Exhibit E

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HARO, KASUNICH AND ASSOCIATES, INC.

CONSULTING GEOTECHNICAL & COASTAL ENGINEERS

Project Number M11771
8 June 2020

26195 Scenic Holdings LLC
c/o Holdren + Lietzke Architecture
Attn: David Dwight
225 Cannery Row, Suite A
Monterey, California 93940
david@hl-arc.com

Subject: Cypress Point Fault Study and Focused Geologic Report

Reference: Proposed New Residence
APN 009-422-023
26195 Scenic Road, Carmel, CA 93923
Monterey County, California

Dear Mr. Dwight,

Introduction

This report evaluates the geological conditions and evaluates the proximity of the nearby Cypress Point Fault to a proposed new home located at 26195 Scenic Road in Carmel, California. The objective of this geologic study is to evaluate the geologic hazards at the site. This property has an existing garage, and a 1035 SF home is now being proposed. We have done a number of other geological and geotechnical projects close by.

We have reviewed the February 2020 Soil Engineering Investigation for the property that was prepared by Landset Engineers. We have also looked at the February 2020 topographic survey map of the project site that was prepared by Central Coast Surveyors, and an A0.0 site plan prepared by Holdren + Lietzke Architecture dated 5-1-2020 showing the location of the proposed home.

The project site is shown below:

Figure 1: Google Earth 11-15-2018 Satellite Image

Figure 2: October 2019 Coastal Records Project Aerial Photograph (courtesy of www.californiacoastline.org)

Scope of Services

Our scope of services consists of the following:

1) Administrative work.

2) Review of available geologic information in our prior reports and files.

3) Obtain and review time sequential historical aerial photography from www. californiacoastline.org and from the University of California at Santa Cruz.

4) Review the topographic survey map and site plan for the proposed development

5) Visit the site and observe site geology and nearby geologic conditions along the shoreline.

6) Assess the Cypress Point Fault, it's mapped location and our observations of relevant geology in the vicinity

7) Preparation of this focused geologic report outlining our findings which includes graphics, photographs and maps that addresses the proximity of the Cypress Point Fault to the proposed home and any associated geologic hazards.

No geotechnical services are included in this proposal. Those services are the responsibility of Landset Engineers.

Site Conditions

The site is located at 26195 Scenic Road in the community of Carmel-by-the Sea in Monterey County, California. The proposed development is located at the seaward edge of a coastal terrace on the inland side of Scenic Road at Carmel Point.

The coastal terrace the site is located on slopes gently seaward and the proposed home is located at an elevation of approximately 25 feet NAVD88. Photograph 1 shows the building site:

Photograph 1: Proposed Building Site

Figure 1 shows a US Geological Survey topographic map of the site:

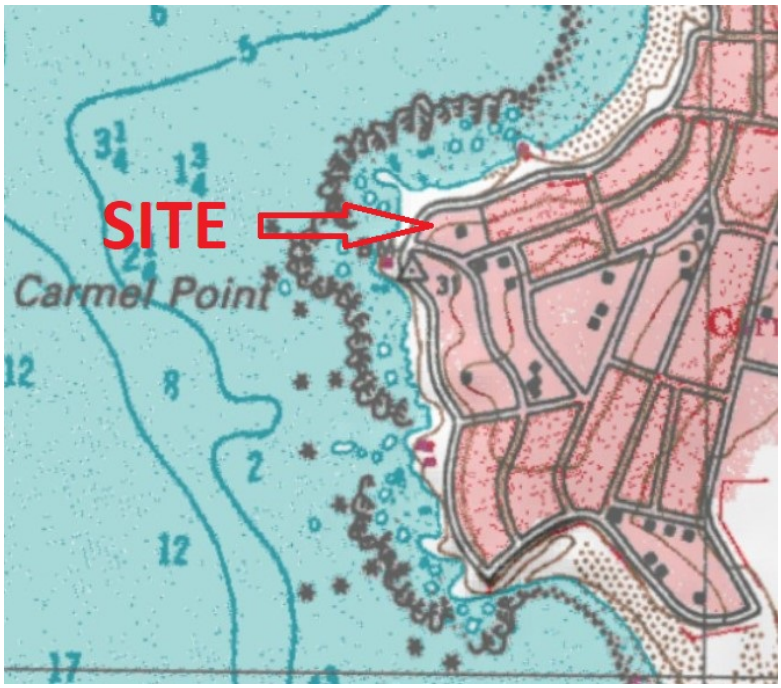


Figure 1: US Geological Topographic Survey Map

Geologic Setting and Conditions

The geologic conditions at the site are relatively simple, and as seen in the coastal bluff face and consistent across the coastal bluff seaward of the site; with granite bedrock exposed up to within 9 to 11 feet of the top edge of the coastal bluff, which is at an elevation of about 20 feet NAVD88. At the bluff edge topsoil and thin coastal terrace deposits overlie granite bedrock. The property is on a reach of coastline facing west and northwest. Subsurface exploration by Landset Engineers Inc. in February 2020 revealed that 1 to 4 feet of silty sand topsoil overlying weathered granite exists at the proposed building site.

Massive areas of granitic bedrock are exposed in outcrops along the shoreline seaward of the proposed home.

Photograph 2: Massive Granite Bedrock Outcrops Seaward of Site

The bedrock portion of the bluff face supports the earth materials (coastal terrace deposits and topsoil) that comprise the upper part of the bluff materials. These deposits are weaker earth materials (predominantly gravelly silts and sands) than the bedrock below.

Figure 2 (a portion of the Geologic Map of the Monterey and Seaside 7.5-Minute Quadrangles, Monterey County, California: A Digital Database, authored by Joseph C. Clark, William R. Dupre, and Lewis I. Rosenberg) shows a regional geologic map from the U S Geological Survey Open File Report 97-30.

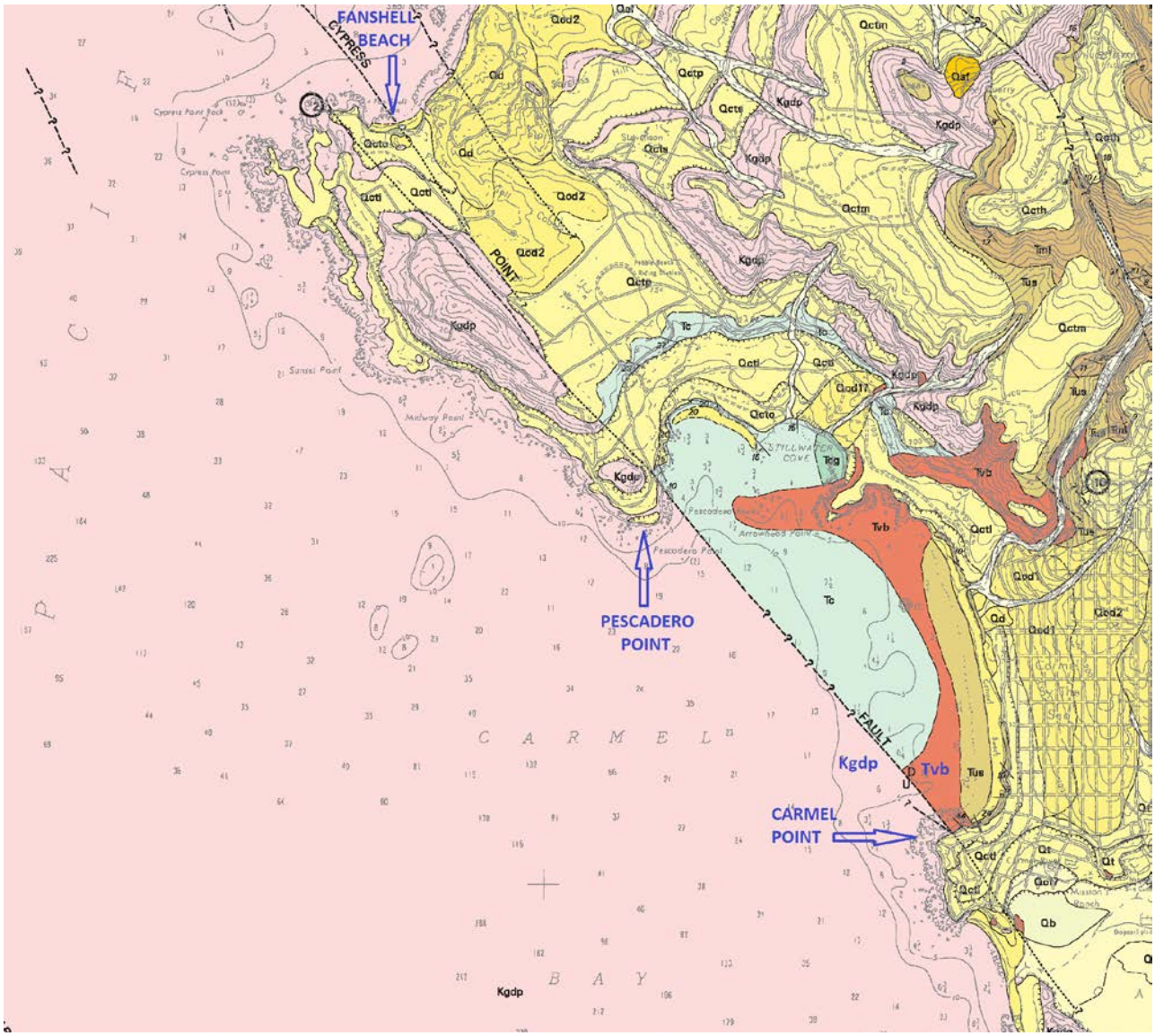


Figure 2: US Geological Survey Regional Geologic Map

Geologically the study area consists of an uplifted marine terrace environment. The blufftop area of the property is located along the coastal bluff of the lowest (and youngest) marine terrace. This approximately 100,000 year old marine terrace, (Qcto; named the Ocean View Coastal Terrace) was formed when persistent ocean wave attack cut a platform in the granodiorite bedrock (Kgdp; named the Porphyritic granodiorite of Monterey of Ross) during a high stand of sea level. Subsequent tectonic uplift of this portion of the coastline following a drop in sea level preserved a deposit of marine silts, sands and gravels that mantle a relatively level granodiorite surface on the bedrock.

The Cypress Point Fault Zone is shown on the map in close proximity to the proposed home. It juxtaposes Oligocene age volcanic rocks (Tvb) against Cretaceous age porphyritic granodiorite (Kgdp). Figure 3 shoiws a closeup of the geolic map in the vicinity of the proposed home.

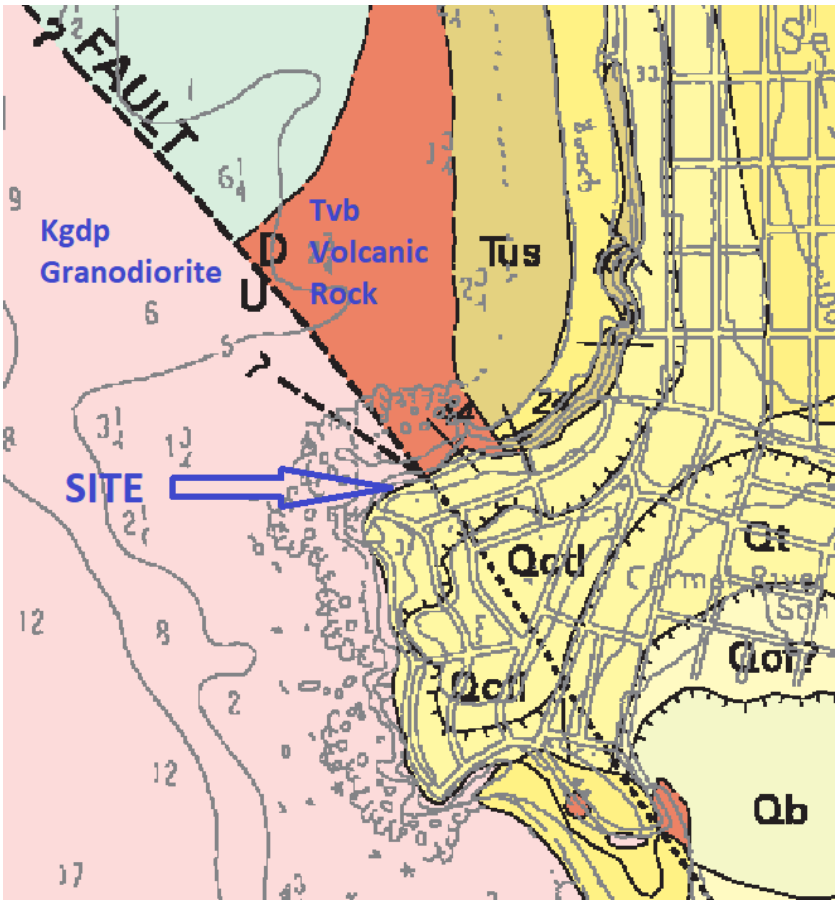


Figure 3: US Geological Survey Regional Geologic Map In the Vicinity of the Proposed Home

The Cypress Point Fault is further discussed in the faulting section of this report.

The property lies within the geological-tectonic units called the Salinian Block that forms the basement complex of the northern Santa Lucia Mountains.

The Salinian Block is composed of a number of fault-bounded blocks composed of granitic and metamorphic rocks which are discontinuously covered with younger sedimentary rocks and surficial deposits. The primary fault in the vicinity of the property is the Cypress Point Fault. The main trace Cypress Fault, which trends northwest and dips about 55 degrees to the northeast, is located about 100 to 200 feet inland to the northeast of the property.

The fault within the Salinian Block, along with the San Andreas Fault and its eastern branches, comprise a broad system of inter-related, right-lateral, strike-slip faults which have dominated the tectonic history of western California for the past 12-15 million years. The faults that partition the Salinian Block have been generally active throughout most of the Cenozoic time; although these faults are, in general, part of a right-lateral, strike-slip system, they have also controlled the relative vertical movements between the smaller structural blocks within the Salinian Block.

California's system of right-lateral, strike-slip faults represents a segment of the boundary between the Pacific and North American crustal plates. Since the Pacific plate has been slipping northwestward with respect to the North American Plate, this movement is accommodated by right-lateral, strike-slip faulting. In California, most of the movement has been taken up by the San Andreas Fault itself, which has been more or less continuously active.

Seismicity

Although California's broad system of strike-slip faults has had a complex history, only some of the fault traces present a seismic hazard to the subject properties. These are the San Andreas Fault, the Monterey Bay Fault zone and on its land extensions (the Tularcitos-Navy Fault is one of these) the King City-Reliz-Rinconada Fault, the Cypress Point Fault, the San Georgorio Fault zone, and the Zayante-Vergeles Fault. These faults are either active or considered potentially active because they have been in Quaternary time (last 2-3 million years).

San Andreas Fault

The San Andreas Fault is active and represents the major seismic hazard in northern California. The main trace of the San Andreas Fault trends northwest-southeast and extends over 700 miles from the Gulf of California through the Coast Ranges to Point Arena, where the fault extends offshore. The San Andreas Fault

lies about 25 miles northeast of the subject property as its closest point. Several researchers have used historic earthquake records and geologic evidence to estimate recurrence intervals for significant earthquakes along the San Andreas Fault. Recently, it has been recognized that the San Andreas Fault can be divided into segments that have “characteristic” earthquake associated with them. Furthermore, the recurrence interval for earthquakes is different for each segment of the fault.

The San Andreas Fault has been divided into eight segments from Cape Mendocino in northern California to Bitterwater, which is east off King City, that each have a characteristic earthquake and a characteristic repeat time (recurrence interval).

The two segments of the San Andreas Fault that are closest to the subject site are the San Jose to San Bautista segment and the San Juan Bautista to the north of Parkfield segment. The San Andreas Fault is about 29 miles northeast of the property. This segment south of San Juan Bautista is creeping and the fault motion is being accommodated by a seismic slip. Because of this, the rate of strain accumulation appears to be low and the probability for a large earthquake on this segment is low. In contrast, the segment north of San Juan Bautista has been characterized with Magnitude 7.0 earthquakes every 50 to 115 years. On October 17, 1989, a Magnitude 7.1 earthquake occurred that was associated with the San Bautista to San Jose segment of the San Andreas Fault.

San Gregorio Fault Zone

This northwest/southeast-trending Fault zone extends over 100 miles and is about 8 miles west of the property. At its northern end, it joins the San Andreas Fault near Bolinas; southward it skirts the San Mateo and Santa Cruz County coast, crosses the mouth of Monterey Bay (seaward of the Monterey Bay Fault zone), and intersects land again north of Point Sur. Recent work suggests that the San Gregorio Fault zone may continue southeast to connect with the Hosgri Fault Zone, which lies offshore and extends from Cape San Martin to Point Sal south of San Luis Obispo. The total length of the proposed San Gregorio-Hosgri Fault zone would be over 250 miles.

At its closest approach, the San Gregorio Fault zone lies about 2.7 miles southwest of the subject properties. It has been suggested that the San Gregorio Fault zone is capable of a 7.2-7.9 Magnitude earthquakes, with recurrence intervals for earthquakes that produce surface ground rupture within San Gregorio Fault system being 6000 years or less.

Cypress Point Fault

This northwest-trending vertical fault has been traced over four miles on land, and may extend northwestward beneath Monterey Bay.

As shown on Figure 2 (the regional Geologic Map) the main trace of the Cypress Point Fault intersects the coastline at Fan Shell Beach (upcoast), again on the eastern edge of Pescadero Point (upcoast) and again just upcoast from Carmel Point.

Several small earthquake epicenters have occurred in the vicinity of the Cypress Point Fault. Several of these earthquakes occurred during an earthquake swarm on the Monterey Peninsula between December 1975 and February 1976. The maximum Richter Magnitude was 2.5.

The activity of the Cypress Point Fault is equivocal. The on-land portion of the fault does not offset the contact between Quaternary marine terrace deposits and granodiorite. This indicates the fault has not experienced surface ground rupture for about 100,000 years. At Pescadero Point, the fault is well exposed in the seacliff. Granodiorite on the south is juxtaposed against sandstone and conglomerate of the Carmelo Formation on the north. The fault zone is about 40 feet wide, and the fault appears to be vertical. There is no evidence of rock deformation or faulting associated with movement on the Cypress Point Fault outside of this 40-foot wide zone.

At Fan Shell Beach, one trace of the fault has been historically mapped but now appears to be covered by riprap. At Fan Shell Beach we observed a fault trace that strikes S55E and dips to the southwest. Note 2 on the Regional Geologic Map (Figure 2) at the location just west of Fanshell Beach says: “Edge of marine terrace coincides with 8-m-wide sheared fault zone (strike approximately N. 25° W., dip 55° NE.), Cypress Point fault zone; no obvious offset of terrace deposits.”

The fault intersects the coastal bluff about 200 feet upcoast from the closest portion of the referenced property, and is mapped juxtaposing granodiorite (Kgdp) on the downcoast side against volcanic bedrock (Tvb) on the upcoast side.

We visited Carmel Point at low tide and easily identified the location of the fault. Shotcrete that has been placed on the bluff face to retard coastal erosion covers much of the fault zone there, but the fault zone is visible by the change in geology in the tidelands. Photograph 3 below was taken looking inland along the alignment of the Cypress Point Fault.

Photograph 3: Looking Inland Along the Trend of the Downcoast Edge of the Cypress Point Fault

The actual fault is covered by beach sediments consisting of sand and cobbles. Granodiorite bedrock outcrops are visible to the right and volcanic rock outcrops are visible to the left. Another trace of the Cypress Point Fault is located further upcoast.

Photograph 4: Bluff Face at the Cypress Point Fault Zone

The Granodiorite is shown below in Photograph 5.

Photograph 5: Granodiorite Immediately Downcoast of the Cypress Point Fault

The Volcanic Rock is shown below in Photograph 6.

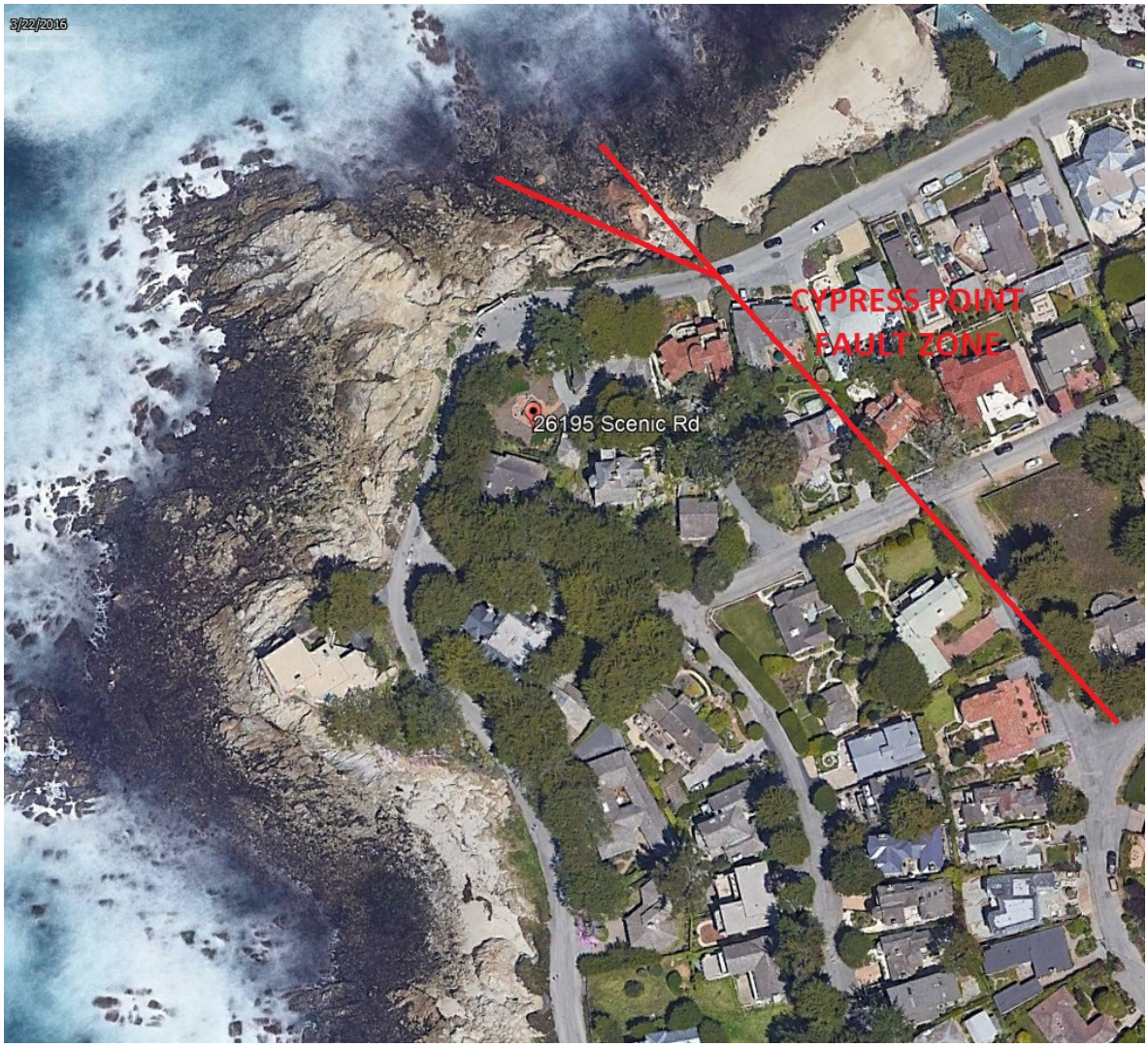
Photograph 6: Volcanic Rock Immediately Upcoast of the Cypress Point Fault

We observed the Cypress Point Fault Zone and measured its position relative to

the proposed home. Where exposed in the coastal bluff face, the closest portion of the Fault Zone is approximately 200 feet from the property line of the property where the home is proposed. Photograph 7 shows a 2002 Photograph depicting the proximity of the Cypress Point Fault Zone to the Building Site.

Photograph 7: Cypress Point Fault Zone and Building Site Locations (2002 photo courtesy of www.californiacoastline.org)

Photograph 8 is a 2016 Google Earth satellite image depicting the proximity of the Cypress Point Fault Zone to the Building Site at 26195 Scenic Road. At the closest point, the mapped Cypress Point Fault is more than 150 feet from the Building Site.



Photograph 8: Cypress Point Fault Zone and Building Site at 26195 Scenic Road (2016 satellite image courtesy of Google Earth)

Seismic Hazards

Hazards associated with earthquakes in the vicinity of the proposed home can be placed in three general categories: 1) seismic shaking; 2) surface ground rupture; and 3) ground failure triggered by seismic shaking. These hazards could potentially affect the regional area.

The greatest potential seismic hazard on the subject property is seismic shaking. During an earthquake the danger of fault surface rupture at the site is extremely low, but very strong ground shaking would occur. Moderate, and possibly severe,

ground shaking is likely at the property during the next 50 years. The 2001 Monterey County Plan Update suggested there is a 10% probability that a 0.45g level of ground shaking could occur in the vicinity of the site in the next 50 years.

It is our opinion that the likelihood of fault surface rupture along the Cypress Point Fault is very low and if rupture occurred, the magnitude of displacement is anticipated to be very small. No known traces of the Cypress Point Fault Zone, which is visible in the coastal bluff upcoast of the property, trend through the property proposed for development. The greater than 150-foot setback from the proposed building site to the location of known fault traces indicates that even if the Cypress Point Fault were to rupture, that the ground surface on the property proposed for development would not rupture.

The granodiorite is not susceptible to landsliding and will not liquefy. The portion of the coastal bluffs that consists of terrace deposits has a very short height; therefore, the potential for landsliding there (seaward of Scenic Road) is extremely low. Saturated portions of the terrace deposits may theoretically be subject to liquefaction, however the grain size and density of materials we observed in the coastal bluff do not appear susceptible to liquefaction.

Groundwater

Although no significant groundwater was observed seeping out of the bluff in May 2020, groundwater commonly perches in the decomposing marine sand and gravel terrace deposits that overlie the relatively impermeable bedrock. Seeps periodically may be present where the bedrock-terrace deposit contact intersects the modern coastal bluff. Historical perched groundwater and seepage has contributed to weathering and weakening of the uppermost portion of the granodiorite located just below the terrace deposits. A thin zone of perched water upon the weathered, denser bedrock below the terrace deposit material could occur during the wet winter months. Special attention should be paid to any areas of buildings that are below adjacent grades. If leakage exists or becomes apparent building foundation waterproofing will be needed. Surface drainage should include provisions for positive gradients so that surface runoff is not permitted to pond or seep into the backfill of any retaining wall systems and foundations. Where possible, surface drainage should be directed towards areas of the property furthest from the home and neighboring improvements.

Coastal Flooding

The 2017 FEMA Flood Insurance Rate Maps (Panel 06053C0316H) dated 9/21/2017 indicates that a Special Flood Hazard Area Zone VE with a Base Flood

Elevation of +24 feet NAVD88 extends onto the seaward portion of the property at 26195 Scenic Road, as shown in Figure 3 below. Zone VE is an area subject to inundation by the 1-percent-annual-chance flood event with additional hazards due to storm-induced velocity wave action. Areas of the property below an Elevation of +24 feet NAVD88 are in this Special Flood Hazard Area. We note that the surveyed lowest adjacent grade to where the proposed home will be located is about +26 feet NAVD1988 elevation which is 2 feet higher than the FEMA Base Flood Elevation. The existing home is landward of the depicted FEMA 100 year flood zone.

Figure 3: FEMA Flood Insurance Rate Map 06053C0316H
Dated 6/21/2017

Tsunami Inundation

We have reviewed the July 1, 2009 Monterey County Tsunami Inundation Map for Emergency Planning for the Monterey Quadrangle, which was prepared by the

California Emergency Management Agency, California Geological Survey and University of Southern California. A partial copy of that map is shown below in Figure 4, and shows the inland edge of the inundation zone is mapped at the inland edge of Scenic Road. It is possible that ocean wave runup will inundate Scenic Road during extreme storms. The frequency with which inundation occurs will increase as sea level rises in the future.

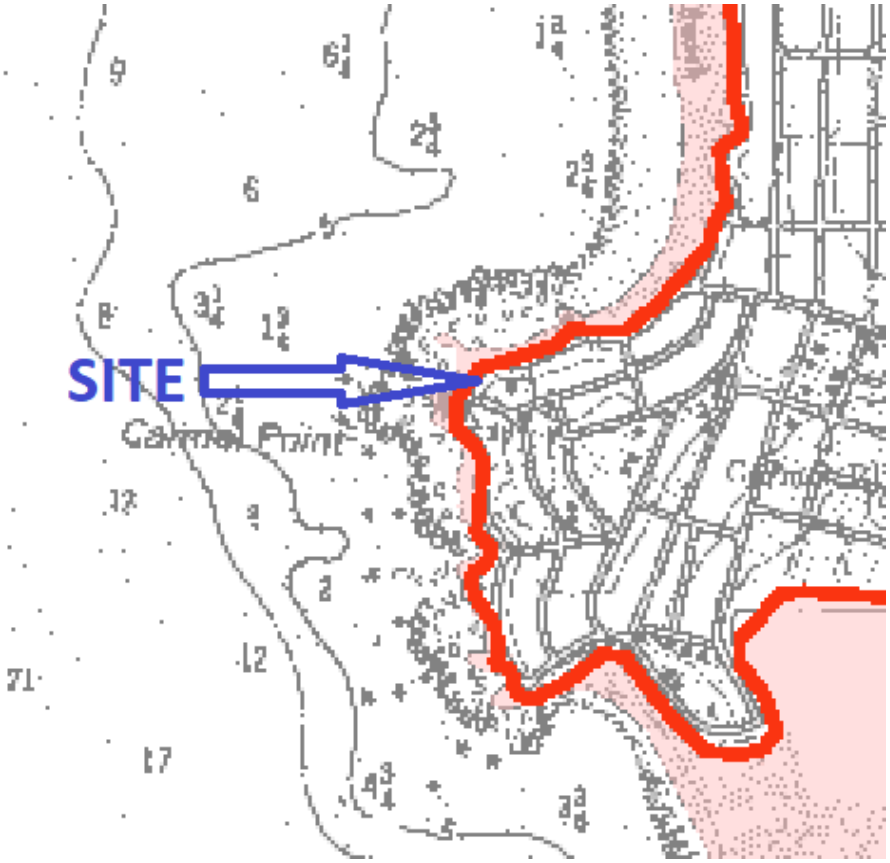


Figure 4: Monterey County Tsunami Inundation Map

Coastal Erosion and Bluff Recession

Other than seismic shaking, coastal erosion related to ocean wave attack is the most significant geologic hazard that may affect the site. Coastal erosion has the potential to undermine improvements, if they are positioned too close to the shoreline. The uncemented nature of the topsoil and parts of the marine terrace deposits, coupled with occasional intense coastal storms, will result in erosion and bluff recession hazards along the bluff edge in the terrace deposit materials.

Our review of twelve oblique aerial photographs spanning the 1972 through 2019

obtained from www.californiacoastline.org revealed there has been relatively little discernible change in the bluff edge and terrain seaward of Scenic Drive in that 47 year period. We attribute the relatively low amount of discernible erosion to the competence of the granodiorite and the prominent broad bedrock outcrop that forms Carmel Point immediately seaward of Scenic Drive and the proposed home. Copies of 1972, 1979, 1987, 2002, 2008 and 2019 oblique aerial photographs obtained from the California Coastal Records Project (wwwcaliforniacoastline.org) are shown below.

Photograph 9: 1972 Oblique Aerial Photograph
(photo courtesy of www.californiacoastline.org)

Photograph 10: 1979 Oblique Aerial Photograph
(photo courtesy of www.californiacoastline.org)

Photograph 11: 1987 Oblique Aerial Photograph
(photo courtesy of www.californiacoastline.org)

Photograph 12: 2002 Oblique Aerial Photograph (photo courtesy of www.californiacoastline.org)

Photograph 13: 2008 Oblique Aerial Photograph (photo courtesy of www.californiacoastline.org)

Photograph 14: 2019 Oblique Aerial Photograph
(photo courtesy of www.californiacoastline.org)

Our review of these oblique aerial photographs revealed there has been relatively little erosion and retreat of the bluff edge and terrain seaward of Scenic Drive in that 47 year period. We attribute the relatively low amount of erosion and slow bluff retreat to the competence of the granodiorite and the prominent broad bedrock outcrop that forms Carmel Point immediately seaward of Scenic Drive and the proposed home.

CONCLUSIONS

1. The subject property consists of a level to gently sloping lot about 80 to 100 feet deep inland of Scenic Road with an existing garage.

2. A single story single family home is proposed on the level area of the property..

3. The proposed homesite is underlain by about 3 to 4 feet of coastal terrace deposits and topsoil overlying granite, based on boring logs prepared by Landset Engineers in their February 2020 soils report.

4. The Cypress Point Fault is in close proximity to the property proposed for development. At the closest point, the mapped Cypress Point Fault is more than 150 feet from the Building Site. During the next 50 years, the probability

of surface ground rupture within the property is extremely low. No known traces of the Cypress Point Fault Zone, which is visible in the coastal bluff upcoast of the property, trend through the property proposed for development.

5. Moderate to severe ground shaking is likely at the subject property if a large magnitude earthquake occurs on a nearby fault. The geotechnical report should recommend appropriate seismic design criteria for use in the structural engineering of the proposed home, and the California Building Code (CBC) must be complied with.

6. No groundwater was encountered by Landset Engineers in their borings. There is the potential for perched groundwater to develop within the topsoil and terrace deposits above the granite

7. There is a potential flood hazard at the seaward portion of the property. The flood elevation has been determined by FEMA as 24 feet using the NAVD 1988 Vertical Datum. As mapped by FEMA on the map shown in Figure 3, and based on the elevations shown on the topographic map prepared by Central Coast Surveyors, the flood hazard zone is seaward of the proposed home

8. There is a potential tsunami hazard along Scenic Road. As mapped by the California Emergency Management Agency, California Geological Survey and University of Southern California, and based on the map shown in Figure 4, the tsunami hazard zone is seaward of the proposed home.

9. The historical coastal bluff retreat rates seaward of Scenic Road are quite low. We attribute the relatively low amount of erosion and slow bluff retreat to the competence of the granodiorite and the prominent broad bedrock outcrop that forms Carmel Point immediately seaward of Scenic Drive and the proposed home.

10. Developing property in the seismically active coastal region of Central California carries with it a somewhat elevated level of risk from geologic hazards when compared to areas of the state where the geologic hazards are generally lessened by the lack of topographic relief, seismicity and proximity to active faults and the Pacific Ocean. Persons developing land in this region must be cognizant of this fact, and willing to accept this somewhat elevated level of risk. Furthermore, whereas the level of risk can be reduced to an acceptably low level by implementing mitigating measures (for example, building setbacks from potential hazards, or adherence to current building codes), the risk cannot be totally eliminated. Modern building codes are intended to prevent collapse of structures but not to preclude the need for significant repairs or even rebuilding after a major earthquake.

11. Based on our investigation, there are no geologic conditions or geologic hazards that would preclude construction of the proposed residence and at the site as it is currently proposed. We should be notified in writing of any changes to the development concept so that we might review and, if necessary, to modify the conclusions and recommendations. The proposed home is feasible if the recommendations presented in this report and those in the accompanying geotechnical report prepared by Landset Engineers Inc. are adhered to during design, implemented during construction, and maintained for the lifetime of the dwelling.

RECOMMENDATIONS

1. Appropriate site drainage and building waterproofing for the proposed development shall be incorporated into the plans by the project engineers and architects. We recommend all surface runoff and any new runoff generated from the proposed construction (roofs, flatwork, etc.) should be collected and directed to appropriate discharge facilities. Runoff control and waterproofing for the project should be provided by an engineer and/or architect familiar with the site conditions.

2. All structures should be designed to withstand moderate to severe seismic shaking in accordance with the 2019 California Building Code (CBC). There are a number of active faults in the region that are capable of producing very strong levels of seismic shaking during the design life of the improvements. Selection of seismic design parameters should be made after careful consideration of the site profile, analytical procedures, and past performance of similar structures during magnitudes of shaking similar to those expected for the site. The planned residence should be designed to resist damage from ground shaking in accordance with current building codes and design standards.

3. All areas where vegetation is stripped during construction should be revegetated with appropriate erosion resistant vegetation prior to the next rainfall season.

4. This report should be reviewed in conjunction with the soils report by Landset Engineers Inc. The recommendations of the soils engineer should be closely followed. Quality control measures including plan review, preconstruction meetings, construction testing and observation services are necessary to ensure that the soils report and this geologic report are correctly interpreted and the report recommendations are correctly implemented.

INVESTIGATION LIMITATIONS

1. This report presents the results of our Engineering Geologic Investigation which addresses the geologic conditions and potential geologic hazards associated with the development of the subject parcel with a single family home. This report outlines the general geologic conditions present at the site and presents general recommendations to help mitigate potential risks associated with the geologic hazards. This report does not include geotechnical engineering, structural engineering, civil engineering, or architectural evaluations.

2. This written report comprises all of our professional opinions, conclusions and recommendations. This report supersedes any oral communications concerning our opinions, conclusions and recommendations.

3. This report was prepared in general accordance with currently accepted standards of professional geologic practice in this area at this time. No warranty is intended, and none shall be inferred from the statements or opinions expressed. The conclusions and recommendations noted in this report are based on probability and in no way imply the site will not possibly be subjected to ground failure or seismic shaking so intense that structures will be severely damaged or destroyed. The report does suggest that building structures at the noted site, in compliance with the recommendations noted in the report, is an acceptable risk.

4. This report is issued with the understanding that it is the duty and responsibility of the owner, or of his representative or agent, to ensure that the recommendations contained in this report are brought to the attention of the architect and engineer for the project, incorporated into the plans and specifications, and that the necessary steps are taken to see that the contractor and subcontractors carry out such recommendations in the field.

5. The findings of this report are valid as of the present date. However, changes in the conditions of a property can occur with the passage of time, whether they be due to natural processes or to the works of man, on this or adjacent properties. In addition, changes in applicable or appropriate standards occur whether they result from legislation or the broadening of knowledge. Accordingly, the findings of this report may be invalidated, wholly or partially, by changes outside our control. Therefore, this report should not be relied upon after a period of three years without being reviewed by an engineering geologist.

Should you have any question regarding this report, please call our office.

We appreciate the opportunity to be of service to you on this project.

Respectfully submitted,
HARO, KASUNICH & ASSOCIATES, INC.

Mark Foxx
C.E.G. 1493

LANDSET ENGINEERS, INC.

520-B Crazy Horse Canyon Rd.
Salinas, CA 93907
TEL: 831-443-6970
FAX: 831-443-3801

SOIL ENGINEERING INVESTIGATION
FOR THE
SCENIC ROAD RESIDENCE
(APN 009-422-023)
26195 SCENIC ROAD
MONTEREY COUNTY, CALIFORNIA

PROJECT 2062-01

Prepared for

26195 SCENIC HOLDINGS LLC
C/O HOLDREN + LIETZKE ARCHITECTURE
225 CANNERY ROW, SUITE A
MONTEREY, CALIFORNIA 93940

Prepared by

LANDSET ENGINEERS, INC.
520B CRAZY HORSE CANYON ROAD
SALINAS, CALIFORNIA 93907
(831) 443-6970

FEBRUARY 2020

LANDSET ENGINEERS, INC.

February 28, 2020 File No.: 2062-01

26195 Scenic Holdings LLC
C/o Holdren + Lietzke Architecture
225 Cannery Row, Suite A
Monterey, California 93940

Attention: Mr. David Dwight

SUBJECT: SOIL ENGINEERING INVESTIGATION
Scenic Road Residence (APN 009-422-023)
26195 Scenic Road
Scenic Area of Carmel, Monterey County, California

Dear Mr. Dwight:

In accordance with your authorization, Landset Engineers, Inc. has completed a soil-engineering investigation for a proposed single family custom home residence located in the Scenic area of Carmel, Monterey County, California. This report presents the results of our field investigation, laboratory testing, along with our preliminary conclusions and recommendations for site development.

It is our opinion that the proposed residence is feasible from a soil engineering standpoint provided the recommendations included in this report are incorporated into the project plans, specifications, and implemented during construction. The preliminary conclusions and recommendations included herein are based upon applicable standards at the time this report was prepared.

It has been a pleasure to be of service to you on this project. If you have any questions regarding the attached report, please contact the undersigned at (831) 443-6970

Respectfully submitted,
LandSet Engineers, Inc.

PROFESSIONAL GEOLOGIST ★ BRIAN E. PAPURELLO Exp No. CEG 2226 CERTIFIED ENGINEERING GEOLOGIST 02/29/22 ★ STATE OF CALIFORNIA

Brian Papurello
CEG 2226

03-03-20

REGISTERED PROFESSIONAL ENGINEER ★ GUY R. GIRAUDO No. C 56569 EXP. 6/30/21 CIVIL ★ STATE OF CALIFORNIA 3/3/20

Guy R. Giraudo
RCE 56569

Distribution: Addressee (2 mail & e-mail: david@hl-arc.com)

Doc. No.: 2002-116.SER

520-B Crazy Horse Canyon Rd. | Salinas, CA 93907 | TEL: 831-443-6970 | FAX: 831-443-3801 | LandSetEng.com

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INTRODUCTION

This report summarizes our findings and preliminary conclusions & recommendations for our soil engineering investigation for proposed single family residence located at 26195 Scenic Road in the Scenic Area of Carmel, Monterey County, California (see Vicinity Map, Figure 1).

PURPOSE AND SCOPE OF SERVICES

This soil engineering investigation has been prepared to explore surface and subsurface soil and groundwater conditions at the site, and provide preliminary soil-engineering criteria for design and construction of the project.

The conclusions and recommendations of this report are intended to comply with Chapter 18 of the California Building Code (CBC) 2019 edition as modified by standard soil engineering practice in this area. Our scope of services included:

1. A visual site reconnaissance.
2. Exploration, sampling and classification of the surface and subsurface soils by means of drilling three exploratory borings to depths ranging from 3.0 to 9.5 feet below the ground surface.
3. Laboratory testing of selected soil samples collected from the exploratory borings and to determine their pertinent engineering and index properties.
4. Engineering analysis of the information collected based on the results of the field exploration; laboratory testing program and review of published and unpublished studies in the general area of the site.
5. Preparation of this report summarizing our preliminary findings and soil engineering conclusions and recommendations for site preparation, grading and compaction, foundations, retaining walls, utility trenches, slabs-on-grade, general site drainage, and erosion control.

SITE DESCRIPTION AND PROPOSED DEVELOPMENT

The site (APN 009-422-023) is located at 26195 Scenic Road in the Scenic Area of Carmel, Monterey County, California (Figure 1). The overall property consists of an irregular shaped parcel of about 0.16-acres in area. The site is situated on a gentle (~5%) north facing descending slope. The site is bound by Scenic Road to the north & west and residential properties to the south & east. The site is currently vacant and is covered with an exterior patio and ornamental landscaping (Figure 2).

Proposed site development will consist of a new approximate 990-ft^2 one-story single family residence. Other proposed site development will consist of new site walls along with landscaping and drainage improvements.

FIELD EXPLORATION

A total of three exploratory borings were drilled on February 18, 2020 at the approximate locations shown on the Boring Location Map, Figure 2. The borings were drilled using a man-portable hydraulically powered drill rig equipped with a 4-inch outside diameter solid stem auger. The exploratory borings were drilled to depths ranging from 3.0 to 9.5 feet below the ground surface.

Soils encountered in each exploratory boring were visually classified in the field and a continuous log was recorded. Visual classifications were made in general accordance with the Unified Soil Classification System and ASTM D2487. Logs of the borings can be found in Appendix A (Figures A4 through A6). Appendix A also contains a Key to the Unified Soil Classification System, Key to Log of Borings and Soil Terminology (Figures A1 through A3).

Soil samples were obtained by drilling to the desired depth and then driving a 3-inch OD Modified California Sampler or a 2-inch OD Standard Penetration Test sampler. The samplers were driven into the ground using force generated by a 140-pound hammer dropping freely through a distance of 30-inches. The number of blows required to drive the last 12-inches of an 18-inch sampler were recorded as penetration resistance (blows/foot) on the exploratory boring

logs. The penetration resistance values were used to describe the consistency/density of the subsurface materials.

LABORATORY TESTING

Laboratory tests were performed to determine the relevant physical and engineering characteristics on selected soil samples of the various soil materials encountered in the exploratory borings considered pertinent to the design of the project. The tests performed were selected on the basis of the probable design requirements as correlated to the site subsurface profile. A summary of the laboratory test results is presented in Appendix B. A brief generalized description of the tests performed is presented below.

- Moisture-Density Determinations: This test was conducted on brass liner samples to measure their in-situ moisture contents and dry unit weights. The test results are used to assess the distribution of subsurface pressures and to calculate degrees of in-situ relative compaction.

SUBSURFACE CONDITIONS

Subsurface constituents were fairly uniform in each of the exploratory borings. The site is underlain by a 1.0 to 4.0 foot layer of loose to medium dense silty SAND topsoil. The topsoil is in-turn underlain Cretaceous age granite bedrock to the maximum depth explored of 9.5 feet below the ground surface.

GROUNDWATER

Groundwater was not encountered in any of the exploratory borings drilled on the site. Local groundwater levels can fluctuate over time depending on but not limited to factors such as seasonal rainfall, site elevation, groundwater withdrawal, and construction activities at neighboring sites. The influence of these time dependent factors could not be assessed at the time of our investigation.

SUMMARIZED CONCLUSIONS

The following preliminary conclusions are drawn from the data acquired and evaluated during this investigation for the proposed project. Soil and groundwater conditions can deviate from the conditions encountered at the boring locations. If significant variations in the subsurface conditions are encountered during construction, it may be necessary for Landset Engineers, Inc. to review the recommendations presented herein, and recommend adjustments as necessary.

Site Suitability: In our opinion, the site is suitable from a soil engineering standpoint for the proposed residence provided that the recommendations contained herein are implemented in the design and construction. The following preliminary conclusions and recommendations are presented as guidelines to be used by project planners and designers for the soil engineering aspects of the project design and construction. These conclusions and recommendations have been prepared and are only valid if Landset Engineers, Inc. is retained to review proposed foundation plans before construction, and to observe, test and advise during construction.

Soil Expansion: The site soils are classified as silty SAND with a low expansion potential. No special measures are required to mitigate the effect of soil expansion on foundations, and interior or exterior concrete slabs-on-grade.

Grading: As the native earth materials that will be supporting the foundations are composed of medium dense soils underlain by dense granitic bedrock, deep remedial grading of the insitu native material is not considered necessary to improve the soils for foundation support. Therefore, it is recommended that the top 12 to 18-inches of soil underlying future building areas be removed (subexcavated) down to firm native soil prior to the placement of fill or foundation construction.

Liquefaction Potential: Liquefaction is the transformation of soil from a solid to a liquid state as a consequence of increased pore-water pressures in response to strong ground shaking generated during an earthquake. Review of the on-line geologic hazard map for Monterey County

(http://montereyco.maps.arcgis.com/apps/webappviewer/index.html) indicates that the parcel is situated in an area of low susceptibility for liquefaction. Published mapping by the USGS (Dupre', 1990) depicts the site to have a very low potential for liquefaction susceptibility. Based on our field investigation and research it is our opinion that the potential for liquefaction to occur on the site is very low.

Surface Fault Rupture: The site is not located within an Earthquake Fault Zone as established in accordance with the Alquist-Priolo Earthquake Fault Zoning Act of 1972 (Hart & Bryant, 1999). Review of the on-line geologic hazard map for Monterey County (http://montereyco.maps.arcgis.com/apps/webappviewer/index.html) indicates that the Cypress Point fault at its closest is located approximately 150-feet to the northeast of the site. The Cypress Point fault is a northwest striking reverse fault (northeast side down) that juxtaposes Carmelo Fm. with granodiorite at Pescadero Point and basaltic andesite with granodiorite at Carmel Point. Late Quaternary movement is suggested by elevation differences of terrace deposits east of Carmel Point (Clark Dupre' & Rosenberg, 1997). The Cypress Point fault is about 12.0-km. long and has an estimated slip rate of 0.01 mm/yr. (Clark, Dupre' & Rosenberg, 1997) with an unknown recurrence interval. Clark Et. Al., 1997 estimate that the Cypress Point fault is capable of a moment magnitude earthquake of (Mw 6.0). It is our opinion. The potential for surface rupture to occur on the site is determined to be low.

Dynamic Compaction & Compressibility: Dynamic compaction occurs when loose, unsaturated soils densify in response to ground shaking during a seismic event. Because no such materials were encountered on the site, it is our opinion that the potential for dynamic compaction is low. Based on the dense consistencies encountered during our field exploration and local site geologic conditions, it is our opinion that the site soils exhibit very low compressibility characteristics.

Erosion: The earth materials underlying that site consist of a thin veneer of residual topsoil over dense intrusive igneous bedrock. Review of the on-line geologic hazard map for Monterey County (http://montereyco.maps.arcgis.com/apps/webappviewer/index.html) indicates that the

site is located in a moderate to high erosion hazard area. A grading, drainage & erosion control plan prepared should be included in the project design. Stringent erosion control measures should be implemented to provide surficial stability of existing and proposed graded cut/fill slopes. Incorporation of LID drainage improvements is recommended to be incorporated in the project storm water development plans.

Landsliding and Slope Stability: Topographically the site slopes are gentle with no evidence of past or present slope instability noted to occur in the field as part of this study. Previous investigators have mapped no evidence of slope instability (Clark, Dupre' & Rosenberg, 1997). The potential for landsliding to affect the project is very low.

Total & Differential Settlement: Post construction total and differential settlements from static loading of foundations are expected to be about 1-inch and ½-inch respectively. Post construction total and differential settlement of foundations is estimated to be about ¾-inch from seismic loading.

Seismic Design Parameters: For seismic design using the 2019 CBC, we recommend the following design values be used. The parameters were calculated using the U.S. Geological Survey Design Maps computer program and were based on the approximate center of the site located at 36.5440° N. latitude and –121.9329° W. longitude.

2019 CBC Seismic Design Parameters

Design Parameter	***Site Design Value***
Site Class	**B – Rock**
Spectral Acceleration Short Period	**(S_s) = 1.254g**
Spectral Acceleration 1 Second Period	**(S_1) = 0.475g**
Short Period Site Coefficient	**(F_a) = 1.00**
1 Second Period Site Coefficient	**(F_v) = 1.00**
MCE Spectral Response Acceleration Short Period	**(S_{MS}) = 1.254g**
MCE Spectral Response Acceleration 1-Second Period	**(S_{M1}) = 0.475g**
5% Damped Spectral Response Acceleration Short Period	**(S_{DS}) = 0.836g**
5% Damped Spectral Response Acceleration 1-Second Period	**(S_{D1}) = 0.316g**
Site Modified Peak Ground Acceleration	**(PGA_M) = 0.553g**

RECOMMENDATIONS

Site Preparation and Grading

1. The soil engineer should be notified **at least five (5) working days prior to any site clearing or grading** so that the work in the field can be coordinated with the grading contractor and arrangements for testing and observation services can be made. The recommendations contained in this report are based on the assumption that Landset Engineers, Inc. will perform the required testing and observation services during grading and construction. It is the owner's responsibility to make the necessary arrangements for these required services.

2. Prior to grading, building areas should be cleared of obstructions, trees and their associated root systems, deleterious materials, foundations, undocumented fill and buried structures. Site clearing should be observed by a field representative of Landset Engineers, Inc. Voids created by the removal of materials as described above should be called to the attention of the soil engineer. No fill should be placed unless a representative of this firm has observed the underlying soil.

3. Following site preparation, the upper 12-18-inches of native soil should be removed (overexcavated). The soils exposed by overexcavation should be scarified at least 12-inches, moisture conditioned to near optimum moisture content and recompacted to a minimum of 90 percent of maximum dry density. Where referenced in this report, percent relative compaction and optimum moisture content shall be based on ASTM test D1557.

4. Where cuts in building areas will exceed depths of 18-inches, overexcavation of additional soil may not be necessary. However, the cuts should be observed by a representative of this firm to verify that no deleterious materials or expansive soils are present and that the exposed soil is sufficiently uniform to support slabs and foundations. The cut surfaces should then be scarified approximately 12 inches; moisture conditioned

to near optimum moisture content, and compacted to a minimum of 90 percent of maximum dry density.

5. Structural fill, material may then be placed within the subexcavation in thin (6"-8") lifts; moisture conditioned to a level above optimum moisture content, and compacted to a minimum of 90 percent of maximum dry density. Prior to compaction, the soil should be cleaned of any rock, debris, and irreducible material larger than 3-inches in diameter.

6. Structural fill is defined herein as a native or import fill material which, when properly compacted, will support foundations, pavements, and other fills without detrimental settlement or expansion. Structural fill is specified as follows:

Structural Fill

- Clean native soil may be utilized, but import fill shall have a Plasticity Index of less than 12
- Be free of debris, vegetation, and other deleterious material
- Have a maximum particle size of 3-inches in diameter
- Contain no more than 15% by weight of rocks larger than 2½-inches in diameter
- Have sufficient binder to allow footing and unshored excavation without caving
- Prior to delivery to the site, a representative sample of proposed import should be provided to Landset Engineers, Inc. for laboratory evaluation

7. In areas to be paved, the upper 12-inches of subgrade soils and all aggregate base should be compacted to a minimum of 95 percent of maximum dry density. Aggregate base and subgrade should be firm and unyielding when proof rolled by heavy rubber-tired equipment prior to paving.

Foundations

8. Building addition foundations can be supported by conventional continuous and spread (pad) footings ***bearing entirely on engineered fill compacted to 90% of maximum dry density*** **OR** ***entirely on firm and dense native earth materials, but not a combination of both***. Footings should have a minimum depth of 12-inches (trenching depth) below lowest adjacent grade for one story structures and minimum depth of 18-inches (trenching depth) below lowest adjacent grade for two story structures.

9. Footings should be designed using a maximum allowable bearing capacity of 2,000 psf for foundations bearing on native earth materials. Footings should be reinforced as directed by the architect/structural engineer. These values may be increased by one-third for short-term loads such as wind or seismicity.

10. For calculating resistance to lateral loading, a friction coefficient of 0.30 may be assumed to act between the bottom of the foundations and the supporting soil. Where foundations are poured neat against excavated trenches, the engineered fill may be assumed to provide 350 pounds per cubic foot (ultimate value). Lateral support from soil that may later be excavated or used in landscaping near foundations should be neglected.

11. Post construction total and differential settlements from static loading of foundations are expected to be about 1-inch and ½-inch respectively. Post construction total and differential settlement of foundations is estimated to be about ¾-inch from seismic loading.

12. ***Footing excavations must be observed by a representative of this firm prior to placement of formwork or reinforcement.*** Concrete should be placed only in foundation excavations that have been kept moist, and contain no loose or soft soil debris.

13. Footings located adjacent to other footings or utility trenches should have their bearing surfaces founded below an imaginary 1:1 (horizontal to vertical) plane projected upward from the bottom edge of the adjacent footings or utility trenches.

Slabs-on-Grade and Exterior Flatwork

14. Concrete slabs-on-grade and exterior flatwork should be constructed on compacted soil subgrade moisture conditioned to near optimum moisture content. Preparation of soil subgrades and compaction of fill should be performed as recommended in the section entitled "Site Preparation and Grading".

15. To minimize floor dampness at the ground floor level, such as where moisture sensitive floorings will be present, a section of capillary break material at least 4-inches thick covered with a membrane vapor barrier should be placed between the floor slab and the compacted soil subgrade. The capillary break should consist of a clean, free draining material such as ½ to ¾-inch drain rock with not more than 10 percent of the material passing a No. 4 sieve. The drain rock should be free of sharp edges that might damage the membrane vapor barrier. The membrane vapor barrier should be a minimum 10 mil in thickness, and care should be taken to properly lap and seal the vapor barrier, particularly around utilities. To protect the vapor barrier from damage during concrete placement, it should be covered with a minimum of 2 inches of clean sand. Clean sand is defined as a sand (ASTM D 2488) of which less than 3 percent passes the No. 200 sieve. The sand cushion should be lightly moistened immediately prior to concrete placement.

16. Exterior concrete flatwork should be designed to act independently of building foundations. To reduce shrinkage cracks in concrete slabs and flatwork, contraction joints should be installed. Joint spacing should be at the direction of the architect/structural engineer.

Retaining Walls

17. Retaining walls for the site may be designed using the following general design parameters, which assume fully drained wall backfill conditions. The average bulk density of material placed on the backfill sides of walls will be about 130 pounds per cubic foot (pcf).

18. The vertical plane extending down from the ground surface to the bottom of the heel of the vertical wall will be subject to lateral soil pressures (plus surcharge loads). An Active Soil Pressure of 35 pcf (equivalent fluid weight) should be used in design of site walls that are free to move laterally and resultant settlement of backfill is tolerable. An At-Rest Soil Pressure of 60 pcf should be used in design for walls, which are restricted from movement at the top (such as foundation walls). The above pressures are applicable to a horizontal retained surface behind the wall. Walls having a retained surface that slopes upward from the wall should be designed for an additional equivalent fluid pressure of 1 pcf for the active case and 1.5 pcf for the at rest case, for every two degrees of slope inclination.

19. The additional effects of earthquakes on the walls may be simulated by applying a horizontal line force of $10H^2$ pounds per foot length of wall. This force should be applied at a height of 0.6H above the wall heel. The additional effects of vertical live loads on the backfill side of walls may be simulated by applying 50 percent of the live loads as a horizontal surcharge force on the walls. The point of application of the live load surcharge may be estimated by assuming a 45-degree line of action down from the live load to the design plane or wall stem.

20. Retaining walls should be supported on foundations bearing on dense native earth materials as specified in the foundations section of this report assuming a footing depth of 18-inches below lowest adjacent grade. An increase of 1/3 is allowed when considering additional short-term wind or seismic loading. The ultimate coefficient of friction below

the base of the wall = 0.30. Passive soil resistance against the portion of the wall base and key is 350psf/ft. for level ground in front of the wall. Lateral support from the soil that may be excavated or used in landscaping near the wall footing should be neglected. Typically this would include the top 12-inches of soil around the wall.

21. The earth pressures are based on fully drained conditions. We recommend that a zone of drainage material at least 12-inches wide should be placed on the backfill side of the walls. Drainage materials should consist of Class 2 permeable material complying with Section 68 of the Caltrans Standard Specifications, latest edition, or ¾-inch permeable drain rock wrapped in Mirafi 140N or equivalent. Manufactured drains such as Miradrain or Enkadrain are acceptable alternatives to the use of permeable or gravel material, provided that they are installed in accordance with the recommendations of the manufacturer. The drains should extend from the base of the walls to within 12-inches of the top of the wall backfill. The upper 12-inches of wall backfill should consist of compacted structural fill. A perforated pipe should be placed (holes down) about 4-inches above the bottom of the wall or below lowest adjacent grades in front of the wall. The perforations should be no larger than ¼-inch diameter, and the perforated pipe should be connected via a solid collector pipe to an approved point appropriate discharge facility.

22. Wall backfill should be moisture conditioned and compacted to a minimum of 90% of maximum dry density. If heavy compaction equipment will be used for compaction of the wall backfill, the wall design should include a compaction surcharge in addition to the soil pressures given above. Landset Engineers, Inc. should be consulted for proper compaction surcharge pressures. To avoid surcharging the walls, backfill within 3-feet of the wall should be compacted by hand operated equipment.

Utility Trenches

23. On-site soils should be properly shored and braced during construction to prevent sloughing and caving of trench sidewalls. The contractor should comply with the Cal/OSHA and local safety requirements and codes dealing with excavations and trenches.

24. A select non-corrosive, granular, material should be used as bedding and shading immediately around underground utility pipes and conduits. Native soils may be used for trench backfill above the select material.

25. Trench backfill in landscaped or unimproved areas should be compacted to a minimum of 85 percent of maximum dry density. Trench backfill beneath asphalt and concrete pavements should be compacted to a minimum of 95 percent of maximum dry density. Trench backfill in other areas should be compacted to a minimum of 90 percent of maximum dry density.

26. The bottoms of utility trenches that are parallel to foundations should not extend below an imaginary plane sloping downward at a 1:1 (horizontal to vertical) angle from the bottom outside edges of foundations.

Site Drainage

27. A drainage & erosion control plan is essential to the project. Fluctuations of moisture contents are a major consideration, both before and after construction. Properly designed drainage & erosion control mitigations are essential to the long-term sustainability of the project.

28. Surface drainage should provide for positive drainage so that runoff is not permitted to pond adjacent to foundations, concrete slabs-on-grade, and pavements. Pervious ground surfaces should be finish graded to direct surface runoff away from site improvements at a minimum 5 percent grade for a minimum distance of 10-feet. If this is not practical due

to the terrain or other site features, swales with improved surfaces should be provided to divert drainage away from improvements. Surface runoff collected in this swale should be controlled and flow in a non-erosive manner to an approved point of discharge.

29. Roof gutters should be utilized around the building eaves. Roof gutters should be connected to downspouts, which in turn should be directed to the site storm drain system and shall be independent of subsurface drainage improvements. Runoff from downspouts, planter drains and other improvements should discharge in a non-erosive manner away from site improvements in accordance with the requirements of the governing agencies.

30. The migration of water or spread of root systems below foundations, slabs, or pavements may cause differential movement and subsequent damage. Landscaping runoff collection facilities should be incorporated in the project design.

NOTICE TO OWNER & QUALITY CONTROL

The conclusions and recommendations contained in this update report are preliminary in nature. We recommend that Landset Engineers, Inc. be retained to review final plans once they are available. ***This firm should perform a preconstruction meeting with the general and/or grading contractor(s) to review and confirm the recommendations contained within this report prior to the initiation of earthwork operations. Any earthwork or foundation construction performed without engineering supervision, direct observation and/or testing by Landset Engineers, Inc., will not be certified as complete and in accordance with the requirements set forth herein.***

Additional recommendations will be provided if necessary based on our review, to interpret this report during construction, and to provide construction testing and observation services. These services are beyond the scope of this soil engineering investigation and are not considered part of the fees as charged by Landset Engineers, Inc., for the report contained herein.

At a minimum the following items must be reviewed, tested, or observed by this firm:

- ***Grading, drainage & erosion control plans***
- ***Building and foundation plans***
- ***Site stripping and clearing***
- ***Subexcavation, fill placement and compaction***
- ***Foundation excavations***
- ***Surface and subsurface drainage improvements***
- ***Compaction of utility trench & retaining wall backfill and pavement areas***

If Landset Engineers, Inc. is not retained to provide construction observation and testing services, it shall not be responsible for the interpretation of the information by others or any consequences arising therefrom.

LIMITATIONS AND UNIFORMITY OF CONDITIONS

The preliminary recommendations contained in this report are based, in part, on certain plans, information, and data that has been provided to us. Any changes in those plans, information, and data will render our recommendations invalid unless we are commissioned to review the changes and to make any necessary modifications and/or additions to our recommendations. The criteria in this report are considered preliminary until such time as they are modified or verified by the soil engineer in the field during construction. No representation, warranty, or guarantee is either expressed or implied. This report is intended for the exclusive use by the client and the client's architect/engineer. Application beyond the stated intent is strictly at the user's risk.

The recommendations of this report are based upon the assumption that the soil conditions do not deviate from those disclosed in the borings. If any variations or undesirable conditions are encountered during construction, Landset Engineers, Inc. should be notified so that supplemental recommendations can be given.

This report is issued with the understanding that it is the responsibility of the owner, or his representative, to ensure that the information and recommendations contained herein are called to the attention of the Architects and Engineers for the project and incorporated into the plans, and that the necessary steps are taken to ensure that the Contractor and Subcontractors carry out such recommendations. The conclusions and recommendations contained herein are professional opinions derived in accordance with current and local standards of professional practice.

The findings of this report are valid as of the present date. However, changes in the conditions of a property can occur with the passage of time, whether due to natural processes or to the works of man, on this or adjacent properties. In addition, changes in applicable building codes or appropriate standards may occur, whether they result from legislation or the broadening of knowledge. Accordingly, the findings of this report may be invalidated, wholly or in part, by changes outside of our control. Therefore, this report should not be relied upon after a period of three years, without being reviewed by Landset Engineers, Inc. from the date of issuance of this report.

This report does not address issues in the domain of the contractor such as, but not limited to, loss of volume due to stripping of the site, shrinkage of fill soils during compaction, excavatability, and construction methods. The scope of our services did not include any determination or evaluation of site geology, soil corrosion potential, environmental assessment of wetlands, radioisotopes, hydrocarbons, hazardous or toxic materials, or other chemical properties in the soil, surface water, groundwater or air, on or below or around the site.

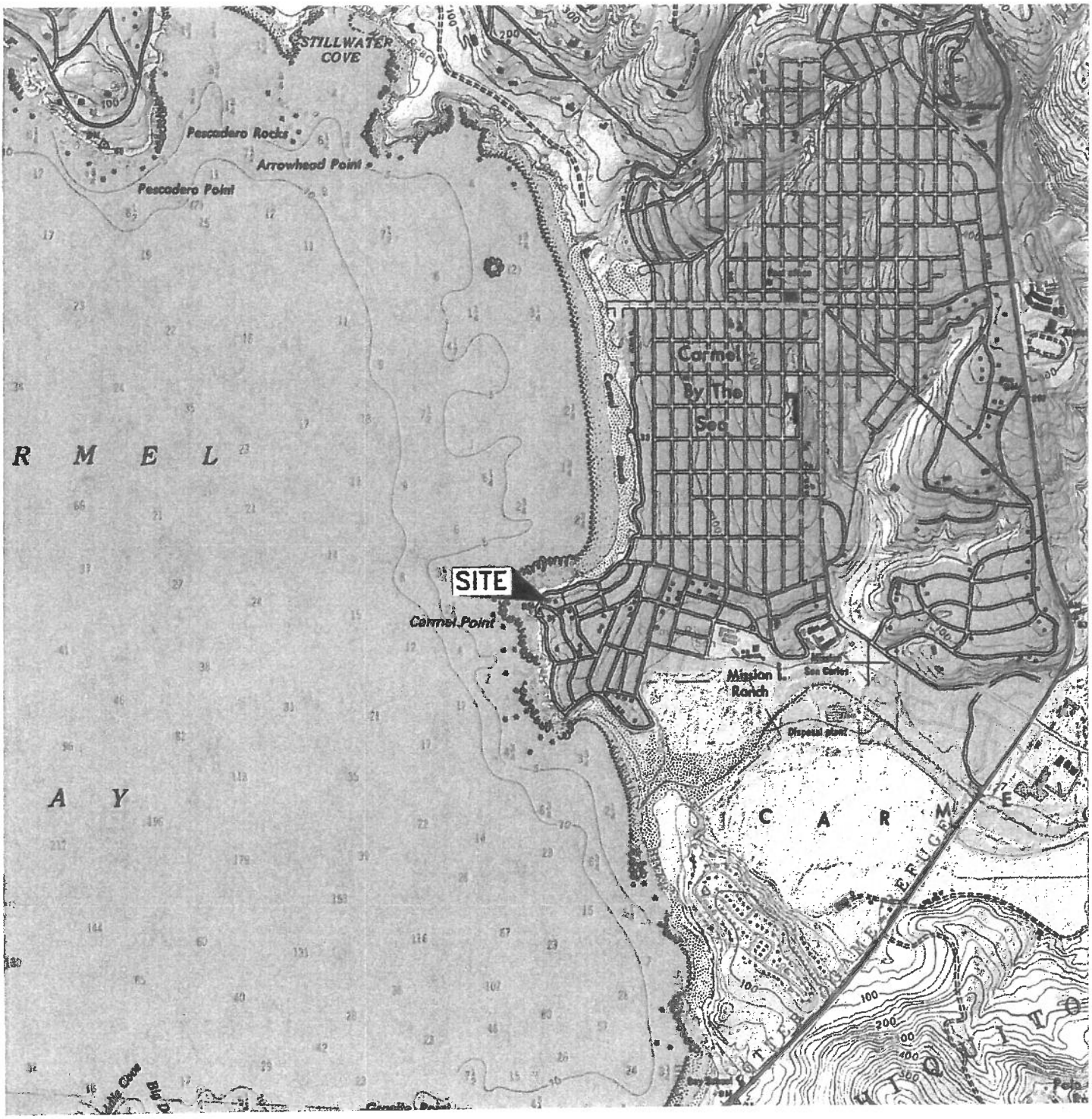
REFERENCES

Clark, J.C., Dupre, W.R., Rosenberg, L.I., 1997, Geologic map of the Monterey and Seaside quadrangles, Monterey County, California: U.S. Geological Survey Open File Report 97-30, 26 p. 2 plates scale 1:24,000.

Dupre', W.R., 1990, Maps showing geology and liquefaction susceptibility of Quaternary deposits in the Monterey, Seaside, Spreckels, and Carmel Valley quadrangles, Monterey County, California: U.S. Geological Survey Miscellaneous Field Studies Map MF-2096, 2 map sheets, scale 1:24,000.

Hart, E.W., Bryant, W.A., 1997 (revised 1999), Fault-rupture hazard zones in California: California Division of Mines and Geology Special Publication 42, 38p.

FIGURES



BASE MAP: Monterey, California
U.S.G.S. 7.5' Topographic
Quadrangle Map

Scale: 1"=2000'

N

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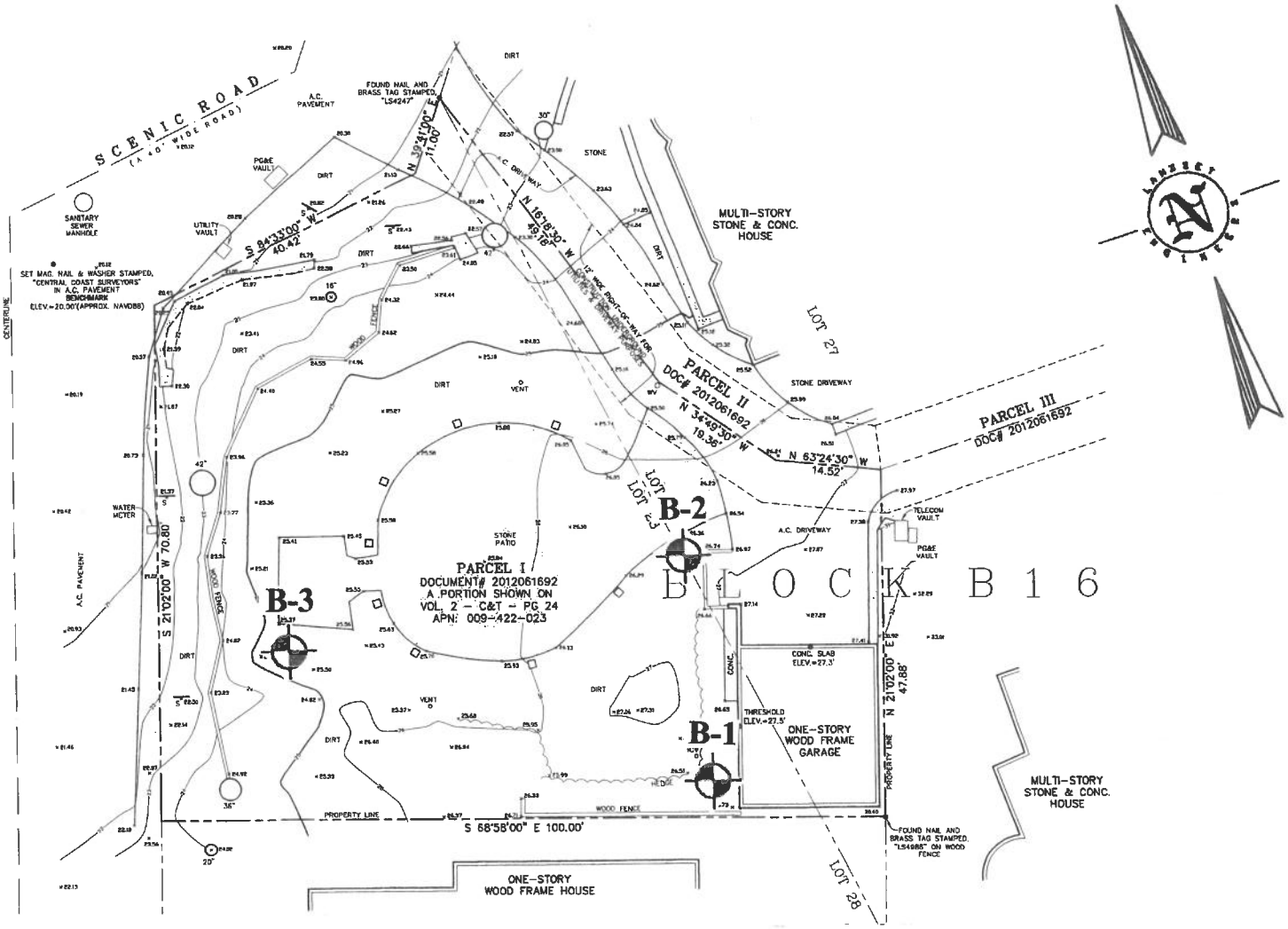
Vicinity Map

Scenic Road Residence (APN 009-422-023)
26195 Scenic Road
Monterey County, California

FIGURE 1

PROJECT 2062-01



Explanation

B-3 ⊕ **Approximate Boring Location**

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Boring Location Map

Scenic Road Residence (APN 009-422-023)
26195 Scenic Road
Monterey County, California

FIGURE 2

PROJECT 2062-01

APPENDIX A

Unified Soil Classification Systems
Key to Log of Borings
Soil Terminology
Exploratory Boring Logs B-1 through B-3

UNITED SOIL CLASSIFICATION SYSTEM

MAJOR DIVISIONS			GRAPHIC SYMBOL	LETTER SYMBOL	TYPICAL DESCRIPTIONS
COARSE GRAINED SOILS More than 50% of material is larger than No. 200 sieve size.	GRAVEL AND GRAVELLY SOILS More than 50% of coarse fraction retained on No. 4 sieve.	CLEAN GRAVELS		GW	Well-graded gravels, gravel-sand mixtures, little or no fines.
				GP	Poorly-graded gravels, gravel-sand mixtures, little or no fines.
		GRAVELS WITH FINES		GM	Silty gravel, gravel-sand-silt mixtures.
				GC	Clayey gravels, gravel-sand-clay mixture.
	SAND AND SANDY SOILS More than 50% of coarse fraction passing No. 4 sieve.	CLEAN SAND (Little or no fines)		SW	Well-graded sands, gravelly sands, little or no fines.
				SP	Poorly-graded sands, gravelly sands, little or no fines.
		CLEAN GRAVELS (Appreciable amount of fines)		SM	Silty sands, sand-silt mixtures.
				SC	Clayey sands, sand-clay mixtures.
FINE GRAINED SOILS More than 50% of material is smaller than No. 200 sieve size.	SILTS AND CLAYS	LIQUID LIMIT LESS THAN 50		ML	Inorganic silts and very fine sands, rock flour, silty or clayey fine sands, or clay silts with slight plasticity.
				CL	Inorganic clay of low to medium plasticity, gravelly clays, sandy clays, silty clays, lean clays.
				OL	Organic silts and organic silty clay of low plasticity.
		LIQUID LIMIT GREATER THAN 50		MH	Inorganic silty, micaceous or diatomaceous fine sand or silty soils.
				CH	Inorganic clays of high plasticity, fat clays.
				OH	Organic clays of medium to high plasticity, organic silts.
HIGHLY ORGANIC SOILS				PT	Peat, humus, swamp soils with high organic contents.
VARIOUS SOILS AND MAN MADE MATERIALS					Fill materials.
MAN MADE MATERIALS					Asphalt and concrete.

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FIGURE A-1

KEY TO LOG OF BORINGS

Sample	Graphic Log	Blows per Foot	Pocket Pen (tsf)	Description	U.C.S.C. Soil Group	Dry Density (pcf)	Moisture (% dry weight)
				Shelby Sampler Thin walled, 3" diameter, 3 ft long, hydraulically advanced			
				Modified California Sampler 3" diameter split-barrel sampler with brass liners driven by a 140 lb hammer with a drop of 30"			
				Standard Penetration Test (SPT) Sampler 2" diameter split-barrel sampler driven by a 140 lb hammer with a drop of 30"			
				Bulk Sample Loose soil removed for testing			
				California Sampler 2.5" diameter split-barrel sampler with brass liners driven by a 140 lb hammer with a drop of 30" Shaded area denotes sample taken			
				Hand Sampler 2.5" diameter driven by hand			
				Continuous Core Sampler 94 mm Christianson Sampler			
		75		Approximate blows per foot			
				Groundwater encountered during drilling			
				Groundwater encountered after drilling			
				Seepage			
				Solid Line denotes soil or lithologic change			
				Dashed Line denotes gradational or approximate soil or lithologic change			
				Heavy Line denotes termination of boring N/R = No sample recovered D.S. = Disturbed Sample			

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FIGURE A-2

SOIL TERMINOLOGY

SOIL TYPES (Ref. 1)

Boulders: Particles of rock that will not pass a 12 inch screen.
Cobbles: Particles of rock that will pass a 12 inch screen but not a 3 inch sieve.
Gravel: Particles of rock that will pass a 3 inch sieve, but not a No. 4 sieve.
Sand: Particles that will pass a No. 4 sieve but not a No. 200 sieve.
Silt: Soil that will pass a No. 200 sieve, that is non-plastic or very slightly plastic, and that exhibits little or no strength when dry.
Clay: Soil that will pass a No. 200 sieve, that can be made to exhibit plasticity (putty-like properties) within a range of water contents, and that exhibits considerable strength when dry.

MOISTURE AND DENSITY

Moisture Condition: An observational term; dry, slightly moist, moist, very moist, saturated.
Moisture Content: The weight of water in a sample divided by the weight of dry soil in the soil sample, expressed as a percentage.
Dry Density: The pounds of dry soil in a cubic foot of soil.

DESCRIPTIONS OF CONSISTENCY (Ref. 3)

Liquid Limit: The water content at which a No. 40 soil is on the boundary between exhibiting liquid and plastic characteristics. The consistency feels like soft butter.
Plastic Limit: The water content at which a No. 40 soil is on the boundary between exhibiting plastic and semi-solid characteristics. The consistency feels like stiff putty.
Plasticity Index: The difference between the liquid limit and the plastic limit, i.e. the range in water contents over which the soil is in a plastic state.

MEASURES OF CONSISTENCY OF COHESIVE SOILS (CLAYS) (Recs. 2 & 3)

Very soft	N=0-1*	C=0-250 psf	Squeezes between fingers
Soft	N=2-4	C=250-500 psf	Easily molded by finger pressure
Medium Stiff	N=5-8	C=500-1000 psf	Molded by strong finger pressure
Stiff	N=9-15	C=1000-2000 psf	Dented by strong finger pressure
Very Stiff	N=16-30	C=2000-4000 psf	Dented slightly by finger pressure
Hard	N>30	C>4000 psf	Dented slightly by pencil point

*N = Blows per foot in the Standard Penetration Test. In cohesive soils. with the 3" diameter sampler, 140 pound weight, divide the blow count by 1.2 to get N (Ref. 4).

MEASURES OF RELATIVE DENSITY OF GRANULAR SOILS (GRAVELS, SANDS AND SILTS) (Ref's. 2 & 3)

Very Loose	N=0-4**	RD=0-30	Easily push a 1/2" reinforcing rod by hand
Loose	N=5-10	RD=30-50	Push a 1/2" reinforcing rod by hand
Medium Dense	N=11-30	RD=50-70	Easily drive a 1/2" reinforcing rod
Dense	N=31-50	RD=70-90	Drive a 1/2" reinforcing rod
Very Dense	N>50	RD=90-100	Drive a 1/2" reinforcing rod a few inches

**N= Blows per foot in the Standard Penetration Test. In granular soils. with the 3" diameter sampler, 140 pound weight, divide the blow count by 2 to get N (Ref. 4). RD = Relative Density

Ref. 1: ASTM Designation: D 2487-93, Standard Classification of Soils for Engineering Purposes (Unified Soils Classification System).
Ref. 2: Terzaghi, Karl, and Peck, Ralph B., Soil Mechanics in Engineering Practice, John Wiley & Sons, New York, 2nd Ed., 1967, pp. 30, 341, 347.
Ref. 3: Sowers, George F., Introductory Soil Mechanics and Foundations: Geotechnical Engineering. Macmillan Publishing Company, New York, 4th Ed., 1979. pp. 80, 81 and 312.
Ref. 4: Lowe, John III, and Zaccheo, Phillip F., Subsurface Explorations and Sampling Chapter 1 in "Foundation Engineering Handbook," Hsai.Yang Fang, Editor, Van Nostrand Reinhold Company, New York, 2nd Ed., 1991. p. 39.

EXPLORATORY BORING LOG — No. B-1

PROJECT: Scenic Road Residence	DATE DRILLED: 02-18-20	PROJECT: 2062-01
DRILLER: California Geotech	DRILLING METHOD: Big Beaver	LOGGED BY: BP
BORING DIAMETER: 4" SS	BORING DEPTH: 3.0'	GROUNDWATER DEPTH: N/A

Depth (ft)	Sample	Graphic Log	Blows per Foot	Pocket Pen (tsf)	Description	U.C.S.C. Soil Group	Dry Density (pcf)	Moisture (% dry weight)
0								
1					Dark brown silty SAND, loose, moist, very fine to fine grained	SM		
2	1-1			1.00	Granite: very dense, weathered		104.6	5.9
	1-2		82	4.50			133.8	4.9
3	1-3	SPT	50/1		Fresh			3.7
4					TD @ 3.0'			
5					DRILL RIG REFUSAL			
6					NO GROUNDWATER ENCOUNTERED			
7								
8								
9								
10								
11								
12								
13								
14								
15								
16								
17								
18								
19								
20								
21								
22								
23								
24								
25								
26								

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FIGURE A-4

EXPLORATORY BORING LOG — No. B-2

PROJECT: Scenic Road Residence	DATE DRILLED: 02-18-20	PROJECT: 2062-01
DRILLER: California Geotech	DRILLING METHOD: Big Beaver	LOGGED BY: BP
BORING DIAMETER: 4" SS	BORING DEPTH: 9.5'	GROUNDWATER DEPTH: N/A

Depth (ft)	Sample	Graphic Log	Blows per Foot	Pocket Pen (tsf)	Description	U.C.S.C. Soil Group	Dry Density (pcf)	Moisture (% dry weight)
0								
1					Dark brown silty SAND, loose, moist, very fine to fine grained, 20-30% fines			
2	2-1			0.25		SM	111.0	8.9
3	2-2		11	1.25	Trace gravel		108.0	9.6
4	2-3				Granite: very dense, moderately weathered			4.1
	2-4		73	4.50			120.7	5.7
5								
6	2-5							
7			60					7.9
8								
9					Slightly weathered			
	2-6		95/8	1.00				7.1
10					TD @ 9.5'			
11					DRILL RIG REFUSAL			
12					NO GROUNDWATER ENCOUNTERED			
13								
14								
15								
16								
17								
18								
19								
20								
21								
22								
23								
24								
25								
26								

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FIGURE A-5

EXPLORATORY BORING LOG

No. B-3

PROJECT: Scenic Road Residence	DATE DRILLED: 02-18-20	PROJECT: 2062-01
DRILLER: California Geotech	DRILLING METHOD: Big Beaver	LOGGED BY: BP
BORING DIAMETER: 4" SS	BORING DEPTH: 9.5'	GROUNDWATER DEPTH: N/A

Depth (ft)	Sample	Graphic Log	Blows per Foot	Pocket Pen (tsf)	Description	U.C.S.C. Soil Group	Dry Density (pcf)	Moisture (% dry weight)
0								
1					Dark brown silty SAND, loose, moist, very fine to fine grained, 20-30% fines			
2	3-1							6.7
3	3-2		21	1.75	Medium dense, common gravel	SM	101.9	6.1
4	3-3			3.75			99.7	6.7
5	3-4		42	4.50	Granite: medium dense, very weathered		110.2	6.0
6	3-5							
7			26		Dense			6.3
8								
9								
10	3-6		50/5		Very dense, slightly weathered			4.1
11					TD @ 9.5'			
12					DRILL RIG REFUSAL			
13					NO GROUNDWATER ENCOUNTERED			
14								
15								
16								
17								
18								
19								
20								
21								
22								
23								
24								
25								
26								

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FIGURE A-6

APPENDIX B

Laboratory Test Results

Table B-1
Summary of Laboratory Test Results

Sample No.	Depth (ft.)	Dry Density (pcf)	Water Content (%)	Pocket Pen. (tsf)
1-1	1.0-1.5	104.6	5.9	1.00
1-2	1.5-2.0	133.8	4.9	4.50
1-3	3.0	- -	3.7	- -
2-1	1.5-2.0	111.0	8.9	0.25
2-2	2.0-2.5	108.0	9.6	1.25
2-3	3.0-3.5	- -	4.1	- -
2-4	3.5-4.0	120.7	5.7	4.50
2-5	5.0-6.5	- -	7.9	- -
2-6	9.0-9.5	- -	7.1	- -
3-1	1.5-2.0	- -	6.7	- -
3-2	2.0-2.5	101.9	6.1	1.75
3-3	3.5-4.0	99.7	6.7	3.75
3-4	4.0-4.5	110.2	6.0	4.50
3-5	5.0-6.5	- -	6.3	- -
3-6	9.0-9.5	- -	4.1	- -