

Exhibit F

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GEOLOGIC EVALUATION OF COASTAL BLUFF EROSION
at 62 YANKEE POINT DRIVE
CARMEL, CALIFORNIA

May, 2024

Prepared for

Gabriel Yeung c/o Studio Schicketanz

Prepared by

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File No. G-907.1

May 5, 2024

Gabriel Yeung
c/o Studio Schicketanz
P.O. Box 2704
Carmel By-The-Sea, CA 93921

Attention: Tai Tang, Project Architect

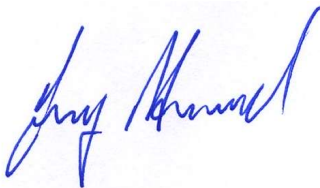
Project: **Proposed Studio, New Detached Garage, New Bathroom Addition by Enclosing an Existing Patio, New Solar Array and Improvements**
62 Yankee Point Drive
Carmel By-The-Sea
Monterey County, California

Subject: **Geologic Evaluation of Coastal Bluff Erosion**

Dear Mr. Tang:

As you requested, presented herein is our geologic evaluation of coastal bluff erosion at the property located at 62 Yankee Point Drive, Carmel, Monterey County, California. This evaluation describes and evaluates the site geologic characteristics relevant to the coastal bluff at the property and its potential impact on the proposed project. This report also provides recommendations for helping to minimize the impacts of drainage on the coastal bluff, where applicable. A digital copy of this report has been provided to you for your records and one copy has been provided to Soil Survey's Group, Inc. This concludes our work for the current phase of the project.

We appreciate the opportunity to have provided geologic services for this project and look forward to working with you again in the future. If there are questions concerning this report, please contact me at your earliest convenience. Sincerely,



Craig S. Harwood



California Licensed Professional Geologist #6831
California Certified Engineering Geologist #2275

Distribution: Client (1), Soil Surveys Group Inc. (1)

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- Site Development Map
- Site Geologic Map
- Geologic Cross Section A-A'

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1.0 INTRODUCTION/PURPOSE/SCOPE OF SERVICES

Based upon our discussions with Tai Tang, Project Architect and our review of the project plans by Studio Schicketanz, (dated May 2, 2022), we understand that the site will receive several improvements including; a new exterior door on the main residence, a new detached garage, a new detached studio, and a new bathroom addition by enclosing an existing patio, minor grading and other exterior yard improvements. Minor grading is anticipated in order to achieve the design grades for the garage, and studio pad areas. The Development Map (Appendix shows these proposed features with respect to the location of the existing home). The County of Monterey Planning Department has indicated that a coastal bluff erosion evaluation is required for the approval process for the project. According to the Big Sur Coast Land Use Plan, "Any proposed development within 50 feet of the face of a cliff or bluff or within the area of a 20-degree angle from the toe of a cliff, whichever is greater, shall require the preparation of a geologic report prior to consideration of the proposed project. The report shall demonstrate that (a) the area is stable for development; and (b) the development will not create a geologic hazard or diminish the stability of the area."

Accordingly, this geologic evaluation has been prepared to: characterize and evaluate the geologic conditions at the site, to provide an evaluation of the erosion process and rates along the bluff crest and its potential impact of the proposed new structures and improvements. The scope of work included; review of available published geologic maps, a review of stereo aerial photo pairs and LiDAR imagery covering the site area, geologic reconnaissance of the site, review of subsurface data collected at the site by others, and preparation of this report.

2.0 SITE SETTING

The project site is located within the Yankee Point coastal area, approximately 4 miles south of Carmel, Monterey County, California (see Site Location Map). The site is located on the west side of Yankee Point Drive and is accessed by a gravel driveway which extends directly into the property from the east property line. The site contains an existing residence, a small detached guest house, a detached garage, and miscellaneous landscaping, wood fences and decks, all of which were constructed some decades ago beginning in the late 1960's. As the residence was built in 1968 (Calif. Dept. of Parks and Rec, 2021) there are geotechnical or geologic reports available for the establishment of the original residence. The site occupies a very gently inclined (westerly dipping) marine terrace surface and is bordered on the west by a nearly vertical coastal bluff. A small marine "pocket cove" exists at the base of the cliff. The overall topographic relief between the bluff crest and the base (at 4 feet MSL) is about 58 feet. The Site Geologic Map (Appendix A) shows some of these described features.

Drainage patterns at the site are a function of the physiography. Surface runoff flows generally toward the west and southwest. The roof downspouts deliver runoff into solid pipes. It is unclear where these drainage pipes deliver their water but at least a few pipes appear to deliver runoff to the near vertical bluff face on the west of the residence (see Recommendations). This bluff has experienced minor erosion sloughing on the slope face over time (see Coastal Bluff Erosion).

3.0 GEOLOGY

Local Geology and Geologic Reconnaissance

Published maps covering the regional geology in the general vicinity of the site include those by; Dibblee (1999), Wills et al., (2001), the Dibblee Foundation (2007), and Rosenberg and Wills (2016). These regional maps are based upon aerial photo interpretation, reconnaissance style mapping and field checking at sparsely distributed locations in the area and do not include site-specific data. These published maps are generally useful in placing the site geology into the larger regional context. Additional publications reviewed for this study are discussed in

later sections of this report under the appropriate subject headings. All the maps reviewed indicate the site is located on an elevated marine terrace which is underlain by coastal terrace deposits of Pleistocene age (“Qydf”). The terrace deposits are located on a stable granitic bedrock platform which is underlain by crystalline plutonic rock (granodiorite, mapping symbol "Kpgd") [Dibblee (1999 and 2007), and Wills et al., (2001)]. Refer to the Regional Geologic Map (Appendix A).

A geologic reconnaissance of the site was performed on April 19, 2024 for the purpose of observing features depicted on published maps, making field observations and recording data at natural and man-made exposures. The geologic materials encountered during our site reconnaissance include residual soil/colluvium, Coastal Terrace Deposits “Qydf” and granitic bedrock “Kpgd.” This Marine terrace surface has formed in an earlier period of wetter climate through the process of overlapping, small scale alluvial fan deposition and localized fluvial reworking and deposition during the Pleistocene Epoch as the land surface uplifted in response to tectonic forces in the coastal region. These terrace forming depositional processes are no longer active in the current geologic epoch (Holocene). The terrace surface is dissected by creeks which have cut channels into the marine terrace over time. The granitic bedrock occurs as a very extensive basement complex through this region of the Santa Lucia Range and adjacent coastal zone. Here the bedrock is well indurated, jointed and massive in structure and is generally highly resistant to erosion.

Marine Terrace deposits are exposed within the steep bluff at the west edge of the site and are generally semi-consolidated due to their age. These deposits consist of silty sand, well graded sand, and clayey sand and contain crudely stratified layers or horizons of sparse gravel and cobbles of granitic bedrock. Residual soil occurs across the ground surface at the site. These terrace deposits tend to form very steep to nearly vertical slopes which, if not exposed to surface runoff or subsurface springing, can maintain stable oversteepened geometries over extended periods of time.

Granodiorite bedrock is exposed extensively throughout the cove at the west property line where it forms a platform which extends about 30 feet up from the high tide line near the base of the bluff in the cove. The bedrock is overlain by a 28 to 35 foot thick layer of terrace deposits, with the terrace deposits becoming thicker toward the east. Where exposed the bedrock is typically of a hard condition (competent) but contains northerly trending, steeply inclined joint sets with medium to close spacing. The orientation of these through-going joint sets is generally favorable in terms of bluff stability. The bedrock is moderately-severely weathered. Surf action over thousands of years has produced a series of westerly and northwesterly trending, small alcoves along the granitic cliff face. The bedrock has spalled along these joint sets due to this surf action and these alcoves most likely took thousands of years to form. There is an extensive, northwesterly trending granitic outcrop extending out into the ocean directly in front of the pocket cove and bluff that borders the west property line (see Photo Plate 1). This outcrop provides a barrier between the bluff face and the more energetic waves coming from the southwest and west. In fact, waves that extend into the small pocket cove receive waves that “feel bottom” and curve around the resistant outcrop or occasional waves that come from the northwest (see Photo Plate 2).

The attached Site Geologic Map and Geologic Cross Section shows these geologic features and inferred geologic relationships.

Recent Geotechnical Investigation (Soil Surveys Group, Inc., 2022)

Soil Surveys Group, Inc. (“SSG”) conducted a geotechnical investigation of the site which included the drilling, logging and sampling within an exploratory boring located within the property (the location is shown on see Site Geologic Map). The boring extended to a maximum depth of 31.5 feet below the terrace ground surface within in

the eastern portion of the property. The base of the exploratory boring is equivalent to an elevation of approximately 42.5 MSL). Their borings encountered fluvial marine terrace deposits (Qydf) which consisted of alternating layers and of sands containing proportions of silt and clay. Field blow counts obtained within the subsurface profile indicate the sands are in a medium dense condition to a depth of about 23 feet. Below the depth of 23 feet the sands were found to be in a very dense condition. Their boring encountered a layer of stiff to very stiff clay between the depth of 20.5 feet and 23 feet. This clay is not exposed in the bluff face and may be discontinuous in nature. Their boring logs do not identify the geologic units encountered however their description of the subsurface materials and the pattern of uncorrected field blow-counts obtained in the subsurface indicate their boring was confined to the fluvial terrace deposits. The deeper portion of the terrace deposits are exposed at the bluff face in a nearly vertical exposure overlying the bedrock. The terrace deposits here appear to be in a very dense condition and may represent the westward extension or projection of the deeper terrace deposits encountered at the boring location. The area is not known for having a laterally continuous groundwater table, however SSG encountered groundwater at a depth of 19 feet within their boring. We infer that this groundwater condition is localized, and perched above the very stiff clay encountered within the subsurface at a depth of 20.5 feet. In general, groundwater conditions and fluctuations in the level of subsurface water are possible due to variations in rainfall, temperature, irrigation and well withdrawal patterns and other factors.

A copy of the graphic log of the SSG boring is included in Appendix B of this report, and the location of the boring is shown on the Site Geologic Map (Appendix A).

Coastal Bluff Erosion/ Sea Level Rise

Our review of some of the published maps covering the area indicates that no landslides have been mapped at the site; Wills et al. (2001), Rosenberg and Wills (2016), and the California Geological Survey deep-seated landslide susceptibility mapping program (2016). Our review of LiDAR ("Light Detection and Range) technology covering the area did not reveal any geomorphic evidence suggestive of large scale or moderate scale landsliding along the bluff. The site is within an area designated as having a high rate of erosion, however these interpretive classifications do not account for local conditions (Monterey Co., Geologic Hazards GIS Web portal). Our reconnaissance revealed the upper several feet of the terrace deposits at the bluff are steep (inclined 2H:1V) to vertical in the lower portion of the bluff. There is evidence of minor sloughing within the upper several feet of the terrace deposits along the bluff face. The base of the terrace deposits are roughly 30 feet above the high tide level and above the reach of wave runup impact largely due to the presence of the bedrock ledges which provide a buffer from wave energy originating on the open coastal waters to the west. Photo Plate in Appendix A shows these relationships and patterns. The nearly vertical, underlying bedrock platform is well indurated (hard), resistant and stable. It is our opinion that the past coastal bluff erosion at the site is largely due to surface runoff over the bluff crest and seepage acting within the marine terrace deposits that are in the upper portion of the bluff face, as opposed to surf action at the base of the bluff.

In 2009 the first systematic regional evaluations of coastal erosion hazards for the majority of the California Coast study was conducted by Williams and Associates ("PWA," 2009). They developed a set of GIS data layers that represent a first order evaluation of the shoreline areas susceptible to climate change impacts associated with different scenarios of sea level rise, changing wave climate and wave run-up. Significantly, included in their data set was topographic information extracted from the 1998 post El Niño LIDAR flight. Their study suggests global climate change may result in a potential high sea level change of 1.4 meters (4.6 feet) by year 2100. They estimate the cliff-backed shoreline segments within portions of the central California coast will erode an average of 36 meters and a maximum of 130 meters (118 feet and 426.4 feet, respectively) over the study period of 2009 through 2100. Their study does not take into account local geologic conditions or the potential mitigating factors involved in this complex process such as a sediment budget (i.e. littoral drift) or the armoring effects of structures at the

base of bluffs.

In the immediate area of the site, large outcrops (ledges and “haystack rocks”) of granitic bedrock form a partial barrier to surf action along the oceanside of the small pocket cove located in front of the bluff face. This bedrock barrier tends to dissipate the energy of incoming waves, which must wrap around the outcrop in order to enter the small cove. In storm surge the waves crash over the bedrock platform which also dissipates some of the wave energy. Because of these localized conditions, it is our opinion that the estimates of coastal erosion quoted above (“PWA,” 2009) are unrealistic for the immediate area of the subject site. A site-specific evaluation is relevant and instructive in this scenario. Available historic aerial photos extending over a period between 1929 and 2023 were reviewed as part of our work. Although these photos are of a resolution that makes precise determinations difficult, we note that pre-development photos (1929 through mid 1960’s) and post development photos (post late 1960’s) suggest a bluff retreat of approximately 3 to 4 feet at the bluff face over the period covered by the photos (94 years). This suggests an erosion rate of between 3 feet per hundred years to 4 feet per hundred years. Although sea level rise would be expected to increase the wave runup at the coast, we note the large barrier outcrops, and the height and resistant nature of the bedrock platform underlying the bluff is such that the wave runup would not be expected to increase the risk of coastal erosion at the site during the design life of improvements (typically 50 years).

Our estimated rate of bluff erosion for the design life of improvements is approximately 1.5 feet to 2 feet. The proposed improvements are located well beyond (east of) an estimated new (eroded) bluff crest location. The terrace deposits along the top of the terrace will not see an increase in soil loss due to the projected rise in sea level.

It should be noted that uncontrolled runoff deposited into the terrace deposits along and near the bluff crest can degrade the bluff and increase the rate of erosion beyond the background rate already quoted above (see Recommendations).

4.0 CONCLUSIONS AND RECOMMENDATIONS

General

Changes to the natural conditions at or adjacent to the site can directly affect the risk levels from coastal bluff erosion for the proposed improvements. For example, grading activities (cutting or filling), altering natural drainage characteristics, uncontrolled surface runoff, removing vegetative ground cover or excessive landscape irrigation activity can upset the natural equilibrium of forces and conditions present in a slope therefore, increasing the risk of bluff erosion at a site. Conclusions are drawn considering the current site conditions.

Bluff Erosion

Based on the information obtained during this geologic evaluation, we judge that the presence of highly resistant granitic bedrock outcrops extending out into the cove and underlying the bluff provides ample protection from wave energy. The past erosion of the bluff over the period 1929 – 2023 has been largely restricted to the sediments which comprise the marine terrace deposits overlying the bedrock. Our estimated rate of erosion for the next 50 years (the typical design life of improvements) is approximately 1.5 feet to 2 feet. The terrace deposits along the top of the terrace are unlikely to experience an increase in soil loss due to the projected rise in sea level, however uncontrolled surface runoff and introduction of subsurface water can degrade the marine terrace deposit at the bluff face (see below) and increase the erosion rates significantly.

It is our opinion that: A) the site is stable for the proposed development; and, B) the development will not create a geologic hazard or diminish the stability of the area.

Drainage and Slope Protection

In general, all existing and proposed drainage facilities should be designed to collect, direct and discharge runoff to appropriate discharge points located well beyond the coastal bluff face in a non-erosive manner. We recommend that the existing drainage system be inspected to assure that runoff is not being delivered at or near the bluff face or crest. Drainage should be collected and deposited at the base of the bluff, or alternatively at existing drainage facilities at the road at the east property line. Alternatively, runoff could be delivered to dissipator trenches located near the east property line. Slopes disturbed as a result of development activities should be provided slope protection and revegetated prior to the rainy season to help reduce the effects of erosion. Guidelines and recommendations for accomplishing these aspects of site development are presented in the geotechnical engineering investigation report for the project.

5.0 LIMITATIONS

1. The conclusions of this report are intended to apply only to the development concept (the proposed improvements) that is currently being proposed. The conclusions of this report are based upon the assumption that the site geologic and soil conditions do not deviate substantially from those disclosed in the research and our observations of a limited number of natural exposures at and immediately adjacent to the site. If any new grading or construction is planned at the site, we should be notified so that reevaluation of the conditions and supplemental recommendations can be given. In the event that we are not notified of such changes, the conclusions and recommendations presented in this report would be invalidated.
2. This report is issued with the understanding that it is the responsibility of the owner or the owner's representative to ensure that the information presented herein is called to the attention of the project architect and engineer.
3. The findings of this report are valid as of the present date. Changes in the conditions of a property can occur with the passage of time. 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 of the control of the consulting geologist and geotechnical engineer. Therefore, this report should not be relied upon after a period of one year without being reviewed by a qualified engineering geologist.
4. No warranty is intended, and none shall be inferred from the statements or opinions expressed.

End of Text

REFERENCES

- California Geological Survey, (Updated January 26, 2016), Landslide Inventory and Deep-Seated Landslide Susceptibility Interactive Mapping (Beta version) <http://maps.conservation.ca.gov/cgs/lsi/>.
- Dibblee Geological Foundation, 1999, Geologic Map of the Monterey Peninsula and Vicinity, Monterey, Salinas, Pt. Sur, Jamesburg 15-minute Quadrangles, Dibblee Geological Foundation Map #DF-71, 1:62,500 scale.
- Rosenberg, L.I., 2001, Geologic Resources and Constraints Monterey County, California: A Technical Report for the Monterey County 21st century General Plan Update, 167 p., 10 sheets
- Rosenberg, L.I., and Wills, C.J., 2016, Preliminary geologic map of the Point Sur 30' x 60' quadrangle, California: California Geological Survey, Preliminary Geologic Maps PGM-16-06, scale 1:100,000.
- Soil Surveys Group, Inc., 2023, Geotechnical Investigation for the Proposed Studio, Garage, and Solar Array to be located at 62 Yankee Point, APN 243-152-005, Carmel, California, their job no. #7978, ated February 3, 2022.
- Studio Schicketanz, plan set, Yeung Residence, 62 Yankee Point Drive, Carmel-by-the-sea, California, dated May 10, 2022.
- Wills, C.J., Manson, M.W., Brown, K.D., Davenport C.W., and Domrose, C.J., 2001, Special Report 185 - Landslides in the Highway 1 Corridor: Geology and Slope Stability along the Big Sur Coast between Point Lobos and San Carpoforo Creek, Monterey and San Luis Obispo Counties, California: Prepared for the Coast Highway Management Plan, in cooperation with California Department of Transportation, New technology and Research program, Office of Infrastructure Research, Project F99TL34, Maps revised June 1, 2005.
- Phillip Williams & Associates, 1999, California Coastal Erosion Response to Sea Level Rise Analysis and Mapping, Final Draft dated March 11, their project no. 1939.00.
- Wills, C.J., Manson, M.W., Brown, K.D., Davenport C.W., and Domrose, C.J., 2003, Map 1 of 14, Highway Corridor Landslide Map, Geology and Slope Stability along the Big Sur Coast between Point Lobos and San Carpoforo Creek, Monterey and San Luis Obispo Counties, California: Prepared for the Coast Highway Management Plan, in cooperation with California Department of Transportation, New technology and Research program, Office of Infrastructure Research, Project F99TL34, Maps revised June 1, 2005.
- Wills, C.J., Manson, M.W., Brown, K.D., Davenport C.W., and Domrose, C.J., 2003, Map 1 of 14, Highway Corridor Geologic Map, Geology and Slope Stability along the Big Sur Coast between Point Lobos and San Carpoforo Creek, Monterey and San Luis Obispo Counties, California: Prepared for the Coast Highway Management Plan, in cooperation with California Department of Transportation, New technology and Research program, Office of Infrastructure Research, Project F99TL34, Maps revised June 1, 2005.

AERIAL PHOTOGRAPHS REVIEWED

<u>Date</u>	<u>Scale</u>	<u>Type</u>	<u>Source</u>	<u>Flight I.D./Frames</u>
8/24/1956	1:20,000	B&W	Aero Service Corp	ABG-4R-145, 146
5/15/1970	1:12,000	B&W	Calif Dept Fish and Game	76-471-170, 171
10/5/1976	1:12,000	Color	Calif Dept Fish and Game	DNOD-AFU-C-36, 37
9/28/1986	1:12,000	Color	Air Flight Service	CDBW-APU-C-81

APPENDIX A

Site Location Map

Regional Geologic Map

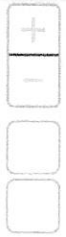
Photo Plate

Site Development Map

Site Geologic Map

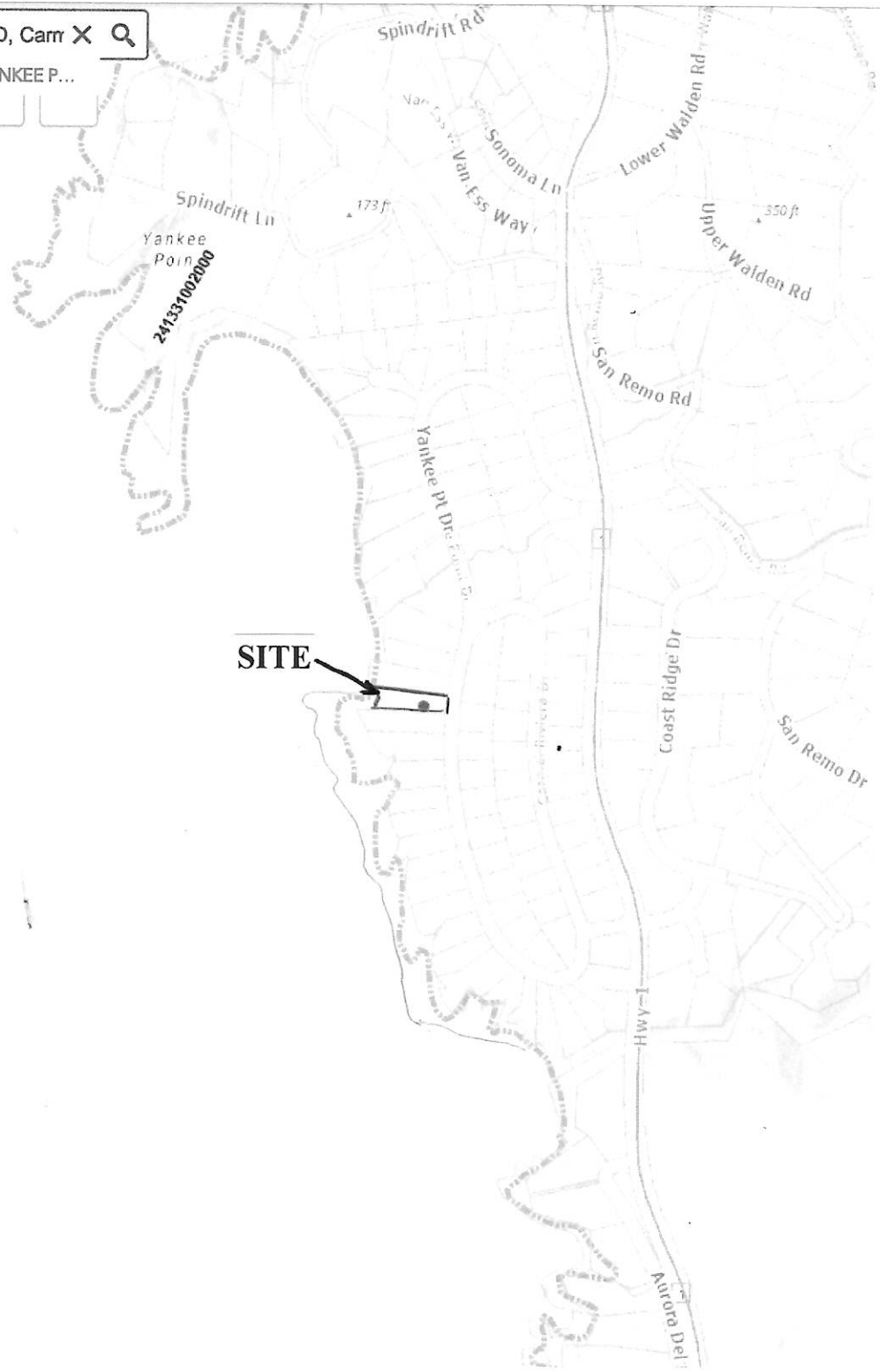
Geologic Cross Section A-A'

Site Location Map



62 YANKEE POINT ROAD, Carr X

Show search results for 62 YANKEE P...

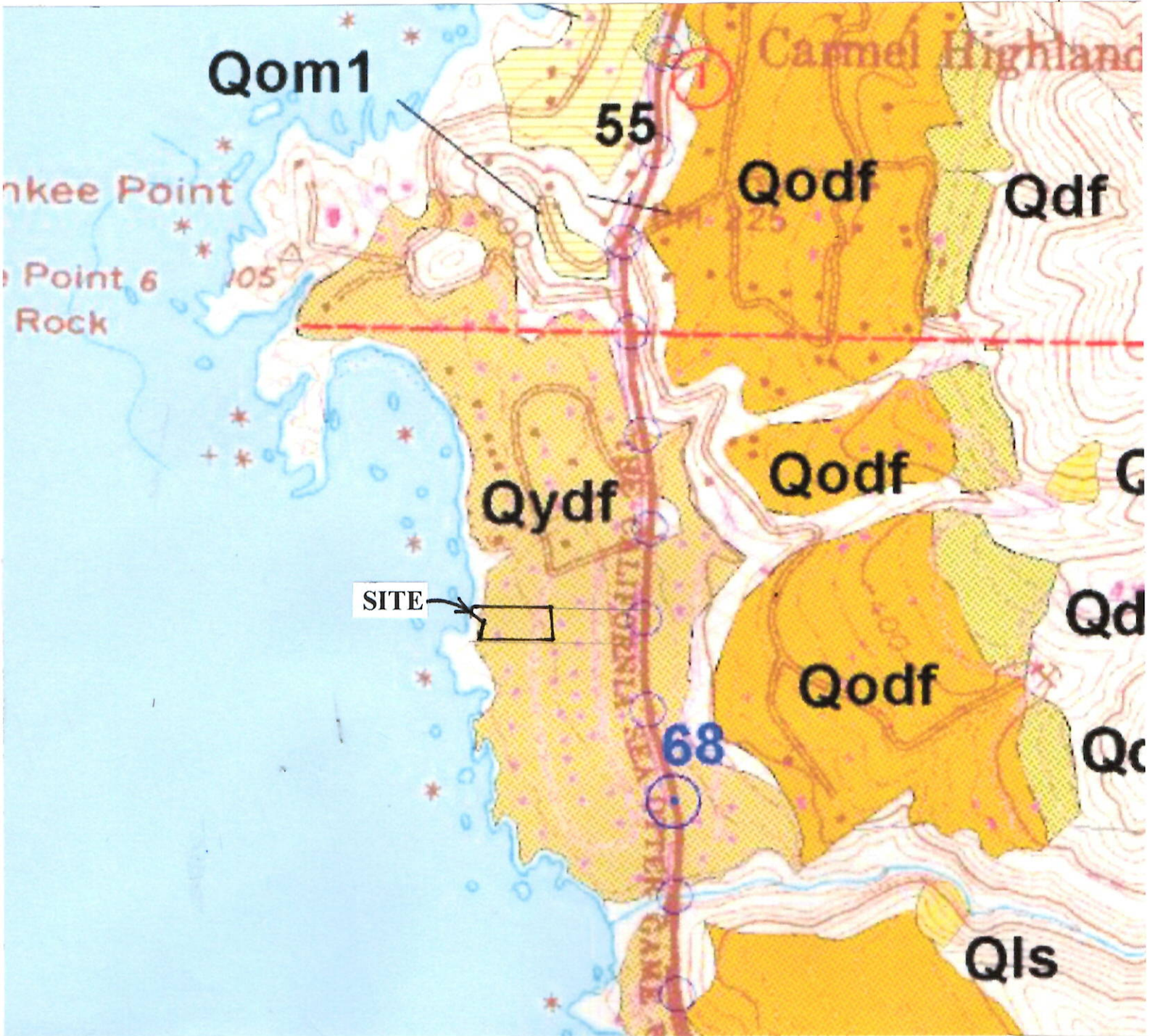


Proj. No. G-907.1

Craig S. Harwood
Engineering Geologist

Proposed Improvements for Yeung Residence
62 Yankee Point Road
Carmel, California

Regional Geologic Map



Proj. No. G-907.1

Not to scale

Date: May, 2024

Source: Wills et al., 2003

Explanation

Geologic units

Qdf	Recent debris fan deposits
Qom1	Marine Terrace deposits
Qydf	Younger debris fan deposits
Qodf	Older debris fan deposits
Kpgd	Cretaceous granodiorite

Craig S. Harwood
Engineering Geologist

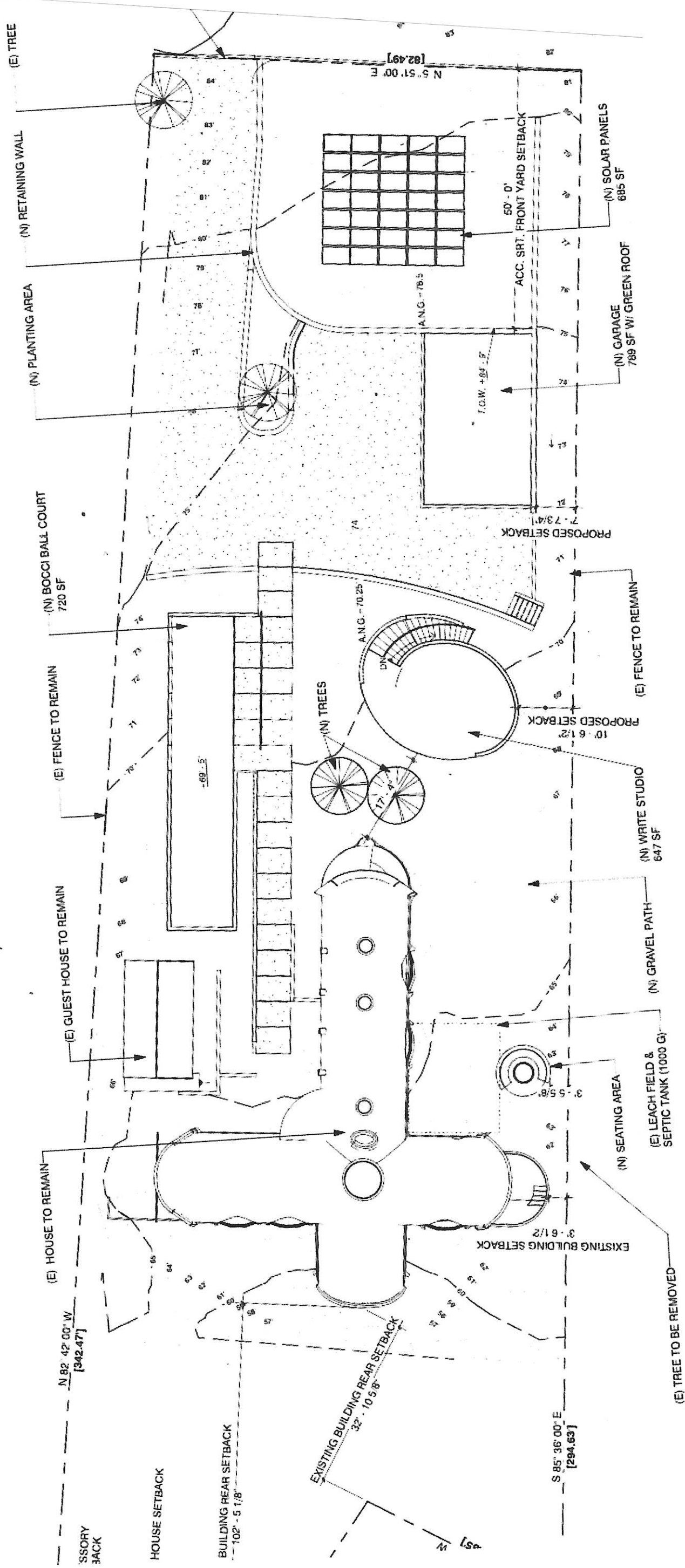
Proposed Improvements for Yeung Residence
62 Yankee Point Road
Carmel, California

Photo Plate 2



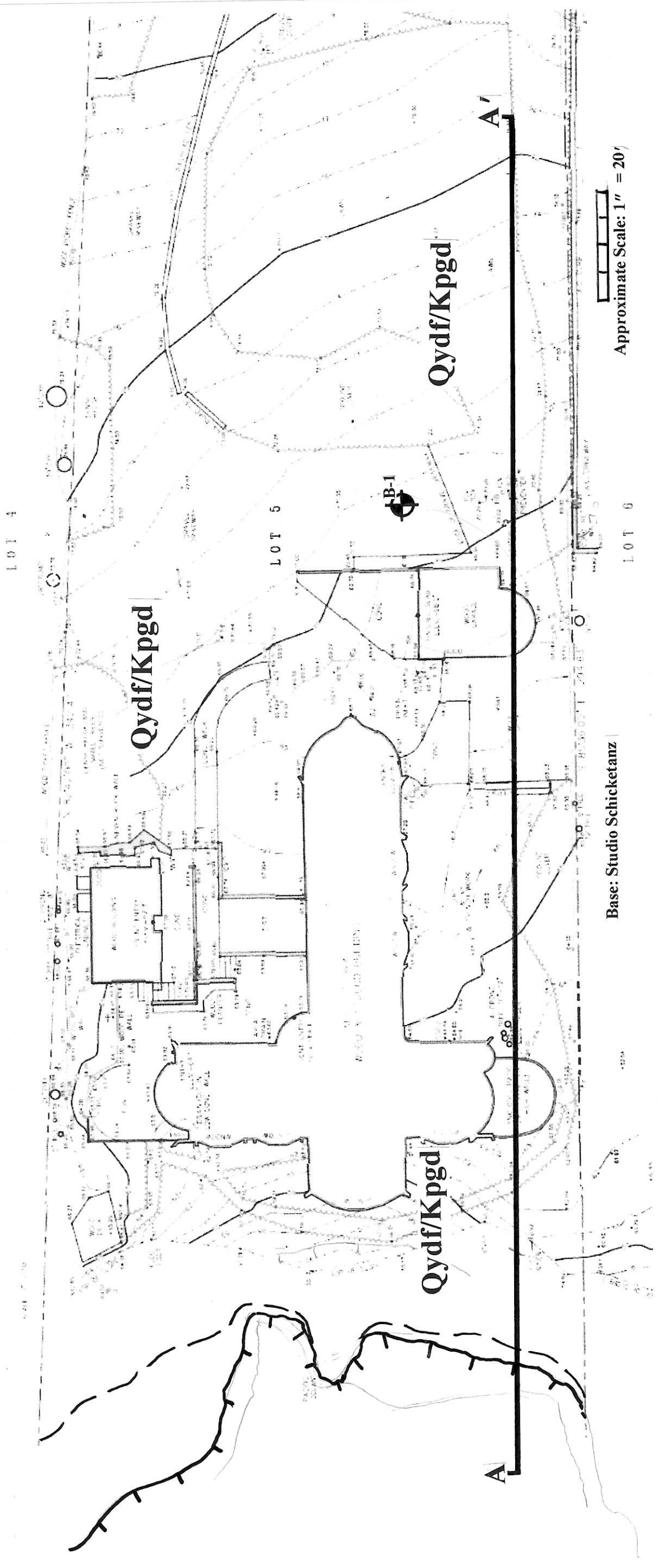
Aerial imagery (2023) showing the pattern of prevailing wind driven surf (toward the east and northeast) and large bedrock outcrops which provide a buffer between the waves and the bluff. Surf within the alcove is largely from reflection of waves off of nearby outcrops. Source: Google Earth

Proposed Development Map



Approximate Scale: 1" = 20'





Site Geologic Map



Base: Studio Schicketanz

Approximate Scale: 1" = 20'

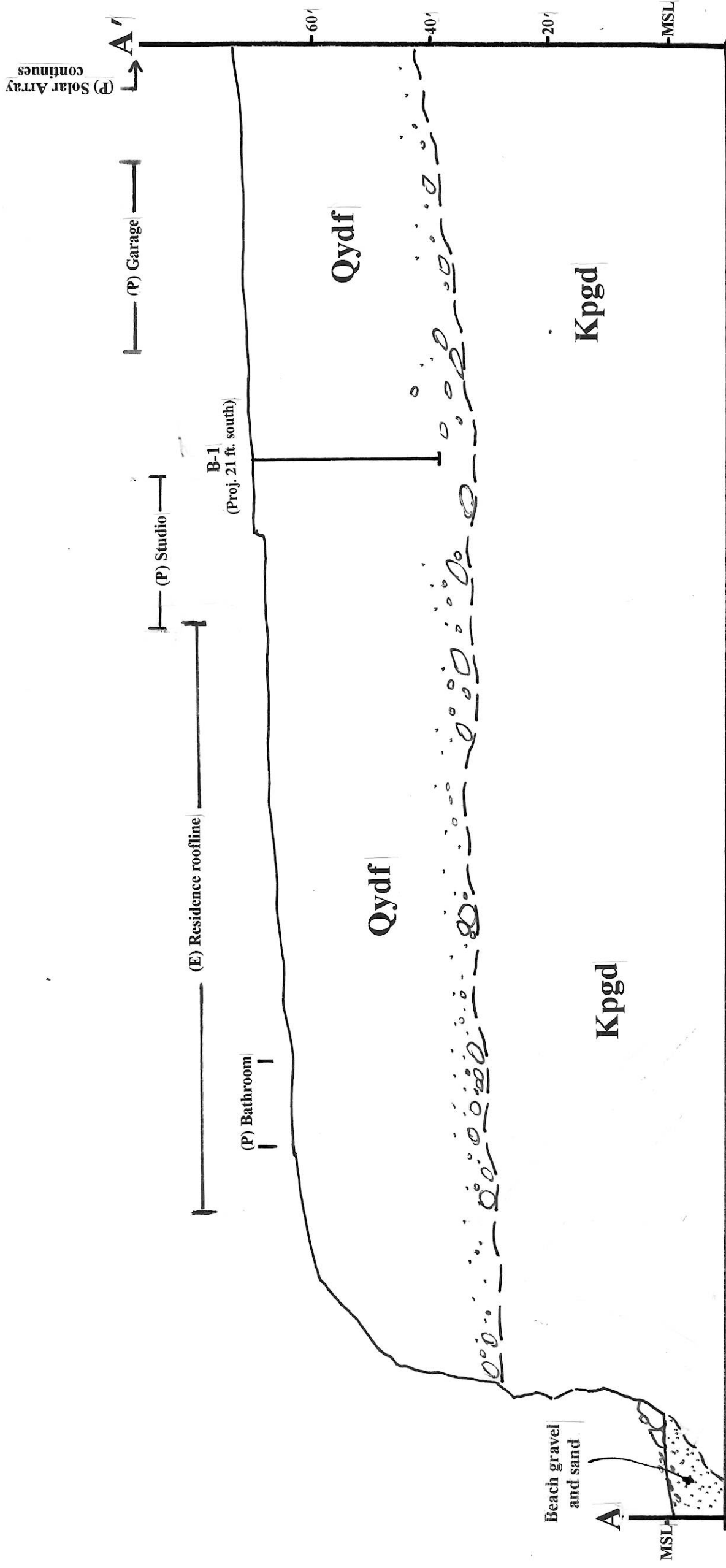
Map Explanation*

-  Exploratory boring location (Soil Surveys Inc., 2022)
-  Geologic Cross Section
-  Coastal Terrace deposits: Alluvial fan/Fluvial deposits (Pleistocene)
-  Granodiorite (Cretaceous)

* only select units described

Proposed Improvements for Yeung Residence
62 Yankee Point Road
Carmel, California

Geologic Cross Section A-A'



Approximate Scale: 1" = 20'

APPENDIX B

Log of Exploratory Boring (Soil Surveys Group, Inc., 2022)

PRIMARY DIVISIONS			GROUP SYMBOL	SECONDARY DIVISIONS
COARSE GRAINED SOILS MORE THAN HALF OF MATERIAL IS LARGER THAN NO. 200 SIEVE SIZE	GRAVELS MORE THAN HALF OF COARSE FRACTION IS LARGER THAN NO. 4 SIEVE	CLEAN GRAVELS (LESS THAN 5% FINES)	GW	Well graded gravels, gravel-sand mixtures, little or no fines.
		GRAVEL WITH FINES	GP	Poorly graded gravels or gravel-sand mixtures, little or no fines.
			GM	Silty gravels, gravel-sand-silt mixtures, non-plastic fines
		SANDS MORE THAN HALF OF COARSE FRACTION IS SMALLER THAN NO. 4 SIEVE	CLEAN SANDS (LESS THAN 5% FINES)	GC
	SW			Well graded sands, gravelly sands, little or no fines.
	SANDS WITH FINES		SP	Poorly graded sands or gravelly sands, little or no fines.
			SM	Silty sands, sand-silt mixtures, non-plastic fines.
	FINE GRAINED SOILS MORE THAN HALF OF MATERIAL IS SMALLER THAN NO. 200 SIEVE SIZE	SILTS AND CLAYS LIQUID LIMIT IS LESS THAN 50%	SC	Clayey sands, sand-clay mixtures, plastic fines.
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, gravelly clays, sandy clays, silty clays, lean clays.	
SILTS AND CLAYS LIQUID LIMIT IS GREATER THAN 50%		OL	Organic silts and organic silty clays of low plasticity.	
		MH	Inorganic silts, micaceous or diatomaceous fine sandy or silty soils, elastic silts	
		CH	Inorganic clays of high plasticity, fat clays.	
		OH	Organic clays of medium to high plasticity, organic silts.	
HIGHLY ORGANIC SOILS			Pt	Peat and other highly organic soils.

GRAIN SIZES

U.S. STANDARD SERIES SIEVE

CLEAR SQUARE SIEVE OPENINGS

200 40 10 4 3/4" 3" 12"

SILTS AND CLAYS	SAND			GRAVEL		COBBLES	BOULDERS
	FINE	MEDIUM	COARSE	FINE	COARSE		

RELATIVE DENSITY

SANDS AND GRAVELS	BLOWS/FT*
VERY LOOSE	0 - 4
LOOSE	4-10
MEDIUM DENSE	10 - 30
DENSE	30 - 50
VERY DENSE	OVER 50

CONSISTENCY

SILTS AND CLAYS	STRENGTH**	BLOWS/FT*
VERY SOFT	0 - 1/4	0 - 2
SOFT	1/4 - 1/2	2 - 4
FIRM	1/2 - 1	4 - 8
STIFF	1 - 2	8 - 16
VERY STIFF	2 - 4	16 - 32
HARD	OVER 4	OVER 32

*Number of blows of 140 pound hammer falling 30 inches to drive a 2 inch O.D. (1 3/8 inch I.D.) split spoon (ASTM D-1586).

**Unconfined compressive strength in tons/ft² as determined by laboratory testing or approximated by the standard penetration test (ASTM D-1586), pocket penetrometer, torvane, or visual observation

EXPLORATION DRILL LOG

HOLE NO. B-1

PROJECT: 62 Yankee Point Drive, Carmel, CA- Yeung Residence

Job#7978

DATE: 11.8.21

LOGGED BY: MAR

DRILL RIG: CCD B-53

HOLE DIA. 6"

SAMPLER Terzaghi Split Spoon (SPT) & 2.5" Cal

GROUNDWATER DEPTH:

INITIAL 19'

FINAL 24'

HOLE ELEV. ---

DESCRIPTION	SOIL TYPE	DEPTH	SAMPLE	BLOWS PER FOOT	DRY DENSITY (pcf)	WATER CONTENT %	LIQUID LIMIT	PLASTIC LIMIT	POCKET PEN. (tsf)
Dark brown, silty, medium to coarse grained SAND; moist, loose	SM	1							
Tan-brown, medium to coarse grained, silty, SAND; slightly moist, medium dense	SM	2	2½ Cal	8,12,18					
		3	1-1-1	30(18) 5,7,9	90.2	5.5	19	15	---
Reddish-yellow brown, silty, decomposed granitic SAND; moist, medium dense	SM	4	1-2-2	16	74.9	7.7			---
	SM	5	SPT	9,12,11					
Reddish-yellow brown, clayey, coarse grained decomposed granitic SAND; moist, medium dense	SC/CL	6	1-3-3	23	90.6	15.3	46	21	3.0
		7							
		8							
		9							
Reddish-yellow brown, clayey, coarse grained granitic SAND; moist, medium dense	SC	10	SPT	15,17,19					
Greyish-tan, clayey, coarse grained granitic SAND with gravel; moist, dense	SC	11	1-4-4	36	97.2	12.9			---
		12							
		13							
		14							
Grey, tan, clayey, coarse grained granitic SAND with gravel; moist, very stiff/dense	SC	15	SPT	15,22,26					
		16	1-5-5	48	139.4	14.2			0.5
Dark brown, black, clayey, coarse grained SAND; moist, dense	SC	17							
		18							
Water at 19'	▼	19							
Dark brown, clayey, coarse grained SAND; moist, dense	SC	20							

DEPTH 31.5'

SOIL SURVEYS GROUP, INC.

EXPLORATION DRILL LOG

HOLE NO. B-1 CONT.

DESCRIPTION	SOIL TYPE	DEPTH	SAMPLE	BLOWS PER FOOT	DRY DENSITY (pcf)	WATER CONTENT %	LIQUID LIMIT	PLASTIC LIMIT	POCKET PEN. (tsf)
Dark brown, fine grained sandy CLAY; moist, very stiff	CL	21	SPT	11,9,9					
			1-6-6	18	80.9	24.3			---
		22							
Dark brown, fine grained sandy CLAY; moist, stiff	CL	23							
Grey-brown, gravelly, clayey, coarse grained SAND; moist	SC	24							
		25							
Grey-brown, gravelly, coarse grained SAND; moist, very dense	SC/SM	26	SPT	22,37,50/5"					
			1-7-7	87/11"	107.3	16.1			---
		27							
		28							
		29							
Grey-brown, gravelly, clayey, coarse grained granitic SAND; moist, very dense	SC/SM	30	SPT	15,25,38					
Grey-brown, gravelly, clayey, coarse grained granitic SAND; moist, very dense	SC/SM	31	1-8-8	63	113.0	12.8			---
Bottom of boring at 31.5'		32							
		33							
		34							
		35							
		36							
		37							
		38							
		39							
		40							
		41							
		42							

DEPTH: 31.5'

Job#7978

SOIL SURVEYS GROUP, INC.