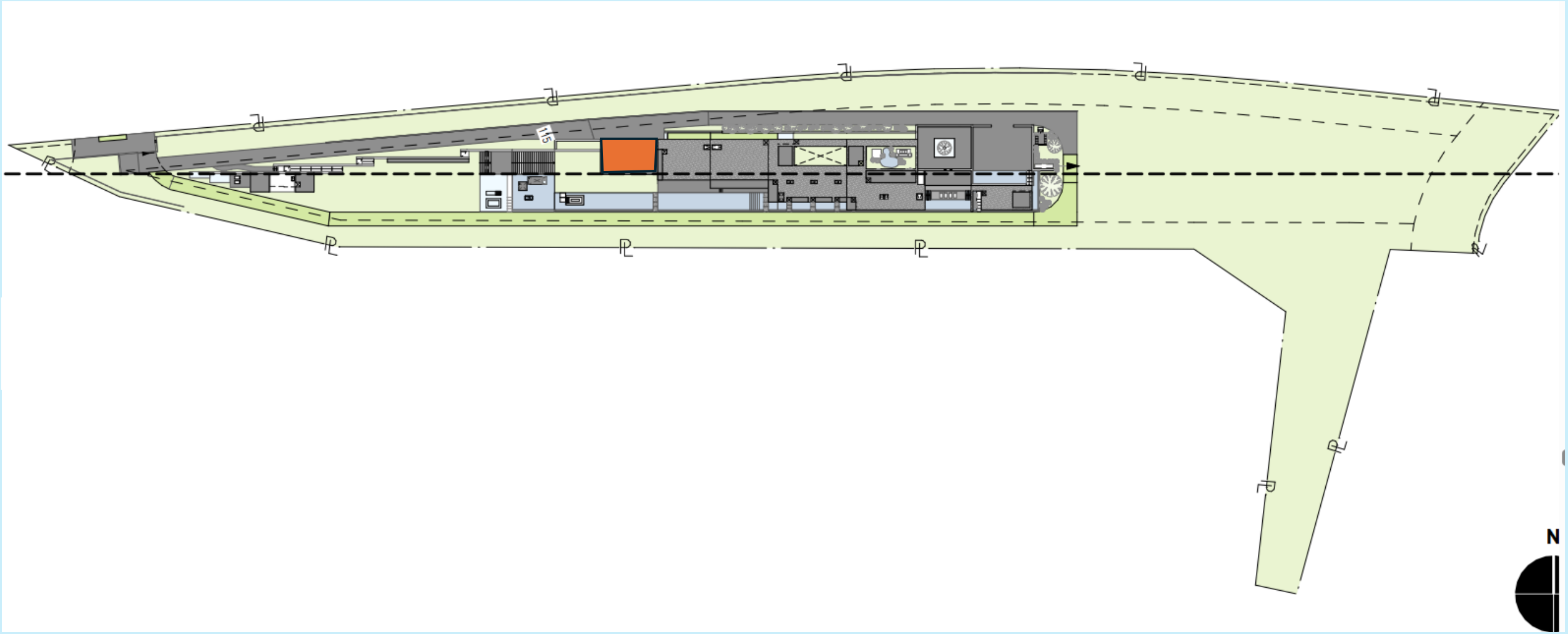
SIGNATURE

10/28/2025
DATE

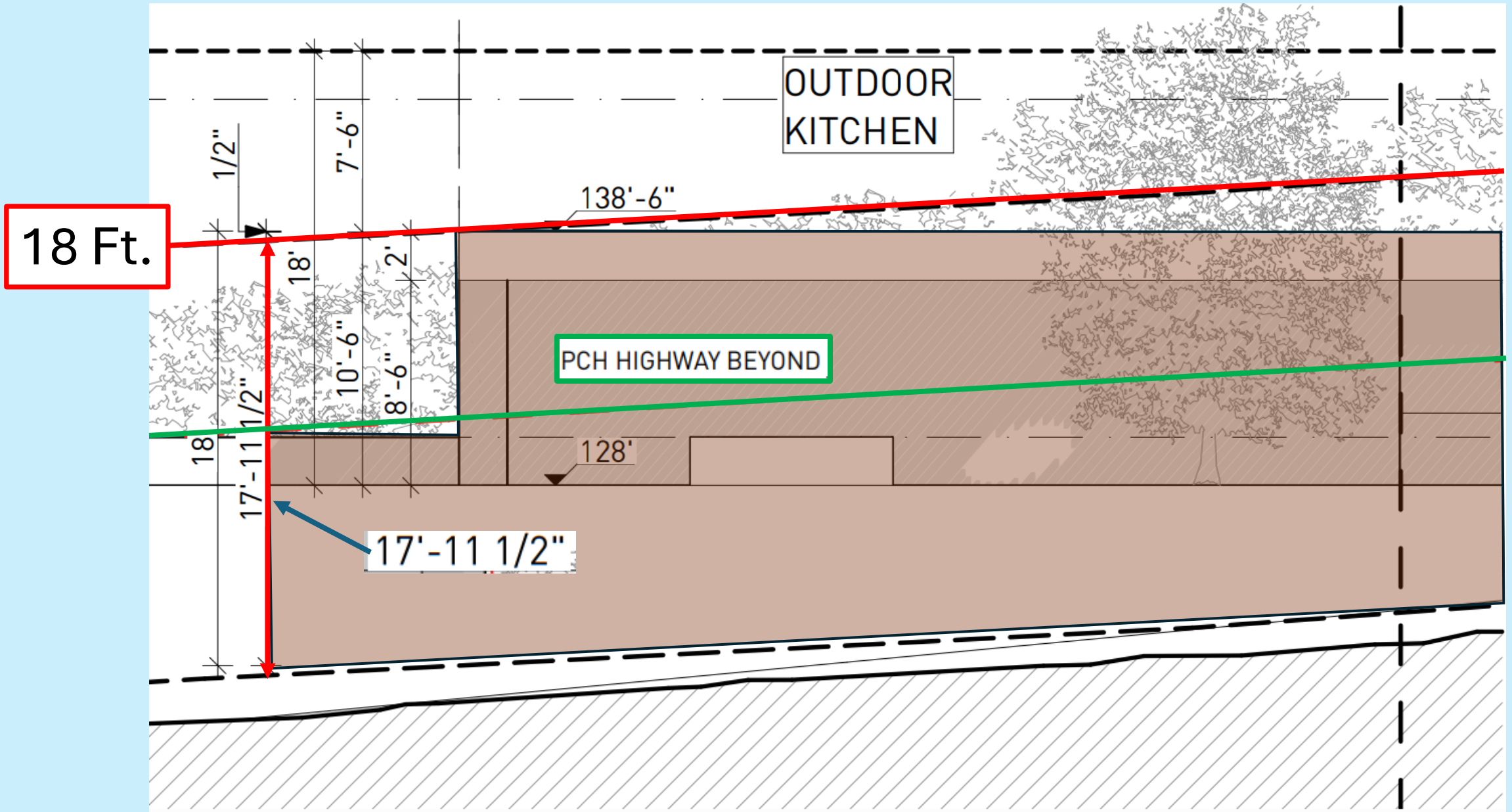
Rev 120910

ATTACHMENT C

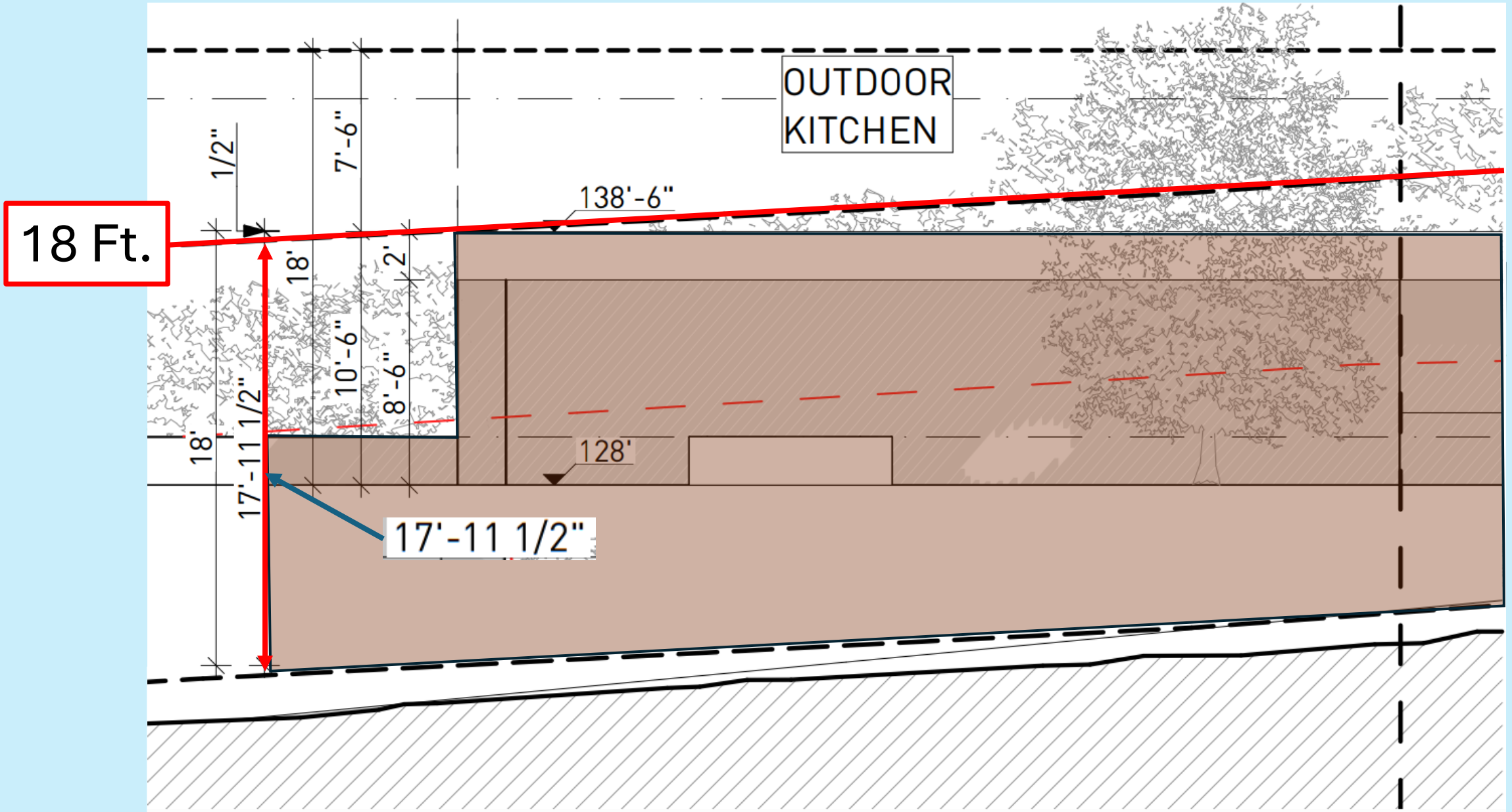
Proposed Outdoor Kitchen



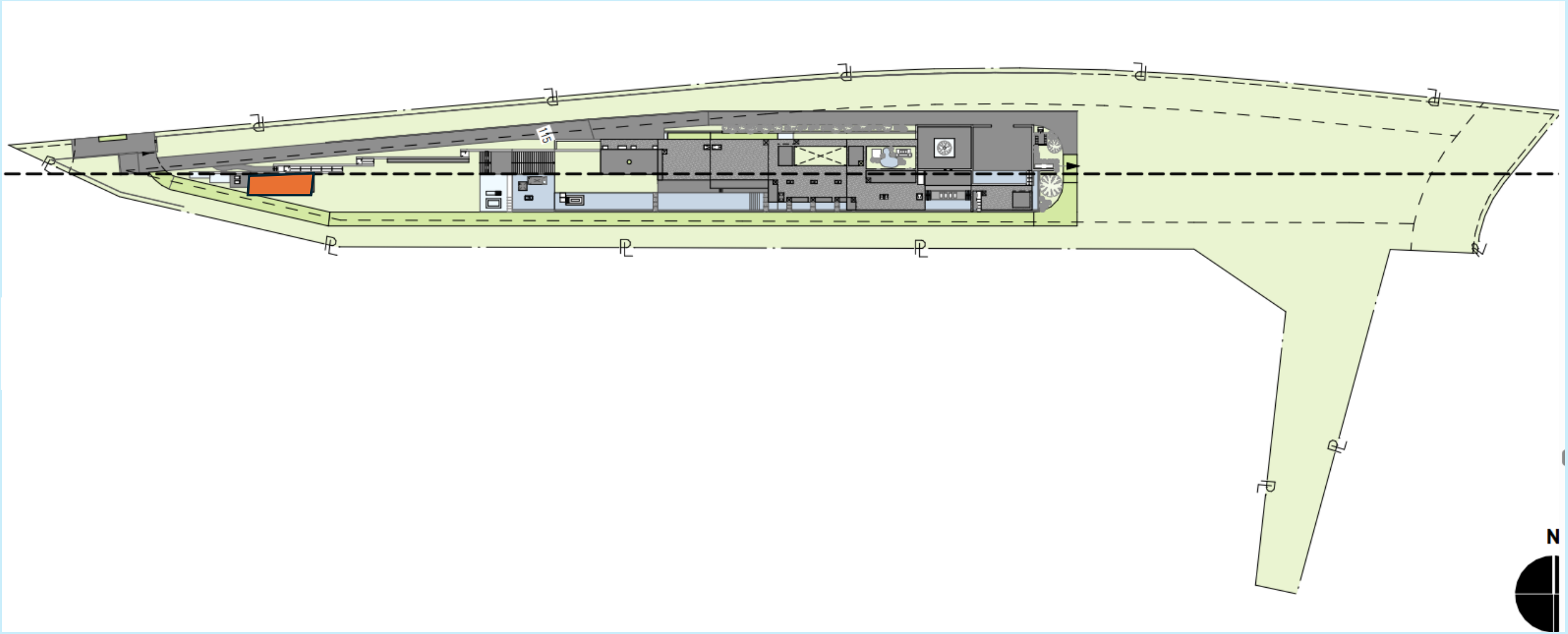
Outdoor Kitchen Originally 17ft., 11 in. Tall



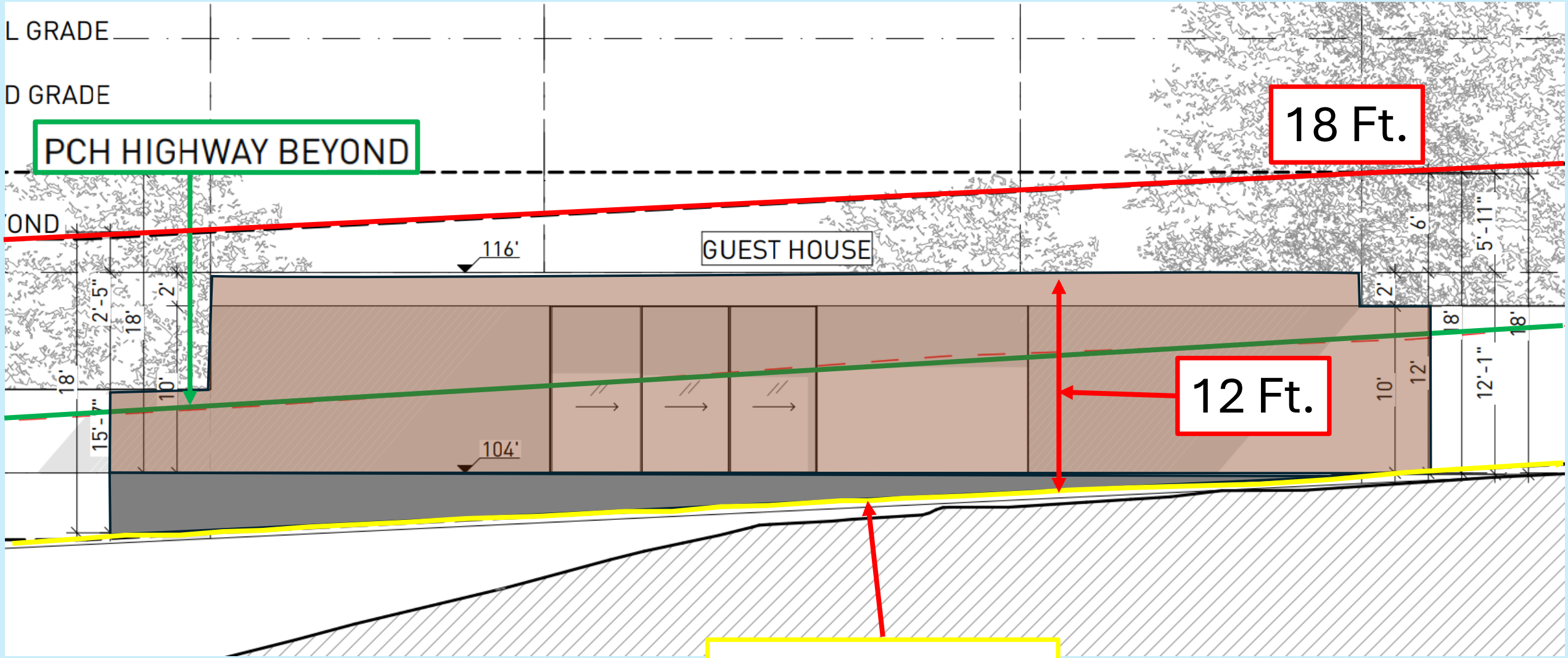
Outdoor Kitchen Reduced to 16ft., 5.5 in. Tall



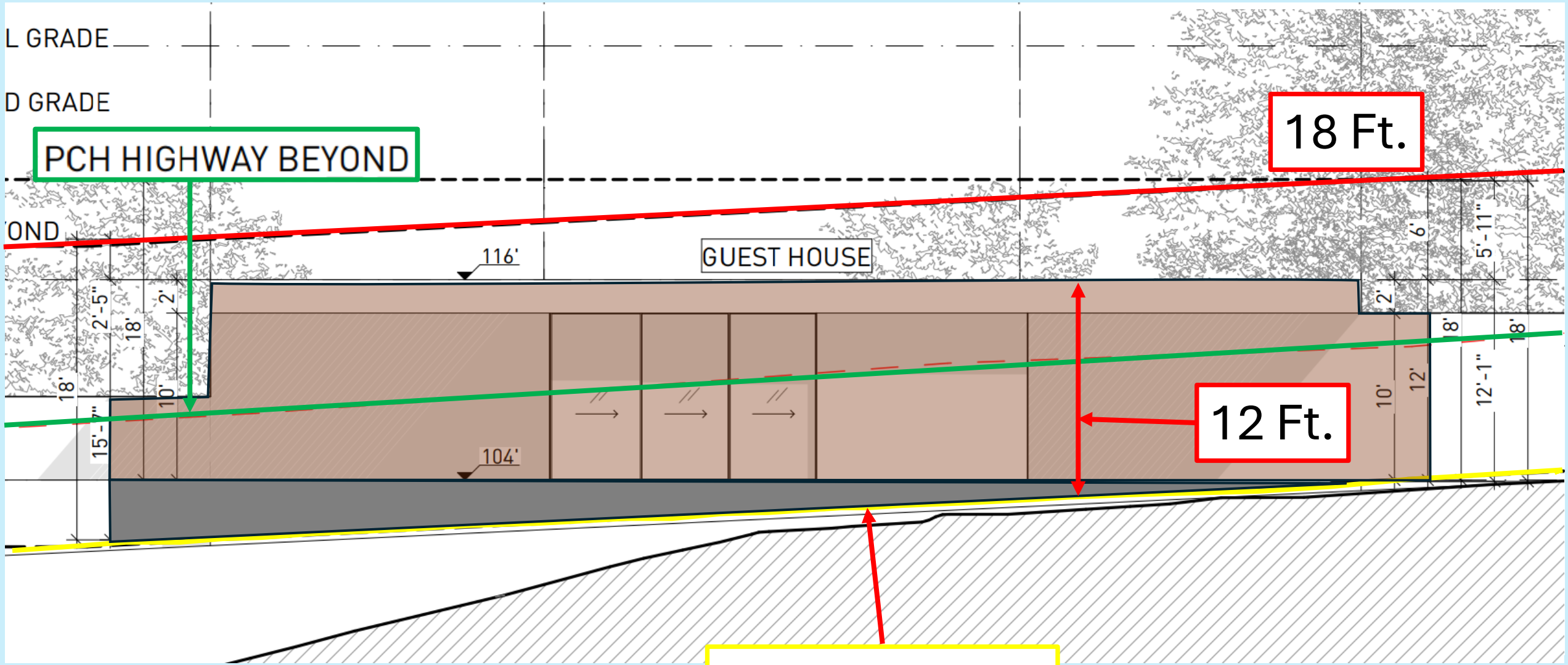
Proposed Guest House



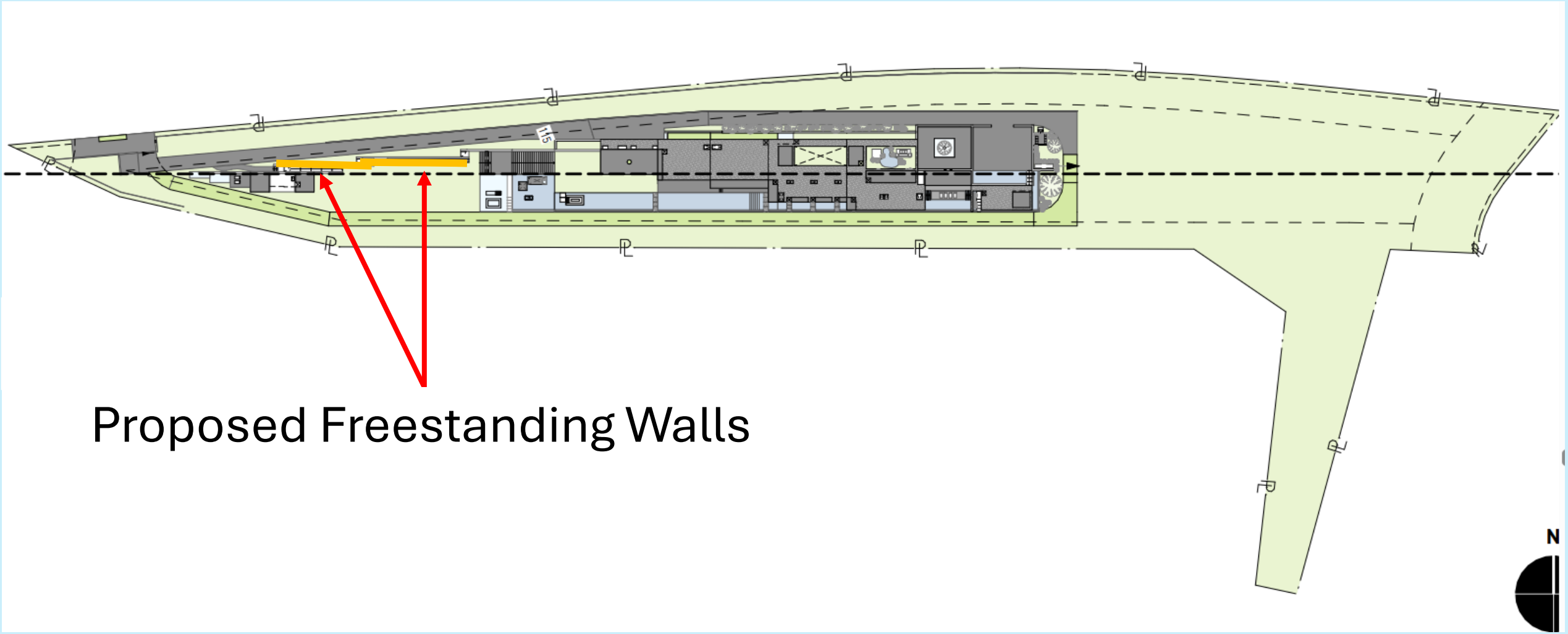
Guest House Height Originally 12 Feet



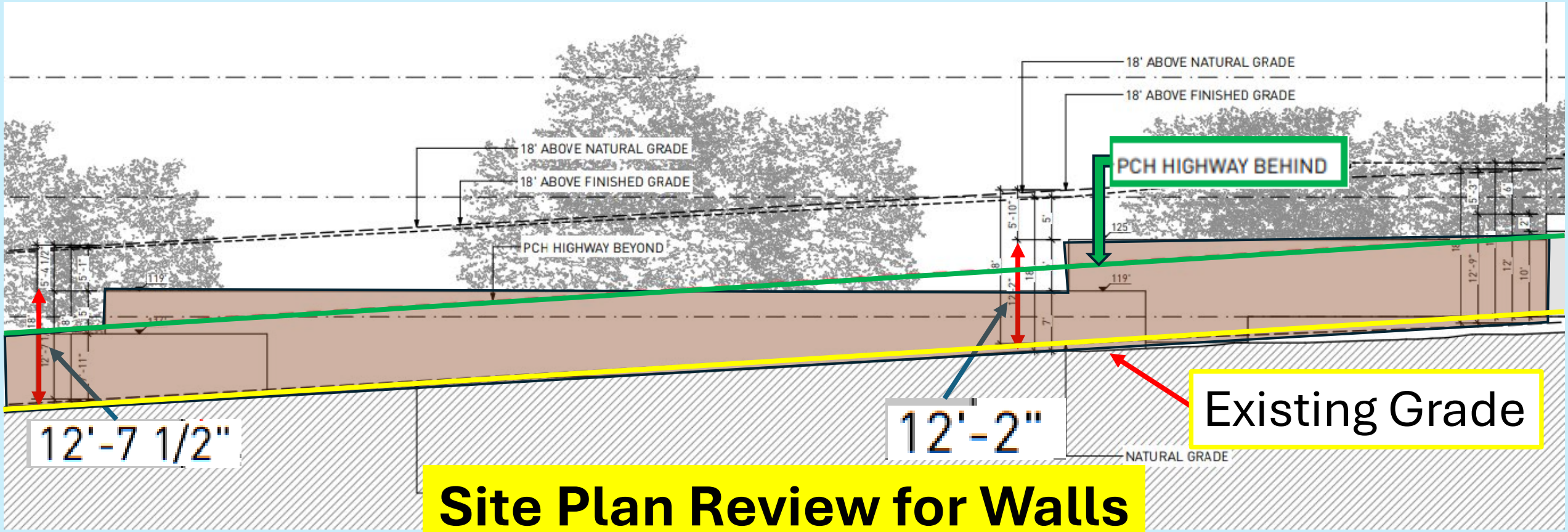
Guest House Height Originally 12 Feet



Proposed Freestanding Walls

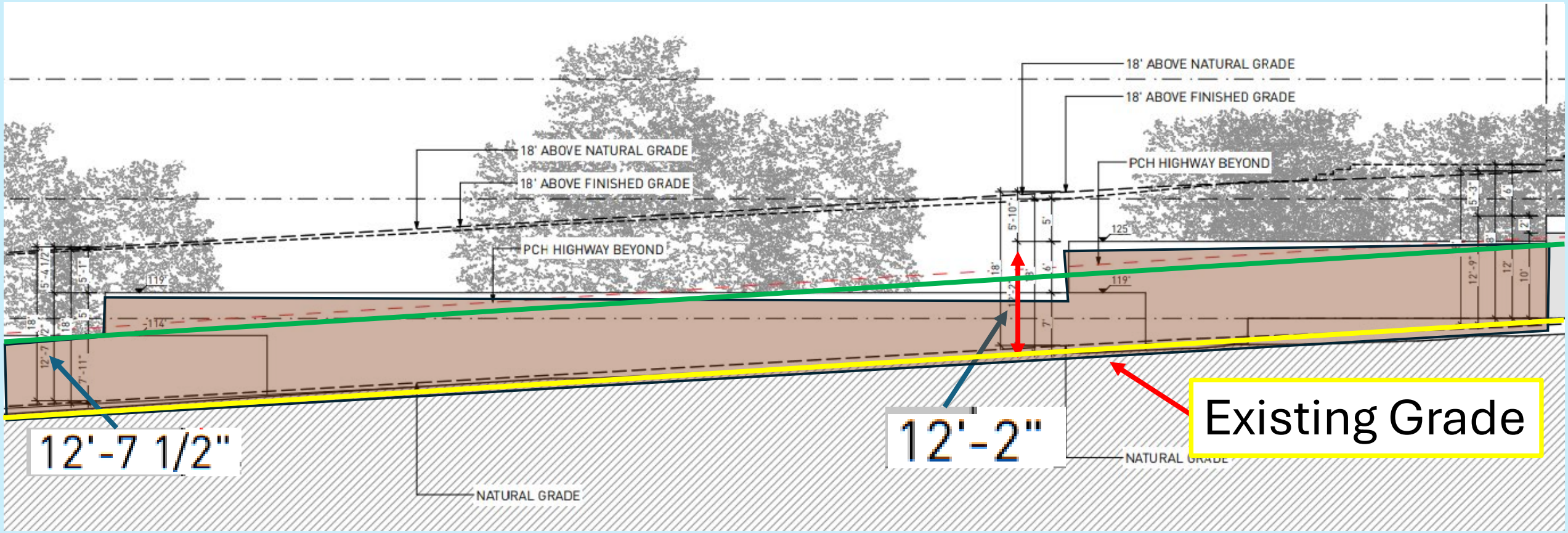


Freestanding Walls Originally 12 Ft. Tall



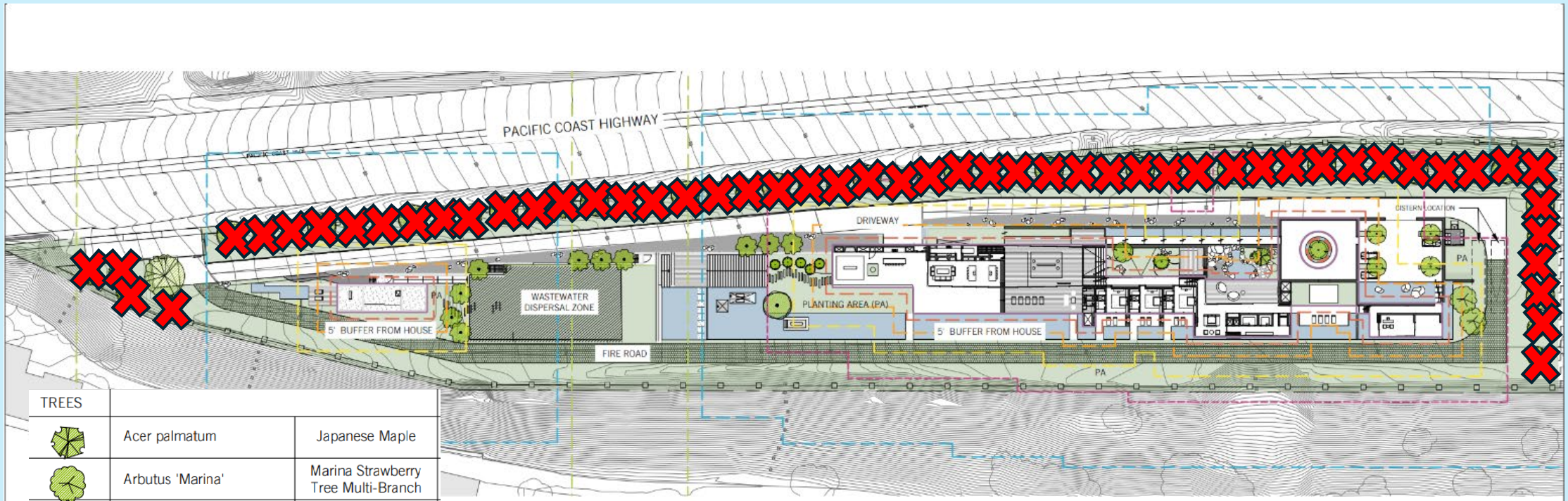
Site Plan Review for Walls Taller Than 6 Ft. Was Part Of Original Application

Freestanding Wall Height Reduced to 6 Feet



Site Plan Review Elminated After Revision

Landscaping Plan Revised to Reduce Vegetation Heights



TREES		
	Acer palmatum	Japanese Maple
	Arbutus 'Marina'	Marina Strawberry Tree Multi-Branch
	Dracaena draco	Dragon Tree
	Dwarf Citrus	-
	Melaleuca nesophila	Pink Melaleuca
	Olea europaea 'Majestic Beauty'	Olive Tree
	Olea europaea 'Majestic Beauty'- field grown	Olive Tree
	Plumeria rubra 'White'	Plumeria
	Quercus agrifolia	Coast Live Oak
	Ulmus parvifolia	Chinese Elm

WUCOLS	ORIGIN	50' ZONE	FUEL ZONE
MOD	NON NATIVE	INSIDE	A
LOW	NON NATIVE	INSIDE	B
V LOW	NON NATIVE	INSIDE	A
MOD	NON NATIVE	INSIDE	A-10
LOW	NON NATIVE	OUTSIDE	A-10
LOW	NON NATIVE	OUTSIDE	A-15
LOW	NON NATIVE	OUTSIDE	A-15
LOW	NON NATIVE	INSIDE	A
V LOW	NATIVE	OUTSIDE	B-30

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'

Condition Added to Address Landscape Heights

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

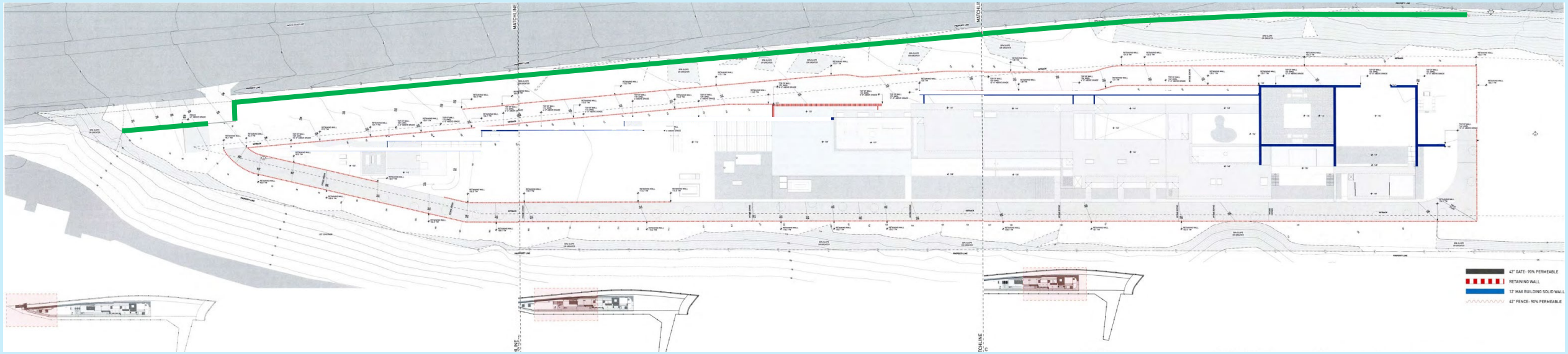
Reviewed by: Joseph Smith, AICP, Contract Principal Planner

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

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.

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).

Proposed Fencing Along PCH is 90% Visually Permeable



42" GATE- 90% PERMEABLE

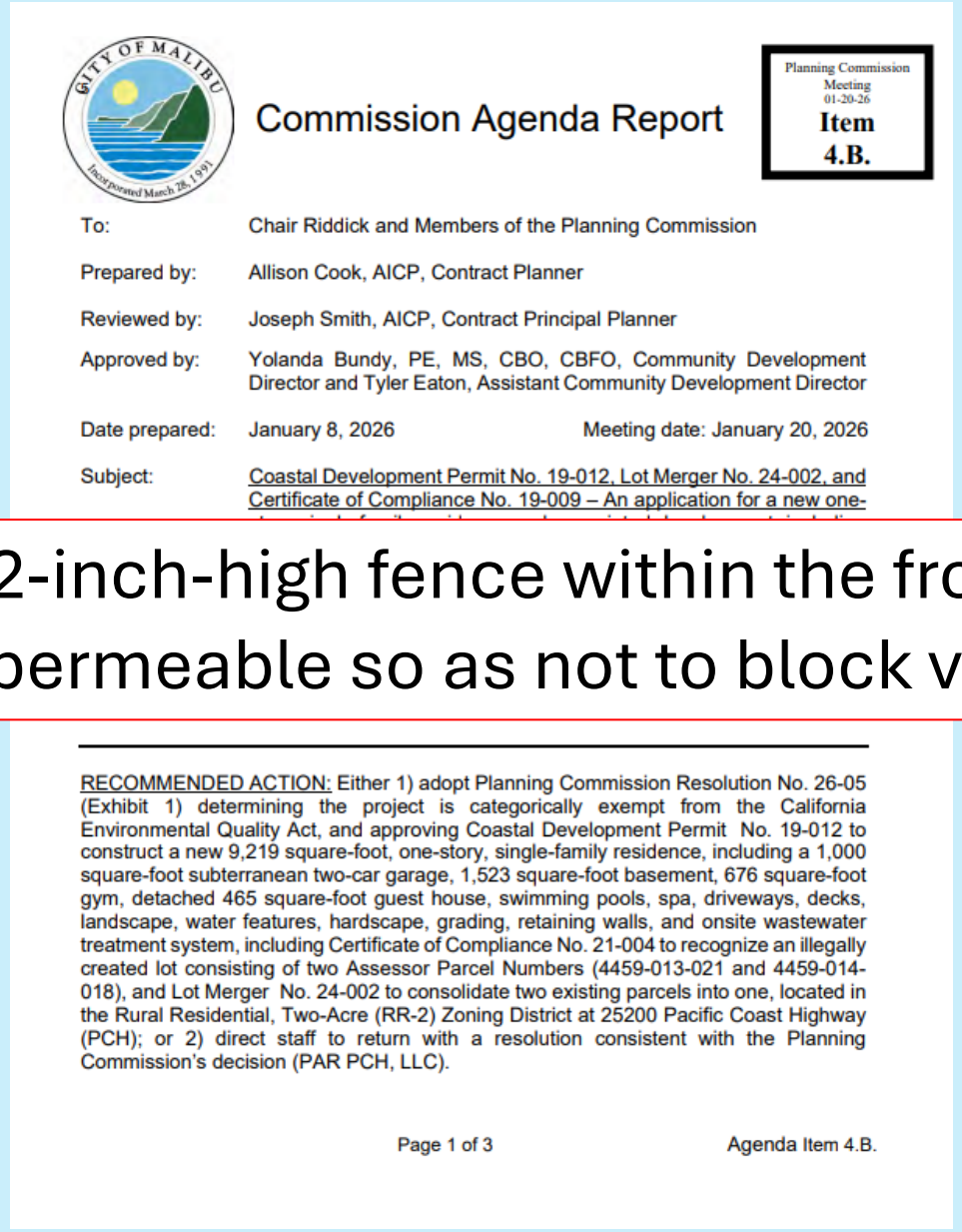
RETAINING WALL

12' MAX BUILDING SOLID WALL

42" FENCE- 90% PERMEABLE

6'-0" SITE RETAINING WALL. REFER TO STRUCTURAL AND LANDSCAPE DWGS.
PEDESTRIAN GATE DOOR. PROVIDE SHOP DWGS. FOR ARCHITECT REVIEW.
42" MOTORIZED VEHICULAR SLIDING ENTRY GATE. STEEL FRAME. 90% VISUALLY PERMEABLE
42" PERIMETER FENCE. 90% VISUALLY PERMEABLE

Fence Visually Permeable to Not Block Ocean Views



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

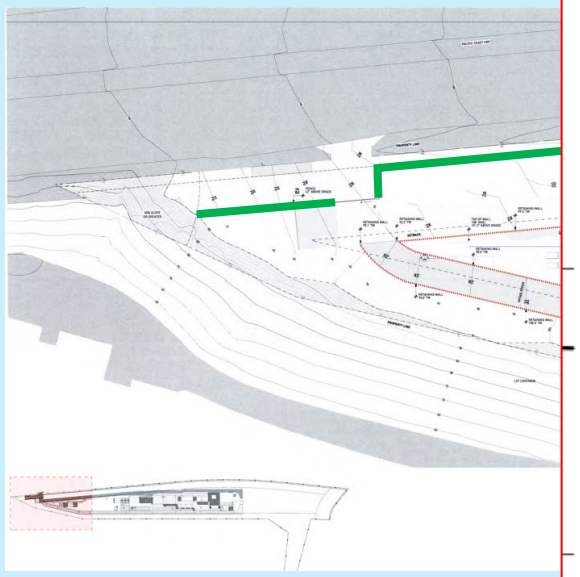
Subject: Coastal Development Permit No. 19-012, Lot Merger No. 24-002, and Certificate of Compliance No. 19-009 – An application for a new one-

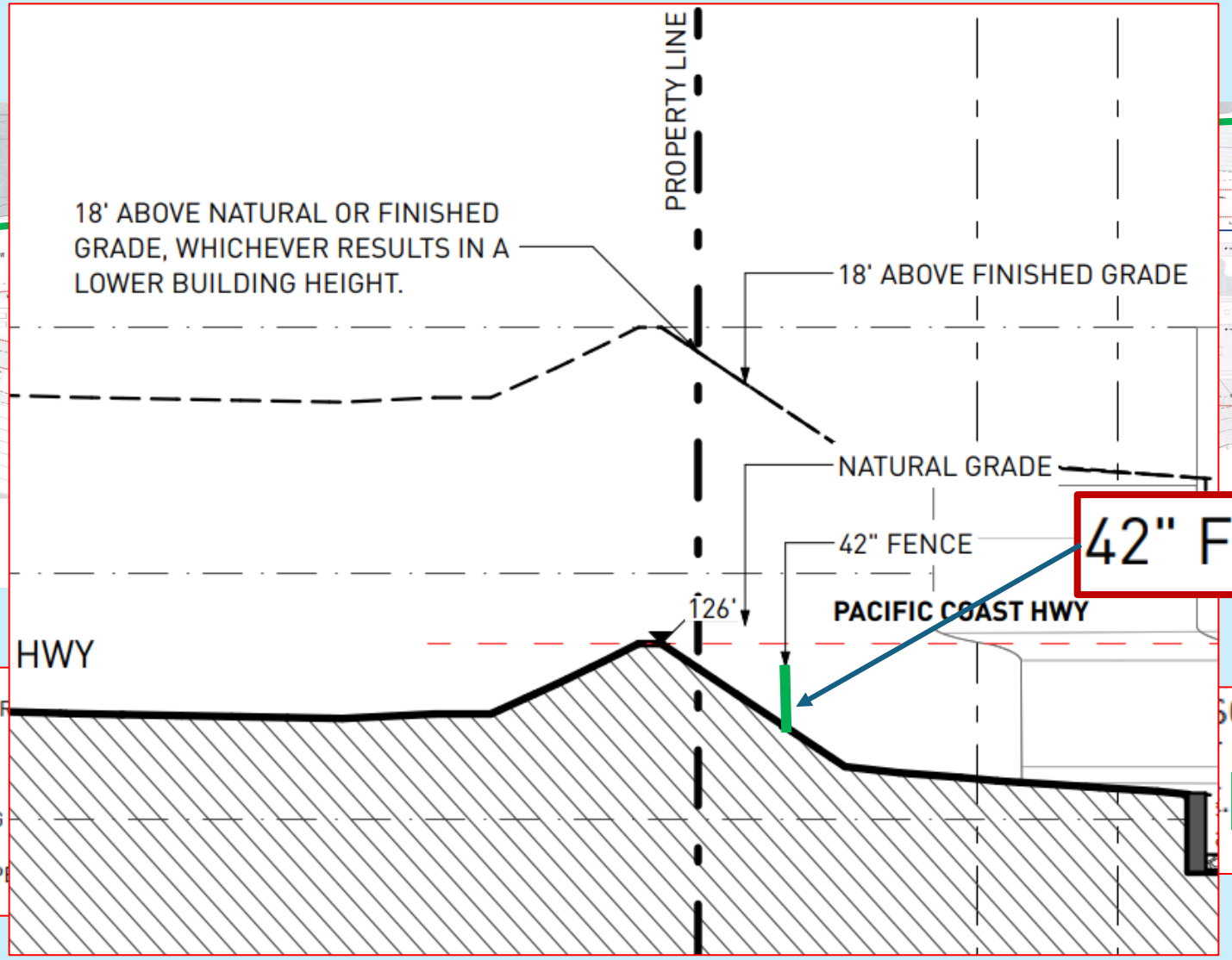
The proposed 42-inch-high fence within the front yard setback would be visually permeable so as not to block views to the ocean.

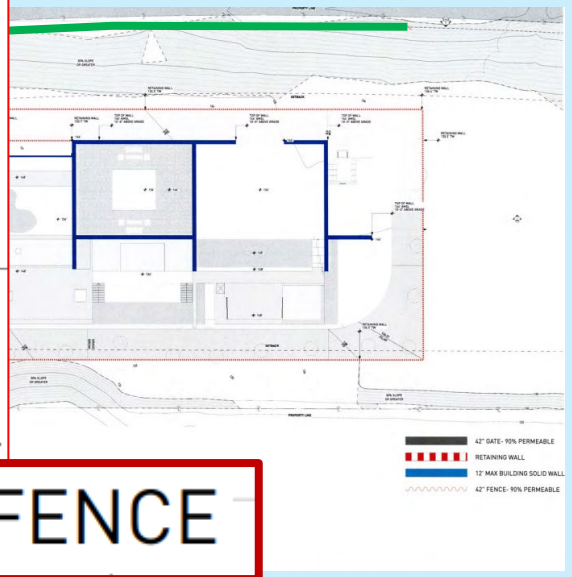
RECOMMENDED ACTION: Either 1) adopt Planning Commission Resolution No. 26-05 (Exhibit 1) determining the project is categorically exempt from the California Environmental Quality Act, and approving Coastal Development Permit No. 19-012 to construct a new 9,219 square-foot, one-story, single-family residence, 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).

Page 1 of 3 Agenda Item 4.B.

Proposed Fencing Along PCH is 90% Visually Permeable







42" FENCE

42" GATE- 90% PER

RETAINING WALL

12' MAX BUILDING

42" FENCE- 90% PE

SCAPE DWGS.

REVIEW.

90% VISUALLY PERMEABLE

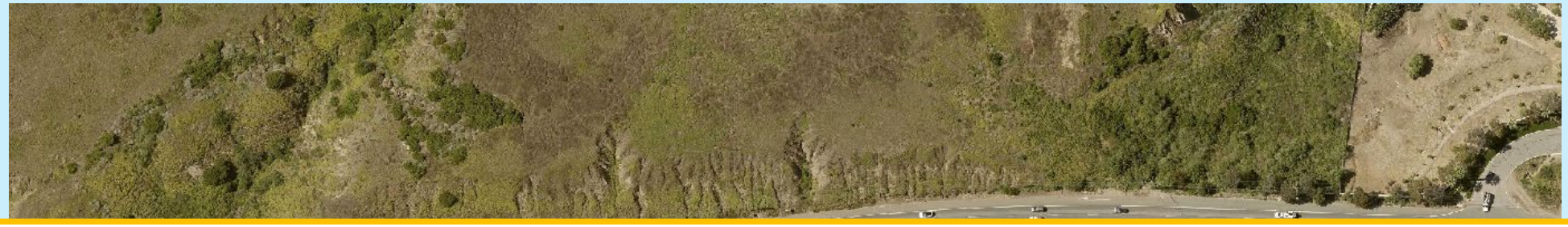
Public View Protection



View Corridor Added to Protect Public View



New Condition Requires Berm Removal with Caltrans



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 Pacific Coast Highway (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.




Reductions in Height & Elimination of all Landscaping above PCH Road grade Minimizes View Impacts & Maximizes Public View Protection

January 2026 Zoning Conformance Table

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			
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

PROJECT COMPLIES WITH ALL DEVELOPMENT STANDARDS; IT'S A **CLEAN SHEETS** PROJECT

Project Received Requisite Departmental Approvals

Biology

City o
23825 Stuart Ranch Rd., M
(310) 456-2489

BIOLOG
REFERR

TO: City of Malibu Biologist
FROM: City of Malibu Planning Department
PROJECT NUMBER: CDP 19-012
JOB ADDRESS: 25200 PACIFIC COAS
APPLICANT / CONTACT: Jake Jesson, 180 PC
APPLICANT ADDRESS: PO Box 6528 Malibu, CA 90265
APPLICANT PHONE #: (310)739-7931
APPLICANT FAX #: (310) 456-2644
APPLICANT EMAIL: jjesson@weintraubre
PLANNER: Allison Cook
PROJECT DESCRIPTION: NSFR, guest house,

TO: Malibu Planning Department and/Applic
FROM: City Biologist, Courtney McCammon

___ The project review package is INCOMPL Final Planning Review until corrections are incorporated into the proposed proje (See Attached).

X The project is APPROVED, consistent w with the protection of biological resourc Planning process.

___ The project may have the potential to si resources, either individually or cumulat Watersheds, and/or Shoreline Resource the Environmental Review Board (ERB).

Casey McCam

be imposed up

ology@malibuci

Rev 05/29/2018

Environmental Health

Cit
23825 Stuar
(310) 456-24

ENVIRONI

TO: City of Malibu Environmental
FROM: City of Malibu Planning Depar
PROJECT NUMBER: CDP 19-01
JOB ADDRESS: 25200 PAC
APPLICANT / CONTACT: Jake Jesso
APPLICANT EMAIL: jjesson@w
PROJECT DESCRIPTION: NSFR, gue
REVISION:

TO: Malibu Planning Department and
FROM: City of Malibu Environmental Hea

✓ Conformance Review Compl City of Malibu Local Coastal Pl Municipal Code (MMC). The C check review comments listed below) shall be addressed prio

Building Plan Check (BPC) Re

___ Conformance Review Incom Planning stage review comme review sheet(s) shall be addre

OWTS Plot Plan: ☐ NOT REQUIRE ☑ REQUIRED (att

Signature

The applicant must submit to the City of Malibu Envir onsite wastewater treatment system (OWTS) Plot Pla

Public Works

City of Mal
23825 Stuart Ranch Rd., Malibu, California CA
(310) 456-2489 FAX (310) 456-765

PUBLIC WORKS RE
REFERRAL SHEET

TO: Public Works Department
FROM: City of Malibu Planning Department REVISED DA

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

TO: Malibu Planning Department and/or Applicant
FROM: Public Works Department

___ The following items described on the attached memo addressed and resubmitted.

X The project was reviewed and found to be in conform Public Works and LCP policies and CAN proceed thr process.

Building Plan Check (BPC) Required ☒Yes ☐No BPC

SIGNATURE

4/8/2025
DATE

Previous conditions issued 12/21/2021 still apply.

Geotechnical

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

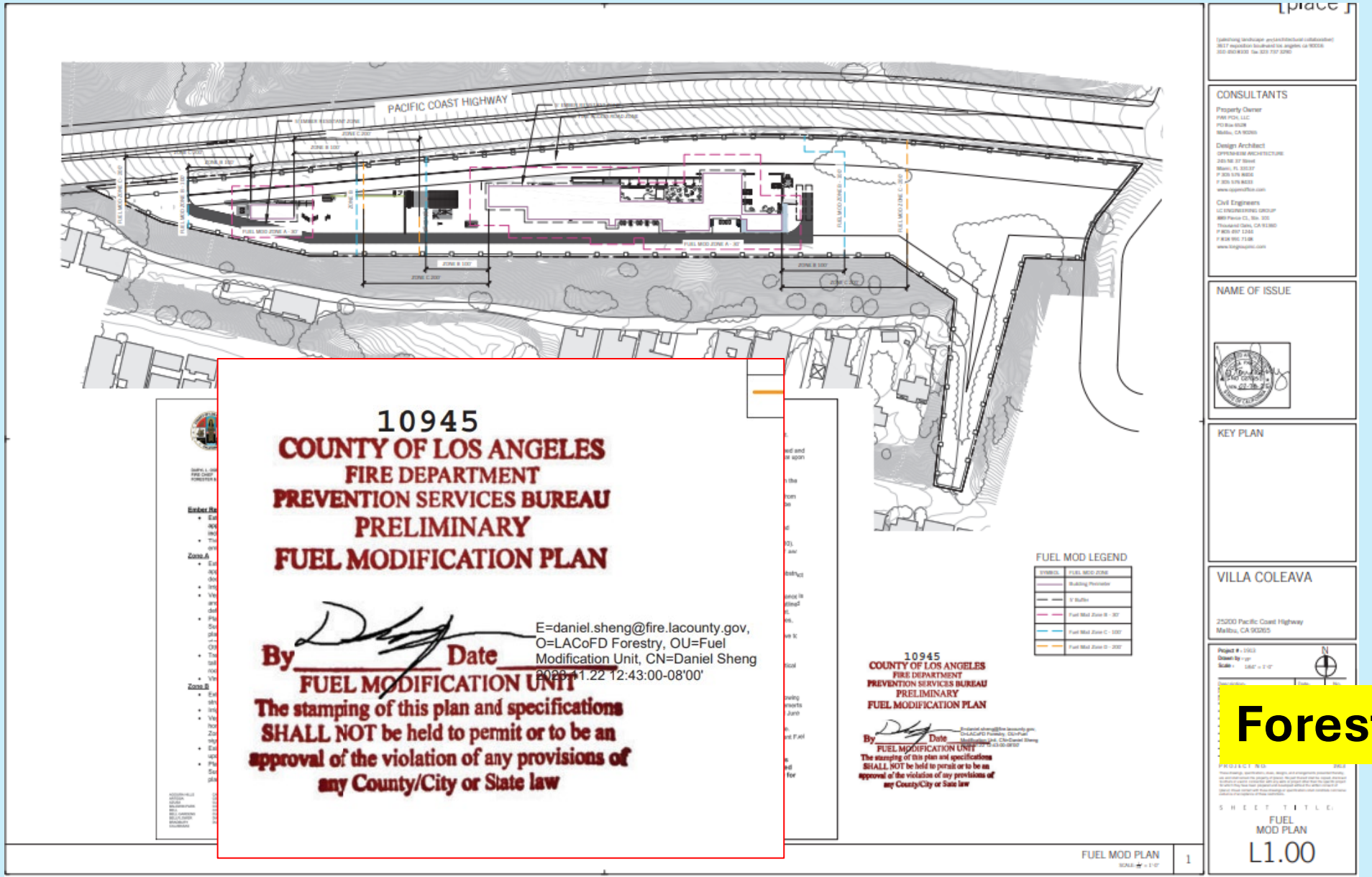
☒ Awaiting Building plan check submittal.

☐ The plans are COMPL... 'Geotechnical Notes for ... submittals.

☐ The plans are NOT CO... Check Stage Review C... completion.

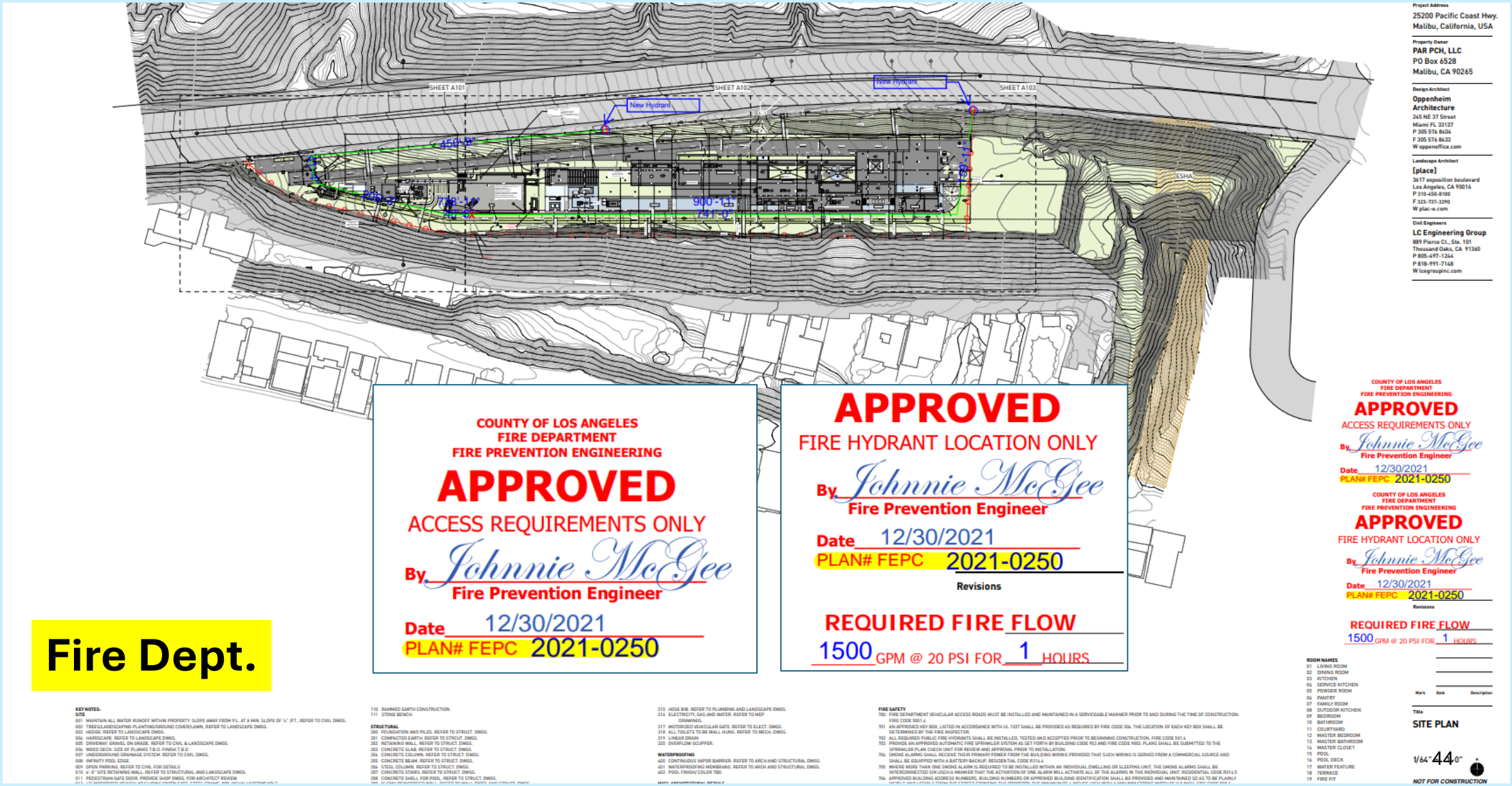
Project submittals were reviewed from a geotechnical perspective for conformance with applicable codes, guidelines and standards of practice, including the following current City adopted standards:

Project Received Requisite Departmental Approvals



Forestry

Project Received Requisite Departmental Approvals



Fire Dept.

THANK YOU

Project Application

Commission Agenda Report

Planning Commission Meeting 01-20-26 Item

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).

NO DISCRETIONARY REQUESTS

January 2026 Zoning Conformance Table

Table 3 – Zoning Conformance			
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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

PROJECT COMPLIES WITH ALL DEVELOPMENT STANDARDS; IT'S A **CLEAN SHEETS** PROJECT

No Site Plan Review and No Minor Modification, Therefore, Neighborhood Character Findings are Not Required.

NEVERTHELESS…..

Malibu LCP LIP 3.6(L) Defines a Neighborhood as:

"…the presence of such features as common access, beachfront or landside orientation or by being a part of the same subdivision or development, or by being within the same proximate area of the City with no intervening major natural or man made physical features such as major roads or flood control channels, canyons, watercourses, hills, ridges or mountains, and sharing similar zoning and other development characteristics such as lot and house size."

15 Developed Properties Located Along PCH Between Malibu Road and Malibu Bluffs Park



APN	Address
4458-015-007	25040 PACIFIC COAST HWY
4458-015-009	25000 PACIFIC COAST HWY
4458-015-011	24950 PACIFIC COAST HWY
4458-015-013	24910 PACIFIC COAST HWY
4458-015-019	24840 PACIFIC COAST HWY
4458-015-021	24834 PACIFIC COAST HWY
4458-015-027	24800 PACIFIC COAST HWY
4458-015-030	25126 PACIFIC COAST HWY
4458-015-031	25142 PACIFIC COAST HWY
4458-015-033	24824 PACIFIC COAST HWY
4458-015-038	24818 PACIFIC COAST HWY
4458-015-041	24900 PACIFIC COAST HWY
4458-015-045	24860 PACIFIC COAST HWY
4458-016-021	24750 PACIFIC COAST HWY
4458-016-023	24700 PACIFIC COAST HWY

CDPs Approved by Coastal Commission and City of Malibu



APN	SitusAddress	TDSF
4458-015-007	25040 PACIFIC COAST HWY	10626
4458-015-009	25000 PACIFIC COAST HWY	8070
4458-015-011	24950 PACIFIC COAST HWY	11158
4458-015-013	24910 PACIFIC COAST HWY	6616
4458-015-019	24840 PACIFIC COAST HWY	8181
4458-015-021	24834 PACIFIC COAST HWY	11042
4458-015-027	24800 PACIFIC COAST HWY	6326
4458-015-030	25126 PACIFIC COAST HWY	6682
4458-015-031	25142 PACIFIC COAST HWY	15822
4458-015-033	24824 PACIFIC COAST HWY	6173
4458-015-038	24818 PACIFIC COAST HWY	10106
4458-015-041	24900 PACIFIC COAST HWY	9504
4458-015-045	24860 PACIFIC COAST HWY	9955
4458-016-021	24750 PACIFIC COAST HWY	8148
4458-016-023	24700 PACIFIC COAST HWY	6136

13 Properties with CDPs Approved Since Coastal Act Implemented in 1976

5 Projects Approved Pre-Cityhood



24818 Pacific Coast Highway



CDP 5-87-185 Approved By Coastal Commission On Oct. 16, 1987:
TDSF = 10,106 Sq. Ft.
Height = 24 Feet

STATE OF CALIFORNIA—THE RESOURCES AGENCY

Fr. 9c

GEORGE DEUKMEJIAN, Governor

CALIFORNIA COASTAL COMMISSION
SOUTH COAST AREA
245 WEST BROADWAY, SUITE 380
LONG BEACH, CA 90802
(213) 590-5071

FILED: 4/ 1/87
49th DAY: Waived
180th DAY: 9/22/87
STAFF: CK:G.Timm/do
STAFF REPORT: 9/17/87
HEARING DATE: 10/13-16/87

REVISED RECOMMENDATION AND FINDINGS

Application: 5-87-185

Applicant: Dr. Peter Doerken
3250 Ocean Park Blvd.
Santa Monica, CA 90405

Agent: Margaret Henry

Description: Construction of a 10,106 square-foot, two-story single family residence, swimming pool and tennis court, addition to and remodeling of an existing garage, installation of a septic tank/leachfield and rerouting/improving the existing driveway.

Site: 24818 Pacific Coast Highway, Malibu, Los Angeles County.

Substantive File Documents:

1. Certified Malibu/Santa Monica Mountains Land Use Plan.
2. Preliminary Engineering Geologic Study, October 2, 1986, California Geo/Systems, Inc.
3. Soils and Engineering Geologic Investigation Report for Proposed Single Family Residence, June 1, 1987, California Geo/Systems, Inc.
4. Permit No. 5-86-725 (General Motors Corporation).
5. Permit No. 5-85-792 (Slort).
6. Permit No. 5-85-239 (Tuchman).
7. Permit No. 5-82-370 (Siegal).

Date of Commission Action: July 10, 1987.

COMMISSIONERS VOTING:

Yes: Minnehan, Glickfeld, Howard, MacElvaine, Gotch, McInnis, McMurray, Nathanson, McCabe, Wornum, Franco.

SUMMARY:
Staff recommends approval of the proposed development with Special Conditions relating to geologic hazards.

24834 Pacific Coast Highway

State of California, George Deukmejian, Governor

California Coastal Commission
SOUTH COAST DISTRICT
245 West Broadway, Suite 380
P.O. Box 1450
Long Beach, California 90801-1450
(213) 590-5071

Filed: 4/05/85
49th Day: 5/24/85
180th Day: 10/02/85
Staff Report: 5/08/85
Meeting of: 5/22-24/85
Staff: P. Emerson:sjl

Public 12-0 5-23-85

STAFF REPORT: CONSENT CALENDAR

APPLICANT: Samuel Tuchman

PERMIT NO.: 5-85-239

PROJECT LOCATION: 24834 Pacific Coast Highway, Malibu

PROJECT DESCRIPTION: Construct a single story residence, guest house, stable, garage, tennis court, swimming pool, two septic systems, and minor grading.

LOT AREA 66,650 sq. ft. ZONING RA-1.5

BLDG. COVERAGE 7,120 sq. ft. PLAN DESIGNATION Low Density Residential G.P., LUP draft, LUP adopt, LUP cert., LCP

PAVEMENT COVERAGE 17,815 sq. ft. PROJECT DENSITY 1 du/1.5A

LANDSCAPE COVERAGE 4,770 sq. ft. HEIGHT ABV. FIN. GRADE 28.5 ft.

LOCAL APPROVALS RECEIVED: Approval in Concept - County of Los Angeles

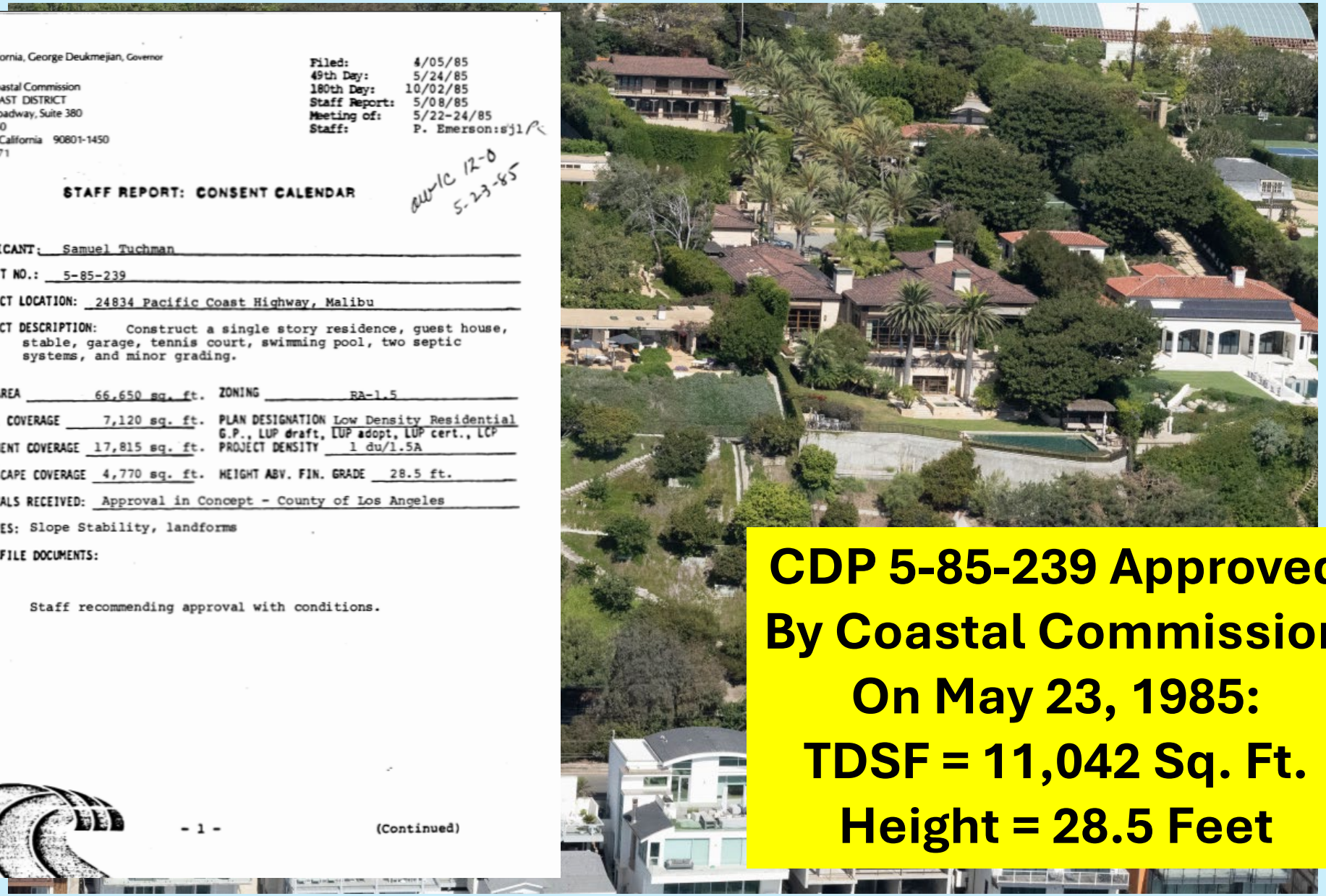
COASTAL ISSUES: Slope Stability, landforms

SUBSTANTIVE FILE DOCUMENTS:

SUMMARY Staff recommending approval with conditions.

- 1 -

(Continued)



CDP 5-85-239 Approved By Coastal Commission On May 23, 1985:
TDSF = 11,042 Sq. Ft.
Height = 28.5 Feet

24860 Pacific Coast Highway



CDP 5-85-792 Approved By Coastal Commission On December 18, 1985:
TDSF = 9,000 Sq. Ft.
Height = 24 Feet

STATE OF CALIFORNIA—THE RESOURCES AGENCY GEORGE DEUKMEJIAN, Governor

CALIFORNIA COASTAL COMMISSION
SOUTH COAST AREA
245 WEST BROADWAY, SUITE 380
LONG BEACH, CA 90802
(213) 590-5071

Page 1 of
Date: December 3, 1985
Permit Application No. 5-85-792 GT:wr
Issued 18DEC85

ADMINISTRATIVE PERMIT

APPLICANT: Jan L. Slort

PROJECT DESCRIPTION: Construction of a single-family dwelling, garage, maid quarters, recreation room, tennis court, swimming pool and septic system on a two-acre bluff top lot.

PROJECT LOCATION: 24860 Pacific Coast Highway, Malibu, Los Angeles County

EXECUTIVE DIRECTOR'S DETERMINATION:

Pursuant to PRC Section 30624, the Executive Director hereby determines that the proposed development, subject to Standard and Special Conditions as attached, is in conformity with the provisions of Chapter 3 of the Coastal Act of 1976, will not prejudice the ability of the local government to prepare a Local Coastal Program that is in conformity with the provisions of Chapter 3, and will not have any significant impacts on the environment within the meaning of the California Environmental Quality Act. Any development located between the nearest public road and the sea is in conformity with the public access and public recreation policies of Chapter 3.

Additional reasons for this determination, and for any special conditions, may be discussed on the reverse (Page 2).

NOTE: The Commission's Regulations provide that this permit shall be reported to the Commission at its next meeting. If one-third or more of the appointed membership of the Commission so request, a permit will not be issued for this permit application. Instead, the application will be removed from the administrative calendar and set for public hearing at a subsequent Commission meeting. Our office will notify you if such removal occurs.

This permit will be reported to the Commission at the following time and place:

Wednesday, December 18, 1985 9:00 a.m.

Holiday Inn-LAX 9901 La Cienega Blvd, Los Angeles, Ca. 90045

IMPORTANT - Before you may proceed with development the following must occur:

For this permit to become effective you must sign Page 2 of the enclosed duplicate acknowledging the permit's receipt and accepting its contents, including all conditions, and return it to our office. Following the Commission's meeting, and once we have received the signed acknowledgment and evidence of compliance with all special conditions, we will send you an authorization to proceed with development.

PETER DOUGLAS
Executive Director

by: Gary Timm
Title: Staff Analyst.

25000 Pacific Coast Highway



CDP 5-82-370 Approved By Coastal Commission On July 16, 1982:
TDSF = 8,000 Sq. Ft.
Height = 22 Feet

45)

State of California, Edmund G. Brown Jr., Governor

California Coastal Commission
SOUTH COAST DISTRICT
666 E. Ocean Blvd., Suite 3107
P.O. Box 1450
Long Beach, CA 90801-1450
(213) 590-5071 (714) 846-0648

Approved per staff 7-16-82

FILED: 6/10/82
49th DAY: 7/29/82
180th DAY: 12/4/82
STAFF: Dix[illegible]well
STAFF REPORT: 6/29/82
HEARING DATE: 7/14-16/8

STAFF REPORT: ADMINISTRATIVE ITEM

APPLICANT: A.E. Siegal AGENT: Alfred T. Wilkes

PERMIT NO.: 5-82-370

PROJECT LOCATION: 25000 Pacific Coast Hwy., Malibu

PROJECT DESCRIPTION: Construct a one-story single family home with septic system on a 3.54 acre parcel located on Puerco Bluffs, Malibu Los Angeles County.

LOT AREA 3.54 acres ZONING R-1

BLDG. COVERAGE 7400 sq. ft. PLAN DESIGNATION General Plan

PAVEMENT COVERAGE 6000 sq. ft. G.P., LUP draft, LUP adopt, LUP cert., LCP PROJECT DENSITY n/a

LANDSCAPE COVERAGE 45,000 sq. ft. HEIGHT ABV. FIN. GRADE 22'

LOCAL APPROVALS RECEIVED Los Angeles County, Approval in Concept

SITE CHARACTERISTICS : Elevated marine terrace.

SURROUNDING LAND USE: Single-family dwellings and nurseries landward of Pacific Coast Highway; generally undeveloped on bluff terrace.

COASTAL ACT ISSUES: Scenic & Visual Qualities, Erosion Hazard.

- 1 -

(continued)

25142 Pacific Coast Highway

Th 6a

STATE OF CALIFORNIA—THE RESOURCES AGENCY GEORGE DEUKMEJIAN, Governor

CALIFORNIA COASTAL COMMISSION
COAST AREA
245 WEST BROADWAY, SUITE 380
LONG BEACH, CA 90802
(213) 590-5071

Filed: 12/17/90
49th Day: 2/4/91
180th Day: 6/15/91
Staff: CAREY
Staff Report: 12/21/90
Hearing Date: 2/5-8/91
Commission Action:

STAFF REPORT: REGULAR CALENDAR

APPLICATION NO.: 5-90-1009

APPLICANT: Cher AGENT: Wylie Carter Architects

PROJECT LOCATION: 25142 Pacific Coast Highway, Malibu, Los Angeles County

PROJECT DESCRIPTION: Construction of a 15,822 sq. ft., 35 ft. high from existing grade single family residence with 5-car garage, tennis court, pool, garden, security walls and gates, detached workshop, septic system, and 3,974 cu. yds. of grading (1,989 cu. yds. cut and 1,985 cu. yds. fill).

Lot area:	1.73 acres
Building coverage:	7,288 sq. ft.
Pavement coverage:	28,943 sq. ft.
Landscape coverage:	39,128 sq. ft.
Parking spaces:	5
Plan designation:	Res I (1 du/ac)
Ht abv ext grade:	35 ft.

LOCAL APPROVALS RECEIVED: County of Los Angeles Approval in Concept

SUBSTANTIVE FILE DOCUMENTS: 5-90-277 (Harrah), 5-86-699 (Landon), 5-86-875 (Yachtin), 5-88-443 (O'Connor), 5-88-953 (Harges)

SUMMARY OF STAFF RECOMMENDATION:

Staff recommends approval with Special Conditions relating to geology and landscaping and assumption of risk.

STAFF RECOMMENDATION:

The staff recommends that the Commission adopt the following resolution:

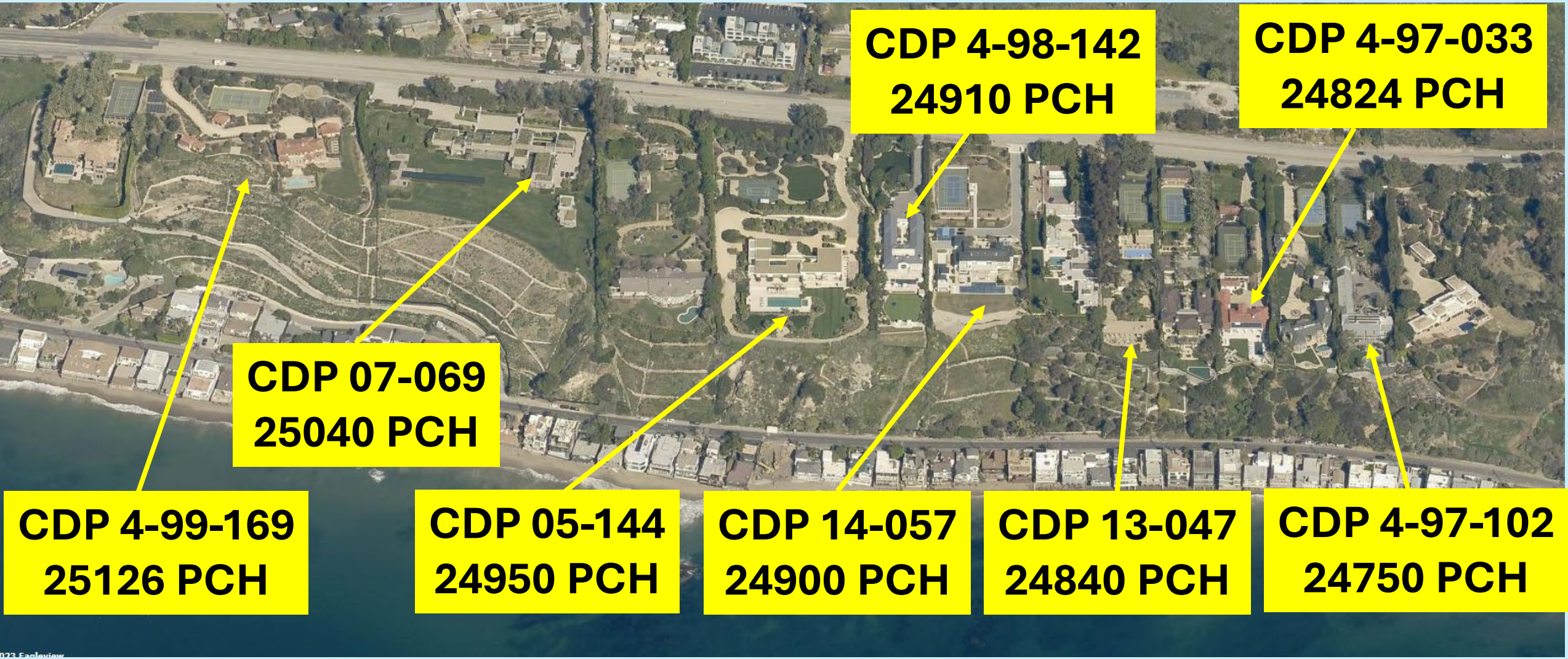
I. Approval with Conditions.

The Commission hereby grants a permit, subject to the conditions below, for the proposed development on the grounds that the development will be in conformity with the provisions of Chapter 3 of the California Coastal Act of 1976, will not prejudice the ability of the local government having



CDP 5-90-1009 Approved By Coastal Commission On February 7, 1991: TDSF = 15,822 Sq. Ft. Height = 35 Feet

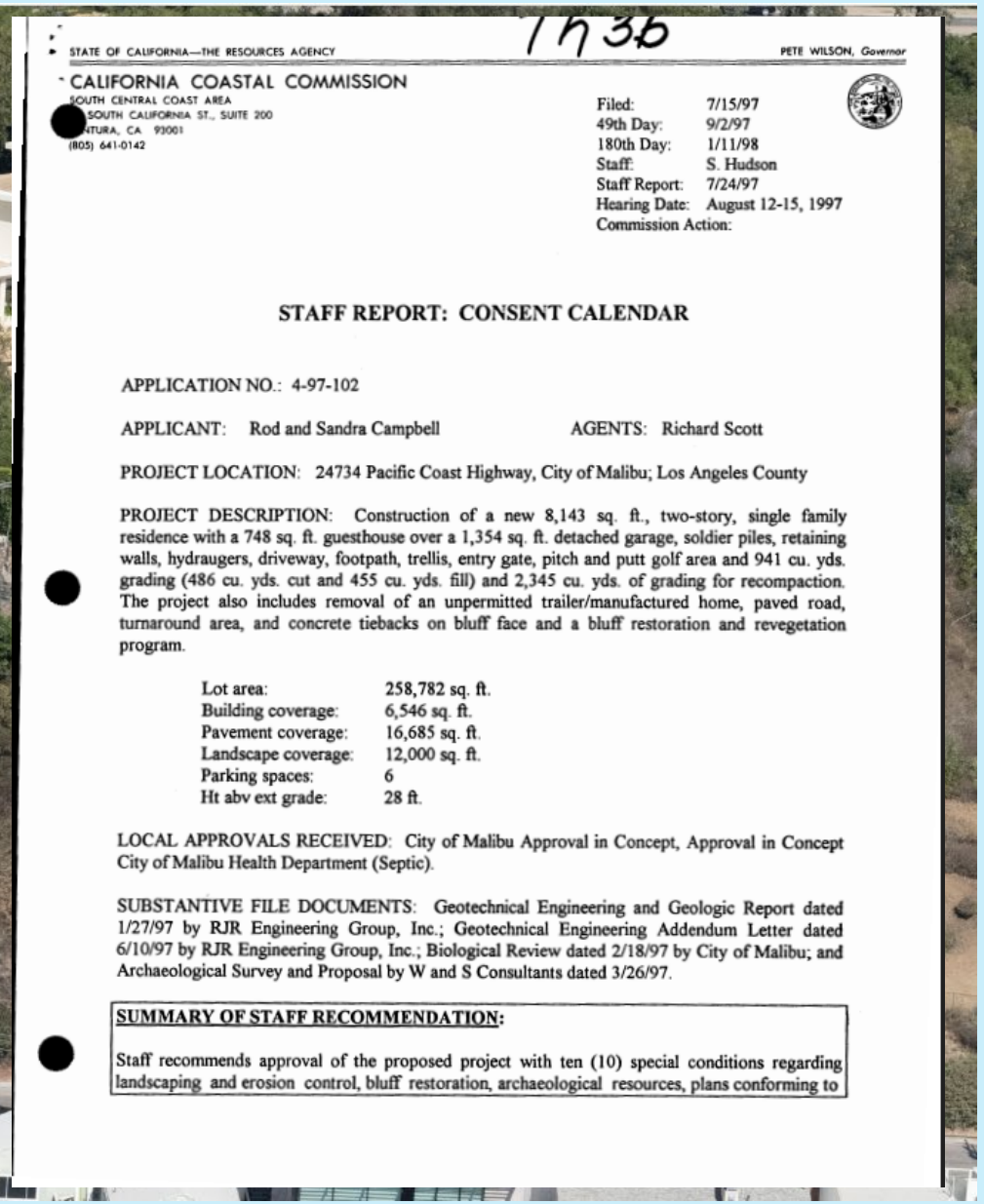
8 Projects Approved Post-Cityhood



24750 Pacific Coast Highway



CDP 4-97-102 Approved By Coastal Commission On August 14, 1997: TDSF = 8,143 Sq. Ft. Height = 28 Feet



STATE OF CALIFORNIA—THE RESOURCES AGENCY PETE WILSON, Governor

7h35

CALIFORNIA COASTAL COMMISSION
SOUTH CENTRAL COAST AREA
SOUTH CALIFORNIA ST., SUITE 200
NTURA, CA 93001
(805) 641-0142

Filed: 7/15/97
49th Day: 9/2/97
180th Day: 1/11/98
Staff: S. Hudson
Staff Report: 7/24/97
Hearing Date: August 12-15, 1997
Commission Action:

STAFF REPORT: CONSENT CALENDAR

APPLICATION NO.: 4-97-102

APPLICANT: Rod and Sandra Campbell AGENTS: Richard Scott

PROJECT LOCATION: 24734 Pacific Coast Highway, City of Malibu; Los Angeles County

PROJECT DESCRIPTION: Construction of a new 8,143 sq. ft., two-story, single family residence with a 748 sq. ft. guesthouse over a 1,354 sq. ft. detached garage, soldier piles, retaining walls, hydraugers, driveway, footpath, trellis, entry gate, pitch and putt golf area and 941 cu. yds. grading (486 cu. yds. cut and 455 cu. yds. fill) and 2,345 cu. yds. of grading for recompaction. The project also includes removal of an unpermitted trailer/manufactured home, paved road, turnaround area, and concrete tiebacks on bluff face and a bluff restoration and revegetation program.

Lot area:	258,782 sq. ft.
Building coverage:	6,546 sq. ft.
Pavement coverage:	16,685 sq. ft.
Landscape coverage:	12,000 sq. ft.
Parking spaces:	6
Ht abv ext grade:	28 ft.

LOCAL APPROVALS RECEIVED: City of Malibu Approval in Concept, Approval in Concept City of Malibu Health Department (Septic).

SUBSTANTIVE FILE DOCUMENTS: Geotechnical Engineering and Geologic Report dated 1/27/97 by RJR Engineering Group, Inc.; Geotechnical Engineering Addendum Letter dated 6/10/97 by RJR Engineering Group, Inc.; Biological Review dated 2/18/97 by City of Malibu; and Archaeological Survey and Proposal by W and S Consultants dated 3/26/97.

SUMMARY OF STAFF RECOMMENDATION:

Staff recommends approval of the proposed project with ten (10) special conditions regarding landscaping and erosion control, bluff restoration, archaeological resources, plans conforming to

24824 Pacific Coast Highway



CDP 4-97-033 Approved By Coastal Commission On July 10, 1997:
TDSF = 6,662 Sq. Ft.
Height = 26 Feet

RECORD PACKET COPY W12c

STATE OF CALIFORNIA—THE RESOURCES AGENCY PETE WILSON, Governor

CALIFORNIA COASTAL COMMISSION
SOUTH CENTRAL COAST AREA
89 SOUTH CALIFORNIA ST., SUITE 200
VENTURA, CA 93001
(805) 641-0142

Filed:	3-25-97
49th Day:	4-24-97
180th Day:	9-2-97
Staff:	Betz-VNT
Staff Report:	6-20-97
Hearing Date:	7-10-97

STAFF REPORT: REGULAR CALENDAR

APPLICATION NO.: 4-97-033

APPLICANT: Albert Sweet AGENT: Robert Chersky

PROJECT LOCATION: 24824 Pacific Coast Highway, City of Malibu; Los Angeles County

PROJECT DESCRIPTION: Demolish existing earthquake damaged single family residence and swimming pool inland of residence. Construct new two story, 26 ft. high, 6662 sq. ft. single family residence with 400 sq. ft. semi-detached gym and 625 sq. ft. detached two car garage. Replace portion of existing paved driveway with grasscrete. Replace septic system. Approval of as-built soldier pile wall with grade beam on bluff face topped by retaining wall, swimming pool, and gazebo. Fill approximately 600 cu. yds. of material behind soldier pile wall and retaining wall.

Lot area:	70,736 cu. yds.
Building coverage:	5,442 cu. yds.
Pavement coverage:	7,584 sq. ft. (additional)
Landscape coverage:	54,210 sq. ft.
Parking spaces:	two covered, six open (existing)
Plan designation:	1 du/acre
Project density:	.6 du/acre
Ht abv fin grade:	26 feet

LOCAL APPROVALS RECEIVED: City of Malibu: Approval in Concept (building plans), dated 2/24/97; Approval in Concept, Geology and Geotechnical Review Sheet, dated 11/11/96 [for residence additions and pool abandonment only]; Neighborhood Standards and Site Plan Review [for new single family residence], Resolution No. 97-007, dated January 6, 1996.; In-concept approval, Environmental Health, dated 2/24/97. County of Los Angeles: Fire Department, approval in concept dated 2/24/97.

SUBSTANTIVE FILE DOCUMENTS:

(1) Malibu/Santa Monica Mountains Land Use Plan.

(2) GeoConcepts, Inc.: Supplemental Report No. 3, March 17, 1997; Limited Geologic and Soils Engineering Investigation, May 17, 1996; Existing Rear Yard Retaining Wall (letter report), April 17, 1997; Supplemental Report No. 1, October 8, 1996.

24840 Pacific Coast Highway

Planning Commission Meeting 08-03-15 **Item 4.A.**

Supplemental Commission Agenda Report

To: Chair Brotman and Members of the Planning Commission

Prepared by: Jasch Janowicz, Contract Planner

Approved by: Bonnie Blue, AICP, Planning Director

Date prepared: July 27, 2015 Meeting date: August 3, 2015

Subject: Coastal Development Permit No. 13-047, Site Plan Review No. 13-045, Minor Modification Nos. 13-016 and 13-017, and Demolition Permit No. 13-022 – An application for the demolition of an existing single-family residence and the construction of a new two-story single-family residence and associated development (Continued from July 6, 2015)

Location:	24840 Pacific Coast Highway, within the appealable coastal zone
APNs:	4458-015-019
Zoning:	Rural Residential–2 Acre (RR-2)
Applicant:	Schmitz and Associates
Owner:	Johnson Family Trust
Application Filed:	September 24, 2013

RECOMMENDED ACTION: Adopt Planning Commission Resolution No. 15-68 (Attachment 1) determining the project is categorically exempt from the California Environmental Quality Act (CEQA), and approving Coastal Development Permit (CDP) No. 13-047 and Demolition Permit (DP) No. 13-022, to allow the demolition of an existing 7,316 square foot single-family residence, and the construction of a new 6,843 square foot two-story single-family residence with a 791 square foot basement, a 979 square foot subterranean garage, a 468 square foot pool cabana, a 348 square foot gym, a 48 square foot guard station, 89 square foot seating room, an alternative onsite wastewater treatment system (AOWTS), and other ancillary improvements, Site Plan Review (SPR) No. 13-045 for height in excess of 18 feet in height (up to 24 feet for a flat roof is proposed), Minor Modification (MM) No. 13-016 for a 20 percent reduction in the cumulative side yard setback, and MM No. 13-017 for a 50 percent reduction in the front



CDP 13-047 Approved By Planning Commission On August 3, 2015: TDSF = 8,181 Sq. Ft. Height = 24 Feet

24900 Pacific Coast Highway



CDP 14-057 Approved By Planning Commission On March 7, 2016:
TDSF = 9,504 Sq. Ft.
Height = 28 Feet

CITY OF MALIBU
Incorporated March 28, 1991

Commission Agenda Report

Planning Commission Meeting 03-07-16 **Item 4.C.**

To: Chair Stack and Members of the Planning Commission

Prepared by: Jasch Janowicz, Contract Planner

Approved by: Bonnie Blue, Planning Director

Date prepared: March 2, 2016 Meeting date: March 7, 2016

Subject: Coastal Development Permit No. 14-057, Site Plan Review No. 14-042 and Variance No. 15-012 – An application for the construction of a new single-family residence and associated development (Continued from February 16, 2016)

Location:	24900 Pacific Coast Highway, within the appealable coastal zone
APNs:	4458-015-015
Zoning:	Rural Residential–Two Acre (RR-2)
Applicant:	Burdge and Associates
Owner:	Quaker Beach Properties Trust
Application Filed:	September 26, 2014

RECOMMENDED ACTION: Adopt Planning Commission Resolution No. 16-31 (Attachment 1) determining the project is categorically exempt from the California Environmental Quality Act (CEQA), and approving Coastal Development Permit (CDP) No. 14-057, Site Plan Review (SPR) No.14-042, and Variance (VAR) No. 15-012 for the construction of a new 8,094 square foot, two-story single-family residence with a 1,000 square foot basement, a 568 square foot attached two-car garage, a 49 square foot covered porch area, a 757 square foot detached second unit, a 36 square foot detached accessory structure, tennis court, swimming pool and spa, water features, retaining walls and fencing, driveway, and installation of a new alternative onsite wastewater treatment system (AOWTS), including VAR No. 15-012 for more than 1,000 cubic yards of non-exempt grading and SPR No. 14-042 for height in excess of 18 feet (up to 28 feet for a pitched roof) located in the Rural Residential Two-Acre (RR-2) zoning district at 24900 Pacific Coast Highway (PCH) (Quaker Beach Properties Trust).

DISCUSSION: This application was previously reviewed by the Planning Commission on February 16, 2016. The Planning Commission continued the public hearing to allow

Page 1 of 27 Agenda Item 4.C.

24910 Pacific Coast Highway



CDP 4-98-142 Approved By Coastal Commission On September 10, 1998: TDSF = 6,864 Sq. Ft. Height = 18 Feet

STATE OF CALIFORNIA—THE RESOURCES AGENCY PETE WILSON, Governor

CALIFORNIA COASTAL COMMISSION
SOUTH CENTRAL COAST AREA
89 SOUTH CALIFORNIA ST., SUITE 200
VENTURA, CA 93001
(805) 641-0142

Page 1 of 5
Date: December 2, 1998
Permit Application No. 4-98-142

COASTAL DEVELOPMENT PERMIT

On September 10, 1998, the California Coastal Commission granted to Patricia Duggan & Ted Levenson, permit 4-98-142, this permit subject to the attached Standard and Special Conditions, for development consisting of: Construct 6,864 sq. ft., 18 foot high, one-story, single family residence with an attached 553 sq. ft. garage, tennis court, pool, spa and septic system. 1,180 cu. yds. of grading (390 cu. yds of cut & 790 cu. yds. of fill). An additional 3,760 cu. yds. of grading (800 cu. yds. of cut & 2,960 cu. yds. of fill) will be required for landslide slope remediaton and is more specifically described in the application on file in the Commission offices.

The development is within the coastal zone in Los Angeles County at 24910 Pacific Coast Hwy., Malibu.

Issued on behalf of the California Coastal Commission by,

PETER DOUGLAS
Executive Director

By: John Ledbetter
Coastal Program Analyst

ACKNOWLEDGMENT:

The undersigned permittee acknowledges receipt of this permit and agrees to abide by all terms and conditions thereof.

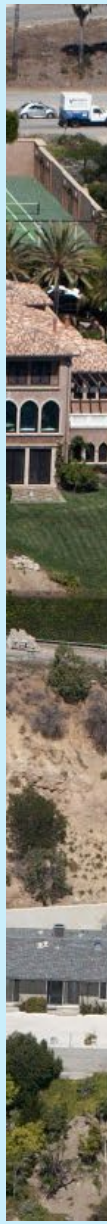
The undersigned permittee acknowledges that Government Code Section 818.4 which states in pertinent part, that: "A public entity is not liable for injury caused by the issuance. . . of any permit. . . " applies to the issuance of this permit.

IMPORTANT: THIS PERMIT IS NOT VALID UNLESS AND UNTIL A COPY OF THE PERMIT WITH THE SIGNED ACKNOWLEDGEMENT HAS BEEN RETURNED TO THE COMMISSION OFFICE. 14 Cal. Admin. Code Section 13158(a).

Date _____ Permittee _____

A5: 8/95

25126 Pacific Coast Highway



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STATE OF CALIFORNIA – THE RESOURCES AGENCY — GRAY DAVIS, Governor

CALIFORNIA COASTAL COMMISSION
SOUTH CENTRAL COAST AREA
89 SOUTH CALIFORNIA ST., SUITE 200
VENTURA, CA 93001
(805) 641 - 0142

RECORD PACKET COPY

Filed:	12/14/99
49th Day:	N/A
180th Day:	N/A
Staff:	S. Hudson
Staff Report:	5/25/00
Hearing Date:	6/13/00
Commission Action:	

STAFF REPORT: REGULAR CALENDAR
Revised Findings

APPLICATION NO.: 4-99-169

APPLICANT: Alfredo and Robin Trento

AGENTS: Jaime Harnish, Michael Andersson, Susan McCabe

PROJECT LOCATION: 25126 Pacific Coast Highway, Malibu; Los Angeles County

COMMISISON DECISION: Approved with Ten (10) Special Conditions

DATE OF COMMISSION ACTION: April 12, 2000 in Long Beach

COMMISSIONERS ON PREVAILING SIDE: Commissioners Daniels, Desser, Dettloff, Estolano, Hart, Kruer, McClain-Hill, Potter, Reilly, Wooley, and Wan.

PROJECT DESCRIPTION: Construction of a 6,706 sq. ft., 28 ft. high, two-story single family residence; a 749 sq. ft., 18 ft. high guest house; a 975 sq. ft., 18 ft. high detached garage; a 525 sq. ft., 14 ft. high detached garage; a pool; a driveway; a septic system; and a concrete v-ditch drainage swale system. The project also includes the construction of a 420 ft. long 3-6 ft. high retaining wall, a 120 ft. long 2-3 ft. high retaining wall, and approximately 3,802 cu. yds. of grading (1,302 cu. yds. of cut, 630 cu. yds. of fill, and 1,870 cu. yds. of removal and recompaction).

LOCAL APPROVALS RECEIVED: Approval in Concept City of Malibu Planning Department, Approval in Concept for City of Malibu Engineering and Geotechnical Review, Approval in Concept City of Malibu Environmental Health Department (Septic).

SUMMARY OF STAFF RECOMMENDATION

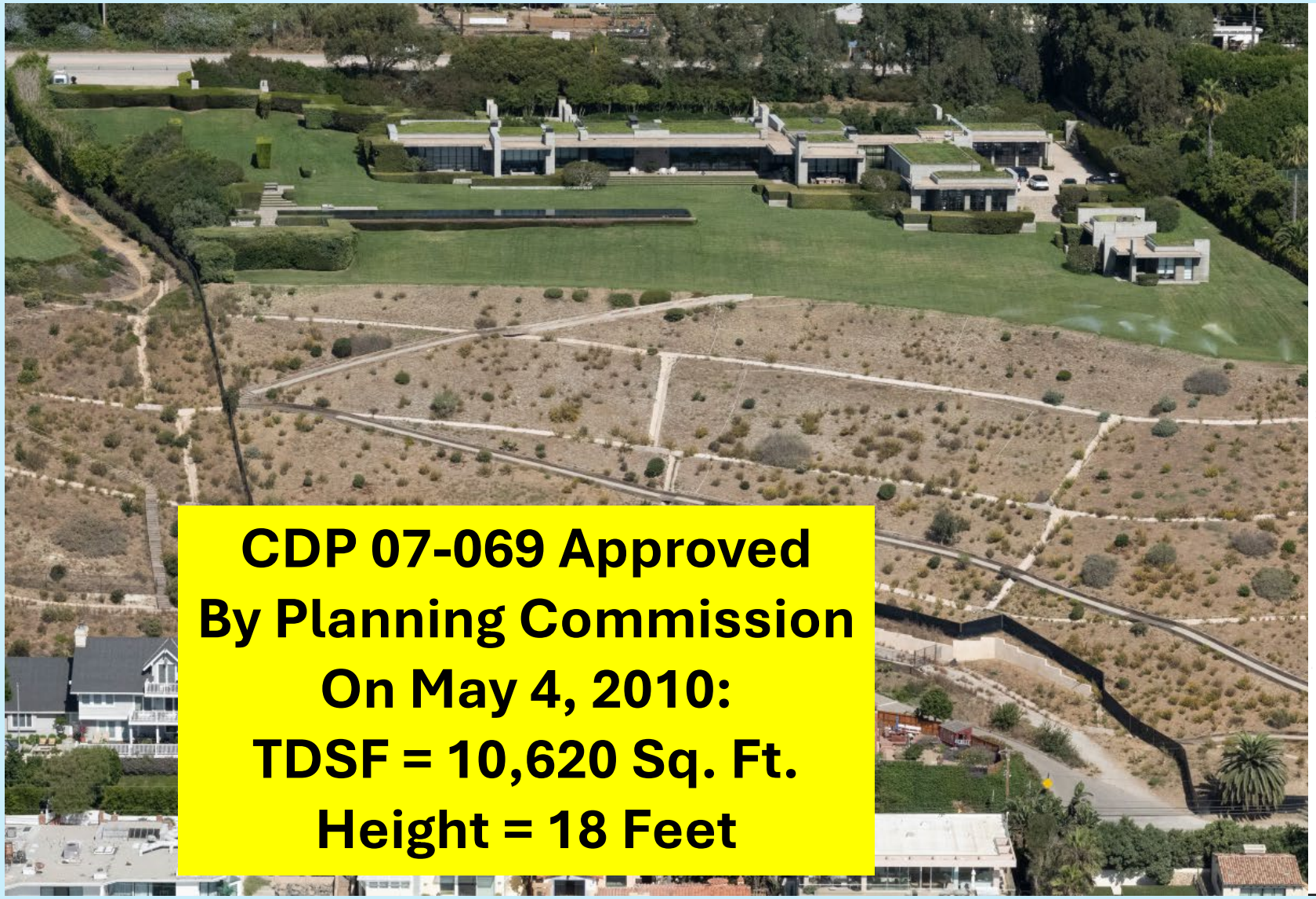
Staff recommends that the Commission **adopt** the following revised findings in support of the Commission's decision on April 12, 2000, to **approve** the proposed project subject to ten (10) special conditions as indicated on pages 4-9 of the staff report. The Commission found that the proposed project is consistent with the applicable Chapter Three policies of the Coastal Act.

Because Special Condition One was modified and Special Condition Ten was added during the public hearing, revised findings are necessary to reflect the action taken by the Commission. Staff recommends, therefore, that the Commission adopt the following resolution and revised findings in support of its action to approve this permit with conditions. Comments from the public concerning the findings will be limited to discussion of whether the findings reflect the action of the Commission.



CDP 4-99-169 Approved By Coastal Commission On April 12, 2000:
TDSF = 6,706 Sq. Ft.
Height = 28 Feet

25040 Pacific Coast Highway



CDP 07-069 Approved By Planning Commission On May 4, 2010: TDSF = 10,620 Sq. Ft. Height = 18 Feet

CITY OF MALIBU
Incorporated March 28, 1991

Commission Agenda Report

Planning Commission Meeting 05-04-10 **Item 6.H.**

To: Chair Gillespie and Members of the Planning Commission

Prepared by: Stephanie Danner, Senior Planner

Reviewed by: Joyce Parker-Bozylinski, AICP, Planning Manager

Approved by: Victor Peterson, Community Development Director

Date prepared: April 22, 2010 Meeting Date: May 4, 2010

Subject: Coastal Development Permit No. 07-069 and Site Plan Review No. 10-007 – An application for a new, one-story, 18 foot high, 8,955 square foot single-family residence with attached garage, a 2,750 square foot basement, a 790 square foot second residential unit, a 7,200 square foot hard-surface tennis court, a 163 foot by 14.5 foot swimming pool, water features, an alternative onsite wastewater treatment system, fire department turnaround, permeable driveway and retaining walls, including a site plan review for approximately 448 cubic yards of remedial grading as recommended by the project's consulting geologist

Application Filing Date:	May 24, 2007
Applicant:	Mathieu Ribaut of Scott Mitchell Studio, Inc.
Owner:	Kurt Rappaport
Location:	25040 Pacific Coast Highway, within the non-appealable coastal zone
APN:	4458-015-007
Zoning:	Rural Residential – Two Acres (RR-2)

RECOMMENDED ACTION: Adopt Planning Commission Resolution No. 10-36 (Attachment 1) approving Coastal Development Permit (CDP) No. 07-069 and Site Plan Review (SPR) No. 10-007 for the construction of a new, one-story, 18 foot high, 8,955 square foot single-family residence with an attached garage, a 2,750 square foot basement, a 790 square foot second residential unit, a 7,200 square foot hard-surface tennis court, a 163 foot by 14.5 foot swimming pool, water features, an alternative onsite wastewater treatment system (AOWTS), fire department turnaround, permeable

Page 1 of 21 Agenda Item 6.H.

24950 Pacific Coast Highway

City Council Meeting
07-10-06
Item
4.C.

Council Agenda Report

To: Mayor Kearsley and the Honorable Members of the City Council

Prepared by: Stacey Rice, Ph.D., AICP, Senior Planner

Reviewed by: CJ Amstrup, AICP, Planning Manager
Victor Peterson, Environmental and Community Development Director

Approved by: Jim Thorsen, City Manager

Date prepared: June 27, 2006 Meeting date: July 10, 2006

Subject: Appeal No. 06-007 – Appeal of the Planning Commission Resolution No. 06-19, denying Appeal No. 06-001, upholding the Planning Manager's approval of Coastal Development Permit (CDP) No. 05-144 for the construction of a new, 11,158 square foot, two-story, single-family residence with a 5,550 square foot basement, a site plan review request for height over 18-feet up to a maximum of 28-feet (22-feet proposed), and an alternative onsite wastewater treatment system

APPELLANTS:	Ron Goldman and Mark Zucker
APPEAL FILED:	March 29, 2006 (Appeal No. 06-007)
APPLICATION FILING DATE:	August 9, 2005 (CDP 05-144)
APPLICANT:	April Verbanac, Dudek and Associates
PROPERTY OWNER:	Lilichiman, LLC (Kimberly and Arthur Silver)
LOCATION:	24950 Pacific Coast Highway within the coastal zone

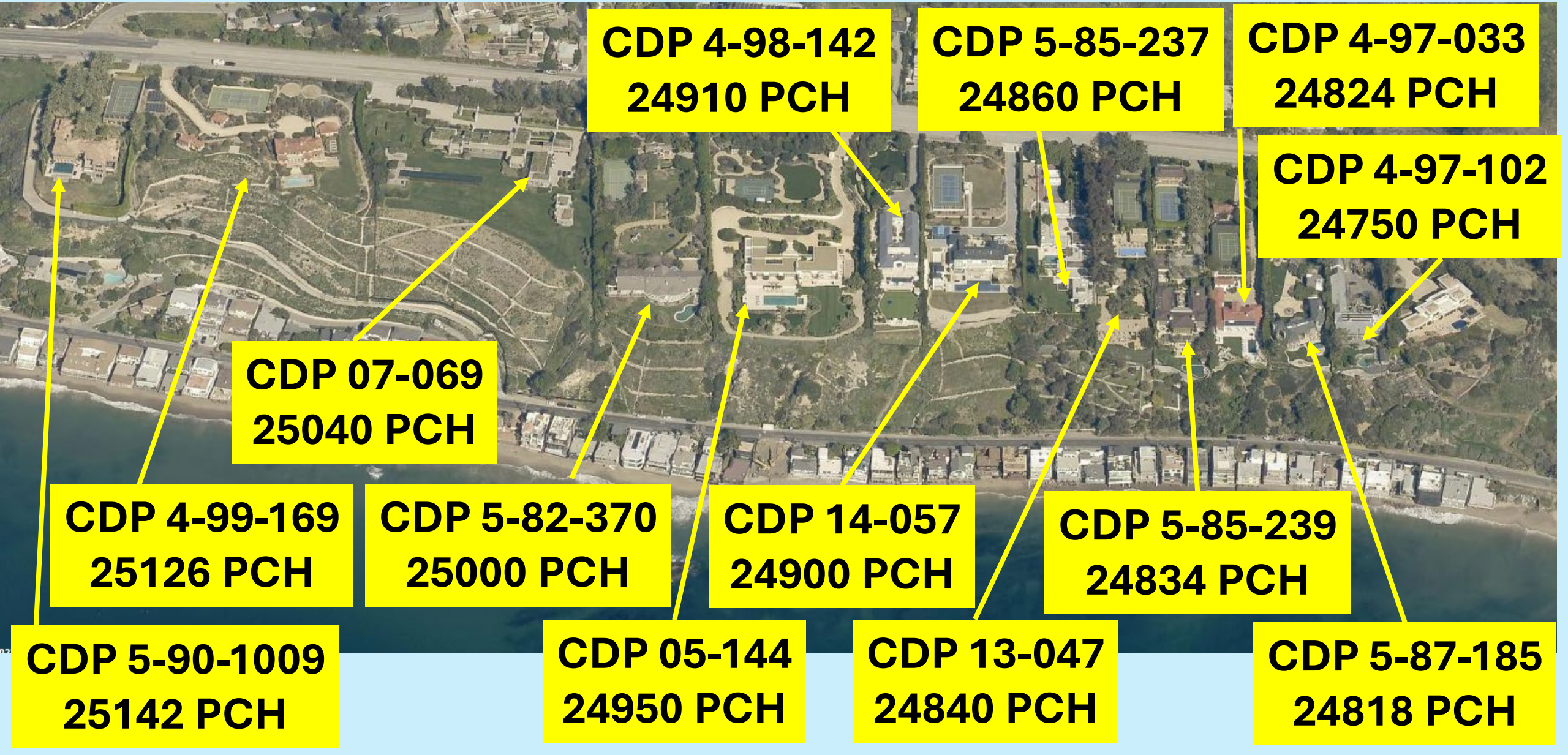
RECOMMENDED ACTION: Adopt Resolution No. 06-42 (Attachment 1) denying Appeal No. 06-007 (Attachment 2) and upholding the Planning Commission's approval of Coastal Development Permit (CDP) No. 05-144 for the construction of a new, 11,158 square foot, two-story, single-family residence including a 5,550 square foot basement, a site plan review request for height over 18-feet up to a maximum of 28-feet (22-feet proposed), and an alternative onsite wastewater treatment system located at 24950 Pacific Coast Highway.

P:\Projects\Pacific Coast Highway\24950 PCH (formerly 24920 PCH)\CC Appeal\CCReportCDPAppeal_draft2.doc

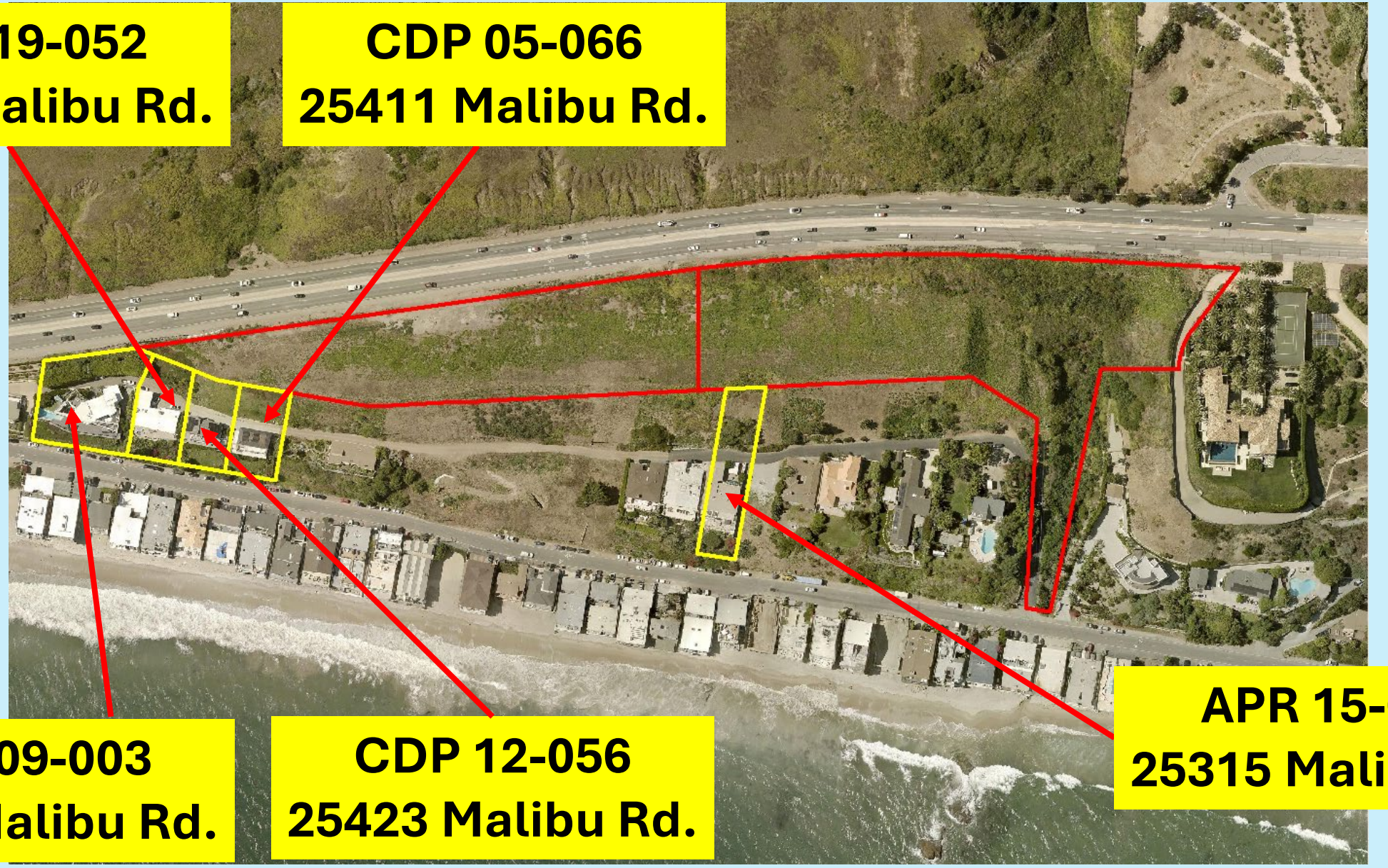


CDP 05-144 Approved By City Council On July 10, 2006: TDSF = 11,158 Sq. Ft. Height = 22 Feet

13 Projects Approved with Class 3 Cat. Exemption

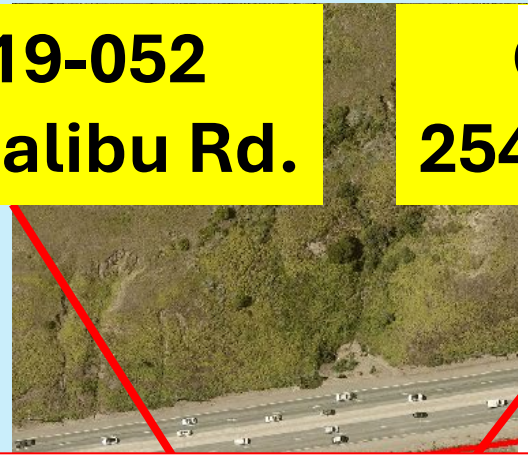


Project Not on a Coastal Bluff



Project Not on a Coastal Bluff

CDP 19-052
25429 Malibu Rd.





Planning Commission Meeting 09-20-21 **Item 4.A.**

CITY OF MALIBU — Incorporated March 28, 1991

Commission Agenda Report

To: Chair Jennings and Members of the Planning Commission

Prepared by: Adrian Fernandez, Assistant Planning Director

Reviewed: Richard Mollica, Planning Director

Date prepared: September 9, 2021 Meeting date: September 20, 2021

Subject: Coastal Development Permit No. 19-052, Variance Nos. 19-047, 19-048 and 19-060, Demolition Permit No. 20-020, and Code Violation No.

J. Shoreline and Bluff Development (LIP Chapter 10)

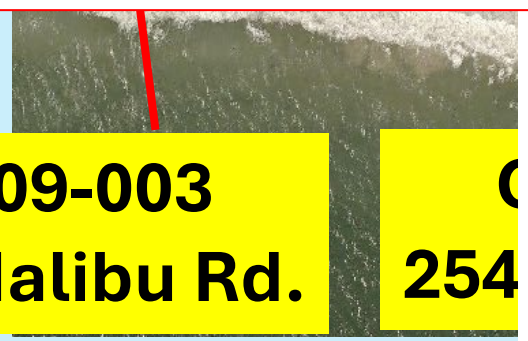
LIP Chapter 10 applies to land that is located on or along the shoreline, a coastal bluff or bluff-top fronting the shoreline. The proposed project is not located near the shore. Therefore, LIP Chapter 10 findings do not apply.

No. 19-048 for the reduction of the required side yard setbacks and cumulative side yard setbacks, and VAR No. 19-060 from the City's geotechnical standards for factor of safety located in the Rural Residential-Two Acre (RR-2) zoning district at 25429 Malibu Road (The Celestial Trust).

DISCUSSION: The subject item was scheduled for the May 3, 2021 Regular Planning Commission meeting. The item was then continued to permit staff additional time to research whether a variance for factor of safety applied to the project. Since then, VAR No. 19-060 has been assigned to the project for the replacement residence not to provide

Page 1 of 25 Agenda Item 4.A.

CDP 09-003
25349 Malibu Rd.





APR 15-069
25315 Malibu Rd.


Reductions in Height & Elimination of all Landscaping above PCH Road grade Minimizes View Impacts & Maximizes Public View Protection

LIP 6.5(E)1 states “Where the topography of the project site descends from the roadway, new development shall be sited and designed to preserve bluewater ocean views over the approved structures by incorporating the following measures.”

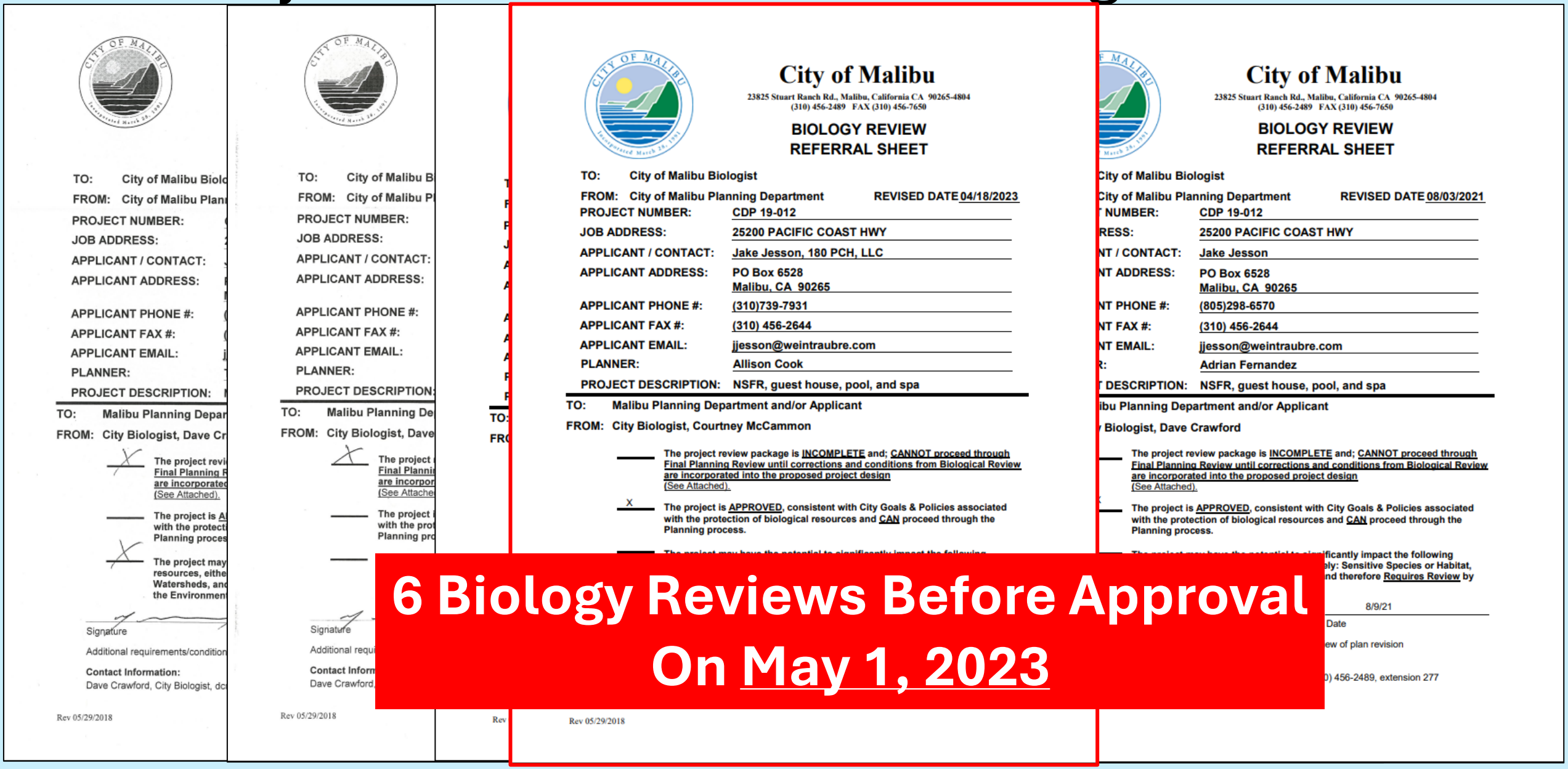
LIP 6.5(E)1(a) states “Structures shall extend no higher than the road grade adjacent to the project site, **where feasible**”




LIP 6.5(E)2 states “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.”
LIP 6.5(E)2(a) states “Buildings shall not occupy more than 80 percent maximum of the lineal frontage of the site..”

Since Application was Submitted in 2019…

Project was NOT Rushed Through Review



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.

Rev 05/29/2018

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

BIOLOGY REVIEW REFERRAL SHEET

City of Malibu Biologist
City of Malibu Planning Department REVISED DATE 08/03/2021
NUMBER: CDP 19-012
RESS: 25200 PACIFIC COAST HWY
NT / CONTACT: Jake Jesson
NT ADDRESS: PO Box 6528 Malibu, CA 90265
NT PHONE #: (805)298-6570
NT FAX #: (310) 456-2644
NT EMAIL: jjesson@weintraubre.com
R: Adrian Fernandez
DESCRIPTION: NSFR, guest house, pool, and spa

ibu Planning Department and/or Applicant
Biologist, Dave Crawford

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).

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

ficantly impact the following
ly: Sensitive Species or Habitat,
nd therefore Requires Review by

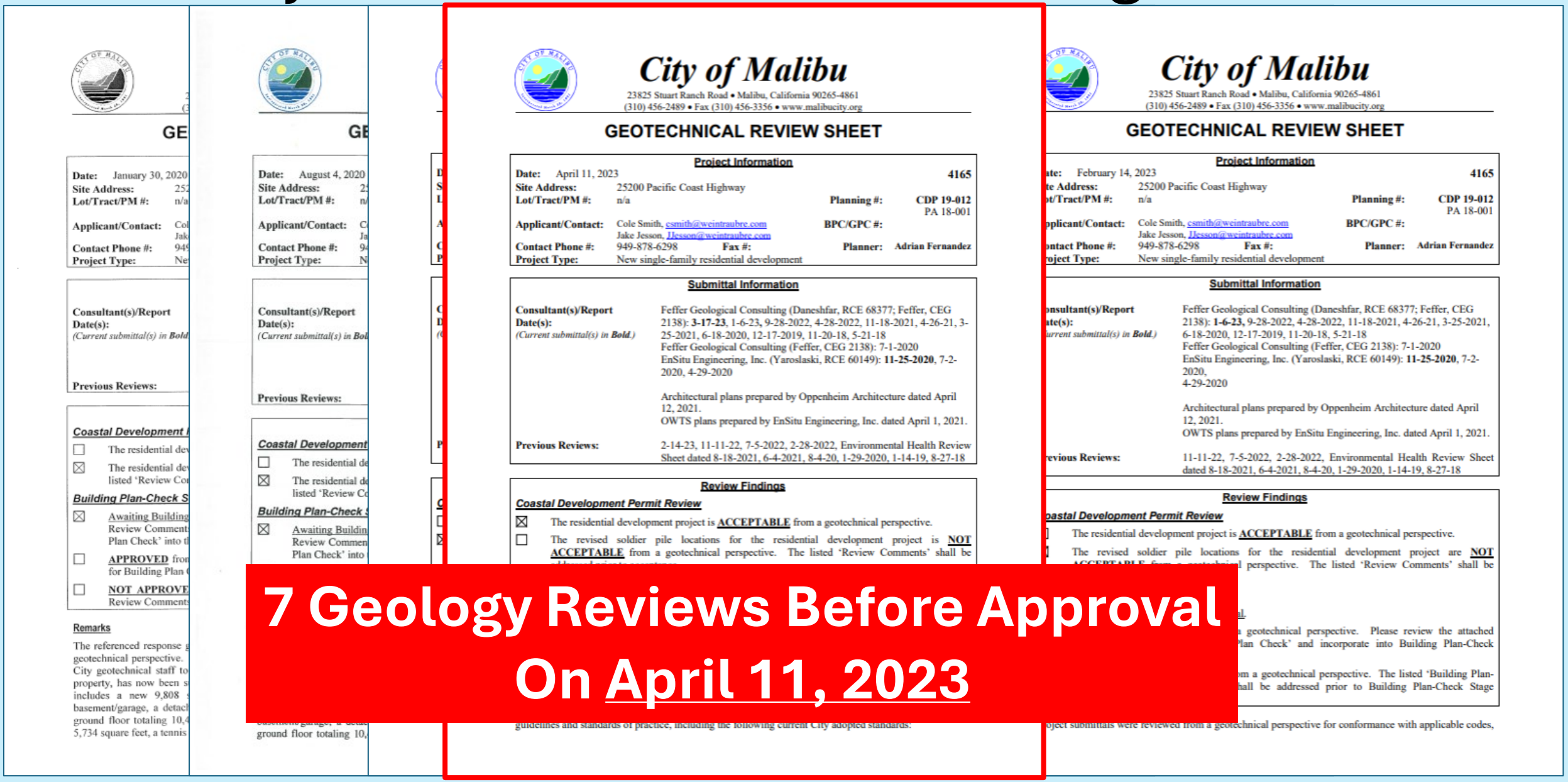
8/9/21
Date

ew of plan revision

0) 456-2489, extension 277

6 Biology Reviews Before Approval On May 1, 2023

Project was NOT Rushed Through Review



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

guidelines and standards of practice, including the following current City adopted standards:

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: February 14, 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): **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.
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Previous Reviews: 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 are **NOT** perspective. The listed 'Review Comments' shall be

geotechnical perspective. Please review the attached Plan Check' and incorporate into Building Plan-Check

m a geotechnical perspective. The listed 'Building Plan- hall be addressed prior to Building Plan-Check Stage

oject submittals were reviewed from a geotechnical perspective for conformance with applicable codes,

7 Geology Reviews Before Approval
On April 11, 2023

Project was NOT Rushed Through Review



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)

4/2/2025
Signature

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

The Environmental Health Specialist is available for consultation Tuesday and Thursday from 8:00 am to 11:00 am, or by calling (310) 456-2489, extension 4

Rev 141008

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

City of Malibu Environmental Health Administrator 8/3/2021
FROM: City of Malibu Planning Department REVISED DATE 06/02/2021
ECT NUMBER: CDP 19-012
ADDRESS: 25200 PACIFIC COAST HWY
ICANT / CONTACT: Jake Jesson
ICANT ADDRESS: PO Box 6528
Malibu, CA 90265
ICANT PHONE #: (805)298-6570
ICANT FAX #: (310) 456-2644
ICANT EMAIL: jjesson@weintraubre.com
ECT DESCRIPTION: NSFR, guest house, pool, and spa

Malibu Planning Department and/or Applicant
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.

RED
attached hereto) ☐ REQUIRED (not attached)

8/18/2021
Date

nvironmental Health Specialist to determine whether or not an Plan approval is required.

acted Tuesday and Thursday from 8:00 am to 11:00 am, or by

Rev 141008

6 Environmental Health Reviews Before Approval On April 2, 2025

Project was NOT Rushed Through Review

March 20, 2019

Jake Jesson
P.O. Box 6528
Malibu, CA 90265

Reference: Coastal D
25200 Pa
An applic
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Dear Mr. Jesson:

On **March 7, 2019**, th
Planning Department
Residential - Two Acre
within the Appeal Juris
partially mapped Enviro
a lot merger or the prop
Appeal Jurisdiction or
ESHA requirements ap

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1. Please provi
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Certificate

2. Pursuant t
Section 6.
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November 12, 2019

Jake Jesson
P.O. Box 6528
Malibu, CA 90265

Reference: Coastal D
25200 Pa
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walls

Dear Mr. Jesson:

On **March 7, 2019**, th
Planning Department
Residential - Two Acre
within the Appeal Juri
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Appeal Jurisdiction or
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To continue processing

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To

City of Malibu

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

September 13,2023

Jake Jesson
Senior Project Manager
Weintraub Real Estate Group
P.O. Box 6528
Malibu, CA 90264
jjesson@weintraubre.com

Reference: **Coastal Development Permit (CDP) No. 19-012**
Certificate of Compliance (COC) No. 21-004
Variance (VAR) No. 23-030 for retaining wall height
Site Plan Review (SPR) No. 23-027 for non-visually permeable walls
25200 Pacific Coast Highway
APN 4459-013-021

An application for the construction of a new one-story single-family residence, subterranean garage and basement, detached guest house, swimming pool and spa, outdoor kitchen, onsite wastewater treatment system, driveways, grading, hardscape, water features, landscape, and associated improvements. The application includes a variance request to increase the maximum allowed six-foot retaining wall height up to 8½ feet, and a site plan review to construct 12-foot high, free-standing walls that are not visually permeable.

DETERMINATION OF NOTICE AND HEARING REQUIREMENTS

Dear Mr. Jesson:

Pursuant to Local Coastal Program (LCP) Local Implementation Plan (LIP) § 13.10.1(A), you are hereby notified that the following notice and hearing requirements are applicable to your development application:

Page 1 of 5

City of Malibu

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

24, 2022

Jesson
Box 6528
u, CA 90265

rence: **Coastal Development Permit No. 19-012**
Conditional Certificate of Compliance No. 21-004
25200 Pacific Coast Highway (APNs 4459-013-021 and 4459-014-018)
An application for the construction of a new single-story, single-family residence with a subterranean garage and basement, detached guest house, detached gym, detached office, outdoor kitchen, swimming pool, water features, driveways, retaining walls, and installation of a new onsite wastewater treatment system; including a variance for height of retaining walls

Mr. Jesson:

March 7, 2019, the application listed above was submitted to the City of Malibu
ning Department for processing. The subject parcels are zoned RR-2 (Rural
dential - Two Acres). For your reference, the subject parcels are partially located
the Appeal Jurisdiction of the California Coastal Commission (CCC) and are
ally mapped Environmentally Sensitive Habitat Area (ESHA). The proposed project
be appealed to the CCC.

ning Department staff has completed a review of the revised project plans
itted on April 1, 2022, and determined on **June 24, 2022** that the information is
MPLETE and requires additional information.

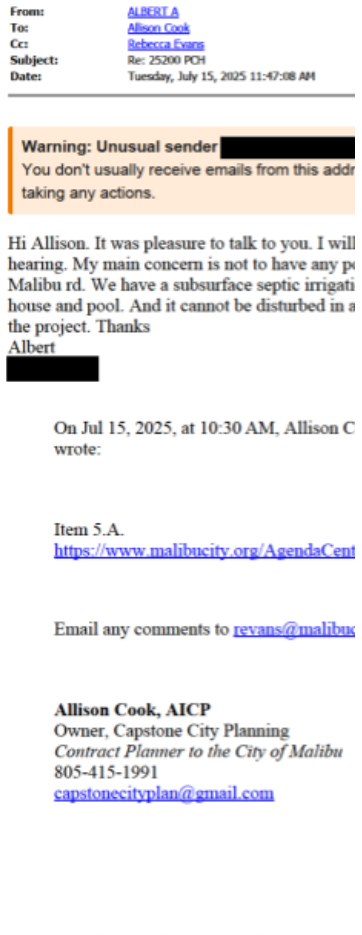
llowing items:

TGYVC) indicates none of
However, the majority of
grading as indicated in the

mpaction (which must be
safety grading (includes
artment [LACFD] driveway
ing and Fire Department

6 Planning Reviews Before
Deemed Complete On December 11, 2023

Project Has Received Letters of Support from Neighbors



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 addr
taking any actions.

Hi Allison. It was pleasure to talk to you. I will
hearing. My main concern is not to have any p
Malibu rd. We have a subsurface septic irrigati
house and pool. And it cannot be disturbed in a
the project. Thanks
Albert
[redacted]

On Jul 15, 2025, at 10:30 AM, Allison C
wrote:

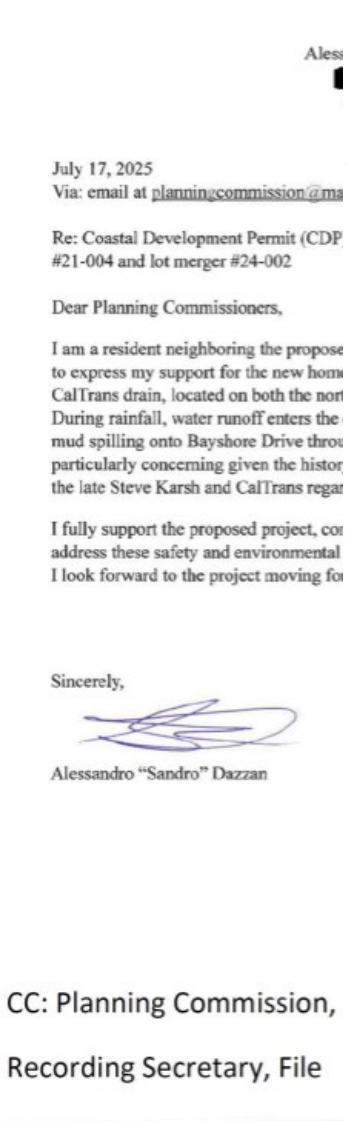
Item 5.A.
https://www.malibucity.org/AgendaCent

Email any comments to revans@malibu

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



Ales
[redacted]

July 17, 2025
Via: email at planningcommission@ma

Re: Coastal Development Permit (CDP
#21-004 and lot merger #24-002

Dear Planning Commissioners,

I am a resident neighboring the propose
to express my support for the new hom
CalTrans drain, located on both the nor
During rainfall, water runoff enters the
mud spilling onto Bayshore Drive throu
particularly concerning given the histor
the late Steve Karsh and CalTrans regar

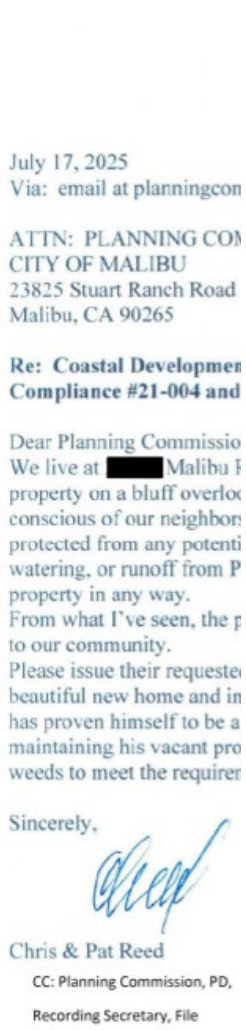
I fully support the proposed project, co
address these safety and environmental
I look forward to the project moving fo

Sincerely,

Alessandro "Sandro" Dazzan

CC: Planning Commission,

Recording Secretary, File



July 17, 2025
Via: email at planningcon

ATTN: PLANNING CO
CITY OF MALIBU
23825 Stuart Ranch Road
Malibu, CA 90265

**Re: Coastal Developmen
Compliance #21-004 and**

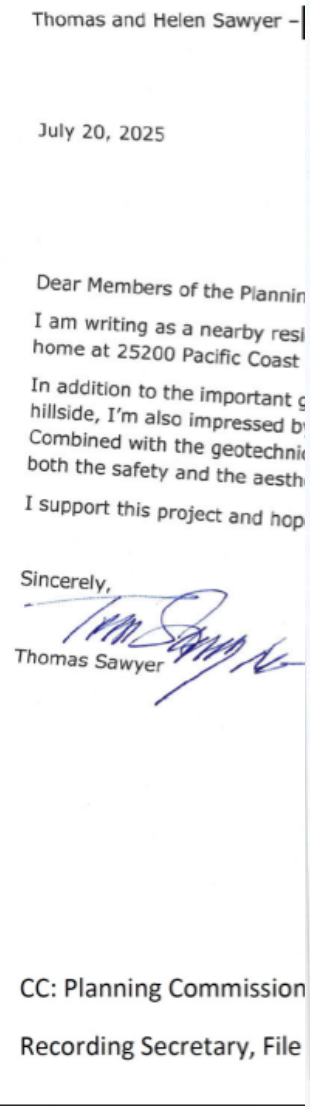
Dear Planning Commissio
We live at [redacted] Malibu
property on a bluff overlo
conscious of our neighbor
protected from any potenti
watering, or runoff from P
property in any way.
From what I've seen, the p
to our community.
Please issue their requeste
beautiful new home and in
has proven himself to be a
maintaining his vacant pro
weeds to meet the requirer

Sincerely,

Chris & Pat Reed

CC: Planning Commission, PD,

Recording Secretary, File



Thomas and Helen Sawyer –

July 20, 2025

Dear Members of the Plannin

I am writing as a nearby resi
home at 25200 Pacific Coast

In addition to the important g
hillside, I'm also impressed b
Combined with the geotechni
both the safety and the aesth

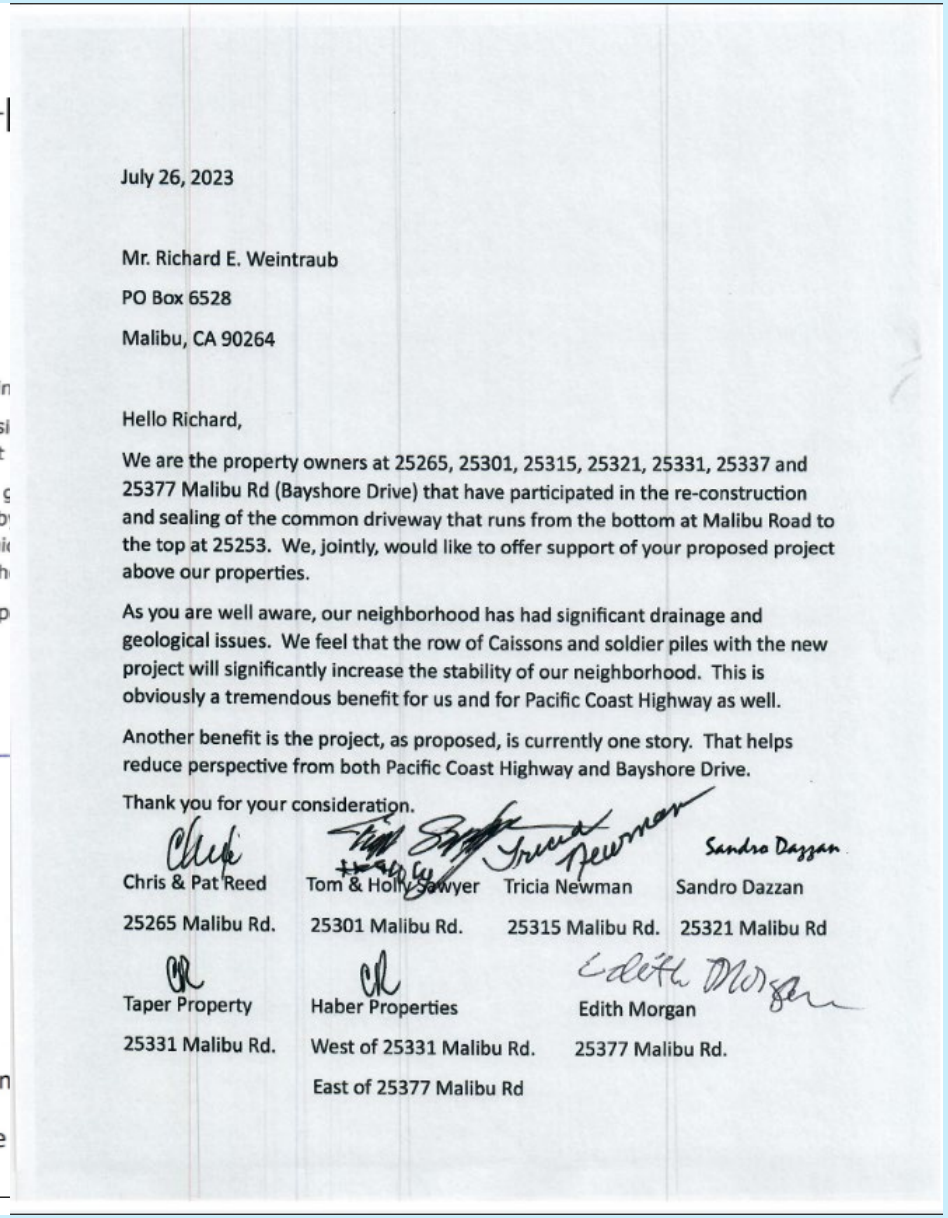
I support this project and hop

Sincerely,

Thomas Sawyer

CC: Planning Commission

Recording Secretary, File



July 26, 2023

Mr. Richard E. Weintraub
PO Box 6528
Malibu, CA 90264

Hello Richard,

We are the property owners at 25265, 25301, 25315, 25321, 25331, 25337 and 25377 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.

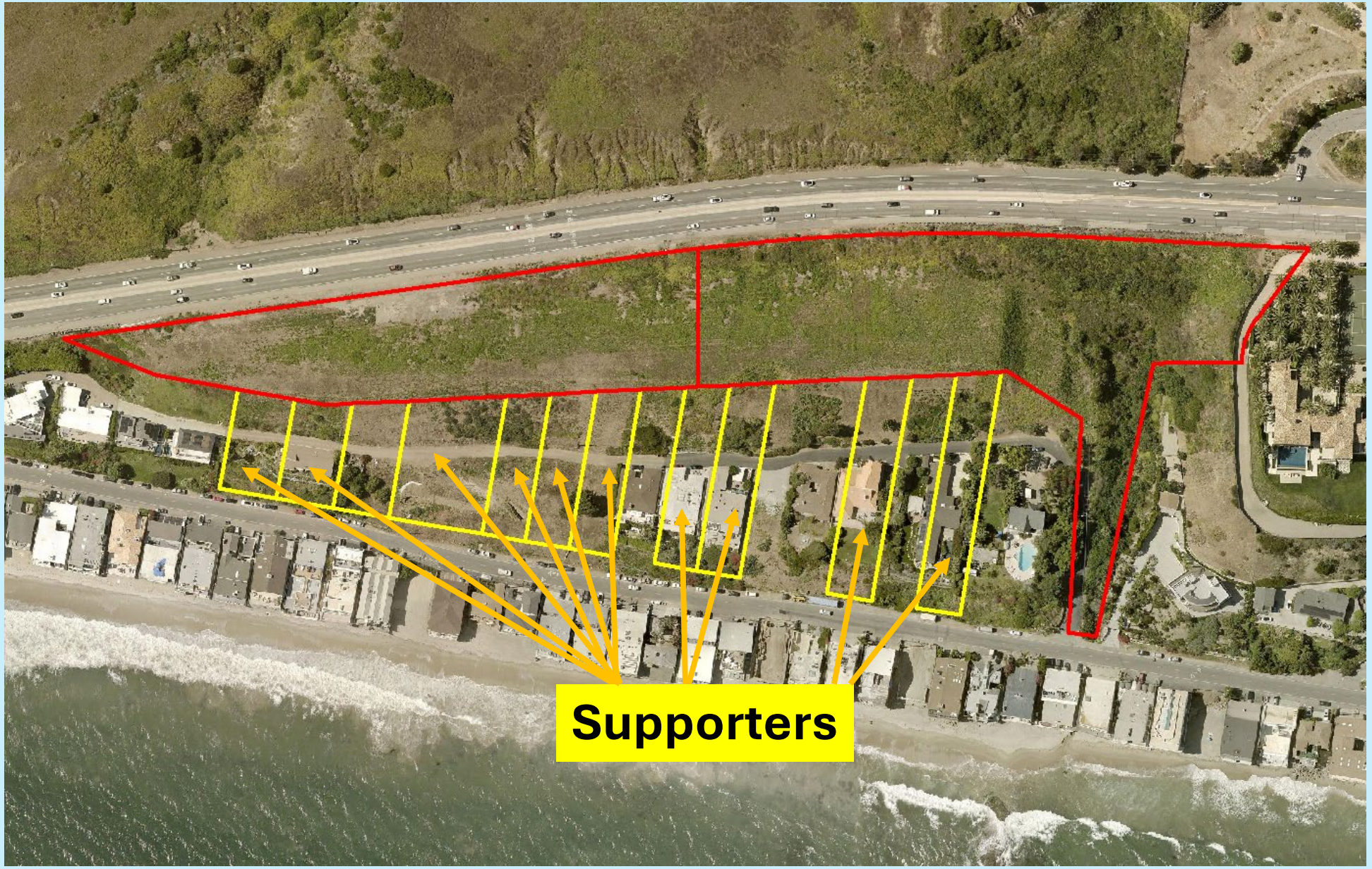
As you are well aware, our neighborhood has had significant drainage and geological issues. We feel that the row of Caissons and soldier piles with the new project will significantly increase the stability of our neighborhood. This is obviously a tremendous benefit for us and for Pacific Coast Highway 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	Tom & Holly Sawyer	Tricia Newman	Sandro Dazzan
25265 Malibu Rd.	25301 Malibu Rd.	25315 Malibu Rd.	25321 Malibu Rd
Taper Property	Haber Properties	Edith Morgan	
25331 Malibu Rd.	West of 25331 Malibu Rd. East of 25377 Malibu Rd	25377 Malibu Rd.	

Project Has Received Letters of Support from Neighbors



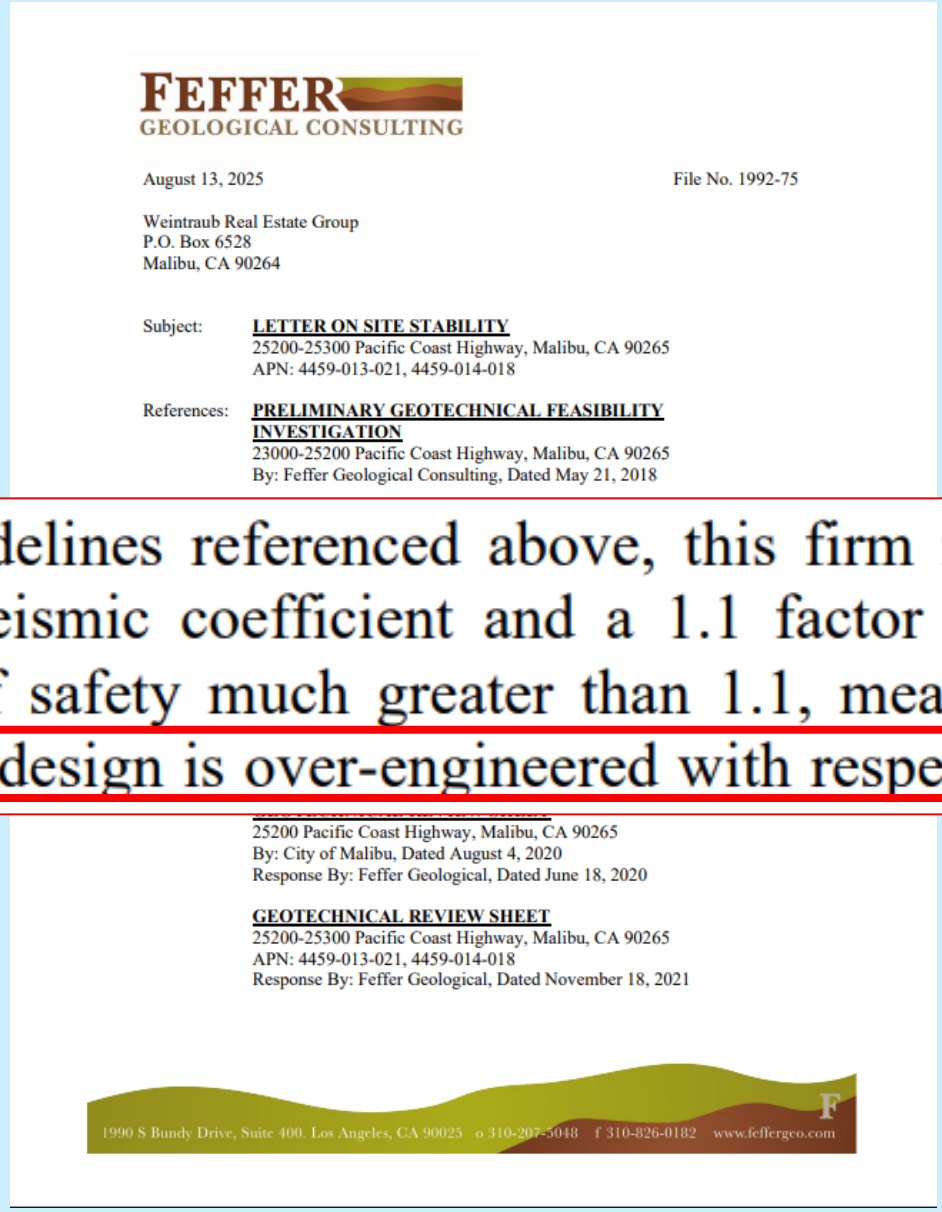
CONCLUSION

- Property Historically Cleared Dating Back to Before the Coastal Act
- Project will Improve Site & Area Stability by Installing 77 Caissons
- The Proposed Home is Consistent in Size and Less Height than Average PCH Facing Homes Both Before and After Cityhood
- The Applicant has Worked with the City and made Extensive Plan Revisions to avoid any Significant Adverse Impacts To Public & Private Views
- The Project is a Clean Sheets Project Without any Discretionary Requests

THANK YOU

POCKET SLIDES

Project Meets LIP 9.4(D) and Updated Factors of Safety



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

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

1990 S Bundy Drive, Suite 400. Los Angeles, CA 90025 o 310-207-5048 f 310-826-0182 www.feffergeo.com

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.

Berm Was Constructed by CALTRANS…

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

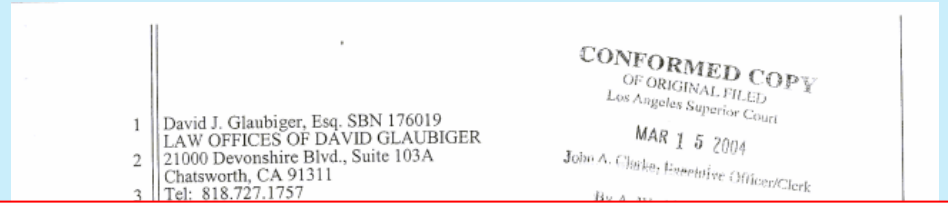
Reviewed by: Joseph Smith, AICP, Contract Principal Planner

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

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.

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).

...Pursuant to a 2004 Lawsuit



David J. Glaubiger, Esq. SBN 176019
LAW OFFICES OF DAVID GLAUBIGER
21000 Devonshire Blvd., Suite 103A
Chatsworth, CA 91311
Tel: 818.727.1757

CONFORMED COPY
OF ORIGINAL FILED
Los Angeles Superior Court
MAR 15 2004
John A. Clarke, Executive Officer/Clerk

Ninth Cause of Action - Tortious Diversion of Water: Defendant Caltrans

20. For general damages as alleged herein and according to proof;

21. For an order requiring defendant to show cause, if any, why defendant should not be enjoined as hereinafter set forth, during the pendancy of this action;

22. For a temporary restraining order, a preliminary injunction, and a permanent injunction, all requiring defendant and its agents, servants, and employees, and all persons, acting under, in concert with, or for defendant:

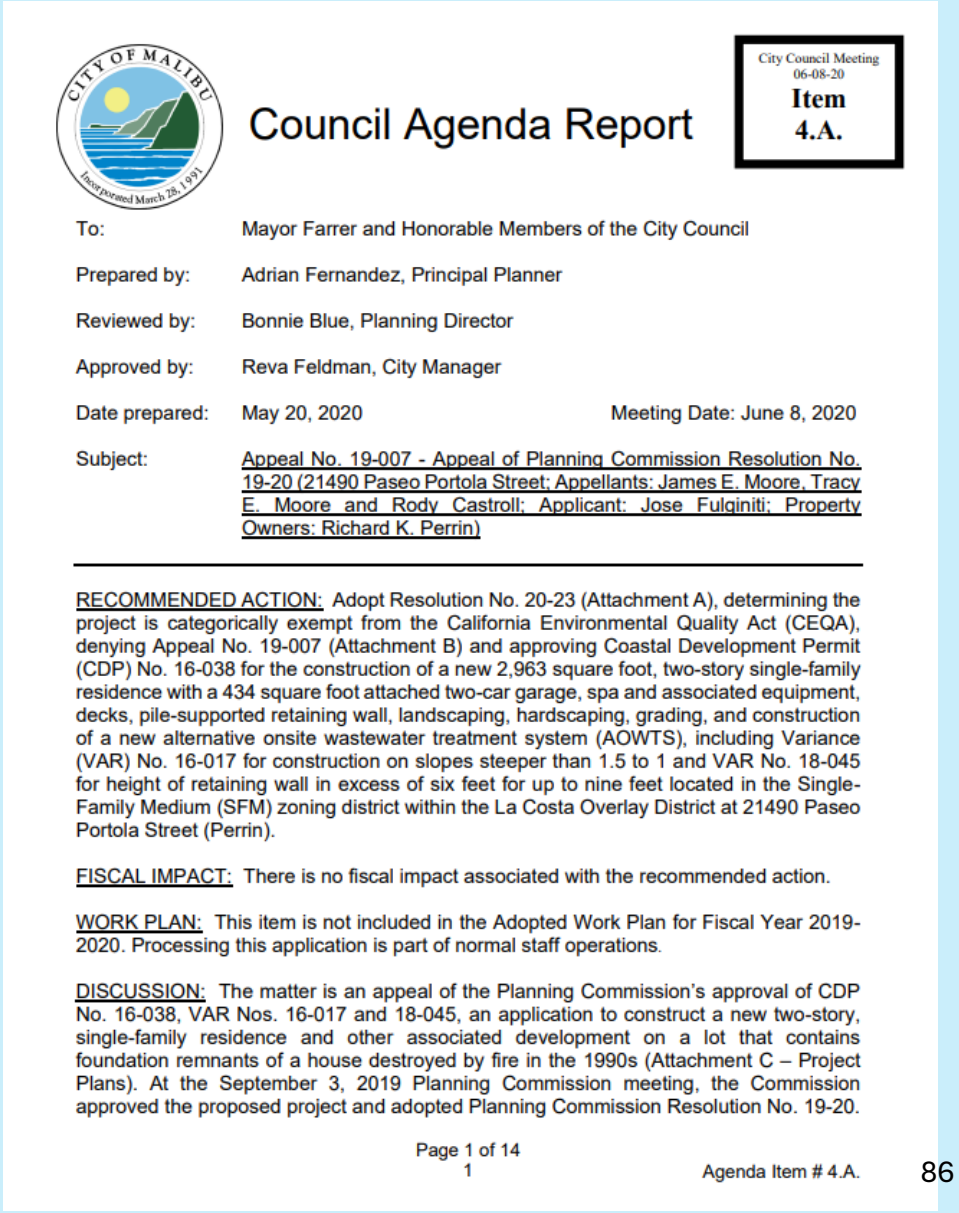
a) To provide proper facilities, or any facilities, for handling the proper disposal of waters draining through HD-10 so as to prevent their overflowage and seepage onto Plaintiff Property and the resulting damage to Plaintiff Property.

b) To properly construct, maintain and make repairs to HD-10 and Catch Basin Nos. 1, 2 and 3.

c) To repair the HD-10 rupture.

Microdosing Systems are Regularly Utilized in the City

- An Example: 21490 Paseo Portola
- Project Included a new AOWTS with a Geoflow Dispersal System
- City Council Approved Project on June 8, 2020



CITY OF MALIBU
Incorporated March 28, 1991

Council Agenda Report

City Council Meeting
06-08-20
Item
4.A.

To: Mayor Farrer and Honorable Members of the City Council

Prepared by: Adrian Fernandez, Principal Planner

Reviewed by: Bonnie Blue, Planning Director

Approved by: Reva Feldman, City Manager

Date prepared: May 20, 2020 Meeting Date: June 8, 2020

Subject: Appeal No. 19-007 - Appeal of Planning Commission Resolution No. 19-20 (21490 Paseo Portola Street; Appellants: James E. Moore, Tracy E. Moore and Rody Castroll; Applicant: Jose Fulginiti; Property Owners: Richard K. Perrin)

RECOMMENDED ACTION: Adopt Resolution No. 20-23 (Attachment A), determining the project is categorically exempt from the California Environmental Quality Act (CEQA), denying Appeal No. 19-007 (Attachment B) and approving Coastal Development Permit (CDP) No. 16-038 for the construction of a new 2,963 square foot, two-story single-family residence with a 434 square foot attached two-car garage, spa and associated equipment, decks, pile-supported retaining wall, landscaping, hardscaping, grading, and construction of a new alternative onsite wastewater treatment system (AOWTS), including Variance (VAR) No. 16-017 for construction on slopes steeper than 1.5 to 1 and VAR No. 18-045 for height of retaining wall in excess of six feet for up to nine feet located in the Single-Family Medium (SFM) zoning district within the La Costa Overlay District at 21490 Paseo Portola Street (Perrin).

FISCAL IMPACT: There is no fiscal impact associated with the recommended action.

WORK PLAN: This item is not included in the Adopted Work Plan for Fiscal Year 2019-2020. Processing this application is part of normal staff operations.

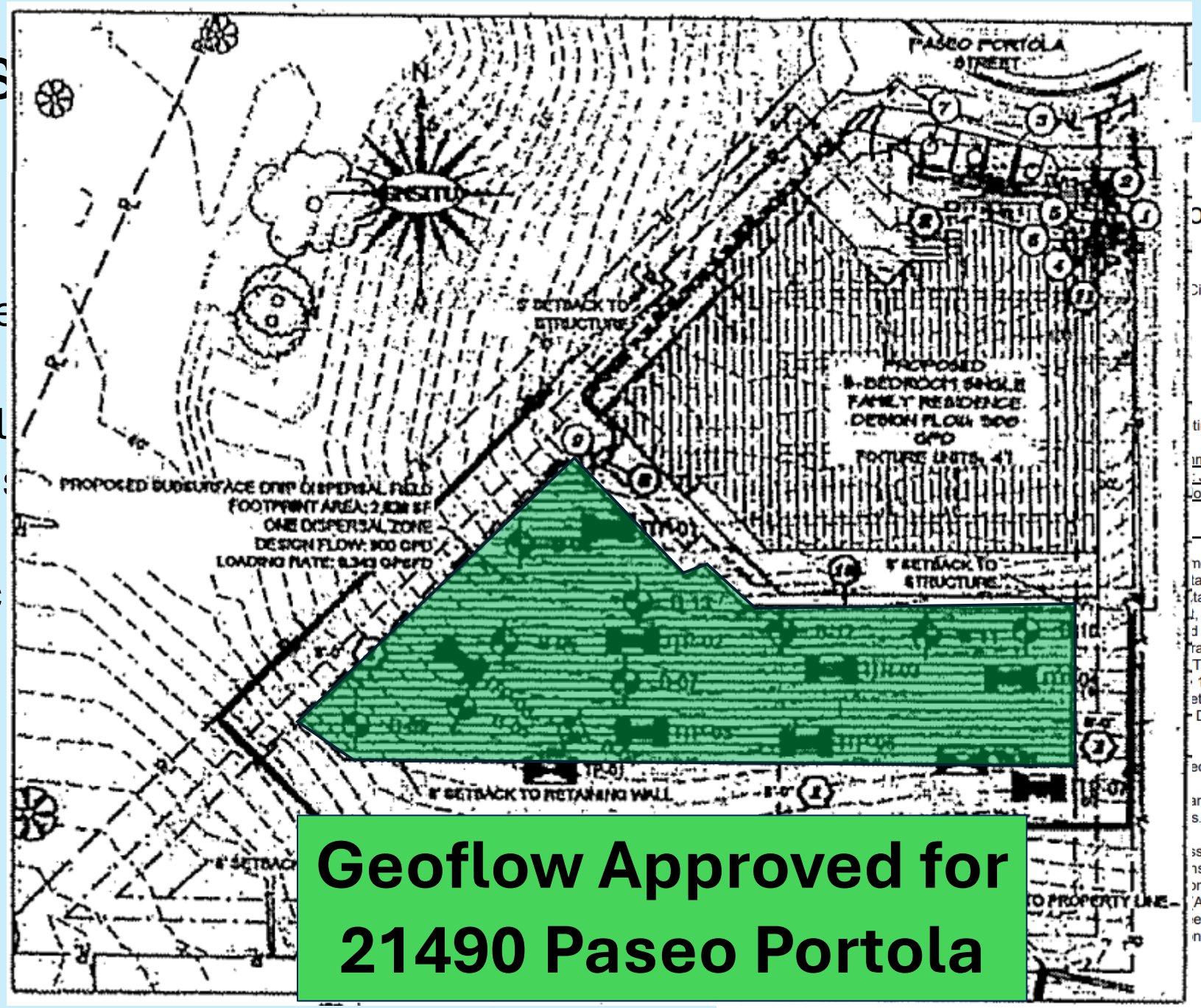
DISCUSSION: The matter is an appeal of the Planning Commission's approval of CDP No. 16-038, VAR Nos. 16-017 and 18-045, an application to construct a new two-story, single-family residence and other associated development on a lot that contains foundation remnants of a house destroyed by fire in the 1990s (Attachment C – Project Plans). At the September 3, 2019 Planning Commission meeting, the Commission approved the proposed project and adopted Planning Commission Resolution No. 19-20.

Page 1 of 14
1

Agenda Item # 4.A.

Microdos in the City

- An Example
- Project Incl
  Geoflow Di
- City Counc
  2020



Geoflow Approved for 21490 Paseo Portola

City Council Meeting
06-08-20
Item
4.A.

ort

City Council

ting Date: June 8, 2020

mission Resolution No.
James E. Moore, Tracy
ose Fulginiti; Property

ment A), determining the
tal Quality Act (CEQA),
tal Development Permit
, two-story single-family
d associated equipment,
rading, and construction
TS), including Variance
1 and VAR No. 18-045
et located in the Single-
District at 21490 Paseo

ecommended action.

an for Fiscal Year 2019-
s.

ssion's approval of CDP
nstruct a new two-story,
on a lot that contains
Attachment C – Project
eting, the Commission
n Resolution No. 19-20.

Project Conditioned to Prevent Landscape View Obstructions

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

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).

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).

Proposed View from PCH



Proposed 18 Ft. By Right SFR Will Minimize Bluewater View Obstructions

Proposed View from PCH



6. View southwesterly toward site from furthest edge of PCH (further west from Photo 5).

t. By Right SFR
e Bluewater
tructions

Two Properties Have PVDs Within 1,000 Feet



- 3775 Puerco Canyon
- 3945 Puerco Canyon
- These PVDs are Oriented Towards the Subject Property

MMC Section 17.40.040(A)17 states:
"The primary view corridor shall exclude the first 18 feet of the proposed building height as measured from the existing natural grade or finish grade whichever results in a lower building height."

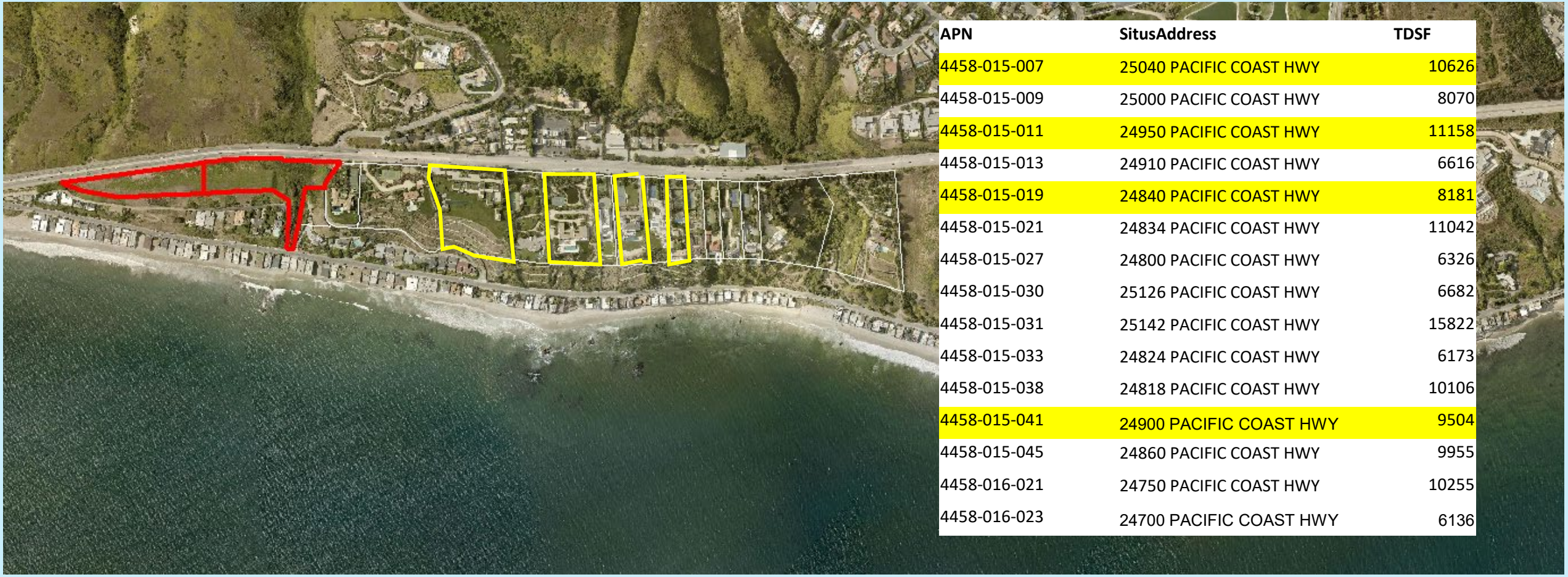
3775 Puerco Canyon Road



3945 Puerco Canyon Road



4 Properties with CDPs Approved after LCP Implementation



APN	SitusAddress	TDSF
4458-015-007	25040 PACIFIC COAST HWY	10626
4458-015-009	25000 PACIFIC COAST HWY	8070
4458-015-011	24950 PACIFIC COAST HWY	11158
4458-015-013	24910 PACIFIC COAST HWY	6616
4458-015-019	24840 PACIFIC COAST HWY	8181
4458-015-021	24834 PACIFIC COAST HWY	11042
4458-015-027	24800 PACIFIC COAST HWY	6326
4458-015-030	25126 PACIFIC COAST HWY	6682
4458-015-031	25142 PACIFIC COAST HWY	15822
4458-015-033	24824 PACIFIC COAST HWY	6173
4458-015-038	24818 PACIFIC COAST HWY	10106
4458-015-041	24900 PACIFIC COAST HWY	9504
4458-015-045	24860 PACIFIC COAST HWY	9955
4458-016-021	24750 PACIFIC COAST HWY	10255
4458-016-023	24700 PACIFIC COAST HWY	6136

9 More Properties with CDPs Approved by Coastal Comm.



APN	SitusAddress	TDSF
4458-015-007	25040 PACIFIC COAST HWY	10626
4458-015-009	25000 PACIFIC COAST HWY	8070
4458-015-011	24950 PACIFIC COAST HWY	11158
4458-015-013	24910 PACIFIC COAST HWY	6616
4458-015-019	24840 PACIFIC COAST HWY	8181
4458-015-021	24834 PACIFIC COAST HWY	11042
4458-015-027	24800 PACIFIC COAST HWY	6326
4458-015-030	25126 PACIFIC COAST HWY	6682
4458-015-031	25142 PACIFIC COAST HWY	15822
4458-015-033	24824 PACIFIC COAST HWY	6173
4458-015-038	24818 PACIFIC COAST HWY	10106
4458-015-041	24900 PACIFIC COAST HWY	9504
4458-015-045	24860 PACIFIC COAST HWY	9955
4458-016-021	24750 PACIFIC COAST HWY	8148
4458-016-023	24700 PACIFIC COAST HWY	6136

13 Properties with CDPs Approved Since Coastal Act Implemented in 1976

Geology Map


Trancas Formation
Young colluvium
Young colluvium
Young colluvium
Young colluvium
Young nonmarine terrace deposits
Monterey Shale
Young nonmarine terrace deposits
Young nonmarine terrace deposits
Trancas Formation
Young nonmarine terrace deposits
Monterey Shale
Landslide deposits
Trancas Formation
Landslide deposits
Landslide deposits
Trancas Formation
Landslide deposits
Trancas Formation
Landslide deposits
Monterey Shale
Monterey Shale
Trancas Formation
Monterey Shale
Monterey Shale
Alluvium
Young nonmarine terrace deposits
Young nonmarine terrace deposits
Young nonmarine terrace deposi
Landslide deposits
Zuma Volcanics
Trancas Formation
Beach deposits
Beach deposits
Beach depos
Zuma Volcanics
Beach depos
Zuma Volcanics
bay

Malibu LCP LIP Section 1.3.1 states:

"If there is a conflict between a provision of the Malibu LCP and a provision of the General Plan, or any other City-adopted plan, resolution, or ordinance not included in the LCP, and it is not possible for the development to comply with both the LCP and such other plan, resolution or ordinance, **the LCP shall take precedence** and the development shall not be approved unless it complies with the LCP provision."

Received
1/16/2026
Planning Div.

From: Tiffany Perry
To: Planning Commission
Cc: Fred Gaines; Allison Cook; Trevor Rusin; Tyler Eaton
Subject: 25200 Pacific Coast Highway / CDP No. 19-012, Lot Merger No. 24-002, and Certificate of Compliance No. 19-009
Date: Friday, January 16, 2026 12:40:09 PM
Attachments: Letter to Planning Commission dated 01-16-26.pdf

Chair Riddick and Honorable Members of the Planning Commission,

Attached please find a letter to you of today's date regarding 25200 Pacific Coast Highway (CDP No. 19-012, Lot Merger No. 24-002, and Certificate of Compliance No. 19-009). If you have any questions, please do not hesitate to contact our office.

Tiffany Perry
Legal Assistant

Gaines & Stacey LLP
5820 Canoga Avenue, Suite 300
Woodland Hills, CA 91367
Telephone - 818-933-0200 ext. 1212
Fax - 818-933-0222
tperry@gaineslaw.com | website

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CC: Planning Commission, PD,

Recording Secretary, File

Date Received 1/16/2026 Time 12:40pm
Planning Commission meeting of 1/20/26
Agenda Item No. 4.B
Total No. of Pages 16

GAINES & STACEY LLP

5820 Canoga Avenue, Suite 300
Woodland Hills, CA 91367
T (818) 933-0200
F (818) 933-0222
www.gaineslaw.com

January 16, 2026

Via Email: planningcommission@malibucity.org

Chair Elizabeth Riddick and Members of the Planning Commission
City of Malibu
23825 Stuart Ranch Road
Malibu, CA 92065

Re: Coastal Development Permit No. 19-012
Lot Merger No. 24-002
Certificate of Compliance No. 19-009
25200 Pacific Coast Highway
Support for Project Approval

Dear Chair Riddick and Honorable Members of the Planning Commission:

This office represents PAR PCH, LLC, the owner of the property located at 25200 Pacific Coast Highway (the "Property"), regarding Coastal Development Permit No. 19-012, Lot Merger No. 24-002, and Certificate of Compliance No. 19-009 (collectively, the "Project"). The Project proposes 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 an onsite wastewater treatment system (OWTS) on one lot to be consolidated from two existing parcels in the Rural Residential, Two-Acre (RR-2) zoning district.

The purpose of this correspondence is to support that findings for Project approval are properly made, and that the Project qualifies for a Class 3 Categorical Exemption from CEQA. As such, we respectfully request that the Planning Commission approve the Project.

The Findings for Project Approval Are Supported by Substantial Evidence in the Record.

Planning Commission Resolution No. 25-05 details the required Coastal Development Permit findings for Project approval. These findings are supported by substantial evidence in the record consistent with California law. See Bixby v. Pierno (1971) 4 Cal.3d 130, 143-144.

The Angel Law letter dated December 16, 2025 ("Angel Letter") incorrectly states that the finding that the Project conforms with the certified LCP (LCP § 13.9(A)) and the finding that the Project is the least environmentally damaging alternative (LCP § 13.9(C)) are not substantiated. As detailed below, both of these findings are properly made.

1. **The Project Conforms with the Certified LCP.**

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 meets all applicable residential development standards, and conforms with the certified LCP.

Despite the Project meeting all applicable residential development standards, the Angel Letter suggests that findings relating to geotechnical issues and slope stability are not supported by substantial evidence in the record.

First, the Angel Letter claims that the Feffer Geological Consulting Reports ("Feffer Reports") for the Project fail to reflect actual conditions at the Project site. Specifically, the Angel Letter claims that the Feffer Reports fail to adequately define the landslide movement affecting the site. This claim is false, as the Feffer Reports detail Feffer's intensive review of research of landslide exploration on the subject property. See Feffer Report dated May 21, 2018, § 3.5.1. Feffer concludes that:

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.

The Angel Letter provides no substantial evidence that Feffer's conclusions in this regard are incorrect. Bakersfield Citizens for Local Control v. City of Bakersfield (2004) 124 Cal.App.4th 1184, 1198 ["Substantial evidence is not '[a]rgument, speculation, unsubstantiated opinion or narrative…"]. A technical response to the Pacific Coast Land Consulting letter dated December 12, 2025 has been prepared by Feffer Geological Consulting, and is attached hereto as Exhibit A.

Second, the Angel Letter claims that the Project does not comply with the LCP because mitigation measures are required to achieve the static factor of safety of at least 1.5. The Angel Letter disingenuously cites to the Planning Commission's approval of CDP No. 24-014 in support of its claim that the Project's design features proposed to meet the required factor of safety necessitate a variance. However, the Angel Letter's reading of CDP No. 24-014 is incorrect. There, the project ***could not*** meet the minimum required factors of safety, with or without mitigation, and as such, required a variance. Here, as detailed in the Feffer Reports, with the proposed stabilization system, the required 1.5 and 1.0 factor of safety is achieved and potential geologic instability is mitigated through Project design.

Finally, the Angel Letter claims that the Project fails to conform with the certified LCP because its analyses fail to consider slope instability and expected erosion over 100 years. Citing CDP No. 22-031, the Angel Letter claims that the Project must achieve a sufficient 100-year life elevation as required by LIP Section 10.4(A). The project at issue in CDP No. 22-031 was on a beachfront lot, and included a variance request for a seawall lower in height than would otherwise be required.

Section 10.4(A) provides:

> "Siting and design of new shoreline development and shoreline protective devices shall take into account anticipated future changes in sea level. In particular, an acceleration of the historic rate of sea level rise shall be considered and its potential impact on beach erosion, shoreline retreat, and bluff erosion rates shall be evaluated. Development shall be set back a sufficient distance landward and elevated to a sufficient finished floor height to eliminate or minimize to the maximum extent feasible hazards associated with anticipated sea level rise over the expected 100 year economic life of the structure."

The Project here is not located on a beachfront lot and does not include a shoreline protective device. CDP No. 22-031 is not analogous or instructive.

2. **The Project Meets Scenic and Visual Impact Requirements and is the Least Environmentally Damaging Alternative.**

The Project's main residence building is limited to a maximum of 17 feet, seven inches and one story, and the guest house height to 10 feet. The proposed location of development is sited on the flattest area of the subject property where slopes range from 4 to 1or 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).

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 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.

The Angel Letter suggests that the Project be conditioned on a further reduction in height to eliminate any obstruction of bluewater views. Reducing the proposed 17-foot, 7-inch structure by another 8 feet, five inches to eliminate views of the structure from PCH is infeasible and would deprive the Applicant of development rights enjoyed by other similarly situated property owners in violation of the federal equal protection clause (U.S. Cons., 14th Amend.) and its California counterpart (Cal. Const., art. I, § 7(a)). See Village of Willowbrook v. Olech (2000) 528 U.S. 562, 564 [persons who are similarly situated with respect to the legitimate purpose of a law must be treated alike under the law; plaintiff may state a claim for violation of equal protection as a "class of one"].

The Project Qualifies for a Class 3 Categorical Exemption Under CEQA.

As mandated by Public Resources Code Section 20184, State CEQA Guidelines (the "Guidelines") Section 15300 includes a list of classes of projects which are exempt from CEQA because they have been determined to not have a significant effect on the environment. The Class 3, which comprises the construction of "new, small facilities or structures," including "[o]ne single-family residence, or a second dwelling in a residential zone," and "up to three single-family residences" "[i]n urbanized areas." (14 Cal. Code Regs. § 15303(a)) is included on that list.

Here, Planning Commission Resolution No. 25-05 properly details findings in support of the Project's qualification, as a single-family home with customary accessory structures, for the Class 3 categorical exemption.

Substantial evidence supports the City's determination that the Project is categorically exempt. "The substantial evidence test [] governs review of an agency's factual determination […] A reviewing court does not conduct an independent review of the record. It must affirm an agency's factual determination that a project fits within an exemption category as long as its determinations are supported by factual evidence." 1 *Practice Under the California Environmental Quality Act,* § 5.126.D (2d ed. Cal. CEB), citing numerous cases; see also North Coast Rivers Alliance v. Westlands Water Dist. (2014) 227 Cal.App.4th 832, 852.

The Angel Letter claims that the Class 3 categorical exemption does not apply here because the proposed house is not "small," it does not qualify as a "small structure" for purposes of the exemption. The Angel Law represents that 22 published court opinions involving a project relying on the Class 3 categorical exemption all involved homes that measured less than 6,500 square-feet. However, a review of just one of those cases, the seminal case for exclusions from categorical exemptions under CEQA, Berkeley Hillside Preservation v. City of Berkeley (2015) 60 Cal.4th 1086, reveals the Angel Letter's misrepresentation of relevant facts. In that case, a Class 3 categorical exemption was upheld for a single family home project that included a 6,478 square-foot home with an attached 3,394 square-foot garage. The proposed residence would cover about 16 percent of the lot. The total square footage of the home in Berkeley Hillside Preservation was therefore 9,872 square feet, larger than the 9,219 square-foot home proposed here. The home in Berkeley Hillside Preservation additionally covered about 16 percent of the lot, while the proposed lot coverage here is less than 8 percent.

Case law supports application of the Class 3 categorical exemption here, and the Angel Law fails to meet its burden of providing any substantial evidence that the categorical exemption does not apply.

Additionally, the Angel Letter fails to establish that any exceptions provided in Guidelines Section 15300.2 apply here. Guidelines Section 15300.2 provides a list of six exceptions to categorical exemptions, of which the Angel Letter discusses three.

a) *Location. Classes 3, 4, 5, 6, and 11 are qualified by consideration of where the project is to be located--a project that is ordinarily insignificant in its impact on the environment may in a particularly sensitive environment be significant. Therefore, these classes are considered to apply in all instances, except where the 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.*

By its terms, the location exception applies "where the project may impact on an environmental resource of hazardous or critical concern." Here, no environmental resource of hazardous or critical concern has been designated, mapped, or officially adopted for the Property.

The Angel Law attempts to contort this exception by suggesting that it applies to properties with public ocean views from PCH. No case law or provision in the City's certified LCP support the Angel Letter's strained reading that public ocean views from PCH are an environmental resource of "hazardous or critical concern." In fact, Berkeley Hills Watershed Coalition v. City of Berkeley (2019) 31 Cal.App.5th 880, cited in the Angel Letter in support of this claim, upheld a Class 3 categorical exemption for construction of three homes on adjacent hillside parcels, concluding that the project site was not located in a designated environmentally sensitive area and thus the location exception to the categorical exemption did not apply.

b) *Significant Effect. A categorical exemption shall not be used for an activity where there is a reasonable possibility that the activity will have a significant effect on the environment due to unusual circumstances.*

The Angel Letter alleges that unusual circumstances exist because of the Project size and particular location. With regard to the Project's size, as discussed above, the Project size is consistent in size with the project at issue in Berkeley Hillside Preservation v. City of Berkeley (2015) 60 Cal.4th 1086, where the court upheld the city's adoption of the Class 3 exemption. Again, the proposed lot coverage for the Project site is less than 8 percent. Once again, no case law supports the Angel Letter's claim that project size alone constitutes an "unusual circumstance" that would except the Project from the Class 3 categorical exemption. Entirely missing from the Angel Letter analysis is any evidence, much less substantial evidence, of significant environmental effects resulting from the Project's size. See Gentry v. City of Murrieta (1995) 36 Cal.App.4th 1359, 1417 ["[I]n the absence of a specific factual foundation in the record, dire predictions by nonexperts regarding the consequences of a project do not constitute substantial evidence."]; Perley v. County of Calaveras (1982) 137 Cal.App.3d 424, 436-437 [unsubstantiated fears and desires of project opponents do not constitute substantial evidence].

Regarding the Project's location 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 geotechnical reports address potential impacts of the environment on the Project, and make recommendations for site preparation and earthwork, foundations, retaining walls, drainage, and other measures to reduce the impact of potential landslides on the Project. The Project's reports do not indicate that construction of the proposed residence would exacerbate existing landslide conditions or harm the environment. In Berkeley Hills Watershed Coalition v. City of Berkeley (2019) 31 Cal.App.5th 880, the court upheld the Class 3 exemption and rejected claims identical to those made in the Angel Letter by the project opponents there.

The Angel Letter additionally claims that certain Project design features that are proposed to meet minimum factors of safety are "mitigation" measures that disqualify the Project from categorical exemption. Here, the Project design features the Angel Letter complains of are more aptly characterized as an integral part of the overall project, and therefore not "mitigation." The design features do not constitute a "mitigation" measure because they are part of the project

itself, and are not a "subsequent action proposed to mitigate or offset the alleged adverse environmental impacts" of the Project. Berkeley Hillside Preservation v. City of Berkeley (2015) 241 Cal.App.4th 943, 961.

Moreover, CEQA case law is clear that the City may impose conditions on a project that address environmental issues for legitimate reasons without running afoul of CEQA. See Protect Telegraph Hill v. City and County of San Francisco (2017) 16 Cal.App.5th 261, 267-268; Historic Architecture Alliance v. City of Laguna Beach (2023) 96 Cal.App.5th 186, 208 [changes to project design to comply with existing standards were not improper mitigation measures].

Guidelines § 15300.2(c), provides: "A categorical exemption shall not be used for an activity where there is a reasonable possibility that the activity will have a significant effect on the environment due to unusual circumstances." The plain language of this provision supports the view that, for the exception to apply, it is not alone enough that there is a reasonable possibility the project will have a significant environmental effect; instead, in the words of the Guideline, there must be "a reasonable possibility that the activity will have a significant effect on the environment *due to unusual circumstances*." Guidelines, § 15300(c), italics added. "Allowing project opponents to negate [exemption] determinations based on nothing more than 'a fair argument that the project will have significant environmental effects' … would be fundamentally inconsistent with the Legislature's intent in establishing the categorical exemptions." Berkeley Hillside Pres. v. City of Berkeley (2015) 60 Cal. 4th 1086, 1106.

The Angel Letter fails to meet its burden of establishing that the Project will have a significant effect on the environment due to unusual circumstances.

c) *Scenic Highways. A categorical exemption shall not be used for a project 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. This does not apply to improvements which are required as mitigation by an adopted negative declaration or certified EIR.*

There are no historic buildings on the Property, and no rock outcroppings or similar resources exist at the Property. While the Project will result in a partial impediment to bluewater views from PCH, project design features minimize impediment to such views. The Project is consistent with the LCP's scenic resource protection policies, and the Angel Letter fails to cite to any project or case law that supports its novel argument that partial impediment of bluewater views from PCH result in the application of this exception from a categorical exemption.

The Angel Letter fails to meet its burden of establishing that an exception to the Class 3 categorical exemption applies. See Berkeley Hillside Preservation v. City of Berkeley (2015) 60 Cal.4th 1086, 1105 [a party challenging the exemption has the burden of producing evidence supporting an exception].

Conclusion.

As detailed above, the findings in support of Project approval are well supported by substantial evidence in the record. The Project qualifies for a Class 3 categorical exemption from CEQA, and no exceptions to the exemption apply.

We respectfully request that the Planning Commission approve the Project as conditioned. Thank you for your time and consideration of this matter.

Sincerely,

GAINES & STACEY LLP

Fred Gaines

By
FRED GAINES

cc: Allison Cook (Via Email: capstonecityplan@gmail.com)
Tyler Eaton (Via Email: teaton@malibucity.org)
Trevor Rusin (Via Email: Trevor.Rusin@bbklaw.com)

Exhibit A

FEFFER
GEOLOGICAL CONSULTING

January 14, 2026 File No. 1992-75

PARPCH, LLC.
P.O. Box 6528
Malibu, CA 90264

Subject: **RESPONSE TO 2nd RALPH JEFFERY LETTER**
Remaining Unaddressed Items by Pacific Coast Land Consulting
Dated December 12, 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

RESPONSE TO RALPH JEFFERY LETTER
Preliminary Report by Pacific Coast Land Consulting
Dated August 15, 2025
Response By: Feffer Geological, Dated August 20, 2025

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

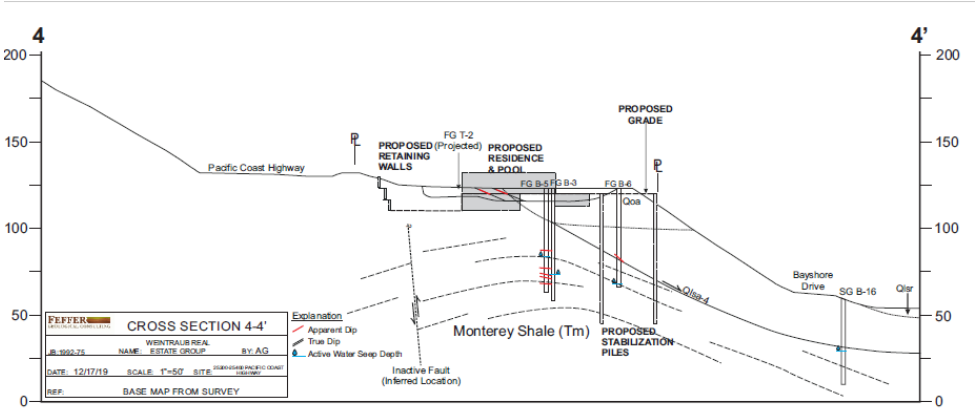
As referenced above, Feffer Geo provided a response to a previous Pacific Coast Land Consulting (Ralph Jeffery) letter and Ralph has now issued an additional letter that we are responding to below.

We would like to reiterate that Ralph is not providing any supporting cross sections, analysis, slope stability, and does not appear to have reviewed the referenced Feffer Geological reports and City of Malibu review and approval letter. 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.

We have addressed the following items from the recent letter:

- Ralph states that we didn't analyze some of the previously identified ancient landslides on site and didn't design our pile and tieback system appropriately. We also mischaracterized the subsurface conditions within the 12 large diameter borings that were downhole logged, 2 fault trenches, and 8 exploratory test pits and that missing data in our logs indicates we didn't perform an adequate job.
- Ralph says that an offset shown on the plot for inclinometer SI-5 in the 2019-2020 assessment district report represents actual movement. Additionally, Ralph says this supposed "movement" at a depth of about 25' wasn't used in our slope stability analysis.

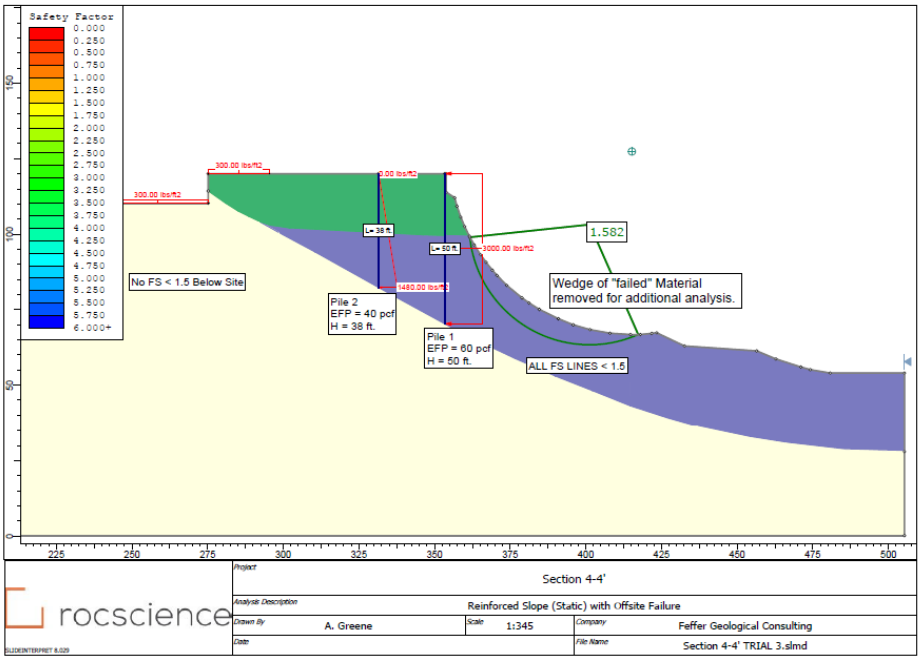
As stated in the previous response, Ralph has not reviewed the slope stability analysis included within our reports. While we did not find evidence of ancient landsliding at the site within the subsurface investigation conducted by this office, we assumed that the reported ancient slides existed and used the slide geometry in the slope stability analysis to design the piles and tiebacks in several reports. Please see cross section 4-4' below wherein we drew the reported ancient slide (Qlsa-4) in the December 17, 2019 report.



With regard to the supposed movement shown in SI-5 in the 2019-2020 assessment report, this is incorrect. Fugro modified the reporting of data and chose a different initial data set to plot the data in the 2019-2020 report. The slight apparent "movement" of 0.2" is an artifact of, as it says in the report, of modification of the data with zero shift and/or rotation corrections by modification of the data sets. What is shown in the 2019-2020 report (and not shown in the previous reports from 2008-2018) is an artifact of the data manipulation and was correctly reported as being no indication of slide movement. Note that Josh Feffer graduated from a short course specializing in Inclinometer readings, modification, and interpretation. The conclusion that no meaningful movement has occurred in SI-5 is supported by the assessment district reports from 2008-2009 through 2023-2024 that state that no movement was detected in SI-5. Ralph simply states that we parroted the findings from the assessment district report and that Feffer and Fugro are wrong and that he, Ralph, is correct.

Nonetheless, even if Ralph hasn't misinterpreted the data (fyi, he also incorrectly stated that "Movements as small as 0.1 inch over 100 feet are meaningful." Which is entirely incorrect because that amount of movement is not within the reliable accuracy of the instrument), we have already assessed a potential movement at a depth of 25 feet in the location of the inclinometer SI-5. The depth of the ancient slide plane in Qlsa-4 is about 25 feet below the elevation of Bayshore Drive. Therefore the "supposed" movement at 25 feet in SI-5 (which would be located on section 4-4' below Bayshore Drive) has already been assumed in the slope stability analysis. The material within the "ancient landslide" was assumed to fail and the piles designed to support the subject site and isolate the site from the slope.

Therefore, this idea that Ralphs reinterpretation of modified data from a single snapshot in time (which was stated by City of Malibu as not being actual movement) is correct, was already assessed by FGC. See the stability analysis from the December 2019 report.



- Ralph states that somehow there is "missing" information within the logs prepared by this office.

With regard to the reporting of data within the borings as somehow being deficient, this is nonsense. The data was reported as such due to homogeneous nature of the underlying bedrock. Attempting to say that data is missing is wrong.

What is strange is that Ralph uses a log by Leighton to show how data should be provided but the Leighton log has the same "missing gaps" of data.

The example Leighton log used by Ralph has "gaps" of data from 35-40', 43-49', 49-54', and 55-60'. According to Ralph, Leighton logs are correct and have no "missing" data even though 21 feet of description is missing from 25 foot interval of log. When the FGC log uses the same level of description, Ralph writes that data is somehow missing, but when Leighton does the same, he states that the same level of detail is excellent.

CONCLUSION

We await actual cross sections, slope stability analysis, and an explanation of how structurally stabilizing the lot above creates a less safe condition for properties below.

Until then, the points brought up are just an attempt to besmirch the reviewers of the City of Malibu and the undersigned consultant.

Received
1/20/26
Planning Div.

From: Malibu Township Council
To: Denise@Coastal Gonzalez; Trevor Rusin; Jyoti Drummond
Cc: gabriella@coastal.ca.gov; Bill Sampson; Patt Healy; R Y A N; Tiffany Murray; Jan Ravlich; Rob Duboux; Bruce Silverstein; Tyler Eaton; Frank Angel; Jun Fujita Hall; John Mazza; Marni Kamins; Planning Commission
Subject: Re: 25200 PCH - Weintraub property
Date: Friday, January 16, 2026 7:12:35 PM
Attachments: Letterfromelkinskaltlackofstabilityanalysis.pdf
variancerequired 2.pdf
25200 pch opposition revised comments.docx

Hello Denise and Trevor,

Has your office had time to review the proposed project's staff report noting no required variance to the factor of safety and also excessive grading have been applied for? Pls advise on if this item should be continued until your office can make a much needed determination. We have been waiting for an answer to this from the city since last August with NO response. This is supposed to be heard by the Planning Commission this Tuesday evening and we have yet to receive any response from the city attorney or Coastal Commission when we followed up on this mid December.

Without this variance application this will render sections 9.4D and section 13.26 of the LIP as meaningless and not necessary for any new construction in geo hazardous areas which is a dangerous precedent. Pls advise as soon as possible.

Because it is NEW construction with an enormous new OWTS and never allowed to be built upon previously, the site MUST be examined and based on EXISTING worse case geologic conditions NOT on any unstudied and risky construction mitigation efforts for the safety of the community and the adjacent neighbors below especially.

The city's staff report at the VERY LEAST needs to be updated to clearly state under HAZARDS that the proposed project is WITHIN the landslide assessment district and a mapped landslide area. And ANY new construction in these areas legally REQUIRE a variance to be applied for to the factor of safety of both 1.5 (static) and 1.1 (pseudostatic) which is also not correctly summarized through our public correspondence on p 39 of the current staff report. Again, neither of these safety factors can be met under existing worse case site conditions as per the applicant's OWN completed geotechnical studies.

Thank you,

Jo Drummond
Malibu Township Council

See code sections here:

City of Malibu Local Implementation Plan Section 9.4, Part D, states, in part:
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… *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*

CC: Planning Commission, PD,

Recording Secretary, File

Date Received 1/20/26 Time 7:30 a.m.
Planning Commission meeting of 1/20/26
Agenda Item No. 4B
Total No. of Pages 27

permanent displacement of less than 50 mm. 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.*
13.26. VARIANCES The purpose of this section is to provide a mechanism for applicants to make an application for a coastal development permit **variance from standards or requirements of the Malibu LIP** and to provide specific findings for approval or denial of variances.
City of Malibu Local Implementation Plan Section 13.26.5 states, in part:
Following a public hearing, the Planning Commission shall record the decision in writing. The Commission may approve and/or modify an application for a variance
in whole or in part, with or without conditions, only if it makes all of the following findings of fact supported by substantial evidence that:
B. The granting of such 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 granting of the variance will not constitute a special privilege to the applicant or property owner.
D. The granting of such variance will not be contrary to or in conflict with the general purposes and intent of this Chapter, nor to the goals, objectives and policies of the LCP…
G. The variance request is consistent with the purpose and intent of the zone(s) in which the site is located. A variance shall not be granted for a use or activity
which is not otherwise expressly authorized by the zone regulation governing the parcel of property.
H. The subject site is physically suitable for the proposed variance.
Coastal Act Section 30253 and Malibu Land Use Plan (LUP) Policy 4.2 provide standards that require new development to minimize risks to life and property in areas of high geologic, flood, and fire hazard, assure stability and structural integrity, and neither create nor contribute significantly to erosion, geologic instability, or destruction of the site or surrounding area.



On Jan 10, 2026, at 6:25 AM, Jyoti Drummond [redacted] wrote:

Hello Denise,

I hope the New Year is off to a better start for all of us.

The staff report for the project at **25200 Pacific Coast Highway** has now been released (link

below), and the hearing is scheduled for **January 20 at 6:30 p.m.**, identified as the first prioritized item. I have reviewed the proposed resolution within the approximately 1,300-page report and am very concerned that it **does not acknowledge that the site lies within the Malibu Landslide Assessment District and an active landslide hazard area**.

Because the project is proposed on a mapped landslide and includes extensive grading, substantial new massing, and **stabilization measures involving piles on the order of 100 feet in depth**, the project **requires a variance to the factor-of-safety standards under LIP §9.4(D)**. No such variance has been applied for.

As I explained in my prior correspondence, **this application cannot lawfully proceed without that variance**. LIP §9.4(D) requires that slope stability demonstrate a **minimum factor of safety of 1.5 under worst-case geologic conditions**, and the applicant's own geotechnical analyses—referenced in the staff report (see p. 1137)—confirm that this threshold **cannot be met under existing conditions**. Where compliance cannot be achieved, a variance under **LIP §13.26** is mandatory and cannot be waived or overlooked.

In addition, based on the scope of grading proposed, it appears the project may also require a **grading variance**, which likewise has not been applied for or analyzed.

I respectfully ask that your office review the staff report and advise City staff that the **required variance or variances must be processed before this application can move forward**. Proceeding without them places the Planning Commission in an untenable position and risks avoidable procedural error.

It is particularly unfortunate that such an extensive report has been prepared when, more than a year after the Palisades Fire, only **22 rebuild permits** have been issued. Limited staff and leadership resources are clearly stretched thin, and failures to enforce threshold LCP requirements at the outset—such as in this case—only compound delays and workload. Addressing these issues early would better serve both lawful development and Malibu's recovery.

For reference, the agenda materials are available here:
https://www.malibucity.org/AgendaCenter/ViewFile/Item/7832?fileID=85371

Thank you very much for your time and attention to this matter.

Best regards,
Jo Drummond
Malibu Township Council

---------- Forwarded message ---------
From: **Malibu Township Council** <[redacted]>
Date: Thu, Dec 25, 2025 at 9:25 AM
Subject: Re: 25200 PCH - Weintraub property
To: Gabriella@Coastal Gough <gabriella.gough@coastal.ca.gov>, Denise@Coastal Gonzalez <Denise.Gonzalez@coastal.ca.gov>
Cc: Bill Sampson [redacted], Patt Healy [redacted], R N [redacted], Tiffany Murray [redacted], Jan Ravlich [redacted], Rob Duboux <rduboux@malibucity.org>, K Hill [redacted], Bruce Silverstein <bsilverstein@malibucity.org>, Trevor Rusin

<trevor.rusin@bbklaw.com>, Jyoti Drummond [redacted], Tyler Eaton <teaton@malibucity.org>, Jun [redacted], Frank Angel <fangel@angellaw.com>, Mariela Guastavino [redacted]

Hi Gabrielle and Denise! I received both your e-mails at the same time thank you!

Here is the staff report that is already out for the above -

malibucity.org

It does NOT apply for a variance which should be required. On p 514 of this report it states the following quote from Feffer, the applicant's consulting geologist:

"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."***

Thus, the **worst case** scenario to determine the existing static and seismic factor of safety was not applied.

If you read the geotechnical report dated 11.18.2021 referred to in this staff report that we give definitive results from in our first email to you it is CLEAR that the applicant is attempting to avoid a variance by increasing the factor of safety required using a stabilization system in the order of 100 ft piles that have not been evaluated in any geotechnical way as required with a variance. As the lot has NEVER been built upon and is proposing a HUGE development with multiple pools, underground elements, etc. the city needs to follow their OWN CODES and have the applicant apply for a variance based on PRE-CONSTRUCTION conditions not POST construction. This is just a blatant attempt at avoiding the proper evaluation necessary for a project of this scale on a known landslide area that obviously cannot meet the required factor of safety under normal conditions.

Please instruct the City to have the required variance applied for so that the proposed excessively deep piles, foundations, etc. are all analyzed carefully as should be completed for any new construction (that is NOT a fire rebuild) to determine if it will be actually safe or not.

Without doing this means that sections 9.4D and section 13.26 of the LIP are meaningless and not necessary which is completely irresponsible and hopefully only overlooked by our building department.

Thank you both for your help in rectifying this matter for the safety of our precious coastal

city. It's ridiculous that after 5 EMAILS to the city and city attorneys about this (below) that the variance has yet to be applied for and the application has already been set for planning commission hearing without any preemptive action thus far.

Jo Drummond
On behalf of Malibu Township Council

On Dec 24, 2025, at 1:28 AM, Gonzalez, Denise@Coastal <Denise.Gonzalez@coastal.ca.gov> wrote:

Hi Jo,

I'm not sure you've received my email response from yesterday afternoon to your initial email below. To reiterate, Commission staff will review the City's staff report when this project is scheduled for a Planning Commission meeting and will provide any comments on the project if deemed necessary. We'll be sure to forward a copy of any comments or letters we submit to the City regarding this project.

Wishing you a wonderful holiday season!

Best,
Denise

Denise Gonzalez
District Supervisor
California Coastal Commission
South Central Coast District
89 South California Street, Suite 200
Ventura, CA 93001
Denise.Gonzalez@coastal.ca.gov | (805) 585-1800

From: Malibu Township Council [redacted]>
Sent: Tuesday, December 23, 2025 8:57 AM
To: Gonzalez, Denise@Coastal <Denise.Gonzalez@coastal.ca.gov>
Cc: Bill Sampson [redacted]; Patt Healy [redacted]; R N [redacted]; Tiffany Murray [redacted]; Jan Ravlich [redacted]; Rob Duboux <rduboux@malibucity.org>; K Hill [redacted]; Bruce Silverstein <bsilverstein@malibucity.org>; Trevor Rusin <trevor.rusin@bbklaw.com>; Jyoti Drummond [redacted]; Tyler Eaton <teaton@malibucity.org>
Subject: Re: 25200 PCH - Weintraub property

Hi Denise!

I realize you might not get to this until the new year but if you can give an approximate time on when you can give an answer to the question about a variance requirement below that would be very helpful. The item is scheduled to be heard on Jan 12 or 19 and we need clarity by then.

Thanks very much! Jo Drummond
On behalf of MTC

On Dec 17, 2025, at 7:22 PM, Malibu Township Council [redacted] wrote:

Good morning Denise!

Hope all is well and you're ready for the upcoming holidays...:).

We have another question regarding a project at 25200 PCH, CDP 19-02. The project is for new construction of over 12000 sq ft including basement and underground garage, 10 pools and 12 bedrooms and bathrooms within the active Malibu Road Landslide Assessment District. As per the attached applicant's geotechnical report (three difft links below in case due to size) dated 11.18.2021 on p 563 the static factor of safety is calculated between 1.094 to 1.186 WELL BELOW the factor of safety threshold of 1.5. This would normally not meet Section 9.4 D of Malibu's LIP and require a variance for the factor of safety under Section 13.26.

HOWEVER, the City is NOT interpreting calculating the factor of safety at Worse Case scenario as required under Section 9.4D 2. and NOT requiring a VARIANCE for the factor of safety. This is BECAUSE the applicant's geotechnical consultant subsequently repeated a static and seismic slope stability test with fabricated values for using 100 ft piles to supposedly "mitigate" potential geologic instability and achieve a factor of safety of 1.5 static and 1.0 seismic. In fact on p 6 of the attached report dated 11.18.2021 it states: "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."

As per our issue a few years ago with Option 4 for Fire Rebuilds we are again seeing codes bent allowing future incomplete construction to justify approvals.

A variance is the only lawful mechanism through which proposed mitigation and construction measures on a landslide area may be evaluated, as required by LIP 13.26.5 (B) and Coastal Act 30253. Allowing mitigation to be counted in the baseline for slope stability would eliminate any meaningful "worse-case" analysis under 9.4D of the LIP and allow applicants to BYPASS the variance process entirely.

The proposed stabilization system includes multiple piles on the order of 100 feet in depth (p 152/164 attached) within a mapped landslide. Excavation and installation at that scale have the potential to disturb the landslide mass and therefore must be evaluated through the required variance process, not assumed as a basis for approval.

We are concerned that this item is scheduled for approval at the Planning Commission hearing at the first meeting in January before mandatory LCP requirements have been satisfied. This interpretation must be rejected by the Coastal Commission in writing to ensure the appropriate variance is applied for by the City.

I want to be clear that I recognize how **overextended the Community Development Department** is, and I genuinely empathize with staff working under extraordinary workload pressure. That is precisely why **early, consistent code enforcement matters**—to reduce rework, appeals, and delays that ultimately slow Malibu's recovery.

As a fire victim myself, this issue is deeply important to me, to my family, and to the many Malibu families who are still trying to rebuild their lives. It affects our schools, our local businesses, and our long-term recovery. I am hopeful that the City's new leadership in Community Development will be supported in enforcing the LCP clearly and consistently at the outset. That process begins here with removing this item from the Planning Commission agenda and applying for the required variance. Without early, consistent enforcement at this level, these code requirements will continue to be violated, and Malibu's rebuilding efforts risk being stalled indefinitely.

Please let us know how the Coastal Commission would handle this case.

Thank you, Jo Drummond
on behalf of Malibu Township Council

https://cityofmalibuca.nextrequest.com/documents/55817576

https://acrobat.adobe.com/id/urn:aaid:sc:us:793034ba-bc3e-4423-b317-d1bd7315c103

https://drive.google.com/file/d/1SeYciflVyhIQ9neM9s1Kln5-iAdXgwKY/view?usp=sharing

Begin forwarded message:

From: Malibu Township Council [redacted]
Date: December 16, 2025 at 12:21:43 PM PST
To: capstonecityplan@gmail.com, Yolanda Bundy <ybundy@malibucity.org>, Tyler Eaton <teaton@malibucity.org>, Rob Duboux <rduboux@malibucity.org>, Trevor Rusin <trevor.rusin@bbklaw.com>, Kellan Martz <Kellan.Martz@bbklaw.com>
Cc: Frank Angel <fangel@angellaw.com>, Bill Sampson [redacted], Patt Healy [redacted] Jason Ernst <jernst@malibucity.org>, Gail Duncan <gduncan@malibucity.org>, John Mazza [redacted], Skylar Peak [redacted], Elizabeth Riddick [redacted], marni kamins [redacted], Drew Leonard [redacted], Rebecca Evans <revans@malibucity.org>, [redacted] cvo@angellaw.com, sleonard@angellaw.com, Tiffany Murray [redacted], Jan Ravlich [redacted], Emily <emily@azimuth.partners>, R N [redacted], Bruce Silverstein <bsilverstein@malibucity.org>, HayLynn Conrad <HConrad@malibucity.org>, Charlotte Frieze [redacted], Danny [redacted], K Hill

[redacted], Hayley Mattson <hayley@13stars.media>,

Subject: Re: 25200 PCH - Weintraub property

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.

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**

www.trinityroseofficial.com
Sent from my iPhone
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.

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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)

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.

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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; 20238 Piedra Chica Road.pdf

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 <healypatt@aol.com>, 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

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)

9.4. DEVELOPMENT STANDARDS

A. All proposed new development located in or near an area subject to geologic hazards shall be required to submit a geologic/soils/geotechnical study report prepared by a licensed Certified Engineering Geologist (CEG) or Geotechnical Engineer (GE) that adheres to the City of Malibu's "Guidelines for the preparation of engineering geologic and geotechnical engineering reports," dated February 2002, and identifies any geologic hazards affecting the proposed development site and any necessary mitigation measures. The geologic/soils/geotechnical report shall include a statement by the consulting CEG or GE that the project site 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. Such reports shall be subject to the review and approval of the City geotechnical staff.

B. All recommendations of the consulting CEG or GE and/or the City geotechnical staff shall be incorporated into all final design and construction including foundations, grading, sewage disposal, and drainage. Final plans must be reviewed and approved for compliance with geologic recommendations by the consulting CEG or GE and the City geotechnical staff.

C. Final plans approved by the consulting CEG or GE and the City geotechnical staff shall be in substantial conformance with the plans approved by the final City decision making body relative to construction, grading, sewage disposal and drainage. Any substantial changes in the proposed development approved by the City which may be required by the project consultants or City geotechnical staff shall require an amendment to the permit or a new Coastal Permit.

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

13.26. VARIANCES

The purpose of this section is to provide a mechanism for applicants to make an application for a coastal development permit variance from standards or requirements of the Malibu LIP and to provide specific findings for approval or denial of variances. A variance shall not be granted which confers a special privilege inconsistent with the limitations upon other properties in the same vicinity and zone in which the subject property is situated or which authorizes a use or activity which is not otherwise expressly authorized by the zoning regulations governing that parcel of property.

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.

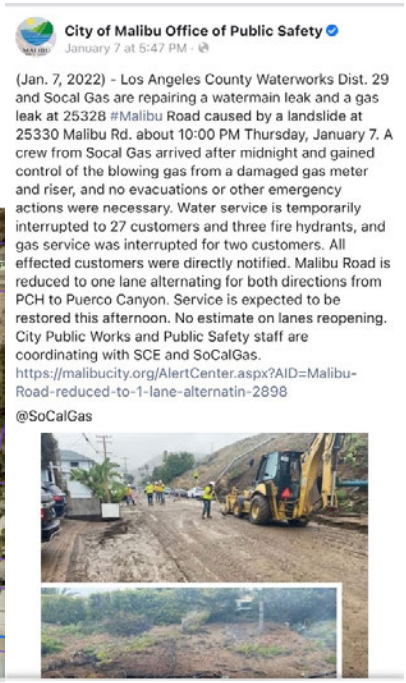
Thank you,

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

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

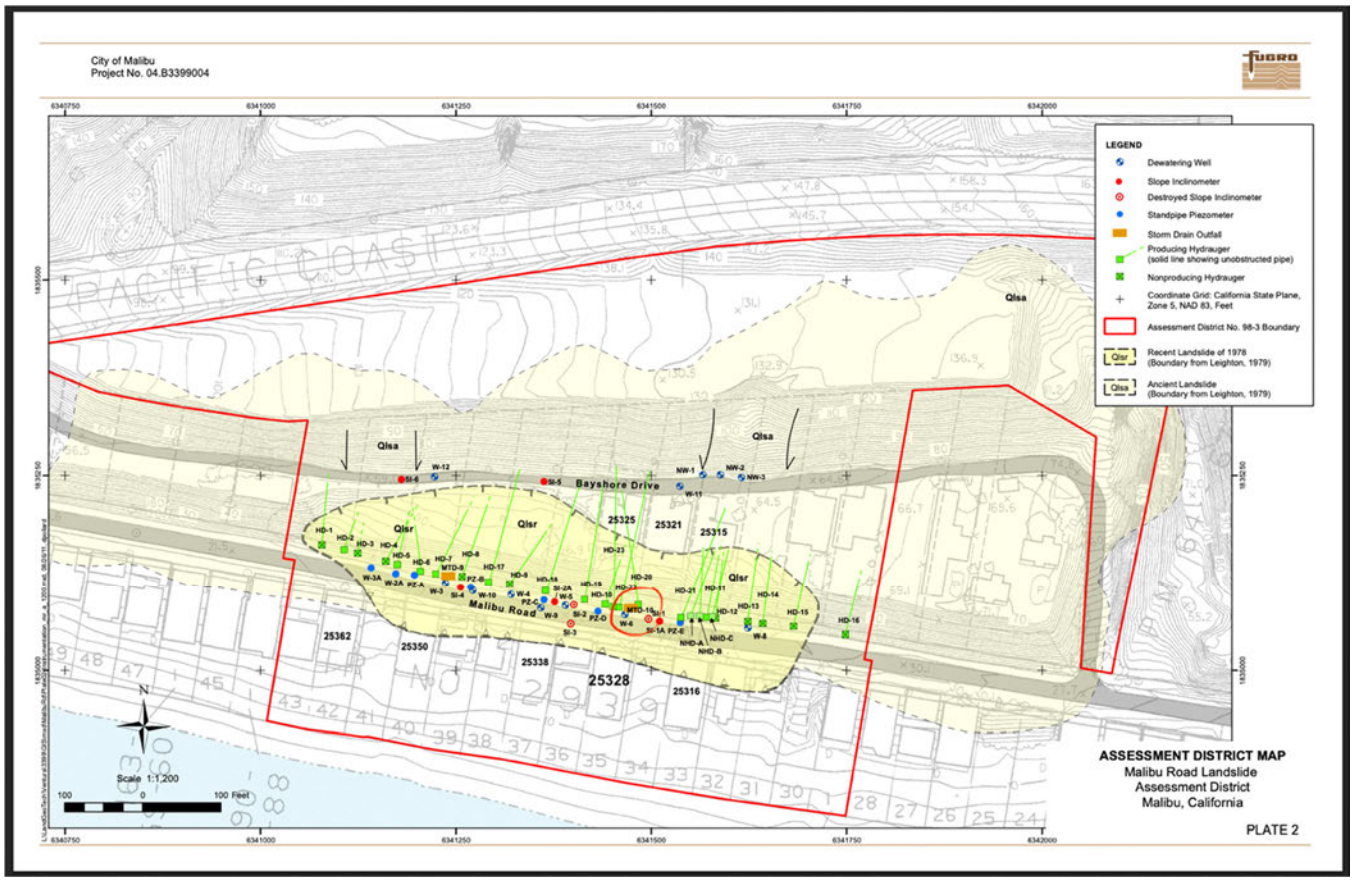
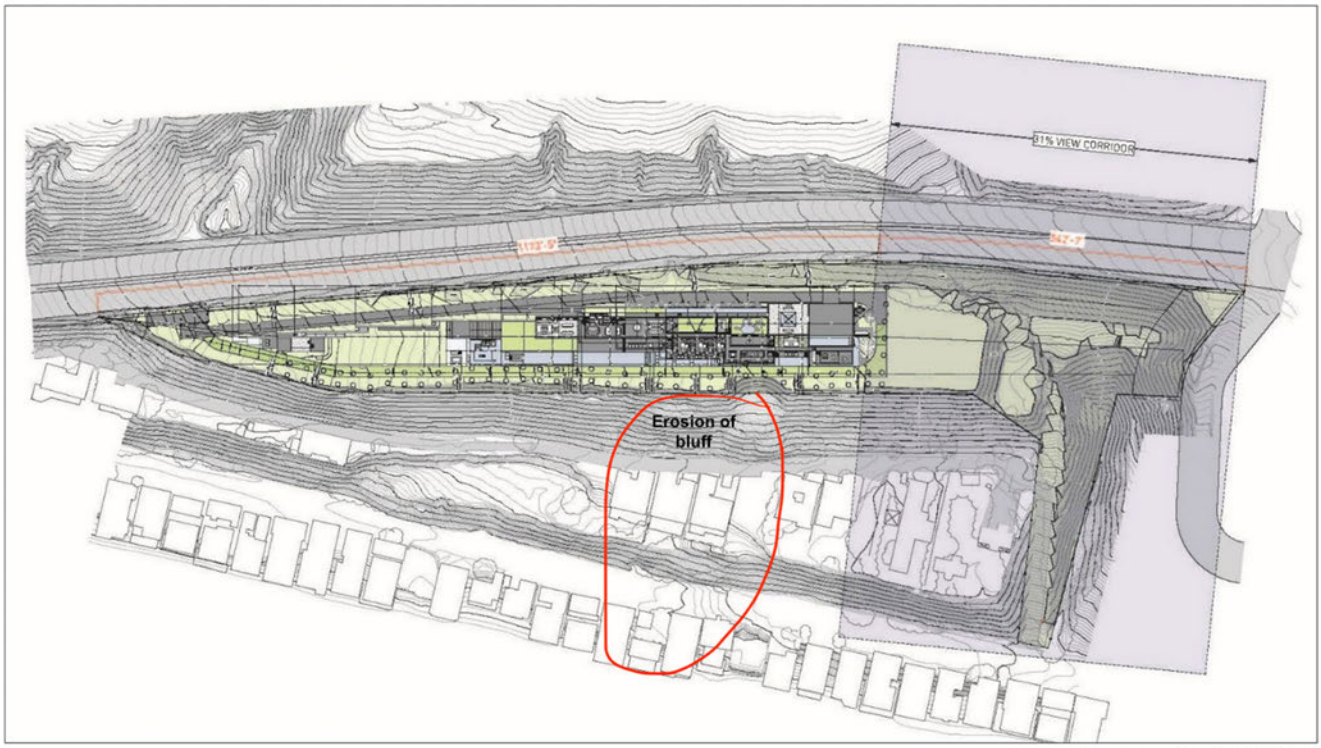
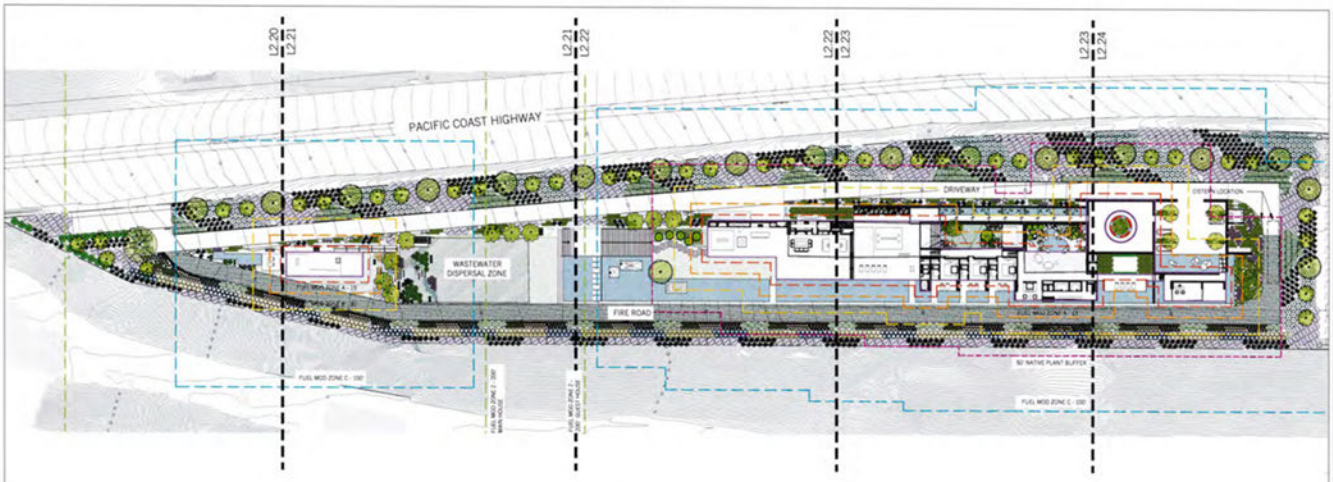


Figure 2 –Proposed Site Plan



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 - 25'
	Fuel Mod Zone B - 50'
	Fuel Mod Zone C - 100'
	Fuel Mod Zone D - 200'

OVERALL PLANTING PLAN

SCALE: 1" = 40'-0"

1

[place]

CONSULTANTS

Property Owner
PMR PCH, LLC
PO Box 6328
Malibu, CA 90265

Design Architect
OPPENHEIM ARCHITECTURE
245 NE 37 Street
Miami, FL 33137
P 305 576 8404
F 305 576 8403
www.oppenoffice.com

Civil Engineers
LC ENGINEERING GROUP
889 Pierce St., Ste. 101
Thousand Oaks, CA 91360
P 805 497 1244
F 818 991 7148
www.lcengrgroup.com

NAME OF ISSUE

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	02/19/21	
BID REVISIONS	04/05/21	1
BID REVISIONS	06/11/21	

PROJECT NO: 2021

SHEET TITLE:

OVERALL PLANTING PLAN

L2.02

Received
1/20/26
Planning Div.

From: Jun Fujita
To: Planning Commission
Subject: 25200 PCH
Date: Tuesday, January 20, 2026 3:35:17 PM
Attachments: Gmail - email to Josh_planning.pdf

---

please enter this into the comments for 25200 PCH
Concerned Citizens of Malibu Road, Inc

CC: Planning Commission, PD,

Recording Secretary, File

Date Received 1/20/26 Time 3:36 p.m.
Planning Commission meeting of 1/20/26
Agenda Item No. 4B
Total No. of Pages 9

25200 PCH
Let the record show that the list of questions from January 11 were unanswered by Geotech engineer Josh Feffer a meeting with the neighbors was scheduled with 2 hours notice, a follow up email was sent.

email to Josh

11 messages

Jun Fujita [redacted] Mon, Dec 15, 2025 at 2:20 PM
To: admin@feffergeo.com

Hi Josh,

I am very worried about 25200 Pacific Coast Highway.... We still have concerns as residents below, could you alleviate our concerns, with water is being introduced to a known slide assessment area where water is actively being removed from it, I did not see this in your response...it seems like only the site was studied and not the impact to our properties down below and causing instability. You guys are putting a lot of water into the slide plane...and is very concerning and scary...
Feel free to give me a call.

Thank you,
Jun
[redacted]

Geneva Carter <geneva@feffergeo.com> Mon, Dec 15, 2025 at 2:59 PM
To: Jun Fujita [redacted]
Cc: Josh Feffer <josh@feffergeo.com>

Hi Jun,

Confirming receipt of your email. I have passed along this message to Josh and I will have him contact you.

Thank you!

Geneva Carter

Office Manager

1990 S. Bundy Drive, Suite 400

Los Angeles, CA 90025

o. 310-207-5048

f. 310-826-0182

www.feffergeo.com

FEFFER
GEOLOGICAL CONSULTING

[Quoted text hidden]

Jun Fujita [redacted] Mon, Jan 5, 2026 at 12:55 PM

To: Geneva Carter <geneva@feffergeo.com>
Cc: Josh Feffer <josh@feffergeo.com>

Hi Josh,
Thanks for getting back to me.

We are very worried that 5200 PCH will cause the soil to come down the slope to the houses below. 25200 PCH is going to be putting water into a known slide plus putting in all of those pools. I think this spells trouble...Residents familiar with the slides in the city are saying it is a very bad idea to introduce water into a known slide...

Thanks,
Jun
[Quoted text hidden]

Josh Feffer <josh@feffergeo.com> Mon, Jan 5, 2026 at 1:28 PM
To: Jun Fujita [redacted] Geneva Carter <geneva@feffergeo.com>

Hi,

Happy to properly explain the science and geology to you and why the development will only improve the existing conditions.

Joshua R. Feffer

Principal Geologist

1990 S. Bundy Drive, Suite 400

Los Angeles, CA 90025

o. 310-207-5048

c. 310-502-0771

f. 310-826-0182

www.feffergeo.com



From: Jun Fujita [redacted]
Sent: Monday, January 5, 2026 12:55 PM
To: Geneva Carter <geneva@feffergeo.com>
Cc: Josh Feffer <josh@feffergeo.com>
Subject: Re: email to Josh

Hi Josh,

Thanks for getting back to me.

We are very worried that 5200 PCH will cause the soil to come down the slope to the houses below. 25200 PCH is going to be putting water into a known slide plus putting in all of those pools. I think this spells trouble...Residents familiar with the slides in the city are saying it is a very bad idea to introduce water into a known slide...

Thanks,

Jun

On Mon, Dec 15, 2025 at 2:59 PM Geneva Carter <geneva@feffergeo.com> wrote:

> Hi Jun,
>
> Confirming receipt of your email. I have passed along this message to Josh and I will have him contact you.
>
> Thank you!
>
> **Geneva Carter**
>
> *Office Manager*
>
> 1990 S. Bundy Drive, Suite 400
>
> Los Angeles, CA 90025
>
> o. 310-207-5048
>
> f. 310-826-0182
>
> https://link.edgepilot.com/s/03c0a755/eyNEa6knBE_-nGjtt7MtWQ?u=http://www.feffergeo.com/
>
> [Quoted text hidden]

Jun Fujita [redacted] Mon, Jan 5, 2026 at 1:38 PM
To: Josh Feffer <josh@feffergeo.com>

That would be helpful
Could you expand on that?

Thanks,
Jun
[Quoted text hidden]

Josh Feffer <josh@feffergeo.com> Mon, Jan 5, 2026 at 4:48 PM
To: Jun Fujita [redacted]

Yes,

Currently the water is not controlled on the property, potentially flows over the slope during heavy rainfall, and puddles and soaks into the ground. All of this has the potential to raise the water table and create slope failures.

After development, the water will be controlled, won't be allowed to flow over the slope, and will be stored and not soak into the ground. This will lessen the risk of failure over what currently exists.

Currently the properties along Bayshore currently have a slope and a pad above that don't have the code required factor of safety. There is theoretically a potential for the load from the slope and the pad to come down; this is the fear I would think that the properties along Bayshore have.

After development, with the installation of 2 rows of piles and tieback anchors, the load from the pad is entirely isolated and removed from the equation. Any load that the pad above has, potentially weighing on the slope, is completely eliminated. This increases the stability.

Know that concrete and steel (used in the piles and tiebacks) are much stronger than the existing soil and bedrock. Therefore, installing the concrete and steel will make the soil and bedrock stronger.

I'm happy to speak with you about this. I obviously understand people's concern about the unknown and what ifs, but this project has been exhaustively analyzed and the stability improved, so technically, it's only going to be stronger and better notwithstanding someone's fear.

There simply is no scenario where a lot that currently is vacant and not stabilized, is not improved by controlling drainage and installing structural systems designed to improve stability.

Joshua R. Feffer

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FEFFER
GEOLOGICAL CONSULTING

From: Jun Fujita[redacted]
Sent: Monday, January 5, 2026 1:38 PM
To: Josh Feffer <josh@feffergeo.com>
Subject: Re: email to Josh

That would be helpful

Could you expand on that?

Thanks,

Jun

On Mon, Jan 5, 2026 at 1:28 PM Josh Feffer <josh@feffergeo.com> wrote:

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> https://link.edgepilot.com/s/f40bd43a/tBLAYPVzz0Gd2PhQ_fF3YQ?u=http://www.feffergeo.com/
>
> [Quoted text hidden]

--------- Forwarded message ---------
From: **Josh Feffer** <josh@feffergeo.com>
Date: Mon, Jan 5, 2026 at 4:48 PM
Subject: RE: email to Josh
To: Jun Fujita [redacted]

[Quoted text hidden]

Jun Fujita [redacted] Sun, Jan 11, 2026 at 6:11 PM
To: Josh Feffer <josh@feffergeo.com>

Hi Josh,

Thank you for your reply regarding 25200 PCH.
I think the main issue Pacific Coast Land Consulting(PCLC) is bringing up is that SI5 and SI6 pre 2004 movement data is not used, and the "no significant movement" comment in the reports is for monitoring purposes and not for design purposes. According to PCLC, the slide plane extends way under 25200 PCH and not as shallow as it is currently designed. Also per PCLC currently we don't see analysis that shows the project does not increase instability off the subject site from the caisson wall to the toe of the slide and worst case analysis that is 100 year. Is not including SI5 and SI6 a short term analysis and not a 100 year worst case analysis?

You said all of the water is controlled, are you capturing all of the water from irrigation and septic and taking it off site? Do you know where the water goes once released into the hill from 25200 PCH? Our concern is that the water is raising the water table in the hill and ending up on the ocean-side of Bayshore like it did in 1998. The concern is that the water from 25200 PCH travels under Bayshore and wash out the road and houses possibly up to Malibu Road. This is what happened in the heavy rains of 1998. Shouldn't all the irrigation be controlled also? All the landscaping maybe should be in pots with zero-scaping so that water is not added to the water table?

When two houses below 25200 PCH washed away after the 1998 heavy rain, those residents who witnessed it said the area of collapse was the South(ocean-side) of Bayshore that collapsed. The ground collapsed in a very large area and the ground dropped roughly 10 feet from level of the road and this slide is visible now. Could you provide us with the shear strength calculation from the caisson wall down to the toe to show that the project is not causing any failures.

I am sounding the alarm bells that according to PCLC stability will be affected if ground water is added via the project could cause further instability according to Pacific Coast Land Consulting. We already know there is too much water in the slide, hence the city has the dewatering wells to remove the water as you know. 25200 PCH 's irrigation water and septic water would percolate adding to the water table and may destabilize the slide that has already moved in the past and so the water could travel under our houses possibly causing damage. If built, water in the hill should be monitored specifically for 25200, if it will contribute water to the water table and there should be an agreement that if the water table is increased, water pumps should be added.

Again, I am raising the alarm bells, old timer Malibu residents said we should look at the past - Big Rock slide limits bathrooms and bedrooms so not to worsen the slide below, the Rappaport slide had mud going into peoples homes and was in litigation for five years, 1998 rain washed away houses on Bayshore and Malibu Road! We would like to see analysis that the project does not increase instability off the subject site to the toe of the slide and worst case analysis that is 100 year. Long time Malibu residents familiar with Malibu slides are telling me introducing water into a known slide is a very bad idea especially when the water is being pumped out.

According to PCLC, we have not seen analysis beyond your property line(off site) that the project will not worsen the stability of the hill(from the ridge to the toe at Malibu Road) due to
-additional water from the project due to irrigation, septic etc_show this does not increase instability, how is water controlled?
-is there any instability from all of the holes from the stabilization piers, that is a lot of holes, two long rows
-SI5 and SI6 is not utilized but "no significant movement" on the inclinometer reports is not design data, movement pre 2004 is not used, and should be worst case scenario, "glide plane" in older reports is not treated as a "slide plane", would this be considered short term analysis and not long term 100 year analysis?
-PCLC says the contour map extends way into 25200 PCH when SI5 and SI6 are considered along with "glide plane" from previous reports, which would make the stabilization piers deeper
-displacement of soil from pools and basements(should there be no pools and no basements allowed?)
-pool leaks, are there alarms?
-PCLC is asking you to send us a structure contour map that uses depth of movement from SI5 and SI6, the pre 2004 movement
-PCLC says there is not enough data on your boring logs
-PCLC says more monitoring is required, one wet season
-PCLC requests shear strength calculations from the caisson wall down to toe of slide at Malibu Road
-Please see PCLC letter for additional issues not responded to

PCLC wrote a response letter, could you respond to it? If PCLC is correct, this sounds like it would be devastating for the houses below in a worst case scenario. Per PCLC, please show that the 25200 PCH project will not increase instability off site(to the properties below) with a worst case analysis(that considers per 2004 movement data) that is 100 year analysis. Per PCLC currently we don't see analysis that shows the project does not increase instability off the subject site to the toe of the slide and worst case analysis that is 100 year.

Thank you in advance.

Best,
Jun

Thanks,
Jun
[Quoted text hidden]

Jun Fujita [redacted] Mon, Jan 19, 2026 at 1:04 PM
To: Jun Fujita [redacted]

[Quoted text hidden]

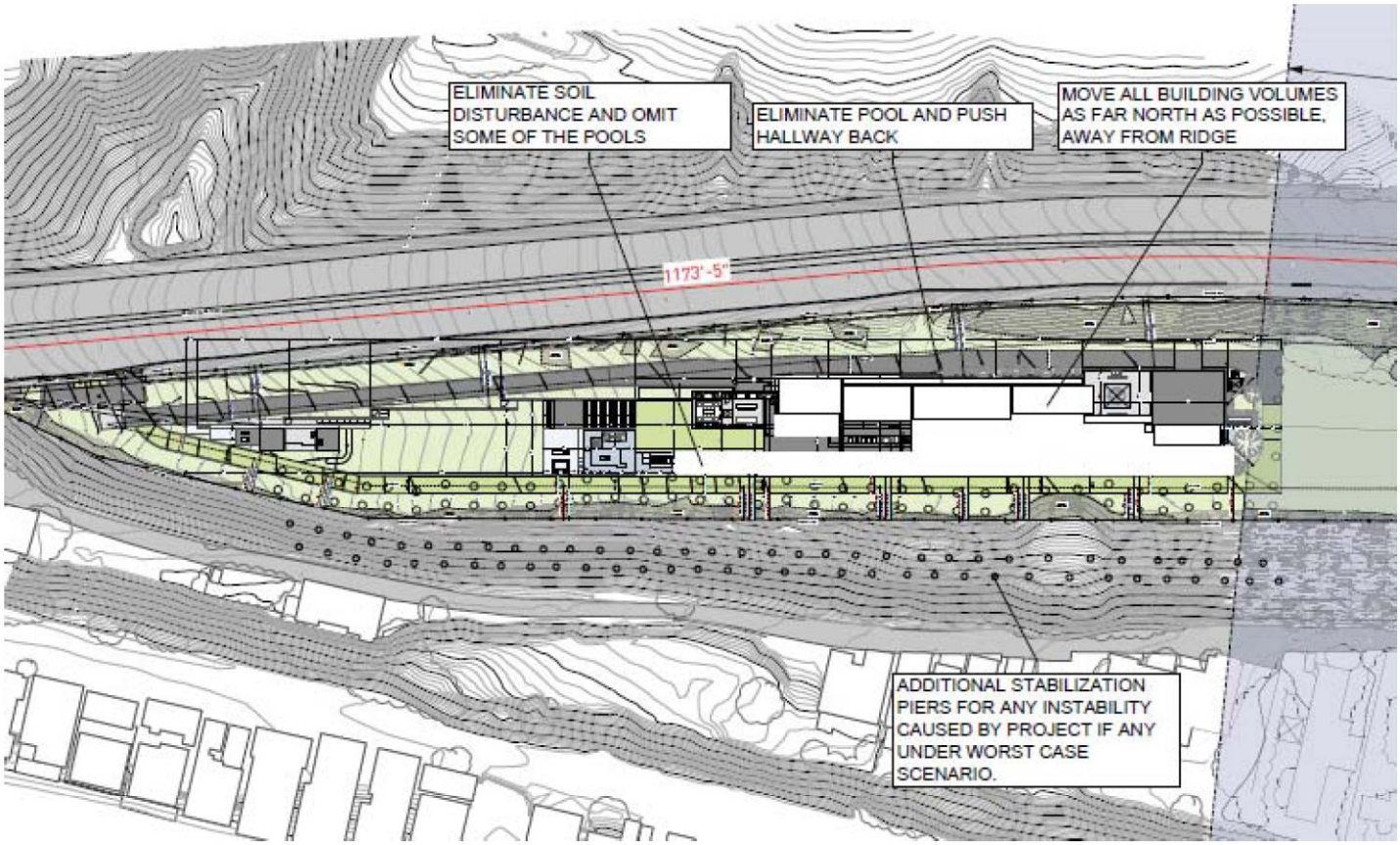
Jun Fujita [redacted] Tue, Jan 20, 2026 at 3:30 PM
To: Josh Feffer <josh@feffergeo.com>

Hi Josh,

I could not make it to the meeting, there was two hours notice! I understand from the meeting that there is a "plan" for all the water going into the soil? How are you avoiding adding to the water table? Or if there is water added, do you know where it is going? Is it going South Or North? Could you let me know so I can let the neighbors know.
Could you answer unanswered questions? Also unanswered issues from his letter dated Dec 12?

There are nice old ladies and their husbands and nice families living down below they are really nice people we are really worried about death and damage to properties! I talked to the Rappaport slide folks yesterday said they almost died!

Also maybe this might be helpful, PCLC suggested stabilization piles mid way down the hill with easements. This would mean the $10 mil valuation on the piers is likely $15 or $20M. PCLC says you might be able to get away with three rows.



Thanks,
Jun Fujita Hall
Concerned Citizens of Malibu Road
[Quoted text hidden]

Received
1/20/26
Planning Div.

From: [redacted]
To: Planning Commission
Subject: Fw: 1-20-26 item 4B 25200 PCh
Date: Saturday, January 17, 2026 9:27:14 PM
Attachments: - pc weintraub 25200 pch - 1-20-25.docx

Commissioners attach are Slow Growths comments on the above referenced project. Best, Patt

CC: Planning Commission, PD,

Recording Secretary, File

Date Received 1/20/26 Time 7:30 a.m.
Planning Commission meeting of 1/20/26
Agenda Item No. 4B
Total No. of Pages 4

To: Members of the Planning Commission
From: Malibu Coalition for Slow Growth by Patt healy
Re: 25200 PCH item 4B
Date: 1-20-26

Honorable Members of the Planning Commission,

Obstruction of Protected View

Over the years little by little, project by project, protected public scenic views along PCH are being blocked by structures and/or 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.

Findings

This project as designed can not meet the necessary findings for the planning Commission to approve the project.

These LIP 13.9 findings can't be made for the approval of this 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 below would be a less damaging alternative.

LIP 6.4 Findings A Coastal Development Permit for the proposed development shall only be granted if the City's decision-making body is able to find that: 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. As designed it will have a significant adverse impact scenic and visual impact.

2. The project, as conditioned, will not have significant adverse scenic or visual impacts due to required project modifications, landscaping or other conditions.. The impact will be significant as currently designed **.**

3. The project, as proposed or as conditioned, is the least environmentally damaging alternative. It is not the least environmentally damaging alternative. A smaller project or by grading the site elevation in order to make the project invisible from PCH is possible and a

landscape plan that doesn't impact scenic views is possible. And are less environmentally damaging alternatives.

4. There are no feasible alternatives to development that would avoid or substantially lessen any significant adverse impacts on scenic and visual resources A smaller project by grading the site elevation low enough to prevent all structures from being seen from PCH is possible and a landscape plan that doesn't impact scenic views is possible.

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. As located the project does not achieve this.

Please adhere to the LIP, 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.

On page241 of 1358 states it would take more than 1000 cu,yds of grading and retaining walls to accomplish this. *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.*

It is more acceptable for the Planning 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 highly scenic view from PCH.

Landscaping

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.

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 has

to 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.

Public Views Protected

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.

Merger

Although we are not advocating for it, the requested Merger is discretionary and if the Commission wants it can deny it to preserve this important scenic view.

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
1/20/26
Planning Div.

From: Malibu Township Council
To: Planning Commission; John Mazza; Marni Kamins; Skylar Peak; Elizabeth Riddick; Drew Leonard
Cc: Marianne Riggins; Bruce Silverstein; Doug Stewart; Steve Uhring; Haylynn Conrad; Trevor Rusin; Kellan Martz; Rob Duboux; Bill Sampson; Patt Healy; R N; Tiffany Murray; Jan Ravlich; SouthCentralCoast@coastal.ca.gov; Barbara@Coastal Carey; Frank Angel; Jun
Subject: Item 4B - Request for Compliance with LCP Variance Requirements – 25200 Pacific Coast Highway
Date: Saturday, January 17, 2026 11:58:36 AM
Attachments: Screen Shot 2026-01-17 at 2.37.07 PM.png
Screen Shot 2026-01-17 at 2.54.57 PM.png

To: Malibu Planning Commission

Cc: Malibu City Council, Interim City Manager Duboux and City Attorneys
Attention: Chair and Commissioners; Mayor and Councilmembers

Dear Chair Riddick, Commissioners, Mayor, and Councilmembers,

I write on behalf of the Malibu Township Council regarding the proposed development at 25200 Pacific Coast Highway. This correspondence is submitted to formally place into the record serious legal and procedural deficiencies that prevent this application from lawfully advancing or being considered for approval in its present form.

The subject property is located within a mapped landslide hazard area, yet the application is being moved forward without proper application of Local Implementation Plan (LIP) §9.4(D) or the required **variance** process under LIP §13.26. This omission constitutes a failure to apply mandatory Local Coastal Program (LCP) standards.

LIP §9.4(D) expressly provides that **new development on landslides may be permitted only where a factor of safety of 1.5 (static) and 1.1 (seismic) can be demonstrated under worst-case geologic and slope conditions**, in accordance with the City's adopted geotechnical guidelines. Where those thresholds cannot be met under existing conditions, a variance is required before any discretionary approval may occur.

The applicant's own geotechnical consultant confirms that the site cannot meet the required factor of safety under existing conditions. In the **November 18, 2021 Geotechnical Report**, incorporating the consultant's **March 25, 2021 translational slope stability analyses**, the consultant states that *"preliminary static analyses of stability [were] achieving factors of safety slightly greater than 1.0."* As reflected on **page 1137 of the current staff agenda report**, these reported values—approximately **1.09 to 1.18**—are well below the **1.5 static factor of safety** required under **LIP §9.4(D)**. Notably, these calculations rely on less conservative (more liberal) shear strength assumptions; application of fully conservative parameters would be expected to result in equal or lower factors of safety, indicating greater geologic risk rather than less.

Static factors of safety in this range are not merely noncompliant; they are diagnostic of an active or potentially active landslide condition, reflecting marginal equilibrium and ongoing instability of the landslide mass. These results therefore confirm not only that a variance is required, but that the project is in fact proposed within an active landslide area, rather than a merely mapped or historic one.

This conclusion is further confirmed by California Geological Survey (CGS) Landslide Inventory mapping, which identifies the parcel at 25200 Pacific Coast Highway as lying within a definitively mapped, deep landslide feature (attached). The site is classified by CGS

CC: Planning Commission, PD,

Recording Secretary, File

Date Received 1/20/26 Time 7:30 a.m.
Planning Commission meeting of 1/20/26
Agenda Item No. 4B
Total No. of Pages 3

as a Dormant Mature landslide with 100% interpretation confidence, a landslide thickness exceeding 50 feet, and documented geomorphic evidence of historic or potentially active movement.

The consultant further acknowledges that compliance with the required safety thresholds cannot be achieved without post-construction stabilization, stating multiple times 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."*** The proposed stabilization relies on deep foundation elements, including piles on the order of 100 feet in depth, installed within the landslide mass.

This approach impermissibly substitutes future mitigation for the required evaluation of existing, worst-case geologic conditions. The LCP does not allow compliance with LIP §9.4(D) to be demonstrated by assuming post-construction stabilization. Where a site cannot meet the required factor of safety under existing conditions, LIP §13.26 requires a variance, through which proposed mitigation and construction measures must be formally evaluated, weighed against public safety impacts, and supported by findings.

Here, no such variance has been applied for or analyzed. As a result, the extensive post-construction mitigation—designed to support an extremely large structure with substantial grading and an on-site septic system exceeding 7,500 gallons—has not been properly evaluated through the legally required variance process. Proceeding in this posture unlawfully bypasses mandatory LCP safeguards and **places the City at risk of procedural invalidity, CEQA challenge, and public safety exposure.**

It is also important to note the broader context in which this application is being advanced. Long-standing fire rebuild projects—homes that existed for decades prior to the fires—continue to face prolonged delays and heightened scrutiny, while large, speculative developments on geologically constrained sites are repeatedly advanced without meeting threshold requirements. This pattern has occurred in prior cases, including new development on Piedra Chica Road, the Malibu Country Inn, and the Malibu Inn Hotel, each of which consumed years of staff time and public resources before ultimately being halted or sent back due to fundamental compliance failures. Ensuring that rebuilds are prioritized and fast-tracked, while noncompliant new development is corrected at the outset, is essential to Malibu's recovery and to the fair and consistent application of the LCP.

In this case, the failure to require a variance at the outset has resulted in the preparation and review of an **excessive staff report exceeding 1,300 pages**, expending substantial City resources on an application that is procedurally deficient at its threshold. Enforcing LCP requirements early is essential not only for public safety, but for responsible use of limited staff capacity—particularly as Malibu continues to recover from wildfire impacts.

For these reasons, this application **cannot lawfully proceed** to Planning Commission consideration or recommendation. The only lawful course of action is to return the project to Planning for processing of the required variance(s), including full evaluation of the proposed mitigation measures and the findings required under **LIP §13.26.5**, before any further discretionary review.

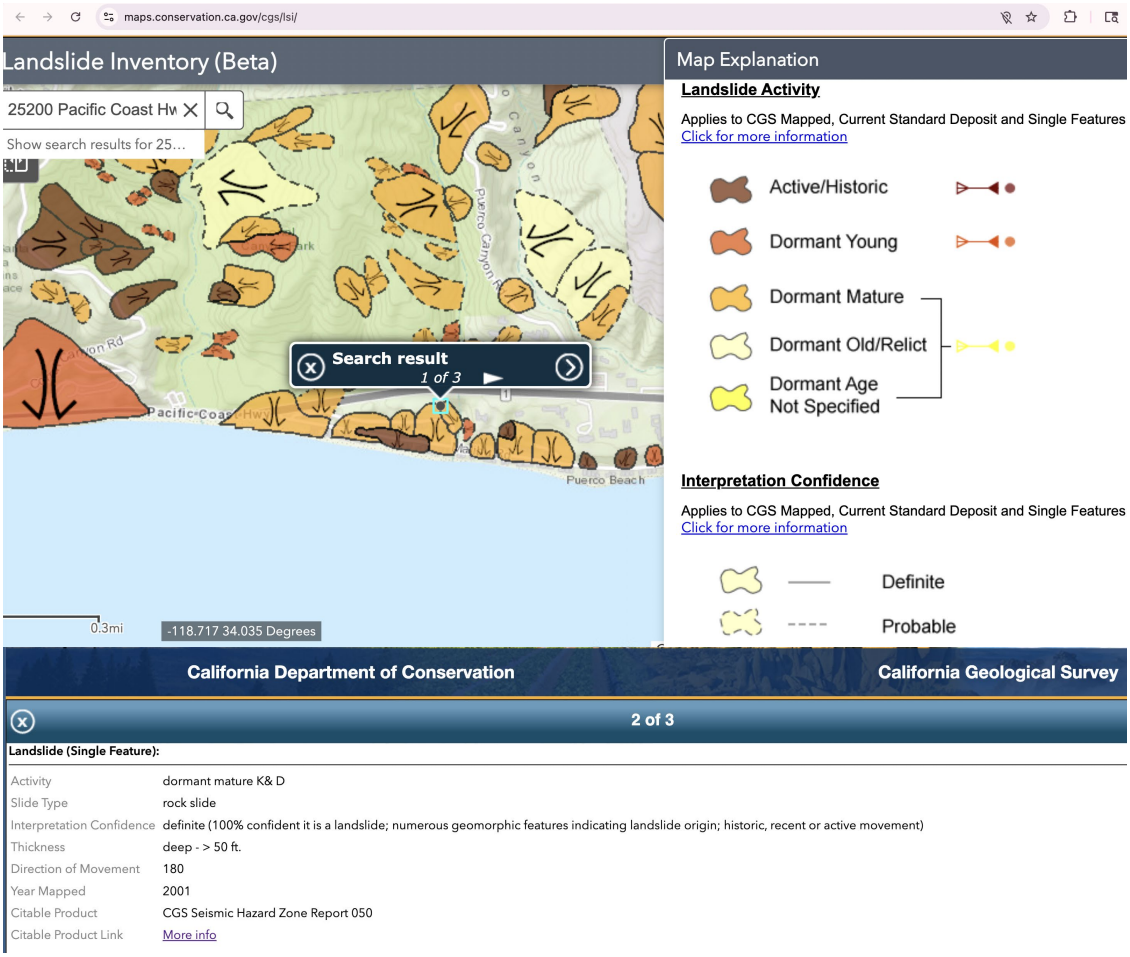
Addressing these deficiencies now is essential for the safety of all Malibu residents, particularly adjacent property owners and members of the public traveling along Pacific Coast Highway, which lies directly below this geologically constrained site. In contrast, compliant fire rebuilds—such as those in Big Rock with static factors of safety approaching 1.9 to 3.0—

well exceed the minimum requirements of LIP §9.4(D). These projects present materially lower geologic risk and are precisely the type of recovery-focused development that should be fast-tracked to support community stabilization, school enrollment, and local economic recovery.

Failure to properly evaluate this landslide hazard and the proposed mitigation through the legally required variance process **exposes the City to significant and avoidable legal liability, including procedural challenges for failure to comply with mandatory LCP requirements, as well as the likelihood of slope instability, property damage, or public safety impacts occurring.**

Respectfully submitted with urgency,

Jo Drummond
On behalf of the Malibu Township Council



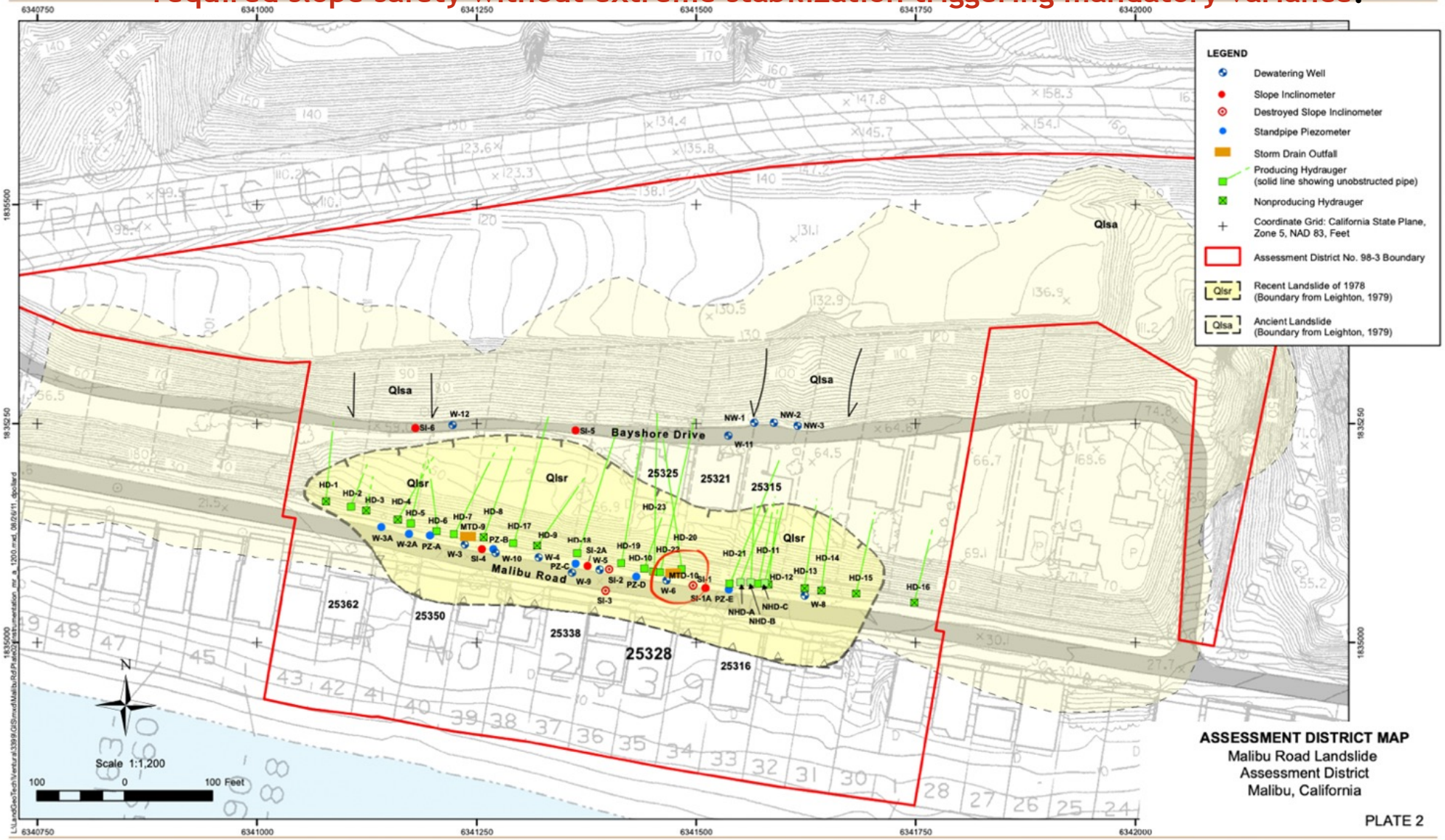
25200 Pacific Coast Highway

MALIBU TOWNSHIP COUNCIL

Opposition to Coastal Development Permit No. 19-012

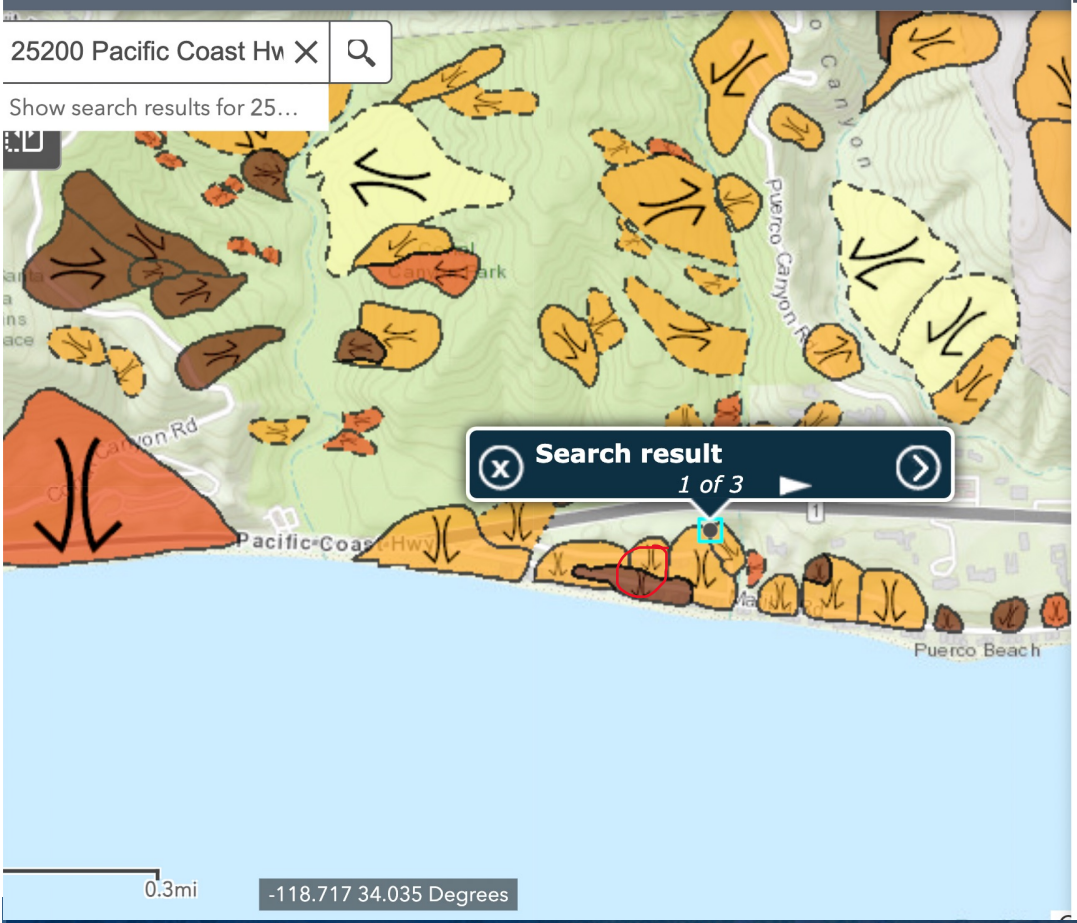
Landslide + Variance Required +
Scenic Views Maintained

This project is proposed on a mapped, deep-seated landslide and cannot meet required slope safety without extreme stabilization triggering mandatory variance.



maps.conservation.ca.gov/cgs/lsi/

Landslide Inventory (Beta)



Map Explanation

Landslide Activity

Applies to CGS Mapped, Current Standard Deposit and Single Features
Click for more information

- Active/Historic
- Dormant Young
- Dormant Mature
- Dormant Old/Relict
- Dormant Age Not Specified

Interpretation Confidence

Applies to CGS Mapped, Current Standard Deposit and Single Features
Click for more information

- Definite
- Probable

California Department of Conservation — California Geological Survey

2 of 3

Landslide (Single Feature):

Activity	dormant mature K& D
Slide Type	rock slide
Interpretation Confidence	definite (100% confident it is a landslide; numerous geomorphic features indicating landslide origin; historic, recent or active movement)
Thickness	deep - > 50 ft.
Direction of Movement	180
Year Mapped	2001
Citable Product	CGS Seismic Hazard Zone Report 050
Citable Product Link	More info

State maps CLEARLY show that the parcel is within 98-3 Malibu Road Landslide Assessment.

CGS –classification – Dormant Mature Landslide
>50 feet thick
100% interpretation confidence
Documented geomorphic evidence of historic or active movement.

However, the applicant's expeditor INCORRECTLY states that "no portion of the project is proposed within a landslide"
This establishes OBVIOUS RISK.

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

2

This is NOT a speculative hazard – it is a confirmed landslide

are lay opinion not based on science and the city has reviewed and dismissed these

9.4. DEVELOPMENT STANDARDS

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.

THE NUMBERS THAT TRIGGER THE VARIANCE

Existing Factor of Safety Fails Code

Revised Draft Addendum Report to PC... 1137 / 1358 — 116% +

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

Very FAR OFF the required 1.5 static factor of safety

- Required minimum (LIP §9.4(D)): **1.5 static**
- Calculated results: **1.076 – 1.234**
- Values near **1.0 = marginal equilibrium / instability**

These results alone require a variance

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.

Risk Is Likely Greater Than Shown

- Calculations used **selected, non-conservative inputs**
- **Not worst-case assumptions**
- True instability risk is **likely higher**

Why this matters:
Prevents the applicant from claiming it is “safe”

Because the site fails to meet the minimum 1.5 static factor of safety **even under non-conservative assumptions**, the project **must be denied or continued** until a variance is applied for and evaluated.

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.

581

1358

COMPLIANCE DEPENDS ON FUTURE CONSTRUCTION

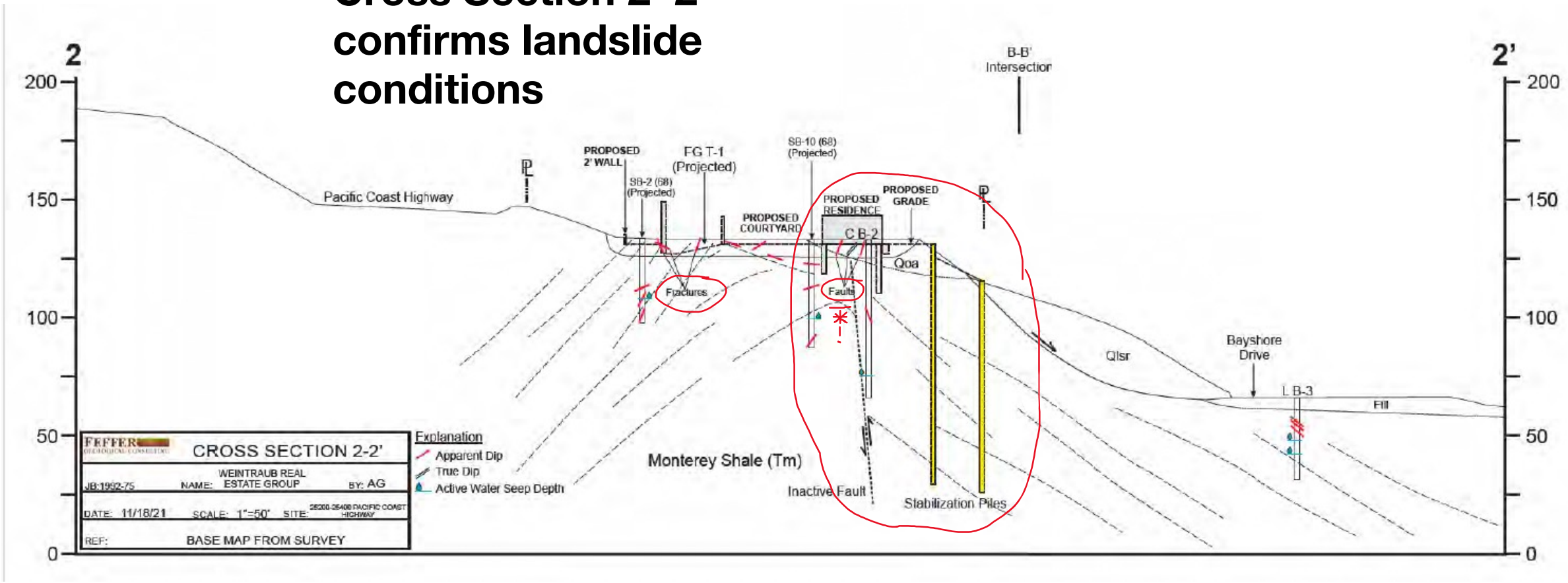
CONSISTENTLY THE STAFF REPORT STATES THAT THE EXISTING SLOPES FOR THE SITE REQUIRE A STABILIZATION SYSTEM TO ACHIEVE A **POST CONSTRUCTION**
1.5 AND 1.0 FACTOR OF SAFETY . THIS IS NECESSARY ***AFTER*** APPLYING FOR A VARIANCE.
A STABILIZATION SYSTEM IS NOT WORST-CASE CONDITIONS.

The site fails today — The code does not allow approval based on what *might* be built later.

THE SCALE OF INTERVENTION - EXTREME

- Piles **>100 feet deep**
- Installed **through the landslide mass**
- Excavation, vibration, groundwater redirection NOT EVALUATED AT ALL

Cross Section 2' 2' confirms landslide conditions



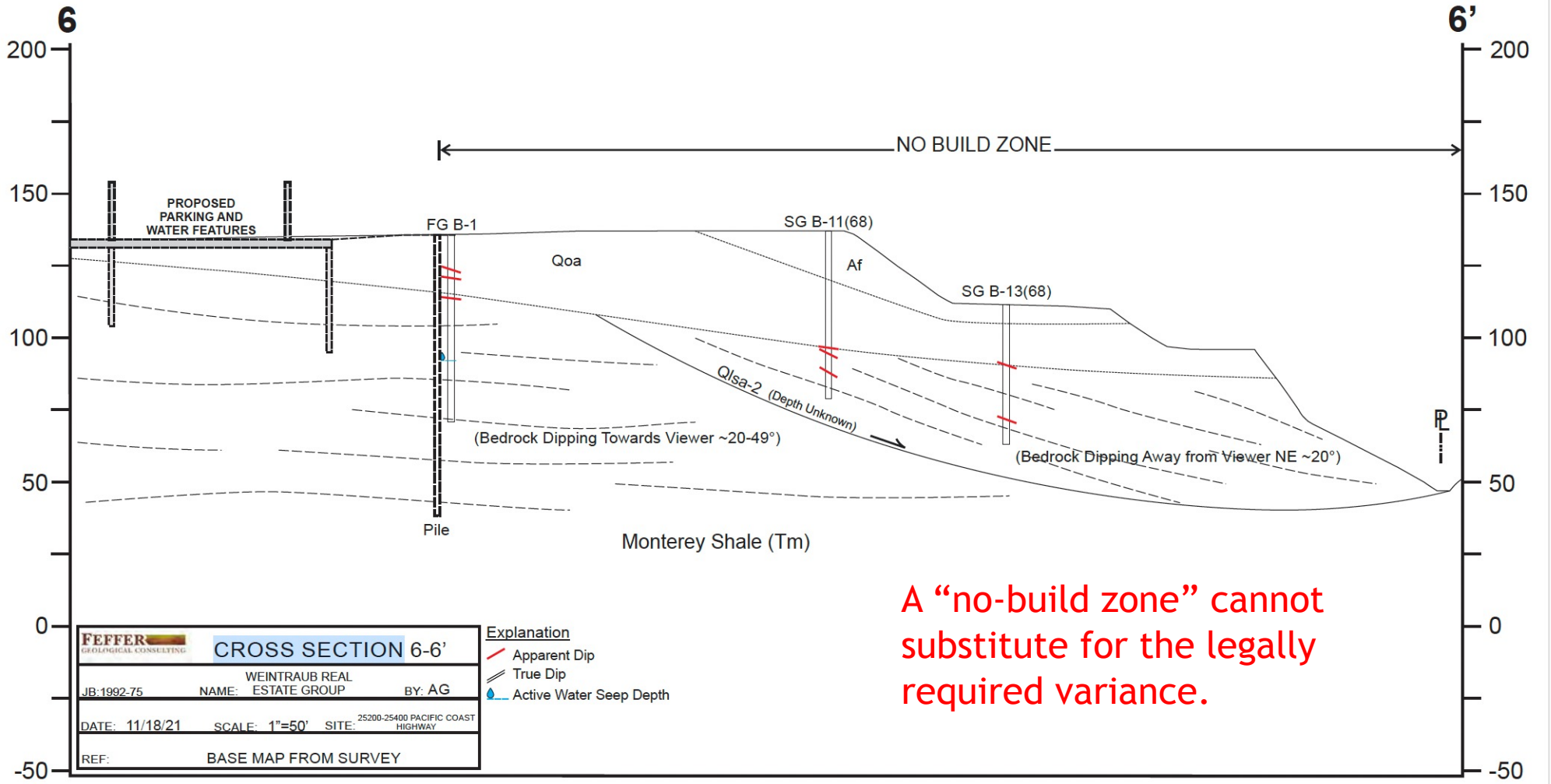
591

1358

“No-Build Zones” Do Not Resolve Landslide Instability

Cross Section 6-6’, Feffer Geotechnical Report (11/18/21)

- The landslide mass exhibits **substandard factors of safety under existing conditions**
- Labeling portions of the slope as “no build” does **not change overall slope stability**
- Stabilization piles still extend **through the landslide mass**, confirming instability is **site-wide**, not localized
- If the landslide itself is unstable, no part of the site becomes buildable by labeling other areas off-limits. Stability must exist first.



596

1358

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 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





Evidence of ongoing movement & water issues

Failures already occur here.
Reinforces "potentially active landslide" classification

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

FY21/22 Maintenance and Monitoring Report
AD98-3 Malibu Road

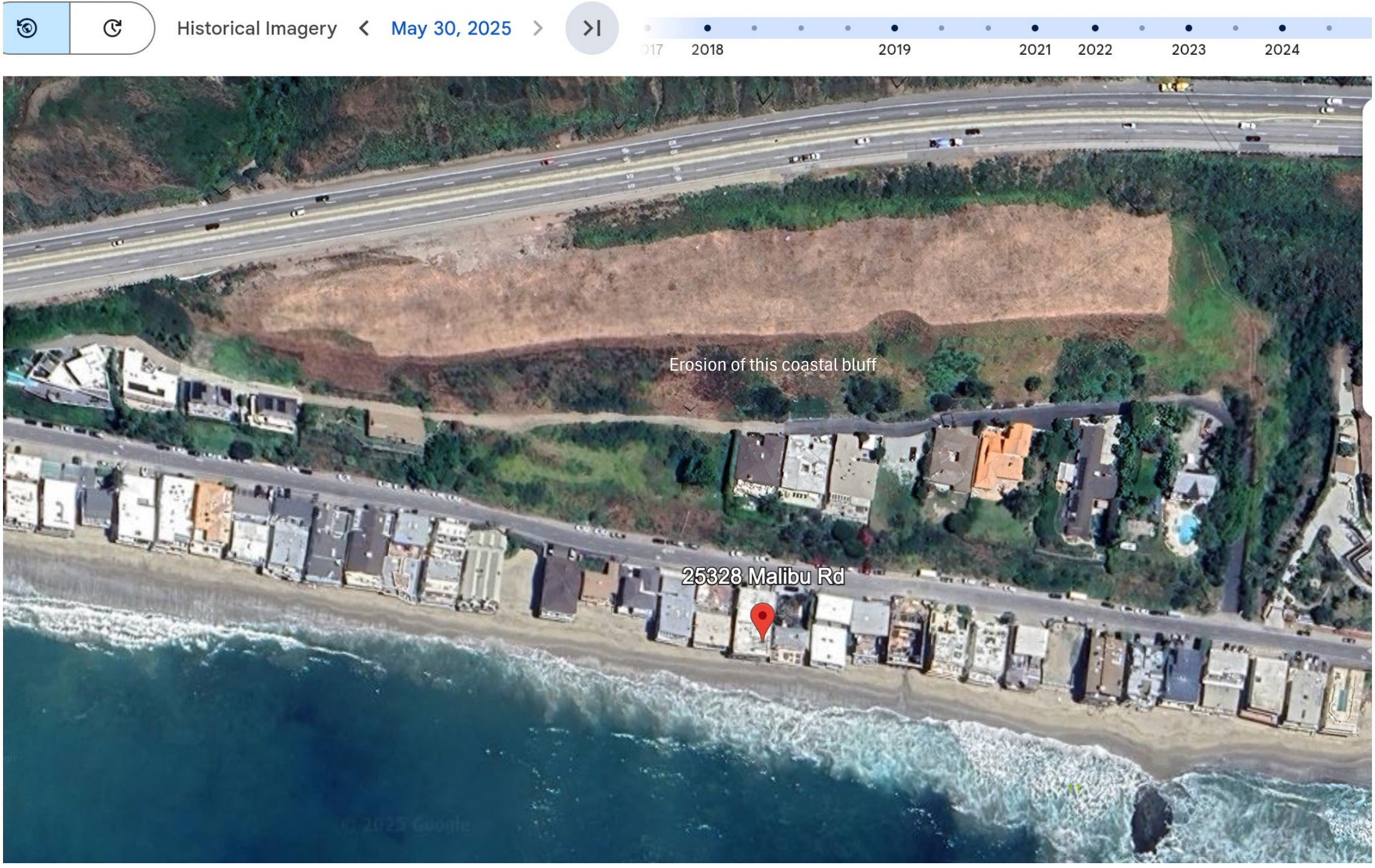
Project No. 220-278
November 14, 2022

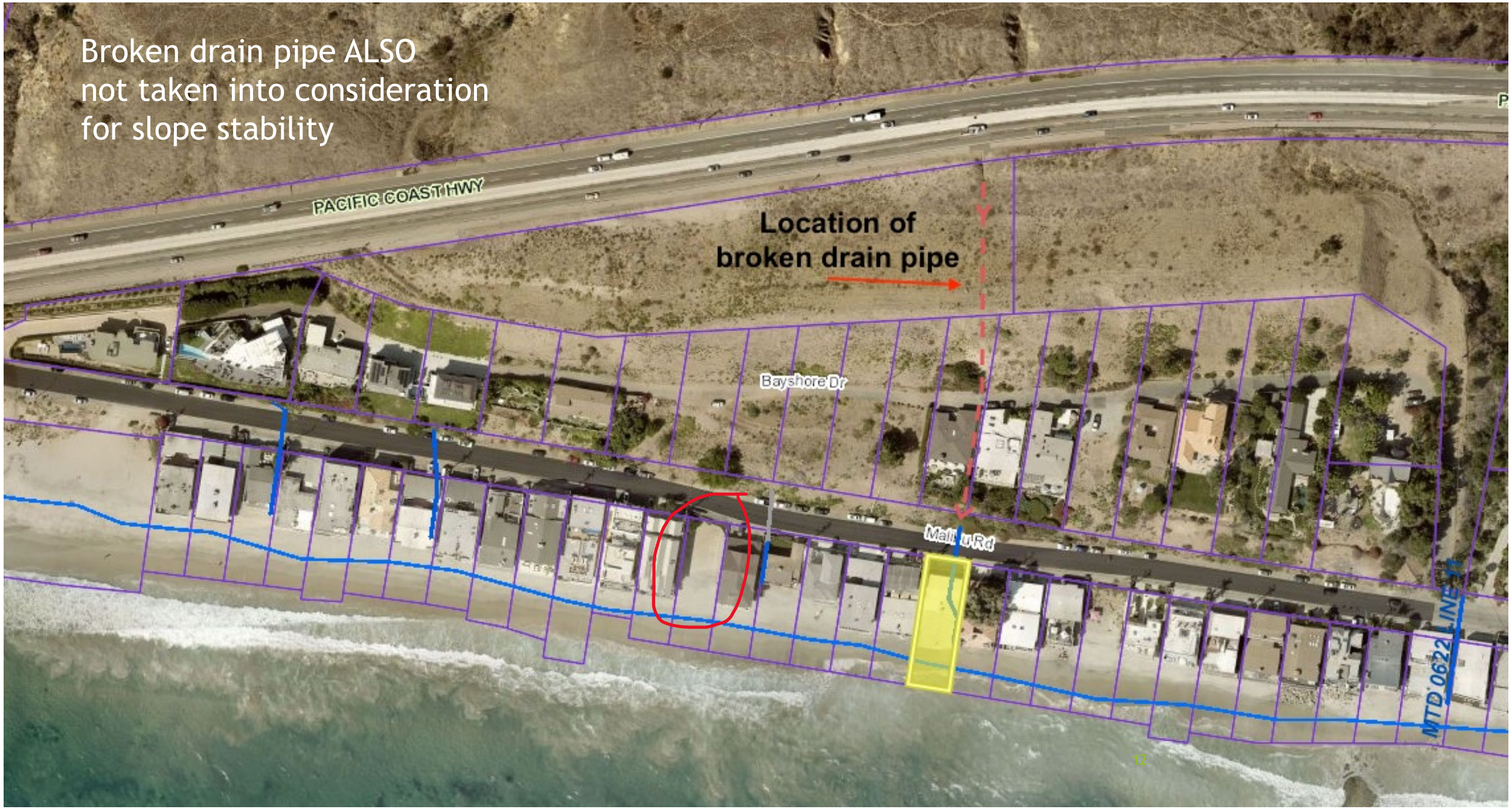
observe shear type movement. Yeh personnel noted that several district facilities were damaged or buried and after the event, maintained communication with the City and Water District to confirm repairs and recovery of the impacted assessment district facilities were completed. It should be noted that 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.

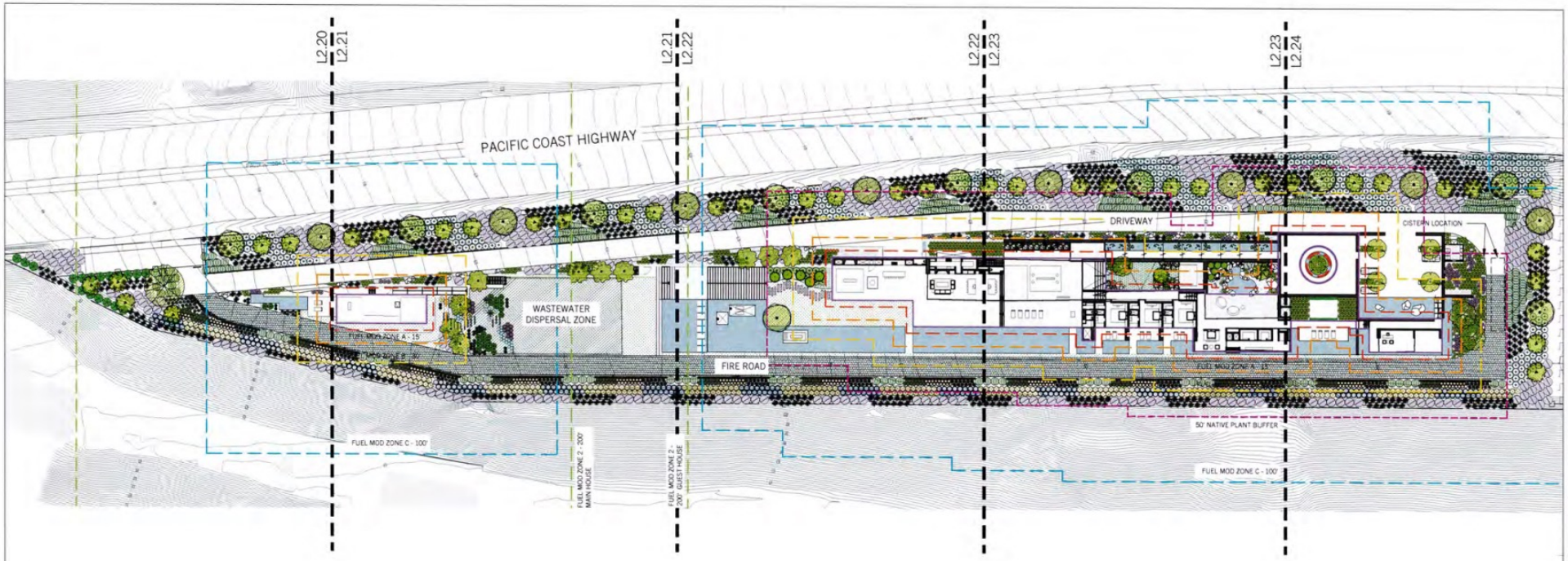







Historical Imagery
May 30, 2025
2018
2019
2021
2022
2023
2024
Erosion of this coastal bluff
25328 Malibu Rd


Broken drain pipe ALSO
not taken into consideration
for slope stability
PACIFIC COAST HWY
Location of
broken drain pipe
Bayshore Dr
Malibu Rd
MTD 06222 LINE 11



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'-80'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	DINING, 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 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'-10'H X 6'-10'W	Per Plan	MASTER	MOD	NON NATIVE	INSIDE	A-10
	Carissa macrocarpa 'Prostrata'	Prostrate Natal Plum	5 gal.	13	2'H x 6'-8'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.	6	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
	Eschscholzia 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 munzii'nita	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'-2'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
	Muhlenbergia dubia	Pine Muhly	5 gal.	183	2'-3'H x Clumping	Per Plan	DRIVEWAY	UNKNOWN	NON NATIVE	INSIDE/ OUTSIDE	UNKNOWN
	Muhlenbergia 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'-6'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 nicaraguensis	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'-6'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	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			12,874 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

13

[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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PO Box 6528
Malibu, CA 90265

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Miami, FL 33137
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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 : 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 thereto 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

Over **50 trees up to 50 feet tall** are proposed along the scenic PCH corridor.
A revised plan is required to prevent permanent obstruction of designated scenic views ONCE THE VARIANCE IS APPLIED FOR.

Permanent Loss of Scenic Views from Pacific Coast Highway

Views Toward Paradise Cove, Point Dume and Coastline

Pacific Coast Highway is a **designated scenic corridor**





- This project introduces permanent mass that blocks long-established public views toward Point Dume
- The illegally elevated berm needs to be addressed



Please respect the last open green space in the area and preserve the scenic ocean views this project plans on destroying as well as mandating legal requirements for public safety – thank you.

Received
1/20/26
Planning Div.

From: Mia Hall
To: Planning Commission
Subject: to planning commission 25200 PCH
Date: Tuesday, January 20, 2026 3:29:01 PM
Attachments: image.png

Malibu Planning Commission Landslides Letter

I am a concerned resident and neighbor. Landslide risks threaten not just property but the safety of our homes, our families, and the people living next door. This is a real concern for our community and it deserves attention before lives are put at risk.

I am very concerned for myself and my neighbors' homes and lives. Dangerous landslides have happened before, washing away many people's homes/. I am concerned that this will happen again due to the construction of a heavy structure. The address of the construction is 25200 Pacific Coast Highway.

Please make sure that the engineering is correct for the construction.
Thank you for your time.

Also I went to look at the story poles and the tapes were down so I could not see them in place. They have been down since the last meeting that was continued in December.



CC: Planning Commission, PD,

Recording Secretary, File

Date Received 1/20/26 Time 3:30 p.m.
Planning Commission meeting of 1/20/26
Agenda Item No. 4B
Total No. of Pages 2

Mia Hall
[redacted] Malibu Road

Received
1/20/26
Planning Div.

From: Mia Hall
To: Planning Commission
Subject: Re: to planning commission 25200 PCH
Date: Tuesday, January 20, 2026 3:56:28 PM
Attachments: image.png

Clarification - the story poles were down for days before the last meeting, they came down in the wind event prior to the December meeting.
Mia

On Tue, Jan 20, 2026 at 3:28 PM Mia Hall [redacted] wrote:

> Malibu Planning Commission Landslides Letter
>
> I am a concerned resident and neighbor. Landslide risks threaten not just property but the safety of our homes, our families, and the people living next door. This is a real concern for our community and it deserves attention before lives are put at risk.
>
> I am very concerned for myself and my neighbors' homes and lives. Dangerous landslides have happened before, washing away many people's homes/. I am concerned that this will happen again due to the construction of a heavy structure. The address of the construction is 25200 Pacific Coast Highway.
>
> Please make sure that the engineering is correct for the construction.
> Thank you for your time.
>
> Also I went to look at the story poles and the tapes were down so I could not see them in place. They have been down since the last meeting that was continued in December.

CC: Planning Commission, PD,

Recording Secretary, File

Date Received 1/20/26 Time 3:57 p.m.
Planning Commission meeting of 1/20/26
Agenda Item No. 4B
Total No. of Pages 2



Mia Hall
[redacted] Malibu Road

Received
1/20/26
Planning Div.

From: Mari Stanley
To: Planning Commission
Subject: Item 4B - AGAINST and complaint over the raised berm that was created/crafted
Date: Tuesday, January 20, 2026 3:08:09 PM

Hello Planning Commissioners,
I am dead set against the project before you this evening concerning the property at 25200 PCH - the State of CA has strict laws regarding Public View of the Pacific Ocean as a preservation issue which I fully expect to be embraced by each of you and all of you as a unit. This is a view that is acceptable with the speeds of PCH in that location, understand this is not a view of a residential street with speeds of 25mph so the view corridor should accomodate a view that is easily visible at speeds of actual use of that section of PCH. Not the speed limit, we all know that area is known to locals as Blood Pressure Point - the very spot that vistas open up and open our tightened chest after driving through Eastern and Central Malibu or in the case of the opposite direction the last opportunity to embrace the view of the wide Pacific until you get past the belly of Los Angeles freeways*. (*before the fire ate up the homes along PCH but they will return while this project before you remains a block of the view for decades and decades)

Do you want your names deeply engraved into residents' brains and on the eyesore itself, known as the enablers of Weintraub's money being used to destroy our community?

Don't do it, you will only have yourself to blame if you vote for it and receive the ire that will come every day that we see the property mangled into an insane effigy to wealth of a select few in this world - it screams UGLY HUMAN to all of us that live gently in Malibu. If YOU live gently in Malibu, I don't see how you could vote for this but I'll surely remember... and many, many more will as well. You can forget offering endorsements for future elections and more so any run for office by any of you will be firmly, solidly hit using your rejection of Malibu residents for siding with the profits of one developer.

Mari Stanley

CC: Planning Commission, PD,

Recording Secretary, File

Date Received 1/20/26 Time 3:09 p.m.
Planning Commission meeting of 1/20/26
Agenda Item No. 4B
Total No. of Pages 1

Received
1/20/26
Planning Div.

Engineering Geologic Evaluation of 23000-25200 Pacific Coast Highway, Malibu

Previous Work Borings by :

Stone 1962- 16 Borings

Stone 1968- 19 Borings

Leighton 1979- 8 Borings

Pacific Soils 1965 – None available. Missing map

CY Geotechnical- 5 Borings

Feffer Geotechnical 9 Borings

Date Received 1/20/26 Time 6:30 p.m.
Planning Commission meeting of 1/20/26
Agenda Item No. 4B
Total No. of Pages 23

CC: Planning Commission, PD,

Recording Secretary, File

Ralph Jeffrey Item 4B

Assignment

Review the Feffer Geotechnical Report to determine accuracy and safety of stabilization treatment

1 Review available logs

2 Evaluate report, cross sections and stability for accuracy,

3 Evaluate proposed stabilization treatment

Goals

- Work with the city and developer to increase the site stability for the proposed new construction, possible slide stability increase
- This work is not intended to stop the development, but rather to obtain a permit based on accurate geologic information that benefits all parties the developer and the homeowners

Procedure

- Review logs of previous consultants
- Review Geotechnical maps and cross section
- Review slope inclinometer reading
- Create structure contour analysis
- Create cross-Sections
- Summarize findings
- Suggest additional work and analysis as/if needed

Findings

- Feffer report did not identify the landslide correctly
- There fore the stability analysis are based on a faulty model which mena that the stability is lower than stated
- Lower stability mean greater risk to home below the planned development
- Feffer concludes the site can be stabilized with shear pins
- Stability analysis used too high shear strength
- Ground water is likely to rise
- Slope stability work should contain a ground water sensitivity analysis i.e. calculations of decrease in stability as ground water increases

Location of Borings

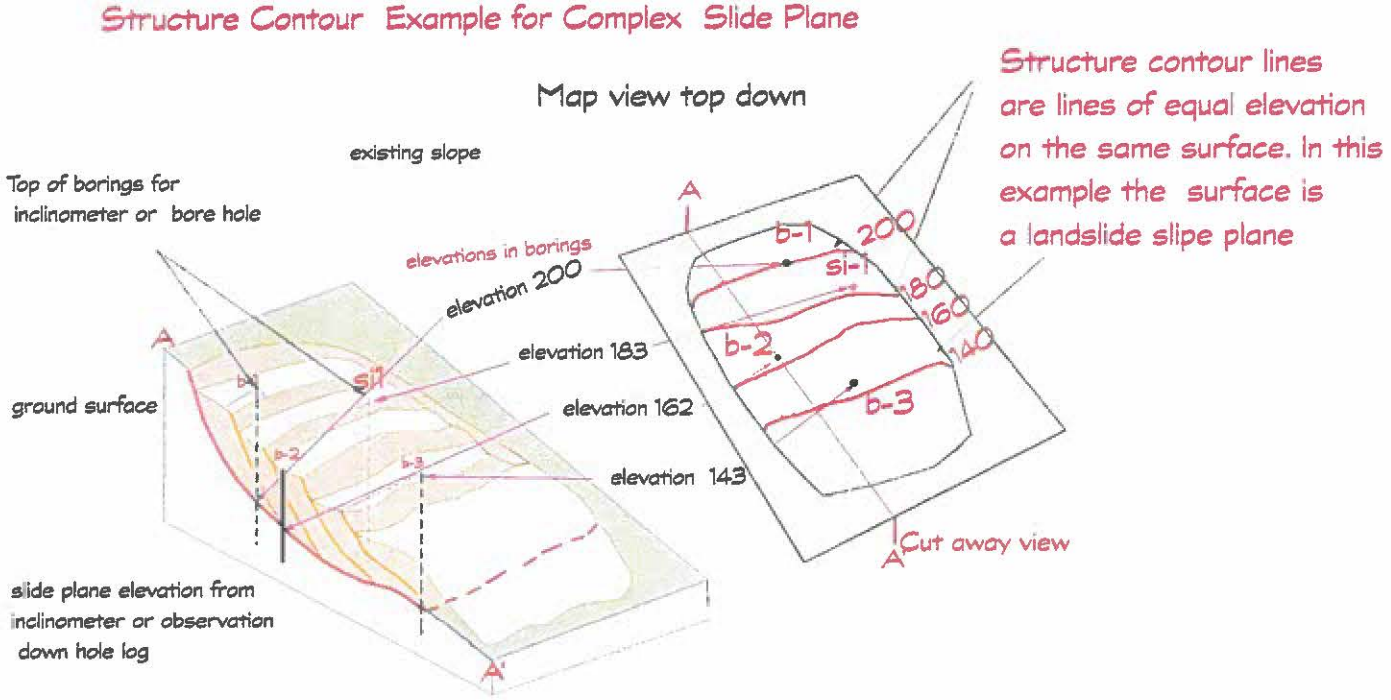
57 Borings and 6 inclinometers were reviewed and notations made
Conclusive slide evidence was found in 31 borings with another 8 having language suggesting slide disturbance
No notations of sliding were found in the Feffer borings or the CY borings (14 borings)because they were not deep enough or mislogged



Previous Consultants Observations and Slide Boundaries



What is a Structure Contour Map and It's Uses

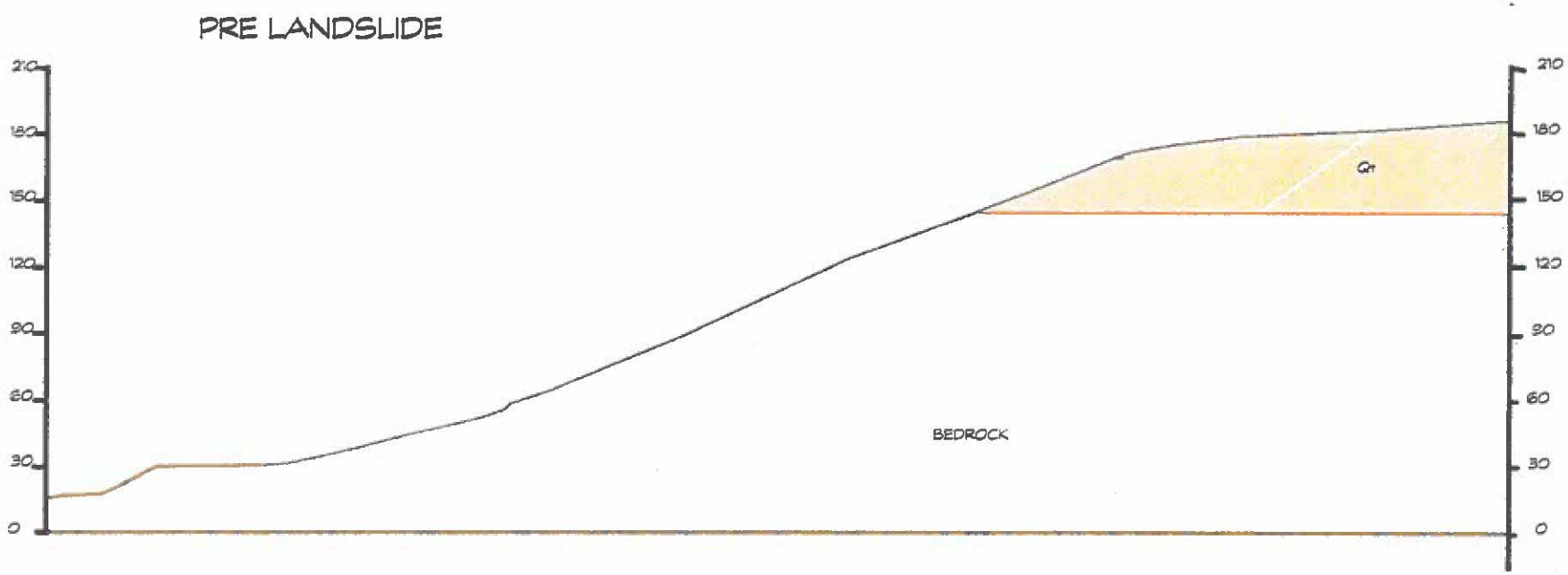


STRUCTURE CONTOUR MAP

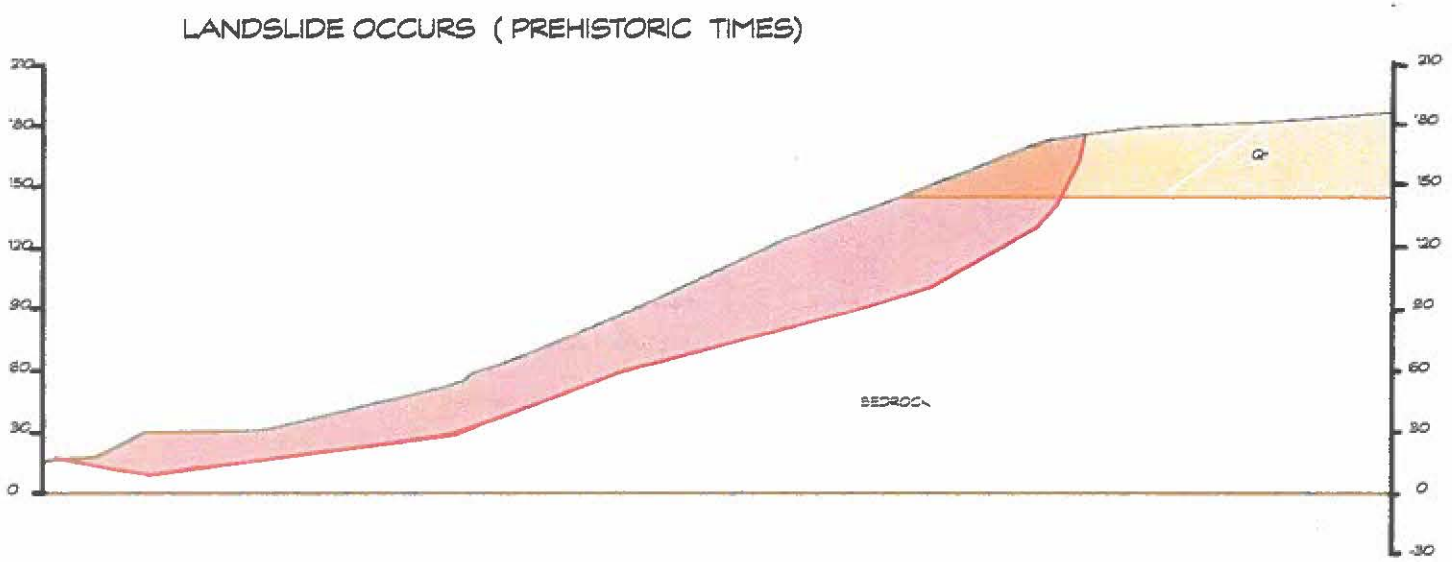


SLIDE/DEVLOPMENT HISTORY

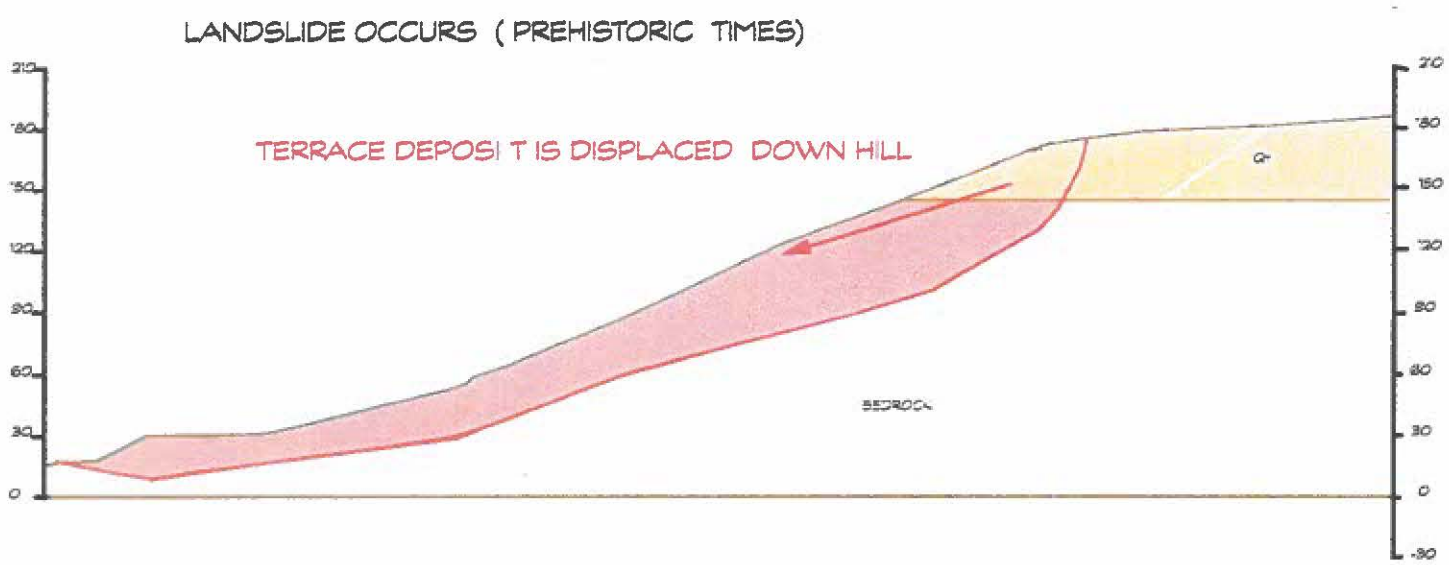
Prehistoric and pre ancient landslide



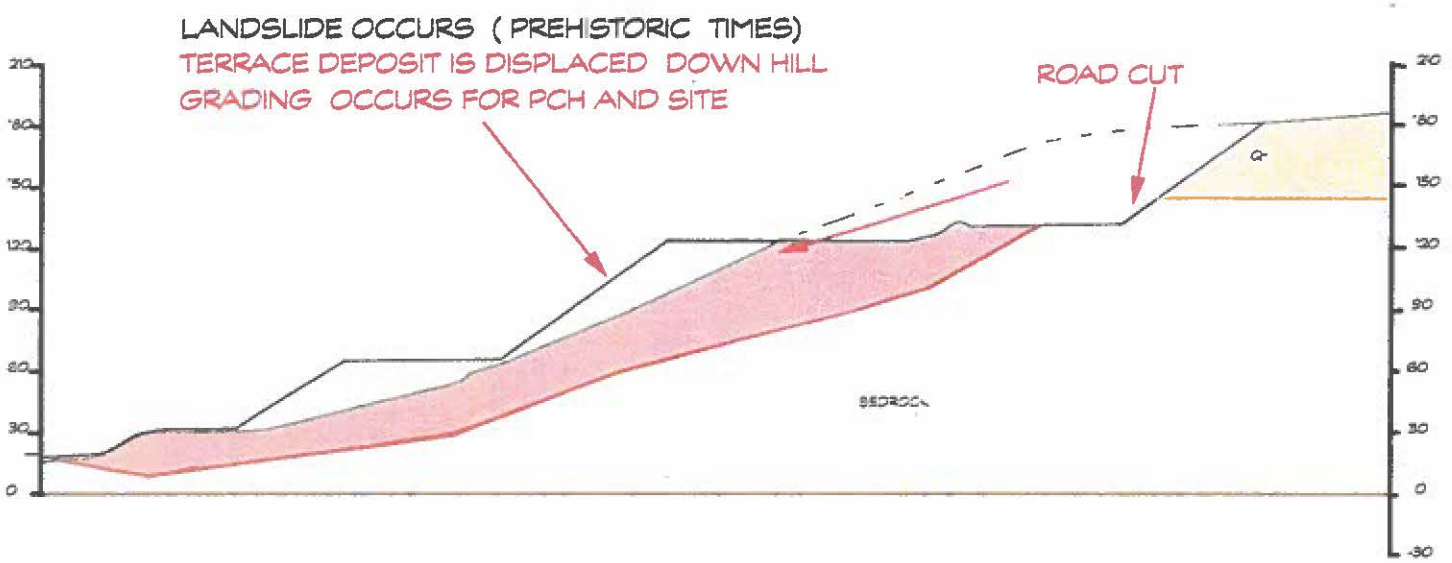
Ancient Landslide Occurs



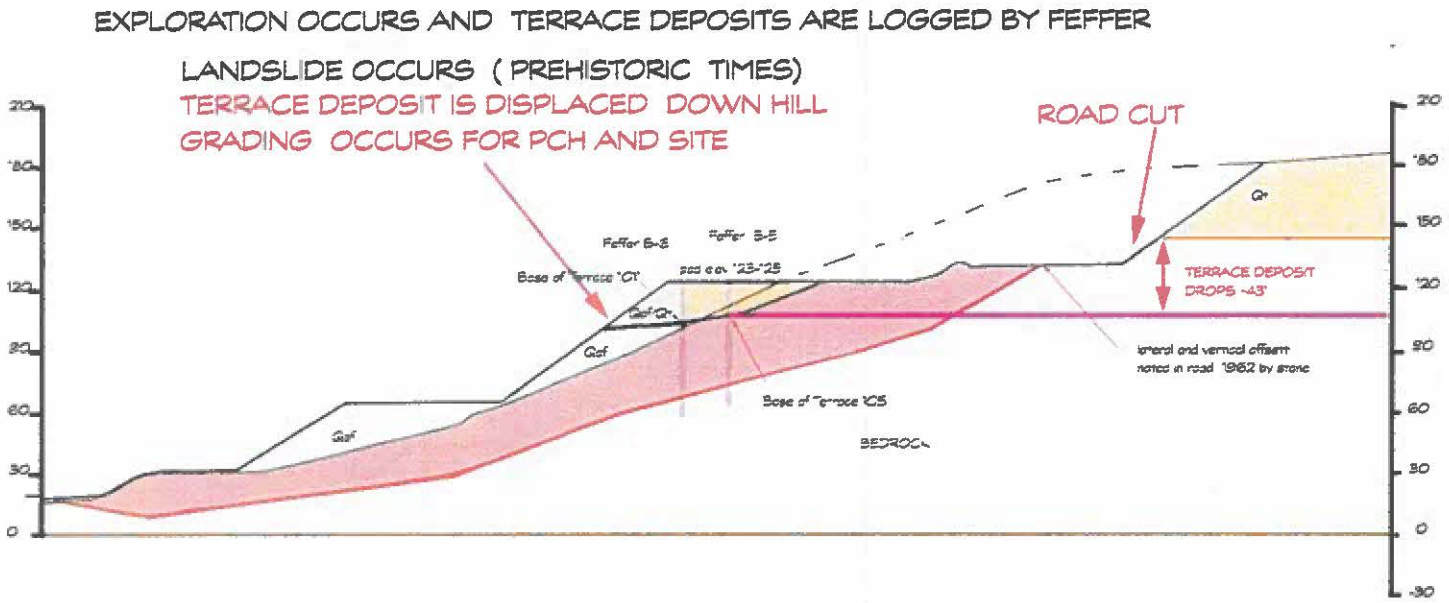
Post Ancient Slide



PCH and Grading Occurs



Exploration Occurs



Slope Inclinometer Accuracy

Slope Indicator Accuracy
The accuracy of slope indicators, such as inclinometers, is crucial for ensuring the safety and integrity of structures.
The accuracy specifications for slope indicators are as follows:
•**English-unit equipment**: ±0.01 inch per reading or ±0.3 inches accumulated over 50 readings.

These specifications are conservative and practical, derived from a large number of datasets and include both random and systematic errors for 50 reading increments and a 2-foot inclinometer probe.
The total error for a 100-foot traverse (50 reading increments) can be calculated as: Systematic errors can be corrected, but random error cannot.

Thus, the limit for precision for 50 reading increments is ±0.05 inches,
and the limit of precision for a single interval is about ±0.01 inch.

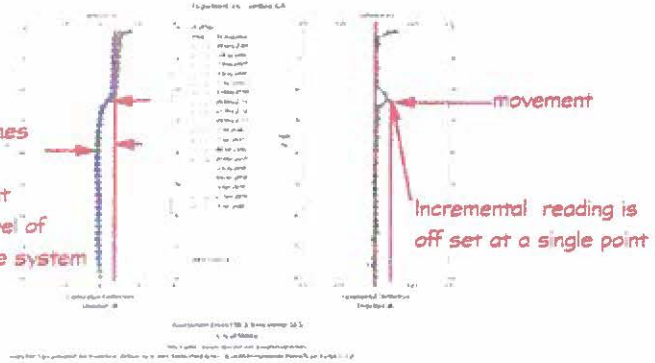
Si-5 and Si 6

Malibu Road Landslide Assessment District, City of Malibu Project No. 3399.004

MALIBU ROAD - Slope Inclinometer Interpretation Summary

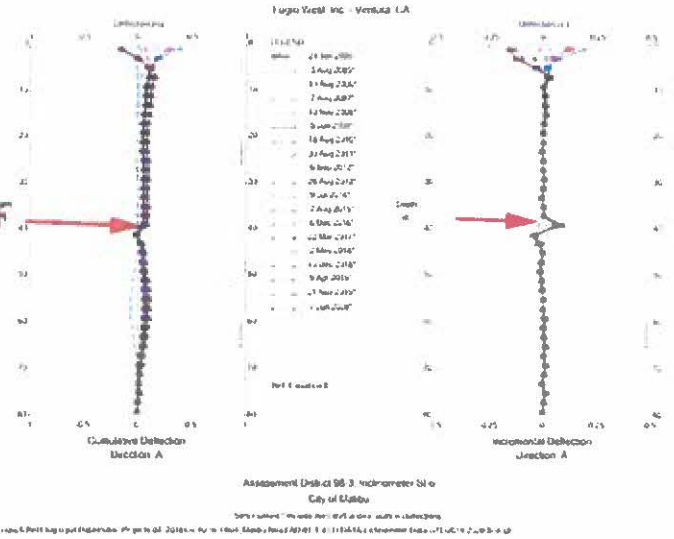
	SI-1 (MR98-1)	SI-1A	SI-2 (MR98-2)	SI-3 (MR98-3)	SI-4 (MR98-4)	SI-5	SI-6
Previous Ref. Elev.(8/91)	20.0	20.0	20.0	20.0	22.0	59.0	57.0
Updated Ref. Elev.(4/00)	20.1	20.0	19.7	20.3	18.9	59.3	58.0
Depth (ft.)	34	50	64	49	43	78	78
[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
A+ Axis orientation (deg)	184		201	190	204	176	186
Casing	RST	SI	RST	RST	RST	SI	SI
Installer	BYA	FWI	BYA	BYA	BYA	BYA	BYA
Interpreted Rupture Depth (ft)	30-32	30-32	28-32	35-38	32-34	unknown	unknown
Reading Interval	Quarterly	Quarterly	Quarterly	Quarterly	Quarterly	Quarterly	Quarterly

SI-5

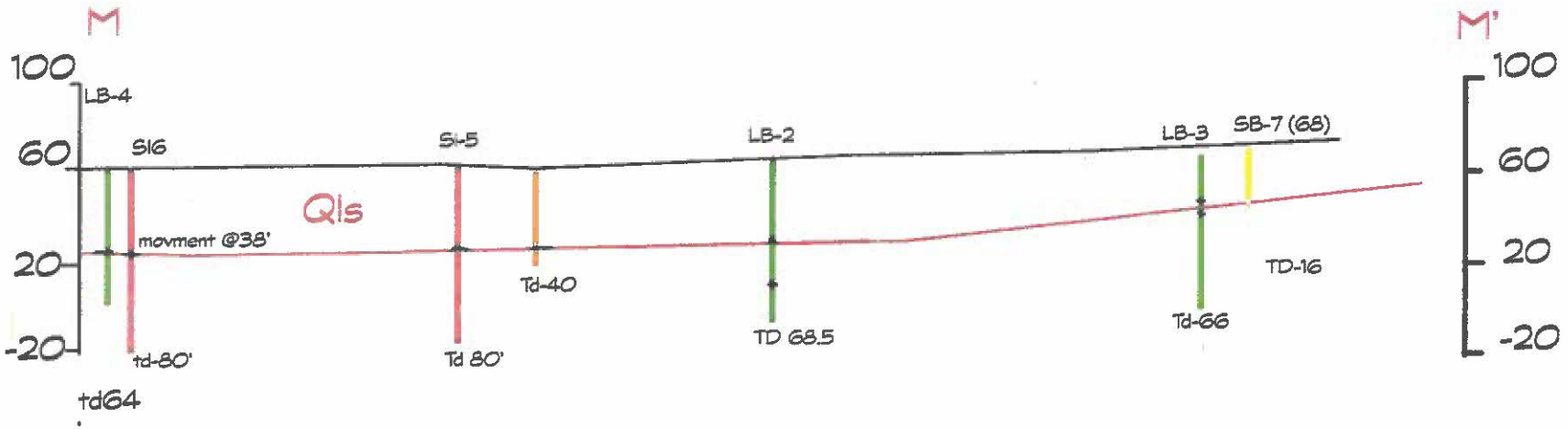


SI-6

movement



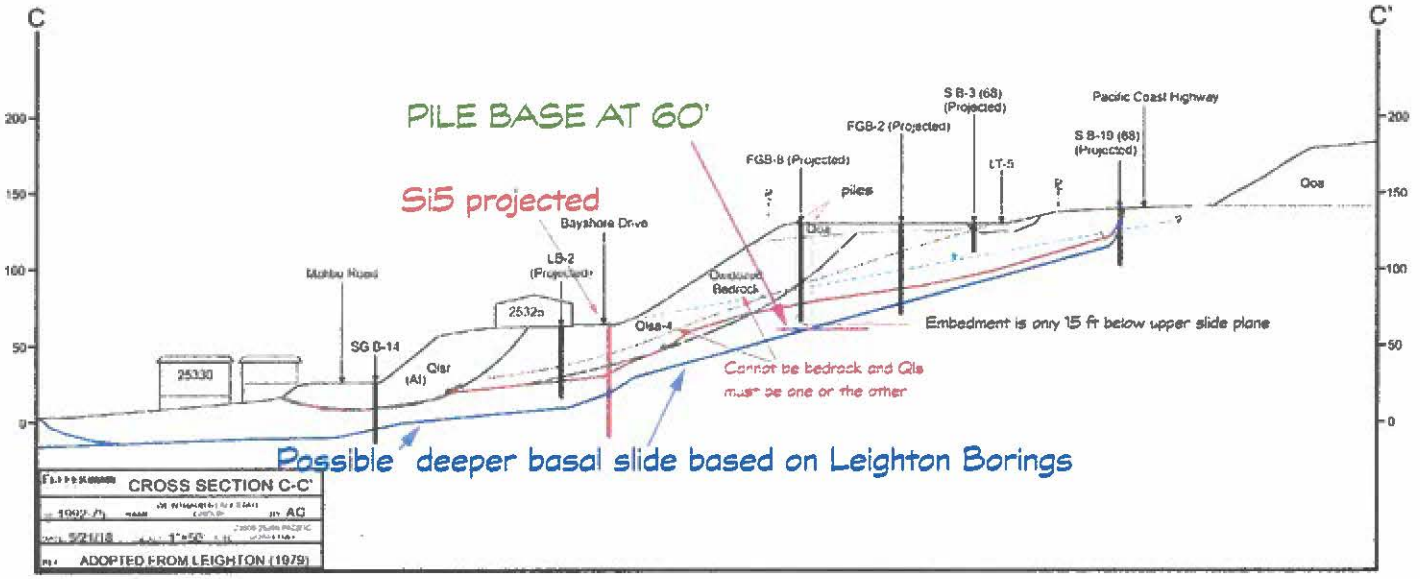
Inclinometer check vs borings



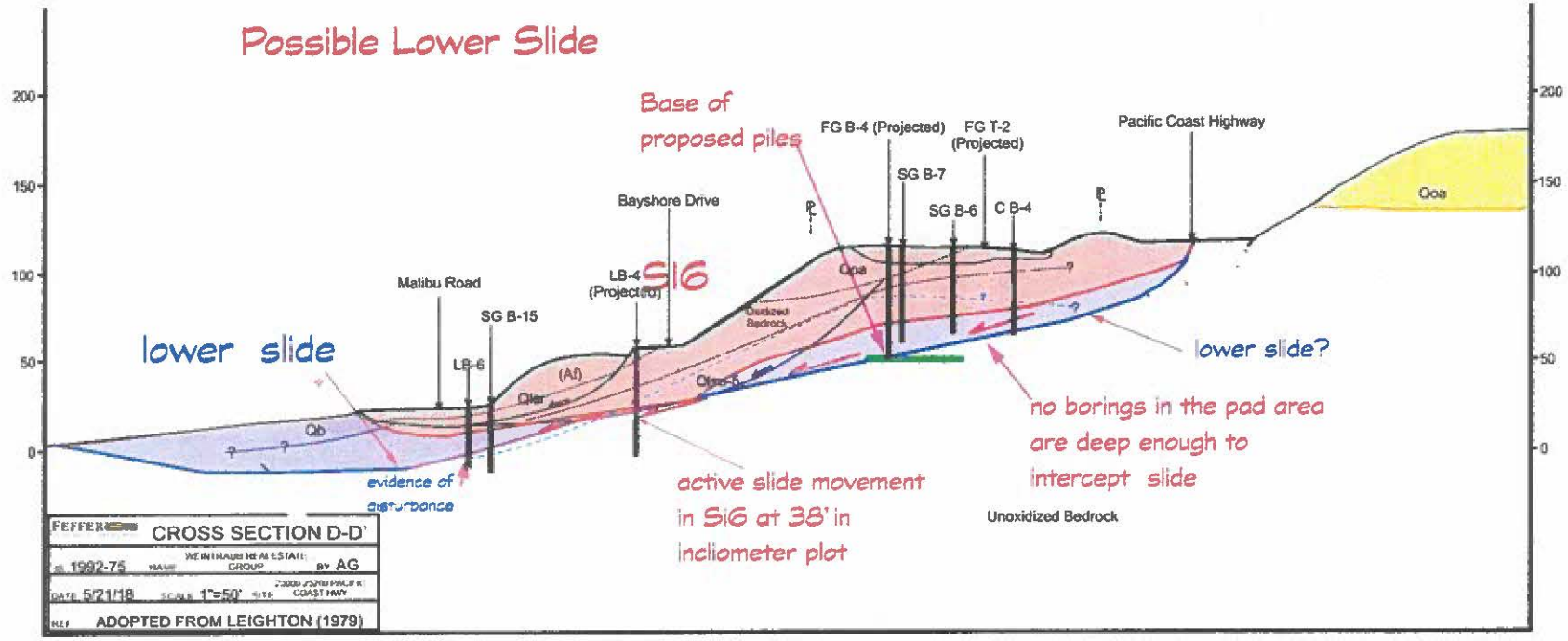
Proposed Pile Map



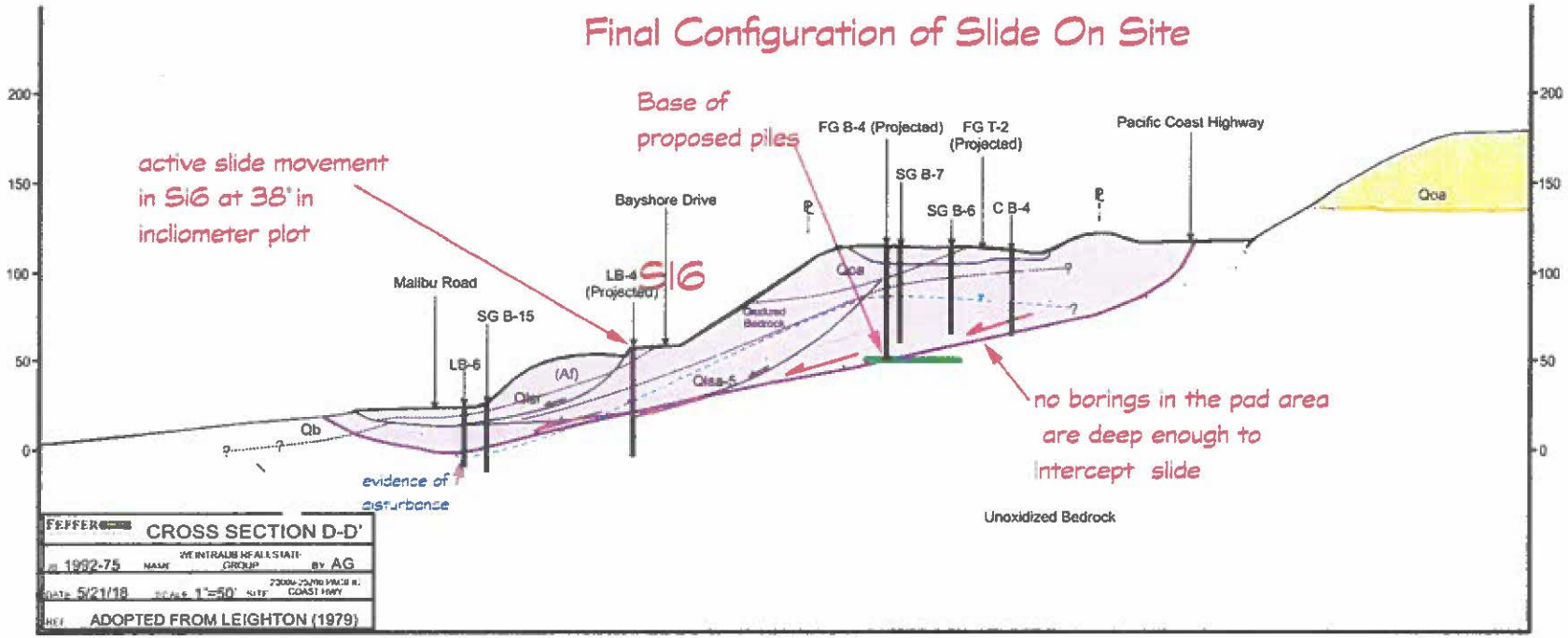
Current plan and section CC' from Feffer



Cross section DD'



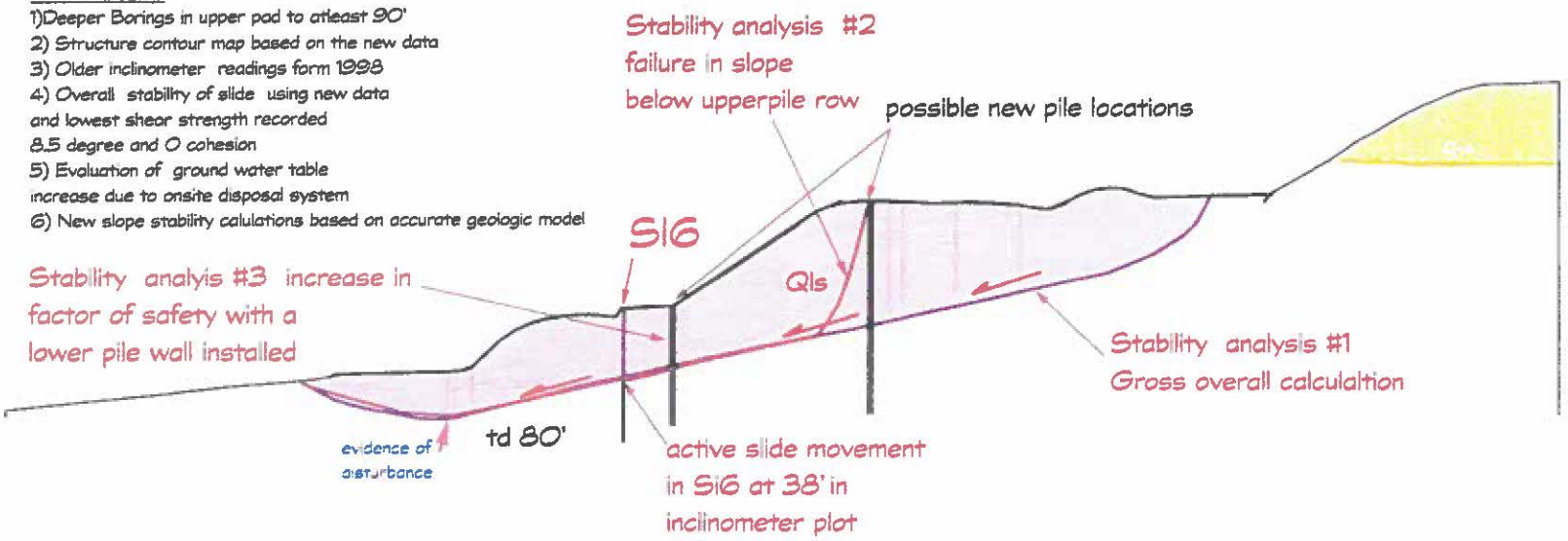
Cross-section DD



Additional tasks needed to evaluate site safety

Items needed

1)Deeper Borings in upper pad to atleast 90'
2) Structure contour map based on the new data
3) Older inclinometer readings form 1998
4) Overall stability of slide using new data and lowest shear strength recorded 8.5 degree and 0 cohesion
5) Evaluation of ground water table increase due to onsite disposal system
6) New slope stability calulations based on accurate geologic model



Conclusions and Recommendations

- **Conclusions**
- Slide model is incorrect
- All stability calculations are based upon an incorrect geologic model
- There is evidence of recent movement in SI5 and SI6
- These movements are consistent with observations in nearby borings
- The treatment plan will negatively affect the homes in the portion of the site
- Groundwater has not been analyzed sufficiently to understand site stability

- **Recommendations**
- Drill additional deep boring in the upper pad to identify the slide plane location
- And determine feasibility of pile deeper than the slide
- Consider placing a row of caissons along the toe of the slope on Bayshore drive
- Repair slope failure on the property (yellow area)
- Perform new slope stability calculations that will address gross stability below current pile location
- Evaluate potential for ground water increase and corresponding decrease in stability with slope stability and water level sensitivity analysis

Coastal Development Permit No. 19-012, Certificate of Compliance No.19-009, Lot Merger No. 24-002

25200 Pacific Coast Highway

January 20, 2026
Planning Commission Meeting
Item No. 4.B.

Vicinity Map



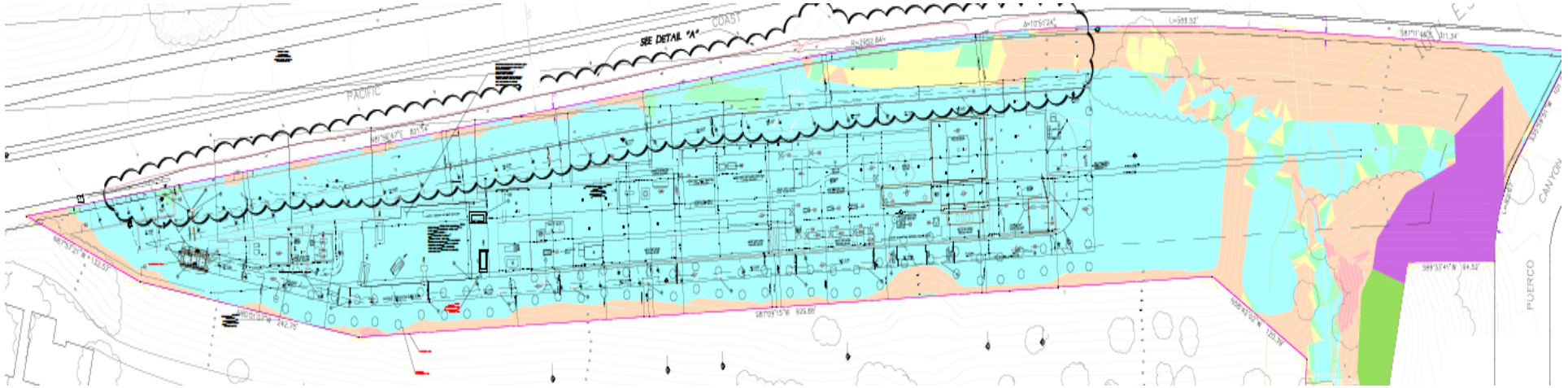
Site Photo – Looking East

Site Characteristics

- Vacant 6.36-acre site (1,692 linear feet along PCH)
- 2 lots (to be merged)
- Property at or below PCH grade (varies)
- Zoned RR-2 (2-acre min. lot area)
- Appealable jurisdiction of Coastal Commission

Site Characteristics, cont.

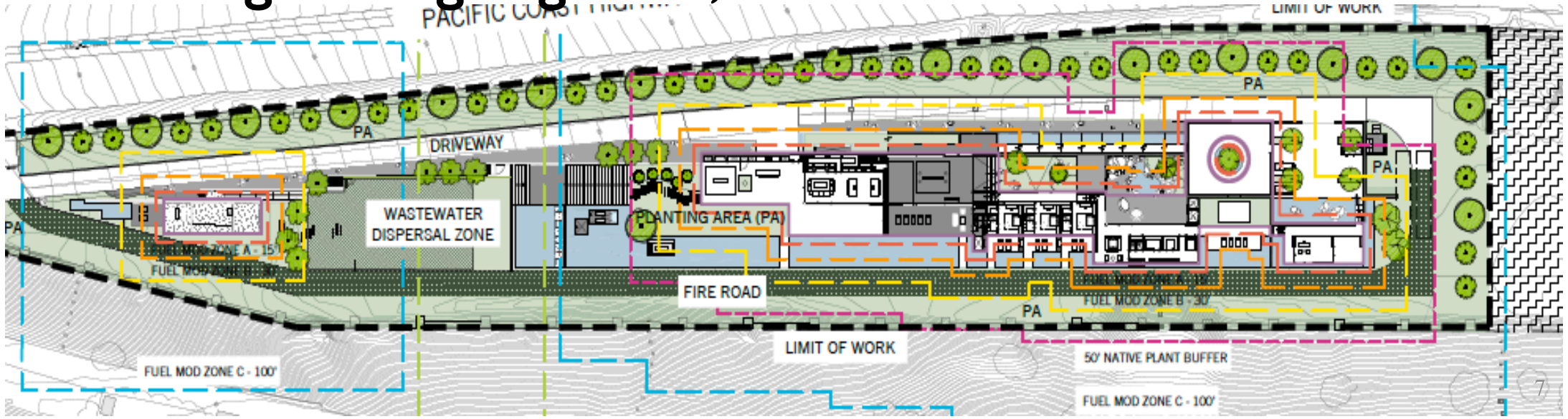
- Access from PCH, Caltrans earthen berms
- ESHA and jurisdictional drainage on east side of property
- No trees or sensitive vegetation (except in drainage)
- Slopes from <4:1 to 1:1, but mostly 4:1




31% VIEW CORRIDOR
MIDPOINT
846'
1692'
846'
SITE
184'-2"
1612'-5"
FUEL MOD ZONE C- 100'
806'-2 1/2"
FUEL MOD ZONE C- 100'
806'-2 1/2"
MIDPOINT
FUEL MOD ZONE D- 200'
FUEL MOD ZONE D- 200'
100' ESHA BUFFER
PROJECT AREA
BUILDING FOOTPRINT
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

Project Description

- ➢9,219 SF one-story SF main residence (≅12 - 17'-7" high)
- ➢Gym 676 SF (max. 12' height, 1 story)
- ➢Guest House of 465 SF (max. 10' height, 1 story)
- ➢Basement of 1,523 SF
- ➢Underground garage of 1,000 SF

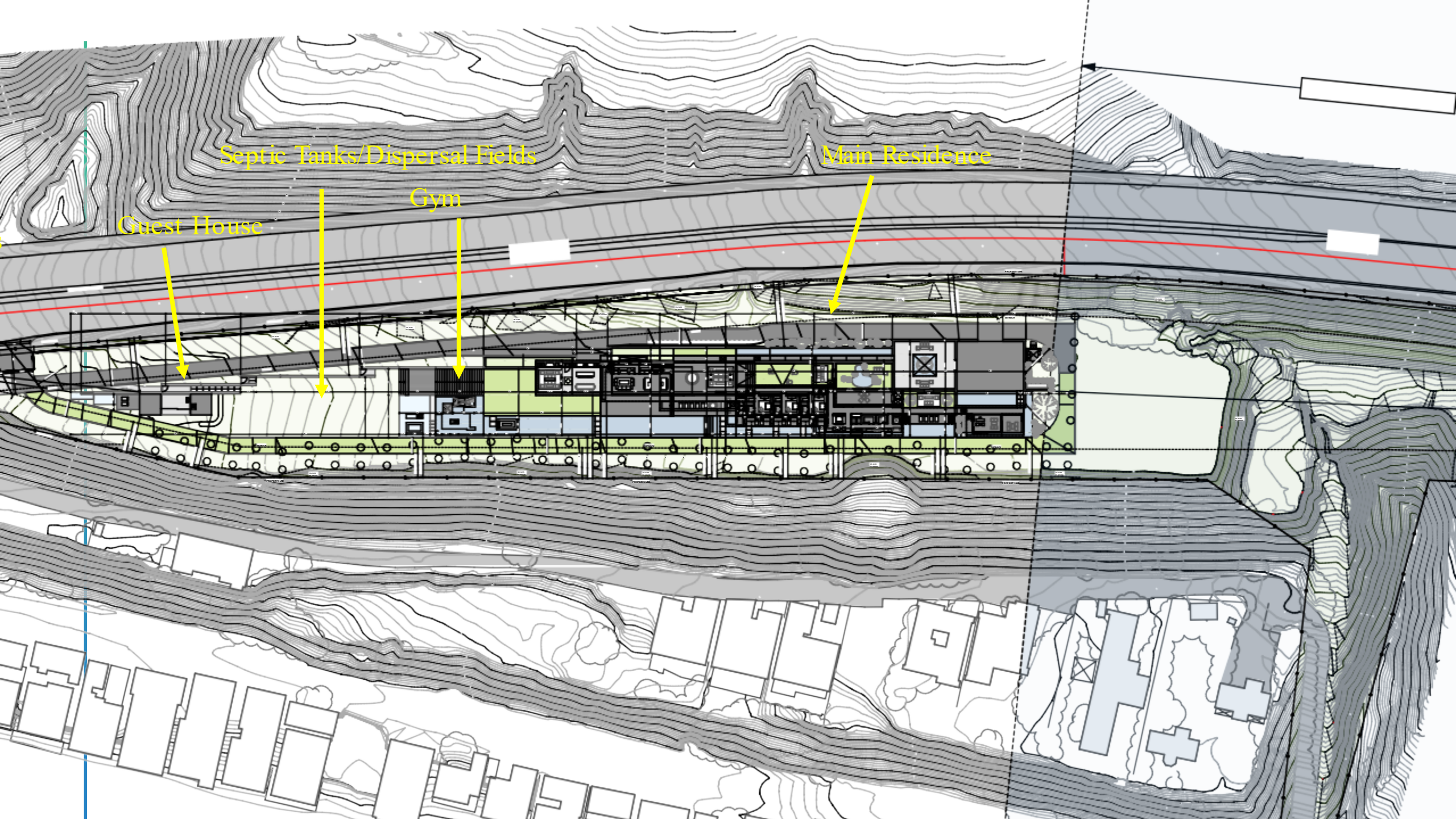


Project Description, cont.

- Swimming pools/spas & water features
- Patios/outdoor rooms
- Retaining walls (3 - 6’ height)
- Freestanding walls (max. 6’ height)
- OWTS (7,540 gal.)
- Landscaping (incl. native species)
- Fire access driveways

Project Description, cont.

- Driveway gate and fencing (northern boundary)
- TDSF 11,121 SF (11,172 SF max. allowed)
- Development in flattest area - on slopes mostly less steep than 4:1(run:rise), but some 3:1-4:1
- Non-exempt grading 674 CY (max. 1,000 allowed)
- Preserves areas of steep slopes & ESHA/drainage


Septic Tanks/Dispersal Fields
Main Residence
Gym
Guest House

Rendering – South Façade



Discretionary Actions

- Coastal Development Permit (CDP)
- Certificate of Compliance (COC)
- Lot Merger (LM)

View from berm at site's western edge, looking easterly.



View from middle of site, looking to NW.

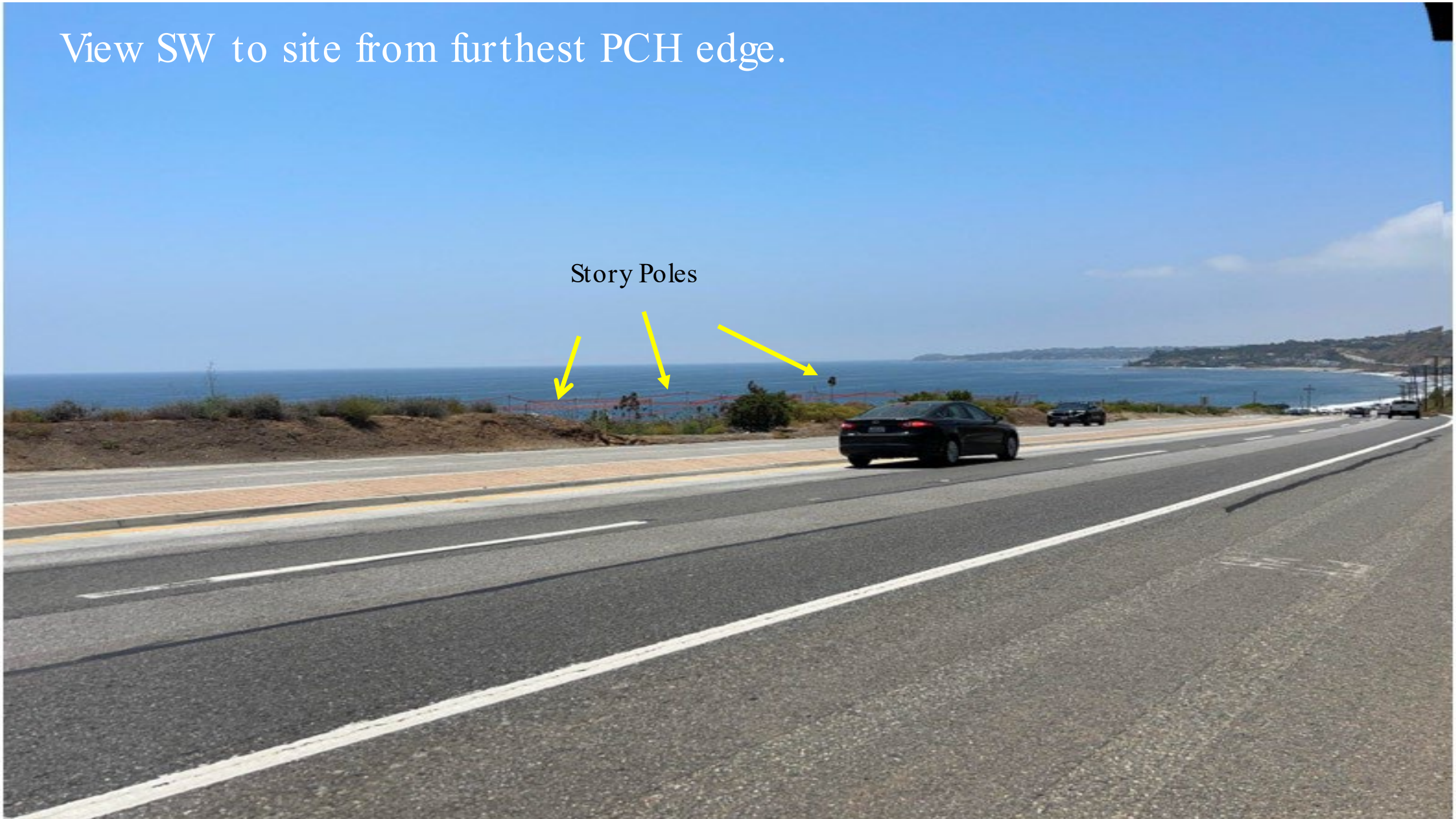


View from middle of site, looking northeasterly. PCH & berms are to the left.



View to middle of site (main residence), looking SE from furthest PCH edge.



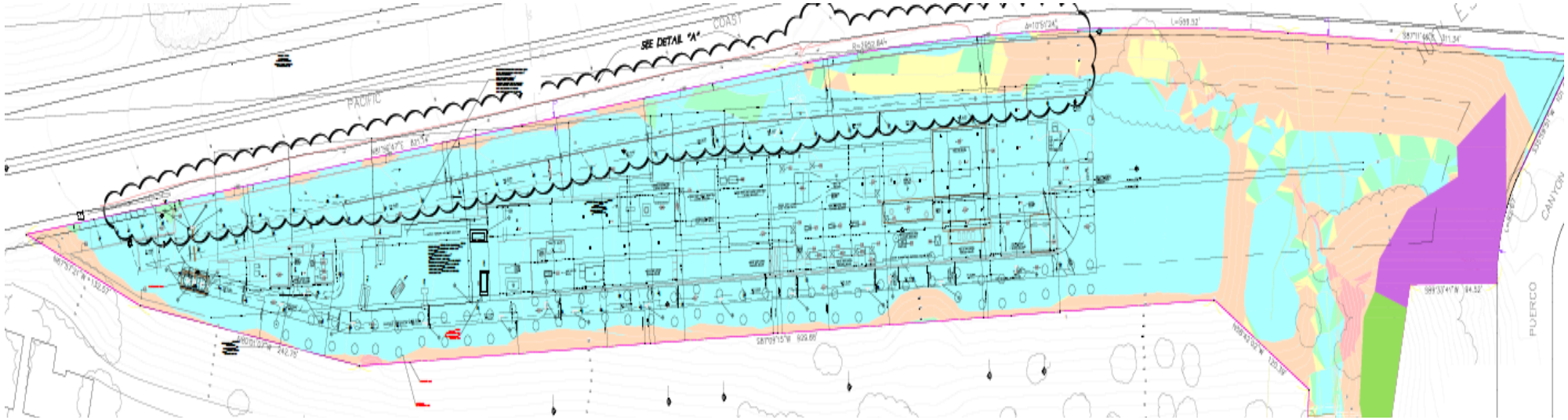

View SW to site from furthest PCH edge.
Story Poles

LCP Consistency:
Scenic Resources/Bluewater Views

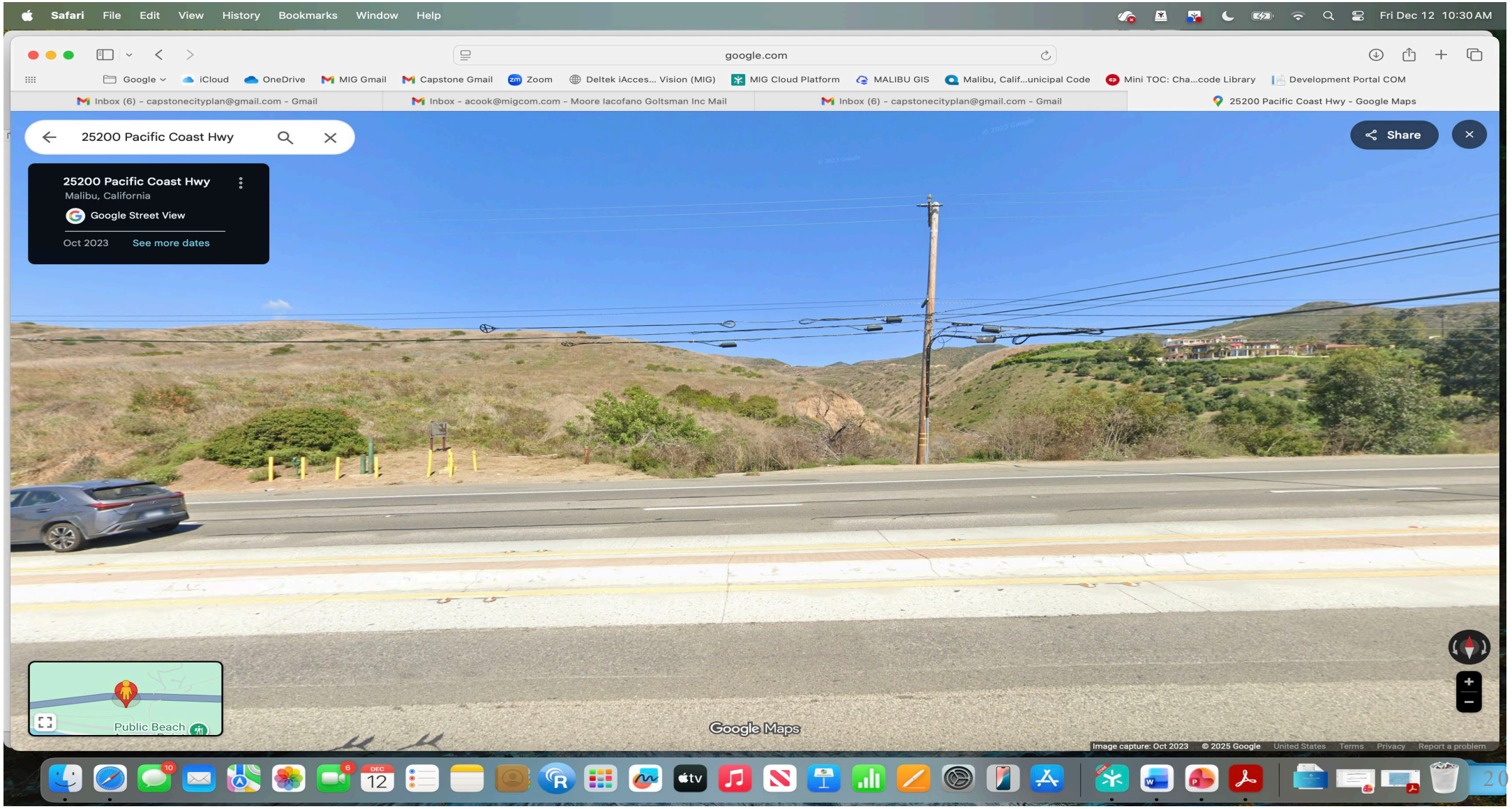
- Adjacent to PCH (scenic road)
- Bluewater views from PCH across project site
- Caltrans berms
- Flat roofs, one-story, meets TDSF max. SF
- Impacts to bluewater views
- Project changes - lower building & wall heights (no VAR/SPR)

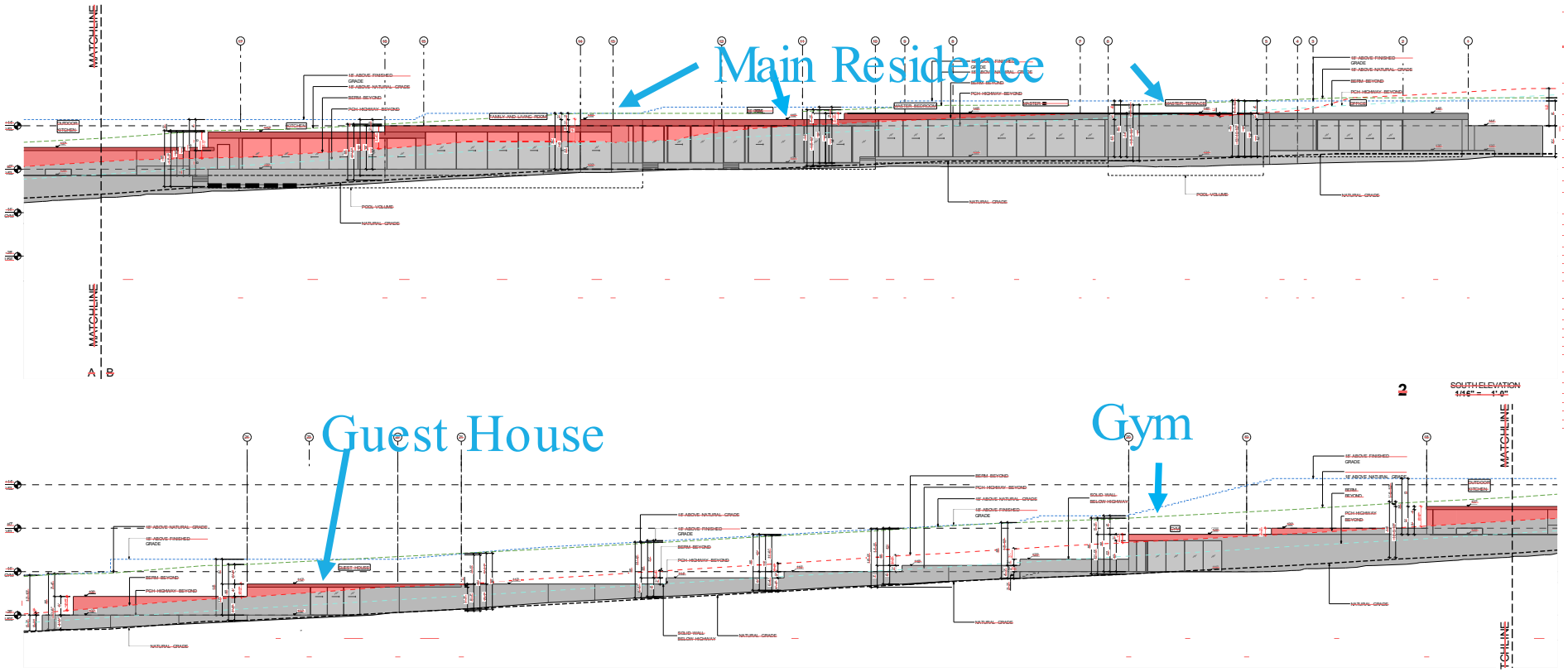
LCP Consistency:
Scenic Resources/Bluewater Views, cont.

- Alternatives considered
- Conditions for colors and materials (building, walls, paving)
- Condition for height of vegetation



Hillside North of Subject Property





Protrusion of Buildings Above PCH

Standards and Findings

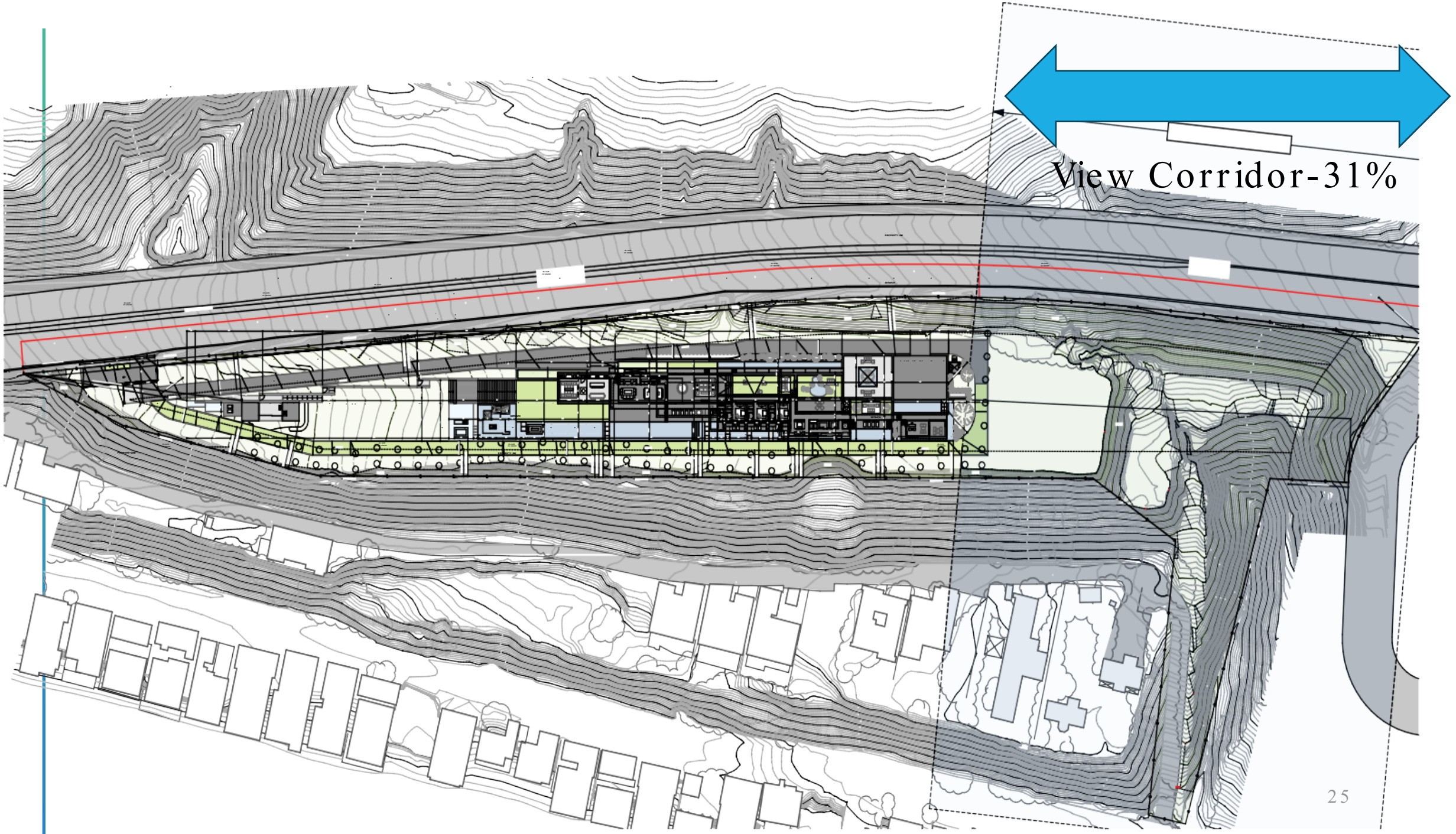
- LIP and MMC development requirements & standards
- Findings for the CDP and LM
- Finding of Categorical Exemption from CEQA
  - Guidelines Sec. 15303 – new construction

Photosimulation 1



Photosimulation 2




View Corridor-31%

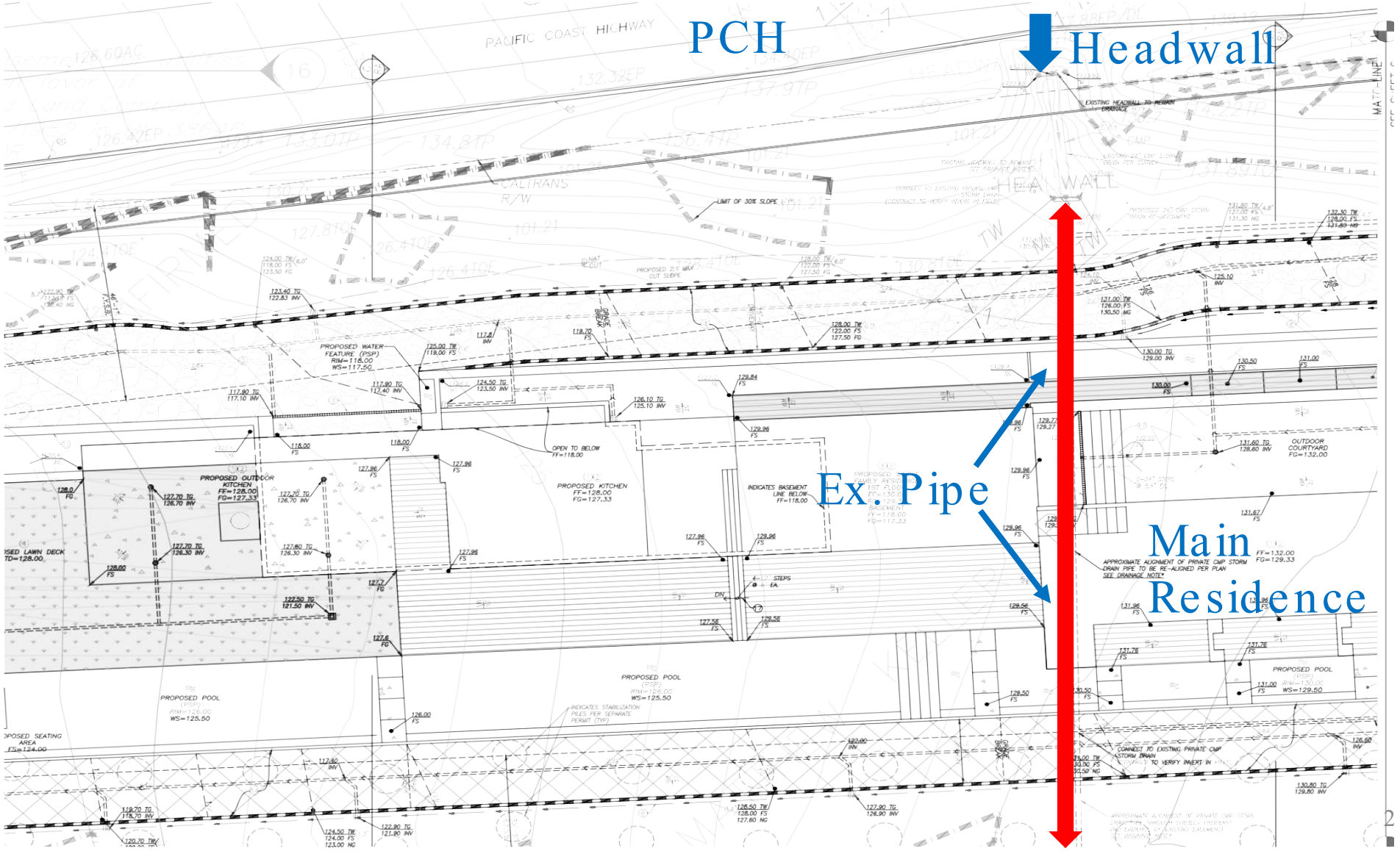
Correspondence

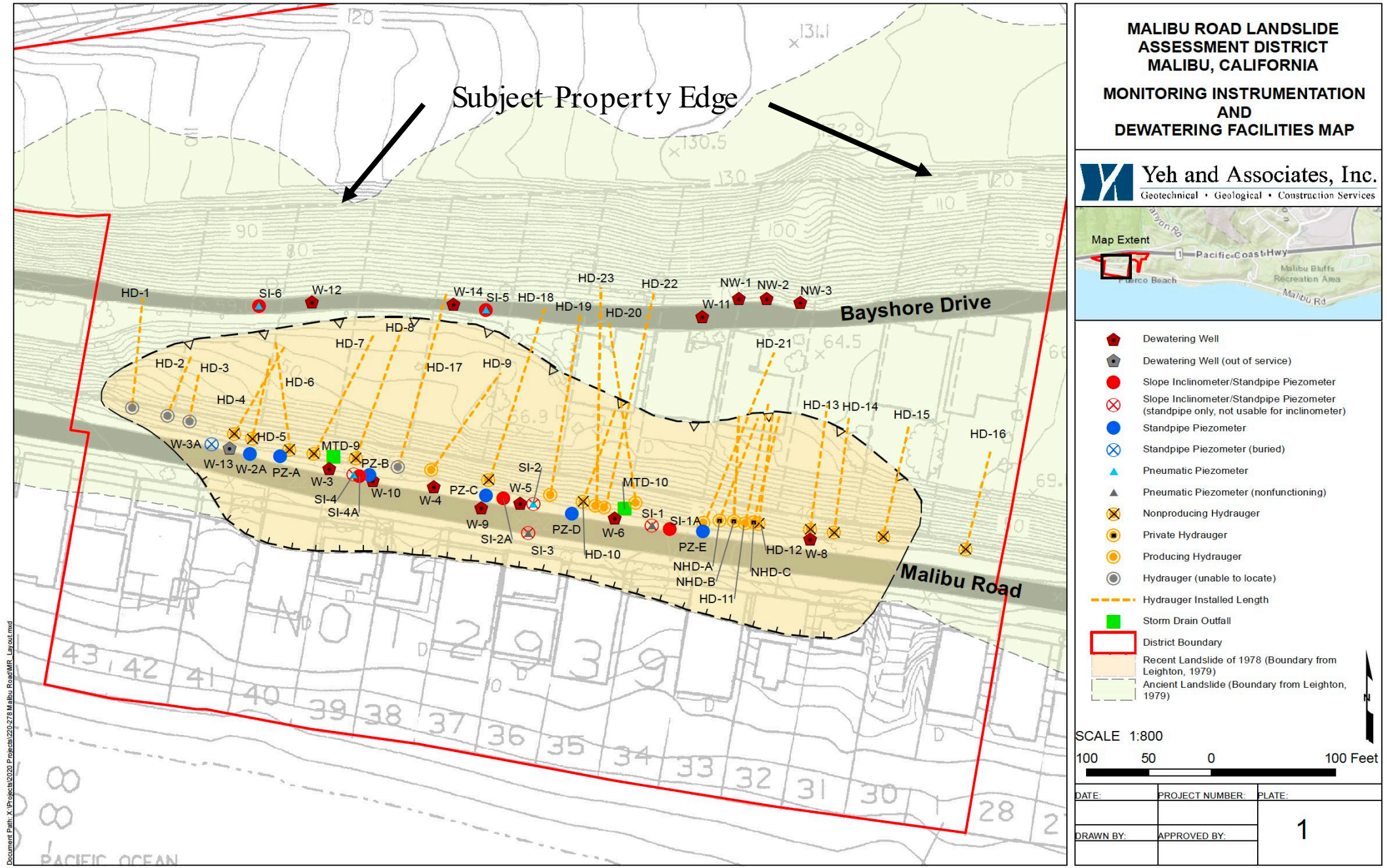
- Scenic resources/view impacts
- Proposed vegetation height and flammability
- Geological/geotechnical feasibility – onsite slope stability
- Berms along PCH
- Existing drainage pipe N-S through project site
- Pipe failures and slope stability – south of site

Geotechnical Analysis

- The project as designed meets LIP Chapter 9 (Hazards), including Section 9.4 Development Standards
- The project as designed meets LIP Section 9.4.D(1-9) (factors of safety), as applicable – applicant's geotechnical consultant provided reports demonstrating compliance

Civil Plan




Subject Property Edge
Bayshore Drive
Malibu Road
HD-1
SI-6
W-12
W-14
SI-5
HD-18
HD-19
HD-23
HD-22
HD-20
NW-1
NW-2
NW-3
W-11
HD-21
HD-8
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HD-9
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W-3A
W-13
W-2A
PZ-A
MTD-9
PZ-B
W-3
SI-4
SI-4A
W-10
W-4
PZ-C
SI-2
W-5
W-9
SI-2A
SI-3
PZ-D
HD-10
W-6
MTD-10
SI-1
SI-1A
PZ-E
NHD-A
NHD-B
NHD-C
HD-11
HD-12
W-8
MALIBU ROAD LANDSLIDE
ASSESSMENT DISTRICT
MALIBU, CALIFORNIA
MONITORING INSTRUMENTATION
AND
DEWATERING FACILITIES MAP
Yeh and Associates, Inc.
Geotechnical • Geological • Construction Services
Map Extent
Pacific Coast Hwy
Malibu Bluffs
Recreation Area
Malibu Rd
Dewatering Well
Dewatering Well (out of service)
Slope Inclinometer/Standpipe Piezometer
Slope Inclinometer/Standpipe Piezometer
(standpipe only, not usable for inclinometer)
Standpipe Piezometer
Standpipe Piezometer (buried)
Pneumatic Piezometer
Pneumatic Piezometer (nonfunctioning)
Nonproducing Hydrauger
Private Hydrauger
Producing Hydrauger
Hydrauger (unable to locate)
Hydrauger Installed Length
Storm Drain Outfall
District Boundary
Recent Landslide of 1978 (Boundary from Leighton, 1979)
Ancient Landslide (Boundary from Leighton, 1979)
N
SCALE 1:800
100 50 0 100 Feet
DATE:
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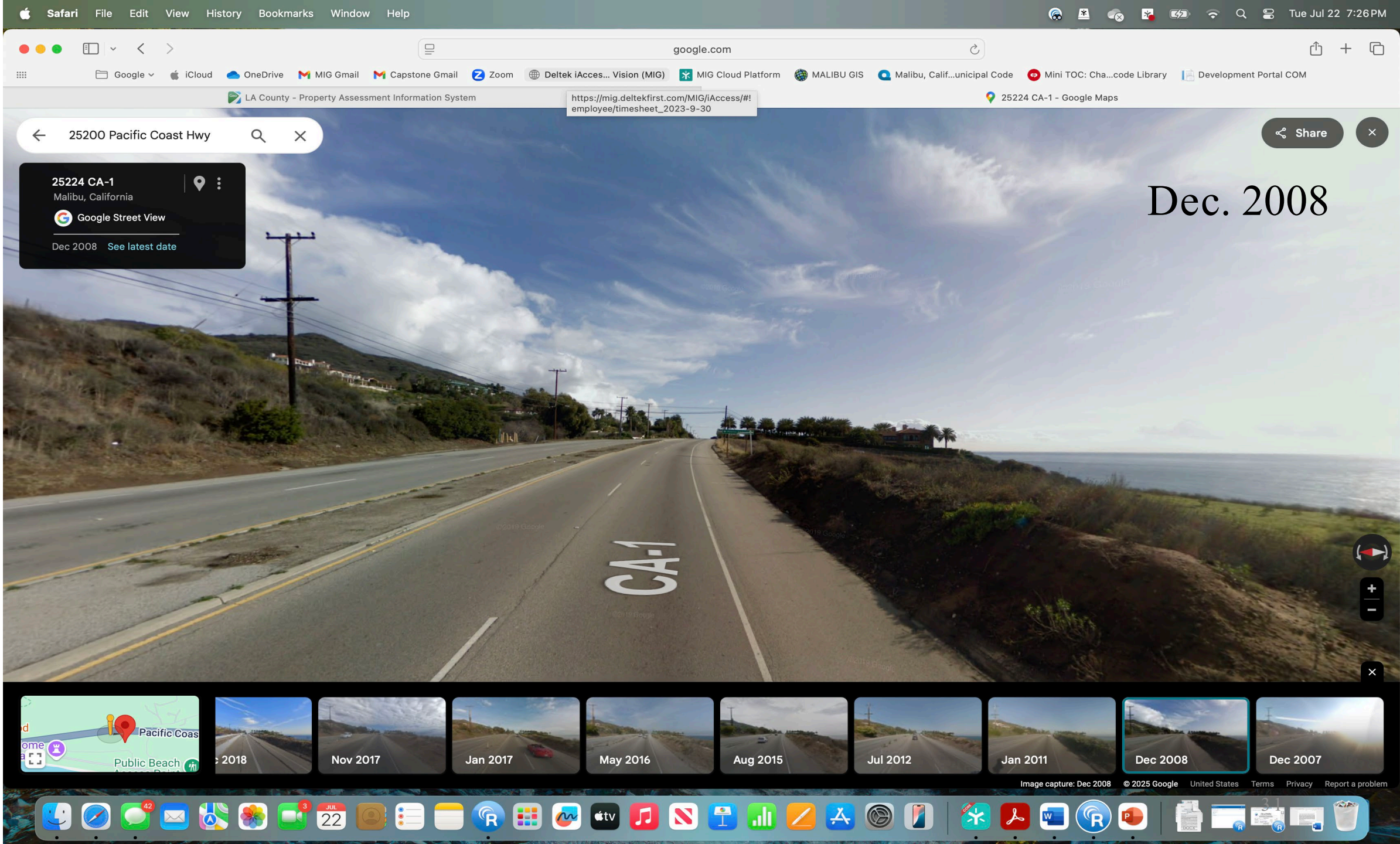
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LA County - Property Assessment Information System
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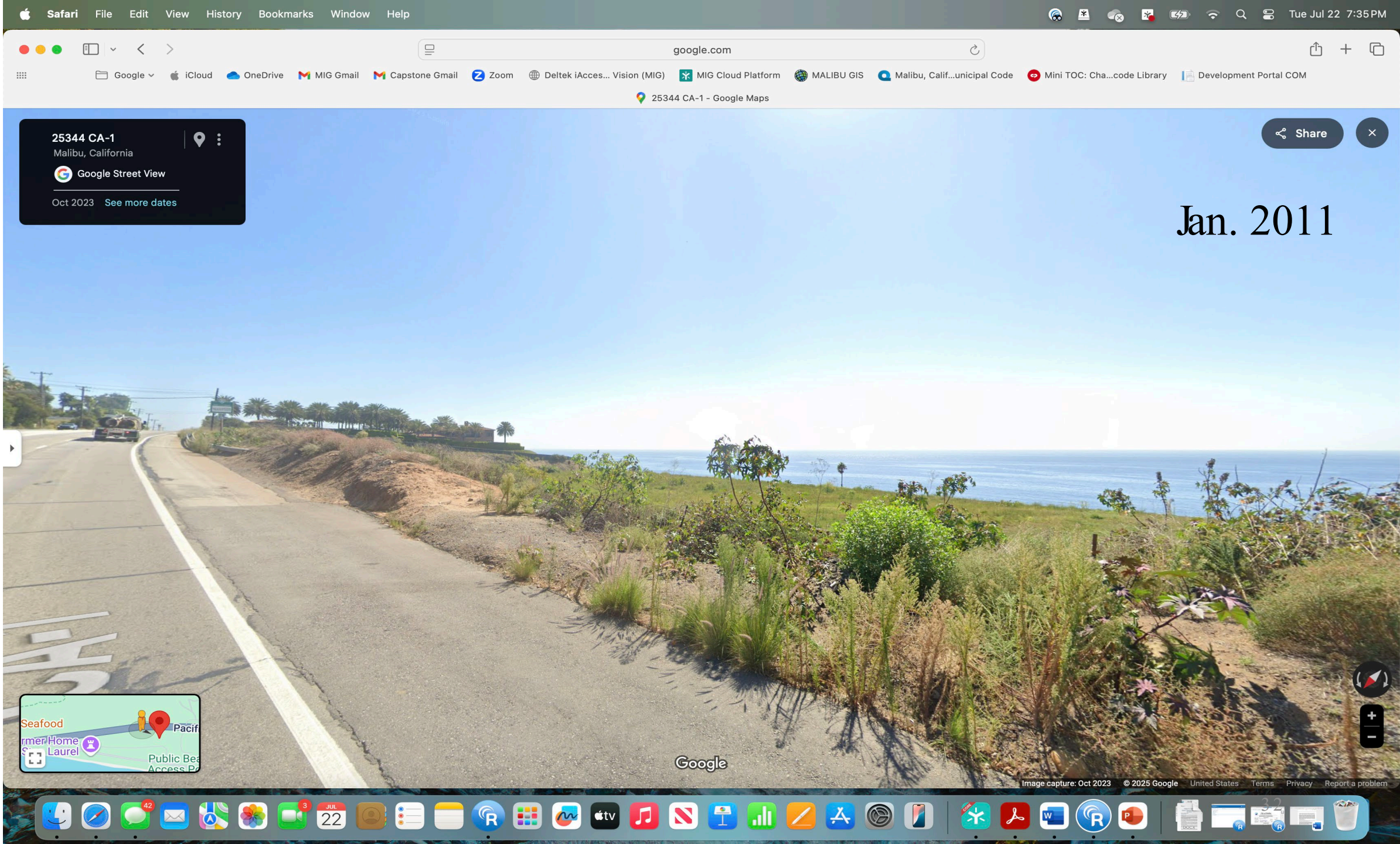
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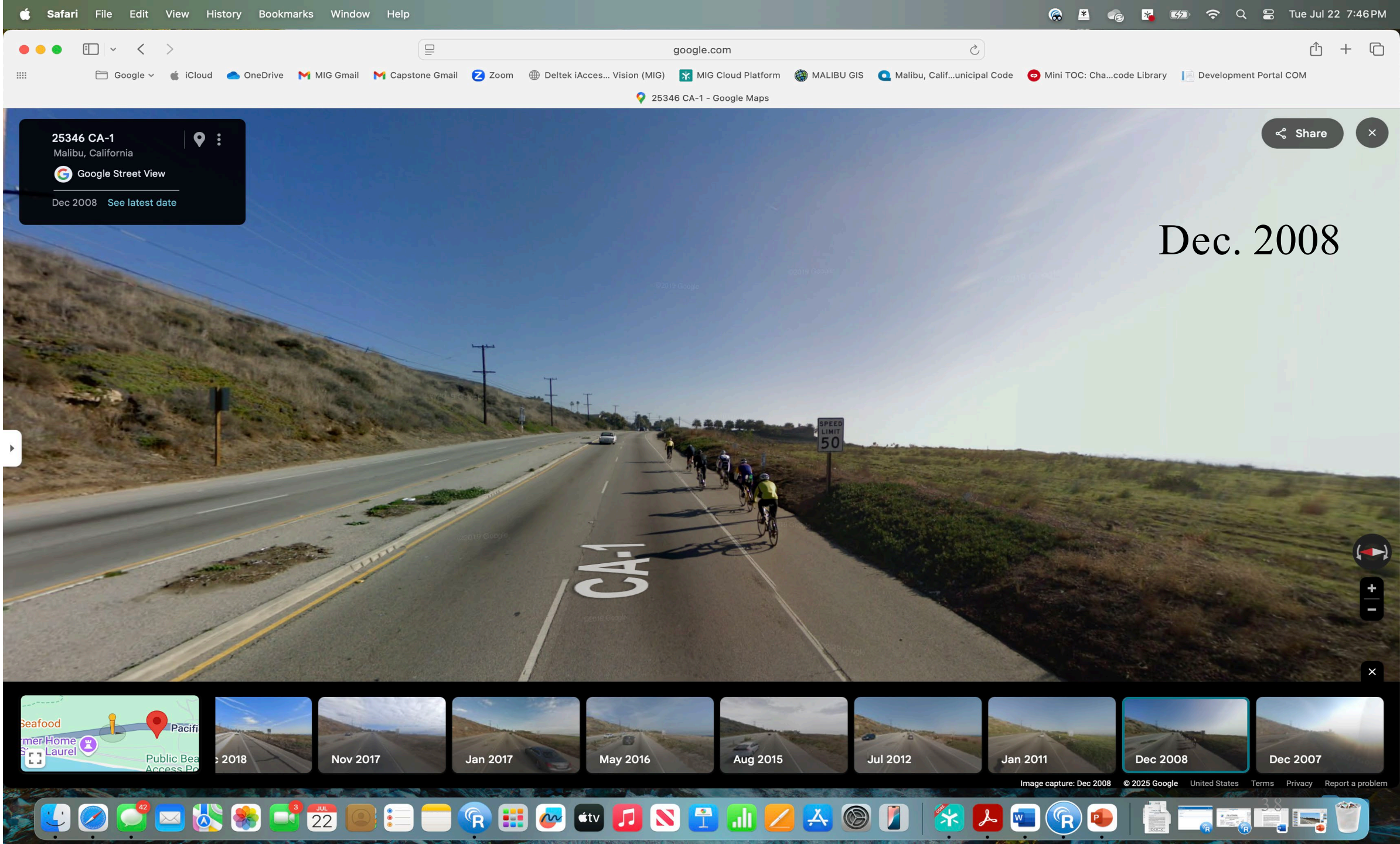
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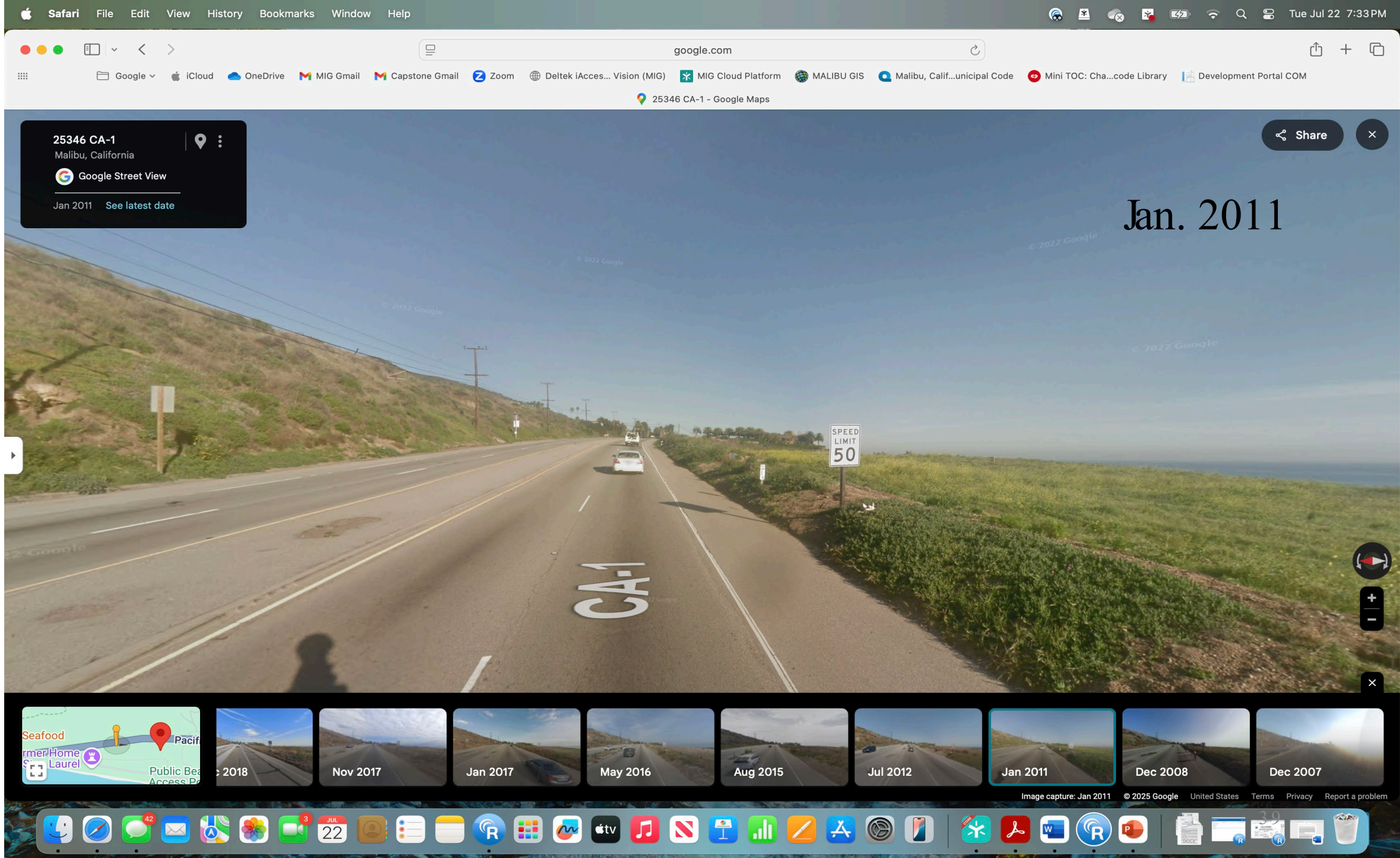
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July 2025



Additional Condition of Approval

"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."

Corrections to Conditions

- Condition # 2: Should be 7,540-gallon septic tank, not 1,000.
- Condition # 57: "Necessary boundary fencing ~~of any single area exceeding o acre~~ shall be of an open rail-type design…"

Recommendation

Staff recommends that the Commission either:

(1) Determine the project is exempt from CEQA, and approve CDP No. 19-012, COC No. 19-009, and LM No. 24-002 subject to the conditions of approval contained in the Resolution (Att. A) and noted changes to the conditions; OR

(2) Direct staff to return with a Resolution consistent with the Commission's decision.

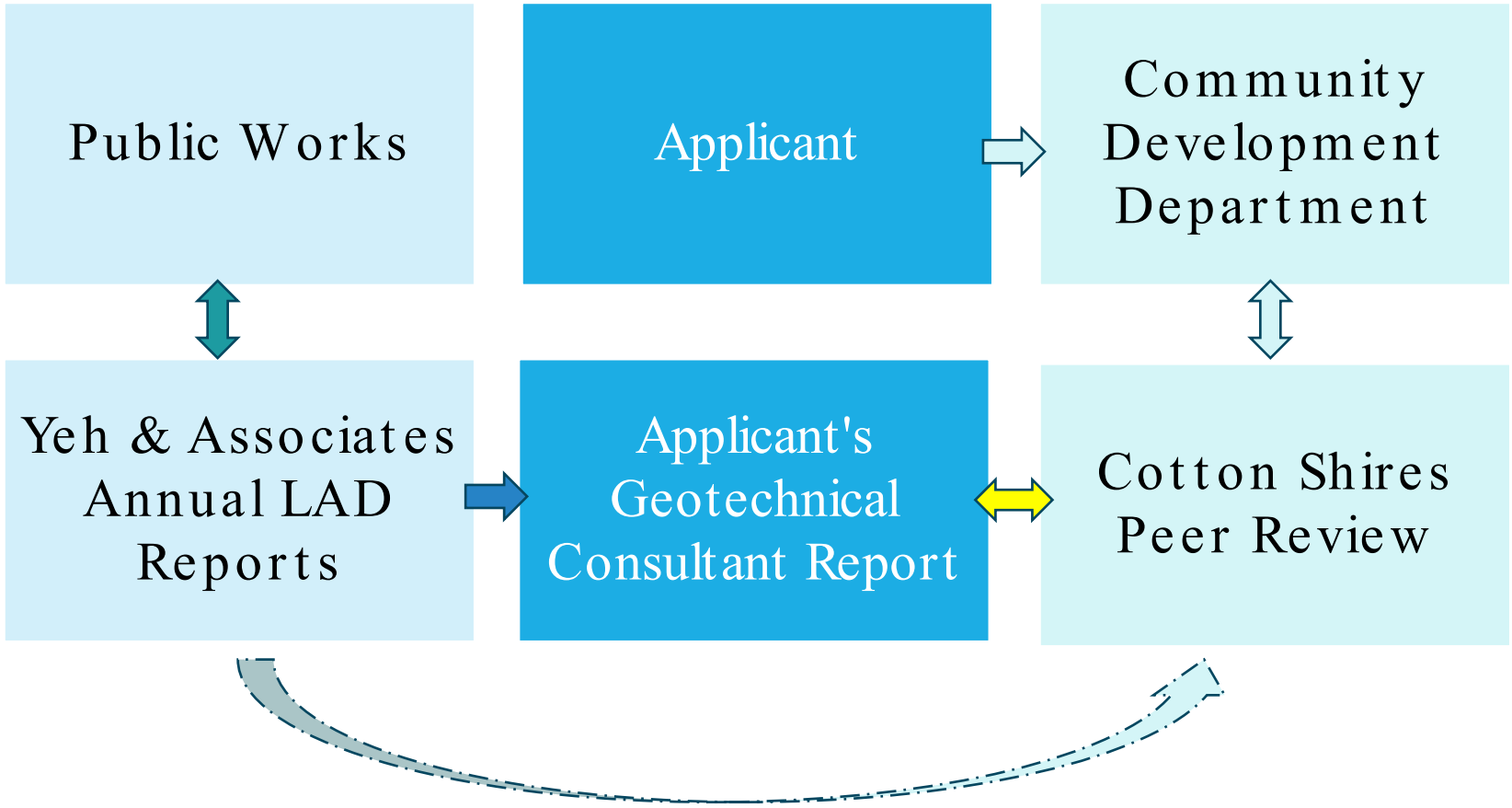
CDP No. 19-012,
LM No. 24-002, No. COC 19-009

25200 PCH

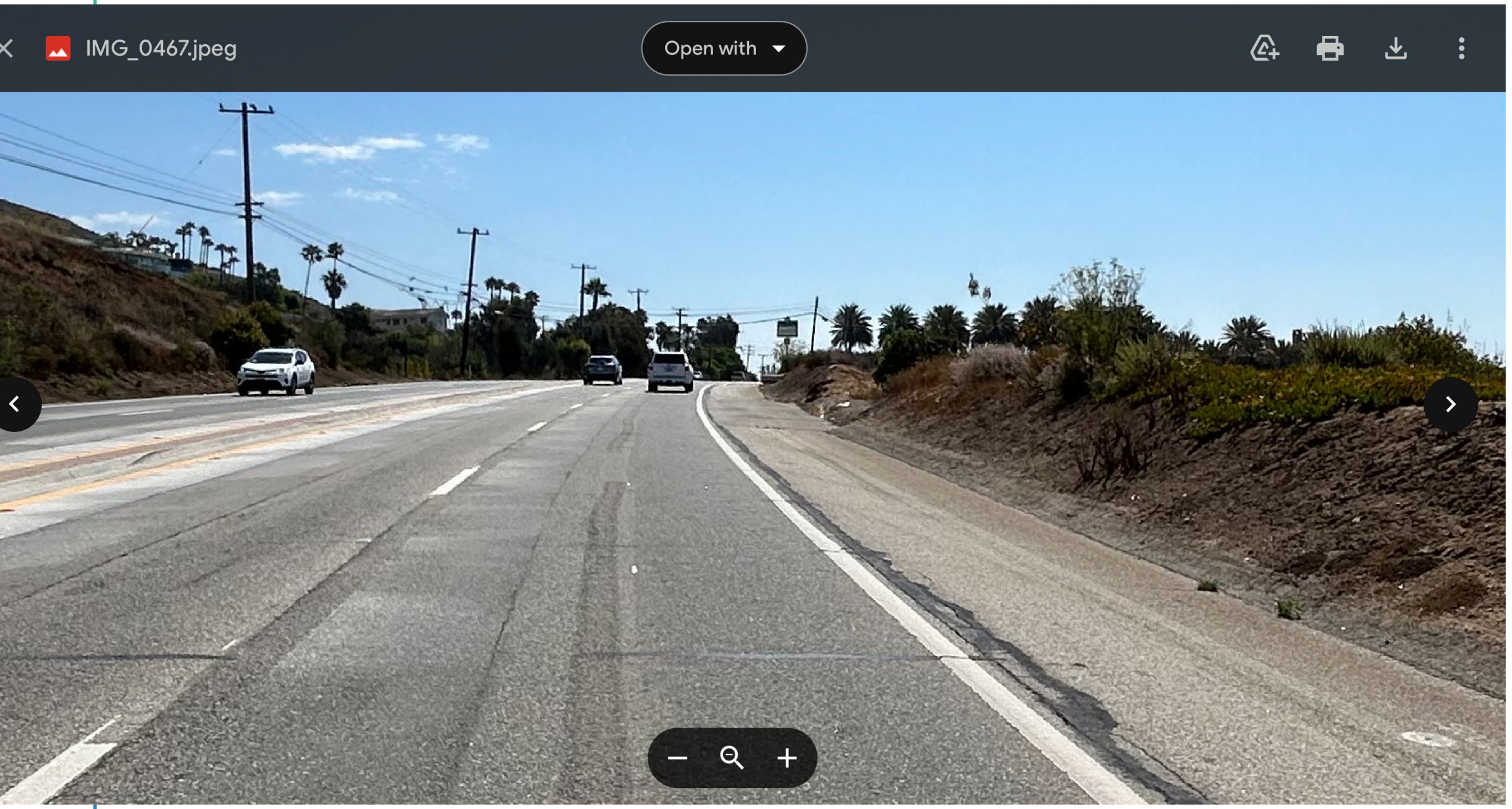
January 20, 2026
Planning Commission Meeting
Item No. 4.B.

Local Appeal

Pursuant to LIP Section 13.20.1 (Local Appeals), a Planning Commission decision 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 an appeal form and a filing fee, as determined by the City Council. City Hall will be closed from December 24, 2025, through January 2, 2026. As such, the appeal period for this decision will be tolled until City Hall re-opens. For every day that City Hall is closed during the appeal period, an additional day will be added to the appeal period to ensure that members of the public are afforded the ability to obtain information before filing an appeal. The appeal period for this decision is from December 17, 2025, through January 7, 2026, 5:30 PM. Appeal forms may be found online at www.malibucity.org/planningforms. For questions, please contact the Planning Division at (310) 456-2489, ext. 309.


Public Works
Applicant
Community Development Department
Yeh & Associates Annual LAD Reports
Applicant's Geotechnical Consultant Report
Cotton Shires Peer Review


May 2025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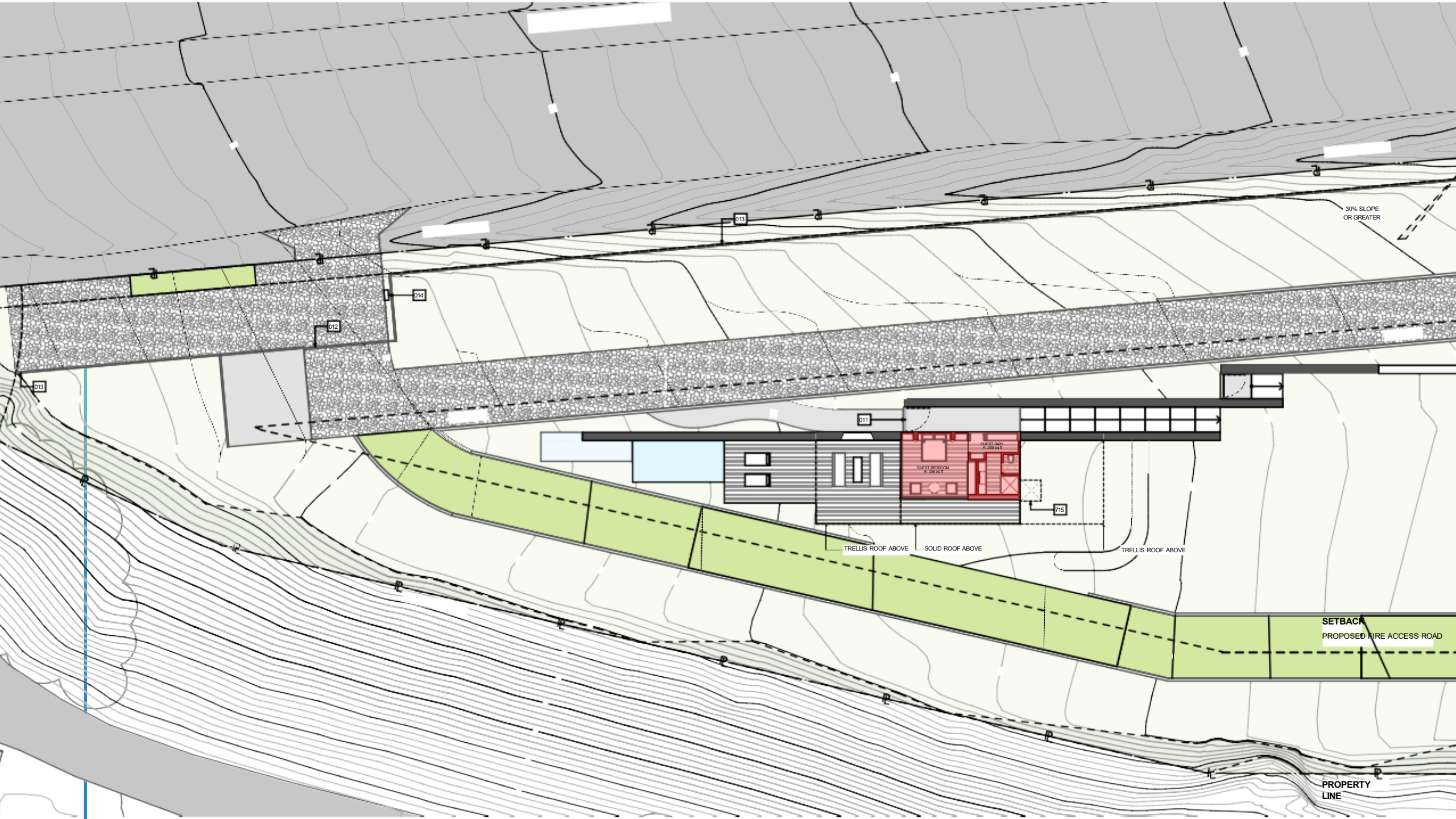
Slope on North Side of Malibu Road




013
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30% SLOPE
OR GREATER
GUEST BATH
A: 209 sq ft
GUEST BEDROOM
A: 256 sq ft
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SETBACK
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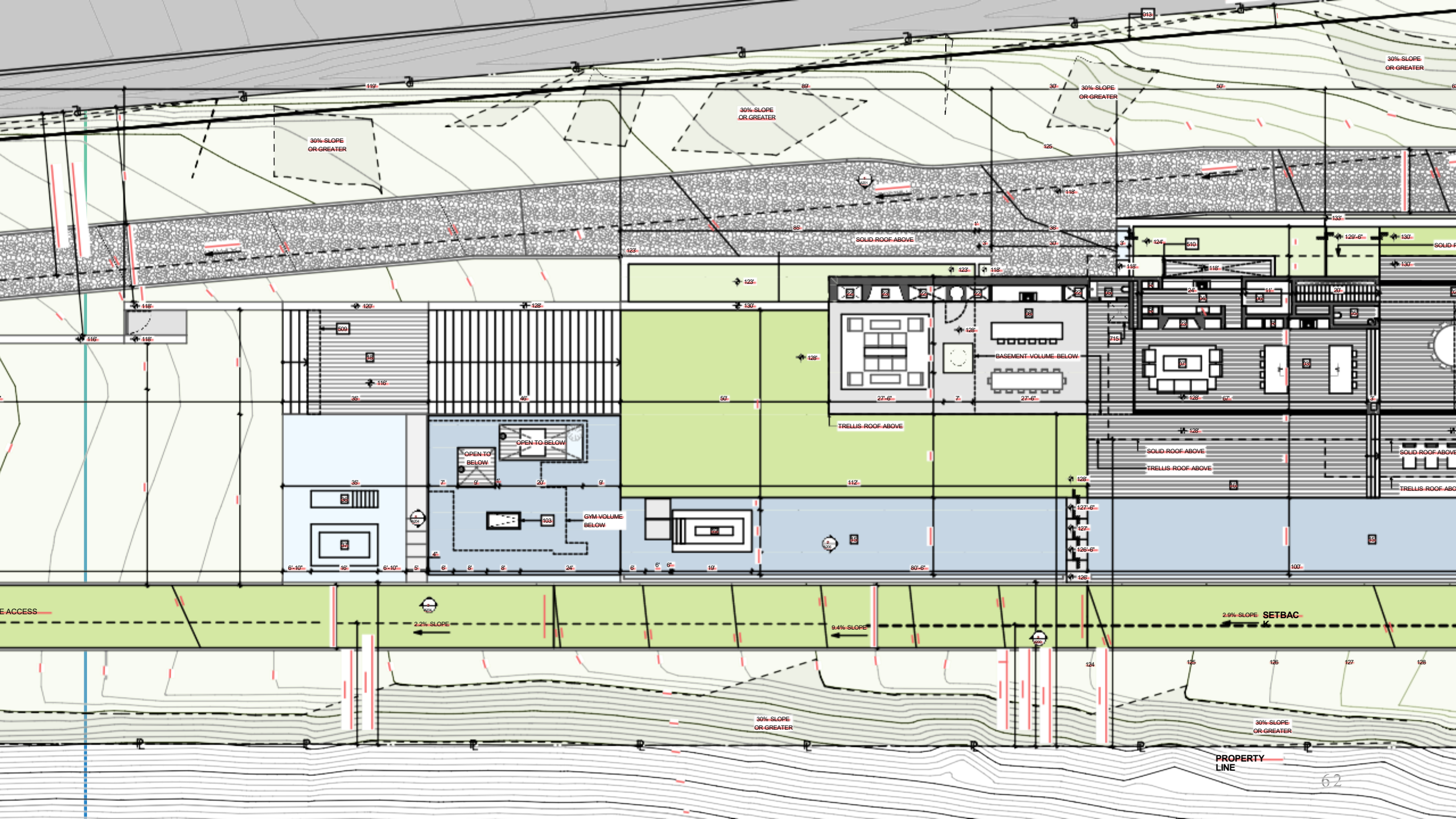
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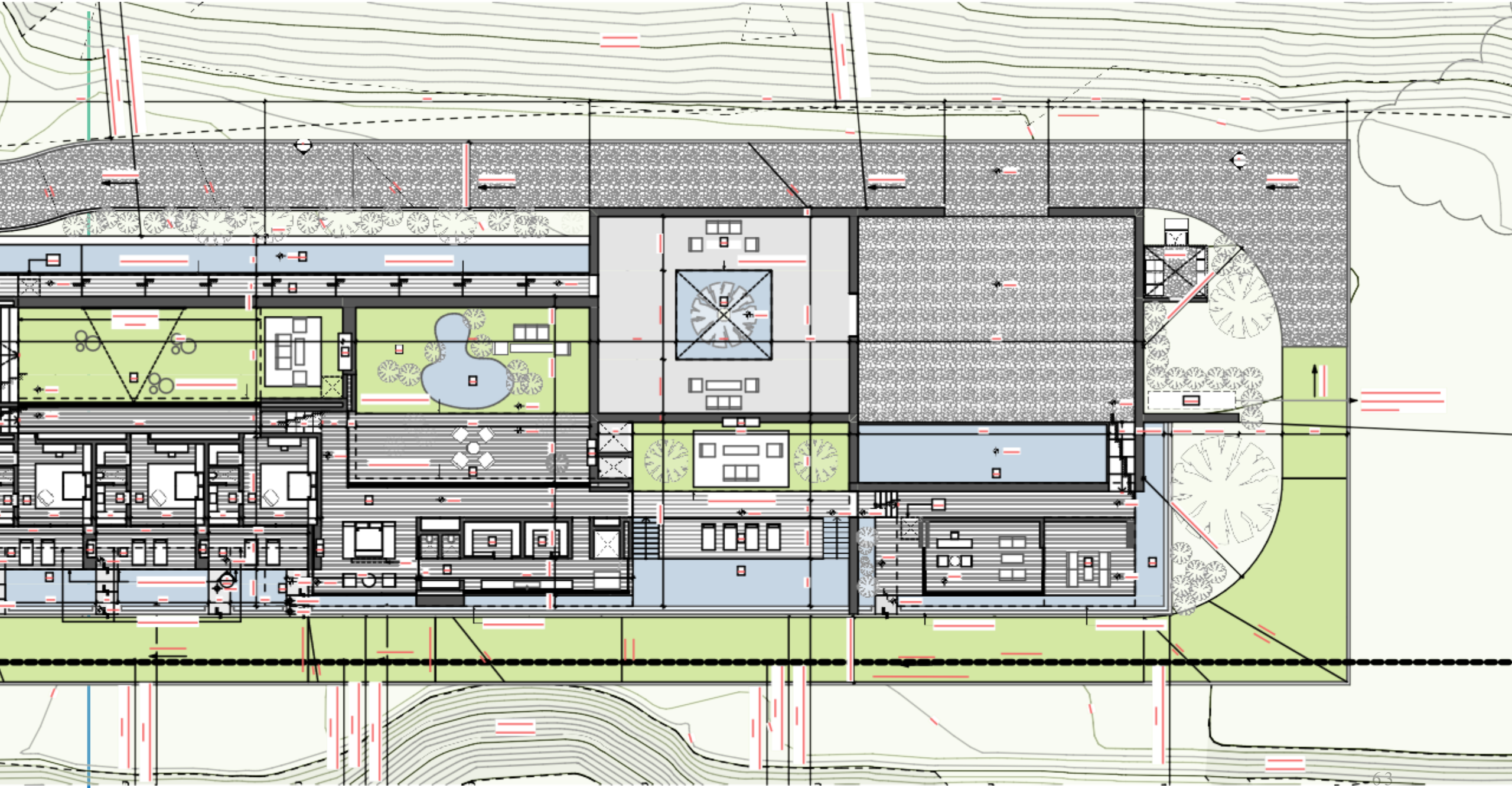
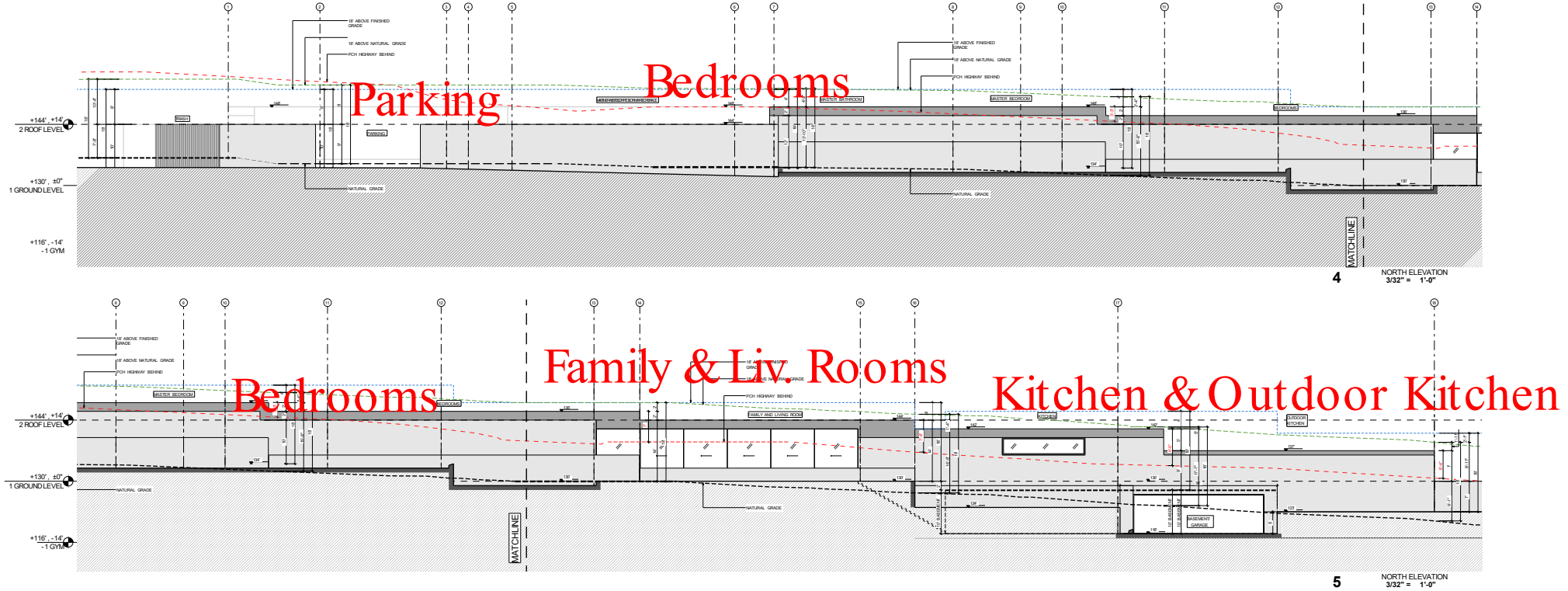
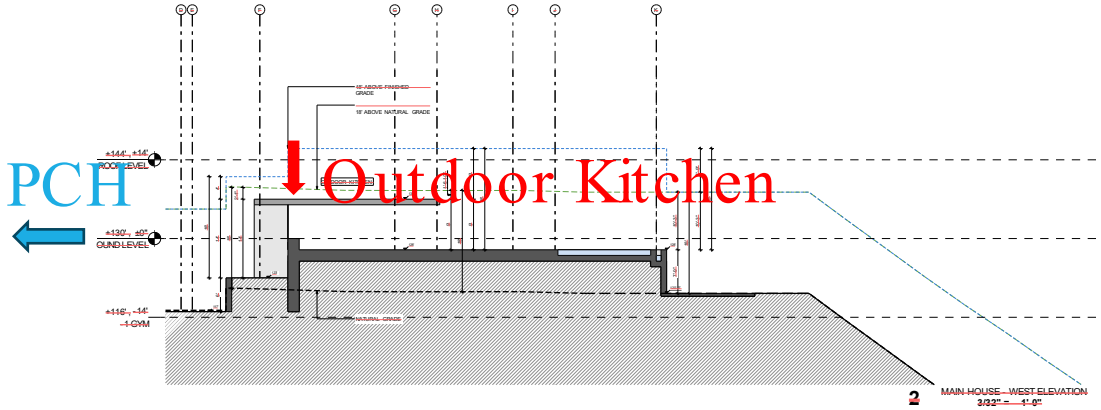
PROPERTY LINE



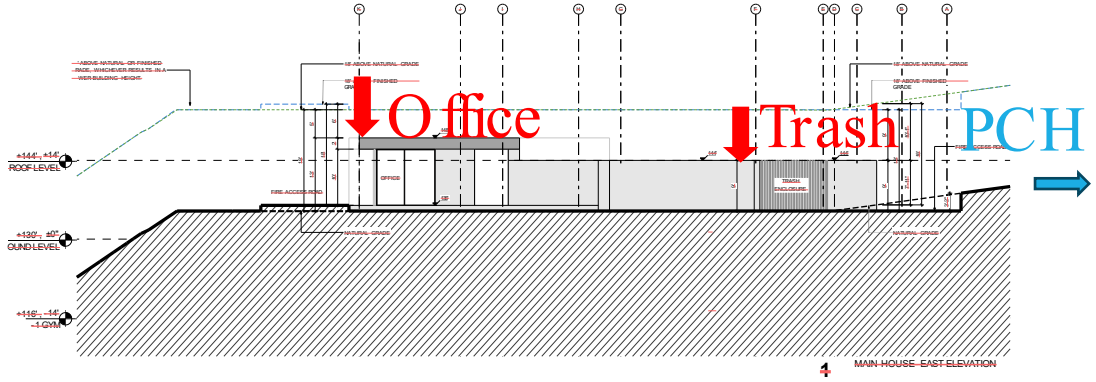
ELEVATIONS



Main Residence North Elevation

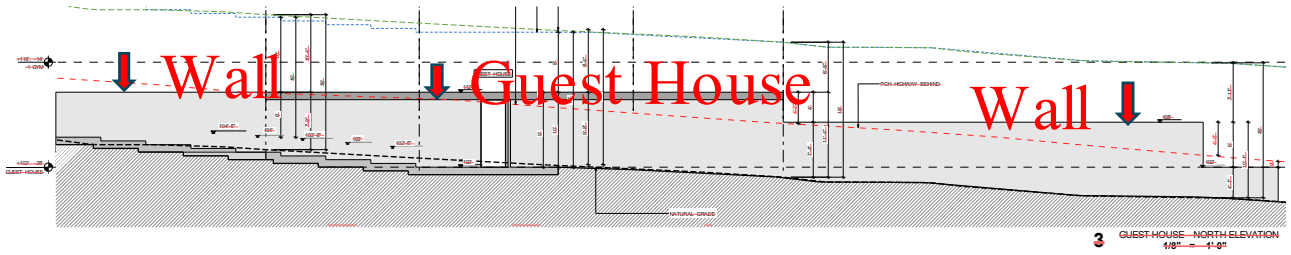


West

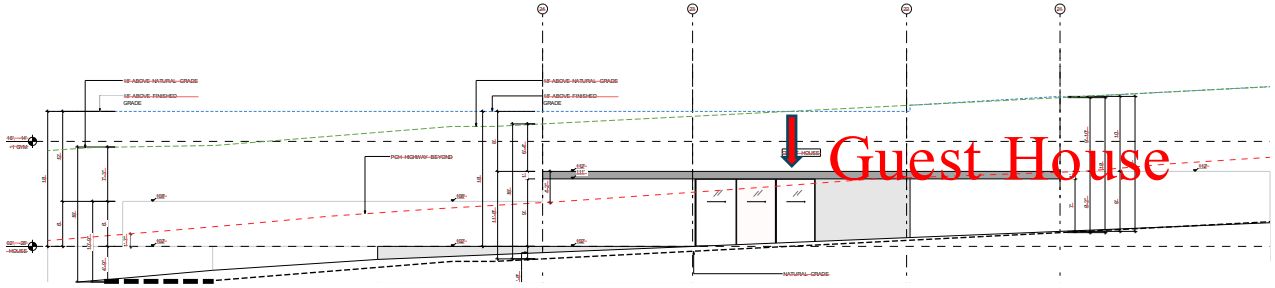


East

Main Residence West & East Elevations

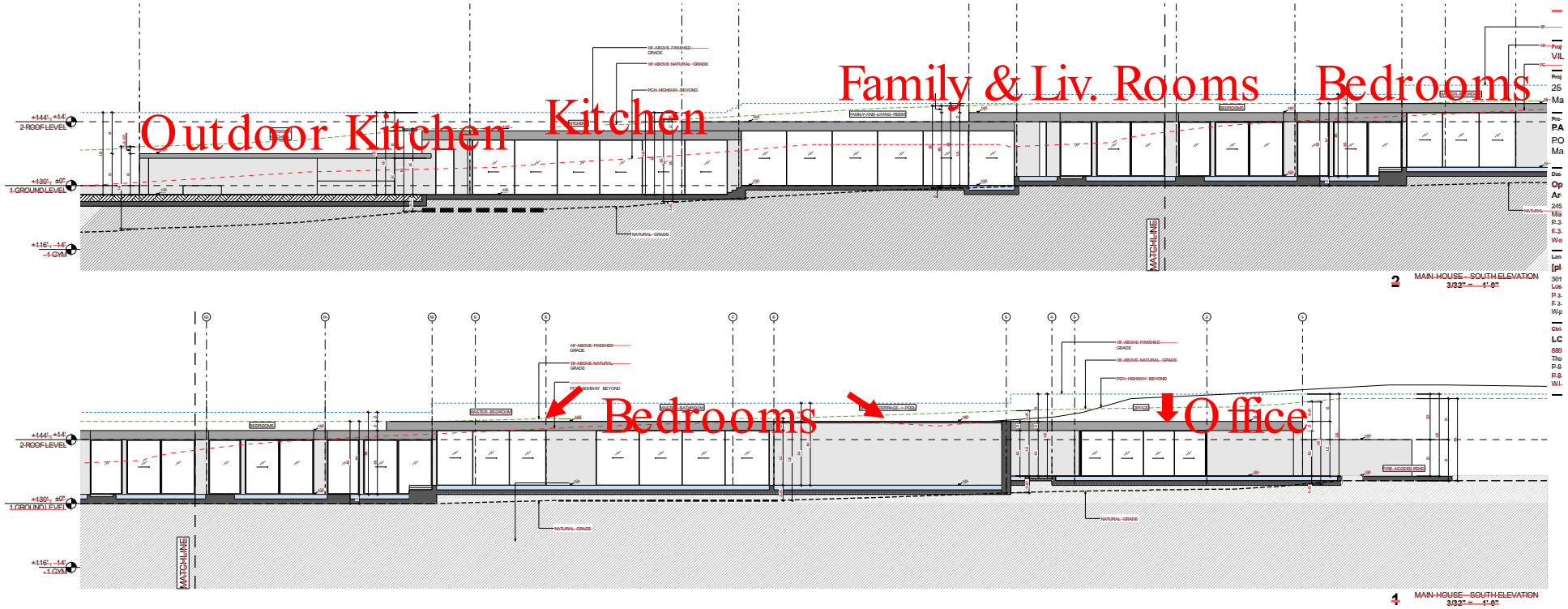


North (Facing PCH)

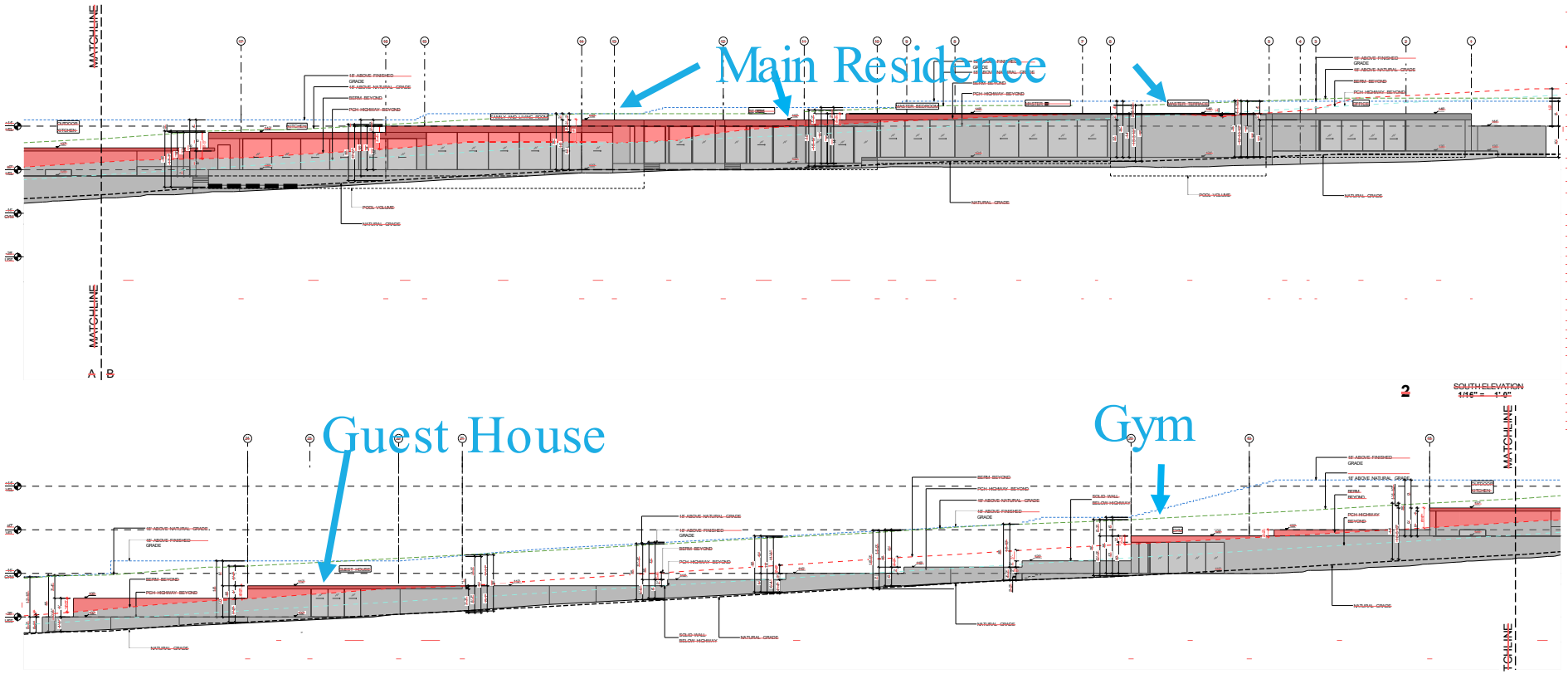


South

Guest House Elevations – North & South



Main Residence South Elevation



Protrusion of Buildings Above PCH

Received
2/17/26
Planning Div.

From: Alex Hall
To: Planning Commission
Subject: 25200 PCH Comments
Date: Tuesday, February 17, 2026 11:18:25 AM
Attachments: 20260213_letter final.pdf
SHIFT PILES (002)ra_.pdf

CC: Planning Commission, PD,

Recording Secretary, File

Date Received 2/17/26 Time 11:18 a.m.
Planning Commission meeting of 2/17/26
Agenda Item No. 4A
Total No. of Pages 21

Title: Approval is premature with Geotechnical Issues, Inaccuracy of exhibits, Unlimited irrigation in a known slide, causing instability to adjacent properties and creating landslide risk

February 13, 2026

Malibu City Planning Commission
City of Malibu

Re: PERMIT NO. 19-012, CERTIFICATE OF COMPLIANCE NO. 21-004, LOT MERGER NO. 24-002
25200 Pacific Coast Highway(revised)

Dear Malibu City Planning Commission,

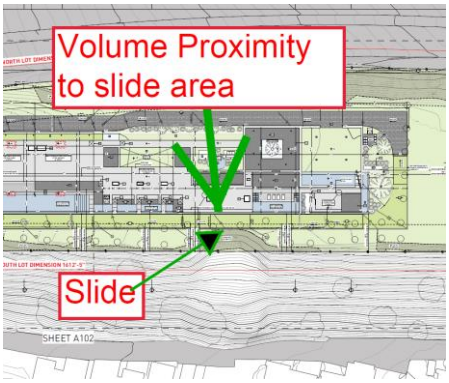
It is well known that a development on a known slide is a risk, and increased water increases this risk. Currently the Assessment District actively pumps water out and with this project will add irrigation water and soil pressure. On September 18, 2025, City of Rancho Palos Verdes amended its municipal code to prohibit all new residential construction in landslide areas. **While some site improvements may provide benefits, those improvements are being traded for new and significant risks. <u>This is a trade of reducing a set of risks but adding on other risks</u>. There is no way to show that the net effect is net positive.**

1. Soldier Piles relocated North no longer providing Safety Factor due to the shift of Soldier Piles

When the soldier piles were moved uphill, according to Pacific Coast Land Consulting's peer review, the revised configuration may no longer meet the required factor of safety, since there is no support for this area of soil. The soil in this strip remains native and untouched. See Pacific Coast Land Consulting memo.

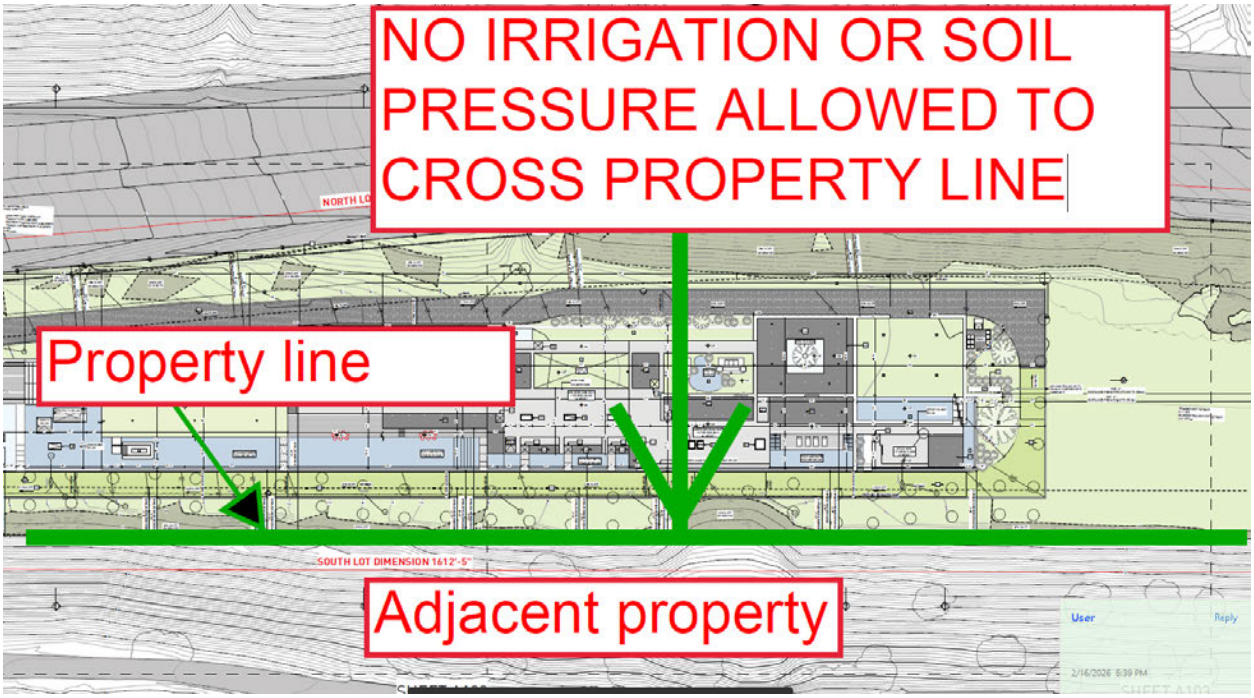
2. Master Bedroom Massing and Qlsr Slide Area, Stay away from slide area

State's Policy on Coastal Erosion Planning and Response states **avoidance of geologic hazards**….should be the primary means of safeguarding new development. The building mass of the master bedroom should be kept away from the mapped Qlsr landslide area. Placing a mass in close proximity to the slide boundary increases risk and may exacerbate instability in an already sensitive geologic condition. The building must be wood framed and not solid concrete to keep weight of structure at a minimum.



3. Property Line Soldier Piles, Breakaway Conditions, and Containment of Impacts, NEW RISKS
If soldier piles are placed along the property line, a breakaway weak point is now created that did not exist before. Landslides and water do not follow property lines. If Richard is introducing irrigation water into a known slide area, no irrigation water or soil pressure may cross the property line.

Again, if instability caused by the project must be fully contained, no irrigation, lateral soil loads from the development, or slope pressures from the development should be allowed to transfer beyond Richard's property boundaries onto adjacent properties. All irrigation, drainage, and soil forces must be entirely self-contained within Richard's property, with no adverse transfer of risk to neighboring homes.



4. Instability to Adjacent Properties and Onsite Wastewater Systems, NEW RISKS
Adding irrigation water and altering slope geometry in a mapped slide zone directly contradicts the requirement to avoid increased instability to neighboring properties.

In addition, no instability may be created that could cause harm to leach fields or onsite wastewater disposal systems located on adjacent properties. Water, soil, soil pressure may not cross the property line. Damage or movement affecting these systems would create serious public health, safety, and habitability impacts for neighboring residences. All irrigation, drainage, and soil forces must be entirely self-contained within Richard's property, with no adverse transfer of risk to neighboring homes.

5. Injecting Irrigation Water into the water table in a known landslide. NEW RISKS The site has high water tables, the City has installed pumps to pump out water and the new project will be

adding irrigation water. This water may cross the property line and there is no discussion on how the water table is being controlled. Again, new risks are being introduced.

The extremely large capacity pool is also a NEW RISK, pools often leak or are drained improperly.

6. Other projects had requirements to mitigate/evaluate instability caused to adjacent properties but was not required for this development NEW RISKS

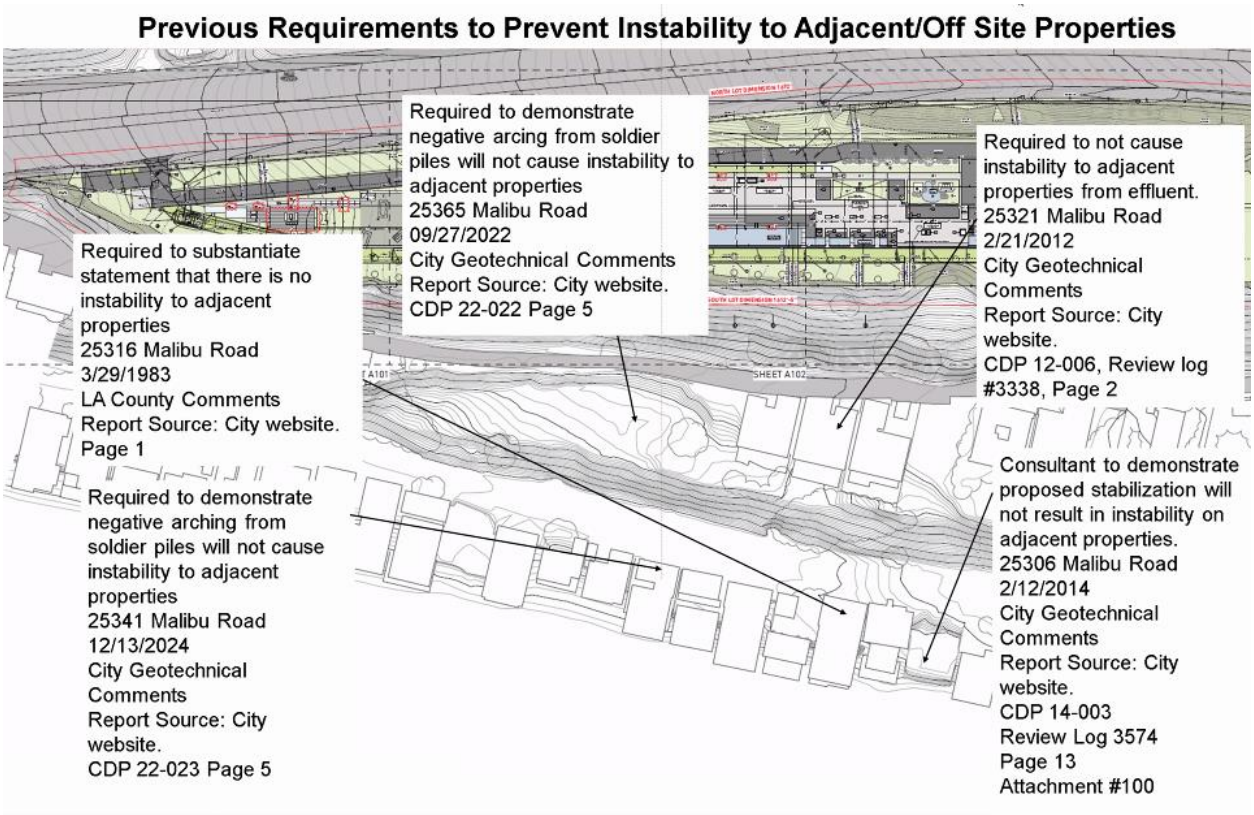
(Malibu LIP § 9.3(A)(1) — requires that a project "will neither be subject to nor increase instability of the site or structural integrity from geologic hazards due to project design, location, or other reasons." And must consider "worst case" analysis per Malibu LIP § 9.3(D), and omitting specific data such as SI 5 and SI 6 does not achieve "worst case analysis".

These houses have Geotech comments requiring that they have no adverse effect on adjacent properties:

25341 Malibu Road – Mitigating measures/evaluation of increased driving forces from soldier piles onto adjacent properties

25365 Malibu Road - Mitigating measure5s/evaluation of increased driving forces from soldier piles onto adjacent properties

25316 Malibu Road – Required to show that the project will not affect off site property



City of Malibu

23825 Stuart Ranch Road • Malibu, California 90265-4861
(310) 456-2489 • Fax (310) 317-1950 • www.malibucity.org

GEOTECHNICAL REVIEW SHEET

Project Information

Date:	February 12, 2014	**Review Log #:**	3574
Site Address:	25306 Malibu Road		
Lot/Tract/PM #:		**Planning #:**	CDP 14-003
Applicant/Contact:	Lester Tobias, lester@tobiasarchitecture.com	**BPC/GPC #:**	
Contact Phone #:	310-317-0507 **Fax#:**	**Planner:**	Amanda Lafond
Project Type:	New single-family residential development		

Submittal Information

Consultant(s) / Report Date(s): *(Current submittal(s) in Bold.)*	Land Phases, Inc. (Holt, CEG 2282, CHG 816): **8-8-13** Mountain Geology, Inc. (Holt, CEG 2282, CHG 816): **7-12-12 (revised 4-24-13)** Calwest Geotechnical (Liston, RCE 31902): **12-9-13** **Building plans prepared by Unvarnished, Inc. dated October 21, 2013.**
Previous Reviews:	Geotechnical Review Referral Sheet dated 1-27-14

Review Findings

Coastal Development Permit Review

☐ The project is **APPROVED** from a geotechnical perspective.

☒ The project is **NOT APPROVED** from a geotechnical perspective. The listed 'Review Comments' shall be addressed prior to approval.

Building/Grading 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.

6. The Project Engineering Geologist has assumed a basal rupture surface for the Qlsa under the property on Cross-Section A, as boring B-3 did not penetrate the base of the Qlsa due to groundwater and severe caving. Is the geometry of the Qlsa under Malibu Road and the beach as presented on the Cross-Section the most conservative with regard to the stability of the landslide and factors of safety? Are there other reasonable toe geometries of the Qlsa that could be less stable, requiring a re-evaluation of the design of the proposed stabilization system?

7. The Consultant needs to state that the proposed stabilization measures will not result in adverse effects on adjacent properties. If movements occur in the low-factor-of-safety areas outside of the 'stabilized' area on this property, new lateral landslide margins could develop between the stabilized portion of the landslide and the un-stabilized portions to the east and west. As a result, new landslide margins may develop and pass through adjacent properties that have heretofore been located within relatively intact internal landslide blocks, and those new landslide boundaries may induce damaging shear displacements on lots that were previously riding passively on intact landslide blocks. The Consultant needs to demonstrate that the proposed stabilization extends far enough laterally across the landslide mass so that static and seismic factors of safety in the un-stabilized landslide areas east and west of the stabilization are adequate to preclude future movement.

8. No information regarding the onsite wastewater treatment system (OWTS) has been provided. The Project

City of Malibu

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GEOTECHNICAL REVIEW SHEET

Project Information

Date:	December 13, 2024	**Review Log #:**	**4922**
Site Address:	25341 Malibu Road		
Lot/Tract/PM #:	n/a	**Planning #:**	**CDP 22-023 P2**
Applicant/Contact:	Larry Lachner, dynamobuild@yahoo.com	**BPC/GPC #**	
Contact Phone #:	626-391-1259 **Fax #:**	**Planner:**	**Gina Paolini**
Project Type:	New single-family residence, Onsite Wastewater Treatment System (OWTS)		

Submittal Information

Consultant(s)/Report Date(s): *(Current submittal(s) in Bold.)*	Helfrich Associates (Helfrich, GE 389; George, CEG 2516): **2-7-2024**, 5-10-2021. Ensitu Engineering, Inc. (Yaroslaski, RCE 60149): 11-10-2021 **2nd Planning Submittal** **Architectural Plans prepared by Dynamo Constructors, Inc. dated November 14, 2024.** **Total Grading Yardage Verification Certificate by Richard Doss dated 11-6-2024.** **Civil Plans prepared by Pacific Coast Civil, Inc. dated November 6, 2024, 4 sheets.** OWTS Conformance Review Design plan prepared by Ensitu Engineering, Inc. dated November 7, 2021. Landscape and Irrigation plans prepared by Manuel Garcia Landscape Architect dated May 16, 2022, 3 sheets.
Previous Reviews:	7-29-2022; Ref: Environmental Health Review Sheets dated 12-5-2024 and 7-28-2022

12. The Project Geotechnical Consultant needs to discuss and evaluate the potential for increased driving forces on adjacent properties due to resistance to landslide movement from landslide stabilizing soldier piles (negative arching). Mitigation measures should be recommended, as necessary.

    Note: The Project Geotechnical Consultant indicates in response to the above comment that, "*Our analyses show that there will be no impact on adjacent properties from landslide movement.*" The consultant needs to provide data and analyses in support of this conclusion.

13. Please provide a site plan that depicts the Project Geotechnical Consultant's recommendations for grading the descending slope below the residence to 2:1 or shallower and the installation of the ARMORMAX 75 slope stabilization and B2 anchors for review. Will this system be installed on the slope above Bayshore Drive, where the drip field for the OWTS is located? How will the trimming of the slope below the residence affect the stability of the landslide? Please update the cross-section(s) to show the slope trimming and slope stabilization systems. While native plants are recommended, the reviewers are concerned that irrigating these slopes may contribute to temporary slope instability. Please discuss the depth and schedule of irrigation across the slopes and the absorption capacity of the vegetation. It must be demonstrated that the planting and irrigation of the slopes, even considering the slope stabilization system, does not contribute to slope instability and increases in groundwater levels under the site.

14. Based on the revisions to the map and sections in response to the comments above, static and seismic slope stability analyses may need to be re-run. Provide the results of the analyses and a discussion, as well as additional mitigation measures, as appropriate.

    Note: The response to the above comment will be further reviewed when revised geotechnical map and sections are provided for review.

15. Please provide a supporting geologic report for the proposed OWTS for review. Cross-sections need to be constructed across the dispersal fields to the toe of the descending slopes showing the depth of the fields, live staking and planting program, anticipated paths of effluent, and highest anticipated groundwater levels. The slope stability analyses need to be updated considering the dispersal field on the slopes.

16. Please provide copies of all responses to the referenced Environmental Health Review Sheet dated 12-5-2024 to the City's geotechnical consultants for review.

17. The Site Location Map, A-1, Geotechnical Site Plan, cross-sections, Dibblee map, Hazards zones map, are drafts. Please finalize and re-submit these figures for review.

18. As previously requested in Comment 13-a of the last review letter dated July 29, 2022, seismic slope stability analyses need to be performed in accordance with Section 6.5 of the City of Malibu 2013 Geotechnical Guidelines (that is, the consultant needs also to perform pseudo-static slope stability analyses using a calibrated seismic coefficient of 0.35 and a factor of safety that equals or exceeds 1.0 is demonstrated.)

19. As previously requested in Comment 13-c of the last review letter dated July 29, 2022, the Project Geotechnical Consultant needs to perform slope stability analyses for potential sliding along **the upper and lower landslide planes** using a substantiated residual shear strength for sliding along the landslide base. Different scenarios of potential sliding should be considered. Mitigation measures should be recommended, as necessary.

20. The Project Geotechnical Consultant indicates in response to Comment 13-e of the last review letter dated July 29, 2022 that "*Our stability analyses were performed to address the stability of the property that will be affected by the proposed structures (Bayshore Drive to Malibu Road).*" The stability of all slopes that would affect or be affected by the proposed development shall be evaluated irrespective of boundaries.

City of Malibu

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GEOTECHNICAL REVIEW SHEET

Project Information

Date:	September 27, 2022	**Review Log #:**	4967
Site Address:	25365 Malibu Road		
Lot/Tract/PM #:	n/a	**Planning #:**	CDP 22-022
Applicant/Contact:	Larry Lachner, dynamobuild@yahoo.com	**BPC/GPC #**	
Contact Phone #:	626-391-1259 **Fax #:**	**Planner:**	Tyler Eaton
Project Type:	New single-family residence and Onsite Wastewater Treatment System (OWTS)		

Submittal Information

Consultant(s)/Report Date(s):	Helfrich Associates (Helfrich, GE 389; George, CEG 2516): **5-10-2021** EnSitu Engineering, Inc. (Yaroslaski, RCE 60149): **11-15-2021**
*(Current submittal(s) in **Bold**.)*	**Architectural Plans prepared by Dynamo Constructors, Inc. dated April 17, 2022.** **Grading & Drainage Plans, 4 sheets, prepared by Pacific Coast Civil, Inc. dated March 26, 2022.** **Landscape and Irrigation plans prepared by Manuel Garcia dated 1-28-2022, revised 8-2-2022.** **Landscape Plans prepared by Manuel Garcia dated August 2, 2022, 3 Sheets.** **OWTS Conformance Review plans prepared by EnSitu Engineering, Inc. dated November 7, 2021.**
Previous Reviews:	None; Ref: Environmental Health Review Sheet dated 9-15-2022

expected to be within the landslide debris. The Project Geotechnical Consultant needs to justify using landslide debris for resisting lateral pressure on piles due to landslide movement.

11. The Project Geotechnical Consultant needs to discuss and evaluate the potential for increased driving forces on adjacent properties due to resistance to landslide movement from landslide stabilizing soldier piles (negative arching). Mitigation measures should be recommended, as necessary.
12. Please provide a copy of the Dibblee Geologic Map and pertinent Seismic Hazards Map identifying the site for review.
13. The Project Geotechnical Consultant needs to discuss whether or not a fault rupture hazard investigation is required for the residential development in accordance with Chapter 5.3.1 of the City's 2013 Geotechnical Guidelines.
14. The Project Geotechnical Consultant states that groundwater was encountered at eight to nine feet below the ground surface and states that the water, *"...appears to have resulted from heavy seasonal precipitation in preceding months."* Seasonal rainfall at the Big Rock Mesa Station since October 30, 2021 is 12.48 inches, with over 10 inches falling between 12-14-21 and 1-1-22. Rainfall is below average this rainfall year to date. Is the water encountered static groundwater or perched water? Are there springs in this area? Please discuss. It may be prudent to review the latest Malibu Road Landslide Assessment District Monitoring report by Yeh and Associates, Inc. dated 6-22-2022 for the Fiscal Year 2020-2021 available on the City's website for the latest data regarding groundwater levels, landslide movement, and dewatering well and hydrauger production. Shallow groundwater under the site could adversely affect the proposed improvements and OWTS.
15. The undersigned reviewers acknowledge the Project Geotechnical Consultant's discussions of the landslide movement in the assessment district. The landslide has been intermittently active since incorporation of the City in 1991, notably after the 1995 and 1998 El Nino rainfall years, when the western margin of the landslide across Malibu Road created a side scarp that required mitigation by the City's Public Works Department (re-grading of the road in that area). Please utilize the Malibu Road Landslide Assessment District Monitoring Instrumentation and Dewatering Facilities Map as a reference/base map for the Geologic Map and Boring Locations that shows the proposed development, including the proposed OWTS, dewatering and slope indicator facilities, limits of the active landslide, and subsurface exploration. Update the cross-sections to show the depth of the landslide based on the boring and slope indicator data, as well as hydraugers under the site and slope indicators, dewatering wells, highest anticipated groundwater levels, proposed development, foundations and tie-back system, and proposed grading (existing and proposed grades). It should be noted that the basal rupture surface of the landslides was not encountered in borings B-7 and B-8, based on the logs. The Project Geotechnical Consultant needs to provide an interpretation of the subsurface conditions on the site (model of the geometry of the landslide) based on site-specific and the assessment district data. Provide additional/revised recommendations, as appropriate.
16. The Project Geotechnical Consultant needs to delineate the limits of Qls_2 in Cross-Section D-D'.
17. The Project Geotechnical Consultant recommends live staking and planting with deep-rooted vegetation and deep-irrigation until well established to increase the surficial stability of the descending slopes. Please provide a plan that depicts this staking and planting program on the descending slopes. While native plants are recommended, the reviewers are concerned that irrigating these slopes may contribute to temporary slope instability. Please discuss the depth and schedule of irrigation across the slopes and the absorption capacity of the vegetation. It must be demonstrated that the planting and irrigation of the slopes does not contribute to slope instability and increases in groundwater levels under the site.
18. The Project Geotechnical Consultant needs to review the City's geotechnical file for 25200 Pacific Coast Highway, the property north of the subject site, in the OnBase database on the City's website, www.malibucity.org. The applicant is proposing a single-family residential development and OWTS on the property. Data from the geotechnical reports for this development needs to be included on the



ENGINEERING GEOLOGY SECTION
(213) 738-2161

Dist. Office 9.2
F_____ NF_____
SHEET 1 OF 1

GEOLOGIC REVIEW SHEET

COUNTY OF LOS ANGELES
DEPARTMENT OF ENGINEER–FACILITIES
550 SO. VERMONT AVE., LOS ANGELES, CA 90020

DISTRIBUTION:
_ Dist. Engineer
_ Geologist
_ Soils Engineer
_ Geol. Sect. File
_ Grading Section
_ _____

Tract/PM _____
Site Address 2557 Malibu Rd.
Location Malibu
Geologist Leighton & Assoc. Developer/owner D. Smith
Soils Engineer _____ Engineer _____

PLAN CHECK NO. OR DATE OF REPORT(S)

Review of:
☐ Grading P.C. No. _____
☐ Building P.C. No. _____
☐ Geologic Site Inspection Only P.C. No. _____
☐ Geologic Report Dated _____
☐ Soils Report Dated _____
☒ Geology & Soils Report Dated 3-29-83 (PM 11301(2-01)

Action:
☐ Plan is geologically approved
☐ Plan is not approved for reasons below
☐ Plan approved geologically subject to conditions below
☐ Submit plans for recheck
☒ Sec. 309 Code requirements met (not met)
☐ Sec. 308(b) 3c & e code requirements met (not met)

Remarks:
1. ☐ A consulting ☐ engineering geology, ☐ soils engineering, ☐ report(s) is required
2. ☐ All recommendations of the consulting ☐ geologist, ☐ soils engineer must be incorporated in the design or shown as notes on the plans.
3. ☐ The plan must be specifically approved by the ☐ consultant geologist, ☐ consultant soils engineer by ☐ letter-report and/or ☐ manual signature(s) with date(s) prior to approval by the Geology Section.
4. ☐ In-grading inspections must be made by the consulting ☐ geologist, ☐ soils engineer. ☐ Inspection reports must be submitted to the Geology Section for review monthly.
5. ☐ Rough grading must be approved by a ☐ final geology report, ☐ final soils engineering report prior to approval by the Geology Section. ☐ An As-Built Geologic Map must be included in the final geology report.
6. ☐ Foundation and/or wall excavations must be inspected and approved by the consulting ☐ geologist, ☐ soils engineer, prior to the placing of steel or concrete.
7. ☐ The County Engineer Soils Engineering Section's ☐ approval is required ☐ requirements attached ☐ conditions of approval are attached ☐ approval attached (dated _____)
8. ☐ Show all proposed tentative corrective devices (e.g. buttress, stability fills, subdrains, etc) on the plan.
9. Add items _____ and _____, above, as notes to the plan.

Site is within a currently active landslide. Consultants' report does not contain substantiating data to support their opinions. Based on equivocal opinions in above report, the site would not affect offsite property. Landslide parameters are poorly defined. Movement rates vary considerably within this landslide. Movements of 5+ feet have recently occurred. This structure is near the landslide boundary. Thus, structures east of remedial repair may be affected by modifying the nature of the landslide movement. Deflections immediatly adjacent to piles may be only 3 diameters but other characteristics of the landslide may be modified which are not evaluated in above report. There is little or no available data in the profession upon which to evaluate the effect of such a system on the surrounding landslide movement.

Prepared by D Knudsen Reviewed by _____ Date 3-30-83

76G30 – PS 3-82

7. Means of Egress, NEW RISK no means of escape in an emergency event

Currently residents may run up the hill to escape an emergency event, but an unusually long

structure would block egress. Two structures would allow a gap that would allow residents to escape between the two. Consider resident safety in consideration of the lot tie.

8. New Geotechnical Information Submitted

We have transmitted new geotechnical information from Don Kowalewsky to Josh Feffer. Don Kowalewsky stated this would typically be used as data in the design. The design may change as a result of this new data. Any revised conclusions or recommendations should be formally incorporated into the public record and fully analyzed prior to any approvals. Josh Feffer should advise if the design will change as a result of this new information.

9. Pacific Coast Land Consulting Peer Review(PCLC) and Alternative Soldier Pile Design

Pacific Coast Land Consulting (PCLC) has provided a peer review and additional comments suggesting that soldier piles may instead be added farther down the hill through easements. Such an alternative design would involve shorter piles, reduced construction complexity, and potentially lower cost, while providing more effective stabilization and protection for adjacent properties.

This proposal is not intended to provide free structural support to weak soils on neighboring properties. Rather, it is a practical engineering alternative that would allow Richard to construct shorter piles — but still to the embedment depth recommended by PCLC — thereby achieving appropriate stabilization while reducing unnecessary construction costs and impacts.

PCLC's peer review comments on Feffer reports have not been fully reviewed or addressed.

Geotechnical reviews from 25341 Malibu Road direct the applicant to refer to this development data, if there are deficiencies in this project it will be reflected in other projects:

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

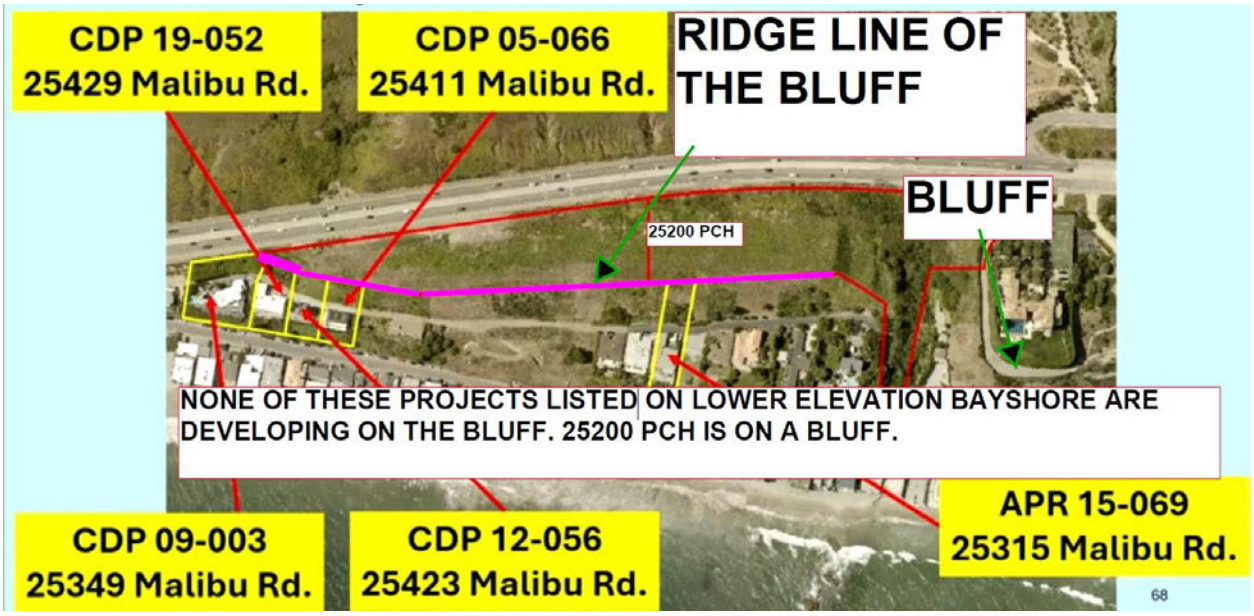
Date: December 13, 2024		**Review Log #:**	**4922**
Site Address:	25341 Malibu Road		
Lot/Tract/PM #:	n/a	**Planning #:**	**CDP 22-023 P2**
Applicant/Contact:	Larry Lachner, dynamobuild@yahoo.com	**BPC/GPC #**	
Contact Phone #:	626-391-1259 **Fax #:**	**Planner:**	**Gina Paolini**
Project Type:	New single-family residence, Onsite Wastewater Treatment System (OWTS)		

Submittal Information

Consultant(s)/Report Date(s): *(Current submittal(s) in Bold.)*	Helfrich Associates (Helfrich, GE 389; George, CEG 2516): **2-7-2024**, 5-10-2021. Ensitu Engineering, Inc. (Yaroslaski, RCE 60149): 11-10-2021 **2nd Planning Submittal** **Architectural Plans prepared by Dynamo Constructors, Inc. dated November 14, 2024.** **Total Grading Yardage Verification Certificate by Richard Doss dated 11-6-2024.** **Civil Plans prepared by Pacific Coast Civil, Inc. dated November 6, 2024, 4 sheets.** OWTS Conformance Review Design plan prepared by Ensitu Engineering, Inc. dated November 7, 2021. Landscape and Irrigation plans prepared by Manuel Garcia Landscape Architect dated May 16, 2022, 3 sheets.
Previous Reviews:	7-29-2022; Ref: Environmental Health Review Sheets dated 12-5-2024 and 7-28-2022

10. Opportunity to View Impacts Through Easements
Residents have indicated that Richard could remove approximately five to ten feet from the top of the hill to allow grading for more views and a compliant fire truck turnaround. In order to facilitate this alternative, the residents may be willing to give easements or dedications allowing the applicant to remove up to six to ten feet of soil where necessary. This option does not appear to have been examined.

11. Project is on a Bluff and requires Bluff setbacks. The projects the applicant listed are lower elevation, this project is actively eroding, unstable and is very steep and is on the seaward side of PCH and is subject to the Bluff setback. All of these projects are on Bayshore at a lower elevation and none of these projects are developing on the bluff. 25200 PCH is on a bluff and is subject to the setback required.



12. Lot Tie creates NEW RISKS with a larger structure rather than two smaller structures. The applicant has a Land Use Attorney that is able to put together legal description for two lots if he wanted to have two lots. If he wants one lot he would draft up a lot tie with the same attorney. The joining of the two lots is at the discretion of the City. Please consider what it means to the City and the residents when the two lots are joined in terms of life safety as well as to the expansive iconic views that will be lost forever into private hands.

13. Least environmentally damaging feasible alternative would be two smaller structures one on each lot that are set back closer to PCH.

14. Incomplete and Inaccurate Renderings and Story Poles, what are we getting exactly?
The renderings provided are not accurate representations of the project, site plans, plans and many exhibits(letters of support) remain outdated. In addition, the story poles have not been

updated to reflect the current proposed design. As a result, neither the City nor the public is receiving an accurate representation of what is being presented or evaluated. The City cannot properly assess visual massing, grading impacts, or structural relationships to the slope without accurate and comprehensive materials.

For example the two renderings from the last staff report to this one, the roof heights are identical:







15. Here is an alternate plan that is moved back North from the landslide areas with less water features. Pushing closer to the berm would allow for more public views.



For these reasons, we respectfully request that the City require:

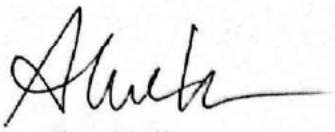
- No instability caused by the project onto adjoining properties via irrigation or soil pressure
- Complete and accurate up to date representation of the project, including plans, elevations, renderings, site plans, and all documentation presented in the staff report.
- Variance is required as a result of shifting the soldier piles

This project is located within a known landslide area and sensitive coastal environment. Any approval must ensure long-term stability, protection of views, proper stormwater management, and safeguarding of neighboring homes consistent with Malibu Development requirements and fundamental life-safety standards. Currently we are trading one risk for another, no risk in the form of irrigation water or instability caused by the development should be allowed to cross the property line.

We appreciate the City's careful attention to these matters and respectfully request thorough review before any further approvals are granted.

Sincerely,

Concerned Citizens of Malibu Road, Inc.



Alex Hall
[redacted] Malibu Road



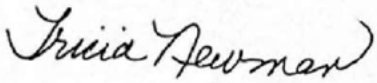
Beatta Skulski
[redacted] Malibu Road



Mira Backus
[redacted] Malibu Road



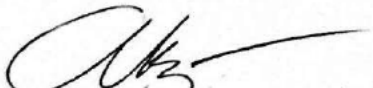
Jun Fujita Hall
[redacted] Malibu Road



Tricia Newman
[redacted] Malibu Road



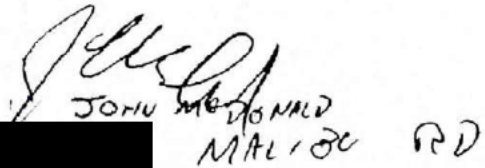
Christopher Backus
[redacted] Malibu Road



Alma Bilujus
[redacted] Malibu Road



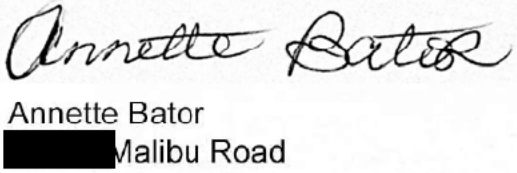
Andrew Grombiner
[redacted] Malibu Road



John McDonald
[redacted] Malibu Rd



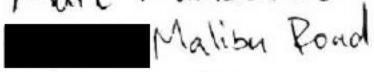
Sharone Karsh
[redacted] Malibu Road



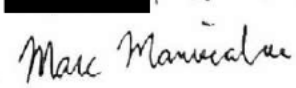
Annette Bator
[redacted] Malibu Road



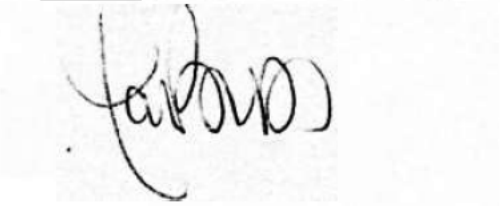
Chase Morgan
[redacted] Malibu Rd



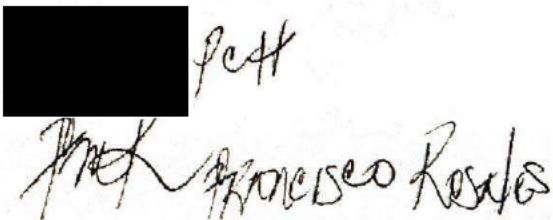
Marc Maniscalco
[redacted] Malibu Road



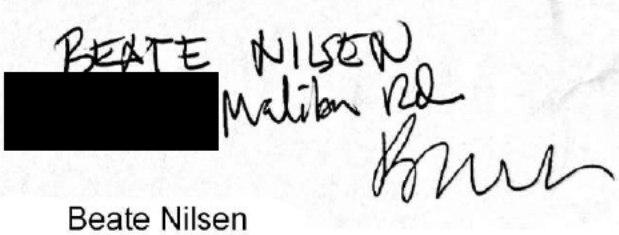
Mark Maniscalo
[redacted] Malibu Road



Janice Burns
[redacted] Malibu Road



Francisco Rosales
[redacted] Pacific Coast Highway



Beate Nilsen
[redacted] Malibu Road

Alan Martin. [redacted] Malibu Rd

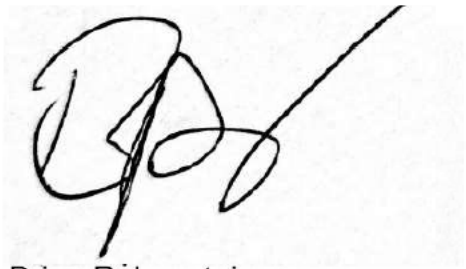
Alan Martin
[redacted] Malibu Road

Alfredo Trento [redacted] PCH Malibu

Alfredo Trento
[redacted] Pacific Coast Highway

Graham Casden [redacted] Malibu Rd

Graham Casden
[redacted] Malibu Road



Brian Rubenstein
[redacted] Malibu Road

Paulie Boyle [redacted] Malibu Rd.

Paulie Boyle
[redacted] Malibu Road

Jeremiah Pearson

Jeremiah Pearson
[redacted] Valmere Dr

Stacey Karp

Stacey Karp
[redacted] Malibu Rd

Amanda Goldberg [redacted] Malibu Rd

Amanda Goldberg
[redacted] Malibu Road

Charlotte Quinn [redacted] Malibu Rd [redacted]

Charlotte Quinn
[redacted] Malibu Road #3

Mia Hall

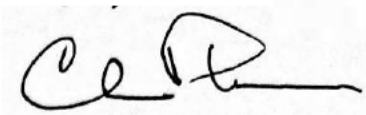
Mia Hall
[redacted] Malibu Road

[redacted] Malibu Rd Trust [redacted] Malibu Rd

Goldberg Family/[redacted] Malibu Road Trust
[redacted] Malibu Road

Robin Trento [redacted] PCH. Malibu

Robin Trento
[redacted] Pacific Coast Highway



Chuck Phillips
[redacted] Malibu Rd

David Isackson

David Isackson
[redacted] Malibu Rd

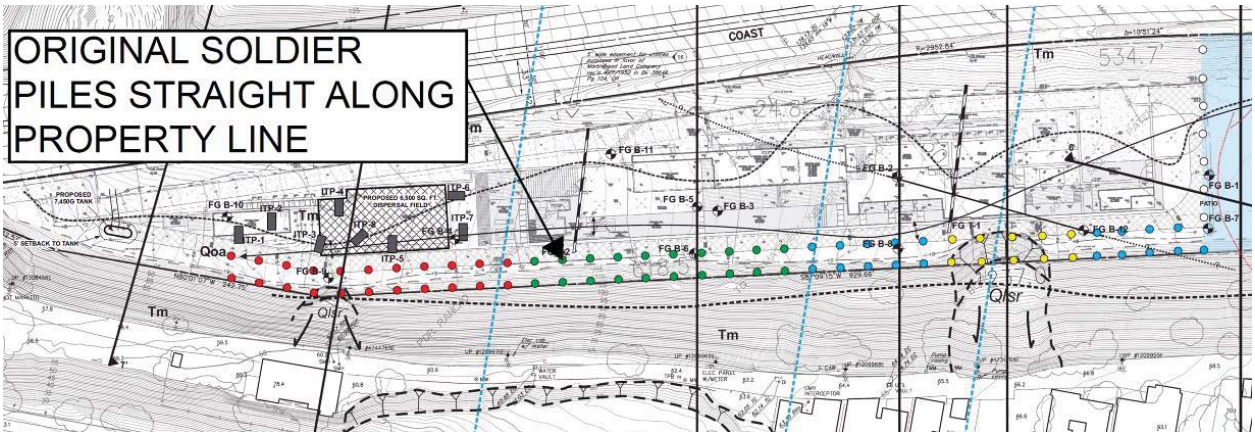
Pacific Coast Land Consulting
Engineering Geologic Services

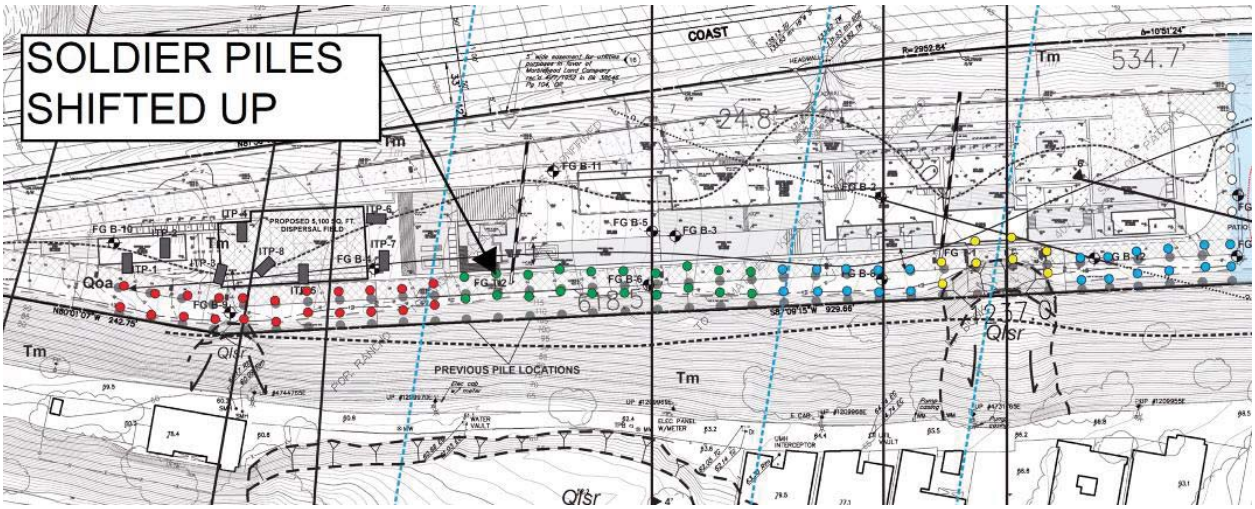
City of Malibu **February 16, 2026**

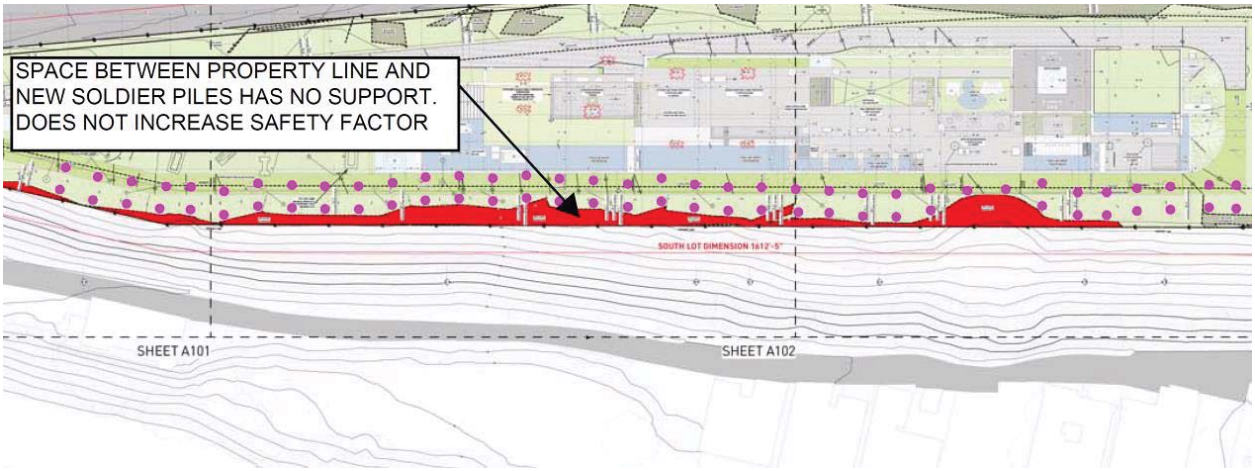
Subject: Slope Stabilization and Protection of Residents

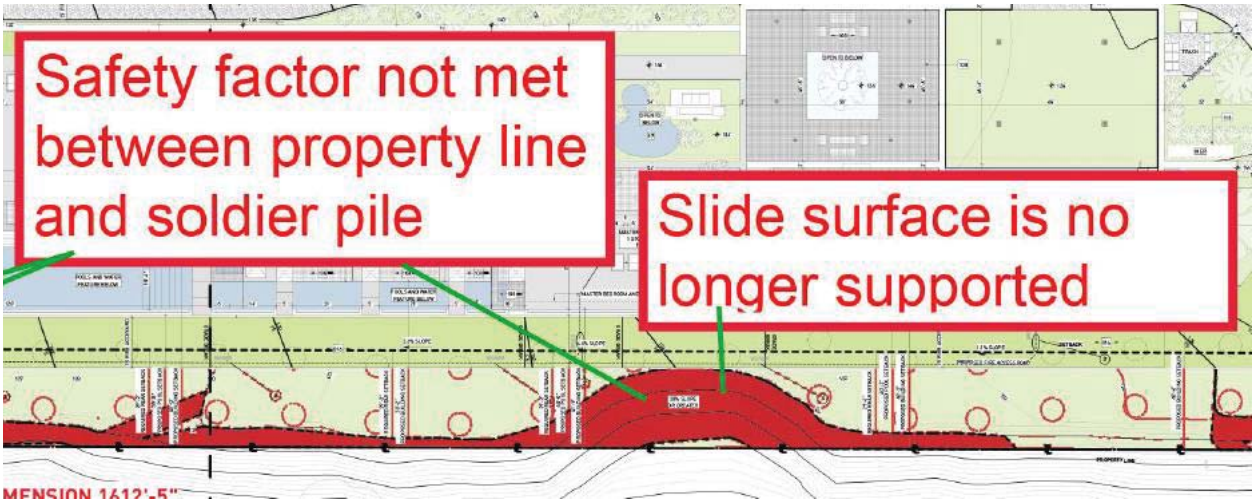
25200PCH Soldier Piles relocated North no longer providing Safety Factor due to the shift

When the soldier piles were moved uphill per January 6, 2023,Feffer report, they were shifted uphill from the property line without a new analysis of the unsupported area. The shift created an area between the property line and soldier piles that does not add any stabilization to meet the required safety factor. Moreover, by relocating the piles outside of the two recent landslides slide Qlsr, the piles no longer function to stabilize the identified slide mass north of the property line within the property 25200 PCH. **<u>This will changes the stability analysis and will now require a variance.</u>**









There are already 2 failures on the slope that originate from the subject property. That are not addressed nor stabilized.

The lack of stabilization withing the subject property coupled with the future infiltration of water presents an elevated risk of failure and a threat to property and life for residents below the proposed development.



Ralph Jeffery

Pacific Coast Land Consulting

CEG 1183 RG 3815

FEFFER
GEOLOGICAL CONSULTING

January 6, 2023 File No. 1992-75

Weintraub Real Estate Group
[redacted]
Malibu, CA 90264

Subject: **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

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:

As requested, Feffer Geological Consulting is providing this addendum letter to address the proposed soldier pile and tieback stabilization system required for site development. This firm previously prepared slope stability analyses to evaluate the overall gross static and seismic stability of the descending slope. Based on multiple iterations of the slope stability analyses under worst-case scenarios and evaluation by the City reviewers, we determined that the site could be stabilized by utilizing two rows of soldier piles and tieback anchors.

Originally, the soldier piles and tieback anchors were planned to be located along the southern property line, and therefore some of the piles would be located on a small portion of the descending slope. It is our understanding that the construction of the stabilization system on the descending slope would require a variance from the City of Malibu.

In order to remove the need for a variance and allow development to move forward, the proposed stabilization system will be shifted slightly north and to the top of the slope. Based on a detailed review of the updated plans and discussions with the project structural engineer, it is our opinion that the minor shift in location for the proposed stabilization system will not impact the proposed development and will not negatively impact or reduce the integrity of the stabilization system. The slight adjustment in pile locations will not negatively affect the overall gross stability of the site.

The proposed stabilization system has been conservatively designed for worst-case scenarios under both static and seismic conditions. The depths and widths of the proposed stabilization piles are not expected to change substantially. However, the final design details will be thoroughly reviewed by this firm and the structural engineer during plan

check. Therefore, the proposed location for the stabilization system is acceptable from a geotechnical perspective.

The site map illustrating the location of the previous pile locations, and the new pile locations is attached. A copy of the updated plans showing the location of the soldier piles and tieback anchors is attached at the back of this letter for reference.

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)

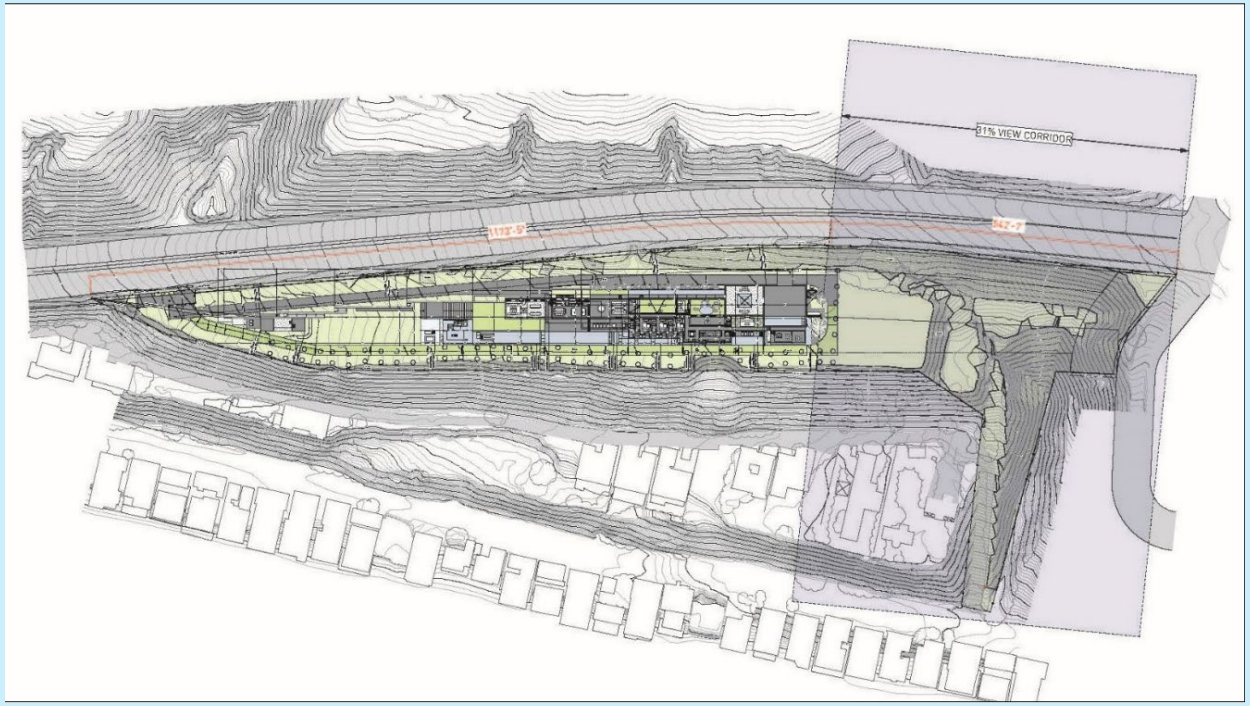
Item 4A - CDP 19-012 - 25200 Pacific Coast Hwy.



Presentation before the
Malibu Planning Commission
February 17, 2026

SCHMITZ & ASSOCIATES INC.

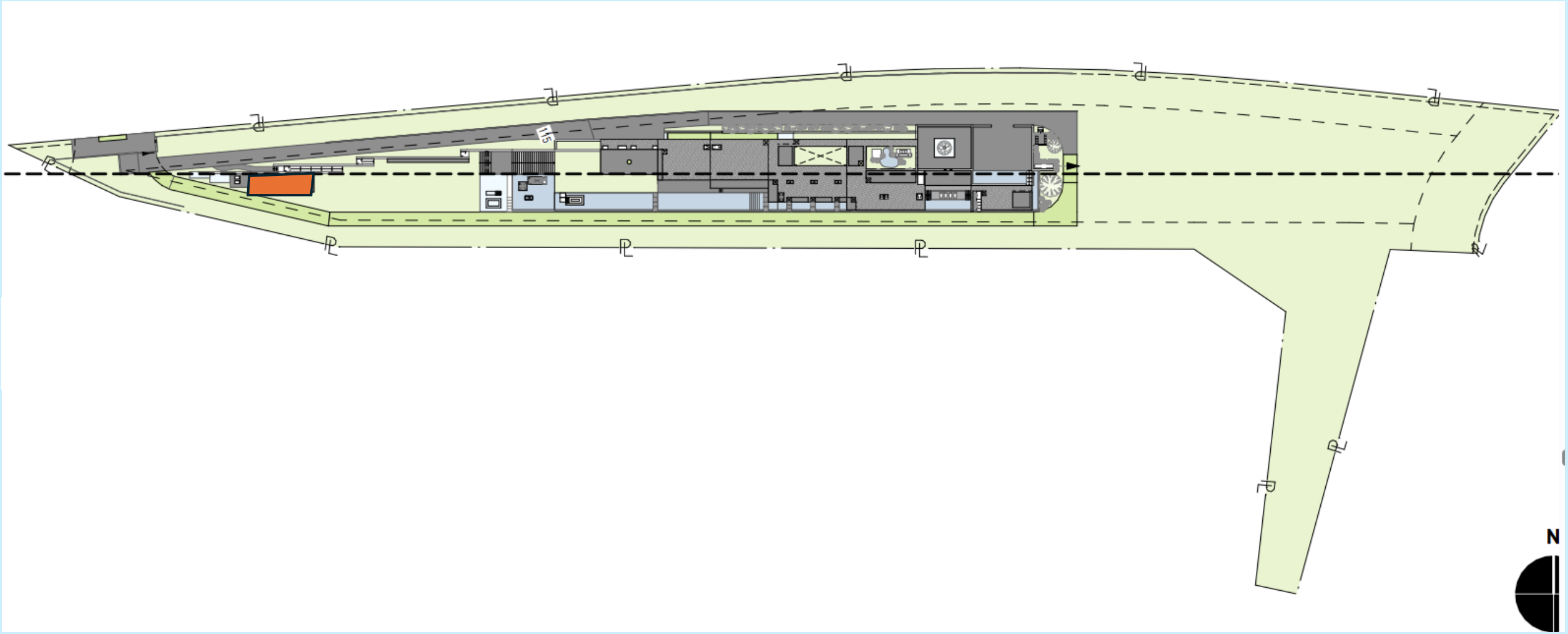
Revised CDP Application



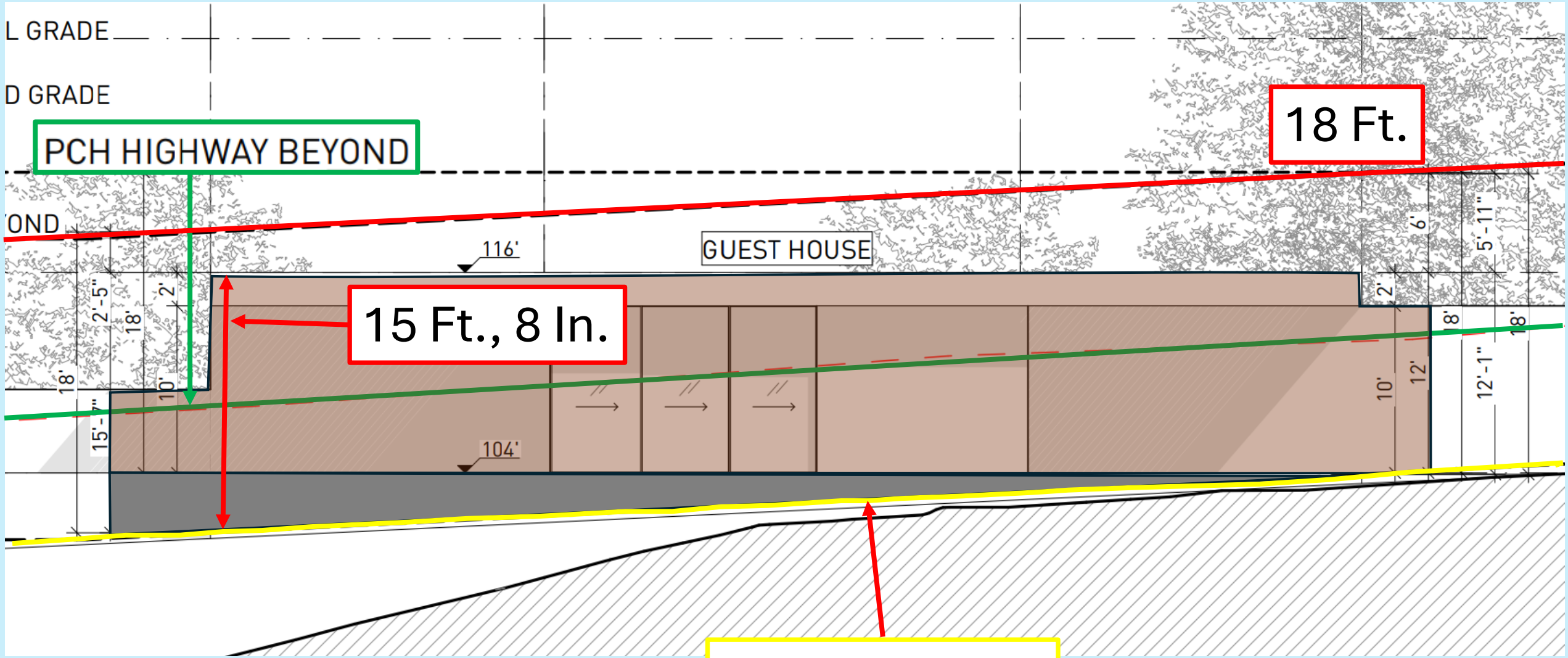
Project revised in January 2026 to:

- Lower Pad and Structure Height by 2 Feet
- Lower Height of Structure Protruding Above The Berm
- Eliminate Guest House from Proposed Development Scope
- Reduce TDSF by 465 square Feet

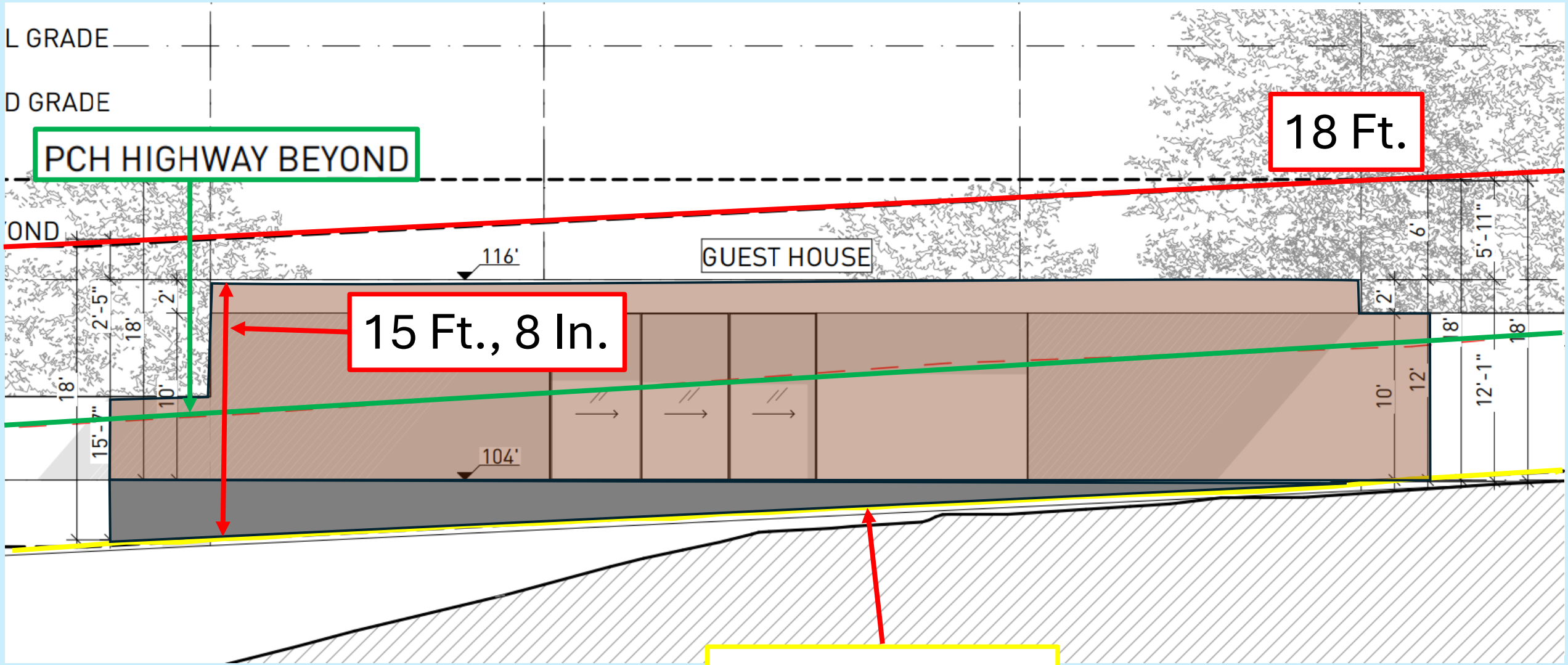
Proposed Guest House



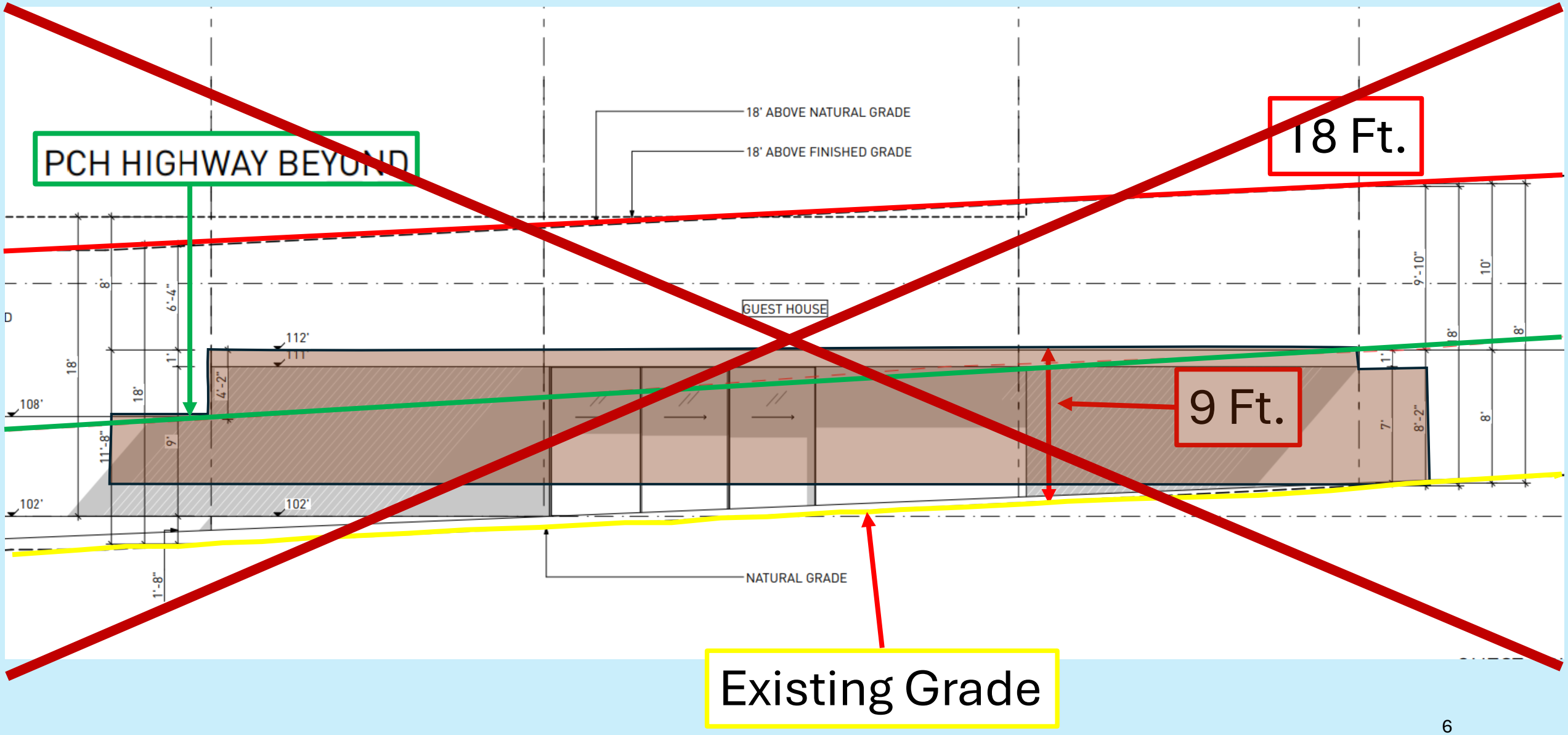
Guest House Height Originally 15 Feet, 8 Inches



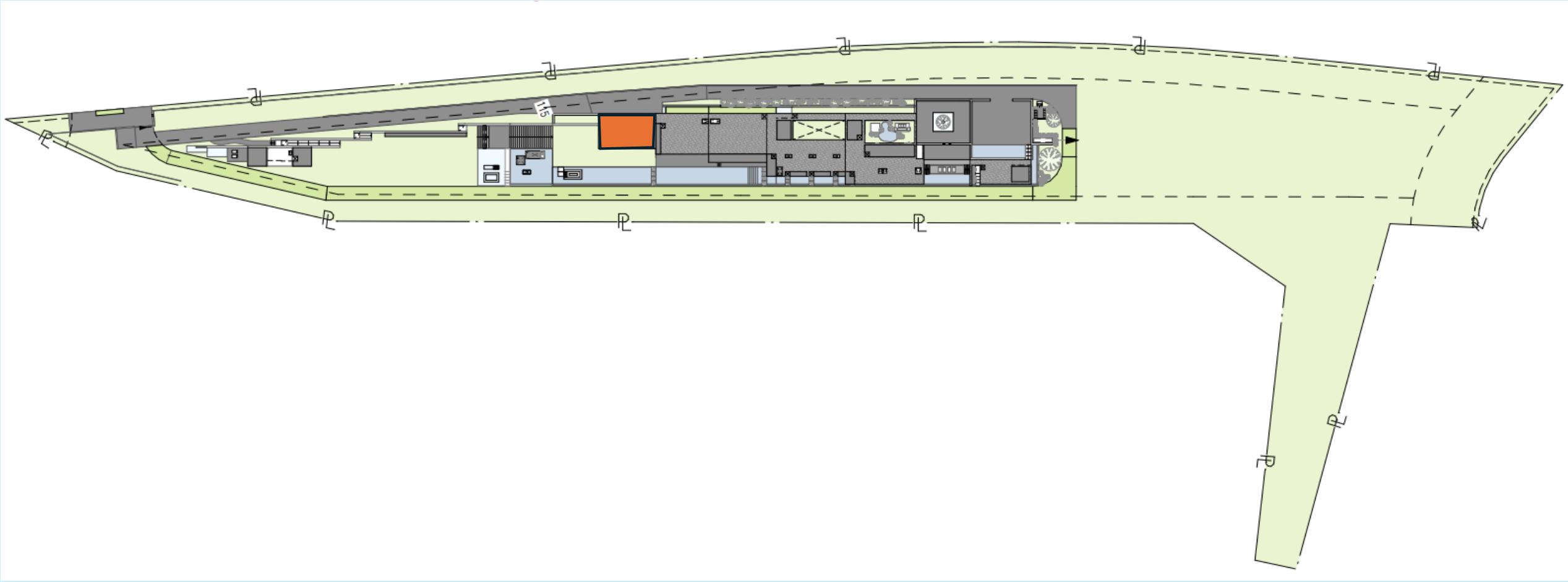
Guest House Height Originally 15 Feet, 8 Inches



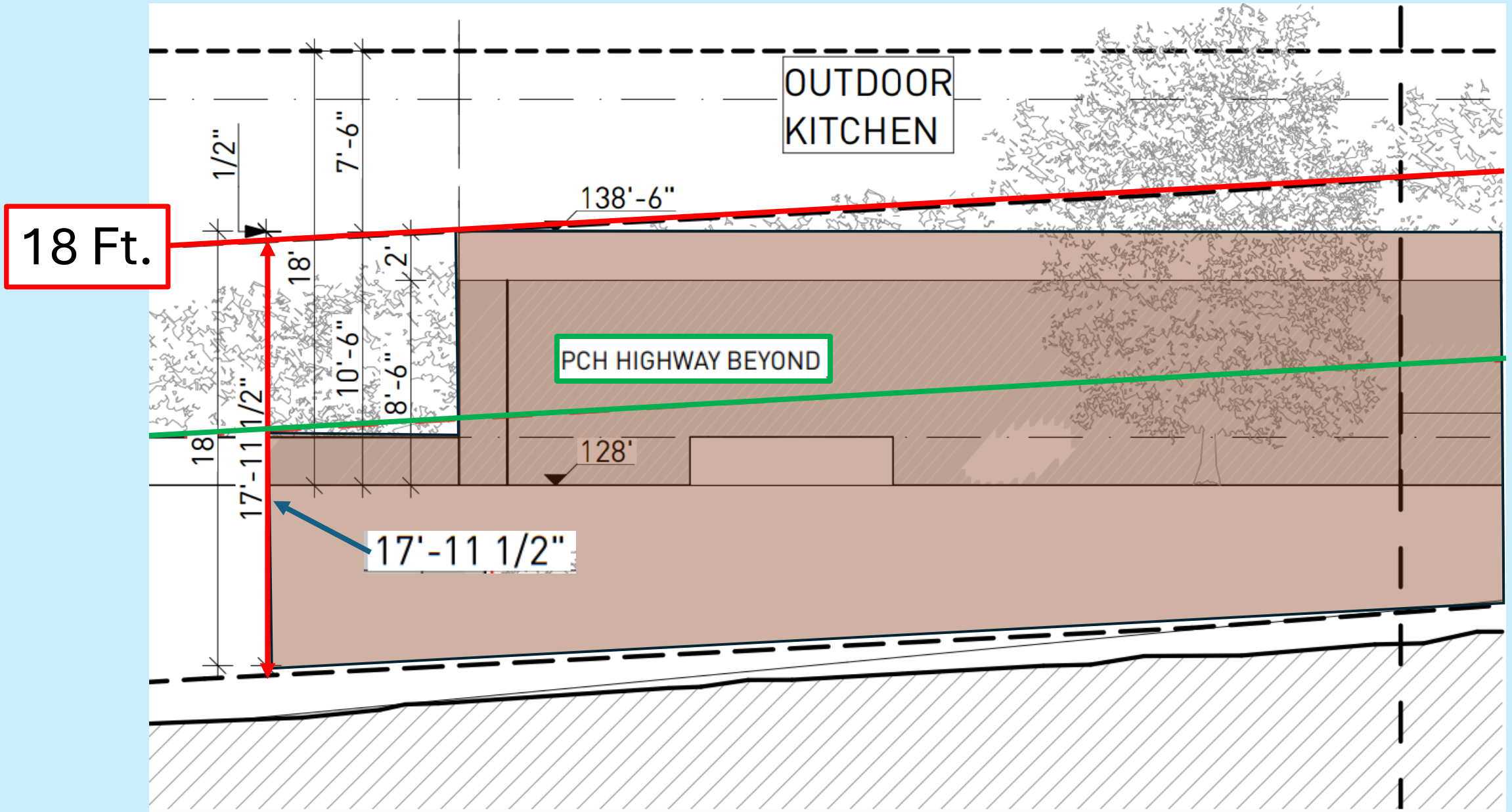
Guest House No Longer Part of Application



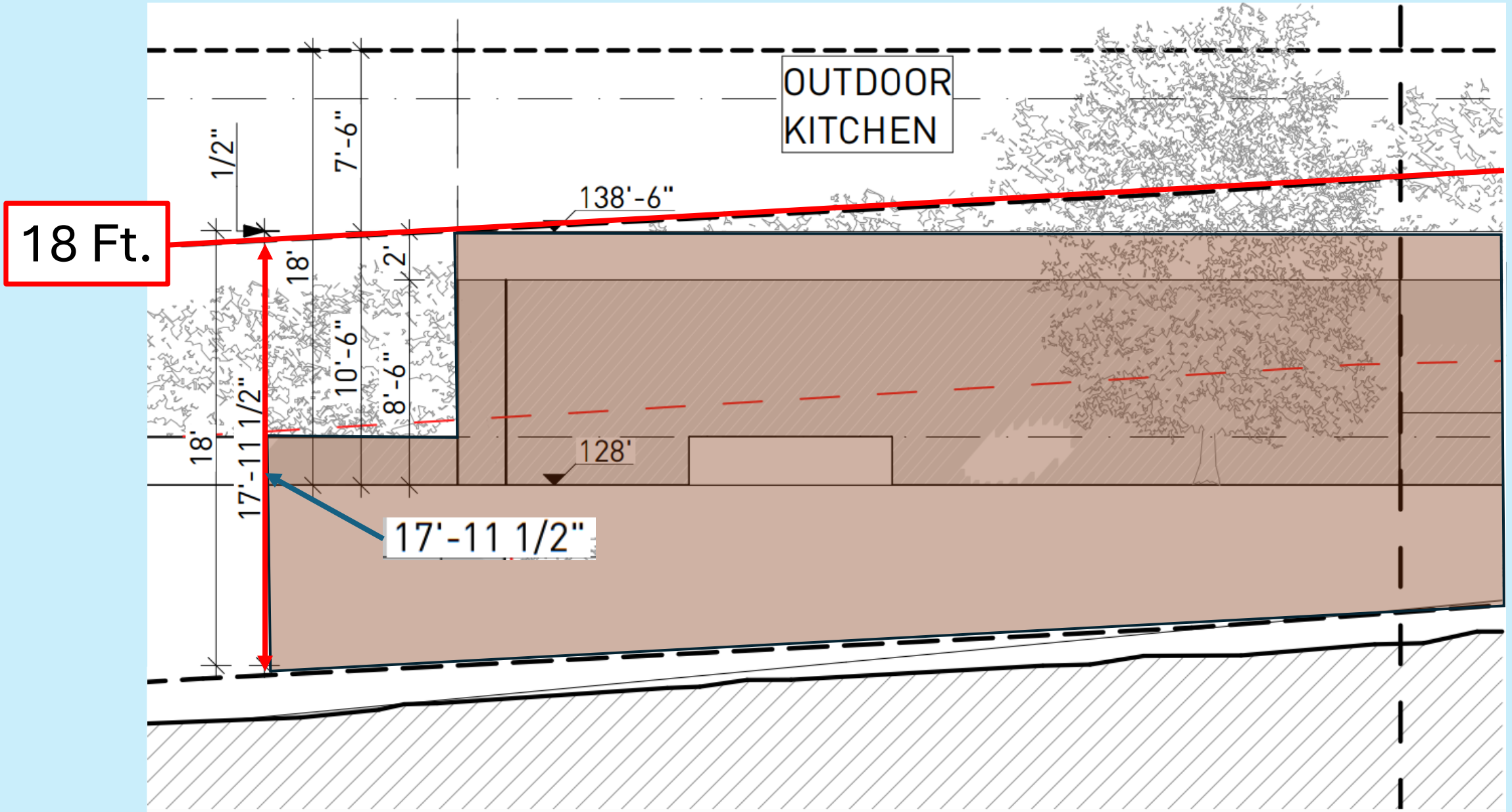
Proposed Outdoor Kitchen



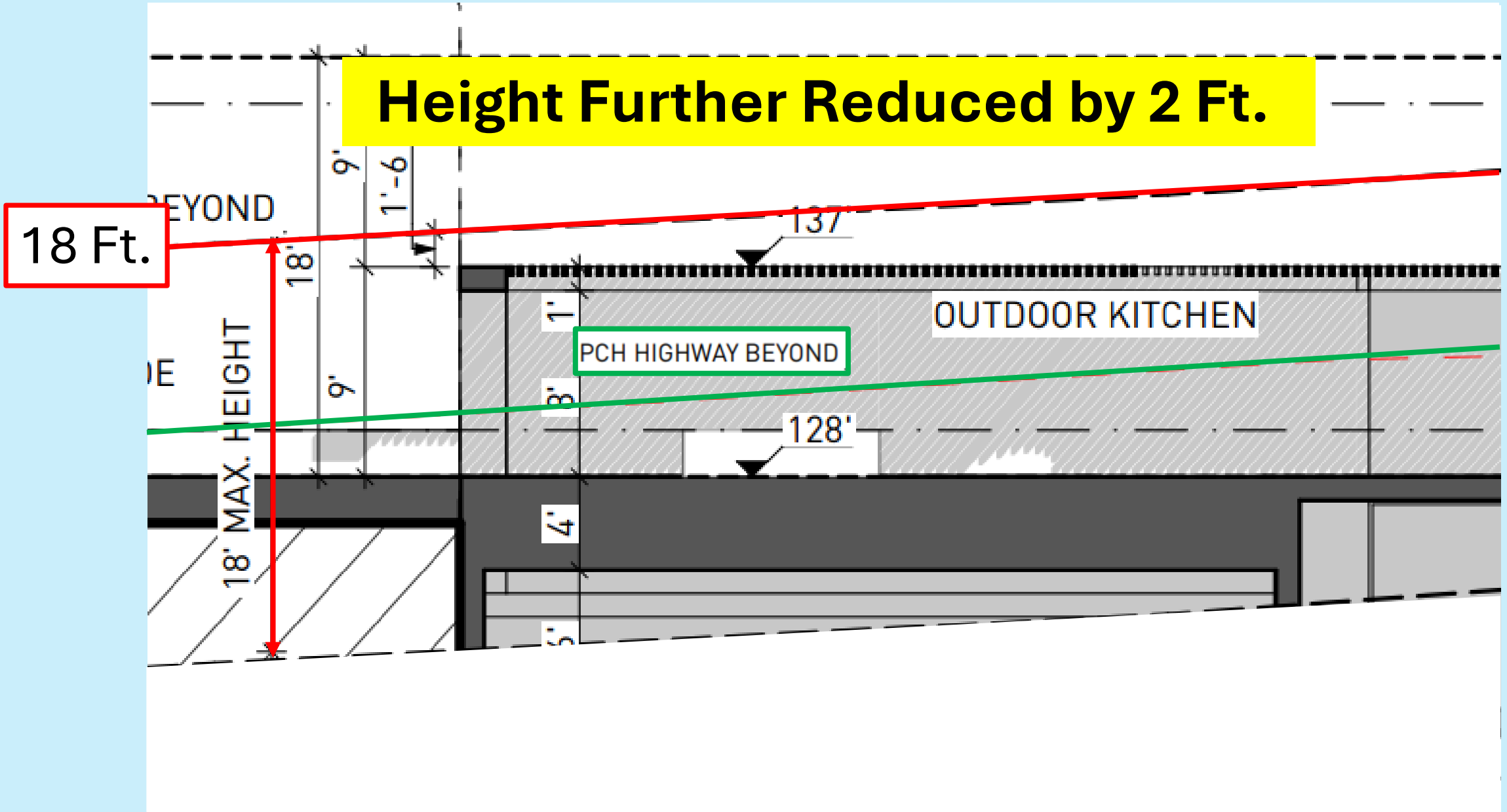
Outdoor Kitchen Originally 17ft., 11 in. Tall



Outdoor Kitchen Reduced to 16ft., 5.5 in. Tall



Outdoor Kitchen Reduced to 14ft., 6 in. Tall



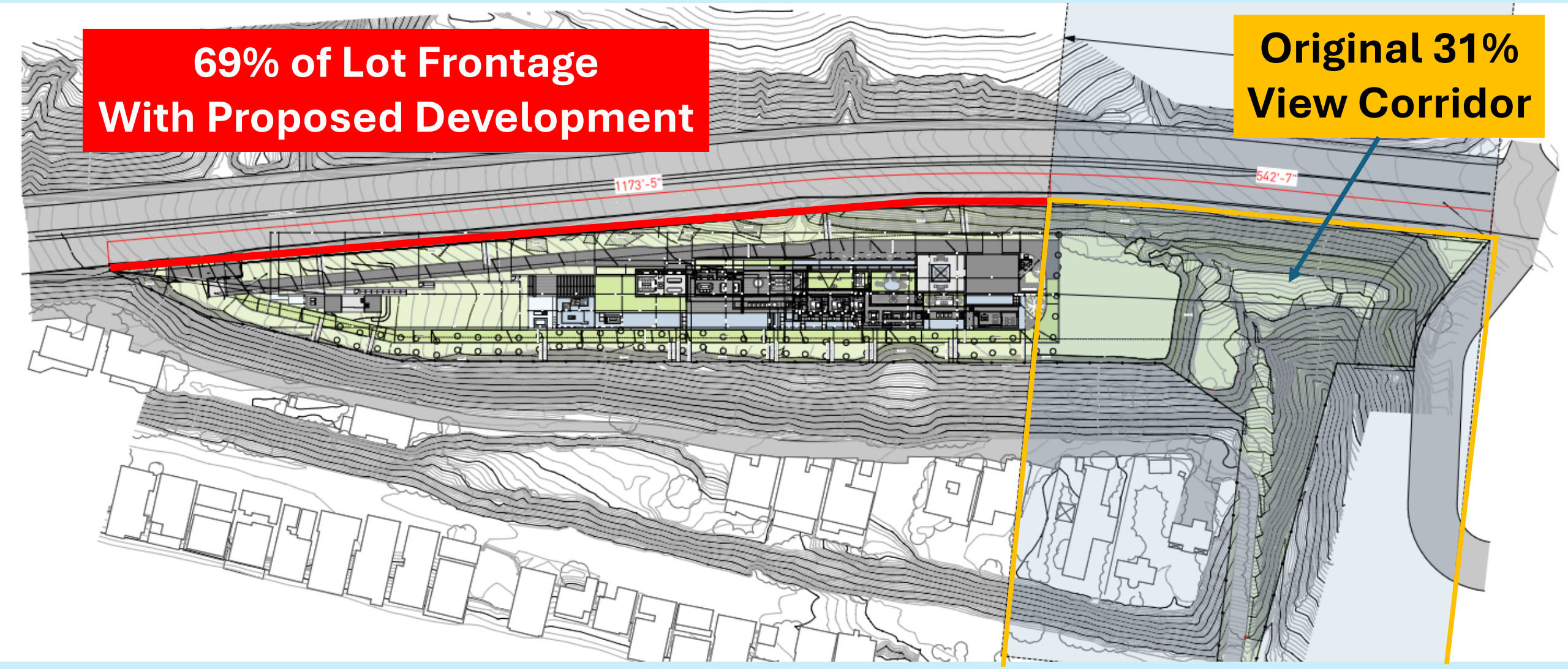
Public View Protection



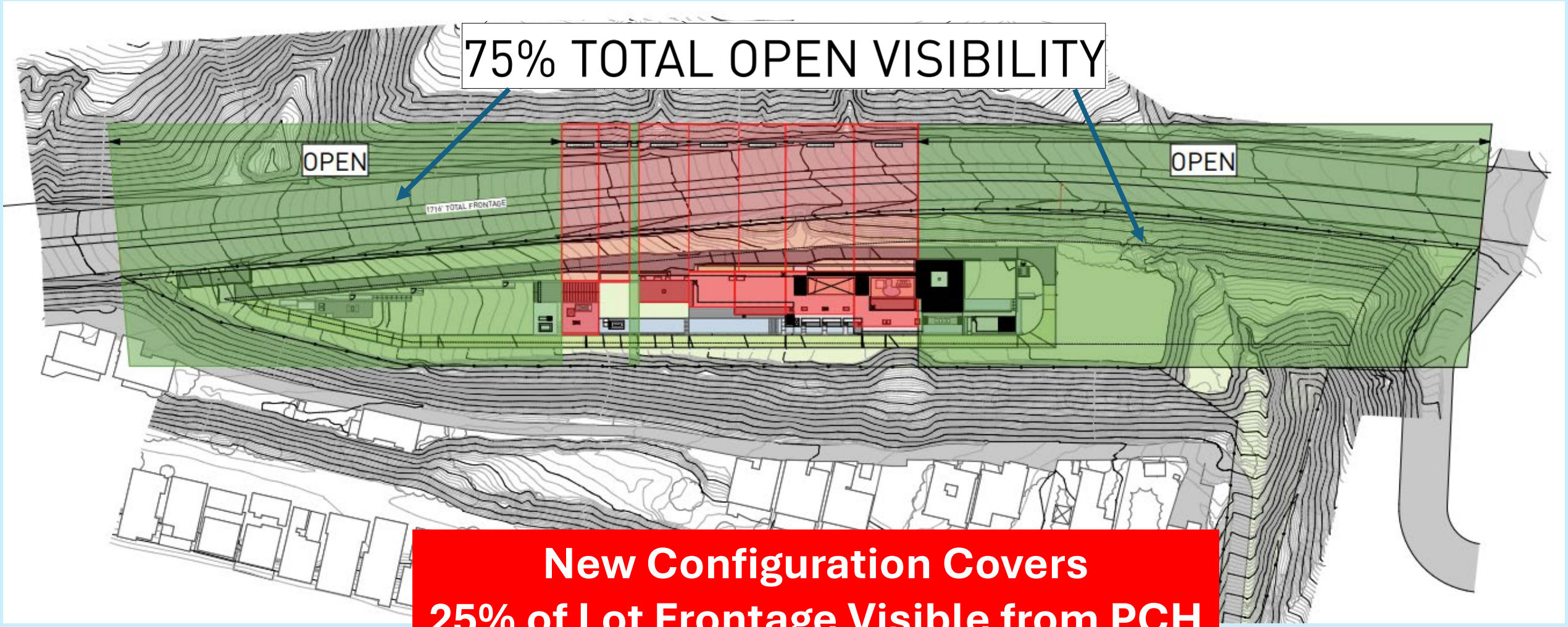
Original View Corridor Added to Protect Public View



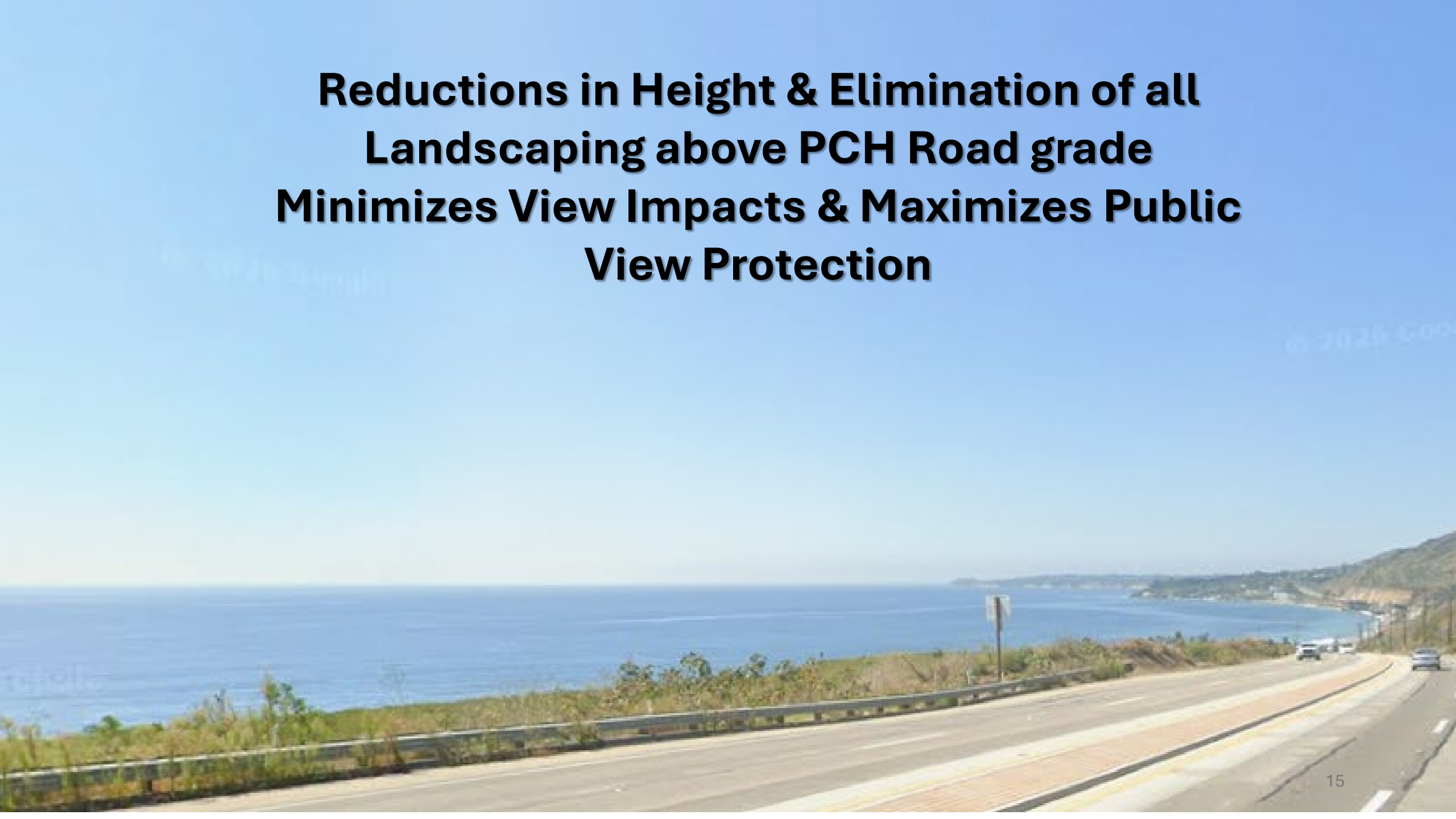
Proposed Development Consisted of 69% of Lot Frontage



Proposed Development Consisted of 69% of Lot Frontage



Reductions in Height & Elimination of all Landscaping above PCH Road grade Minimizes View Impacts & Maximizes Public View Protection



THANK YOU

Project Application

Commission Agenda Report

Planning Commission Meeting 02-17-26 Item 4.A.

RECOMMENDED ACTION: Adopt Planning Commission Resolution No. 26-05 (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, 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).

lot consisting of two Assessor Parcel Numbers (APNs) (4459-013-021 and 4459-014-

NO DISCRETIONARY REQUESTS

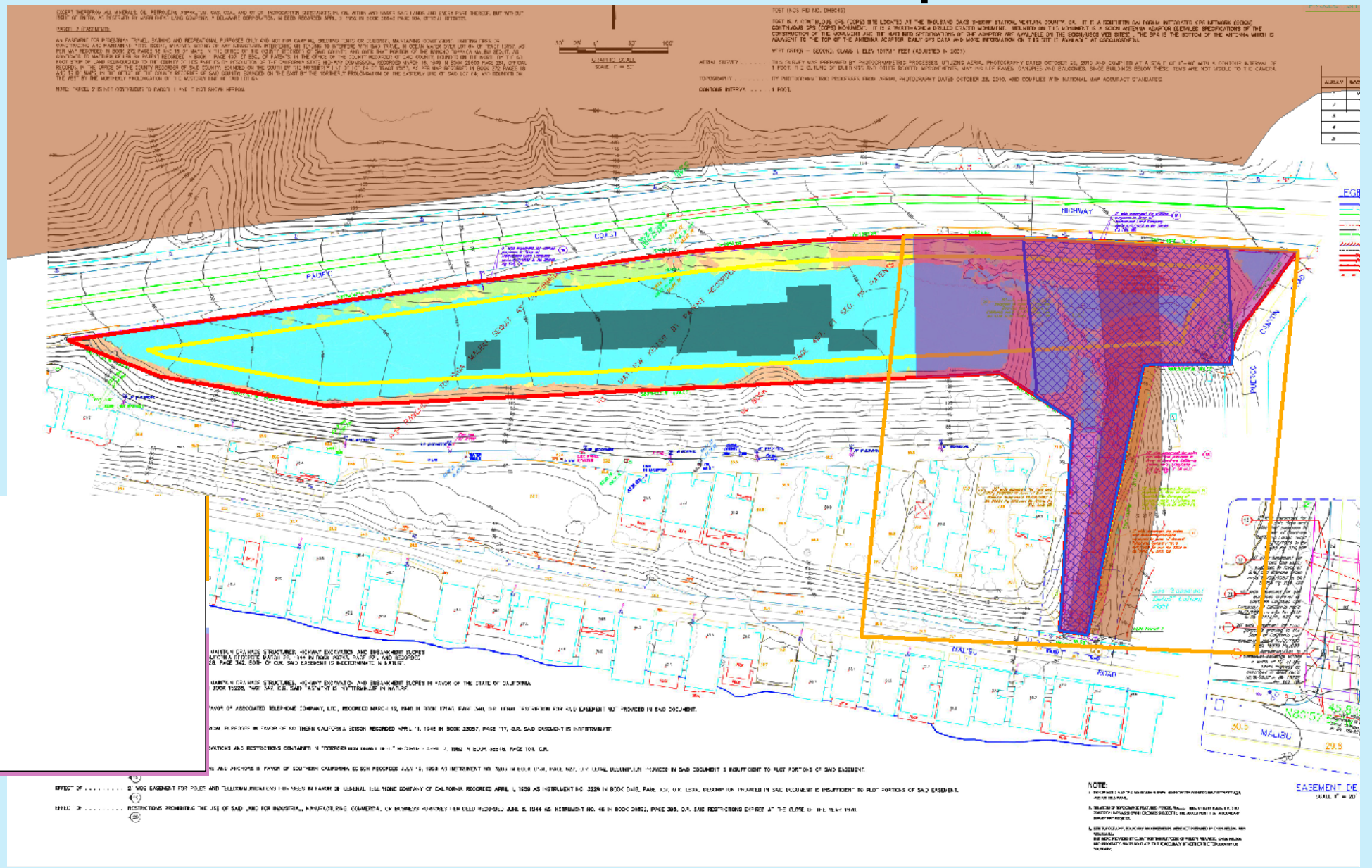
Page 1 of 5 Agenda Item 4.A.

February 2026 Zoning Conformance Table

Table 2 – Zoning Conformance			
Development Requirement	**Allowed/ Required**	**Proposed**	**Comments**
SETBACKS			
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
IMPERMEABLE COVERAGE	25,000 sq. ft. (max.)	21,294 sq. ft.	Complies
NON-EXEMPT GRADING	1,000 c.y. (max.)	***742 c.y.***	Complies
CONSTRUCTION ON SLOPES	3 to 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
Freestanding Walls	6 ft. high (max.)	6 ft. high	Complies

PROJECT COMPLIES WITH ALL DEVELOPMENT STANDARDS; IT'S A **CLEAN SHEETS** PROJECT

Constraints Map



Project Received Requisite Departmental Approvals

Biology

City o
23825 Stuart Ranch Rd., M
(310) 456-2489

BIOLOG
REFERR

TO: City of Malibu Biologist
FROM: City of Malibu Planning Department
PROJECT NUMBER: CDP 19-012
JOB ADDRESS: 25200 PACIFIC COAS
APPLICANT / CONTACT: Jake Jesson, 180 PC
APPLICANT ADDRESS: PO Box 6528 Malibu, CA 90265
APPLICANT PHONE #: (310)739-7931
APPLICANT FAX #: (310) 456-2644
APPLICANT EMAIL: jjesson@weintraubre
PLANNER: Allison Cook
PROJECT DESCRIPTION: NSFR, guest house,

TO: Malibu Planning Department and/Applic
FROM: City Biologist, Courtney McCammon

___ The project review package is INCOMPL Final Planning Review until corrections are incorporated into the proposed proje (See Attached).

X The project is APPROVED, consistent w with the protection of biological resourc Planning process.

___ The project may have the potential to si resources, either individually or cumulat Watersheds, and/or Shoreline Resource the Environmental Review Board (ERB).

Casey McCam

be imposed up

ology@malibuci

Rev 05/29/2018

Environmental Health

Cit
23825 Stuar
(310) 456-24

ENVIRONI

TO: City of Malibu Environmental
FROM: City of Malibu Planning Depar
PROJECT NUMBER: CDP 19-01
JOB ADDRESS: 25200 PAC
APPLICANT / CONTACT: Jake Jesso
APPLICANT EMAIL: jjesson@w
PROJECT DESCRIPTION: NSFR, gue
REVISION:

TO: Malibu Planning Department and
FROM: City of Malibu Environmental Hea

✓ Conformance Review Compl City of Malibu Local Coastal Pl Municipal Code (MMC). The C check review comments listed below) shall be addressed prio

Building Plan Check (BPC) Re

___ Conformance Review Incom Planning stage review comme review sheet(s) shall be addre

OWTS Plot Plan: ☐ NOT REQUIRE ☑ REQUIRED (att

Signature

The applicant must submit to the City of Malibu Envir onsite wastewater treatment system (OWTS) Plot Pla

Public Works

City of Mal
23825 Stuart Ranch Rd., Malibu, California CA
(310) 456-2489 FAX (310) 456-765

PUBLIC WORKS RE
REFERRAL SHEET

TO: Public Works Department
FROM: City of Malibu Planning Department REVISED DA

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

TO: Malibu Planning Department and/or Applicant
FROM: Public Works Department

___ The following items described on the attached memo addressed and resubmitted.

X The project was reviewed and found to be in conform Public Works and LCP policies and CAN proceed thr process.

Building Plan Check (BPC) Required ☒Yes ☐No BPC

SIGNATURE

4/8/2025
DATE

Previous conditions issued 12/21/2021 still apply.

Geotechnical

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 COMPL... 'Geotechnical Notes for ... submittals.

☐ The plans are NOT CO... Check Stage Review C... 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:

No Site Plan Review and No Minor Modification, Therefore, Neighborhood Character Findings are Not Required.

NEVERTHELESS…..

15 Developed Properties Located Along PCH Between Malibu Road and Malibu Bluffs Park



APN	Address
4458-015-007	25040 PACIFIC COAST HWY
4458-015-009	25000 PACIFIC COAST HWY
4458-015-011	24950 PACIFIC COAST HWY
4458-015-013	24910 PACIFIC COAST HWY
4458-015-019	24840 PACIFIC COAST HWY
4458-015-021	24834 PACIFIC COAST HWY
4458-015-027	24800 PACIFIC COAST HWY
4458-015-030	25126 PACIFIC COAST HWY
4458-015-031	25142 PACIFIC COAST HWY
4458-015-033	24824 PACIFIC COAST HWY
4458-015-038	24818 PACIFIC COAST HWY
4458-015-041	24900 PACIFIC COAST HWY
4458-015-045	24860 PACIFIC COAST HWY
4458-016-021	24750 PACIFIC COAST HWY
4458-016-023	24700 PACIFIC COAST HWY

CDPs Approved by Coastal Commission and City of Malibu



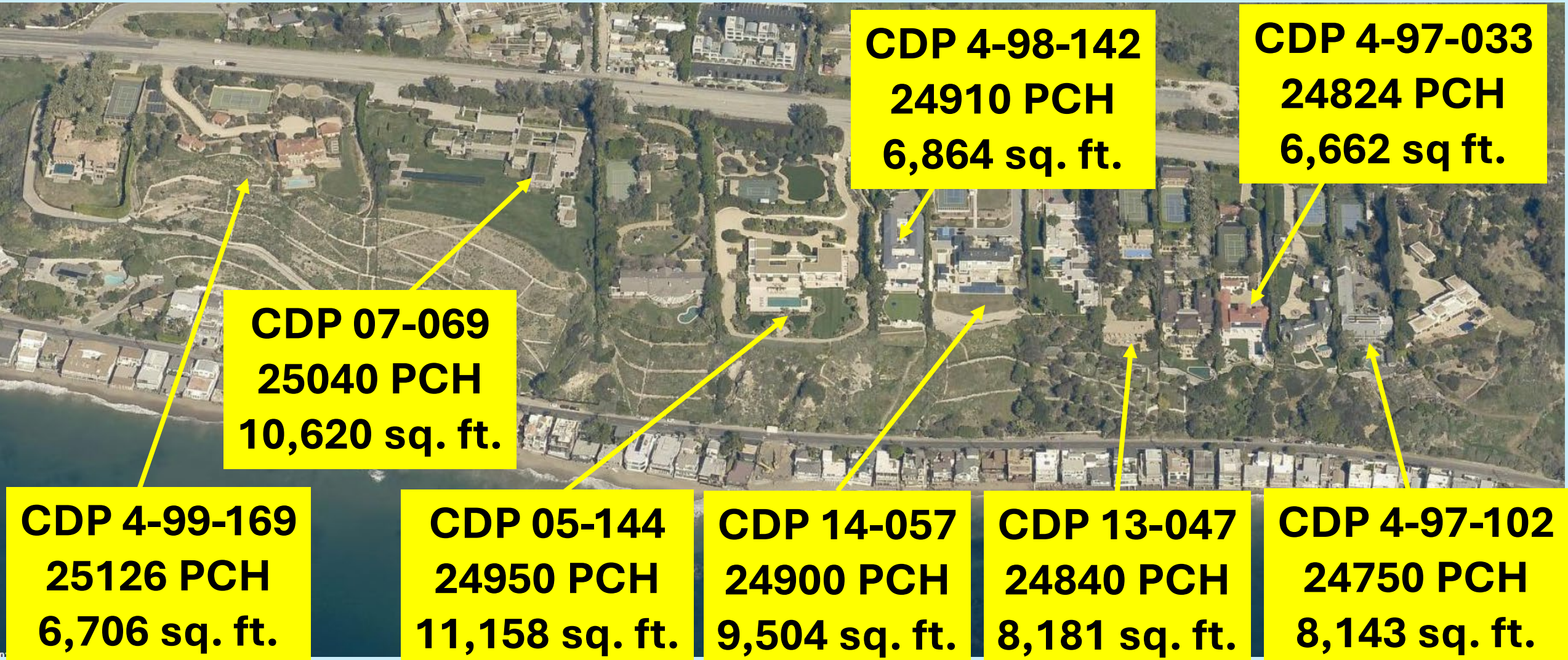
APN	SitusAddress	TDSF
4458-015-007	25040 PACIFIC COAST HWY	10626
4458-015-009	25000 PACIFIC COAST HWY	8070
4458-015-011	24950 PACIFIC COAST HWY	11158
4458-015-013	24910 PACIFIC COAST HWY	6616
4458-015-019	24840 PACIFIC COAST HWY	8181
4458-015-021	24834 PACIFIC COAST HWY	11042
4458-015-027	24800 PACIFIC COAST HWY	6326
4458-015-030	25126 PACIFIC COAST HWY	6682
4458-015-031	25142 PACIFIC COAST HWY	15822
4458-015-033	24824 PACIFIC COAST HWY	6173
4458-015-038	24818 PACIFIC COAST HWY	10106
4458-015-041	24900 PACIFIC COAST HWY	9504
4458-015-045	24860 PACIFIC COAST HWY	9955
4458-016-021	24750 PACIFIC COAST HWY	8148
4458-016-023	24700 PACIFIC COAST HWY	6136

13 Properties with CDPs Approved Since Coastal Act Implemented in 1976

5 Projects Approved Pre-Cityhood



8 Projects Approved Post-Cityhood

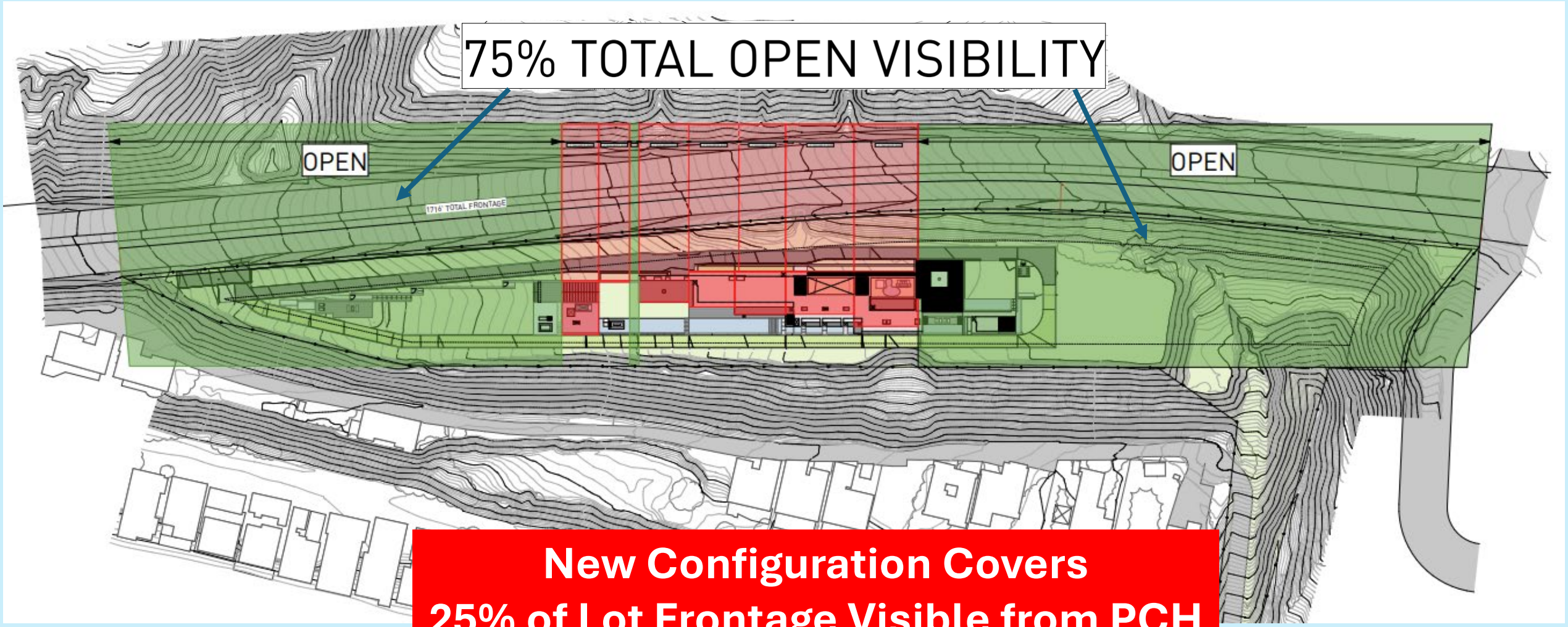


LIP 6.5(E)2 states "Where the topography of the project site does not permit the siting or design of a structure that is located below road grade, new development shall provide an ocean view corridor on the project site by incorporating the following measures."

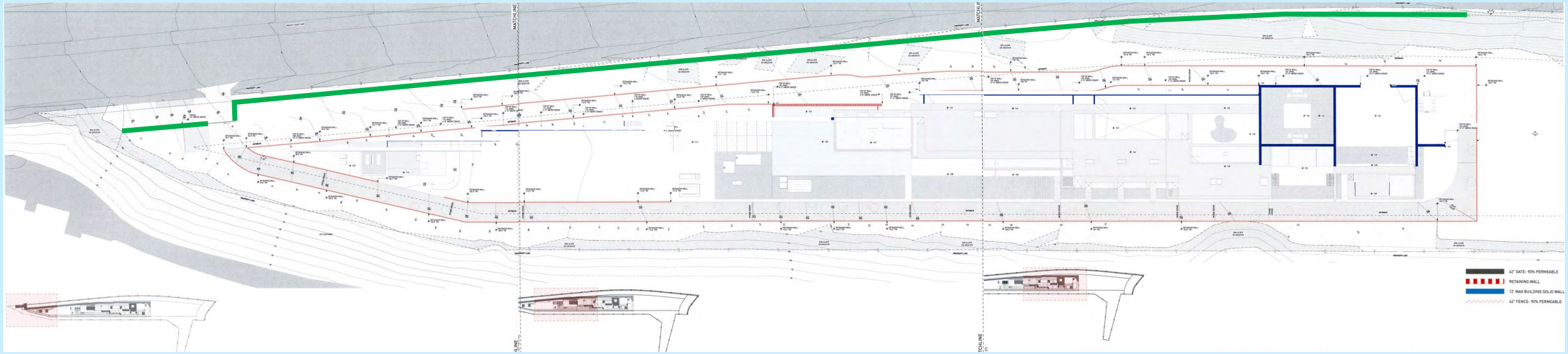
LIP 6.5(E)2(a) states "Buildings shall not occupy more than 80 percent maximum of the lineal frontage of the site.."

View Corridors Occupy 75% of the Lineal Frontage

Proposed Development Consisted of 31% of Lot Frontage



Proposed Fencing Along PCH is 90% Visually Permeable



42" GATE- 90% PERMEABLE

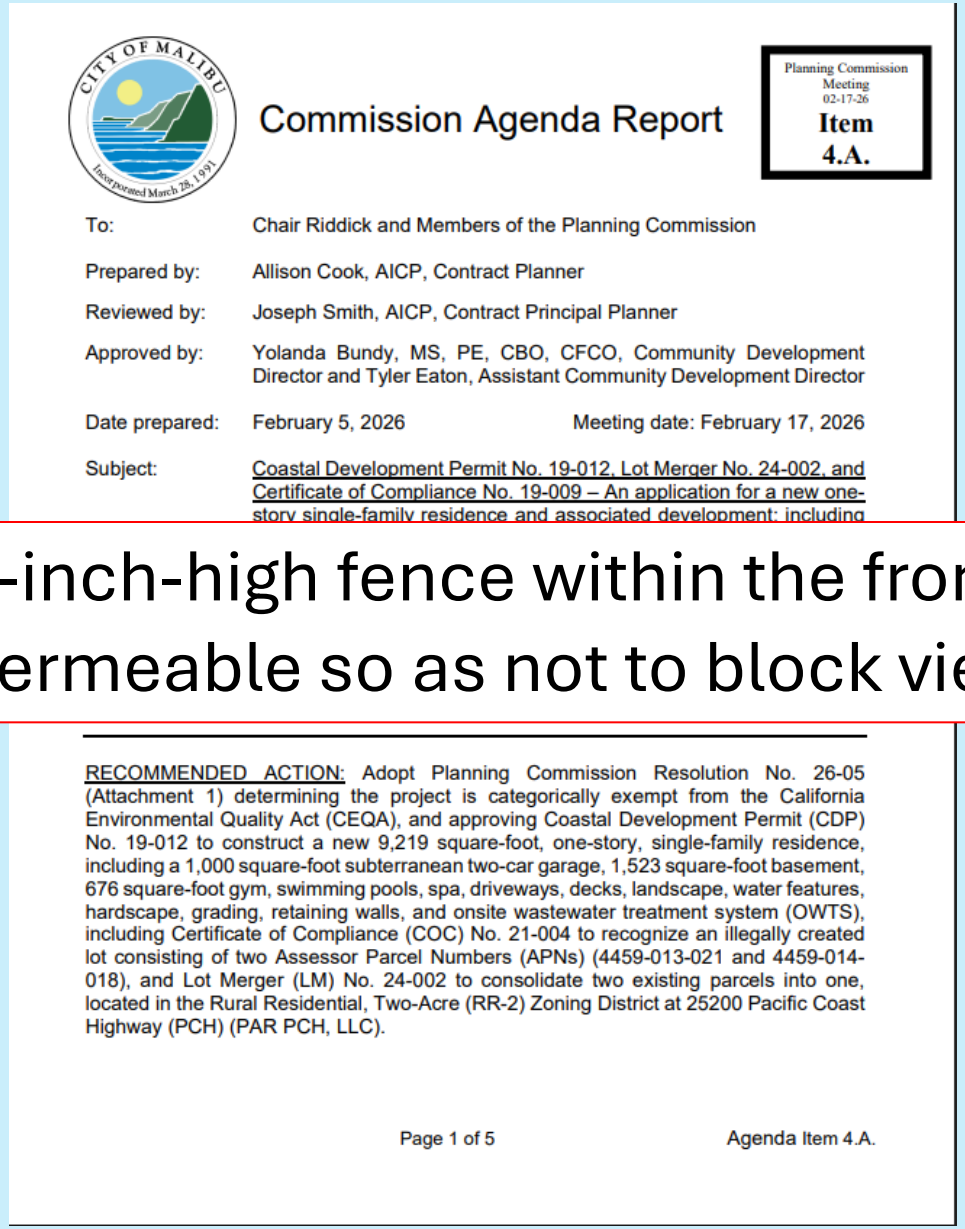
RETAINING WALL

12' MAX BUILDING SOLID WALL

42" FENCE- 90% PERMEABLE

6'-0" SITE RETAINING WALL. REFER TO STRUCTURAL AND LANDSCAPE DWGS.
PEDESTRIAN GATE DOOR. PROVIDE SHOP DWGS. FOR ARCHITECT REVIEW.
42" MOTORIZED VEHICULAR SLIDING ENTRY GATE. STEEL FRAME. 90% VISUALLY PERMEABLE
42" PERIMETER FENCE. 90% VISUALLY PERMEABLE

Fence Visually Permeable to Not Block Ocean Views



CITY OF MALIBU
Incorporated March 28, 1991

Commission Agenda Report

Planning Commission Meeting
02-17-26
Item 4.A.

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, MS, PE, CBO, CFCO, Community Development Director and Tyler Eaton, Assistant Community Development Director

Date prepared: February 5, 2026 Meeting date: February 17, 2026

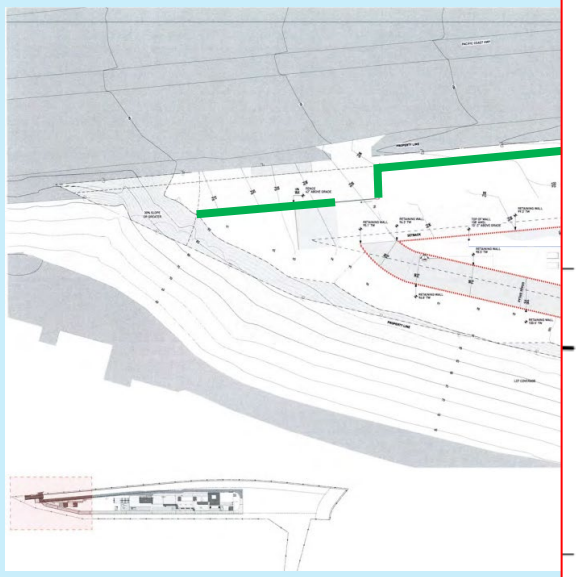
Subject: Coastal Development Permit No. 19-012, Lot Merger No. 24-002, and Certificate of Compliance No. 19-009 – An application for a new one-story single-family residence and associated development; including

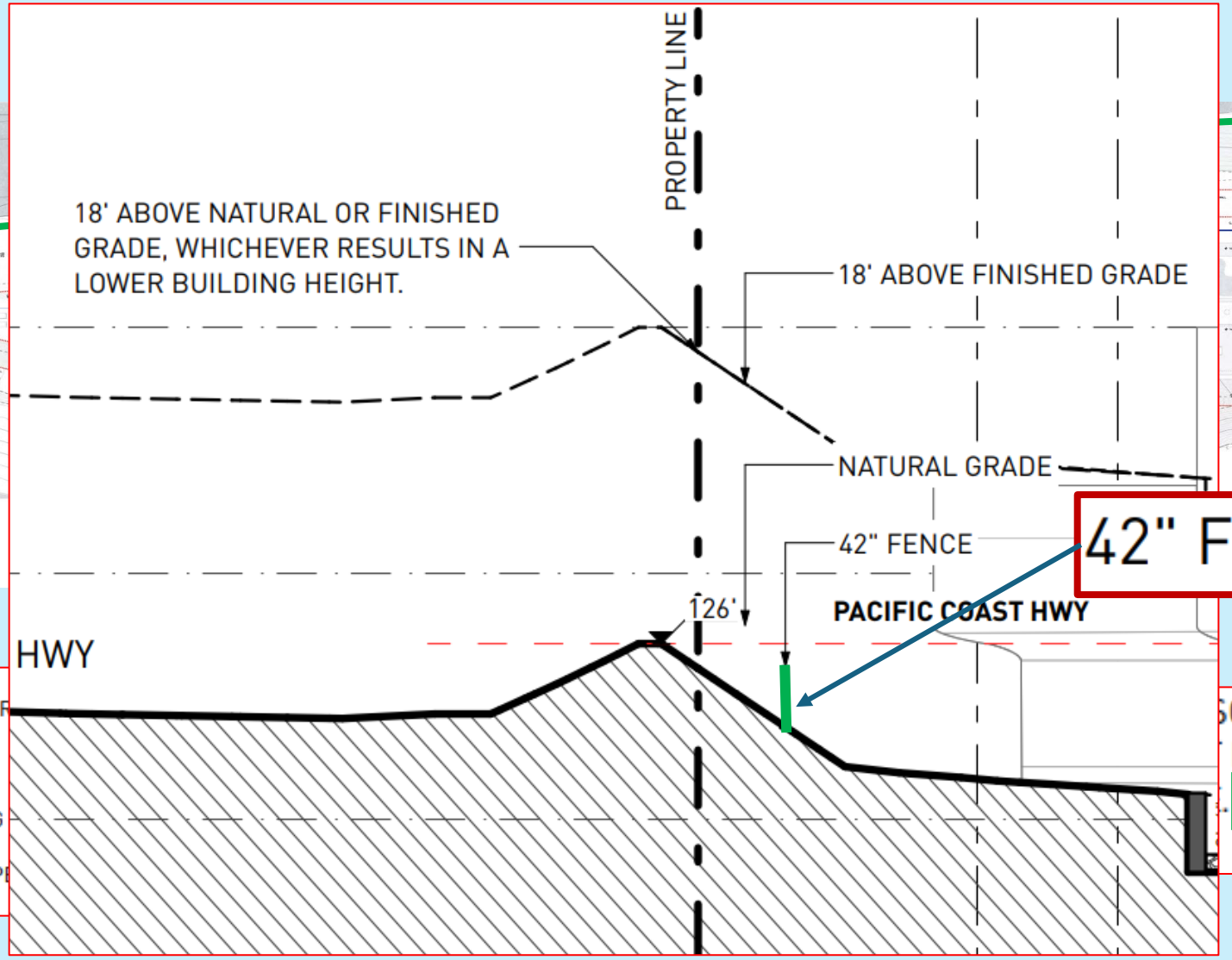
RECOMMENDED ACTION: Adopt Planning Commission Resolution No. 26-05 (Attachment 1) determining the project is categorically exempt from the California Environmental Quality Act (CEQA), and approving Coastal Development Permit (CDP) No. 19-012 to construct a new 9,219 square-foot, one-story, single-family residence, including a 1,000 square-foot subterranean two-car garage, 1,523 square-foot basement, 676 square-foot gym, 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).

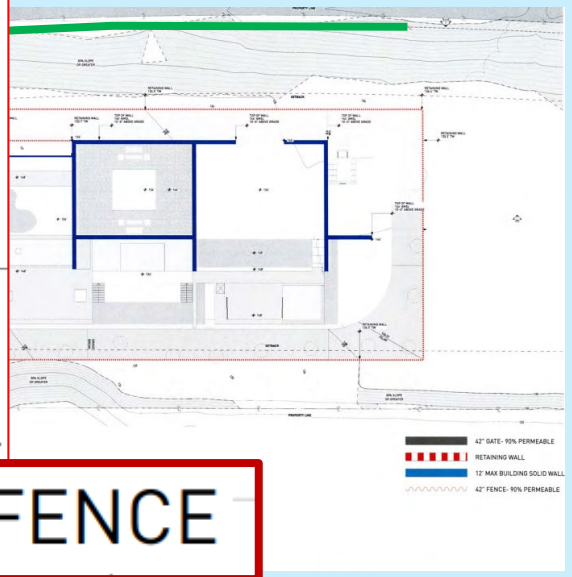
Page 1 of 5 Agenda Item 4.A.

The proposed 42-inch-high fence within the front yard setback would be visually permeable so as not to block views to the ocean.

Proposed Fencing Along PCH is 90% Visually Permeable







42" FENCE

42" GATE- 90% PER

RETAINING WALL

12' MAX BUILDING

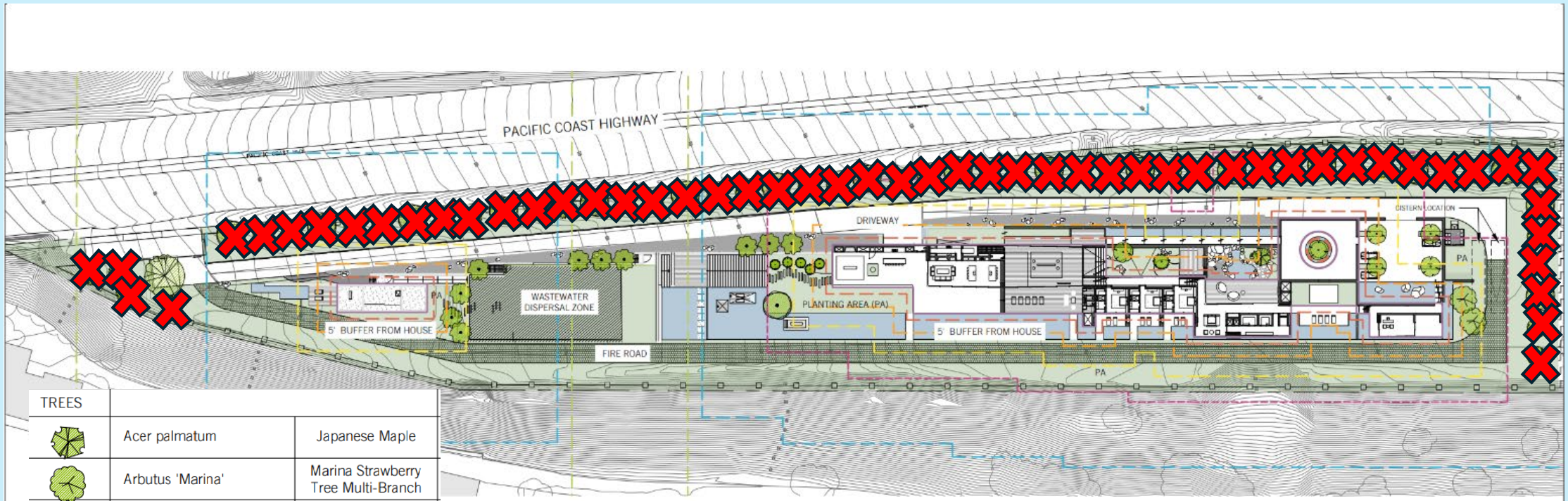
42" FENCE- 90% PE

SCAPE DWGS.

REVIEW.

90% VISUALLY PERMEABLE

Landscaping Plan Revised to Reduce Vegetation Heights



TREES		
	Acer palmatum	Japanese Maple
	Arbutus 'Marina'	Marina Strawberry Tree Multi-Branch
	Dracaena draco	Dragon Tree
	Dwarf Citrus	-
	Melaleuca nesophila	Pink Melaleuca
	Olea europaea 'Majestic Beauty'	Olive Tree
	Olea europaea 'Majestic Beauty'- field grown	Olive Tree
	Plumeria rubra 'White'	Plumeria
	Quercus agrifolia	Coast Live Oak
	Ulmus parvifolia	Chinese Elm

WUCOLS	ORIGIN	50' ZONE	FUEL ZONE
MOD	NON NATIVE	INSIDE	A
LOW	NON NATIVE	INSIDE	B
V LOW	NON NATIVE	INSIDE	A
MOD	NON NATIVE	INSIDE	A-10
LOW	NON NATIVE	OUTSIDE	A-10
LOW	NON NATIVE	OUTSIDE	A-15
LOW	NON NATIVE	OUTSIDE	A-15
LOW	NON NATIVE	INSIDE	A
V LOW	NATIVE	OUTSIDE	B-30

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'

Condition Added to Address Landscape Heights

Commission Agenda Report

Planning Commission Meeting 02-17-26 Item 4.A.

To: Chair Riddick and Members of the Planning Commission

Prepared by: Allison Cook, AICP, Contract Planner

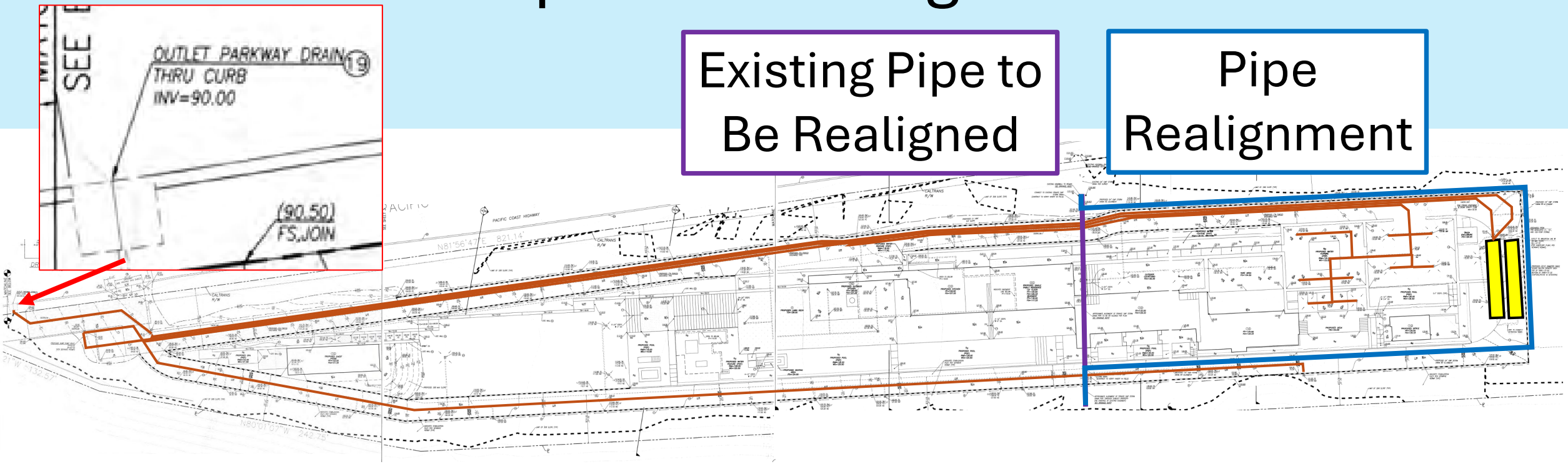
Reviewed by: Joseph Smith, AICP, Contract Principal Planner

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

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.

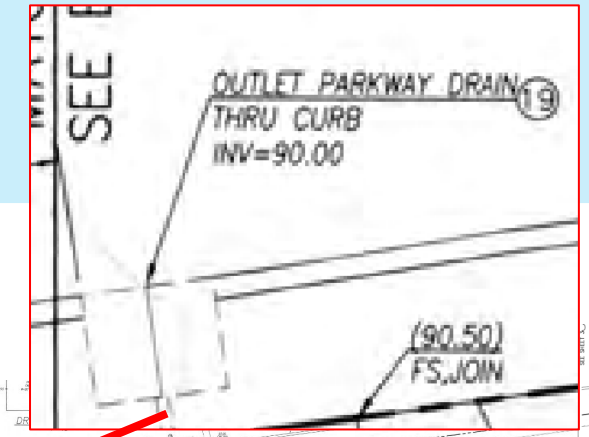
No. 19-012 to construct a new 9,219 square-foot, one-story, single-family residence, including a 1,000 square-foot subterranean two-car garage, 1,523 square-foot basement, 676 square-foot gym, swimming pools, spa, driveways, decks, landscape, water features, hardscape, grading, retaining walls, and onsite 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).

Proposed Drainage Plan

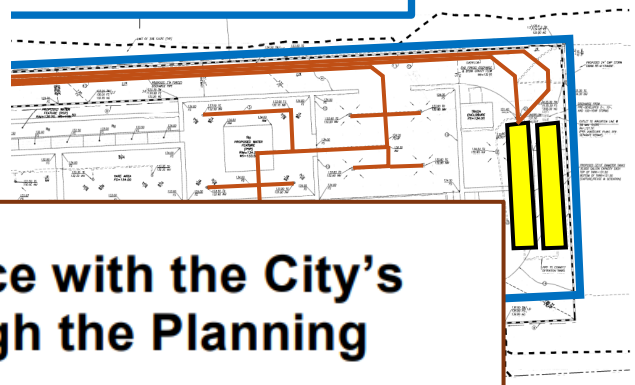


Revised Drainage Plan Discharges to PCH

Pr



Pipe
alignment



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

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

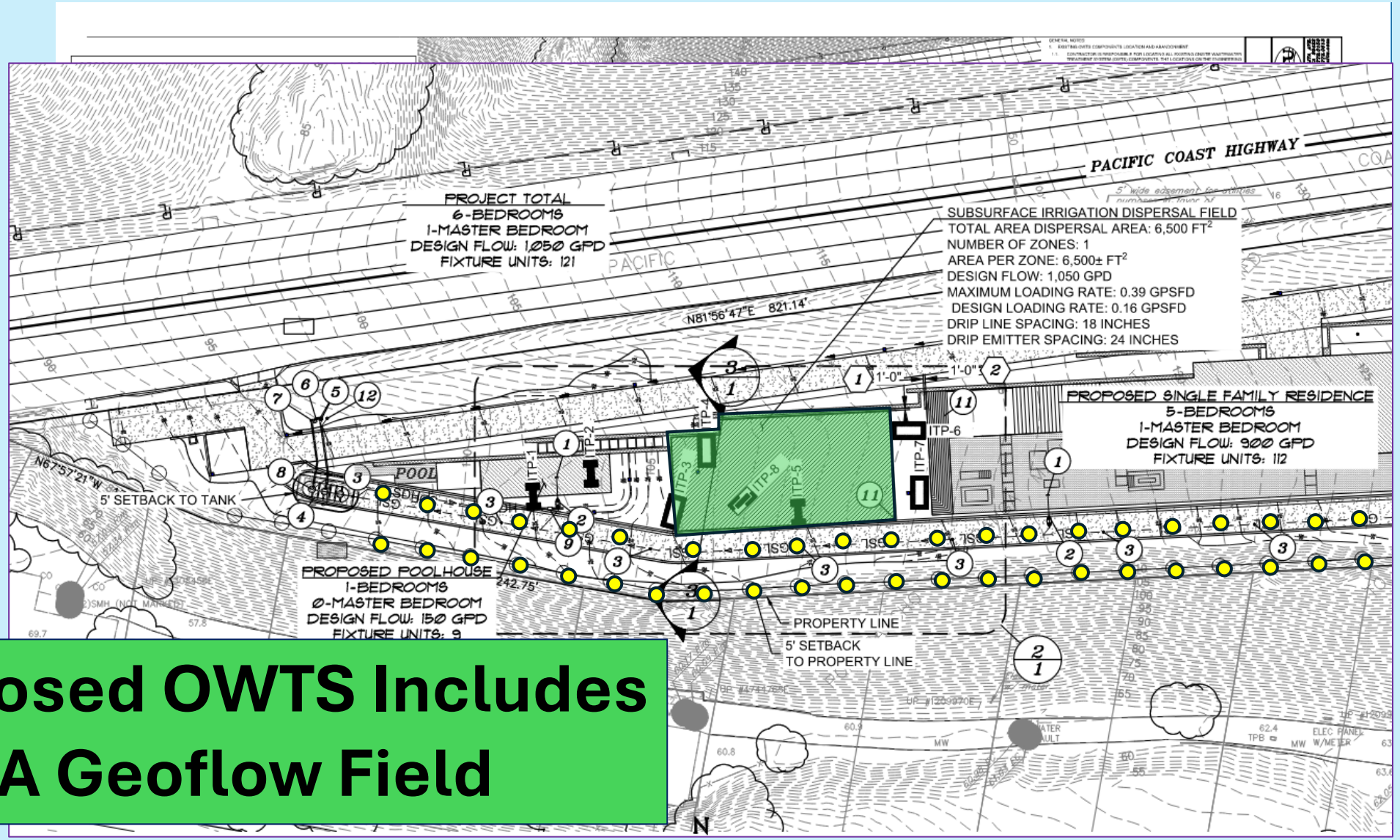
SIGNATURE

10/28/2025
DATE

Rev 120910

ATTACHMENT C

OWTS Located Outside of Landslides, Sited Behind Caissons, & *Microdoses* Effluent to Maximize Site Stability



Proposed OWTS Includes A Geoflow Field

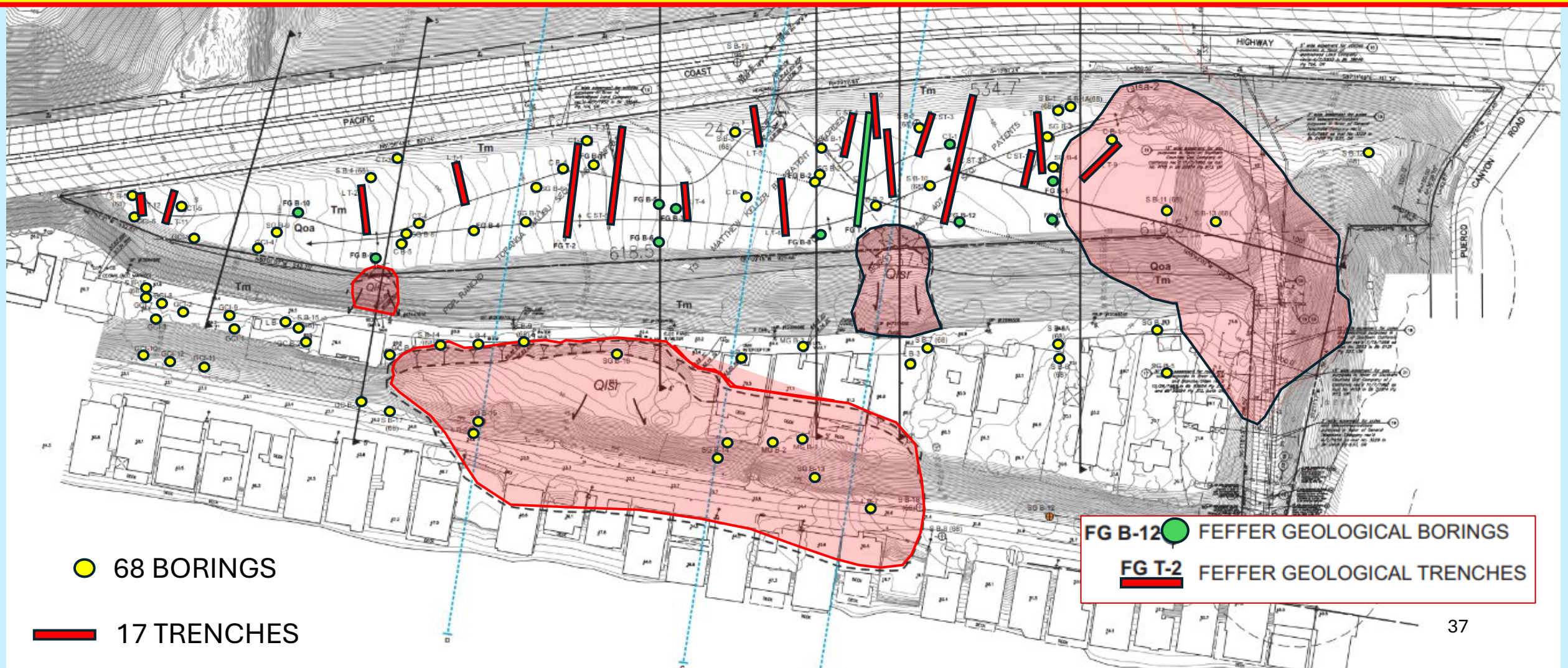
The proposed OWTS utilizes a subsurface drip dispersal system to Maximize Evapotranspiration



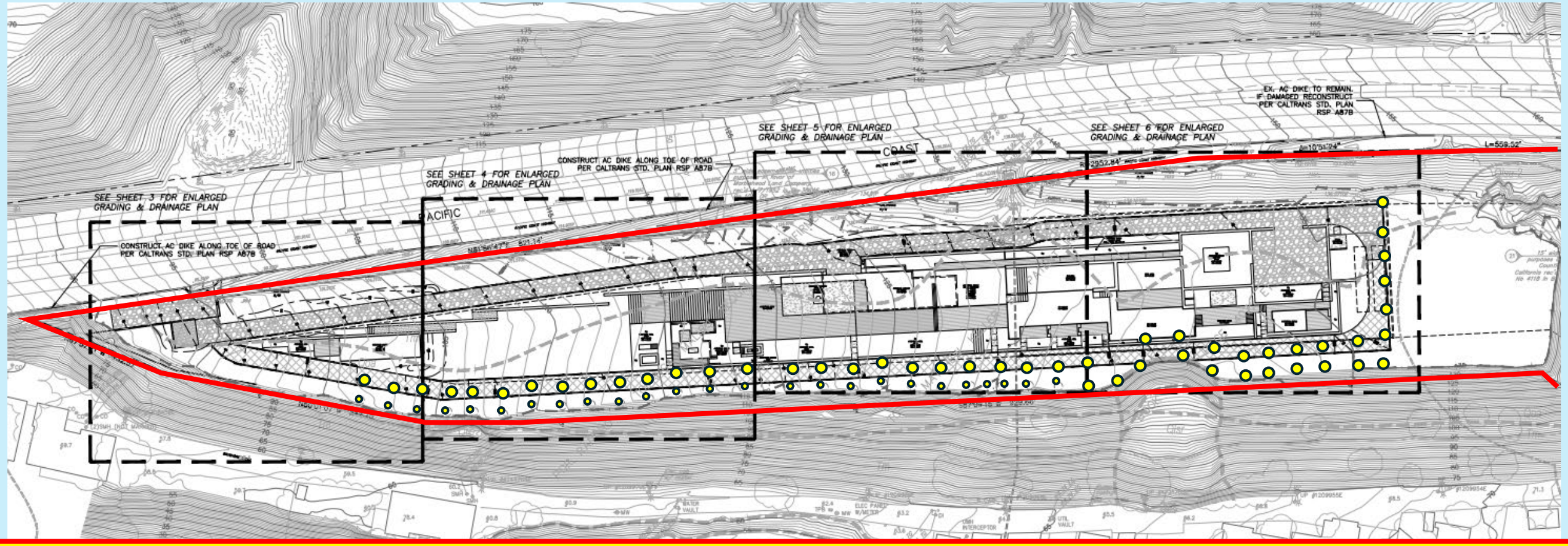


25200 PCH Geology Map

HAVE CONDUCTED HALF MILLION DOLLARS WORTH OF INVESTIGATIONS



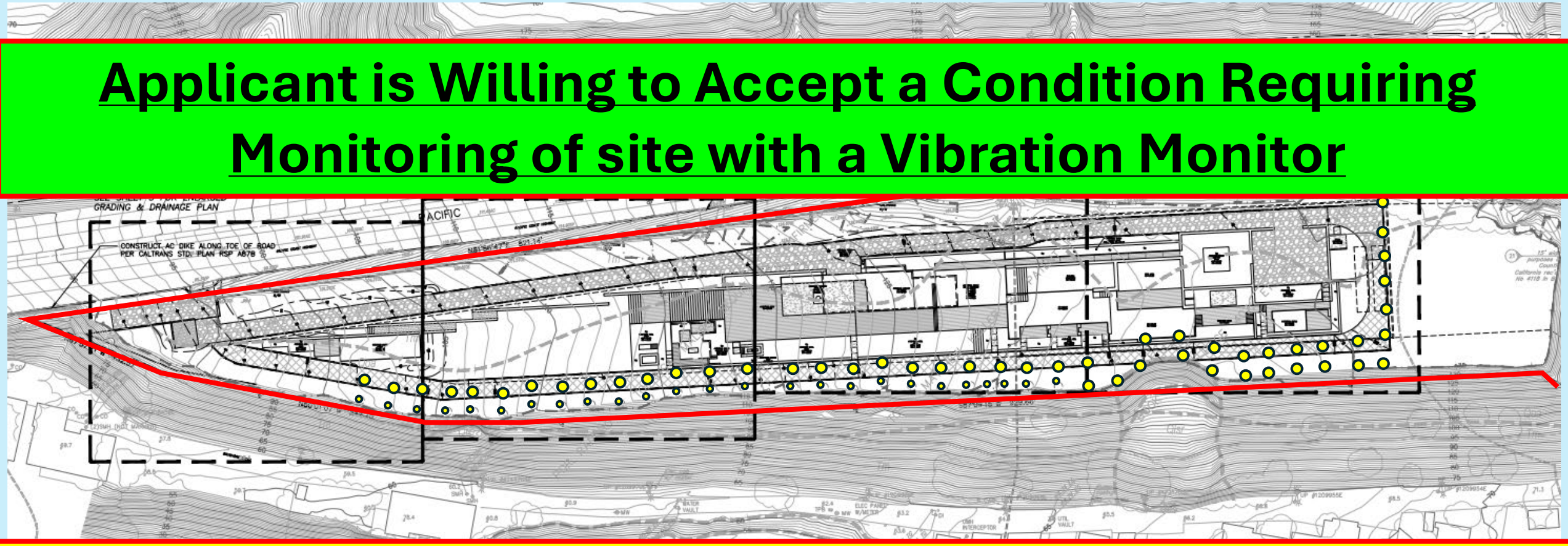
77 Caissons With Tiebacks



Proposed Caissons & Tiebacks Will Stabilize Building Site, Hillside to Bayshore Drive, and Pacific Coast Highway

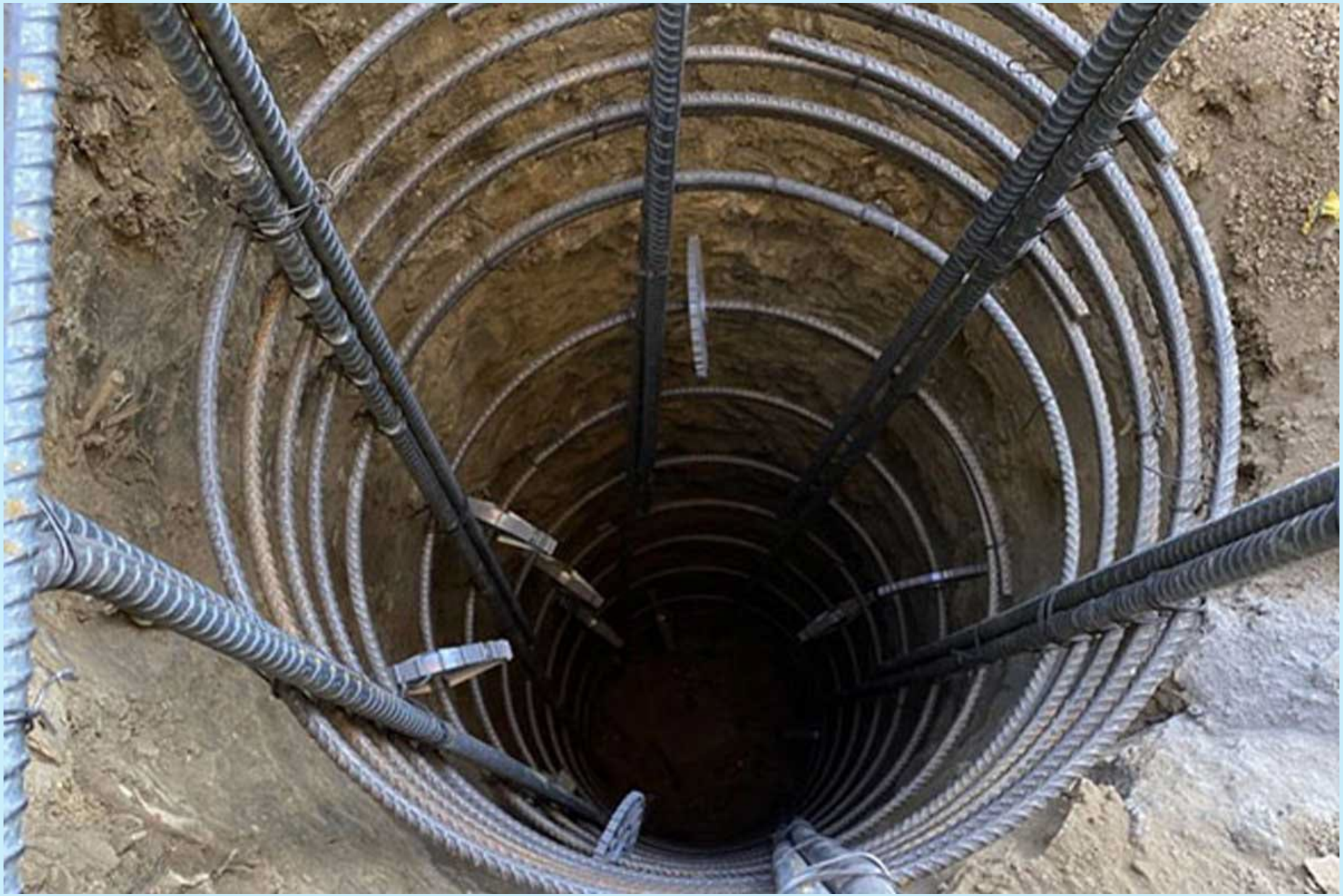
77 Caissons With Tiebacks

Applicant is Willing to Accept a Condition Requiring Monitoring of site with a Vibration Monitor



Proposed Caissons & Tiebacks Will Stabilize Building Site, Hillside to Bayshore Drive, and Pacific Coast Highway

$10 Million Worth of Caissons



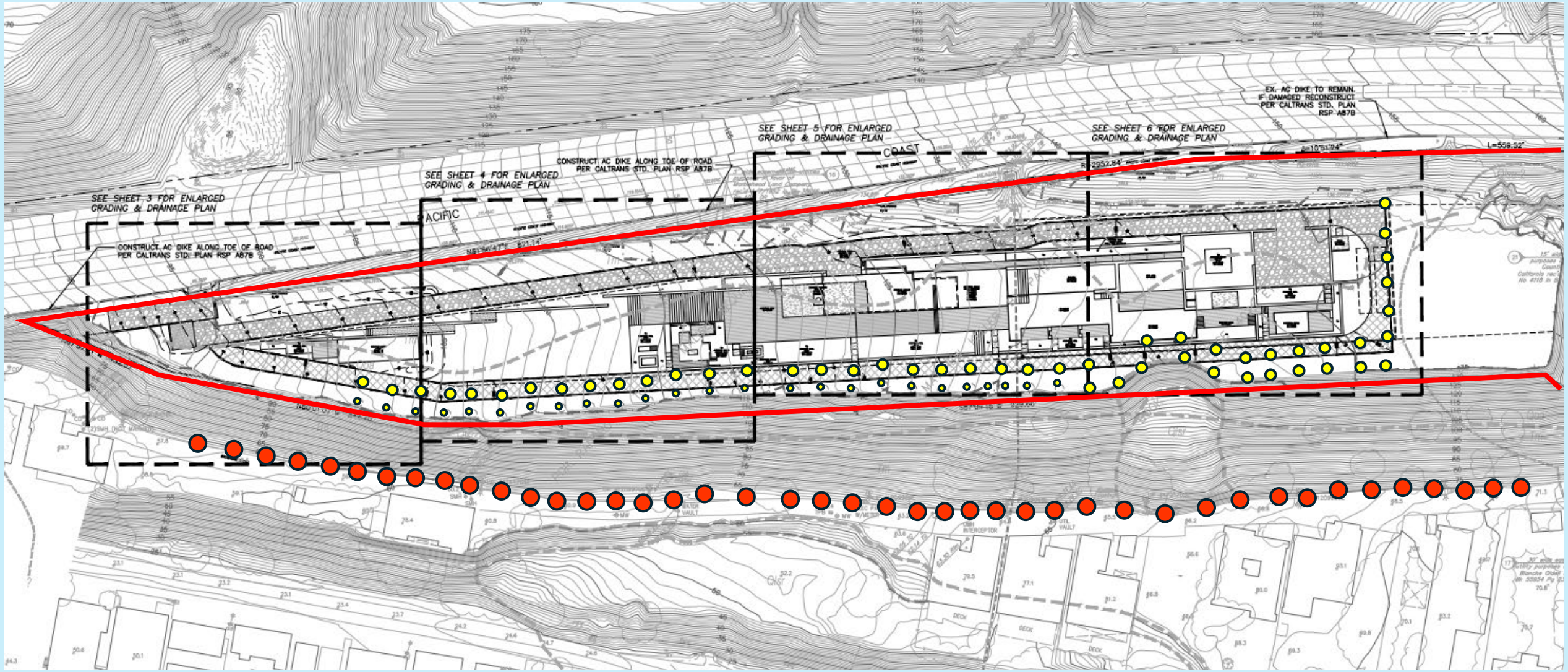
$10 Million Worth of Caissons



Ralph Jeffery Recommended on January 20th:

- Consider placing a row of caissons along the toe of the slope on Bayshore drive

Add More Caissons Along Bayshore Road…



Geology Findings Are Made

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

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.

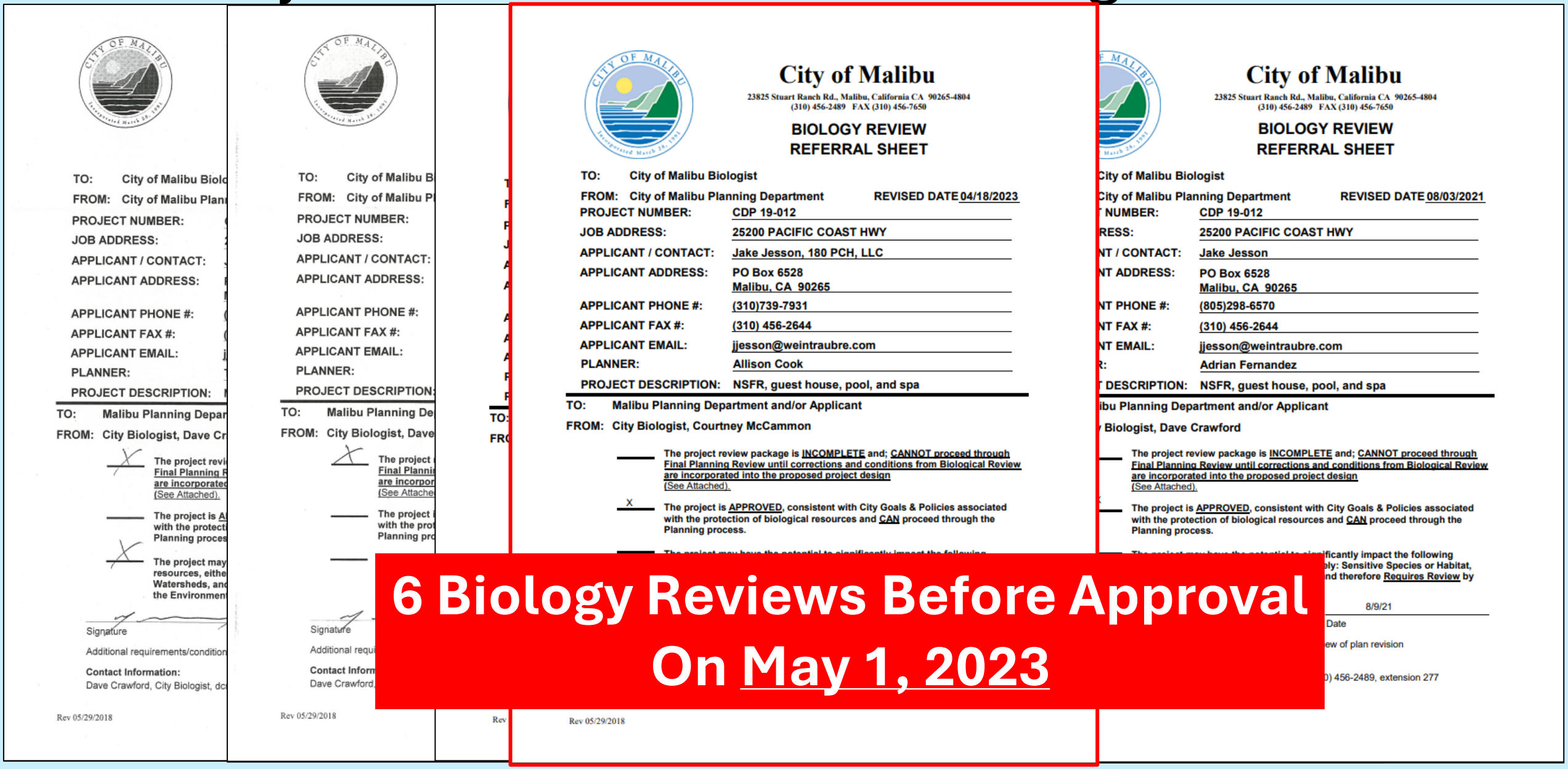
D. On April 18, 2024, the Planning Division visited the site and documented the story pole installation.

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.

EXHIBIT 1

Since Application was Submitted in 2019…

Project was NOT Rushed Through Review



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.

Rev 05/29/2018

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

BIOLOGY REVIEW REFERRAL SHEET

City of Malibu Biologist
City of Malibu Planning Department REVISED DATE 08/03/2021
NUMBER: CDP 19-012
RESS: 25200 PACIFIC COAST HWY
NT / CONTACT: Jake Jesson
NT ADDRESS: PO Box 6528 Malibu, CA 90265
NT PHONE #: (805)298-6570
NT FAX #: (310) 456-2644
NT EMAIL: jjesson@weintraubre.com
R: Adrian Fernandez
DESCRIPTION: NSFR, guest house, pool, and spa

ibu Planning Department and/or Applicant
Biologist, Dave Crawford

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).

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

ficantly impact the following
ly: Sensitive Species or Habitat,
nd therefore Requires Review by

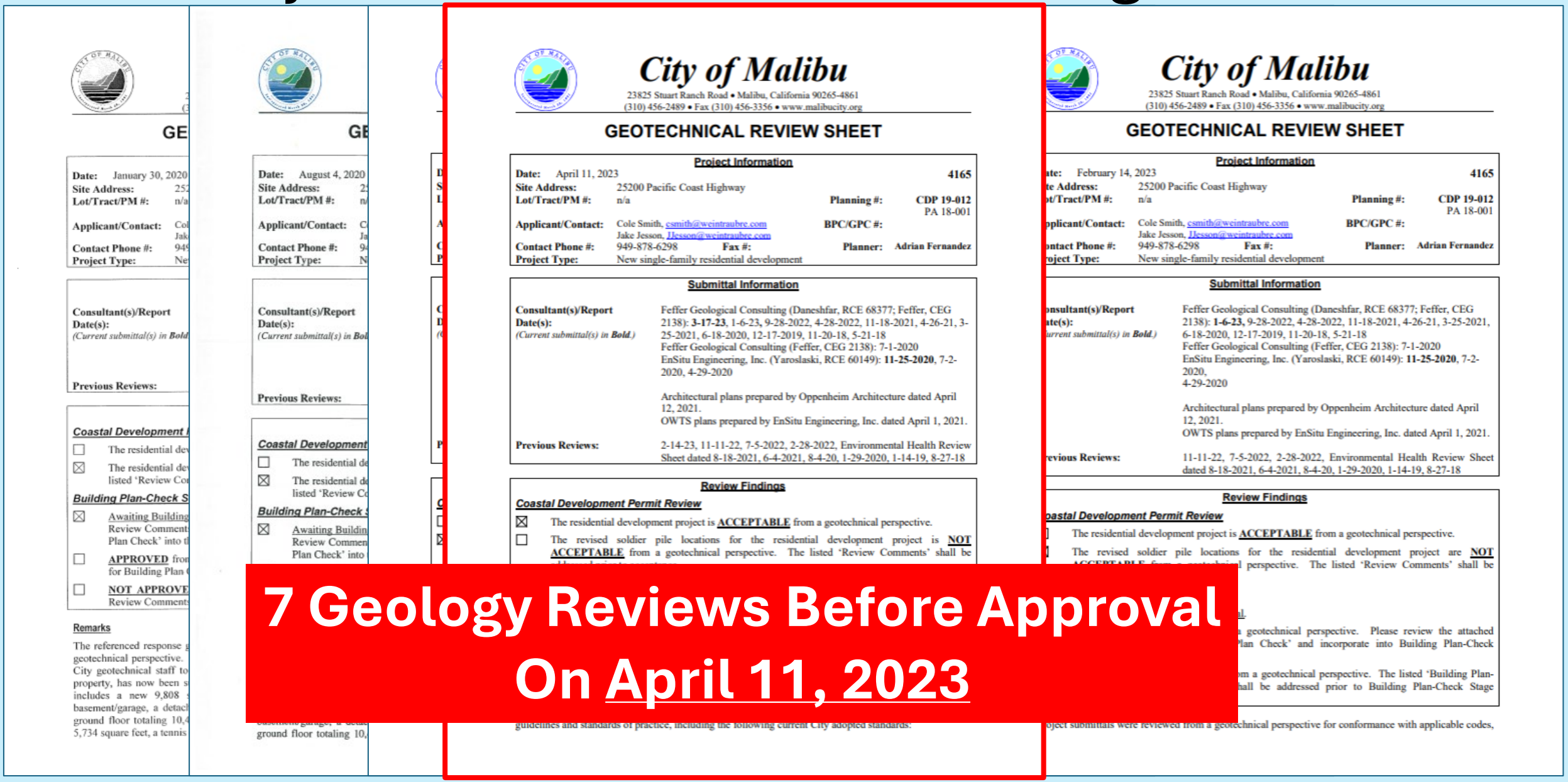
8/9/21
Date

ew of plan revision

0) 456-2489, extension 277

6 Biology Reviews Before Approval On May 1, 2023

Project was NOT Rushed Through Review



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

guidelines and standards of practice, including the following current City adopted standards:

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: February 14, 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): **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: 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 are **NOT** perspective. The listed 'Review Comments' shall be

geotechnical perspective. Please review the attached Plan Check' and incorporate into Building Plan-Check

m a geotechnical perspective. The listed 'Building Plan- hall be addressed prior to Building Plan-Check Stage

oject submittals were reviewed from a geotechnical perspective for conformance with applicable codes,

7 Geology Reviews Before Approval
On April 11, 2023

Project was NOT Rushed Through Review



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)

4/2/2025
Signature

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

The Environmental Health Specialist is available for consultation Tuesday and Thursday from 8:00 am to 11:00 am, or by calling (310) 456-2489, extension 4

Rev 141008

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

City of Malibu Environmental Health Administrator 8/3/2021
FROM: City of Malibu Planning Department REVISED DATE 06/02/2021
ECT NUMBER: CDP 19-012
ADDRESS: 25200 PACIFIC COAST HWY
ICANT / CONTACT: Jake Jesson
ICANT ADDRESS: PO Box 6528
Malibu, CA 90265
ICANT PHONE #: (805)298-6570
ICANT FAX #: (310) 456-2644
ICANT EMAIL: jjesson@weintraubre.com
ECT DESCRIPTION: NSFR, guest house, pool, and spa

Malibu Planning Department and/or Applicant
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.

RED
attached hereto) ☐ REQUIRED (not attached)

8/18/2021
Date

nvironmental Health Specialist to determine whether or not an Plan approval is required.

acted Tuesday and Thursday from 8:00 am to 11:00 am, or by

Rev 141008

6 Environmental Health Reviews Before Approval On April 2, 2025

Project was NOT Rushed Through Review

March 20, 2019

Jake Jesson
P.O. Box 6528
Malibu, CA 90265

Reference: Coastal D
25200 Pa
An applic
residence
guest hou
a new ons

Dear Mr. Jesson:

On **March 7, 2019**, th
Planning Department
Residential - Two Acre
within the Appeal Juris
partially mapped Enviro
a lot merger or the prop
Appeal Jurisdiction or
ESHA requirements ap

Planning Department s
plans and other docum
INCOMPLETE and req

To continue processing

1. Please provi
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certificate
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required to
designed.
Certificate

2. Pursuant t
Section 6.
public roa
descends

November 12, 2019

Jake Jesson
P.O. Box 6528
Malibu, CA 90265

Reference: Coastal D
25200 Pa
An applic
residence
house, d
water fea
wastewat
walls

Dear Mr. Jesson:

On **March 7, 2019**, th
Planning Department
Residential - Two Acre
within the Appeal Juri
partially mapped Enviro
a lot merger or the pro
Appeal Jurisdiction or
ESHA requirements ap

Planning Department
documents submitted
that the information is I

To continue processing

Feb

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Plan
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To

City of Malibu

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

September 13,2023

Jake Jesson
Senior Project Manager
Weintraub Real Estate Group
P.O. Box 6528
Malibu, CA 90264
jjesson@weintraubre.com

Reference: **Coastal Development Permit (CDP) No. 19-012**
Certificate of Compliance (COC) No. 21-004
Variance (VAR) No. 23-030 for retaining wall height
Site Plan Review (SPR) No. 23-027 for non-visually permeable walls
25200 Pacific Coast Highway
APN 4459-013-021

An application for the construction of a new one-story single-family residence, subterranean garage and basement, detached guest house, swimming pool and spa, outdoor kitchen, onsite wastewater treatment system, driveways, grading, hardscape, water features, landscape, and associated improvements. The application includes a variance request to increase the maximum allowed six-foot retaining wall height up to 8½ feet, and a site plan review to construct 12-foot high, free-standing walls that are not visually permeable.

DETERMINATION OF NOTICE AND HEARING REQUIREMENTS

Dear Mr. Jesson:

Pursuant to Local Coastal Program (LCP) Local Implementation Plan (LIP) § 13.10.1(A), you are hereby notified that the following notice and hearing requirements are applicable to your development application:

Page 1 of 5

City of Malibu

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

24, 2022

Jesson
Box 6528
u, CA 90265

rence: **Coastal Development Permit No. 19-012**
Conditional Certificate of Compliance No. 21-004
25200 Pacific Coast Highway (APNs 4459-013-021 and 4459-014-018)
An application for the construction of a new single-story, single-family residence with a subterranean garage and basement, detached guest house, detached gym, detached office, outdoor kitchen, swimming pool, water features, driveways, retaining walls, and installation of a new onsite wastewater treatment system; including a variance for height of retaining walls

Mr. Jesson:

March 7, 2019, the application listed above was submitted to the City of Malibu
ning Department for processing. The subject parcels are zoned RR-2 (Rural
dential - Two Acres). For your reference, the subject parcels are partially located
the Appeal Jurisdiction of the California Coastal Commission (CCC) and are
ally mapped Environmentally Sensitive Habitat Area (ESHA). The proposed project
be appealed to the CCC.

ning Department staff has completed a review of the revised project plans
itted on April 1, 2022, and determined on **June 24, 2022** that the information is
MPLETE and requires additional information.

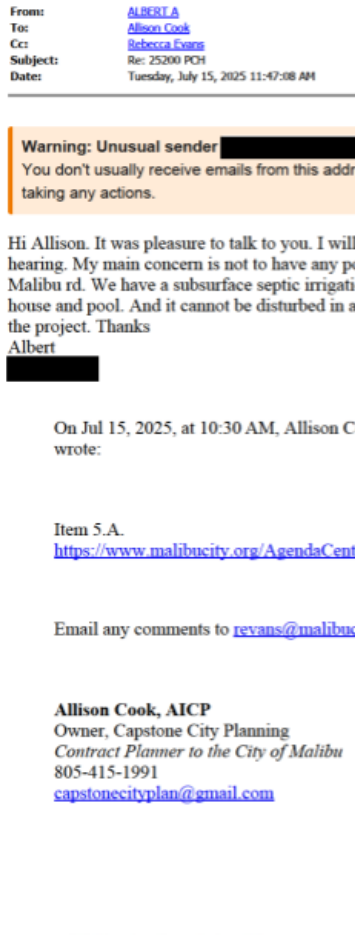
llowing items:

TGYVC) indicates none of
However, the majority of
grading as indicated in the

mpaction (which must be
safety grading (includes
artment [LACFD] driveway
ing and Fire Department

6 Planning Reviews Before
Deemed Complete On December 11, 2023

Project Has Received Letters of Support from Neighbors



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 addr
taking any actions.

Hi Allison. It was pleasure to talk to you. I will
hearing. My main concern is not to have any p
Malibu rd. We have a subsurface septic irrigati
house and pool. And it cannot be disturbed in a
the project. Thanks
Albert
[redacted]

On Jul 15, 2025, at 10:30 AM, Allison C
wrote:

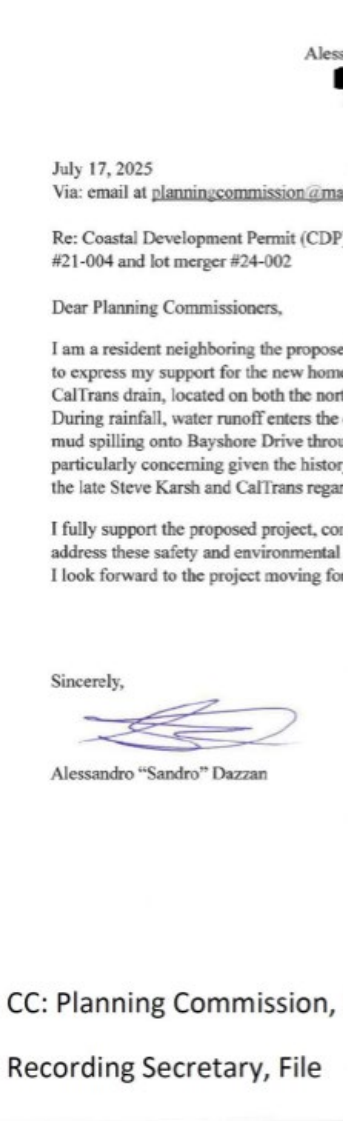
Item 5.A.
https://www.malibucity.org/AgendaCent

Email any comments to revans@malibu

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



Ales
[redacted]

July 17, 2025
Via: email at planningcommission@ma

Re: Coastal Development Permit (CDP
#21-004 and lot merger #24-002

Dear Planning Commissioners,

I am a resident neighboring the propose
to express my support for the new hom
CalTrans drain, located on both the nor
During rainfall, water runoff enters the
mud spilling onto Bayshore Drive throu
particularly concerning given the histor
the late Steve Karsh and CalTrans regar

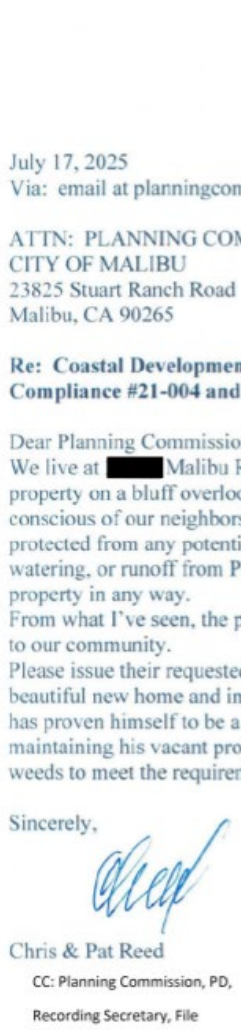
I fully support the proposed project, co
address these safety and environmental
I look forward to the project moving fo

Sincerely,

Alessandro "Sandro" Dazzan

CC: Planning Commission,

Recording Secretary, File



July 17, 2025
Via: email at planningcon

ATTN: PLANNING CO
CITY OF MALIBU
23825 Stuart Ranch Road
Malibu, CA 90265

**Re: Coastal Developmen
Compliance #21-004 and**

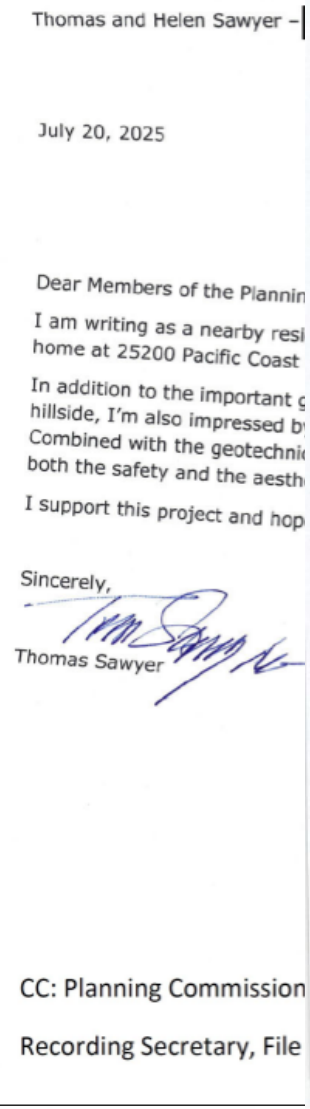
Dear Planning Commissio
We live at [redacted] Malibu
property on a bluff overlo
conscious of our neighbor
protected from any potenti
watering, or runoff from P
property in any way.
From what I've seen, the p
to our community.
Please issue their requeste
beautiful new home and in
has proven himself to be a
maintaining his vacant pro
weeds to meet the requirer

Sincerely,

Chris & Pat Reed

CC: Planning Commission, PD,

Recording Secretary, File



Thomas and Helen Sawyer –

July 20, 2025

Dear Members of the Plannin

I am writing as a nearby resi
home at 25200 Pacific Coast

In addition to the important g
hillside, I'm also impressed b
Combined with the geotechni
both the safety and the aesth

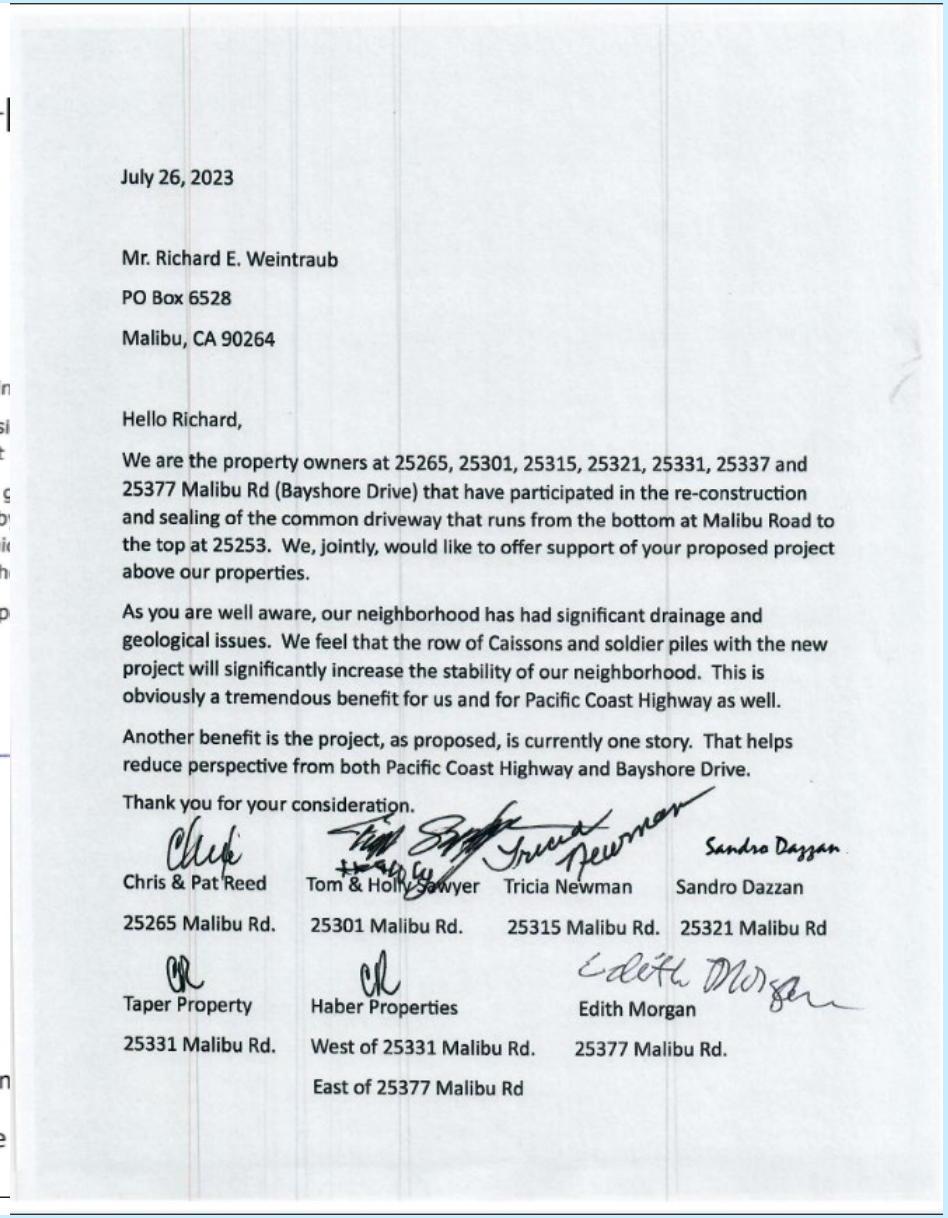
I support this project and hop

Sincerely,

Thomas Sawyer

CC: Planning Commission

Recording Secretary, File



July 26, 2023

Mr. Richard E. Weintraub
PO Box 6528
Malibu, CA 90264

Hello Richard,

We are the property owners at 25265, 25301, 25315, 25321, 25331, 25337 and 25377 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.

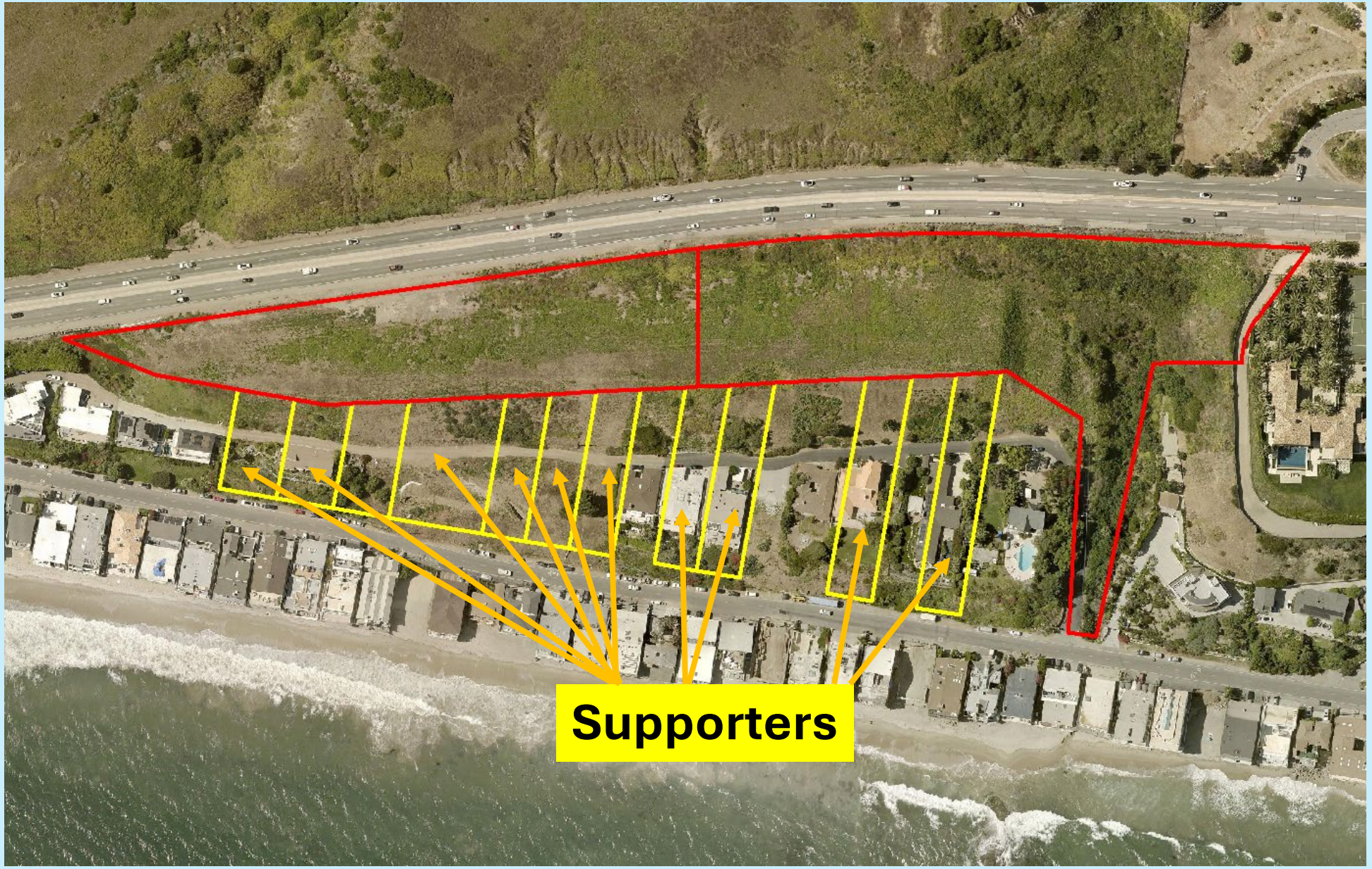
As you are well aware, our neighborhood has had significant drainage and geological issues. We feel that the row of Caissons and soldier piles with the new project will significantly increase the stability of our neighborhood. This is obviously a tremendous benefit for us and for Pacific Coast Highway 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	Tom & Holly Sawyer	Tricia Newman	Sandro Dazzan
25265 Malibu Rd.	25301 Malibu Rd.	25315 Malibu Rd.	25321 Malibu Rd
Taper Property	Haber Properties	Edith Morgan	
25331 Malibu Rd.	West of 25331 Malibu Rd. East of 25377 Malibu Rd	25377 Malibu Rd.	

Project Has Received Letters of Support from Neighbors



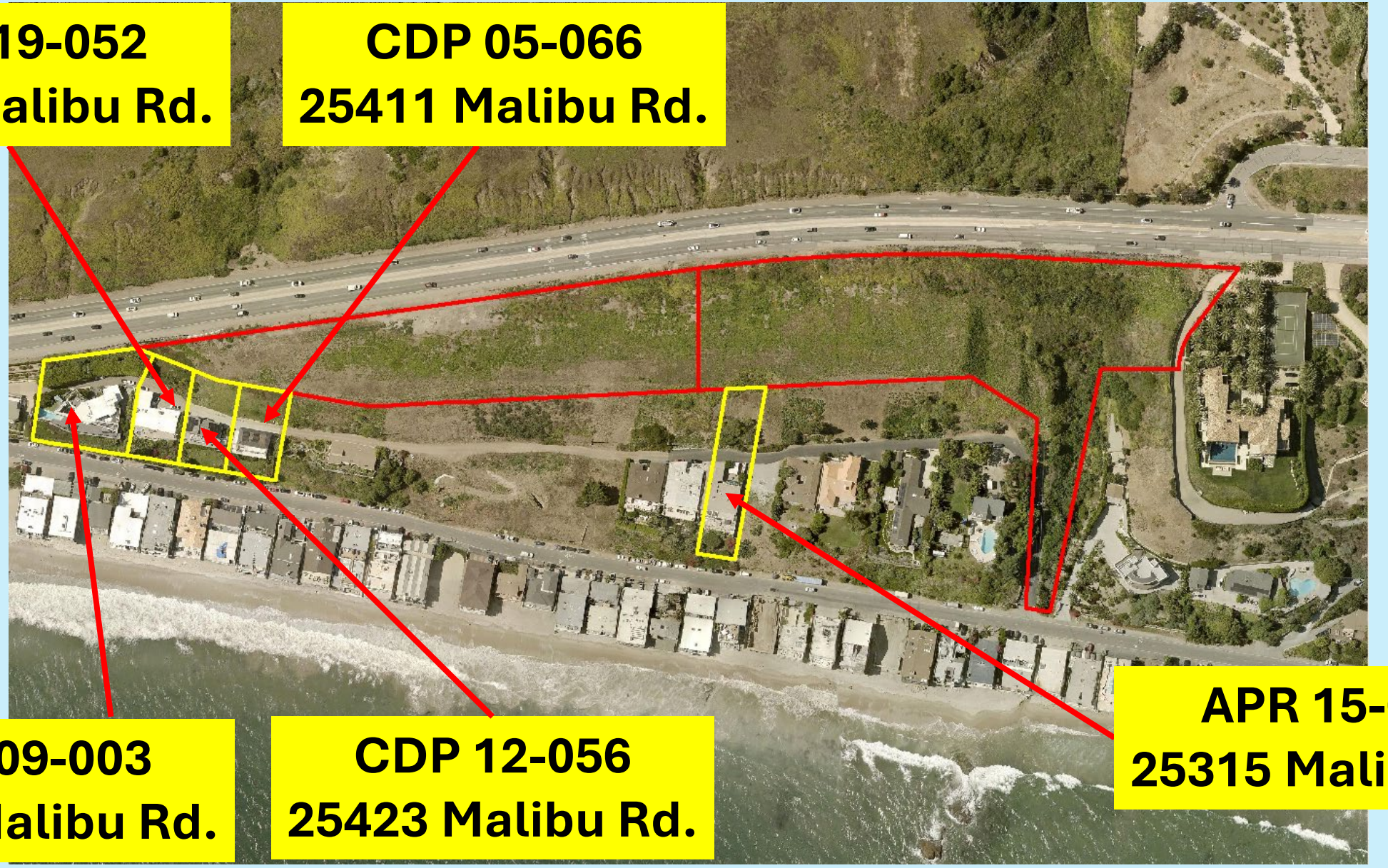
CONCLUSION

- Property Historically Cleared Dating Back to Before the Coastal Act
- Project will Improve Site & Area Stability by Installing 77 Caissons
- The Proposed Home is Consistent in Size and Less Height than Average PCH Facing Homes Both Before and After Cityhood
- The Applicant has Worked with the City and made Extensive Plan Revisions to avoid any Significant Adverse Impacts To Public & Private Views
- The Project is a Clean Sheets Project Without any Discretionary Requests
- We Accept a Condition to Record a Deed Restriction Prohibiting the Use of the Residence as a Rehab Facility

THANK YOU

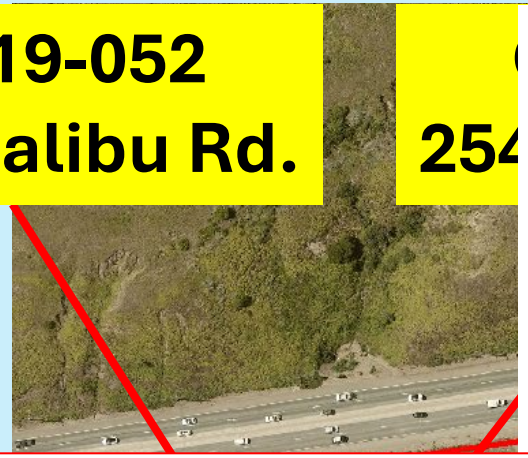
POCKET SLIDES

Project Not on a Coastal Bluff



Project Not on a Coastal Bluff

CDP 19-052
25429 Malibu Rd.





Planning Commission Meeting 09-20-21 **Item 4.A.**

CITY OF MALIBU — Incorporated March 28, 1991

Commission Agenda Report

To: Chair Jennings and Members of the Planning Commission

Prepared by: Adrian Fernandez, Assistant Planning Director

Reviewed: Richard Mollica, Planning Director

Date prepared: September 9, 2021 Meeting date: September 20, 2021

Subject: Coastal Development Permit No. 19-052, Variance Nos. 19-047, 19-048 and 19-060, Demolition Permit No. 20-020, and Code Violation No.

J. Shoreline and Bluff Development (LIP Chapter 10)

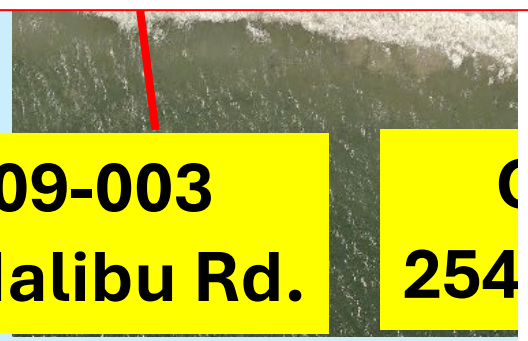
LIP Chapter 10 applies to land that is located on or along the shoreline, a coastal bluff or bluff-top fronting the shoreline. The proposed project is not located near the shore. Therefore, LIP Chapter 10 findings do not apply.

No. 19-048 for the reduction of the required side yard setbacks and cumulative side yard setbacks, and VAR No. 19-060 from the City's geotechnical standards for factor of safety located in the Rural Residential-Two Acre (RR-2) zoning district at 25429 Malibu Road (The Celestial Trust).

DISCUSSION: The subject item was scheduled for the May 3, 2021 Regular Planning Commission meeting. The item was then continued to permit staff additional time to research whether a variance for factor of safety applied to the project. Since then, VAR No. 19-060 has been assigned to the project for the replacement residence not to provide

Page 1 of 25 Agenda Item 4.A.

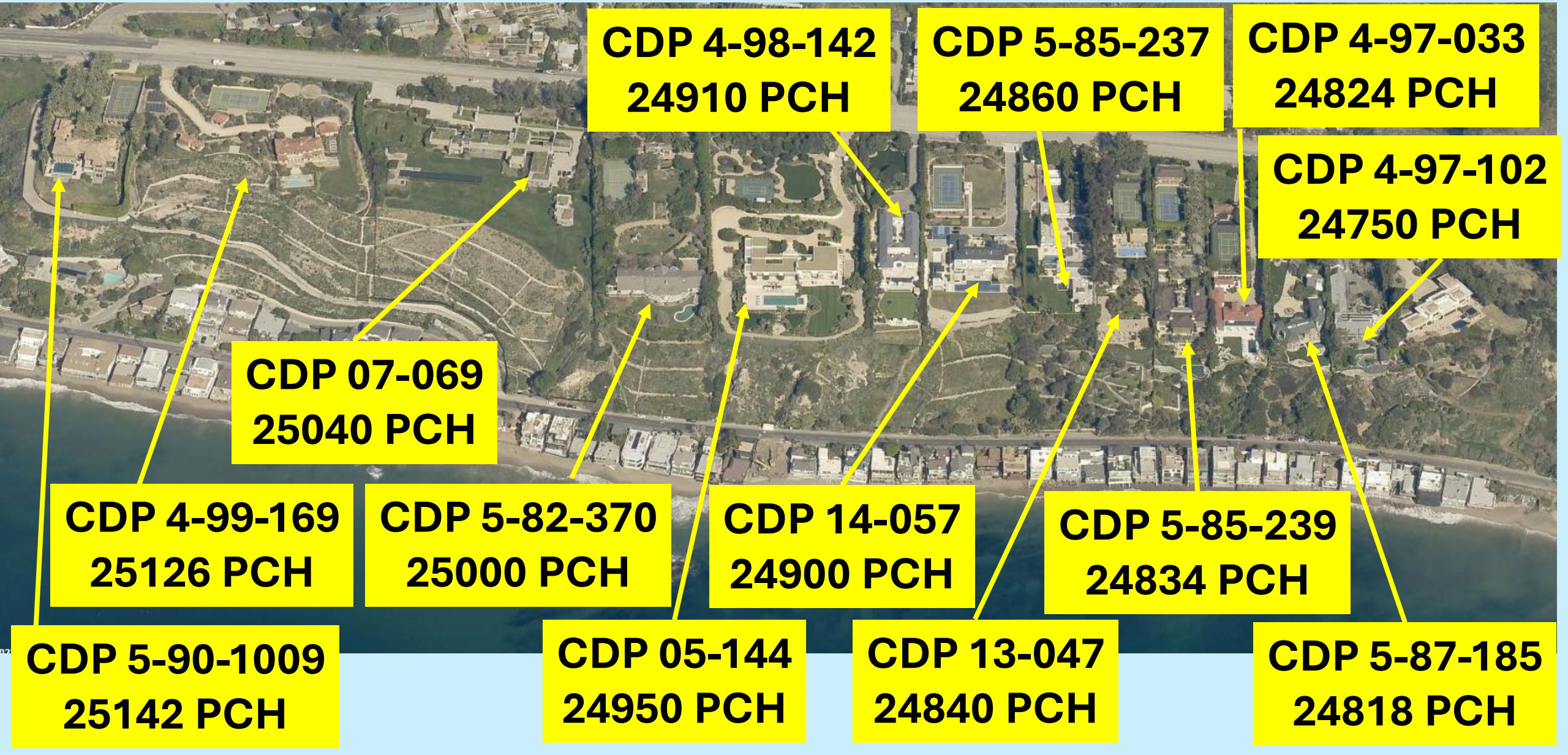
CDP 09-003
25349 Malibu Rd.





APR 15-069
25315 Malibu Rd.

13 Projects Approved with Class 3 Cat. Exemption



Berm Was Constructed by CALTRANS…

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

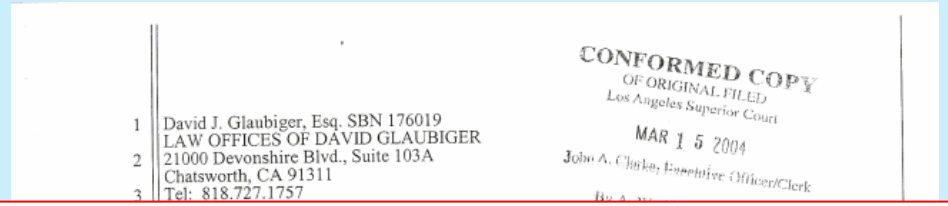
Reviewed by: Joseph Smith, AICP, Contract Principal Planner

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

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.

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).

...Pursuant to a 2004 Lawsuit



David J. Glaubiger, Esq. SBN 176019
LAW OFFICES OF DAVID GLAUBIGER
21000 Devonshire Blvd., Suite 103A
Chatsworth, CA 91311
Tel: 818.727.1757

CONFORMED COPY
OF ORIGINAL FILED
Los Angeles Superior Court
MAR 15 2004
John A. Clarke, Executive Officer/Clerk

Ninth Cause of Action - Tortious Diversion of Water: Defendant Caltrans

20. For general damages as alleged herein and according to proof;

21. For an order requiring defendant to show cause, if any, why defendant should not be enjoined as hereinafter set forth, during the pendancy of this action;

22. For a temporary restraining order, a preliminary injunction, and a permanent injunction, all requiring defendant and its agents, servants, and employees, and all persons, acting under, in concert with, or for defendant:

a) To provide proper facilities, or any facilities, for handling the proper disposal of waters draining through HD-10 so as to prevent their overflowage and seepage onto Plaintiff Property and the resulting damage to Plaintiff Property.

b) To properly construct, maintain and make repairs to HD-10 and Catch Basin Nos. 1, 2 and 3.

c) To repair the HD-10 rupture.

Two Properties Have PVDs Within 1,000 Feet



- 3775 Puerco Canyon
- 3945 Puerco Canyon
- These PVDs are Oriented Towards the Subject Property

MMC Section 17.40.040(A)17 states:
"The primary view corridor shall exclude the first 18 feet of the proposed building height as measured from the existing natural grade or finish grade whichever results in a lower building height."

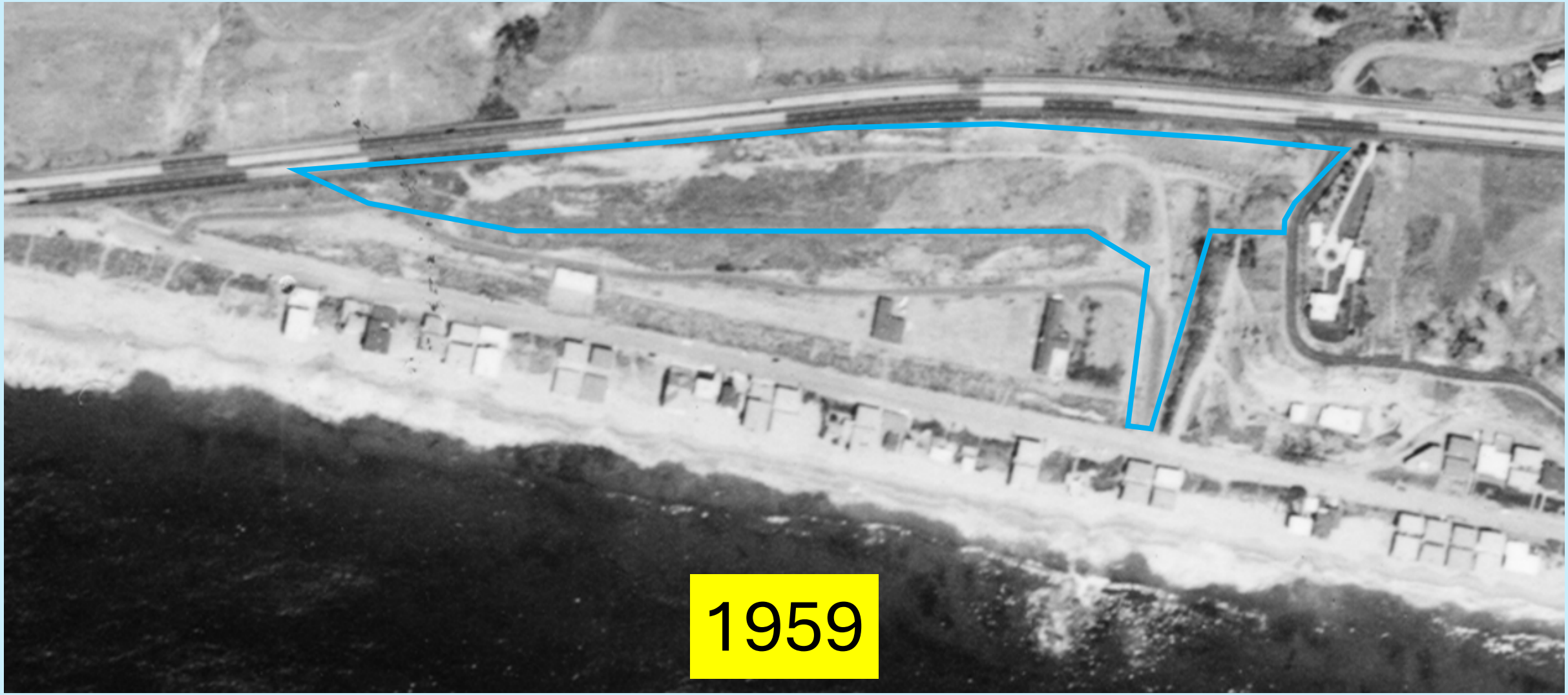
3775 Puerco Canyon Road



3945 Puerco Canyon Road



Property Historically Cleared



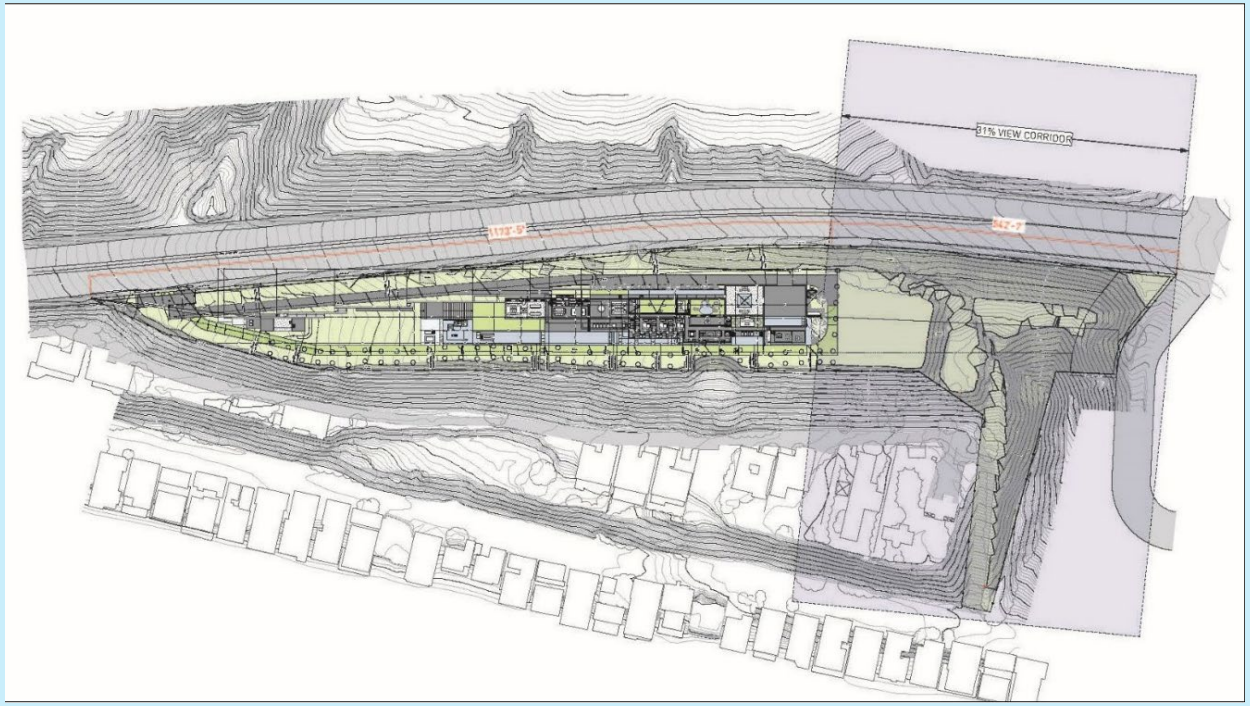
Property Historically Cleared



Proposed Project History

- CDP 19-012 Submitted **March 7, 2019,** for a new SFR with Basement/Garage, and a Guest House.
- Project Went Through Multiple Redesigns to Respond to Planning & Departmental Comments
- Project was to Appear at the May 20, 2024, Planning Commission Hearing. Item Postponed for Additional Reductions as Requested by Staff.
- Applicants Worked With Staff to Address Concerns before Returning to Hearing Tonight with a Recommendation of **Approval**.

Original CDP Application



- Project Originally Proposed an 18 Foot tall SFR and 15 Foot Tall Guest House
- Project Originally Contained Two Discretionary Requests:
- A Variance for Construction of Retaining Walls Over 6 Feet for the Fire Dept. Turnaround
- A Site Plan Review for Freestanding Walls Over 6 Feet

Constraints Map



Constraints Map



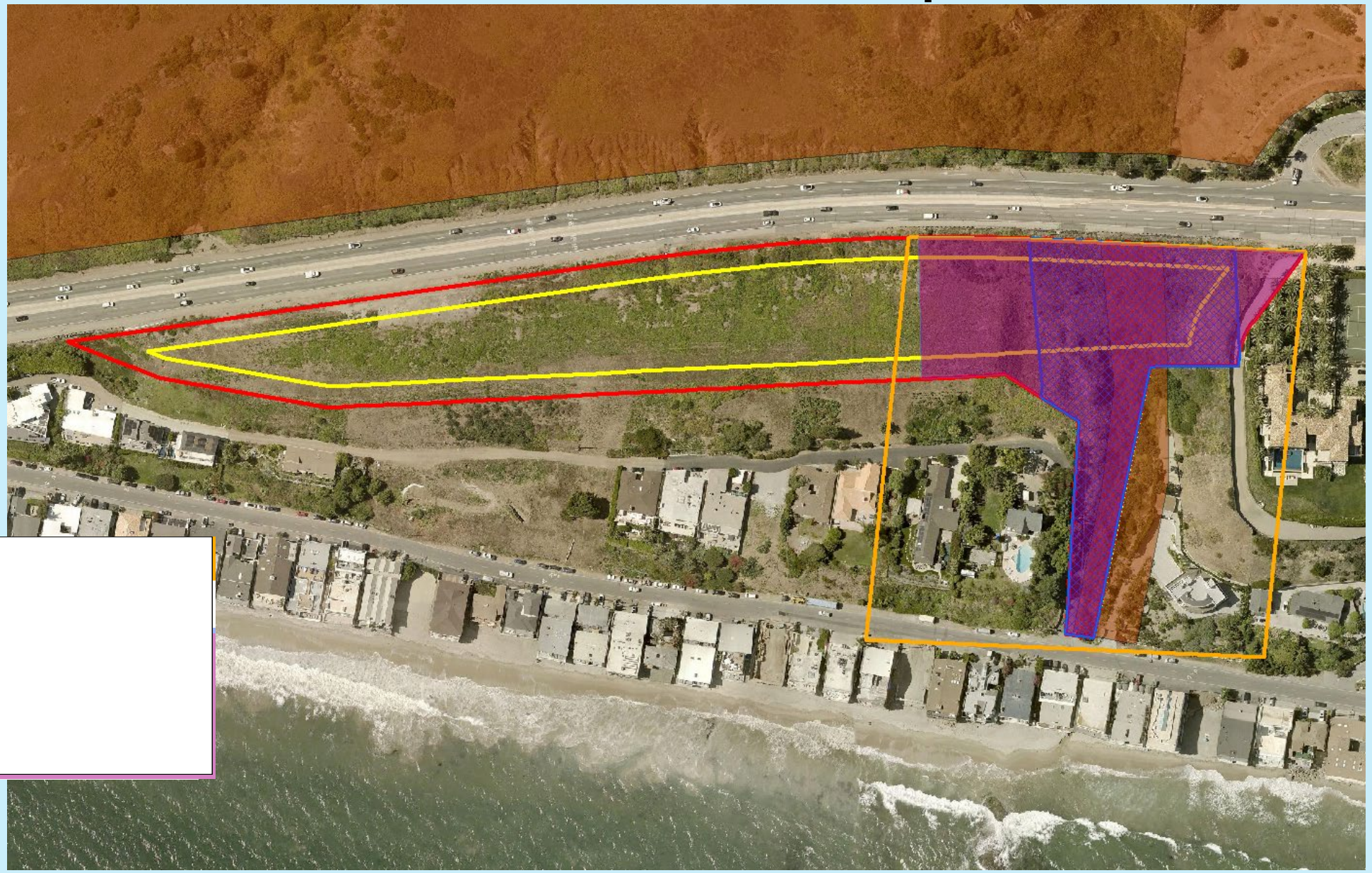
Constraints Map



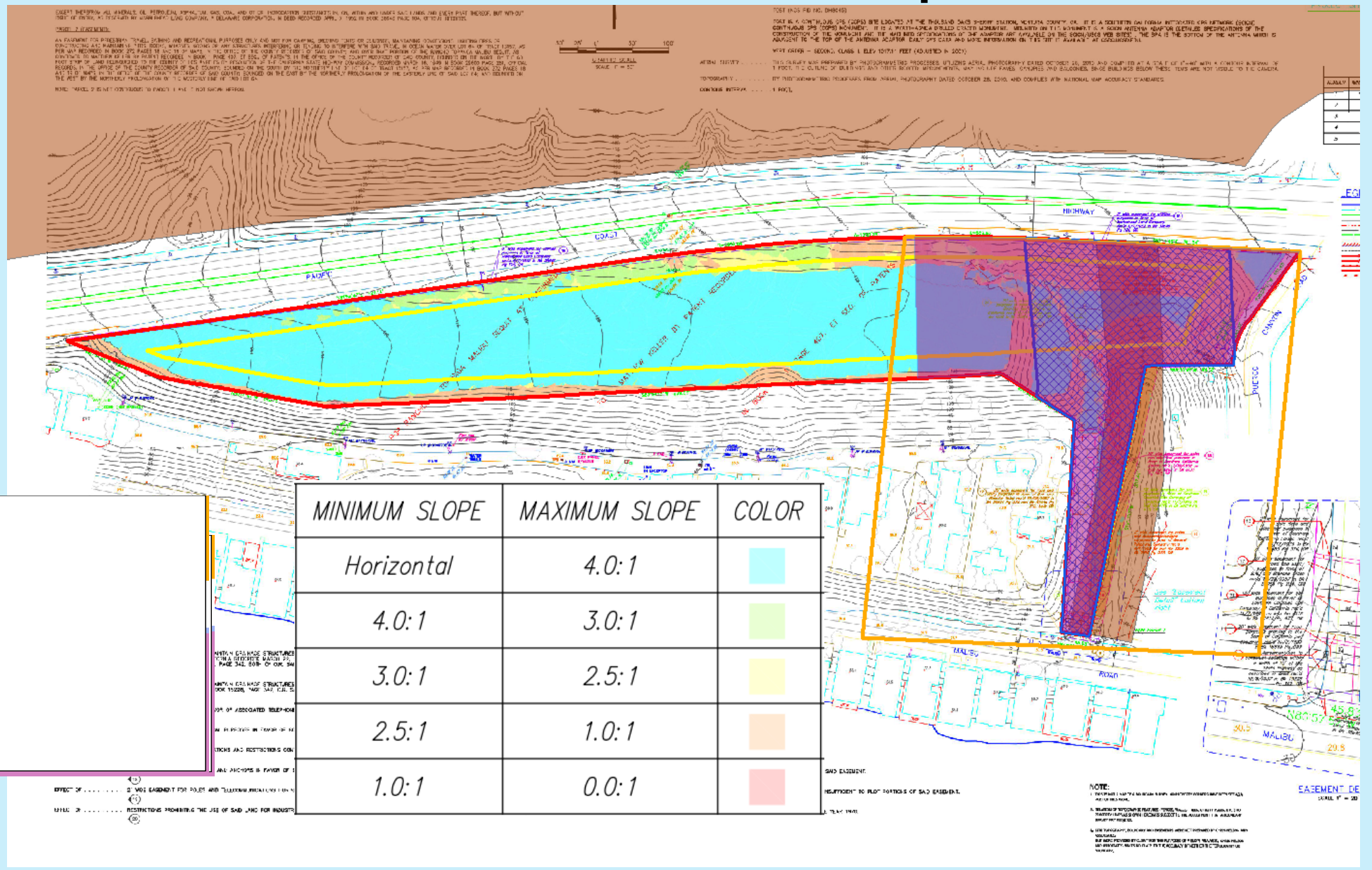
Constraints Map



Constraints Map

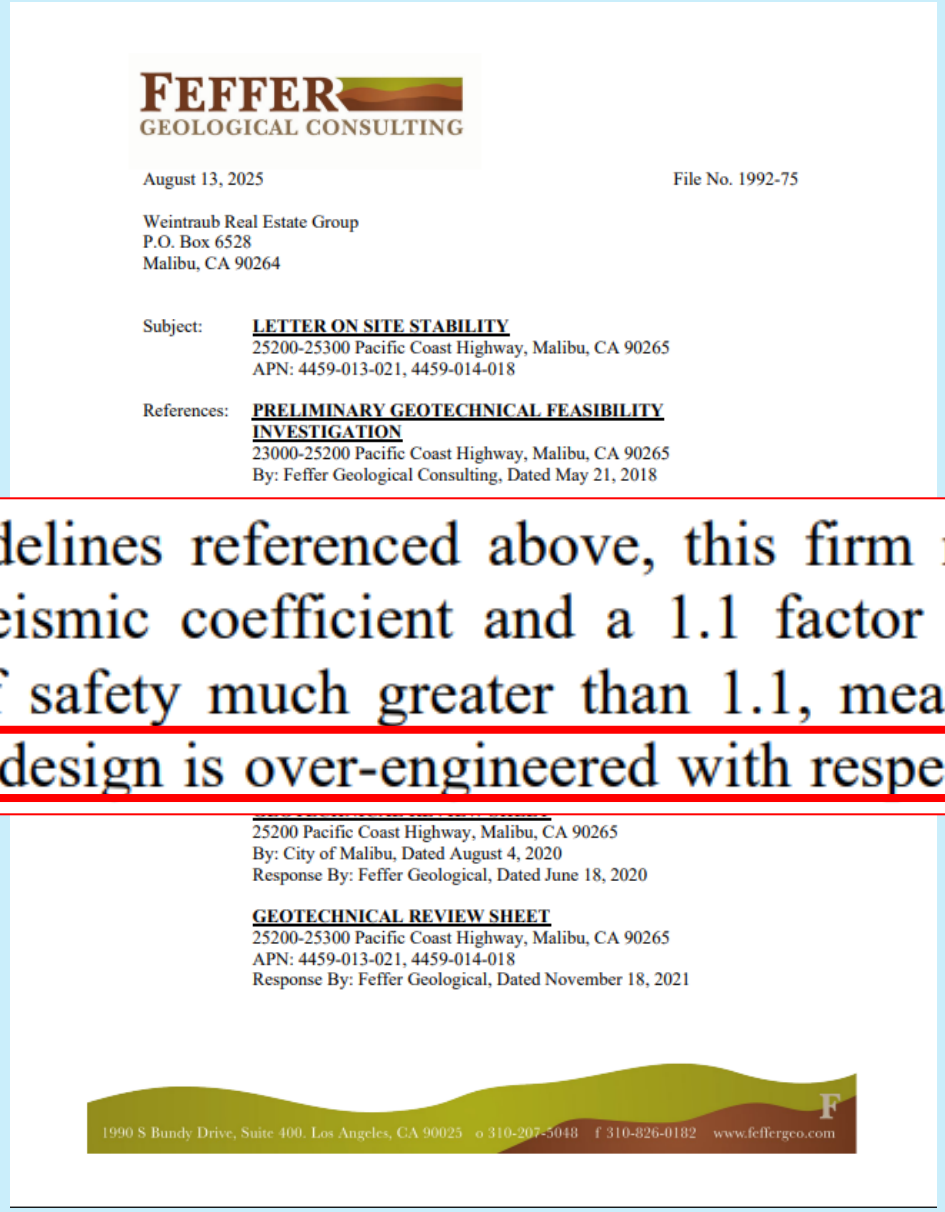


Constraints Map



MINIMUM SLOPE	MAXIMUM SLOPE	COLOR
Horizontal	4.0:1	
4.0:1	3.0:1	
3.0:1	2.5:1	
2.5:1	1.0:1	
1.0:1	0.0:1	

Project Meets LIP 9.4(D) and Updated Factors of Safety



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

25200 Pacific Coast Highway, Malibu, CA 90265
By: City of Malibu, Dated August 4, 2020
Response By: Feffer Geological, Dated June 18, 2020

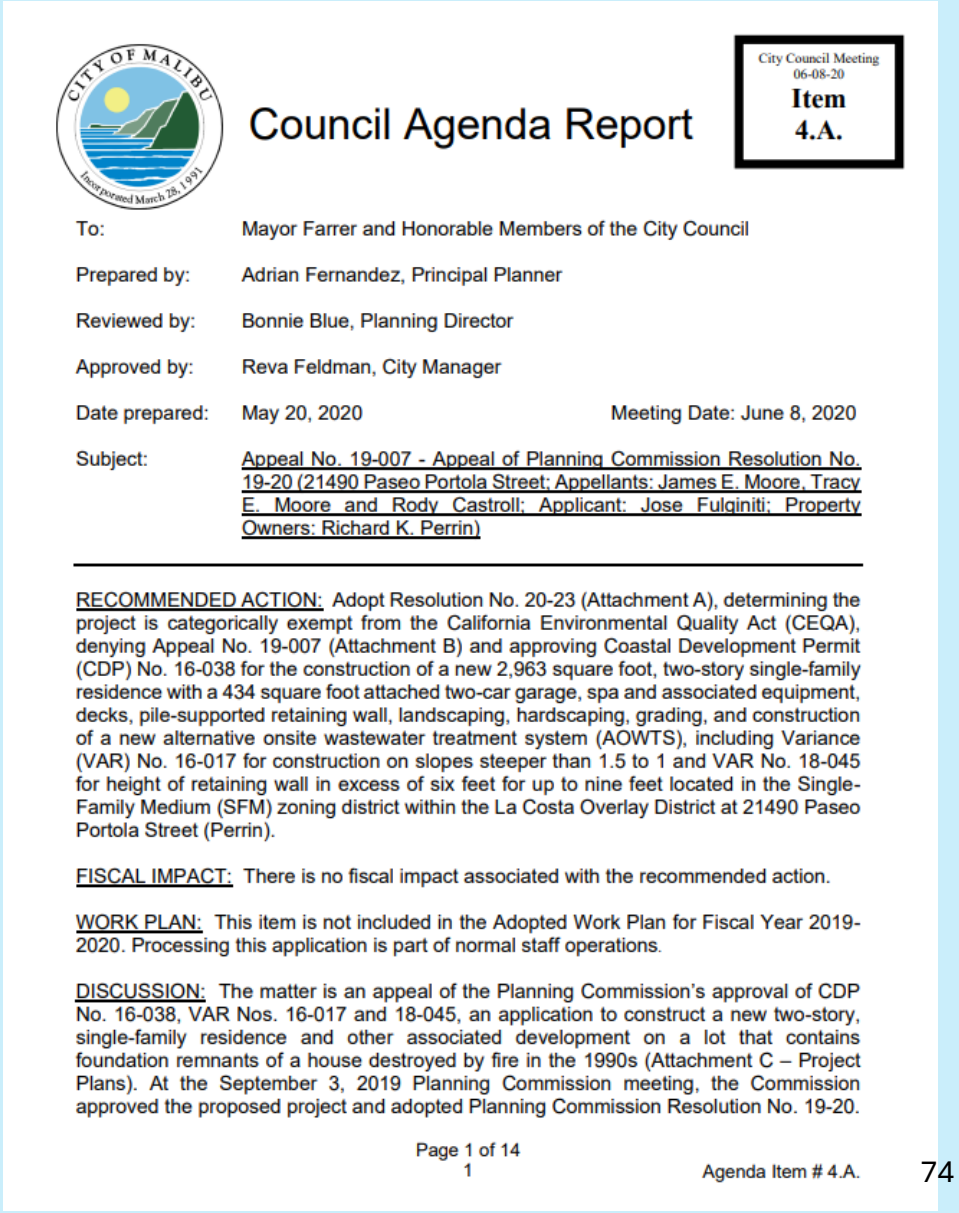
GEOTECHNICAL REVIEW SHEET
25200-25300 Pacific Coast Highway, Malibu, CA 90265
APN: 4459-013-021, 4459-014-018
Response By: Feffer Geological, Dated November 18, 2021

1990 S Bundy Drive, Suite 400. Los Angeles, CA 90025 o 310-207-5048 f 310-826-0182 www.feffergeo.com

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.

Microdosing Systems are Regularly Utilized in the City

- An Example: 21490 Paseo Portola
- Project Included a new AOWTS with a Geoflow Dispersal System
- City Council Approved Project on June 8, 2020



CITY OF MALIBU
Incorporated March 28, 1991

Council Agenda Report

City Council Meeting
06-08-20
Item
4.A.

To: Mayor Farrer and Honorable Members of the City Council

Prepared by: Adrian Fernandez, Principal Planner

Reviewed by: Bonnie Blue, Planning Director

Approved by: Reva Feldman, City Manager

Date prepared: May 20, 2020 Meeting Date: June 8, 2020

Subject: Appeal No. 19-007 - Appeal of Planning Commission Resolution No. 19-20 (21490 Paseo Portola Street; Appellants: James E. Moore, Tracy E. Moore and Rody Castroll; Applicant: Jose Fulginiti; Property Owners: Richard K. Perrin)

RECOMMENDED ACTION: Adopt Resolution No. 20-23 (Attachment A), determining the project is categorically exempt from the California Environmental Quality Act (CEQA), denying Appeal No. 19-007 (Attachment B) and approving Coastal Development Permit (CDP) No. 16-038 for the construction of a new 2,963 square foot, two-story single-family residence with a 434 square foot attached two-car garage, spa and associated equipment, decks, pile-supported retaining wall, landscaping, hardscaping, grading, and construction of a new alternative onsite wastewater treatment system (AOWTS), including Variance (VAR) No. 16-017 for construction on slopes steeper than 1.5 to 1 and VAR No. 18-045 for height of retaining wall in excess of six feet for up to nine feet located in the Single-Family Medium (SFM) zoning district within the La Costa Overlay District at 21490 Paseo Portola Street (Perrin).

FISCAL IMPACT: There is no fiscal impact associated with the recommended action.

WORK PLAN: This item is not included in the Adopted Work Plan for Fiscal Year 2019-2020. Processing this application is part of normal staff operations.

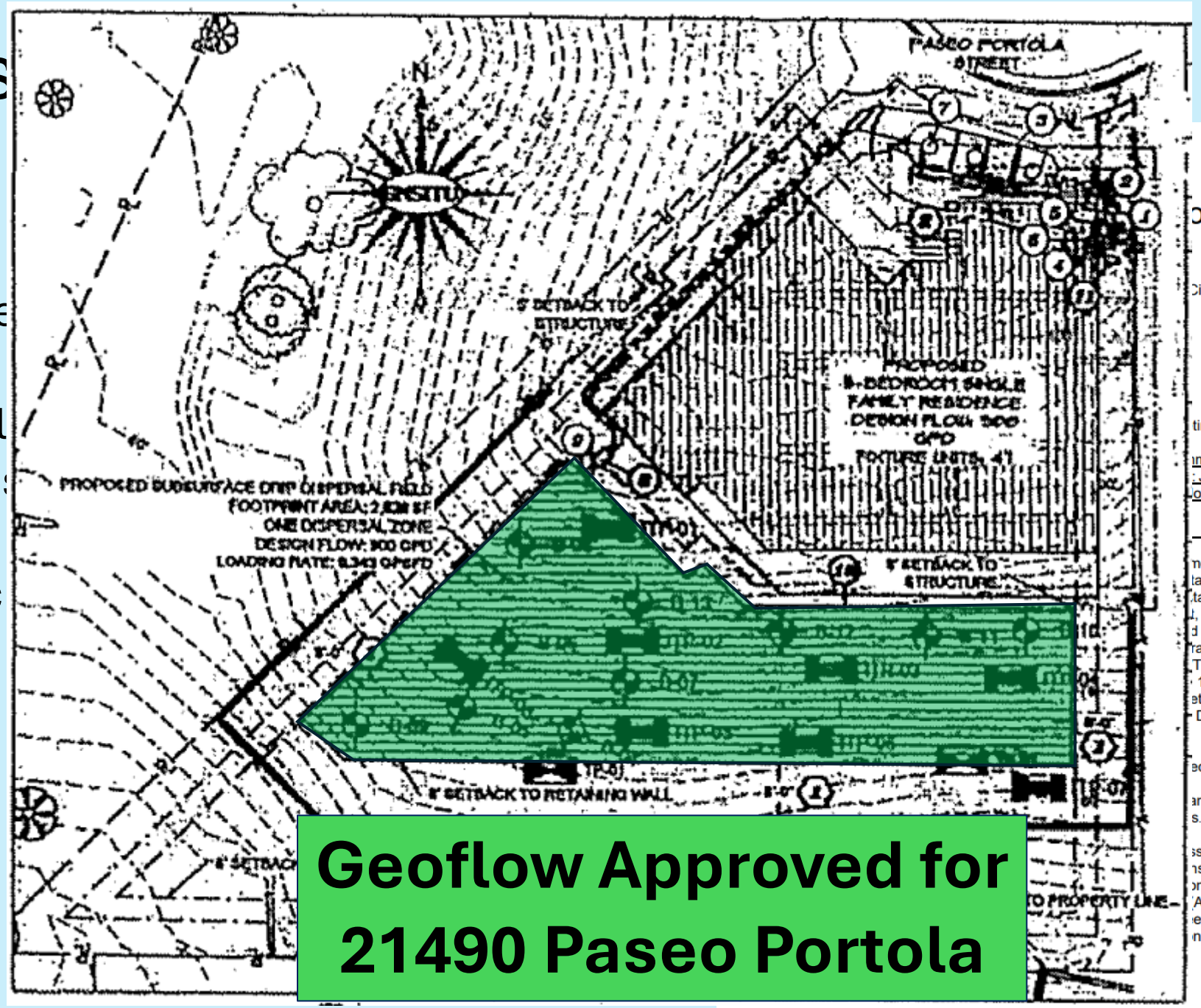
DISCUSSION: The matter is an appeal of the Planning Commission's approval of CDP No. 16-038, VAR Nos. 16-017 and 18-045, an application to construct a new two-story, single-family residence and other associated development on a lot that contains foundation remnants of a house destroyed by fire in the 1990s (Attachment C – Project Plans). At the September 3, 2019 Planning Commission meeting, the Commission approved the proposed project and adopted Planning Commission Resolution No. 19-20.

Page 1 of 14
1

Agenda Item # 4.A.

Microdos in the City

- An Example
- Project Incl
  Geoflow Di
- City Counc
  2020



City Council Meeting
06-08-20
Item
4.A.

ort

City Council

ting Date: June 8, 2020

mission Resolution No.
James E. Moore, Tracy
ose Fulginiti; Property

ment A), determining the
tal Quality Act (CEQA),
tal Development Permit
, two-story single-family
d associated equipment,
rading, and construction
TS), including Variance
1 and VAR No. 18-045
et located in the Single-
District at 21490 Paseo

ecommended action.

an for Fiscal Year 2019-
s.

ssion's approval of CDP
nstruct a new two-story,
on a lot that contains
Attachment C – Project
eting, the Commission
n Resolution No. 19-20.

Project Conditioned to Prevent Landscape View Obstructions

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

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).

APNs: 4459-013-021 and 4459-014-018
Owner: PAR PCH, LLC

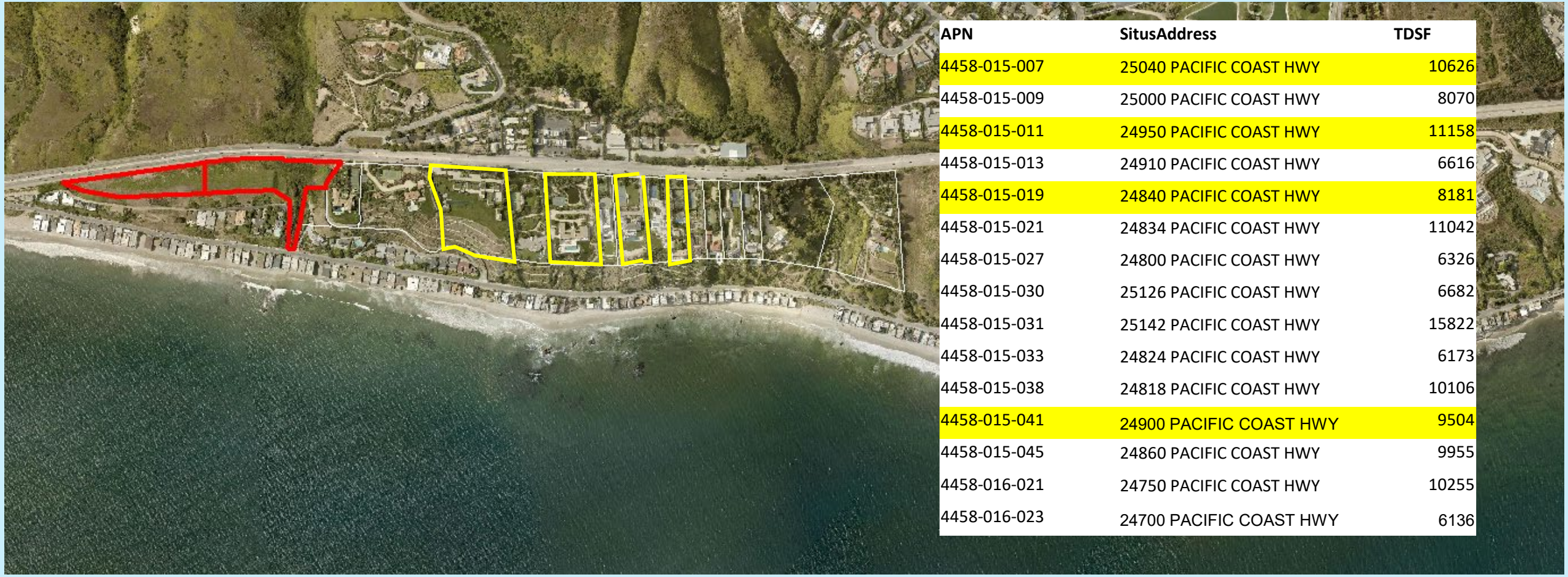
RECOMMENDED ACTION: Adopt Planning Commission Resolution No. 25-05 (Attachment 1) determining the project is categorically exempt from the California Environmental Quality Act (CEQA), and approving Coastal Development Permit (CDP) No. 19-012 to construct a new 9,219 square-foot, one-story, single-family 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).

Proposed View from PCH



t. By Right SFR
e Bluewater
tructions

4 Properties with CDPs Approved after LCP Implementation



APN	SitusAddress	TDSF
4458-015-007	25040 PACIFIC COAST HWY	10626
4458-015-009	25000 PACIFIC COAST HWY	8070
4458-015-011	24950 PACIFIC COAST HWY	11158
4458-015-013	24910 PACIFIC COAST HWY	6616
4458-015-019	24840 PACIFIC COAST HWY	8181
4458-015-021	24834 PACIFIC COAST HWY	11042
4458-015-027	24800 PACIFIC COAST HWY	6326
4458-015-030	25126 PACIFIC COAST HWY	6682
4458-015-031	25142 PACIFIC COAST HWY	15822
4458-015-033	24824 PACIFIC COAST HWY	6173
4458-015-038	24818 PACIFIC COAST HWY	10106
4458-015-041	24900 PACIFIC COAST HWY	9504
4458-015-045	24860 PACIFIC COAST HWY	9955
4458-016-021	24750 PACIFIC COAST HWY	10255
4458-016-023	24700 PACIFIC COAST HWY	6136

9 More Properties with CDPs Approved by Coastal Comm.



APN	SitusAddress	TDSF
4458-015-007	25040 PACIFIC COAST HWY	10626
4458-015-009	25000 PACIFIC COAST HWY	8070
4458-015-011	24950 PACIFIC COAST HWY	11158
4458-015-013	24910 PACIFIC COAST HWY	6616
4458-015-019	24840 PACIFIC COAST HWY	8181
4458-015-021	24834 PACIFIC COAST HWY	11042
4458-015-027	24800 PACIFIC COAST HWY	6326
4458-015-030	25126 PACIFIC COAST HWY	6682
4458-015-031	25142 PACIFIC COAST HWY	15822
4458-015-033	24824 PACIFIC COAST HWY	6173
4458-015-038	24818 PACIFIC COAST HWY	10106
4458-015-041	24900 PACIFIC COAST HWY	9504
4458-015-045	24860 PACIFIC COAST HWY	9955
4458-016-021	24750 PACIFIC COAST HWY	8148
4458-016-023	24700 PACIFIC COAST HWY	6136

13 Properties with CDPs Approved Since Coastal Act Implemented in 1976

Received
2/17/26
Planning Div.

From: Jyoti Drummond
To: Malibu Township Council; Barbara@Coastal Carey
Cc: Gabriella@Coastal Gough; southcentralcoast@coastal.ca.gov; Bill Sampson; Patt Healy; R Y A N; Bruce Silverstein; Rob Duboux; Tyler Eaton; Yolanda Bundy; Frank Angel; Planning Commission; Rebecca Evans; Trevor Rusin; Kellan Martz
Subject: Re: One more chance to remove Item 4B (25200PCH) off the PC agenda for Jan 20
Date: Friday, February 13, 2026 5:28:28 PM
Attachments: 2021-04-26 Ltr to City Council re Appeal No. 19-010; 20238 Piedra Chica Road.pdf
variancerequired.pdf

Hello Barbara...

Just letting you know that the hearing is set for next Tuesday, Feb 17 at 6:30p and if the PC approves the project we will be appealing it straight to the Coastal Commission due to the LACK of the required variance and we hope you can have it then sent back to the CDD for this addition to the application.

Quote from latest staff report on 25200 PCH from a letter dated Jan 5, 2026, by the geotechnical consultant, Feffer on p. 86.
https://www.malibucity.org/AgendaCenter/ViewFile/Item/7879?fileID=85696

"Currently the properties along Bayshore currently have a slope and a pad above that don't have the code required factor of safety. There is theoretically a potential for the load from the slope and the pad to come down; this is the fear I would think that the properties along Bayshore have."

Thus, because the pad at the proposed site at worse case conditions cannot meet the factor of safety a VARIANCE to the factor of safety is REQUIRED and our city has yet to enforce this LCP code for this particular huge potential project in a known landslide area so this risk can be properly evaluated.

For 14 pages from pps 103 in the staff report the applicant's geotechnical consultant attempts to explain how they can "stabilize" all the slopes so that they meet the required factors of safety - so they ADMIT that the slopes where this build is taking place cannot meet this WITHOUT a stabilization system in place, which is NOT worse case conditions.

See p 110 - "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."

I am greatly aware that none of us are geologists but we can READ - and the code states again that slope stability analysis must be taken from "worse case condition" scenarios and if it CAN NOT meet the factor of safety then it MUST apply for a variance. Why the applicant refuses to meet this code requirement is baffling - the project I have referred to in the past at 20238 Piedra Chica Rd could only meet the factor of safety AFTER designing and installing 30 ft deep caissons for the foundation for an Inland lot YET was sent back to apply for the REQUIRED variance because it could not meet the code without this - so it IS a comparable project. Except this project wants to dig 100 + ft caissons into essentially a coastal bluff in order to secure the slope, a much more risky endeavor that needs further investigation through the Variance process. There is NO WAY that the City would have approved that project on Piedra Chica Rd unless it could be stabilized to build WITH the variance for the factor of

CC: Planning Commission, PD,

Recording Secretary, File

Date Received 2/17/26 Time 7:30 a.m.
Planning Commission meeting of 2/17/26
Agenda Item No. 4A
Total No. of Pages 54

safety.

I am attaching the letter from April 2021, from our attorney re: 20238 Piedra Chica Rd (which for some reason is missing in the current staff report) which caused this project to go back to the Planning Dept and apply for the required variance (see p 3). 5 years later the owners are finally starting to build after satisfying all the variance requirements. This is EXACTLY what needs to happen for this project or there is no point of even having the Variance option in the LCP if post construction can satisfy the Factor of Safety requirement of 9.4 D.

If there is any way to review this and inform the City before the hearing on Tuesday that a variance must be applied for before proceeding further that would save the applicant much headache in the future with an appeal and being sent back in a year or so.

This is a contentious project already as it will be blocking an iconic ocean view and has much public opposition so should be scrutinized to the fullest.

Thank you,

Jo Drummond

On Sun, Jan 25, 2026 at 11:32 PM Malibu Township Council [redacted] wrote:

> **Barbara,**
>
> Thank you for your response — I appreciate your engagement on this matter.
>
> Based on the City's existing staff report, it should be straightforward for your team to confirm the deficiencies I have raised, as all citations are taken directly from the City's own record. Under the *Hazards* section, the staff report (p 10/11) does not meaningfully identify that the site lies within a mapped landslide area, nor does it analyze compliance with the factor-of-safety requirements under **LIP §9.4(D)**. That omission alone is significant.
>
> The attached presentation highlights, within the first nine slides, the specific geotechnical requirements that have not been met. Each slide cites relevant page numbers from the staff report (linked here for reference: https://www.malibucity.org/AgendaCenter/ViewFile/Item/7832?fileID=85371, to facilitate efficient review by your staff.
>
> This situation is fundamentally different from like-for-like fire rebuilds of up to 10%, on historically stable parcels that are consistently testing above required factor-of-safety thresholds in their existing condition, that regardless, do not require a variance. Instead, this proposal involves **brand-new construction on an untested landslide site where stability has not been demonstrated**.
>
> In May 2022, the Coastal Commission advised the City of Malibu that it could not lawfully process Fire Rebuild Option 4, which relied on hypothetical future construction to justify new or expanded development entitlements—up to 70% larger than a like-for-like plus 10% replacement of a structure that had not yet been rebuilt. That approach was rejected. The

same flawed framework is being applied here. This project similarly attempts to justify compliance with **LIP §9.4(D)** by deferring critical safety analysis until after post-construction stabilization is assumed, rather than evaluating whether the site meets required standards in its existing, worst-case condition or through the legally required variance process.

Allowing this project to proceed without first requiring a variance would establish a dangerous and legally unsupportable precedent. It would effectively allow any new large development project in landslide assessment districts—such as Big Rock, Calle del Barco, Las Flores, Malibu Road, and others—to bypass the Local Coastal Program by proposing extreme post-construction mitigation measures **without subjecting those measures to the variance findings mandated under LIP §13.26, including whether the proposed development would endanger adjacent properties or public safety, a determination that cannot be made outside the variance process**. This would undermine the enforceability of **LIP §9.4(D)** and the LCP's core public-safety protections.

For these reasons, the application cannot lawfully proceed as currently processed. A variance must be applied for and evaluated **before** any further discretionary review occurs. Perhaps you can ask the City to postpone the hearing until your staff can complete this due diligence that the City has neglected to perform. The hearing is currently set for the Feb 17 Planning Commission date.

Thank you again for your attention to this issue.

Warm regards,
Jo Drummond
Malibu Township Council

On Jan 23, 2026, at 12:08 AM, Carey, Barbara@Coastal <Barbara.Carey@coastal.ca.gov> wrote:

Hi Jo—

Thank you for the update. We are aware of this project but have not yet had the staff time to review the City staff recommendation in detail or provide any comments to the City staff.

Gabriella Gough (copied here) is our analyst that covers the City of Malibu. I will be supervising that jurisdiction while Denise is out on leave.

Barbara

From: Malibu Township Council [redacted]
Sent: Wednesday, January 21, 2026 1:45 AM
To: Carey, Barbara@Coastal <Barbara.Carey@coastal.ca.gov>; SouthCentralCoast@Coastal <SouthCentralCoast@coastal.ca.gov>
Cc: Bill Sampson [redacted]; Patt Healy [redacted]; R Y A N [redacted]; Jyoti Drummond [redacted]
Subject: Fwd: One more chance to remove Item 4B (25200PCH) off the PC agenda for Jan 20

Hello Barbara and South Central Coastal Commission,

The Planning Commission did not make a final decision on this project tonight. While the Commission stated that the geology was "satisfactory," that conclusion was reached **without evaluating factor-of-safety values under worst-case conditions**, as required for development in mapped landslide areas. Instead, the analysis relied on the assumption of **future construction of approximately 100-foot piles**, even though those piles themselves have not yet been fully evaluated in light of the site's known landslide conditions.

This sequencing is precisely why a **variance under Malibu's Local Implementation Plan (LIP) Section 9.4.D** is required **before** construction plans can be approved.

Under the **California Coastal Act**, new development must be sited and designed to minimize risks from geologic hazards and must not create conditions that endanger life or property (Public Resources Code §§30253 and 30254). Malibu's LIP implements these mandates by prohibiting development in landslide areas unless strict factor-of-safety standards are met — or, where they cannot be met, unless a variance is granted through a formal, discretionary process.

A variance is the **only lawful mechanism** that allows an applicant to propose extraordinary engineering measures, complete additional studies, and prepare construction plans intended to demonstrate whether those measures can raise the factor of safety to a level that Building & Safety could approve. **The variance must therefore come first**, so the adequacy of the proposed engineering can be evaluated transparently and against Coastal Act standards — **not assumed in advance and justified later through unchecked construction**.

This practice has gone on far too long in this City, with projects approved on previously unbuildable lots without sufficient due diligence prior to construction, leading to damage and ongoing issues for adjacent properties and costing the City millions of dollars in mitigation and corrective measures. It must not continue.

Proceeding without a variance effectively asks the City to accept speculative future

construction as a substitute for required safety findings. This approach conflicts with the Coastal Act's hazard-avoidance policies, places neighboring homeowners and the traveling public along PCH at risk, and exposes the City to potentially significant liability.

The project is expected to return on February 17 as a reduced proposal — now over 7,000 square feet and without the guest house — which may lessen visual impacts. However, **the underlying geologic conditions and factor-of-safety issues remain unchanged**. For these reasons, we respectfully request that Coastal Commission staff closely review the geologic record and **LIP Section 9.4.D**, and recognize that a variance is required before construction plans may proceed.

Thank you for your careful attention to this matter and for ensuring that Coastal Act hazard policies are applied as intended. Please advise as soon as possible.

Jo Drummond

Malibu Township Council

Begin forwarded message:

From: Malibu Township Council [redacted]
Date: January 21, 2026 at 10:49:46 AM GMT+5:30
To: Tyler Eaton <teaton@malibucity.org>
Cc: Jyoti Drummond [redacted], Trevor Rusin <trevor.rusin@bbklaw.com>, Bill Sampson [redacted], Patt Healy [redacted], R Y A N [redacted], barbara.carey@coastal.ca.gov, southcentralcoast@coastal.ca.gov, Yolanda Bundy <ybundy@malibucity.org>, Kellan Martz <Kellan.Martz@bbklaw.com>, Rebecca Evans <revans@malibucity.org>, Frank Angel [redacted], Jun [redacted], Jyoti Drummond [redacted], Bruce Silverstein <bsilverstein@malibucity.org>
Subject: Re: One more chance to remove Item 4B (25200PCH) off the PC agenda for Jan 20

The applicant did not even ADDRESS the requirement of a variance using slope stability at worst case conditions which is obviously pre construction or piles. These MUST be evaluated through a variance.

Pls refer to 20238 Piedra Chica rd. **There is already PRECEDENT in Big Rock that went through multiple planning commission hearings and then on to City Council and it ended up getting sent back to PC for a variance. 5 years later it was finally approved and 10 years later they are attempting to build finally - why would the applicant want to take such a risk without obtaining the REQUIRED variance - it doesn't make sense and LEGALLY cannot proceed regardless of what THEIR consulting geologist says NOW - look at all their original reports that could NOT meet the factor of safety - these were not even completed at the very worst case conditions. This is WHY they've had so many geotechnical reviews. So you cannot make the finding that it meets the factor of safety along with the extreme ocean view open space blockage that will come**

from this project that the applicant has maxxed out in size STRICTLY for financial gain which goes against EVERYTHING in Malibu's vision & Mission statement.

They also need permission from Caltrans to take over that broken continuously leaking pipe into their lot (that was not taken into consideration by the applicant's geologist in his reports) or whomever is responsible and if it's been over 10 years that no one has claimed responsibility how can this ever get done - this needs to be resolved before ANY approval.

I hope staff will be addressing this as you stated. Tyyy…Jo Drummond

On Jan 20, 2026, at 9:45 PM, Tyler Eaton <teaton@malibucity.org> wrote:

Jo,

Thank you. We have received your comments and they will be shared with the Planning Commission. The geology concerns will be discussed in greater detail tonight. We will have staff available to answer any questions. The typo regarding septic tank size will be addressed for the record during staff presentation.

Although we have not received any significant correspondence from the Coastal Commission staff to date, this project is appealable to the CCC as stated in the staff report.

Regards,

Tyler Eaton

Assistant Community Development Director

Community Development Department

Office: (310) 456-2489 ext. 273

23825 Stuart Ranch Road | Malibu, CA 90265

From: Jyoti Drummond [redacted]
Sent: Monday, January 19, 2026 1:14 PM
To: Tyler Eaton <teaton@malibucity.org>
Cc: Trevor Rusin <trevor.rusin@bbklaw.com>; Bill Sampson [redacted]; Patt Healy [redacted]; R Y A N [redacted]; barbara.carey@coastal.ca.gov; southcentralcoast@coastal.ca.gov; Yolanda Bundy <ybundy@malibucity.org>; Malibu Township Council [redacted] Kellan Martz <Kellan.Martz@bbklaw.com>; Rebecca Evans <revans@malibucity.org>
Subject: One more chance to remove Item 4B (25200PCH) off the PC agenda for Jan 20

Hello Tyler - hope all is well..

I am writing from India after preparing a 9 minute presentation for Malibu Township Council to present into the record at tomorrow night's hearing that I hope can and will be continued -

#1 - Denise at Coastal is on maternity leave and no one has yet to get back to us with regards to clarifying what is OBVIOUS - that the project requires a variance to the factor of safety at the very least before being able to proceed as it fails to demonstrate compliance with LCP §9.4(D), which requires a **minimum static factor of safety of 1.5** under existing, **worst-case conditions** for development on landslides.

Since we have unfortunately had to try and spell this out over and over again to the City since August I'll include this graph below straight from the applicant's geotechnical consultant in the staff report on p. 596 -

*Labeling part of a landslide "no-build" does **not** make the rest of the area stable.*

*This cross-section shows the **landslide mass extends beneath the entire site**.*

*Where the factor of safety for the landslide mass is **well below code**, instability is **site-wide**, not selective. **Buildability cannot be created by drawing lines on a plan. Also note: on page 592 (attached), Cross Section 2'-2' is located within the landslide area, which has active faults, fractures, and active water seepage. Fabricating pile depths exceeding 100 ft without accurate safety analysis to achieve a required static factor of safety of 1.5 POST***

construction MUST be analyzed under worst-case conditions, which have consistently shown unstable conditions below 1.0 admitted by their own geologist. With their less conservative "pre construction" latest "preliminary findings" they varied from 1.076-1.234 - nowhere NEAR 1.5. See all of this on p 1137 of the staff agenda report also attached below. These are consistent within an active landslide area as well as the lot is classified as a landslide under the California Geological Survey maps since 2001 and part of the Malibu Road Landslide Assessment District 98-3.

That is why a variance is required for the entire unstable lot.







#2 - You'll see on p 12 of your staff's report that the Resolution is also written incorrectly - see below attached:

This is not a clerical error. Resolution 26-05 materially misrepresents the project by stating **the septic tank is 1,500 gallons,** when the plans show a **7,540-gallon** system. Septic capacity directly affects groundwater and slope stability in a landslide area, and the Commission cannot act on a record that contains misinformation—especially where required variances have not been applied for.

#3 - The project is also sited on a narrow strip of a ridgeline/coastal bluff and does not satisfy the LIP setback requirements from the top of the unstable bluff. Crummer Estates (Case) were required to setback from the top of the bluff 100 ft even though Malibu Road is in between the ocean as precedent if you need (attached). Yeh and Associates documented the slope failure and erosion happening on the bluffside at 25200 PCH in their Nov/2022 Geotechnical Report for 98-3.

So please let us know as soon as possible if you are finally able to continue or send back this item for any of the above reasons.

Thank you, Jo Drummond

On behalf of MTC

ELKINS KALT

Monica R. Briseno
D: 310.746.4479
MBriseno@elkinskalt.com

Elkins Kalt Weintraub Reuben Gartside LLP

April 26, 2021

VIA E-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 (the "Property")
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 (the "**Project**")

Dear Mayor and City Council Members:

Our office represents Colin and Joanne Drummond ("**Appellants**") in connection with the above-referenced appeal. On April 21, 2021, Appellants' requested a continuance of the hearing of the appeal.

We have yet to receive confirmation of a continuance. As such, and in the event the City Council decides to hear the appeal today, Monday, April 26, 2021, which, as previously explained, Appellants view as premature, we detail below how the Project does not conform to the LCP, requires a variance, does not comply with applicable building code sections, and is not exempt from CEQA. The record does not support the findings necessary to approve the requested coastal development permit, and you must nullify the Project approvals.

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10345 W. Olympic Blvd, Los Angeles, CA 90064 | elkinskalt.com

I. 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.

On June 22, 2020, the City Council authorized the City Manager to execute a Professional Services Agreement with Yeh and Associates, Inc. ("**Y&A**") for maintenance and monitoring services for the Big Rock Mesa Landslide Assessment District. Importantly, a slope stability study was not included in Y&A's scope of work.

On November 9, 2020, Y&A presented its findings and recommendations to the City Council. Based on its review of the system, Y&A made several recommendations, including for capital improvements and slope stability modeling. Hearing community concerns concerning continued development in this area without a proper slope stability analysis, the City Council directed staff to bring back a review of the safety factor and development impacts in the Big Rock area.

On February 24, 2021, the City's geotechnical consultants presented a report addressing the City Council's November 9, 2020 question. Community questions regarding the report and future development remained unanswered at the meeting. To address this, Mayor Pierson proposed a follow-up meeting with Big Rock Mesa residents, geologists, and City staff to discuss the next steps. The matter was to be brought back to the City Council after the community meeting. This meeting has yet to occur.

The City Council understood the need to respond to community concerns and correctly requested that additional meetings with the community occur before continuing with development decisions. The Appeal should not be heard until that happens.

II. Appeal Summary and Response to Staff Report

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. Despite this fact, the Staff Report goes to great lengths to state that no need exists for a slope stability study to approve the Project and continues to recommend approval for a Project that does not meet either the City's Local Coastal Program ("**LCP**") or Building Code.

A. The Project Does Not Conform To LCP Policies Concerning Hazards And Requires a Variance

The City acknowledges that the Project does not meet the LCP standards for new development on landslides. However, it fails to explain why the City can approve a coastal development permit without addressing such conflicts through a variance, the mechanism created by the LCP for instances where a Project requires deviation from LCP standards or requirements.

LCP, Local Implementation Plan ("**LIP**") Section 9.2.B states that development on any parcel "located on or near any area subject to hazards" is governed by LIP Chapter 9. The Project is within a known geologic hazard, an active landslide. As such, LIP Chapter 9 applies to the Project.

LCP, LIP Section 9.4.D provides that "[n]ew development proposed on landslides . . . 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.."[1] The staff report acknowledges that the Property cannot provide a 1.5 factor of safety because the "Big Rock Mesa Landslide, on which the property is situated, has a static factor of safety below 1.5." Staff Report, pg. 6.

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." Evidence in the record proves existing effluent overflow originates from the Property to affect adjoining properties. We attach copies of photos of such overflow issue as **Exhibit A.** These issues will increase with the approval of additional water fixtures proposed by the Project. We attach a copy of the Property's current water

[1] 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

usage, showing existing elevated water levels (which averages almost three times the capacity of the existing septic system flow) as **Exhibit B**.[2]

The above provisions taken together prohibit the approval of the Project absent a variance. The Project does not seek the required variance. Such an attempt to sidestep the LCP is improper, and the Council must deny the Project for its failure to conform with the LCP.

B. The City's Building Code Does Not Supersede The City's LCP

The Project's Staff Report does not explain the Project's sidestepping the variance requirements in the LCP. However, we understand that an incorrect assumption may exist that complying with the Building Code is enough to satisfy the LCP. This is incorrect. The City's LCP takes precedence over the City-adopted County and State Building Codes. The Project must comply with the LCP, specifically the provisions regarding hazards.

LCP, LIP Section 9.2.B states that "[w]here any policy or standards provided in this chapter [LIP Chapter 9] conflicts with any other policy or standards contained in . . . City-adopted plan, resolution or ordinance not included in the LCP, and it is not possible . . . to comply with both the Malibu LCP and other plan . . . the policies, standards or provisions contained herein [LIP Chapter 9] shall take precedence."

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.

C. The Project Is Not The Least Environmentally Damaging Alternative

The City cannot make the required finding that the Project is the least environmentally damaging alternative when it failed to consider an alternative that eliminates the additional water

[2] Public water usage records show approximately 902 to 2248 gallons per day (gpd) for the Property the last two years, which is substantially higher than the City wastewater design flows that provide for 600 gpd for a home with three bedrooms or 750 gpd for a home with four bedrooms. Malibu Municipal Code § 15.42.050. The Property's current water consumption is closer to a 6+ bedroom home. This can only increase with the Project's proposed increase in water fixtures.

fixtures, which would reduce the potential significant Project adverse impacts on the environment i.e., the existing landslide.

Geologists for the City, Project, and Appellant agree that water consumption is one of the primary factors influencing the safety factor for the Big Rock Mesa District. Yet, the Staff Report fails to analyze a Project alternative that eliminates additional water consumption. Such analysis is incomplete.

Donald B. Kowalewsky, the Project's geologist, when evaluating a project on 20272 Inland Lane in 2018, concluded that the introduction of additional mass and water into the ground in Big Rock Mesa "will result in a lower safety factor," thereby adversely affecting offsite properties. We attach a copy of Mr. Kowalewsky Report as **Exhibit C**. Specifically, Mr. Kowalewsky concluded that "[i]ncreasing the mass of a structure and increasing the water that enters the ground (wastewater) will decrease the stability of a landslide." See Ex. B, g. 2.

The Project proposes to increase water fixtures without increasing the size of the onsite wastewater treatment system ("**OWTS**"). This is a problem because of the increase in water use and because the existing OWTS is insufficient for the current development. The OWTS has experienced failures, which will only worsen with additional water fixtures.

The Project applicant has argued that water usage will not increase with the new development because the same number of occupants, namely his family, will continue to reside at the Property. However, land use approvals run with the land and planning must account for the increased water use caused by an overall increase in water fixtures.

An increase in water fixtures will result in increased water use in an area where the Project applicant's geologist previously found that an increase in water entering the ground will decrease the stability.[3] The Project is clearly not the least environmentally damaging alternative.

D. <u>The Project Does Not Meet County Building Code Requirements</u>

The Staff Report incorrectly claims that this Project is subject to County Building Code Section 110.2.3.4 as an addition to a structure in an existing landslide area.

[3] Water usage data for the Property enclosed as part of Exhibit A shows incredibly high water usage for the Property, which is concerning given the previous failures and impact of effluent on adjoining properties.

County Building Code Section 110.2.3.4 requires that:

> When the proposed work involves an addition . . . to an existing structure but is not a change in use or occupancy and such work does not increase the gross floor area of the structure by more than 25 percent of the area of the structure as it existed on July 6, 1968, **and the Building Official determines that the proposed work will not impact a historically active landslide** (emphasis added).

Here, the Building Official has not, and cannot, determine that the Project will not impact the historically active landslide because no studies opine on the current stability of the area. The Building Official cannot make this finding until completion of a stability assessment of the Big Rock Mesa Landslide District. The continued approval of development in an active landslide area without proper analysis of its stability supports only the conclusion that the cumulative impact of such approvals will impact the historically active landslide.

Importantly, analysis from both Appellant and Applicant's geologists supports the conclusion that the Project's approval will impact the landslide. As stated above, Mr. Kowalewsky previously concluded that "[i]ncreasing the mass of a structure and increasing the water that enters the ground (wastewater) will decrease the stability of a landslide." See Ex. B, g. 2. As detailed above, the Project will increase the mass and water fixtures, which decreases the landslide's stability.

Additionally, before a permit may be issued, an owner must:

> Submit an engineering geology and/or soils engineering report or reports that contain(s), at a minimum, a qualitative and/or conditional finding that the proposed work complies with the provisions of Section 110.2.1.
>
> Section 110.2.1 provides that "[n]o building or grading permit shall be issued under the provisions of this section when the Building Official finds that property outside the site of the proposed work could be damaged by activation or acceleration of a geotechnically hazardous condition and such activation or acceleration could be attributed to the proposed work on, or change in use of, the site for which the permit is requested."

Again, as noted above, no reports have been submitted because no one has completed an adequate assessment of the stability of the landslide . As such, the Project cannot show that it will not damage adjacent properties. On the contrary, the Applicant's geologist previously found that the introduction of water and mass to the area decreases the stability of the landslide, making the approval of the Project contrary to County Building Code requirements.

E. <u>The Project Is Not Exempt From CEQA</u>

The Planning Commission incorrectly found the Project categorically exempt from the California Environmental Quality Act ("CEQA"). The Planning Commission relied on inapplicable categorical exemptions – Section 15301(a) for interior and exterior alterations, Section 15301(2) for additions to existing structures, and Section 15303(d) for new construction. The Planning Commission, without analysis, found that no exemptions applied to these exceptions. The Planning Commission's analysis is incorrect.

"All exemptions . . . are inapplicable when the cumulative impact of successive projects of the same type in the same place, over time is significant." 14 CCR § 15300.2(b). Moreover, "[a] categorical exemption shall not be used for an activity where there is a reasonable possibility that the activity will have a significant effect on the environment due to unusual circumstances." 14 CCR § 15300.2(c).

Here, the approval of additional development on an existing landslide without studying the overall stability of the area will create significant environmental impacts over time. There have been approximately one-hundred twenty-five (125) new additions to the landslide district since 1992, the last available stability assessment. All approved without additional study of the stability of the landslide. The continued approval of new additions in Big Rock constitutes a significant cumulative impact. The cumulative impact exception to the categorical exemption is meant to address situations such as this one.

Relatedly, the existing landslide creates unusual circumstances. Multiple signs of cracks exist in the periphery of the landslide, indicating movement of the mass as a whole. We attach copies of photos of such peripheral cracks as **Exhibit D**. The unusual circumstances of the active landslide create a possibility of a significant environmental impact from the Project as it will increase water consumption, which is one of the primary factors influencing the safety factor of the landslide.

Categorical exemptions do not apply to the Project.

III. Conclusion

As detailed above, the Project does not conform to the City's LCP or building code, and the City improperly found the Project categorically exempt from CEQA. The City must nullify the Planning Commission Approvals and work to implement the work needed to understand the stability of the landslide district and the impact of future development.

Concerned residents understand the existing threat and have sought your leadership to address it. Continuing to approve new development without heeding the community's concerns is irresponsible planning, putting the property and health of residents at risk.

We appreciate your consideration of the above request. Please contact our office with questions or comments.

Very truly yours,



MONICA R. BRISENO
Elkins Kalt Weintraub Reuben Gartside LLP

MRB

cc: Kenneth A. Ehrlich (via e-mail kehrlich@elkinskalt.com)
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EXHIBIT A


20235 Piedra Chica Rd
Lot 13
Perched
conditions
Lot 9
2D















EXHIBIT B

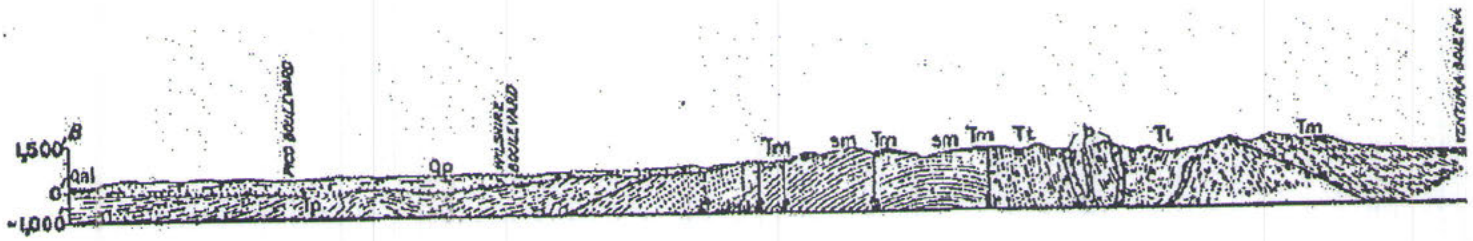
Created [4/21/2021 3:08:33 PM
Custome 0161922
Account I 29142683

WATER USAGE FOR 20238 PIEDRA CHICA RD

Service	Read Date	Meter	Read Type	Read Status	Previous Reading	Current Reading	Days	Consumption	Average	Bill Number	Bill Date	AVERAGE USAGE PER DAY
Water	4/13/2021	53641782	Water	Actual Read	3874.00000	3956.00000	62	82.00000	1.32	5351804	4/13/2021	989 gpd
Water	2/10/2021	53641782	Water	Actual Read	3705.00000	3874.00000	62	169.00000	2.73	5276963	2/12/2021	2039 gpd
Water	12/10/2020	53641782	Water	Actual Read	3600.00000	3705.00000	57	105.00000	1.84	5202996	12/14/2020	1378 gpd
Water	10/14/2020	53641782	Water	Actual Read	3377.00000	3600.00000	63	223.00000	3.54	5130620	10/16/2020	2648 gpd
Water	8/12/2020	53641782	Water	Actual Read	3203.00000	3377.00000	62	174.00000	2.81	5053587	8/14/2020	2099 gpd
Water	6/11/2020	53641782	Water	Actual Read	3032.00000	3203.00000	58	171.00000	2.95	4979299	6/15/2020	2205 gpd
Water	4/14/2020	53641782	Water	Actual Read	2955.00000	3032.00000	63	77.00000	1.22	4908376	4/15/2020	914 gpd
Water	2/11/2020	53641782	Water	Actual Read	2860.00000	2955.00000	63	95.00000	1.51	4836066	2/12/2020	1128 gpd
Water	12/10/2019	53641782	Water	Actual Read	2717.00000	2860.00000	61	143.00000	2.34	4758317	12/11/2019	1754 gpd
Water	10/10/2019	53641782	Water	Actual Read	2568.00000	2717.00000	58	149.00000	2.57	4685339	10/11/2019	1922 gpd
Water	8/13/2019	53641782	Water	Actual Read	2394.00000	2568.00000	61	174.00000	2.85	4612320	8/13/2019	2133 gpd
Water	6/13/2019	53641782	Water	Actual Read	2283.00000	2394.00000	59	111.00000	1.88	4542307	6/17/2019	1407 gpd
Water	4/15/2019	53641782	Water	Actual Read	2207.00000	2283.00000	63	76.00000	1.21	4470536	4/16/2019	902 gpd
Water	2/11/2019	53641782	Water	Actual Read	2145.00000	2207.00000	62	62.00000	1.00	4389807	2/13/2019	748 gpd
Water	12/11/2018	53641782	Water	Actual Read	2025.00000	2145.00000	56	120.00000	2.14	4318391	12/12/2018	1603 gpd
Water	10/16/2018	53641782	Water	Actual Read	1795.00000	2025.00000	62	230.00000	3.71	4249495	10/17/2018	2775 gpd
Water	8/15/2018	53641782	Water	Actual Read	1677.00000	1795.00000	63	118.00000	1.87	4176600	8/17/2018	1401 gpd
Water	6/13/2018	53641782	Water	Actual Read	1586.00000	1677.00000	63	91.00000	1.44	4104197	6/15/2018	1080 gpd
Water	4/11/2018	53641782	Water	Actual Read	1535.00000	1586.00000	58	51.00000	0.88	4028069	4/13/2018	658 gpd
Water	2/12/2018	53641782	Water	Actual Read	1440.00000	1535.00000	62	95.00000	1.53	3955023	2/13/2018	1146 gpd
Water	12/12/2017	53641782	Water	Actual Read	1330.00000	1440.00000	61	110.00000	1.80	3882380	12/13/2017	1348 gpd
Water	10/12/2017	53641782	Water	Actual Read	1157.00000	1330.00000	63	173.00000	2.75	3810591	10/16/2017	2054 gpd
Water	8/10/2017	53641782	Water	Actual Read	1022.00000	1157.00000	58	135.00000	2.33	3738565	8/14/2017	1741 gpd
Water	6/13/2017	53641782	Water	Actual Read	831.00000	1022.00000	62	191.00000	3.08	3668646	6/14/2017	2304 gpd
Water	4/12/2017	53641782	Water	Actual Read	726.00000	831.00000	58	105.00000	1.81	3598057	4/14/2017	1354 gpd

AVERAGE WATER USAGE OVER 4 YEARS - 1589 GPD
AVERAGE WATER USAGE THE PAST YEAR - 1753 GPD

EXHIBIT C



Donald B. Kowalewsky
ENVIRONMENTAL &.
ENGINEERING GEOLOGY

March 25, 2018
Job # 16629J6.001

Hak P. Wong
[redacted]
Malibu, California 90265

SUBJECT: Geologic memorandum regarding proposed construction of a single family residence at 20272 Inland Lane, Malibu, California. Coastal Development Permit Amendment No. 15-005, Site Plan Review No. 15-039, Variance No. 11-018, Minor Modification No. 12-007.

This office has reviewed available documents related to this project, the Building Code, and the City's LUP and LIP relative to the proposed development. Appendix A includes a list of geotechnical documents reviewed in order to prepare this memorandum. It is anticipated that this memorandum will be provided to the City Planning Department and Planning Commissioners to provide justification for rejection of the currently proposed project on the basis of unsafe geologic conditions, failure to conform with current City policy and codes, failure to conform with State Law regarding earthquake induced hazards, and misrepresentation of the project.

I. Violation of City Building Codes

The code sections referred to in the following paragraphs are included in Appendix B.

In the past, the City allowed reconstruction of single family dwellings in geologically sensitive areas following damage or loss due to conditions other than landslide, settlement, or slippage. Because the house on this property was destroyed by fire, the building code allows the owner of the property at the time of the loss, their immediate heir(s), or their authorized representative to rebuild the residence. (Section 110.2.3.6).

[redacted]
Malibu, California 90265

☎ [redacted]
Email: [redacted]

The proposed project is in violation of the conditions in Section 110.2.3.6 of the building code.

1. The applicant is not the owner, their heir, nor authorized representative.
2. The proposed project exceeds the area, number of stories, load, and number of fixtures of the structure that was destroyed. In 1968 documents indicate the house had a total square footage of 2184 square feet. The proposed structure has a total square footage of 3939 square feet.

Because the building is larger and will introduce more water into the ground, it is in violation of Section 110.2.1 of the building code. The additional mass and introduction of water into the ground will result in a lower safety factor for this portion of the Big Rock Mesa landslide, thereby adversely affecting offsite properties.

The proposed project is in violation of Section 110.2.2 of the building code because it does not have the minimum required safety factor relative to slope stability required by the City Guidelines for geotechnical reports (Appendix D)

II. Violation of City Planning Codes

The City's Land Use Plan and Local Implementation Plans contain sections requiring certain findings. The following are a list of those findings and questions suggesting that the findings have not been properly made.

LUP B. Coastal Act Policies Section 30253

(1) Minimize risks to life and property in areas of high geologic, flood, and fire hazard.

Would any increase in risk (regardless of how small) be the same as minimizing risk? Increasing the mass of a structure and increasing the water that enters the ground (wastewater) will decrease the stability of a landslide. This may be mathematically a small amount but it is a decrease in stability and therefore does not minimize risks.

(2) Assure stability and structural integrity, and neither create nor contribute significantly to erosion, geologic instability, or destruction of the site or surrounding area or in any way require the construction of protective devices that would substantially alter natural landforms along bluffs and cliffs.

The proposed project would substantially alter the existing landform along bluff.

LUP C. Land Use Plan Policies

4.1 The City of Malibu and the Santa Monica Mountains coastal zone contains areas subject to hazards that present substantial risks to life and property. These areas require additional development controls to minimize risks, and include, but shall not be limited to, the following:
a. Low Slope Stability & Landslide/Rockfall Potential: hillside areas that have the potential to slide, fail, or collapse.

No development controls are being implemented to minimize risks.

LUP 1. General Development

4.2 All new development shall be sized, designed and sited to minimize risks to life and property from geologic, flood, and fire hazard.

It is not being sized or sited to minimize risks

4.3 Information should be provided to the public concerning hazards and appropriate means of minimizing the harmful effects of natural disasters upon persons and property relative to siting, design and construction.

The geotechnical reports did not evaluate earthquake risks relative to slope stability as required by State Law (Appendix C).

4.4 On ancient landslides, unstable slopes and other geologic hazard areas, new development shall only be permitted where an adequate factor of safety can be provided, consistent with the applicable provisions of Chapter 9 of the certified Local Implementation Plan.

In the past, the City has designated a minimum adequate static safety factor for new dwellings as 1.5. This site has 1.37. No seismic safety factors were provided (in violation of State Law). This is a new dwelling because it is not in the same footprint as the pre-existing dwelling, is larger in volume, has a new foundation system, and new septic system.

4.5 Applications for new development, where applicable, shall include a geologic/soils/ geotechnical study that identifies any geologic hazards affecting the proposed project site, any necessary mitigation measures, and contains a statement that the project site is suitable for the proposed development and that the development will be safe from geologic hazard. Such reports shall be signed by a licensed Certified Engineering Geologist (CEG) or Geotechnical Engineer (GE) and subject to review and approval by the City Geologist.

The report does not state the site will be safe from geologic hazards, in fact it contains numerous disclaimers because the site is within an active landslide.

4.6 The remediation or stabilization of landslides that affect existing structures or that threaten public health or safety may be permitted. Alternative remediation or stabilization techniques shall be analyzed to determine the least environmentally damaging alternative. Maximum feasible mitigation shall be incorporated into the project in order to minimize adverse impacts to resources.

No mitigation is proposed

4.7 Hillside Management Program requirements shall be applicable to proposed development on steep slopes.

The proposed project will extend out over what is a steep slope by removing the upper portion of the slope to create a semi-subterranean area.

4.8 Grading and/or development-related vegetation clearance shall be prohibited where the slope exceeds 40 percent (2.5:1), except that driveways and/or utilities may be located on such slopes, where there is no less environmentally damaging feasible alternative means of providing access to a building site, provided that the building site is determined to be the preferred alternative and consistent with all other policies of the LCP.

Is grading over the existing slope the least environmentally damaging?

4.9 Buildings within flood prone areas subject to inundation or erosion shall be prohibited unless no alternative building site exists on the property and proper mitigation measures are provided to minimize or eliminate risks to life and property from flood hazard.

4.10 New development shall provide adequate drainage and erosion control facilities that convey site drainage in a non-erosive manner in order to minimize hazards resulting from increased runoff, erosion and other hydrologic impacts to streams.

4.11 New development involving a structure dependent on a wastewater disposal system shall utilize secondary treatment, at a minimum, and evapotranspiration waste disposal systems or other innovative measures, where feasible.

This project is not using evapotranspiration waste disposal systems.

4.12 Land divisions, including lot line adjustments, shall be prohibited unless all proposed parcels can be demonstrated to be safe from flooding, erosion, and geologic hazards and will provide a safe, legal, all weather access road(s), which can be constructed consistent with all policies of the LCP.

4.13 Land Divisions including lot line adjustments shall be prohibited unless all proposed parcels and access roads are found to comply with all applicable fire safety regulations and all required approvals are obtained.

4.14 New development shall be prohibited 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.

If this were a fire rebuild it would not be new development. However, as planned, it is clearly new development and should be prohibited because it is in a recognized active landslide and does not have the required safety factors as stipulated in the City guidelines for Geotechnical reports, 2013 version. (Appendix D).

4.15 Existing, lawfully established structures, which do not conform to the provisions of the L.P., may be maintained and/or repaired provided that such repair and maintenance do not increase the extent of nonconformity of the structure. Except as provided below, additions and improvements to such structures may be permitted provided that such additions or improvements comply with the current standards and policies of the L.P. and do not increase the extent of nonconformity of the structure. Substantial additions, demolition and reconstruction, that result in demolition and/or replacement of more than 50% of the exterior walls shall not be permitted unless such structures are brought into conformance with the policies and standards of the L.P.

The proposed structure is a new building and should be required to comply with all policies and standards of the L. P.

III. Comments on Geotechnical reports

Numerous geotechnical reports were prepared by GeoConcepts, Inc. (Appendix A). Their reports were based on review of existing documents, and excavation of four test pits and four borings extending to a maximum depth of 81 feet. Based on available geologic reports Bing Yen & Associates, 1992), the landslide in this area extends to an approximate depth of 130 feet. Therefore, none of the GeoConcepts exploratory excavations observed or were able to sample all

of the earth materials underlying the site. It is probable that weak layers were missed. GeoConcepts recognized that not all data was known and provides numerous disclaimers because conditions are not well known in the site vicinity. However, in spite of their disclaimers, they repeatedly state the project will not adversely affect offsite properties. They do not have the data to justify those statements. As required by City policy, the findings regarding site safety and the potential effect on offsite properties must be based on data and analyses.

Examples of the lack of data, or interpretation of data in a manner not justified by the data are provided below.

A. GeoConcepts reports dated 3/6/12 & 5/12/15: Reports indicate groundwater (standing water) exists in boring B-2 at 48 feet. Yet in borings B-1 and B-3 no groundwater was observed to depths of 81 and 60 feet, respectively. They never attempt to explain why the differences in the depth to groundwater. It is apparent that there is a ground water barrier preventing lateral migration of the groundwater. They state sewage effluent disposal will have a "near vertical to vertical" effluent path from the seepage pits which will have a depth of 38 feet. They then state it is not anticipated to create groundwater mounding or daylight onsite or offsite. Because there is standing water at 48 feet, there would have to be either groundwater mounding or lateral migration. Lateral migration could cause daylighting of effluent because the proposed seepage pit is less than 30 feet from the steep slope. They make unsubstantiated opinions based on inadequate data. Their cross-section showing the path of anticipated effluent migration does not extend to the base of the slope. At a minimum, they should have depicted the entire slope to demonstrate their opinion.

B. One GeoConcepts opinion actually suggests that the proposed work will increase the area's instability. Page 3 of their 5/12/15 report, states "Therefore, it is the opinion of this corporation, based upon the subsurface data that the proposed anticipated effluent and septic system, if properly installed will not increase a measurable gross instability of the Big Rock Mesa Landslide relative to the proposed site development and will not adversely affect adjacent properties, ..."

"Will not increase a measurable" appears to be a way of saying it will increase but to a relatively small amount. Yet there are no calculations to back up that statement. It is simply an unsubstantiated statement, not a finding based on data and calculations. It completely ignores the differences in the depth to groundwater found in their own borings.

C. Their original report, dated 1/14/11, contained the following statement "Stability analyses of the subject site is beyond the scope of this investigation". In a subsequent report, dated 12/20/11, they provided static slope stability analyses. Their analyses did not consider earthquake forces. The calculated safety factor using rock strengths obtained from their borings yielded a static safety factor of 1.373 (the minimum normally required by the City is 1.50).

For the following reasons, their evaluation of the stability of the site is flawed:

1. The rock strengths used in their analyses were relatively high compared to those used by Bing Yen & Associates for overall analysis of the Big Rock Mesa Landslide in 1992. They used a cohesion of 800 psf and a friction angle of 32°. Strengths used in 1992 were cohesion 0 and a friction angle of 18°. In fact, the 1992 report performed eleven tests of rock strengths of the Sespe Formation rock and the range in strengths was Cohesion 0 psf to 3200 psf and friction angle 11° to 29°. Rock with the higher cohesion were unfractured rock samples taken from the cliff face and should not be representative of the overall fractured landslide mass. As a consequence, the safety factor derived by GeoConcepts may not be representative and is higher than would have been derived if they had used values presented in the Bing Yen report.

2. Review of the geologic logs of the borings indicated that there is no discussion regarding the degree of fracturing of the rock and there are no measurements of the orientation of the fractures in the rock. However, a log of a 1968 seepage pit on this property described "very broken sandstone rock" at a depth of 28 feet. In the text of the GeoConcepts reports they state "no dominant patterns of adversely oriented fractures or joints were observed during the subsurface investigation". This statement suggest that fractures and joints do exist, however, their boring logs neither describe nor measure the orientation of any fractures or joints, therefore their statement appears to be based on no real data.

3. The geologic cross-section used to perform the stability analyses shows a groundwater table higher than the groundwater table actually used in their analyses. (Higher groundwater always means lower safety factors).

4. Their analyses used an assumed circular failure surface, however their own cross-sections show adversely oriented bedding, therefore, a planar analysis should also have provided.

5. As previously stated no earthquake forces were applied to their analyses.

D. The site is within an earthquake induced landslide hazard zone, as mapped by the State Geologist. Reports for proposed development in a mapped hazard zone are required by State law to evaluate the risk from earthquake induced landslide and provide recommendations to mitigate the risk. (Appendix C). The 2013 version of the City of Malibu "Guidelines for the preparation of engineering geologic and geotechnical engineering reports" also requires seismic (pseudostatic) slope stability analyses. (Appendix D). No analyses of the stability of the site were performed considering earthquake forces. Therefore, the project is in violation of both State Law and City Codes.

E. The actual ongoing movement of the Big Rock Mesa landslide has been inadequately addressed. The data used by GeoConcepts taken from the City Assessment District Reports (reports currently provided annually by Fugro West) is out dated and does not represent current conditions.

1. Groundwater has risen 19 feet between 2011 and 2015. GeoConcepts stated in their 12/2/15 report ground water levels were falling.

2. They reported in their 12/2/15 report that slope inclinometer SP-33 showed 0.2 inches of movement but they failed to state that Fugro recorded 0.2 inches of movement each year from 2011 through 2015 and slightly less than 0.2 inches in the 2015/2016 year. It is peculiar that movement prior to 2006 was less than 0.06 inches per year and often nothing. It appears that ongoing landslide movement is occurring under this site since SP-33 is located on this property.

The increase in movement has occurred during a drought. Most likely the increase in the rate of movement is the result of water introduced by man. One must question the logic in allowing a new structure that will add additional water into the ground when we already see an acceleration in the rate of landslide movement with a rise in groundwater.

IV. Conclusions

The project can not be legally permitted under current Building Codes for the following reasons:
1. There are sufficient reasons to require the proposed development of this property to conform with current Building Codes and Planning Codes for new habitable dwellings. Codes require new habitable structures to be safe and the work can not adversely affect offsite properties.

2. This is clearly not a "fire rebuild".

3. There is insufficient geotechnical information to accurately determine the actual risk of development on this property and to the neighboring properties.

4. The City would be in violation of State law if they were to approve a new dwelling in a mapped earthquake induced landslide hazard zone without requiring evaluation and mitigation in accordance with the State's requirements as well as their own Codes.

Donald B. Kowalewsky
Certified Engineering Geologist 1025



APPENDIX A

REFERENCES

1. GeoConcepts reports dated 1/14/11, 3/3/11, 10/6/11, 10/31/11, 12/20/11, 2/13/12, 2/23/12 , 3/6/12, 4/4/12, 1/14/15, 5/12/15, 12/1/15, 12/2/15 (2 documents same date), 3/8/16, 3/9/16, and 4/12/16, 9/19/17.

2. Reports concerning the Big Rock Mesa Landslide prepared by Dennis Evans, 12/30/83, 8/20/84.

3. Geotechnical engineering evaluation of the Big Rock Mesa landslide by Bing Yen & Associates, 2/92 and annual monitoring and maintenance reports prepared through 1996.

4. Annual monitoring and maintenance reports prepared Fugro West, Inc., between 2004 and November, 2016.

APPENDIX B

BUILDING CODE SECTIONS 110 AND 111

SECTION 110 - PROHIBITED USES OF BUILDING SITES

110.1.1
Buildings are not permitted in an area determined by the Building Official to be subject to flood hazard by reason of inundation, overflow or erosion.

The placement of the building and other structures (including walls and fences) on the building site shall be such that water or mud flow will not be a hazard to the building or adjacent property. Subject to the conditions of Section 110.1.2, this prohibition shall not apply when provision is made to eliminate such hazard to the satisfaction of the Building Official by providing adequate drainage facilities by protective walls, suitable fill, raising the floor level of the building, a combination of these methods, or by other means. The Building Official, in the application of this Section for buildings, structures, and grading located in whole or in part in flood hazard areas, shall enforce, as a minimum, the current Federal Flood Plain Management Regulations defined in Title 44, Code of Federal Regulations, Section 60.3, and may require the applicant or property owner to provide the following information and/or comply with the following provisions:

1. Delineation of flood hazard areas, floodway boundaries and flood zones, and the design flood elevation, as appropriate; 2. The elevation of the proposed lowest floor, including basement, in flood hazard areas (A Zones), and the height of the proposed lowest floor, including basement, above the highest adjacent grade; 3. The elevation of the bottom of the lowest horizontal structural member in coastal high hazard areas (V Zone); 4. If the design flood elevations are not included on the community's Flood Insurance Rate Map (FIRM), then the applicant shall obtain and reasonably utilize any design flood elevation and floodway data available from other sources, as approved by the Building Official; and 5. During construction, upon placement of the lowest floor, including basement, and prior to further vertical construction, the permittee shall provide to the Building Official documentation, prepared and sealed by a registered design professional, certifying the elevation of the lowest floor, including basement.

110.1.2
Portions of the unincorporated territory of the County of Los Angeles subject to severe flood hazard by reason of inundation, overflow, erosion or deposition of debris are established as floodways by Chapter 11.60 of Title 11 of the Los Angeles County Code. Whenever, in such ordinance establishing floodways, reference is made to any floodway, it shall be construed to mean a floodway referred to in this Section. A person shall not perform work for which a building or grading permit is required within the boundaries of an established floodway if such work increases the flood hazard to adjacent properties by either increasing the capital flood water surface elevation, deflecting flows or increasing bank erosion. Such work may be performed within an established floodway, and a building or grading permit therefor may be issued, where provisions are made to the satisfaction of the Building Official to avoid such an increase in the flood hazard.

110.2 - Geotechnical Hazards.

110.2.1
No building or grading permit shall be issued under the provisions of this section when the Building Official finds that property outside the site of the proposed work could be damaged by activation or acceleration of a geotechnically hazardous condition and such activation or acceleration could be attributed to the proposed work on, or change in use of, the site for which the permit is requested. For the purpose of this section, a geotechnically hazardous condition does not include surface displacement due to earthquake faults.

110.2.2
Except as provided in Section 110.2.3, work requiring a building or grading permit by this Code is not permitted in an area determined by the Building Official to be subject to hazard from landslide, settlement, or slippage. For the purpose of this Section, landslide, settlement, or slippage does not include surface displacement due to earthquake faults.

110.2.3
Subject to the conditions of Subsection 110.2.1, permits may be issued in the following cases.

110.2.3.1
When the applicant has submitted an engineering geology and/or soils engineering report or reports complying with the provisions of Section 111 such that said reports show to the satisfaction of the Building Official that the hazard will be eliminated prior to the use or occupancy of the land or structures.

110.2.3.2
When the applicant has submitted an engineering geology and/or soils engineering report or reports that comply with the provisions of Section 111, and they demonstrate, to the satisfaction of the Building Official, that the site is safe for the intended use.

110.2.3.3
When the proposed work involves the alteration or repair of existing structures and the cost of such alteration or repair does not exceed 25 percent of the current market value of the existing structure, such value to be based on assumed continuation of the established legal use. Before a permit may be issued pursuant to this section, the owner shall do all of the following:

1. If required by the Building Official, submit an engineering geology and/or soils engineering report or reports that contain(s), at a minimum, a qualitative and/or conditional finding that the proposed work complies with the provisions of Section 110.2.1. 2. Record in the office of the Department of Registrar-Recorder, a statement that the owner is aware that the records of the Building Official indicate that the property is potentially subject to hazard from landslide, settlement, or slippage. 3. Record in the office of the Department of Registrar-Recorder, an agreement relieving the County and all officers and employees thereof of any liability for any damage or loss which may result from issuance of such a permit. This agreement shall provide that it is binding on all successors in interest of the owner and shall continue in effect until the Building Official records in the office of the Department of Registrar-Recorder a statement that

the Building Official has determined that such hazard from landslide, settlement or slippage no longer exists. The repair work shall consist of restoring the original construction. The Building Official may require that provisions be made in anticipation of future settlement. For the purposes of this Section 110.2.3.3, "alteration" does not include an addition or additions.

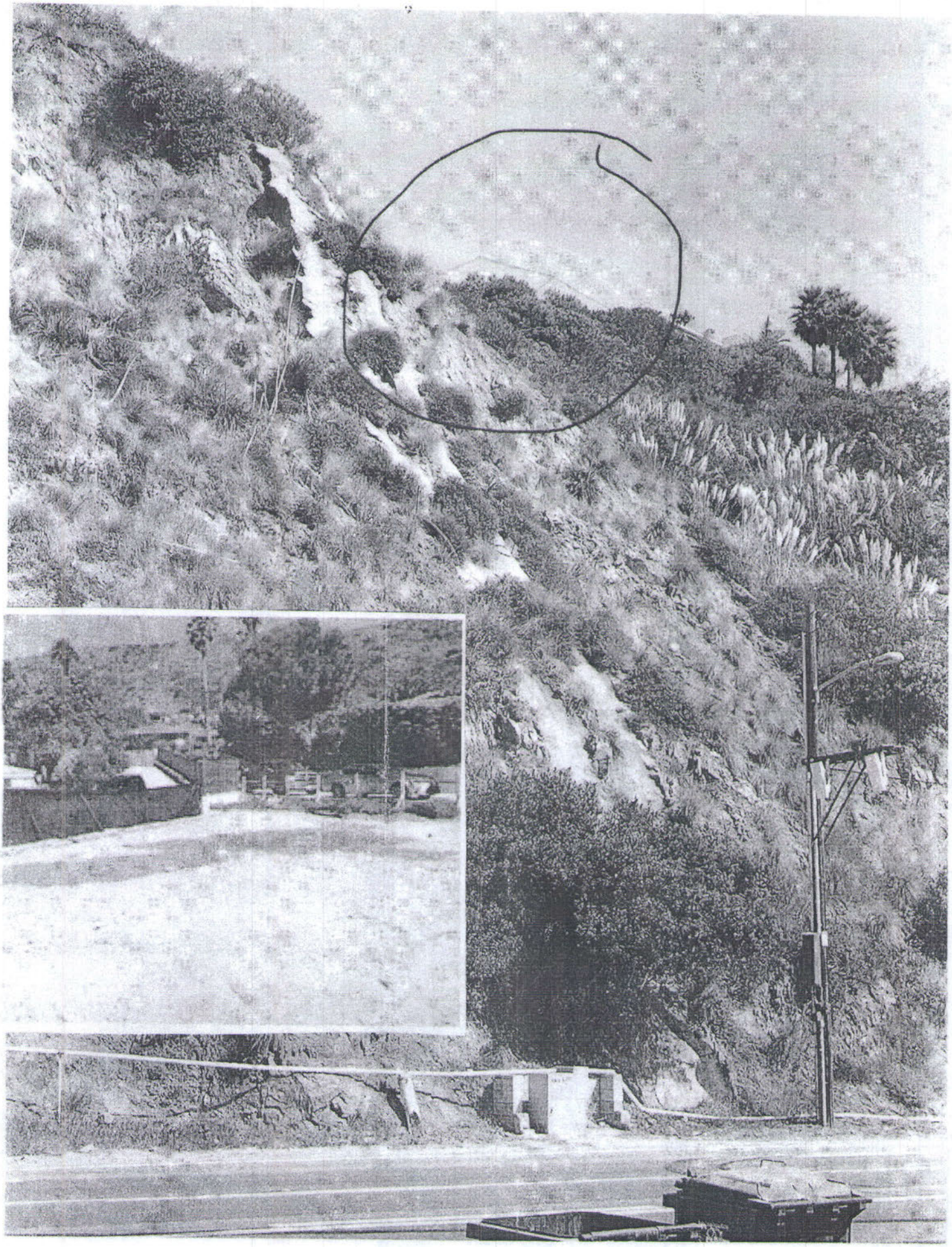
110.2.3.4
When the proposed work involves an addition or additions to an existing structure but is not a change in use or occupancy and such work does not increase the gross floor area of the structure by more than 25 percent of the area of the structure as it existed on July 6, 1968, and the Building Official determines that the proposed work will not impact a historically active landslide. Before a permit may be issued pursuant to this Section, the owner shall do all of the following:

1. Submit an engineering geology and/or soils engineering report or reports that contain(s), at a minimum, a qualitative and/or a conditional finding that the proposed work complies with the provisions of Section 110.2.1. 2. Record in the office of the Department of Registrar-Recorder the finding of such report or reports. 3. Record in the office of the Department of Registrar-Recorder an agreement relieving the County and all officers and employees thereof of any liability for any damage or loss which may result from the issuance of such a permit. This agreement shall provide that it is binding on all successors in interest of the owner and shall continue in effect until the Building Official records in the office of the Department of Registrar-Recorder a statement that the Building Official has determined that a hazard from landslide, settlement, or slippage no longer exists.
This Section shall not apply to structures constructed after July 6, 1968.

110.2.3.5
When the proposed work involves the repair of a single-family residence or accessory structures where the cost of such repair exceeds 25 percent of the current market value of the existing building.

The scope of the repair work shall be subject to the approval of the Building Official. Before a permit may be issued pursuant to this Section, the owner shall do all of the following:

1. Submit an engineering geology and/or soils engineering report or reports that contain(s), at a minimum, a qualitative and/or conditional finding that the proposed work complies with the provisions of Section 110.2.1 of this Code. 2. Record in the office of the Department of Registrar-Recorder a statement by the owner acknowledging that the records of the Building Official indicate that the property is potentially subject to hazard from landslide, settlement, or slippage. 3. Record in the office of the Department of Registrar-Recorder an agreement relieving the County and all officers and employees thereof of any liability for any damage or loss which may result from issuance of such a permit. This agreement shall provide that it is binding on all successors in interest of the owner and shall continue in effect until the Building Official records in the office of the Department of Registrar-Recorder a statement that the Building Official has determined that such hazard from landslide, settlement, or slippage no longer exists.



November 2020
Dear Neighbors:

I'd like you to be aware of this picture taken near your backdoor on PCH. A concrete water channel with its surrounding support eroded, looking like it's going to crumple down anytime. The owner next door, 20272 Inland Ln., is going to hasten that process. In stead of rebuilding on an existing concrete slab set back 15 feet, Jon wants it right at the edge of the cliff, with a 2 storied floor to ceiling view! He needs a variance for the 2 story house, a variance for the extra height, and variance for excessive size for the small flat lot, 34% bigger than the old house. Big Rock needs a safety factor of 1.5 or above for new buildings, this is way below near 1.0, so, another variance.

As an MD, I work late often after midnight. Through the 24 years, Caltrans schedules temporary closure of PCH at night, for workers to remove boulders from the top of cliffs that they deemed risky. If I'm unlucky, I'd wait for 20 min or more before they let me through. Now are they going to close PCH so Jon can remove 10,000 cu yards of rocks!! Boulders will fall, and we'll need more than a prayer that they won't land on someone's garage. I asked the city geologist how far down he has to dig to anchor on bedrock. He said there is no bedrock, just earthquake rubbles! But he said Jon is going to bury utility lines at the edge, to make it more stable!! THEN digging into it to repair failed or leaky utility will make the hillside stronger, according to this Alternative Physics!!?

We can not accept the cavalier attitude ignoring rules and recommendations that are based on scientific studies and inspections. The picture insert is another intended plan to build on land with no drainage, where next door's unfiltered sewer is seeping down the curb on Inland to the beach. The entire Big Rock Mesa is unstable from excessive water and overdevelopment. Caltrans has told me that the city is responsible for safe support of the hillside, not to endanger their property, PCH. We must stop this disaster waiting to happen. Residents of Malibu collectively should not have to pay for the frivolous fantasy mansions of a few, and their consequences. Please contact the city planning department, and Caltrans engineering to voice your public safety concerns.

Contract Planner Lilly: lrudolph@malibucity.org
Ass. Director rmollica@malibucity.org
Caltrans engineering Paul Shin: paul.shin@dot.ca.gov
Caltrans attorney Andy Cho: andy.cho@dot.ca.gov

Sincerely,

Hak Wong M.D. [redacted]

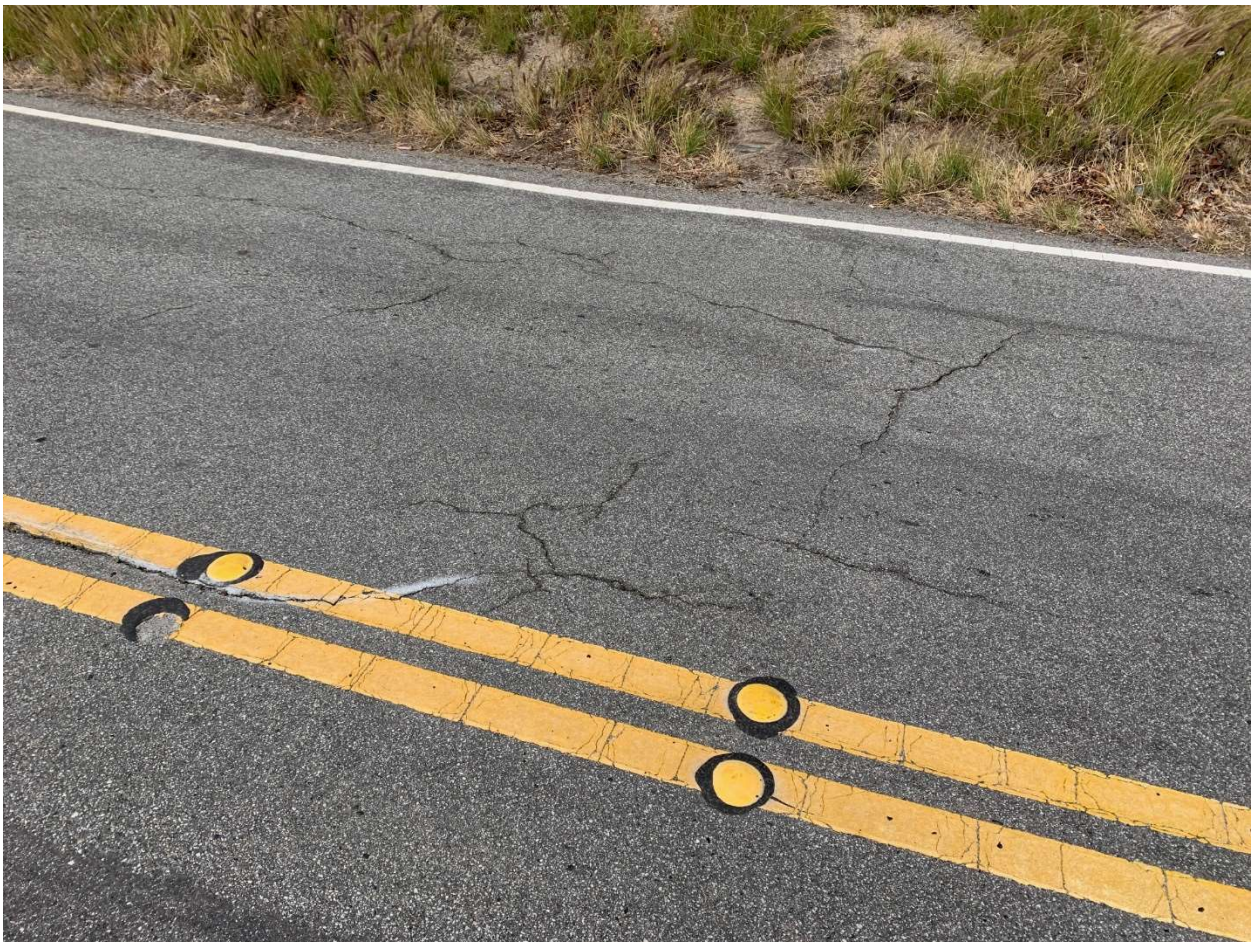
p.s. The following is a partial email that my neighbor, homeowner, Jo Drummond sent to Planning Committee to deny the building permit.

EXHIBIT D


















House next door is already sloping down
towards the proposed build's lot

9.4. DEVELOPMENT STANDARDS

A. All proposed new development located in or near an area subject to geologic hazards shall be required to submit a geologic/soils/geotechnical study report prepared by a licensed Certified Engineering Geologist (CEG) or Geotechnical Engineer (GE) that adheres to the City of Malibu's "Guidelines for the preparation of engineering geologic and geotechnical engineering reports," dated February 2002, and identifies any geologic hazards affecting the proposed development site and any necessary mitigation measures. The geologic/soils/geotechnical report shall include a statement by the consulting CEG or GE that the project site 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. Such reports shall be subject to the review and approval of the City geotechnical staff.

B. All recommendations of the consulting CEG or GE and/or the City geotechnical staff shall be incorporated into all final design and construction including foundations, grading, sewage disposal, and drainage. Final plans must be reviewed and approved for compliance with geologic recommendations by the consulting CEG or GE and the City geotechnical staff.

C. Final plans approved by the consulting CEG or GE and the City geotechnical staff shall be in substantial conformance with the plans approved by the final City decision making body relative to construction, grading, sewage disposal and drainage. Any substantial changes in the proposed development approved by the City which may be required by the project consultants or City geotechnical staff shall require an amendment to the permit or a new Coastal Permit.

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

13.26. VARIANCES

The purpose of this section is to provide a mechanism for applicants to make an application for a coastal development permit variance from standards or requirements of the Malibu LIP and to provide specific findings for approval or denial of variances. A variance shall not be granted which confers a special privilege inconsistent with the limitations upon other properties in the same vicinity and zone in which the subject property is situated or which authorizes a use or activity which is not otherwise expressly authorized by the zoning regulations governing that parcel of property.

Received
2/13/26
Planning Div.

From: Jake Jesson
To: Planning Commission
Cc: Rebecca Evans; Allison Cook
Subject: PARPCH: Community Correspondence
Date: Friday, February 13, 2026 1:17:02 PM
Attachments: RE Jun meet Jake.msg
RE Jun meet Jake.msg
RE Jun meet Jake.msg
RE Jun meet Jake.msg
RE access.msg
RE access.msg
RE meeting geo tech engineer.msg
RE meeting geo tech engineer for 25200 PCH.msg
RE RESCHEDULE MEETING.msg
WEINTRAUB MEETING.msg
RE meeting geo tech engineer for 25200 PCH.msg
RE RESCHEDULE MEETING.msg
RE RESCHEDULE MEETING.msg
PARPCH Meeting.msg

Dear Commissioners,

My name is Jake Jesson and I'm reaching out to you on behalf of PARPCH, LLC in regards to the project proposed at 25200 PCH, item 4A on your upcoming agenda.

It's been brought to my attention that a below neighbor of ours, Jun Fujita has expressed to some of you that she has attempted to meet with us previously to discuss the project but that we declined that offer. Unfortunately this is not correct and I've provided a below summary of my correspondence with Jun dating back to July of 2025 where I continuously have tried to meet with her either in person or over the phone but she has declined each offer. I even reached out to her as recently as yesterday along with a number of the other neighbors but still that email was not responded to.

Over the past few months, Jun has been very vocal in her opposition of the project, however for reasons unknown to me she continuously declined to participate in meetings with us and our Consultants to discuss the project and answer any questions. Along with the below timeline summary are the corresponding emails for each outreach attempt.

If you have any questions in regards to the below / attached, please do not hesitate to reach out.

25200 PCH
Community Outreach Timeline

Date	Basis of Email	Jun's Response
7/18/2025	Introductory email and offer to arrange for a time to speak about the project.	Declined to speak and asked for plans instead.
7/18/2025	Jesson sending plans to Jun and offering to be available to speak.	No reply
7/21/2025	Jake following up with Jun to see if she reviewed the plans and seeing if she'd like to schedule a call.	Rather than scheduling a call, Jun requested that we voluntarily continue the hearing until she can review furhter.
7/21/2025	Jake explaining that we the hearing has long been pending and again offering to speak.	Jun responding that she doesn't have any availability to speak.
8/13/2025	Jun and Jake coordinate a zoom meeting for 8/15 to discuss the project.	N/A
8/15/2025	Jun cancels the zoom meeting 30 mins prior to when it was scheduled for.	N/A
10/7/2025	Jake invites Jun to attend a community meeting that is being scheduled for 10/22 where the Project Geologist, Josh Feffer will be present and avaialbe to anwer any questions.	Jun declines acceptance and instead asks if we can instead perform additional borings on our property.
10/9/2025	Jake responds to Jun explaining that we cannot allow third party drilling but encourages Jun to be present on 10/22	No reply.
	Jake reaches out to community (including Jun) to arrange for a group meeting with our Geologist present to discuss the Pacific Coast Land	

CC: Planning Commission, PD,

Recording Secretary, File

Date Received 2/13/26 Time 1:17pm
Planning Commission meeting of 2/17/26
Agenda Item No. 4.A.
Total No. of Pages 83

10/21/2025	**Consulting report which was commissioned by Jun.**	**Jun replies by saying that she's unable to attend.**
12/4/2026	**Chris Reed (neighbor) reaches out to Jun to see when she would be available for a community meeting prior to the 12/16 hearing.**	**Jun declined to attend.**
1/7/2026	**Jake writing to Jun informing her that we would be arranging for another community meeting and encouraging her to attend.**	**Jun responded saying that she declined to attend.**
1/9/2026	**Jake reaching out to the neighborhood offering to organize a community meeting on 1/14**	**No reply by Jun**
1/12/2026	**Jake following up on the previous email in regards to trying to schedule a community meeting on 1/14. Also specifically mentioning that we hope that Jun is able to attend.**	**Jun replies more or less saying that she will only attend if we agree in advance that her Geologist will be granted authority to redesign our pile system and disregarding what the City has approved.**
1/14/2026	**Neighborhood zoom was held but only one neighbor, Holly Sawyer chose to attend.**	**N/A**
2/11/2026	**Email to neighborhood (including Jun) offering to again arrange for a community meeting to discuss the project.**	**No reply from any neighbors.**

Best Regards,

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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Planning Commission

From: Jake Jesson <jjesson@weintraubre.com>
Sent: Friday, July 18, 2025 2:20 PM
To: Tony Canzoneri; Jun Fujita Hall
Subject: RE: Jun meet Jake

Thank you for the introduction Tony.

Jun – Pleasure to meet you here via email. I'd be happy to discuss the project with you so please let me know when would be a good time to speak.

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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From: Tony Canzoneri [redacted]
Sent: Friday, July 18, 2025 2:15 PM
To: Jake Jesson <jjesson@weintraubre.com>; Jun Fujita Hall [redacted]
Subject: Jun meet Jake

Jun, Jake is prepared to go over the plans with you and hear about any concerns you have. Please let him know when you are available and your contact info.

Just to confirm that our firm will not be involved in representing any parties related to the 25200 PCH project as we have attorney client relationships with both parties.

Have a great week-end!

Tony Canzoneri
Strategic Solutions for Business and Government
[redacted]

Planning Commission

From: Jake Jesson <jjesson@weintraubre.com>
Sent: Friday, July 18, 2025 4:45 PM
To: Jun Fujita
Subject: RE: Jun meet Jake

Hi Jun,

Thanks for reaching out. The plan set is pretty robust and makes it hard to filter through due to file size but I've pulled the high level sheets into a smaller set here for you to review.

Tony referenced that you had concerns with privacy which I completely understand. I can assure you that the development intends to fully screen visibility to and from all lower properties. Please flip through these and give me a call when you have a chance to discuss.

https://www.dropbox.com/scl/fo/nizcp3bpr6xjb9gm8kxr6/AMH-GGgTaICyTbt6n5wpbLc?rlkey=ezgx11y6tlo6hf2rqnt4gn4ci&st=qiur6k1b&dl=0

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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---

From: Jun Fujita [redacted]
Sent: Friday, July 18, 2025 3:43 PM
To: Jake Jesson <jjesson@weintraubre.com>
Subject: Re: Jun meet Jake

Jake,
Thank you for your quick response, could you send us a pdf of the plans so I may review and then give you a call to discuss?
Thanks,
Jun

On Fri, Jul 18, 2025 at 2:20 PM Jake Jesson <jjesson@weintraubre.com> wrote:

Thank you for the introduction Tony.

Jun – Pleasure to meet you here via email. I'd be happy to discuss the project with you so please let me know when would be a good time to speak.

Thanks,

Jake Jesson

Sr. Project Manager

Weintraub Real Estate Group

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From: Tony Canzoneri <[redacted]
Sent: Friday, July 18, 2025 2:15 PM
To: Jake Jesson <jjesson@weintraubre.com>; Jun Fujita Hall [redacted]
Subject: Jun meet Jake

Jun, Jake is prepared to go over the plans with you and hear about any concerns you have. Please let him know when you are available and your contact info.

Just to confirm that our firm will not be involved in representing any parties related to the 25200 PCH project as we have attorney client relationships with both parties.

Have a great week-end!

Tony Canzoneri

Strategic Solutions for Business and Government

[redacted]

Planning Commission

From: Jake Jesson <jjesson@weintraubre.com>
Sent: Monday, July 21, 2025 11:13 AM
To: Jun Fujita
Subject: RE: Jun meet Jake

Hi Jun,

Are you able to speak at all today?

As I understand it, your concerns center around privacy which I firmly believe won't be an issue given that this will be a focal point for us as well during working drawings as we won't visibility from below into our site as well. Please let me know if you have a few minutes to discuss today and on that call we can speak about concerns as well as the idea of a continuance.

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From: Jun Fujita [redacted]
Sent: Monday, July 21, 2025 10:51 AM
To: Jake Jesson <jjesson@weintraubre.com>
Subject: Re: Jun meet Jake

Hi Jake,

Thank you for checking in, I would like to request a mutual 30 day continuance so that we can discuss further.
Let me know if that sounds ok.

Thanks,
Jun

On Mon, Jul 21, 2025 at 10:35 AM Jake Jesson <jjesson@weintraubre.com> wrote:

Hi Jun,

I hope that you enjoyed a nice weekend and just wanted to check in to see if you've had a chance to review the plans for 25200 PCH.

Best Regards,

Jake Jesson

Sr. Project Manager

Weintraub Real Estate Group

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From: Jake Jesson
Sent: Saturday, July 19, 2025 6:54 AM
To: Jun Fujita [redacted]
Subject: RE: Jun meet Jake

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Best Regards,

Jake Jesson

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Thank you.

Kind regards,

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Subject: Jun meet Jake

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Have a great week-end!

Tony Canzoneri

Strategic Solutions for Business and Government

[redacted]

Planning Commission

From: Jake Jesson <jjesson@weintraubre.com>
Sent: Monday, July 21, 2025 1:42 PM
To: Jun Fujita
Subject: RE: Jun meet Jake

Hi Jun,

We received notice that a few of the commissioners weren't able to attend due to personal matters. As a result of this, tonight's hearing is being postponed.

Please let me know what your availability looks like this week.

Thanks,

Jake Jesson
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From: Jun Fujita [redacted]
Sent: Monday, July 21, 2025 12:44 PM
To: Jake Jesson <jjesson@weintraubre.com>
Subject: Re: Jun meet Jake

Hi Jake,

Unfortunately I do not, which is why I would like a mutual continuance, let me know if this is possible.

Thank you
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>
> Thanks,
>
> Jake Jesson
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>
> **Weintraub Real Estate Group**
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Have a great week-end!

Tony Canzoneri

Strategic Solutions for Business and Government

[redacted]

Planning Commission

From: Jake Jesson <jjesson@weintraubre.com>
Sent: Wednesday, August 13, 2025 2:47 PM
To: Jun Fujita
Subject: RE: access

Hi Jun,

I have a conflict on Thursday but I am available to meet via zoom on Friday at 2:00. Below is a zoom link for us to use.

Weintraub Zoom is inviting you to a scheduled Zoom meeting.

Topic: My Meeting
Time: Aug 15, 2025 02:00 PM Pacific Time (US and Canada)
Join Zoom Meeting
https://us02web.zoom.us/j/86188788314?pwd=342GmAzRHfvRZo7dzv28UMNp5yua5e.1

Meeting ID: 861 8878 8314
Passcode: 803619

One tap mobile
+16694449171,,86188788314#,,,,*803619# US
+16699009128,,86188788314#,,,,*803619# US (San Jose)

Join instructions
https://us02web.zoom.us/meetings/86188788314/invitations?signature=N5qLfoqa_PGYqUoMQC2NqE0HwvNOhqNRw3PCC53dDlY

Best Regards,

Jake Jesson
Sr. Project Manager
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From: Jun Fujita [redacted]
Sent: Tuesday, August 12, 2025 1:52 PM
To: Jake Jesson <jjesson@weintraubre.com>
Subject: Re: access

Hi Jake,

I would also like to set up a meeting with you, let me know what time works for you on zoom.
Thursday, August 14: 11 am or
Friday, August 15: 2 pm, 4 pm

Thanks,
Jun

On Mon, Aug 11, 2025 at 11:00 AM Jun Fujita [redacted] wrote:

> Hi Jake,
> Could we have access to the site to do some of our own geotech studies?
> See attached, please use this one.
> Thanks,
> Jun
>
> On Mon, Aug 11, 2025 at 10:57 AM Jun Fujita [redacted]> wrote:
>
> > Hi Jake,
> > Could we have access to the site to do some of our own geotech studies?
> > See attached
> > Thanks,
> > Jun
> >
> > On Wed, Jul 23, 2025 at 2:20 PM Jake Jesson <jjesson@weintraubre.com> wrote:
> >
> > > Sounds good Jun.
> > >
> > > Jake Jesson
> > >
> > > Sr. Project Manager
> > >
> > > **Weintraub Real Estate Group**
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Jake,

Yes I understand.

Let me take a closer look at the drawings you have sent to me and I will get back to you.

Thanks,

Jun

On Wed, Jul 23, 2025 at 11:53 AM Jake Jesson <jjesson@weintraubre.com> wrote:

> Hi Jun,
>
> I'm unfortunately not authorized to share the Architect's revit model with parties outside of the internal design team. This is something that Oppenheim takes very seriously and as an architect I'm sure that you can understand.
>
> I remain open to speak and would even welcome Tony to be part of that conversation if you think that would be helpful. Please let me know.

Best Regards,

Jake Jesson

Sr. Project Manager

Weintraub Real Estate Group

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Subject: Re: Jun meet Jake

Hi Jake,

Unfortunately I am booked solid the rest of this week but I would also like to take a closer look at the plans.

The plans appear to have been prepared in revit, could you send me the native file?

Thank you,

Jun

On Mon, Jul 21, 2025 at 2:39 PM Jun Fujita [redacted] wrote:

> Hi Jake,
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> Great, let me find a time and get back to you.
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> 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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---

From: Jake Jesson
Sent: Saturday, July 19, 2025 6:54 AM

To: Jun Fujita [redacted]
Subject: RE: Jun meet Jake

Hi Jun,

Below is a link to the full set. As mentioned, the file size is pretty large so it can be slow to flip through but this will include anything that you're looking for.

https://www.dropbox.com/scl/fo/whnr0515hgtntoy20rnw8/AA7J4Ru2m1fSZVfpUoz4070?rlkey=jifh3ps9rztjw00pmhuiqlq0t&st=uuv5b1ev&dl=0

Best Regards,

Jake Jesson

Sr. Project Manager

Weintraub Real Estate Group

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From: Jun Fujita <[redacted]
Sent: Friday, July 18, 2025 8:47 PM
To: Jake Jesson <jjesson@weintraubre.com>
Subject: Re: Jun meet Jake

Jake,

More specifically, could you send over sheet A108,A109, A110, A111, A 200, A201, A202, A203, A204, A205, A206, A207, A300, A 301, A302, and A303.

Thank you.

Kind regards,

Jun

On Fri, Jul 18, 2025 at 8:27 PM Jun Fujita [redacted] > wrote:

> Jake,
>
> Thanks for sending this over, could you send over all the elevations drawing sheets.
>
> Thank you,
>
> Jun
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> On Fri, Jul 18, 2025 at 4:44 PM Jake Jesson <jjesson@weintraubre.com> wrote:
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> >
> > Thanks for reaching out. The plan set is pretty robust and makes it hard to filter through due to file size but I've pulled the high level sheets into a smaller set here for you to review.

Tony referenced that you had concerns with privacy which I completely understand. I can assure you that the development intends to fully screen visibility to and from all lower properties. Please flip through these and give me a call when you have a chance to discuss.

https://www.dropbox.com/scl/fo/nizcp3bpr6xjb9gm8kxr6/AMH-GGgTalCyTbt6n5wpbLc?rlkey=ezgx11y6tlo6hf2rqnt4gn4ci&st=qiur6k1b&dl=0

Thanks,

Jake Jesson

Sr. Project Manager

Weintraub Real Estate Group

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From: Jun Fujita [redacted]
Sent: Friday, July 18, 2025 3:43 PM
To: Jake Jesson <jjesson@weintraubre.com>
Subject: Re: Jun meet Jake

Jake,

Thank you for your quick response, could you send us a pdf of the plans so I may review and then give you a call to discuss?

Thanks,

Jun

On Fri, Jul 18, 2025 at 2:20 PM Jake Jesson <jjesson@weintraubre.com> wrote:

> Thank you for the introduction Tony.
>
> Jun – Pleasure to meet you here via email. I'd be happy to discuss the project with you so please let me know when would be a good time to speak.
>
> Thanks,
>
> Jake Jesson
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> Sr. Project Manager
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From: Tony Canzoneri [redacted]
Sent: Friday, July 18, 2025 2:15 PM
To: Jake Jesson <jjesson@weintraubre.com>; Jun Fujita Hall <[redacted]
Subject: Jun meet Jake

Jun, Jake is prepared to go over the plans with you and hear about any concerns you have. Please let him know when you are available and your contact info.

Just to confirm that our firm will not be involved in representing any parties related to the 25200 PCH project as we have attorney client relationships with both parties.

Have a great week-end!

Tony Canzoneri

Strategic Solutions for Business and Government

[redacted]

Planning Commission

From: Jake Jesson <jjesson@weintraubre.com>
Sent: Friday, August 15, 2025 1:28 PM
To: Jun Fujita
Subject: RE: access

No problem Jun. Hope you enjoy a nice weekend.

Jake Jesson
Sr. Project Manager
Weintraub Real Estate Group
P.O. Box 6528, Malibu, CA 90264
jjesson@weintraubre.com
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---

From: Jun Fujita [redacted]
Sent: Friday, August 15, 2025 1:24 PM
To: Jake Jesson <jjesson@weintraubre.com>
Subject: Re: access

Hi Jake,

I apologize, I need to cancel our meeting for today at 2pm.

Thanks,
Jun

On Wed, Aug 13, 2025 at 5:00 PM Jake Jesson <jjesson@weintraubre.com> wrote:

> Sounds good Jun and look forward to speaking then.
>
> Jake Jesson
>
> Sr. Project Manager
>
> **Weintraub Real Estate Group**

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jjesson@weintraubre.com

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---

From: Jun Fujita [redacted]
Sent: Wednesday, August 13, 2025 4:48 PM
To: Jake Jesson <jjesson@weintraubre.com>
Subject: Re: access

Hi Jake,

I am available Friday at 2pm, my attorney will join the call also.

Thank you,

Jun

On Wed, Aug 13, 2025 at 2:47 PM Jake Jesson <jjesson@weintraubre.com> wrote:

> Hi Jun,
>
> I have a conflict on Thursday but I am available to meet via zoom on Friday at 2:00. Below is a zoom link for us to use.

Weintraub Zoom is inviting you to a scheduled Zoom meeting.

Topic: My Meeting

Time: Aug 15, 2025 02:00 PM Pacific Time (US and Canada)

Join Zoom Meeting

https://us02web.zoom.us/j/86188788314?pwd=342GmAzRHfvRZo7dzv28UMNp5yua5e.1

Meeting ID: 861 8878 8314

Passcode: 803619

One tap mobile

+16694449171,,86188788314#,,,,*803619# US

+16699009128,,86188788314#,,,,*803619# US (San Jose)

Join instructions

https://us02web.zoom.us/meetings/86188788314/invitations?signature=N5qLfoqa_PGYqUoMQC2NqE0HwvNOhqNRw3PCC53dDlY

Best Regards,

Jake Jesson

Sr. Project Manager

Weintraub Real Estate Group

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---

From: Jun Fujita [redacted]
Sent: Tuesday, August 12, 2025 1:52 PM
To: Jake Jesson <jjesson@weintraubre.com>
Subject: Re: access

Hi Jake,

I would also like to set up a meeting with you, let me know what time works for you on zoom.

Thursday, August 14: 11 am or
Friday, August 15: 2 pm, 4 pm

Thanks,

Jun

On Mon, Aug 11, 2025 at 11:00 AM Jun Fujita [redacted] > wrote:

> Hi Jake,
>
> Could we have access to the site to do some of our own geotech studies?

See attached, please use this one.

Thanks,
Jun

On Mon, Aug 11, 2025 at 10:57 AM Jun Fujita [redacted]> wrote:

> Hi Jake,
>
> Could we have access to the site to do some of our own geotech studies?
>
> See attached
>
> Thanks,
> Jun

On Wed, Jul 23, 2025 at 2:20 PM Jake Jesson <jjesson@weintraubre.com> wrote:

> Sounds good Jun.

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

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From: Jun Fujita [redacted]
Sent: Wednesday, July 23, 2025 1:35 PM
To: Jake Jesson <jjesson@weintraubre.com>
Subject: Re: Jun meet Jake

Jake,

Yes I understand.

Let me take a closer look at the drawings you have sent to me and I will get back to you.

Thanks,

Jun

On Wed, Jul 23, 2025 at 11:53 AM Jake Jesson <jjesson@weintraubre.com> wrote:

> Hi Jun,
>
> I'm unfortunately not authorized to share the Architect's revit model with parties outside of the internal design team. This is something that Oppenheim takes very seriously and as an architect I'm sure that you can understand.
>
> I remain open to speak and would even welcome Tony to be part of that conversation if you think that would be helpful. Please let me know.
>
> Best Regards,
>
> Jake Jesson
>
> Sr. Project Manager
>
> **Weintraub Real Estate Group**

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jjesson@weintraubre.com

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From: Jun Fujita [redacted]
Sent: Wednesday, July 23, 2025 11:21 AM
To: Jake Jesson <jjesson@weintraubre.com>
Subject: Re: Jun meet Jake

Hi Jake,

Unfortunately I am booked solid the rest of this week but I would also like to take a closer look at the plans.

The plans appear to have been prepared in revit, could you send me the native file?

Thank you,

Jun

On Mon, Jul 21, 2025 at 2:39 PM Jun Fujita [redacted] > wrote:

> Hi Jake,
>
> Great, let me find a time and get back to you.

Thanks,

Jun

On Mon, Jul 21, 2025 at 1:41 PM Jake Jesson <jjesson@weintraubre.com> wrote:

> Hi Jun,
>
> We received notice that a few of the commissioners weren't able to attend due to personal matters. As a result of this, tonight's hearing is being postponed.
>
> Please let me know what your availability looks like this week.
>
> Thanks,
>
> Jake Jesson
>
> Sr. Project Manager
>
> **Weintraub Real Estate Group**
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From: Jun Fujita [redacted]
Sent: Monday, July 21, 2025 12:44 PM
To: Jake Jesson <jjesson@weintraubre.com>
Subject: Re: Jun meet Jake

Hi Jake,

Unfortunately I do not, which is why I would like a mutual continuance, let me know if this is possible.

Thank you

Jun

On Mon, Jul 21, 2025 at 11:13 AM Jake Jesson <jjesson@weintraubre.com> wrote:

> Hi Jun,
>
> Are you able to speak at all today?
>
> As I understand it, your concerns center around privacy which I firmly believe won't be an issue given that this will be a focal point for us as well during working drawings as we won't visibility from below into our site as well. Please let me know if you have a few minutes to discuss today and on that call we can speak about concerns as well as the idea of a continuance.
>
> Thanks,
>
> Jake Jesson
>
> Sr. Project Manager

Weintraub Real Estate Group

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From: Jun Fujita <[redacted]
Sent: Monday, July 21, 2025 10:51 AM
To: Jake Jesson <jjesson@weintraubre.com>
Subject: Re: Jun meet Jake

Hi Jake,

Thank you for checking in, I would like to request a mutual 30 day continuance so that we can discuss further.

Let me know if that sounds ok.

Thanks,

Jun

On Mon, Jul 21, 2025 at 10:35 AM Jake Jesson <jjesson@weintraubre.com> wrote:

> Hi Jun,

I hope that you enjoyed a nice weekend and just wanted to check in to see if you've had a chance to review the plans for 25200 PCH.

Best Regards,

Jake Jesson

Sr. Project Manager

Weintraub Real Estate Group

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jjesson@weintraubre.com

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From: Jake Jesson
Sent: Saturday, July 19, 2025 6:54 AM
To: Jun Fujita <[redacted]
Subject: RE: Jun meet Jake

Hi Jun,

Below is a link to the full set. As mentioned, the file size is pretty large so it can be slow to flip through but this will include anything that you're looking for.

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More specifically, could you send over sheet A108,A109, A110, A111, A 200, A201, A202, A203, A204, A205, A206, A207, A300, A 301, A302, and A303.

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Kind regards,

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Sent: Friday, July 18, 2025 3:43 PM
To: Jake Jesson <jjesson@weintraubre.com>
Subject: Re: Jun meet Jake

Jake,

Thank you for your quick response, could you send us a pdf of the plans so I may review and then give you a call to discuss?

Thanks,

Jun

On Fri, Jul 18, 2025 at 2:20 PM Jake Jesson <jjesson@weintraubre.com> wrote:

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>
> **From:** Tony Canzoneri [redacted]
> **Sent:** Friday, July 18, 2025 2:15 PM
> **To:** Jake Jesson <jjesson@weintraubre.com>; Jun Fujita Hall [redacted]
> **Subject:** Jun meet Jake

Jun, Jake is prepared to go over the plans with you and hear about any concerns you have. Please let him know when you are available and your contact info.

Just to confirm that our firm will not be involved in representing any parties related to the 25200 PCH project as we have attorney client relationships with both parties.

Have a great week-end!

Tony Canzoneri

Strategic Solutions for Business and Government



Planning Commission

From: Jake Jesson <jjesson@weintraubre.com>
Sent: Tuesday, October 7, 2025 4:50 PM
To: Jun Fujita
Subject: RE: meeting geo tech engineer

Hi Jun,

Thanks for reaching out.

We along with our Geologist will be meeting with some of the other neighbors at 4:00 on 10/22. I believe that Chris Reed has extended an invite for you to attend this meeting and would be great if you could be present along with your Geologist so that we can all discuss together. Please let me know if that works for you.

Best Regards,

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
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---

From: Jun Fujita [redacted]
Sent: Tuesday, October 7, 2025 2:31 PM
To: Jake Jesson <jjesson@weintraubre.com>
Subject: meeting geo tech engineer

Jake,

Could we set up a meeting with Josh and our geotech engineer
Please send me some times that would work

Thanks,
Jun

Planning Commission

From: Jake Jesson <jjesson@weintraubre.com>
Sent: Thursday, October 9, 2025 1:47 PM
To: Jun Fujita
Subject: RE: meeting geo tech engineer for 25200 PCH

Hi Jun,

For a number of reasons, we unfortunately cannot allow a third party consultant perform work on our property. We hope to see you at the meeting on the 22nd.

Best Regards,

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
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---

From: Jun Fujita [redacted]
Sent: Thursday, October 9, 2025 12:31 PM
To: Jake Jesson <jjesson@weintraubre.com>
Subject: Re: meeting geo tech engineer for 25200 PCH

Hi Jake,
We have not gotten a response from you on the access agreement, please allow us to do our own borings and place inclinometers on the property. We would like to do these borings prior to meeting with your engineer.
Thanks,
Jun

On Tue, Oct 7, 2025 at 4:49 PM Jake Jesson <jjesson@weintraubre.com> wrote:

> Hi Jun,
>
> Thanks for reaching out.

We along with our Geologist will be meeting with some of the other neighbors at 4:00 on 10/22. I believe that Chris Reed has extended an invite for you to attend this meeting and would be great if you could be present along with your Geologist so that we can all discuss together. Please let me know if that works for you.

Best Regards,

Jake Jesson

Sr. Project Manager

Weintraub Real Estate Group

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From: Jun Fujita [redacted]
Sent: Tuesday, October 7, 2025 2:31 PM
To: Jake Jesson <jjesson@weintraubre.com>
Subject: meeting geo tech engineer

Jake,

> Could we set up a meeting with Josh and our geotech engineer
>
> Please send me some times that would work
>
> Thanks,
>
> Jun

Planning Commission

From: Jake Jesson <jjesson@weintraubre.com>
Sent: Tuesday, October 21, 2025 4:20 PM
To: Chris Reed; TOM & HOLLY; ALEX & JUN HALL; RICHARD & BEATA; TRICIA; Sandro Dazzan; Wendy Carroll Eskan; Matt Eskan; NANETTE & PETER; SHARONE KARSH
Cc: PAT SCHONE
Subject: RE: RESCHEDULE MEETING
Attachments: 2025.08.20 Feffer Response to Pacific Coast Land Consulting Report re PARPCH.pdf

Hi All,

If we haven't yet spoken, my name is Jake Jesson and I work with Richard Weintraub. We are looking forward to meeting with you tomorrow at the Reed's residence and in advance I wanted to send you a copy the attached report which addresses the comments made by Pacific Coast Land Consulting.

Our Geologist will be present at the meeting tomorrow and ready to address any questions that you may have.

Best Regards,

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
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---

From: Chris Reed [redacted]
Sent: Monday, September 29, 2025 3:34 PM
To: TOM & HOLLY [redacted]; ALEX & JUN HALL [redacted]; RICHARD & BEATA [redacted]; TRICIA [redacted]>; Sandro Dazzan [redacted]>; Wendy Carroll Eskan [redacted]>; Matt Eskan [redacted]>; NANETTE & PETER [redacted]; SHARONE KARSH [redacted]
Cc: PAT SCHONE [redacted]
Subject: RESCHEDULE MEETING

Hello Neighbors.
Richard Weintraub and I have rescheduled the meeting at my house for Wednesday, October 22 @ 4:00 pm. I hope all of you can arrange your schedules to include this important meeting. Bring your questions and concerns and they will be addressed and answered.

P.S. Jun, Richard particularly asked if you would please attend so he and his geologist could address your concerns. Please come.

Chris Reed

[redacted]

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.

Planning Commission

From: Chris Reed [redacted]
Sent: Thursday, December 4, 2025 10:29 AM
To: ALEX & JUN HALL
Cc: Jake Jesson; Lisa Strickland; cc: Josh Feffer; Richard Weintraub; PAT SCHONE
Subject: WEINTRAUB MEETING

Hi Jun. We have reached out to you for a convenient date for you to meet with your neighbors re: the Weintraub proposed construction of a house directly above many of us. The hearing at city hall is scheduled for Dec 16th so we would like to meet on an afternoon around 4:00pm between now and then. Surely you can come up with a day in that time frame.
Please let me know of the date of your choice asap so I can set it up with the other neighbors and the Weintraub team.

--

Chris Reed
[redacted]

Planning Commission

From: Jake Jesson <jjesson@weintraubre.com>
Sent: Wednesday, January 7, 2026 3:15 PM
To: Jun Fujita
Subject: RE: meeting geo tech engineer for 25200 PCH

Hi Jun,

Thank you for reaching out. As you know, we've tried to organize multiple community meetings with our consultants present to address any questions that you or other community members may have about our project. I'm not sure why but the Reed's who have been trying to schedule these meetings say that they've never heard back from you as to your availability to attend.

We will be reaching out to try for another meeting and really hope that you can come.

Best Regards,

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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---

From: Jun Fujita [redacted]
Sent: Monday, January 5, 2026 1:08 PM
To: Jake Jesson <jjesson@weintraubre.com>
Subject: Re: meeting geo tech engineer for 25200 PCH

Hi Jake,

Following up, on 25200 PCH we are very concerned that 25200 PCH is going to cause instability and the soil is going to come down the slope to the homes below, this has happened before if you didn't know, residents remember a house being washed away right below 25200 PCH. Residents familiar with landslides in the city say putting water in a known slide is a bad idea, the city is pumping out water and 25200 PCH is putting water in.

Thanks,
Jun

On Mon, Dec 15, 2025 at 1:53 PM Jun Fujita [redacted] wrote:

> Hi Jake,
>
> Hope all is well.
> We still have the same concerns, could you have Josh Feffer respond to alleviate our concerns, with water is being introduced to a known slide assessment area where water is actively being removed from it, he did not address that in his response…it seems like only your site was studied and not the impact to our properties down below and causing instability. You guys are putting water into our slide plane…and is very concerning.
>
> Thanks,
> Jun
>
> On Wed, Oct 22, 2025 at 10:22 AM Jun Fujita [redacted] wrote:
>
> > Hi Jake,
> > Unfortunately I am not able to attend.
> > Thanks,
> > Jun
> >
> > On Thu, Oct 9, 2025 at 1:47 PM Jake Jesson <jjesson@weintraubre.com> wrote:
> >
> > > Hi Jun,
> > >
> > > For a number of reasons, we unfortunately cannot allow a third party consultant perform work on our property. We hope to see you at the meeting on the 22nd.
> > >
> > > Best Regards,
> > >
> > > 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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From: Jun Fujita [redacted]
Sent: Thursday, October 9, 2025 12:31 PM
To: Jake Jesson <jjesson@weintraubre.com>
Subject: Re: meeting geo tech engineer for 25200 PCH

Hi Jake,

We have not gotten a response from you on the access agreement, please allow us to do our own borings and place inclinometers on the property. We would like to do these borings prior to meeting with your engineer.

Thanks,

Jun

On Tue, Oct 7, 2025 at 4:49 PM Jake Jesson <jjesson@weintraubre.com> wrote:

> Hi Jun,
>
> Thanks for reaching out.
>
> We along with our Geologist will be meeting with some of the other neighbors at 4:00 on 10/22. I believe that Chris Reed has extended an invite for you to attend this meeting and would be great if you could be present along with your Geologist so that we can all discuss together. Please let me know if that works for you.
>
> Best Regards,

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

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From: Jun Fujita [redacted]
Sent: Tuesday, October 7, 2025 2:31 PM
To: Jake Jesson <jjesson@weintraubre.com>
Subject: meeting geo tech engineer

Jake,

Could we set up a meeting with Josh and our geotech engineer

Please send me some times that would work

Thanks,

Jun

Planning Commission

From: Jake Jesson <jjesson@weintraubre.com>
Sent: Friday, January 9, 2026 7:56 AM
To: Chris Reed; TOM & HOLLY; ALEX & JUN HALL; RICHARD & BEATA; TRICIA; Sandro Dazzan; Wendy Carroll Eskan; Matt Eskan; NANETTE & PETER; SHARONE KARSH
Cc: PAT SCHONE
Subject: RE: RESCHEDULE MEETING

Hello All,

My name is Jake Jesson reaching out to you on behalf of the Weintraub Real Estate Group in connection to the proposed house at 25200 Pacific Coast Highway.

We've attempted to arrange for a community meeting to discuss the project in the past but for a variety of reasons have not yet gotten something scheduled. Our project was on calendar for the December 16th Planning Commission hearing but unfortunately the item ahead of us ran long so we were continued to the next hearing on January 20th.

In the past, Chris Reed has graciously offered to host this meeting but he will be out of town this coming week and therefore I'm reaching out to see if anyone would be interested in a zoom meeting to learn more about the project and ask questions. There is some flexibility in regards to scheduling but as of now I'm thinking Wednesday afternoon, 1/14.

Please let me know if you would be interested in participating in this meeting and also if that time frame works for you.

Best Regards,

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
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From: Chris Reed [redacted]
Sent: Monday, September 29, 2025 3:34 PM
To: TOM & HOLLY <[redacted]; ALEX & JUN HALL [redacted]>; RICHARD & BEATA [redacted]; TRICIA [redacted]; Sandro Dazzan [redacted]>; Wendy Carroll Eskan [redacted]>; Matt Eskan [redacted]; NANETTE & PETER [redacted]

SHARONE KARSH [redacted]
Cc: PAT SCHONE [redacted]
Subject: RESCHEDULE MEETING

Hello Neighbors.
Richard Weintraub and I have rescheduled the meeting at my house for Wednesday, October 22 @ 4:00 pm. I hope all of you can arrange your schedules to include this important meeting. Bring your questions and concerns and they will be addressed and answered.

P.S. Jun, Richard particularly asked if you would please attend so he and his geologist could address your concerns. Please come.

Chris Reed
[redacted]

Planning Commission

From: Jake Jesson <jjesson@weintraubre.com>
Sent: Monday, January 12, 2026 9:10 AM
To: Chris Reed; TOM & HOLLY; ALEX & JUN HALL; RICHARD & BEATA; TRICIA; Sandro Dazzan; Wendy Carroll Eskan; Matt Eskan; NANETTE & PETER; SHARONE KARSH
Cc: PAT SCHONE; Richard Weintraub; Lisa Strickland; Joshua R. Feffer [redacted]
Subject: RE: RESCHEDULE MEETING

Circling back on the below.

I've heard back from Patricia and Holly and sounds like 4:00 on the 14th works for them via zoom. Would anyone else like to participate and if so would that time also work for you?

Jun – You've been very vocal about the project and it's unfortunate that you don't want to attend any of these meetings. If your intention truly is to learn more about the project then this would be the perfect scenario to do so and we very much encourage both yourself as well as your Geologist to attend so that we can all speak openly together.

Best Regards,

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
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From: Jake Jesson
Sent: Friday, January 9, 2026 7:57 AM
To: 'Chris Reed' [redacted]; TOM & HOLLY [redacted]; ALEX & JUN HALL [redacted]; RICHARD & BEATA [redacted]; TRICIA [redacted]; Sandro Dazzan [redacted]; Wendy Carroll Eskan [redacted]; Matt Eskan [redacted]; NANETTE & PETER [redacted]; SHARONE KARSH [redacted]
Cc: PAT SCHONE [redacted]
Subject: RE: RESCHEDULE MEETING

Hello All,

My name is Jake Jesson reaching out to you on behalf of the Weintraub Real Estate Group in connection to the proposed house at 25200 Pacific Coast Highway.

We've attempted to arrange for a community meeting to discuss the project in the past but for a variety of reasons have not yet gotten something scheduled. Our project was on calendar for the December 16th Planning Commission hearing but unfortunately the item ahead of us ran long so we were continued to the next hearing on January 20th.

In the past, Chris Reed has graciously offered to host this meeting but he will be out of town this coming week and therefore I'm reaching out to see if anyone would be interested in a zoom meeting to learn more about the project and ask questions. There is some flexibility in regards to scheduling but as of now I'm thinking Wednesday afternoon, 1/14.

Please let me know if you would be interested in participating in this meeting and also if that time frame works for you.

Best Regards,

Jake Jesson
Sr. Project Manager
Weintraub Real Estate Group
P.O. Box 6528, Malibu, CA 90264
jjesson@weintraubre.com
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---

From: Chris Reed [redacted]
Sent: Monday, September 29, 2025 3:34 PM
To: TOM & HOLLY <[redacted]>; ALEX & JUN HALL [redacted] RICHARD & BEATA [redacted]; TRICIA [redacted]>; Sandro Dazzan <[redacted] Wendy Carroll Eskan <[redacted]; Matt Eskan [redacted]; NANETTE & PETER <[redacted]; SHARONE KARSH [redacted]
Cc: PAT SCHONE [redacted]
Subject: RESCHEDULE MEETING

Hello Neighbors.
Richard Weintraub and I have rescheduled the meeting at my house for Wednesday, October 22 @ 4:00 pm. I hope all of you can arrange your schedules to include this important meeting. Bring your questions and concerns and they will be addressed and answered.

P.S. Jun, Richard particularly asked if you would please attend so he and his geologist could address your concerns. Please come.

Chris Reed



From:	Jake Jesson
To:	Chris Reed; TOM & HOLLY; ALEX & JUN HALL; RICHARD & BEATA; TRICIA; Sandro Dazzan; Wendy Carroll Eskan; Matt Eskan; NANETTE & PETER; SHARONE KARSH
Cc:	PAT SCHONE; Richard Weintraub; Don Schmitz - Schmitz & Associates, Inc. (dons@schmitzandassociates.net); Chris Deleau - Schmitz & Associates, Inc. (cdeleau@schmitzandassociates.net)
Subject:	PARPCH: Meeting

Hi All,

It's been a few weeks since we last communicated and hope that everyone has been well.

As you may know, we have our follow up hearing with the Planning Commission for 25200 PCH coming up in one week on 2/17. Similar to before, we want to extend the availability of ourselves along with our consultants so please let me know if there is a desire to meet prior to the hearing.

We hope to hear from you and will remain open to answer any questions or discuss project concerns that anyone may have so please do reach out if you'd like to discuss.

Best Regards,

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
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Received
2/13/26
Planning Div.

From: Jake Jesson
To: Planning Commission
Cc: Rebecca Evans; Allison Cook
Subject: PARPCH: Voluntary Conditions
Date: Friday, February 13, 2026 1:18:55 PM

Dear Commissioners,

My name is Jake Jesson and I'm reaching out to you as a member of the Applicant's team regarding 25200 Pacific Coast Highway, Item 4.A on your upcoming agenda.

Pursuant to concerns raised by some members of the public, we are proposing to voluntarily add the two below conditions of approval for the subject property.

1. Applicant shall record a deed restriction on the property noting that the home can never be used for operations of a residential rehab facility.
2. Applicant to voluntarily incorporate vibration monitoring during construction of the proposed home as directed by the City Geologist.

Best Regards

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 2/13/26 Time 1:19pm
Planning Commission meeting of 2/17/26
Agenda Item No. 4.A.
Total No. of Pages 1

Received
2/17/26
Planning Div.

From: Jan Ravlich
To: Planning Commission
Subject: 25200 Pacific Coast Highway
Date: Tuesday, February 17, 2026 10:49:04 AM

Honorable Chair and Members of the Planning Commission,

We respectfully oppose the proposed development at 25200 Pacific Coast Highway due to unresolved geologic risks and permanent scenic impacts.

The property lies within a mapped landslide hazard area and the Malibu Road Landslide Assessment District. The record reflects that stabilization elements relied upon have been altered, and the applicant's own calculations show the required 1.5 factor of safety is not met without extraordinary structural measures.

Under these conditions, a variance is required before any discretionary approval. It has not been applied for.

There is also documented evidence of water-related slope instability in this area. Water is a primary landslide trigger, and the proposed irrigation plan introduces additional unknown loading into an already unstable slope. Slope failure would affect not only this parcel, but downslope homes, Malibu Road, and Pacific Coast Highway.

In addition, Pacific Coast Highway is a designated scenic corridor. The scale of this project and proposed lot merger would permanently block iconic public views toward Paradise Cove, Point Dume, Catalina Island, Palos Verdes, and the open Pacific horizon. Once blocked, these views are lost forever.

Because the required findings cannot be made and a variance has not been secured, this project should not proceed.

Separately, Item 5A at 33008 PCH should not move forward until the potential burial site is properly evaluated and confirmed by the Chumash Tribe's designated cultural resource manager.

Malibu's safety, heritage, and coastline deserve careful protection.

Respectfully,
Jan Ravlich
Lived in Malibu 15 years

CC: Planning Commission, PD,

Recording Secretary, File

Date Received 2/17/26 Time 10:50 a.m.
Planning Commission meeting of 2/17/26
Agenda Item No. 4A
Total No. of Pages 1

Received
2/17/26
Planning Div.

From: Leticia Aloi
To: Planning Commission
Cc: [redacted]
Subject: Item 4A and 5A Planning commission
Date: Tuesday, February 17, 2026 8:35:05 AM

- **25200 Pacific Coast Highway**

  Honorable Chair and Members of the Planning Commission,

  We respectfully oppose the proposed development at 25200 Pacific Coast Highway due to unresolved geologic risks and permanent scenic impacts.

  The property lies within a mapped landslide hazard area and the Malibu Road Landslide Assessment District. The record reflects that stabilization elements relied upon have been altered, and the applicant's own calculations show the required 1.5 factor of safety is not met without extraordinary structural measures.

  Under these conditions, a variance is required before any discretionary approval. It has not been applied for.

  There is also documented evidence of water-related slope instability in this area. Water is a primary landslide trigger, and the proposed irrigation plan introduces additional unknown loading into an already unstable slope. Slope failure would affect not only this parcel, but downslope homes, Malibu Road, and Pacific Coast Highway.

  In addition, Pacific Coast Highway is a designated scenic corridor. The scale of this project and proposed lot merger would permanently block iconic public views toward Paradise Cove, Point Dume, Catalina Island, Palos Verdes, and the open Pacific horizon. Once blocked, these views are lost forever.

  Because the required findings cannot be made and a variance has not been secured, this project should not proceed.

  Separately, Item 5A at 33008 PCH should not move forward until the potential burial site is properly evaluated and confirmed by the Chumash Tribe's designated cultural resource manager.

  Malibu's safety, heritage, and coastline deserve careful protection.

  Respectfully,
  Leticia Aloi
  Lived in Malibu 26__ years

-

CC: Planning Commission, PD,

Recording Secretary, File

Date Received 2/17/26 Time 8:35 a.m.
Planning Commission meeting of 2/17/26
Agenda Item No. 4A
Total No. of Pages 1

Received
2/17/26
Planning Div.

From: Malibu Township Council
To: Planning Commission; Skylar Peak; Elizabeth Riddick; John Mazza; Marni Kamins; Drew Leonard; Rebecca Evans
Cc: Barbara@Coastal Carey; Gabriella@Coastal Gough; Patt Healy; Jun; Bill Sampson; Charlotte Frieze; Peter Jones; Mariela Guastavino; Dru Jacobson; Rosemarie Ihde; Tyler Eaton; Yolanda Bundy; Tiffany Murray; Jan Ravlich
Subject: Fw: 25200 PCH -
Date: Monday, February 16, 2026 8:56:29 PM
Attachments: unnamed-5.png
unnamed-4.png
2" 2".png
3" 3".png
5" 5".png
viewcatalina.png
viewpalos verdecatalina-3.png
SHIFT PILES (002)ra .pdf
21_25200 GEO REVIEW LETTER Rep_20230106.pdf

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

Honorable Chair Riddick and Members of the Planning Commission,

The Malibu Township Council has advocated for responsible development since 1947. Our mission has always been to protect public safety, preserve Malibu's scenic resources, and ensure development complies fully with the City's certified Local Coastal Program.

We raise a threshold legal and safety issue:

This project cannot lawfully be approved as proposed. And it should be IMMEDIATELY WITHDRAWN from tomorrow's agenda due to the recent changes made to the plans that now, for certain, require a variance to the factor of safety.

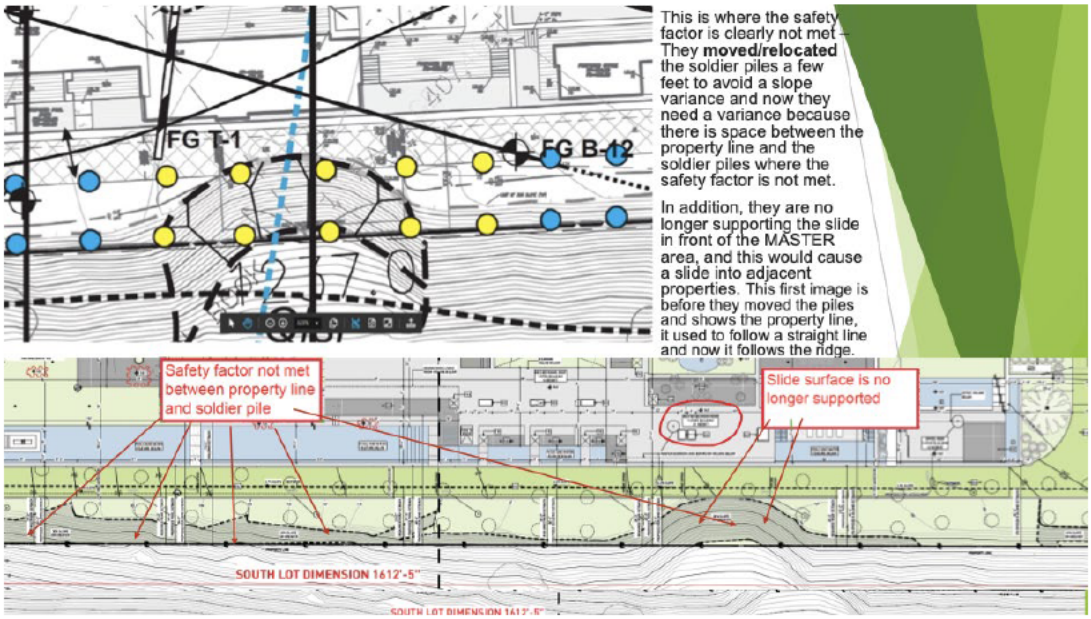
1. The Deep Stabilization Piles Were Moved — Leaving the Landslide Unsupported

The original geotechnical analysis (dated March 25 and November 18, 2021) relied on deep soldier piles along the lower slope to stabilize the mapped and historic landslide mass within the property lines.

CC: Planning Commission, PD,

Recording Secretary, File

Date Received 2/17/26 Time 7:30 a.m.
Planning Commission meeting of 2/17/26
Agenda Item No. 4A
Total No. of Pages 27



Those piles have now been shifted upslope and away from the unstable face of the slope. (see Geotechnical Report attached excerpt p 2. below Jan 6, 2023)

In order to remove the need for a variance and allow development to move forward, the proposed stabilization system will be shifted slightly north and to the top of the slope. Based on a detailed review of the updated plans and discussions with the project structural engineer, it is our opinion that the minor shift in location for the proposed stabilization system will not impact the proposed development and will not negatively impact or reduce the integrity of the stabilization system. The slight adjustment in pile locations will not negatively affect the overall gross stability of the site.

Previous
Replace w

FEFFER
GEOLOGICAL CONSULTING

January 6, 2023 File No. 1992-75

Weintraub Real Estate Group
[redacted]
Malibu, CA 90264

Subject: **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

As a result:

- The landslide mass below the proposed master bedroom is especially no longer being buttressed along with every cross section from 2'2 - 5'5'.
- The area between the property line and the relocated piles does not meet the required factor of safety.

The most vulnerable portion of the slope is now unsupported.

If that slope fails, the movement does not stop at the property line.

It moves downslope — toward existing homes below and toward Malibu Road.

Ralph Jeffery of Pacific Coast Land Consulting, Registered State California Geologist, CEG 1183 RG 3815, confirmed all this in the attached memo dated today - Feb 16, 2026.

2. The Site Fails the Required Factor of Safety

LIP §9.4(D) requires that development on landslides demonstrate a **1.5 static factor of safety under worst-case geologic conditions.**

The applicant's own analyses show static factors between **1.076 and 1.234** — well below the required minimum.

Those calculations already fail the code.

More importantly, those numbers were inflated by assuming stabilization that has now been materially altered. Without piles supporting the lower slope face in front of the primary bedroom/residence, etc. the factor of safety can no longer be met.

The site fails today.

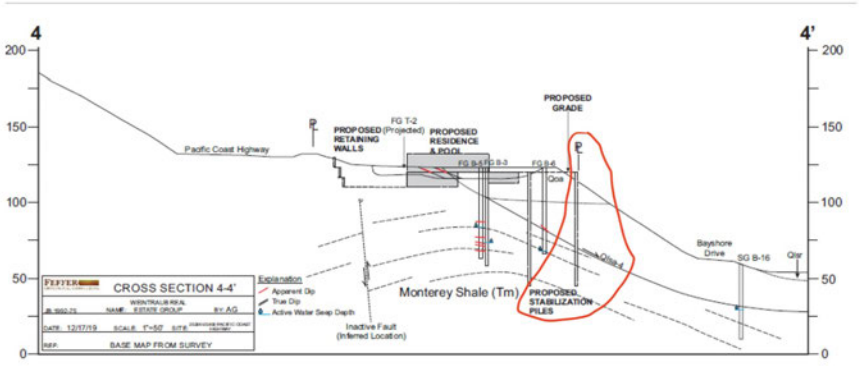
If deep piles are required to pass the test, then the site has already failed it.

Regardless, because the site cannot meet the required factor of safety under existing conditions, **a variance is mandatory** before any discretionary approval. **If the applicant does NOT move the piles as stated on p 158 of the latest staff report (attached below) in the geotechnical consultant's updated report dated Jan. 14, 2026 where it still shows the piles in the slope in front of the main residence then they MUST apply for a variance building in steep slopes which has not yet been applied for.**

EITHER WAY A VARIANCE IS REQUIRED.

In this cross section below it also shows the ancient landslide extending below the proposed residence. This should be at the VERY least addressed under HAZARDS in the findings for the CDP and the variance for the factor of safety recognized and evaluated properly.

site within the subsurface investigation conducted by this office, we assumed that the reported ancient slides existed and used the slide geometry in the slope stability analysis to design the piles and tiebacks in several reports. Please see cross section 4-4' below wherein we drew the reported ancient slide (Qlsa-4) in the December 17, 2019 report.



158
416

3. This Is a Deep-Seated Landslide — Movement Travels Downslope

Cross-sections confirm that this is not a localized instability. The landslide mass extends across the site.

Water intrusion, erosion, and prior infrastructure failures further weaken the slope.

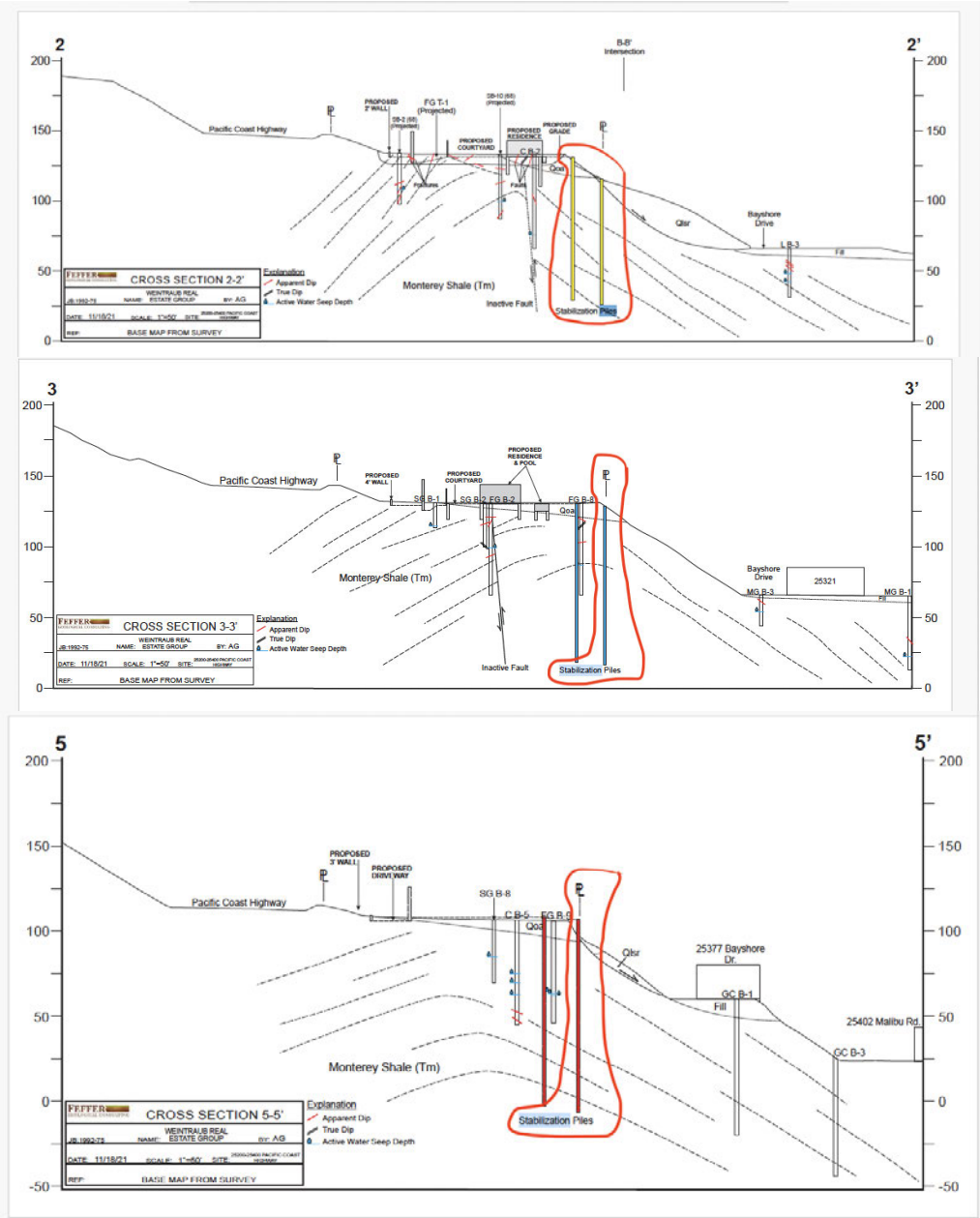
When upslope material loses structural support, it loads the slope below.

That is how downslope homes are damaged.

Approving development under these conditions exposes neighboring properties and the traveling public on Pacific Coast Highway to real risk.

We have already seen the consequences of approving large projects in unstable coastal terrain such as 25040 PCH which caused damage to downslope neighbors upon construction.

The LCP exists to prevent repeat failures. **If all the cross sections (below) described in detail in Feffer's Nov. 18, 2021 report on pps 17-22 (including 4' 4' above)**
- https://drive.google.com/file/d/19FUSy7YI0qoR1q2m90WYfTSiE20DACJZ/view?usp=sharing **- can no longer have piles within the 3:1 plus slope then they CANNOT meet the factor of safety and thus require a VARIANCE.**



17

694

19

694

21

694

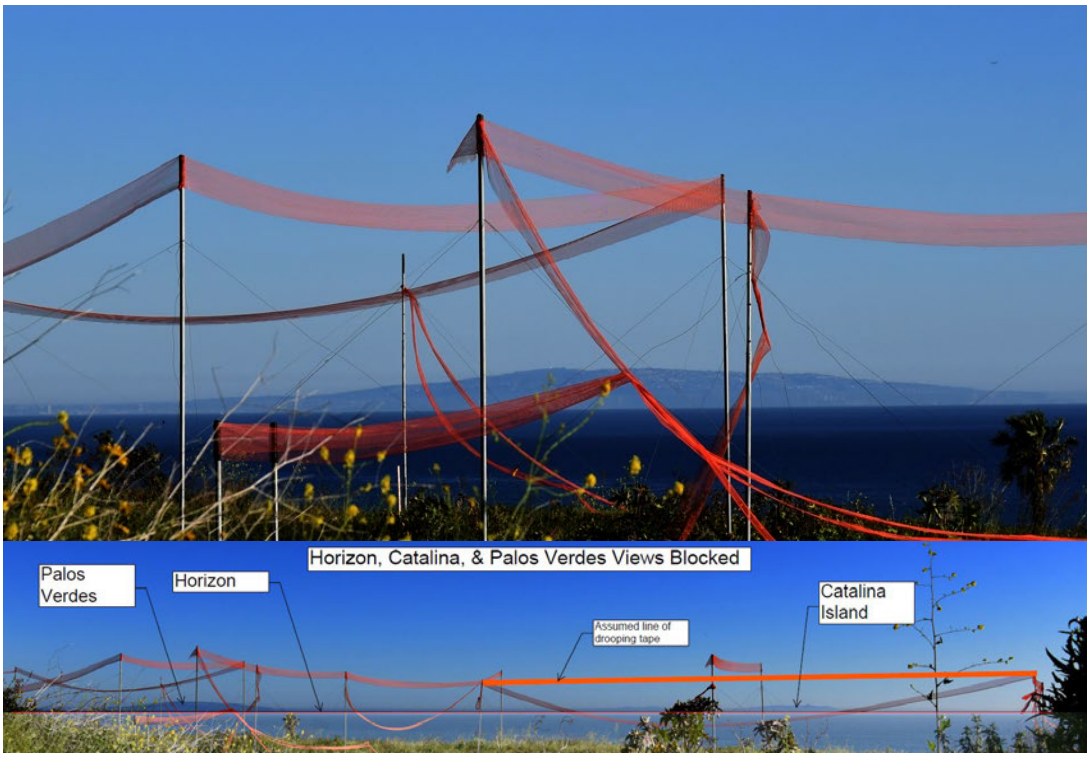
4. Scenic Corridor Impacts — Iconic Malibu Views at Risk

Pacific Coast Highway is a designated scenic corridor.

This project introduces permanent mass that blocks established public views toward:

- Paradise Cove
- Point Dume
- Catalina
- Palos Verdes

The open Pacific horizon



The opposition materials show substantial blockage of public views along PCH and from Puerco Canyon.

The elevated berm and proposed walls further obstruct ocean vistas.

Malibu has historically preserved these open coastal views. Other coastal cities allowed canyon-like oceanside development. Malibu chose differently.

Once these views are blocked, they are lost permanently.

This dangerous project not only threatens public safety — it diminishes one of Malibu's most iconic public assets.

It should not even be under consideration in its current form.

5. Scale and Character — A Speculative Compound on Unstable Land

The proposed development exceeds 11,000 square feet and includes:

- 7 bedrooms
- 11 bathrooms
- Five pools and water features
- Extensive basement and underground structures and grading

- Irrigation

It is more than six times the neighborhood average.

This is not the least environmentally damaging alternative.

It is a speculative compound designed to maximize financial return on land long understood to be unstable.

The property was purchased in 2011 for approximately $270,000 because it was widely known to be unbuildable due to geologic instability and kept as open space.

Nothing about that geologic condition has changed.

6. **The Lots Should Remain Separate**

Finally, the proposed lot merger is central to the scale of this project.

The two lots should remain separated to ensure:

- A smaller, safer home on each parcel
- Reduced grading and stabilization demand
- Greater open space retention
- Preservation of public ocean views across both lots

The staff report describes only the joined configuration. It does not adequately analyze the alternative of maintaining two separate lots and evaluating development potential accordingly.

Maintaining two separate lots provides a materially different development envelope — one that reduces mass, protects views, and better aligns with Malibu's General Plan and Coastal Program policies. This needs to be presented to the Planning Commission to be able to evaluate this reasonable alternative.

The Commission must evaluate not only what is proposed, but what is legally and environmentally preferable. The lot merger enables the oversized compound now before you.

Without the merger, the scale, intensity, and scenic blockage would be significantly reduced.

For that reason alone, the merger should not be approved.

Conclusion

This project:

- Relocates deep stabilization piles, leaving a known landslide unsupported
- Fails to demonstrate the required factor of safety

- Threatens downslope homes and public safety
- Blocks iconic public coastal views
- Proposes massive development on unstable terrain by joining two lots

Under the Local Coastal Program, a variance is required before any discretionary approval.

Without that variance, the Planning Commission lacks legal authority to proceed.

The only lawful and responsible action is denial or continuance pending a properly filed and evaluated variance.

Once these views are blocked, they are gone forever.
Once this slope moves, it cannot be undone.

Thank you for your careful consideration.

Jo Drummond
Malibu Township Council

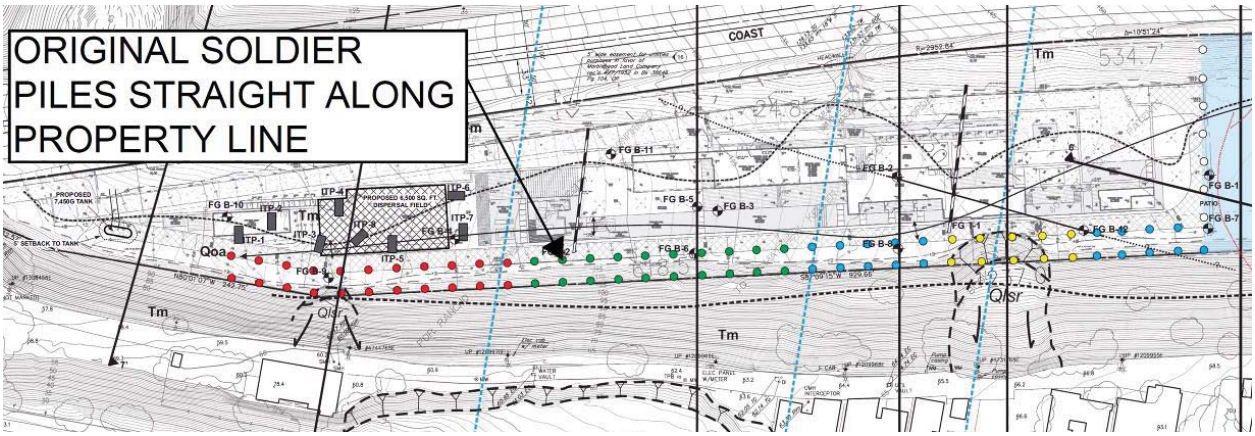
Pacific Coast Land Consulting
Engineering Geologic Services

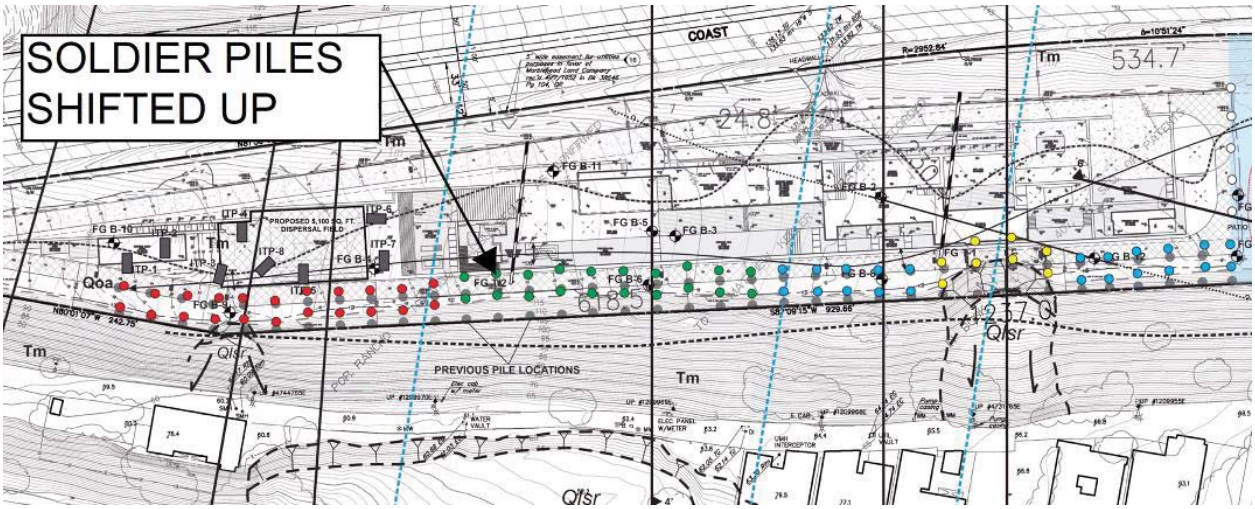
City of Malibu **February 16, 2026**

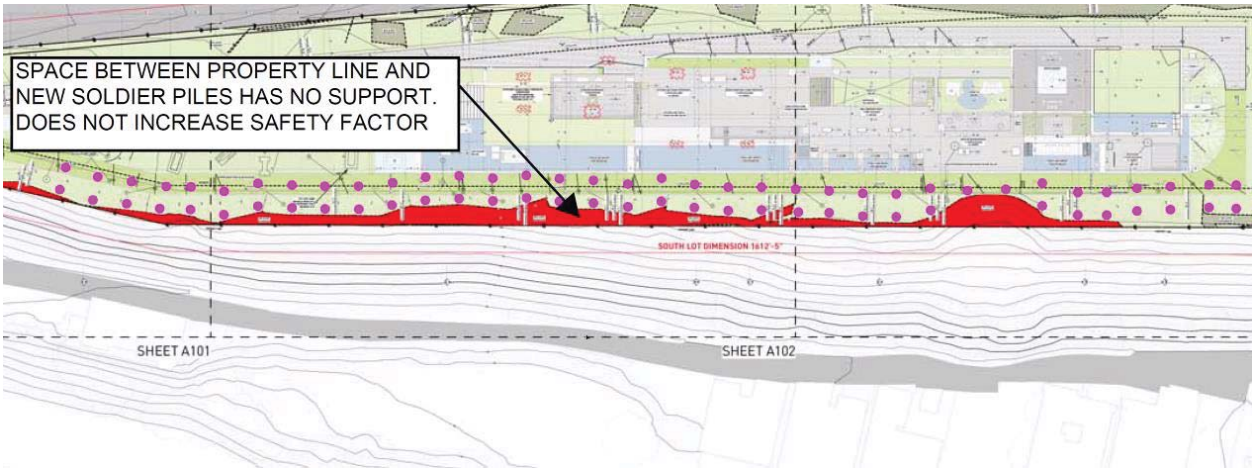
Subject: Slope Stabilization and Protection of Residents

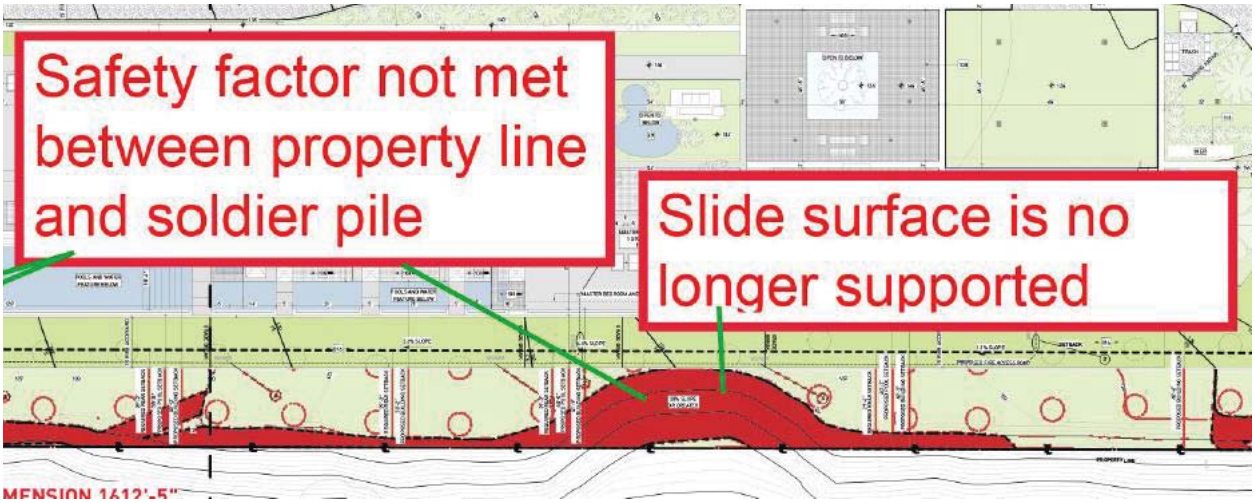
25200PCH Soldier Piles relocated North no longer providing Safety Factor due to the shift

When the soldier piles were moved uphill per January 6, 2023,Feffer report, they were shifted uphill from the property line without a new analysis of the unsupported area. The shift created an area between the property line and soldier piles that does not add any stabilization to meet the required safety factor. Moreover, by relocating the piles outside of the two recent landslides slide Qlsr, the piles no longer function to stabilize the identified slide mass north of the property line within the property 25200 PCH. **<u>This will changes the stability analysis and will now require a variance.</u>**









There are already 2 failures on the slope that originate from the subject property. That are not addressed nor stabilized.

The lack of stabilization withing the subject property coupled with the future infiltration of water presents an elevated risk of failure and a threat to property and life for residents below the proposed development.



Ralph Jeffery

Pacific Coast Land Consulting

CEG 1183 RG 3815

FEFFER
GEOLOGICAL CONSULTING

January 6, 2023 File No. 1992-75

Weintraub Real Estate Group
[redacted]
Malibu, CA 90264

Subject: **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

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
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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:

As requested, Feffer Geological Consulting is providing this addendum letter to address the proposed soldier pile and tieback stabilization system required for site development. This firm previously prepared slope stability analyses to evaluate the overall gross static and seismic stability of the descending slope. Based on multiple iterations of the slope stability analyses under worst-case scenarios and evaluation by the City reviewers, we determined that the site could be stabilized by utilizing two rows of soldier piles and tieback anchors.

Originally, the soldier piles and tieback anchors were planned to be located along the southern property line, and therefore some of the piles would be located on a small portion of the descending slope. It is our understanding that the construction of the stabilization system on the descending slope would require a variance from the City of Malibu.

In order to remove the need for a variance and allow development to move forward, the proposed stabilization system will be shifted slightly north and to the top of the slope. Based on a detailed review of the updated plans and discussions with the project structural engineer, it is our opinion that the minor shift in location for the proposed stabilization system will not impact the proposed development and will not negatively impact or reduce the integrity of the stabilization system. The slight adjustment in pile locations will not negatively affect the overall gross stability of the site.

The proposed stabilization system has been conservatively designed for worst-case scenarios under both static and seismic conditions. The depths and widths of the proposed stabilization piles are not expected to change substantially. However, the final design details will be thoroughly reviewed by this firm and the structural engineer during plan

check. Therefore, the proposed location for the stabilization system is acceptable from a geotechnical perspective.

The site map illustrating the location of the previous pile locations, and the new pile locations is attached. A copy of the updated plans showing the location of the soldier piles and tieback anchors is attached at the back of this letter for reference.

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)

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Principal Engineering Geologist
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Dan Daneshfar
Principal Engineer
P.E. 68377



Distribution: Addressee– (1)

FEFFER GEOLOGICAL BORING MEASUREMENTS

FG B-1: 20 @12°; 23 @15°; 49 @22°; Seep @44°

FG B-2: 51 @10.5°; 65 @14°; Seep @32°; 25 @36°

FG B-3: 39 @19.5°

FG B-4: 19 @18.5°; 30 @23°; Seep @27°; 15 @35°

FG B-5: 08 @8°; 24 @24°; 16 @35.2°; Seep @39.6°; 03 @45.8°; 28 @49°; 51°; 23 @54.5°

FG B-6: 10 @14°; 50 @30°; 47 @40°; Seep @55°

FG B-7: 15 @24.4°; 37 @33°; 35 @40°; 36 @55°; 18 @55.5°; Seep @56°

FG B-8: 43 @12°; 44 @16.5°; 16 @28°; Seep @44°

FG B-9: 37 @10°; 44 @30°; 71 @32°; Seep @42.5°

FG B-10: 36 @19°; Seep @37°; 27 @44.4°; 49 @49°

FG B-11: 57 @11°; 45 @11°; 38 @21.3°; 16 @22.6°; Seep @23.5°; 28 @25.2°

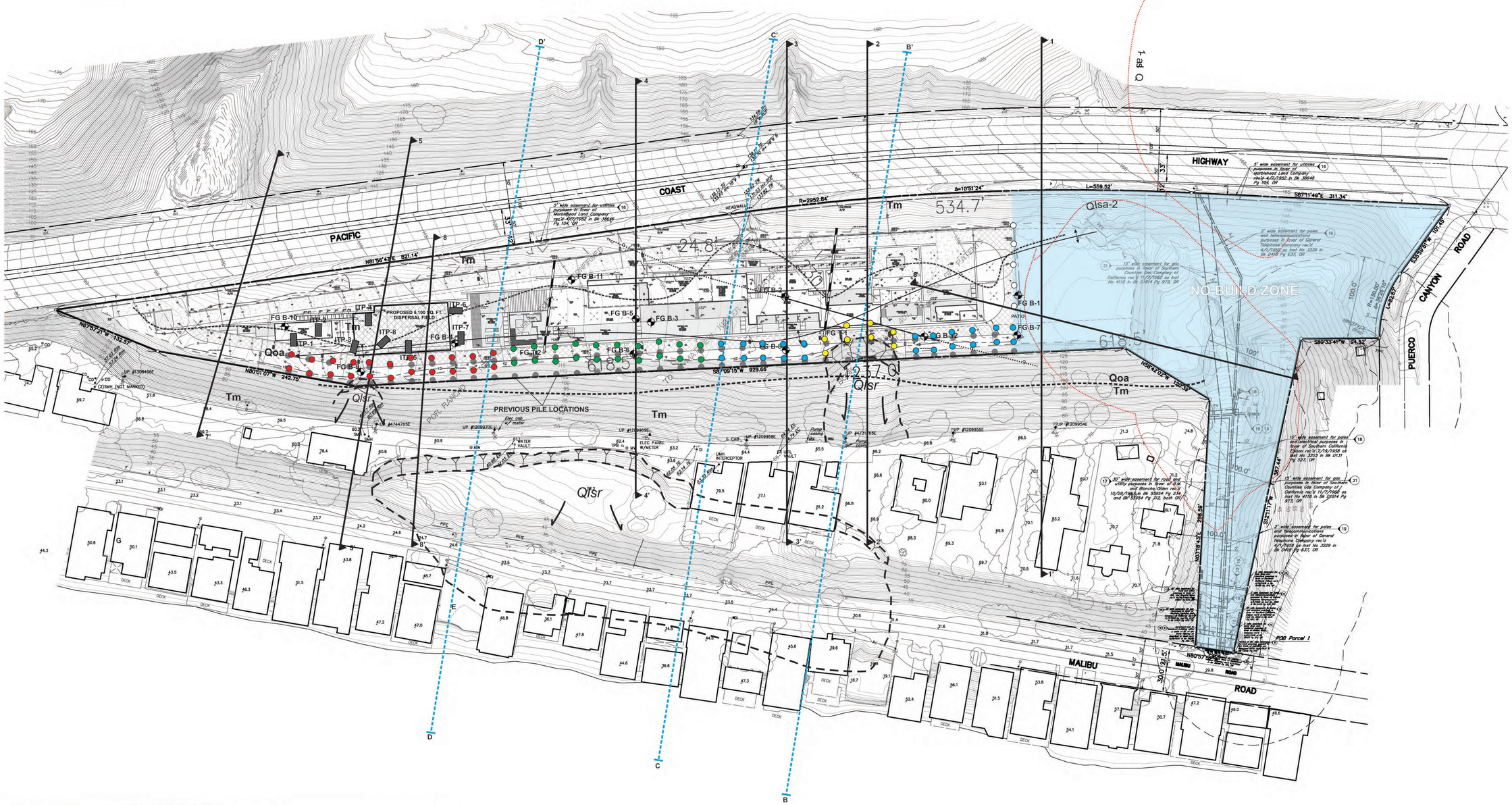
FG B-12: 33 @5.4°; 41 @7.3°; 09 @8.4°; 57 @18.5°; 32 @22.4°

FEFFER GEOLOGICAL TRENCH MEASUREMENTS

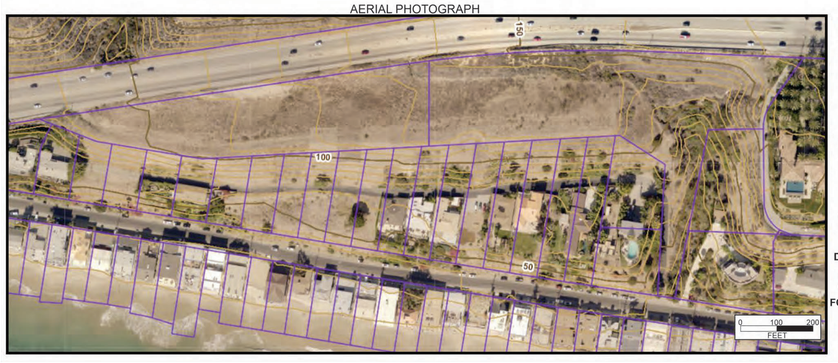
FG T-1: 74 @23°; 38 @23°; 80 @39°; 19 @54°; 76 @64°; 19 @75°; @96°; 69 @99°; 8-50 @105°; 74 @109°

FG T-2: 32 @36°; 24 @46°; 04 @53°

*Length given in feet from the northernmost portion of each trench



AERIAL PHOTOGRAPH



FEFFER GEOLOGICAL CONSULTING — GEOTECHNICAL MAP

JB: 1992-75 NAME: WEINTRAUB REALESTATE GROUP BY: AG

DATE: 1/06/23 SCALE: 1"=50' SITE: 23000-25200 PACIFIC COAST HWY

REF: BASE MAP FROM SURVEY

EXPLANATION

- GEOLOGIC CONTACT
- SHEAR PLANE
- STRIKE AND DIP OF BEDDING
- JOINT/FRACTURE
- FAULT: SOLID WHERE OBSERVED, DASHED WHERE INFERRED
- FEFFER GEOLOGICAL CROSS SECTION LINE (ADOPTED FROM LEIGHTON, 1979)
- FEFFER GEOLOGICAL CROSS SECTION
- FEFFER GEOLOGICAL BORINGS
- FEFFER GEOLOGICAL TRENCHES
- RECENT LANDSLIDE (LEIGHTON, 1979)
- PLUNGING FOLD AXIS
- INFERRED ANCIENT LANDSLIDE (LEIGHTON, 1979)
- LIMITS OF NO BUILD ZONE
- STABILIZATION PILE (SEE SECTION 6-6')
- STABILIZATION PILE (SEE SECTION 3-3'; TABLE 1)
- STABILIZATION PILE (SEE SECTION 2-2'; TABLE 1)
- STABILIZATION PILE (SEE SECTION 4-4'; TABLE 1)
- STABILIZATION PILE (SEE SECTION 5-5'; TABLE 1)

N

50' 25' 0' 50' 100'

GRAPHIC SCALE

SCALE: 1" = 50'

PRELIMINARY CONSTRAINTS & RESTRICTIONS EXHIBIT

PSOMAS

DATE: 12-06-10 REVISED ON: 12-09-10

JOB No:1WEI050900

SHEET 1 OF 1

Plotted - 12/9/2010 6:06:23 PM :: Saved - 12/9/2010 6:05:45 PM :: W:\WEI050900\DOR\VLX\fig\Constraints Exhibit.dwg :: ion.cretu

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. [3313.2.4]
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 METTING 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: 4,633 CU. YDS. FILL: 1,798 CU. YDS.
    EXPORT: 2,835 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: 66,970 SQ. FT.
    MAXIMUM ALLOWABLE IMPERMEABLE COVERAGE: 25,000 SQ. FT.
    TOTAL DISTURBED AREA: 122,155 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.

CITY OF MALIBU
Incorporated March 28, 1991

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: 25200 Pacific Coast Highway

All projects proposing land form alteration which involves more than 100

PACIFIC COAST HIGHWAY

TOPANGA MALIBO SCOUT 115 CAMP TRACT

MATTHEW KELLER BY PATENT RECORDED IN BOOK 1 PAGE 402 ET SEQ. OF PATENTS

POR. RANCHO

PUERCO CANYON

MALIBU ROAD

N81°56'47"E 821.14'

N80°01'07"W 242.75'

N81°57'21"W 332.07'

S87°09'15"W 929.66'

N25°42'07"W 120.39'

S89°33'41"W 134.52'

S35°39'55"W 107.40'

S87°11'49"E 311.34'

N03°18'43"E 208.80'

N80°57'52"W 45.83'

R=2952.84'

Δ=10°51'24"

L=559.52'

R= 150.00'
Δ= 56°28'10"
L=493.92'

S89°33'41"E
(Rad)

POB Parcel 1

13 2' wide easement for pole lines and electrical purposes in favor of Southern California Edison rec'd 4/12/1939 in Bk 16485 Pg 374, OR

17 30' wide easement for road and utility purposes in favor of B.M. and Blanche Gloden 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 01814 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 01131 Pg 527, 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 Marblehead Land Company rec'd 4/7/1952 in Bk 38646 Pg 104, OR

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/ 12/2/2022	PK/ 12/2/2022	

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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

N81°56'47"E 821.14'

N67°57'21"W 332.57'

N80°01'07"W 242.75'

S87°09'15"W 929.66'

R=2952.84' Δ=10°51'24" L=559.52'

Tm Qoa Qlsr Qlsa-2

SCALE: 1"=40'
0 40 80 120

REGISTERED PROFESSIONAL ENGINEER LEONARD T. LISEWSKI III No.93123 CIVIL STATE OF CALIFORNIA

#	REVISIONS	DATE

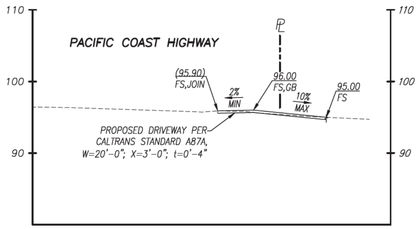
PREPARED BY:
LC ENGINEERING GROUP, INC.
CONSULTING ENGINEERS
889 Pierce Court, Suite 101, Thousand Oaks, California 91360
818-991-7148 • 805-497-1244 • lcengroupinc.com • workfiles@lcengroupinc.com

93123
REGISTERED ENGINEER RCE DATE

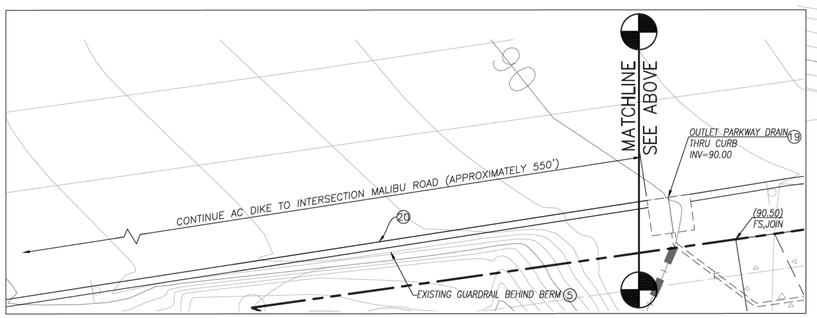
CITY OF MALIBU
OVERALL SITE PLAN
25200 PACIFIC COAST HIGHWAY

DRAWN BY / DATE	CHECKED BY / DATE	SHEET 2 OF 8
PK/ 1/11/2023	PK/ 1/11/2023	

X:\LC ENGR\Projects\Civil\25051\7760\7746 PARPOV LLC\Civil\SHT\7746 SHT 3 GP.dwg Jan 11, 2023 - 4:25pm Patrick Kaufman



DRIVEWAY PROFILE
1"=10'



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 MOTOR COURT/DRIVEWAY PER DETAIL 3 ON SHEET 7.
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
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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.

PAVING AND/OR CONC. SURFACE

GRASSCRETE PER SEPARATE PERMIT BY OTHERS

ABOVE-GRADE DRIVEWAY PER SEPARATE PERMIT

SCALE: 1"=10'
0 10 20 30

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 • lcgroupinc.com • workfiles@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 3 OF 8
PK/ 12/8/2022	PK/ 12/8/2022	

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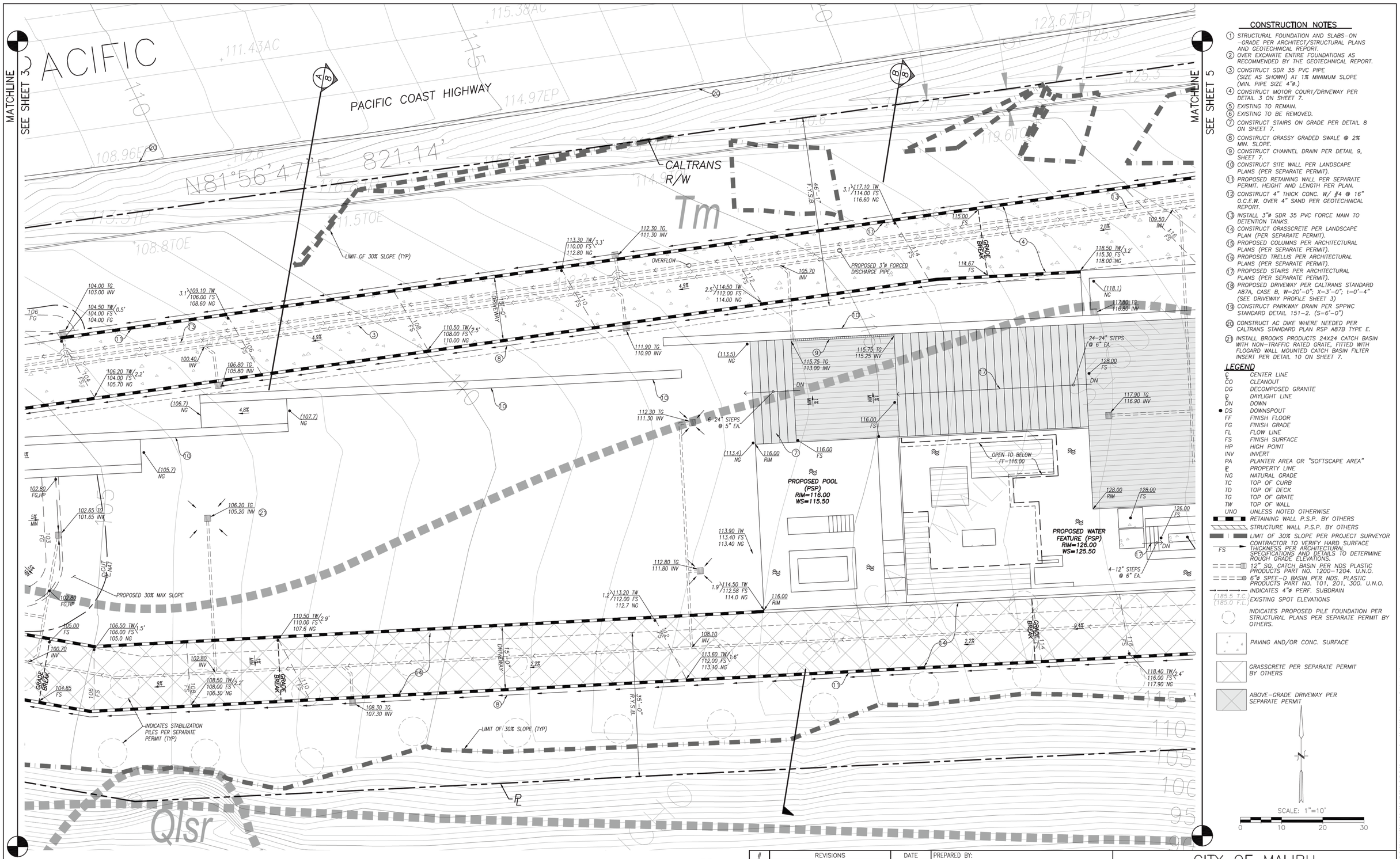

CONSTRUCTION NOTES

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2. OVER EXCAVATE ENTIRE FOUNDATIONS AS RECOMMENDED BY THE GEOTECHNICAL REPORT.
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SCALE: 1"=10'
0 10 20 30

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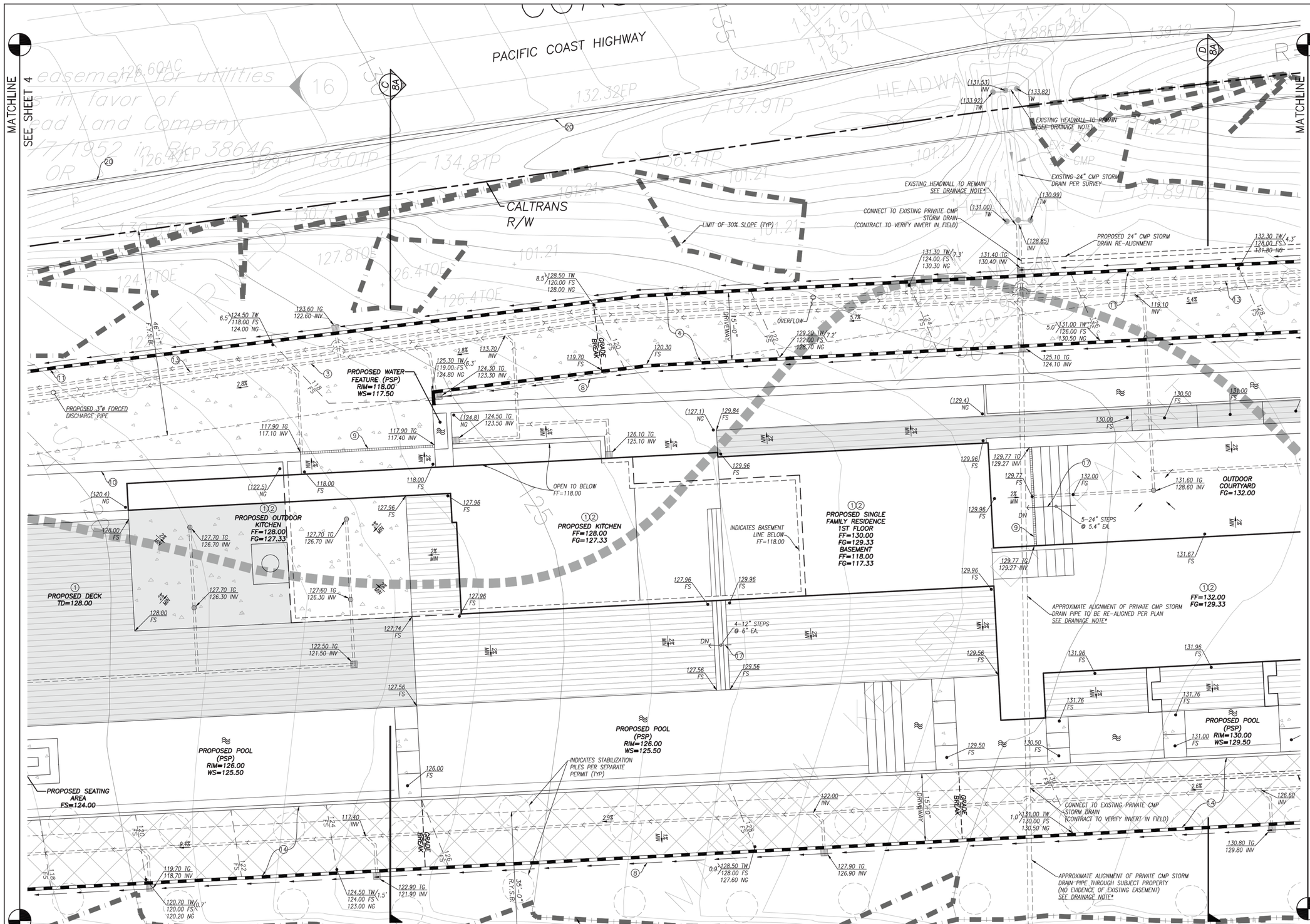

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ABOVE-GRADE DRIVEWAY PER SEPARATE PERMIT

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. LISTON III No.93123 CIVIL STATE OF CALIFORNIA

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CITY OF MALIBU

ENLARGED GRADING AND DRAINAGE PLAN

25200 PACIFIC COAST HIGHWAY

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PK/ 12/8/2022	PK/ 12/8/2022	

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MATCHLINE SEE SHEET 5

PACIFIC COAST HIGHWAY

CALTRANS R/W

2952.84'

EL 84

LIMIT OF 30% SLOPE (TYP)

46'-1" R.T.S.B.

DRIVEWAY 5'-0" MAX 15% MAX

PROPOSED 3"ø FORCED DISCHARGE PIPE

GRADE BREAK

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

4-12" STEPS @ 5.4" EA.

5.4" STEPS (TYP)

PROPOSED DECK FS=134.00

①② FF=134.00 FG=133.33

①② PROPOSED OFFICE FF=136.00 FG=135.33

TRASH ENCLOSURE FS=134.00

OVERFLOW

END FORCED DISCHARGE & BEGIN GRAVITY FLOW INV=132.00

OVERFLOW 131.50 INV,OUT

TANK INLET INV=130.85

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 (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

INDICATES STABILIZATION PILES PER SEPARATE PERMIT (TYP)

LIMIT OF 30% SLOPE (TYP)

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REGISTERED PROFESSIONAL ENGINEER LEONARD T. LISTON IV No.93123 CIVIL STATE OF CALIFORNIA

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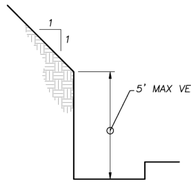

DETAIL NO. 1 TEMPORARY EXCAVATION
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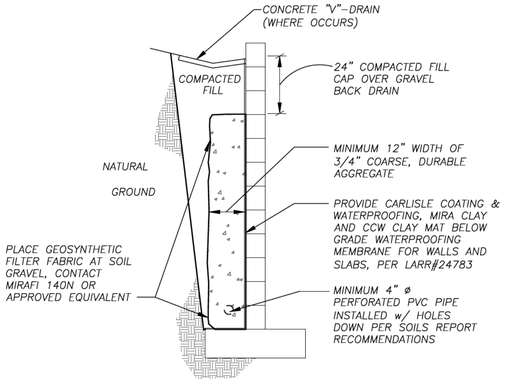

DETAIL NO. 2 BACKFILL
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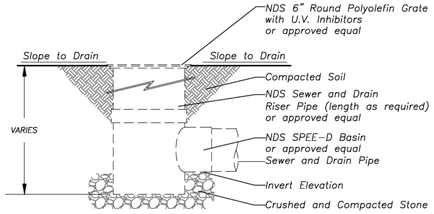

DETAIL NO. 4 6" ROUND GRATE
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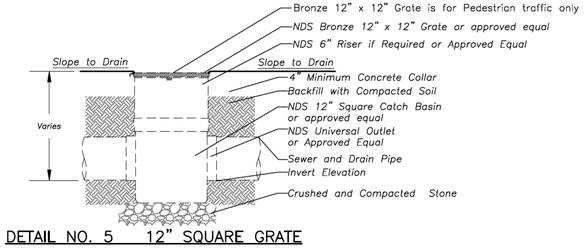

DETAIL NO. 5 12" SQUARE GRATE
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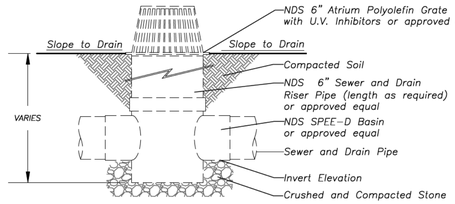

DETAIL NO. 6 6" ATRIUM GRATE
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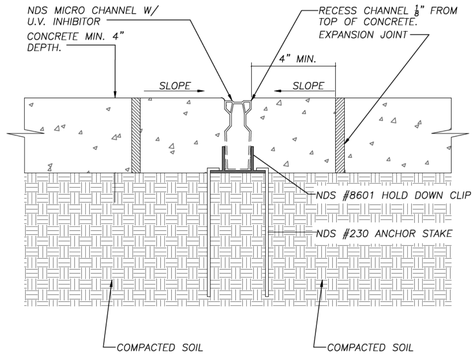

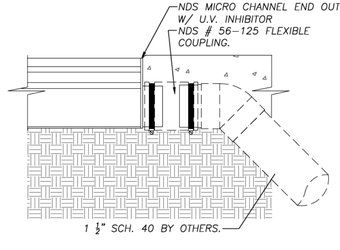

DETAIL NO. 9 CHANNEL DRAIN
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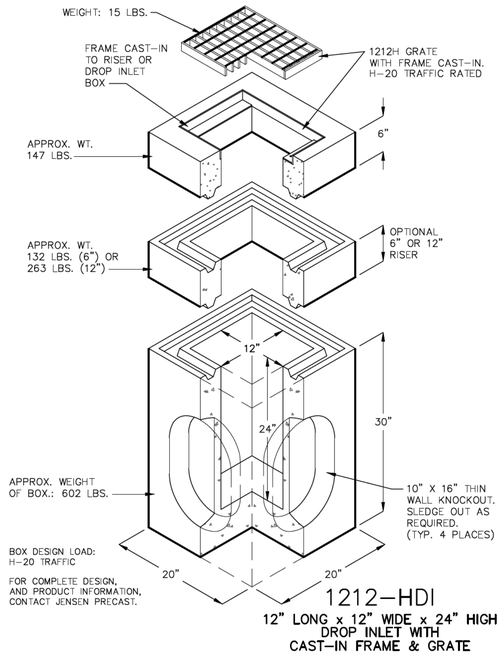
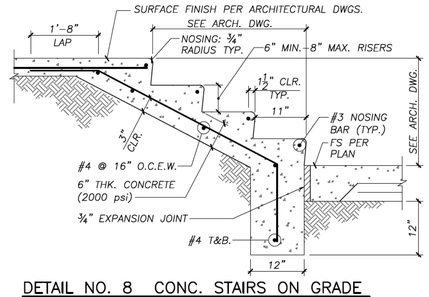


1212-HDI
12" LONG x 12" WIDE x 24" HIGH DROP INLET WITH CAST-IN FRAME & GRATE

DETAIL NO. 7 12" CATCH BASIN
N.T.S.



DETAIL NO. 8 CONC. STAIRS ON GRADE
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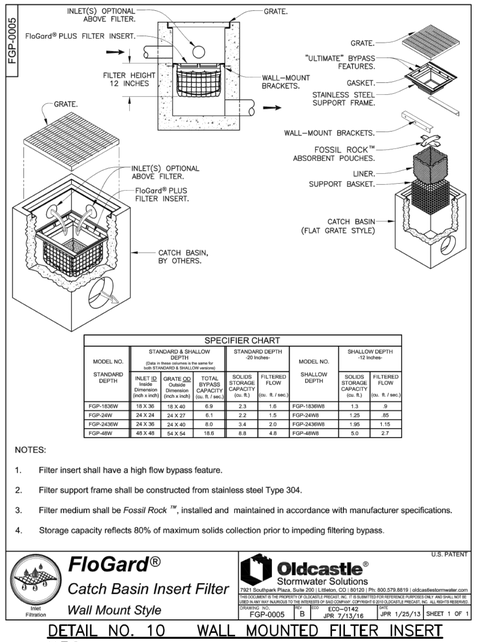

SPECIFIER CHART

MODEL NO. STANDARD DEPTH	STANDARD & SHALLOW DEPTH (Data in this row is the same for both STANDARD & SHALLOW versions) INLET ID Nominal Dimension (inch x inch)	GRATE OD Outside Dimension (inch x inch)	TOTAL BYPASS CAPACITY (cu. ft. / sec.)	STANDARD DEPTH -20 Inches- SOLIDS STORAGE CAPACITY (cu. ft.)	FILTERED FLOW (cu. ft. / sec.)	MODEL NO. SHALLOW DEPTH	SHALLOW DEPTH -12 Inches- SOLIDS STORAGE CAPACITY (cu. ft.)	FILTERED FLOW (cu. ft. / sec.)
FGP-1836W	18 X 36	18 X 40	6.9	2.3	1.6	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.

U.S. PATENT

FloGard®
Catch Basin Insert Filter
Wall Mount Style

Oldcastle® Stormwater Solutions
7821 Southpark Plaza, Suite 200 | Littleton, CO | 80120 | Ph: 800.579.8819 | oldcastlestormwater.com
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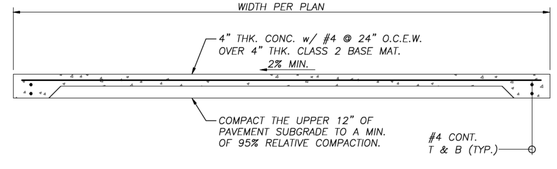
DRAWING NO.	REV.	ECO	DRAWN / DATE	SHEET
FGP-0005	B	ECO-01421 JPR 7/13/16	JPR 1/25/13	SHEET 1 OF 1

DETAIL NO. 10 WALL MOUNTED FILTER INSERT
N.T.S.



DETAIL NO. 3 CONCRETE DRIVEWAY
N.T.S.

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No.93123
CIVIL
STATE OF CALIFORNIA

#	REVISIONS	DATE

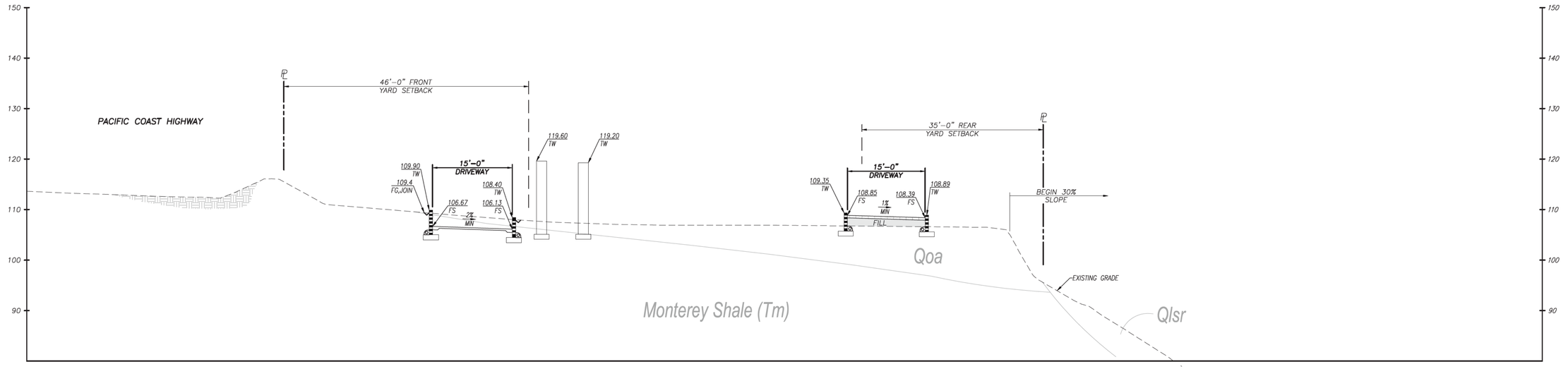
PREPARED BY:
LC ENGINEERING GROUP, INC.
CONSULTING ENGINEERS
889 Pierce Court, Suite 101, Thousand Oaks, California 91360
818-991-7148 • 805-497-1244 • lcengroupinc.com • worklike@lcengroupinc.com

93123
REGISTERED ENGINEER RCE DATE

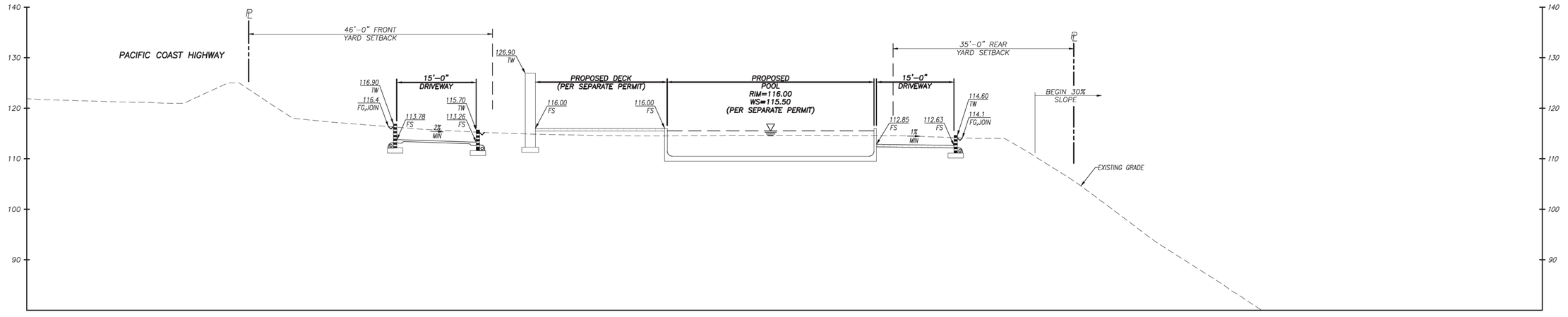
CITY OF MALIBU
DETAILS
25200 PACIFIC COAST HIGHWAY

DRAWN BY / DATE	CHECKED BY / DATE	SHEET
PK/ 12/2/2022	PK/ 12/2/2022	SHEET 7 OF 8

Z:\LC GROUP\Civil\JOBS\17000\17748 PARPCH LLC\CIVIL\JMK\SHT\17748 SHT 5 XSEC DET.dwg Dec 02, 2022 - 5:08pm Patrick Kaufman



SECTION A
1"=10'



SECTION B
1"=10'

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CITY OF MALIBU
CROSS SECTIONS
25200 PACIFIC COAST HIGHWAY

DRAWN BY / DATE	CHECKED BY / DATE	SHEET 8 OF 8
PK/ 12/2/2022	PK/ 12/2/2022	

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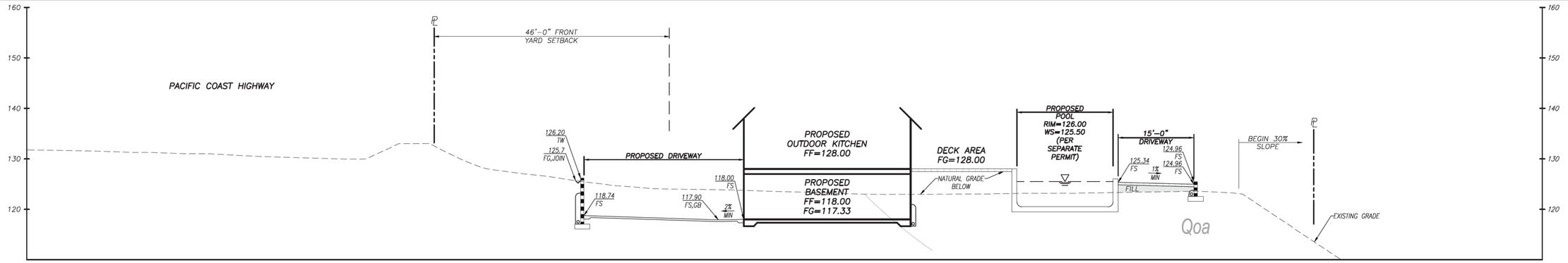
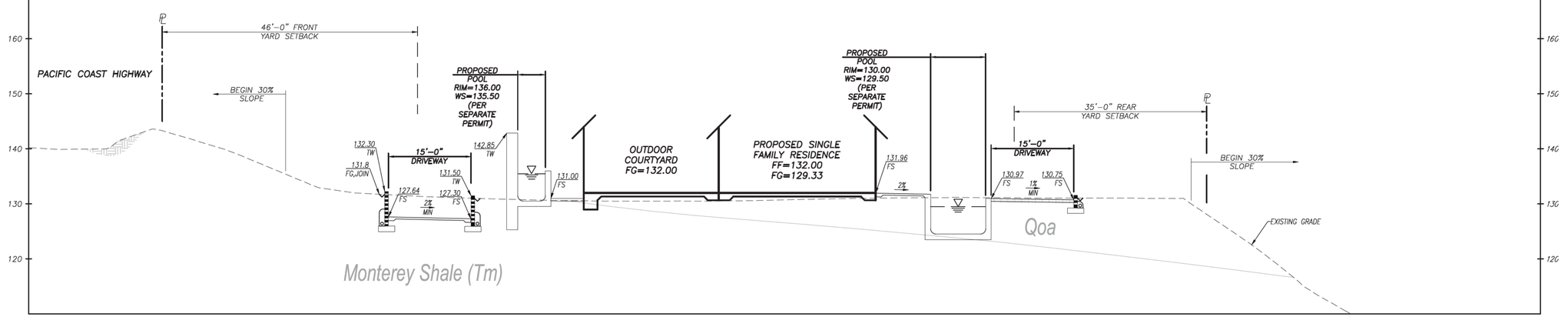
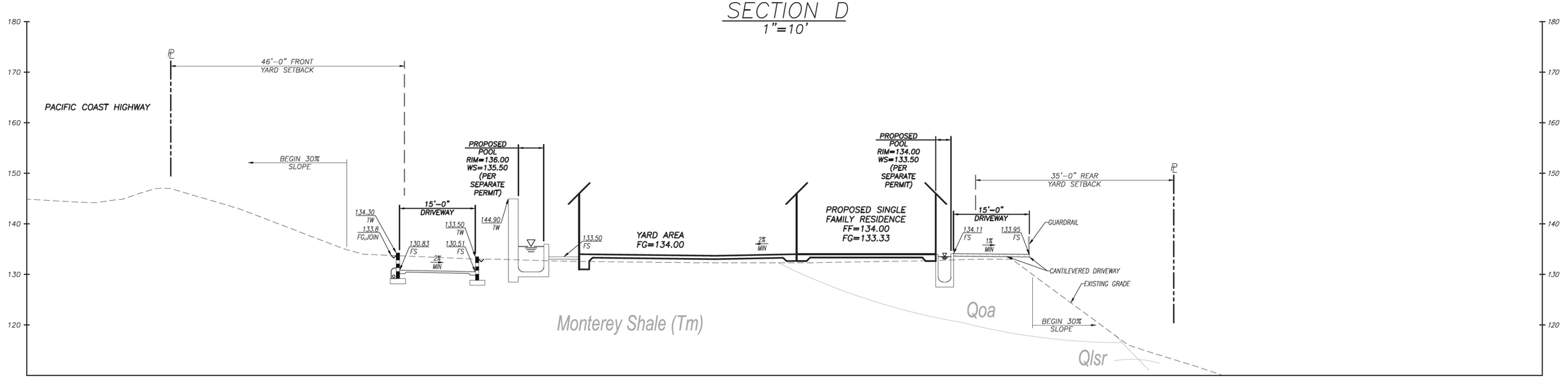


SECTION C
1"=10'



SECTION D
1"=10'



SECTION E
1"=10'

#	REVISIONS	DATE

PREPARED BY:
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CONSULTING ENGINEERS
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93123
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CITY OF MALIBU
CROSS SECTIONS (CONT)
25200 PACIFIC COAST HIGHWAY

DRAWN BY / DATE	CHECKED BY / DATE	SHEET 8A OF 8
PK/ 12/2/2022	PK/ 12/2/2022	

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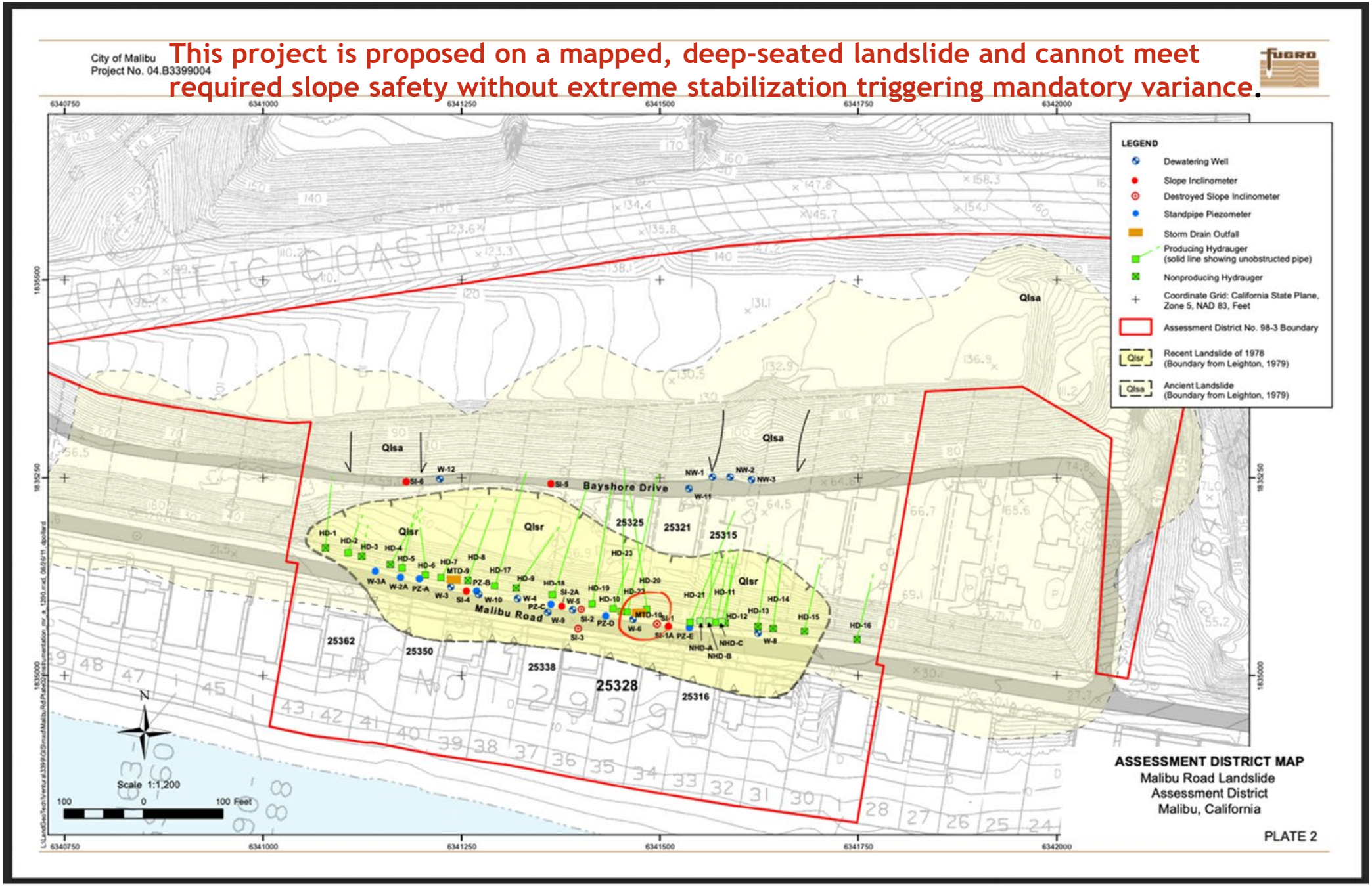
25200 Pacific Coast Highway

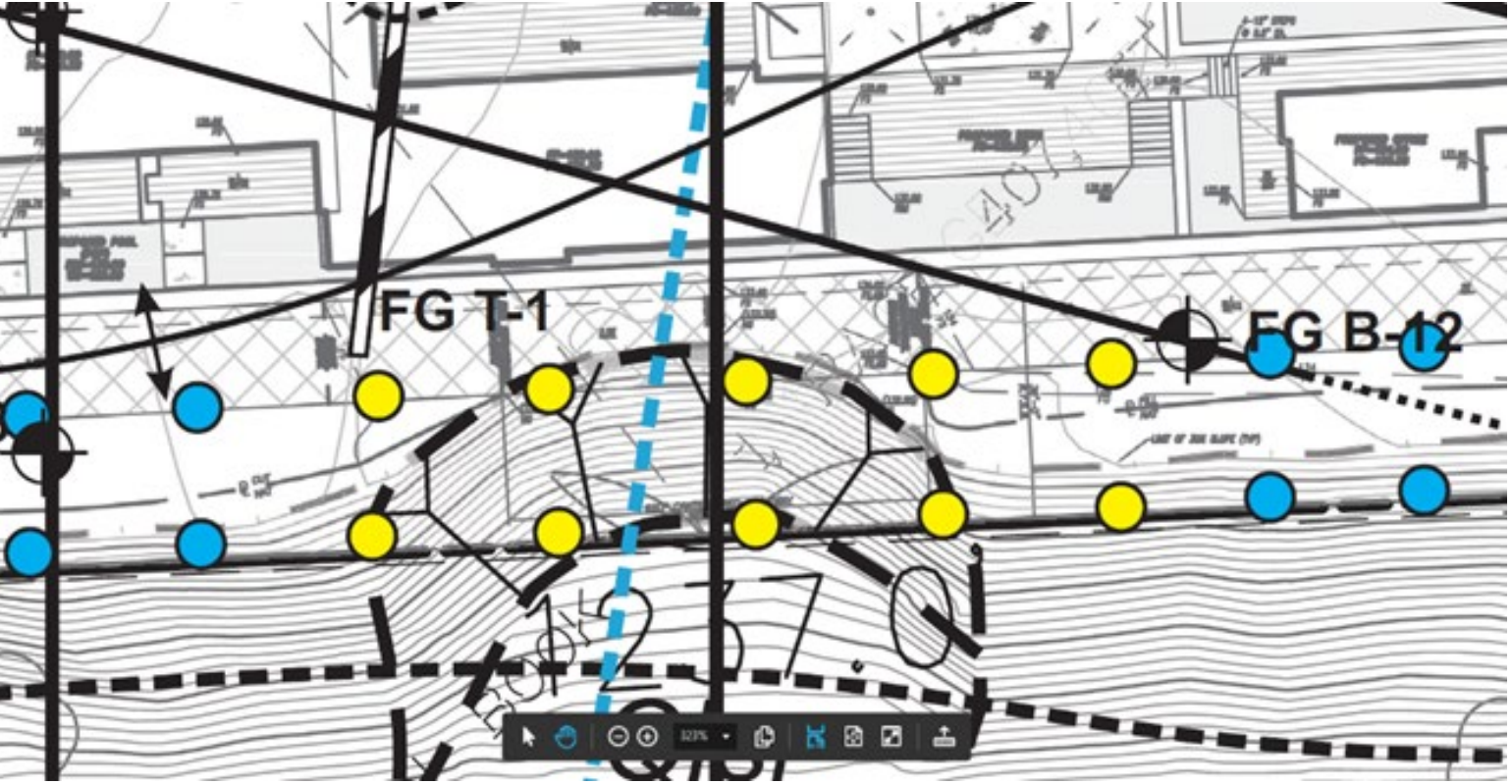
MALIBU TOWNSHIP COUNCIL

Opposition to Coastal Development Permit No. 19-012

Landslide + Variance Required +
Scenic Views Maintained

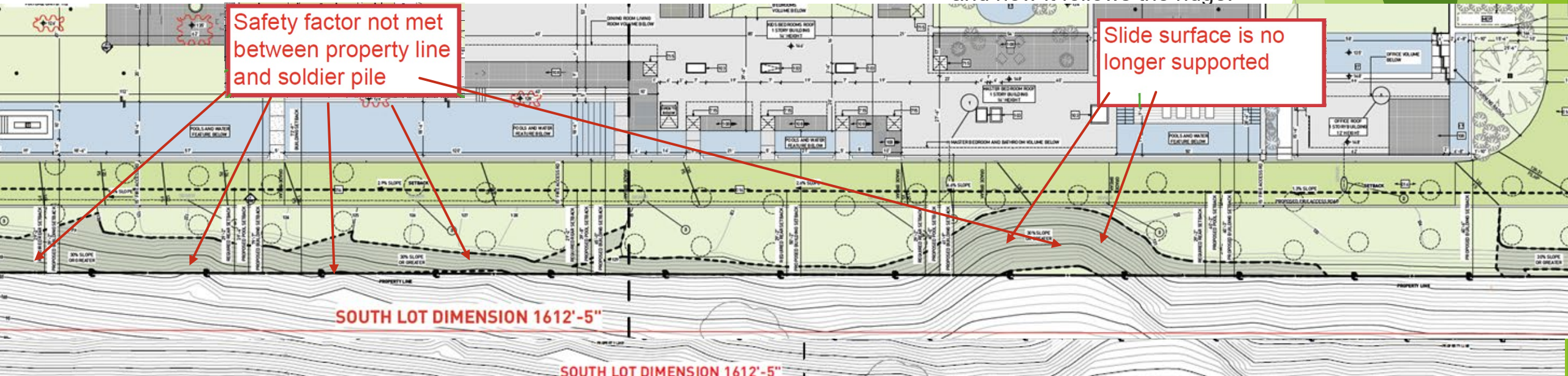
This project is proposed on a mapped, deep-seated landslide and cannot meet required slope safety without extreme stabilization triggering mandatory variance.





This is where the safety factor is clearly not met – They **moved/relocated** the soldier piles a few feet to avoid a slope variance and now they need a variance because there is space between the property line and the soldier piles where the safety factor is not met.

In addition, they are no longer supporting the slide in front of the MASTER area, and this would cause a slide into adjacent properties. This first image is before they moved the piles and shows the property line, it used to follow a straight line and now it follows the ridge.



On p 2 of this report – it states that the piles will be shifted north and to the top of the slope thus NO LONGER stabilizing the slope below and no longer meeting the factor of safety on the property site.

FEFFER
GEOLOGICAL CONSULTING

January 6, 2023

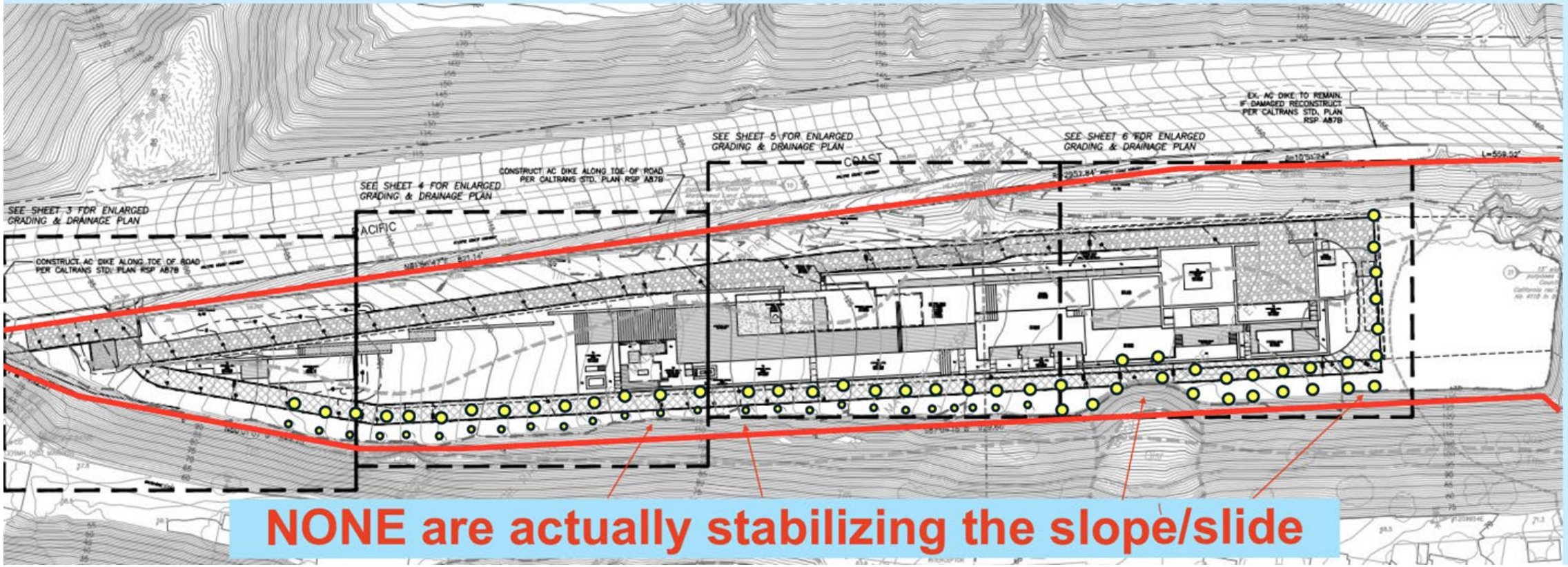
File No. 1992-75

Weintraub Real Estate Group
P.O. Box 6528
Malibu, CA 90264

Subject: **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

In order to remove the need for a variance and allow development to move forward, the proposed stabilization system will be shifted slightly north and to the top of the slope. Based on a detailed review of the updated plans and discussions with the project structural engineer, it is our opinion that the minor shift in location for the proposed stabilization system will not impact the proposed development and will not negatively impact or reduce the integrity of the stabilization system. The slight adjustment in pile locations will not negatively affect the overall gross stability of the site.

77 Caissons With Tiebacks



9.4. DEVELOPMENT STANDARDS

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.

THE NUMBERS THAT TRIGGER THE VARIANCE

Existing Factor of Safety Fails Code

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

Very FAR OFF the required 1.5 static factor of safety

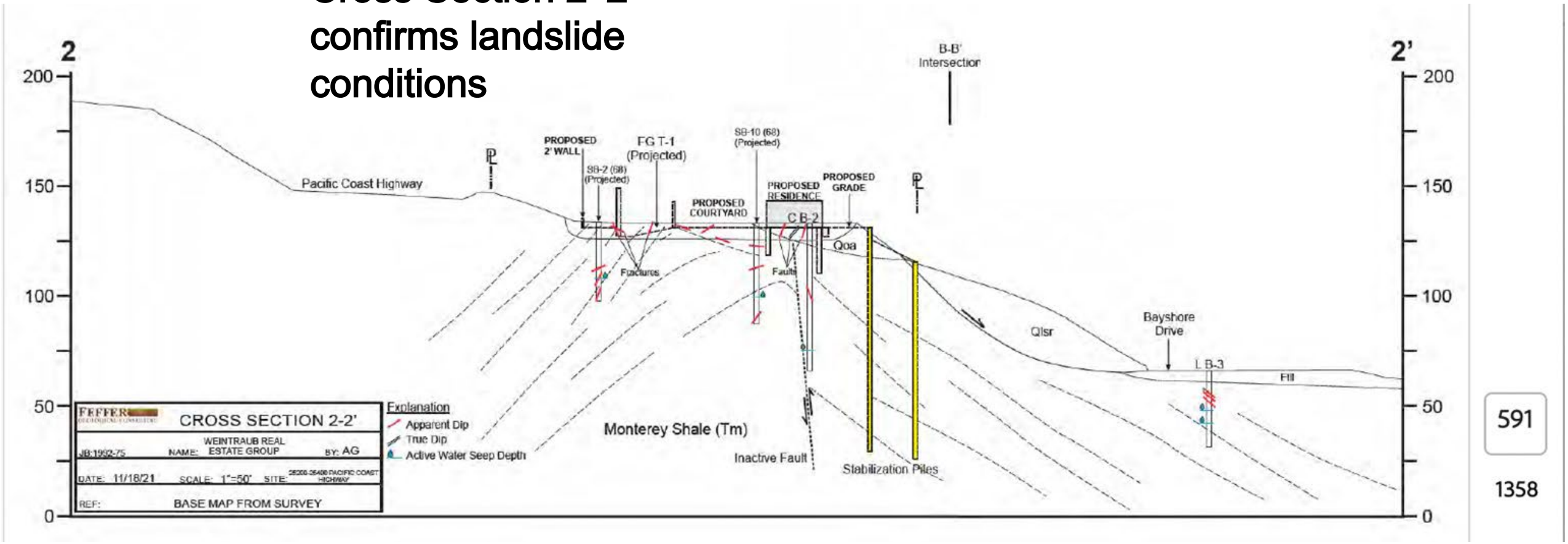
- Required minimum (LIP §9.4(D)): **1.5 static**
- Calculated results: **1.076 - 1.234**
- Values near **1.0 = marginal equilibrium / instability**

These results alone require a variance

THE SCALE OF INTERVENTION - EXTREME

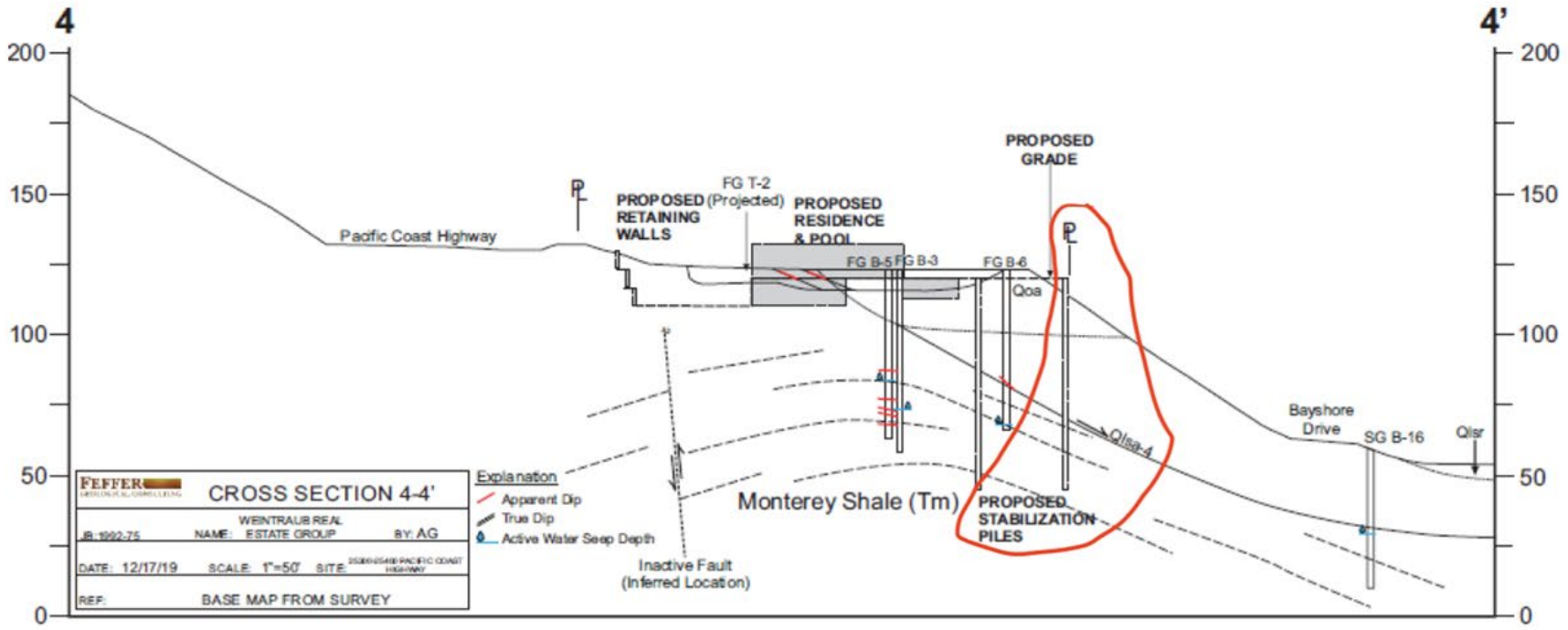
- Piles **>100 feet deep**
- Installed **through the landslide mass**
- Excavation, vibration, groundwater redirection NOT EVALUATED AT ALL

Cross Section 2' 2' confirms landslide conditions



included within our reports. While we did not find evidence of ancient landsliding at the site within the subsurface investigation conducted by this office, we assumed that the reported ancient slides existed and used the slide geometry in the slope stability analysis to design the piles and tiebacks in several reports. Please see cross section 4-4' below wherein we drew the reported ancient slide (Qlsa-4) in the December 17, 2019 report.

From geo report dated Jan 14, 2026, in latest staff report



158

416

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 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





Evidence of ongoing movement & water issues

Failures already occur here.
Reinforces "potentially active landslide" classification

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

FY21/22 Maintenance and Monitoring Report
AD98-3 Malibu Road

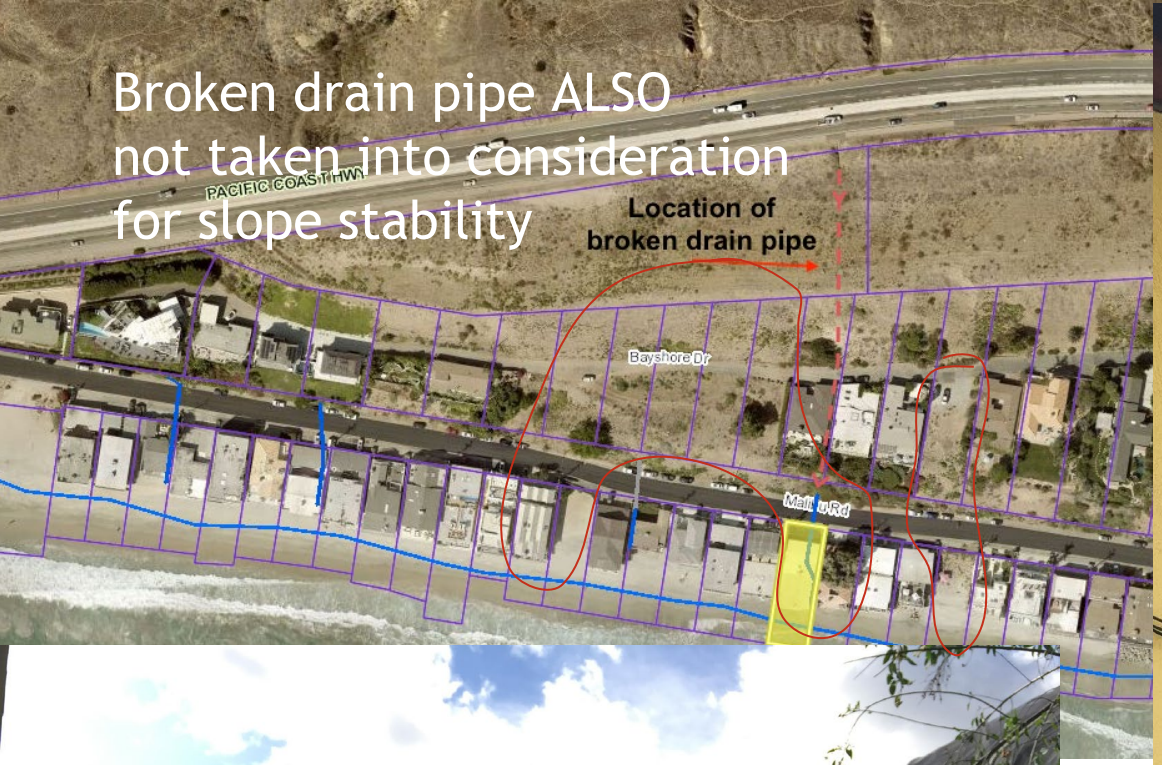
Project No. 220-278
November 14, 2022

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.















Destruction caused by slide below 25040 PCH – at least $15 million in damage – the City would be LIABLE if any damage occurred to adjacent properties





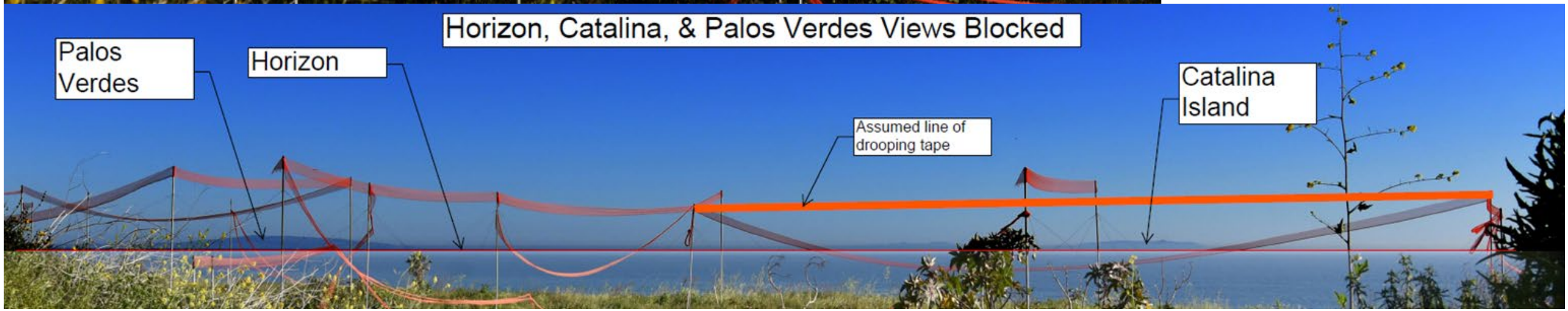
Also, these views were not considered:

Palos Verdes blocked 100%

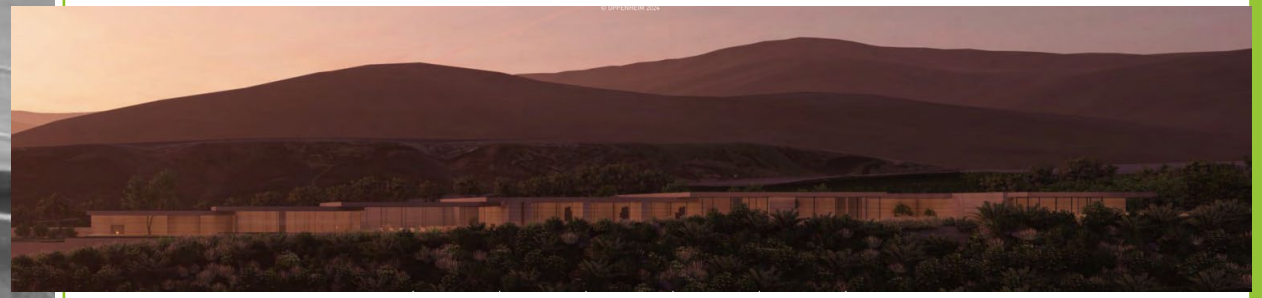
Catalina and Palos Verdes view blocked 100%

Horizon blocked 100%

These photos were taken from the far side of PCH where the berm breaks




Mansionization is ruining
neighborhoods all over Malibu
NO
MANSIONIZATION
IN MALIBU



Conclusion

This project: Relocates deep stabilization piles, leaving a known landslide unsupported
Fails to demonstrate the required factor of safety
Threatens downslope homes and public safety
Blocks iconic public coastal views
Proposes massive development on unstable terrain
Under the Local Coastal Program, a variance is required before any discretionary approval.
Without that variance, the Planning Commission lacks legal authority to proceed.
The only lawful and responsible action is denial or continuance pending a properly filed and evaluated variance.

Previous consultant's conclusions as reported by Feffer

- **Stone – 1962**
  - "Downhole logging of the borings indicated that the subject property was underlain by Monterey Formation bedrock, ancient landslides, Quaternary terrace deposits, and artificial fill."
  - "Stone Geological determined that the subject property was underlain by multiple intersecting ancient landslides that affected the south side of the subject pad and continued beneath neighboring properties below the south-facing descending slope."

- **Pacific Soils 1965**
  - "Pacific Soils Engineering concluded that the subject property was underlain by a series of ancient landslides and determined that the ancient slides could be stabilized."

Previous consultants conclusions as reported by Feffer

Leighton 1968

- “Leighton concluded that over 50% of the subject property was free of ancient landsliding”
- The remaining 50 % is underlain by ancient slides

- Stone 1968
- “building could occur on the area that is not underlain by ancient slide material”

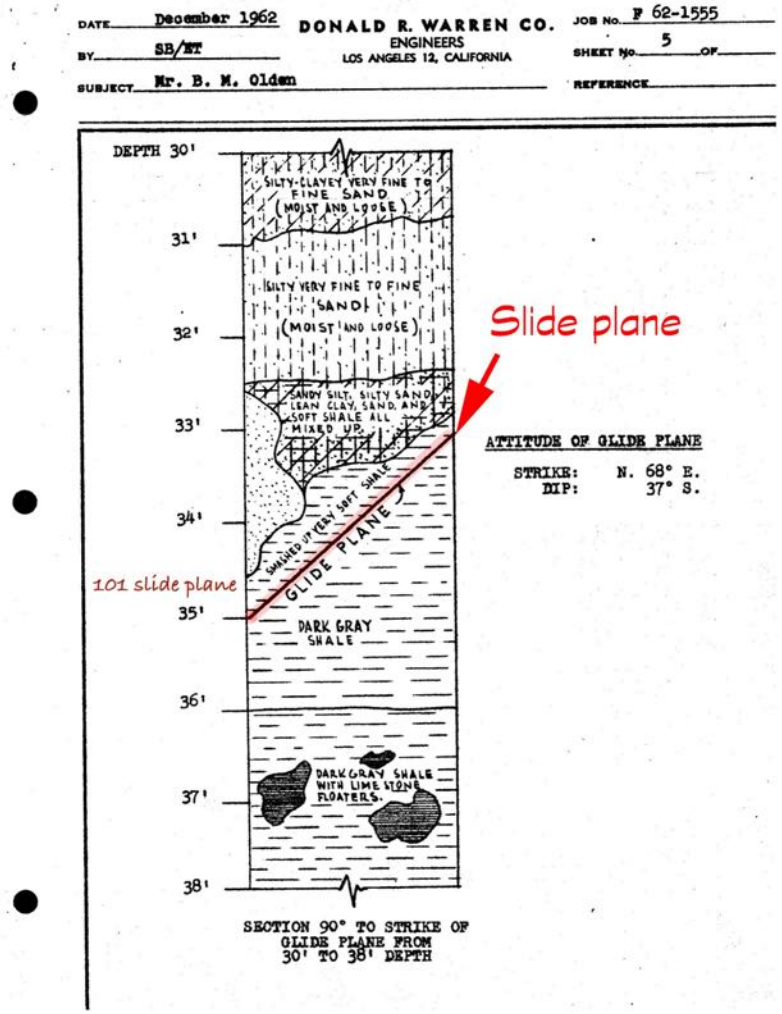
Previous consultant's conclusions as reported by Feffer

- Leighton 1979
- "Leighton and Associated concluded that approximately 65% of the study area was affected by three types of landsliding, which included ancient landsliding, recent landsliding, and superficial slope failures."

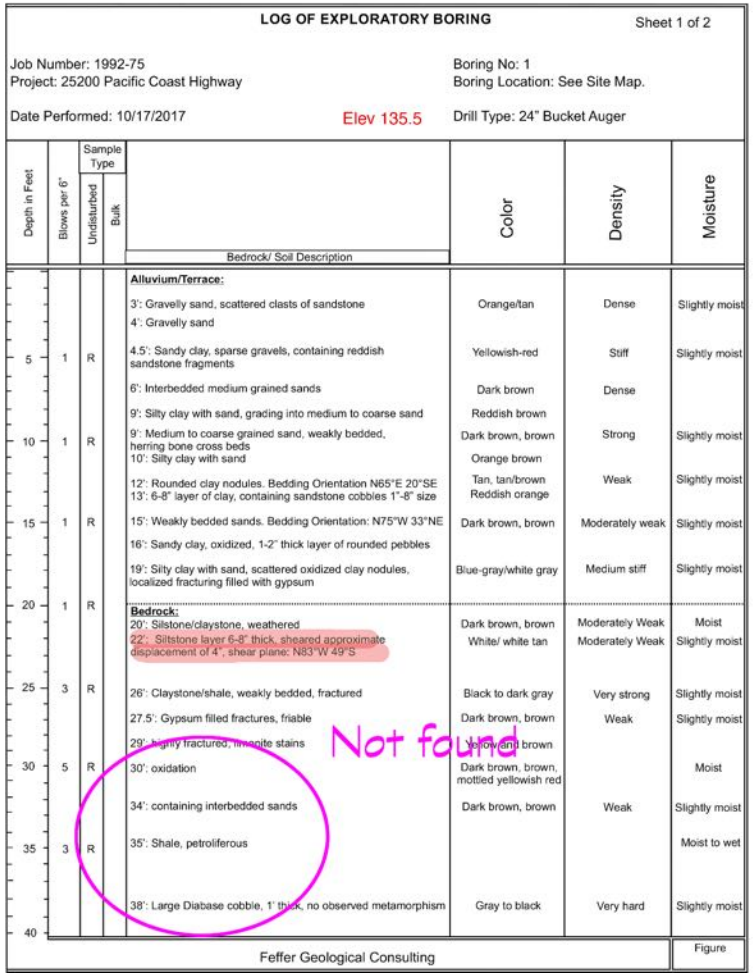
- "A significant risk in attempting partial stabilization work (particularly on an active slide), whether by buttresses, retaining walls or soldier piles, could be that while the corrective work may stabilize on individual lot, it may result in relatively greater damage occurring on on adjoining property than would otherwise have occurred had the work not been done."

Boring log Comparison

- Stone B-4 1962

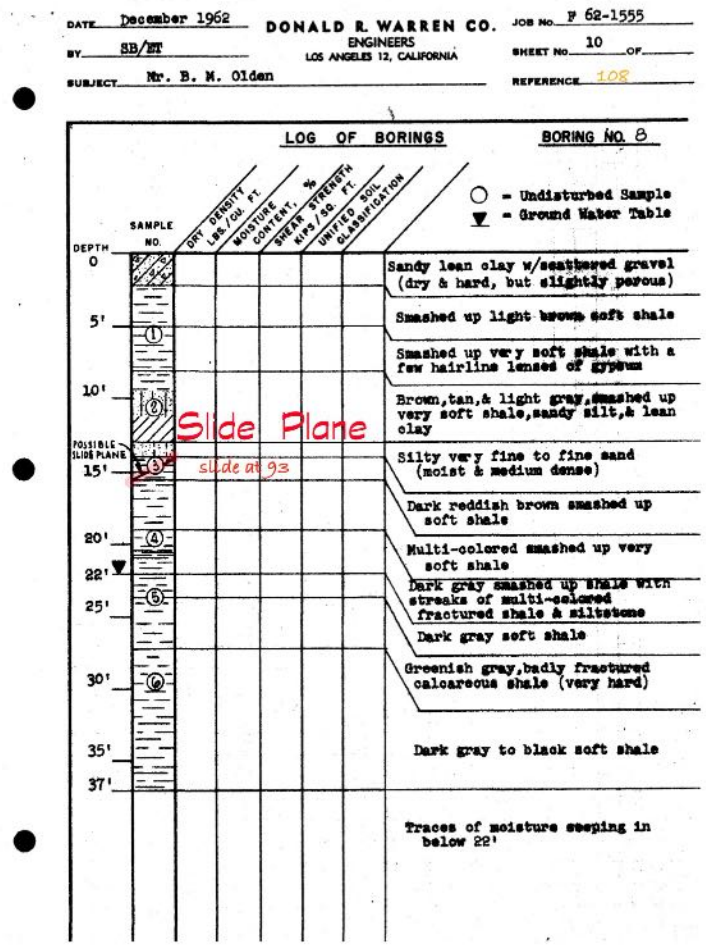


- Feffer B-1



Boring log Comparison

- Stone B-8 1962



DATE December 1962 — DONALD R. WARREN CO. ENGINEERS, LOS ANGELES 12, CALIFORNIA — JOB NO. F 62-1555

BY SB/WT — SHEET NO. 10 OF

SUBJECT Mr. B. M. Olden — REFERENCE 108

LOG OF BORINGS — BORING NO. 8

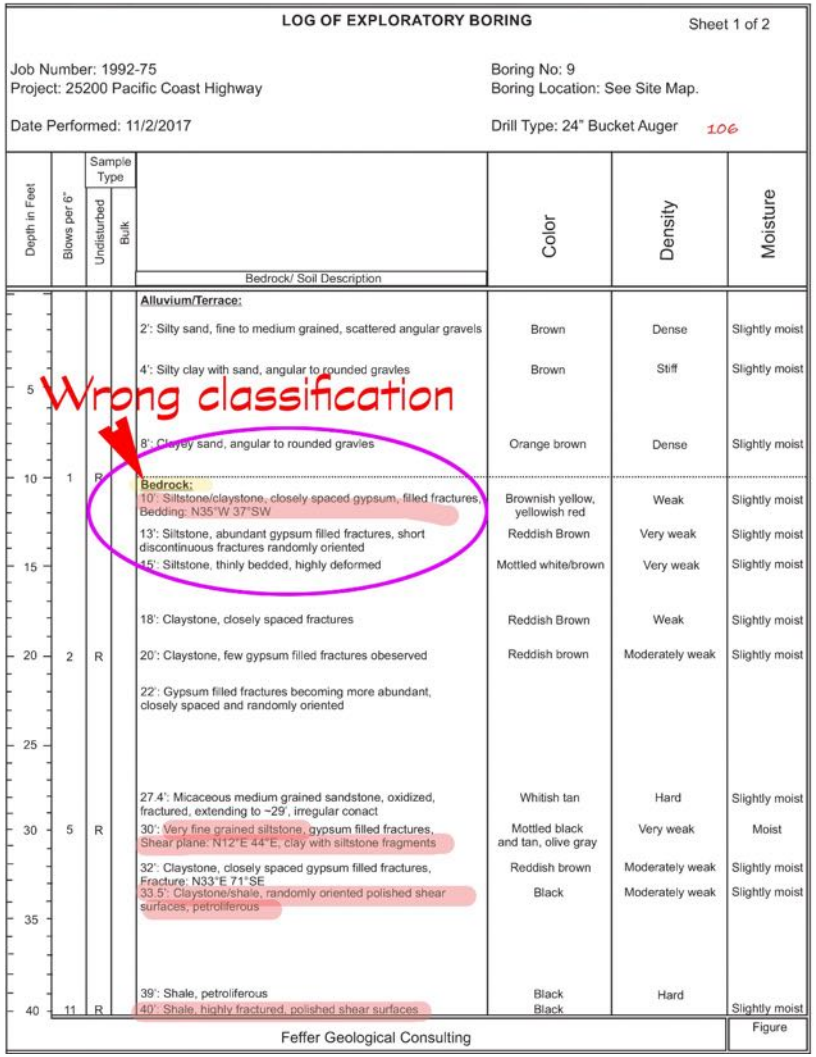
○ = Undisturbed Sample
▼ = Ground Water Table

DEPTH	SAMPLE NO.	DRY DENSITY LBS./CU. FT.	MOISTURE CONTENT, %	SHEAR STRENGTH KIPS/SQ. FT.	UNIFIED SOIL CLASSIFICATION	
0						Sandy lean clay w/scattered gravel (dry & hard, but slightly porous)
5'	①					Smashed up light brown soft shale
10'	②					Smashed up very soft shale with a few hairline lenses of gypsum
POSSIBLE SLIDE PLANE 15'	③					Brown,tan,& light gray,smashed up very soft shale,sandy silt,& lean clay
						Silty very fine to fine sand (moist & medium dense)
						Dark reddish brown smashed up soft shale
20'	④					Multi-colored smashed up very soft shale
22' ▼						
25'	⑤					Dark gray smashed up shale with streaks of multi-colored fractured shale & siltstone
						Dark gray soft shale
30'	⑥					Greenish gray,badly fractured calcareous shale (very hard)
35'						Dark gray to black soft shale
37'						
						Traces of moisture seeping in below 22'

Slide Plane

slide at 93

- Feffer B-9



LOG OF EXPLORATORY BORING — Sheet 1 of 2

Job Number: 1992-75
Project: 25200 Pacific Coast Highway
Boring No: 9
Boring Location: See Site Map.
Date Performed: 11/2/2017
Drill Type: 24" Bucket Auger 106

Depth in Feet	Blows per 6"	Sample Type: Undisturbed	Sample Type: Bulk	Bedrock/ Soil Description	Color	Density	Moisture
				Alluvium/Terrace:			
				2': Silty sand, fine to medium grained, scattered angular gravels	Brown	Dense	Slightly moist
				4': Silty clay with sand, angular to rounded gravles	Brown	Stiff	Slightly moist
5							
				8': Clayey sand, angular to rounded gravles	Orange brown	Dense	Slightly moist
10	1	R		Bedrock:			
				10': Siltstone/claystone, closely spaced gypsum, filled fractures, Bedding: N35°W 37°SW	Brownish yellow, yellowish red	Weak	Slightly moist
				13': Siltstone, abundant gypsum filled fractures, short discontinuous fractures randomly oriented	Reddish Brown	Very weak	Slightly moist
15				15': Siltstone, thinly bedded, highly deformed	Mottled white/brown	Very weak	Slightly moist
				18': Claystone, closely spaced fractures	Reddish Brown	Weak	Slightly moist
20	2	R		20': Claystone, few gypsum filled fractures obeserved	Reddish brown	Moderately weak	Slightly moist
				22': Gypsum filled fractures becoming more abundant, closely spaced and randomly oriented			
25							
				27.4': Micaceous medium grained sandstone, oxidized, fractured, extending to ~29', irregular conact	Whitish tan	Hard	Slightly moist
30	5	R		30': Very fine grained siltstone, gypsum filled fractures, Shear plane: N12°E 44°E, clay with siltstone fragments	Mottled black and tan, olive gray	Very weak	Moist
				32': Claystone, closely spaced gypsum filled fractures, Fracture: N33°E 71°SE	Reddish brown	Moderately weak	Slightly moist
				33.5': Claystone/shale, randomly oriented polished shear surfaces, petroliferous	Black	Moderately weak	Slightly moist
35							
				39': Shale, petroliferous	Black	Hard	
40	11	R		40': Shale, highly fractured, polished shear surfaces	Black		Slightly moist

Feffer Geological Consulting — Figure

Wrong classification

Pile Base Elevation vs Slide Base Elevation

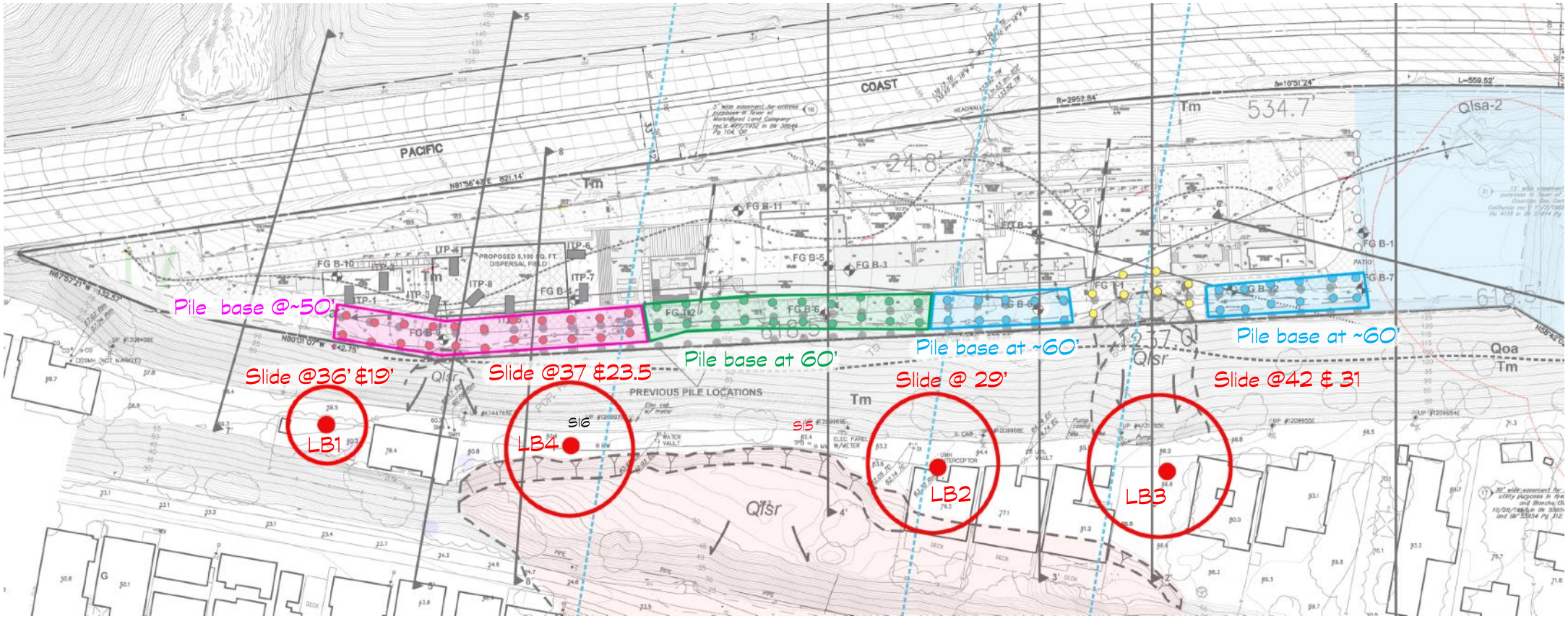
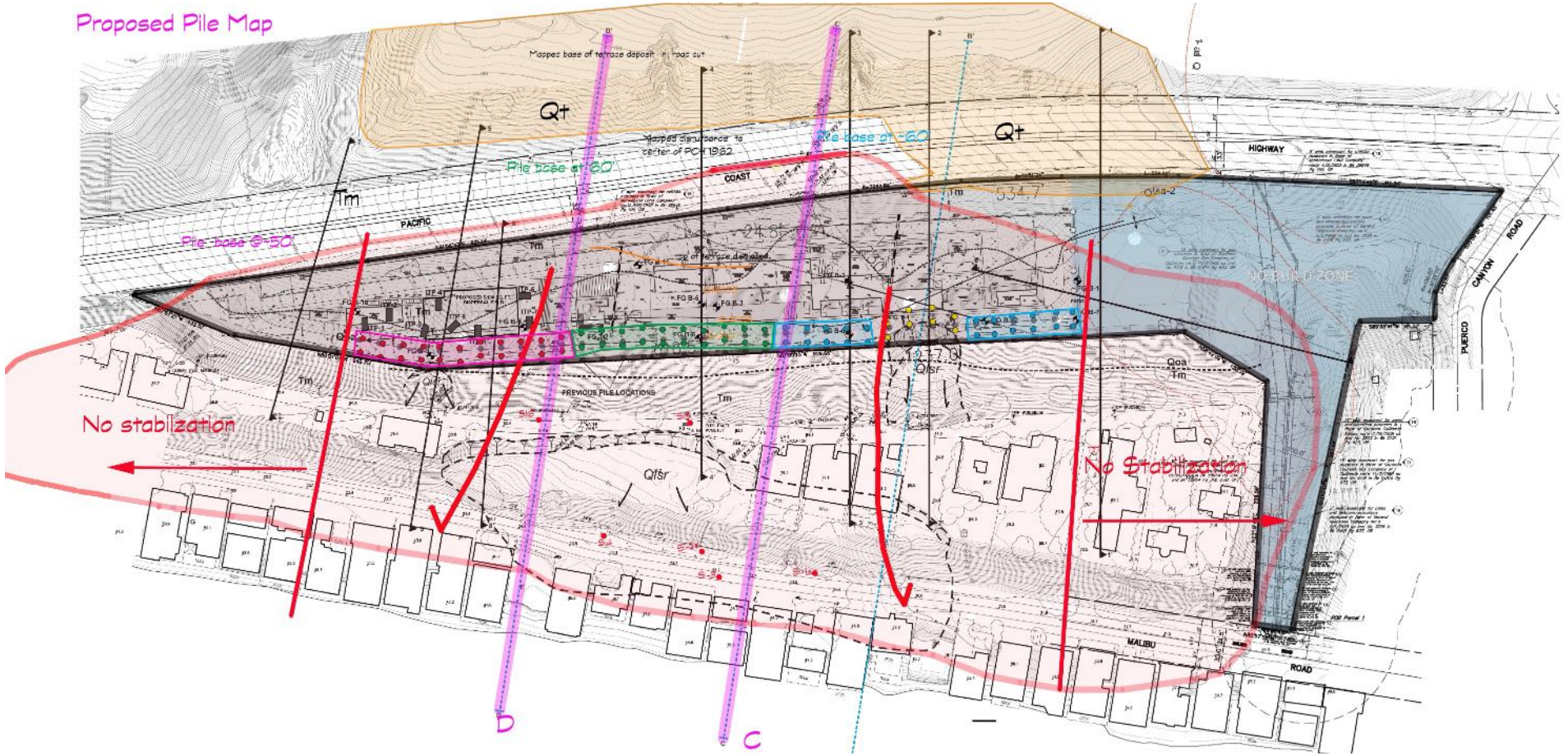


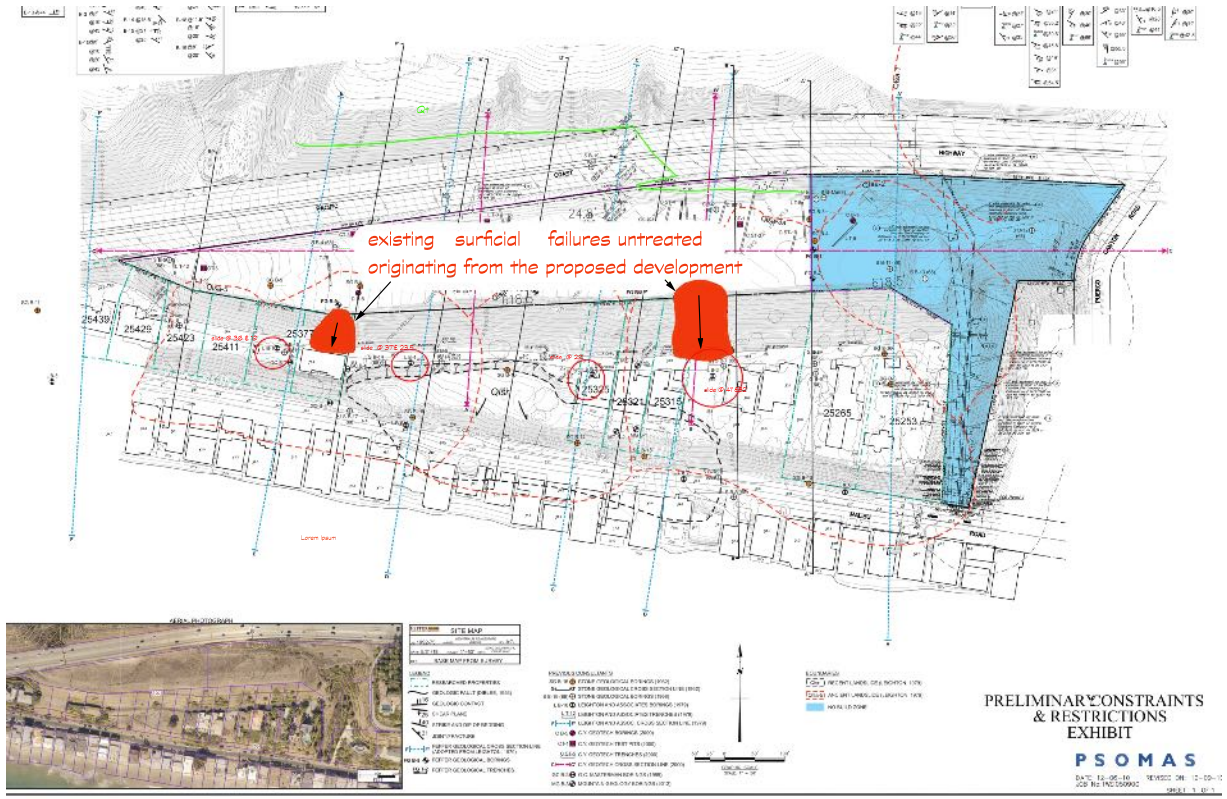
Table of pile depth vs. slide depth

Pile color from map	Red	Green	Blue and Yellow
Depth/pile length	50’	60’	60’
Bottom elevation of pile	50’	60’	60’
Slide Plane Elevation	36’& 19’/37’23.5	37’-29’	29’-31’
Deficit	14’ to 31’	36.5’-31’	31’-29’

Untreated slide conditions map



Untreated conditions surficial and slope



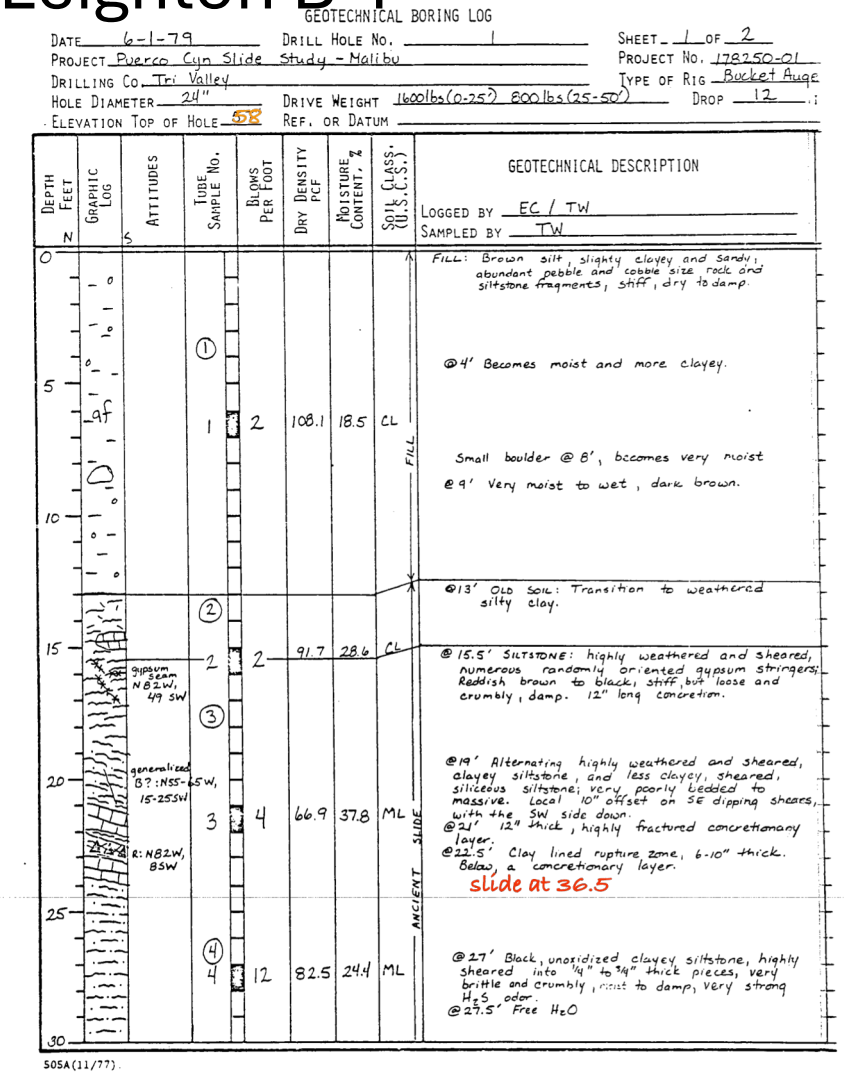
Conclusions

- This is a known landslide with a history of failures that resulted in loss of homes and this fact was not adequately addressed in the Feffer report. Reports of slide movement include 1962, 1967, 1978-9, 1995, 1998. There is no discussion or analysis of the history of slide movement in the Feffer report
- This is a very sensitive site in terms of stability and injecting water into a slide is major destabilizing factor.
- In the history of landslides in Malibu injection of ground water through **any** means has always been a factor in the subsequent failure. This site is no different.
- The investigation did not address the presence of deeper sliding as identified by Stone, Leighton and Pacific Soils
- There are untreated surficial slides that originate from this property and will impact the residents below. This is a life safety issue.
- The piles as designed are too shallow with average lengths being only **50 -60** ft.
- The piles are NOT deeper than the slide planes as identified by Leighton along Bayshore. These slide planes **extend into and under the subject property**.
- Water originating from any and all sources on this property will negatively impact the stability of the site, including surfical stability, the slope above Bayshore, and the deeper seated landslide.
- This. conclusion was alos contained in the Leighton report
- The pile plan does not treat the entire slide because Feffer could not identify the slide limits.
- The development as proposed presents a hazard to the residents below the site.
- Since the site will transmit water and into an active slide it should be **encapsulated** so that NO water and **NO additional risk** is transmitted to the people and properties below the proposed development.

Depth of slide on Bayshore outside of active marked slide not analyzed by Feffer

Slide at 36.5’ elev. and 19’elev

- Leighton B-1


GEOTECHNICAL BORING LOG

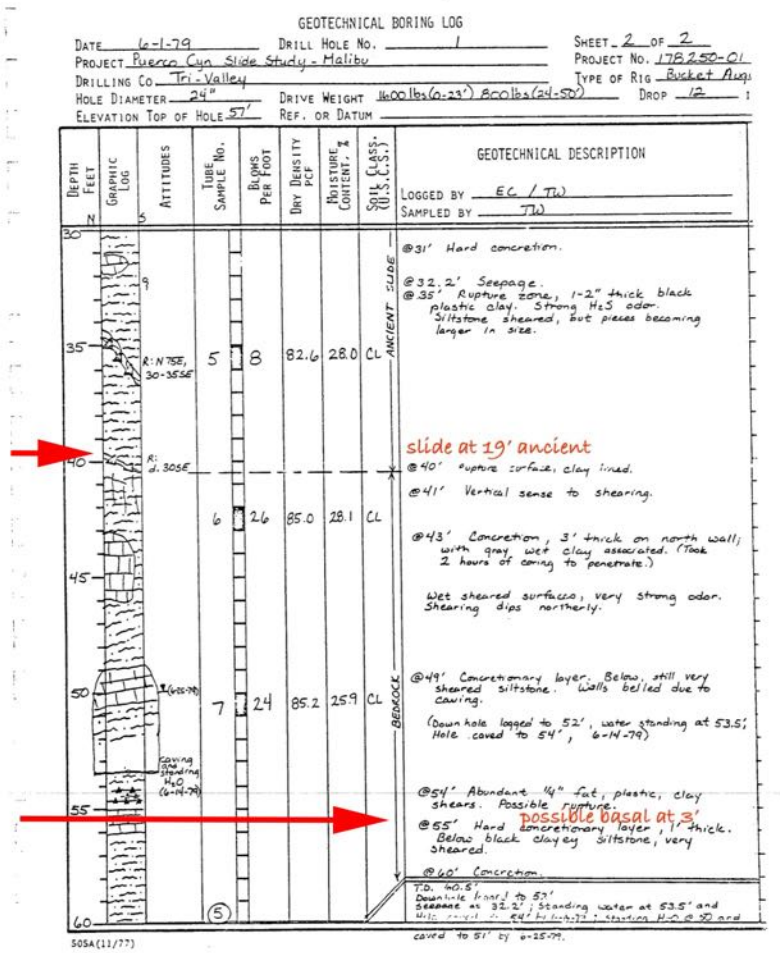
DATE 6-1-79 DRILL HOLE No. 1 SHEET 1 OF 2
PROJECT Puerco Cyn Slide Study - Malibu PROJECT No. 178250-01
DRILLING CO. Tri Valley TYPE OF RIG Bucket Auge
HOLE DIAMETER 24" DRIVE WEIGHT 1600lbs(0-25') 800lbs(25-50') DROP 12
ELEVATION TOP OF HOLE 58 REF. OR DATUM

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	
0								FILL: Brown silt, slighty clayey and sandy; abundant pebble and cobble size rock and siltstone fragments, stiff, dry to damp.	
5			1	2	108.1	18.5	CL	@4' Becomes moist and more clayey.	FILL
10								Small boulder @ 8', becomes very moist @9' Very moist to wet, dark brown.	
15		gypsum seam N82W, 49 SW	2	2	91.7	28.6	CL	@13' OLD SOIL: Transition to weathered silty clay. @15.5' SILTSTONE: highly weathered and sheared, numerous randomly oriented gypsum stringers; Reddish brown to black, stiff but loose and crumbly, damp. 12" long concretion.	
20		generalized 'B?': N55-65W, 15-25SW R: N82W, 85W	3	4	66.9	37.8	ML	@19' Alternating highly weathered and sheared, clayey siltstone, and less clayey, sheared, siliceous siltstone; very poorly bedded to massive. Local 10" offset on SE dipping shears, with the SW side down. @21' 12" thick, highly fractured concretionary layer. @22.5' Clay lined rupture zone, 6-10" thick. Below, a concretionary layer. slide at 36.5	ANCIENT SLIDE
25			4	12	82.5	24.4	ML	@27' Black, unoxidized clayey siltstone, highly sheared into 1/4" to 3/4" thick pieces, very brittle and crumbly, moist to damp, very strong H_2S odor. @27.5' Free H_2O	
30									

505A(11/77)

Leighton B-1 pg 2


GEOTECHNICAL BORING LOG

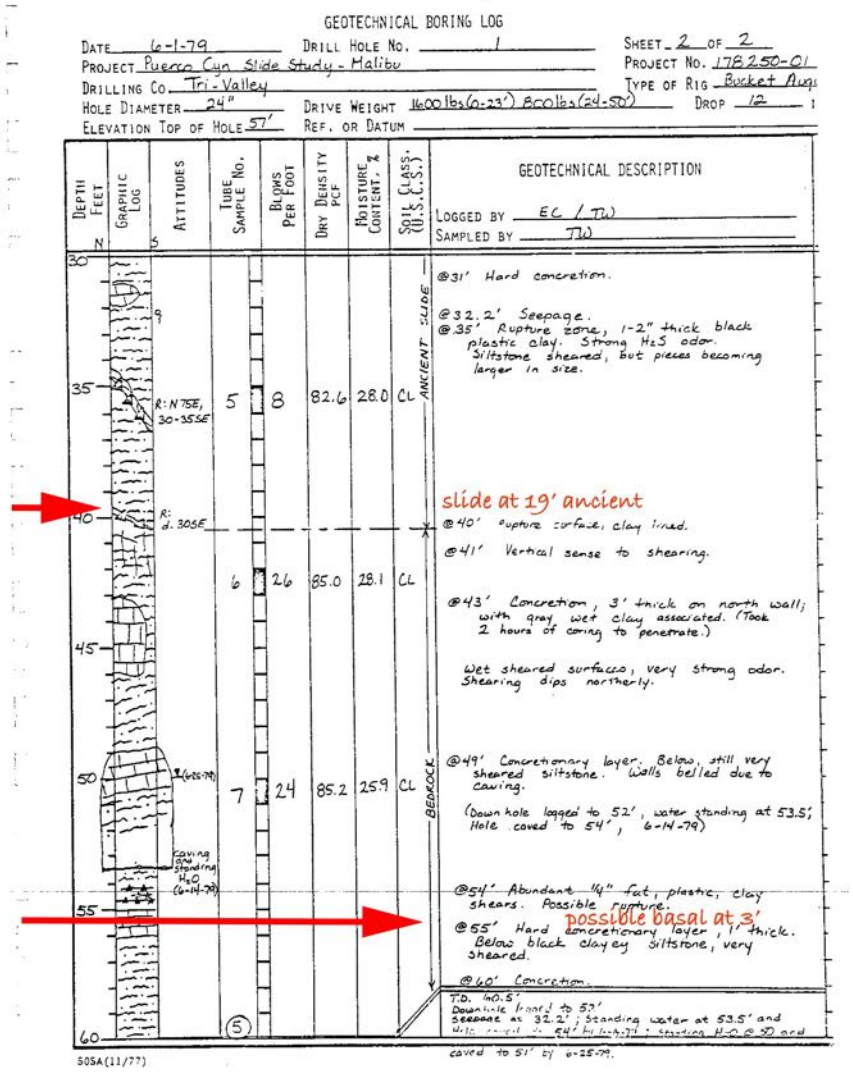
DATE 6-1-79 DRILL HOLE No. 1 SHEET 2 OF 2
PROJECT Puerco Cyn Slide Study - Malibu PROJECT No. 178250-01
DRILLING CO. Tri-Valley TYPE OF RIG Bucket Auge
HOLE DIAMETER 24" DRIVE WEIGHT 1600lbs(0-23') 800lbs(24-50') DROP 12
ELEVATION TOP OF HOLE 57' REF. OR DATUM

LOGGED BY EC / TW
SAMPLED BY TW

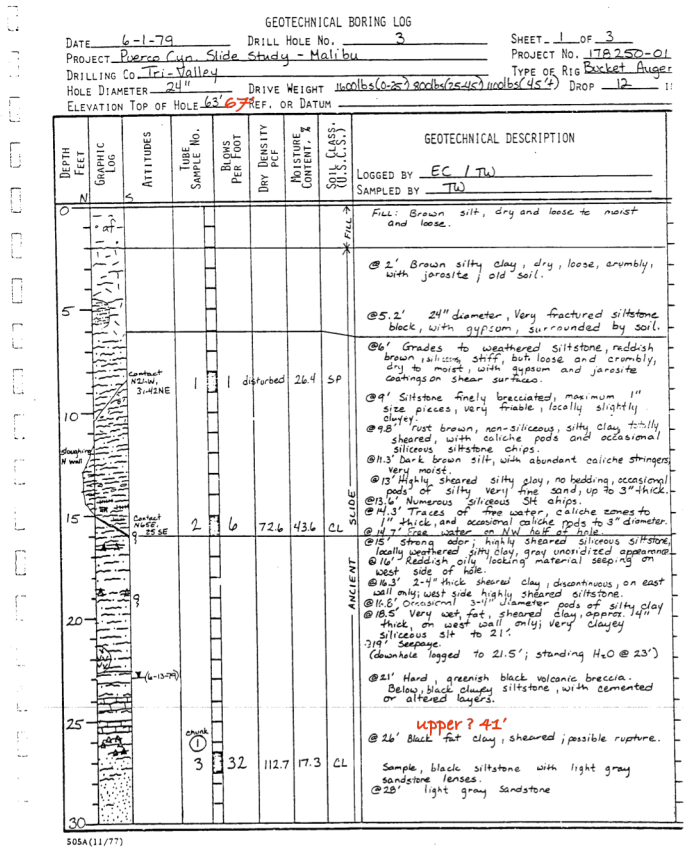
Depth Feet	Graphic Log	Attitudes	Tube Sample No.	Blows Per Foot	Dry Density PCF	Moisture Content, %	Soil Class. (U.S.C.S.)	Geotechnical Description	
30								@31' Hard concretion.	
35		R: N75E, 30-35SE	5	8	82.6	28.0	CL	@32.2' Seepage. @35' Rupture zone, 1-2" thick black plastic clay. Strong H_2S odor. Siltstone sheared, but pieces becoming larger in size.	ANCIENT SLIDE
40		R: d. 30SE						slide at 19' ancient @40' Rupture surface, clay lined. @41' Vertical sense to shearing.	
45			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.) Wet sheared surfaces, very strong odor. Shearing dips northerly.	
50		caving 30' standing H2O (6-14-79)	7	24	85.2	25.9	CL	@49' Concretionary layer. Below, still very sheared siltstone. Walls belled due to caving. (Down hole logged to 52', water standing at 53.5'; Hole caved to 54', 6-14-79)	BEDROCK
55								@54' Abundant 1/4" fat, plastic, clay shears. Possible rupture. @55' Hard concretionary layer, 1' thick. Below black clayey siltstone, very sheared. possible basal at 3'	
60			8					@60' Concretion. T.D. 60.5' Downhole logged to 52' Seepage at 32.2'; standing water at 53.5' and caved to 51' by 6-25-79.	

505A(11/77)

Leighton LB-2. slide at 19’ elev.



Leighton B-3 slide at 32’

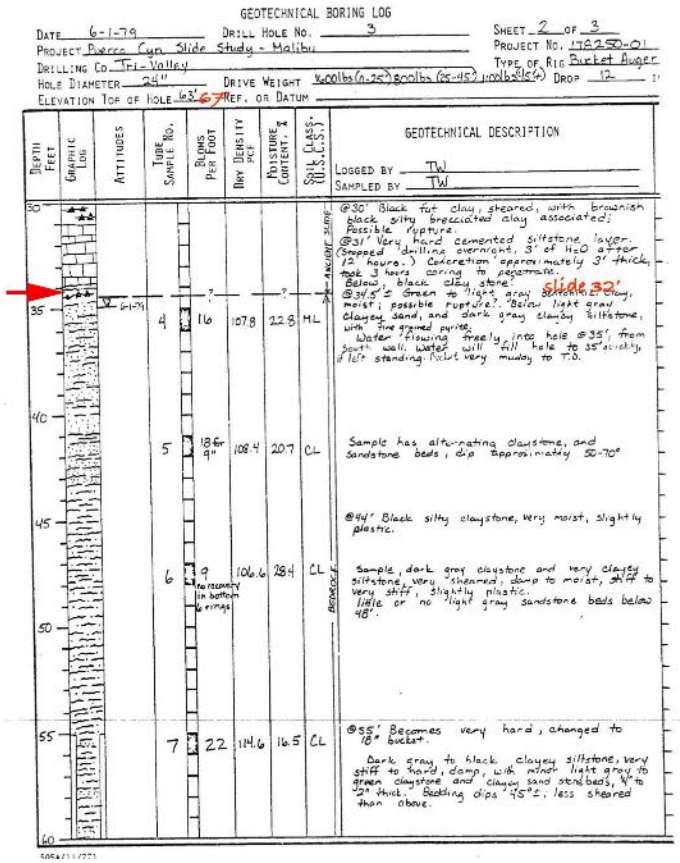


GEOTECHNICAL BORING LOG

DATE 6-1-79 DRILL HOLE No. 3 SHEET 1 OF 3
PROJECT Pierce Cyn. Slide Study - Malibu PROJECT No. 178250-01
DRILLING CO. Tri-Valley TYPE OF RIG Bucket Auger
HOLE DIAMETER 24" DRIVE WEIGHT 1600lbs(0-25') 800lbs(25-45') 1100lbs(45'+) DROP 12
ELEVATION TOP OF HOLE 6367 REF. OR DATUM

DEPTH FEET	GRAPHIC LOG	ATTITUDES	TUBE SAMPLE NO.	BLOWS PER FOOT	DRY DENSITY PCF	MOISTURE CONTENT, %	SOIL CLASS. (U.S.C.S.)	GEOTECHNICAL DESCRIPTION
								LOGGED BY EC / TW SAMPLED BY TW
0	af						FILL	FILL: Brown silt, dry and loose to moist and loose.
								@ 2' Brown silty clay, dry, loose, crumbly, with jarosite / old soil.
5								@5.2' 24" diameter, Very fractured siltstone block, with gypsum, surrounded by soil.
								@6' Grades to weathered siltstone, reddish brown, initially stiff, but loose and crumbly, dry to moist; with gypsum and jarosite coatings on shear surfaces.
10		Contact N21W, 31.42NE	1	1 disturbed	26.4		SP	@9' Siltstone finely brecciated; maximum 1" size pieces; very friable, locally slightly clayey.
	sloughing N wall							@9.8' rust brown, non-siliceous, silty clay to silty sheared, with caliche pods and occasional siliceous siltstone chips.
								@11.3' Dark brown silt, with abundant caliche stringers; very moist.
								@13' Highly sheared silty clay, no bedding, occasional pods of silty very fine sand, up to 3" thick.
								@13.6' Numerous siliceous Slt chips.
15		Contact N42W, 9 35 SE	2	6	72.6	43.6	CL	@14.3' Traces of free water, caliche zones to 1" thick, and occasional caliche pods to 3" diameter.
							SLIDE	@ 14.7' free water on NW half of hole
								@15' Strong odor; highly sheared siliceous siltstone, locally weathered silty clay, gray unoxidized appearance.
								@16' Reddish oily looking material seeping on west side of hole.
								@16.3' 2-4" thick sheared clay; discontinuous, on east wall only; west side highly sheared siltstone.
20								@16.8' Occasional 3-1" diameter pods of silty clay
								@18.5' Very wet, fat, sheared clay, approx. 14" thick, on west wall only; Very clayey siliceous slt to 21'.
		(6-13-79)						719' Seepage. (downhole logged to 21.5'; standing H_2O @ 23')
								@21' Hard, greenish black volcanic breccia. Below, black clayey siltstone, with cemented or altered layers.
25			chunk 1					upper? 41'
			3	32	112.7	17.3	CL	@ 26' Black fat clay, sheared; possible rupture.
								Sample, black siltstone with light gray sandstone lenses.
								@28' light gray sandstone
30								

505A(11/77)

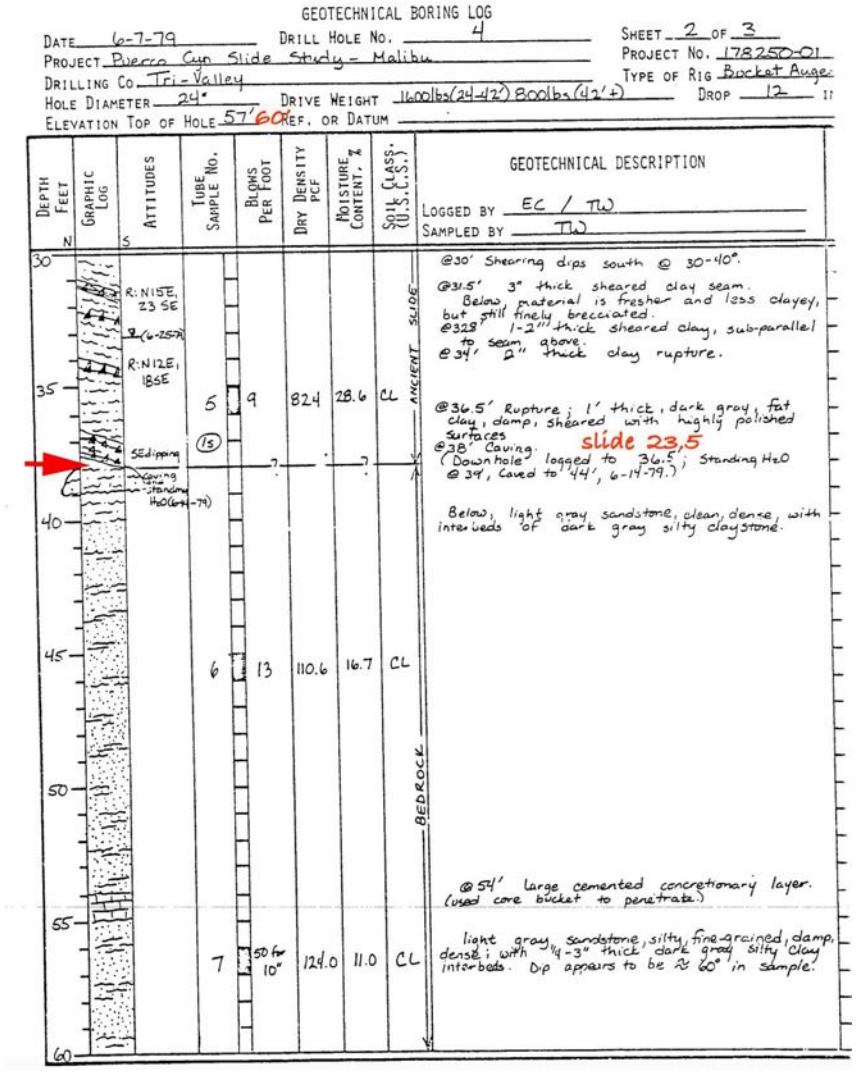


GEOTECHNICAL BORING LOG

DATE 6-1-79 DRILL HOLE No. 3 SHEET 2 OF 3
PROJECT Pierce Cyn. Slide Study - Malibu PROJECT No. 178250-01
DRILLING CO. Tri-Valley TYPE OF RIG Bucket Auger
HOLE DIAMETER 24" DRIVE WEIGHT 1600lbs(0-25') 800lbs(25-45') 1100lbs(45'+) DROP 12
ELEVATION TOP OF HOLE 6367 REF. OR DATUM

DEPTH FEET	GRAPHIC LOG	ATTITUDES	TUBE SAMPLE NO.	BLOWS PER FOOT	DRY DENSITY PCF	MOISTURE CONTENT, %	SOIL CLASS. (U.S.C.S.)	GEOTECHNICAL DESCRIPTION
								LOGGED BY TW SAMPLED BY TW
30							ANCIENT SLIDE	@30' Black fat clay, sheared, with brownish black silty brecciated clay associated; Possible rupture.
								@31' Very hard cemented siltstone layer. (Stopped drilling overnight, 3' of H_2O after 12 hours.) Concretion approximately 3' thick, took 3 hours coring to penetrate.
								Below, black clay stone? slide 32'
								@34.5'± Green to light gray siltstone, clayey, moist; possible rupture? Below light gray clayey sand, and dark gray clayey siltstone, with fine grained pyrite.
35		(6-1-79)	4	16	107.8	22.8	ML	Water flowing freely into hole @35', from south wall. Water will fill hole to 35' slightly, & left standing but very muddy to T.D.
40								
			5	18 for 9"	108.4	20.7	CL	Sample has alternating claystone, and sandstone beds, dip approximately 50-70°
45								@44' Black silty claystone, very moist, slightly plastic.
			6	9 No recovery in bottom 6 rings	106.6	28.4	CL	Sample, dark gray claystone and very clayey siltstone, very sheared, damp to moist, stiff to very stiff, slightly plastic. little or no light gray sandstone beds below 48'.
50							BEDROCK	
55			7	22	114.6	16.5	CL	@55' Becomes very hard, changed to 18" bucket.
								Dark gray to black, clayey siltstone, very stiff to hard, damp, with minor light gray to green claystone and clayey sand stringers, ¼" to ½" thick. Bedding dips 45°±, less sheared than above.
60								

Leighton B-4



GEOTECHNICAL BORING LOG

DATE 6-7-79 DRILL HOLE NO. 4 SHEET 2 OF 3
PROJECT Pierce Cyn Slide Study - Malibu PROJECT NO. 178250-01
DRILLING CO. Tri-Valley TYPE OF RIG Bucket Auger
HOLE DIAMETER 24" DRIVE WEIGHT 1600lbs(24-42') 800lbs(42'+) DROP 12 "
ELEVATION TOP OF HOLE 5760 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								@30' Shearing dips south @ 30-40°.
		R: N15E, 23 SE						@31.5' 3" thick sheared clay seam. Below, material is fresher and less clayey, but still finely brecciated.
		(6-25-79)						@32.8' 1-2" thick sheared clay, sub-parallel to seam above.
		R: N12E, 18SE						@34' 2" thick clay rupture.
35			5	9	82.4	28.6	CL	ANCIENT SLIDE
			(15)					@36.5' Rupture; 1' thick, dark gray, fat clay, damp, sheared with highly polished surfaces
		SE dipping						@38' Caving. slide 23,5
		caving zone standing H2O (6-14-79)						(Downhole logged to 36.5'; Standing H2O @ 34', Caved to 44', 6-14-79.)
40								Below, light gray sandstone, clean, dense, with interbeds of dark gray silty claystone.
45			6	13	110.6	16.7	CL	
50								
								@54' large cemented concretionary layer. (used core bucket to penetrate.)
55			7	50 for 10"	124.0	11.0	CL	light gray sandstone, silty, fine-grained, damp, dense; with ¼-3" thick dark gray silty clay interbeds. Dip appears to be ≈ 60° in sample.
60								BEDROCK

Received
2/17/26
Planning Div.

From: Steve Rucker
To: Planning Commission
Subject: Maintaining PCH Ocean Views
Date: Saturday, February 14, 2026 2:02:45 PM

Dear Commission,
The planned development at 25200 PCH
is an insult to the beauty and magic of our stunning coastline. To see those story poles and the height of the planned structure is heartbreaking. PLEASE reconsider and limit the dimensions of this project. You have the power.
You have our trust. Please do the right thing for us all.
Sincerely,
Steve and Robbi Rucker
Sent from my iPhone

CC: Planning Commission, PD,

Recording Secretary, File

Date Received 2/17/26 Time 7:30 a.m.
Planning Commission meeting of 2/17/26
Agenda Item No. 4A
Total No. of Pages 1

CDP NO. 10012, LM NO. 24-002, COC NO. 19009

25200 PCH

Planning Commission
Item 4A
February 17, 2026

Vicinity Map



Project Background

- Project presented to the Commission on 1-20-26
- Commission deliberated on project and requested changes to reduce bluewater view impacts from PCH
- Commission and applicant discussed lowering building pad by 2’ and removing guest house
- Commission continued the item to 2-17-26

Project Description

- One-story SF main residence - 9,219 SF
- One-story gym - 676 SF
- Basement - 1,523 SF
- Underground garage - 1,000 SF
- OWTS - 7,640 gal.

Project Description, cont.

- Retaining walls 3-6 ft. high
- Freestanding walls 6’ high
- Swimming pools/spas/water features
- Patios/outdoor rooms
- Landscaping
- Fire access driveways

Applicant Changes/Revised Plans

- Lower building pad by 2’ in “communal areas” of main residence
  - outdoor kitchen
  - kitchen
  - family room
  - living room
  - dining room
  - beneath the subterranean areas
- Remove guest house (replace with decking)
- Lower walls previously attached to guest house – now freestanding (now 6’ vs. 10’-3”)

Applicant Changes/Revised Plans, cont.

Results in:

- Reduced building height by 2’ in communal areas of main residence
- Prior max. height reduced from 17’-7” to 15’-7” (kitchen)
- New max. height is 16’-10” at main residence master bedroom (no change)
- Prior max. protrusion above PCH/berms reduced from of 8’-5” to 6’-5” (kitchen)
- New max. protrusion above PCH/berms is 7’-6” at secondary bedrooms (no change)
- Gym height and protrusion remain same (12’; 2’-7”)

Applicant Changes/Revised Plans, cont.

Results in:

- No bluewater view impacts west of gym (guest house removal)
- TDSF reduced from 11,121 to 10,656 SF (guest house removal)
- Total grading increases from 6,688 to 10,341 CY (lowering of building pad)
- Non-exempt grading reduces from 979 to 742 CY (1,000 CY max allowed)

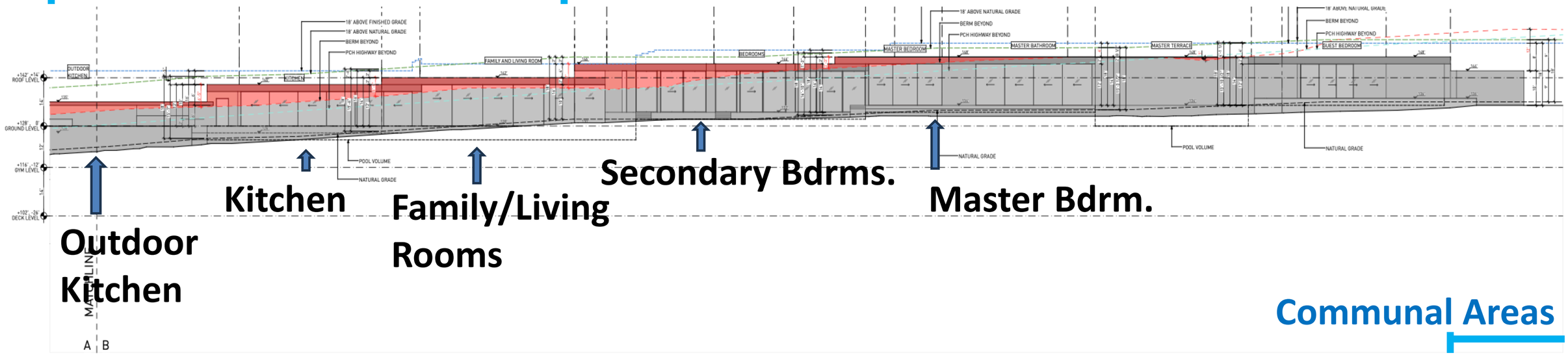
- Project continues to comply with development standards of LIP and MMC

Applicant Changes/Revised Plans, cont.

	Max. Height		Max. Protrusion	
	Before	After	Before	After
Main Residence	17’-7”	16’-10”	8’-5”	7’-6”
Gym	12’	12’	2’-7”	2’-7”

Revised Plans – Overall Elevation

Communal Areas



Outdoor Kitchen

Kitchen

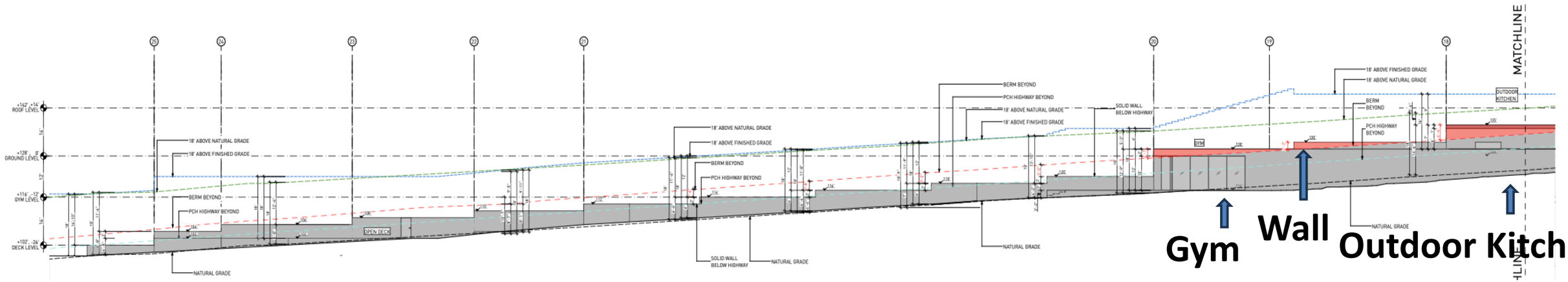
Family/Living Rooms

Secondary Bdrms.

Master Bdrm.

Communal Areas

2 SOUTH ELEVATION
1/16" = 1'-0"



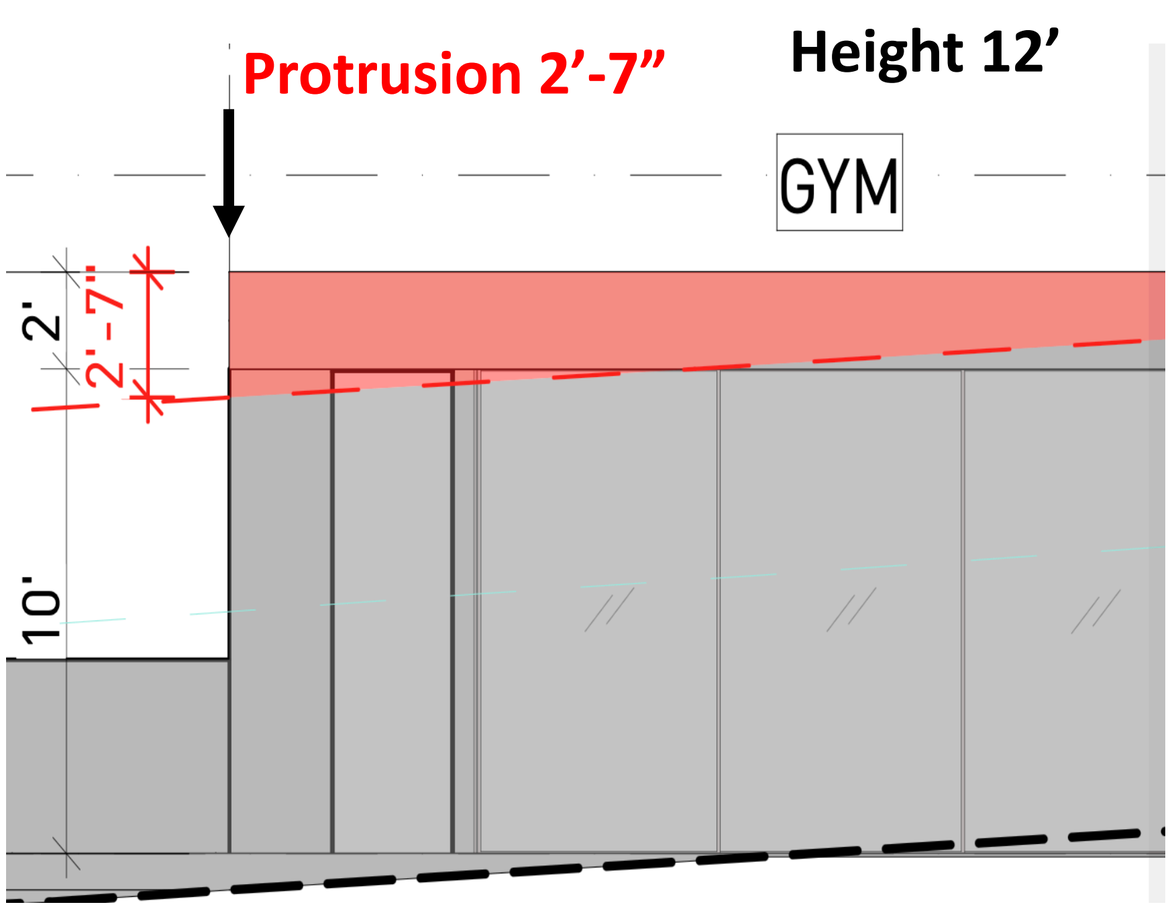
Gym

Wall

Outdoor Kitchen

Gym – *no change*

BEFORE



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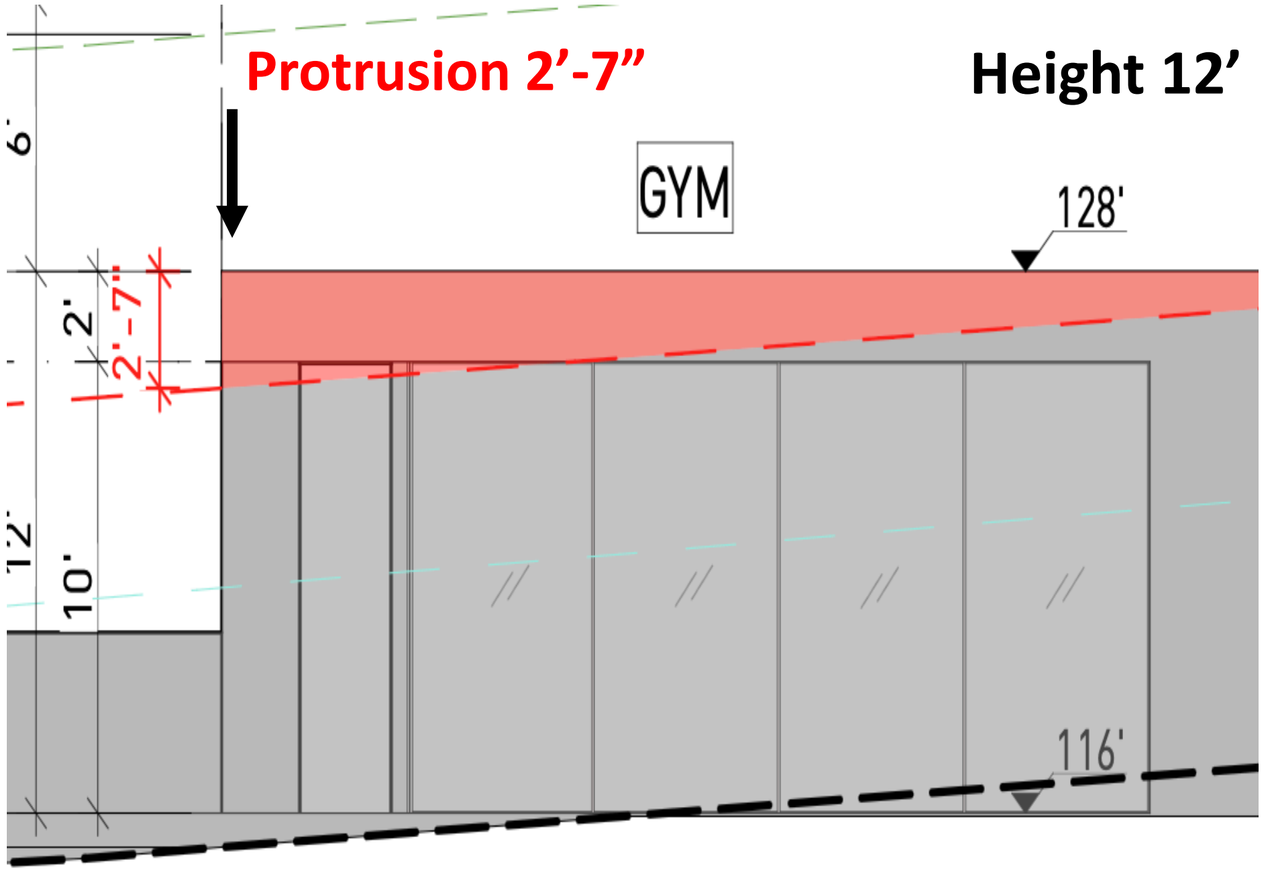
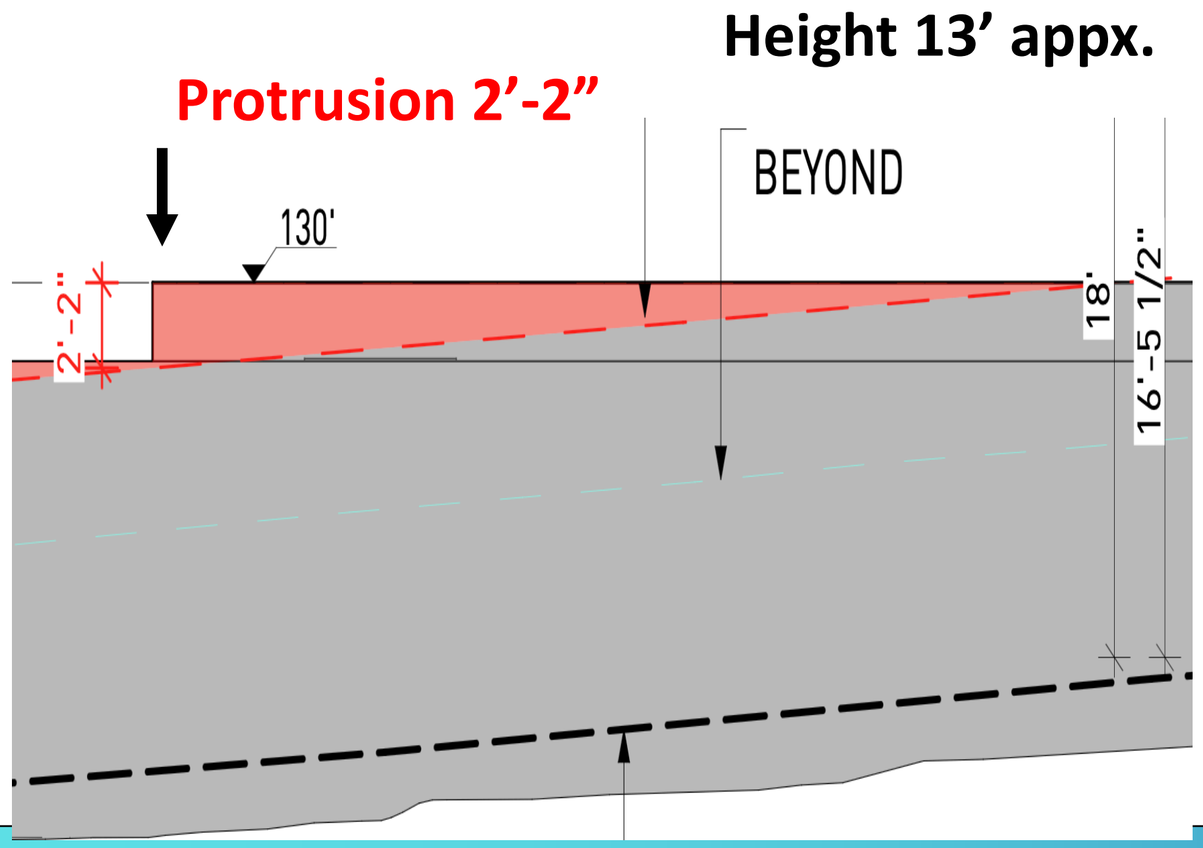


Building Wall Connecting to Outdoor Kitchen – *no change*

BEFORE



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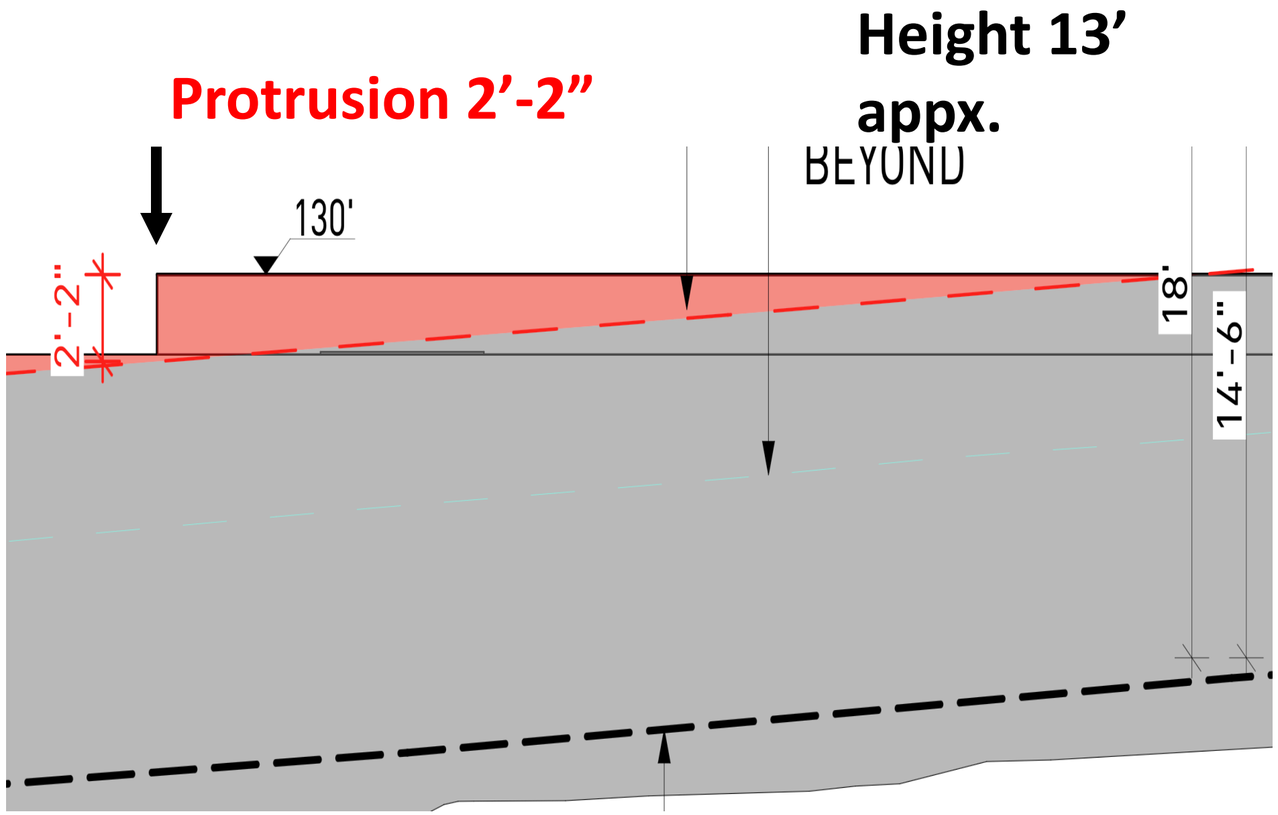
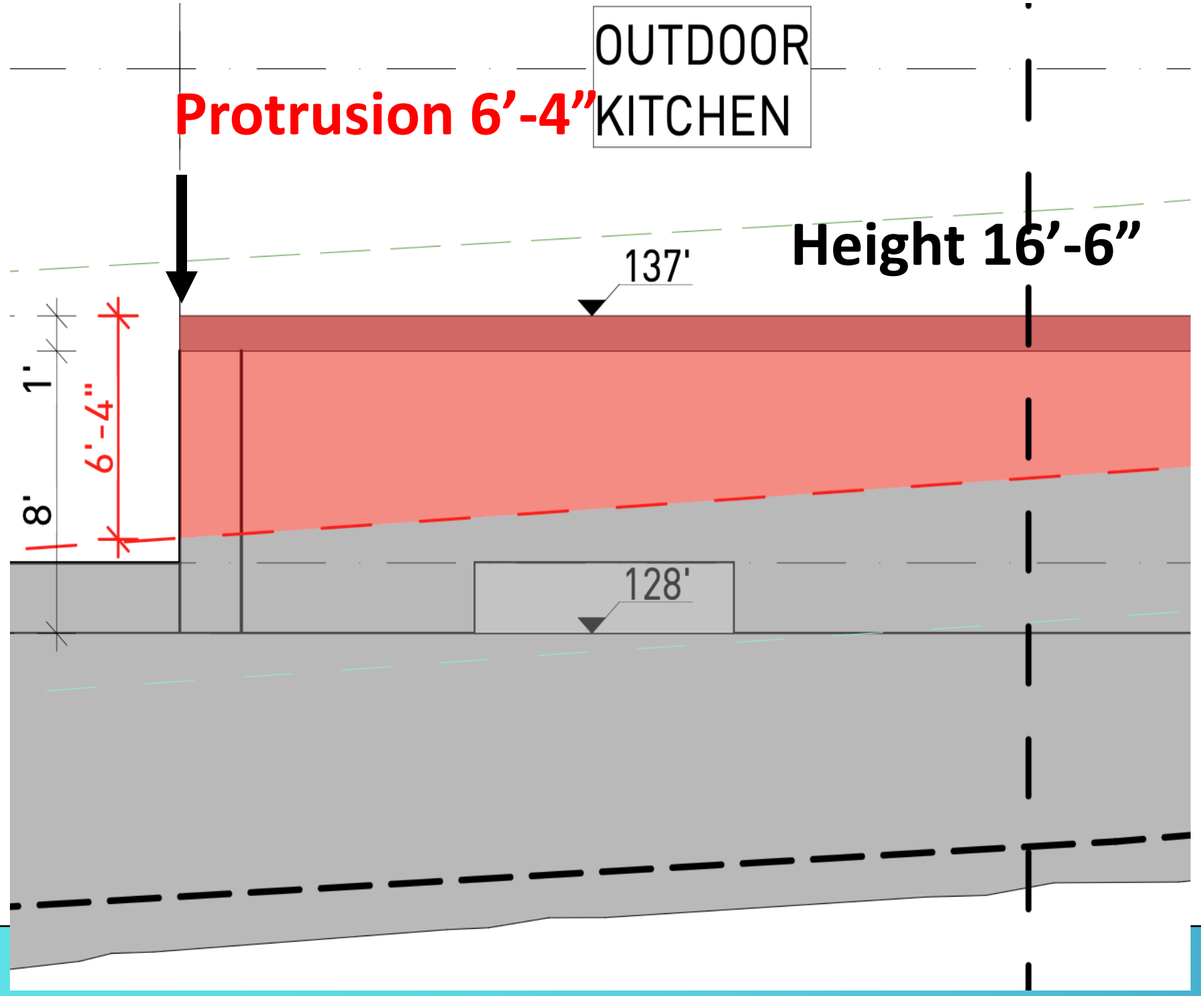


Outdoor Kitchen – *change*

BEFORE



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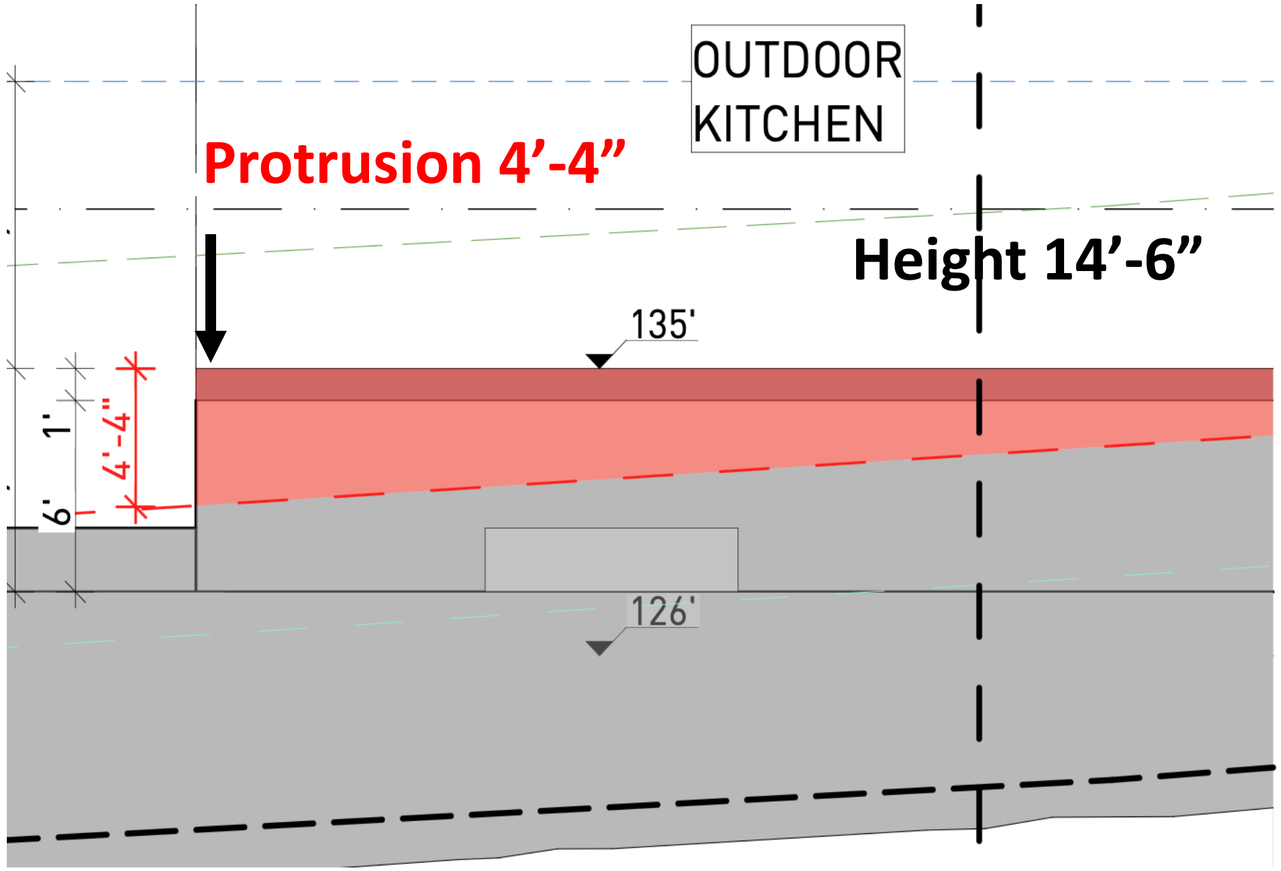
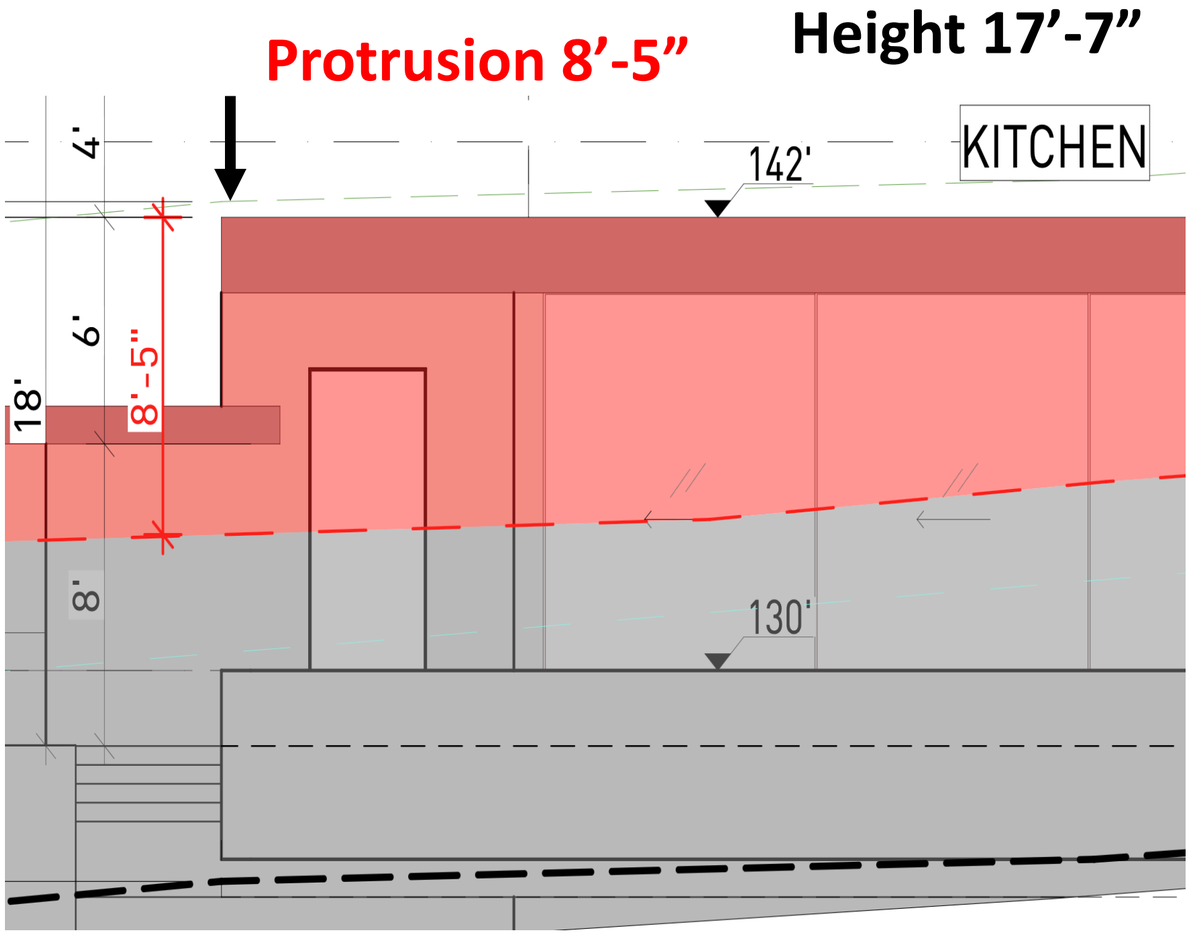


Kitchen – *change*

BEFORE



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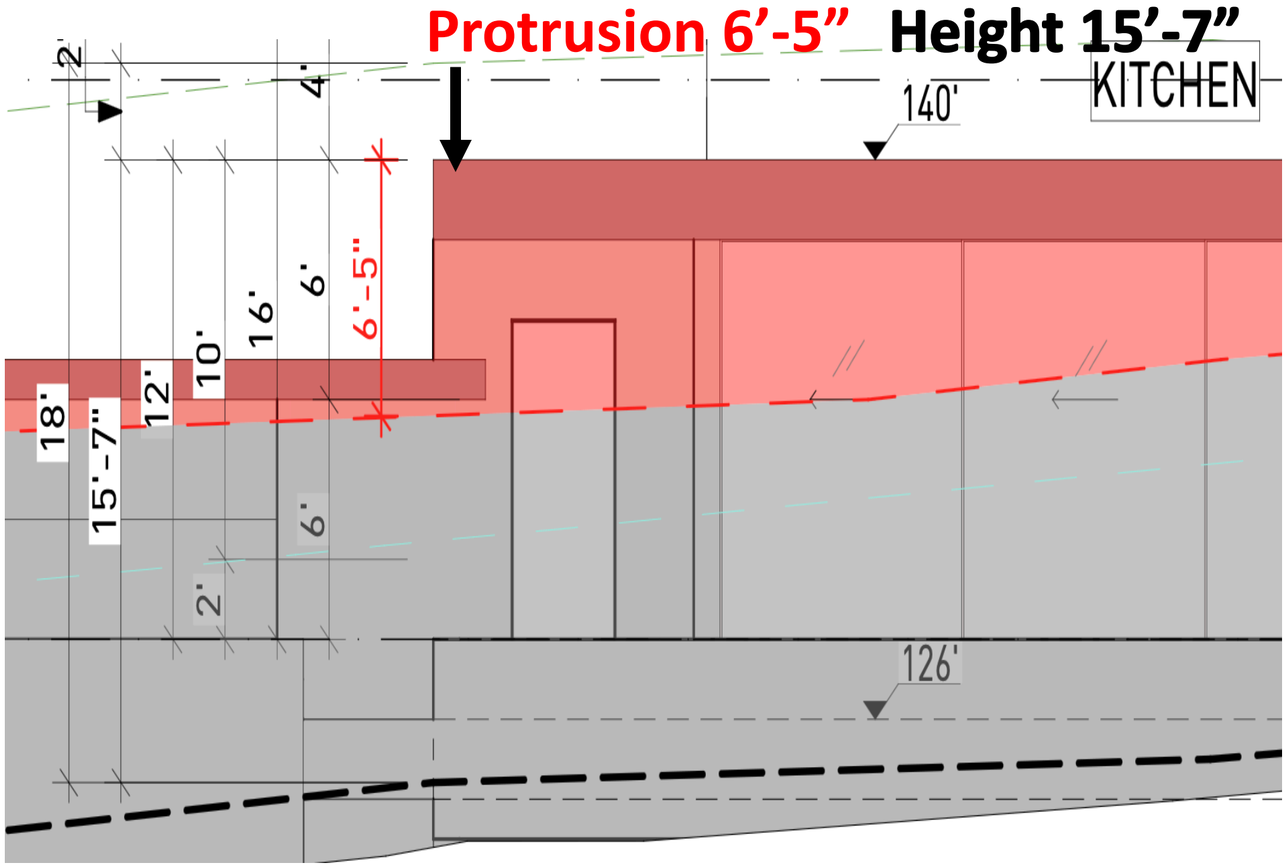
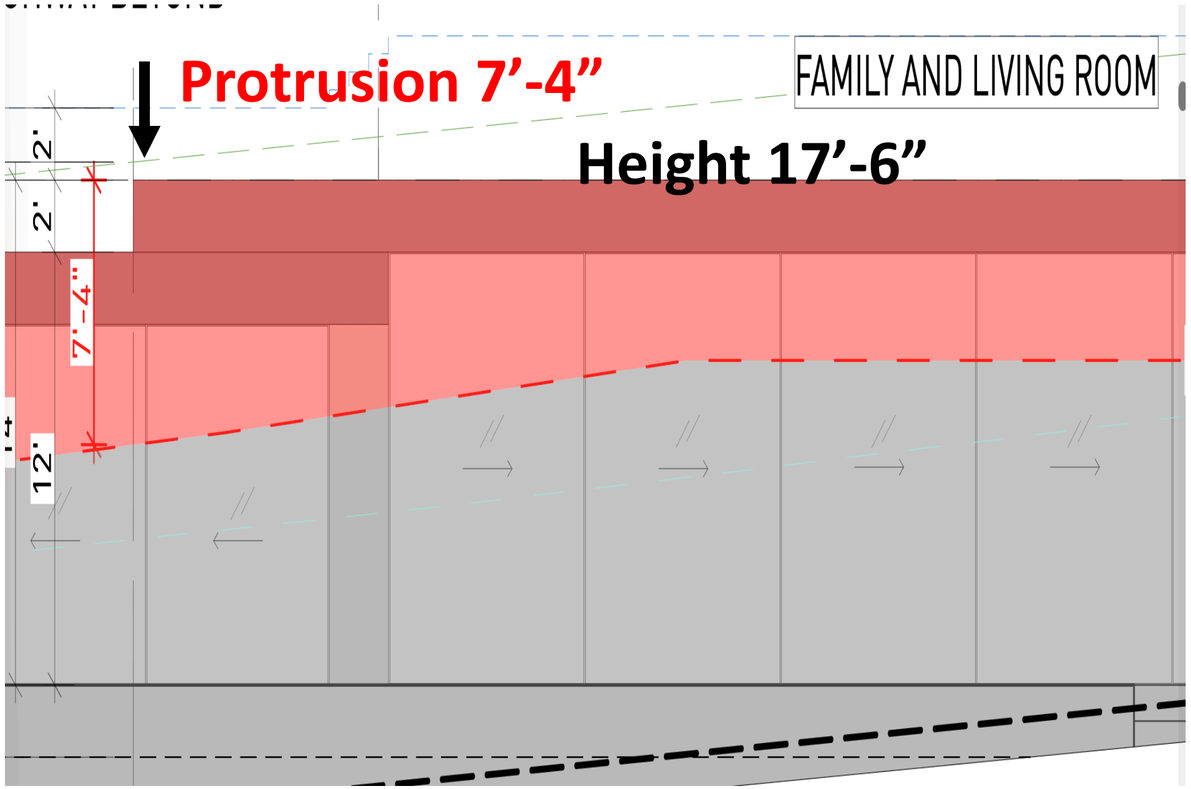


Family & Living Room – *change*

BEFORE



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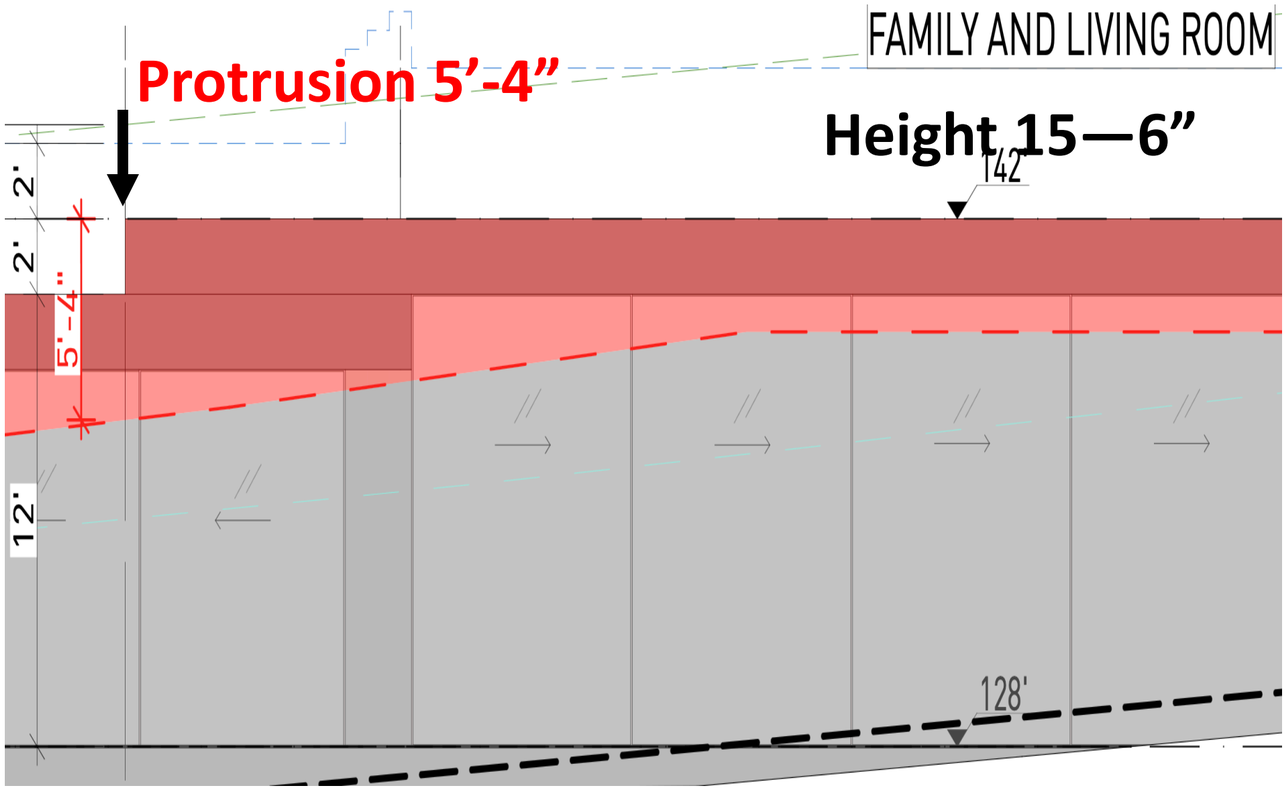
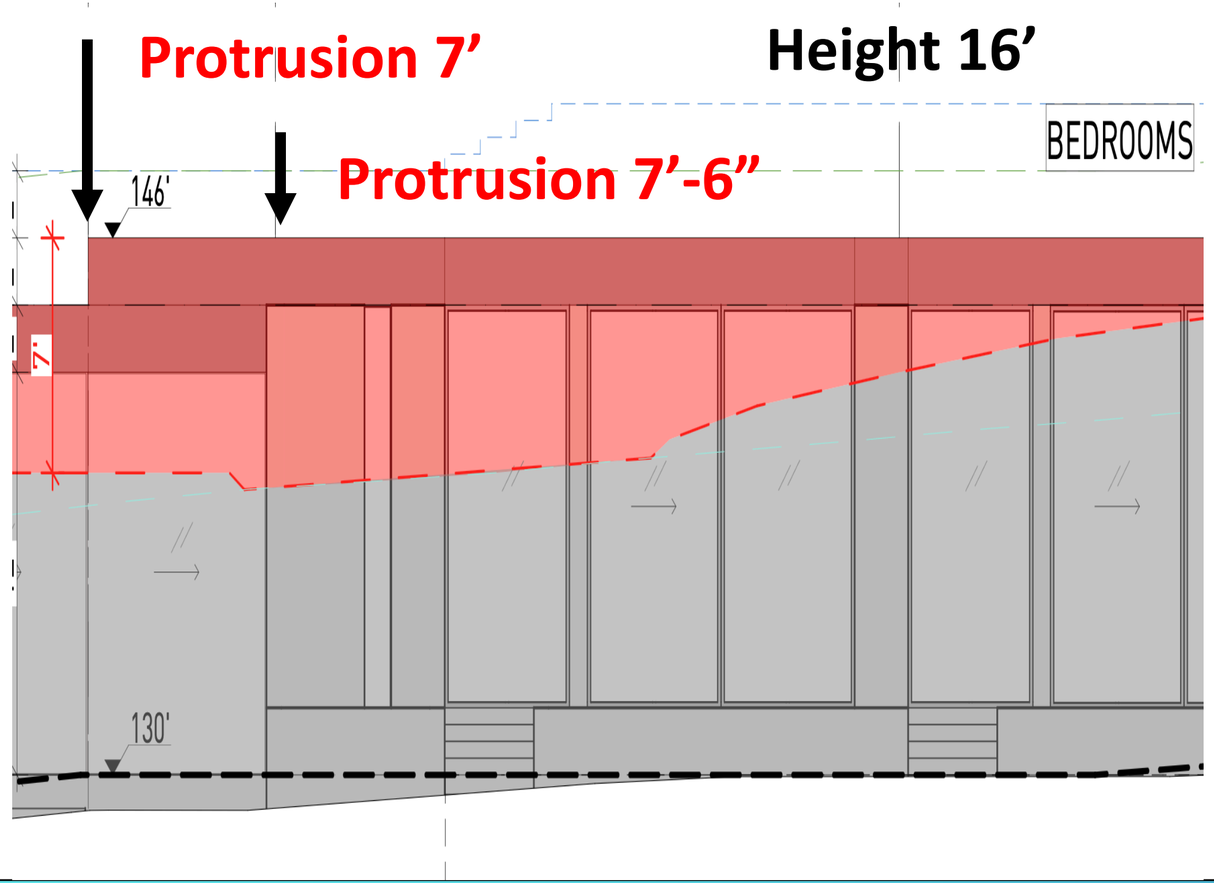


Secondary Bedrooms – *no change*

- **BEFORE**



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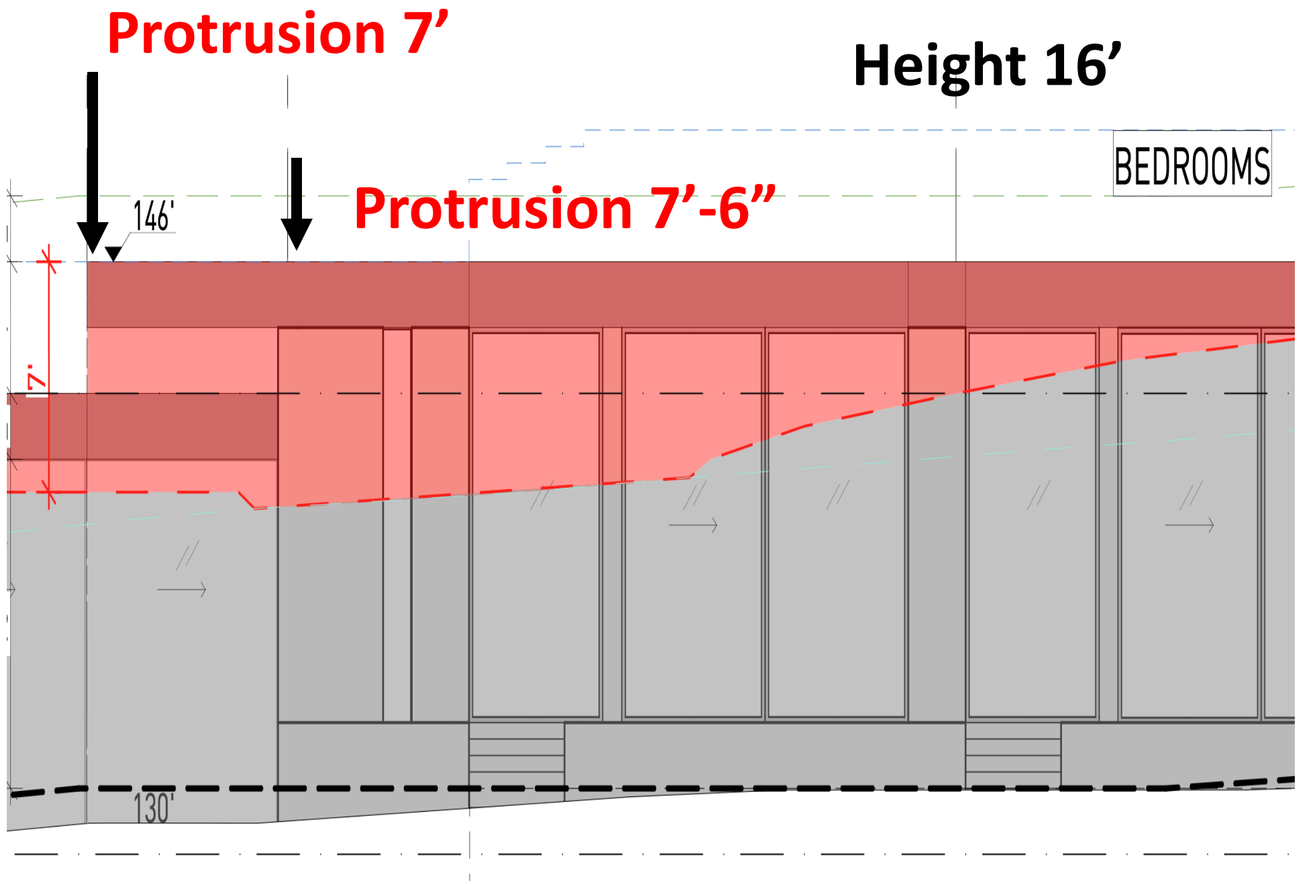

Master Bedroom – *no change*

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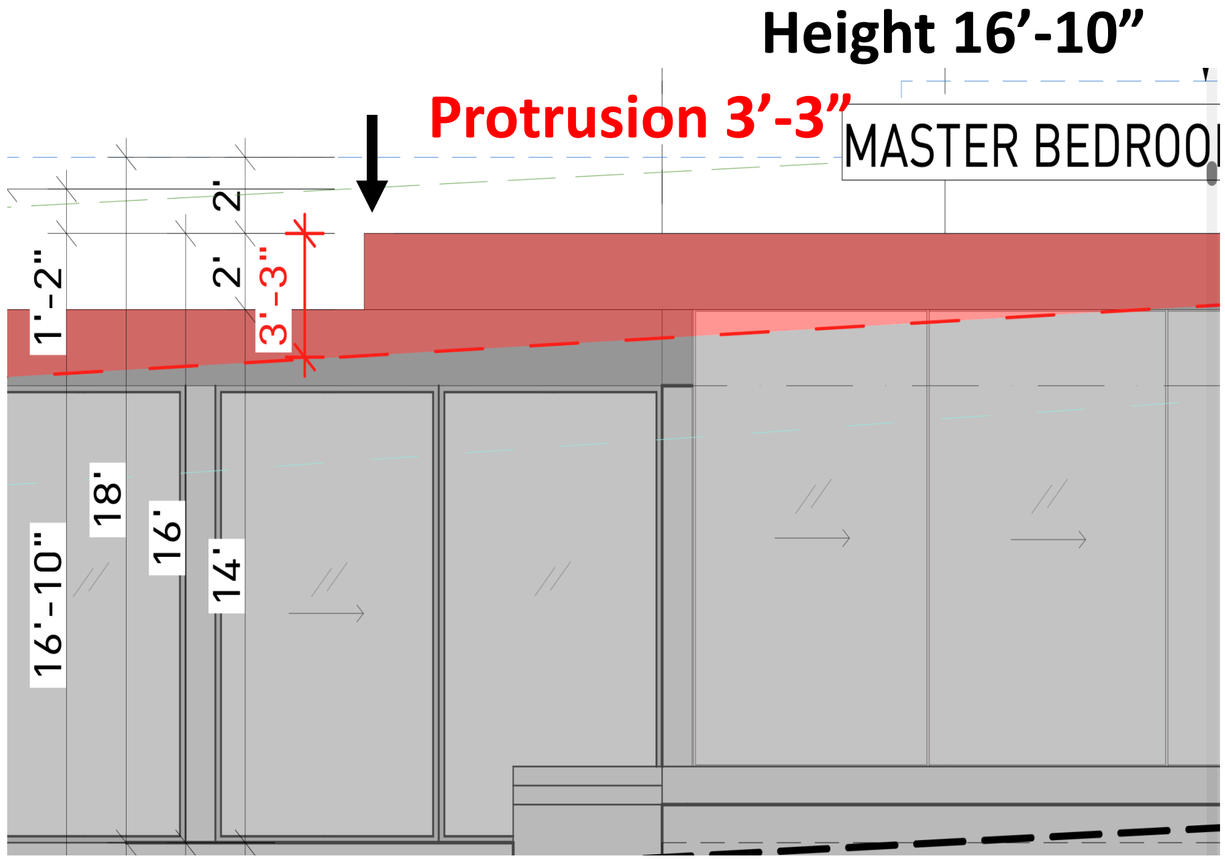

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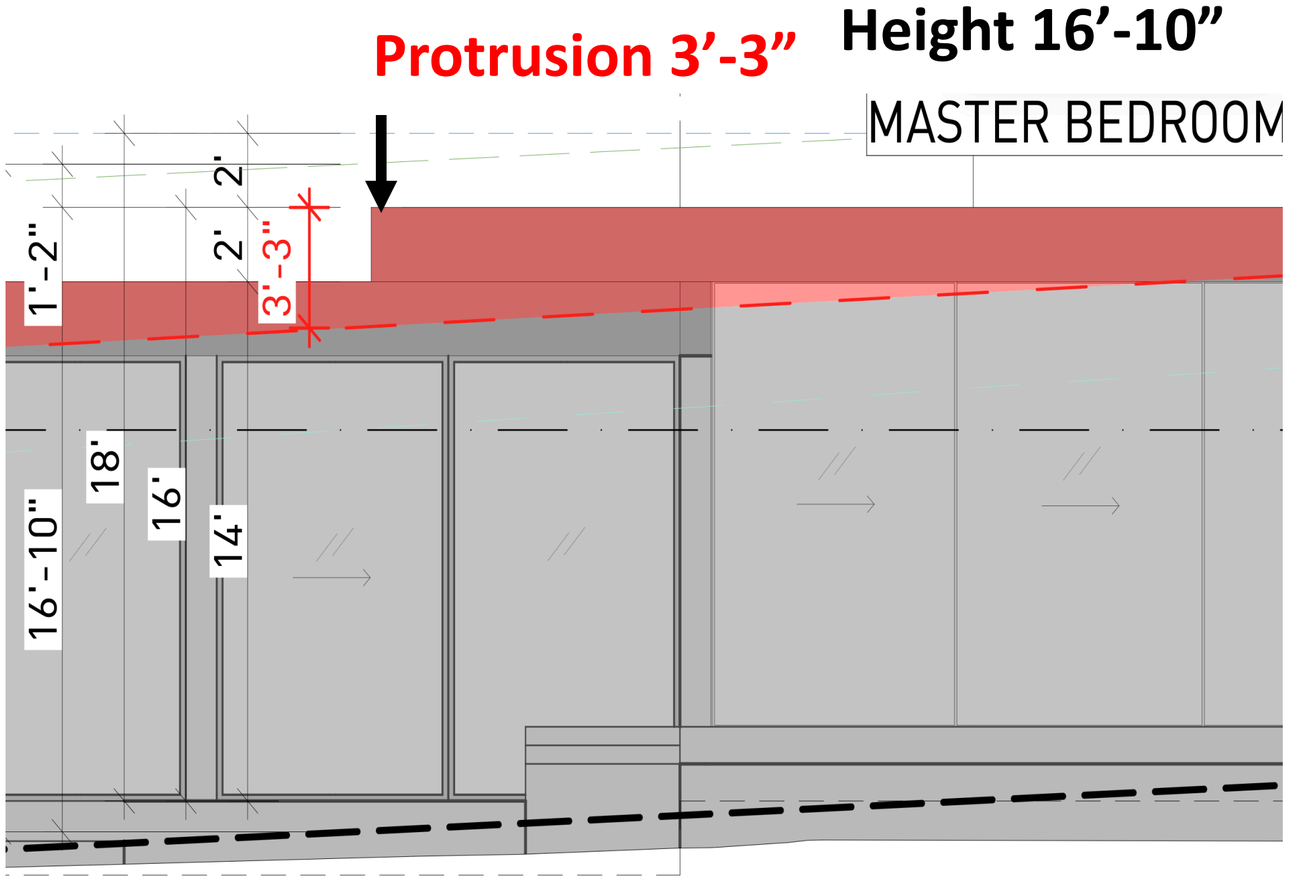


Corrections

Staff report

Reference to 7’ max. protrusion – should be 7’-6” (p. 5, 3rd paragraph)

Resolution

Section A. CDP, Finding 3 – max. protrusion change from 7’ to 7’-6”

Section B. Scenic Visual and Hillside, Finding 1 - max. protrusion change from 7’ to 7’-6”

Conclusion

- The building heights, and therefore the protrusion of the building above PCH/berms, have been reduced for the western portion of the residence, resulting in less bluewater view impacts.

- Guest house has been eliminated entirely, preserving bluewater views across the site from the gym to the western property boundary.

- Findings in the Resolution have been updated to account for design changes and the reduced bluewater view impacts. Conclusions of findings remain the same.

Recommendation

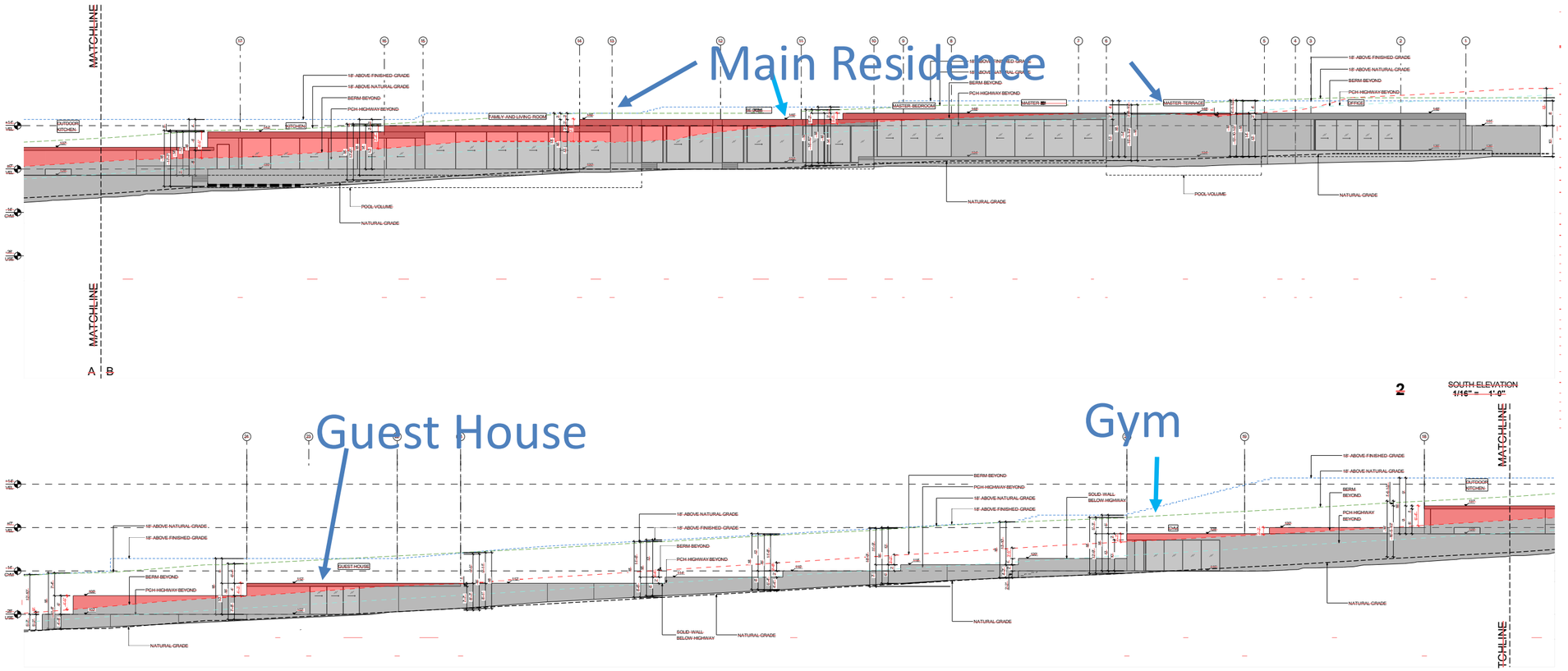
Adopt Resolution No. 26-05 determining the project is exempt from CEQA, and approving CDP No. 19-012, LM No. 24-002, and COC No. 21-004.

XX

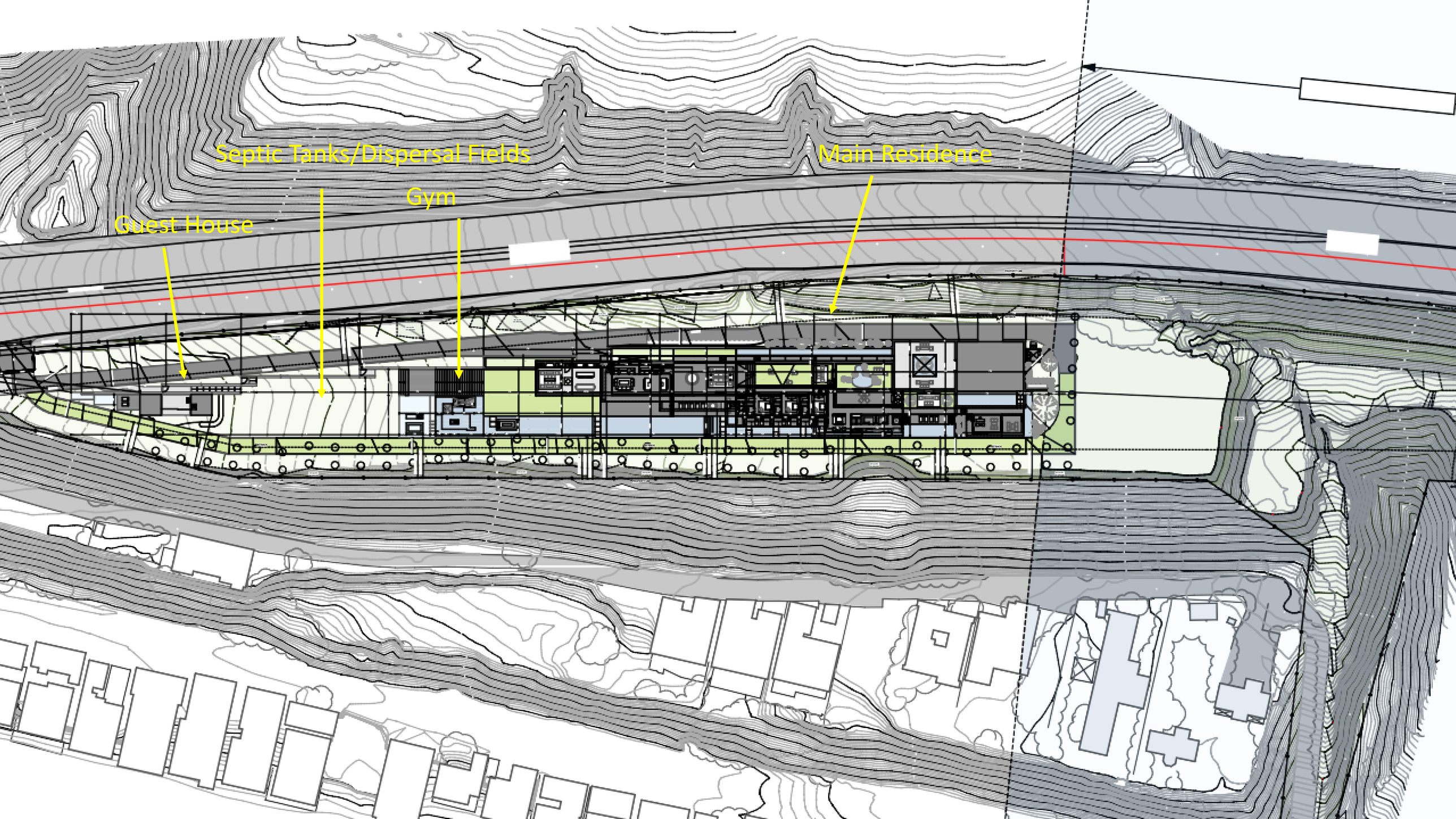
Potential Conditions – Applicant Proposed

1. Applicant shall record a deed restriction on the property noting that the home can never be used for operations of a residential rehab facility.

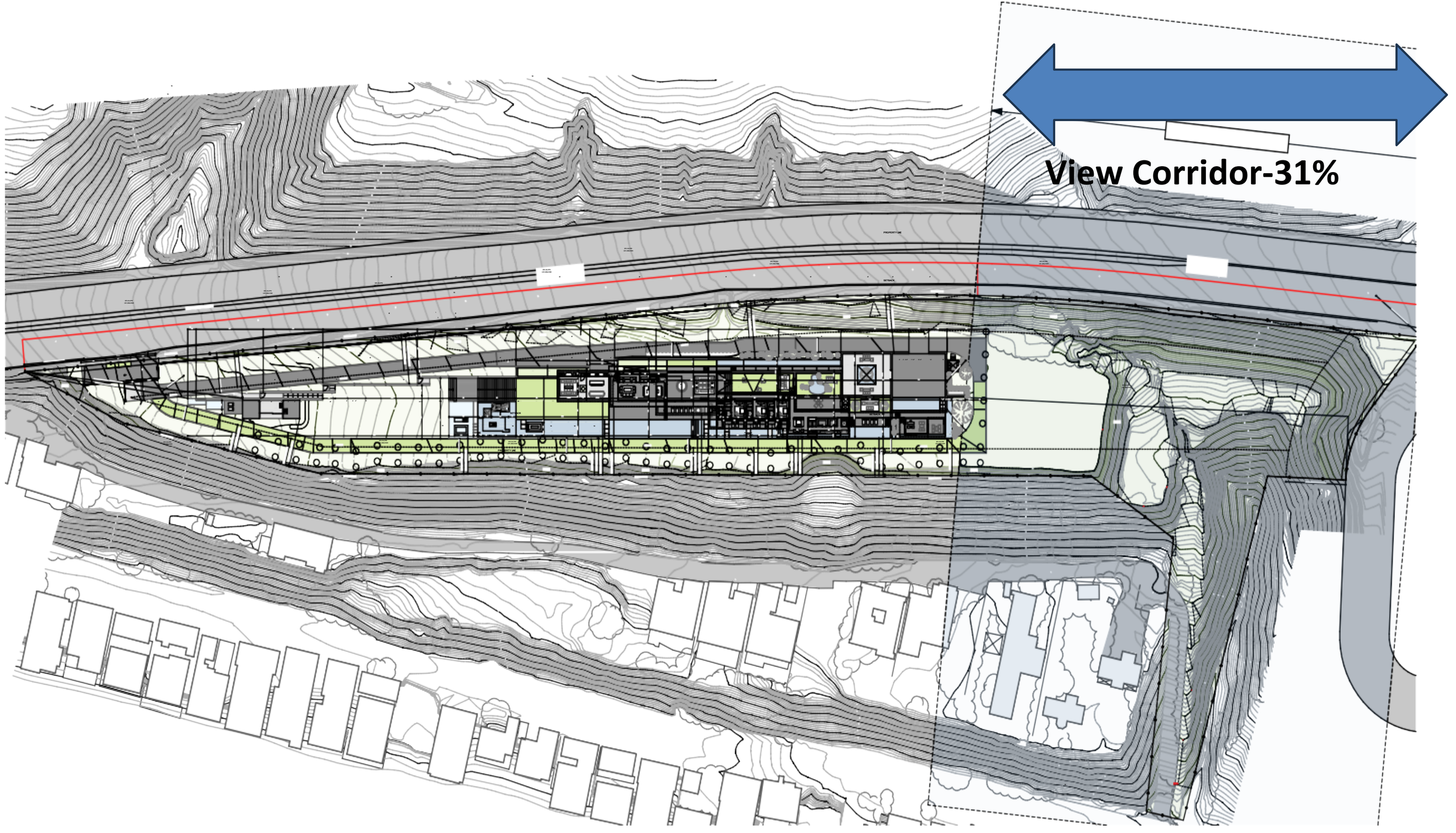
2. Applicant to voluntarily incorporate vibration monitoring during construction of the proposed home as directed by the City Geologist.



Protrusion of Buildings Above PCH


Septic Tanks/Dispersal Fields
Main Residence
Gym
Guest House


31% VIEW CORRIDOR
MIDPOINT
846'
1692'
846'
SITE
184'-2"
1612'-5"
806'-2 1/2"
FUEL MOD ZONE C- 100'
806'-2 1/2"
FUEL MOD ZONE C- 100'
MIDPOINT
FUEL MOD ZONE D- 200'
FUEL MOD ZONE D- 200'
100' ESHA BUFFER
PROJECT AREA
BUILDING FOOTPRINT
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


View Corridor-31%

Site Photo – Looking East

Rendering – South Façade



View to middle of site (main residence), looking SE from furthest PCH edge.



View from middle of site, looking northeasterly. PCH & berms are to the left.



View from middle of site, looking to NW.

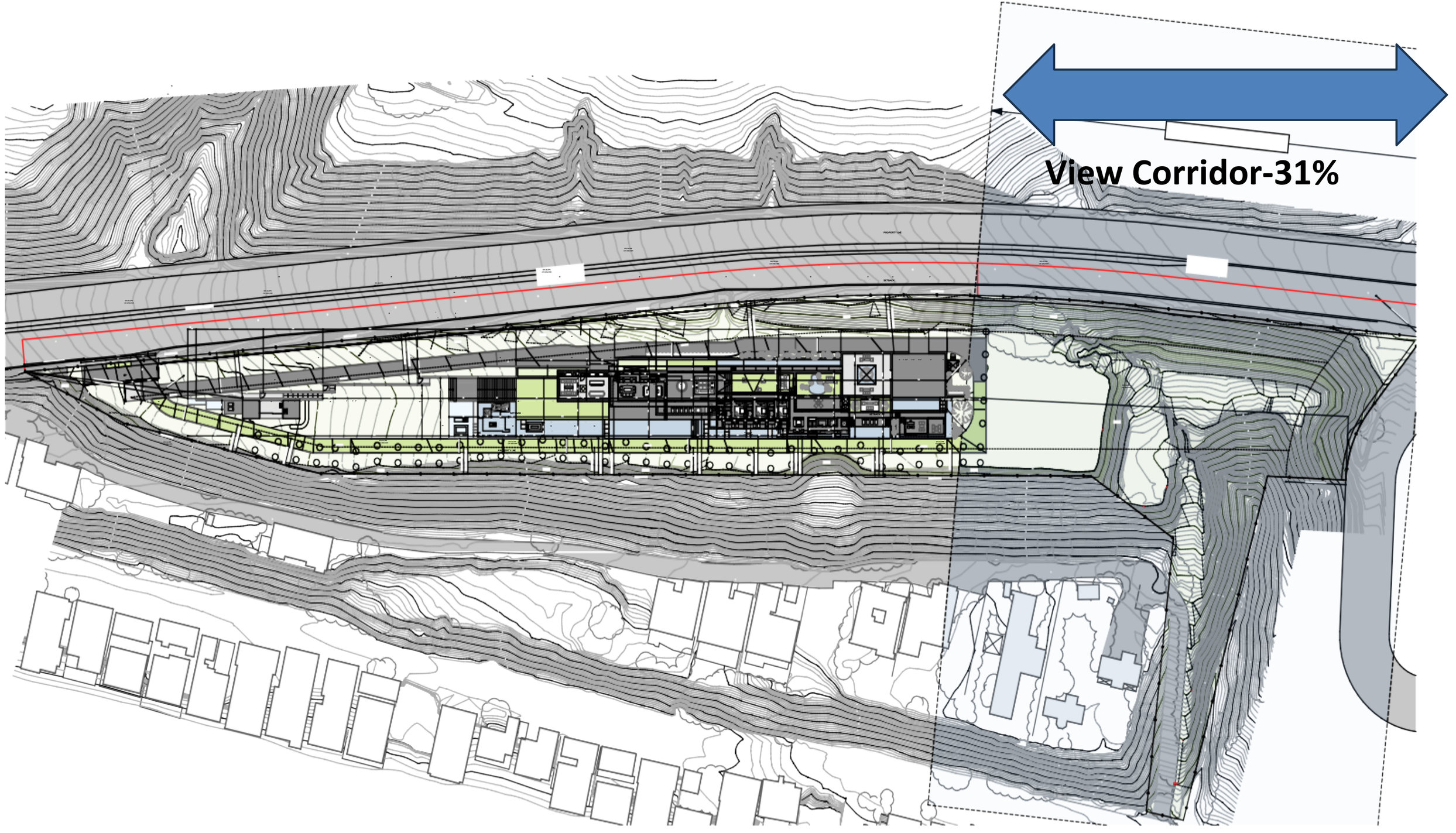


Photosimulation 2



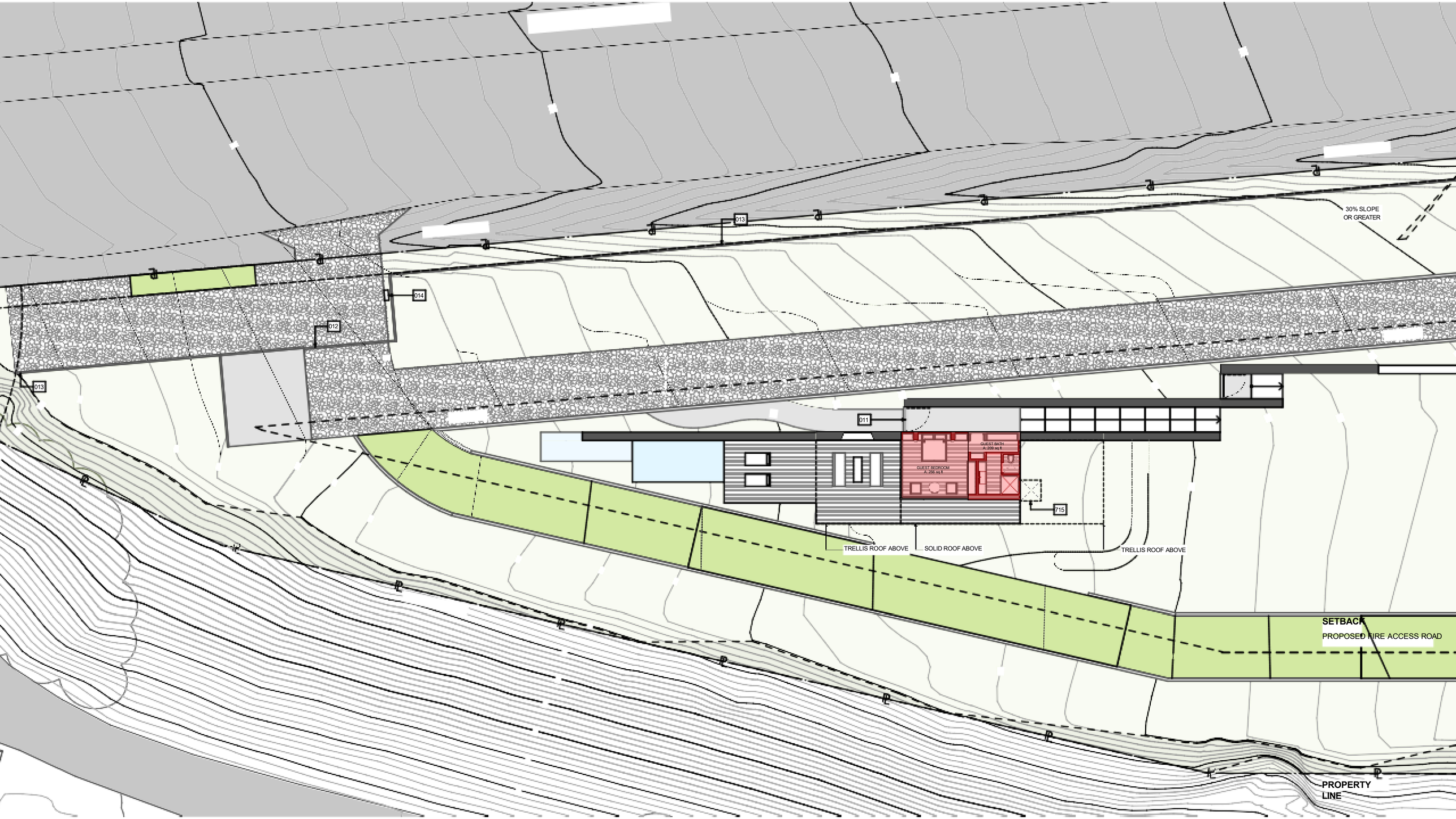
July 2025

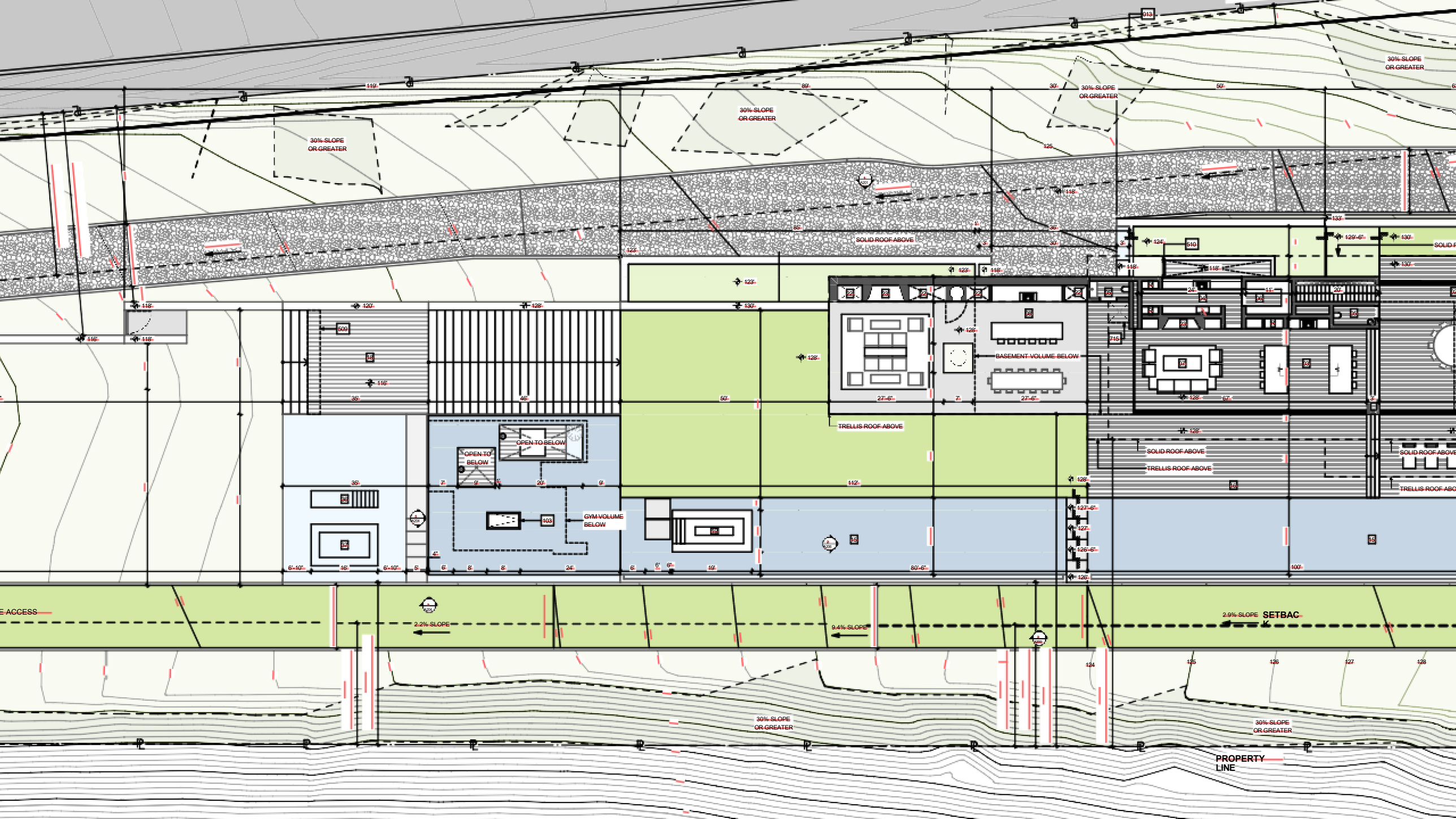

July 2025
SPEED
LIMIT
50

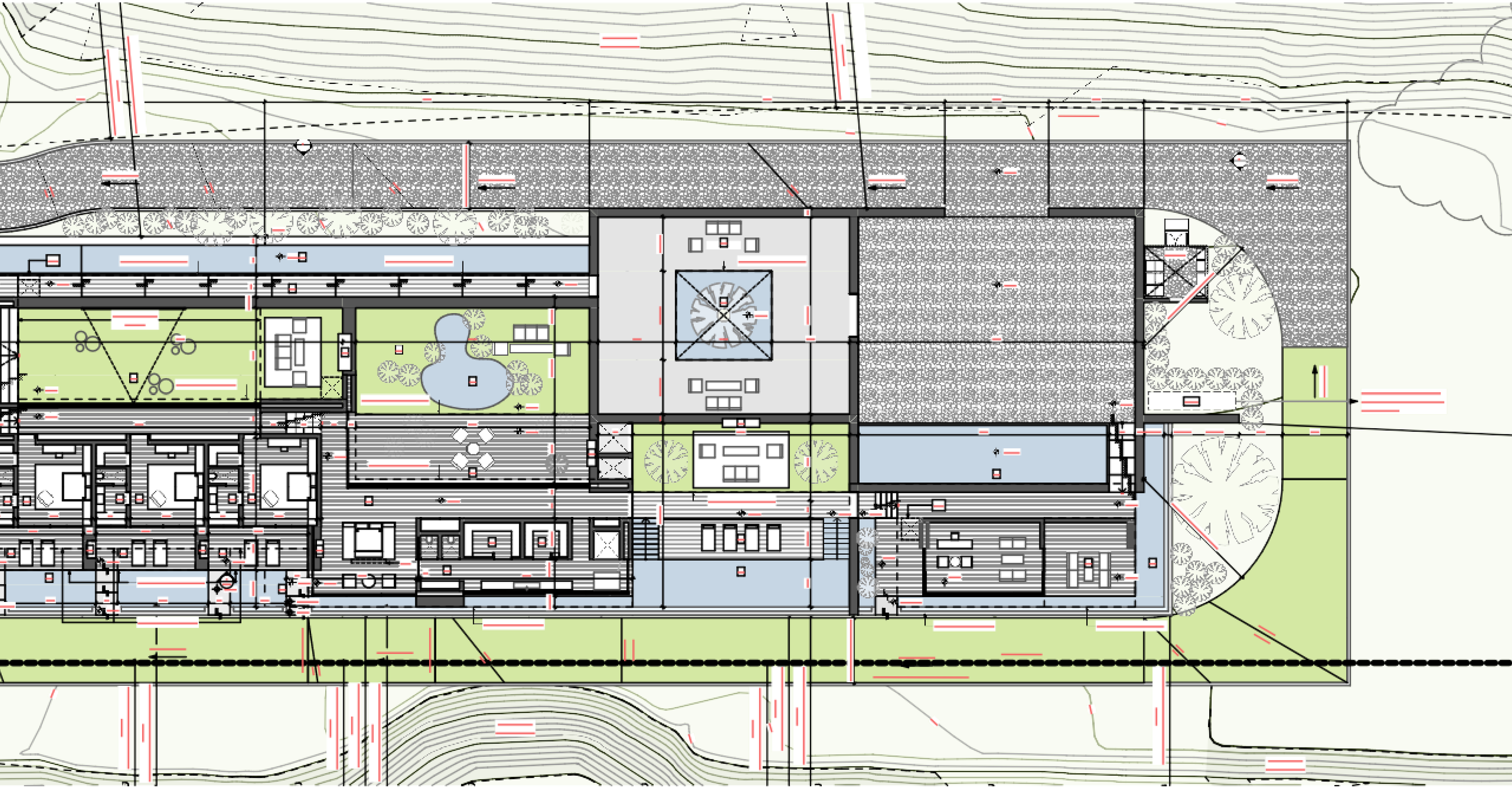

View Corridor-31%

Geotechnical Analysis

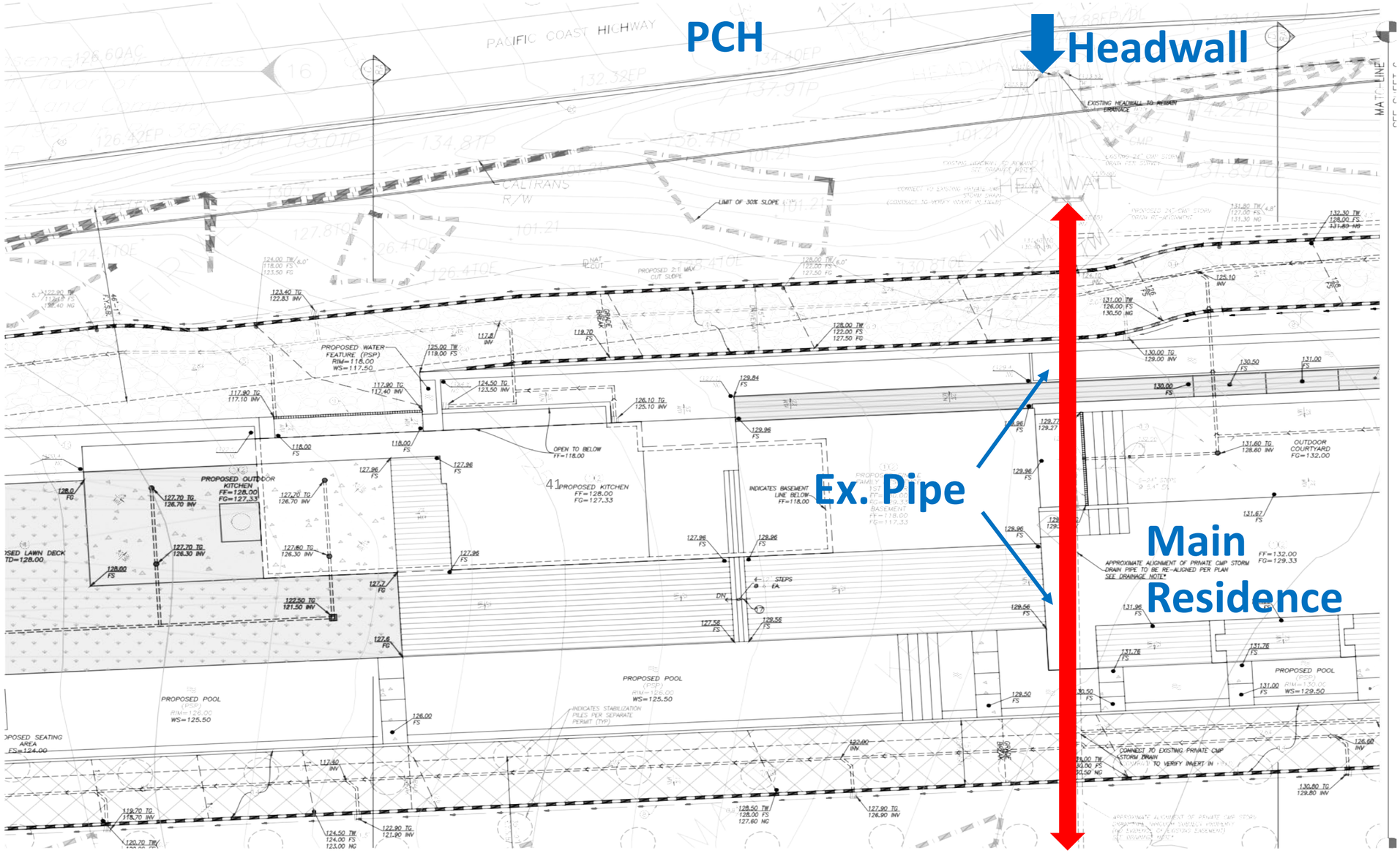
- The project as designed meets LIP Chapter 9 (Hazards), including Section 9.4 Development Standards
- The project as designed meets LIP Section 9.4.D(1-9) (factors of safety), as applicable – applicant's geotechnical consultant provided reports demonstrating compliance

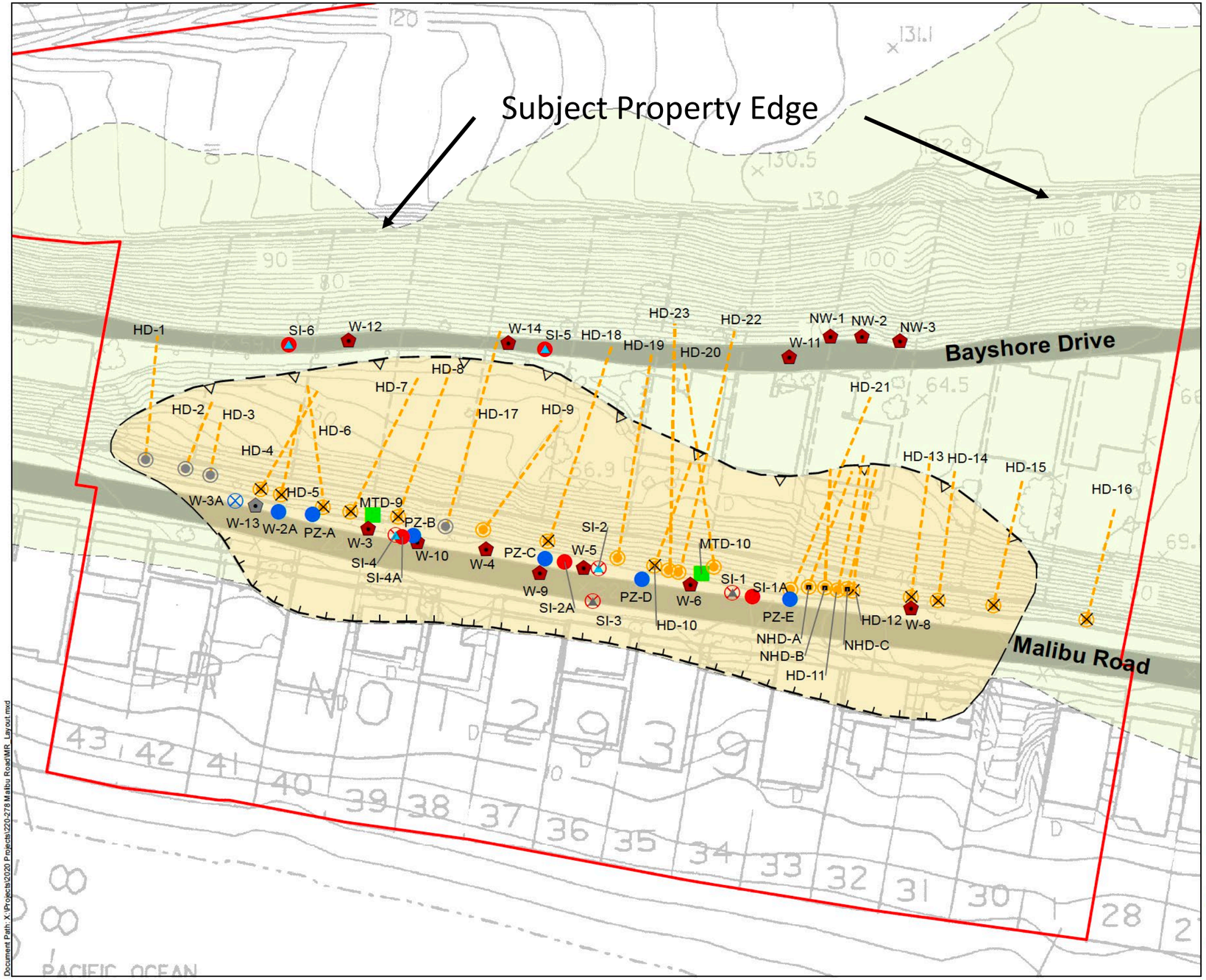

013
014
012
013
011
715
GUEST BEDROOM
A: 256 sq ft
GUEST BATH
A: 209 sq ft
30% SLOPE
OR GREATER
TRELLIS ROOF ABOVE
SOLID ROOF ABOVE
TRELLIS ROOF ABOVE
SETBACK
PROPOSED FIRE ACCESS ROAD
PROPERTY
LINE


30% SLOPE
OR GREATER
SOLID ROOF ABOVE
BASEMENT VOLUME BELOW
TRELLIS ROOF ABOVE
OPEN TO BELOW
OPEN TO
BELOW
GYM VOLUME
BELOW
SOLID ROOF ABOVE
TRELLIS ROOF ABOVE
2.2% SLOPE
9.4% SLOPE
2.9% SLOPE
SETBAC
PROPERTY
LINE



Civil Plan


PCH
Headwall
Ex. Pipe
Main
Residence
PACIFIC COAST HIGHWAY
CALTRANS R/W
LIMIT OF 30% SLOPE
PROPOSED WATER FEATURE (PSP) RIM=118.00 WS=117.50
PROPOSED OUTDOOR KITCHEN FF=128.00 FG=127.33
PROPOSED KITCHEN FF=125.00 FG=127.33
OPEN TO BELOW FF=118.00
INDICATES BASEMENT LINE BELOW FF=118.00
PROPOSED POOL (PSP) RIM=126.50 WS=125.50
PROPOSED POOL (PSP) RIM=130.00 WS=129.50
INDICATES STABILIZATION PILES PER SEPARATE PERMIT (TYP)
OUTDOOR COURTYARD FG=132.00
APPROXIMATE ALIGNMENT OF PRIVATE CMP STORM DRAIN PIPE TO BE RE-ALIGNED PER PLAN SEE DRAINAGE NOTE
FF=132.00 FG=129.33
CONNECT TO EXISTING PRIVATE CMP STORM DRAIN TO VERIFY INVERT IN
EXISTING HEADWALL TO REMAIN
PROPOSED SEATING AREA FS=124.00
PROPOSED LAWN DECK TD=128.00



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MALIBU ROAD LANDSLIDE ASSESSMENT DISTRICT MALIBU, CALIFORNIA

MONITORING INSTRUMENTATION AND DEWATERING FACILITIES MAP

Yeh and Associates, Inc.
Geotechnical • Geological • Construction Services



- Dewatering Well
- Dewatering Well (out of service)
- Slope Inclinometer/Standpipe Piezometer
- Slope Inclinometer/Standpipe Piezometer (standpipe only, not usable for inclinometer)
- Standpipe Piezometer
- Standpipe Piezometer (buried)
- Pneumatic Piezometer
- Pneumatic Piezometer (nonfunctioning)
- Nonproducing Hydrauger
- Private Hydrauger
- Producing Hydrauger
- Hydrauger (unable to locate)
- Hydrauger Installed Length
- Storm Drain Outfall
- District Boundary
- Recent Landslide of 1978 (Boundary from Leighton, 1979)
- Ancient Landslide (Boundary from Leighton, 1979)

SCALE 1:800

100 50 0 100 Feet

DATE:	PROJECT NUMBER:	PLATE:
		1
DRAWN BY:	APPROVED BY:	

NOTICE OF PUBLIC HEARING
CITY OF MALIBU
CITY COUNCIL

The Malibu City Council will hold public a public hearing on **WEDNESDAY, November 18, 2026, at 2:00 p.m. in the Council Chambers, Malibu City Hall, located at 23825 Stuart Ranch Road, Malibu, CA on the project identified below.**

Public comment can be submitted ahead of the public hearing to citycouncil@malibucity.org for inclusion in the public record. To view and participate during the public hearing, please review the meeting agenda posted at MalibuCity.org/AgendaCenter and follow the directions for public participation.

APPEAL NO. 26-007 - An appeal of 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, 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)

Location:	25200 Pacific Coast Highway
APN:	4459-013-021
Zoning:	Rural Residential, Two-Acre (RR-2)
Environmental Review:	Categorical Exemption CEQA Guidelines Sections 15303(a) and 15303(e)
Applicant:	Jake Jesson
Owner:	PAR PCH LLC
Appellant:	Jun Hall for Concerned Citizens of Malibu Road, Inc.
Application Filed:	March 7, 2019
Appeal Filed:	February 27, 2026
Appealable to:	California Coastal Commission
Case Planner:	Didier Murillo, Principal Planner (310) 456-2489, ext. 342 dmurillo@malibucity.org

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Pursuant to the authority and criteria contained in the California Environmental Quality Act (CEQA), the Community Development Director has analyzed this proposed project and found that it 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. 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 Section 15300.2).

PROCEDURE: A written staff report will be available 30 days prior to the hearing for the project. Any written comments or audiovisual materials from the applicants, appellants, and/or their representatives, including any that they intend to present at the hearing, must be submitted ten (10) business days in advance, by 5:00 p.m. on November 3, 2026. Any written comments or audiovisual materials from members of the public, including any that they intend to present at

the hearing, must be submitted three (3) business days in advance, by 4:00 p.m. on November 13, 2026. No additional materials from any party or the public will be accepted after these deadlines. All materials should be emailed to citycouncil@malibucity.org

To view and participate during the public hearing, please review the meeting agenda posted at MalibuCity.org/AgendaCenter and follow the directions for public participation. All persons wishing to address the Council regarding this matter will be afforded an opportunity in accordance with the Council's procedures.

Copies of all related documents can be reviewed by any interested person at City Hall during regular business hours.

COASTAL COMMISSION APPEAL – An aggrieved person may appeal the City Council'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 in person at the Coastal Commission South Central Coast District office located at 89 South California Street in Ventura, or by calling 805-585-1800. Such an appeal must be filed with the Coastal Commission, not the City.

IF YOU CHALLENGE THE CITY COUNCIL'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.

If there are any questions regarding this notice, please contact please contact the assigned case planner.

Yolanda Bundy, Community Development Director

Publish Date: October 15, 2026