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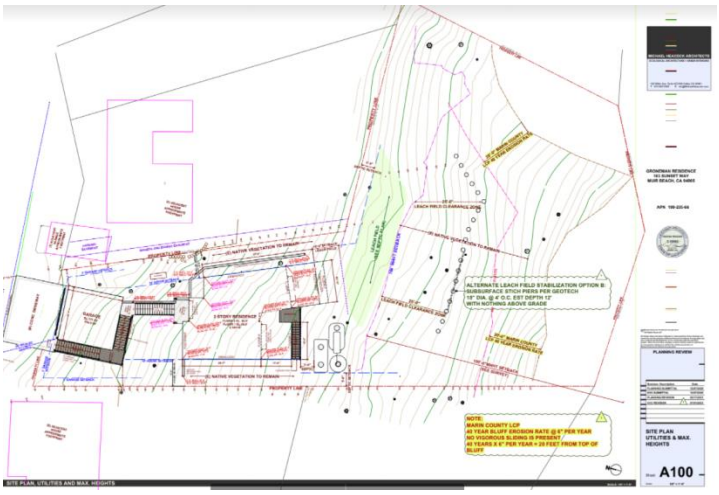
Th13b

A-2-MAR-21-0048 (GRONEMAN RESIDENCE)

SEPTEMBER 9, 2021

CORRESPONDENCE

GRONEMAN RESIDENCE – Appeal (A-2-MAR-21-0048)



APPLICANT RESPONSE TO

COMMISSION APPEAL and NORTH CENTRAL COAST DISTRICT STAFF REPORT

Appeal Number:	A-2-MAR-21-0048
Applicants:	Graham & Brett Groneman
Local Government:	Marin County
Local Decision:	Marin County Coastal Development Permit Number P2989 approved by the Marin County Deputy Zoning Administrator on May 27, 2021
Project Location:	Vacant property above Muir Beach at 183 Sunset Way in the unincorporated community of Muir Beach in western Marin County (APN 199-235-66)
Project Description:	Construction of a new 2,160 square-foot single-family residence, 430 square-foot garage, 369 square-foot storage space, new septic and leach field system

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EXECUTIVE SUMMARY – APPLICANT RESPONSE TO APPEAL

The applicant contends that the plans currently approved by County of Marin conforms to and exceeds the requirements and standards of the Marin County Local Coastal Program and the California Coastal Act. We ask that the commission find **No Substantial Issue** with the County of Marin's approval of this project.

The appeal (A-2-MAR-21-0048) filed by appellant Commissioners Linda Escalante and Caryl Hart and received by Coastal Commission staff on July 2nd, 2021, claim that the "The County's approval raises issues of consistency with LCP…"

The issues claimed by the appellants are:

- **Bluff Location: Appellants claim the County incorrectly identified the location of the bluff**
- **Existing Armoring: Appellants claim the geologic setback relies on existing armoring**
- **New Armoring: Appellants claim the project relies on new armoring**
- **Substantial foundation: Appellants claim the foundation system is excessive**

After 3 years of plan development, I contend that none of these claims are true. The appeal and commission staff report have failed to provide any corroborating factual information to support these claims. In addition, commission staff have omitted critical pieces of information from their staff report that support the County's approval in an apparent attempt to mislead commission members into finding substantial issue with the Marin County's lawful and conforming action. This project is sited between two existing homes in the planned coastal community of Muir Beach and has received overwhelming community support. Public access has been thoroughly assessed by the County and is clearly indicated in their approval. In contrast, a recommendation in the commission staff report would violate a fundamental principal of the Coastal Act by eliminating public access. Public views have also been thoroughly assessed as indicated in the County's approval and DZA hearing testimony. This plan has been evaluated and approved by the County after considerable scrutiny of its reports, pictures, satellite images, maps, surveys, historical documents and most importantly by conducting physical site visits to corroborate and validate its findings. In contrast and in spite of multiple invitations, commission staff failed to visit the site and failed to contact the project engineers prior to writing their report. This CDP application was posted on the County's website with all documents and plans over 3 months prior to the DZA hearing on May 27th and commission staff failed to respond.

https://www.marincounty.org/depts/cd/divisions/planning/projects/muir-beach/groneman_cp_up_p2989_mb

In addition, public notice of the hearing was sent out almost a month prior. Commission staff provided no input on this project despite being notified of the project and having access to all the information. County staff has conducted a thorough and objective evaluation of this project and their decision represents a holistic view of the facts of this plan. This plan conforms to the Marin LCP and Coastal Act. and I ask that you find **No Substantial Issue** so I can build this house to raise my children and continue to live in the community that my family has lived in for over 4 generations.

To the issue of bluff location. Applicant has provided substantial documentation to support the location of the bluff in the form of topographic surveys and geotechnical reports. The surveys were conducted by 2 separate licensed surveyors and the geotechnical reports were conducted by one of our region's most reputable engineering firms Miller Pacific. The body of these reports accurately evaluate the safety, stability, potential hazards, bluff location and retreat rates on this project site. The findings of these reports are conclusive that this project exceeds the requirements of the Marin LCP and is safe, stable and won't be threatened by hazards within its expected economic lifetime without the reliance on shoreline armoring.

To the issue of existing armament. Existing permitted and legacy (pre-dates the California Coastal Act.) armoring exists on a neighbor's property below the applicant's property between "Big Beach" and "Little beach". The effects of this armoring are not needed for this project to conform with the requirements in the Marin LCP. These armaments and their effects are clearly identified and discussed in the geotechnical reports. They are described for transparency and to provide an accurate assessment of the project site for County staff to base their decision. If the current armaments were to disappear tomorrow, the approved project still exceeds the requirements of the Marin LCP. The new development is safe, stable and won't be threatened by hazards within its expected economic lifetime without the reliance on shoreline armoring.

To the issue of new armament. The applicant does not propose any new shoreline armoring. The application does include sub surface septic stabilization piers located 25' landward from the bluff. These piers are designed to provide a foundation to the leach field by providing subsurface soil stabilization to the area above the piers by mitigating any destabilizing effects of water emitted from the septic system. The subsurface stich pier design does not alter the natural shoreline process and does not meet a definition or description of a shoreline protective structure. This placement and design conform to the Marin LCP & Coastal Act requirements.

To the issue of substantial foundation. The project adheres to basic industry standards for design and engineering and does not propose substantial landform alterations. The proposed stepped back house design reduces the depth of the excavation and provides a safe and stable development by incorporating foundation piers. Foundation piers are standard engineering for almost all new hillside projects. All proposed grading and engineering conform to the requirements in the Marin LCP and Coastal Act. This project is actually almost identical in structural design and parcel topography and is far more conservative in its geologic hazard assessment and placement than a project that was evaluated and approved by the Coastal Commission at 50 Cove Lane, 300' away from this site in Muir Beach. (See Exhibit A-9)

DETAILED APPLICANT RESPONSE TO APPEAL

1. **(BLUFF LOCATION & DEFINITION) The appellants claim that the county incorrectly identified the bluff top edge and the entire parcel and "…proposed development may actually be seaward of the blufftop edge."**

   a. **Bluff Location**

   The location of the bluff is identified on the topographic survey and site plan submitted by applicant to the County as part of the planning package. The blufftop identification and placement was conducted by our team of surveyors and engineers that consisted of 2 licensed surveyors, a Geotechnical Engineer, and a Septic Engineer. The bluff location is also cited in our biology report and indicated on our civil engineering plan. The 2 geotechnical reports contain substantial detail regarding bluff location and bluff retreat rate. These reports contain detailed descriptions and documentation including historical photos. The location of the bluff was further observed by the County staff during site visits.

   - Above the beach, steeper bluffs are inclined between about 1:1 and near-vertical, and range to a maximum of about 20-feet high. (Exhibit A-5, Page 3)
   - Bluffs at the base of the slope expose relatively hard, resistant graywacke sandstone which appears to lie in fault contact with highly sheared, completely weathered shale. (Exhibit A-5, Page 4)

   b. **Bluff definition:**

   Because the Marin LCP does not provide a specific bluff definition, this project uses the California Coastal Act definition specified in *(California Code of Regulations, Title 14, §13577 (h) (2).*

   - *Under the California Coastal Act, the bluff edge is 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 face, the bluff line or 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 cliff edge..."

Conclusion: **Applicant believes that the bluff location identified in the plan and documents for Marin County Permit P2989 conform to the Marin LCP and Coastal Act. Furthermore, commission staff has only provided subjective information to support this claim and fails to produce any fact-based evidence or bluff defining criteria in the appeal or subsequent staff report**.

For additional information:
-Exhibit (A-1, A-4, A-5, A-10, A-12)
-Commission Appeal
-Commission Staff Report (Th13B)

2. **(FOUNTATION SYSTEMS) The appellants claim that "the project includes a substantial foundation system carving the new structures into the bluff,"**
   a. **House & garage foundation:**
      i. The project location is a hillside, not a bluff. The project adheres to the standard building code and industry standards for design and engineering. The proposed stepped back house design reduces the depth of the excavation and provides a safe and stable building by incorporating foundation piers into the system. Foundation piers are standard engineering for almost all new hillside projects. All proposed grading, excavation and engineering is consistent with the requirements in the Marin LCP.
      Specific information: (Exhibit A-6 Page 17 Section 5.3, Exhibit A-2)
      ii. This project is actually almost identical in structural design and parcel topography and is far more conservative in its geologic hazard assessment and placement than a project that was evaluated and approved by the Coastal Commission at 50 Cove Lane, 300' away from this site in Muir Beach. (See Exhibit A-9)
   b. **Septic Foundation:**

The project proposes sub surface septic system stabilizing stitch piers 25' below the septic system leach field. These piers are designed to provide sub surface soil stabilization to the area above the piers by mitigating any destabilizing effects of water emitted from the septic system. These piers have a minimum 25' setback from the bluff edge and meet the LCP's requirement for setback protection to ensure that they are not threatened from cliff retreat within their economic life expectancies. (Per Marin Environmental Health the life expectancy of a septic system is 30-40 years and per the Marin LCP – Structure life is defined as normally at least 40 years.) See additional information on bluff retreat rate calculation included in the next section. The stich pier design does not alter shoreline process and does not meet the definition of a shoreline protective structure. This placement and design conform to the Marin LCP & Coastal Act. requirements.

Marin LCP policy 5 "Revetments, breakwaters, groins, harbor channels, seawalls, cliff retaining walls, and other such construction that alters natural shoreline process"

*The stitch pier location cited in this summary has been approved by the County utilizing their substantial conforming amendment process after the initial approval of the plan. CCC staff has claimed that this is not allowed because the amendment was made after the appeal was filed. However, this amendment was made on July 1st, 2021, prior to the filing of the appeal on July 2nd. This amended plan was emailed to and received by CCC staff at 11:43 AM on July 1st. We began work on this site modification plan immediately after the first contact by CCC staff and I believe shows a good faith attempt to address commission staff concerns.

Conclusion: **Applicant believes that the foundation systems approved under Marin County Permit P2989 conforms to the Marin LCP and Coastal Act. Furthermore, commission staff has only provided subjective information to support this claim and fails to produce any fact-based evidence or protective structure definitions in the appeal or subsequent Staff report**.

For additional information:
-Exhibit (A-1, A-2, A-4, A-5)
-Commission Appeal
-Commission Staff Report (Th13B)

3. **(PROPOSED ARMORING, EXISTING ARMORING & EROSION RATE) The appellants claims that the project proposes "new armoring and a reliance on unpermitted armoring, to establish safety and stability for the development over time.**

   a. **Erosion Rate:**
   The retreat rate was established by Miller Pacific Geotechnical Engineering – Michael Jewett, PE and includes all LCP and industry standard required evaluation criteria. The bluff erosion rate is established in great detail in Exhibit A-4 & A-5. Specifically, (Exhibit A-5 page 10, section 4.11) and (Exhibit A-4 Pages 12-14)
   For transparency and site evaluation the existing armaments are cited in the report. Because of the complex nature and lack of uniformity of natural armaments, manmade structures and bare coast fronting the project site, the report cites 3 different erosion rates.

   Fully armored – Effectively stopped 0" per year
   Minimal Effects – 6" per year
   Un-armored – 7.2" per year.

   <u>If all the armoring that currently exists below the project site disappeared and the 7.2" per year erosion rate is applied the entire project still conforms to the setback requirements included in the Marin LCP.</u>

   Marin LCP: Setback (meters) = structure life (years, normally at least 40 years) x retreat rate (meters/year).

   Unarmored - 7.2" per year erosion rate
   Septic Stabilization Stich Piers – setback 25' for bluff = 42 year setback
   Leach Field – setback 50' = 84 year setback
   House – setback 75' – 126 year setback

   MARN LCP: Shoreline Protection and Hazard Areas Policy 1: New structures shall be set back from the Bolinas and Muir Beach bluffs a sufficient distance to ensure with reasonable certainty that they are not threatened from cliff retreat within their economic life expectancies. Adequate setback distances will be determined from

information contained in required geologic reports and the setback formula established below. These setbacks will be of sufficient distance to eliminate the need for shoreline protective works.

"Setback (meters) = structure life (years, normally at least 40 years) X retreat rate (meters/year). In areas where vigorous sliding is taking place, an additional 15 meters should be added as a safety factor."

- Vigorous sliding is not occurring on the site, so the additional 15 meters was not added.

b. Proposed armoring:

The applicant does not propose any shoreline armoring. The sub-surface septic piers are designed to provide a foundation to the leach field by stabilizing surface soils above the piers by mitigating any destabilizing effects of water emitted from the septic system; not to armor the shoreline. Subsurface piers were originally located 50' down slope from the leach field to meet a preferred County Environmental Health Dept. (EHS) setback. Upon further discussion between County Environmental Health, Geotech & Septic Engineer, the placement was reevaluated to 25' down slope of the leach field as indicated in the revised site plan dated 07/01/21. The revised uphill placement locates the piers more than 25' from the bluff edge and gives them a minimum 40 – 50 year life before potential impact from bluff erosion. (See bluff erosion rate information above). The original septic leach field placement was landward of the bluff and was never intended to provide any armoring of the shoreline. System stabilization measures are common for septic systems on slopes. This subsurface element does not armor the shoreline or alter natural shoreline processes.

c. Existing armoring:

There is a network of existing shoreline armament along the beach detailed in **Geotechnical report # 2, sect. 4.11.** Most are located on a different parcel owned by a neighbor. A small piece of permitted and pre Coastal Act armament extends onto the lower section of the applicants' parcel and provides the base for a path that is the only ocean front public access from "Big Beach" to "Little Beach" during high tide. The proposed development is considerably up-hill from the path and will not interfere with established public access.

Based on the applicants' understanding and supported by the geotechnical evaluation including historical arial photos the existing shoreline armament should be defined as.

1. **Existing Natural Rocks:** The area below project site is naturally fortified with a rocky section that divides "Big beach" from "Little beach" These rocks demonstrate evidence of subsurface stability and provide natural fortification to the bluff.

2. **Stone bath seawall**: constructed in the 60's prior to the Coastal Act and should be considered legal non-conforming and allowed to exist until naturally eroded. The Stone Bath seawalls are largely located on neighbor's parcel (County Parcel # 199-235-57). This is the subject of pending

enforcement action V-2-26-010 against the property owner for alleged improvements she made to the structure. Applicant has never made any improvements to the seawall that extends below applicants' property. Applicants do not believe this armament to be their responsibility, nor should it affect the assessment or feasibility of the proposed home.

3. **Large Rock Rip-Rap:** Installed in 1986 as part of a community shoreline armoring project approved and permitted by the Coastal Commission. After the storms of 1982 and 1983, Ken High applied for and was issued a permit for beach fortification. Additional residents joined under the permitted project and extended the armoring along Little beach. Some of the stone armoring extends along a small lower section of applicants' property. The armoring was installed by Ghlottii Bros. Construction and required coordination with the County and National Park Service. Large excavators were walked across the federal property at big beach and many large dump loads of rocks were staged in the old dirt parking area. At the time applicant was 6 years old and remembers the trucks and excavators down on the beach. This was not a "unpermitted" operation; there was considerable coordination and applicant believes that the coastal commission has documentation of the permit. Applicants did not install the rock. Applicants have never made any improvements or repairs to the legal, permitted armoring. It is apparent from historical arial pictures taken before the rip-rap was installed that the shoreline below the applicants property contained natural rock fortification that would have provided some limited degree of protection.
    - Several tens of cubic yards of heavy rip-rap armor have been placed at the toe of the central part of the bluff and extend to an elevation about 10-feet above the beach. The western part of the bluff toe is protected by a series of terraced grouted-rock walls which form apparent tidal bathing pools. The rear walls of the pools also extend about 10-feet above the beach, and a small stone-surfaced walking path separates the pools from the bluff face.
      (Exhibit A-5 Page 4)

Conclusion: **Applicant believes that the geologic setbacks established in geotechnical reports and applied to the approval of Marin County Permit P2989 conforms to the Marin LCP and Coastal Act. The project meets the requirements of Marin LCP Shoreline Protection and Hazard Areas Policy 1 and does not rely on the presence of existing or proposed armoring. Furthermore, commission staff has only provided subjective information to support this claim and fails to produce any fact-based evidence in the appeal or subsequent Staff report**.

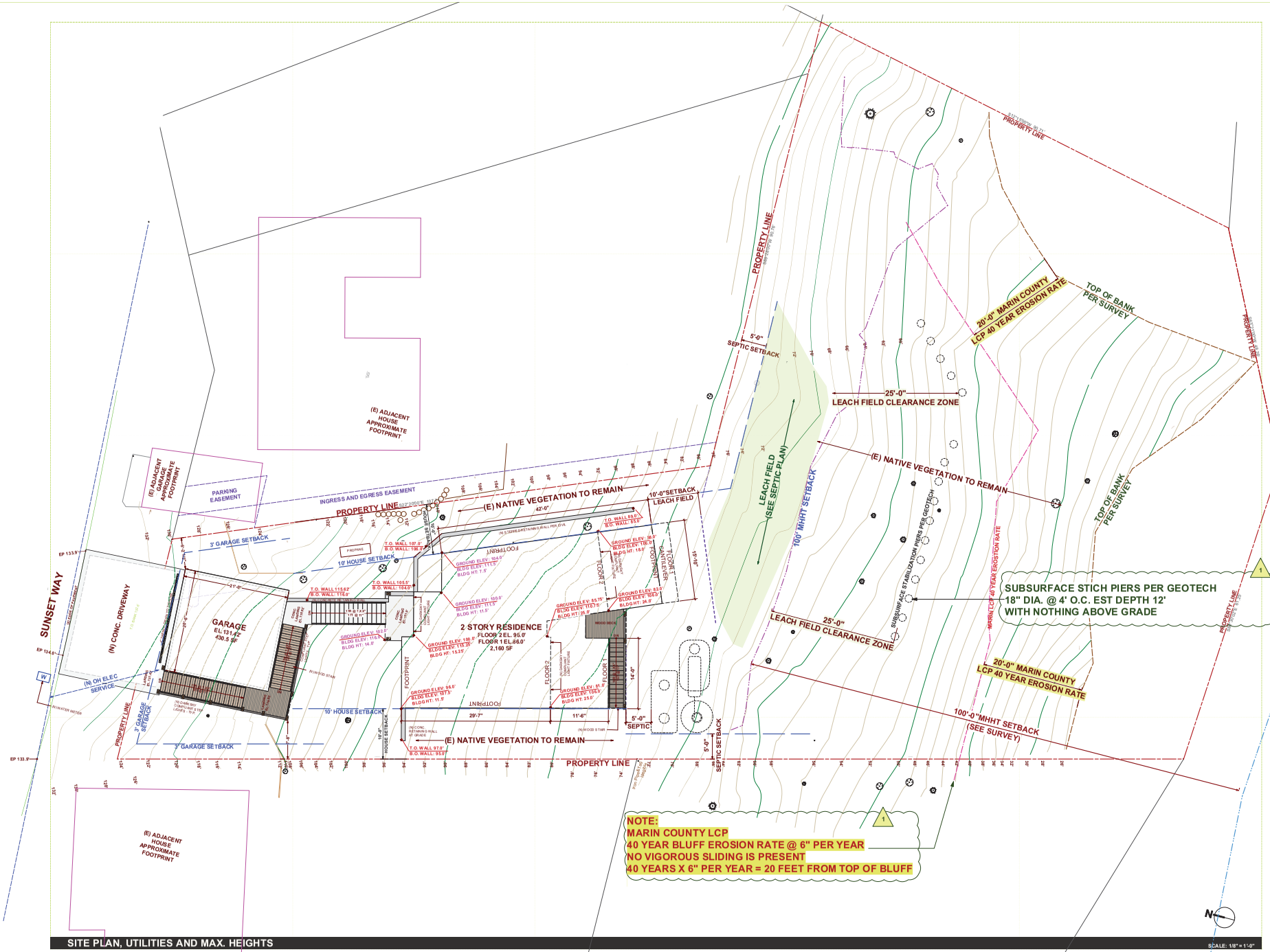
For additional information
-Exhibit (A-1, A-4, A-5)
-Commission Appeal
-Commission Staff Report (Th13B)

Exhibit A-1

Site Plan A100

Amended

July 01,2021



SITE PLAN, UTILITIES AND MAX. HEIGHTS

SCALE: 1/8" = 1'-0"

MICHAEL HEACOCK ARCHITECTS
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GRONEMAN RESIDENCE
183 SUNSET WAY
MUIR BEACH, CA 94965

APN 199-235-66

LICENSED ARCHITECT
MICHAEL HEACOCK
C-32082
STATE OF CALIFORNIA

PLANNING REVIEW

Revision Description	Date
PLANNING SUBMITTAL	12/07/2020
EHS SUBMITTAL	12/07/2020
PLANNING REVISION	02/17/2021
CCC REVISION 1	07/01/2021

SITE PLAN
UTILITIES & MAX. HEIGHTS

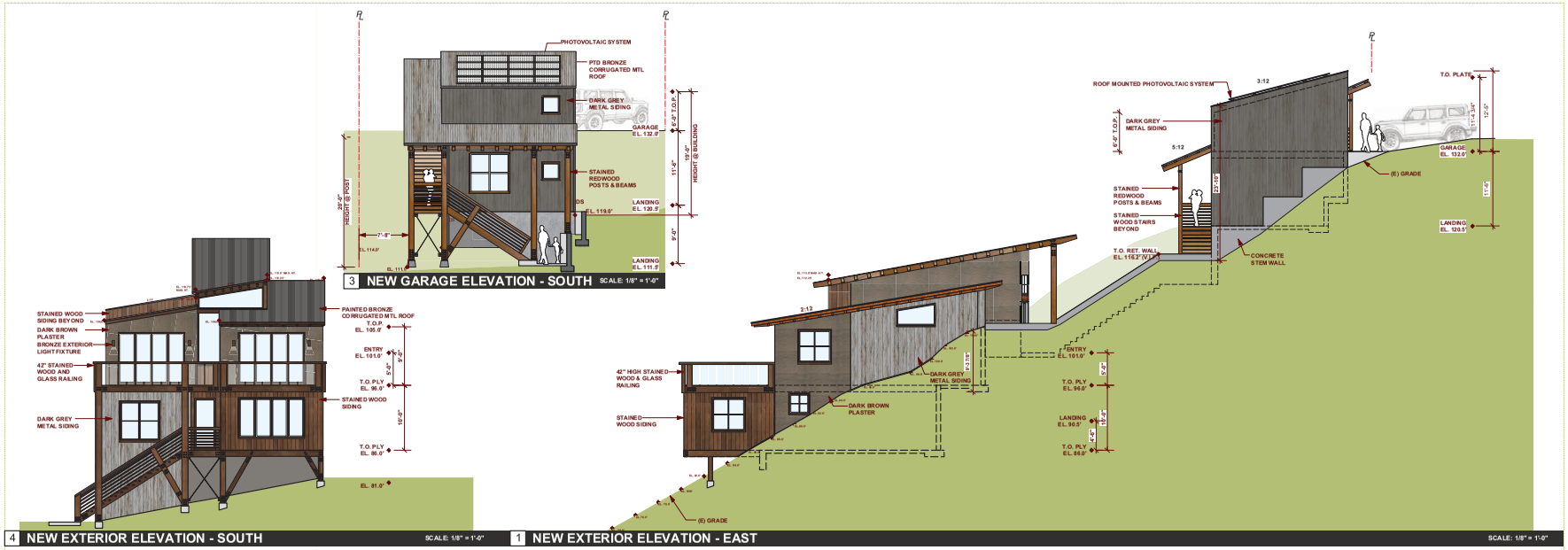
Sheet A100

Scale: 1/8" = 1'-0"

Exhibit A-2

Planning Elevations A300

February 17,2021



3 NEW GARAGE ELEVATION - SOUTH SCALE: 1/8" = 1'-0"

4 NEW EXTERIOR ELEVATION - SOUTH SCALE: 1/8" = 1'-0"

1 NEW EXTERIOR ELEVATION - EAST SCALE: 1/8" = 1'-0"

5 NEW GARAGE ELEVATION - NORTH SCALE: 1/8" = 1'-0"

6 NEW EXTERIOR ELEVATION - NORTH SCALE: 1/8" = 1'-0"

2 NEW EXTERIOR ELEVATION - WEST SCALE: 1/8" = 1'-0"

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APN 199-235-66

LICENSED ARCHITECT MICHAEL HEACOCK C-32082 RENEWAL 02/31/21 STATE OF CALIFORNIA

PLANNING REVIEW

Revision Description	Date
PLANNING SUBMITTAL	12/07/2020
EHS SUBMITTAL	12/07/2020
PLANNING REVISION	02/17/2021

EXTERIOR ELEVATIONS

Sheet A300

Scale: 1/8" = 1'-0"

Exhibit A-3

Engineering Geologist Response Letter

August 30,2021

August 30, 2021
File: 2944.001dltr.doc

Mr. Graham Groneman
c/o Michael Heacock Architects, Inc.
129 Miller Avenue, Suite 623
Mill Valley, California 94941

Re: Response to California Coastal Commission
Staff Report, Substantial Issue Determination
Appeal Number A-2-MAR-21-0048
Proposed Residential Development
183 Sunset Way (APN 199-235-47 and -48)
Muir Beach, California

Introduction

As requested following our recent communication, this letter summarizes our geotechnical response to the California Coastal Commission's Staff Report/Substantial Issue Determination regarding your proposed new residential development at 183 Sunset Way in Muir Beach, California. We previously performed a Geotechnical Investigation and provided design recommendations and criteria in our report dated August 20, 2020. More recently, we consulted with the design team, provided supplemental discussion, and reviewed the project plans, as summarized in our letter dated July 1, 2021.

We have reviewed the Coastal Commission's staff report regarding the project. The purpose of this letter is to clarify some geotechnical issues which appear either to have been mis-interpreted by Coastal Commission staff, or which have changed since our report was prepared.

Coastal Commission Staff Report

Several issues are raised in the staff report which are referred to as the basis for a "substantial issue" finding. In general, these issues include the location of the bluff edge, the bluff retreat rate used for building setback determination, the purpose/intent of the slope stabilization measures, and the nature/extents of the planned foundation system. It is our opinion that the Coastal Commission has mis-interpreted some of these issues (bluff edge determination) while others (design retreat rate and setback justification) have changed since issuance of our report. Each of these issues is discussed in greater detail below.

Bluff Edge Determination

In the staff report ("Analysis", page 12), the Coastal Commission states "the report also indicates that the parcel is comprised of a steep 60-degree slope". This is untrue, as stated in our report and as shown on the site topographic survey. As noted in our report, natural south-facing slopes above the bluff edge are inclined at about 2:1 (horizontal:vertical), or about 26-degrees. These slopes extend from Sunset Way at the top of the site to the edge of the coastal bluff near the bottom. The bluff edge is taken as "that point nearest the bluff beyond which the downward gradient of the surface increases continuously until it reaches the general gradient of the bluff", as prescribed by the LCP. Therefore, we respectfully disagree with the CCC's suggestion that the entire site may constitute a "bluff face".

Bluff Retreat Rate Determination

The Commission further states (Page 12) "the estimated annual 6-inch per year bluff retreat rate appears to rely on the presence of both existing and proposed armoring". This is partly true – as stated in our report, the existing armor was apparently installed in the 1980's and observable retreat since installation is negligible. For all intents and purposes, the existing armor results in a net retreat rate of zero inches per year. We recommended a design retreat rate of 6-inches assuming that a longer service life (100 years) would be desired, and that existing armor would eventually deteriorate or be removed. Our report also noted that prior to installation of the armoring, a retreat rate of 7.2-inches per year was observed/measured from historical data. Therefore, assuming the development is planned for a 40-year design life, the minimum recommended setback from the bluff edge is:

40 years X 7.2-inches/year = 288 inches = **24-feet**.

Again, we wish to reiterate that our original 6-inch per year estimate was based on an understanding that 1) existing armoring effectively nullifies active retreat, and 2) existing armoring is likely to be removed sometime in the future. If armoring were removed, or if preferred for "consistency" with LCP policy, then a retreat rate of 7.2-inches per year should be used as shown above. Notably, existing plans conform to the 24-foot setback, based on a 40-year service life.

Slope Stabilization Piers

The commission notes (Pages 12-13) that the "project includes a series of subsurface slope stabilization piers that could function as a shoreline protective device". As noted in our report and referenced by CCC, such piers are recommended in order to reduce the risk of slope instability affecting the septic system. Without the piers, an increased risk of landsliding may be realized due to saturation of loose sandy soils by the septic effluent. Notably, the piers are sited upslope of the recommended setback area, and as such are explicitly intended to stabilize the septic system and development area themselves, while not interfering with natural erosion of the bluff edge within the project's design life.

Residential Foundation System

The Commission asserts that "these foundation elements are not normal and typical construction, but rather are extraordinary measures that are being used in place of an effective setback". This is also untrue. The purpose of the drilled pier foundation system is to provide adequate lateral support under seismic conditions, and also transfer building loads to weathered bedrock underlying the surface soils. It is our experience that the proposed foundation system is not extraordinary, but representative of typical hillside construction throughout California, especially following the widespread adoption and advancement of modern seismic design standards over the last 20 years.

Conclusion

In conclusion, it is our opinion that both the bluff edge location and the expected rate of future bluff retreat were determined in accordance with the procedures specified in the LCP. In addition, it is our opinion that the staff report mis-interprets existing site slopes and topography, and falsely claims the proposed foundation design to be atypical or otherwise inappropriate.

We trust that this letter presents the information you require at this time. Should there be any questions or concerns regarding our review, please do not hesitate to contact us.

Very truly yours,
MILLER PACIFIC ENGINEERING GROUP

Mike Jewett
Engineering Geologist No. 2610
(Expires 1/31/21)

Exhibit A-4

Geologic and Geotechnical Feasibility Evaluation

November 21,2019

November 21, 2019
File: 2944.001altr.doc

Mr. Graham Groneman
c/o Michael Heacock Architects, Inc.
129 Miller Avenue, Suite 623
Mill Valley, California 94941

Attn: Ms. Barbara Jaffe

Re: Geologic and Geotechnical Feasibility Evaluation
Proposed Residential Development
183 Sunset Way (APN 199-235-47 and -48)
Muir Beach, California

Introduction

This letter summarizes the results of our Phase 1 Geologic and Geotechnical Feasibility Evaluation for your proposed residential development at 183 Sunset Way in Muir Beach, California. A Site Location Map is shown on Figure 1. Our services have been provided in accordance with our Agreement dated October 8, 2019. The purpose of our services is to evaluate the feasibility (from a geologic and geotechnical viewpoint) of residential development at the site, with particular consideration of bluff retreat rates and required structural setbacks in conformance with the requirements of the Marin County Local Coastal Program and related Planning Department regulations.

The scope of our services is described in our proposal letter dated October 3, 2019 and includes review of available, published geologic mapping and geotechnical reference information, a site reconnaissance to observe existing conditions and map site geology, evaluation of geologic hazards which may affect the site, formation of a professional opinion regarding project feasibility from a geotechnical perspective, and development of preliminary recommendations and criteria for use in project planning and preliminary design. Issuance of this letter completes our Phase 1 scope of services. Future phases of work could include design-level Geotechnical Investigation (Phase 2), Geotechnical Consultation and Plan Review (Phase 3), and/or Geotechnical Observation and Testing during construction (Phase 4).

Project Description

The project site is located on the south (seaward) side of Sunset Way, and consists of a “flag”-type lot which is relatively narrow at the street frontage but expands in width at the rear of the property. The property is composed of two undeveloped assessor’s parcels which together comprise about 0.42-acres. The site is bounded to the east and west by existing single-family homes. The property generally consists of a steep, south-facing slope which rises about 130 vertical feet from the Pacific Ocean to the Sunset Way frontage along the northern property line.

Although no specific project details are yet available, we anticipate that proposed development will ultimately include a single-family residence of “typical” construction, imposing relatively light foundation loads and including ancillary site improvements such as vehicle access/exterior flatwork areas, site retaining walls, underground utilities, and other miscellaneous items.

Regional Geology

Marin County lies within the Coast Ranges geomorphic province of California, a region characterized by active seismicity, steep, young topography, and abundant landsliding and erosion owing partly to its relatively high annual rainfall. The regional basement rock consists of sedimentary, igneous, and metamorphic rock of the Jurassic-Cretaceous age (65-190 million years ago) Franciscan Complex and marine sedimentary strata of the Great Valley Sequence, which is of similar age. Within central and northern California, the Franciscan and Great Valley rocks are locally overlain by a variety of late Cretaceous and Tertiary-age sedimentary and volcanic rocks which have been deformed by episodes of folding and faulting. The youngest geologic units in the region are Quaternary-age (last 1.8 million years) sedimentary deposits. These unconsolidated deposits partially fill many of the valleys of the region.

Regional geologic mapping[1] indicates the project site is underlain by Franciscan "mélange", defined as a tectonic mixture of resistant rocks, including sandstone, greenstone, serpentinite, chert, and others, embedded in a matrix of weak, sheared shale. Quaternary-age beach sands are shown along the shoreline. No landslides are shown in close proximity to the site. Although not shown on the map, the (submerged) surface trace of the San Andreas Fault lies about 4.0-km offshore, to the southwest of the site. A Regional Geologic Map is shown on Figure 2.

Regional Seismicity

The project site is located within the seismically active San Francisco Bay Area and will therefore experience the effects of future earthquakes. Earthquakes are the product of the build-up and sudden release of strain along a "fault" or zone of weakness in the earth's crust. Stored energy may be released as soon as it is generated or it may be accumulated and stored for long periods of time. Individual releases may be so small that they are detected only by sensitive instruments, or they may be violent enough to cause destruction over vast areas.

Faults are seldom single cracks in the earth's crust, but typically comprised of localized shear zones which link together to form larger fault zones. Within the Bay Area, faults are concentrated along the San Andreas Fault zone. The movement between rock formations along either side of a fault may be horizontal, vertical, or a combination and is radiated outward in the form of energy waves. The amplitude and frequency of earthquake ground motions partially depends on the material through which it is moving. The earthquake force is transmitted through hard rock in short, rapid vibrations, while this energy becomes a long, high-amplitude motion when moving through soft ground materials, such as Bay Mud.

1. Active Faults in the Region - An "active" fault is defined by the California Geological Survey as one that exhibits evidence displacement within the last 11,000 years (i.e., Holocene) and is detectable by a trained geologist as a distinct feature at or just below the ground surface. The California Division of Mines and Geology (1998) has mapped various active and inactive faults in the region. These faults are shown in relation to the project site on the attached Active Fault Map, Figure 3. The nearest known active fault to the site is the San Andreas Fault, located about 4.0-km southwest of the site.

[1] Blake, M.C., Graymer, R.W., and Jones, D.L. (2000), "Geologic Map and Map Database of Parts of Marin, San Francisco, Alameda, Contra Costa, and Sonoma Counties, California: A Digital Database, Version 1.0", United States Geological Survey Miscellaneous Field Studies Map MF-2337, Map Scale 1:75,000

2. Historic Fault Activity - A map showing the distribution of historic earthquake epicenters in the San Francisco Bay Area between 1985 and 2016 is shown on Figure 4. The most significant earthquakes to affect the site in recent history are the 1989 M=6.9 (Loma Prieta) and 1906 M=7.8 San Francisco earthquakes. Little information regarding specific effects within Muir Beach; however, both events caused strong to very strong ground shaking and extensive structural damage throughout adjacent portions of western Marin County.

3. Probability of Future Earthquakes – The site will likely experience moderate to strong ground shaking from future earthquakes originating on any of several active faults in the San Francisco Bay region. The historical records do not directly indicate either the maximum credible earthquake or the probability of such a future event. To evaluate earthquake probabilities in California, the USGS has assembled a group of researchers into the "Working Group on California Earthquake Probabilities" [2,3,4] to estimate the probabilities of earthquakes on active faults. These studies have been published cooperatively by the USGS, CGS, and Southern California Earthquake Center (SCEC) as the Uniform California Earthquake Rupture Forecast, Versions 1, 2, and 3 (aka UCERF, UCERF2, and UCERF3, respectively). In these studies, potential seismic sources were analyzed considering fault geometry, geologic slip rates, geodetic strain rates, historic activity, micro-seismicity, and other factors to arrive at estimates of earthquakes of various magnitudes on a variety of faults in California.

   Conclusions from the most recent UCERF3 and USGS' 2016 Fact Sheet[5] indicate there is a 72% chance of an M>6.7 earthquake in the San Francisco Bay Region between 2016 and 2043. The San Andreas Fault is the nearest known active fault to the site, located 4.0-kilometers to the southwest, and is assigned a 22% probability of a M>6.7 earthquake by 2043. The highest probability of such an earthquake for an individual fault system in the Bay Area is assigned to the Hayward-Rodgers Creek Fault, at 33%. Additional studies by the USGS regarding the probability of large earthquakes in the Bay Area are ongoing. These current evaluations include data from additional active faults and updated geological data.

Site Reconnaissance and Surface Conditions

We performed a site reconnaissance to observe existing conditions and perform wide-scale mapping of site geology on October 16, 2019. Our geologic map of the site is presented on Figure 5, and significant observations from our reconnaissance are summarized below:

- Surface grades at the site range from sea level at the beach at the southern edge of the site to a maximum of about +130-feet along the Sunset Way frontage. South-facing slopes

[2] United States Geological Survey (2003), "Summary of Earthquake Probabilities in the San Francisco Bay Region, 2002 to 2032," The 2003 Working Group on California Earthquake Probabilities, 2003.
[3] United States Geological Survey (2008), "The Uniform California Earthquake Rupture Forecast, Version 2," The 2007 Working Group on California Earthquake Probabilities, Open File Report 2007-1437, 2008.
[4] Field, E.H. et al (2015), "Long-Term Time-Dependent Probabilities for the Third Uniform California Earthquake Rupture Forecast (UCERF3)", Bulletin of the Seismological Society of America, Volume 105, No. 2A, 33pp., April 2015, doi: 10.1785/0120140093
[5] Aagard, B.T. et al (2016), "Earthquake Outlook for the San Francisco Bay Region 2014-2043", United States Geological Survey Fact Sheet 2016-3020, Version 1.1, Revised August 2016.

are inclined at an average of about 2:1 (horizontal:vertical). Locally steeper inclinations were observed around the toe of the apparent fill slope underlying the outer edge of Sunset Way as well as around the toe of an apparent landslide in the central part of the site. Above the beach, steeper bluffs are inclined between about 1:1 and near-vertical, and range to a maximum of about 20-feet high.

- Existing fills underlying both Sunset Way and adjacent development to the east appear to be several feet thick. Several failed timber retaining walls were noted along the east property line, at the base of the fills underlying the neighboring residence and deck areas. Several feet of fill soil and wood chip debris appears to have been side-cast from the roadway across the upper part of the property.

- The central part of the site is occupied by the scar and debris pile of a small landslide which is about 60-feet wide and 100-feet long. A subtle topographic "lobe" in the upper part of the scar area is not well represented on the topographic map, and may represent the debris pile of a younger, smaller slide. Small landslides were also observed above the bluffs in the southern part of the property.

- Soils throughout the site, including fill, slide debris, and residual soils overlying bedrock, we noted to consist primarily of loose, porous silty sand with varying quantities of angular sandstone and shale rock fragments. During our reconnaissance, Sunset Way was in the process of being re-paved, and fill materials exposed along the outer edge appeared to consist of well-compacted, dense silty to clayey sand. Completely weathered shale bedrock was observed in low cuts along the inboard/upslope edge of the road.

- Bluffs at the base of the slope expose relatively hard, resistant graywacke sandstone which appears to lie in fault contact with highly sheared, completely weathered shale. Bedrock is typically exposed beneath a 3-to 5-foot layer of silty to sandy residual soils as described above. A small landslide in the southwestern corner of the parcel appears to have been the result of erosion around the top of the bluff.

- Several tens of cubic yards of heavy rip-rap armor have been placed at the toe of the central part of the bluff, and extend to an elevation about 10-feet above the beach. The western part of the bluff toe is protected by a series of terraced grouted-rock walls which form apparent tidal bathing pools. The rear walls of the pools also extend about 10-feet above the beach, and a small stone-surfaced walking path separates the pools from the bluff face.

Geologic Hazards Evaluation

This section summarizes our review of geologic hazards which could impact the development, including seismic ground shaking, liquefaction, settlement, flooding, erosion, slope instability, coastal bluff retreat, and others. Based on our evaluation, we judge the primary geologic hazards to consider during project design include seismic ground shaking, lurching/ground cracking, erosion, slope instability, settlement, and coastal bluff retreat. Other hazards are judged to be relatively inconsequential with regard to the proposed project. More detailed discussion of each hazard considered is presented below.

Fault Surface Rupture
Under the Alquist-Priolo Earthquake Fault Zoning (APEFZ) Act[6], the California Division of Mines and Geology (CDMG, now known as the California Geological Survey) produced 1:24,000 scale maps showing known active and potentially active faults and defining zones within which special fault studies are required[7]. The nearest known active fault, the San Andreas Fault, is located approximately 4.0-km southwest of the site, and the site is not mapped as lying within an Alquist-Priolo Earthquake Fault Zone.

Although we did observe extensive shearing and apparent vertical offsets within bedded and fractured shale in the bluff face, we did not observe any evidence of offset extending into the overlying soils, and therefore judge these are likely "intraformational" faults which were last active during original emplacement of the Franciscan bedrock on the order of ~80- to 140-million years ago. We judge the risk of fault surface rupture at the site is low.

Evaluation: *Less than significant.*
Recommendations: *No special engineering measures are anticipated.*

Seismic Shaking
The site will likely experience seismic ground shaking similar to other areas in the seismically active Bay Area. The intensity of ground shaking will depend on the characteristics of the causative fault, distance from the fault, the earthquake magnitude and duration, and site-specific geologic conditions. Estimates of peak ground accelerations are based on either deterministic or probabilistic methods.

Deterministic Seismic Hazard Analysis (DSHA) predicts the intensity of earthquake ground motions by analyzing the characteristics of nearby faults, distance to the faults and rupture zones, earthquake magnitudes, earthquake durations, and site-specific geologic conditions. Using the Caltrans ARS Online web application (2019), we have calculated the median peak ground acceleration for the various nearby active faults, as presented below in Table A. The acceleration values shown are for an earthquake originating on the closest portion of the fault to the site.

[6] California Department of Conservation, Division of Mines and Geology (1972), Special Publication 42, "Alquist-Priolo Special Studies Zone Act," (Revised 1988).

[7] California Department of Conservation, Division of Mines and Geology (2000), "Digital Images of Official Maps of Alquist-Priolo Earthquake Fault Zones of California, Central Coast Region", DMG CD 2000-004.

TABLE A
ESTIMATED PEAK GROUND ACCELERATION FOR PRINCIPAL ACTIVE FAULTS
183 Sunset Way
APN 199-235-47/48
Muir Beach, California

Fault	Fault Distance[1]	Moment Magnitude[1]	Median PGA[2,3,4,5,6]	+1σ PGA[2,3,4,5,6]
San Andreas	4.0 km	8.0	0.49 g	0.89 g
San Gregorio	6.9 km	7.4	0.36 g	0.66 g
Hayward	23.0 km	7.3	0.16 g	0.28 g
Rodgers Creek	36.2 km	7.3	0.10 g	0.19 g
Calaveras	47.1 km	6.9	0.06 g	0.11 g

References:
1. Caltrans ARS (2019)
2. Abrahamson, Silva and Kamai (2014)
3. Boore, Stewart, Seyhan and Atkinson (2014)
4. Campbell and Borzognia (2014)
5. Chiou and Youngs (2014)
6. Values determined using Vs_{30} = 760 m/s for Site Class “B” per 2016/2019 CBC.

Probabilistic Seismic Hazard Analysis (PSHA) analyzes all possible earthquake scenarios while incorporating the probability of each individual event to occur. The probability is determined in the form of the recurrence interval, which is the average time for a specific earthquake acceleration to be exceeded. The design earthquake is not solely dependent on the fault with the closest distance to the site and/or the largest magnitude, but rather the probability of given seismic events occurring on both known and unknown faults.

We calculated the PGA for two separate probabilistic conditions, the 2% chance of exceedance in 50 years (2,475 year statistical return period) and the 10% chance of exceedance in 50 years (475 year statistical return period), utilizing the USGS 2008 Interactive Deaggregation web-based calculator tool. Deterministic methods, as discussed above, or the PGA arising from a probabilistic analysis for a 10% chance of exceedance in 50 years are commonly utilized for residential, commercial, and industrial developments. The PGA arising from a probabilistic analysis for a 2% chance of exceedance in 50 years is typically used for “critical” facilities such as schools and hospitals. The results of the probabilistic analyses are presented below in Table B.

TABLE B
PROBABILISTIC SEISMIC HAZARD ANALYSES
183 Sunset Way
APN 199-235-47/48
Muir Beach, California

	Statistical Return Period	Mean Moment Magnitude[1]	Peak Ground Acceleration (g)[1,2]
2% in 50 years	2,475 years	7.8	1.00 g
10% in 50 years	475 years	7.6	0.50 g

Notes:
1) USGS (2019), "Unified Hazard Tool" (web-based ground acceleration calculator tool), https://earthquake.usgs.gov/hazards/interactive/index.php, Dynamic: Conterminous US 2014 v4.2.0, accessed October 30, 2019.

2) Values shown were determined using estimated subsurface shear wave velocity Vs^{30} = 760 m/s for "Rock" subsurface conditions (Site Class "B") in accordance with the 2016 California Building Code.

The potential for strong seismic shaking at the project site is high. Due to their close proximity and historic rates of activity, the San Andreas and San Gregorio Faults present the highest potential for severe ground shaking. The most significant adverse impact associated with strong seismic shaking is potential damage to structures and improvements.

Evaluation: *Less than significant with special engineering measures.*
Recommendations: *New structures should be designed in accordance with the provisions of the latest edition of the California Building Code (2016/2019 CBC). Seismic design criteria should be developed/confirmed on the basis of subsurface exploration and laboratory testing performed as part of a future design-level Geotechnical Investigation.*

Liquefaction and Related Effects
Liquefaction refers to the sudden, temporary loss of soil strength during strong ground shaking. This phenomenon can occur in saturated, loose, granular deposits (typically sand) when the sediments are subjected to seismic shaking. Liquefaction can result in flow failure, lateral spreading, and settlement.

Regional mapping[8] indicates the site lies in a zone of "very low" liquefaction susceptibility, and our site reconnaissance observations indicate the proposed development area is generally underlain by relatively shallow bedrock. Although beach sands are considered highly likely to liquefy during seismic shaking, we judge the risk of damage to improvements within the proposed development area due to liquefaction is low.

[8] Association of Bay Area Governments (ABAG)(2019), "Liquefaction Susceptibility Maps", http://gis.abag.ca.gov/website/Hazards/?hlyr=liqSusceptibility, accessed October 22, 2019.

Evaluation: *Less than significant.*
Recommendations: *No special engineering measures are anticipated.*

Seismically-Induced Ground Settlement
Ground shaking can induce settlement of loose, unsaturated granular soils (ie, those which would otherwise liquefy when saturated). As discussed above, the site is typically underlain by a layer of loose to medium-dense silty sand and sandy silt fill, residual soil, and landslide debris over shallow bedrock. Therefore, the risk of seismically-induced settlement is judged to be moderate.

Evaluation: *Less than significant with special engineering measures.*
Recommendations: *Soils underlying proposed improvements should be moisture-conditioned and compacted in accordance with "typical" geotechnical practice to reduce the risks of settlement. All new foundations should bear directly on bedrock, and all surface improvements should bear on bedrock or dense/recompacted soil. Additional discussion and preliminary recommendations for site preparation and grading are provided in the Conclusions and Recommendations section of this report.*

Lurching and Ground Cracking
Lurching and associated ground cracking can occur during strong ground shaking. The ground cracking generally occurs along the tops of slopes where stiff soils are underlain by soft deposits or along steep slopes or channel banks.

The site is generally underlain by a thin horizon of residual soils over relatively shallow bedrock which typically becomes stronger and less weathered with depth. While the property is comprised largely of steeply-sloping areas, we did not observe conditions particularly conducive to lurching or ground cracking within or near the building areas during our reconnaissance.

Steep bluffs at the base of the property expose weak, highly sheared shale bedrock which is locally juxtaposed against and/or overlain by more resistant graywacke sandstone. Therefore, we judge there is a low to moderate risk of lurching and ground cracking around the top of the bluffs in the southern part of the site.

Evaluation: *Less than significant with special engineering measures.*
Recommendations: *Special measures to reduce the risk of damage due to lurching and ground cracking should include providing minimum setbacks for new structures from the top of the bluffs. For planning purposes, we judge that minimum setbacks of 30-feet are sufficient. Additional discussion regarding bluff setbacks is provided in the Coastal Bluff Retreat section of this hazards evaluation.*

Expansive Soils
Moderate and highly plastic silts and clays, when located near the ground surface, can exhibit expansive characteristics (shrink-swell) that can be detrimental to structures and flatwork during periods of fluctuating soil moisture content. During our site reconnaissance, we did not observe significant evidence of expansive soils, such as desiccation cracking or apparent slope creep. We judge the risk of damage due to expansive soils is low.

Evaluation: *Less than significant.*
Recommendations: *No special engineering measures are anticipated. Evaluation should be confirmed on the basis of subsurface exploration and laboratory testing performed as part of a future design-level Geotechnical Investigation.*

Erosion and Scour
Sandy soils on moderately steep slopes or clayey soils on steep slopes are susceptible to erosion when exposed to concentrated surface water flow. The potential for erosion is increased when established vegetation is disturbed or removed during normal construction activity. Scour at the base of slopes can remove lateral support and cause instability.

The property consists almost entirely of steeply-sloping areas with no existing drainage improvements, and we observed evidence of widespread erosion around the site, primarily around the downslope base of failed retaining walls and around trees, where root balls are locally exposed and/or undermined. At the base of the slope, we observed that existing rip-rap armor and grouted-rock walls appear to provide good protection against wave action and scour, and no evidence of significant scour or undermining was observed. Therefore, we judge that the risk of surface erosion is high, but the risk of undermining due to wave action and scour is low.

Evaluation: *Less than significant with special engineering measures.*
Recommendations: *For new improvements at the site, careful attention should be paid to finished grades, and the project Civil Engineer should design new surface and subsurface drainage improvements (such as interceptor ditches, area drains, foundation drains, and retaining wall rains) to collect water on the upslope side of the development along Sunset Way. Runoff should be conveyed around the development and discharged as near to the base of the bluffs as possible. If extension of drainage discharge lines below the crest of the bluffs is not permissible, drainage may be dispersed across the slightly gentler slopes occupying the southeast corner of the property. Additional discussion regarding site drainage considerations is provided in the Conclusions and Recommendations section of this report.*

Re-establishment of vegetation on disturbed areas will minimize erosion. Erosion control measures during and after construction should be in accordance with a prepared Storm Water Pollution Prevention Plan and should conform to the most recent version of the California Stormwater Quality Association (CASQA) Construction Best Management Practice Handbook (2003).

Seiche and Tsunami
Seiche and tsunamis are short duration, earthquake-generated water waves in large enclosed bodies of water and the open ocean, respectively. The extent and severity of a seiche would be dependent upon ground motions and fault offset from nearby active faults.

The lower portion of the site, limited mainly to the beach, is mapped as lying within a tsunami inundation zone. However, since the proposed development is anticipated to generally occur at

elevations in excess of +30-feet, we judge the risk of damage due to tsunami inundation is remote.

Evaluation: *Less than significant.*
Recommendations: *No special engineering measures are anticipated.*

Flooding
The primary adverse impact from flooding is water damage to structures. The proposed development area is not mapped as lying within a FEMA 100- or 500-year flood zone. Therefore, the risk of large-scale flooding at the site is judged to be nil.

Evaluation: *Less than significant.*
Recommendations: *No special engineering measures are anticipated. The project Civil Engineer should design site grades to provide positive drainage away from new structures and avoid the potential for areas of ponded water or small-scale flooding.*

Landsliding and Slope Instability
The project site is located in an area of very steep natural terrain which is locally susceptible to instability. Relatively wide-scale regional geologic mapping, referenced previously and shown on Figure 2, does not show any landslides in close proximity to the site but does generally indicate widespread landsliding along coastal bluffs north and south of Muir Beach. We are unaware of published, more detailed landslide mapping in the project area.

During our reconnaissance, we observed that the site is comprised entirely of steep slopes which exhibit generally hummocky topography. Subdued lobate topography in the lower, central part of the site is interpreted as slide debris, discharged from the shallow swale upslope. Our interpretation of site topography and geomorphology is depicted on Figure 5, where the fill embankment beneath Sunset Way and adjoining residential developments has apparently been placed over the scarp/source area of the mapped slides. None of these slides exhibit evidence of recent or incipient (developing) movement, such as fresh scarps or tension cracks, and none appears to exceed about 5-feet in depth. Aside from one small slide mapped at the toe of the bluff in the southwestern property corner, none of the slides appear to be the result of bluff instability, scour, or undermining.

Based on our site reconnaissance observations and the apparent history of slope instability at the site, we judge the risk of damage due to landsliding is high.

Evaluation: *Less than significant with special engineering measures.*
Recommendations: *While the bedrock underlying the property is generally hard and judged to be relatively competent and stable, the variably-thick surface soil layer is highly prone to erosion and instability. New structures should be supported on deep foundation systems which derive their capacity from competent underlying bedrock. Any planned fills should be retained with appropriately-designed and -drained retaining walls; unretained fill slopes should be avoided. Effective site and foundation drainage will further reduce the risk of instability. Additional discussion regarding probable foundation types, optional retaining wall configurations, site drainage*

considerations, and other slope-stability issues are presented in the Conclusions and Recommendations section.

Settlement

Total and differential settlement will occur when new loads (fill or buildings) are placed atop soft, compressible soils, such as Bay Mud. Differential settlement can damage buildings and site improvements. The project site is generally underlain by a variably-thick layer of loose to medium-dense slide debris, fill soils, and residual soils, some of which could be compressible under new applied loads. Undocumented fills in particular will likely present a high risk of settlement. Where new structures will span cut/fill transitions, there will also be a high risk of differential settlement unless special engineering measures are provided.

Evaluation: *Less than significant with mitigation.*

Recommendations: *New structures planned in areas of undocumented fill or thicker native soils should be supported on deep foundations which extend through any settlement-prone materials and gain support in firm bedrock. If structures will span cut/fill transitions, then they will likely utilize shallow foundations in "cut" areas and deep (drilled pier) foundations in areas of new fill. Additional discussion regarding site grading and probable foundation types is provided in the Conclusions and Recommendations section of this report.*

Soil Corrosion

Corrosive soil can damage buried metallic structures and underground utilities, deteriorate rebar reinforcement, and cause spalling of concrete. Soils high in soluble sulfates and chlorides, as well as acidic soils and soils of low electrical resistivity, tend to have high corrosive potential. The project site is located adjacent to the Pacific Ocean, and is highly exposed to saltwater. Therefore, we judge the risk of corrosion at the site is moderate.

Evaluation: *Less than significant.*

Recommendations: *Evaluation should be confirmed on the basis of corrosivity testing performed during a design-level Geotechnical Investigation.*

Radon-222 Gas

Radon-222 is a product of the radioactive decay of uranium-238 and raduim-226, which occur naturally in a variety of rock types, chiefly phosphatic shales, but also in other igneous, metamorphic, and sedimentary rocks. While low levels of radon gas are common, very high levels which are typically caused by a combination of poor ventilation and high concentrations of uranium and radium in the underlying geologic materials, can be hazardous to human health. The project site is located in Marin County, California, which is mapped in radon gas Zone 3 by the United States Environmental Protection Agency. Zone 3 is classified by the EPA as exhibiting a "low" potential for Radon-222 gas with average predicted indoor screening levels less than 2pCi/L; therefore, the potential for hazardous levels of radon at the project site is low.

Evaluation: *Less than significant.*

Recommendations: *No special engineering measures are anticipated.*

Volcanic Eruption
Several active volcanoes with the potential for future eruptions exist within northern California, including Mount Shasta, Lassen Peak, and Medicine Lake in extreme northern California, the Mono Lake-Long Valley Caldera complex in east-central California, and the Clear Lake Volcanic Field, located in Lake County approximately 80 miles north of the project site. The most recent volcanic eruption in northern California was at Lassen Peak in 1917, while the most recent eruption at the nearest volcanic center to the project site, the Clear Lake Volcanic Field, was about 10,000 years ago. All of northern California's volcanic centers are currently listed under "normal" volcanic alert levels by the USGS California Volcano Observatory. While the aforementioned volcanic centers are considered "active" by the USGS, the likelihood of damage to the proposed improvements due to volcanic eruption is generally low.

Evaluation: *Less than significant.*
Recommendations: *No special engineering measures are anticipated.*

Coastal Bluff Retreat
Coastal bluff retreat, and shoreline retreat in general, is most common where the underlying geologic materials are highly susceptible to erosion and scour, and where erosion by concentrated flow at the top of the cliff occurs in conjunction with scour by wave action and ocean currents at the base of the cliff. Cliff and shoreline retreat may be exacerbated or accelerated by rising sea levels, and may be retarded by simultaneous accretion, deposition, and/or tectonic uplift.

The project site is located at the top of a coastal bluff, approximately 20-feet above the Pacific Ocean. The bluff is faces nearly due south and lies along the north side of the sheltered cove which forms Muir Beach. Variably-weathered bedrock of the Franciscan Complex is exposed in the lower portion of the bluff, with the upper bedrock surface approximately 20-feet above mean sea level. Relatively hard, resistant graywacke rock forms a small promontory at the southeast property corner, while highly sheared, crushed, and highly weathered shale and sandstone are exposed to the west. Although these materials are judged highly prone to scour and erosion, they are effectively armored by existing rip-ra and stone tidal pool walls along the shoreline.

Loose, silty to sandy slide debris and residual soils form a 3- to 5-foot thick layer overlying the Franciscan rocks and form a slope inclined at about 2:1 (horizontal:vertical). Surface soils were noted to exhibit evidence of instability and erosion due to surface water flow.

Based on our review of available published literature, no studies regarding cliff retreat have been conducted specific to the Muir Beach area or at the project site proper. However, several studies of cliff and shoreline retreat in the greater North Coast region have been conducted. Materials we reviewed are discussed below:

USGS OPEN-FILE REPORT 2007-1133 (2007) – Part 4 of the USGS National Assessment of Shoreline Change Project[9] addresses long-term cliff retreat rates along the California Coast. Cliff retreat rates were interpreted based on the spatial difference between historic cliff edge

[9] Hapke, C.J.,Reid, D., Green, K.R., and Borrelli, M. (2007), "National Assessment of Shoreline Change: Part 4: A GIS Compilation of Vector cliff edges and associated change data for the cliffed shorelines of the California Coast", Open-File Report 2007-1112, U.S. Geological Survey, Coastal and Marine Geology Program, U.S. Geological Survey, Pacific Science Center, Santa Cruz.

locations, as determined from NOAA Topographic Sheets and other maps, and current cliff edges as surveyed using LiDAR technology. Historic cliff edge locations were taken from sources published between 1920 and 1930, while LiDAR imaging was performed in 1998 and 2002. Therefore, long-term cliff retreat rates are based on differences in cliff edge locations observed over a period of time spanning approximately 70-years. The report concludes that the average statewide cliff retreat rate is approximately 0.3 +/- 0.2 meters (about 7-inches) per year, with an average of approximately 17.7-meters (just under 60-feet) of total cliff retreat over the 70-year time span.

For the San Francisco North study region, which extends from Tomales Point in the north to Point Bonita in the south, the average retreat rate is reported as 0.5-meters (about 19.6-inches) per year, while the average total retreat over the 70-year span is reported as 36.2-meters (about 119-feet). It should be noted that average rates are likely affected by outliers in the data. For instance, USGS reports that "the maximum rate in this region, –1.9 m/yr (6.2-feet), was measured along the south-facing cliffs of Point Reyes headland . . .(where) slope failures within the overlying materials result in the high erosion rates. Other areas where high rates were measured in the San Francisco North region include . . . along the promontory connecting Bolinas and Duxbury Points." At these locations, the underlying geology consists of highly sheared and fractured Salinian Granite overlain by poorly-lithified sedimentary rocks, and much of the retreat here is apparently due to failure of the weak sedimentary units which overlie the granite. Therefore, average regional rates may be severely skewed where the majority of the regional bedrock geology is at odds with those locations where unique geologic features lend themselves to higher rates of retreat.

We reviewed composite vector shoreline data[10,11] for the region produced by the study in ArcGIS Pro. Vector shoreline data for coastal cliff areas included composite historic shorelines for the time periods between 1929 and 1931 (generated from historic maps and other paper sources) and between 1998 and 2002 (surveyed by LiDAR in conjunction with NASA). Individual transects flanking the site indicate average historic retreat rates of -0.27m (about 10.5-inches) per year and -0.36m (about 14-inches) per year. Negative retreat rates at the site are indicative of aggradation, and are likely reflective of both inaccuracies inherent to digitizing maps from the early 1900's as well as the installation of rip-rap armor and construction of stone pools during the study time period. We note that sandy Muir Beach, just south of the site, is shown as having an average (positive) retreat rate of 0.81m (about 32-inches) per year, which is not considered unreasonable. Historic shoreline data is presented on Figure 6.

Finally, we reviewed historic aerial photography provided by Photoscience, Inc. of Emeryville, California and the California Coastal Records Project. Aerial photography spanned the time period between 1958 and 2015 and included both black-and-white vertical photography and color oblique-angle photography. We interpreted the location of the cliff edge in the 1958 photograph based on tonal variations as shown on Figure 7. We located the cliff edge in the

[10] Hapke, C.J. and Reid, D. (2007) cencal1929_1935.shp - Vectorized Cliff Edge of Central California Derived from 1929-1935 Source Data: Open-File Report 2007-1112, U.S. Geological Survey, Coastal and Marine Geology Program, U.S. Geological Survey, Pacific Science Center, Santa Cruz, California.

[11] Hapke, C.J., Reid, D., and Green K.R. (2007) cencal1998_2002.shp - Vectorized Cliff Edge of Central California Derived from 1998/2002 Lidar Source Data: Open-File Report 2007-1112, U.S. Geological Survey, Coastal and Marine Geology Program, U.S. Geological Survey, Pacific Science Center, Santa Cruz, California.

2015 photograph based on color variations and our field reconnaissance, as shown on Figure 8, and measured the distance between interpreted cliff edges. Our measurements indicate a maximum of about 49-feet of retreat in the southeast corner of the property between 1958 and 2015, or an annual average rate of about 7.2-inches per year.

We note that much of the observed retreat appears to be the result of instability and landsliding within surficial soils at the top of the bluff. We have been provided client documentation in the form of a cancelled check and personal communication that the rip-rap was installed in 1986, and that the stone pool walls were built in the 1960's, all of which is consistent with our field observations and the appearance of the improvements in the historic air photo sequence. These features appear to be providing good protection from scour and erosion at the base of the cliff, and little apparent change in the shoreline position is observable between 1986 and 2015. Therefore, we judge the retreat rate measured above is likely skewed by the absence of walls and rip-rap, which appear to have largely abated shoreline retreat at the site since their construction.

Based on our review of available cliff retreat data, mapping, and aerial photography, we judge that cliff retreat rates at the project site are likely lower than average for the San Francisco North region due to the relatively resistant Franciscan rock exposed at the base of the bluff and the scour protection afforded by existing rip-rap and stone pool walls. The potential for cliff retreat due to wave action and scour is generally judged to be low to moderate. However, erosion of the overlying residual soils and landslide deposits exposed on the upper portion of the bluff could jeopardize the stability of improvements constructed near the bluff edge. The potential for instability will be exacerbated where soils are exposed to concentrated runoff, such as is typically associated with new development (impervious surfaces, etc.) Therefore, the risk of damage due to cliff retreat and erosion is judged moderate to high.

Evaluation: *Less than significant with mitigation.*

Recommendations: *Special measures could include structural design of new improvements to withstand potential bluff instability and erosion, establishment of minimum setbacks from the edge of the bluff, or a combination of the two. We judge that effective structural mitigation would need to include design of deep foundations which derive their bearing entirely from firm Franciscan bedrock, at expected depths on the order of 5- to 10-feet below the slide debris and residual soils.*

Based on current conditions and interpreted rates of historic bluff retreat, we estimate a future bluff retreat rate of about 6-inches per year. Therefore, we recommend establishment of a 50-foot minimum setback from the edge of the bluff if the project is to be designed for a 100-year service life. Additional discussion regarding appropriate building envelopes, building setbacks, and probable foundation types is provided in the Conclusions and Recommendations section of this report.

Conclusions and Recommendations

Based on our review of reference information and site reconnaissance, we judge the proposed development is feasible from a geotechnical perspective. Primary geotechnical considerations for the project will include providing uniform foundation support and adequate seismic design for new structures, as well as providing effective site drainage to reduce the risks of damage due to future erosion and instability. Preliminary recommendations and development guidelines to address these and other geotechnical project aspects are presented in the following sections.

Recommended Bluff Setbacks

As discussed above, we recommend minimum 50-foot setbacks from the edge of the bluff for new structures designed to a 100-year service life. The recommended setback line and resulting building envelope are shown on Figure 9.

Preliminary Seismic Design

All new structures should be designed in conformance to the provisions of the most recent edition (2016/2019) of the California Building Code (CBC). The magnitude and character of these ground motions will depend on the particular earthquake and the site response characteristics. Preliminary recommended seismic design criteria for the site are shown below; these values should be confirmed on the basis of subsurface exploration and laboratory testing performed as part of a design-level Geotechnical Investigation. Note the values shown below will need to be confirmed/updated following adoption of the 2019 CBC as of January 1, 2020.

TABLE C
2016 CBC SEISMIC DESIGN CRITERIA
183 Sunset Way
APN 199-235-47/48
Muir Beach, California

Factor Name	Coefficient	CBC Table	Site Specific Value[1,2]
Site Class[3,4]	$S_{A,B,C,D,E, or F}$	1613.5.2	S_B
Site Coefficient	F_a	1613.5.3 (1)	1.0
Site Coefficient	F_v	1613.5.3 (2)	1.0
Spectral Acc. (short)	S_s	1613.5.1	2.026
Spectral Acc.(1-sec)	S_1	1613.5.1	0.955

(1) Values determined using the SEAOC/OSHPD Seismic Design Maps web application, https://seismicmaps.org/, accessed October 31, 2019.
(2) Values shown determined using Vs^{30} = 760 m/s (Site Class “B”) in accordance with the provisions of the 2010 ASCE-7 standard and 2016 California Building Code.
(3) Site Class determined in accordance with procedures outlined in the 2010 ASCE-7 standard, based on subsurface conditions inferred from surficial reconnaissance.
(4) Site Class B Description: Rock, shear wave velocity between 2,500 and 5,000 feet per second.

The effects of earthquake shaking (i.e., protection of life safety) can be mitigated by close adherence to the seismic provisions of the current edition of the CBC. However, some building damage may still occur during strong ground shaking. We note that site-specific ground motion and site response analyses may be required depending on actual subsurface conditions, as a result of new seismic design requirements included in the forthcoming 2019 CBC.

Site Grading

Although detailed plans are not yet available, we anticipate moderate grading, consisting of a combination of cuts and fills up to 10-feet or so, may be required to accommodate the new residence and related site improvements. Excavations will also be required for the new septic system, underground utility connections, and other items. The extent of the required grading will be dependent on the proposed structural footprints, their exact location relative to adjacent slopes, and other factors. Based on our reconnaissance, the underlying bedrock, while hard and strong, is relatively closely fractured. Therefore, we judge that the majority of the grading and shallow excavation at the site can likely be accomplished with “conventional” grading equipment, such as medium-size excavators and dozers. However, there is also a high likelihood that localized zones of particularly hard rock will exist, especially in deeper excavations. These areas could require specialized techniques and equipment (such as large excavators, heavy dozers/rippers, jackhammers, or hoe-rams) to excavate.

Unretained permanent fill slopes are not recommended at the site, and any planned fills should be retained with appropriately-designed retaining walls. For planning purposes, permanent cuts in soil and rock may be inclined at 2:1. Steeper cuts may be possible, but will require specific geologic evaluation during construction. Temporary cuts in soil and rock may be planned at inclinations of 1.5:1 and 0.5:1, respectively.

Probable Foundation Types

In general, shallow foundations will be appropriate for new residences only where building pads are excavated to bear directly on weathered bedrock and where a minimum of 10-feet horizontal confinement may be maintained between base of the foundation and the nearest slope face. If the building pad does not expose bedrock across the entirety of its footprint, if structures will be located within 10-feet of sloping ground, or if structures will span cut/fill transitions, then deep foundations, such as drilled piers, will be needed to ensure uniform support. New retaining walls along the downslope edge of Sunset Way, if needed, will likely require drilled-pier foundations.

Retaining Walls

A variety of wall types may be used at the site to create level building pad areass. For typical permanent cut areas, soldier-pile (steel H-beam) and timber lagging or reinforced concrete walls are often the most cost-effective. Walls integral to the residence structures and/or which are part of a foundation system should be reinforced concrete walls. For higher cuts and for temporary stabilization of deep excavations during construction, soil nail and shotcrete walls are often the most cost-efficient. For new fills, mechanically-stabilized earth (MSE) walls, such as Keystone or Versa-Lok, are often the most cost-effective provided that keyways may be excavated relatively economically in shallow bedrock.

Site Drainage Considerations

In general, careful consideration should be given to site drainage, in order to lessen the risk of soil saturation and slope instability affecting the development. As discussed previously, runoff should be collected on the upslope side of the site and conveyed via a new storm-drain system to the downslope side. In order to avoid exacerbating erosion or instability on the lower portion of the property, the new drainage system should be designed to accommodate runoff associated with a 100-year storm, and also to result in no net increase in peak flow rate.

It is our experience that such design will likely require onsite detention or infiltration to reduce offsite flow rates. We generally do not recommend infiltration at the site given the potential for instability, and instead recommend detention be pursued if possible. Drainage should be discharged as near to the beach as possible.

Supplemental Services

Once the project plans are better-developed and the approximate locations/extents of new structural improvements are more clearly-defined, a design-level Geotechnical Investigation, including subsurface exploration and laboratory testing, will need to be performed to develop geotechnical criteria and recommendations for use in final project design. We can be available to consult with you throughout the design process on an as-needed basis. As the plans near completion, we should review them to determine whether the intent of our recommendations has been suitably incorporated, and to provide a Geotechnical Plan Review letter to the County of Marin, as is typically required for issuance of a building permit. During construction, we should observe site grading, foundation construction, retaining wall construction, site drainage, and other geotechnical aspects of the work to verify that actual conditions encountered are as anticipated, to modify our recommendations if needed, and determine whether the Contractor's work is performed in accordance with the plans and specifications.

We trust that this letter presents the information you require at this time. Should there be any questions or concerns regarding our seismic risk evaluation, please do not hesitate to contact us.

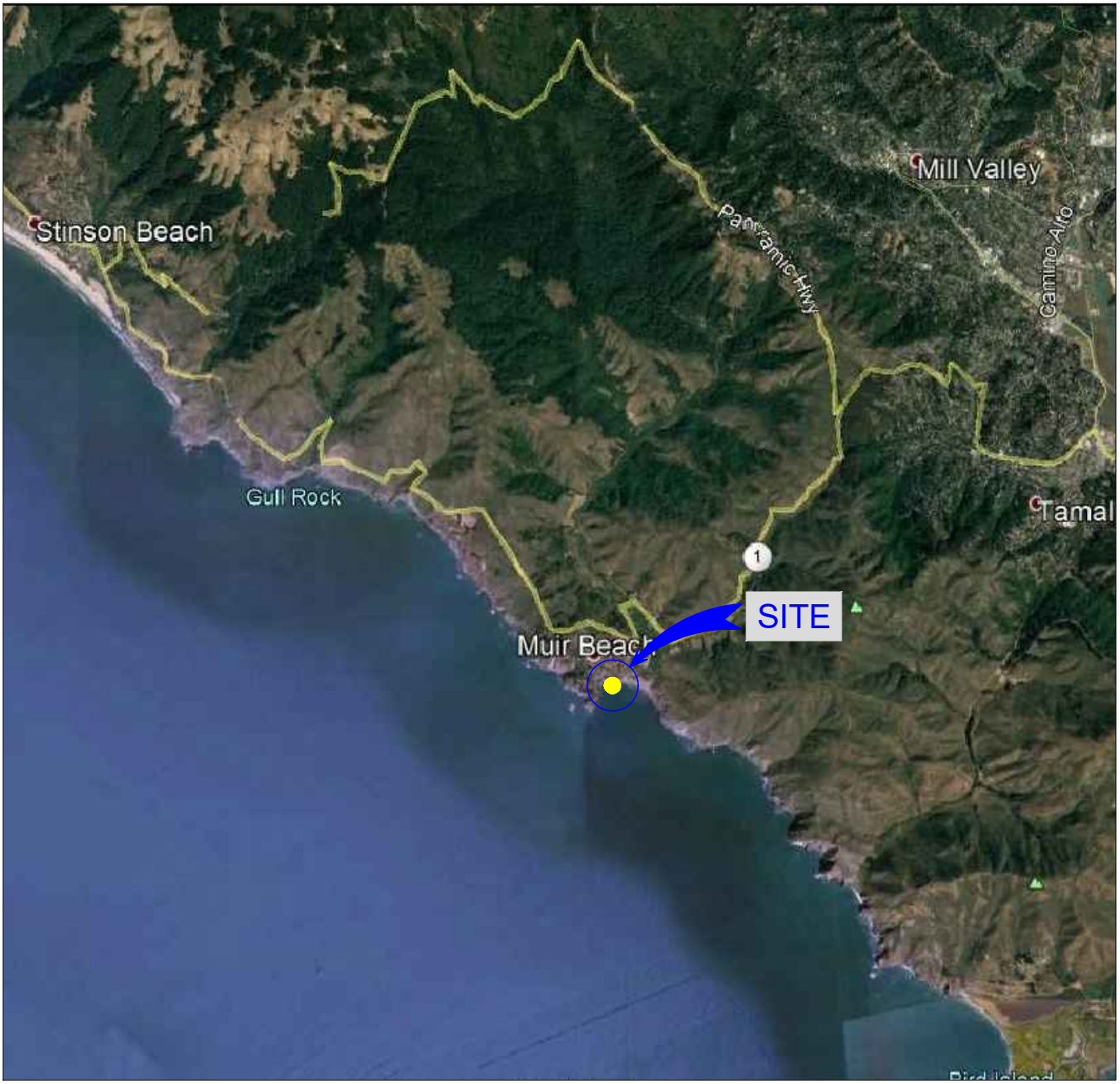
Very truly yours,
MILLER PACIFIC ENGINEERING GROUP

Mike Jewett
Engineering Geologist No. 2610
(Expires 1/31/21)

REVIEWED BY

Scott Stephens
Geotechnical Engineer No. 2398
(Expires 06/30/21)

Attachments: Figures 1 through 9



SITE COORDINATES
LAT. 37.8601°
LON. -122.5793°

SITE LOCATION

N.T.S.

NORTH

REFERENCE: Google Earth, 2019

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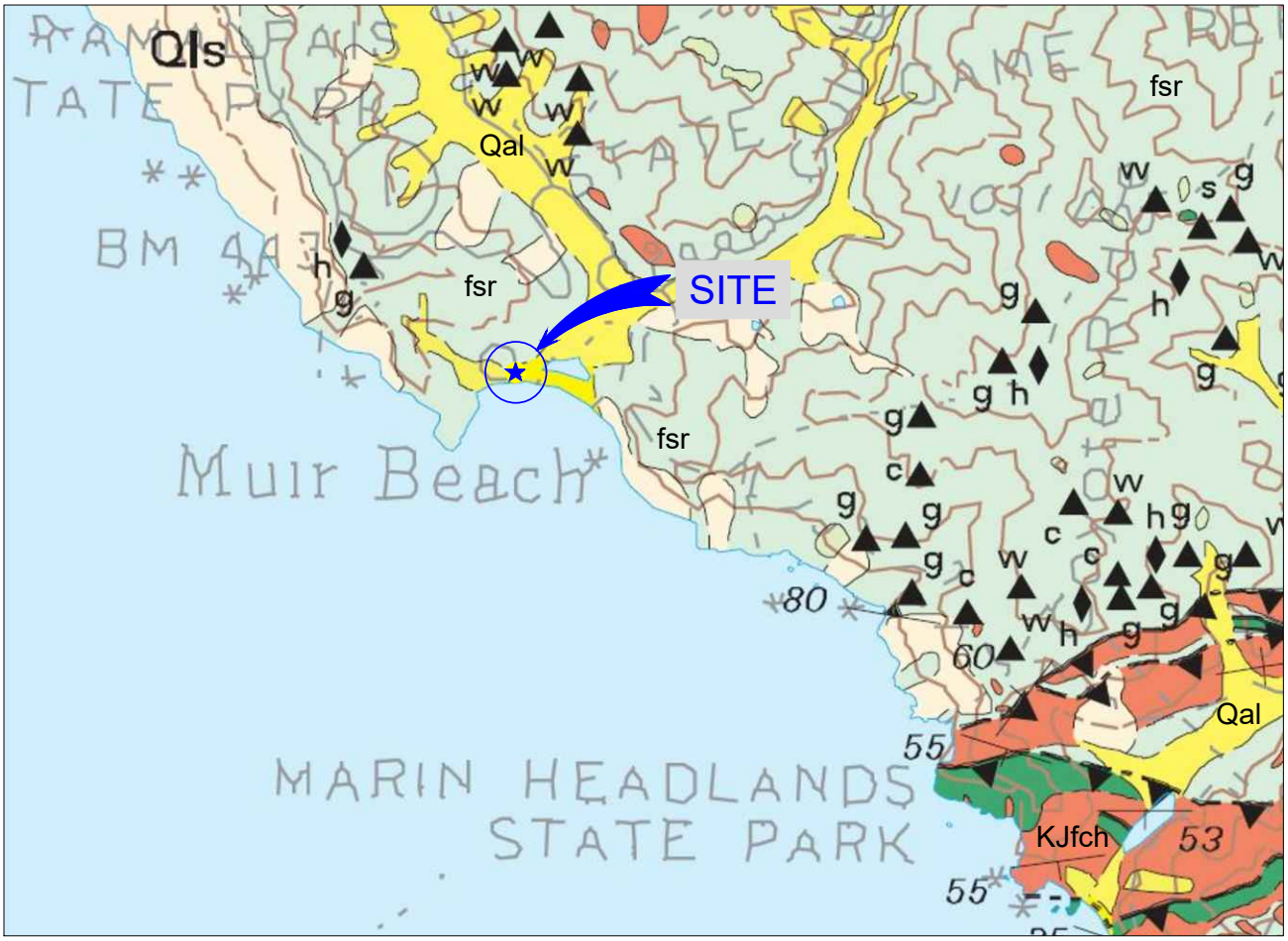
SITE LOCATION MAP

183 Sunset Way
APN 199-235-47 and -48
Muir Beach, California

Project No. 2944.001 Date: 10/30/2019

Drawn ENE
Checked

1
FIGURE



REGIONAL GEOLOGIC MAP

(NOT TO SCALE)

NORTH

Qls	LANDSLIDE DEPOSITS (QUATERNARY) Unsorted soil and rock debris transported downslope by slow to rapid mass-wasting events
Qal	ALLUVIUM (QUATERNARY) Typically variable proportions of silts, sands, clays, and gravels deposited by water in stream and channel environments
KJfch	CHERT (JURASSIC-CRETACEOUS) Thin-bedded, closely fractured radiolarian chert with interbedded black shale
fsr	MELANGE (JURASSIC-CRETACEOUS) A tectonic mixture of various resistant rock types such as sandstone, greenstone, chert and serpentinite embedded in a sheared shale matrix.

REFERENCE: Blake, M.C., Graymer, R.W., and Jones, D.L., 2000, "Geologic Map and Map Database of Parts of Marin, San Francisco, Alameda, Contra Costa, and Sonoma Counties, California: A Digital Database, Version 1.0", United States Geological Survey Miscellaneous Field Studies Map MF-2337, Map Scale 1:75,000

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REGIONAL GEOLOGIC MAP

183 Sunset Way
APN 199-235-47 and -48
Muir Beach, California

Project No. 2944.001 Date: 10/30/2019

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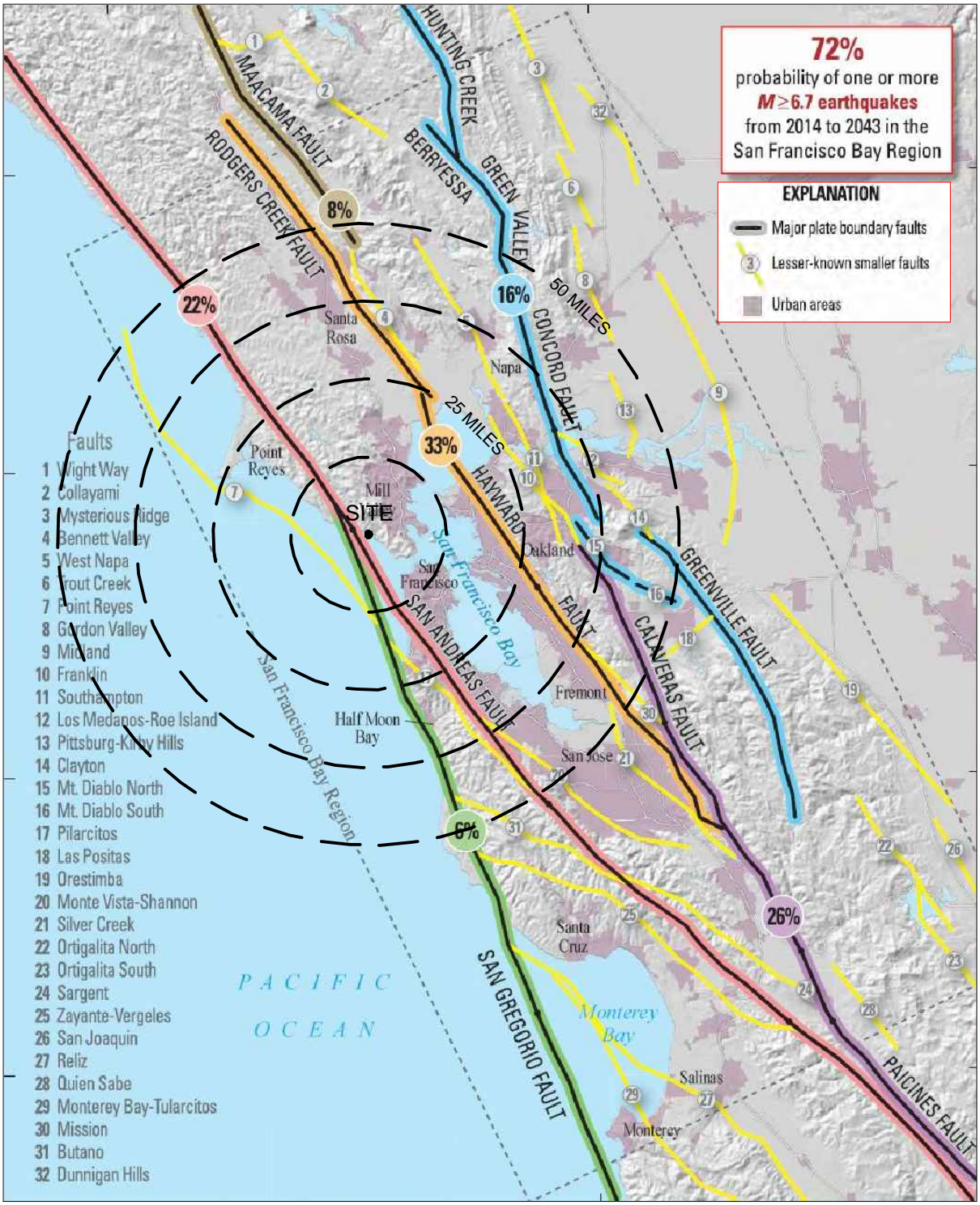
2
FIGURE



SITE COORDINATES
LAT. 37.8601°
LON. -122.5793°

SCALE
0 12.5 25 50 MILES

NORTH

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ACTIVE FAULT MAP

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Muir Beach, California

Project No. 2944.001 Date: 10/30/2019

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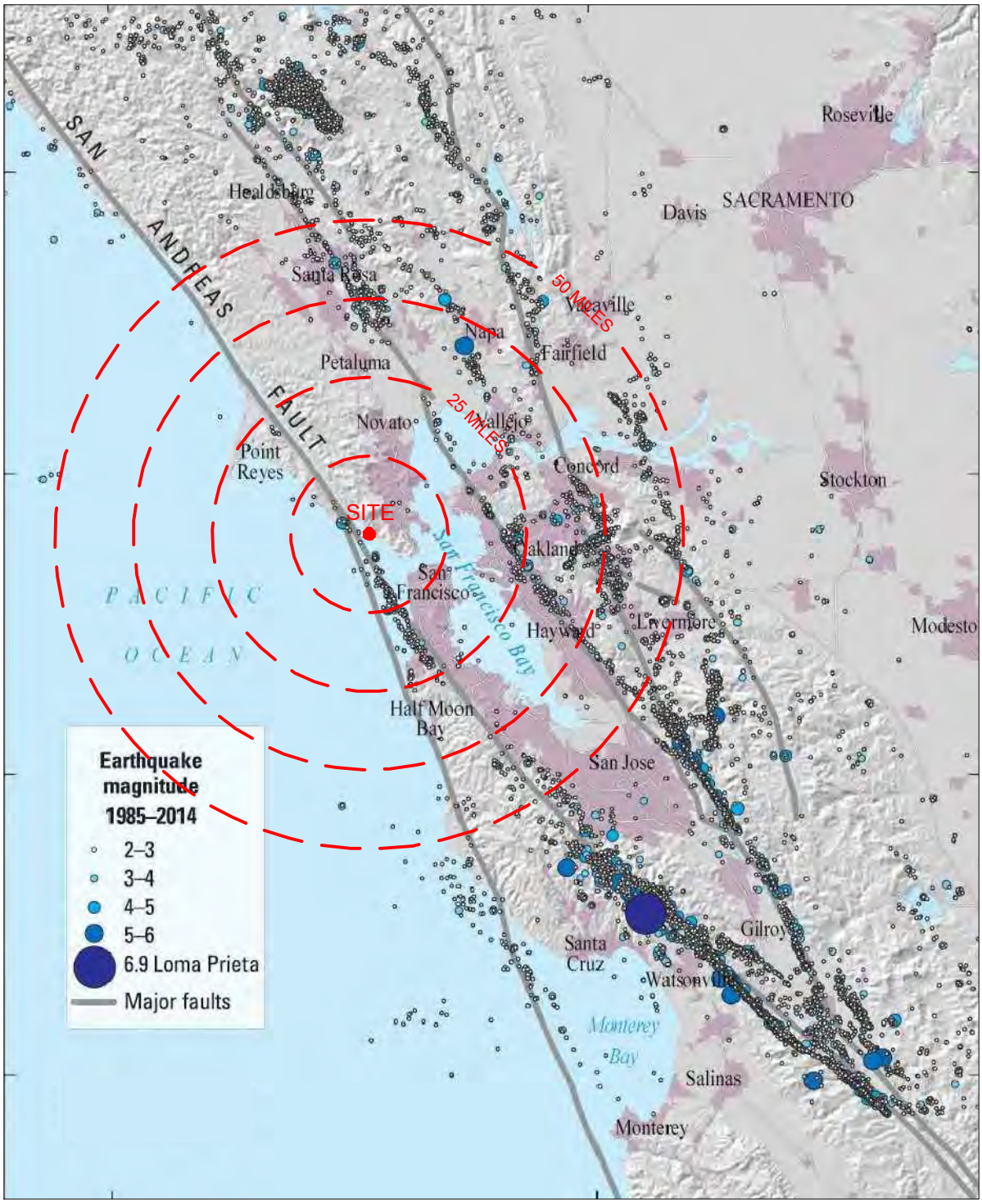
3
FIGURE



SITE COORDINATES
LAT. 37.8601°
LON. -122.5793°

SCALE
0 12.5 25 50 MILES

NORTH

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	Suite 220	183 Sunset Way APN 199-235-47 and -48 Muir Beach, California	Drawn ENE Checked
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LEGEND AND KEY TO MAP SYMBOLS

Qaf **FILL (QUATERNARY)**
Includes fill embankment along downslope edge of Sunset Way, apparent local fills underlying adjacent structures to the east and west, a few feet of side-cast soil and wood chip debris in northern (upper) part of property.

RIP-RAP (QUATERNARY)
Approximate 2- to 4-foot boulders placed at toe of bluff, east of stone baths, for apparent scour/erosion protection.

Qs **BEACH SAND (QUATERNARY)**
Well-sorted, fine-grained beach sand. Locally obscured by bedrock cobbles and boulders at base of bluff.

Qls **LANDSLIDES (QUATERNARY)**
Includes apparent source/scarp areas for previous earth slides, slumps, and shallow debris flows.

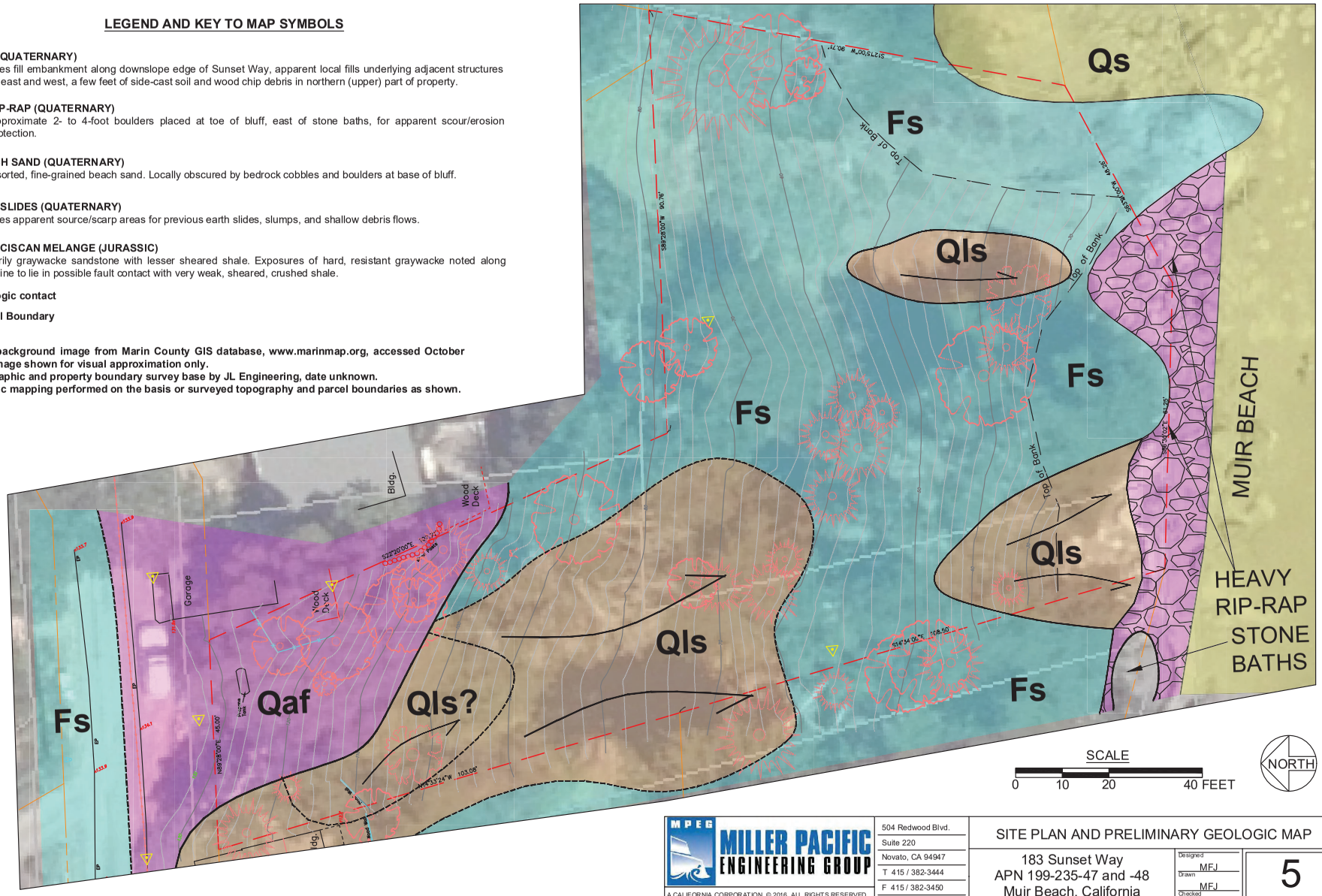
fs **FRANCISCAN MELANGE (JURASSIC)**
Primarily graywacke sandstone with lesser sheared shale. Exposures of hard, resistant graywacke noted along shoreline to lie in possible fault contact with very weak, sheared, crushed shale.

Geologic contact

Parcel Boundary

NOTES:

1. **Aerial background image from Marin County GIS database, www.marinmap.org, accessed October 2019. Image shown for visual approximation only.**
2. **Topographic and property boundary survey base by JL Engineering, date unknown.**
3. **Geologic mapping performed on the basis or surveyed topography and parcel boundaries as shown.**



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SITE PLAN AND PRELIMINARY GEOLOGIC MAP

183 Sunset Way
APN 199-235-47 and -48
Muir Beach, California
Project No. 2944.001 Date: 8/3/2016

Designed MFJ
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5
FIGURE

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USGS SHORELINE CHANGE RATE

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6
FIGURE

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HISTORIC AERIAL PHOTOGRAPH - 1958

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Muir Beach, California

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7
FIGURE

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HISTORIC AERIAL PHOTOGRAPH - 2015

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APN 199-235-47 and -48
Muir Beach, California

Project No. 2944.001 Date: 10/30/2019

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8
FIGURE

LEGEND AND KEY TO MAP SYMBOLS

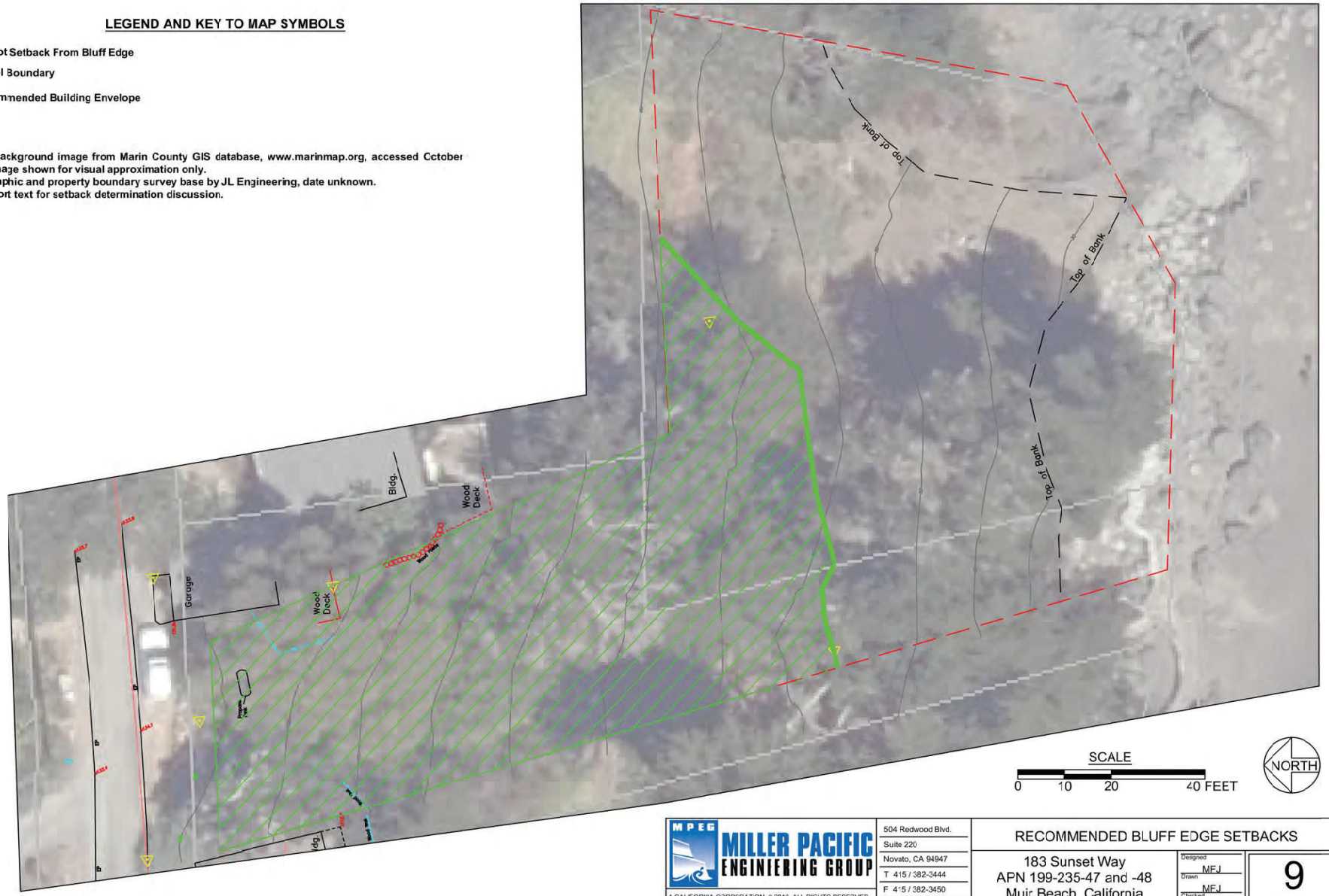
50-foot Setback From Bluff Edge

Parcel Boundary

Recommended Building Envelope

NOTES:

1. Aerial background image from Marin County GIS database, www.marinmap.org, accessed Cctober 2019. Image shown for visual approximation only.
2. Topographic and property boundary survey base by JL Engineering, date unknown.
3. See report text for setback determination discussion.



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RECOMMENDED BLUFF EDGE SETBACKS

183 Sunset Way
APN 199-235-47 and -48
Muir Beach, California

Project No. 2944.001 Date: 8/3/2016

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Drawn MFJ
Checked ENE

9
FIGURE

Exhibit A-5

Geotechnical Investigation Report

August 20,2020

MILLER PACIFIC ENGINEERING GROUP

GEOTECHNICAL INVESTIGATION
NEW SINGLE-FAMILY RESIDENCE
AND ASSOCIATED IMPROVEMENTS
183 SUNSET WAY (APN 199-235-47 AND -48)
MUIR BEACH, CALIFORNIA

August 20, 2020

Job No. 2944.001

Prepared For:
Mr. Graham Groneman
c/o Michael Heacock Architects, Inc.
129 Miller Avenue, Suite 623
Mill Valley, California 94941

CERTIFICATION

This document is an instrument of service, prepared by or under the direction of the undersigned professionals, in accordance with the current ordinary standard of care. The service specifically excludes the investigation of polychlorinated byphenols, radon, asbestos or any other hazardous materials. The document is for the sole use of the client and consultants on this project. No other use is authorized. If the project changes, or more than two years have passed since issuance of this report, the findings and recommendations must be updated.

MILLER PACIFIC ENGINEERING GROUP
(a California corporation)

Mike Jewett
Engineering Geologist No. 2610
(Expires 1/31/21)

REVIEWED BY:

Scott Stephens
Geotechnical Engineer No. 2398
(Expires 6/30/21)

MILLER PACIFIC ENGINEERING GROUP

GEOTECHNICAL INVESTIGATION
NEW SINGLE-FAMILY RESIDENCE
183 SUNSET WAY (APN 199-235-47 AND -48)
MUIR BEACH, CALIFORNIA

TABLE OF CONTENTS

MILLER PACIFIC ENGINEERING GROUP

GEOTECHNICAL INVESTIGATION
NEW SINGLE-FAMILY RESIDENCE
183 SUNSET WAY (APN 199-235-47 AND -48)
MUIR BEACH, CALIFORNIA

1.0 INTRODUCTION

This report summarizes our design-level Phase 2 Geotechnical Investigation for the planned new single-family residence at 183 Sunset Way (APN 199-235-47 and -48) in Muir Beach, California. A site location map is shown on Figure 1. The purpose of our Phase 2 services is to investigate subsurface site conditions and provide geotechnical recommendations and criteria for use in project design and construction. We previously performed a Phase 1 Geologic and Geotechnical Feasibility Evaluation, as summarized in our letter report dated November 4, 2019.

The scope of our Phase 2 services is described in our proposal letter dated March 6, 2020, and includes the following:

- Summary of subsurface exploration and laboratory testing;
- Summary of site subsurface conditions;
- Summary of geologic hazards evaluation, including slope-stability analyses of existing and proposed conditions, considering both static and pseudo-static (seismic) conditions;
- Recommendations for site preparation and grading;
- Discussion of expected excavation conditions and shoring considerations;
- Seismic design criteria in accordance with the 2019 California Building Code;
- Recommendations and criteria for new foundations (deep and shallow, as appropriate);
- Recommendations and criteria for new retaining structures;
- Recommendations for new interior and exterior slabs-on-grade and moisture vapor barriers;
- Recommendations and criteria for geotechnical site and foundation/retaining wall drainage;
- Recommendations for underground utility trench construction and backfill; and
- Other geotechnical items as applicable.

Issuance of this report completes our Phase 2 services. Future phases of work are anticipated to include geo-civil design, geotechnical consultation, plan review, and construction observation and testing.

2.0 PROJECT DESCRIPTION

The project generally includes construction of a new, 2-story, single-family residence which will be constructed via a combination of excavation into the hillside and cantilevered, above-grade structural design. A detached garage and parking deck are planned along the Sunset Way frontage at the top of the site, and new exterior decks, a hot tub, and a drip-type septic system are proposed below the residence, extending to a point about 50-feet inland of the top of the coastal bluff. Therefore, in addition to providing adequate seismic design, appropriate building siting to reduce risks associated with bluff erosion, and evaluating likely excavation/shoring conditions, primary geotechnical considerations will include assessing the planned project's predicted factors of safety against slope instability in anticipation of the septic system and future coastal bluff retreat. A Site Plan showing the approximate extents of the planned improvements is presented on Figure 2.

3.0 SITE CONDITIONS

3.1 Regional Geology

The project site is located within lies within the Coast Ranges geomorphic province of California, a region characterized by active seismicity, steep, young topography, and abundant landsliding and erosion owing partly to its relatively high annual rainfall. The regional basement rock consists of sedimentary, igneous, and metamorphic rock of the Jurassic-Cretaceous age (65-190 million years ago) Franciscan Complex and marine sedimentary strata of the Great Valley Sequence, which is of similar age. Within central and northern California, the Franciscan and Great Valley rocks are locally overlain by a variety of late Cretaceous and Tertiary-age sedimentary and volcanic rocks which have been deformed by episodes of folding and faulting. The youngest geologic units in the region are Quaternary-age (last 1.8 million years) sedimentary deposits. These unconsolidated deposits partially fill many of the valleys of the region.

Regional geologic mapping (Blake, et al; 2000) indicates the project site is underlain by Franciscan “mélange”, defined as a tectonic mixture of resistant rocks, including sandstone, greenstone, serpentinite, chert, and others, embedded in a matrix of weak, sheared shale. Quaternary-age beach sands are shown along the shoreline. Although not shown on the map, the (submerged) surface trace of the San Andreas Fault lies about 4.0-km offshore, to the southwest of the site. A Regional Geologic Map is shown on Figure 3.

3.2 Seismicity

The project site is located within the seismically active San Francisco Bay Area and will therefore experience the effects of future earthquakes. Earthquakes are the product of the build-up and sudden release of strain along a “fault” or zone of weakness in the earth's crust. Stored energy may be released as soon as it is generated or it may be accumulated and stored for long periods of time. Individual releases may be so small that they are detected only by sensitive instruments, or they may be violent enough to cause destruction over vast areas.

Faults are seldom single cracks in the earth's crust but typically comprised of localized shear zones which link together to form larger fault zones. Within the Bay Area, faults are concentrated along the San Andreas Fault zone. The movement between rock formations along either side of a fault may be horizontal, vertical, or a combination and is radiated outward in the form of energy waves. The amplitude and frequency of earthquake ground motions partially depends on the material through which it is moving. The earthquake force is transmitted through hard rock in short, rapid vibrations, while this energy becomes a long, high-amplitude motion when moving through soft ground materials, such as Bay Mud.

3.2.1 Regional Active Faults

The California Geological Survey (previously known as the California Division of Mines and Geology), defines a “Holocene-active fault” as one that had surface displacement within Holocene time (the last 11,700 years). CGS mapped various faults in the region as part of their Fault Activity Map of California (Jennings and Bryant; 2010). Many of these faults are shown in relation to the project site on the attached Active Fault Map, Figure 4. The nearest known active fault to the site is the San Andreas Fault, located about 4.0-km southwest of the site.

3.2.2 Historic Fault Activity

Numerous earthquakes have occurred in the region within historic times. A map showing the distribution of historic earthquake epicenters in the San Francisco Bay Area between 1985 and 2016 is shown on Figure 5. The two most significant historic earthquakes to affect the site in recent history are the 1989 M=6.9 (Loma Prieta) and 1906 M=7.8 San Francisco earthquakes. Little information exists regarding specific effects within Muir Beach; however, both events caused strong to very strong ground shaking and extensive structural damage throughout adjacent portions of western Marin County.

3.2.3 Probability of Future Earthquakes

The site will likely experience moderate to strong ground shaking from future earthquakes originating on any of several active faults in the San Francisco Bay region. The historical records do not directly indicate either the maximum credible earthquake or the probability of such a future event. To evaluate earthquake probabilities in California, the USGS has assembled a group of researchers into the "Working Group on California Earthquake Probabilities" (USGS 2003, 2008; Field et al; 2015) to estimate the probabilities of earthquakes on active faults. These studies have been published cooperatively by the USGS, CGS, and Southern California Earthquake Center (SCEC) as the Uniform California Earthquake Rupture Forecast, Versions 1, 2, and 3. In these studies, potential seismic sources were analyzed considering fault geometry, geologic slip rates, geodetic strain rates, historic activity, micro-seismicity, and other factors to arrive at estimates of earthquakes of various magnitudes on a variety of faults in California.

Conclusions from the most recent UCERF3 and USGS (Aagard, et al; 2016) indicate the highest probability of an earthquake with a magnitude greater than 6.7 originating on any of the active faults in the San Francisco Bay region by 2043 is assigned to the Hayward/Rodgers Creek Fault system, at 33%. The San Andreas Fault is the nearest known active fault to the site, located 4.0-kilometers to the southwest, and is assigned a 22% probability of a M>6.7 earthquake by 2043. Additional studies by the USGS regarding the probability of large earthquakes in the Bay Area are ongoing. These current evaluations include data from additional active faults and updated geological data.

3.3 Surface Conditions

We performed a site reconnaissance to observe existing conditions and perform wide-scale mapping of site geology on October 16, 2019. Our geologic map of the site is presented on Figure 2, and significant observations from our reconnaissance are summarized below:

- Surface grades at the site range from sea level at the beach at the southern edge of the site to a maximum of about +130-feet along the Sunset Way frontage. South-facing slopes are inclined at an average of about 2:1 (horizontal:vertical). Locally steeper inclinations were observed around the toe of the apparent fill slope underlying the outer edge of Sunset Way as well as around the downslope edge of the colluvial swale in the central part of the site. Above the beach, steeper bluffs are inclined between about 1:1 and near-vertical, and range to a maximum of about 20-feet high.
- Existing fills underlying both Sunset Way and adjacent development to the east appear to be several feet thick. Several failed timber retaining walls were noted along the east property line, at the base of the fills underlying the neighboring residence and deck areas. Several feet of soil, wood chips, and other debris appears to have been side-cast from the roadway across the upper part of the property.

- The central part of the site is occupied by a shallow colluvial swale. A subtle topographic "lobe" in the upper part of the swale appears to be the lower edge of the side-cast fill.
- Soils throughout the site, including fill, colluvium, and residual soils overlying bedrock, were noted to consist primarily of porous, loose to medium-dense sands, silts, and clays with varying quantities of angular sandstone and shale rock fragments. During our reconnaissance, Sunset Way was in the process of being re-paved and fill materials exposed along the outer edge appeared to consist of well-compacted, dense silty to clayey sand. Completely weathered shale bedrock was observed in low cuts along the inboard/upslope edge of the road.
- Bluffs at the base of the slope expose relatively hard, resistant graywacke sandstone which appears to lie in fault contact with highly sheared, completely weathered shale. Bedrock is typically exposed beneath a 3-to 5-foot layer of silty to sandy residual and colluvial soils as described above. A small colluvial swale/topographic depression in the southwestern corner of the parcel appears to have been the result of erosion around the top of the bluff.
- Several tens of cubic yards of heavy rip-rap armor have been placed at the toe of the central part of the bluff, and extend to an elevation about 10-feet above the beach. The western part of the bluff toe is protected by a series of terraced grouted-rock walls which form apparent tidal bathing pools. The rear walls of the pools also extend about 10-feet above the beach, and a small stone-surfaced walking path separates the pools from the bluff face.

3.4 Field Exploration and Laboratory Testing

Subsurface conditions were explored at the project site with 4 soil borings drilled on May 27 and 28, 2020 at the approximate locations shown on Figure 2. Each boring was excavated to a maximum explored depth of 24.5 below the ground surface by use of a portable, hydraulic-powered drill rig equipped with 4-inch solid-stem continuous flight augers. Materials encountered were examined and logged in the field by our Geologist, and samples were collected at select intervals for laboratory testing. Brief explanation of the terms and methodology used in classifying earth materials is shown on the Soil and Rock Classification Charts, Figures A-1 and A-2, respectively. Exploratory boring logs are shown on Figures A-3 through A-8.

Laboratory testing of relatively undisturbed samples from the exploratory borings included determination of moisture content, dry density, unconfined compressive strength, percentage of particles passing the No. 200 (75-µm) sieve, and plasticity index in general accordance with applicable ASTM standards. Moisture, density, strength, and minus-200 test results are shown on the boring logs, Figures A-3 through A-8. A gradation/sieve chart is shown on Figure A-9, and a plasticity chart is shown on Figure A-10. The field exploration and laboratory testing programs are discussed in further detail in Appendix A.

3.5 Subsurface Conditions and Groundwater

The results of our subsurface exploration generally confirm geologic conditions as mapped and interpreted during our Phase 1 work. The project site is typically underlain by between 4-and 7-feet of undocumented fill and colluvial/residual soils composed primarily of medium-dense clayey sand with gravel. In the upper portion of the site, (at the locations of Borings 1 and 2) these soils directly overlie sheared shale bedrock. In the lower portions of the site, at Borings 3 and 4, soils are underlain by about 7-feet of hard, dense graywacke sandstone, which in turn is underlain by similarly weak, sheared shale as encountered in the upper borings. A simplified geologic cross-section depicting site subsurface conditions is shown on Figure 6.

Groundwater was encountered in Boring 3 at a depth of 19.0-feet, and rose to a depth of 2.0-feet overnight. Groundwater was not encountered during drilling or observed prior to backfill of the other borings, including Boring 4 which was also left open overnight. Based on our observations and the proximity of the site to the Pacific Ocean, significant amounts of groundwater likely exist within portions of the shale bedrock unit throughout the year. Where shale is directly exposed in the lower bluffs or where the dense, overlying sandstone is removed to effectively relieve confining pressure, groundwater may be much shallower. Additionally, because of the relatively impermeable underlying sandstone, relatively permeable soils in the lower part of the slope may quickly become saturated during the winter months or following periods of heavy rain. For the purpose of project stability analysis and septic/structural design, we recommend considering a fully saturated condition, where groundwater elevations coincide with the ground surface.

4.0 GEOLOGIC HAZARDS

This section summarizes our review of geologic hazards which could impact the development, including seismic ground shaking, liquefaction, settlement, flooding, erosion, slope instability, and others. Based on our evaluation, we judge the primary seismic hazards to consider during project design include seismic ground shaking, expansive soils and slope instability. More detailed discussion of each hazard considered is presented below.

4.1 Fault Surface Rupture

Under the Alquist-Priolo Earthquake Fault Zoning (APEFZ) Act (CDMG 1972; revised 1988) , the California Division of Mines and Geology (CDMG, now known as the California Geological Survey) produced 1:24,000 scale maps showing known active and potentially active faults and defining zones within which special fault studies are required. The nearest known active fault, the San Andreas Fault, is located approximately 4.0-km southwest of the site, and the site is not mapped as lying within an Alquist-Priolo Earthquake Fault Zone.

Although we did observe extensive shearing and apparent vertical offsets within bedded and fractured shale in the bluff face, we did not observe any evidence of offset extending into the overlying soils. Because the shale and sandstone are both members of the Franciscan Complex, which itself is an “accreted terrane” formed via tectonic subduction processes, we judge these are likely “intraformational” faults which were last active during original emplacement of the Franciscan bedrock several million or tens of millions of years ago. We judge the risk of fault surface rupture at the site is low.

Evaluation: *Less than significant.*
Recommendations: *No special engineering measures are required.*

4.2 Seismic Shaking

The site will likely experience seismic ground shaking similar to other areas in the seismically active Bay Area. The intensity of ground shaking will depend on the characteristics of the causative fault, distance from the fault, the earthquake magnitude and duration, and site-specific geologic conditions. Estimates of peak ground accelerations are based on either deterministic or probabilistic methods.

4.2.1 Deterministic Analysis - Deterministic methods use empirical attenuation relations that provide approximate estimates of median peak ground accelerations. A summary of the active faults that could most significantly affect the planning area, their maximum credible magnitude, closest distance to the center of the planning area, and probable peak ground accelerations are summarized in Table 1. The calculated accelerations should only be considered as reasonable estimates. Many factors (soil conditions, orientation to the fault, etc.) can influence the actual ground surface accelerations.

Table 1 – Deterministic Peak Ground Accelerations for Active Faults

Fault	Moment Magnitude for Characteristic Earthquake[1]	Closest Estimated Distance (km)[1]	Median Peak Ground Acceleration (g)[2]	Median PGA +1 Std Dev (g)[2]
San Andreas	4.0 km	8.0	0.49 g	0.89 g
Hayward	6.9 km	7.4	0.36 g	0.66 g
San Gregorio	23.0 km	7.3	0.16 g	0.28 g
Rodgers Creek	36.2 km	7.3	0.10 g	0.19 g
Calaveras	47.1 km	6.9	0.06 g	0.11 g

1. Caltrans ARS (2019)
2. Abrahamson, Silva and Kamai (2014)
3. Boore, Stewart, Seyhan and Atkinson (2014)
4. Campbell and Borzognia (2014)
5. Chiou and Youngs (2014)
6. Values determined using Vs_{30} = 760 m/s for Site Class “B” per 2019 CBC.

4.2.2 Probabilistic Analysis - Probabilistic Seismic Hazard Analysis (PSHA) analyzes all possible earthquake scenarios while incorporating the probability of each individual event to occur. The probability is determined in the form of the recurrence interval, which is the average time for a specific earthquake acceleration to be exceeded. The design earthquake is not solely dependent on the fault with the closest distance to the site and/or the largest magnitude, but rather the probability of given seismic events occurring on both known and unknown faults.

We calculated the PGA for two separate probabilistic conditions, the 2% chance of exceedance in 50 years (2,475 year statistical return period) and the 10% chance of exceedance in 50 years (475 year statistical return period), utilizing the USGS 2008 Interactive Deaggregation web-based calculator tool. Deterministic methods, as discussed above, or the PGA arising from a probabilistic analysis for a 10% chance of exceedance in 50 years are commonly utilized for residential, commercial, and industrial developments. The PGA arising from a probabilistic analysis for a 2% chance of exceedance in 50 years is typically used for “critical” facilities such as schools and hospitals. The results of the probabilistic analyses are presented below in Table 2.

Table 2 – Probabilistic Seismic Hazard Analysis

	Statistical Return Period	Mean Moment Magnitude[1]	Peak Ground Acceleration (g)[1,2]
2% in 50 years	2,475 years	7.8	1.00 g
10% in 50 years	475 years	7.6	0.50 g

1) USGS (2019), "Unified Hazard Tool" (web-based ground acceleration calculator tool), https://earthquake.usgs.gov/hazards/interactive/index.php, Dynamic: Conterminous US 2014 v4.2.0, accessed October 30, 2019.
2) Values shown were determined using estimated subsurface shear wave velocity Vs^{30} = 760 m/s for "Rock" subsurface conditions (Site Class "B") in accordance with the 2019 California Building Code.

The calculated bedrock accelerations should only be considered as reasonable estimates. Many factors (soil conditions, orientation to the fault, etc.) can influence the actual ground surface accelerations. Ground shaking can result in structural failure and collapse of structures or cause non-structural building elements (such as light fixtures, shelves, cornices, etc.) to fall, presenting a hazard to building occupants and contents. Compliance with provisions of the most recent version of the California Building Code (2019 CBC) should result in structures that do not collapse in an earthquake. Damage may still occur and hazards associated with falling objects or non-structural building elements will remain.

The potential for strong seismic shaking at the project site is high. Due to their close proximity and historic rates of activity, the San Andreas and San Gregorio Faults present the highest potential for severe ground shaking. The most significant adverse impact associated with strong seismic shaking is potential damage to structures and improvements.

Evaluation: *Less than significant with special engineering measures.*
Recommendations: *New structures should be designed in accordance with the provisions of the latest edition of the California Building Code (2019 CBC). Recommended seismic design criteria are provided in Section 5.1 of this report.*

4.3 Liquefaction and Related Effects

Liquefaction refers to the sudden, temporary loss of soil strength during strong ground shaking. The strength loss occurs as a result of the build-up of excess pore water pressures and subsequent reduction of effective stress. While liquefaction most commonly occurs in saturated, loose, granular deposits, recent studies indicate that it can also occur in materials with relatively high fines content provided the fines exhibit lower plasticity. The effects of liquefaction can vary from cyclic softening resulting in limited strain potential to flow failure which cause large settlements and lateral ground movements.

Subsurface conditions at the site include about 4- to 7-feet of medium-dense silty to sandy soils which may locally be prone to liquefaction when saturated. Therefore, we judge there is a low to moderate risk of liquefaction at the site, depending on groundwater elevations. Note that the beach below the site will be highly prone to liquefaction during a seismic event.

Evaluation: *Less than significant.*
Recommendations: *No special engineering measures are required.*

4.4 Seismic Densification

Ground shaking can induce settlement of loose, unsaturated granular soils (ie, those which would otherwise liquefy when saturated). Each boring encountered 4- to 7-feet of medium-dense silty and clayey sand, which could locally be prone to densification when subjected to seismic shaking. We judge the risk of seismically-induced ground settlement at the site is low to moderate.

Evaluation: *Less than significant with special engineering measures.*
Recommendations: *New structures should be provided with foundation systems which derive their support from weathered bedrock underlying sandy surface soils. Where settlement-prone surface improvements are planned, settlement-prone soils may be over-excavated and recompacted to reduce anticipated seismic settlements. Additional discussion and recommendations for site grading/preparation and new foundations are provided in Section 5 of this report.*

4.5 Lurching and Ground Cracking

Lurching and associated ground cracking can occur during strong ground shaking. The ground cracking generally occurs along the tops of slopes where stiff soils are underlain by soft or loose deposits or along steep slopes or channel banks.

The site is generally underlain by a 4- to 7- feet of medium dense silty and clayey sands. While the property is comprised largely of steeply-sloping areas, we did not observe conditions particularly conducive to lurching or ground cracking within or near the building areas. However, some lurching and ground cracking may occur along the crest of the slope near the planned garage, where undocumented roadway and shoulder fill overlies native landslide debris.

Additionally, steep bluffs at the base of the property expose weak, highly sheared shale bedrock which is locally juxtaposed against and/or overlain by more resistant graywacke sandstone. Therefore, we judge there is a low to moderate risk of lurching and ground cracking around the top of the bluffs in the southern part of the site.

Evaluation: *Less than significant with special engineering measures.*
Recommendations: *Special measures to reduce the risk of damage due to lurching and ground cracking should include providing minimum setbacks for new structures from the top of the bluffs. For design purposes, we judge that minimum setbacks of 30-feet are sufficient. Additional discussion regarding bluff setbacks is provided in the Coastal Bluff Retreat section of this hazard evaluation.*

4.6 Expansive Soil

Moderate and highly plastic silts and clays, when located near the ground surface, can exhibit expansive characteristics (shrink-swell) that can be detrimental to structures and flatwork during periods of fluctuating soil moisture content. During our site reconnaissance, we did not observe significant evidence of expansive soils, such as desiccation cracking or apparent slope creep. While laboratory test results (as shown on Figure A-10) indicate that the clayey fraction of near-surface soils are of moderate plasticity, which is typically correlative with moderate expansion potential, the relatively high granular (sand and gravel content) will reduce expansion potential somewhat. We judge there is a low to moderate risk of damage due to expansive soils.

Evaluation: *Less than significant with special engineering measures.*
Recommendations: *New structures should bear on weathered bedrock beneath any potentially-expansive soils. Where new surface improvements are planned, native soils should be appropriately moisture-conditioned and recompacted in order to reduce the potential for expansive behavior. Recommendations for site preparation/grading and new foundations are provided in Section 5 of this report.*

4.7 Settlement

Consolidation of soft clays or loose granular soils by application of new (net) loads can cause settlement of the ground surface. Differential settlements may also occur where structures span variable support conditions, such as cut/fill transitions.

Near-surface soils encountered during our exploration consisted generally of medium-dense sandy and silty soils which are not expected to present significant risk of consolidation settlement. However, given the steeply-sloping site, we anticipate a moderate risk of differential settlement will exist where structures span a cut/fill transition.

Evaluation: *Less than significant with mitigation.*
Recommendations: *New improvements should be supported on foundations which derive their capacity from weathered bedrock. Where new improvements are planned in "fill" areas, foundations will need to be deepened to maintain bedrock support. Additional discussion and recommendations for new foundations are provided in Section 5.3 of this report.*

4.8 Erosion

Sandy soils on moderate slopes or clayey soils on steep slopes are susceptible to erosion when exposed to concentrated surface water flows. The risk of erosion will be increased where established vegetation is removed by grading or construction activity.

The parcel consists of steeply-sloping lands underlain by loose to medium-dense sandy and silty soils which are susceptible to erosion. The risk of damage to improvements due to erosion is high.

Evaluation: *Less than significant with special engineering measures.*
Recommendations: *New surface and subsurface drainage improvements must be incorporated into the project design to reduce the risks of erosion, soil saturation, and increased susceptibility to slope instability. The project Civil Engineer should design a site drainage system which collects and conveys surface runoff and discharges into an existing municipal storm drain system or other location/apparatus in a manner so as not to increase the risk of erosion. Discharge of site drainage onto sloping parts of the property should generally be avoided, and runoff should generally be conveyed as close to the beach as possible. Erosion control measures during and after construction should conform to the most recent version of the California Stormwater Quality Association's Best Management Practice Handbook (2003). Additional recommendations for geotechnical site drainage are presented in Section V of this report.*

4.9 Flooding

The primary adverse impact from flooding is water damage to structures. The site consists of moderately- to steeply-sloping terrain with the development envelope lying at elevations above about 30-feet MSL. Therefore, the risk of large-scale flooding at the site is judged to be low.

Evaluation: *Less than significant.*
Recommendations: *No mitigation measures are required.*

4.10 Seiche and Tsunami

Seiche and tsunamis are short duration, earthquake-generated water waves in large enclosed bodies of water and the open ocean, respectively. The extent and severity of a seiche would be dependent upon ground motions and fault offset from nearby active faults.

The lower portion of the site, limited mainly to the beach, is mapped as lying within a tsunami inundation zone. However, since the proposed development is anticipated to generally occur at elevations in excess of +30-feet, we judge the risk of damage due to tsunami inundation is remote.

Evaluation: *Less than significant.*
Recommendations: *No special engineering measures are required.*

4.11 Coastal Bluff Retreat

Coastal bluff retreat, and shoreline retreat in general, is most common where the underlying geologic materials are highly susceptible to erosion and scour, and where erosion by concentrated flow at the top of the cliff occurs in conjunction with scour by wave action and ocean currents at the base of the cliff. Cliff and shoreline retreat may be exacerbated or accelerated by rising sea levels, and may be retarded by simultaneous accretion, deposition, and/or tectonic uplift.

The project site is located at the top of a coastal bluff, approximately 20-feet above the Pacific Ocean. The bluff faces nearly due south and lies along the north side of the sheltered cove which forms Muir Beach. Variably-weathered bedrock of the Franciscan Complex is exposed in the lower portion of the bluff, with the upper bedrock surface approximately 20-feet above mean sea level. Relatively hard, resistant graywacke rock forms a small promontory at the southeast property corner, while highly sheared, crushed, and highly weathered shale and sandstone are exposed to the west. Although these materials are judged prone to scour and erosion, they are effectively armored by existing rip-rap and stone tidal pool walls along the shoreline.

Based on our subsurface exploration, clayey to sandy colluvial and residual soils form a 4- to 7-foot thick layer overlying the Franciscan rocks and form a slope inclined at about 2:1 (horizontal:vertical). Surface soils were noted to exhibit evidence of erosion due to surface water flow.

Based on our review of available published literature, no studies regarding cliff retreat have been conducted specific to the Muir Beach area or at the project site proper. However, several studies of cliff and shoreline retreat in the greater North Coast region have been conducted. Materials we reviewed are discussed below:

USGS OPEN-FILE REPORT 2007-1133 (2007) – Part 4 of the USGS National Assessment of Shoreline Change Project (Hapke, et al; 2007) addresses long-term cliff retreat rates along the California Coast. Cliff retreat rates were interpreted based on the spatial difference between historic cliff edge locations, as determined from NOAA Topographic Sheets and other maps, and current cliff edges as surveyed using LiDAR technology. Historic cliff edge locations were taken from sources published between 1920 and 1930, while LiDAR imaging was performed in 1998 and 2002. Therefore, long-term cliff retreat rates are based on differences in cliff edge locations observed over a period of time spanning approximately 70-years. The report concludes that the average statewide cliff retreat rate is approximately 0.3 +/- 0.2 meters (about 7-inches) per year, with an average of approximately 17.7-meters (just under 60-feet) of total cliff retreat over the 70-year time span.

For the San Francisco North study region, which extends from Tomales Point in the north to Point Bonita in the south, the average retreat rate is reported as 0.5-meters (about 19.6-inches) per year, while the average total retreat over the 70-year span is reported as 36.2-meters (about 119-feet). It should be noted that average rates are likely affected by outliers in the data. For instance, USGS reports that “the maximum rate in this region, –1.9 m/yr (6.2-feet), was measured along the south-facing cliffs of Point Reyes headland . . .(where) slope failures within the overlying materials result in the high erosion rates. Other areas where high rates were measured in the San Francisco North region include . . . along the promontory connecting Bolinas and Duxbury Points.” At these locations, the underlying geology consists of highly sheared and fractured Salinian Granite overlain by poorly-lithified sedimentary rocks, and much of the retreat here is apparently due to failure of the weak sedimentary units which overlie the granite. Therefore, average regional rates may be severely skewed where the majority of the regional bedrock geology is at odds with those locations where unique geologic features lend themselves to higher rates of retreat.

We reviewed composite vector shoreline data (Hapke and Reid; 2007; Hapke, Green, and Reid; 2007) for the region produced by the study in ArcGIS Pro. Vector shoreline data for coastal cliff areas included composite historic shorelines for the time periods between 1929 and 1931 (generated from historic maps and other paper sources) and between 1998 and 2002 (surveyed by LiDAR in conjunction with NASA). Individual transects flanking the site indicate average historic retreat rates of -0.27m (about 10.5-inches) per year and -0.36m (about 14-inches) per year. Negative retreat rates at the site are indicative of aggradation, and are likely reflective of both inaccuracies inherent to digitizing maps from the early 1900’s, as well as the installation of rip-rap armor and construction of stone pools during the study time period. We note that sandy Muir Beach, just south of the site, is shown as having an average (positive) retreat rate of 0.81m (about 32-inches) per year, which is not considered unreasonable. Historic shoreline data is presented on Figure 7.

HISTORIC AERIAL PHOTOGRAPHY - Finally, we reviewed historic aerial photography provided by Photoscience, Inc. of Emeryville, California and the California Coastal Records Project. Aerial photography spanned the time period between 1958 and 2015 and included both black-and-white vertical photography and color oblique-angle photography. We interpreted the location of the cliff edge in the 1958 photograph based on tonal variations as shown on Figure 7. We located the cliff edge in the 2015 photograph based on color variations and our field reconnaissance, as shown on Figure 8, and

measured the distance between interpreted cliff edges. Our measurements indicate a maximum of about 49-feet of retreat in the southeast corner of the property between 1958 and 2015, or an annual average rate of about 7.2-inches per year. Historic photographs we reviewed are included for reference in Appendix B.

We note that much of the observed retreat appears to be the result of erosion of the surficial soils at the top of the bluff. We have been provided client documentation in the form of a cancelled check and personal communication that the rip-rap was installed in 1986, and that the stone pool walls were built in the 1960's, all of which is consistent with our field observations and the appearance of the improvements in the historic air photo sequence. These features appear to be providing good protection from scour and erosion at the base of the cliff, and little apparent change in the shoreline position is observable between 1986 and 2015. Therefore, we judge the retreat rate measured above is likely skewed by the absence of walls and rip-rap, which appear to have largely abated shoreline retreat at the site since their construction.

Based on our review of available cliff retreat data, mapping, and aerial photography, we judge that cliff retreat rates at the project site are likely lower than average for the San Francisco North region due to the relatively resistant Franciscan rock exposed at the base of the bluff and the scour protection afforded by existing rip-rap and stone pool walls. The potential for cliff retreat due to wave action and scour is generally judged to be low to moderate. However, erosion of the overlying colluvial and residual soils exposed on the upper portion of the bluff could jeopardize the stability of improvements constructed near the bluff edge. The potential for instability will be exacerbated where soils are exposed to concentrated runoff, such as is typically associated with new development (impervious surfaces, etc.) Therefore, the risk of damage due to cliff retreat and erosion is judged moderate to high.

Evaluation: *Less than significant with special engineering measures.*
Mitigation: *Based on current conditions and interpreted rates of historic bluff retreat, we estimate a future bluff retreat rate of about 6-inches per year. Therefore, we recommend establishment of a 50-foot minimum setback from the edge of the bluff, as shown on Figure 2, if the project is to be designed for a 100-year service life.*

4.12 Slope Instability/Landslides

The project site is located in an area of very steep natural terrain which is locally susceptible to instability. Relatively wide-scale regional geologic mapping, referenced previously and shown on Figure 2, does not show any landslides in close proximity to the site but does generally indicate widespread landsliding along coastal bluffs north and south of Muir Beach. We are unaware of published, more detailed landslide mapping in the project area.

During our reconnaissance, we observed that the site is comprised entirely of steep slopes which exhibit generally hummocky topography. Our interpretation of site topography and geomorphology is depicted on Figures 2 and 6, where the fill embankment beneath Sunset Way and adjoining residential developments has apparently been placed over the upper portion of the colluvial swale. During our reconnaissance and exploration, we did not observe significant evidence of historic landsliding, such as fresh scarps, tension cracks, or apparent slide planes. The soil mantle appears not to exceed about 7-feet in depth based on our subsurface exploration.

We are currently unaware of any widely-accepted method for predicting the potential for landslide mobilization, or for mobilization of various modes of instability. However, in general, soils having high void ratios and low liquid limits in conjunction with relatively low density and plasticity are

more susceptible to debris-flow development, while soils having higher plasticity and density, coupled with lower void ratios and high liquid limits will be less prone to debris flows and more susceptible to slope "creep" and slower-moving modes of transport. Based on our laboratory testing, the near-surface soils consist of clayey sands with a moderate liquid limit and moderate plasticity index. These soils are judged moderately prone to slope creep and "traditional" rotational or translational slumps and slides. Therefore, based on our site reconnaissance observation and subsurface exploration, we judge the risk of damage due to landsliding is moderate to high in the absence of special engineering measures.

4.12.1 Slope-Stability Analyses – Existing Conditions

We have performed slope-stability analyses in order to evaluate existing factors of safety against slope instability using the computer program Slide V6.008, developed by Rocscience (2011). Our analyses were performed using the geologic cross-section shown on Figure 6 and soil/rock material properties were developed on the basis of our laboratory test results and engineering judgment. Results are expressed as a "factor of safety", whereby values less than 1.0 indicate likely slope instability.

Our first analysis considers global stability under static (existing) conditions. For this analysis, groundwater is modeled at an elevation about 7-feet below the upper shale bedrock surface, based on our exploration observations. This analysis indicates the site has an existing factor of safety against instability of approximately 1.49, as shown on Figure 8.

Our next analysis considers global static "wintertime" conditions, wherein groundwater elevation is assumed to coincide with the ground surface. Using the same material properties as our initial analysis, the results of our "wintertime" analysis indicates the site has a factor of safety against instability of approximately 1.44 under "fully saturated" conditions, as shown on Figure 9.

Under the predicted deterministic ground acceleration of 0.49 g, the "wintertime" factor of safety under seismic or "pseudo-static" conditions are reduced to about 0.68, as shown on Figure 10. Thus, during a strong event seismic and with existing conditions, slope displacement is expected in the upper portion of the site.

Each of the aforementioned analyses was performed using an automated function in which the software searches for the lowest "global" factor of safety. In order to more accurately ascertain the lowest exiting factor of safety, we performed subsequent analyses considering "local" instability, whereby the failure limits were adjusted to model surficial failures primarily affecting the weak surface soils.

As shown on Figures 11 and 12, exiting "wintertime" factors of safety on the slope above the proposed residence are about 0.76 and 0.34 under "static" and "seismic" conditions, respectively. Note that this indicates the site is currently susceptible to local very shallow instability in the surface soil mantle when completely saturated.

As shown on Figures 13 and 14, existing factors of safety on slope below the residence (In the area of the proposed septic system) are about 2.0 under "static" wintertime conditions, while under "seismic" conditions factors of safety are reduced to about 0.98, indicating marginal stability.

4.12.2 Slope-Stability Analyses – Proposed Conditions

We have performed additional analyses in consideration of the proposed improvements in order to evaluate post-construction factors of safety. Note that groundwater elevations above the structures will be lowered via the installation of retaining wall and foundation backdrains on the upslope side of the house. Conversely, we have assumed fully-saturated condition wherein groundwater coincides with the ground surfaces in areas within and downslope of the proposed leach field.

Based on the existing plans as represented on Figure 5, our analyses indicate that under static conditions, the resulting post-construction (with concrete pier foundations into bedrock) "global" factor of safety will be about 1.72, as shown on Figure 15. Note this is an increase from about 1.49 under existing conditions.

We have also analyzed post-construction conditions, as described above, in consideration of an estimated (deterministic) PGA of 0.49, as discussed in Section 4.2 and shown in Table 1 above. Under these "pseudo-static or seismic conditions, the predicted factor of safety is about 0.96, which is also increased from an existing factor of about 0.68. These results are shown on Figure 16.

Above the residence, post-construction factors of safety are about 1.59 and 1.25, as shown on Figures 17 and 18, provided that existing fill soils are re-worked and compacted in accordance with the recommendations in subsequent sections of this report.

Below the residence, post-construction factors of safety will be about 1.49 and 0.66 under "static" and "seismic" conditions, respectively and as shown on Figures 19 and 20.

Based on the results of our stability analyses, predicted post-construction factors of safety under static and seismic conditions are generally above 1.5 and 1.0, respectively. Our analyses considered, in effect, the "worst-case" stability scenario involving strong seismic shaking simultaneous with soil saturation. We note that slopes below the residence will be relatively unaffected in terms of stability, while slopes above the house and below the carport will require stabilization to reduce the risk of local, shallow instability in existing fill soils.

Provided that project structural and drainage design is predicated on soil parameters as modeled in our analyses, we judge the risk of damage due to "global" or deep-seated landsliding is relatively low. The risk of localized instability is generally low under static conditions, but will be moderate to high under seismic conditions. Note that the risk of instability below the residence will remain relatively unchanged from current conditions.

Evaluation: *Less than significant with mitigation.*

Recommendations: *New improvements should be designed to effectively maintain acceptable factors of safety commensurate with the aforementioned analyses. Structures should be supported on foundation systems which bear directly on weathered bedrock, and retaining walls or other means of stabilization should be provided on the slopes above the residence, where the highest risk of local instability is predicted to exist. Surface and subsurface drainage improvements should be incorporated as previously discussed. Geotechnical recommendations and design criteria for new foundations, retaining walls, site drainage, and other items are presented in Section 5 of this report.*

5.0 CONCLUSIONS AND RECOMMENDATIONS

Based on the results of our subsurface exploration, we judge that construction of the proposed new structures and related improvements are feasible from a geotechnical standpoint. Primary geotechnical considerations for the project will include providing adequate seismic design and uniform foundation support for new structures, providing adequate site drainage and appropriately-designed retaining systems to resist potential slope instability and erosion, and maintaining support for adjacent lands and improvements during construction of deep planned cuts for the new lower levels.

As discussed in Section 4.11 and shown on Figure 2, we recommend a minimum 50-foot setback for new improvements to reduce the risk of damage resulting of expected future coastal bluff instability. In general, we recommend that the structure be supported on a robust foundation system which derives its support entirely from weathered Franciscan bedrock. Additionally, as discussed in Section 4.12.3, a new retaining structure should be considered downslope of the planned septic leach field in order to reduce the risk of instability in the long-term, as the bluff face encroaches closer to the septic field and effectively removes lateral support for the slope. Detailed recommendations and discussion for these and other geotechnical design considerations are provided in the following sections.

5.1 Seismic Design

Minimum mitigation of ground shaking includes seismic design of new structures in conformance with the provisions of the most recent edition (2019) of the California Building Code. The magnitude and character of these ground motions will depend on the particular earthquake and the site response characteristics. Based on the interpreted subsurface conditions and close proximity of several nearby faults, we recommend the CBC coefficients and site values shown in Table 3 be used to calculate the design base shear of the new construction.

Table 3 – 2019 California Building Code Seismic Design Criteria

Parameter	Design Value
Site Class	B (estimated)
Site Latitude	38.8601°N
Site Longitude	-122.5793°W
Spectral Response (short), S_S	1.977 g
Spectral Response (1-sec), S_1	0.815 g
Site Coefficient, F_a	1
Site Coefficient, F_v	1
Spectral Response (Short), S_{MS}	1.977 g
Spectral Response (1 sec), S_{M1}	0.815 g
Design Spectral Response (short), S_{DS}	1.318 g
Design Spectral Response (1 sec), S_{D1}	0.543 g
MCE_G PGA Adjusted, PGA_M	0.849 g

Reference: SEA/OSHPD Seismic Design Maps, accessed on June 23, 2020

5.2 Site Grading

While grading plans have not yet been developed, we understand that moderate to heavy grading is anticipated for the planned improvements including deep cuts for the lower levels of the planned structures. Site grading should be performed in accordance with the recommendations and criteria outlined in the following sections.

5.2.1 Site Preparation

Clear pavements, old foundations, over-sized debris, and organic material from areas to be graded. Debris, rocks larger than six inches, and vegetation are not suitable for structural fill and should be removed from the site. Trees that are located within the building envelope should be removed and the root balls excavated and removed. Any existing utilities should also be excavated and removed, and any resulting excavations should be backfilled in accordance with the following sections. In non-structural areas, utilities could be abandoned in place in many cases provided cement grout completely fills any void in the utility.

Where fills or other structural improvements are planned on level ground, the subgrade surface should be scarified to a depth of eight inches, moisture conditioned to within 2 percent of the optimum moisture content and be compacted to at least 90 percent relative compaction. Relative compaction refers to the in-place dry density of soil expressed as a percentage of the maximum dry density, as determined by ASTM D1557. Subgrade preparation should extend a minimum of five feet beyond the planned building envelope in all directions. The subgrade should be firm and unyielding when proof-rolled with heavy, rubber-tired construction equipment. If soft, wet or otherwise unsuitable materials are encountered at subgrade elevation during construction, we will provide supplemental recommendations to address the specific condition.

If and where potentially-expansive onsite soils remain present below non-structural concrete slab-on-grade floors or exterior flatwork, the subgrade should be moisture conditioned to 3 to 4 percent above the optimum moisture content and compacted to between 88 and 92 percent relative compaction. If superior performance is desired, the upper 30-inches of the native soils may be removed and replaced with select fill, as outlined in Section 5.2.3 below.

5.2.2 Excavations

Site excavations for new foundations, utilities, and other improvements will generally encounter between 4- and 7-feet of loose to medium-dense fill and slide debris soils over weathered shale and/or sandstone bedrock. All excavations in excess of 5-feet deep must be shored, braced, or sloped in accordance with Cal/OSHA regulations. Based on our exploration and lab testing, onsite soils should be considered “Type C” materials, and weathered shale and sandstone bedrock should be considered “Type A”. As such, we recommend that temporary cut slopes in soil and rock not exceed inclinations of 1.5:1 (H:V) and 0.5:1 in soil and rock materials, respectively. Steeper temporary slopes may be possible where they expose and bottom in hard graywacke sandstone; however, geologic inspection during construction will be required to confirm stability.

Where site conditions cannot accommodate the recommended temporary slope inclinations, then excavations will need to be shored. Shoring could consist of soldier-pile and timber-lagging type walls, or of soil-nail and shotcrete walls. Additional discussion and geotechnical recommendations regarding shoring considerations and wall design are provided in Section 5.4 of this report.

Based on our subsurface exploration, we judge the majority of site excavation can be performed with conventional equipment, such as medium-size dozers and excavators. However, hard and strong sandstone rock underlies the lower portion of the planned structure, and Franciscan shale often contains inclusions and zones of harder, more resistant rock which may require specialized techniques or equipment to excavate (e.g., jackhammers or hydraulic breakers). Therefore, we recommend inclusion of a line item and clear definition for "hard rock excavation" in the project bid documents. If hard rock is encountered during construction which prohibits excavation to the required depths, we should be consulted to observe conditions and revise our recommendations and/or design criteria as appropriate.

5.2.3 Fill Materials, Placement and Compaction

Fill materials should consist of non-expansive soils that are free of organic matter, have a Liquid Limit of less than 40 (ASTM D 4318), a Plasticity Index of less than 20 (ASTM D 4318) and a minimum R-value of 20 (California Test 301). The fill material should contain no more than 50 percent of particles passing a No. 200 sieve and should have a maximum particle size of four inches. Onsite soils appear marginally acceptable for re-use as fill. Therefore, we should be consulted regarding the source of the fill prior to placement. Any imported fill material needs to be tested to determine its suitability.

Fill materials should be moisture conditioned to within two percent of the optimum moisture content prior to compaction. Properly moisture conditioned fill materials should subsequently be placed in loose, horizontal lifts of eight-inches-thick or less and uniformly compacted to at least 90 percent relative compaction. In areas subject to traffic loads, the upper 12 inches of fill should be compacted to at least 95 percent relative compaction. The maximum dry density and optimum moisture content of fill materials should be determined in accordance with ASTM D1557.

5.2.4 Permanent Cut and Fill Slopes

Permanent cut slopes, if planned, should not exceed inclinations of 1.5:1 (H:V) and 2:1 in bedrock and soil materials, respectively. Given the steep site grades and susceptibility to erosion and slope instability, un-retained fills should not be constructed at the site. Any planned fill slopes should be supported with appropriately-designed and -drained retaining walls. Additional discussion regarding optional retaining wall systems and associated geotechnical design criteria is provided in Section 5.4 of this report.

5.3 Foundation Design

As discussed previously, we recommend that new structures be supported on foundations which derive their support entirely from weathered bedrock beneath any surficial soils. In general, shallow foundations will be appropriate only in deeper "cut" areas exposing bedrock; in areas exposing native soil or where the structure extends beyond the "cut/fill" transition. Drilled piers should be utilized if deepening footings to bear on bedrock is impractical. New shallow foundations should be designed in accordance with the criteria shown below in Table 4.

Table 4 – Spread Footing Design Criteria

Parameter	Design Value
Minimum Embedment[1,2]	24 inches
Minimum Width	18 inches
Allowable Bearing Pressure[3, 4]	3,500 psf
Base Friction Coefficient	0.35
Lateral Passive Resistance[5]	350 pcf

(1) Maintain minimum of seven feet of horizontal distance between the outer edge of footing and face of nearest adjacent slope.
(2) All shallow footings to bear directly on weathered bedrock.
(3) Design shallow foundations to similar bearing pressures (i.e. size footing widths to maintain relatively uniform bearing loads).
(4) Increase design values by 33 percent for total design loads including seismic.
(5) Equivalent fluid pressure, not to exceed 3,000 psf. Neglect upper 12 inches unless confined by concrete.

Where it is impractical to deepen footings to bear on bedrock and where structures are underlain by fill or native soils, then deep foundations, consisting of drilled, cast-in-place concrete piers, should be utilized. Piers should extend through any soil materials to bear directly on underlying bedrock and be designed in accordance with the values shown in Table 5. To account for potential expansive soil uplift pressure, design grade beams between piers to resist an uplift pressure of 1,000 psf. To resist potential “slope creep”, the upper 3-feet of the piers should be designed to resist an additional surcharge load of 50pcf. This uplift pressure will be transferred to the drilled piers and resisted by the piers’ skin friction.

Table 5 – Drilled Pier Design Criteria

Parameter	Design Value
Minimum Diameter	18 inches
Minimum Embedment into Bedrock[1]	5 feet
Skin Friction[2]	Fill/Native Soils – 750 psf Weathered Bedrock – 2,500 psf
Lateral Passive Resistance[3,4,5]	Fill/Native Soils – 250 pcf Weathered Bedrock – 350 pcf
"Slope Creep" Lateral Surcharge Load[6]	50 pcf

(1) Minimum embedment may be reduced if very hard rock is encountered, as determined during construction by the Geotechnical Engineer.
(2) Uplift resistance is equal to 80% of the total skin friction. Ignore upper 3-feet for uplift.
(3) Equivalent fluid pressure, not to exceed 10x value in psf.
(4) Apply values over effective width of 2 pier diameters.
(5) For descending slopes, neglect passive resistance in soils and reduce bedrock value to 250 pcf.
(6) Apply lateral surcharge load to upper 3-feet of foundation elements in sloping ground.

In addition to the criteria above, drilled pier foundations will need to impart a minimum shear strength of 10,000 psf across the footprint of the structure. We must consult with the project Structural Engineer during preliminary design to evaluate foundation layout, pier spacing, and required individual pier element shear strength to ensure adequate factors of safety are achieved in accordance with our stability analysis results.

5.4 Retaining Walls

Retaining walls will be required to support the upslope side of the new interior floors, and may be utilized elsewhere on the property. Many retaining wall systems may be considered, including soldier-pile and timber-lagging, reinforced, cast-in-place concrete, and soil-nail and shotcrete-type wall systems.

Soldier-pile and timber lagging walls are often advantageous by virtue of relatively simple and cost-efficient construction; however, difficult drilling conditions can result in significant delays and cost increases. Reinforced concrete walls may also be effective, but typically are slightly more expensive due to the additional materials and labor required to place reinforcing steel and concrete.

Based on our experience, we judge that soil-nail and shotcrete retaining walls may be effective both for temporary shoring and permanent use. Since the retaining walls at the uphill side of the structure will be bottomed in bedrock, they could utilize a shallow footing-type foundation in lieu of drilled piers. Unlike a "traditional" board-formed concrete wall, a soil-nail wall may be constructed in vertical "lifts" such as to limit temporary cut heights and reduce the risk of instability during construction. Provided adequate drainage and waterproofing is provided, soil-nail shoring walls could conceivably remain and be integrated into the permanent structural design.

Foundations for new retaining walls should be designed using the criteria presented previously in Section 5.3. Retaining walls that can slightly deflect at the top may be designed using the unrestrained criteria shown below, while walls that are structurally connected and not allowed to deflect (e.g. tied-back or basement walls) are considered restrained. Restrained walls are commonly designed using a uniform active earth pressure distribution rather than an equivalent fluid pressure.

Table 6 – Lateral Earth Pressures for Retaining Wall Design

Backfill Inclination[1]	Unrestrained[2]	Restrained[3]
Level	50 pcf	35 x H psf
3:1	55 pcf	40 x H psf
2:1	65 pcf	45 x H psf

(1) Interpolate earth pressures for intermediate slopes.
(2) Equivalent fluid pressure.
(3) Rectangular distribution, H is wall height in feet.

In addition to the pressures noted above, we also recommend the walls be designed to resist a uniform seismic surcharge equal to fifteen times the retained height (in psf). The factor of safety used in the retaining wall design should be reduced under seismic conditions as permitted by the governing code that is used for design. A minimum uniform soil creep surcharge of 50 psf should be applied to the upper three feet of retaining walls supporting sloping ground. The wall designer should adjust the surcharge load at their discretion commensurate with the specific loading condition that is anticipated.

As noted above, lateral passive support for retaining walls may be generated or supplemented by tiebacks as a means of reducing required foundation excavations/embedment depths, and tiebacks or soil nails could be an efficient and effective means of providing temporary shoring. Soil nails and tiebacks should be designed using the criteria shown in Table 7.

Table 7 – Soil Nail/Tieback Design Criteria

Minimum Diameter	6 inches		
	Phi[1]	**C [2]**	**Gamma [3]**
Colluvial/Residual Soil	30	0	115
Weathered Bedrock	40 pcf	2,500	135
	Skin Friction		
Colluvial/Residual Soil	Ignore		
Weathered Bedrock	1,500 psf		

(1) Angle of Internal Friction, effective stress, unitless
(2) Apparent (effective) Cohesion, for seismic conditions 250 psf of additional cohesion may be included.
(3) Unit weight of soil.
(4) Design soil nails/tiebacks for load testing up to 150% of design load. Load testing to be performed in accordance with procedures per Post-Tensioned Institute (1996).

Back-of-wall drainage is required for all retaining walls taller than three feet. Either Caltrans Class 1B permeable material within filter fabric or Caltrans Class 2 permeable material may be used for wall drainage. The drainage should be collected in a four-inch perforated PVC drain line at the base of the wall. The permeable material should extend at least 12 inches from the back of the wall and be continuous from the bottom of the wall to within 12 inches of the ground surface. Alternatively, drainage panels, such as Mirafi 100N, may be utilized. A typical wall backdrain detail is presented on Figure 14. Where retaining walls are planned adjacent to interior space, these walls should be provided with new waterproofing in consultation with a suitably-qualified waterproofing expert.

5.5 Concrete Slab Floors

Reinforced concrete slab floors are judged to be appropriate for the new structures provided the building pads are prepared in accordance with our recommendations. The concrete slab floors may be poured monolithically or separated with a cold joint at the Structural Engineer's discretion. We recommend that interior concrete slabs have a minimum thickness of five inches and be reinforced with steel reinforcing bars (not mesh). Slabs should be placed on a moist subgrade to reduce potential for future expansive behavior. The project Structural Engineer should specifically design the concrete slabs, including locations of crack control joints.

To reduce the potential for moisture to move upward through the slab, a four-inch-thick layer of clean, free draining, ¾-inch angular gravel should be placed beneath interior concrete slabs to form a capillary moisture break. The gravel must be placed on a properly moisture conditioned and compacted subgrade that has been approved by the Geotechnical Engineer. A plastic membrane vapor barrier, 15 mils or thicker, should be placed over the free draining gravel. The vapor barrier should meet the ASTM E1745 Class A requirements and be installed per ASTM E1643. Eliminating the capillary moisture break and/or plastic vapor barrier may result in excess moisture intrusion through the floor slabs resulting in poor performance of floor coverings, mold growth, or other adverse conditions.

We note that over time, placing sand between the vapor barrier and concrete is becoming less common because of elevated interior moisture contents. If sand is used, it should be dry, and if it is not used, the slab should be carefully designed with a lower water-cement ratio since eliminating the sand can cause cracking or "curling" of the new concrete. For slabs that are not sensitive to moisture vapor, we recommend at least four inches of Class 2 Aggregate Base (Caltrans, 2018) compacted to at least 95 percent relative compaction.

5.6 Exterior Concrete Slabs

Exterior concrete walkway slabs and other concrete slabs that are not subjected to vehicle loads should be a minimum of four-inches-thick and underlain with four inches or more of Class 2 Aggregate Base. The aggregate base should be moisture conditioned to near optimum and compacted to at least 95 percent relative compaction. The upper eight inches of subgrade on which aggregate base is placed should be prepared as previously discussed under Section 5.2.

Where improved performance is desired (i.e., reduced risks of cracking or offsets due to seasonal movements and expansive soil behavior), exterior slabs can be thickened to five inches and reinforced with steel reinforcing bars (not welded wire mesh). Driveways and slabs subject to vehicle loads should be a minimum of five-inches-thick and designed to resist traffic loading. We recommend crack control joints no farther than six feet apart in both directions and that the reinforcing bars extend through the control joints. Some movement or offset at sidewalk joints should be expected as the underlying soils expand and shrink from seasonal moisture changes.

5.7 Site and Foundation Drainage

New grading could result in adverse drainage patterns causing water to pond around the residence. Careful consideration should be given to design of finished grades at the site. We recommend that the building areas be raised slightly and that the adjoining landscaped areas be sloped downward at least 0.25 feet for five feet (five percent) from the perimeter of building foundations. Where hard surfaces, such as concrete or asphalt adjoin foundations, slope these surfaces at least 0.10 feet in the first five feet (two percent).

Roof gutter downspouts may discharge onto the pavements but should not discharge onto landscaped areas immediately adjacent to the home. Provide area drains for landscape planters adjacent to buildings and parking areas, and collect downspout discharges into a tight pipe collection system that discharges well away from the building foundations. Site drainage should be discharged away from the building area and outlets should be designed to reduce erosion. Site drainage improvements should be connected into an established storm drainage system. If and where retaining walls are not planned along the upslope side of new structures, we recommend installation of a foundation drain as shown on Figure 15.

5.8 Underground Utilities

Excavations for utilities will generally encounter loose to medium-dense silty and clayey sand soils. Deeper excavations (in excess of 4-feet) may encounter weathered bedrock. Excavations may also encounter groundwater at shallow depths if wintertime or early spring work is performed. Trench excavations having a depth of five feet or more must be excavated and shored in accordance with OSHA regulations. Bedding materials for utility pipes should be poorly graded sand with 90 to 100 percent of particles passing the No. 4 sieve and no more than five percent finer than the No. 200 sieve. Crushed rock or pea gravel may also be considered for pipe bedding. Provide the minimum bedding beneath the pipe in accordance with the manufacturer's recommendation, typically three to six inches. Trench backfill may consist of on-site soils, moisture conditioned and placed in thin lifts and compacted to at least 90 percent. Use equipment and methods that are suitable for work in confined areas without damaging utility conduits.

6.0 SUPPLEMENTAL GEOTECHNICAL SERVICES

As project plans are nearing completion, we should review them to confirm that the intent of our geotechnical recommendations has been incorporated. We can also consult with project team to supplement or clarify geotechnical recommendations, if needed. During construction, we should be present intermittently to observe foundation excavations, retaining wall drainage and backfill, subgrade preparation and compaction, proper moisture conditioning of soils, fill placement and compaction and other geotechnical-related work items. The purpose of our observation and testing is to confirm that site conditions are as anticipated, to adjust our recommendations and design criteria if needed, and to confirm that the Contractor's work is performed in accordance with the project plans and specifications.

7.0 LIMITATIONS

We believe this report has been prepared in accordance with generally accepted geotechnical engineering practices in the San Francisco Bay Area at the time the report was prepared. This report has been prepared for the exclusive use of Mr. Graham Groneman and/or his assignees specifically for this project. No other warranty, expressed or implied, is made. Our evaluations and recommendations are based on the data obtained during our subsurface exploration program and our experience with soils in this geographic area. Our approved scope of work did not include a detailed environmental assessment of the site. We recommend that an environmental consultant be retained to evaluate environmental-related issues.

The evaluations and recommendations do not reflect variations in subsurface conditions that may exist between boring locations or in unexplored portions of the site. Should such variations become apparent during construction, the general recommendations contained within this report will not be considered valid unless Miller Pacific is given the opportunity to review such variations and revise or modify our recommendations accordingly. No changes may be made to the general recommendations contained herein without the written consent of Miller Pacific.

We recommend that this report, in its entirety, be made available to project team members, contractors, and subcontractors for informational purposes and discussion. We intend that the information presented within this report be interpreted only within the context of the report as a whole. No portion of this report should be separated from the rest of the information presented herein. No single portion of this report shall be considered valid unless it is presented with and as an integral part of the entire report.

8.0 LIST OF REFERENCES

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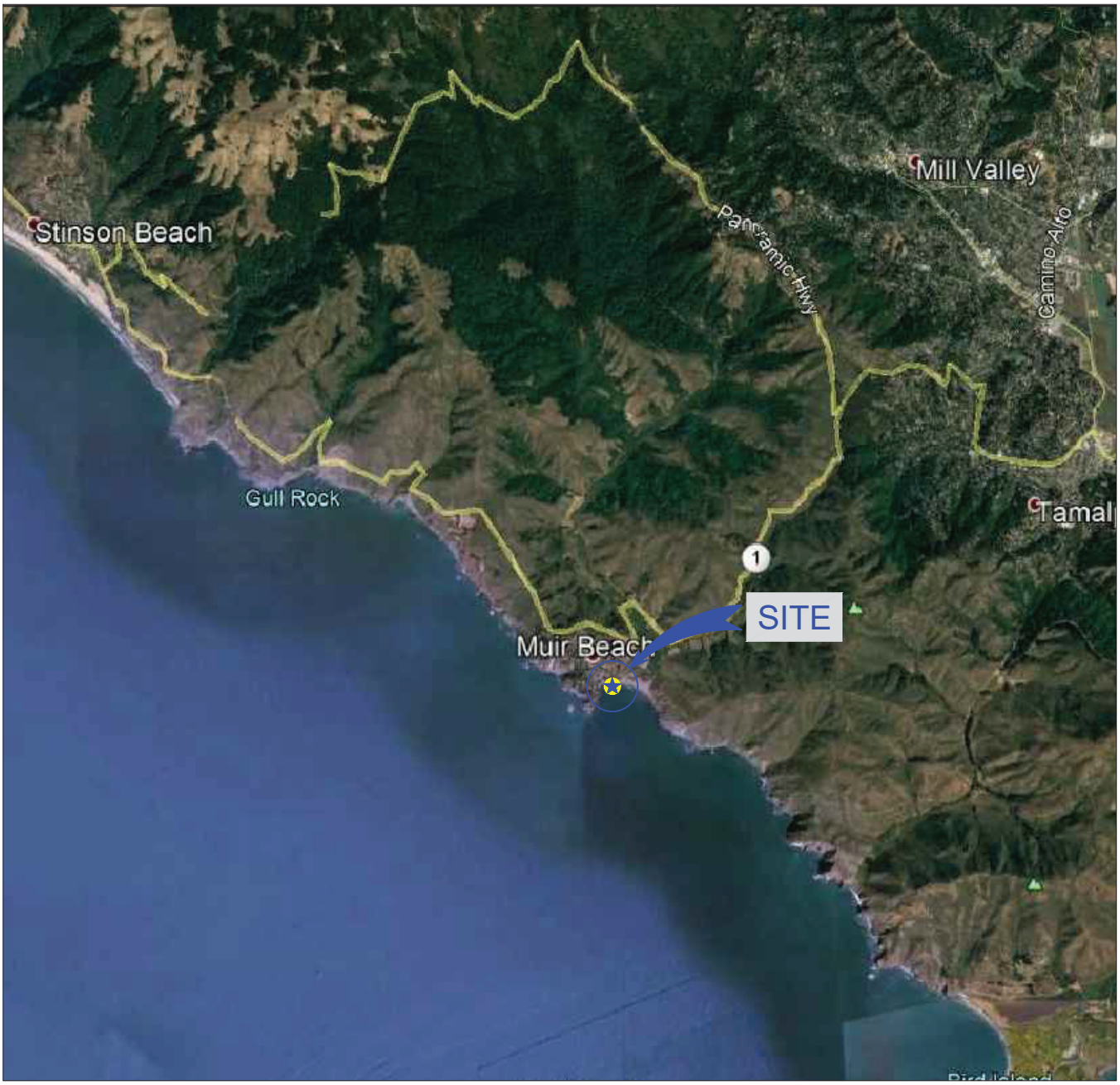

SITE COORDINATES
LAT. 37.8601°
LON. -122.5793°

SITE LOCATION

N.T.S.

NORTH

REFERENCE: Google Earth, 2019

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FILENAME: 2944.001 Figures.dwg

SITE LOCATION MAP

183 Sunset Way
APN 199-235-47 and -48
Muir Beach, California

Project No. 2944.001 Date: 6/23/2020

Drawn ENE
Checked

1
FIGURE

LEGEND AND KEY TO MAP SYMBOLS

Qaf **FILL (QUATERNARY)**
Includes fill embankment along downslope edge of Sunset Way, apparent local fills underlying adjacent structures to the east and west, a few feet of side-cast soil and wood chip debris in northern (upper) part of property.

RIP-RAP (QUATERNARY)
Approximate 2- to 4-foot boulders placed at toe of bluff, east of stone baths, for apparent scour/erosion protection.

Qs **BEACH SAND (QUATERNARY)**
Well-sorted, fine-grained beach sand. Locally obscured by bedrock cobbles and boulders at base of bluff.

Qc **COLLUVIUM (QUATERNARY)**
Loose to medium-dense silty and clayey sand with lesser gravel derived of underlying bedrock and transported slowly downslope by gravity.

fs **FRANCISCAN SANDSTONE AND SHALE (JURASSIC)**
Graywacke sandstone and sheared, crushed shale bedrock, typically overlain by a couple feet of residual soil having similar composition as colluvial deposits.

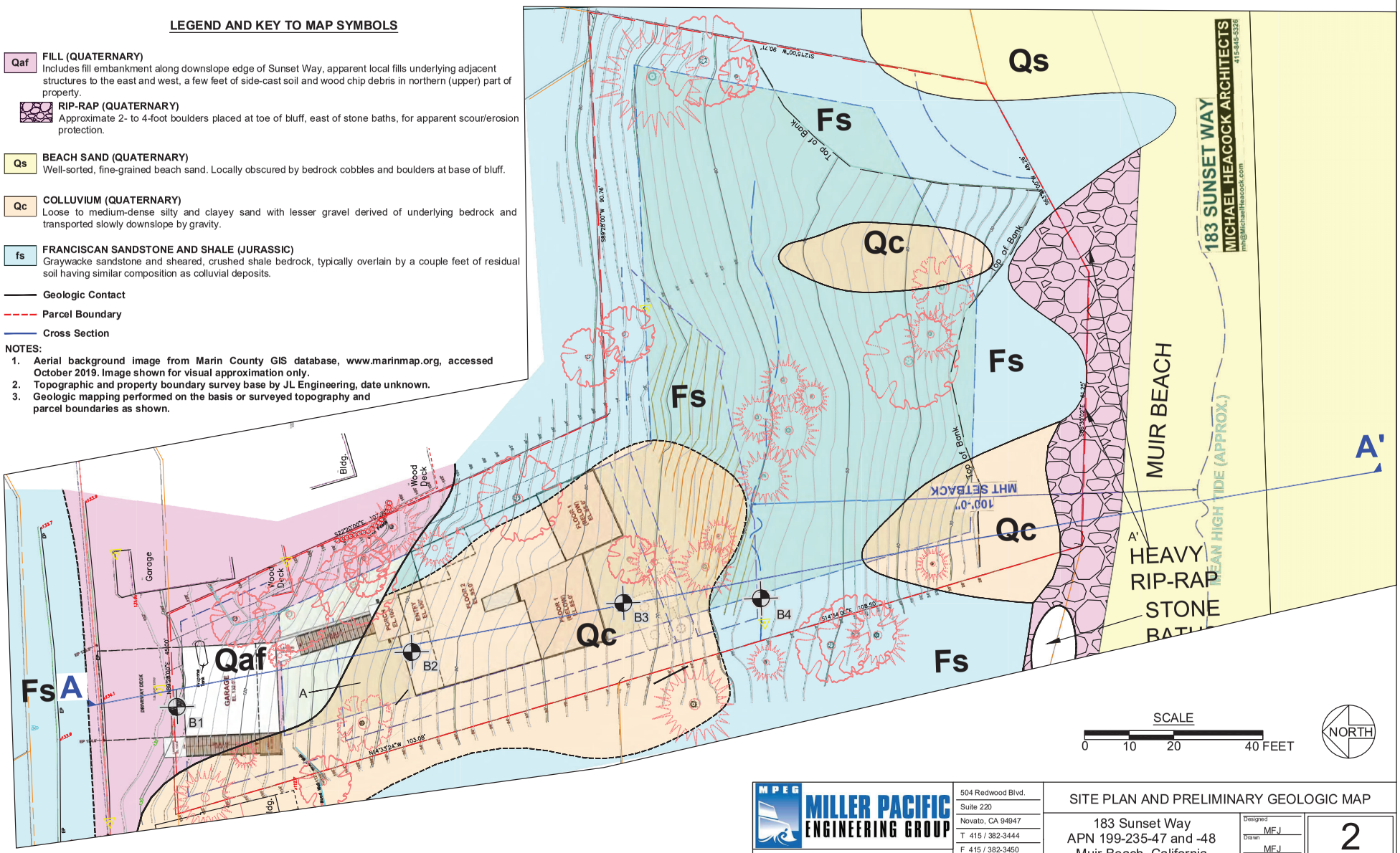
Geologic Contact

Parcel Boundary

Cross Section

NOTES:

1. **Aerial background image from Marin County GIS database, www.marinmap.org, accessed October 2019. Image shown for visual approximation only.**
2. **Topographic and property boundary survey base by JL Engineering, date unknown.**
3. **Geologic mapping performed on the basis or surveyed topography and parcel boundaries as shown.**



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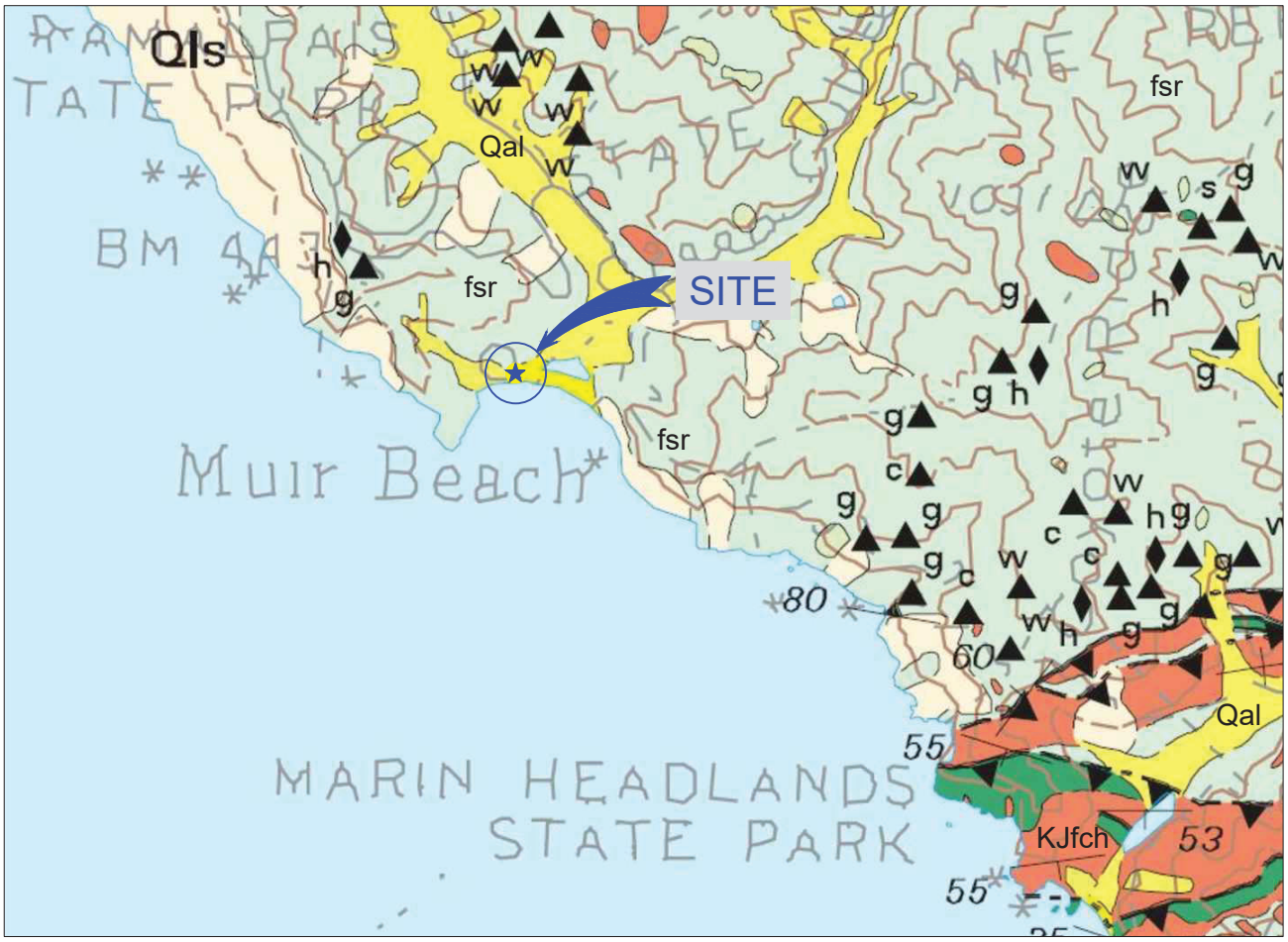
SITE PLAN AND PRELIMINARY GEOLOGIC MAP

183 Sunset Way
APN 199-235-47 and -48
Muir Beach, California
Project No. 2944.001 Date: 6/23/2020

Designed MFJ
Drawn MFJ
Checked ENE

2
FIGURE



REGIONAL GEOLOGIC MAP

(NOT TO SCALE)

NORTH

Qls	LANDSLIDE DEPOSITS (QUATERNARY) Unsorted soil and rock debris transported downslope by slow to rapid mass-wasting events
Qal	ALLUVIUM (QUATERNARY) Typically variable proportions of silts, sands, clays, and gravels deposited by water in stream and channel environments
KJfch	CHERT (JURASSIC-CRETACEOUS) Thin-bedded, closely fractured radiolarian chert with interbedded black shale
fsr	MELANGE (JURASSIC-CRETACEOUS) A tectonic mixture of various resistant rock types such as sandstone, greenstone, chert and serpentinite embedded in a sheared shale matrix.

REFERENCE: Blake, M.C., Graymer, R.W., and Jones, D.L., 2000, "Geologic Map and Map Database of Parts of Marin, San Francisco, Alameda, Contra Costa, and Sonoma Counties, California: A Digital Database, Version 1.0", United States Geological Survey Miscellaneous Field Studies Map MF-2337, Map Scale 1:75,000

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REGIONAL GEOLOGIC MAP

183 Sunset Way
APN 199-235-47 and -48
Muir Beach, California

Project No. 2944.001 Date: 6/23/2020

Drawn ENE
Checked

3
FIGURE

SITE COORDINATES
LAT. 37.8601°
LON. -122.5793°

SCALE
0 12.5 25 50 MILES

NORTH

MILLER PACIFIC ENGINEERING GROUP
504 Redwood Blvd.
Suite 220
Novato, CA 94947
T 415 / 382-3444
F 415 / 382-3450
www.millerpac.com

FILENAME: 2944.001 Figures.dwg

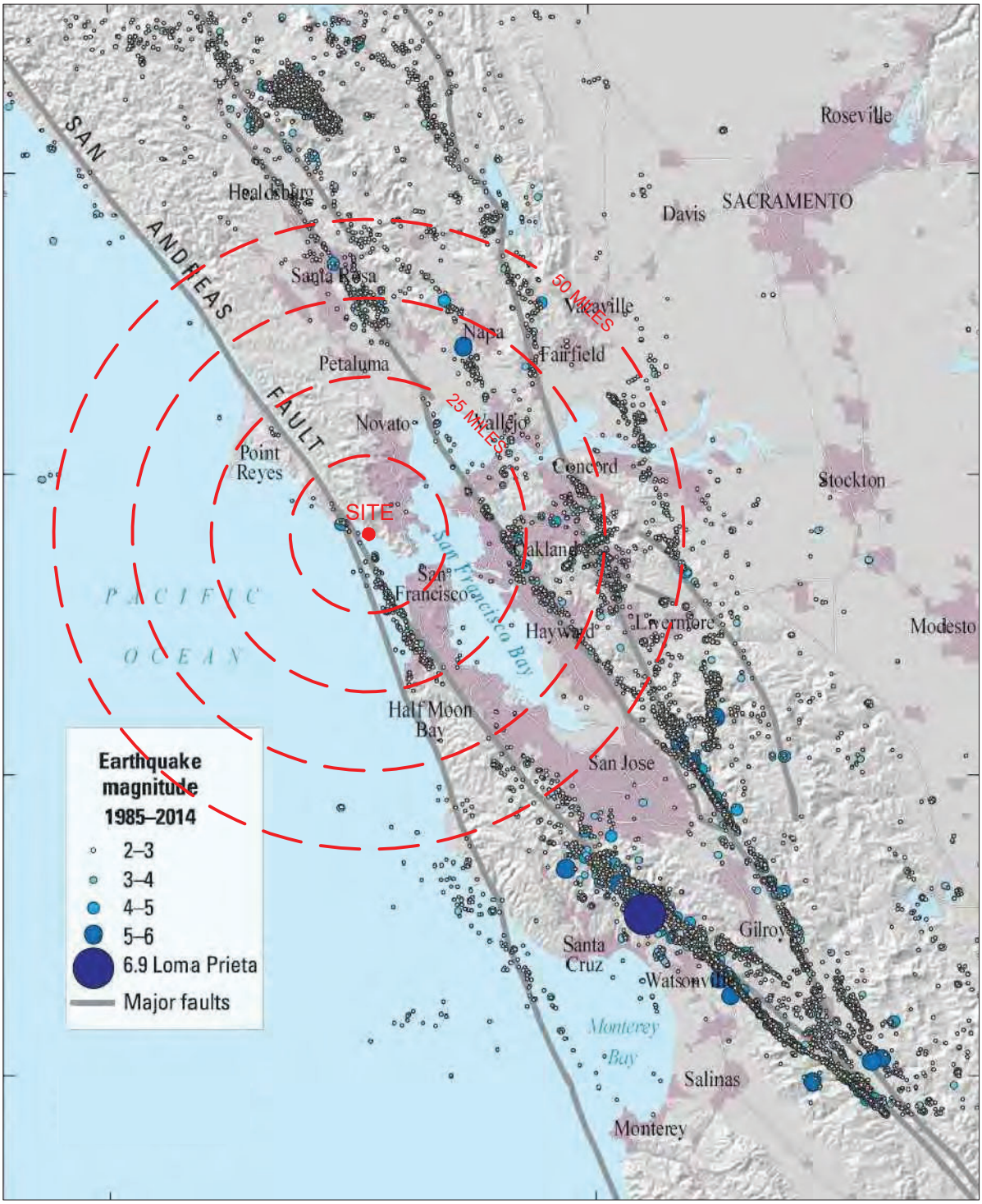
ACTIVE FAULT MAP

183 Sunset Way
APN 199-235-47 and -48
Muir Beach, California

Project No. 2944.001 Date: 6/23/2020

Drawn ENE
Checked

4
FIGURE



SITE COORDINATES
LAT. 37.8601°
LON. -122.5793°

SCALE
0 12.5 25 50 MILES

NORTH

MILLER PACIFIC ENGINEERING GROUP	504 Redwood Blvd.	HISTORIC EARTHQUAKE MAP	
	Suite 220	183 Sunset Way APN 199-235-47 and -48 Muir Beach, California	Drawn ENE Checked
	Novato, CA 94947		5 FIGURE
	T 415 / 382-3444		
	F 415 / 382-3450	Project No. 2944.001 Date: 6/23/2020	
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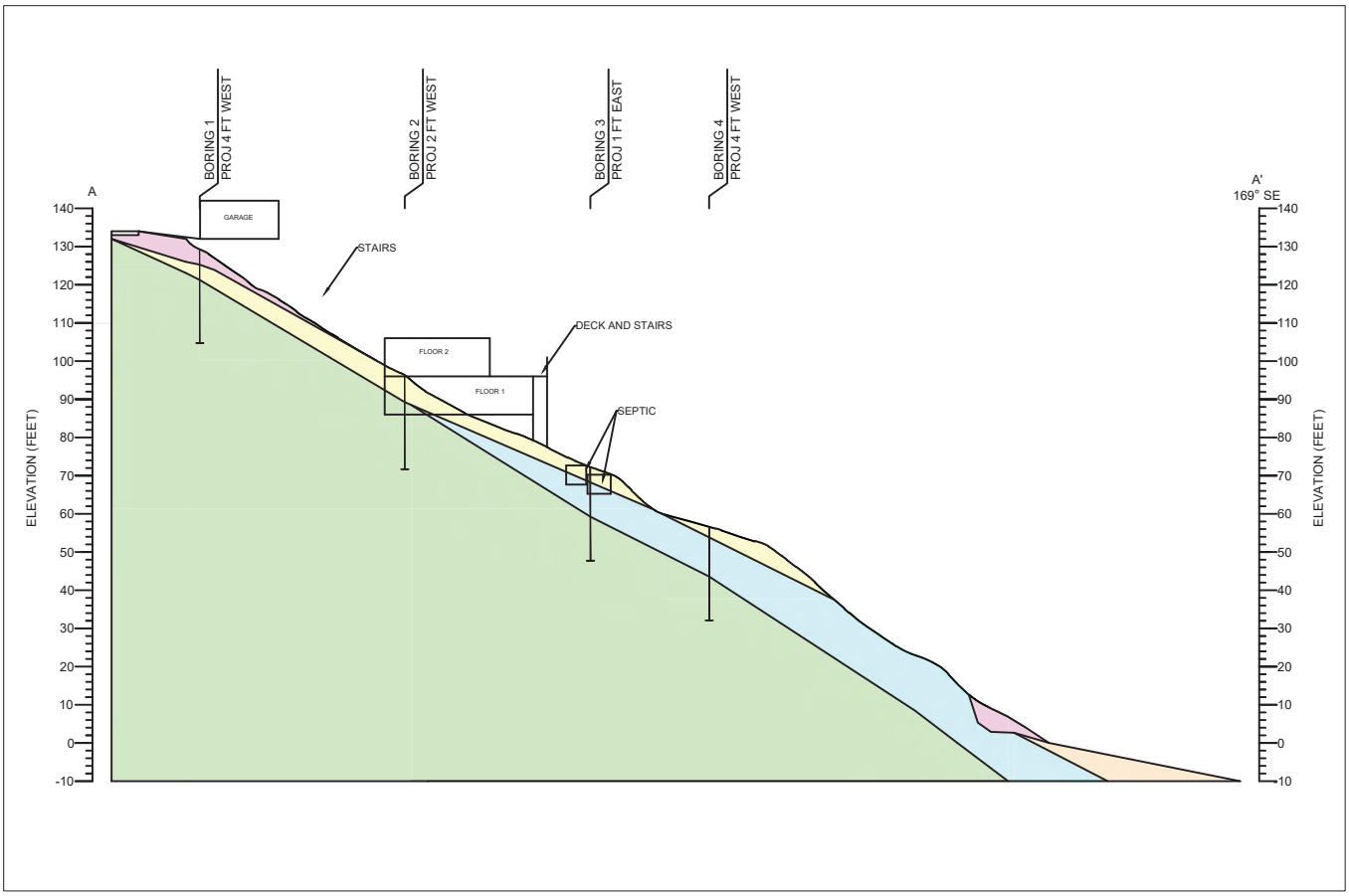

SIMPLIFIED GEOLOGIC CROSS SECTION

SCALE

0 25 50 100 FEET

Qaf **FILL (QUATERNARY)**
Includes fill embankment along downslope edge of Sunset Way, apparent local fills underlying adjacent structures to the east and west, a few feet of side-cast soil and wood chip debris in northern (upper) part of property.

RIP-RAP (QUATERNARY)
Approximate 2- to 4-foot boulders placed at toe of bluff, east of stone baths, for apparent scour/erosion protection.

Qs **BEACH SAND (QUATERNARY)**
Well-sorted, fine-grained beach sand. Locally obscured by bedrock cobbles and boulders at base of bluff.

Qls **LANDSLIDES (QUATERNARY)**
Includes apparent source/scarp areas for previous earth slides, slumps, and shallow debris flows.

fs **FRANCISCAN MELANGE (JURASSIC)**
Primarily graywacke sandstone with lesser sheared shale. Exposures of hard, resistant graywacke noted along shoreline to lie in possible fault contact with very weak, sheared, crushed shale.

Geologic contact

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SIMPLIFIED GEOLOGIC CROSS SECTION

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USGS SHORELINE CHANGE RATE

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SLOPE STABILITY - EXISTING CONDITIONS

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EXISTING CONDITIONS WINTERTIME

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EXISTING CONDITIONS WINTERTIME SEISMIC

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EXISTING CONDITIONS WINTERTIME ABOVE

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EXISTING CONDITIONS WINTERTIME BELOW

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EXISTING CONDITIONS WINTERTIME BELOW SEISMIC

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PROPOSED CONDITIONS WINTERTIME

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PROPOSED CONDITIONS WINTERTIME SEISMIC

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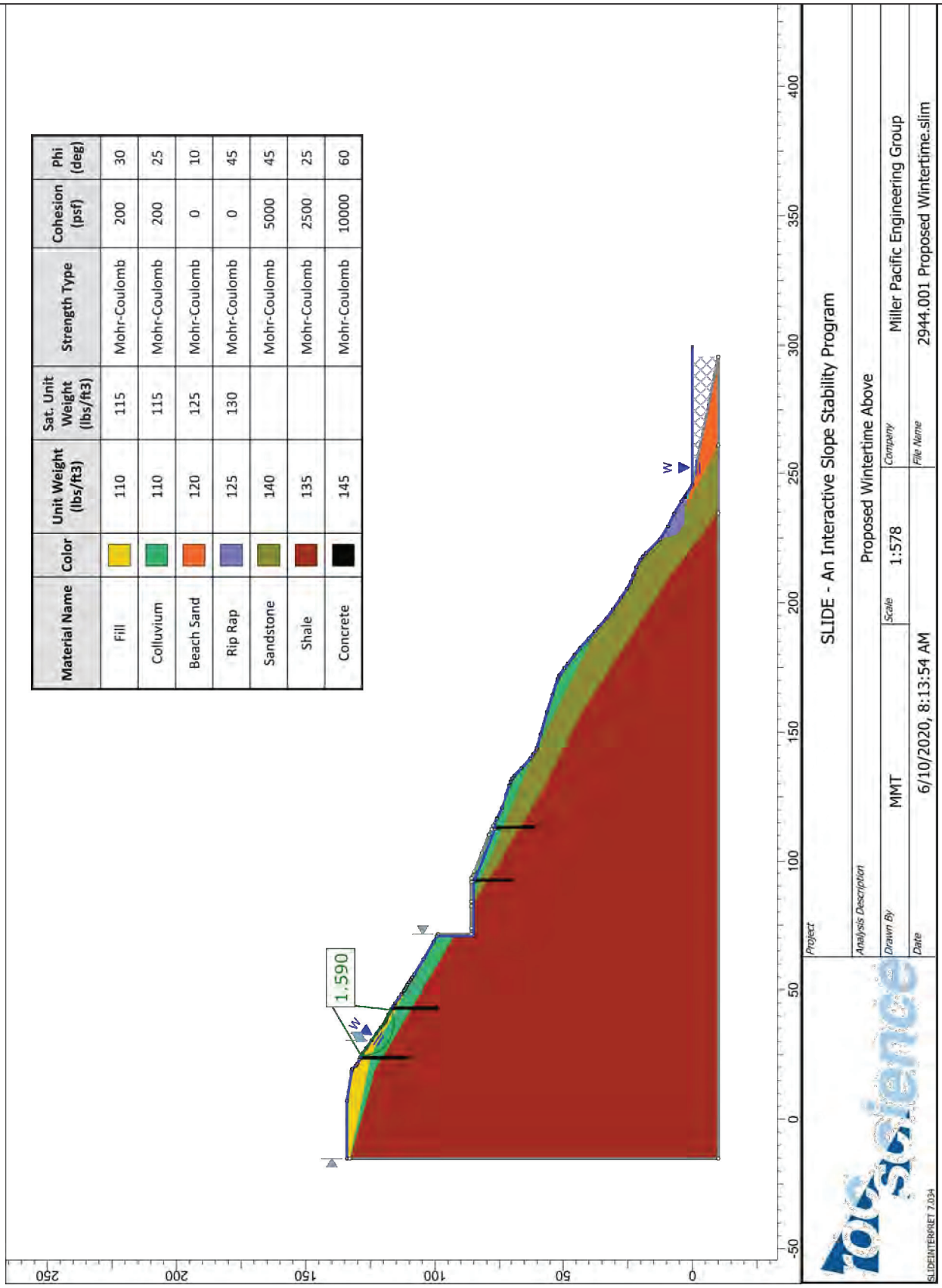
FIGURE



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PROPOSED CONDITIONS WINTERTIME ABOVE

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PROPOSED CONDITIONS WINTERTIME ABOVE SEISMIC

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PROPOSED CONDITIONS WINTERTIME BELOW

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PROPOSED CONDITIONS WINTERTIME BELOW SEISMIC

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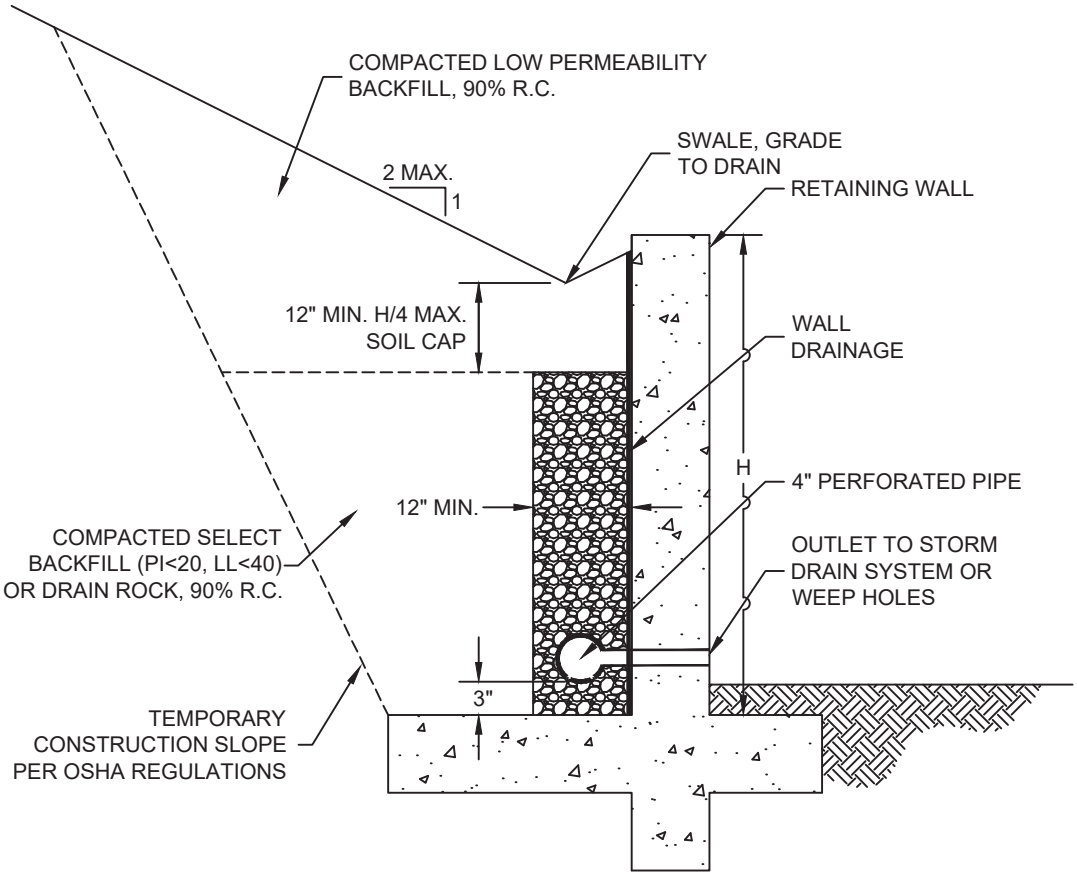

NOTES:

1. Wall drainage should consist of clean, free draining 3/4 inch crushed rock (Class 1B Permeable Material) wrapped in filter fabric (Mirafi 140N or equivalent) or Class 2 Permeable Material. Alternatively, pre-fabricated drainage panels (Miradrain G100N or equivalent), installed per the manufacturers recommendations, may be used in lieu of drain rock and fabric.

2. All retaining walls adjacent to interior living spaces shall be water/vapor proofed as specified by the project architect or structural engineer.

3. Perforated pipe shall be SCH 40 or SDR 35 for depths less than 20 feet. Use SCH 80 or SDR 23.5 perforated pipe for depths greater than 20 feet. Place pipe perforations down and slope at 1% to a gravity outlet. Alternatively, drainage can be outlet through 3" diameter weep holes spaced approximately 20' apart.

4. Clean outs should be installed at the upslope end and at significant direction changes of the perforated pipe. Additionally, all angled connectors shall be long bend sweep connections.

5. During compaction, the contractor should use appropriate methods (such as temporary bracing and/or light compaction equipment) to avoid over-stressing the walls. Walls shall be completely backfilled prior to construction in front of or above the retaining wall.

6. Refer to the geotechnical report for lateral soil pressures.

7. All work and materials shall conform with Section 68, of the latest edition of the Caltrans Standard Specifications.

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TYPICAL RETAINING WALL BACKDRAIN DETAIL

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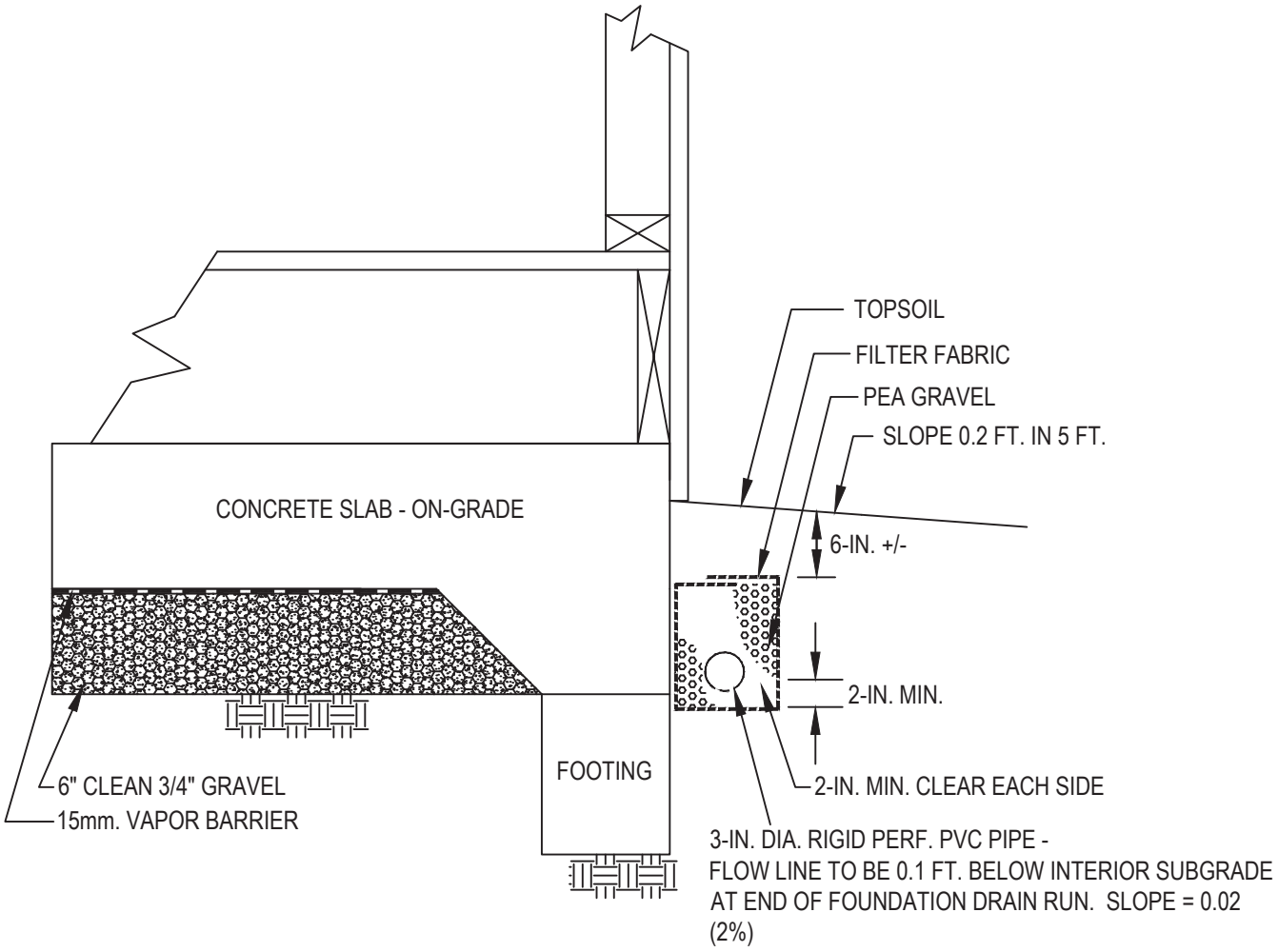

NOTES:

(1.) DO NOT CONNECT DOWNSPOUT LEADER TO FOUNDATION DRAIN

(2.) DISCHARGE THROUGH 4-1N. DIAMETER, RIGID PVC PIPE

(3.) DISCHARGE THROUGH RIGID, NON-PERFORATED PIPE, SLOPE 0.02 (2%) UNLESS OTHERWISE SPECIFIED

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TYPICAL FOUNDATION DRAIN DETAIL

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FIGURE

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APPENDIX A
SUBSURFACE EXPLORATION AND LABORATORY TESTING

A. SUBSURFACE EXPLORATION

We explored subsurface conditions with four soil borings, drilled with portable, hydraulic-powered equipment on May 27 and 28, 2020 at the approximate locations shown on the Site Plan, Figure 2. The exploration was conducted under the technical supervision of our Geologist, who examined and logged materials encountered and collected samples at select intervals for laboratory testing. The terms and methodology used in classifying earth materials are discussed on the Soil and Rock Classification Charts, Figures A-1 and A-2, respectively. The subsurface conditions encountered in the test borings are summarized and presented on the boring logs, Figures A-3 through A-10.

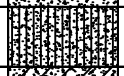
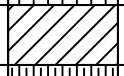
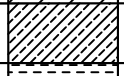
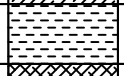
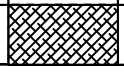
Relatively "undisturbed" samples were obtained using a 3.0-inch diameter, split-barrel Modified California Sampler with 2.5- by 6-inch tube liners or a 2.0-inch diameter Standard Penetration Test (SPT) Sampler. The samplers were driven by a 140-pound safety hammer and cathead at a 30-inch drop. The number of blows required to drive the samplers 18 inches was recorded and is reported on the boring logs as blows per foot for the last 12 inches of driving. The samples obtained were examined in the field, sealed to prevent moisture loss, and transported to our laboratory.

B. LABORATORY TESTING

We conducted laboratory tests on selected intact samples to classify soils and to estimate engineering properties. The following laboratory tests were conducted in general accordance with the ASTM standard test method cited:

- Laboratory Determination of Water (Moisture Content) of Soil, Rock, and Soil-Aggregate Mixtures, ASTM D 2216
- Density of Soil in Place by the Drive-Cylinder Method, ASTM D2937
- Unconfined Compressive Strength of Cohesive Soil, ASTM D2166
- Percentage of Particles Passing the No. 200 (75-µm) Sieve, ASTM D1140
- Particle-Size (Gradation) Analysis of Soils, ASTM D422
- Standard Test Methods for Liquid Limit, Plastic Limit, and Plasticity Index, ASTM D4318

Moisture content, dry density, compressive strength, minus-200, and plasticity index test results are presented on the Boring Logs, Figures A-3 through A-8. Gradation results are shown on Figure A-9, and a Plasticity Chart is presented on Figure A-10. The exploratory boring logs, description of soils encountered and the laboratory test data reflect conditions only at the location of the boring at the time they were excavated or retrieved. Conditions may differ at other locations and may change with the passage of time due to a variety of causes including natural weathering, climate and changes in surface and subsurface drainage.

MAJOR DIVISIONS		SYMBOL		DESCRIPTION
COARSE GRAINED SOILS over 50% sand and gravel	CLEAN GRAVEL	GW		Well-graded gravels or gravel-sand mixtures, little or no fines
		GP		Poorly-graded gravels or gravel-sand mixtures, little or no fines
	GRAVEL with fines	GM		Silty gravels, gravel-sand-silt mixtures
		GC		Clayey gravels, gravel-sand-clay mixtures
	CLEAN SAND	SW		Well-graded sands or gravelly sands, little or no fines
		SP		Poorly-graded sands or gravelly sands, little or no fines
	SAND with fines	SM		Silty sands, sand-silt mixtures
		SC		Clayey sands, sand-clay mixtures
FINE GRAINED SOILS over 50% silt and clay	SILT AND CLAY liquid limit <50%	ML		Inorganic silts and very fine sands, rock flour, silty or clayey fine sands or clayey silts with slight plasticity
		CL		Inorganic clays of low to medium plasticity, gravely clays, sandy clays, silty clays, lean clays
		OL		Organic silts and organic silt-clays of low plasticity
	SILT AND CLAY liquid limit >50%	MH		Inorganic silts, micaceous or diatomaceous fine sands or silts, elastic silts
		CH		Inorganic clays of high plasticity, fat clays
		OH		Organic clays of medium to high plasticity
HIGHLY ORGANIC SOILS		PT		Peat, muck, and other highly organic soils
ROCK				Undifferentiated as to type or composition

KEY TO BORING AND TEST PIT SYMBOLS

CLASSIFICATION TESTS

PI	PLASTICITY INDEX
LL	LIQUID LIMIT
SA	SIEVE ANALYSIS
HYD	HYDROMETER ANALYSIS
P200	PERCENT PASSING NO. 200 SIEVE
P4	PERCENT PASSING NO. 4 SIEVE

SAMPLER TYPE

- MODIFIED CALIFORNIA
- STANDARD PENETRATION TEST
- THIN-WALLED / FIXED PISTON
- HAND SAMPLER
- ROCK CORE
- X DISTURBED OR BULK SAMPLE

NOTE: Test boring and test pit logs are an interpretation of conditions encountered at the excavation location during the time of exploration. Subsurface rock, soil or water conditions may vary in different locations within the project site and with the passage of time. Boundaries between differing soil or rock descriptions are approximate and may indicate a gradual transition.

STRENGTH TESTS

UC	LABORATORY UNCONFINED COMPRESSION
TXCU	CONSOLIDATED UNDRAINED TRIAXIAL
TXUU	UNCONSOLIDATED UNDRAINED TRIAXIAL
	UC, CU, UU = 1/2 Deviator Stress
DS (2.0)	DRAINED DIRECT SHEAR (NORMAL PRESSURE, ksf)

SAMPLER DRIVING RESISTANCE

Modified California and Standard Penetration Test samplers are driven 18 inches with a 140-pound hammer falling 30 inches per blow. Blows for the initial 6-inch drive seat the sampler. Blows for the final 12-inch drive are recorded onto the logs. Sampler refusal is defined as 50 blows during a 6-inch drive. Examples of blow records are as follows:

- 25 sampler driven 12 inches with 25 blows after initial 6-inch drive
- 85/7" sampler driven 7 inches with 85 blows after initial 6-inch drive
- 50/3" sampler driven 3 inches with 50 blows during initial 6-inch drive or beginning of final 12-inch drive

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SOIL CLASSIFICATION CHART

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A-1
FIGURE

FRACTURING AND BEDDING

Fracture Classification	Spacing	Bedding Classification
Crushed	less than 3/4 inch	Laminated
Intensely fractured	3/4 to 2-1/2 inches	Very thinly bedded
Closely fractured	2-1/2 to 8 inches	Thinly bedded
Moderately fractured	8 to 24 inches	Medium bedded
Widely fractured	2 to 6 feet	Thickly bedded
Very widely fractured	greater than 6 feet	Very thickly bedded

HARDNESS

Low	Carved or gouged with a knife
Moderate	Easily scratched with a knife, friable
Hard	Difficult to scratch, knife scratch leaves dust trace
Very hard	Rock scratches metal

STRENGTH

Friable	Crumbles by rubbing with fingers
Weak	Crumbles under light hammer blows
Moderate	Indentations <1/8 inch with moderate blow with pick end of rock hammer
Strong	Withstands few heavy hammer blows, yields large fragments
Very strong	Withstands many heavy hammer blows, yields dust, small fragments

WEATHERING

Complete	Minerals decomposed to soil, but fabric and structure preserved
High	Rock decomposition, thorough discoloration, all fractures are extensively coated with clay, oxides or carbonates
Moderate	Fracture surfaces coated with weathering minerals, moderate or localized discoloration
Slight	A few stained fractures, slight discoloration, no mineral decomposition, no affect on cementation
Fresh	Rock unaffected by weathering, no change with depth, rings under hammer impact

NOTE: Test boring and test pit logs are an interpretation of conditions encountered at the location and time of exploration. Subsurface rock, soil and water conditions may differ in other locations and with the passage of time.

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ROCK CLASSIFICATION CHART

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A-2
FIGURE

BORING 1

EQUIPMENT: Portable Hydraulic Drill Rig with 4.0-inch Solid Flight Auger
DATE: 5/27/2020
ELEVATION: 130 - feet*
*REFERENCE: Site Plan, CSW/Stuber-Stroeh Engineering Group, Inc., 2020?

DEPTH meters	DEPTH feet	SAMPLE	SYMBOL (4)		BLOWS / FOOT (1)	DRY UNIT WEIGHT pcf (2)	MOISTURE CONTENT (%)	SHEAR STRENGTH psf (3)	OTHER TEST DATA	OTHER TEST DATA
0	0			Silty SAND with Gravel (SM) Brown, slightly moist, fine to coarse sand, abundant debris. [Fill]						
1	5			Sandy CLAY (CL) Tan, slightly moist, medium dense, low plasticity, ~25% fine to coarse sand, ~8% angular gravels up to 1" in diameter. [Colluvium]	15	93	15.1	UC 750		SA
2				Shale Dark gray/brown weathered to tan, friable, moderate hardness, weak, high to moderate weathering. [Bedrock]	44	121	10.3	UC 4900		
3	10			Grades to moderate weathering.	46	125	10.9			
4	15			Grades to hard.	61		6.6			
5				Bottom of boring at 20.0 feet. No groundwater encountered during drilling.						
6	20									

▽ Water level encountered during drilling
▼ Water level measured after drilling

NOTES: (1) UNCORRECTED FIELD BLOW COUNTS
(2) METRIC EQUIVALENT DRY UNIT WEIGHT kN/m^3 = 0.1571 x DRY UNIT WEIGHT (pcf)
(3) METRIC EQUIVALENT STRENGTH (kPa) = 0.0479 x STRENGTH (psf)
(4) GRAPHIC SYMBOLS ARE ILLUSTRATIVE ONLY

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BORING LOG

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A-3
FIGURE

BORING 2

EQUIPMENT: Portable Hydraulic Drill Rig with 4.0-inch Solid Flight Auger
DATE: 5/27/2020
ELEVATION: 97 - feet*
*REFERENCE: Site Plan, CSW/Stuber-Stroeh Engineering Group, Inc., 2020?

DEPTH meters	DEPTH feet	SAMPLE	SYMBOL (4)		BLOWS / FOOT (1)	DRY UNIT WEIGHT pcf (2)	MOISTURE CONTENT (%)	SHEAR STRENGTH psf (3)	OTHER TEST DATA	OTHER TEST DATA
0	0			Silty SAND with Gravel (SM) Grayish tan, slightly moist, medium dense, fine to coarse sand, low plasticity, 30-40% angular gravels up to 2" diameter. [Colluvium]						
					19	109	6.5	930		
1	5			Clayey SAND with Gravel (SC) Brown, moist, medium dense, fine to coarse sand, medium plastic, ~20% subangular to rounded gravels up to 2" diameter. [Colluvium]						
					19	121	9.4	1550		
2				Shale Melange Dark gray, low to moderate harness, weak, complete to moderate weathering, pervasively shear with secondary light green mineralization. [Bedrock]						
					26		4.6			
3	10									
					21	136	6.1	1700		
4	15									
5										
					38	143	6.5			
6	20			Bottom of boring at 20.0 feet. No groundwater encountered during drilling.						

▽ Water level encountered during drilling
▼ Water level measured after drilling

NOTES: (1) UNCORRECTED FIELD BLOW COUNTS
(2) METRIC EQUIVALENT DRY UNIT WEIGHT kN/m^3 = 0.1571 x DRY UNIT WEIGHT (pcf)
(3) METRIC EQUIVALENT STRENGTH (kPa) = 0.0479 x STRENGTH (psf)
(4) GRAPHIC SYMBOLS ARE ILLUSTRATIVE ONLY

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BORING LOG

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A-4
FIGURE

BORING 3

EQUIPMENT: Portable Hydraulic Drill Rig with 4.0-inch Solid Flight Auger
DATE: 5/27/2020
ELEVATION: 72 - feet*
*REFERENCE: Site Plan, CSW/Stuber-Stroeh Engineering Group, Inc., 2020?

DEPTH meters	DEPTH feet	SAMPLE	SYMBOL (4)		BLOWS / FOOT (1)	DRY UNIT WEIGHT pcf (2)	MOISTURE CONTENT (%)	SHEAR STRENGTH psf (3)	OTHER TEST DATA	OTHER TEST DATA
0	0			Sandy Clay with Gravels (CL) Light gray/tan, dry to slightly moist, dense, fine to medium sand, medium plasticity, 20-30% angular gravels up to 4" diameter. [Colluvium]						
					30		6.3		PI	
1	5			SANDSTONE Gray, hard, strong, moderate weathering, white mineralization, medium grain sand, massive. [Boulder]	98	100	2.8			
2					27		2.5			
3	10									
4				Shale Melange Dark gray, low harness, weak, complete weathering, pervasively sheared. [Bedrock]	33	128	7.1			
	15									
5										
				Grades to high weathering.						
6	20				19	131	7.8			

▽ Water level encountered during drilling
▼ Water level measured after drilling

NOTES: (1) UNCORRECTED FIELD BLOW COUNTS
(2) METRIC EQUIVALENT DRY UNIT WEIGHT kN/m^3 = 0.1571 x DRY UNIT WEIGHT (pcf)
(3) METRIC EQUIVALENT STRENGTH (kPa) = 0.0479 x STRENGTH (psf)
(4) GRAPHIC SYMBOLS ARE ILLUSTRATIVE ONLY

MILLER PACIFIC ENGINEERING GROUP
504 Redwood Blvd.
Suite 220
Novato, CA 94947
T 415 / 382-3444
F 415 / 382-3450
www.millerpac.com

FILENAME: 2944.001 BL.dwg

BORING LOG

183 Sunset Way
APN 199-235-47 and -48
Muir Beach, California
Project No. 2944.001 Date: 6/5/2020

Drawn MNT
Checked

A-5
FIGURE

DEPTH meters / feet	SAMPLE	SYMBOL (4)	BORING 3 (CONTINUED)	BLOWS / FOOT (1)	DRY UNIT WEIGHT pcf (2)	MOISTURE CONTENT (%)	SHEAR STRENGTH psf (3)	OTHER TEST DATA	OTHER TEST DATA
20			Shale Melange Dark gray, low harness, weak, high weathering, pervasively sheared. [Bedrock]	29	131	7.8			
7			Bottom of boring at 23.5 feet. Groundwater encountered at 19.0 feet and measured at 2.0 feet the next day.						
25									
8									
9									
30									
10									
35									
11									
12									
40									

▽ Water level encountered during drilling

▼ Water level measured after drilling

NOTES: (1) UNCORRECTED FIELD BLOW COUNTS
(2) METRIC EQUIVALENT DRY UNIT WEIGHT kN/m^3= 0.1571 x DRY UNIT WEIGHT (pcf)
(3) METRIC EQUIVALENT STRENGTH (kPa) = 0.0479 x STRENGTH (psf)
(4) GRAPHIC SYMBOLS ARE ILLUSTRATIVE ONLY

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BORING LOG

183 Sunset Way
APN 199-235-47 and -48
Muir Beach, California

Project No. 2944.001 Date: 6/5/2020

Drawn MNT
Checked

A-6
FIGURE

BORING 4

EQUIPMENT: Portable Hydraulic Drill Rig with 4.0-inch Solid Flight Auger
DATE: 5/27/2020
ELEVATION: 57 - feet*
*REFERENCE: Site Plan, CSW/Stuber-Stroeh Engineering Group, Inc., 2020?

DEPTH meters	DEPTH feet	SAMPLE	SYMBOL (4)		BLOWS / FOOT (1)	DRY UNIT WEIGHT pcf (2)	MOISTURE CONTENT (%)	SHEAR STRENGTH psf (3)	OTHER TEST DATA	DRILLING RATE (MIN/FT)
0	0			Silty SAND with Gravel (SM) Light gray/tan, dry to slightly moist, dense, fine to coarse sand, low to medium plasticity, 25-35% angular gravels up to 2" diameter. [Colluvium]						
					57		6.1			
1										
	5			SANDSTONE Gray, hard, strong, moderate weathering, medium grain sand, massive. [Bedrock]						
					50/3"		6.9			
2										12
										6
										4
3	10				50/0"					
					50/2"					
4				Shale Melange Dark gray, low harness, weak, complete to high weathering, pervasively sheared with secondary light green mineralization. [Bedrock]						
	15									
5										
6	20				33		5.5			

▽ Water level encountered during drilling
▼ Water level measured after drilling

NOTES: (1) UNCORRECTED FIELD BLOW COUNTS
(2) METRIC EQUIVALENT DRY UNIT WEIGHT kN/m^3 = 0.1571 x DRY UNIT WEIGHT (pcf)
(3) METRIC EQUIVALENT STRENGTH (kPa) = 0.0479 x STRENGTH (psf)
(4) GRAPHIC SYMBOLS ARE ILLUSTRATIVE ONLY

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FILENAME: 2944.001 BL.dwg

BORING LOG

183 Sunset Way
APN 199-235-47 and -48
Muir Beach, California
Project No. 2944.001 Date: 6/5/2020

Drawn MNT
Checked

A-7
FIGURE

DEPTH meters / feet	SAMPLE	SYMBOL (4)	BORING 4 (CONTINUED)	BLOWS / FOOT (1)	DRY UNIT WEIGHT pcf (2)	MOISTURE CONTENT (%)	SHEAR STRENGTH psf (3)	OTHER TEST DATA	OTHER TEST DATA
20 / 7			Shale Melange Dark gray, low harness, weak, complete to high weathering, pervasively sheared with secondary light green mineralization. [Bedrock]	46		4.4			
25 / 8			Bottom of boring at 24.5 feet. No groundwater encountered. No groundwater in boring follow day.						
30 / 9									
35 / 10									
40 / 11									
12									

▽ Water level encountered during drilling

▼ Water level measured after drilling

NOTES: (1) UNCORRECTED FIELD BLOW COUNTS
(2) METRIC EQUIVALENT DRY UNIT WEIGHT kN/m^3= 0.1571 x DRY UNIT WEIGHT (pcf)
(3) METRIC EQUIVALENT STRENGTH (kPa) = 0.0479 x STRENGTH (psf)
(4) GRAPHIC SYMBOLS ARE ILLUSTRATIVE ONLY

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FILENAME: 2944.001 BL.dwg

BORING LOG

183 Sunset Way
APN 199-235-47 and -48
Muir Beach, California

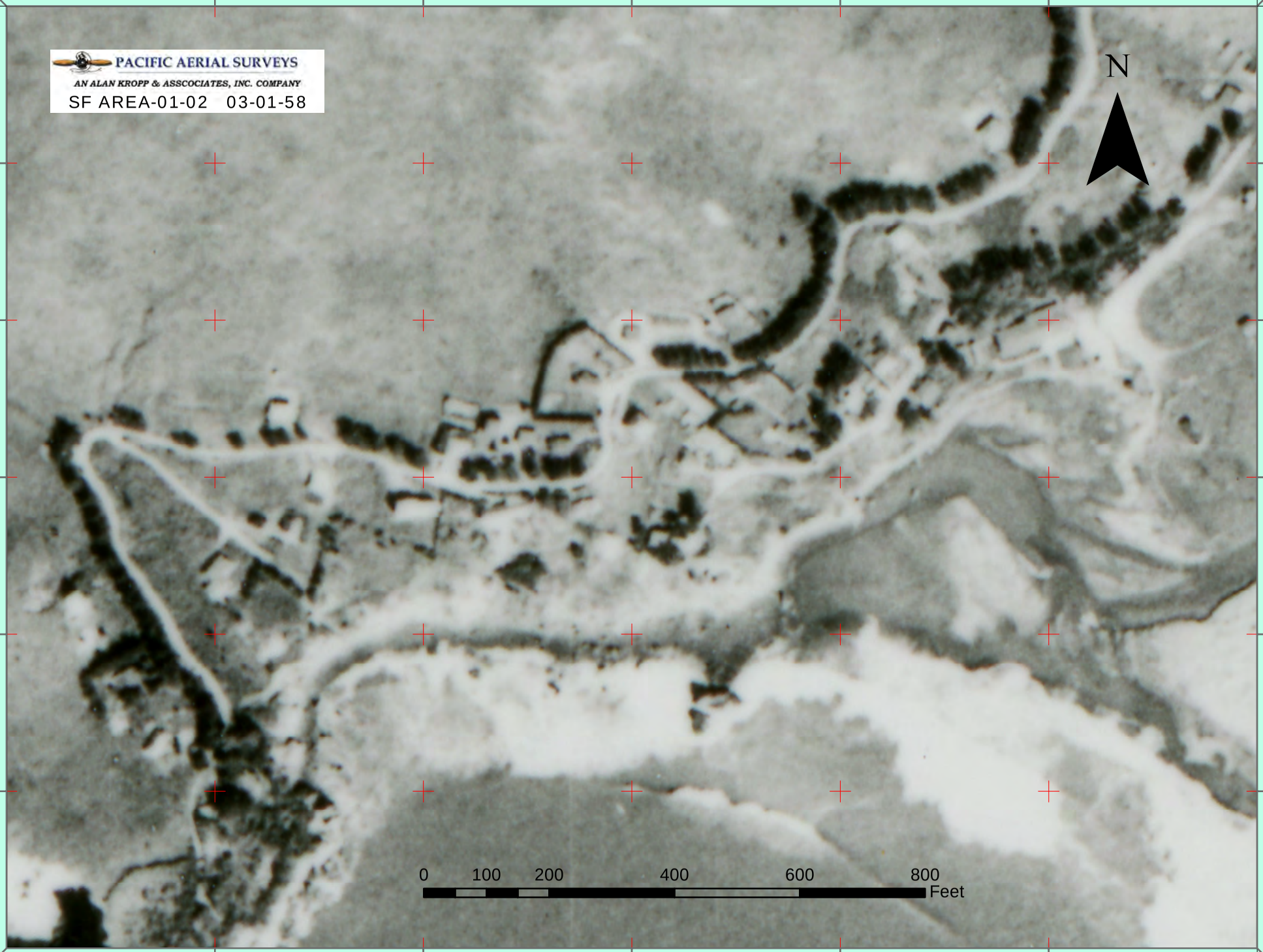
Project No. 2944.001 Date: 6/5/2020

Drawn MNT
Checked

A-8
FIGURE

MILLER PACIFIC ENGINEERING GROUP

APPENDIX B
HISTORIC AERIAL PHOTOGRAPHS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AN ALAN KROPP & ASSCOCIATES, INC. COMPANY
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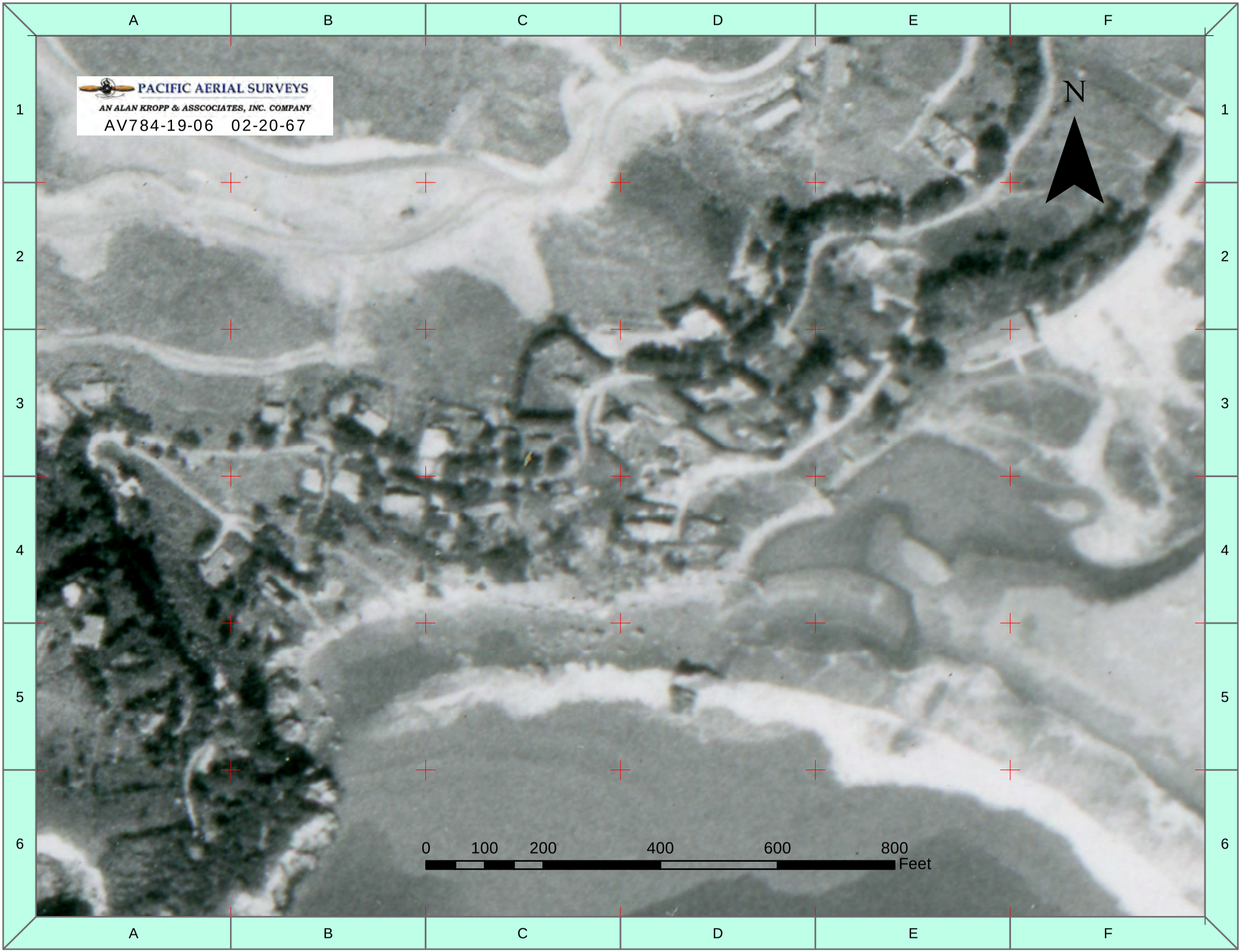
Feet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AV784-19-06 02-20-67
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Feet
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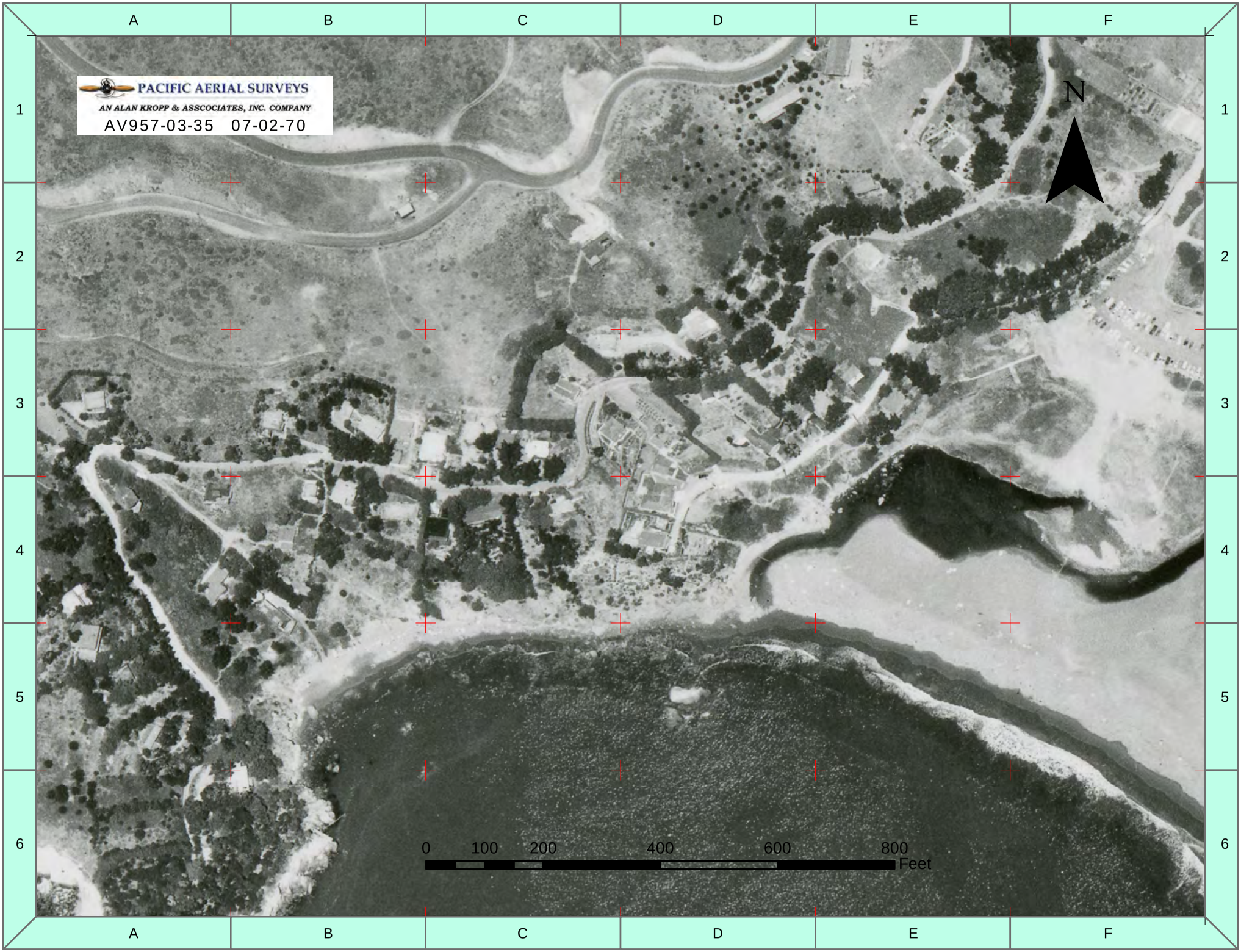
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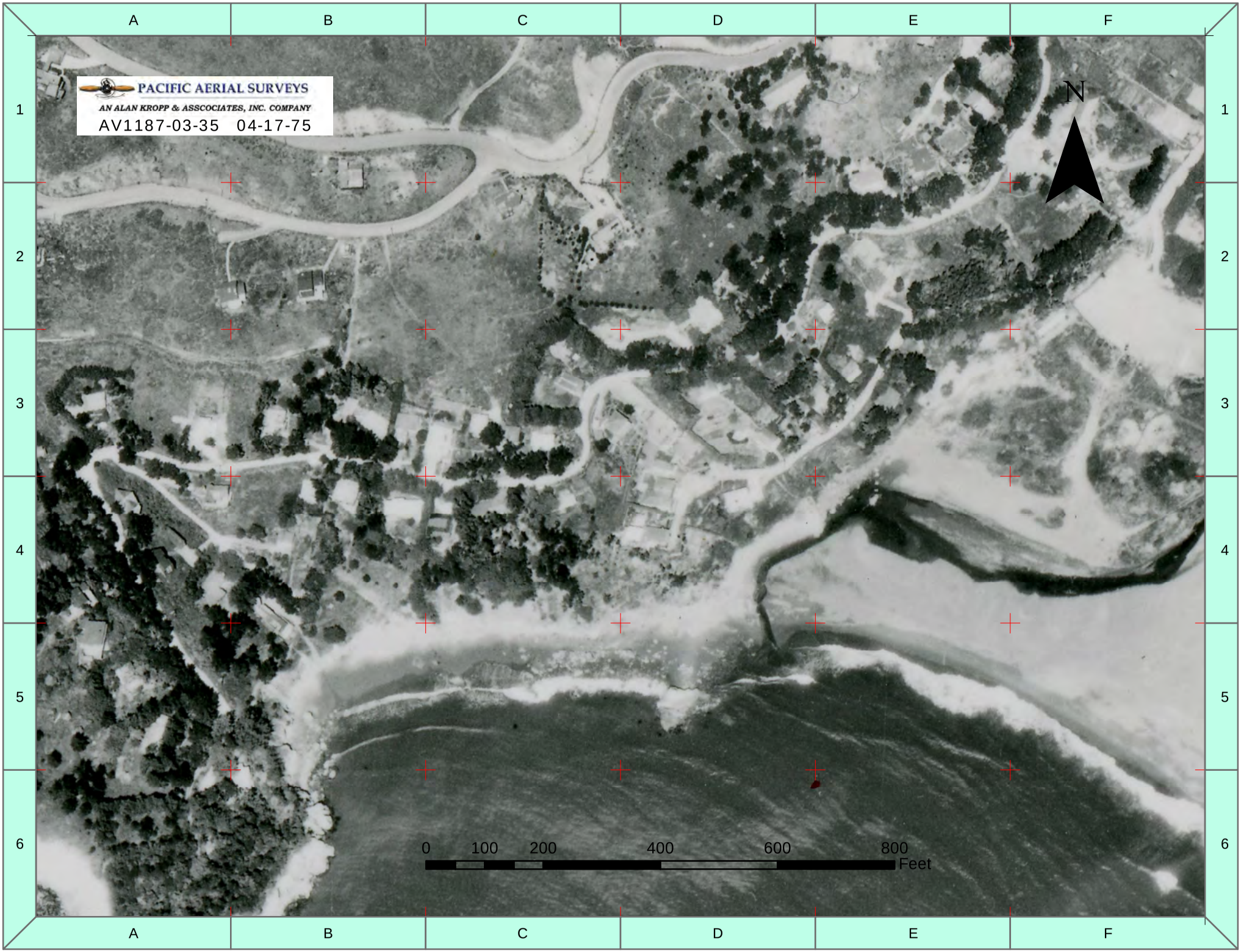
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Feet
A B C D E F
1 2 3 4 5 6


PACIFIC AERIAL SURVEYS
AN ALAN KROPP & ASSCOCIATES, INC. COMPANY
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Feet
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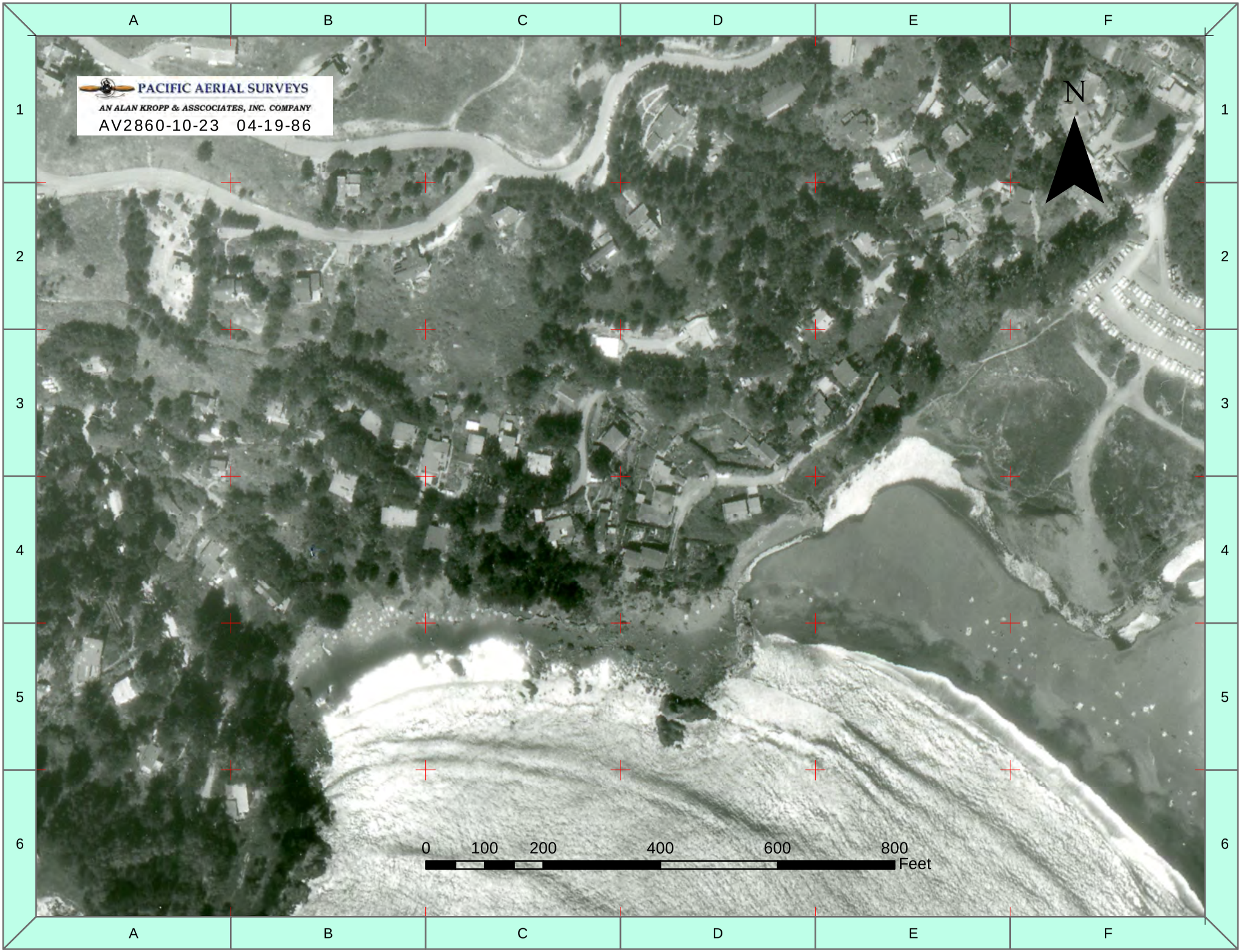
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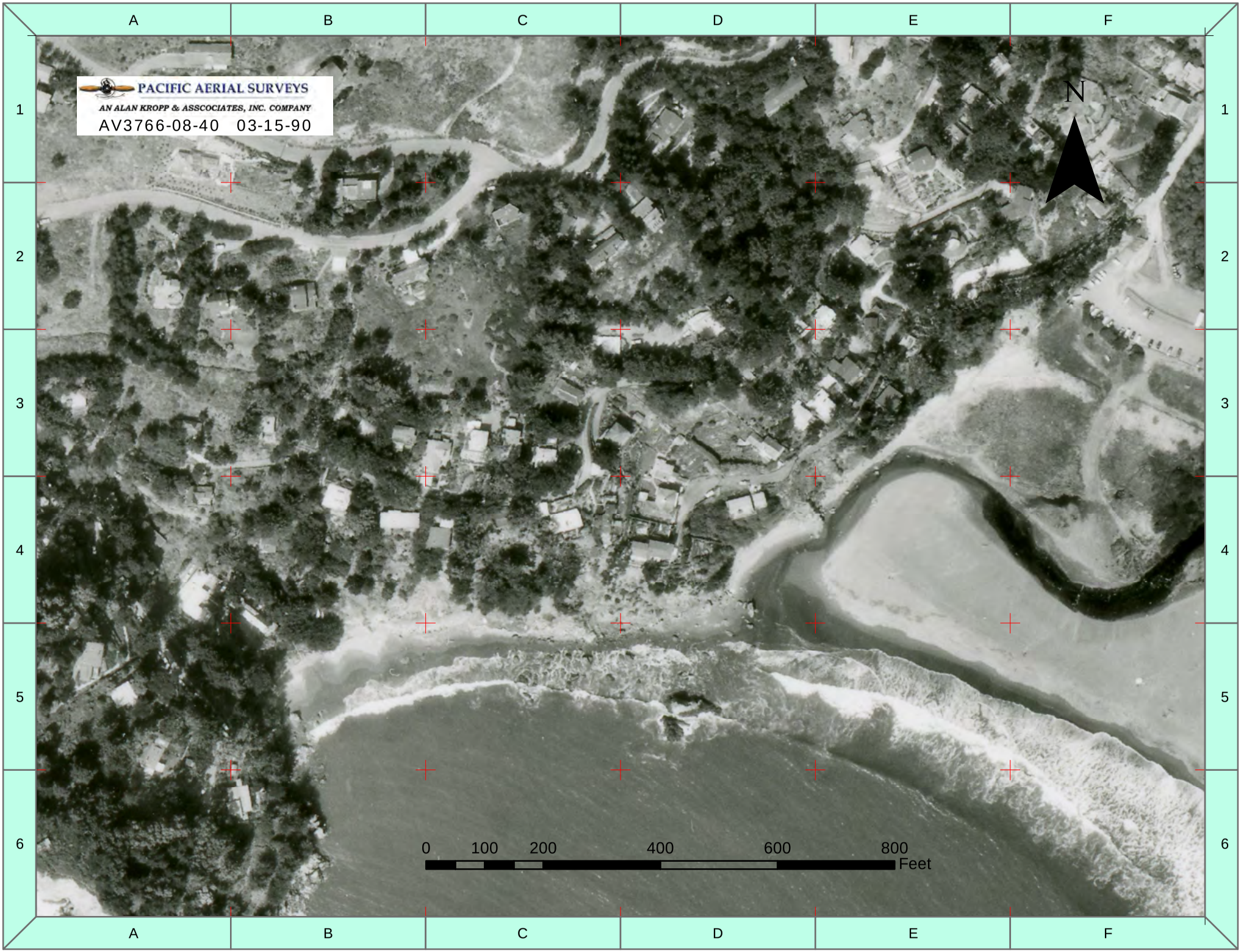
AN ALAN KROPP & ASSCOCIATES, INC. COMPANY
AV2860-10-23 04-19-86
N
0 100 200 400 600 800
Feet
A B C D E F
1 2 3 4 5 6


PACIFIC AERIAL SURVEYS
AN ALAN KROPP & ASSCOCIATES, INC. COMPANY
AV3766-08-40 03-15-90
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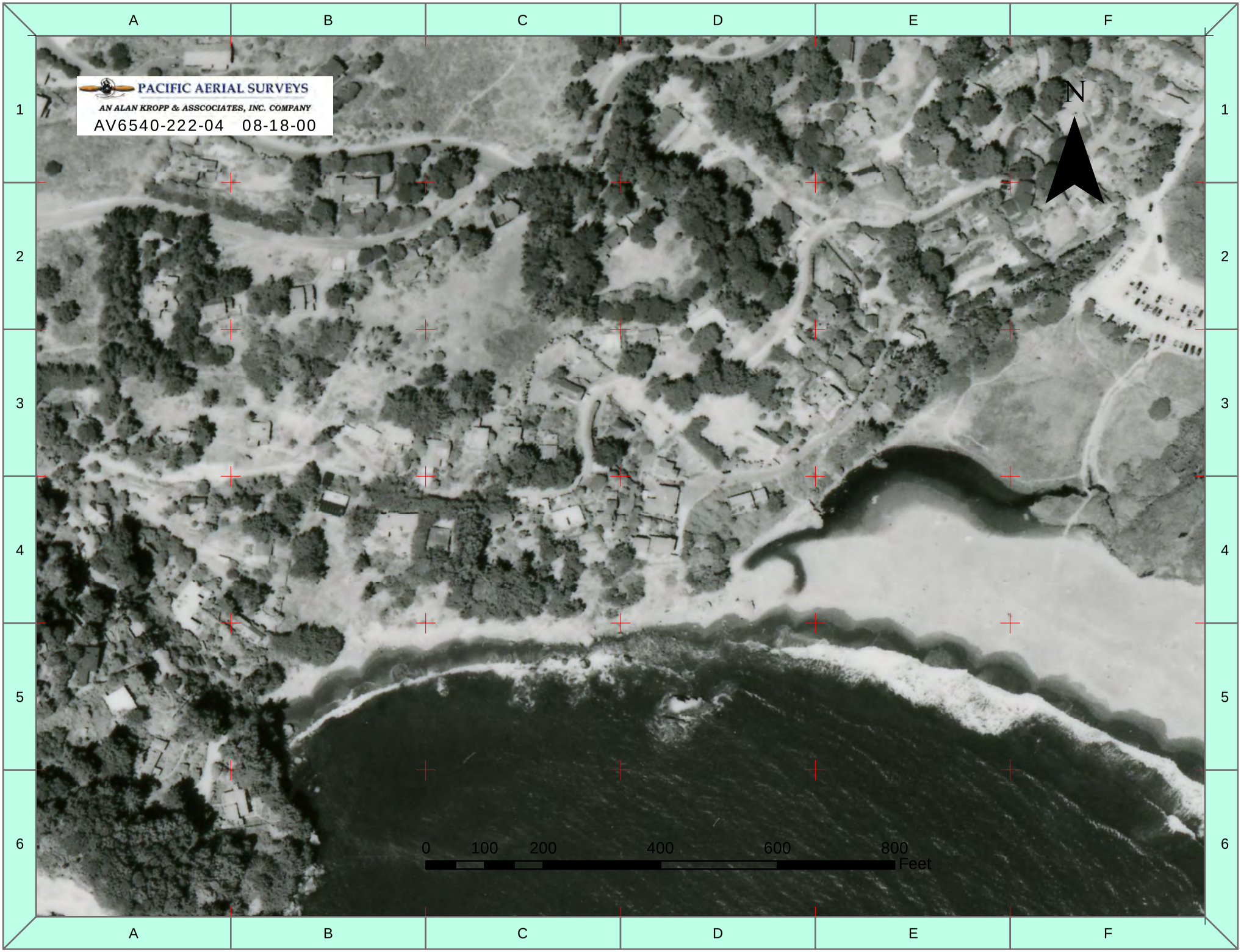
Feet
A B C D E F
1 2 3 4 5 6


PACIFIC AERIAL SURVEYS
AN ALAN KROPP & ASSCOCIATES, INC. COMPANY
AV6540-222-04 08-18-00
N
0 100 200 400 600 800
Feet


A
B
C
D
E
F
1
2
3
4
5
6
PACIFIC AERIAL SURVEYS
AN ALAN KROPP & ASSCOCIATES, INC. COMPANY
Muir Beach, CA FEB 2015
N
0 100 200 400 600 800
Feet

Exhibit A-6

Biological Site Assessment

October 29,2019

Huffman-Broadway Group, Inc.
ENVIRONMENTAL REGULATORY CONSULTANTS
828 MISSION AVENUE, SAN RAFAEL, CA 94901 • 415.925.2000 • WWW.H-BGROUP.COM

DRAFT

October 29, 2019

Mr. Graham Groneman
P.O. Box 2854
Sausalito,CA 94966

Subject: Biological Site Assessment for 183 Sunset Way, Marin County, California

Dear Mr. Groneman:

Huffman-Broadway Group, Inc. (HBG) has completed a Biological Site Assessment report for your proposed single-family residence on two residential parcels totaling approximately 0.5-acres at 183 Sunset Way in Muir Beach, Marin County, California. The subject project site consists of Assessor's Parcel Numbers (APN) 199-235-47 and APN 199-235-48. The evaluation complies with requirements of Item #36, Biological Site Assessment, in Marin County's list of project application materials, County guidelines as spelled out in the document "Preparation of Biological Site Assessments" and clarifications provided in conversations with you regarding biological information that is needed at this time.

As stated in the Marin County guidelines for preparation of Biological Site Assessments, the objective of this study was to (1) determine whether there are any sensitive biological resources such as wetlands, streams, or habitats for special status species in proximity to a proposed project; (2) accurately map any biological constraints on a site plan for the project; and (3) to determine whether the proposed project would result in potentially significant adverse biological impacts pursuant to the California Environmental Quality Act (CEQA). Our analysis included: (1) a review of the habitat characteristics of the site and species of plants and animals expected to utilize the site; (2) review of the California Natural Diversity Data Base (CNDDB) to determine if any populations of endangered, threatened, or rare species have occurred historically or are currently known to exist in the project vicinity; (3) a field survey of the site by an HBG biologist, and (4) an evaluation of whether the proposed project has the potential to result in impacts to sensitive habitats or special status species. The study included a general reconnaissance of the site by HBG Senior Environmental Scientist Gary Deghi on October 17, 2019.

PROPOSED PROJECT

The subject project site consists of Assessor's Parcel Numbers (APN) 199-235-47 and APN 199-235-48 located at 183 Sunset Way, in Muir Beach. The approximately 0.5-acre site is a currently vacant, wooded property that slopes down to the beach at the Pacific Ocean. The landowner is

applying to the County of Marin to construct a single-family house on the property at 183 Sunset Way. Conceptual plans developed to date propose construction of the house near the middle of the property. A carport or garage is proposed off of Sunset Way and stairs will lead down to the house located further down the slope. The foundation for the house will be cut into the hillside and cut material will be used to expand a flat area for the house by depositing it behind a retaining wall further down the slope. Setbacks as required by Marin County will dictate that the house will be between 50 and 100 feet from the bluff edge. A septic system is also proposed and the septic leachfield is proposed at least 50 feet from the bluff edge to comply with County requirements. The septic leachfield may need to be installed above the house near the carport/garage. A number of non-native trees are present on the property, and although plans are conceptual at this time, it appears that several of the non-native trees will need to be removed to accommodate the proposed structures and leachfield.

A future Project Description would include implementation of Best Management Practices to control erosion and sedimentation and preconstruction bird nesting surveys if construction occurs during the nesting season.

EXISTING BIOLOGICAL SETTING

The description of the biological setting for the property is based on a field visit to the site by HBG Senior Environmental Scientist Gary Deghi on October 17, 2019. The survey on this date included observations of the composition and distribution of plant species, wildlife observations, identification of sensitive habitats and a comparison of site characteristics for similarity to sites known to support special status species within the area.

The property slopes steeply downward from Sunset Way to the south and towards the beach. The southern end of the property drops precipitously to a rocky beach of the Pacific Ocean below. Based on a survey of the property prepared by J.L. Engineering dated August 2019 and the Point Bonita USGS 7.5-minute quadrangle map, elevations on the property range from about 130 feet msl near Sunset Way to about 10 feet msl adjacent to the beach. A seawall constructed approximately 40 years ago extends from the base of the adjacent property to the west and onto the subject property along the shoreline. The proposed project site is vegetated with a number of planted non-native trees and other shrubs and groundcover vegetation. The soil type throughout the entire site is Cronkite-Barnabe complex, 30 to 50 percent slopes (USDA 2019). Redwood Creek flows into the Pacific Ocean approximately 300 feet east of the property. Redwood Creek is a 4.7-mile long stream that drains a 7-square-mile watershed.

The project site is within the Marin County Coastal Zone and also subject to relevant policies of the Unit I Local Coastal Program (LCP) (County of Marin 1981). Unit I of the LCP was certified in 1981 and includes the communities of Muir Beach, Stinson Beach, Seadrift, and Bolinas. The primary goal of the LCP is to ensure that the local government's land use plans, zoning ordinances, zoning district maps, and implementing actions meet the requirements of, and implement the provisions and policies of, the Coastal Act at the local level.

Like other portions of northern California, Muir Beach experiences a Mediterranean climate characterized by warm, dry summers and cool, wet winters. Coastal low clouds and fog are common, especially during the late night and early morning hours. Average annual precipitation in the Inverness area is slightly less than 40 inches, with most rain in the Bay Area's winter "rainy season" (November through March).

Plant Communities

Vegetation communities and habitats at the project site were identified based on the currently accepted List of Vegetation Alliances and Associations (or Natural Communities List) (CDFW 2010). The list is based on A Manual of California Vegetation, Second Edition (Sawyer and Keeler-Wolf 2009), which is the National Vegetation Classification applied to California. The project site contains several habitat types according to this classification: Monterey Cypress Forest, Central Coast Scrub, and Non-native grassland.

The site is a mostly wooded site vegetated with non-native tree species. The tree canopy consists mainly of planted Monterey cypress (*Cupressus macrocarpa*) and Monterey pine (*Pinus radiata)* along with several blackwood acacia (*Acacia melanoxylon*) and Eucalyptus (*Eucalyptus* sp.). Vegetation throughout much of the site consists of species planted for landscaping purposes in the neighborhood including Pride of Madeira (*Echinum candicans*), Aloe (*Aloe* sp.), belladonna lily (*Amaryllis belladonna*), holly (*Ilex aquifolium*), firethorn (*Pyracantha augustifolia),* and a variety of succulents. Other common herbaceous non-native species include Italian thistle (*Carduus pycnocephalus*), sweet fennel (*Foeniculum vulgare*), and garden nasturtium (*Tropaeolum majus*), among others. The eastern portion of the site is best described as Central Coast Scrub with shrubs including native species such as coyote brush (*Baccharis pilularis*), Coastal sagebrush (*Artemisia californica),* and Pacific aster (*Symphyotrichum chilense*), and invasive, non-native species such as French broom (*Genista monspessulana*) and giant reed (*Arundo donax*). Groundcover species are mostly non-native grasses including species such as little quaking grass (*Briza minor*), dogtail (*Cynosurus cristatus*), rip-gut brome (*Bromus diandrus*), Italian ryegrass (*Festuca perrenis*), and veldt grass (*Ehrharta erecta),* among others. A couple of invasive pampass grass (*Cortederia selloana*) are also present near the top of the bluff.

Animal Populations

The habitats on site and in the immediately surrounding area support a number of wildlife species, mostly those typically found in forested habitats in West Marin and those adapted for life in disturbed forested environments. Trees and other vegetation on the property provide nesting and roosting sites for birds, and cover and foraging habitat for species of birds, mammals, reptiles and amphibians. A number of wildlife species were documented at the site during the fall season field review conducted by Gary Deghi of HBG on October 17, 2019. Nearly all species documented are common to abundant in the region and would be expected in the habitats present at the site.

Birds species documented at the site during the October 17, 2019 field review included Anna's hummingbird (*Calypte anna*), California scrub-jay *(Aphelocoma californica)*, common raven (*Corvus corax*), downy woodpecker (*Dryobates pubescens*), black phoebe (*Sayornis nigricans*), Bewick's wren (*Thryomanes bewickii*), ruby-crowned kinglet (*Regulus calendula*), brown creeper (*Certhia americana*), pygmy nuthatch (*Sitta pygmaea*), California towhee (*Melozone crissalis),* white-crowned sparrow (*Zonotrichia leucophrys*), Lincoln's sparrow (*Melospiza lincolnii*), song sparrow (*Melospiza melodia*), and Townsend's warbler (*Setophaga townsendi*). The rocky shore and beach below the site is suitable habitat for species such as sanderling (*Calidris alba*) and black turnstone (*Arenaria melanocephala*), but the only species seen over the water were Western gull (*Larus occidentalis)* and brown pelican (*Pelicanus occidentalis*).

Amphibians expected in the area are likely to include Pacific treefrog (*Pseudacris regilla*), western toad (*Bufo boreas*), arboreal salamander (*Aneides lugubris*), and California slender salamander (*Batrachoseps attenuatus*), among others. No reptiles were observed during the survey but expected species include Western fence lizard (*Sceloperus occidentalis)*, Northern alligator lizard (*Gerrhonotus coerulus*), Pacific gopher snake (*Pituophis melanoleucus),* and common garter snake (*Thamnophis sirtalis elegans).* Evidence of mammals at the site in October 2019 included dens of Botta's pocket gopher (*Thomomys bottae)*, scats of mule deer (*Odocoileus hemionus*), and the odor of striped skunk (*Mephitis mephitis*). Other mammals that could be present would be those adapted to disturbed forested environments such as Western gray squirrel (*Sciurus griseus*), Virginia opossum (*Didelphis virginiana*), deer mouse (*Peromyscus maniculatus*), and raccoon (*Procyon lotor*).

Sensitive Habitats

Regulatory Requirements

Sensitive habitats are those habitats which have been identified by local, state, or federal agencies as areas which provided special functions or values. These habitats are subject to regulation under various local, state, and federal regulations such as the following:

Waters of the United States. The Department of the Army, acting through the U.S. Army Corps of Engineers (Corps), has the authority to permit the discharge of dredge or fill material in waters of the U.S. under Section 404 of the Clean Water Act (CWA). Waters of the U.S. include both wetlands and "other waters of the U.S." Wetlands and other waters of the U.S. are described by U.S. Environmental Protection Agency (EPA) and Corps regulations (40 CFR § 230.3(s) and 33 CFR § 328.3(a), respectively). EPA and the Corps define wetlands as *"…those areas that are inundated or saturated by surface or ground water at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions*" (EPA regulations at 40 CFR § 230.3(t); Corps regulations at 33 CFR § 328.3(b)). Both natural and manmade wetlands and other waters (not vegetated by a dominance of rooted emergent vegetation) are subject to regulation. The geographic extent of wetlands is defined by the collective presence of a

dominance of wetland vegetation, wetland hydrology conditions, and wetland soil conditions as determined following the USACE' 1987 Wetlands Delineation Manual (1987 Manual); the USACE' 2008 Regional Supplement to Corps of Engineers Wetland Delineation Manual: Arid West, Version 2.0 (Arid West Regional Supplement); and supporting guidance documents. The geographic extent of other waters of the U.S. is defined by an ordinary high water mark (OHWM) in non-tidal waters (33 CFR. §328.3(e)) and by the High Tide Line within tidal waters (33 CFR. §328.3(d)).

Waters of the State. Waters of the State are defined more broadly than "waters of the US" to mean "any surface water or groundwater, including saline waters, within the boundaries of the state" (Water Code section 13050(e)). Examples include, but are not limited to, rivers, streams, lakes, bays, marshes, mudflats, unvegetated seasonally ponded areas, drainage swales, sloughs, wet meadows, natural ponds, vernal pools, diked baylands, seasonal wetlands, and riparian woodlands. Waters of the State include all waters within the state's boundaries, whether private or public, including waters in both natural and artificial channels. They include all "waters of the United States"; all surface waters that are not "waters of the United States, e.g. non-jurisdictional wetlands; groundwater; and the territorial seas. The State Water Quality Control Board (SWQCB) and its Regional Boards, including the San Francisco Bay Regional Water Quality Control Board (SFBRWQCB), routinely rely on the USACE/US EPA jurisdictional determinations as they have no adopted methodology for the identification and delineation of wetlands or other waters of the State. However, as a matter of policy the SWQCB/SFBRWQCB consider wetlands and waters determined non-jurisdictional by the USACE/USEPA under *SWANCC or Rapanos* guidance to remain jurisdictional as waters of the State subject to SWQCB/SFBRWQCB jurisdiction.

California Department of Fish and Wildlife Regulations. The California Department of Fish and Wildlife (CDFW) regulates lakes and streams under Section of 1602 of the California Fish and Game Code (FGC). CDFW's regulations implementing the FGC define the relevant rivers, streams and lakes over which the agency has jurisdiction to constitute "all rivers, streams, lakes, and streambeds in the State of California, including all rivers, streams and streambeds which have intermittent flows of water." (Title 14 *California Code of Regulations* [CCR] § 720). The CDFW takes jurisdiction under its Lake and Streambed Alteration Agreement Program for any work undertaken in or near a river, stream, or lake that flows at least intermittently through a bed or channel. The CDFW does not have a methodology for the identification and delineation of the jurisdictional limits of streams except for the general guidance provided in *A Field Guide to Lake and Streambed Alteration Agreements, Section 1600-1607 California Fish and Game Code* (CDFG 1994). In making jurisdictional determinations, CDFW staff typically rely on field observation of physical features that provide evidence of water flow through a bed and channel such as observed flowing water, sediment deposits and drift deposits and that the stream supports fish or other aquatic life. Riparian habitat is not specifically defined by the FGC but CDFW takes jurisdiction over areas within the flood plain of a body of water where the vegetation (grass, sedges, rushes, forbs, shrubs, and trees) is supported by the surface or subsurface flow.

Sensitive plant communities are those natural plant communities identified in local or regional plans, policies, ordinances, regulations, or by the CDFW which provide special functions or values. The CDFW natural plant communities considered sensitive are those CDFW ranks as 'threatened' or 'very threatened' and keeps records of occurrences of these sensitive communities in the CNDDB. All known occurrences of sensitive habitats are mapped onto 7.5-minute USGS topographic quadrangle maps maintained by the CNDDB. Sensitive plant communities are also identified by CDFW on their List of California Natural Communities Recognized by the CNDDB. Impacts to sensitive natural communities must be considered and evaluated under CEQA.

California Coastal Act/Marin County Requirements. The project site is within the Marin County Coastal Zone and also subject to relevant policies of the Unit I Local Coastal Program (LCP) (County of Marin 1981). Unit II of the LCP was certified in 1981 and includes the communities of Muir Beach, Stinson Beach, Seadrift, and Bolinas. The primary goal of the LCP is to ensure that the local government's land use plans, zoning ordinances, zoning district maps, and implementing actions meet the requirements of, and implement the provisions and policies of, the Coastal Act at the local level.

Natural Resource policies of the Unit II LCP include those related to stream corridors. Certain streams and creeks are protected by LCP policies, and this protection extends to both the stream itself and the riparian vegetation growing adjacent to it. The LCP defines a stream as a perennial or intermittent watercourse mapped by the United States Geological Survey (USGS) on the most current 7.5-minute quadrangle series or identified in a local coastal program. For streams meeting this definition, the Unit I LCP requires a riparian protection area that includes all existing riparian vegetation on both sides of the stream and a stream buffer area. Wetlands are also protected by the Coastal Act. The Coastal Act defines wetlands as land "which may be covered periodically or permanently with shallow water." Coastal Act criteria require the establishment of wetland buffer areas of a minimum of 100 feet.

Marin Countywide Plan requirements pertaining to sensitive habitats, particularly requirements associated with the presence of Stream Conservation Areas (SCAs) and Wetland Conservation Areas (WCAs), are applicable countywide. Policies of the Marin County General Plan related to Stream Conservation Areas include the establishment buffer zones called Stream Conservation Areas for the protection of riparian systems, streams, and related habitats. A Stream Conservation Area consists of a watercourse, surrounding banks, and a strip of land (a riparian setback) extending laterally from the top of both banks. Only certain uses are allowed in SCAs.

Sensitive Habitat Findings

On October 17, 2019, Gary Deghi of HBG conducted an initial reconnaissance investigation of the study area for the presence of wetlands and other "waters of the U.S." potentially subject to federal jurisdiction under the Clean Water Act or state or local jurisdiction under the Porter-Cologne Act or California Coastal Act. The review included an investigation of existing land forms, vegetation, hydrology, and soil conditions, but consisted of a preliminary review of the

area for wetland habitats. No areas were found that would be regulated by the Corps of Engineers as a water of the U.S. under Section 404 of the Clean Water Act or by the SFBRWQCB as a water of the state of California under the Porter-Cologne Act. Likewise, no areas at the site would be considered a stream course subject to the jurisdiction of the CDFW pursuant to Section 1602 of the California Fish and Game Code. No areas satisfying Marin LCP or California Coastal Act criteria as a wetland or stream were found on the property. The nearest blue line stream is Redwood Creek with flows into the Pacific Ocean 315 feet east of the property.

Special Status Species

Sensitive species include those species listed by the federal and state governments as endangered, threatened, or rare or candidate species for these lists. Endangered or threatened species are protected by the federal Endangered Species Act of 1973 as amended, the California Native Plant Protection Act of 1977, and the California Endangered Species Act of 1970. The California Environmental Quality Act (CEQA) provides additional protection for unlisted species that meet the "rare" or "endangered" criteria defined in Title 14, California Code of Regulations Section 15380.

CDFW maintains records for the distribution and known occurrences of sensitive species and habitats in the California Natural Diversity Database (CNDDB). The CNDDB is organized into map areas based on 7.5-minute topographic maps produced by the US Geological Survey. All known occurrences of sensitive species and important natural communities are mapped on the quadrangle maps. The database gives further detailed information on each occurrence, including specific location of the individual, population, or habitat (if possible) and the presumed current state of the population or habitat. The project site is located in the Point Bonita 7.5-minute quadrangle. A search of the CNDDB for records of occurrence of special status animals and plants and natural communities within this quadrangle indicated that no special status species or natural communities are known to occur on the project site itself.

Table 1 presents a list of special status animals and plants that have been reported in coastal Marin County in the project vicinity. The table includes an evaluation of the potential for sensitive species to occur at the site.

Regulatory Requirements

Federal Endangered Species Act (FESA). The FESA is intended to help protect the ecosystems upon which endangered and threatened species depend. The FESA establishes an official listing process for plants and animals considered to be in danger of extinction; requires development of specific plans of action for the recovery of listed species; and restricts activities perceived to harm or kill listed species or affect critical habitat. The FESA prohibits the "take" of endangered or threatened wildlife species. "Take" can be defined as any act that kills or injures a federally listed species, including significant habitat modification or degradation. The FESA also requires federal agencies to ensure that their actions do not jeopardize the continued existence of listed species or adversely modify critical habitat, and accomplish this in consultation with the U.S. Fish and Wildlife Service (USFWS) or National Marine Fisheries Service (NMFS) pursuant to Section 7

of the FESA. If formal consultation is required, USFWS or NMFS will issue a biological opinion stating whether the permit action is likely to jeopardize the continued existence of the listed species, recommending reasonable and prudent measures to ensure the continued existence of the species, establishing terms and conditions under which the project may proceed, and authorizing incidental take of the species.

California Endangered Species Act (CESA). CDFW administers the California Endangered Species Act (CESA). CESA directs agencies to consult with CDFW on projects or actions that could affect state-listed species, directs CDFW to determine whether jeopardy would occur, and allows CDFW to identify "reasonable and prudent alternatives" to the project consistent with conserving the species. The CESA prohibits the taking of state-listed endangered or threatened plant and wildlife species. CDFW exercises authority over mitigation projects involving state-listed species, including those resulting from CEQA mitigation requirements. CDFW may authorize taking if an approved habitat management plan or management agreement that avoids or compensates for possible jeopardy is implemented. CDFW requires preparation of mitigation plans in accordance with published guidelines.

Protections for Nesting Birds. *The* Migratory Bird Treaty Act (MBTA) implements international treaties devised to protect migratory birds and any of their parts, eggs, and nests from activities such as hunting, pursuing, capturing, killing, selling, and shipping, unless expressly authorized in the regulations or by permit. The regulations governing migratory bird permits are in 50 CFR part 13 General Permit Procedures and 50 CFR part 21 Migratory Bird Permits. On December 22, 2017, the U.S. Department of Interior's Office of the Solicitor issued Memorandum M-37050, which states an interpretation that the Migratory Bird Treaty Act does not prohibit the accidental or "incidental" taking or killing of migratory birds. The State of California has incorporated the protection of nongame birds and birds of prey, including their nests, in Sections 3800, 3513, 3503, and 3503.5 of the California Fish and Game (CFG) Code. Section 3503 of the Fish and Game Code makes it unlawful to take, possess, or needlessly destroy the nests or eggs of any bird. Section 3503.5 makes it unlawful to take or possess birds of prey (hawks, eagles, vultures, owls) or destroy their nests or eggs.

Special Status Plant Species

A list of special status plants with potential to occur on the property was developed from the CDFW's California Natural Diversity Data Base. A complete list of special status plant species occurring in the vicinity of the property is included in Table 1. The table includes all coastal Marin County species mentioned in the CNDDB within approximately five miles of the site. Special status plant species include: (i) species that are listed or proposed for listing as threatened or endangered under the federal Endangered Species Act; (ii) species that are listed, or proposed for listing by the state of California as threatened or endangered under the California Endangered Species Act; (iii) plants considered by the California Native Plant Society (CNPS) to be rare, threatened, or endangered in California and elsewhere; and (iv) plant species that meet the definition of rare or endangered under CEQA.

All special status plant species found in this part of Marin County require habitat conditions that are not found at the site of the proposed improvements.

Special Status Animal Species

Animal species noted in the CNDDB as occurring within a 5-mile radius of the site, or that are known to occur in the general vicinity based on the knowledge of HBG biologists, are discussed in Table 1. Special status species of animal are noted in the CNDDB from near the subject property within the community of Muir Beach. These include species associated with Redwood Creek and such as coho salmon (*Oncorhynchus kisutch*), steelhead (*Oncorhynchus mykiss*), California red-legged frog (*Rana draytonii*), and Western pond turtle (*Emys marmorata*), and also an overwintering population of monarch butterflies. Also, there is concern in West Marin with possible nesting by Northern Spotted Owl (*Strix occidentalis caurina*). These species are discussed in detail below.

Other special status species that are known from further upstream in Redwood Creek include state species of special concern such as California giant salamander *(Dicamptodon ensatus*) and foothill yellow-legged frog (*Rana boylii*). The riparian corridor of Redwood Creek could also support possible nesting by Yellow Warbler (*Setophaga petechia*), a state species of special concern. These species are included in Table 1 and are addressed there. None of the species mentioned above nor any of the species discussed in Table 1 are expected to occur on the subject property. This finding is made based on the habitat requirements of species listed in the table, and is based on field review of habitats present at the site and the immediate vicinity and an evaluation of the suitability of on-site habitats to support these species.

Coho Salmon and Steelhead Trout

Populations of coho salmon (*Oncorhynchus kisutch*) within the Central California Environmentally Sensitive Unit (ESU) are federally-listed between Punta Gorda and the San Lorenzo River and are state listed south of San Francisco Bay. This salmonid requires beds of loose, silt-free, coarse gravel for spawning, and also needs cover, cool water and sufficient dissolved oxygen. According to the CNDDB, the species occurs in Redwood Creek.

Central California populations of steelhead trout (*Oncorhynchus mykiss*) were federally-listed as threatened in August 1997. Steelhead have been divided into ESUs, all of which were listed as threatened under the Federal Endangered Species Act in August 1997. Steelhead in the Central Coast ESU occur from the Russian River south to Soquel Creek and to, but not including the Pajaro River and including San Francisco and San Pablo Bays. Like coho salmon, these fish require well-oxygenated streams with riffles and loose, silt-free gravel substrate for spawning.

Steelhead and coho salmon spawning migrations occur during the period from late November through April in years of normal runoff. Most upstream migration occurs during and immediately following periods of heavy storm runoff. All coho salmon die after spawning. Steelhead, however, begin a return migration to the ocean soon after completion of spawning. Both juvenile steelhead and coho salmon require a period of residency in the stream before

migrating downstream to the ocean. The length of freshwater residency may vary from one to three years or more depending on the living conditions in the stream. The major downstream migration of juvenile steelhead and coho salmon occurs during the period from February through June, depending on the water year and pattern of winter-spring runoff. Fish habitat is physically reduced to a minimum during the low-flow period of July through October. At this time, the actual physical habitat supporting fish life is at its minimum and the amount of available habitat becomes a limiting factor in the health and survival of fish populations.

Redwood Creek provides a critical spawning and rearing habitat for coho salmon and steelhead. Spawning migrations in Redwood Creek begin after heavy late fall or winter rains breach the sandbar at Muir Beach allowing the fish to move upstream (usually in December and January). Spawning populations of coho salmon and steelhead have declined significantly from historic numbers in Redwood Creek. Redwood Creek has been a focus for restoration by the National Park Service to create rearing pools for juvenile salmonids; remove invasive, non-native vegetation in the riparian corridor; and restore the lagoon that once existing at the mouth of the stream at Muir Beach. In its recent status reviews, NMFS reaffirmed that the Central California Coast coho salmon population is currently in danger of extinction.

California Red-legged Frog. The California red-legged frog (*Rana draytonii)* is a federally-listed threatened species and California species of special concern. The historical range of the California red-legged frog extended from the vicinity of Point Reyes National Seashore in Marin County southward to northwestern Baja California, Mexico and inland to approximately Redding in Shasta County. The frog has sustained a 70 percent reduction in its geographic range. The project area is not part of the critical habitat designated under the Endangered Species Act for the California red-legged frog. California red-legged frogs have been observed in a number of aquatic and terrestrial habitats, including marshes, streams, lakes, reservoirs, ponds and other permanent, or near permanent, sources of water. Although they occur in ephemeral streams or ponds, California red-legged frogs are expected to thrive in permanent deep-water pools with dense stands of overhanging willows (*Salix* spp.) and emergent vegetation. However, they have been observed in a variety of aquatic environments, including stock ponds and artificial pools with little to no vegetation. California red-legged frogs usually are observed near water, but can move long distances over land between water sources during the rainy season. California red-legged frogs are known from the watersheds of various watercourses in Coastal Marin, including Redwood Creek. The nearest documented California red-legged frogs are from a small pond adjacent to Redwood Creek near the mouth of the creek in Muir Beach. This location is more than 300 feet from the project site. It is unlikely that California red-legged frogs disperse through the project site.

Western Pond Turtle. The Western pond turtle (*Emys marmorata*) is a state species of special concern. Pond turtles occupy ponds, marshes, rivers, streams, and irrigation ditches with aquatic vegetation. The turtles prefer aquatic habitats with calm waters, vegetated banks and emergent logs or rocks to use as basking sites. The turtles also rely on suitable upland areas of scrub and woodlands for aestival refugia, and may use upland habitats up to 0.5 km from water

for activities such as egg-laying. Pond turtles living in streams may vacate flood-prone areas during the rainy season. Western pond turtles occur broadly in suitable habitats throughout the state of California. The nearest location for Western pond turtle noted in the CNDDB is from Redwood Creek in Muir Beach not far from the Muir Beach parking lot. The species is not likely to occur on the site given the distance to the nearest known location and the lack of habitat for this species.

Monarch Butterfly. The monarch butterfly (*Danuas plexippus*) is considered California Rare and is a CDFW ranked S3 (state vulnerable) species. The species is well-known for its north-south migrations from Canada to Mexico which span the lives of several generations. Monarch butterfly winter roost sites, typically used between October and February, extend along the West Coast from Mendocino County in northern California, south to Baja California in Mexico. Winter roosts consist of hundreds or thousands of monarchs in wind-protected tree groves close to sources of nectar and water. On the California coast, these roosts usually form in eucalyptus, but Monterey pine and Monterey cypress groves are also used. Monarch populations across North America have fallen by as much as 90 percent in the last two decades and in February 2015, the USFWS showed that nearly a billion monarchs had vanished from overwintering sites since 1990. The main reason for the decline has been attributed to herbicides used by farmers and homeowners on milkweed, the butterfly's larval host plant. An overwintering site for monarchs is recorded in the CNDDB at the Muir Beach Community Center, which is approximately 0.15 miles from the project site. The project site habitat is not suitable for establishment of a monarch overwintering site.

Northern Spotted Owl. The Northern Spotted Owl is listed as a threatened species pursuant to the federal Endangered Species Act and as a threatened species by the state of California pursuant to the California Endangered Species Act. Northern Spotted Owls reach the southern limit of their range in Marin County, California. In the northern portion of their range, Northern Spotted Owls are typically found in mature coniferous forests usually from 150 to 200 years old. In Marin County they reside in second growth Douglas-fir, Coast redwood, Bishop pine, mixed conifer-hardwood and evergreen hardwood forests with a nearly closed canopy and moderate to heavy undergrowth and much woody debris. Dusky-footed woodrat is the preferred prey for Northern Spotted Owl in Marin and Sonoma Counties (Shuford 1993, Evens 2008). Nesting Northern Spotted Owls have been found throughout forested habitats in Marin County and use a variety of tree species for nesting. This owl species does not construct a nest, so existing nest structures or cavities must be available. Northern Spotted Owl nesting territories are usually occupied over successive years by nesting pairs, therefore sites occupied in previous years can be assumed to be occupied in subsequent years. Some habituation and sensitization of Spotted Owls to human presence does occur, and successful nesting has been documented with 50 to 100 yards of existing roads (USFWS 2006). The nesting season for Northern Spotted Owl is considered to include the period between February 1 and July 15.

HBG conducted a review of National Park Service and USFWS data regarding known spotted owl nesting territories in the vicinity of the project site and data available from the CNDDB. The

data indicates the location of known activity centers for nesting pairs of the species and locations in the vicinity of the nest sites where occurrences of Northern spotted owl individuals have been documented. This information revealed that the nearest activity center of known territories of Northern spotted owl and the nearest recorded individuals were reported approximately 10,420 feet (1.97 miles) from the property.

BIOLOGICAL IMPACTS

Standards of Significance

According to CEQA Guidelines (Appendix G), the project would be considered to have a significant impact on biological resources if it would:

a) Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special status species in local or regional plans, policies, or regulations, or by the California Department of Wildlife and Game or U.S. Fish and Wildlife Service.

b) Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations or by the California Department of Fish and Wildlife or US Fish and Wildlife Service.

c) Have a substantial adverse effect on federally protected wetlands as defined by Section 404 of the Clean Water Act (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means.

d) Interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites.

e) Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance.

f) Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan.

Impacts

1) Would the project have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Wildlife or U.S. Fish and Wildlife Service?

The Project would not result in any significant adverse impacts on special-status plant or animal species and would not substantially reduce the number or restrict the range of a rare, endangered or threatened species of fauna. None of the plant or animal species discussed in Table 1 have the potential to occur at the construction site. The proposed project would not result in any significant adverse impacts on special status plant or animal species as explained below. The project would not substantially reduce the number or restrict the range of a rare, endangered or threatened species of fauna.

A number of special status species could be present within Redwood Creek which empties into the Pacific Ocean about 315 feet east of the project site. Federally-listed species of fish such as coho salmon and steelhead are known to spawn in Redwood Creek. Other species that are known to be associated with Redwood Creek in Muir Beach include California red-legged frog and Western pond turtle; species such as California giant salamander and foothill yellow-legged frog are known to occur further upstream. Yellow warbler (a species of concern) could nest in the riparian canopy. All of the work associated with construction of the new single-family home or any of the ancillary facilities (including garage/carport and septic leachfield system) would be more than 300 feet from Redwood Creek. No indirect impact would occur to special status organisms that could be found in Redwood Creek including fish species such as coho salmon and steelhead. All of the work on the site will be setback from the Redwood Creek riparian by at least 300 feet and this setback will protect other special status species that could occur along the creek such as the California red-legged frog, Western pond turtle, California giant salamander, foothill yellow-legged frog or potential nesting by Yellow Warbler. There is also no chance that sediments resulting from site erosion during construction or other contaminants in runoff during the life of the project would result in any pollution in Redwood Creek. Although a monarch overwintering site exists in Muir Beach, the tree canopy on the subject property is not well developed enough to support and overwintering site for this species.

There is the possibility that site erosion could result in sedimentation of the waters of the Pacific Ocean below the site. The landowner will require the contractor to follow all applicable Best Management Practices from the California Stormwater Quality Best Management Practices Handbook for Construction Activities (see Item #2 below). The proposed implementation of Best Management Practices will ensure that no migration of soil occurs into the waters below the site.

Further information regarding coho salmon and steelhead is provided below along with a discussion of the potential for impacts to Northern Spotted Owl.

Coho salmon and steelhead. Redwood Creek, located about 300 feet east of the project site, is a documented spawning stream for coho salmon and steelhead. Off-site migration of soil leading to possible siltation of salmon streams is an important consideration as excessive siltation can result in covering of spawning gravels, a decreased respiratory function in fish, increasing turbidity levels and diminishing light penetration to submergent vegetation, and raising of water temperature, all potentially resulting in adverse impacts to fish populations.

Although some disruption of the soil will be necessary to develop the single-family home on the site, none of the work will take place within an area where drainage patterns could result in sedimentation or other indirect impacts that could affect fish populations within Redwood Creek. With the implementation of Best Management Practices included in the project description there would be little possibility of siltation within stormwater runoff that could adversely affect the water quality of any nearby stream, or result in adverse impacts to special status species, including coho salmon and steelhead, that may occur there.

Northern Spotted Owl. Data from the USFWS and NPS in the CNDDB documents the nearest activity center of known territories of Northern Spotted Owl occur nearly 2 miles from the property. HBG evaluated the potential for construction to result in harassment to Northern Spotted Owl based on models developed in the U.S. Fish and Wildlife Service 2006 memorandum "Transmittal of Guidance, Estimating the Effects of Auditory and Visual Disturbance to Northern Spotted Owls and Marbled Murrelets in Northwestern California." The conditions of the proposed project fall under Scenario 3 as described in the models that include a moderate anticipated sound level that would be generated by the type of construction needed for the proposed residential addition (assuming some small trucks and some power tools) and existing ambient sound levels with low human sound-generating activity (some human activities typified by small power tools, light vehicular traffic moving at slow speeds, and rural residential activities). Under this scenario the models used by the USFWS indicate that impacts to Northern Spotted Owl would occur if the species was nesting fairly close to construction activity (visual harassment from construction would likely occur within up to a maximum of 100m or about 330 feet from the activity center for nesting owls, and auditory harassment would occur within about 30m or approximately 100 feet).

According to CDFW, disturbances in the vicinity of nest sites may reach the level of "take" when at least one of the following conditions occur: (i) project-generated sound exceeds ambient nesting conditions by 20 to 25 decibels (dB), (ii) project-generated sound, when added to ambient sounds, exceeds 90 dB, or (iii) human activities occur within a visual line-of-sight distance of 40 meters (approximately 130 feet) from a nest. If nesting Northern Spotted Owl is known to occur within 0.25 miles of construction, a project applicant can either conduct construction operations during the non-nesting season or conduct nesting-season protocol surveys that definitively demonstrate that owls are not nesting in the vicinity of the construction operations. If construction work must be completed during the nesting season and Northern Spotted Owls are nesting within 0.25 miles of the site, CDFW may require that the applicant obtain an Incidental Take Permit (ITP) pursuant to CESA.

The nearest activity center of known territories of Northern Spotted Owl and the nearest observation of the species occurs nearly 2 miles from the project area. Based on information available from National Park Service and USFWS data, construction would take place beyond the distances predicted by the USFWS models within which harassment of nesting owls could occur, and the construction would also not exceed the decibel limits or line-of-sight distance limits specified in the CDFW guidelines to prevent disturbance to nesting Northern Spotted

Owls. No nests are known from within 0.25 miles of the site. Construction activities would not affect nesting Northern spotted owls according to review criteria of USFWS or CDFW.

Special Status Plants. Nearly all of the ground cover vegetation at the site is non-native landscape or ornamental species and does not provide habitat for special status plant species. All of the species mentioned in Table 1 require habitat conditions that are not found at the site of the proposed residential construction. No impacts to special status species of plant would result from the proposed residential improvements.

2) Would the project have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, or regulations or by the California Department of Fish and Game or US Fish and Wildlife Service?
The proposed residence would not conflict with any Stream Conservation Area on or near the property. There are no creeks located on the subject property or in the vicinity of the project. The nearest stream as defined by the Unit I Marin County LCP or by criteria used by CDFW is Redwood Creek which is located just over 300 feet from the property. No construction would occur within 100 feet of a creek, so no direct or indirect impacts to riparian habitat or Stream Conservation Areas would result from construction of the proposed improvements.

3) Would the project have a substantial adverse effect on federally protected wetlands as defined by Section 404 of the Clean Water Act (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means?
As no wetlands or waters of the U.S. or state are found on the property, development of the property as proposed would not result in filling (direct impacts) or any indirect impacts to any area that would be subject to the Clean Water Act jurisdiction of the U.S. Army Corps of Engineers, the Porter-Cologne Act jurisdiction of the SFBRWQCB, the Section 1602 Fish and Game Code jurisdiction of CDFW, or to regulation by Marin County under the Local Coastal Program or Marin Countywide Plan. No permits from the USACE, SFBWQCB, or CDFW would be required.

4) Would the project interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites?
Athough a number of bird and other animal species were observed on the property during field surveys, the construction of the improvements as planned would occur within an area consisting of non-native trees and mostly non-native shrubs and grasses. The site development will require removal of vegetation including the removal of a number of non-native trees including Monterey cypress, Monterey pine, blackwood acacia and eucalyptus. As the construction activities would take place within habitats vegetated with mostly non-native trees and other species, the proposed construction would not result in substantial change to animal populations at the site. Valuable habitats for various species can be found in the forested habitats throughout much of the remainder of the site and the area surrounding the site, so ample habitats are present to support the small number of individual animals that may be

forced to relocate from the construction zone. The project will not cause a fish or wildlife population to drop below self-sustaining levels.

Even though the trees are non-native, cavities and other features of the trees and shrubs and other vegetation could provide substrate for nesting birds. Therefore, the project applicant has included bird nesting surveys as part of the Project Description to ensure that no nesting birds are harmed during construction and to ensure compliance with the MBTA and California Fish and Game code sections pertaining to protection of nesting birds. If vegetation is to be removed during the February 1 to August 31 nesting season, a qualified biologist will conduct a preconstruction breeding bird survey in areas of suitable habitat within 15 days prior to the onset of construction activity. If active bird nests are found, appropriate buffer zones will be established around the active nests to protect nesting adults and their young from construction disturbance. Size of buffer zones will be determined per recommendations of the biologist based on site conditions and species involved and will be maintained until it can be documented that either the nest has failed or the young have fledged.

During all activities involving land disturbance, the applicant will require the contractor to follow all applicable best management practices from the California Stormwater Quality Best Management Practices Handbook for Construction Activities. With the implementation of best management practices, including the use of straw wattles, covering of stockpile areas and other practices, there would be little possibility of siltation within stormwater runoff that could adversely affect the water quality of nearby streams.

5) Would the project conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?
The project would not conflict with any policies of the Unit I LCP, the Marin Countywide Plan or other ordinances of the County of Marin. No wetlands or riparian corridors would be affected by construction of the residence on the property. The project is consistent with the minimum setback requirements from sensitive biological resources as stipulated by the California Coastal Act and the County's LCP or the Marin Countywide Plan. No native trees will need to be removed to accommodate the proposed residential development.

6) Would the project conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan?
There is no adopted Habitat Conservation Plan, Natural Community Conservation Plan or other approved local, regional, or state habitat conservation plan applicable to the project site.

As a result of this Biological Site Assessment, we find that the proposed new construction at 183 Sunset Way in Muir Beach will be consistent with requirements of the Coastal Act and the County's LCP and Marin Countywide Plan. If you have any questions regarding this Biological

Site Assessment report for the property at 183 Sunset Way in Muir Beach, please call either me or Dr. Terry Huffman at 415-925-2000.

Sincerely,

DRAFT

Gary Deghi
Vice President/Senior Environmental Scientist

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Table 1. Special Status Animal and Plant Species Documented in the Project Vicinity

SPECIES	STATUS[2] FED/STATE/CNPS	HABITAT	OCCURRENCE ON THE PROJECT SITE
ANIMALS			
INVERTEBRATES			
Sandy beach tiger beetle (*Cicindela hirticollis gravida*)	--/--	Inhabits areas adjacent to non-brackish water along the coast of California from San Francisco Bay northern Mexico. Found in clean, dry, light-colored sand in the upper zone, and subterranean larvae prefer moist sand not affected by wave action.	Not present. Suitable habitat is not found at the site.
Robust walker *(Pomatiopsis binneyi)*	--/--	Found in freshwater habitats. Believed to occur in the area, but no specific records based on collected or observed specimens in the CNDDB.	Not present. Suitable habitat not present on site.
Obscure bumble bee *(Bombus caliginosus)*	--/--	Found in Coastal areas from Santa Barbara County north to Washington State. Food plant genera include *Baccharis, Cirsium, Lupinus, Lotus, Grindelia* and *Phacelia*.	This uncommon species could occur almost anywhere in the general area of the site and is included in the CNDDB due to a general decline in bee populations in recent years.
Western Bumble Bee *(Bombus occidentalis)*	--/--	This species was once common and widespread, but the species has declined precipitously from Central California to Southern British Columbia, perhaps from disease.	This widespread and once common species could occur almost anywhere in the general area of the site and is included in the CNDDB due to a general decline in bee populations in recent years.
Opler's Longhorn Moth *(Adela oplerella))*	FSC/--	Serpentine grassland; larva feed on *Platystemon californicus.*	Not present. Suitable habitat is not found at the site.
Monarch butterfly	Rare	Winter roost sites extend along the coast	Not present. Winter roosting

Table 1. Special Status Animal and Plant Species Documented in the Project Vicinity

SPECIES	STATUS[2] FED/STATE/CNPS	HABITAT	OCCURRENCE ON THE PROJECT SITE
(*Danaus plexippus*)		from northern Mendocino to Baja California, Mexico. Roosts located in wind-protected tree groves (eucalyptus, Monterey pine, cypress) with nectar and water sources nearby.	sites are not present at the site. An overwintering is known from the Muir Beach Community Center.
Mission Blue Butterfly (*Plebejus icarioides missionensis*)	FE/--	Inhabits grasslands mainly on the San Francisco Peninsula. Larval host plants are *Lupinus albifrons*, *L. variicolor*, and *L. formosus.*	Not present. Suitable habitat not present at the site.
Marin hesperian (*Vespericola marinensis*)	-/-	Found in moist spots in coastal brushfields and chaparral vegetation in Marin County. Found under leaves of cow-parsnip, around spring seeps, in leafmold along streams and in alder woods and mixed evergreen forest.	Not present. Suitable habitat is not present at the site.
FISH			
Coho salmon – central California ESU (*Oncorhynchus kisutch*)	FE/CE	Requires beds of loose, silt-free, coarse gravel for spawning. Also need cover, cool water and sufficient dissolved oxygen. Nearest spawning stream is Redwood Creek.	Not present. Suitable habitat is not present at the site. Known to occur in Redwood Creek. No direct or indirect impact would occur to Redwood Creek as a result of the project.
Steelhead – Central CA Coast ESU (*Oncorhynchus mykiss*)	FT/CSC	Well-oxygenated streams with riffles; loose, silt-free gravel substrate Pine Gulch Creek to the north. Nearest spawning stream is Redwood Creek.	Not present. Suitable habitat is not present at the site. Known to occur in Redwood Creek. No direct or indirect impact would occur to Redwood Creek as a result of the project.

Table 1. Special Status Animal and Plant Species Documented in the Project Vicinity

SPECIES	STATUS[2] FED/STATE/CNPS	HABITAT	OCCURRENCE ON THE PROJECT SITE
Tidewater goby (*Eucyclogobius newberryi*)	FE/--	Brackish water habitats along the California Coast from Agua Hedionda Lagoon, San Diego County to the mouth of the Smith River. Found in shallow lagoons and lower stream reaches, they need fairly still but not stagnant water and high oxygen levels.	Not present. Suitable habitat is not present at the site.
Longfin smelt *(Spirinchus thaleichthys)*	FC/CE,CSC	Found in open waters of estuaries, mostly in the middle or bottom of the water column. Euryhaline, nektonic and anadromous. Prefers salinities of 15030 ppt but can be found in both freshwater and seawater.	Not present. Suitable habitat is not present at the site.
AMPHIBIANS			
California red-legged frog *(Rana draytonii*)	FT/CSC	Mostly found in lowlands and foothills in/near permanent sources of deep water but will disperse far during and after rain. Prefers shorelines with extensive vegetation. Requires 11-20 weeks of permanent water for larval development and requires access to aestivation habitat. Known from several locations along Redwood Creek.	Not present. Suitable habitat is not present at the site. Known to occur in Redwood Creek. No direct or indirect impact would occur to Redwood Creek as a result of the project.
California giant salamander *(Dicamptodon ensatus)*	--/CSC	Known from wet coastal forests near streams and seeps from Mendocino County south to Monterey County and east to Napa County. Aquatic larvae are found in cold, clear streams, occasionally in lakes and ponds. Adults are found in wet forests under rocks and logs near streams and lakes.	Not present. Suitable habitat is not present at the site. Known to occur in Redwood Creek. No direct or indirect impact would occur to Redwood Creek as a result of the project.

Table 1. Special Status Animal and Plant Species Documented in the Project Vicinity

SPECIES	STATUS[2] FED/STATE/CNPS	HABITAT	OCCURRENCE ON THE PROJECT SITE
Foothill Yellow-legged Frog (*Rana boylii*)	--/CSC	Partly-shaded, shallow streams and riffles with a rocky substrate in a variety of habitats. Need at least some cobble-sized substrate for egg-laying; larvae need at least 15 weeks to attain metamorphosis.	Not present. Suitable habitat is not present at the site. Known to occur in Redwood Creek. No direct or indirect impact would occur to Redwood Creek as a result of the project.
REPTILES			
Western pond turtle (*Emys marmorata*)	--/CSC	Aquatic turtle of ponds, marshes, rivers, streams, and irrigation ditches with aquatic vegetation. Needs basking sites and suitable upland habitat for egg-laying (sandy banks or grassy open fields).	Not present. Suitable habitat is not present at the site. Known to occur in Redwood Creek. No direct or indirect impact would occur to Redwood Creek as a result of the project.
BIRDS			
Great blue heron (*Ardea herodias*) (Rookery)	-/-	Colonial nester in tall trees, cliff sides, and sequestered spots on marshes. Rookery sites in close proximity to foraging areas: marshes, lake margins, tide-flats, rivers and streams, wet meadows.	Not present. Suitable habitat for a rookery is not present at the site.
White-tailed kite (*Elanus caeruleus*) [nesting]	-/CFP	Open grassland and agricultural areas throughout Central California.	Not present. Suitable habitat not present on site. Species likely forages on or near the site, especially in winter.
Cooper's hawk (*Accipiter cooperii*) [nesting]	-/WL	Nests primarily in deciduous riparian forests; forages in open woodlands.	Not present. Suitable habitat not present on site. Species likely forages on or near the site, especially in winter.

Table 1. Special Status Animal and Plant Species Documented in the Project Vicinity

SPECIES	STATUS[2] FED/STATE/CNPS	HABITAT	OCCURRENCE ON THE PROJECT SITE
Osprey (*Pandion haliaetus*) [Nesting]	--/WL	Breeds in northern California from the Cascade Ranges south to Lake Tahoe, and along the coast south to Marin County. Associated strictly with large, fish-bearing waters, primarily in Ponderosa pine through mixed conifer habitats.	Not present. Occurs in the area and was observed flying over the site, but suitable nesting habitat was not observed at the project site or immediate vicinity.
American Peregrine Falcon (*Falco peregrinus anatum*)	Delisted,BCC/Delisted, FP	Nests in woodland, forest and coastal habitats, on cliffs or banks, and usually near wetlands, lakes, rivers, sometimes on human-made structure. In non-breeding seasons found in riparian areas and coastal and inland wetlands.	Not present. Occurs in the area but suitable nesting habitat is not present at the site.
Ridgway's (California clapper) Rail (*Rallus obsoletus*)	FE/CE,FP	Found in saltwater marshes traversed by tidal sloughs in the vicinity of San Francisco Bay; associated with abundant growths of pickleweed; feeds on mollusks obtained from mud-bottomed sloughs.	Not present. Suitable habitat not present at the site.
California black rail *(Laterallus jamaicensis coturniculus*)	--/CT,FP	Mainly inhabits salt-marshes bordering larger bays. Occurs in tidal salt marsh with dense growths of pickleweed; also occurs in freshwater and brackish marshes.	Not present. Suitable habitat is not present at the site.
Northern spotted owl (*Strix occidentalis caurina*)	FT/--	In the northern portion of their range, Northern spotted owls are typically found in mature coniferous forests. In Marin County they reside in second growth Douglas-fir, coast redwood, bishop pine, mixed conifer-hardwood, and evergreen hardwood forests. Nesting Northern spotted owls have been found throughout forested habitats in Marin.	Not present. Suitable habitat is not found at the site. Nearest activity center is nearly 2 miles from the site.

Table 1. Special Status Animal and Plant Species Documented in the Project Vicinity

SPECIES	STATUS[2] FED/STATE/CNPS	HABITAT	OCCURRENCE ON THE PROJECT SITE
Saltmarsh common yellowthroat (*Geothlypis trichas sinuosa*)	BCC/CSC	Requires thick continuous cover down to water surface for foraging; tall grasses, tule patches, willows for nesting.	Not present. Suitable habitat is not present at the site.
Yellow Warbler *(Dendroica petechia)* [nesting]	BCC/CSC	Breeds in deciduous riparian woodlands, widespread during fall migration.	Not present. Suitable nesting habitat is not present at the site. May occur as a transient during fall migration.
MAMMALS			
Point Reyes jumping mouse *(Zapus trinotatus orarius)*	--/CSC	Primarily bunch grass marshes, also coastal scrub grassland and meadows. Builds grassy nest on ground under vegetation and burrows in winter.	Not present. Suitable habitat is not present at the site.
Salt Marsh harvest mouse (*Reithrodontomys raviventris*)	FE/CE,FP	Inhabits saline emergent wetlands in the San Francisco Bay and its tributaries. Pickleweed is the primary habitat.	Not present. Suitable habitat not present at the site.
American badger (*Taxidea taxus*)	--/CSC	Drier open stages of most shrub, forest, and herbaceous habitats; needs sufficient food, friable soils and open, uncultivated ground.	Not present. Suitable habitat is not present at the site.
Townsend's Big-eared Bat *(Corynorhinus townsendii)*	--/CCT,CSC	Found in desert scrub and coniferous forests. Roost in caves or abandoned mines and occasionally are found to roost in buildings.	Not present. Suitable habitat is not present at the site.
PLANTS			
Napa false indigo (*Amorpha californica* var. *napensis*)	--/-/1B.2	Broadleafed upland forest, chaparral, cismontane woodland. Openings in forest or woodland or in chaparral. 150-2000m.	Not present. Suitable habitat is not found at the site.
Bent-flowered fiddleneck (*Amsinckia lunaris*)	--/--/1B.2	Cismontane woodland, valley and foothill grassland. 5-500m	Not present. Suitable habitat is not found at the site.

Table 1. Special Status Animal and Plant Species Documented in the Project Vicinity

SPECIES	STATUS[2] FED/STATE/CNPS	HABITAT	OCCURRENCE ON THE PROJECT SITE
Mt. Tamalpais manzanita (*Arctostaphylos montana*)	--/--/1B	Chaparral, valley and foothill grassland. Known from fewer than 20 occurrences in the Mt. Tamalpais area, Marin County. Serpentine slopes in chaparral and grassland: 160-760 m.	Not present. Suitable habitat is not found at the site.
Marin manzanita (*Arctostaphylos virgata*)	--/-/1B.2	Broadleafed upland forest, closed-cone coniferous forest, chaparral, north coast coniferous forest. Only known from about 20 EOS in Marin County. On sandstone or granitic soil 60–700 m.	Not present. Suitable habitat is not found at the site.
Coastal marsh milk-vetch (*Astragalus pycnostachyus* var. *pycnostachyus*)	-/-/1B.2	Mesic sites in coastal dunes or along streams or coastal salt marshes. 0-30m.	Not present. Suitable habitat is not found at the site.
Thurber's Reed Grass *(Calamagrostis crassiglumis)*	--/--/2B.1	Usually found in marshy swales surrounded by grassland or coastal scrub. 10-45m.	Not present. Suitable habitat is not found at the site.
Coastal bluff morning-glory *(Calystegia purpurata ssp. saxicola)*	--/--/1B.2	Found Coastal dunes, Coastal scrub, Coastal bluff scrub and North coniferous forest. 5-430m.	Not present. Suitable habitat is not found at the site.
Lyngbye's sedge (*Carex lyngbyei*)	-/-/2B.2	Marshes and swamps (brackish or freshwater) at sea level.	Not present. Suitable habitat is not found at the site.
Point Reyes bird's salty beak (*Chloropyron maritimum palustre*)	-/-/1B.2	Usually in coastal salt marsh with *Salicornia, Distichlis, Jaumea, Spartina,* etc.	Not present. Suitable habitat is not found at the site.
San Francisco Bay spineflower (*Chorizanthe cuspidata cuspidata*)	--/--/1B.1	Found on sandy soil on terraces and slopes within coastal bluff scrub, coastal dunes, coastal prairie and coastal scrub. 5-550m.	Not present. Suitable habitat is not found at the site.
Franciscan thistle (*Cirsium andrewsii*)	-/-/1B.2	Coastal bluff scrub, broadleaved upland forest and coastal scrub. Sometimes found in serpentine seeps.	Not present. Suitable habitat is not found at the site.

Table 1. Special Status Animal and Plant Species Documented in the Project Vicinity

SPECIES	STATUS[2] FED/STATE/CNPS	HABITAT	OCCURRENCE ON THE PROJECT SITE
Mt. Tamalpais thistle (*Cirsium hydrophilum* var. *vaseyi*)	--/--/1B.2	Broadleafed upland forest, chaparral. Endemic to Marin County. Serpentine seeps and streams in chaparral and woodland. 265–620 m.	Not present. Suitable habitat is not found at the site.
Western leatherwood (*Dirca occidentalis)*	-/-/1B.2	Occurs on brushy slopes and mesic sties in in broadleafed upland forest, chaparral, close-cone coniferous forest and a variety of other forested habitats. 30-550m.	Not present. Suitable habitat is not found at the site.
Tiburon buckwheat (*Eriogonum* luteolum var. *caninum*)	--/--/1B.2	Found in serpentine soils in sandy to gravelly sites within chaparral, valley and foothill grassland, cismontane woodland and coastal prairie. 0-700 m.	Not present. Suitable habitat is not found at the site.
Minute pocket moss *(Fissidens pauperculus)*	--/--/1B.2	Found in North Coast coniferous forest. This moss grows on damp soil along the Coast and found in dry streambeds and on stream banks. 10-1024 m.	Not present. Suitable habitat is not found at the site.
Marin checker lily (*Fritillaria lanceolata* var. *tristulis*)	--/-/1B.1	Coastal bluff scrub, coastal scrub, coastal prairie. Endemic to Marin County. Occurrences reported from canyons and riparian areas as well as rock outcrops; often on serpentine. 30–300 m..	Not present. Suitable habitat is not found at the site.
Blue coast gilia (*Gilia capitata ssp. chamissonis*)	-/-/1B.1	Coastal dunes and coastal scrub. 2-200m.	Not present. Suitable habitat is not found at the site.
Dark-eyed gilia *(Gilia millefoliata)*	--/--/1B	Coastal dunes. 2-20m.	Not present. Suitable habitat is not found at the site.

Table 1. Special Status Animal and Plant Species Documented in the Project Vicinity

SPECIES	STATUS[2] FED/STATE/CNPS	HABITAT	OCCURRENCE ON THE PROJECT SITE
Diablo helianthela *(Helianthela castenea)*	--/--/1B.2	Broadleaved upland forest, chaparral, cismontane woodland, coastal scrub, riparian woodland, valley and foothill grassland. Usually in chaparral/oak woodland interface in rocky, azonal soils. Often in partial shade. 25-1150m.	Not present. Suitable habitat is not found at the site.
Santa Cruz tarplant *(Holocarpha macradenia)*	FT/CE/1B	Sandy soil or sandy clay in coastal prairie and valley and foothill grassland. 10-260m.	Not present. Suitable habitat is not found at the site.
Point Reyes horkelia (*Horkelia marinensis*)	-/-/1B.2	Coastal dunes, coastal prairie and coastal scrub; in sandy flats and dunes of grassland or scrub habitats near the coast. 5-30m.	Not present. Suitable habitat is not found at the site.
Thin-lobed horkelia (*Horkelia tenuiloba*)	--/--/1B.2	Coastal scrub, chaparral. Sandy soils, mesic openings. 45–500 m.	Not present. Suitable habitat is not found at the site.
Small groundcone (*Kopsiopsis hookeri*)	--/--/2B.3	North Coast coniferous forest. Found in open woods and shrubby places, generally on Gaultheria shallon. 120-1435 m.	Not present. Suitable habitat is not found at the site.
Marsh microseris (*Microseris paludosa*)	-/-/1B.2	Closed-cone coniferous forest, cismontane woodland, coastal scrub, valley and foothill grassland. 5-300m.	Not present. Suitable habitat is not found at the site.
Marin County navarretia (*Navarretia rosulata*)	--/--/1B.2	Closed-cone coniferous forest, chaparral. Known only from Marin and Napa Counties. Dry, open rocky places; can occur on serpentine. 200–635 m.	Not present. Suitable habitat is not found at the site.
White-rayed pentachaeta (*Pentachaeta bellidiflora)*	FE/CE/1B.1	Mostly on soils derived from serpentine bedrock or open, dry rocky slopes and grassy areas of valley and foothill grassland. 35-620m.	Not present. Suitable habitat is not found at the site.

Table 1. Special Status Animal and Plant Species Documented in the Project Vicinity

SPECIES	STATUS[2] FED/STATE/CNPS	HABITAT	OCCURRENCE ON THE PROJECT SITE
Hairless popcornflower *(Plagiobothrys glaber)*	--/--/1A	Found in meadows and seeps, marshes and swamps. Coastal salt marshes and alkaline meadows. 5-125m.	Not present. Suitable habitat is not found at the site.
Oregon polemonium *(Polemonium carneum)*	--/--/2B.2	Found in Coastal prairie, coastal scrub and lower montane coniferous forest. 0-1830m.	Not present. Suitable habitat is not found at the site.
Tamalpais oak *Quercus parvula* var. *tamalpaisensis*	-/-/1B.3	Lower montane coniferous forest. 100-750m.	Not present. Suitable habitat is not found at the site.
Marin checkerbloom (*Sidalcea hickmanii* ssp. *viridis*)	--/--/1B.1	Found in serpentine or volcanic soils in chaparral. Sometimes appears after burns. 1-425 m.	Not present. Suitable habitat is not found at the site.
Scouler's catchfly *(Silene scouleri ssp. scouleri)*	--/--/2B.2	Found in Coastal Bluff Scrub, Coastal Prairie, and valley and foothill grasslands. 5-315 m.	Not present. Suitable habitat is not found at the site.
Santa Cruz microseris (*Stebbinsoseris decipiens*)	--/--/1B	Found in broadleaved upland forest, closed-cone coniferous forest, chaparral, coastal prairie and coastal scrub. Occurs in open areas on seaward slopes in loose or disturbed soil, usually derived from sandstone, shale or serpentine. 10-500m.	Not present. Suitable habitat is not found at the site.
Tamalpais jewel-flower (*Streptanthus batrachopus)*	--/-/1B.3	Closed-cone coniferous forest, chaparral. Endemic to Marin County. Talus serpentine outcrops. 410-650 m.	Not present. Suitable habitat is not found at the site.
Mt. Tamalpais bristly jewelflower (*Streptanthus glaudulosus* spp. *pulchellus*)	--/--/1B.2	Serpentine slopes in chaparral and valley and foothill grassland. 125-670 M.	Not present. Suitable habitat is not found at the site.
Two-fork clover (*Trifolium amoenum*)	FE/-/1B.1	Valley and foothill grassland, coastal bluff scrub, sometimes on serpentine soil. 5-560m.	Not present. Suitable habitat is not found at the site.

Table 1. Special Status Animal and Plant Species Documented in the Project Vicinity

1. Source: California Natural Diversity Data Base, Natural Heritage Division, California Department of Fish and Wildlife for the Point Bonita 7.5 Minute Quadrangle Map and surrounding areas, October 2019.

2. Status Codes:

FE	Federal-listed Endangered	CE	California State-listed Endangered
FT	Federal-listed Threatened	CT	California State-listed Threatened
FPE	Federally Proposed Endangered	CR	California Rare
FPT	Federally Proposed Threatened	FP	California Fully Protected
BCC	USFWS Bird Species of Conservation Concern	CSC	CDFW Species of Special Concern
		WL	CDFW Watch List Species

California Rare Plant Rank 1A: Plants presumed extirpated in California and either rare or extinct elsewhere.
California Rare Plant Rank 1B: Plants rare, threatened, or endangered in California and elsewhere.
California Rare Plant Rank 2A: Plants presumed extirpated in California, but more common elsewhere.
California Rare Plant Rank 2B: Plants rare, threatened, or endangered in California, but more numerous elsewhere.
California Rare Plant Rank 3: Plants about which more information is needed – a review list.
California Rare Plant Rank 4: Plants of limited distribution – a watch list.

CNPS Threat Ranks
0.1-Seriously threatened in California (over 80% of occurrences threatened / high degree and immediacy of threat)
0.2-Moderately threatened in California (20-80% occurrences threatened / moderate degree and immediacy of threat)
0.3-Not very threatened in California (<20% of occurrences threatened / low degree and immediacy of threat or no current threats known)

Exhibit A-7

Original Applicant Summary

Response to Appeal

Sent to Costal Commission Staff Prior to Staff Report

Coastal Commission Appeal A-2-MAR-21-0048 183 Sunset Way – Muir Beach
Applicant Summary Response 1

To address this appeal most thoroughly, we attempted to section out all the specific issues that are being brought up. In the following pages you will see our preliminary responses to issue 1 – 12 and supporting information.

Appeal Reasons – Page 6, Commission Notification of Appeal

Marin County approved a coastal permit to construct a new 2,160 square-foot single family residence, 430 square-foot garage, 369 square-foot storage structure, septic system, and related residential development, all on steep bluffs and all fronted by new **(1) proposed shoreline armoring**, as well as **(2) existing unpermitted armoring seaward** of that, at 183 Sunset Way in Muir Beach in Marin County. The County's approval raises issues of consistency with LCP provisions related to development on **(3) steep bluffs along an eroding shoreline above the beach.**

Specifically, the LCP requires that new development be **(3a) set back from coastal blufftop** edges a sufficient distance to ensure that such development is safe, stable, and won't be threatened by coastal hazards within its expected economic lifetime, and such setbacks are required to be of a sufficient distance to eliminate the need for **(3b) shoreline armoring, all as measured over at least the development's expected economic life.** In addition, the LCP has **(3c) additional mitigation measure requirements** in steep slope/landslide areas such as this.

In this case, the **(4) County identified a blufftop edge** that appears to actually be a position on the bluff face, and measured setbacks from that point. However, it is not clear that the 'edge' is anything more than a point on the face of the bluff, including as the entire site appears to extend from Sunset Way down to the beach at a roughly 45 degree angle, and thus **(5) all of the proposed development may actually be seaward of the blufftop edge here.** In addition, the project includes a substantial **(6) foundation system** (carving the new structures into the bluff, as well as **(7) new armoring and a reliance on unpermitted armoring**, to establish safety and stability for the development over time.

(8) None of this appears to be LCP consistent, and raises concerns about LCP conformance as it relates to **(9) coastal hazards**, **(10) landform alteration**, **(11) public views**, **(12) public access**, and related shoreline and beach area coastal resources. These issues and concerns warrant further Commission review and deliberations.

Coastal Commission Appeal A-2-MAR-21-0048 183 Sunset Way – Muir Beach
Applicant Summary Response 1

CCC Appeal Reasons
(1) proposed shoreline armoring, as well as
(2) existing unpermitted armoring seaward
(3) steep bluffs along an eroding shoreline above the beach.
  (3a) Bluff erosion rate determination and setback
  (3b) Shoreline armoring / economic life
  (3c) Additional mitigation measure requirements

(4) County identified blufftop edge (Identification and Placement)
(5) All of the proposed development may actually be seaward of the blufftop edge
(6) Foundation system
(7) New armoring and reliance on existing armoring to establish safety and stability

(8) None of this appears to be LCP consistent
(9) Coastal hazards
(10) Landform alteration
(11) Public views
(12) Public access

Applicant Responses:

(1) Proposed Shoreline Armoring:

The applicant does not propose any shoreline armoring. The subsurface leach field piers were proposed to mitigate any surface instability potentially caused by the septic leach field; not to armor the shoreline. Subsurface piers were originally located 50' down slope from the leach field to meet a preferred County Environmental Health Dept. (EHS) setback. Upon further discussion between EHS, Geotech & Septic Engineer, the placement was reevaluated to 25' down slope of the leach field as indicated in the revised site plan dated 07/01/21. The revised uphill placement locates the piers more than 25' from the bluff edge and gives them a minimum 50 year life before potential impact from bluff erosion. (See bluff erosion rate information below). The original septic leach field placement was landward of the bluff and was never intended to provide any armoring of the shoreline. The intent was to provide subsurface soil stabilization from potential impacts of water emitted from the leach field. System stabilization measures are common for septic systems on slopes. This subsurface element does not armor the shoreline.

(2) Existing armoring unpermitted armoring seaward

There are existing armaments along the beach detailed in **Geotechnical report # 2, sect. 4.11.** Most are located on a different parcel owned by a neighbor. Some do extend onto the lower section of the applicants' parcel. Based on the applicants' understanding and supported by the geotechnical evaluation including validated historical arial photos existing armoring.

a) Stone bath seawalls constructed in the 60's prior to the coastal act and should be considered legal non-conforming and allowed to exist until naturally eroded. With the exception of a small section of the original seawall, the Stone Bath seawalls are located on neighbor's parcel (County Parcel # 199-235-57). Applicant has never made any improvements to the seawall that extends below applicants' property. Applicants do not

believe this armament to be their responsibility, nor should it affect the assessment or feasibility of the proposed home.

***The owner of the stone bath seawall currently has a County open enforcement action against her and her property for improvements she allergy made to the seawall. The applicant and applicant's property are not involved in this or any other enforcement action. Applicant believes the CCC has been involved in this action and should be familiar with the issue.**

b) Stone Riprap. Installed in 1986 as part of a community shoreline armoring project approved and permitted. After the storms of 1982 and 1983 Ken High applied for and was issued a permit for beach fortification. Additional residents joined under the permitted project and extended the armoring along little beach. Some of the stone armoring extends along a small lower section of applicants' property. The armoring was installed by Ghlottii Bros. Construction and required coordination with the County and National Park Service. Large excavators were walked across the federal property at big beach and many large dump loads of rocks were staged in the old dirt parking area. At the time applicant was 6 years old and remembers the trucks and excavators down on the beach. This was not a "unpermitted" operation; there was considerable coordination and applicant believes that the coastal commission or county has documentation of the permit. Applicants did not install the rock. Applicants have never made any improvements or repairs to the legal, permitted armoring.

c) Natural Rocks. The area below project site is naturally fortified with a rocky section that divides "big beach" from "Little beach" These rocks demonstrate evidence of subsurface stability and provide natural fortification to the bluff.

(3) Steep Bluffs

The proposed building site is a hillside, not a bluff. The bluff is located at the lower section of the property as indicated in the topographic survey completed and validated by 2 separate licensed surveyors. (JL Engineering – San Rafael & Meridian – San Rafael) There are no proposed new structures seaward of the bluff and no proposed structures less than 25' landward of the bluff. **The plan is consistent with current structural engineering feasibility standards and does not conflict with anything in the LCP.**

Specifically:
a. The LCP requires that new development be set back from coastal blufftop edges a sufficient distance to ensure that such development is safe, stable, and won't be threatened by coastal hazards within its expected economic lifetime, and such

b. Setbacks are required to be of a sufficient distance to eliminate the need for shoreline armoring, all as measured over at least the development's expected economic life.

c. In addition, the LCP has additional mitigation measure requirements in steep slope/landslide areas such as this.

- **(3a) Bluff erosion rate determination and setback:**

The LCP requires that new development be set back from coastal blufftop edges a sufficient distance to ensure that such development is safe, stable, and won't be threatened by coastal hazards within its expected economic lifetime,

Per Marin LCP:

"Setback (meters) = structure life (years, normally at least 40 years) X retreat rate (meters/year). In areas where vigorous sliding is taking place, an additional 15 meters should be added as a safety factor."

"The retreat rate shall be determined by a geotechnical investigation conducted by a professional engineer or registered geologist which explicitly examines the site's geotechnical capability to adequately support the proposed development. The report shall include the historic and projected rate(s) of bluff retreat attributable to wave and/or surface runoff erosion."

The retreat rate was established by Miller Pacific geotechnical engineering – Michael Jewett, PE and includes all required evaluation sections. The project was also reviewed and supported by Rich Souza, septic engineer who is also a licensed geologist. Both parties agree on the established bluff retreat rate.

Per Geotechnical report # 2 Page 10, 4.11

> Based on current conditions and interpreted rates of historic bluff retreat, we estimate a future bluff retreat rate of about **6-inches per year**. Therefore, we recommend establishment of a 50-foot minimum setback from the edge of the bluff, as shown on Figure 2, if the project is to be designed for a 100-year service life.
>
> Existing armament along the beach is sited in the report for transparency and context. The 6" per year erosion rate is an assessment of what could occur and does not reflect the effects of existing shoreline armament located on neighbor's property seaward of the development site.

Based on this 6" per year erosion rate the proposed developments have been placed at the following locations.

Leach field stabilizing piers – 25' (50 year)
Leach Field & Septic – 50' (100 year)
House 75' – (150 year)
(Per Marin EHS, Septic economic life 30-40 years the system sits at 100 years and the house at 150 years. <u>Both greatly exceed LCP requirements</u>)

- **(3b) Shoreline armoring / Economic Life**
  - setbacks are required to be of a sufficient distance to eliminate the need for shoreline armoring, all as measured over at least the development's expected economic life.
  - There is **<u>no shoreline armoring proposed</u>** in this project
  - All proposed structures are located a sufficient distance from bluff to exceed expected economic life and are **<u>consistent with the requirements of the LCP</u>**

Coastal Commission Appeal A-2-MAR-21-0048 183 Sunset Way – Muir Beach
Applicant Summary Response 1

- **(3c) Additional mitigation measure requirements:**
  - LCP has additional mitigation measure requirements in steep slopes such as this: "In areas where vigorous sliding is taking place, an additional 15 meters should be added as a safety factor"
    There is no vigorous sliding occurring on the site. There is natural coastal bluffs with minimal historic erosion that does not meet the definition of vigorous sliding. Therefore the 15 meter safety factor was not applied to this project. Per the Geotechnical recommendations, the 15 meter safety factor is **not** required for steep slopes as indicated in the appeal.
    The proposed project meets the requirements of the LCP.

- **(4) County identified blufftop edge (Identification and Placement)**
  - The County did not identify the blufftop edge. The blufftop edge was identified and placed by two separate licensed surveyors. (JL Engineering & Meridian) The location of the bluff is identified on the topographic survey submitted by applicant to the county as part of the planning package. The blufftop identification and placement was later validated by Mike Jewett- PE at Miller Pacific Geotechnical engineering and used in their report. In addition to that the identification and location was also validated by Rich Souza- Licensed geologist and septic engineer and used in his plan and site evaluation.

    - *Under the California Coastal Act, the bluff edge is 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 face, the bluff line or edge shall be defined as that point nearest the cliff beyond which the downward gradient of the surface in- creases 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 cliff edge..." (California Code of Regu- lations, Title 14, §13577 (h) (2).

- **(5) all of the proposed development may actually be seaward of the blufftop edge**
  - This statement is not consistent with current guidance or definitions adopted in the Marin LCP or Coastal Act. See above CCR – title 14, 13577 (h) (2)

- **(6) Foundation system:**
  - The project adheres to the uniform building code and industry standards for design and engineering. The proposed stepped back house design reduces the depth of the excavation and provides a safe and stable building by incorporating foundation piers into the engineering. Foundation piers are standard engineering for almost all new hillside projects. All proposed grading, excavation and engineering is consistent with the requirements in the LCP.
  - The project does not require carving into a bluff. The proposed project is located on a hillside with substantial setbacks from the bluff below.

Coastal Commission Appeal A-2-MAR-21-0048 183 Sunset Way – Muir Beach
Applicant Summary Response 1

- **(7) New armoring and reliance on existing armoring to establish safety and stability:**

    - There is no new armoring proposed and no reliance on existing armoring is suggested by the applicant. System stabilization measures are common for septic systems on slopes. This subsurface element does not armor the shoreline.

- **(8) None of this appears to be LCP consistent**

    - The applicant and project team all feel the project is consistent with the County's LCP. With the approval of this project at the local level, it would appear that the county staff also feels that this project is consistent with the Marin LCP as well. Some of the Items listed in the last paragraph (Public views, Public access) do not seem to be consistent with anything that was brought up in the rest of the appeal.

- **(9) Coastal hazards**
    - The project considers coastal hazards and mitigates them through setback.
    - This was addressed in the Local action findings.

- **(10) Landform alteration**
    - There is no landform alteration that is not consistent with the LCP and general development under the uniform building code.
    - This was addressed in the Local action findings.

- **(11) Public views**
    - The proposed project site is currently covered with non-native diseased trees that block many views. With the proposed non-native tree removal this project will significantly increase views in the area and restore the property to a more native state in addition to reducing the fire hazard to the community. See biological assessment and review.
    - This was addressed in the Local action findings.

- **(12) Public Access:**
    - Because of the bluff at the bottom of the site the location is not a good option for public access. The public already has access to all areas of big and little beach by foot paths along the base of the bluff below the project site as well as multiple public access easement staircases that transect the community down to the beach.
    - This is also identified in the local action findings.

Coastal Commission Appeal A-2-MAR-21-0048 183 Sunset Way – Muir Beach
Applicant Summary Response 1

- *The California Coastal Act (California Public Resource Code Sections 30000 et seq.) regulates coastal development in California. Section 30253 states, in part, that:*
    - *New development shall:*
      (1) Minimize risks to life and property in areas of high geologic, flood, and fire haz- ard.
      (2) Assure stability and structural integrity, and neither create nor contribute signifi- cantly to erosion, geologic instability, or destruction of the site or surrounding area or in any way require the construction of protective devices that would sub- stantially alter natural landforms along bluffs and cliffs.

In contrast to CCC's assertions, this project responds thoughtfully all LCP & CCC requirements. The subsurface leach field piers that have brought this project into the spotlight were moved an additional 25' uphill in response to CCC wishes. The project is thoughtfully sited & engineered within the requirements of the Marin LCP. The applicants have shown a willingness to work with the commission to meet mutual goals.

The applicants kindly request CCC dismiss the appeal and allow them to build their home.

Exhibit A-8

Project Site, Hillside and Bluff pictures

Sent to Costal Commission Staff Prior to Staff Report

BLUFF EDGE THAT IS ON SURVEY BELOW MIDDLE OF PROPERTY

NATURAL ROCK SHORELINE

BLUFF EDGE THAT IS ON SURVEY ON NORTH WESTERN SECTION OF PROPERTY

BLUFF EDGE THAT IS ON SURVEY BELOW THE MIDDLE OF THE PROPERTY

HILLSIDE ABOVE BLUFF EDGE SOUTHEASTERN PORTION OF PROPERTY

LOOKING DOWN ALONG BLUFF EDGE SOUTHEASTERN PORTION OF PROPERTY

Exhibit A-9

Ellsberg project commission approval “1977”

50 Cove Lane,

Muir Beach

California Coastal Commission
Application of Daniel Ellsberg
50 Cove Lane, Muir Beach
APN 199-235-51

CALIFORNIA COAS 'AL COMMISSION
1540 Market Street, San Francisco 94102 – (415) 557-1001

APPEAL SUMMARY

Appeal No. 512-77
(Ellsberg)
21st Day: 1/4/78
42nd Day: 1/25/78

DECISION OF REGIONAL COMMISSION: Permit approved with conditions by North Central Coast Regional Commission

PERMIT APPLICANTS: Daniel & Patricia Ellsberg

DEVELOPMENT LOCATION: 50 Cove Lane, Muir Beach, Marin County (Exhibit 1)

DEVELOPMENT DESCRIPTION: Construction of 2-story, single-family dwelling (Exhibits 2,3)

APPELLANT: Russell Compton

APPELLANT CONTENDS THAT:

1. The following grounds of appeal warrant rehearing of the application by the State Commission:

a. The decision of the Regional Commission adversely affects coastal resources or the proper public use of resources, contrary to specific provisions of the Coastal Act of 1976.

b. The proceedings of the Regional Commission were materially affected by inaccurate factual information or procedural error and therefore resulted in a decision contrary to the policies of the Coastal Act of 1976.

2. In support of his contentions, the appellant states:

a. The decision of the Regional Commission prevents public use of private easements to Little Beach, a beach operated in the public interest by three contiguous landowners leasing access for public to the County of Marin. Said easements are public record.

b. Inaccurate factual material was presented to the Commission by its staff. Staff recommended building near a cliff that is eroding as much as oneinch per year on highly unstable soil. Staff failed to recommend alternate sites, particularly one on a nearby flat surface of northwestern corner, which could be used. The flat site is presently used as a leaching field for a single-family residence opposite on Cove Lane. Said leaching field can be moved to neighboring land, the owner of which has indicated a willingness to allow an easement for its use.

SUBSTANTIVE FILE DOCUMENTS:

1. Notice of Appeal

2. Regional Commission File

STAFF NOTES:

1. Project Description. The applicants propose to construct a 2-story, single-family residence at 50 Cove Lane in Muir Beach, Marin County (Exhibit 1). The proposed structure contains a floor area of 2690 sq. ft. and would be 22 ft. in height. The building would cover 2390 sq. ft. of the lot with total lot coverage, including paving, of 2970 sq. ft., of the irregularly shaped 3/4-acre parcel (Exhibits 2,3). The applicant would use an engineer-designed septic system for sewage disposal, and water would be supplied by the Muir Beach Community Services District. Other utility service will be underground. The house has been designed and sited to minimize grading and excavation work.

The oceanfront parcel is located within the historic Bello Beach Subdivision, north of the public beach at Muir Beach. The lot has a varied topography, characterized by predominately moderate to steep slopes with an overall average slope of approximately 51%. Vegetation consists of grasses and shrubs coupled with a collection of 15-20 larger trees (cypress, pine, acacia). The immediate surrounding area is developed with single-family dwellings.

2. Regional Commission Action. The Regional Commission approved the permit with conditions requiring that the recommendations and specifications of the engineering consultants be followed in siting and constructing the new house and septic system, that the applicant submit a professional report on the nature and rate of sea bluff retreat at the project site, for review by the Regional Commission staff which was authorized to resite the structure if recommended by the report that the applicant not interfere with the historic public lateral and vertical beach access, and that the applicant record a document accepting full liability for any damage to the property due to geologic or hydrologic occurrence (Exhibit 4). In approving the permit, the Regional Commission found that, as conditioned, the project should be geologically stable, that the septic system should function adequately and not pose a threat to public health or coastal water quality, and that the development would not interfere with the historic beach access across the site (Exhibit 5).

3. Septic Systems. Section 30250 of the Coastal Act requires that new development not have significant adverse effects, either individually or cumulatively, on coastal resources. The appellant contends the site's size (3/4 acre), terrain (slopes exceeding 50%), and proximity to the ocean present significant problems in the successful design, construction and operation of an on-site sewage disposal system which would ensure protection of coastal waters from adverse impacts of inadequate sewage disposal. According to the Regional Commission staff, the proposed system has been subject to extensive engineering review by those familiar with the subject and has been designed and conditioned to significantly increase the likelihood of successful operation of the system. Exhibit 6 contains the results of the investigation by septic systems consultants John T. Winneberger and Bala & Straangard, structural engineers, and their recommendations which are included in the Regional Commission conditions.

Briefly, the septic system is based upon traditional design and operational standards but uses a number of significant design and construction additions and safeguards. For example, dual leachfields with changeover valve, leach line inspection tubes (breathers), requirements to use only hand labor, and special materials and construction techniques are included in the design requirements.

The Regional Commission staff recommendation states that:

> Based upon the conditions specified by the engineering consultants, the septic system has a reasonable expectation of providing satisfactory disposal of the house's wastewater. Further, since the subdivided area surrounding the project site is, for practical purposes, completely built-out, the issue of cumulative impacts of future septic systems is negligible.

4. Geologic Stability. Section 30253(2) of the Coastal Act provides that new development shall:

> 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.

According to the Regional Commission staff, the house must be located within 15 feet of the top edge of the bluff because of septic system siting requirements, and that there is evidence of historic grading and landslides on the site.

The Commission's interim Interpretive Guidelines on bluff-top development require engineering studies to demonstrate that a proposed project will not lead to geologic instability of the site or nearby properties, and that construction techniques, siting, drainage control, etc. successfully mitigate geologic concerns. The Regional Commission's staff report states that the investigations done by the applicant's engineer demonstrate that, subject to a variety of conditions, the site can support development without undue geologic risks (Exhibit 7). As to the issue of cliff erosion—an important consideration because of the proposed structure's location adjacent to the ocean bluff edge—the engineer has stated that examination of the bluff's geology and historic maps of the Muir Beach area indicates that this risk would be insignificant.

5. Coastal Access. Section 30001.5 of the Coastal Act provides that it is the basic goal of the State to "maximize public recreation opportunities in the coastal zone...", Section 30211 provides that:

> Development shall not interfere with the public's right of access to the sea where acquired through use or legislative authorization, including, but not limited to, the use of dry sand and rocky coastal beaches to the first line of terrestrial vegetation.

and Section 30212 of the Coastal Act states:

> Public access from the nearest public roadway to the shoreline and along the coast shall be provided in new development projects except

> where (1) it is inconsistent with public safety, military security needs, or the protection of fragile coastal resources; (2) adequate access exists nearby, or (3) agriculture would be adversely affected. Dedicated accessway shall not be required to be opened to public use until a public agency or private association agrees to accept responsibility for maintenance and liability of the accessway.

According to the Regional Commission staff, the proposed project involves ocean front property where there are indications of historic public use. The property has approximately 150 feet of dry sand beach frontage which has been heavily used by local residents and visitors. Additionally, there are visible signs that portions of the property now or in the past served as a trail connecting upland areas to the beach area at the foot of this cliff. One of the permit conditions requires that the applicant shall not interfere with the historic public access across the lot to the beach areas or the lateral access along dry sand areas (from the toe of the cliff to the mean high tide line). At the time of the public hearing, the applicant testified that he recognizes the historic public use and access and intends to not interfere with this use.

The several landowners (including the applicants' predecessor in interest) who own the beach in front of the applicants' site, known as Little Beach, leased this land to the Muir Beach Community Services District for public use. The County Department of Parks and Recreation stated that the County would not be interested in accepting a dedication of vertical public access over the applicant's site. The Muir Beach Community Services District has also indicated that it does not wish to accept such a dedication, and states that an accessway exists adjacent to the subject property.

6. Scenic and Visual Qualities. Section 30251 of the Coastal Act states:

> The scenic and visual qualities of coastal areas shall be considered and protected as a resource of public importance. Permitted development shall be sited and designed to protect views to and along the ocean and scenic coastal areas, to minimize the alteration of natural landforms, to be visually compatible with the character of the surrounding areas, and, where feasible, to restore and enhance visual quality in visually degraded areas.

According to the Regional Commission staff, the immediate area is characterized by single-family homes which are smaller than the proposed structure although elsewhere in the community of Muir Beach, there are homes comparable in size to the applicants.

Both written and verbal testimony presented at the Regional Commission's public hearing indicated community concern over the siting of the structure and the resulting visual impacts upon beach users. The Regional Commission staff noted that:

> There can be no doubt that construction upon this lot will have a visual impact upon beach users below the site. There is little, if anything, short of no project that would successfully mitigate this impact. The present siting of the structure is dictated

by the septic system and surface and subsurface geologic conditions; however, even if resiting was an available option it would not significantly lessen the house's visibility from the beach. Likewise, reductions in the size of the house would result in only marginal improvement in the visual impact of this developed area.

The Regional Commission staff also observed that the immediate area is virtually completely built-out, and therefore constructing a home larger than those surrounding it would not have any precedential impact in the area.

State Commission Meeting Minutes, January 1978:

v. Appeal No. 512-77. Appeal of Russell Compton from the decision of North Central Coast Commission granting permit with conditions to Daniel & Patricia Ellsberg for single-family home, 50 Cove Lane, Muir Beach, Marin County.

Mr. Bodovitz said the Regional Commission approved the permit for a single family home and found that the project as conditioned should be geologically stable. He said there is opposition by neighbors in the area, but all of the issues raised were fully gone into by the Regional Commission. Accordingly, staff recommends no substantial issue.

Hester Burn-Callander, representing the appellant, said the staff report did not adequately review problems of soil instability, effluent disposal and population density. She submitted an engineer's preliminary report. She said the Regional Commission recently denied a permit nearby also on a beachfront location with similar geologic conditions because of the apparent instability of the soil. She then read from an engineer's report which stated that this parcel is one of the most difficult terrains upon which to build and that the geological stability is not safe in this area.

Jerry Kler, representing the applicants, said this project is consistent with the requirements of the Coastal Act and the Regional Commission thoroughly reviewed all of the issues, including geological stability.

The hand vote was 10 in favor of finding no substantial issue, and 0 opposed.

CALIFORNIA COASTAL COMMISSION
NORTH CENTRAL COAST REGIONAL COMMISSION
1050 NORTHGATE DRIVE, SUITE 130
SAN RAFAEL, CALIFORNIA 94903
(415) 472-4321

RESOLUTION GRANTING APPLICATION

FOR COASTAL DEVELOPMENT PERMIT

(Upon majority vote of total appointed membership of the commission)

WHEREAS, on 9/26/77, the application of Daniel & Patricia Ellsberg, application number 242-77 was filed for a coastal development permit pursuant to Section 30600 of the Public Resources Code; and

WHEREAS, the project as hereinafter approved consists of constructing a single-family dwelling at 50 Cove Lane, Muir Beach, Marin County.

WHEREAS, THIS Commission has given written public notice of the nature of the proposed development and of the time and place of the public hearing thereof, and has held a public hearing in accordance with said notice and the California Coastal Act of 1976, and has otherwise complied with the provision of said Act and the regulations of the California Coastal Commission ; and

Whereas, the Commission makes the following findings:

(SEE ATTACHED LIST)

Findings:

a) The proposed project is located within an existing developed area of Muir Beach with services able to support such a development. It is consistent with the Coastal Act's policy of concentrating development.

b) The project utilizes a septic system which has been engineer-designed for the site's specific physical conditions. The system should function adequately and would not pose a threat to public health or coastal water quality.

c) The porposed project represents bluff top development as defined by the State Interpretive Permit Guidelines. A professional investigation of geologic conditions has indicated the site is capable of supporting development consistent with the Coastal Act's objectives. (These reports are referenced as the source and basis of said finding.)

d) The project site is located between the ocean and the first public roadway and historically and presently offers both lateral public access along the beach frontage and vertical access from a public righ-of-way above the lot to the beach and high tideline at the toe of the bluff. The proposed construction will not interfere with this historic access and use pattern and is consistent with the objectives of the Coastal Act.

e) The project involves the development of a single-family dwelling located in a subdivided area which is 99% built-out. It will not prejudice the ability of the local government to propare a certifiable Local Coastal Program.

f) Therefore, the Commission finds that the proposed development, as conditioned, is in substantial conformance with the policies, declarations and objectives of the Coastal Act of 1976 and is consistent with objectives of that Act as set forth in Section 30604.

CALIFORNIA COASTAL MISSION
NORTH CENTRAL COAST REGIONAL COMM. ON
1050 NORTHGATE DRIVE, SUITE 130
SAN RAFAEL, CALIFORNIA 94903
(415) 472-4321

NORTH CENTRAL COAST
REGIONAL COMMISSION

DEC 14 1977

RECEIVED

PERMIT # 242-77

APPLICANT: Daniel & Patricia Ellsberg

A permit is hereby issued for the following project: Construct a single-family dwelling at 50 Cove Lane, Muir Beach, Marin County.

This permit is subject to the following terms and conditions:

(SEE ATTACHED LIST)

This permit may not be assigned to another person except pursuant to the provisions of the California Administrative Code (Division 5.5, Section 13170).

This permit is not effective until a copy of the permit is signed by all permittees in the space provided below, and returned to the Commission.

A time extension of this permit requires Commission action and must be applied for prior to expiration of this permit.

12/1/77
Date

Robert Brown
Executive Director

I/We acknowledge that I/we have received a copy of this permit, have read it, and understand its contents, and agree to the conditions.

Permit granted pursuant to Public Resources Code Section 30600 and following, and provisions of the Administrative Code enacted pursuant thereto. Failure to conform to the provisions of this permit shall subject Permittee to the penalties provided by Public Resources Code Sections 30820-30822.

Conditions:

1. Construction pursuant to this permit must be commenced within 12 months and completed within 18 months of the date of Commission action. A copy of the Notice of Completion shall be submitted within 18 months from the date of Commission action. Construction subsequent to such period shall require a new or extended coastal permit.

2. All utilities shall be placed underground.

3. The applicant shall install water saving (flow control) devices meeting the following requirements:

   a) Toilets shall not use more than $3\frac{1}{2}$ gallons per flush.

   b) The flow from kitchen and lavatory faucets, and from showerheads, shall be restricted to a maximum of approximately 3 gallons per minute.

4. That the permit is issued based upon the recommendations and specifications contained in the following reports:

   A. Septic System: Report of consultant John T. Winneberger dated September 10, 1975.

   B. Geologic, Structural, Erosion: Report of Consultant Donald Herzog and Assoc., dated August 24, 1977.

   Departures from the specifications and recommendations of these reports shall require approval of the Executive Director.

5. Prior to construction, the applicant shall submit to the Executive Director a professional report on the nature and rate(s) of sea bluff retreat at the project site. The report shall include specific vonclusions on the impacts of both surface and wave erosion upon the rate of retreat and recommendations for mitigation measures. The Executive Director is authorized to approve minor re-siting based upon the results of this study.

6. The applicant shall not interfere with the historic public access across the lot to the beach areas or the lateral access of dry sand areas (from the toe of cliff to the mean high tideline.)

7. Prior to the commencement of construction, the applicant shall present to the Executive Director for his approval, a recorded document, running with the land, accepting full liability for any damage to the property due to geologic or hydrologic occurance. No public liability is to be assumed for any such damage.

00764

RECORDED AT REQUEST OF
[illegible]
AT 20 MIN. PAST 8 A M.
JAN 8 1980
Official Records of Marin County, Calif.
[illegible]
RECORDER
FEE $ NO FEE G. C. 6103

NORTH CENTRAL COAST REGIONAL COMMISSION
DEC 20 1979
RECEIVED

00764
BOOK 3664 PAGE 232

Recording Requested by
NORTH CENTRAL COAST REGIONAL COMMISSION
1050 Northgate Drive, Suite 130
San Rafael, California 94903

Re: Permit # 242-77 granted on: December 1, 1977
WHEREAS, the undersigned, Patricia Ellsberg - Daniel Ellsberg
owns a lot located at 50 Cove Lane, Muir Beach, Marin County
, more particularly
known as Assessor's parcel No. 199-235-51 ; and

WHEREAS, the undersigned, NORTH CENTRAL COAST REGIONAL COMMISSION, or its successor, is acting on behalf of the people of the State of California and will issue a permit to build subject to the following condition:

> "Prior to the commencement of construction, the applicant shall complete and record a document, running with the land, accepting full liability for any damage to the property due to earthquake or other natural geologic or hydrologic processes. No public liability is to be assumed for any such damage."

NOW, THEREFORE, I, Patricia Ellsberg - Daniel Ellsberg bind myself and any subsequent owners of this said real property and agree that:

1. I accept full liability for any damage to said property resulting from earthquake or other natural geologic or hydrologic processes, and I agree that no claim shall be presented to and no cause of action brought against the NORTH CENTRAL COAST REGIONAL COMMISSION or its successor, any political subdivision of the State of California, or any state or local public entity, their agents or employees, as a result of damages to said property which may occur as a result of earthquake or other natural geologic or hydrologic processes.

2. This covenant shall run with the land and shall be binding for all parties and all persons claiming under them for a period of twenty years from the date this covenant is recorded, after which time said covenant shall be automatically extended for successive periods of ten years, unless an instrument signed by the parties has been recorded, agreeing to change said covenant in whole or in part.

3. The life of the present REGIONAL COMMISSION ends by statute no later than June 30, 1981. The California Coastal Commission shall be the successor agency to the Regional Commission to enforce this covenant and to make any modifications of this covenant on behalf of the people of the State of California

IN WITNESS WHEREOF, the party hereto has executed this Agreement on the date indicated below.

NOTARIZATION

Date: 12-3-79

Name: Patricia Ellsberg Daniel Ellsberg
(Signature)

STATE OF CALIFORNIA
COUNTY OF Alameda

On December third nineteen seventy nine before me, the undersigned, a Notary Public in and for said County and State, personally appeared Patricia Ellsberg & Daniel Ellsberg, known to me to be the person s whose name s are subscribed to the same.

ADRIENNE EVE SCOFIELD
Adrienne Eve Scofield
Name (Typed or Printed)
Notary Public in and for said County and state

OFFICIAL SEAL
ADRIENNE EVE SCOFIELD
NOTARY PUBLIC - CALIFORNIA
ALAMEDA COUNTY
My comm. expires DEC 8, 19[illegible]

Robert G. Brown Date: Jan 3, 1979
Robert G. Brown
Executive Director
North Central Coast Regional Commission

State of California, County of Marin ss.
On 1/3/80, before me, the undersigned, a Notary Public in and for said State, personally appeared Robert G. Brown, known to me to be the Executive Director of North Central Coast Regional Commission and known to me to be the person who executed the within instrument on behalf of said North Central Coast Regional Commission, and acknowledged to me that such Robert G. Brown executed the same. WITNESS my hand and official seal.

Arleen D. Barr

OFFICIAL SEAL
ARLEEN D. BARR
NOTARY PUBLIC-CALIFORNIA
Principal Office in MARIN County
My Commission Expires Dec. 27, 1981

Permit # 242-77

b. Permit 242-77, Daniel and Patricia Ellsberg, construct ~~a single-family~~ dwelling at 50 Cove Lane, Muir Beach, Marin County (cont'd from 10/27/77)

Executive Director Brown made the presentation, with continued recommendation of approval subject to conditions.

The public hearing continued.

Jerry Kler, architect, for applicant: "The last time we were here there was a question of tidelands approval. That's been granted... One of the issues about the siting of this house is where it can be and where it can't be. ... This was a site plan that was done very much in conjunction with the staff... I think you know that the problems of sewers and septic systems are greater than they they have been. We have designed a system that will work... As you know you have to be 75 feet back from a cut bank, there are slope requirements, requirements of trenching, and so on. The siting of the house happens to be above the beach, where it certainly can be viewed. ... Since the last hearing we've gone through a couple of possibilities. In a sense the house could be moved 3 feet one way or 5 feet another way..., but it isn't going to have any effect. ... In addition to the petition by the people who have signed it, there has been a meeting attended by 5 or 6 people (and the ones who signed the petition didn't even show up to ask questions)...; and I think it's fair to say that the objection centers on, There isn't a house there now and there will be a house there. ... It is a legal building lot. ... It's reasonable not to want to see a house there, but that is an issue that has to do with opinion. The steepness of the site isn't an issue. ... The other is the issue of public access. In the first place, the public already has access it can't be denied over the beach; and second, we have said many times that, if there is anything we have to sign, we will certainly do so if it's necessary to require access. When you look at a house 45 feet above you, it appears foreshortened...; but even then we've agreed to do a comprehensive landscape plan, if it will alleviate feelings about viewing the structure. The fact is that this is a legal building site and some structure will be built on it. Moving it 5 or 6 feet laterally doesn't gain anything, besides the complications of deeding of land and providing a safe septic system... I feel we have dealt with most of the objections raised."

Russ Thompson, President of Muir Beach Property Owners Assn., read a petition requesting a continuance for at least two months, "during which the undersigned will attempt to purchase the property, since the present siting is in complete opposition to Sections 3001.5 and 30211 of the Coastal Act..."

Commissioner Zankich: "You're proposing to purchase the site?"

Mr. Thompson: "To purchase, or to re-site it."

Commissioner Zankich: "And Mr. Ellsberg is in agreement?"

Mr. Thompson: "Yes, he said so at the meetings we had."

Daniel Ellsberg, applicant: "I'm afraid there's a misunderstanding here... We clearly would not be here tonight if we had agreed to a postponement."

Hester Bourn-Callandar, Muir Beach: "I'm only going to amplify slightly what Mr. Thompson has said. At a meeting recently it was agreed to attempt to purchase the property as a park. ... The other alternative that we would like to have time to consider is the location of the house. Our basic concern is the size of the house..., nearly 5000 square feet of floor space. The houses in the area vary between 1200 and 1500 square feet. ... The house is to be situated 15 feet from the edge of the bluff. The house has been staked out by a member of our association and, according to that, it's much closer to the bluff...; so I don't know how he's going to landscape it in order to make it not visible from the beach. ... Our concern is on the

public use of that very tiny beach... Electrical light at night will make it impossible for anyone to enjoy walking on the beach at night, the way this house is designed. ... My impression was very definitely that they would give us time to explore feasible alternatives. As the next neighbor I have offered to provide part of my lot for a leach field. ... The present leachfield is already leaching onto the beach. ... It's bad. Anyway, this alternate site that I'm offering, if we could only get the southern neighbor to agree, would be to permit Mr. Ellsberg to relocate on the flat. ... I have contacted an engineer. He's coming out Saturday, and he's going to measure my lot and find out how much I need in order to provide a fail-safe field. ... I'm offering this easement only because I'm concerned about the location of the house. ... If I can see most of a 4' stick from the beach, I can certainly see 8' and roof from the beach. ... I know the area, I know the erosion, I know exactly what is going on. We don't object to people building..., but this particular lot is extremely sensitive and we do need time to pursue these alternatives. We are very serious. Mr. Beattie's fee just to come out and tramp my lot... is about $250, and at the moment I'm underwriting that because I am so seriously concerned. We are assuming he'd like a fair market price, so we feel we need time to work out how it can be accomplished. ... If construction was expected to begin about February or March, two months would not delay things unduly."

Mr. Kler: "I want to go on record. The house is 2400 square feet; it is not 5000 square feet. Secondly, in terms of the misunderstanding, what Dan Ellsberg stated was that, if his permit is denied, he had the right to sell it to someone else to pursue a permit because it's a legal building site. ... We fully do want to build. The position of the house may be unfortunate in terms of some person's perception, but it may not be in terms of another person's perception. Building 50 feet above a beach is quite a bit different from building 10 feet above the beach. ... I personally would not want to build a house on the flat. That prejudices the ability of the people on the beach to have privacy. ..."

Ms. Bourn-Callander: "I'm reading the figure from the report."

Mr. Brown: "The total project will cover 2400 square feet of land. The actual living area is 2700 square feet, because it goes up several floors, but they're not over each other, they're cantilevered. ..."

Mr. Ellsberg: "We were, thanks to the hospitality of Ted Elliot who arranged it, at two meetings, and there was a third at which we were not present. It was at the request of the community that Mr. Kler not be present. However, questions were raised that we were not able to answer regarding the siting and the leach fields, so we asked that there be a second meeting at which Mr. Kler would be present to answer these questions. So a meeting was arranged by Mr. Elliot, and we arrived and found another group of people and none of the people from the first meeting were present. As the meeting went on and Mr. Kler answered the questions, and the people who were at the first meeting were not there..., we asked that there be another meeting... I have to say I'm quite unhappy at the way these points have been brought out tonight. ... I have found myself at least misunderstood, and I think that misunderstanding could well have been avoided if we had gotten together after that first meeting.

"The issuing of a permit will in no way preclude the explorations described by the community or the possibility of the property being turned into a park area. Essentially, as I read this written petition, the objection is to having any house in this area, because any house will have this effect. As a beach lover... I can't imagine taking a park area and making it into a residential area. This is not the case here. It seems evident that as long as it remains a commercial property there will be a house there. ... What I did say was that, if the community would get together and actually make an arrangement to turn it into a park... or a land lease..., something that would preclude building on it..., I would respect that desire very much. If there were community effort that made that indefinitely in the future a park area, I would not be against that. ... I'm sure I did clear this up with Mr. Elliot. ... I certainly do not want to preclude the possibility of the community efforts by building prematurely. ... On efforts to explore possible re-siting, which our architect tells us are very improbable of result, having gone through 2 years of great design and redesign, it seems to me it would be quite difficult to re-site it... We've reached a point where we've put a lot of money into the design process without having assurance that we were getting a permit. ... If in two months they receive something promising,

we still would not have anything to present to you without eventual costly redesign. ... I didn't want to go through the design money... without going through the permit process..."

Chair: "I think we're rather helpless unless he voluntarily wishes to withdraw the permit..."

Ms. Bourn-Callander: "The position we're in, if the permit is granted tonight, is that we have only Mr. Ellsberg's word that there will be no construction."

Commissioner Jones: "It may also alter the value of the land, with a permit. I wonder if he is indeed as sincere about negotiating with his future neighbors as they were in negotiating with him. Would it not be more fair to take no action..., and proceed to face the permit question a reasonable time down the pike?"

Commissioner Koenigshofer: "I understood that in order for us to postpone something we had to have the consent of the applicant."

Mr. Brown: "May I make a very quick suggestion? If the Commission is satisfied with the rest of the issues..., I think you could grant a permit with the condition that Mr. Ellsberg cannot begin construction within a period of time pending the community exploration of alternatives."

Commissioner Berg: "If it is not in fact possible to re-site the home..., then we've got a whole new issue. Perhaps we need the staff to go out and look at whether the impact on the area would be lesser or greater if it were re-sited. So we really have another issue. They can always work out by themselves the question of whether the community will buy it for a park. ..."

Mr. Brown: "Under present circumstances Staff's analysis feels there are no significant impacts sited as it is now. ..."

Commissioner Berg: "Given that issue, then, wouldn't we be better off delaying in some way this vote so as to allow your staff to determine if the neighbors are willing to work out an arrangement to move the leach field? The staff could analyse whether it would have less impact than if it were on the bluff."

Mr. Brown: "That's one option. If the neighborhood is willing to allow Mr. Ellsberg's project some siting expertise that it didn't have before, we could take another look at it. Right now we feel that there isn't too much alternative about re-siting. ... If the neighbor's engineer says it can be done, we might want to look at that. ..."

Mr. Kler: "The crux of the issue is not in fact that we want to move the house or get into the idea of putting leach lines on somebody else's property. What we came here tonight for is to get approval for this permit. That's something we've been working with Staff on for two years. ... The issue with the property owners is an internal issue at Muir Beach. ... If you go farther up the hill, you conflict with the people who are above you on the hill. To ask us to put leach lines on somebody else's property is an unreasonable position. ..."

Mr. Ellsberg: "Having waited this long for the permit procedure and come to this point, it was our understanding that, if the community were to come up with a proposal, we certainly want to get into a dialogue with them. ... Once a permit has been granted..., then we would be proceeding and spending money and taking time with much more assurance then we have to date. I did not want to go into this hearing without having the fullest opportunity for discussion. On the other hand, I didn't want to spend more money without having a decision by this group..."

The public hearing was closed.

Commissioner Egger: "The comment was made by the architect that he had worked with Staff for 2 years. That hasn't been before the Coast Commission for 2 years, and we haven't held this up for 2 years."

Mr. Brown: "That's correct. However, Mr. Ellsberg did speak to us about two years ago and asked us for advice regarding coastal issues. ..."

Commissioner Johnck: "The visual impact of the house on the beach wasn't sufficiently addressed in the findings. This concerns me. Was there any attempt to analyse this in any way?"

Mr. Brown: "The house will be visible from the beach, no question. However, I might add that this is an area 99% built out. The house is large, it's going to be close to the bluff, it's going to be visible, no question. However, a reduction in size or a re-siting is really not going to have an appreciable difference on the visual impact."

Commissioner Johnck: "But the other houses are smaller."

Mr. Brown: "This will certainly be larger than any other home in the area."

MOTION

Commissioner Kiefer moved, seconded by Commissioner Lundborg, that Permit 242-77 be granted based on the findings and conditions set forth in the October 19, 1977 Staff Report.

Commissioner Egger: "I believe it will be a highly visible intrusion and a significant intrusion. It appears from the drawings that it will be a castle type structure, where in the past the Commission has talked about cabin type structure because of this very concern. It will be a highly visible intrusion."

Commissioner Grote: "Within what period of time has the Commission the right to make a decision?"

Mr. Chamberlain: "I believe it's 21 days. I'll check that. (confirmed)."

Commissioner Grote: "As to coastal issues, it is a coastal community and it appears to be a demand site. If that site could become a public park, so located doesn't that make it a coastal issue - to be able to keep the land open?"

Commissioner Lundborg: "That could be said about any land on the coast. We would have to be very clear that our intent was that the land would be purchased, but that depends on the community."

Commissioner Grote: "What the price is determines their capacity to buy it."

Commissioner Jones: "Either way we go we're going to affect the price. By simply doing nothing we leave it at the same price."

Commissioner Lundborg: "I'm simply raising the question of whether that's our privilege, to engage in that kind of consideration. ..."

Commissioner Jones: "There may be some of us who feel that the house is too large, and we're going to vote No. There may be some of us who feel it should have more time to be studied by the community. ..."

Mr. Brown: "The next meeting is the 15th. You can delay until then. That's our leeway. Obviously, if the applicant waives that time limit, you can delay longer."

A motion by Grote/Berg to table the motion until December 15, 1977 failed 4-8.

Commissioner Kiefer called for the question.

Commissioner Faber: "I would like to add a condition, which is, because this house is located next to a blufftop, to put the usual condition regarding earthquake liability..."

Mr. Brown: "That's certainly an appropriate condition."

Commissioner Koenigshofer: "Can we take a straw vote? It would definitely indicate some potential direction by the Commission. If there were insufficient votes to grant the permit, we would in effect be arriving at a point which would identify the problems between where we are today and approval of a permit. ..."

Chair: "It would still not be a firm action. We would still have to take action within two weeks, but that was voted down. The only way to achieve

what we're after is for Mr. Ellsberg to agree to a continuance, which he's indicated he's not willing to do; so it seems to me we have no choice."

Commissioner Koenigshofer: "The whole question is being hung up because of the issue of whether or not the community can come up with some plan that's acceptable to the applicant for sale of the property. Is that something that is pertinent to the application?"

Mr. Brown: "No, that's not too pertinent, the biggest reason being that that property does not present significant public interest for a coastal park. It obviously has some potential for a community park that is coastal-oriented."

Chair: "I think our concern is from the public beach, which Muir Beach is."

Mr. Brown: "It is Staff's feeling that the size and the location of the house is going to have very little impact on the views from the beach... in an area where most of the houses are built. ... This is the last home. I just don't see that the difference in the size of the house is going to make all that much difference from the perspective of the public views from the beach. If a 4' stick is visible, any size house will have a visual impact. ..."

Commissioner Kiefer: "If the community has been aware of this project for two years, I think that's adequate time for them to do whatever they want to do."

On the question, the motion was carried by the following roll-call vote:

Ayes: Commissioners Berg, Giacomini, Grote, Kiefer, Koenigshofer, Lundborg, Tamaras, Zankich, Chairman Faber
Nays: Commissioners Egger, Jones, Johnck
Absent: Commissioners Duncan, 1 vacancy

Thus Permit 242-77 was approved, subject to the following conditions:

1. That construction pursuant to this permit must be commenced within 12 months and completed within 18 months of the date of Commission action. A copy of the Notice of Completion shall be submitted within 18 months of the date of Commission action. Construction subsequent to such period shall require a new or extended coastal permit.

2. That all utility lines shall be underground.

3. That the applicant shall install water-saving (flow control) devices meeting the following requirements:

   a. Toilets shall not use more than 3½ gallons per flush.

   b. The flow from kitchen and lavatory faucets and from showerheads shall be restricted to a maximum of approximately 3 gallons per minute.

4. That the permit is issued based upon the recommendations and specifications contained in the following reports:

   a. Septic System: Report of consultant John T. Winneberger dated September 10, 1975.

   b. Geologic, Structural, Erosion: Report of consultant Donald Herzog and Associates dated August 24, 1977.

   Departures from the specifications and recommendations of these reports shall require approval of the Executive Director.

5. That prior to construction the applicant shall submit to the Executive Director a professional report on the nature and rate(s) of sea bluff retreat at the project site. The report shall include specific conclusions on the impacts of both surface and wave erosion upon the rate of retreat and recommendations for mitigation measures. The Executive Director is authorized to approve minor re-siting based upon the results of this study.

NORTH CENTRAL COAST REGIONAL COMMISSION

1050 NORTHGATE DRIVE, SUITE 130
SAN RAFAEL, CALIFORNIA 94903—(415) 472-4321

INITIAL SUMMARY REPORT AND STAFF RECOMMENDATIONS October 19, 1977

Permit Number: 242-77
Applicant: Daniel & Patricia Ellsberg
Project Location: 50 Cove Lane, Muir Beach, Marin County (AP#199-235-51)
Proposed Development: Single family residence

Project Description: The applicants propose to construct a two-story, single family dwelling on an ocean front parcel within the community of Muir Beach. The 3/4 acre parcel is located within the historic Bello Beach subdivision and is north of the public beach at Muir Beach. The lot has a varied topography, however is characterized by predominately moderate to steep slopes with an overall average slope of ±51%. Vegetation consists of natural grasses and shrubs coupled with a collection of 15-20 larger trees (cypress, pine, acacia, etc). The immediate surrounding area is developed with single family dwellings.

The proposed house will be 22 feet in height, and cover 2,400 square feet of lot area. The house will utilize an engineer designed septic system for sewerage disposal; water will be supplied by the Muir Beach Community Services District. Other utility service will be underground. The house has been designed and sited to minimize grading and excavation work.

Coastal Issues: The proposed project presents the following coastal related issues:

-Protection of coastal waters from adverse impacts of inadequate sewage disposal;

-Geologic hazards and stability; and

-Public access and use of beach and tidelands areas.

1. Septic Systems: The site's size (1 acre), terrain (slopes exceeding 50 percent) and proxamity to the ocean present significant problems in the successful design, construction and operation of an on-site sewerage disposal system. This proposed system has, however, been subject to extensive engineering review by those familiar with the subject and has been designed and conditioned to significantly increase the likelihood of successful operation of the system.

Briefly, the septic system is based upon traditional design and operational standards but utilizes a number of significant (and expensive) design and construction additions and safeguards. For example, dual leachfields with changeover value, leach line inspection tubes (breathers), requirements to utilize only hand labor, specific types of materials and construction techniques are included in the design requirements. (The report of the engineering consultant is attached for reference).

Based upon the conditions specified by the engineering consultants, the septic system has a reasonable expectation of providing satisfactory disposal of the

house's wastewater. Further, since the subdivided area surrounding the project site is, for practical purposes, completely built-out, the issue of cumulative impacts of future septic systems is negligible. In conclusion, the development of the septic system appears consistent with Coastal Act objectives.

2. Geologic Hazards and Stability: Again, the project site's ocean front location and steep slopes backing an ocean cliff present significant questions on the effects of development upon the site's geologic stability. Because of septic system siting requirements, the house is located within 15 feet of the top edge of the ocean bluff. Additionally, there is evidence of historic grading and landslides on the site.

The statewide interim permit guidelines have established standards for implementing the Coastal Act's policies dealing with bluff top development. These guidelines (attached) require extensive engineering studies to demonstrate a proposed project will not lead to geologic instability of the site (or nearby properties) and that construction techniques, siting drainage control, etc. will successfully mitigate geologic concerns.

The applicant's engineer has completed studies demonstrating foundation and construction techniques, restoration of historic landslide areas and on site drainage plans. These investigations demonstrate that, subject to a variety of conditions, the site can support development without undue geologic risks. However, one potentially significant aspect of the geologic study deserves additional research. Because of the proposed structure's location immediately adjacent to the ocean bluff edge, shoreline retreat poses a potential threat to safety of the house. Preliminary investigations have determined that due to subsurface geology and the lots protection from direct wave attack, shoreline erosion is relatively insignificant. However, evidence of historic rates of shoreline retreat should be developed to substantiate this preliminary assumption. This information would be used to determine the appropriate siting of the proposed structure.

3. Coastal Access: Section 30001.5 of the 1976 Coastal Act provides that it is a basic goal of the state to ". . . maximize public recreation opportunities in the coastal zone . . . " and Section 30211 provides that "Development shall not interfere with the public's right of access to the sea where acquired through use or legislative authorization, including, but not limited to, the use of dry sand and rocky coastal beaches to the first line of terrestrial vegetation."

This proposed project involves ocean front property where from preliminary research there are indications of historic public use. The property has approximately 150 lineal feet of dry sand beach frontage which has been used by local residents and visitors alike. Additionally there are visible signs indicating that portions of the property now or in the past served as a trail connecting up-land areas to the beach area at the foot of this cliff. Protection of these historic public access and beach use patterns is a primary goal of the Coastal Act.

In this case, the proposed development would not interfere with these use patterns, and the project appears in substantial conformance with the Act's objectives that at least the physical retention of access to and use of the beach is assured.

There are several options available to assure coastal access is maintained for future users. These include outright dedication, or litigation to recognize the public's historic right of access and use. A specific recommendation addressing this question will be presented at October 27th hearing.

Preliminary Staff Recommendation: Adoption of the following finding and approval of the permit as conditioned:

Findings:

a) The proposed project is located within an existing developed area of Muir Beach with services able to support such a development. It is consistent with the Coastal Act's policy of concentrating development.

b) The project utilizes a septic system which has been engineer-designed for the site's specific physical conditions. The system should function adequately and would not pose a threat to public health or coastal water quality.

c) The porposed project represents bluff top development as defined by the State Interpretive Permit Guidelines. A professional investigation of geologic conditions has indicated the site is capable of supporting development consistent with the Coastal Act's objectives. (These reports are referenced as the source and basis of said finding.)

d) The project site is located between the ocean and the first public roadway and historically and presently offers both lateral public access along the beach frontage and vertical access from a public righ-of-way above the lot to the beach and high tideline at the toe of the bluff. The proposed construction will not interfere with this historic access and use pattern and is consistent with the objectives of the Coastal Act.

e) The project involves the development of a single-family dwelling located in a subdivided area which is 99% built-out. It will not prejudice the ability of the local government to propare a certifiable Local Coastal Program.

f) Therefore, the Commission finds that the proposed development, as conditioned, is in substantial conformance with the policies, declarations and objectives of the Coastal Act of 1976 and is consistent with objectives of that Act as set forth in Section 30604.

-over-

Conditions:

1. Construction pursuant to this permit must be commenced within 12 months and completed within 18 months of the date of Commission action. A copy of the Notice of Completion shall be submitted within 18 months from the date of Commission action. Construction subsequent to such period shall require a new or extended coastal permit.

2. All utilities shall be placed underground.

3. The applicant shall install water saving (flow control) devices meeting the following requirements:

   a) Toilets shall not use more than $3\frac{1}{2}$ gallons per flush.

   b) The flow from kitchen and lavatory faucets, and from showerheads, shall be restricted to a maximum of approximately 3 gallons per minute.

4. That the permit is issued based upon the recommendations and specifications contained in the following reports:

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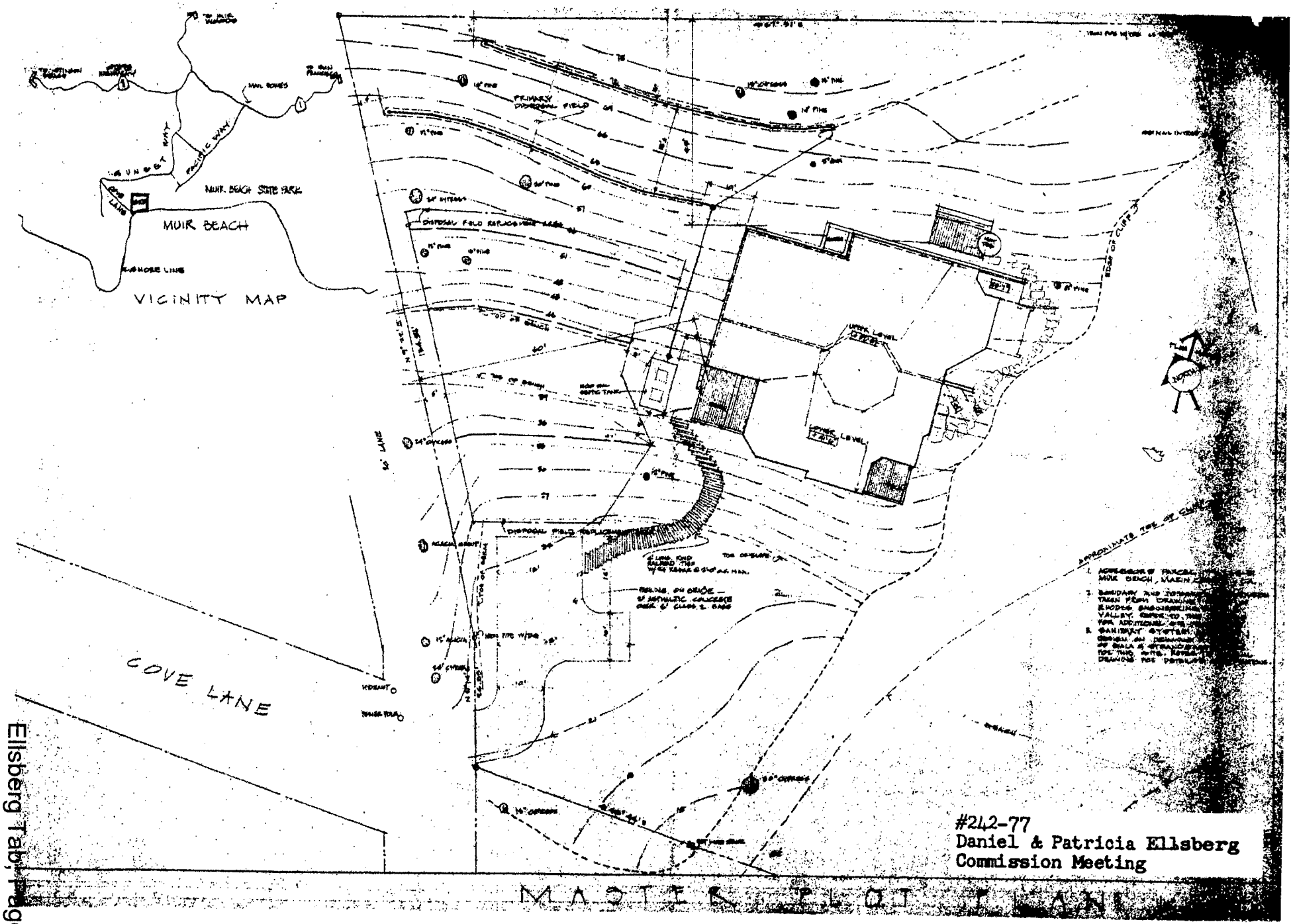
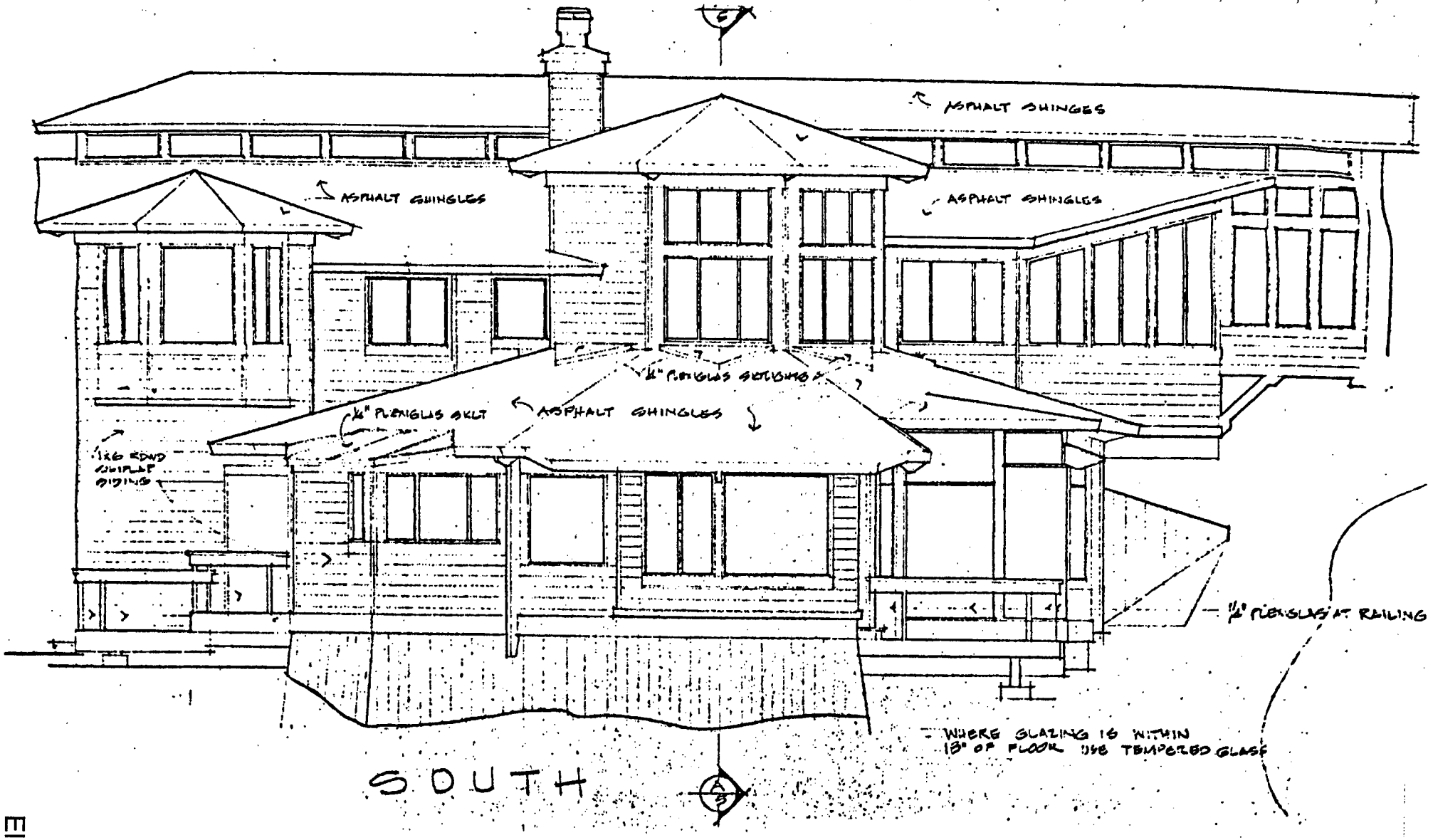
   Departures from the specifications and recommendations of these reports shall require approval of the Executive Director.

5. Prior to construction, the applicant shall submit to the Executive Director a professional report on the nature and rate(s) of sea bluff retreat at the project site. The report shall include specific vonclusions on the impacts of both surface and wave erosion upon the rate of retreat and recommendations for mitigation measures. The Executive Director is authorized to approve minor re-siting based upon the results of this study.

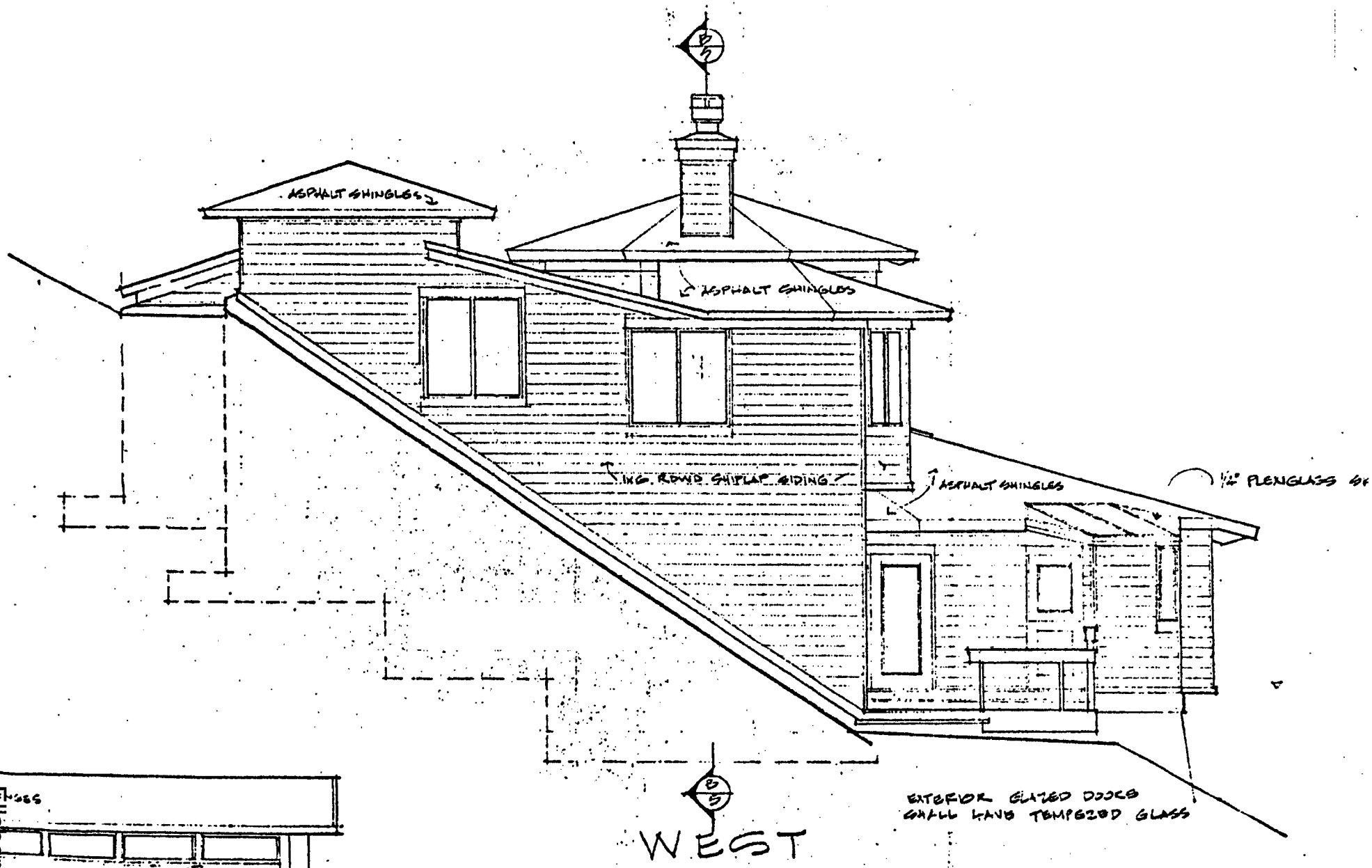
6. The applicant shall not interfere with the historic public access across the lot to the beach areas or the lateral access of dry sand areas (from the toe of cliff to the mean high tideline.)

Commission meeting of
October 27, 1977


VICINITY MAP
MUIR BEACH
MUIR BEACH STATE PARK
SUNSET WAY
PACIFIC WAY
MAIL BOXES
COVE LANE
#242-77
Daniel & Patricia Ellsberg
Commission Meeting
MASTER PLOT PLAN



Permit #242-77
Daniel & Patricia Ellsberg
Commission Meeting
of October 27, 1977



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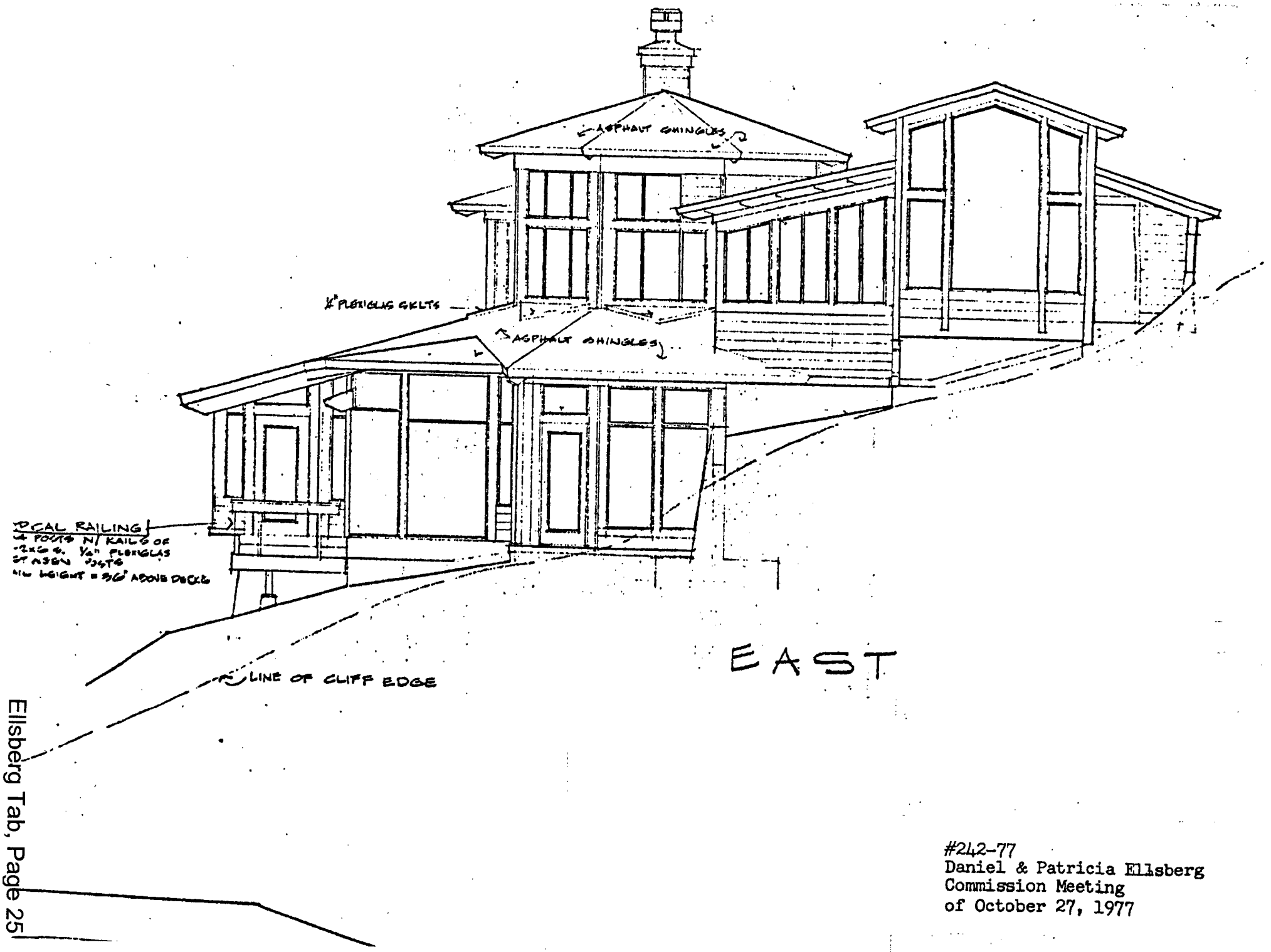

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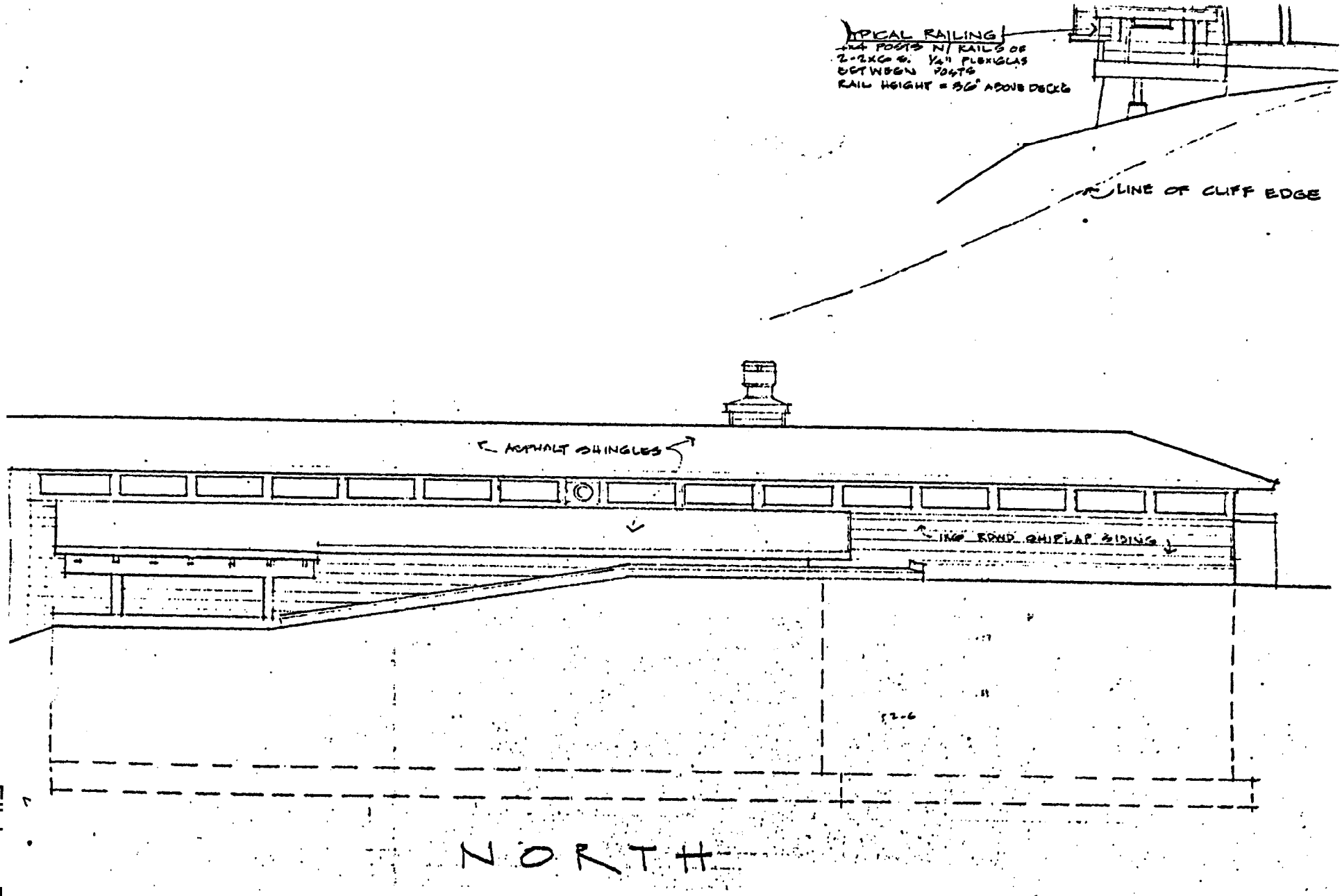
Daniel & Patricia Ellsberg
Commission Meeting
of October 27, 1977



Permit 242-77
Daniel & Patricia Ellsberg
Commission meeting
of October 27, 1977

DONALD HERZOG & ASSOCIATES, INC.

Consulting Soil and Foundation Engineers

August 24, 1977

694.1

Mr. Daniel Ellsberg
c/o Jerry Kler, AIA
1306 G Bridgeway
Sausalito, California 94965

Dear Mr. Ellsberg:

Report
Soil Investigation
AP 199-235-51
Muir Beach, California

This report presents the results of the soil investigation we performed for your planned residence to be constructed in Muir Beach, California.

We understand that the residence will be as indicated on the plans received from Jerry Kler, Architect, dated August 1977. The proposed residence would be a two-story, wood-frame structure. The lower floor of the residence would be constructed on a level bench with the upper floor to be constructed on the hillside. Both floors would be of supported wood construction and no slab-on-grade is anticipated.

The purpose of our work was to review selected published geologic data, to explore the subsurface conditions at the site to the extent of four test borings, and to analyze the results to provide the following soil engineering information:

1. A description of the soil conditions observed.
2. Site grading recommendations.
3. Recommended foundation type(s) and design criteria.
4. Retaining wall design criteria.
5. Soil engineering drainage recommendations.

WORK PERFORMED

We reviewed selected published geologic data including:

1. The "Geologic Map of California" by the State of California Division of Mines and Geology.

2. The "Preliminary Geologic Map of Marin and San Francisco Counties and Parts of Alameda, Contra Costa and Sonoma Counties, California" by M. C. Blake Jr. et al.

We explored the subsurface conditions at the site on August 17, 1977, by drilling four test borings ranging from 2 to 4 feet deep and extending into rock. Because of site steepness and inaccessibility, the borings were drilled with a 4 inch diameter portable auger. The borings were drilled near each corner of the planned residence and refusal drilling was encountered at all four test borings. Our Engineer was on the site to locate the test borings, to inspect the drilling, to log the conditions, and to obtain soil samples for visual examination and classification.

SITE CONDITIONS

The site is located in Muir Beach at the end of a private drive off of Sunset Way. The property is located above a near vertical cliff ranging from 7 to 60 feet high and overlooks the beach. A bench about 12 feet wide extends in the east-west direction and is located at the center of the property. The bench was developed by excavating on the uphill side and placing fill on the downhill side. The resultant cut slope is about 7 feet high and slopes up about 1½ horizontal to 1 vertical (1½:1). Below the bench, the fill slope is about 1:1 for about 10 feet. The natural slope is about 2:1 beyond the cut and fill slopes. Except for the existing bench, the property is overgrown with brush, and scattered, moderate sized pine, cypress, and gum trees.

The test borings encountered the following conditions:

Location	Fill, Topsoil And Colluvium	Firm Rock
Southeast Corner	0'-3'	3'-3½'+
Southwest Corner	0'-3'	3'+
Northeast Corner	0'-2'	2'-2½'+
Northwest Corner	0'-2½'	2½'+

The topsoil, colluvium (slopewash), and fill are porous, dry, and compressible sandy silt with rock fragments. The bedrock is firm, relatively strong, and incompressible sandstone and greenstone of the Franciscan Formation.

The geologic maps consulted did not indicate active faults at the site, and we did not observe evidence of active faulting during our investigation. We did observe evidence of a landslide located on the cut bank at the west end of the planned residence. The landslide is about 3 to 4 feet deep and appears to be restricted to topsoil and colluvium sliding over firm bedrock.

CONCLUSIONS

Based upon the results of our work, we believe that the site is suitable for the planned residential construction from a soil engineering standpoint. However, the fill, topsoil, and colluvium are experiencing downhill creep (on the order of a fraction of an inch per year). Therefore, they are unsuitable for foundation support. The residence would need to be supported in the firm underlying sandstone and greenstone bedrock and the foundations designed to resist creep forces.

In order to reduce the risk of future cliff instability affecting the residence, it will be necessary to extend the foundations below an imaginary 1½:1 line projected up from the base of the cliff.

Portions of the structure excavated through the soil and below a 1½:1 line projected up from the toe of the cliff may be supported on spread footings founded in firm rock. The remainder of the structure may be satisfactorily supported on drilled, cast-in-place, reinforced concrete piers extending into firm rock below the imaginary 1½:1 line projected upward from the toe of the cliff.

To protect the residence from slide debris from above, a catchment wall will be required above the residence.

It will be necessary to excavate or to repair the small landslide west of the house to prevent its enlargement. We judge that the most suitable repair will be removing the slide debris, excavating level keyways into firm rock, and backfilling the void with durable rock rip rap.

We believe that there are no active faults at the site and, therefore, little risk of fault related ground rupture during earthquakes. Like the entire Muir Beach Area, the site is subject to severe ground shaking during earthquakes. It will be necessary to design and construct the project in strict accordance with current standards for earthquake resistant construction.

RECOMMENDATIONS

Site Grading

Areas to be developed should be cleared of vegetation and of the upper few inches of soil containing organic matter. The strippings should be removed or stockpiled for reuse as topsoil. Excavation can then be performed as necessary. Excavated material should be removed from the site and no fill should be placed except for the driveway. We anticipate that with the exception of organic matter and of rocks or lumps larger than 6 inches in diameter, the excavated material will be suitable for reuse as compacted fill.

Areas to receive fill should be prepared by cutting level keyways extending into firm residual soil or rock. Where evidence of seepage is observed, and/or where fill is to extend beneath structures, subsurface drainage facilities should be installed at the rear of keyways as directed by the Soil Engineer.

The keyways should be prepared by scarifying to a depth of 6 inches, moisture conditioning as necessary, and compacting to at least 90% of the maximum dry density of the materials as determined by the ASTM D-1557-70(C) laboratory compaction test procedure. Fill material should then be spread in 8 inch thick loose lifts, moisture conditioned as necessary, and compacted to at least 90% relative compaction. As the fill continues upslope, it should be continually keyed into firm soil or rock.

New cut and fill slopes should be no steeper than 2:1. Where steeper banks are required, retaining walls should be used. Slopes should be planted with fast growing, deep rooted ground cover to reduce sloughing or erosion.

Foundations

Spread Footings - Spread footings should only be used where the structure would be excavated through the soil and into rock below a 1½:1 line projected up from the toe of the cliff. Spread footings should be at least 18 inches wide and should extend at least 18 inches into firm rock and at least 18 inches below lowest adjacent final grade. The footings should be stepped as necessary to produce level tops and bottoms and should be deepened as necessary to provide at least 7 feet of horizontal confinement between the footing bottoms and the face of the nearest slope.

Footings installed in accordance with these recommendations may impose dead loads, dead plus real live loads, and total loads of 3000, 3500, and 4000 pounds per square foot (psf), respectively.

Drilled Piers - Drilled, cast-in-place, reinforced concrete piers should be at least 18 inches in diameter and should extend at least 8 feet into firm rock below a 1½:1 line projected up from the bottom of the existing cliff or should extend into rock until refusal drilling is encountered. Refusal is defined as less than 6 inches of penetration in 5 minutes of drilling with a hydraulic feed, track-mounted drill rig. The piers should be designed and reinforced to resist creep forces equivalent to a 4 foot thick zone exerting an active equivalent fluid pressure of 45 pcf acting on two pier diameters. The piers should be interconnected with grade beams and tie beams to support building loads and to redistribute stresses imposed by the creeping soils.

The grade beams should be designed by the Project Engineer to support the imposed structural loads. Tie beams should be 12 inches square and should be reinforced with 2 #5 bars. Upslope-downslope grade beams and tie beams should be no more than 20 feet apart.

The portion of the piers extending into firm rock at least 4 feet deep and below a 1½:1 line projected upward from the toe of cliff may impose a passive equivalent fluid pressure of 250 pcf acting on two pier diameters and vertical dead plus real live loads of 1000 psf in skin friction. End bearing should be neglected because of the difficulty of cleaning out small diameter pier holes and the uncertainty of mobilizing end bearing and skin friction simultaneously.

We do not anticipate that ground water and/or caving soils will be encountered. However, if ground water is encountered, it may be necessary to dewater the holes and/or to place the concrete by the tremmie method. If caving soils are encountered, it may be necessary to case the holes. Hard drilling will be required to achieve the required penetration.

Retaining Walls

Retaining walls supporting level backfill should be designed to resist an active equivalent fluid pressure of 35 pounds per cubic foot (pcf) acting in a triangular pressure distribution. Where the backfill slopes up steeper than 3:1, the walls should be designed for an active equivalent fluid pressure of 50 pcf. Where retaining wall backfill is subject to truck vehicular traffic, the walls should be designed to resist an additional surcharge pressure equivalent to 2½ feet of additional backfill. Unbackfilled catchment walls should be provided to protect the residence from slope debris. The walls should be designed for an active equivalent fluid pressure of 40 pcf and at least 3 feet high.

The portion of retaining wall foundations extending into firm rock at least 7 horizontal feet from the face of the nearest slope, may impose a passive equivalent fluid pressure and a friction factor of 300 pcf and 0.4 respectively to resist sliding.

Retaining walls should be fully backdrained. The backdrains should consist of 4 inch diameter perforated pipe sloped to drain to outlets by gravity and of clean, free draining crushed rock or gravel. The crushed rock or gravel should extend to within one foot of the surface. The upper one foot should be backfilled with compacted soil to exclude surface water. The ground surface behind retaining walls should be sloped to drain.

Where migration of moisture through retaining walls would be detrimental, retaining walls should be waterproofed.

Soil Engineering Drainage

Surface water should be diverted away from slopes and foundations.

Roofs should be provided with gutters and the downspouts should be connected to closed conduits discharging well away from foundations and slopes.

Foundation drains should be provided adjacent to all perimeter foundations except the downhill side. Foundation drains should consist of trenches at least 18 inches deep and sloped to drain by gravity. Three inch diameter perforated pipe sloped to drain to outlets by gravity should be placed in the bottom of the trenches. The trenches should be backfilled to within 6 inches of the surface with clean, free draining crushed rock or gravel. The upper 6 inches should be backfilled with compacted soil to exclude surface water. The ground surface should be sloped to drain away from foundations.

Where retaining walls are used for perimeter foundations, retaining wall backdrains may be used in lieu of foundation drains.

Roof downspouts and surface drains must be maintained entirely separate from foundation drains and retaining wall backdrains. Rip rap or other erosion protection should be provided at pipe outlets.

LIMITATIONS

Subsurface conditions are complex and may differ from those indicated by surface features and those encountered at the test hole locations. Therefore, we are unable to guarantee

the performance of any site or foundation system. For houses constructed on hillsides, we recommend that mudflow and earthquake insurance be obtained where available.

If conditions different from those described in this report are encountered during construction, we should be notified immediately, so that we may modify our recommendations if warranted.

SUPPLEMENTAL SERVICES

We should review the final plans for conformance with the intent of our recommendations. During construction, we should inspect construction excavations and pier drilling operations to observe the conditions encountered and to modify our recommendatio if warranted.

We trust this provides the information you require at this time. If you have questions, please call.

Yours very truly,

DONALD HERZOG & ASSOCIATES, INC.

John C. Hom

John C. Hom,
Project Manager

Donald Herzog

Donald Herzog,
Principal Engineer

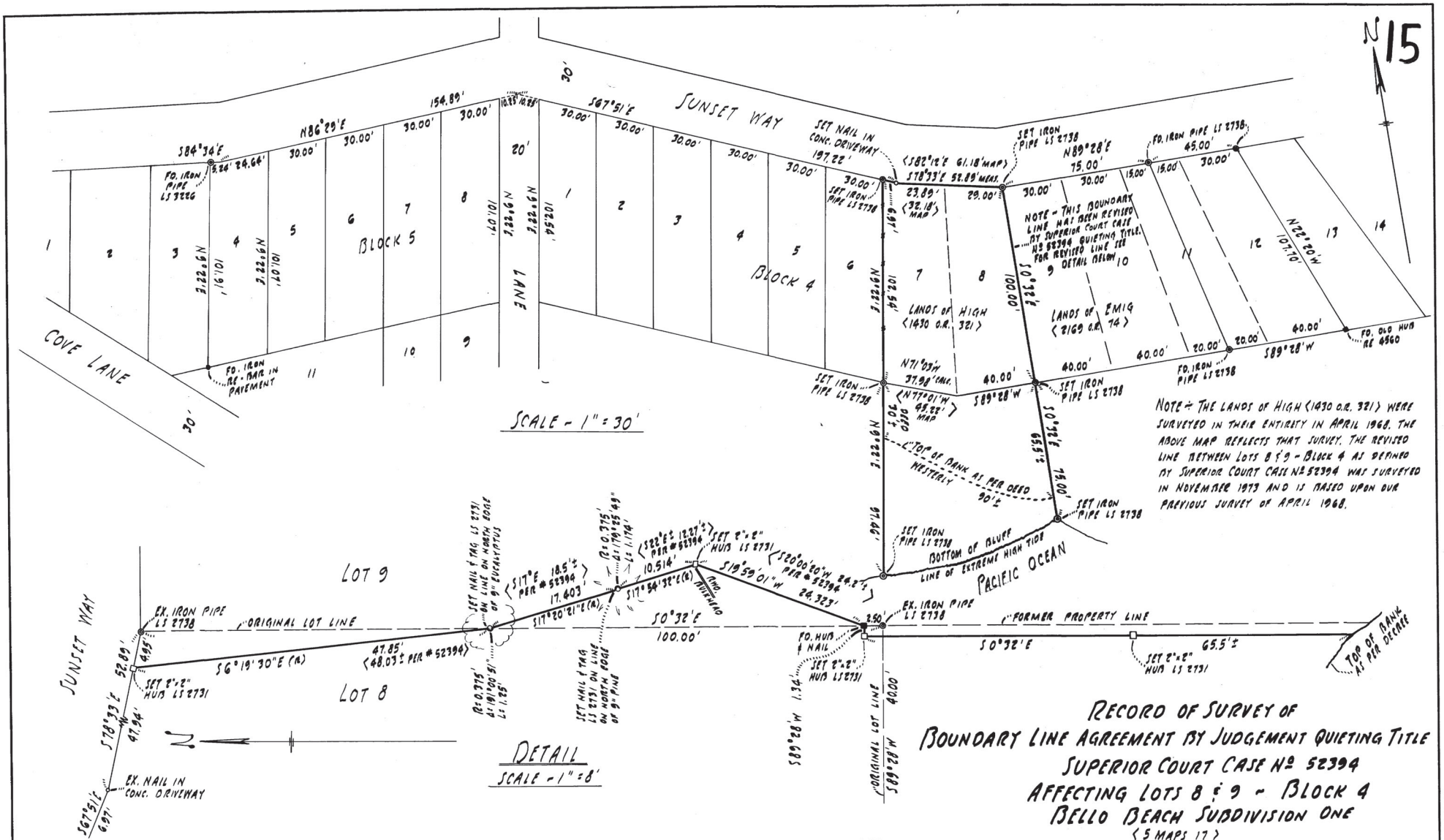
JH/DH/gh

3 copies submitted

Exhibit A-10

Groneman Survey

3151



RECORD OF SURVEY OF BOUNDARY LINE AGREEMENT BY JUDGEMENT QUIETING TITLE SUPERIOR COURT CASE Nº 52394 AFFECTING LOTS 8 & 9 - BLOCK 4 BELLO BEACH SUBDIVISION ONE (5 MAPS 17)

MARIN COUNTY - CALIFORNIA

SCALE - AS NOTED DECEMBER 1973

HOOL & LOCKETT
LIC. LAND SURVEYORS

SURVEYOR'S CERTIFICATE

This map correctly represents a survey made by me or under my direction in conformance with the requirements of the Land Surveyor's Act at the request of MR. & MRS. KENNETH HIGH in NOVEMBER, 1973.

William O Lockett
L.S. No. 2738

COUNTY SURVEYOR'S CERTIFICATE

This map has been examined for conformance with the Land Surveyor's Act this 4th day of March, 1974.

County Surveyor No. 13199

By Deputy

RECORDER'S CERTIFICATE

Filed this 13th day of March, 1974 at 3:30 P.M. in Book 12 of Surveys at page 15.

at the request of Dept of Public Works

Serial 8275 N.T. Giacomini County Recorder

Fee 5.00

By Deputy Alice Lake

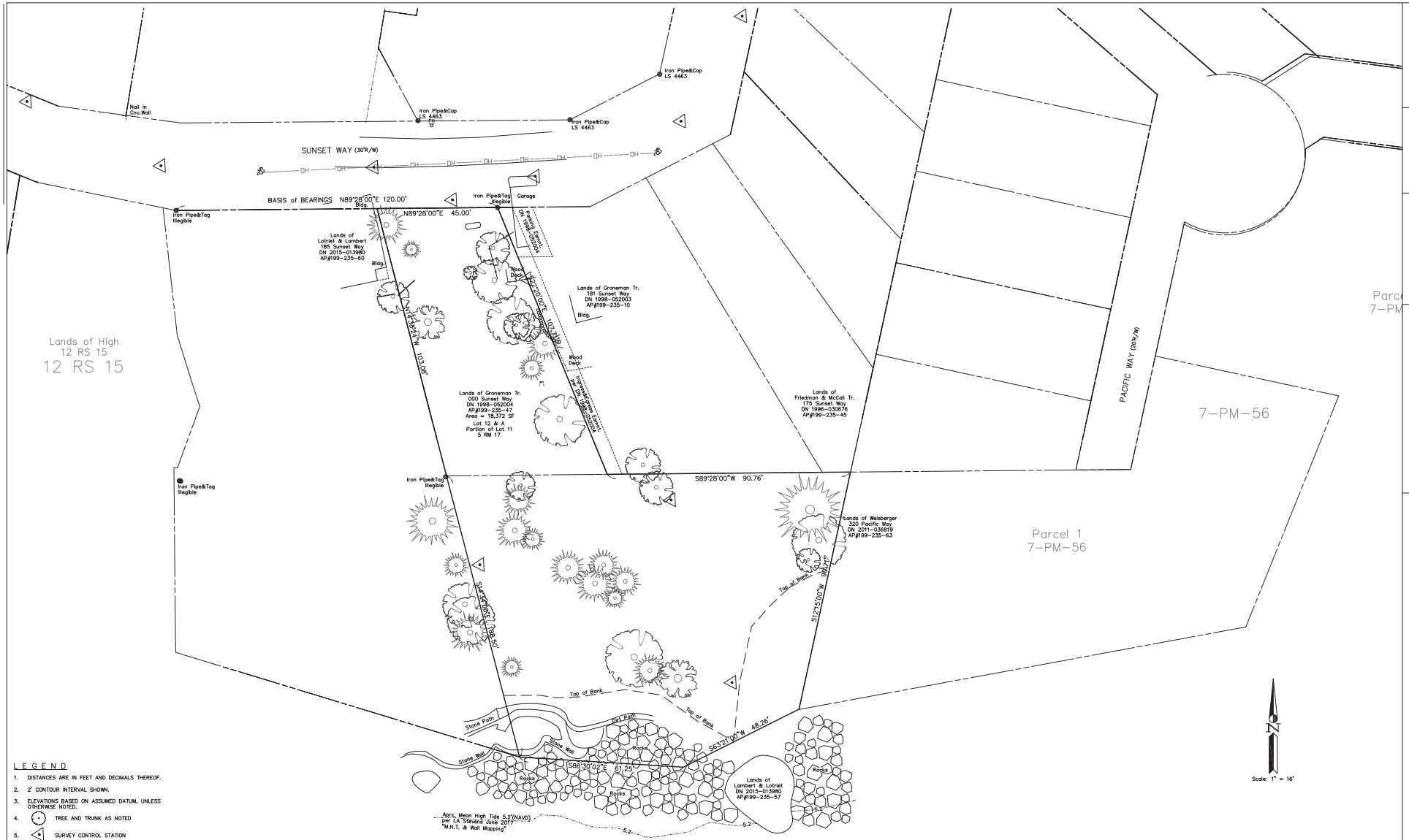
BASIS OF BEARING

THE SOUTHERLY LINE OF SUNSET WAY (N89°28'E) AS DEFINED BY FOUND IRON PIPES AS SHOWN IS THE BASIS OF BEARING OF THIS SURVEY.

Can 3151

#2762A
199-235-50

PRELIMINARY



LEGEND

1. DISTANCES ARE IN FEET AND DECIMALS THEREOF.
2. 2' CONTOUR INTERVAL SHOWN.
3. ELEVATIONS BASED ON ASSUMED DATUM, UNLESS OTHERWISE NOTED.
4. TREE AND TRUNK AS NOTED
5. SURVEY CONTROL STATION

ABBREVIATIONS FOR THIS PLAN:

AC	ASPHALT CONCRETE	Mon.	MONUMENT
Bldg	BUILDING	PL	PROPERTY LINE
BM	BENCH MARK	PM	PARKING METER
BW	BOTTOM OF WALL	PP	POWER POLE
CB	CATCH BASIN	R	RADIUS
C&G	CURB AND GUTTER	RCP	REINFORCED CONC. PIPE
CIP	CAST IRON PIPE	RR	RAILROAD
CMP	CORRUGATED METAL PIPE	R/W	RIGHT OF WAY
Conc.	CONCRETE	RWD	REDWOOD
CP#	CONTROL POINT NUMBER	S	SLOPE
CS	CRAWL SPACE	SS	SANITARY SEWER
DI	DROP INLET	SSCO	SS CLEAN OUT
D/W	DRIVEWAY	Std.	STANDARD
(E)	EXISTING	SW	SIDEWALK
EP	EDGE OF PAVEMENT	TC	TOP OF CURB
FH	FIRE HYDRANT	TCS	TOP OF SLAB
FL	FLOWLINE	TS	TURNING STRUCTURE
Irr.	IRRIGATION	TW	TOP OF WALL
JP	JOINT POLE	VCP	VITRIFIED CLAY PIPE
LF	LINEAR FEET	WM	WATER METER
MH	MANHOLE		

Boundary Resolution Note:
Property Corners have been set/found per: 12 RS 15
Basis of Bearings is N 89°28'00" E, 120.00' between found Iron Pipe Monuments
Recordation filing date:
Document/map # 2013-ROS/CR:

Final Boundary resolution REQUIRES the recordation of a document or map.

JOB No. 2019-046

J. L. ENGINEERING CIVIL ENGINEERS
1539 FOURTH STREET TEL:(415) 457-6647
SAN RAFAEL FAX:(415) 457-2317
CA. 94901

Prepared under the supervision of
RCE # 30465 J.L. HALLBERG
LS7/EDT #

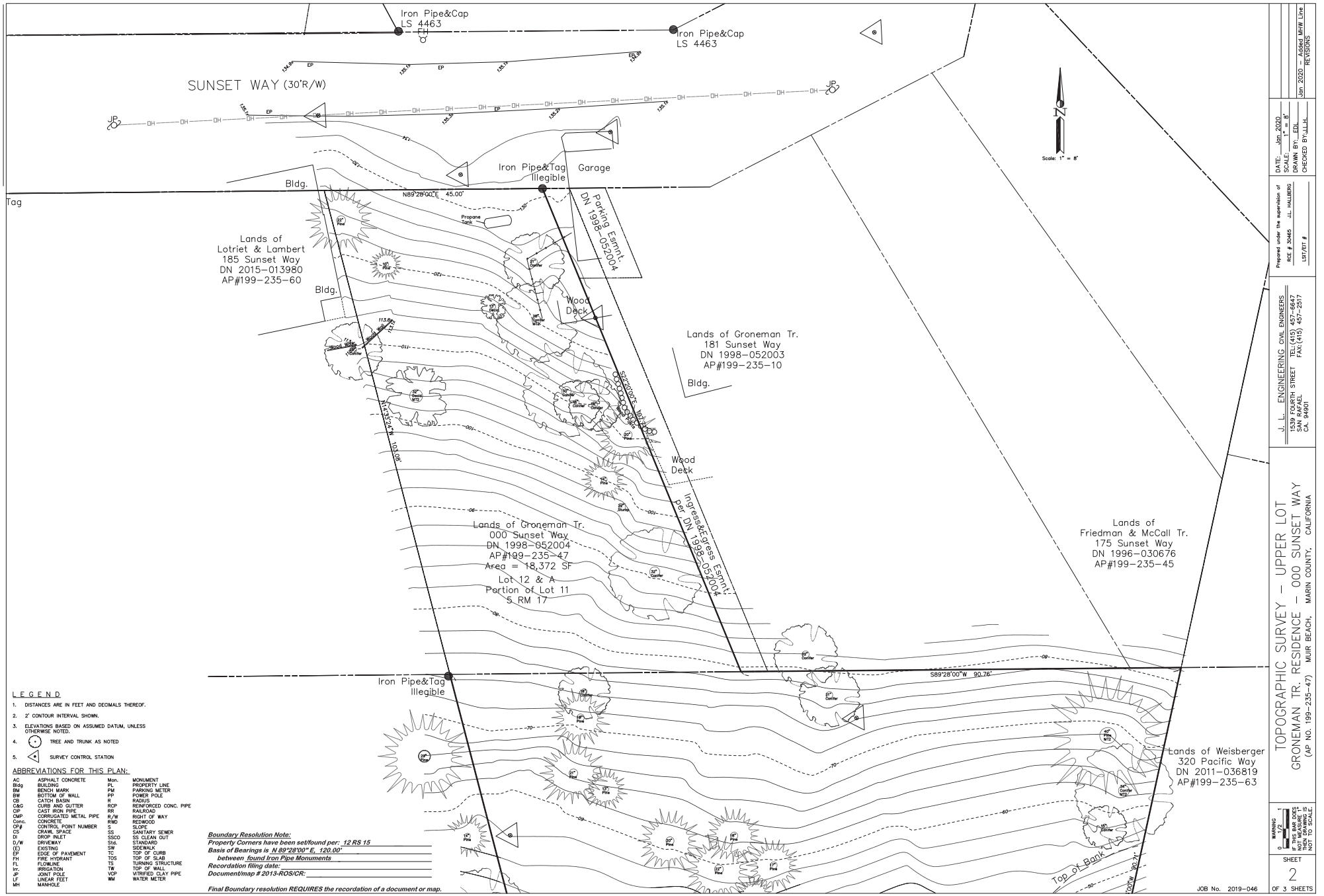
DATE: Jan. 2020
SCALE: 1" = 16'
DRAWN BY: EDL
CHECKED BY: JLH

REVISIONS
Jan. 2020 - Added MHW Line

TOPOGRAPHIC SURVEY
GRONEMAN TR. RESIDENCE - 000 SUNSET WAY
(AP NO. 199-235-47) MUIR BEACH, MARIN COUNTY, CALIFORNIA

WARNING
0 1 2
IF THIS BAR DOES NOT MEASURE 2" THEN DRAWING IS NOT TO SCALE.

SHEET 1 OF 3 SHEETS



LEGEND

1. DISTANCES ARE IN FEET AND DECIMALS THEREOF.
2. 2' CONTOUR INTERVAL SHOWN.
3. ELEVATIONS BASED ON ASSUMED DATUM, UNLESS OTHERWISE NOTED.
4. TREE AND TRUNK AS NOTED
5. SURVEY CONTROL STATION

ABBREVIATIONS FOR THIS PLAN:

AC	ASPHALT CONCRETE	Mon.	MONUMENT
Bldg	BUILDING	PL	PROPERTY LINE
BM	BENCH MARK	PM	PARKING METER
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CB	CATCH BASIN	R	RADIUS
C&G	CURB AND GUTTER	RCP	REINFORCED CONC. PIPE
CIP	CAST IRON PIPE	RR	RAILROAD
CMP	CORRUGATED METAL PIPE	R/W	RIGHT OF WAY
Conc.	CONCRETE	RWD	REDWOOD
CP#	CONTROL POINT NUMBER	S	SLOPE
CS	CRAWL SPACE	SS	SANITARY SEWER
DI	DROP INLET	SSCO	SS CLEAN OUT
D/W	DRIVEWAY	Std.	STANDARD
(E)	EXISTING	SW	SIDEWALK
EP	EDGE OF PAVEMENT	TC	TOP OF CURB
FH	FIRE HYDRANT	TOS	TOP OF SLAB
FL	FLOWLINE	TS	TURNING STRUCTURE
Irr.	IRRIGATION	TW	TOP OF WALL
JP	JOINT POLE	VCP	VITRIFIED CLAY PIPE
LF	LINEAR FEET	WM	WATER METER
MH	MANHOLE		

Boundary Resolution Note:
Property Corners have been set/found per: 12 RS 15
Basis of Bearings is N 89°28'00" E, 120.00'
between found Iron Pipe Monuments
Recordation filing date:
Document/map # 2013-ROS/CR:

Final Boundary resolution REQUIRES the recordation of a document or map.

DATE: Jan 2020
SCALE: 1" = 8'
DRAWN BY: EDL
CHECKED BY: J.L.H.

Jan 2020 – Added MHW Line
REVISIONS

Prepared under the supervision of
RCE # 30465 J.L. HALLBERG
LS7/ST #

J. L. ENGINEERING CIVIL ENGINEERS
1539 FOURTH STREET TEL:(415) 457-6647
SAN RAFAEL FAX:(415) 457-2517
CA. 94901

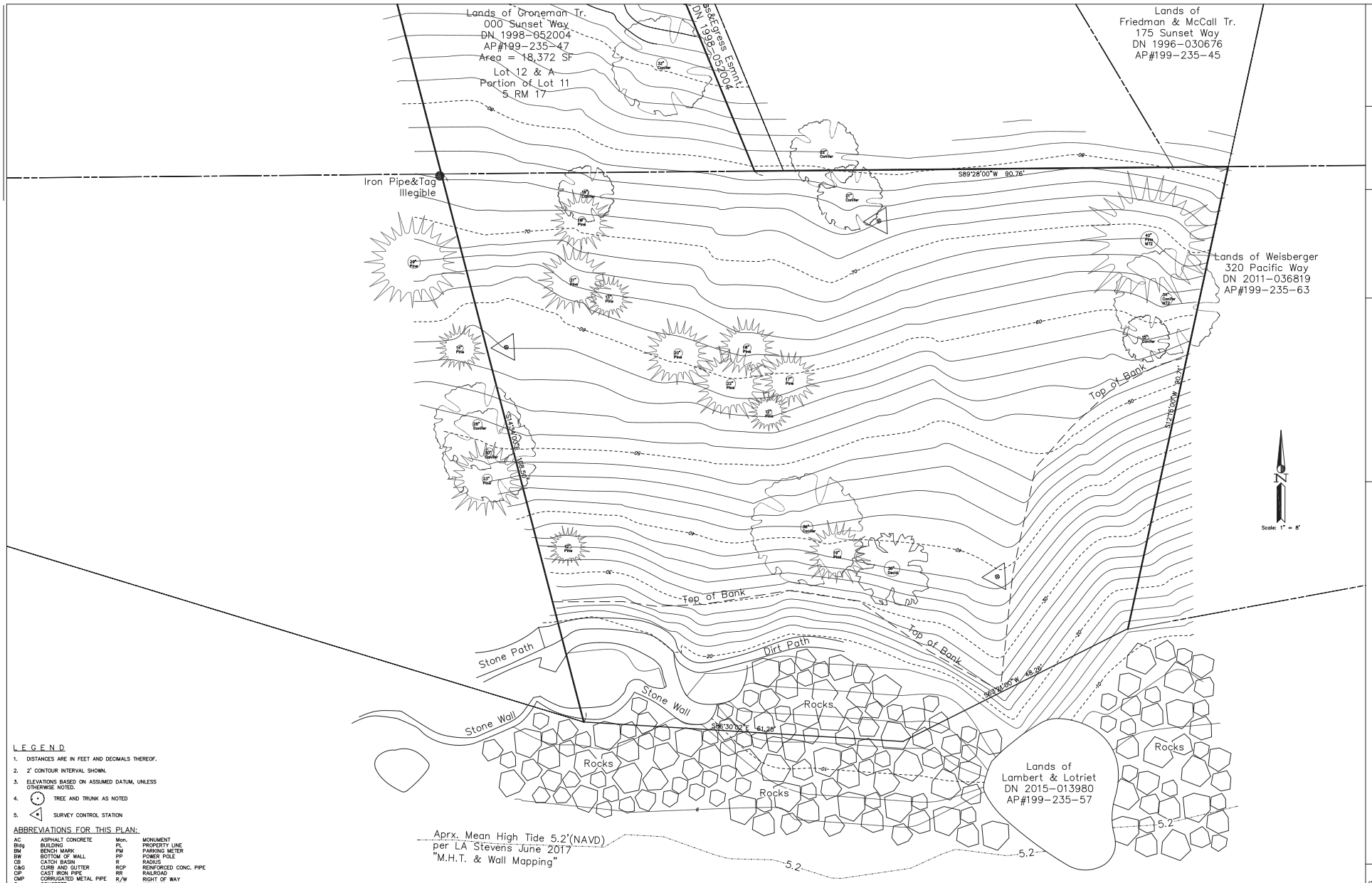
TOPOGRAPHIC SURVEY – UPPER LOT
GRONEMAN TR. RESIDENCE – 000 SUNSET WAY
(AP NO. 199-235-47) MUIR BEACH, MARIN COUNTY, CALIFORNIA

WARNING
IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO SCALE.

SHEET
2
OF 3 SHEETS

JOB No. 2019-046

PRELIMINARY



LEGEND

1. DISTANCES ARE IN FEET AND DECIMALS THEREOF.
2. 2' CONTOUR INTERVAL SHOWN.
3. ELEVATIONS BASED ON ASSUMED DATUM, UNLESS OTHERWISE NOTED.
4. TREE AND TRUNK AS NOTED
5. SURVEY CONTROL STATION

ABBREVIATIONS FOR THIS PLAN:

AC	ASPHALT CONCRETE	Mon.	MONUMENT
Bldg	BUILDING	PL	PROPERTY LINE
BM	BENCH MARK	PM	PARKING METER
BW	BOTTOM OF WALL	PP	POWER POLE
CB	CATCH BASIN	R	RADIUS
C&G	CURB AND GUTTER	RCP	REINFORCED CONC. PIPE
CIP	CAST IRON PIPE	RR	RAILROAD
CMP	CORRUGATED METAL PIPE	R/W	RIGHT OF WAY
Conc.	CONCRETE	RWD	REDWOOD
CP#	CONTROL POINT NUMBER	S	SLOPE
CS	CRAWL SPACE	SS	SANITARY SEWER
DI	DROP INLET	SSCO	SS CLEAN OUT
D/W	DRIVEWAY	Std.	STANDARD
(E)	EXISTING	SW	SIDEWALK
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Irr.	IRRIGATION	TW	TOP OF WALL
JP	JOINT POLE	VCP	VITRIFIED CLAY PIPE
LF	LINEAR FEET	WM	WATER METER
MH	MANHOLE		

Boundary Resolution Note:
Property Corners have been set/found per: 12 RS 15
Basis of Bearings is N 89°28'00" E, 120.00' between found Iron Pipe Monuments
Recordation filing date:
Document/map # 2013-ROS/CR:

Final Boundary resolution REQUIRES the recordation of a document or map.

JOB No. 2019-046

DATE: Jan 2020
SCALE: 1" = 8'
DRAWN BY: EDL
CHECKED BY: JLH

Jan 2020 - Added MHW Line
REVISIONS

Prepared under the supervision of
RCE # 30405 J.L. HALLBERG
LS?/EIT #

J. L. ENGINEERING CIVIL ENGINEERS
1539 FOURTH STREET TEL (415) 457-6647
SAN RAFAEL FAX (415) 457-2517
CA. 94901

TOPOGRAPHIC SURVEY - LOWER LOT
GRONEMAN TR. RESIDENCE - 000 SUNSET WAY
(AP NO. 199-235-47) MUIR BEACH, MARIN COUNTY, CALIFORNIA

WARNING
0 1 2
IF THIS BAR DOES NOT MEASURE 2" THEN DRAWING IS NOT TO SCALE.

SHEET
3
OF 3 SHEETS

Exhibit A-11

Lotriet & Lambert Seawall Survey

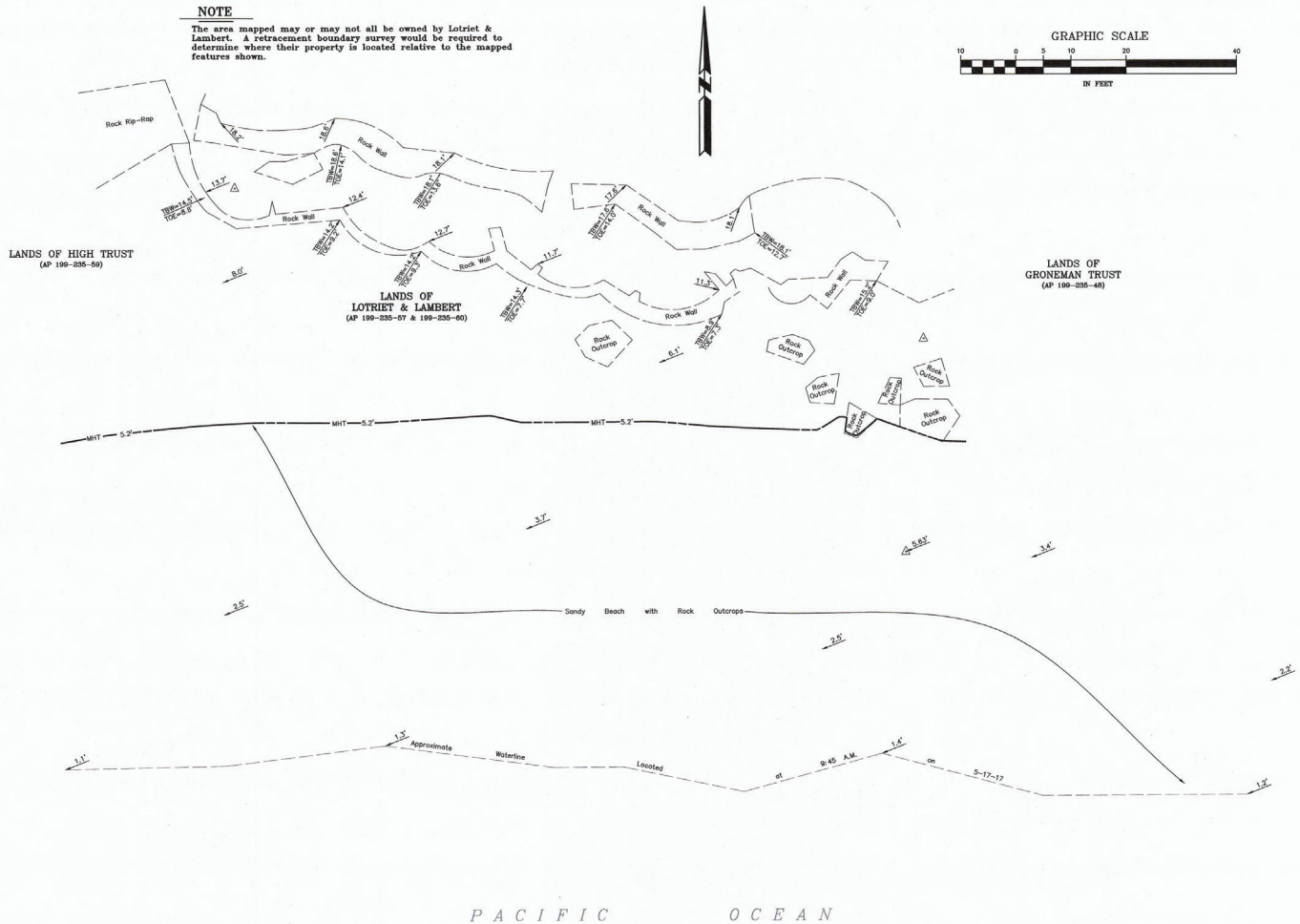
NOTE

The area mapped may or may not all be owned by Lotriet & Lambert. A retracement boundary survey would be required to determine where their property is located relative to the mapped features shown.

GRAPHIC SCALE

10 0 5 10 20 40

IN FEET



LEGEND

101.4	Spot Elevation
△	Temporary Benchmark
TBW	Top Back of Wall
TOE	Toe of Wall
MHT	Mean High Tide Elevation

SURVEYOR'S NOTES:

1. Vertical Datum: North American Vertical Datum of 1988 (NAVD88)
2. Benchmark: CORS Stations CAPO, OHLN, P181, P224, TIBB
3. The fieldwork for this topographic map was conducted by L.A. Stevens & Associates, Inc. on May 17, 2017. The topographic elements shown hereon reflect the site conditions existing at that time.
4. The location of easement lines are outside the scope of services contracted for.
5. Assessor's Parcel: 199-235-60
6. The Title Insurance Policy reviewed during the course of this survey was provided by Old Republic National Title Insurance Company, dated March 30, 2015, Policy Number A04039-FTYA-147603
7. Only documents within said Policy were reviewed for this work.
8. Subsurface and environmental conditions were not surveyed or examined or considered as part of this survey. No statement is made concerning the existence of underground or overhead conditions, containers, or facilities that may affect the use or development of this property.
9. Only bond copies, with an original stamp and signature in red, may be considered to represent the work of L.A. Stevens & Associates, Inc. – Professional Land Surveyors. Any data relied upon from another format shall be checked to a bond copy mentioned above.
10. This map was prepared for the exclusive use of Linda Lotriet and Peter Lambert and/or their legal representatives for the establishment of NAVD88 elevation for the mean high tide line (MHT) along the beach and map the location of the seawall(s) relative to jurisdictional boundary and mean high tide line. Use or reliance on this map by any other party is forbidden without expressed written permission by Lawrence A. Stevens whose seal and signature are shown hereon.
11. This document shall be considered a "Preliminary Check Print" without a wet signature in red ink and wet stamp of the licensee responsible for the work.

PROFESSIONAL LAND SURVEYOR
LAWRENCE A. STEVENS
L-6649
CALIFORNIA
7-8-2017

LAWRENCE A. STEVENS, PLS 6649

No.	REVISION	BY	DATE

L.A. Stevens & Associates, Inc.
Professional Land Surveyors * (415) 382-7713
7 Commercial Blvd., Suite 1 * Novato, California 94949

M.H.T. & WALL MAPPING
Vicinity of
185 Sunset Way
Muir Beach, California

FOR: LOTRIET & LAMBERT

BY: N.D./L.A.S.
DATE: 8-21-2017
SCALE: 1" = 10'
DRAWING NO. 171810

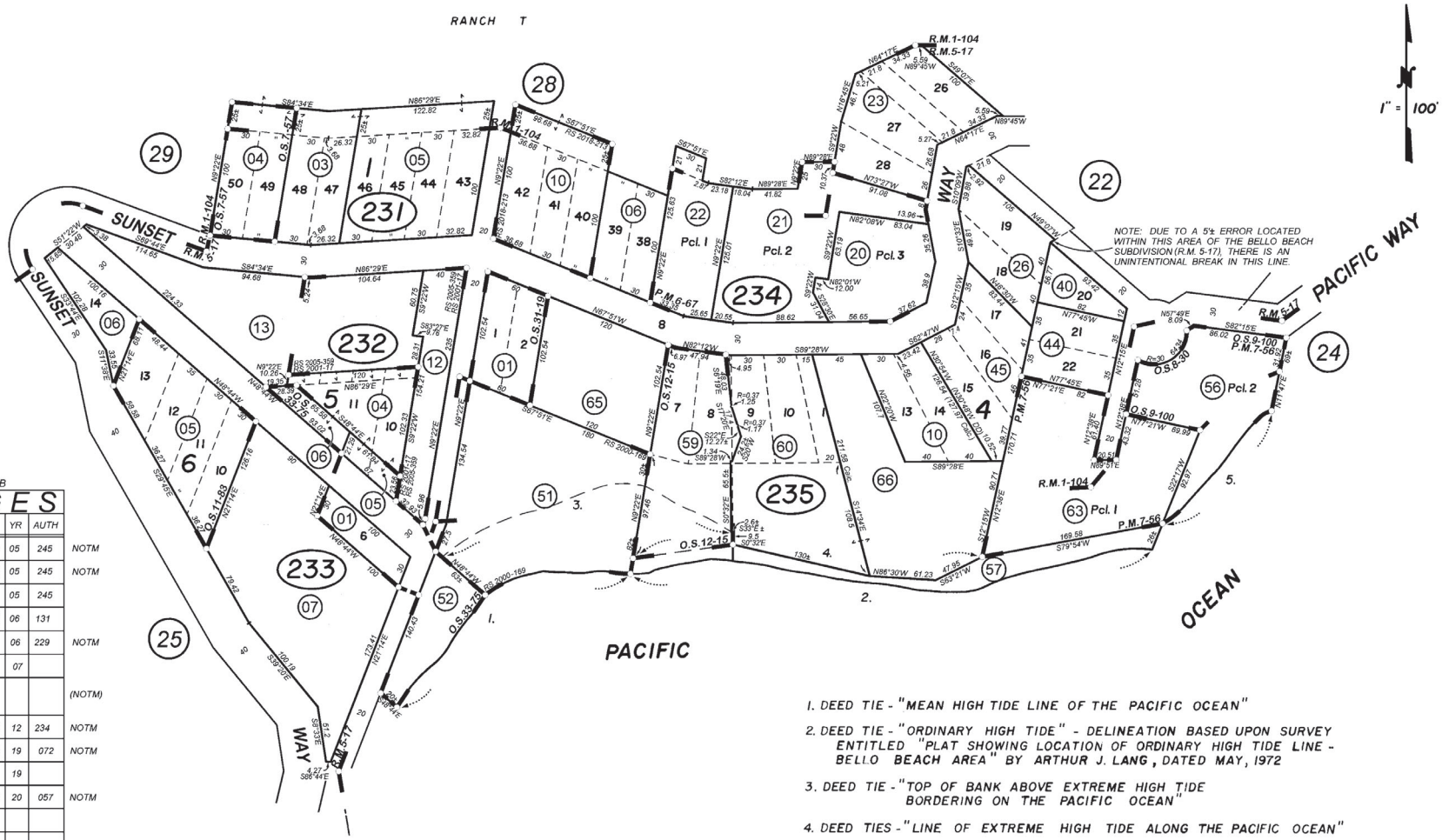
Exhibit A-12

Marin County Parcel Map

POR. LOT 37, SAUSALITO RANCHO

Tax Rate Area
75-048

199-23



1. DEED TIE - "MEAN HIGH TIDE LINE OF THE PACIFIC OCEAN"
2. DEED TIE - "ORDINARY HIGH TIDE" - DELINEATION BASED UPON SURVEY ENTITLED "PLAT SHOWING LOCATION OF ORDINARY HIGH TIDE LINE - BELLO BEACH AREA" BY ARTHUR J. LANG, DATED MAY, 1972
3. DEED TIE - "TOP OF BANK ABOVE EXTREME HIGH TIDE BORDERING ON THE PACIFIC OCEAN"
4. DEED TIES - "LINE OF EXTREME HIGH TIDE ALONG THE PACIFIC OCEAN"
5. DEED TIE - "LINE OF ORDINARY HIGH WATER OF THE PACIFIC OCEAN"

03/27/2020 JSB

CHANGES

BLK	PRIOR APN	NEW APN	YR	AUTH	
235	34, &, 64	199-235-65	05	245	NOTM
232	07, &, 08	199-232-09	05	245	NOTM
232	03	NOTM	05	245	
232	199-232-09	199-232-10 199-232-11	06	131	
233	02,03,04	07	06	229	NOTM
235	51	NOTM	07		
232 233 235	199-232-05 199-233-01 199-235-52				(NOTM)
232	03 & 11	199-232-12	12	234	NOTM
232	01 & 10	199-232-13	19	072	NOTM
234	Survey		19		
235	47 & 48	199-235-66	20	057	NOTM

Map Page Update

Tamalpais Land & Water Co. Map No. 3, R.M., Bk. 1, Pg. 104
Bello Beach Sub. 1, R.M., Bk. 5, Pg. 17

NOTE -- Assessor's Block Numbers Shown in Ellipses.
Assessor's Parcel Numbers Shown in Circles.

Assessor's Map Bk. 199-Pg. 23
County of Marin, Calif.

August 30, 2021
File: 2944.001dltr.doc

Mr. Graham Groneman
c/o Michael Heacock Architects, Inc.
129 Miller Avenue, Suite 623
Mill Valley, California 94941

Re: Response to California Coastal Commission
Staff Report, Substantial Issue Determination
Appeal Number A-2-MAR-21-0048
Proposed Residential Development
183 Sunset Way (APN 199-235-47 and -48)
Muir Beach, California

Introduction

As requested following our recent communication, this letter summarizes our geotechnical response to the California Coastal Commission's Staff Report/Substantial Issue Determination regarding your proposed new residential development at 183 Sunset Way in Muir Beach, California. We previously performed a Geotechnical Investigation and provided design recommendations and criteria in our report dated August 20, 2020. More recently, we consulted with the design team, provided supplemental discussion, and reviewed the project plans, as summarized in our letter dated July 1, 2021.

We have reviewed the Coastal Commission's staff report regarding the project. The purpose of this letter is to clarify some geotechnical issues which appear either to have been mis-interpreted by Coastal Commission staff, or which have changed since our report was prepared.

Coastal Commission Staff Report

Several issues are raised in the staff report which are referred to as the basis for a "substantial issue" finding. In general, these issues include the location of the bluff edge, the bluff retreat rate used for building setback determination, the purpose/intent of the slope stabilization measures, and the nature/extents of the planned foundation system. It is our opinion that the Coastal Commission has mis-interpreted some of these issues (bluff edge determination) while others (design retreat rate and setback justification) have changed since issuance of our report. Each of these issues is discussed in greater detail below.

Bluff Edge Determination

In the staff report ("Analysis", page 12), the Coastal Commission states "the report also indicates that the parcel is comprised of a steep 60-degree slope". This is untrue, as stated in our report and as shown on the site topographic survey. As noted in our report, natural south-facing slopes above the bluff edge are inclined at about 2:1 (horizontal:vertical), or about 26-degrees. These slopes extend from Sunset Way at the top of the site to the edge of the coastal bluff near the bottom. The bluff edge is taken as "that point nearest the bluff beyond which the downward gradient of the surface increases continuously until it reaches the general gradient of the bluff", as prescribed by the LCP. Therefore, we respectfully disagree with the CCC's suggestion that the entire site may constitute a "bluff face".

Bluff Retreat Rate Determination

The Commission further states (Page 12) "the estimated annual 6-inch per year bluff retreat rate appears to rely on the presence of both existing and proposed armoring". This is partly true – as stated in our report, the existing armor was apparently installed in the 1980's and observable retreat since installation is negligible. For all intents and purposes, the existing armor results in a net retreat rate of zero inches per year. We recommended a design retreat rate of 6-inches assuming that a longer service life (100 years) would be desired, and that existing armor would eventually deteriorate or be removed. Our report also noted that prior to installation of the armoring, a retreat rate of 7.2-inches per year was observed/measured from historical data. Therefore, assuming the development is planned for a 40-year design life, the minimum recommended setback from the bluff edge is:

40 years X 7.2-inches/year = 288 inches = **24-feet**.

Again, we wish to reiterate that our original 6-inch per year estimate was based on an understanding that 1) existing armoring effectively nullifies active retreat, and 2) existing armoring is likely to be removed sometime in the future. If armoring were removed, or if preferred for "consistency" with LCP policy, then a retreat rate of 7.2-inches per year should be used as shown above. Notably, existing plans conform to the 24-foot setback, based on a 40-year service life.

Slope Stabilization Piers

The commission notes (Pages 12-13) that the "project includes a series of subsurface slope stabilization piers that could function as a shoreline protective device". As noted in our report and referenced by CCC, such piers are recommended in order to reduce the risk of slope instability affecting the septic system. Without the piers, an increased risk of landsliding may be realized due to saturation of loose sandy soils by the septic effluent. Notably, the piers are sited upslope of the recommended setback area, and as such are explicitly intended to stabilize the septic system and development area themselves, while not interfering with natural erosion of the bluff edge within the project's design life.

Residential Foundation System

The Commission asserts that "these foundation elements are not normal and typical construction, but rather are extraordinary measures that are being used in place of an effective setback". This is also untrue. The purpose of the drilled pier foundation system is to provide adequate lateral support under seismic conditions, and also transfer building loads to weathered bedrock underlying the surface soils. It is our experience that the proposed foundation system is not extraordinary, but representative of typical hillside construction throughout California, especially following the widespread adoption and advancement of modern seismic design standards over the last 20 years.

Conclusion

In conclusion, it is our opinion that both the bluff edge location and the expected rate of future bluff retreat were determined in accordance with the procedures specified in the LCP. In addition, it is our opinion that the staff report mis-interprets existing site slopes and topography, and falsely claims the proposed foundation design to be atypical or otherwise inappropriate.

We trust that this letter presents the information you require at this time. Should there be any questions or concerns regarding our review, please do not hesitate to contact us.

Very truly yours,
MILLER PACIFIC ENGINEERING GROUP

Mike Jewett
Engineering Geologist No. 2610
(Expires 1/31/21)

MICHAEL HEACOCK ARCHITECTS, INC.
ECOLOGICAL ARCHITECTURE + INTERIORS, LEED CONSULTING

183 SUNSET WAY
MUIR BEACH, CA

September 2, 2021

Re: **Home for a California Firefighter and Hero**
Architect's Response to CCC Staff Report, Substantial Issue Determination
Appeal Number A-2-MAR-21-0048
183 Sunset Way, Muir Beach, California
APN 199-235-47 and -48

Dear Commissioners,
Thank you for your service. As I write this Battalion Chief Graham Groneman is on his second 24 hour shift saving South Lake Tahoe from the Caldor fire. It was only a few weeks ago that he was saving lives and homes from the Dixie Fire, temporarily the largest in California history.

We've been working with Battalion Chief Groneman and his wife, Brett, for 3 years to carefully design their modest three bedroom home in conformance with the Marin County LCP. Graham is a 3rd generation Muir Beach resident, having grown up at his parents' house next to our site. Unlike developers or tech millionaires overbuilding along the coast, Graham is a County firefighter who will be raising his two young children here as 4th generation Muir Beach residents. Rather than selling the land for millions, Graham's parents gifted the property with the hopes and dreams of seeing their grandchildren grow up next door. I'm sure you can appreciate what a relief it would be to his wife, Brett, to have grandparents next door while Graham is fighting fires across California for weeks at a time. Graham has the deepest of roots in this community and a vested interest in protecting this site and the community of Muir Beach. Often referred locally as the "mayor of Muir Beach," you will be hard pressed to find a more thoughtful and caring shepherd to this community.

If I can impress upon the Commission to do one thing before the hearing, please read Miller Pacific's August 31 geotechnical response to the staff report.

The contents of the staff report came as a great surprise to us. We feel the report contains multiple instances of verifiably false information. We can begin to surmise why this would occur. The report distorts actual site conditions in an attempt to influence this decision. **Staff has refused to visit the site after repeated invitations**, and then publishes inaccurate information about the property. Why? Whether driven by their own agenda or that of the appellant commissioners, CCC's action thus far in this case does not advance the mission of the organization.

As outlined in Miller Pacific's rebuttal memo dated 08/30/21, here are corrections to the misinterpretations by CCC staff:

1. Average Slope = 26% (NOT 60% as stated in staff report)
2. Our proposal meets the Marin County LCP using the strictest interpretation of 7.2" erosion rate without relying on existing shoreline armoring.

3. No part of this project relies on existing permitted, grandfathered, or unpermitted armoring by the northerly neighbor.
4. The County approved project with the amended 25'adjustment to subsurface leach field piers is 100% compliant with the Marin LCP even using the most conservative 7.2" retreat rate (see Miller Pacific rebuttal dated 08/31/21).
5. Foundations are typical as of the last 40 years of structural engineering for any house on a slope in California. There is nothing "extreme" about the foundation design in any way, shape or form.
6. This house sits comfortably between two existing homes and conforms to the 25' height limit with rooflines sloping to match the natural topography. Graham is using materials and colors harmonious to the natural surroundings that he cherishes.
7. Approving this home does not set any precedents detrimental to the community of Muir Beach or future projects within CCC jurisdiction.
8. Our team of highly qualified local engineers has done extensive work in and around Muir Beach for many years. Unlike CCC staff, our team and County staff spent many hours on site to ensure the project complies with the Marin LCP.
9. Graham's commitment to his community and his lifelong dream of building his own home in the community he loves ensures that CCC has an ally in the ongoing protection of our precious coastline.

We're not asking commissioners to bend any rules. We are asking commissioners to be fair and unbiased based on the truth rather than a misconstrued staff report.

On a more personal note, I suggest asking your conscience, "Do we make room in our community for our first responders?" Or, do we price them out of the communities they serve and make them sit in traffic for hours every day before saving our homes and our families' lives?

I urge you all to dismiss this appeal by finding NO SUBSTANTIAL ISSUE, and allow Battalion Chief Groneman to proceed with his home for his young family.

Thank you for your thoughtful consideration,

Michael Heacock, Architect
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Ashling P. McAnaney
ashling@rflawllp.com

September 3, 2021

Via E-Mail

California Coastal Commission
North Central Coast Division
455 Market St., Suite 228
San Francisco, CA 94105

Re: 183 Sunset Way, Muir Beach, CA- Appeal No. A-2-MAR-21-0048 (Groneman Residence)

Dear Commissioners:

Our office represents Graham and Brett Groneman in connection with the above-referenced appeal. We are writing to urge the Commission to find that no substantial issue exists as to Marin County's approval of Coastal Development Permit P2989. The initial notice of appeal and the staff report for this matter fail to carry the burden of providing facts to support a finding that the County's approval of the Coastal Development Permit ("CDP") raises a substantial issue that warrants the Commission taking jurisdiction over the CDP application. Rather the staff report reveals a clear bias, without legal or factual support that this legal building site, surrounded by already developed parcels, remain undeveloped.

We recognize that coastal bluffs are important coastal resources and that the Coastal Act and certified Local Coastal Programs aim to protect these and other coastal resources by prohibiting and significantly limiting the approval of new development that relies on new shoreline protective devices. As has been detailed in the supporting technical documents provided to Marin County, this project has been sited and designed ***without*** relying on such protective devices. This fact can be confirmed by the briefest of site visits, something staff refused to do.

The Commission's Staff Report does not successfully refute the factual support for the County's approval of the CDP. The Staff Report mischaracterizes the scope and extent of the project and its ancillary components in an effort to skew the approval of a single-family home determined by Marin County to be in keeping with the "small residential character" of its Muir Beach community into "a serious threat to all the public access, recreational, and supply dynamics, and visual resources present in the Marin coastal planning area." As will be shown below, a

determination of no substantial issue should be made because the project objectively conforms with the Marin County LCP and the California Coastal Act.

Project description and setting.

On May 21, 2021, Marin County approved a Coastal Development Permit and Use Permit for the Gronemans' project to construct a new, 2,160 square foot single family residence, a 369 sf portion of a detached accessory structure (storage area beneath a proposed garage) and associated septic system on a vacant lot in Muir Beach. The 2,959 sf of development would result in a 13.77% floor area ratio on the vacant 18,372 sf lot. As is common for hillside development, the home is designed to step down the hillside, and the foundation for the house will be cut into the slope. The residence would reach a maximum height of 25 feet, and the detached accessory structure, the storage area proposed below a garage, would reach a maximum height of 25 feet as measured from surrounding grade ("Project").

The Project site is set apart from the toe of the bluff, the beach, and the ocean by a separate, adjacent parcel. Shoreline protectives structures; specifically, rip-rap that was installed in or around 1986 and stone pool walls that were constructed in the 1960s (collectively referred to herein as "existing shoreline structures") extend from the base of this adjacent parcel onto the subject property along the shoreline. The Gronemans did not install these existing structures and do not have the ability or authority to exert control over these existing structures. Furthermore, these structures play absolutely no role in the Project, are not required by the Project, and are not a part of this application.

Appeal

Appeals of Coastal Development Permit decisions are limited to allegations that the approved development does not conform to the LCP and/or to Coastal Act public access provisions. (Cal. Pub. Resources Code § 30603(b).) The appeal contends that the County-approved project raises questions of consistency with the Marin County LCP because the project "appears to be located seaward of the blufftop edge and to rely on shoreline armoring for safety and stability." Further, the appeal makes conclusory assertions that the Project is inconsistent with the public access policies of the Coastal Act related to coastal hazards, related shoreline and beach area coastal resource protections, public access, landform alteration and visual resources. These purported grounds for appeal are unsubstantiated by the Staff Report, and certain claims are directly contradicted by the actual evidence in the record. It is unclear why this project is being singled out to advance what appears to be a broader policy issue, but staff and the appellants have selected the wrong application for furthering their cause, because the facts unequivocally demonstrate the findings for granting an appeal could never be made here.

I. The Project Complies With The Marin LCP

The approval of the Project complies with the requirements of the Marin County LCP, including the identification and location of the bluff top edge and the appropriate setback for the home and its accessory structures.

"S**horeline Protection and Hazard Areas Policy 1**: New structures shall be set back from the Bolinas and Muir Beach bluffs a sufficient distance to ensure with reasonable certainty that they are not threatened from cliff retreat within their economic life expectancies. Adequate setback distances will be determined from information contained in required geologic reports and the setback formula established below. These setbacks will be of sufficient distance to eliminate the need for shoreline protective works.

Setback (meters) = structure life (years, normally at least 40 years) x retreat rate (meters/year)"

The Project clearly complies with the above coastal hazard policy. The geotechnical report identified the bluff top location, which location has also been corroborated by two topographic surveys. The Staff Report attempts to undermine the geotechnical report's finding regarding the location of the bluff top edge with only a conclusory assertion that the geotechnical report "indicates" that the parcel has a continuous slope of 60 degrees, and therefore, the parcel appears to be only a bluff face. In fact, a review of the geotechnical report reveals that it does not contain that assertion. Accordingly, the Staff Report's claim that the geotechnical report contains contradictory information regarding its own determination as to the location of the bluff edge is erroneous and does not impugn the credibility of the report or its determination of the bluff top location. It is unclear why more time was not taken to digest and understand this important report.

The Project further complies with the above policy because the geotechnical report provided a retreat rate of 6 inches per year that was based in part on historical retreat rates established prior to the installation of the existing structures. Reliance on the existing structures would have resulted in a retreat rate of zero, as the existing structures appear to have halted shoreline scour and erosion. Using an even more conservative structure life value of 100 years instead of 40, the geotechnical report established a setback of 50 feet from the bluff edge. The home, however, is sited **75 feet away from the bluff top edge**, thereby well exceeding the established "sufficient distance."

The remaining allegations of noncompliance with the LCP are based on the Staff Report's speculation that the subsurface slope stabilization piers, which are located upslope of the bluff top edge for the purpose of stabilizing the drip field, "could function as a shoreline protective device." Pursuant to this rationale and overbroad characterization, any foundational element of hillside development could function as a shoreline protective device. Following this mischaracterization of the subsurface piers, the Staff Report then refers to "new armoring" throughout the rest of the Report, in order to claim that the Project relies on prohibited "new armoring." This is disingenuous and would never survive judicial scrutiny, even under the deferential standards granted to governmental decisions. The septic stabilization elements are common practice, and are very obviously not shoreline protective devices in this case.

II. The Project Does Not Violate Access and Recreation Policies Of The Coastal Act

The Staff Report identifies six Coastal Act access and recreation policies that are purportedly applicable to the proposed development but provides no analysis of the applicability of these recreation policies to the Project. For example, Cal. Public Resources § 30223 states that "upland areas necessary to support coastal recreational uses shall be reserved for such uses, where feasible." There is no discussion presented that the property has been determined to be "necessary to support coastal recreation uses." Nor that the property developed with one single family home would not support coastal recreational uses. Section 30221 states that "Oceanfront land suitable for recreational use shall be protected for recreational use and development. . . ." This policy is not applicable as the property is not oceanfront land.

The assertion that the Project does not conform to the Coastal Act's actual public access policies is similarly unfounded because the Coastal Act conditions the desire for "maximum access" to "be provided for all people consistent with public safety needs . . ." (Cal. Pub. Res. § 30210)(Emphasis added). As stated in the staff report, the project site has a steep slope and based on this site condition, Marin's Coastal Development Permit approval held:

> "**E. Coastal Access.** The project site is located between the sea and the first public road, where public access is desirable. However, due to the steepness of the project site public access is not feasible and would potentially be unsafe for users."

Accordingly, public access from the site was determined to be inconsistent with public safety. Furthermore, the pre-existing shoreline structures support a path from the Big Beach portion of Muir Beach to the Little Beach section of Muir Beach. This path is the sole means of access to

Little Beach during high tide thereby promoting and facilitating public access to the area, rather than blocking such access as erroneously stated in the Staff Report.

III. Substantial Issue Determination

Finally, 14 CCR 13115(c) provides that the Commission may consider the following five factors when determining if a local action raises a substantial issue:

1. The degree of factual and legal support for the local government's decision that the development is consistent or inconsistent with the certified LCP or Coastal Act's public access provisions;

This factor weighs in favor of a finding no substantial issue because several appropriate technical studies and reports regarding the Project were provided to the County of Marin, including two surveys which identified and corroborated the location of the bluff top. Also provided were a biological site assessment and two reports prepared by Miller Pacific Engineering Group. One report was a geotechnical investigation, dated August 20, 2020, which documented the geotechnical conditions of the site including a summary of subsurface exploration and laboratory testing, recommendations for site preparation and grading, and recommendations for site structures including foundations and retaining walls. The second report was a geologic and geotechnical feasibility evaluation, dated October 29, 2019, documenting the geotechnical conditions of the site including a geologic hazards evaluation, ground surface fault rupture evaluation, the potential for erosion and scour, land-sliding and slope instability, and the potential for seismicity hazards, as well as recommendations for project foundations, driveway surfacing and earthwork.

On the other hand **no** evidence that contradicts these reports has been made part of the record.

2. The extent and scope of the development;

The second factor weighs heavily in favor of finding no substantial issue. The Project is located in an area zoned for residential development and the parcels adjacent to the site are already developed with single-family residences. The extent and scope of the development as approved is limited to one single-family residence and related development that is similar to these existing adjacent residences. It is consistent with the development standards applicable to the site. The project is limited and appropriate in scope and extent.

3. The significance of the coastal resources affected by the decision;

As an initial matter, the biological report obtained by the Gronemans demonstrates that the portion of the site that would be developed is characterized by non-native, disturbance-adapted vegetation. The Gronemans recognize that the bluff top located at the southern portion of their parcel is considered a significant coastal resource and have designed and sited the single family home appropriately away from this area. This pattern of development should be supported by the CCC, not appealed.

4. The precedential value of the local government's decision for future interpretation of its LCP;

The appeal claims that the approval of this single-family home built on a hillside will cause a domino effect of proposed bluff top development that is designed and sited to rely on new shoreline protective armoring. Initially, the immediate surrounding area of the proposed project is essentially completely built-out. Accordingly the precedential value of this CDP approval for future interpretation of Marin County's LCP is limited. Furthermore, Marin County's decision to approve the CDP for the Project was based on information that established a bluff top and an appropriate setback area that did not rely on existing or purportedly new shoreline protective devices. Therefore, the CDP approval is consistent with the Marin County LCP and will not result in a negative precedent and does not support a determination that a substantial issue exists. If anything, this approval shows just how seriously the bluff setback issues are being taken.

5. Whether the appeal raises only local issues or those of regional or statewide significance.

The appeal of this project does not raise an issue of statewide or regional significance. It concerns the approval of a CDP for a single-family home, the design and siting of which was determined as a result of the applicants and their team of professionals working extensively with Marin County and the local community to ensure both were consistent with Marin County's LCP and the public access policies of the Coastal Act.

A finding that Marin County's approval of CDP P2989 raises a substantial issue cannot be made or defended based on the conclusory assertions and speculation of the Staff Report. In contrast, Marin County's decision is supported by evidence provided in the form of surveys, a site visit, and technical reports.

Conclusion

The Project is not merely a residential development project, it is hoped to be the future home of a long-time resident of the Muir Beach community. Graham Groneman's roots in, connections to, and love for Muir Beach and the Muir Beach community are extensive. He is a 3rd generation resident of Muir Beach who simply wants to build a single family home, his home, in which to raise his family and a 4th generation of Muir Beach residents. In fact, the Gronemans' parcel is located next door to Mr. Groneman's parents' home. In addition, many members of the Muir Beach community wrote in support of the Gronemans' project because of the Gronemans' responsiveness and sensitivity to the community's concerns or observations.

The Gronemans and their team of professionals worked extensively with multiple departments of Marin County, including Environmental Health Services, which performed a site visit, to design and site a single home in keeping with the scale and character of Muir Beach and the numerous governing standards and regulations of the County in addition to the LCP and Coastal Act policies. Rather than being discredited, this Project should be recognized as an exemplar of compliance and cooperation with the local decision-making agency.

The Commission should allow the approval of CDP P2989 to stand and should determine that this appeal does not present a substantial issue. Thank you.

Very Truly Yours,

Ashling P. McAnaney

Ashling P. McAnaney

cc: Clients

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September 7, 2021

Steve Padilla, Chair
California Coastal Commission
455 Market Street, Suite 300
San Francisco, CA 94105

Re: Public Comment on Appeal No. A-2-MAR-21-0048 (Groneman SFD, Muir Beach)
September 2021 Agenda Item Thursday 13b

Dear Chair Padilla and Members of the Coastal Commission:

As District 4 Supervisor and representative of the 11 Marin coastal communities, I respectfully request that your Commission pass the motion and find NO SUBSTANTIAL ISSUE with respect to the grounds on which the appeal of the County of Marin's approval of the Groneman development was filed.

The property is an infill lot, one of a few remaining undeveloped lots in Muir Beach. The proposal to construct a new single-family residence undergone a thorough review and analysis by County staff based on substantial evidence including a geotechnical investigation of the property, calculations of bluff erosion rates, and establishment of a 50-foot blufftop setback to ensure that the development would not be threatened by bluff retreat for 100 years. The development met and exceeded all standards in the county's Local Coastal Program.

In the substantial issue analysis, your staff appears to apply a new criterion for a blufftop (based solely on the steepness of the property) to support a determination that the entire property is considered a bluff face, with the blufftop at or above Sunset Way which sits above and fronts this property. This determination conflicts with the analysis provided in the geotechnical report for the project which took into account slope and other factors, including the underlying geological material and historic aerial photography. Application of the methodology described in the staff report would effectively make most of the landward side of Sunset Way a bluff face, with significant consequences to existing homes with regard to the ability for owners

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to undertake repair and make improvements to their homes because all of the existing development would be on the oceanside of the bluff top and not be able to maintain the sufficient setback from the bluff as required by the Local Coastal Program.

Secondly, the substantial issue analysis improperly characterizes the foundation of the proposed residence as a "series of subsurface slope stabilization piers that could function as a shoreline protective device supporting the bluff in front of the proposed residence and related residential development." This report describes the residential structures as being excavated into the slope and relying on their own retaining walls with piers extending into bedrock as not normal and typical construction, but "extraordinary measures" tantamount to shoreline armoring, used "in place of an effective setback." Besides the apparent contradiction that application of the staff's new blufftop criterion earlier in the analysis would mean no building could be developed on any part of the property and meet the required blufftop setback, the analysis also seems to disregard the recommendations from the geotechnical report for the use of drilled pier foundations which are quite common and preferred in hillside settings throughout Marin County. Categorizing the residence as both shelter and a shoreline protective device would be contrary to longstanding interpretations and application of the certified Local Coastal Program.

For these reasons, I urge your Commission not to find a substantial issue and to affirm the County's correct application of its Local Coastal Program in approving this application.

Sincerely,

Dennis Rodoni, 4th District Supervisor
Marin County Board of Supervisors

September 2, 2021

California Coastal Commission
North Central Coast District
455 Market St., Suite 228
San Francisco, CA 94105

RE: Public Comment on September 2021 Agenda Item Thursday 13b - Appeal No. A-2-MAR-21-0048 (Groneman SFD, Muir Beach)

Dear Commissioners,

We live at 21 Seacape Drive in Muir Beach and we write in support of the above-referenced project, which is coming before the Commission on a Substantial Issue hearing on September 9.

We have reviewed the plan and visited the site multiple times and seen the story poles for the proposed new construction. We are aware that the Gronemans seek to build a 2160-square-foot single family residence, a 430-square-foot garage and associated septic system for the residence.

The project design and scope fits the size and style of the neighborhood. We also believe that allowing the project to proceed not only allows a project that is compliant with the Marin County Local Coastal Program (LCP), it also promotes the state's interest in providing affordable housing for valuable community members. The Gronemans intend to use this house for their son Graham Groneman, who is the Battalion Chief for Marin County Fire, and their daughter-in-law, Brett Groneman, who is a nurse, and Brett and Graham's two young children. Brett and Graham are deeply valued members of our community and, as prices in Muir Beach skyrocket, this housing would allow them to stay close to family in the town where Graham grew up. While we understand that there are sometimes competing interests when evaluating whether to allow new construction near the coast, this project meets the stringent LCP requirements **and** allows valued members of the community to be able to afford to stay. It is one of the few projects that harmonizes multiple interests.

We have reviewed the Coastal Commission staff report in great detail and reviewed appeal for commission appeal No. A-2-MAR-21-0048. As an initial matter, it is deeply concerning that the Commission has chosen to reclassify what constitutes "bluff" and "blufftop" at this site without conducting a single visit. Marin County personnel conducted site visits prior to issuance of the permit. It would seem logical that prior to opining as to the nature of the site that one must visit it in person to appreciate it. Moreover, such an investigation might resolve the Commission's concern, which appears hypothetical at best in light of the geotechnical reports, that the "blufftop edge . . . **appears** to actually be on the bluff face itself." (Staff Report, p. 3 (emphasis added).) The engineering reports, of which there are two, and Marin County personnel determined that the project would not, in fact, be on the bluff face, but rather above the bluff. In fact, the Miller Pacific Engineering Group November 21, 2019 letter suggest the construction provide a 50-foot setback from the bluff (p. 15 of 17 ("Recommended Bluff Setbacks"); p. 12 of August 20, 2020 report). In fact, the 50-foot recommendation stemmed from a concern about erosion and cliff retreat combined with the desire for a 100-year service life, which is two and a half times longer than that proposed by the Commission. Thus, it is unclear on what the Commission has based the "appearance" of the project being set on the bluff face, but a site visit likely would clarify matters.

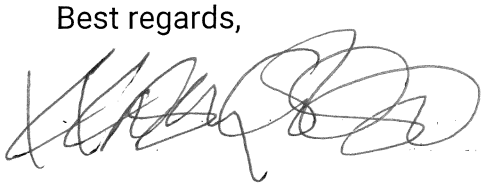
Additionally unclear is why the Commission asserts that the bluff-retreat analysis is based on "proposed" armoring. Moreover, it's not clear why the Commission believes that the analysis cannot be based on existing armoring. Cal. Pub. Res. Code § 30253 states that "[n]ew development shall . . . [a]ssure 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." Construction is not required because the armoring already exists. In other cases, § 30253 has been used to prohibit the construction of **new** or **additional** bluff retention devices. (See, *e.g.*, *Beach & Bluff Conservancy v. City of Solana Beach* (2018) 28 Cal.App.5th 244.) The Commission could, pursuant to § 30253, make a condition on approval that no new device or seawall be built, but it cannot invalidate an analysis based on an existing device. (See, e.g., *Lindstrom v. Cal. Coastal Commission* (2019) 40 Cal.App.5th 73 (holding that it was a valid exercise of Commission's power to condition permit approval on requirement that no future armoring be built.)

Finally, the hypothetical concerns about beach access for an existing seawall do not seem relevant to the project at hand. As noted, the wall was erected long before this project was proposed. The public have access to the beach not through resident yards, but rather by walking down Cove Lane or by walking down stairs on Sunset Avenue for

which the public holds an easement. As residents of the community for more than six years, we can attest to the fact that during the winter months, much of what is colloquially known as "Little Beach," the portion of the beach not under NPS jurisdiction, is under the tide line. The sea wall below the proposed project actually provides the public **more** access during those months because we are able to sit there or scramble over the wall to the portion of Muir Beach that is maintained by the NPS. Again, a visit to the site would assist the Commission in having a greater appreciation for the conditions on the ground.

"The Coastal Act expressly recognizes the need to 'rely heavily' on local government '[t]o achieve maximum responsiveness to local conditions, accountability, and public accessibility. . . .' (Pub. Res. Code § 30004, subd. (a).) Here, the Commission should respect the determination of the local government that personally visited the site, took the time to understand the project and work with the homeowners, and that has a deep and grounded sense of the communities under its immediate jurisdiction. The concerns raised in the report do not reflect a true understanding of the conditions present in Muir Beach nor of the project proposal. We believe this plan conforms to the regulations in the Marin County Local Coastal Program and that the planning approval by the County of Marin on May 27th was a valid and conforming action. We, therefore, respectfully ask that the Commission find NO SUBSTANTIAL ISSUE and allow the Groneman Family to build their house.

Best regards,



K. Kasey Corbit, Esq., and Kevin Corbit
21 Seacape Dr., Muir Beach

Thierry Lovato
170 Sunset Way
Muir Beach, CA 94965

September 3, 2021

RE: **Appeal No. A-2-MAR-21-0048 (Groneman SFD, Muir Beach)**

Via Email to: northcentralcoast@coastal.ca.gov

Dear Commissioners;

I live and own property in Muir Beach directly across the road from the Groneman Coastal Bluff Development Project. I speak for myself and many of my neighbors who share similar concerns, which I express below.

The development should not be permitted. This large development, which essentially extends from the top of the bluff to the beach, will require widespread excavation into the sensitive coastal bluff and will damage the integrity of the sea cliff. The fact that the development extends beyond the bluff face on extremely steep slopes creates almost a certainty that this project will contribute to erosion, geologic instability, and destruction of the sea bluff causing irreparable damage.

I am concerned about the potential for bluff degradation and failure. If, or perhaps when, issues result from the Groneman Coastal Bluff Development it will cause damage to the sea cliff directly across from my property. This of course will result in a domino effect, that will likely affect the stability of the road and other adjacent properties in the future.

In addition to these concerns, I am also concerned about the unsightliness of the development. The natural sea bluff and open vista on that part of the Coast will now be muddled with a development snaking its way down the natural sea cliff. We simply do not need more coastal development on our prominent sea cliffs.

Since at least the 1970s, when California enacted the California Coastal Act, California has done an outstanding job of protecting its environmentally sensitive sea cliffs and coastal bluffs from development, such as the instant project, to prevent erosion and other degradation by developers. New developments should not be allowed that are subject to erosion or stability hazard or substantially alter natural landforms along bluffs and cliffs. Further, California's policy on Coastal Erosion Planning and Response mandates that avoidance of eroding coastal bluffs should be a primary means of safeguarding new development. I ask the Commission to follow the Coastal

Development Act and California policy and deny this project in order to protect and maintain the quality of the coastal bluff environment to preserve our natural resources.

Very truly yours,

Thierry Lovato

Brad And Lisa Eigsti
27 Starbuck • Muir Beach, CA 94965
(415) 380-0831
brad@imprintsgardens.com

9 / 1 / 2021

To: California Coastal Commission

RE: Groneman Residence
183 Sunset Way
Muir Beach, CA

Subject: Public Comment on September 2021 Agenda Item Thursday 13b - Appeal No. A-2-MAR-21-0048

Hello,

We live at 27 Starbuck Drive in Muir Beach and we have lived here for over 20 years.
We've had the opportunity to review the plans and story poles for the proposed new construction for the Groneman family. The Groneman family have been valuable citizens of Muir Beach.

The project design and modest scope integrates with the neighborhood character and we fully **support** this project.

We have also had the opportunity to review the Coastal Commission staff report and appeal for commission appeal No. A-2-MAR-21-0048. We disagree with staff findings and feel the report does not present an accurate and impartial assessment.

We believe this plan conforms to the regulations in the Marin County Local Coastal Program and the planning approval by the County of Marin on May 27th was a valid and conforming action.

We ask that the Commission find NO SUBSTANTIAL ISSUE and allow the Groneman Family to build their house.

Sincerely,

Brad and Lisa Eigsti

FW: 183 sunset

NorthCentralCoast@Coastal <NorthCentralCoast@coastal.ca.gov>
Fri 9/3/2021 9:59 AM
To: Pfeifer, Sara@Coastal <Sara.Pfeifer@coastal.ca.gov>

From: Yeshi Neumann <yeshineumann@gmail.com>
Sent: Friday, September 3, 2021 8:52 AM
To: NorthCentralCoast@Coastal <NorthCentralCoast@coastal.ca.gov>
Subject: 183 sunset

Hello dear people
I live at 195 sunset way in Muir Beach. Ive had the opportunity to review the plan and story poles for the proposed new construction of a 2160-square-foot single family residence, a 430-square-foot garage and associated septic system for the Groneman residence. The project design and scope fits the size and style of the neighborhood and we support this project. I have also had the opportunity to review the Coastal Commission staff report and appeal for commission appeal No. A-2-MAR-21-0048. We disagree with staff findings and feel the report does not present an accurate and impartial assessment. We believe this plan conforms to the regulations in the Marin County Local Coastal Program and the planning approval by the County of Marin on May 27th was a valid and conforming action. I ask that the Commission find **NO SUBSTANTIAL ISSUE** and allow the Groneman Family to build their house. THANK YOU!

Sincerely,
Yeshi Neumann

Yeshi Neumann, Certified Nurse Midwife, MPH MA
www.mindfulfamilycircles.com

FW: Appeal for the proposed residence at 183 Sunset Way,

NorthCentralCoast@Coastal <NorthCentralCoast@coastal.ca.gov>
Fri 9/3/2021 3:33 PM
To: Pfeifer, Sara@Coastal <Sara.Pfeifer@coastal.ca.gov>

From: Gail High <mtnjoy@jps.net>
Sent: Friday, September 3, 2021 3:19 PM
To: NorthCentralCoast@Coastal <NorthCentralCoast@coastal.ca.gov>
Subject: Appeal for the proposed residence at 183 Sunset Way,

To the Coastal Commission Staff
RE: Appeal for the proposed residence at 183 Sunset Way, Muir Beach

Our home is at 187 Sunset Way in Muir Beach. We are just 2 lots over from the subject property and are shocked that the Coastal Commission wants to override the County's approval of the Groneman's permit.

We have been in Muir Beach for over 50 years and are well aware of the ethos of this community. Graham's parents, who live next door to the proposed residence, have been an essential and very active part of the community and Graham himself is very involved in both the community and in the Marin Co. fire department. He and his family should be able to live in this community!

We've had the opportunity to review the plan and story poles for their proposed new construction. The project design and scope fits the size and style of the neighborhood and we enthusiastically support this project.

We have also had the opportunity to review the coastal commission staff report and appeal for No. A-2-MAR-21-0048. We disagree with staff findings and feel the report does not present an accurate and impartial assessment.

One thing we know of personally and want to correct:
The rip rap that was laid by Ghillotti Brothers in the spring of 1986, was **fully permitted**. It was a very wet year with a number of mud slides in the Bay Area and it was clear that something was going to be needed to hold the bank. I approached Ghillotti Brothers with an engineered plan to place rip rap at the toe of the property and they said that they would do the job but only if we were able to get the permits by the very low tide predicted for about a month from then. I hand carried the forms from agency to agency successfully getting permits from the Coastal Commission, County Building Dept, the Park Service, Fish and Game, and the Army Corps of Engineers. (I believe there may have been one additional permit.) We also had a meeting with the community to get their support. The permits were issued to my parents, Ken and Christine High and it's a shock to us that the County Building Dept and the Coastal Commission have no record of this. I would think that the fact that Ghillotti Bros did the job, would be proof that it was fully permitted.

My parents have long since passed away and we have not been able to find the project file.

Please lift the objections immediately so that the Groneman family can proceed with building their home.

Sincerely,
Ken and Gail High

775-721-1267

FW: Regarding: Public Comment on September 2021 Agenda Item Thursday 13b - Appeal No. A-2-MAR-21-0048 (Groneman SFD, Muir Beach)

NorthCentralCoast@Coastal <NorthCentralCoast@coastal.ca.gov>
Fri 9/3/2021 9:59 AM
To: Pfeifer, Sara@Coastal <Sara.Pfeifer@coastal.ca.gov>

From: Barbara Piotter <aufkirchen@gmail.com>
Sent: Thursday, September 2, 2021 8:08 PM
To: NorthCentralCoast@Coastal <NorthCentralCoast@coastal.ca.gov>
Cc: Don Piotter <dpiotter47@gmail.com>
Subject: Regarding: Public Comment on September 2021 Agenda Item Thursday 13b - Appeal No. A-2-MAR-21-0048 (Groneman SFD, Muir Beach)

To whom it may concern:

We live at 64 Seacape Dr. in Muir Beach. We've had the opportunity to review the plan and story poles for the proposed new construction of a 2160-square-foot single family residence, a 430-square-foot garage and associated septic system for the Groneman residence. The project design and scope fits the size and style of the neighborhood and we support this project. We have also had the opportunity to review the Coastal Commission staff report and appeal for commission appeal No. A-2-MAR-21-0048. We disagree with staff findings and feel the report does not present an accurate and impartial assessment. We believe this plan conforms to the regulations in the Marin County Local Coastal Program and the planning approval by the County of Marin on May 27th was a valid and conforming action. We ask that the Commission find **NO SUBSTANTIAL ISSUE** and allow the Groneman Family to build their house.

Sincerely,
Barbara and Don Piotter
64 Seacape Dr
Muir Beach, CA 94965

Sent from my iPhone

FW: Public comment September 2021 Agenda Item Thursday13b-Appeal No. A-2 MAR-21-0042 (Groneman SFD, Muir Beach)

NorthCentralCoast@Coastal <NorthCentralCoast@coastal.ca.gov>
Thu 9/2/2021 2:13 PM
To: Pfeifer, Sara@Coastal <Sara.Pfeifer@coastal.ca.gov>

Maria Elena Marquez
CALIFORNIA COASTAL COMMISSION

From: Wendy Johnson <wendyjdragon@gmail.com>
Sent: Thursday, September 02, 2021 11:22 AM
To: NorthCentralCoast@Coastal <NorthCentralCoast@coastal.ca.gov>
Cc: brettsibley@gmail.com
Subject: Public comment September 2021 Agenda Item Thursday13b-Appeal No. A-2 MAR-21-0042 (Groneman SFD, Muir Beach)

Regarding Regarding: Public Comment on September 2021 Agenda Item Thursday 13b - Appeal No. A-2-MAR-21-0048 (Groneman SFD, Muir Beach)

My family and I live at 1795 Shoreline Highway in Muir Beach, California. We have been residents of the extended Muir Beach community since 1975. I serve as a lay Zen Buddhist minister and organic gardening mentor, with more than four decades of experience in the field of ecological agriculture.

For the past five years our family has lived next door to Graham and Brett Groneman. We were present for the birth of their children, Charlie Graham and Hadley Groneman, a particular joy for us since we have known Graham and his parents since he was a young child growing up in this same community.

Now as I write this letter, Marin County Battalion Fire Chief Graham Groneman is serving alongside 3,500 other dedicated firefighters on the front lines of the massive Caldor Fire burning in South Lake Tahoe. Graham is an essential, awarded public safety hero honored for his service over the years by the California State Legislature, the U.S. Congress and the U.S.Coast Guard.

Brett Groneman is a licensed Physician Assistant, responsible for helping more than 20 Muir Beach elders secure COVID vaccination appointments. She also started a "Pandemic Preschool Program" for local Muir Beach children while continuing to be involved in numerous other community service projects.

I have had the opportunity to carefully review the plans and story poles for the proposed new construction of a 2,160 square foot single family residence, a 430 square foot garage and associated septic system for the proposed Groneman residence. The project design and scope fits the size, scale and spirit of the Muir Beach community. I join my fellow residents in full support of this project.

After studying the Coastal Commission Staff Report and appeal No. A-2 MAR-21-0042, I respectfully urge the Commission to find **NO SUBSTANTIAL ISSUE** and allow the Groneman project to proceed.

The Muir Beach community needs to do everything in our power to make sure that young, essential public servants like Graham and Brett Groneman can live and raise their family here in Muir Beach. Please set aside this appeal at your hearing and welcome the next generation of dedicated environmental advocates to come home to Muir Beach and continue to protect and care for this ocean community that they love and know so well. Their presence is vital to the ongoing health and well-being of our heritage coastal community.

Sincerely yours,
Wendy Johnson Rudnick

--
Wendy Johnson Rudnick
1795 Shoreline Highway
Muir Beach, CA 94965
415-497-5473
wendyjdragon@gmail.com

FW: Public Comment on September 2021 Agenda Item Thursday 13b - Appeal No. A-2-MAR-21-0048 (Groneman SFD, Muir Beach)

NorthCentralCoast@Coastal <NorthCentralCoast@coastal.ca.gov>
Thu 9/2/2021 4:35 PM
To: Pfeifer, Sara@Coastal <Sara.Pfeifer@coastal.ca.gov>

Maria Elena Marquez
CALIFORNIA COASTAL COMMISSION

From: leighton.hills@muirbeachcsd.com <leighton.hills@muirbeachcsd.com>
Sent: Thursday, September 02, 2021 2:22 PM
To: NorthCentralCoast@Coastal <NorthCentralCoast@coastal.ca.gov>
Subject: Public Comment on September 2021 Agenda Item Thursday 13b - Appeal No. A-2-MAR-21-0048 (Groneman SFD, Muir Beach)

Dear Commissioners and Staff,

I live at 209 Sunset Way in Muir Beach, very near to the Groneman's proposed home at 183 Sunset Way. I've reviewed and previously offered supportive comments on the Groneman's application for a Coastal Permit. I've read the staff report regarding the present appeal of Marin County's issuance of a Coastal Permit for the project. I strongly disagree with the points raised in this appeal, particularly those alleging to find that the project would be located on the face of a bluff, rather than a safe and significant distance back from the top of the bluff. This is an instance of "definition creep," where staff is attempting to materially redefine what constitutes a bluff. The area now defined by staff to be a bluff includes the siting more than 20 Muir Beach homes, none of which have been considered to be located on the face of the coastal bluff at Muir Beach.

Indeed, the Coastal Commision itself has previously weighed in on this issue - when soon after the passage of the Coastal Act, and prior to the approval delegation to counties via LCPs, the State Commission heard an appeal on an approval granted by the North Central Coast Regional Commission. The Regional Commission reviewed and approved the issuance of a Coastal Permit for a home only 270 feet away from the Groneman's proposed residence, and found that the location selected was properly set back from the top of the coastal bluff (and was not located on the face of any bluff). The approval by the Regional Commission was appealed to the State Commission, and as such the full Commission had an opportunity to weigh in on the application. On appeal, the State Commission voted 10-0 finding no Substantial Issue. The alleged bluff face in the Groneman application is the same area above and behind the bluff top in the application previously approved by the Regional Commission and affirmed on appeal by the State Commission.

The new alleged definition of a bluff defies its ordinary meaning, and certainly wasn't what the word was intended to mean when the voters passed the Coast Act. The normal meaning of the word "bluff" was upheld by the State Commission in the very area under review in the Groneman application. Were any review to be conducted by a court, it would consider how the State Commission had previously affirmed the ordinary meaning of the word bluff. Please find that no substantial issue exists here and head off staff's attempt to redefine the ordinary meaning of a bluff.

Thank you,

Leighton Hills
209 Sunset Way
Muir Beach, CA 94965

Here are the specific references to the previously approved nearby application and finding on appeal of no substantial issue:

State Commission Meeting Minutes, January 1978:

v. Appeal No. 512-77. Appeal of Russell Compton from the decision of North Central Coast Commission granting permit with conditions to Daniel & Patricia Ellsberg for single-family home, 50 Cove Lane, Muir Beach, Marin County.

Mr. Bodovitz said the Regional Commission approved the permit for a single family home and found that the project as conditioned should be geologically stable. He said there is opposition by neighbors in the area, but all of the issues raised were fully gone into by the Regional Commission. Accordingly, staff recommends no substantial issue.

Hester Burn-Callander, representing the appellant, said the staff report did not adequately review problems of soil instability, effluent disposal and population density. She submitted an engineer's preliminary report. She said the Regional Commission recently denied a permit nearby also on a beachfront location with similar geologic conditions because of the apparent instability of the soil. She then read from an engineer's report which stated that this parcel is one of the most difficult terrains upon which to build and that the geological stability is not safe in this area.

Jerry Kler, representing the applicants, said this project is consistent with the requirements of the Coastal Act and the Regional Commission thoroughly reviewed all of the issues, including geological stability.

The hand vote was 10 in favor of finding no substantial issue, and 0 opposed.

CALIFORNIA COASTAL COMMISSION
NORTH CENTRAL COAST REGIONAL COMMISSION
1050 NORTHGATE DRIVE, SUITE 130
SAN RAFAEL, CALIFORNIA 94903
(415) 472-4321

RESOLUTION GRANTING APPLICATION

FOR COASTAL DEVELOPMENT PERMIT

(Upon majority vote of total appointed membership of the commission)

WHEREAS, on 9/26/77, the application of Daniel & Patricia Ellsberg, application number 242-77 was filed for a coastal development permit pursuant to Section 30600 of the Public Resources Code; and

WHEREAS, the project as hereinafter approved consists of constructing a single-family dwelling at 50 Cove Lane, Muir Beach, Marin County.

WHEREAS, THIS Commission has given written public notice of the nature of the proposed development and of the time and place of the public hearing thereof, and has held a public hearing in accordance with said notice and the California Coastal Act of 1976, and has otherwise complied with the provision of said Act and the regulations of the California Coastal Commission ; and

Whereas, the Commission makes the following findings:

Findings:

a) The proposed project is located within an existing developed area of Muir Beach with services able to support such a development. It is consistent with the Coastal Act's policy of concentrating development.

b) The project utilizes a septic system which has been engineer-designed for the site's specific physical conditions. The system should function adequately and would not pose a threat to public health or coastal water quality.

c) The porposed project represents bluff top development as defined by the State Interpretive Permit Guidelines. A professional investigation of geologic conditions has indicated the site is capable of supporting development consistent with the Coastal Act's objectives. (These reports are referenced as the source and basis of said finding.)

d) The project site is located between the ocean and the first public roadway and historically and presently offers both lateral public access along the beach frontage and vertical access from a public righ-of-way above the lot to the beach and high tideline at the toe of the bluff. The proposed construction will not interfere with this historic access and use pattern and is consistent with the objectives of the Coastal Act.

e) The project involves the development of a single-family dwelling located in a subdivided area which is 99% built-out. It will not prejudice the ability of the local government to propare a certifiable Local Coastal Program.

f) Therefore, the Commission finds that the proposed development, as conditioned, is in substantial conformance with the policies, declarations and objectives of the Coastal Act of 1976 and is consistent with objectives of that Act as set forth in Section 30604.

--
Leighton Hills
415-383-7102

FW: Public Comment on September 2021 Agenda Item Thursday 13b - Appeal No. A-2-MAR-21-0048 (Groneman SFD, Muir Beach)

NorthCentralCoast@Coastal <NorthCentralCoast@coastal.ca.gov>
Thu 9/2/2021 9:44 AM
To: Pfeifer, Sara@Coastal <Sara.Pfeifer@coastal.ca.gov>

Maria Elena Marquez
CALIFORNIA COASTAL COMMISSION

From: Alexis Chase <alexis.lea.chase@gmail.com>
Sent: Thursday, September 02, 2021 9:40 AM
To: NorthCentralCoast@Coastal <NorthCentralCoast@coastal.ca.gov>
Cc: Brett Sibley <brettsibley@gmail.com>
Subject: Public Comment on September 2021 Agenda Item Thursday 13b - Appeal No. A-2-MAR-21-0048 (Groneman SFD, Muir Beach)

Regarding: Public Comment on September 2021 Agenda Item Thursday 13b - Appeal No. A-2-MAR-21-0048 (Groneman SFD, Muir Beach)

We live at 1855 Shoreline Highway in Muir Beach. We've had the opportunity to review the plan and story poles for the proposed new construction of a 2160-square-foot single family residence, a 430-square-foot garage and associated septic system for the Groneman residence. The project design and scope fits the size and style of the neighborhood and we support this project. We have also had the opportunity to review the Coastal Commission staff report and appeal for commission appeal No. A-2-MAR-21-0048. We disagree with staff findings and feel the report does not present an accurate and impartial assessment. We believe this plan conforms to the regulations in the Marin County Local Coastal Program and the planning approval by the County of Marin on May 27th was a valid and conforming action. We ask that the Commission find **NO SUBSTANTIAL ISSUE** and allow the Groneman Family to build their house.

Sincerely,
Alexis Chase & Frank Piazza

FW: Public Comment on September 2021 Agenda Item Thursday 13b - Appeal No. A-2-MAR-21-0048 (Groneman SFD, Muir Beach)

NorthCentralCoast@Coastal <NorthCentralCoast@coastal.ca.gov>
Thu 9/2/2021 6:05 PM
To: Pfeifer, Sara@Coastal <Sara.Pfeifer@coastal.ca.gov>

Maria Elena Marquez
CALIFORNIA COASTAL COMMISSION

From: Jenny Caulfield <jennycaulfield@gmail.com>
Sent: Thursday, September 02, 2021 5:34 PM
To: NorthCentralCoast@Coastal <NorthCentralCoast@coastal.ca.gov>
Cc: Michael Caulfield <michael@barcastle.com>
Subject: Public Comment on September 2021 Agenda Item Thursday 13b - Appeal No. A-2-MAR-21-0048 (Groneman SFD, Muir Beach)

Regarding: Public Comment on September 2021 Agenda Item Thursday 13b - Appeal No. A-2-MAR-21-0048 (Groneman SFD, Muir Beach)

Our home is at 35 Seacape Drive in Muir Beach. We've had the opportunity to review the plan and story poles for the proposed new construction of a 2160-square-foot single family residence, a 430-square-foot garage and associated septic system for the Groneman residence. The project design and scope fits the size and style of the neighborhood and we support this project. We have also had the opportunity to review the Coastal Commission staff report and appeal for commission, (Appeal No. A-2-MAR-21-0048).

We disagree with the staff findings and feel the report does not recognize the extensive accommodations made to ensure the integrity of the site. We believe this plan conforms to the regulations in the Marin County Local Coastal Program and the planning approval by the County of Marin on May 27th was a valid and conforming action. We ask that the Commission find "NO SUBSTANTIAL ISSUE" and give the green light to the Groneman Family to proceed with the construction of their house.

Sincerely,
Michael and Jenny Caulfield
35 Seacape Drive
Muir Beach

FW: Public Comment on September 2021 Agenda Item Thursday 13b - Appeal No. A-2-MAR-21-0048 (Groneman SFD, Muir Beach)

NorthCentralCoast@Coastal <NorthCentralCoast@coastal.ca.gov>
Wed 9/1/2021 9:58 AM

To: Pfeifer, Sara@Coastal <Sara.Pfeifer@coastal.ca.gov>

From: Heidi Stubler Brown <stubler.heidi@gmail.com>
Sent: Wednesday, September 01, 2021 9:51 AM
To: NorthCentralCoast@Coastal <NorthCentralCoast@coastal.ca.gov>
Cc: Brett Sibley <brettsibley@gmail.com>
Subject: Public Comment on September 2021 Agenda Item Thursday 13b - Appeal No. A-2-MAR-21-0048 (Groneman SFD, Muir Beach)

Regarding: Public Comment on September 2021 Agenda Item Thursday 13b - Appeal No. A-2-MAR-21-0048 (Groneman SFD, Muir Beach)

We live at 43 Starbuck Drive in Muir Beach. We've had the opportunity to review the plan and story poles for the proposed new construction of a 2160-square-foot single family residence, a 430-square-foot garage and associated septic system for the Groneman residence. The project design and scope fits the size and style of the neighborhood and we support this project. We have also had the opportunity to review the Coastal Commission staff report and appeal for commission appeal No. A-2-MAR-21-0048. We disagree with staff findings and feel the report does not present an accurate and impartial assessment. We believe this plan conforms to the regulations in the Marin County Local Coastal Program and the planning approval by the County of Marin on May 27th was a valid and conforming action. We ask that the Commission find **NO SUBSTANTIAL ISSUE** and allow the Groneman Family to build their house.

Sincerely,

Heidi Stubler-Brown

FW: Groneman-183 Sunset Way California Coastal Commission Appeal

NorthCentralCoast@Coastal <NorthCentralCoast@coastal.ca.gov>
Tue 8/31/2021 9:50 AM
To: Pfeifer, Sara@Coastal <Sara.Pfeifer@coastal.ca.gov>

Maria Elena Marquez

CALIFORNIA COASTAL COMMISSION

From: Kate Somers <katesomers@kasarts.com>
Sent: Tuesday, August 31, 2021 9:33 AM
To: NorthCentralCoast@Coastal <NorthCentralCoast@coastal.ca.gov>
Cc: Stephen Somers <stephensomers51@gmail.com>
Subject: Groneman-183 Sunset Way California Coastal Commission Appeal

Regarding: Public Comment on September 2021 Agenda Item Thursday 13b - Appeal No. A-2-MAR-21-0048 (Groneman SFD, Muir Beach)

We live at 285 Sunset Way in Muir Beach. We've had the opportunity to review the plan and story poles for the proposed new construction of a 2160-square-foot single family residence, a 430-square-foot garage, and associated septic system for the Groneman residence. The project design and scope very much fits the size and style of the neighborhood and, as such, we support this project. We have also had the opportunity to review the Coastal Commission staff report and appeal for commission appeal No. A-2-MAR-21-0048. However, we continue to believe that the planning approval by the County of Marin on May 27th was a valid and conforming action. We ask that the Commission find **NO SUBSTANTIAL ISSUE** and allow the Gronemans to build their house.

Sincerely,

Stephen A. Somers, PhD
Senior Program Consultant
Work: 415.388.2007
Cell: 609.647.3250

FW: Public Comment on September 2021 Agenda Item Thursday 13b - Appeal No. A-2-MAR-21-0048 (Groneman SFD, Muir Beach)

NorthCentralCoast@Coastal <NorthCentralCoast@coastal.ca.gov>
Tue 8/31/2021 12:07 PM
To: Pfeifer, Sara@Coastal <Sara.Pfeifer@coastal.ca.gov>

Maria Elena Marquez

-----Original Message-----
From: Ralph Rogers <rrXrr@yahoo.com>
Sent: Tuesday, August 31, 2021 11:39 AM
To: NorthCentralCoast@Coastal <NorthCentralCoast@coastal.ca.gov>
Cc: Brett Sibley <brettsibley@gmail.com>; groneman4 <groneman4@gmail.com>
Subject: Public Comment on September 2021 Agenda Item Thursday 13b - Appeal No. A-2-MAR-21-0048 (Groneman SFD, Muir Beach)

CCC,

We live at 180 Pacific Way in Muir Beach.

We have reviewed the proposed plan and story poles for the new construction of a 2160-square-foot single family residence, a 430-square-foot garage, and associated septic system for the Groneman residence. This project design and scope fits the size and style of the neighborhood.

We support this project.

We have also had the opportunity to review the Coastal Commission staff report and appeal for commission appeal No. A-2-MAR-21-0048. We disagree with staff findings and feel the report is weak, is extremely short on credible evidence, and does not present an accurate and impartial assessment.

The proposed plan conforms to the regulations in the Marin County Local Coastal Program as demonstrated by plan approval by the County of Marin on May 27th. This Marin County approval is a valid and conforming action.

We ask that the Commission find NO SUBSTANTIAL ISSUE and allow the Groneman Family to build their house.

Sincerely,

Ralph Rogers and Liz Salin
180 Pacific Way
Muir Beach, CA 94965

FW: Public Comment on September 2021 Agenda Item Thursday 13b - Appeal No. A-2-MAR-21-0048 (Groneman SFD, Muir Beach)

NorthCentralCoast@Coastal <NorthCentralCoast@coastal.ca.gov>
Tue 8/31/2021 12:33 PM
To: Pfeifer, Sara@Coastal <Sara.Pfeifer@coastal.ca.gov>

Maria Elena Marquez
CALIFORNIA COASTAL COMMISSION

From: gabrielmontana@me.com <gabrielmontana@me.com>
Sent: Tuesday, August 31, 2021 12:14 PM
To: NorthCentralCoast@Coastal <NorthCentralCoast@coastal.ca.gov>
Subject: Public Comment on September 2021 Agenda Item Thursday 13b - Appeal No. A-2-MAR-21-0048 (Groneman SFD, Muir Beach)

Regarding: Public Comment on September 2021 Agenda Item Thursday 13b - Appeal No. A-2-MAR-21-0048 (Groneman SFD, Muir Beach)

My partner Lora Gale and I, along with our two young children, live at 210 Sunset Way in Muir Beach. Just a couple houses over and on the opposite side of the street from the proposed Groneman new construction. As I did for the County design review stage of their process, I've had a chance to review their plans, see their story poles, and walk the property with the owners to gauge where the structure will lie and how it will affect our views, the neighborhood style, traffic patterns, and compatibility with the building site. I found it satisfied all these criteria and was thoughtful and modest in its design and styling.

We have also had the opportunity to review the Coastal Commission staff report and appeal for commission appeal No. A-2-MAR-21-0048. We disagree with staff findings, especially the language referring to the land as "bluff" and not the bedrock I know my home to be built on, and feel the report does not present an accurate and impartial assessment. We believe this plan conforms to the regulations in the Marin County Local Coastal Program and the planning approval by the County of Marin on May 27th was a valid and conforming action. We ask that the Commission find **NO SUBSTANTIAL ISSUE** and allow the Groneman Family to build their house.

Lastly, I'd like to address each of you as individuals and ask you to consider this from a more human and local angle. In an alternate and better world, there is a commission whose job it is to help a family like the Groneman's fulfill their modest dreams of building a home on their family land. Generational continuity is necessary to maintain a dynamic community, with a sense of its own history and a path forward for our younger generations. We're already under attack by the wildly expensive cost of living and the reduced inventory caused by rampant conversion of family homes to short-term rentals. What happens when families encounter too many obstacles, like the ones you are presenting, is that they leave, they just move away. Erosion of a people and community is just as real as erosion of soil, and this is how it happens. Graham is a Marin County Fire Battalion commander, currently on duty at the Caldor fire. Brett is a nurse when she's not full time momming. These are the people you help, not harm, and it you can't help you certainly don't stand in the way. The County of Marin has already addressed this issue and found that the plan conforms to the Marin Coastal Program requirements, as well as the requirements of the California Coastal Act. Let's just leave it at that, and add in a thank you to the Groneman's for all of their years working as first responders and on the front lines of the health and safety sectors of our state.

Sincerely,

Gabriel Montana Leis

FW: Public Comment on September 2021 Agenda Item Thursday 13b - Appeal No. A-2-MAR-21-0048 (Groneman SFD, Muir Beach)

NorthCentralCoast@Coastal <NorthCentralCoast@coastal.ca.gov>
Tue 8/31/2021 12:07 PM
To: Pfeifer, Sara@Coastal <Sara.Pfeifer@coastal.ca.gov>

From: Danny Hobson <marydaniel.hobson@gmail.com>
Sent: Tuesday, August 31, 2021 11:09 AM
To: NorthCentralCoast@Coastal <NorthCentralCoast@coastal.ca.gov>
Cc: Brett Sibley Groneman <brettsibley@gmail.com>
Subject: Public Comment on September 2021 Agenda Item Thursday 13b - Appeal No. A-2-MAR-21-0048 (Groneman SFD, Muir Beach)

Regarding: Public Comment on September 2021 Agenda Item Thursday 13b - Appeal No. A-2-MAR-21-0048 (Groneman SFD, Muir Beach)

To whom it may concern,

My family has lived at 1815 Shoreline Hwy in Muir Beach, CA for almost 20 years. We've had the opportunity to review the plan and story poles for the proposed new construction of a 2160-square-foot single family residence, a 430-square-foot garage and associated septic system for the Groneman residence. The project design and scope fits the size and style of the neighborhood and **we support this project.**

We have also had the opportunity to review the Coastal Commission staff report and appeal for commission appeal No. A-2-MAR-21-0048. We disagree with staff findings and feel the report does not present an accurate and impartial assessment. We believe this plan conforms to the regulations in the Marin County Local Coastal Program and the planning approval by the County of Marin on May 27th was a valid and conforming action. We ask that the Commission find **NO SUBSTANTIAL ISSUE** and allow the Groneman Family to build their house.

I also want to add that the Groneman family are an important part of the community of Muir Beach. Graham was raised here, and he and his wife are raising their two children here - so it's a third generation family. In addition, Graham is Marin County Fire Battalion Chief who has served our county and state well during a time of great need and increased fire hazard. Allowing them to build this house will keep long-standing, valuable community members here in Muir Beach and strengthen the overall sense of community and safety here.

Thank you for your consideration.

Sincerely,

Mary Daniel Hobson
1815 Shoreline Hwy, Muir Beach, CA 94965
marydaniel.hobson@gmail.com
www.marydanielhobson.com

FW: Coastal Commission appeal No. A-2-MAR-21-0048.

NorthCentralCoast@Coastal <NorthCentralCoast@coastal.ca.gov>
Tue 8/31/2021 9:50 AM
To: Pfeifer, Sara@Coastal <Sara.Pfeifer@coastal.ca.gov>

Maria Elena Marquez

CALIFORNIA COASTAL COMMISSION

From: LAURIE PIEL <clarkpiel@aol.com>
Sent: Monday, August 30, 2021 4:39 PM
To: NorthCentralCoast@Coastal <NorthCentralCoast@coastal.ca.gov>
Subject: Coastal Commission appeal No. A-2-MAR-21-0048.

To Whom this may Concern,

We live at 9 Starbuck Dr. in Muir Beach. We've had the opportunity to review the plan and story poles for the proposed new construction of a 2160-square-foot single family residence, a 430-square-foot garage and associated septic system for the Groneman residence. The project design and scope fits the size and style of the neighborhood and we support this project. We have also had the opportunity to review the Coastal Commission staff report and appeal for commission appeal No. A-2-MAR-21-0048. We disagree with staff findings and feel the report does not present an accurate and impartial assessment. We believe this plan conforms to the regulations in the Marin County Local Coastal Program and the planning approval by the County of Marin on May 27th was a valid and conforming action. We ask that the Commission find **NO SUBSTANTIAL ISSUE** and allow the Groneman Family to build their house.

Sincerely,

Laurie

LAURIE PIEL
9 Starbuck Dr.
Muir Beach, CA 94965
clarkpiel@aol.com
M: 415.595.7411

FW: "Public Comment on September 2021 Agenda Item Thursday 13b - Appeal No. A-2-MAR-21-0048 (Groneman SFD, Muir Beach)

NorthCentralCoast@Coastal <NorthCentralCoast@coastal.ca.gov>

Tue 8/31/2021 9:50 AM

To: Pfeifer, Sara@Coastal <Sara.Pfeifer@coastal.ca.gov>

Maria Elena Marquez

-----Original Message-----
From: Garrett Paul <garrettnpaul@gmail.com>
Sent: Monday, August 30, 2021 12:27 PM
To: NorthCentralCoast@Coastal <NorthCentralCoast@coastal.ca.gov>
Cc: brettsibley@gmail.com; Jessi <jesslstout@gmail.com>
Subject: "Public Comment on September 2021 Agenda Item Thursday 13b - Appeal No. A-2-MAR-21-0048 (Groneman SFD, Muir Beach)

Regarding: Public Comment on September 2021 Agenda Item Thursday 13b - Appeal No. A-2-MAR-21-0048 (Groneman SFD, Muir Beach)

We live at 320 Pacific in Muir Beach, which shares a property line with 183 Sunset, with the proposed structure within view of our living space. We've had the opportunity to review the plan and story poles for the proposed new construction of a 2160-square-foot single family residence, a 430-square-foot garage and associated septic system for the Groneman residence. The project design and scope fits the size and style of the neighborhood and we support this project. We have also had the opportunity to review the Coastal Commission staff report and appeal for commission appeal No. A-2-MAR-21-0048. We disagree with staff findings and feel the report does not present an accurate and impartial assessment. We believe this plan conforms to the regulations in the Marin County Local Coastal Program and the planning approval by the County of Marin on May 27th was a valid and conforming action. We ask that the Commission find NO SUBSTANTIAL ISSUE and allow the Groneman Family to build their house.

Sincerely,
Garrett and Jessica Paul
415.450.0034

FW: Regarding: Public Comment on September 2021 Agenda Item Thursday 13b - Appeal No. A-2-MAR-21-0048 (Groneman SFD, Muir Beach)

NorthCentralCoast@Coastal <NorthCentralCoast@coastal.ca.gov>
Tue 8/31/2021 9:48 AM
To: Pfeifer, Sara@Coastal <Sara.Pfeifer@coastal.ca.gov>

Maria Elena Marquez
CALIFORNIA COASTAL COMMISSION

From: lindholdt@aol.com <lindholdt@aol.com>
Sent: Monday, August 30, 2021 9:02 AM
To: NorthCentralCoast@Coastal <NorthCentralCoast@coastal.ca.gov>
Subject: Regarding: Public Comment on September 2021 Agenda Item Thursday 13b - Appeal No. A-2-MAR-21-0048 (Groneman SFD, Muir Beach)

George Christian Lindholdt
270 Pacific Way, Muir Beach
Via Sausalito, California 94965

California Coastal Commission
455 Market Street, Suite 300
San Francisco, California 94105

August 30, 2021

Dear Sir / Madame / Other:

I am writing in support of the building permit application of Brett Sibley and Graham Groneman. I have known Graham and his family my entire life and they are valued, active members of our community. The home they proposed will have a positive effect on Muir Beach, its community and property values. A healthy community must be dynamic and able to grow at a natural pace, to allow for the skills and families who will meet both present and future needs. A stagnant community is neither natural nor healthy, and will not have the new perspectives needed to resolve internal issues.

My father came to Muir Beach in the '30s to fish and to drink at the old Tavern. My family has owned property at the Beach since 1941 and I grew up at 270 Pacific Way. I took the school bus to Old Mill and Park School, with Vic Avila driving the bus. I did my student teaching at Tam High. I have watched Muir Beach evolve from a cluster of small rustic cabins, many constructed by the dairymen, fishermen and carpenters who lived in them. They were able to build and maintain their homes without relying on engineers, architects or, in some cases, permits. But they supported a healthy community where people relied on each other and raised creative children, without advice from experts and specialists. From these basic roots I have seen Muir Beach evolve into a community of million dollar homes, dependent on engineers, architects, and in many cases expensive lawyers. I would not call it progress.

I can empathize with the experience of the Gronemans, having been through a similar process. When I inherited my father's vacant lot at 90 Sunset Way ($750 in 1948), I decided to build a simple one bedroom home for my retirement. After meeting the expectations of various government agencies and bureaucracies I found that their requirements and fees made a basic home impractical. To justify the costs required by the permit process I ended up with a very expensive house, more than I can afford to live in, or wanted to begin with. It is a house that meets the needs of the planning department rather than my own lifestyle. It is meant for a wealthy family (to whom it is now rented) rather than a retired teacher. When government policies discourage communities with a diversity of experience and economic backgrounds you will have an unhealthy community. You will also foster suspicion and cynicism regarding the government from the people who have to deal with it.

The attitude of the Coastal Commission, and other Marin County agencies, is not healthy in a democracy. Although I do not believe in government conspiracy theories myself, I have difficulty arguing with those who do. After dealing with the Marin County permit process, government manipulation and conspiracies become much more credible. People's lives should not be manipulated by unelected bureaucrats, sitting in offices, immersed in data bases, with a narrow range of academic and theoretical training and experience. Government decisions are now made by powerful functionaries who are unfamiliar with the financial realities faced by or the needs of our local families and communities. Authorities unelected now enforcing vague, convoluted regulations often far beyond the original intention of the authorizing laws. The Coastal Commission seems less a government agency, serving the needs of the people, than a religious cult determined to enforce its own orthodoxy and build its own authority and power. When a government agency makes Q-Anon seem plausible we have a serious problem with our democracy.

Yours truly,

George Christian Lindholdt

George Christian Lindholdt

FW: Public Comment on September 2021 Agenda Item Thursday 13b - Appeal No. A-2-MAR-21-0048 (Groneman SFD, Muir Beach)

NorthCentralCoast@Coastal <NorthCentralCoast@coastal.ca.gov>
Tue 8/31/2021 9:49 AM
To: Pfeifer, Sara@Coastal <Sara.Pfeifer@coastal.ca.gov>

Maria Elena Marquez
CALIFORNIA COASTAL COMMISSION

From: Greg Kidd <gregkidd@gmail.com>
Sent: Monday, August 30, 2021 10:54 AM
To: NorthCentralCoast@Coastal <NorthCentralCoast@coastal.ca.gov>
Cc: Greg Kidd <gregkidd@gmail.com>
Subject: Public Comment on September 2021 Agenda Item Thursday 13b - Appeal No. A-2-MAR-21-0048 (Groneman SFD, Muir Beach)

To Whom it May Concern:

I live at 66 Starbuck Drive in Muir Beach. I've had the opportunity to review the plan and story poles for the proposed new construction of a 2160-square-foot single family residence, a 430-square-foot garage and associated septic system for the Groneman residence. The project design and scope fits the size and style of the neighborhood and I support this project. I have also had the opportunity to review the Coastal Commission staff report and appeal for commission appeal No. A-2-MAR-21-0048.

I disagree with staff findings and feel the report does not present an accurate and impartial assessment. I believe this plan conforms to the regulations in the Marin County Local Coastal Program and the planning approval by the County of Marin on May 27th was a valid and conforming action.

I ask that the Commission find **NO SUBSTANTIAL ISSUE** and allow the Groneman Family to build their house.

Sincerely,

Greg Kidd
66 Starbuck Dr, Muir Beach, CA 94965

--

Greg Kidd

FW: Regarding Appeal No. A-2-MAR-21-0048 (Groneman SFD, Muir Beach)

NorthCentralCoast@Coastal <NorthCentralCoast@coastal.ca.gov>
Tue 8/31/2021 9:50 AM
To: Pfeifer, Sara@Coastal <Sara.Pfeifer@coastal.ca.gov>

Maria Elena Marquez

CALIFORNIA COASTAL COMMISSION

From: Sandor Hatvany <sandorhatvany@gmail.com>
Sent: Monday, August 30, 2021 12:09 PM
To: NorthCentralCoast@Coastal <NorthCentralCoast@coastal.ca.gov>
Subject: Regarding Appeal No. A-2-MAR-21-0048 (Groneman SFD, Muir Beach)

Regarding: Public Comment on September 2021 Agenda Item Thursday 13b - Appeal No. A-2-MAR-21-0048 (Groneman SFD, Muir Beach)

We live at 60 Starbuck Drive in Muir Beach. We've had the opportunity to review the plan and story poles for the proposed new construction of a 2160-square-foot single family residence, a 430-square-foot garage and associated septic system for the Groneman residence. The project design and scope fits the size and style of the neighborhood and we support this project. We have also had the opportunity to review the Coastal Commission staff report and appeal for commission appeal No. A-2-MAR-21-0048. We disagree with staff findings and feel the report does not present an accurate and impartial assessment. We believe this plan conforms to the regulations in the Marin County Local Coastal Program and the planning approval by the County of Marin on May 27th was a valid and conforming action. We ask that the Commission find **NO SUBSTANTIAL ISSUE** and allow the Groneman Family to build their house.

Sincerely,

Sandor Hatvany

Link to the Agenda with additional information
https://www.coastal.ca.gov/meetings/agenda/#/2021/9

Link to Coastal Commission staff report
https://documents.coastal.ca.gov/reports/2021/9/Th13b/th13b-9-2021-report.pdf

Application and Project Information:
https://www.marincounty.org/depts/cd/divisions/planning/projects/muir-beach/groneman_cp_up_p2989_mb

Sandor Hatvany
+1 415 465 3957 cell
+1 415 360 3030 landline

FW: Public Comment on September 2021 Agenda Item Thursday 13b - Appeal No. A-2-MAR-21-0048 (Groneman SFD, Muir Beach)

NorthCentralCoast@Coastal <NorthCentralCoast@coastal.ca.gov>
Tue 8/31/2021 9:50 AM
To: Pfeifer, Sara@Coastal <Sara.Pfeifer@coastal.ca.gov>

Maria Elena Marquez
CALIFORNIA COASTAL COMMISSION

From: Lynda Grose <lyndagrose@gmail.com>
Sent: Monday, August 30, 2021 3:09 PM
To: NorthCentralCoast@Coastal <NorthCentralCoast@coastal.ca.gov>
Subject: Re: Public Comment on September 2021 Agenda Item Thursday 13b - Appeal No. A-2-MAR-21-0048 (Groneman SFD, Muir Beach)

Dear California Coastal Commission,

This letter is Regarding: Public Comment on September 2021 Agenda Item Thursday 13b - Appeal No. A-2-MAR-21-0048 (Groneman SFD, Muir Beach)

We live at 190 Sunset Way in Muir Beach and have lived here for 19 years.

We've had the opportunity to review the plan and story poles for the proposed new construction of a 2160-square-foot single family residence, a 430-square-foot garage and associated septic system for the Groneman residence on Sunset Way.

This is to document that we find that the project design and scope fits the size and style of our neighborhood and **we fully support this project.**

We have also had the opportunity to review the Coastal Commission staff report and appeal for commission appeal No. A-2-MAR-21-0048.

We disagree with staff findings and find that the report does not present an accurate and impartial assessment of the aforementioned property.

We believe this plan conforms to the regulations in the Marin County Local Coastal Program and that the planning approval by the County of Marin on May 27th was a valid and conforming action.

We ask that the Commission find **NO SUBSTANTIAL ISSUE** and allow the Groneman Family to build their house.

Many thanks in advance

Lynda Grose, Matthew Silva and Daniella Silva

--
LYNDA GROSE

lyndagrose@gmail.com . c 415.309 8210
190 Sunset Way Muir Beach CA 94965

The major problems in the world are the result of the difference between how nature works and the way people think.

Gregory Bateson

https://www.linkedin.com/in/lynda-grose-9b796b2b/

Co-founder: Union of Concerned Researchers in Fashion

Co-author: Fashion and Sustainability: Design for Change.

When I am at home I write from land that is Coastal Miwok. The triblet and language group of this area was Huiman. These lands were stolen from the

FW: Regarding: Public Comment on September 2021 Agenda Item Thursday 13b - Appeal No. A-2-MAR-21-0048 (Groneman SFD, Muir Beach)

NorthCentralCoast@Coastal <NorthCentralCoast@coastal.ca.gov>
Tue 8/31/2021 9:49 AM
To: Pfeifer, Sara@Coastal <Sara.Pfeifer@coastal.ca.gov>

Maria Elena Marquez
CALIFORNIA COASTAL COMMISSION

From: Amadeo Banducci <abanducci1934@icloud.com>
Sent: Monday, August 30, 2021 11:31 AM
To: NorthCentralCoast@Coastal <NorthCentralCoast@coastal.ca.gov>
Cc: brettsibley@gmail.com
Subject: Regarding: Public Comment on September 2021 Agenda Item Thursday 13b - Appeal No. A-2-MAR-21-0048 (Groneman SFD, Muir Beach)

Amadeo Banducci

1820 Shoreline Hwy
Muir Beach, California 96965

We live at 1820 Shoreline Hwy in Muir Beach. We've had the opportunity to review the plan and story poles for the proposed new construction of a 2160-square-foot single family residence, a 430-square-foot garage and associated septic system for the Groneman residence. The project design and scope fits the size and style of the neighborhood and we support this project. We have also had the opportunity to review the Coastal Commission staff report and appeal for commission appeal No. A-2-MAR-21-0048. We disagree with staff findings and feel the report does not present an accurate and impartial assessment. We believe this plan conforms to the regulations in the Marin County Local Coastal Program and the planning approval by the County of Marin on May 27th was a valid and conforming action. We ask that the Commission find **NO SUBSTANTIAL ISSUE** and allow the Groneman Family to build their house.

Sincerely,
Amadeo Banducci & Family

Sent from my iPhone

FW: Regarding: Public Comment on September 2021 Agenda Item Thursday 13b - Appeal No. A-2-MAR-21-0048 (Groneman SFD, Muir Beach)

NorthCentralCoast@Coastal <NorthCentralCoast@coastal.ca.gov>
Tue 8/31/2021 9:49 AM
To: Pfeifer, Sara@Coastal <Sara.Pfeifer@coastal.ca.gov>

Maria Elena Marquez
CALIFORNIA COASTAL COMMISSION

From: Angelina Banducci <angiebanducci@gmail.com>
Sent: Monday, August 30, 2021 11:41 AM
To: NorthCentralCoast@Coastal <NorthCentralCoast@coastal.ca.gov>
Cc: brettsibley@gmail.com
Subject: Regarding: Public Comment on September 2021 Agenda Item Thursday 13b - Appeal No. A-2-MAR-21-0048 (Groneman SFD, Muir Beach)

Angelina Banducci

1850 Shoreline Hwy

Muir Beach, California 96965

We live at 1850 Shoreline Highway. We've had the opportunity to review the plan and story poles for the proposed new construction of a 2160-square-foot single family residence, a 430-square-foot garage and associated septic system for the Groneman residence. The project design and scope fits the size and style of the neighborhood and we support this project. We have also had the opportunity to review the Coastal Commission staff report and appeal for commission appeal No. A-2-MAR-21-0048. We disagree with staff findings and feel the report does not present an accurate and impartial assessment. We believe this plan conforms to the regulations in the Marin County Local Coastal Program and the planning approval by the County of Marin on May 27th was a valid and conforming action. We ask that the Commission find **NO SUBSTANTIAL ISSUE** and allow the Groneman Family to build their house.

Sincerely,
Angelina Banducci

Sent from my iPhone

FW: CCC appeal

NorthCentralCoast@Coastal <NorthCentralCoast@coastal.ca.gov>
Tue 8/31/2021 9:47 AM
To: Pfeifer, Sara@Coastal <Sara.Pfeifer@coastal.ca.gov>

Maria Elena Marquez
CALIFORNIA COASTAL COMMISSION

From: geraldpearlman@gmail.com <geraldpearlman@gmail.com>
Sent: Sunday, August 29, 2021 4:57 PM
To: NorthCentralCoast@Coastal <NorthCentralCoast@coastal.ca.gov>; brettsibley@gmail.com
Subject: CCC appeal

While I am confident that the CCC staff recommendation of the finding of a “substantial issue” in the Groneman proposal will be denied on the merits of the case, I would like to bring your attention to a side of the controversy that receives less attention than it deserves.
The technical matters on which the case will be argued often leave outside the boundaries of decision making the very human elements that should also be taken into consideration.
It seems to me of great importance that not one of the immediately surrounding neighbors of the proposed project has raised to my knowledge any kind of serious objection to the Groneman proposal. Moreover no one in the entire community has raised any objections; and I can assure you it is not because nobody cares. I have lived here for over 50 years and there have been many controversies over those years that have engaged the community on one side or the other.
In this particular case there is strong support throughout the community for the Groneman proposal for good reason. Graham Groneman was born and raised here in Muir Beach. His contributions to the welfare of the community are recognized by all as are those of his parents who have lived here as long as I have; and whose home is located right next door to the proposed project.
Graham is a member of the Marin County Fire Department and has been a strong influence in making our own volunteer fire department the superior organization that it is. There is no question regarding how all the Gronemans have contributed to the welfare of the Muir Beach community

In short if one ever had a choice of neighbors, one would be hard put to find a better choice than Brett and Graham!

Sincerely,
Gerry Pearlman
15 Sunset Way, Muir Beach
Sent from Mail for Windows

FW: Public Comment on September 2021 Agenda Item Thursday 13b - Appeal No. A-2-MAR-21-0048 (Groneman SFD, Muir Beach)

NorthCentralCoast@Coastal <NorthCentralCoast@coastal.ca.gov>
Tue 8/31/2021 9:48 AM
To: Pfeifer, Sara@Coastal <Sara.Pfeifer@coastal.ca.gov>

Maria Elena Marquez
CALIFORNIA COASTAL COMMISSION

From: David Taylor <david@davidhtaylormd.com>
Sent: Sunday, August 29, 2021 6:50 PM
To: NorthCentralCoast@Coastal <NorthCentralCoast@coastal.ca.gov>
Subject: Public Comment on September 2021 Agenda Item Thursday 13b - Appeal No. A-2-MAR-21-0048 (Groneman SFD, Muir Beach)

Regarding: Public Comment on September 2021 Agenda Item Thursday 13b - Appeal No. A-2-MAR-21-0048 (Groneman SFD, Muir Beach)

I live at 1821 Shoreline Hwy, Muir Beach, CA.

I am a volunteer firefighter in Muir Beach and a Director on the Muir Beach Community Services District Board. Graham Groneman is a Battalion Chief in Marin County Fire and an essential part of our team here at the beach for fire protection and as a liaison with Marin County Fire, our partner agency.

Communities such as ours need to do everything possible to keep essential public servants such as Mr. Groneman and his family living here. Workforce housing is an essential issue in California especially in communities such as Marin County. It is essential that the state make every effort to accommodate our workers in the communities in which they work. Wildfire risks are extreme at this time and only worsening. If our firefighters cannot reside in our community we are all lost. This is not a property being exploited by a deep pocketed developer to make a profit. This is an appropriately sized home for a family that needs a place to live. In addition Mr. Groneman will be living adjacent to his aging parents and can provide care and support to them in their old age. The lack of support for elder care in our communities is scandalous and this home construction project will allow one family to wisely address a serious problem.

I've had the opportunity to review the plan and the story poles for the proposed new construction of a 2160sq ft single family residence, a 430sq ft garage and associated septic system for the Groneman residence. The project design and scope fits the size and style of the neighborhood and I am 100% in support of this project.

I have also had the opportunity to review the Coastal Commission staff report and appeal for commission appeal No. A-2-MAR-21-0048. I disagree with staff findings and feel the report does not present an accurate and impartial assessment. I believe this plan conforms to the regulations in the Marin County Local Coastal Program and the planning approval by the County of Marin on May 27th was a valid and conforming action. I ask that the Commission find **NO SUBSTANTIAL ISSUE** and allow the Groneman Family to build their house.

The Groneman family carefully, assiduously and lawfully followed all the necessary steps in the permit process in Marin County (at great expense -- hiring a number of expert engineers) and were approved through that process after all due care and attention was paid by the planning department. It is capricious, in fact outrageous, to overturn this due process in such a high handed manner. A simple look at the lot shows very clearly that the bluff edge is at the far edge of the property and not adjacent to any planned construction at all.

I beg you to set aside this appeal at your hearing and not undermine the goals of workforce housing, elder care, and good faith due process participation.

Please let me know if you have any questions.

David

--
David H. Taylor, MD
1821 Shoreline Hwy
Muir Beach, CA 94965
415-747-0832

FW: Public Comment on September 2021 Agenda Item Thursday 13b - Appeal No. A-2-MAR-21-0048 (Groneman SFD, Muir Beach)

NorthCentralCoast@Coastal <NorthCentralCoast@coastal.ca.gov>
Tue 8/31/2021 9:46 AM
To: Pfeifer, Sara@Coastal <Sara.Pfeifer@coastal.ca.gov>

Maria Elena Marquez
CALIFORNIA COASTAL COMMISSION

From: Joey Groneman <joeygroneman@gmail.com>
Sent: Sunday, August 29, 2021 2:10 PM
To: NorthCentralCoast@Coastal <NorthCentralCoast@coastal.ca.gov>
Cc: Brett Sibley <brettsibley@gmail.com>
Subject: Public Comment on September 2021 Agenda Item Thursday 13b - Appeal No. A-2-MAR-21-0048 (Groneman SFD, Muir Beach)

Eric & Madeline Groneman
181 Sunset Way
Muir Beach, California 94965

We live at 181 Sunset Way in Muir Beach and after living in this community for almost 80 years we were delighted to see the approval by the County of Marin of our son Graham and his wife Brett's house at 183 Sunset Way. With the changing demographics in our coastal communities many of the residents who help shape and define the character of these communities are forced out only to be replaced with the elite few who can afford it. We purchased the property of the proposed development many years ago with the hopes that one of our children would build a house and make it their home. We live next door the proposed project site and were estatic over the realization of this dream and to have the opportunity to live next door to our son, daughter-in-law and their 2 small children. During our son Graham's 23 years of public service we have watched him tirelessly support and defend this community as well as countless communities around the state. What is most dissapointing about this appeal is that the misleading report created by commission staff appears to be an atempt to block this family from a home in the community that we have been a part of for generations.

We've had the opportunity to extensivly review the plan and story poles for the proposed new construction of a 2160-square-foot single family residence, a 430-square-foot garage and associated septic system for our son Graham and his wife Brett's residence. The project design and scope fits the size and style of the neighborhood and we support this project. After watching the planning and scrutinization of this project over the past 3 years we were honestly shocked to see this appeal. Living next door to the site we have seen first hand the extensive review and evaluation that was conducted by industry experts and County Staff. We have again reviewed the project information in comparson to the Commission staff report and feel report does not represent the facts. We strongly disagree with staff findings and feel the Commission should take close review of omitted facts and the ability of Commission staff to make a objective review of this matter. We believe this plan conforms to the regulations in the Marin County Local Coastal Program and the planning approval by the County of Marin on May 27th was a valid and conforming action. We ask that the Commission find **NO SUBSTANTIAL ISSUE** and allow the Groneman Family to build their house.

Sincerely,

Eric & Madeline Groneman

FW: Public Comment on September 2021 Agenda Item Thursday 13b - Appeal No. A-2-MAR-21-0048 (Groneman SFD, Muir Beach)

NorthCentralCoast@Coastal <NorthCentralCoast@coastal.ca.gov>
Tue 8/31/2021 9:48 AM
To: Pfeifer, Sara@Coastal <Sara.Pfeifer@coastal.ca.gov>

Maria Elena Marquez
CALIFORNIA COASTAL COMMISSION

From: Suzanne Bender-Van Spyk <svanspyk@yahoo.com>
Sent: Sunday, August 29, 2021 5:05 PM
To: NorthCentralCoast@Coastal <NorthCentralCoast@coastal.ca.gov>
Cc: Scott Bender <swbender@hotmail.com>
Subject: Public Comment on September 2021 Agenda Item Thursday 13b - Appeal No. A-2-MAR-21-0048 (Groneman SFD, Muir Beach)

Regarding: Public Comment on September 2021 Agenda Item Thursday 13b - Appeal No. A-2-MAR-21-0048 (Groneman SFD, Muir Beach)

We live at 55 Starbuck Drive in Muir Beach. We've had the opportunity to review the plan and story poles for the proposed new construction of a 2160-square-foot single family residence, a 430-square-foot garage and associated septic system for the Groneman residence. The project design and scope fits the size and style of the neighborhood and we support this project. We have also had the opportunity to review the Coastal Commission staff report and appeal for commission appeal No. A-2-MAR-21-0048. We disagree with staff findings and feel the report does not present an accurate and impartial assessment. We believe this plan conforms to the regulations in the Marin County Local Coastal Program and the planning approval by the County of Marin on May 27th was a valid and conforming action. We ask that the Commission find **NO SUBSTANTIAL ISSUE** and allow the Groneman Family to build their house.

Sincerely,
Suzanne Bender-Van Spyk and Scott Bender

FW: "Public Comment on September 2021 Agenda Item Thursday 13b - Appeal No. A-2-MAR-21-0048 (Groneman SFD, Muir Beach)

NorthCentralCoast@Coastal <NorthCentralCoast@coastal.ca.gov>
Tue 8/31/2021 9:45 AM
To: Pfeifer, Sara@Coastal <Sara.Pfeifer@coastal.ca.gov>

Maria Elena Marquez
CALIFORNIA COASTAL COMMISSION

From: Kent Andrews <kentpembertona2157@gmail.com>
Sent: Saturday, August 28, 2021 12:40 PM
To: NorthCentralCoast@Coastal <NorthCentralCoast@coastal.ca.gov>
Subject: "Public Comment on September 2021 Agenda Item Thursday 13b - Appeal No. A-2-MAR-21-0048 (Groneman SFD, Muir Beach)

Regarding: Public Comment on September 2021 Agenda Item Thursday 13b - Appeal No. A-2-MAR-21-0048 (Groneman SFD, Muir Beach)

We live at 220 Sunset Way in Muir Beach. We've had the opportunity to review the plan and story poles for the proposed new construction of a 2160-square-foot single family residence, a 430-square-foot garage and associated septic system for the Groneman residence. The project design and scope fits the size and style of the neighborhood and we support this project. We have also had the opportunity to review the Coastal Commission staff report and appeal for commission appeal No. A-2-MAR-21-0048. We disagree with staff findings and feel the report does not present an accurate and impartial assessment. On the basis of review of available, relevant information, we believe this plan conforms to the regulations in the Marin County Local Coastal Program and that the planning approval by the County of Marin on May 27th was a valid and conforming action. We ask that the Commission find **NO SUBSTANTIAL ISSUE** and allow the Groneman Family to build their house.

Sincerely,
Bethany Villere and Kent Andrews
220 Sunset Way, Muir Beach, CA 94965
415-389-9047

FW: Public Comment on September 2021 Agenda Item Thursday 13b - Appeal No. A-2-MAR-21-0048 (Groneman SFD, Muir Beach)

NorthCentralCoast@Coastal <NorthCentralCoast@coastal.ca.gov>
Tue 8/31/2021 9:46 AM
To: Pfeifer, Sara@Coastal <Sara.Pfeifer@coastal.ca.gov>

Maria Elena Marquez
CALIFORNIA COASTAL COMMISSION

From: Paul Jeschke <paul.jeschke@gmail.com>
Sent: Saturday, August 28, 2021 6:10 PM
To: NorthCentralCoast@Coastal <NorthCentralCoast@coastal.ca.gov>
Cc: brittsibley@gmail.com
Subject: Public Comment on September 2021 Agenda Item Thursday 13b - Appeal No. A-2-MAR-21-0048 (Groneman SFD, Muir Beach)

Dear Coastal Commission:

As 21-year residents of Muir Beach, we are very familiar with the property located at 183 Sunset Way, walk by it regularly and have evaluated its topography. We believe the Coastal Commission staff report badly misrepresents the nature of the property and that **no substantial issue exists** and that a coastal development permit should be upheld. Much of the CCC staff report relies on satellite imagery. We believe a site visit would have resulted in a conclusion that **no substantial issue exists.** Boots on the ground inspection would have substantiated the Marin County Zoning Administrator's conclusion that the proposed dwelling is well within the bluff setback requirements and is not seaward of the bluff top edge. The assertion that Sunset Way constitutes the bluff edge is arbitrary, defies visual on-site inspection of the property in question, and results in an adverse and unjustified hardship on the applicants.We urge you to find that **no substantial issue exists** with respect to the County-approved project's conformity with the LCP and the Coastal Act's public access provisions, and that the development conforms to the regulations in the Marin County Local Coastal Program and the planning approval by the County of Marin.

Paul Jeschke
Anne Jeschke
77 Starbuck Dr
Muir Beach, CA 94965
(415) 388-2278 (Home)
(415) 942-3745 (Mobile)

FW: Public comment on Groneman appeal re: 183 sunset way

NorthCentralCoast@Coastal <NorthCentralCoast@coastal.ca.gov>
Tue 8/31/2021 9:45 AM
To: Pfeifer, Sara@Coastal <Sara.Pfeifer@coastal.ca.gov>

Maria Elena Marquez

CALIFORNIA COASTAL COMMISSION

From: Gary Friedman <garyjfriedman@gmail.com>
Sent: Saturday, August 28, 2021 1:29 PM
To: NorthCentralCoast@Coastal <NorthCentralCoast@coastal.ca.gov>
Subject: Public comment on Groneman appeal re: 183 sunset way

Regarding: Public Comment on September 2021 Agenda Item Thursday 13b - Appeal No. A-2-MAR-21-0048 (Groneman SFD, Muir Beach)

We live at 175 sunset way in Muir Beach. We've had the opportunity to review the plan and story poles for the proposed new construction of a 2160-square-foot single family residence, a 430-square-foot garage and associated septic system for the Groneman residence. The project design and scope fits the size and style of the neighborhood and we support this project. We have also had the opportunity to review the Coastal Commission staff report and appeal for commission appeal No. A-2-MAR-21-0048. We disagree with staff findings and feel the report does not present an accurate and impartial assessment. We believe this plan conforms to the regulations in the Marin County Local Coastal Program and the planning approval by the County of Marin on May 27th was a valid and conforming action. We ask that the Commission find **NO SUBSTANTIAL ISSUE** and allow the Groneman Family to build their house.

Sincerely,

Gary Friedman and Trish McCall

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Sent from my iPhone

FW: Public Comment on September 2021 Agenda Item Thursday 13b - Appeal No. A-2-MAR-21-0048 (Groneman SFD, Muir Beach)

NorthCentralCoast@Coastal <NorthCentralCoast@coastal.ca.gov>

Tue 8/31/2021 9:46 AM

To: Pfeifer, Sara@Coastal <Sara.Pfeifer@coastal.ca.gov>

Maria Elena Marquez

-----Original Message-----
From: Victor Eduardo Jo Chiong <jochiongv@gmail.com>
Sent: Saturday, August 28, 2021 3:51 PM
To: NorthCentralCoast@Coastal <NorthCentralCoast@coastal.ca.gov>
Cc: Sally SenLing Li <sallysIli@gmail.com>; brettsibley@gmail.com
Subject: Public Comment on September 2021 Agenda Item Thursday 13b - Appeal No. A-2-MAR-21-0048 (Groneman SFD, Muir Beach)

Dear Sir/Mdm.,

My wife and I live at 45 Sunset Way in Muir Beach. We've had the opportunity to review the plan and story poles for the proposed new construction of a 2160-square-foot single family residence, a 430-square-foot garage and associated septic system for the Groneman residence. The project design and scope fits the size and style of the neighborhood and we support this project. We have also had the opportunity to review the Coastal Commission staff report and appeal for commission appeal No. A-2-MAR-21-0048. We disagree with staff findings and feel the report does not present an accurate and impartial assessment. We believe this plan conforms to the regulations in the Marin County Local Coastal Program and the planning approval by the County of Marin on May 27th was a valid and conforming action. We ask that the Commission find NO SUBSTANTIAL ISSUE and allow the Groneman Family to build their house.

Sincerely,

--Victor and Sally