REPORT OF GEOLOGIC FAULT INVESTIGATION
Proposed Lee/DeGuzman Residence
1855 Spindrift Drive
La Jolla, California

JOB NO. 22-13755
07 July 2023

Prepared for:

Mr. Bryce Lee and Ms. Crisanta DeGuzman

Geotechnical Exploration, Inc.
SOIL AND FOUNDATION ENGINEERING ● GROUNDWATER ● ENGINEERING GEOLOGY

07 July 2023

Mr. Bryce Lee and Ms. Crisanta DeGuzman
1855 Spindrift Drive
La Jolla, CA 92037

Job No. 22-13755

Subject: **Report of Geologic Fault Investigation**
Proposed Lee-DeGuzman Residence
1855 Spindrift Drive
La Jolla, California

Dear Mr. Lee and Ms. DeGuzman:

In accordance with your request, and our work agreement dated March 17 2022, ***Geotechnical Exploration, Inc.*** has performed a geologic fault study for the subject project in La Jolla, California. The field work and drilling were performed between April 10 and 12, 2023.

Our investigation determined that the proposed project area (site) is ***not*** underlain by an active fault or other detrimental geologic hazards. Therefore, it is our opinion that the project area of the site is suitable for the proposed project and structural setbacks are not recommended. It is understood that a geotechnical investigation is currently in progress, with results regarding future site redevelopment forthcoming.

This opportunity to be of service is sincerely appreciated. Should you have any questions concerning the following report, please do not hesitate to contact us. Reference to our **Job No. 22-13755** will expedite a response to your inquiries.

Respectfully submitted,

GEOTECHNICAL EXPLORATION, INC.

Leslie D. Reed, President
C.E.G. 999/P.G. 3391

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The following report presents the fault investigation findings and recommendations of ***Geotechnical Exploration, Inc.*** for the subject project.

I. PROJECT SUMMARY

It is our understanding, based on communications with the project architect, Aidlin Darling Design, that the existing residential structure is to be demolished and replaced with a new two- to three-story, single-family residential structure with attached garage and associated improvements. The new structure is to be constructed of standard-type building materials utilizing conventional shallow foundations with either slabs on-grade or raised wood floors. Foundation loads are expected to be typical for this type of relatively light construction. When final architectural, engineering and/or grading plans have been prepared, they should be made available for our review and incorporation into a comprehensive geotechnical investigation report.

The City of San Diego Seismic Safety Study Geologic Hazard Map 29 (2008), indicates that the site is located in two geologic hazard areas designated as Categories (GHC) 11 and 27. Category 11 is identified as a State of California fault zone, described as *"Active, Alquist-Priolo Earthquake Fault Zone."* Category 27, also a City of San Diego designation, is identified as a slide-prone formation *"Otay, Sweetwater and others."*

It is our opinion, based on our field investigation, review of pertinent geologic literature and analysis of geologic maps, that a Holocene-active fault does not underlie the subject site. In addition, the site is not underlain by a slide-prone Formation; the potential for landsliding is discussed later under Geologic Hazards.

II. SCOPE OF WORK

The site is located within a State of California Alquist Priolo Fault Hazard Zone. The scope of work performed for this investigation focuses on addressing faulting as it relates to future redevelopment of the subject site. Specifically, the scope included a surface reconnaissance and subsurface exploration program under the direction of our geologists with the placement, logging and sampling of 6 exploratory borings, review of available published information pertaining to the site and nearby site geology, observations of the geologic features exposed in the bluff face above the beach to the west of the property, review of collected continuous core and sampled sediments, and the preparation of this report. The data obtained was for the purpose of determining the geologic hazard risk associated with earthquake faulting and the potential for surface rupture.

A ministerial grading permit was obtained by the Project Civil Engineer from the City of San Diego, Development Services Department, Approval No. 3177735 for the excavation work (drilling) performed at the site.

III. SITE DESCRIPTION

The subject site is addressed as 1855 Spindrift Drive, and is known as Assessor's Parcel No. 346-451-11-00, Lot 41, per Recorded Map No. 1762, in the La Jolla region of the City and County of San Diego, State of California. Refer to Figure No. I, the Vicinity Map, for the site location.

The roughly rectangular-shaped property is approximately 4,609 square feet in size. For the purpose of this report, the front of the site is referred to as facing northwest toward Spindrift Drive and is bordered on the northeast by a similar single-family residence at a lower elevation; on the southeast to the rear of the home by a similar single-family residence at a slightly higher elevation; on the southwest by residences at a higher elevation; and on the northwest by Spindrift Drive at a similar elevation. The site is currently occupied by a three-story, single-family residential structure located centrally on the site, with car parking adjacent to Spindrift at the front and a swimming pool and patio area in the rear, in addition to retaining walls, flatwork, and associated improvements. The site consists of a terraced building pad, ascending to the southeast with building and perimeter and central retaining walls of various heights of approximately 2 to 8 feet (refer to Figure II, Plot Plan and Site-Specific Geology).

Elevations across the site range from approximately 64 feet above mean sea level (MSL) in the northern corner to 74 feet above MSL in the southern corner. Information concerning approximate elevations across the site was obtained from a Topographic Survey map prepared by Coffey Engineering, dated August 4, 2022. Vegetation on the site consists of an ornamental garden with shrubbery and a few small trees in planter areas.

IV. FIELD INVESTIGATION

General: As discussed later under the Geologic Hazards section of this report, the site is mapped within the City of San Diego geologic hazard categories 11 and 27 (refer to Figure No. III). City Hazard Category 11 reflects the State of California Alquist-Priolo Earthquake Fault Zones (refer to Figure Nos. IVa-b). Projects within Zone 11 require fault studies for site development. As previously indicated, the focus of this study is faulting and the potential impact on site redevelopment. Descriptions

of the field investigation followed by the background research are presented below. An excerpt from the Geologic Map of the San Diego 30' X 60' Quadrangle, California, is presented as Figure No. V.

Field Investigation: The field investigation consisted of a surface reconnaissance and a subsurface exploration program consisting of drilling 6 exploratory borings to investigate for evidence of the paralic deposit/Point Loma Formation contact, the geologic structure, and the presence or absence of faulting. The field exploration portion of the investigation was performed on April 11, 2023. A reconnaissance of the coastal bluff, approximately 200 to 250 feet northwest of the site, for the purpose of observing and documenting visible surface ruptures and faulting across the face of the bluff was performed for an adjacent project on May 04, 2021, and the results of the bluff mapping are utilized in this report (Artim and Streiff, 1981). A review of the Artim and Streiff mapping report (a USGS supported study along Spindrift Drive), was also performed. As discuss below, Artim and Streiff drilled a series of borings along Spindrift Drive between Princess Way and Roseland Drive in order to locate the Rose Canyon fault. Their borings crossed in front of the subject site (Nos. 9 through 13) and the data from these borings were utilized for this study.

For this project, 6 additional small-diameter continuous core borings (B-1 to B-6) were drilled across the front and back portions of the site. The site, with the current development and depths of existing fill soils and Terrace Deposits, is not considered suitable for typical fault trenching. Alternative methods to explore faulting include CPT and continuous core borings and the latter was selected for this site. The 6 borings were closely spaced in alignments perpendicular to local fault trends, and drilled to depths ranging from about 14 to 18 feet in order to define the soil and bedrock profile across the site. Continuous core was collected and placed in core boxes. The sediments encountered in the borings were continuously logged in the field by our geologists and described in accordance with Standard Practice for

Description and Identification of soils (Visual-Manual Procedures) (ASTM D2488-17e1), part of the Unified Soil Classification System (refer to Appendix A). The approximate locations of the borings and cross section locations, along with the geologic units encountered, are shown on the Plot Plan and Site-Specific Geologic Map, Figure No. II.

Continuous coring consisted of driving standard and mid-sized Cal samplers (without rings) and SPT samplers in a continuous manner. The retrieved core and core boxes were returned to the laboratory, as previously indicated, for further logging and analysis, and future testing. Exploratory boring logs were prepared on the basis of our observations and are attached as Figure Nos. VIa-f.

Background Research: Prior to performing the subsurface exploration program, research was performed for faulting investigations in the immediate area of the subject site. Research included review of the investigative work performed by Artim and Streiff, 1981. The Artim and Streiff report researched the Rose Canyon fault zone along Spindrift Drive. Spindrift Drive trends northeast-southwest, approximately perpendicular to the Rose Canyon fault zone. The Artim and Streiff report included the drilling of 13 borings spaced along Spindrift Drive from northeast of Roseland Drive, southwest to near the southern end of Spindrift Drive, for a total distance of about 800 feet. Several of the borings were drilled across the front and near the subject site. As mentioned previously and discussed below, five of the closest borings (Nos. 9 through 13) were selected for this report. Refer to Figure Nos. VIIa-d for copies of the Artim and Streiff boring logs.

The five borings spanned a distance of about 300 feet and revealed no evidence of Quaternary offsets. Additional investigations since that time have revealed evidence of Quaternary offset north of the Artim and Streiff Boring No. 1. The subject site, which is about 50 feet wide and fronts Spindrift Drive, is located near the central

portion of the 300-foot-long section. This 300-foot distance, along with the on-site investigation and mapping of the coastal bluff northwest of the site, is considered sufficient coverage for geologic structural continuity across the site. Additional details are presented below.

The intent of the Artim and Streiff borings was to identify the underlying sedimentary bedrock units and look for significant abrupt elevation changes of the contact between the differing geologic units. Of the 13 Artim and Streiff borings, Borings 9 through 13, which are closest to the subject site, were reviewed by GEI to determine the top elevations of the Cretaceous Point Loma Formation. Preparation of cross section A-A' between borings 9 and 13 revealed two main points: (1) the top of the elevation of the underlying Point Loma Formation is uniform and relatively level to gently sloping downward to the northeast between elevations of 53 to 58 feet above MSL; and (2) the elevation of the top of the Point Loma Formation in the Spindrift Drive borings, when projected south and to the subject site, suggested that the depth of the top of the Point Loma Formation would be about 16 feet below the subject site.

Based on the Artim and Streiff information, it was determined that a typical fault trench would be too deep to reach the top of the Point Loma Formation, which was considered important to assist in determining faulting or lack of faulting. Therefore, it was elected to drill closely spaced borings on the subject property. The front and rear yard areas were selected for the borings. Specifically, GEI drilled three closely spaced small-diameter borings each in the front and rear yards as an alternative to trenching (refer to Figure No. II for boring locations). As previously indicated, Borings B-1 through B-6 were continuously cored to depths of about 14 to 18 feet.

The results of the drilling indicated that the surface elevation of the underlying Point Loma Formation beneath the site is at a depth of about 9 feet in the front yard and about 16 feet in the rear yard, which is approximately 8 feet higher in elevation. As

anticipated, elevations of the Point Loma Formation surface are very similar to the elevations noted in the Artim and Streiff borings northwest of and adjacent to the site. Cross section A-A' (Figure No. VIIIa), specifically in the area of Station Nos. 170 through 250 feet, depicts the Artim and Streiff borings and the GEI borings. GEI borings B-1 and B-3 are projected about 30 feet northwest to the Spindrift Drive cross section. The cross section reveals that the elevations of the underlying Point Loma Formation surface are essentially the same on Spindrift Drive and in front of the property and in the rear yard of the home. Figure Nos. VIIIb and VIIIc present cross sections B-B' and C-C' across the rear and front yards, respectively, and Figure No. VIIId presents cross section D-D', drawn perpendicular to B-B' and C-C'. Cross section B-B' includes GEI boring data from the adjacent project at 1851 Spindrift Drive. Review of the cross sections noted above indicates a similar surface elevation of the underlying Point Loma Formation (below the Qop6).

As indicated above, the off-site geologic report (based on borings in Spindrift Drive immediately adjacent to the subject site) was utilized to support our conclusions along with our on-site borings. As required by the City of San Diego, GEI states that we agree with the data provided in the referenced Artim and Streiff (1981) report, specifically the boring data utilized adjacent to the subject property. The 1981 report was performed under contract with the U.S. Geological Survey and therefore the information and data presented is considered credible.

In addition, GEI is utilizing geologic mapping of the coastal bluff off-site to the northwest (by others and reproduced here as Figure No. IVb), which is parallel to Spindrift Drive in the section next to the subject property. With three sets of data points regarding the surface of the underlying Point Loma Formation located at the mapped bluff, the borings in Spindrift Drive and the six on-site borings, we interpret and conclude that the Point Loma Formation is not offset or faulted across the subject property.

It should be noted that Artim and Streiff (1981) encountered a bedrock change from Cretaceous Point Loma Formation to Eocene Ardath Formation in their continued Spindrift Drive borings about 400 hundred feet to the northeast. This contact change is bedrock faulting and is interpreted as a significant strand of strike-slip faulting on the Rose Canyon fault. Based on the significant bedrock changes, Artim and Streiff selected to perform a fault trench in the area between their borings B-3 through B-6. Significant faulting was mapped in the trench log in that section (Artim and Streiff, 1981).

As part of the data analysis, reports including CDMG OFR-93-02 (1993), and CGS FER 265 (2021b) were reviewed for discussions of photo analysis of the subject area.

V. REGIONAL GEOLOGIC DESCRIPTION

San Diego County has been divided into three major geomorphic provinces: the Coastal Plain, the Peninsular Ranges and the Salton Trough. The Coastal Plain exists west of the Peninsular Ranges. The Salton Trough is east of the Peninsular Ranges. These divisions are the result of the basic geologic distinctions between the areas. Mesozoic metavolcanic, metasedimentary and plutonic rocks predominate in the Peninsular Ranges with primarily Cenozoic sedimentary rocks to the west and east of this central mountain range (Demere, 1997). Refer to Appendix B for more detailed regional geologic descriptions.

VI. SITE-SPECIFIC SOIL & GEOLOGIC DESCRIPTION

Our field work, reconnaissance and review of the geologic map by Kennedy and Tan, 2008, "*Geologic Map of San Diego, 30'x60' Quadrangle, CA"* indicates that the site is underlain at shallow depth by late to middle Pleistocene-Aged Old Paralic Deposits, Unit 6 (Qop_6) sedimentary materials. During the course of our field work, the Old

Paralic Deposits were encountered in all six of our exploratory borings. In addition, underlying the Old Paralic Deposits, the Cretaceous-Aged Point Loma Formation was also encountered at depth in all of the borings, as previously indicated. Fill soils were encountered overlying the Old Paralic Deposits in all of the borings. The fill soils encountered are approximately 3 to 4 feet thick. An excerpt of the geological map (Kennedy and Tan, 2008) is included as Figure No. V, Geologic Map and Legend.

A. Stratigraphy

Artificial Fill Soils (Qaf): The entire site is overlain by 3 to 4 feet of artificial fill soils that were encountered in all borings (B-1 to B-6). The observed fill soils consist of fine- to medium-grained silty sands (SM) and clayey sands (SC). The fill soils are moist, light brown to medium brown. The density was observed to be medium dense; landscape fill soils were loose. The fill soils were observed to be mixed in color and utility pipes were observed at shallow depths adjacent to some of the boring cut-out areas. Refer to Figure Nos. IIIa-f for log details.

Old Paralic Deposits, Unit 6 (Qop_6): Old Paralic Deposits, Unit 6 sedimentary materials were encountered at relatively shallow depths of 3 to 4 feet in all of the borings. The encountered materials were observed to consist of fine- to medium-grained silty sands (SM). The Old Paralic Deposits materials are generally medium dense to dense, moist and reddish brown. Refer to Figure Nos. VIa-f for details.

Point Loma Formation (Kp): Formational materials associated with the Point Loma Formation were encountered at shallow depths of 9 to 16 feet and underlying the entire site. Old Paralic Deposit materials were encountered in all exploratory borings and generally consisted of silty fine sandstone that is gray and orange brown, moist, and dense to very dense. Most importantly, as discussed later, is that the surface

elevation of the Point Loma Formation varied little between all six borings, with elevations ranging between about 55 and 58 feet (MSL).

B. Structure

Based on the elevation points of the Paralic Deposits overlying the Point Loma Formation contact as observed in the bluff face to the west, and the contact points encountered in the borings, the Point Loma Formation surface is relatively flat-lying to very gently dipping to the west. The sediments encountered were generally massive. Based on the continuous, relatively planer surface, we conclude that there is no significant faulting in the immediate area of the subject property. In addition, other evidence of faulting such as shearing, was not observed in the retrieved boring cores.

VII. GEOLOGIC HAZARDS

Our review of the City of San Diego Seismic Safety Study -- Geologic Hazards Map Sheet 29, dated 2008, indicates that the site is located in two geologic hazard areas designated as Categories (GHC) 11 and 27. An excerpt of the map is included as Figure No. III. Category 11 is identified as a State of California fault zone, described as *"Active, Alquist-Priolo Earthquake Fault Zone."* Category 27, also a City of San Diego designation, is identified as a slide-prone formation *"Otay, Sweetwater and others."* The following discusses issues related to faulting. The potential for landsliding is discussed later under Geologic Hazards.

Regarding GHC 11, based on the previous discussions, it is our opinion that there is no significant faulting within the subject property, which is zoned in GHC 11. We provide on Figure No. IVa the properties in the vicinity of 1855 Spindrift Drive Fault Hazard Zone that are included in the State of California Special Studies Report

(Alquist-Priolo) for the La Jolla Quadrangle. Properties requiring fault investigations are shown in yellow. We note that the 1855 Spindrift Drive property is indicated to be inside the Alquist-Priolo Zone requiring fault investigations. We provide on Figure No. IVb, which is an expanded scale of Figure No. IVa, the location of properties in the vicinity of the subject property upon which geotechnical/geologic investigations have been performed by GEI and other geotechnical firms. Properties investigated by GEI are shown in orange, and the properties investigated by other firms are shown in blue-green.

Regarding GHC 27, a "slide-prone" category, it our opinion, based on the property location on very gently sloping terrain and the massive structure and density of the underlying geologic units, the risk associated with "slide-prone" is considered nominal. The additional potential geologic hazards not described in this report will be discussed in our geotechnical report, which will be issued separately.

A. Local and Regional Faults

The site, like most of southern California, is located in a seismically active area and regional faulting is present in San Diego County. The major active faults nearest to the site are all part of the San Diego Section of the Newport-Inglewood-Rose Canyon Fault Zone. The following local and regional faults and fault zones are mapped in general proximity to the site:

- Rose Canyon Fault Zone: The Rose Canyon Fault Zone is the southern portion (San Diego Section) of the Newport-Inglewood-Rose Canyon Fault system this Fault Zone is formed by several active faults in the San Diego area. The closest mapped fault in this zone is the northern portion of the Rose Canyon Fault, mapped at approximately 475 to 500 feet northeast of the site (CGS, 2021 and SDSSS, 2008); the northern portion of the Mount Soledad Fault, mapped at

approximately 135 feet southwest of the subject property. Other nearby active faults that form the Rose Canyon Fault Zone are the northern portion of the Spanish Bight Fault mapped at approximately 6 miles to the south-southeast of the site; the northern portion of the Coronado fault, mapped at approximately 10.5 miles to the south-southeast of the site; the northern portion of the Downtown Grabben Fault, mapped at approximately 11 miles to the southeast of the site and the northern portion of the Silver Strand Fault, mapped at approximately 12.3 miles to the south-southeast of the site. Review of the available references indicates that the Rose Canyon Fault Zone system is considered to be capable of generating an M6.9 earthquake (EERI, 2021).

Other Fault Zones considered active in the general vicinity of the subject site are (distances are to the closest point to the mapped fault):

- Coronado Bank Fault Zone: Mapped approximately 12 to 14 miles southwest of the site and estimated to be capable of a M7.6 earthquake.
- San Diego Trough Fault Zone: Mapped approximately 23 miles southwest of the site. The most recent surface rupture is of Holocene age (SCEDC, 2022).
- San Clemente Fault Zone: Mapped approximately 47 miles to the southwest of the site. The most recent surface rupture is of Holocene age (SCEDC, 2022).
- Elsinore Fault Zone: The Temecula and Julian sections of the Elsinore Fault Zone are mapped approximately 37 and 39 miles, respectively, northeast of the site and are estimated to be capable of a of a M6.5 to M7.5 earthquake (SCEDC, 2022).
- San Jacinto Fault Zone: Mapped approximately 60 to 64 miles northeast of the site. This fault is estimated to be capable of a M6.5 to M7.5 (SCEDC, 2022).

The potential for strong ground shaking from earthquakes on active southern California faults and active faults in northwestern Mexico should be anticipated at the

site. Design of building structures in accordance with the current building codes would reduce the potential for injury or loss of human life. Buildings constructed in accordance with current building codes may suffer significant damage but should not undergo total collapse.

X. FAULT INVESTIGATION SUMMARY CONCLUSIONS

As discussed in this report, prepared in accordance with the requirements of the Alquist-Priolo mapping protocol, our borings on the property, in addition to off-site bluff mapping and review of other subsurface investigations, did not find evidence of faulting. As such, it is our opinion that there is no active faulting underlying the subject site.

All of our exploratory excavations exposed formational materials consisting of Very Old Paralic Deposits (Quaternary $Qvop_6$) overlying Cretaceous Point Loma Formation. These units significantly pre-date the Holocene epoch (11,700 years). Logging of the formational materials in the borings, on and off-site revealed no evidence of faulting or formational material disturbance such as offsets, jointing or shearing that would be related to nearby faulting. Furthermore, all younger (dateable) surficial deposits were removed from the subject property during property development grading operations. Therefore, had faulting been encountered during our investigation, the age of faulting could not have been determined.

Based on our boring information and all previously discussed information, it is our explicit opinion that no active or potentially active fault underlies the subject site and no setbacks are required.

XII. LIMITATIONS

The work performed and recommendations presented herein are the result of an investigation and analysis that meet the contemporary standard of care in our profession within the County of San Diego. No warranty is provided. This report should be considered valid for a period of two (2) years, and is subject to review by our firm following that time.

This firm does not practice or consult in the field of safety engineering. We do not direct the contractor's operations, and we cannot be responsible for the safety of personnel other than our own. The safety of others is the responsibility of the contractor. The contractor should notify the owner if any of the recommended actions presented herein are considered to be unsafe.

The firm of ***Geotechnical Exploration, Inc.*** shall not be held responsible for changes to the physical condition of the property, such as addition of fill soils or changing drainage patterns, which occur subsequent to issuance of this report and the changes are made without our observations, testing, and approval.

Once again, should any questions arise concerning this report, please feel free to contact the undersigned. Reference to our **Job No. 22-13755** will expedite a reply to your inquiries.

Respectfully submitted,

GEOTECHNICAL EXPLORATION, INC.

Leslie D. Reed, President
C.E.G. 999/P.G. 3391

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REFERENCES

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July 2023

2007 Working Group on California Earthquake Probabilities, 2008, The Uniform California Earthquake Rupture Forecast, Version 2 (UCERF 2), U.S Geological Survey Open-file Report 2007-1437 and California Geological Survey Special Report 203.

Artim and Streiff, (Woodward-Clyde), 1981, Final Technical Report, Trenching the Rose Canyon Fault Zone, San Diego, California RCF, USGS Contract No. 14-08-0001-19824.

Berger, V. and Schug, D.L., 1991, Probabilistic Evaluation of Seismic Hazard in the San Diego-Tijuana Metropolitan Region, Environmental Perils, San Diego Region, Geological Society of America by the San Diego Association of Geologists, October 20, 1991, p. 89-99.

California Division of Mines and Geology (CDMG), 1993, The Rose Canyon Fault Zone, Southern Calfornia, Open-File Report 93-02

California Geological Survey, 2021a, Earthquake Zones of Required Investigation, La Jolla Quadrangle, Earthquake Fault Zones, Official Map released September 23, 2021.

CGS, 2021b, Fault Evaluation Report (FER) 265: The Rose Canyon Fault in the Point Loma and La Jolla 7.5 Minute Quadrangles, San Diego, California, February 18, 2021.

California Emergency Planning Agency, California Geological Survey, University of Southern California, 2009, Tsunami Inundation Map for Emergency Panning, La Jolla Quadrangle.

City of San Diego, 2008, Seismic Safety Study, Geologic Hazards and Faults, Development Services Department, Grid Tile No. 29.

Coffey Engineer, 2022, Topographic Survey, 1855 Spindrift Drive, La Jolla, CA, 92037, August 4.

Demere, T.A. 1997, Geology of San Diego County, California, San Diego Natural History Museum, http://archive.sdnhm.org/research/paleontology/sdgeol.html, accessed July 30, 2020.

DeFrisco, M., 2021, The Rose Canyon Fault Zone in The Point Loma and La Jolla 7.5 Minute Quadrangles San Diego County, California, California Geological Survey, Fault Evaluation Report 265.

Earthquake Engineering Research Institute (EERI), 2021.

Geotechnical Exploration, Inc., 2021, Report of Preliminary Geotechnical Investigation, Proposed Fanelli-Huber Residence, 1851 Spindrift Drive, La Jolla, California, dated June 3, 2021.

Grant Ludwig, L.B. and Shearer, P.M., 2004, Activity of the Offshore Newport-Inglewood Rose Canyon Fault Zone, Coastal Southern California, from Relocated Microseismicity, Bulletin of the Seismological Society of America, 94(2), 747-752.

Greene, H.G., Bailey, K.A., Clarke, S.H., Ziony, J.I. and Kennedy, M.P., 1979, Implications of fault patterns of the inner California continental borderland between San Pedro and San Diego, *in* Abbott, P.L., and Elliot, W.J., eds., Earthquakes and other perils, San Diego region: San Diego Association of Geologists, Geological Society of America field trip, November, 1979, p. 21–28.

Greensfelder, R.W., 1974, Maximum Credible Rock Accelerations from Earthquakes in California, California Division of Mines and Geology.

Hart, E.W. and Bryant, W.A., 1997, Fault-Rupture Hazard Zones in California, California Division of Mines and Geology, Special Publication 42.

Hart, E.W., Smith, D.P. and Saul, R.B., 1979, Summary Report: Fault Evaluation Program, 1978 Area (Peninsular Ranges-Salton Trough Region), California Division of Mines and Geology, Open-file Report 79-10 SF, 10.

Hauksson, E. and Jones, L.M., 1988, The July 1986 Oceanside (M_L=5.3) Earthquake Sequence in the Continental Borderland, Southern California Bulletin of the Seismological Society of America, v. 78, p. 1885-1906.

Hileman, J.A., Allen, C.R. and Nordquist, J.M., 1973, Seismicity of the Southern California Region, January 1, 1932 to December 31, 1972; Seismological Laboratory, Cal-Tech, Pasadena, California.

Kennedy, M.P., 1975, Geology of the La Jolla Quadrangle, San Diego County, California; Bulletin 200, Calif. Division of Mines and Geology.

Kennedy, M.P. and Tan, S.S., 2008, Geologic Map of San Diego 30'x60' Quadrangle, California, California Geological Survey, Department of Conservation.

Richter, C.F., 1958, Elementary Seismology, W.H. Freeman and Company, San Francisco, California.

Rockwell, T.K., 2010, The Rose Canyon Fault Zone in San Diego, Proceedings of the Fifth International Conference on Recent Advances in Geotechnical Earthquake Engineering and Soil Dynamics, Paper No. 7.06C.

Rockwell, T.K., Dawson, T.E., Young Ben-Horin, J. and Seitz, G., 2014, A 21-Event, 4,000-Year History of Surface Ruptures in the Anza Seismic Gap, San Jacinto Fault, and Implications for Long-term Earthquake Production on a Major Plate Boundary Fault, Pure and Applied Geophysics, v. 172, 1143–1165 (2015).

Rockwell, T.K., Millman, D.E., McElwain, R.S. and Lamar, D.L., 1985, Study of Seismic Activity by Trenching Along the Glen Ivy North Fault, Elsinore Fault Zone, Southern California: Lamar-Merifield Technical Report 85-1, U.S.G.S. Contract 14-08-0001-21376, 19 p.

Ross, Z.E., Hauksson E. and Ben-Zion Y., 2017, Abundant Off-fault Seismicity and Orthogonal Structures in the San Jacinto Fault Zone, Science Advances, 2017; 3(3): e1601946. Published 2017 Mar 15.

Toppozada, T.R. and Parke, D.L., 1982, Areas Damaged by California Earthquakes, 1900-1949, California Division of Mines and Geology, Open-file Report. 82-17.

U.S. Dept. of Agriculture, 04-11-1953, Aerial Photographs AXN-8M-2 and 3

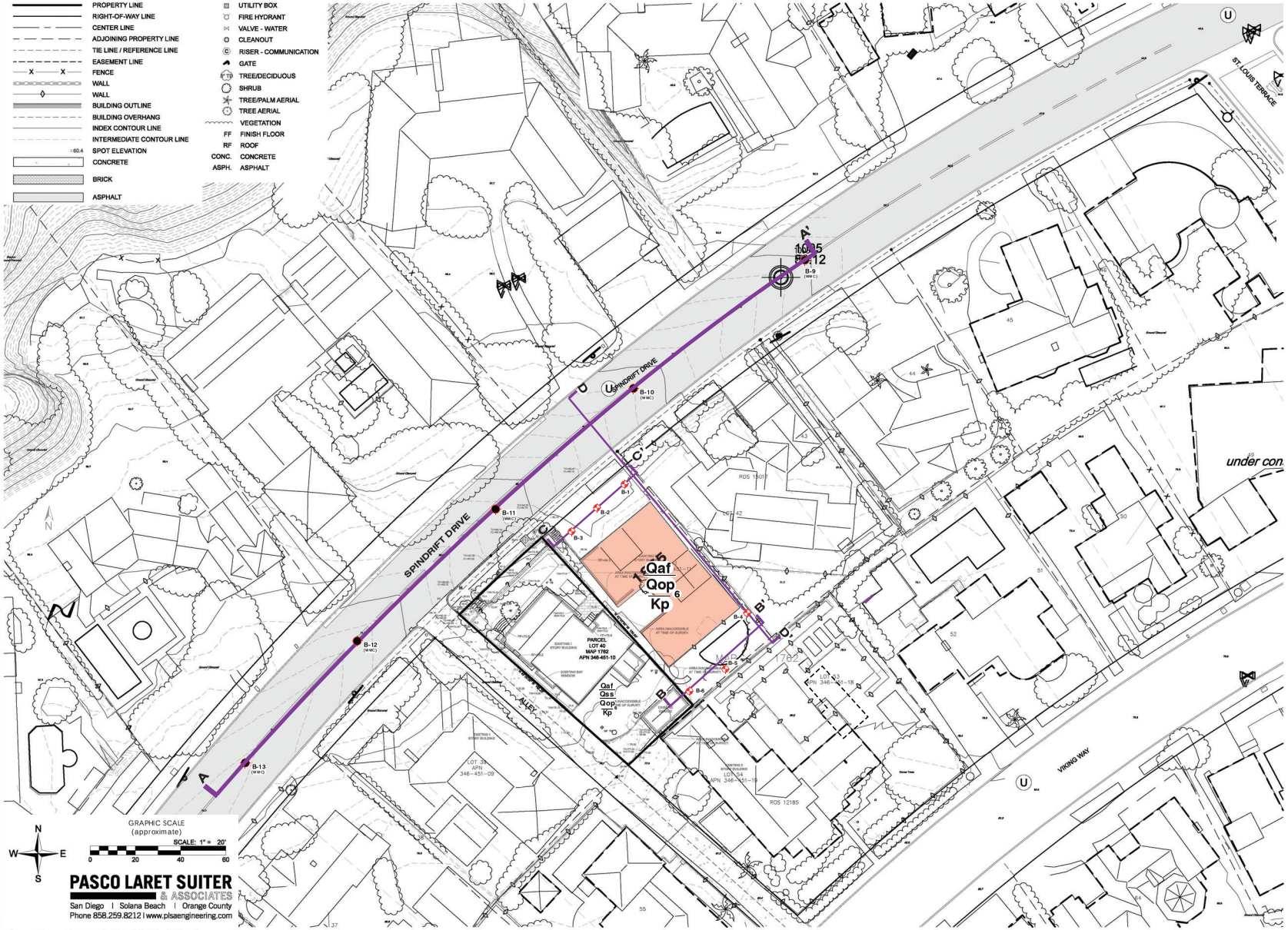
VICINITY MAP

Thomas Bros Guide San Diego County pg. 1227-G6

Lee/De-Guzman Residential Property
1855 Spindrift Drive
La Jolla, CA.

Figure No. I
Job No. 22-13755

Geotechnical Exploration, Inc.



LEGEND

- B-3 — Approximate Location of Exploratory Boring
- B-13 (WWC) — Approximate Location of Exploratory Boring (Woodward-Clyde)
- D D' — Approximate Location of Geologic Cross Section
- Existing Structure

GEOLOGIC LEGEND

- Qaf — Artificial Fill
- Qop_6 — Old Paralic Deposits (unit 6)
- Kp — Point Loma Formation
- ? ? — Approximate Geologic Contact

REFERENCE: This Plot Plan was prepared from and existing TOPOGRAPHIC SURVEY MAP by PASCO LARET SUITER & ASSOCIATES dated 8/13/2021 and from on-site field reconnaissance performed by GEI.

REFERENCE: This Plot Plan is not to be used for legal purposes. Locations and dimensions are approximate. Actual property dimensions and locations of utilities may be obtained from the Approved Building Plans or the "As-Built" Grading Plans.

PLOT PLAN AND SITE SPECIFIC GEOLOGIC MAP

Lee/De-Guzman Residential Property
1855 Spindrift Drive
La Jolla, CA.
Figure No. II
Job No. 22-13755

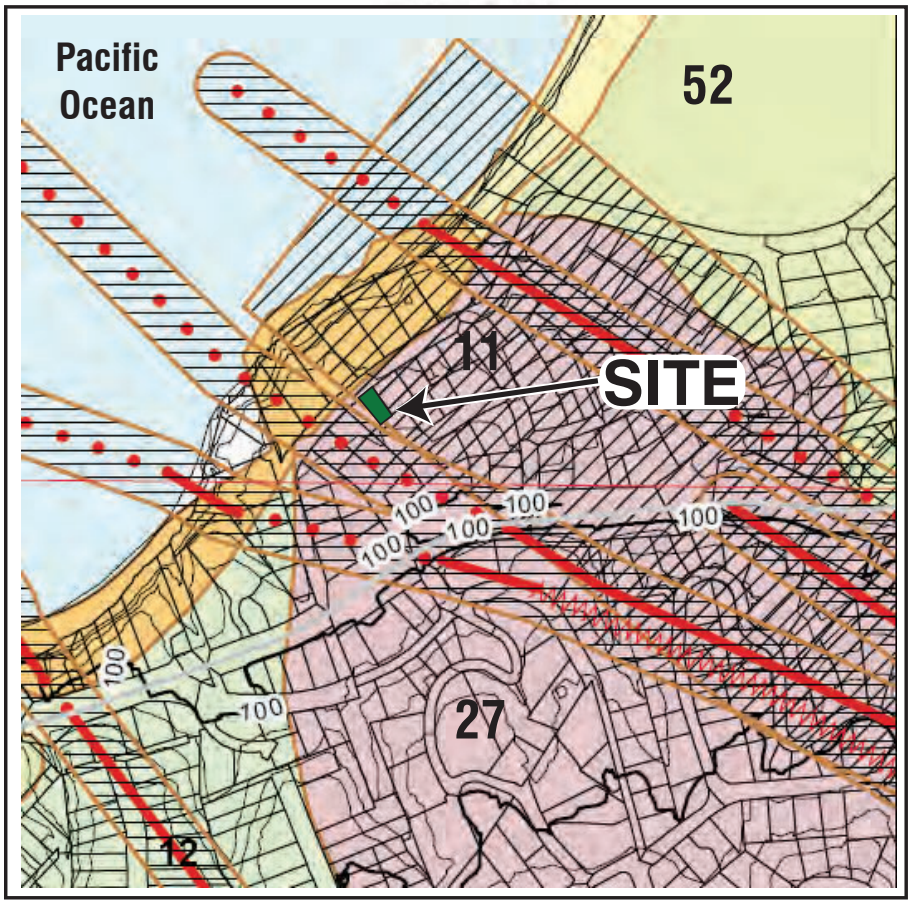
Geotechnical Exploration, Inc.

June 2023

22-13755-24X36-P.ai

Geologic Hazards Map Excerpt
from City of San Diego
Geologic Hazards and Fault Map
Sheet 29
Development Services Department

DATE: 4/3/2008



Lee/De-Guzman Residential Property
1855 Spindrift Drive
La Jolla, CA.

LEGEND

Geologic Hazard Categories

FAULT ZONES

- 11 Active, Alquist-Priolo Earthquake Fault Zone
- 12 Potentially Active, Inactive, Presumed Inactive, or Activity Unknown
- 13 Downtown special fault zone

LANDSLIDES

- 21 Confirmed, known, or highly suspected
- 22 Possible or conjectured

SLIDE-PRONE FORMATIONS

- 23 Friars: neutral or favorable geologic structure
- 24 Friars: unfavorable geologic structure
- 25 Ardath: neutral or favorable geologic structure
- 26 Ardath: unfavorable geologic structure
- 27 Otay, Sweetwater, and others

LIQUEFACTION

- 31 High Potential -- shallow groundwater major drainages, hydraulic fills
- 32 Low Potential -- fluctuating groundwater minor drainages

COASTAL BLUFFS

- 41 Generally unstable Numerous landslides, high steep bluffs, severe erosion, unfavorable geologic structure
- 42 Generally unstable Unfavorable bedding plains, high erosion
- 43 Generally unstable Unfavorable jointing, local high erosion
- 44 Moderately stable Mostly stable formations, local high erosion
- 45 Moderately stable Some minor landslides, minor erosion
- 46 Moderately stable Some unfavorable geologic structure, minor or no erosion
- 47 Generally stable Favorable geologic structure, minor or no erosion, no landslides
- 48 Generally stable Broad beach areas, developed harbor

OTHER TERRAIN

- 51 Level mesas -- underlain by terrace deposits and bedrock nomimal risk
- 52 Other level areas, gently sloping to steep terrain, favorable geologic structure, Low risk
- 53 Level or sloping terrain, unfavorable geologic structure, Low to moderate risk
- 54 Steeply sloping terrain, unfavorable or fault controlled geologic structure, Moderate risk
- 55 Modified terrain (graded sites) Nominal risk

Water (Bays and Lakes)

FAULTS

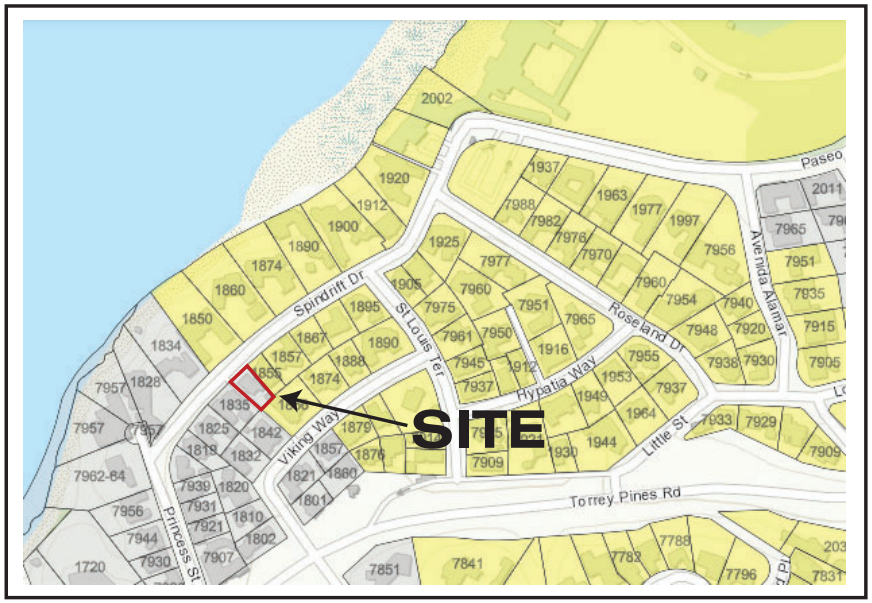
- Fault
- Inferred Fault
- Concealed Fault
- Shear Zone

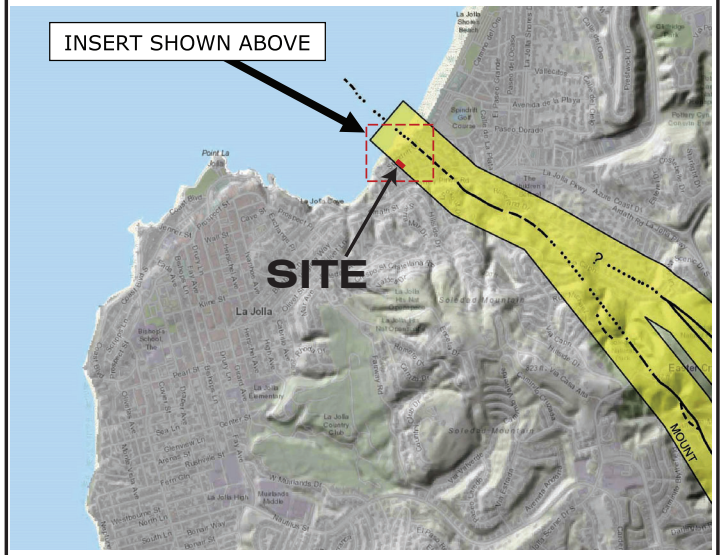
Figure No. III
Job No. 22-13755

Geotechnical Exploration, Inc.

June 2023

22-13755-Va.ai





MAP OVERVIEW

EXCERT FROM

STATE OF CALIFORNIA

SPECIAL STUDIES ZONES

Delineated in compliance with
Chapter 7.5, Division 2 of the California Public Resources Code
(Alquist-Priolo Special Studies Zones Act)

LA JOLLA QUADRANGLE

OFFICIAL MAP

Effective: September 23, 2021

LEGEND

Active Faults

1906 C

Faults considered to have been active during Holocene time and to have a relatively high potential for surface rupture; solid line where accurately located, long dash where approximately located, short dash where inferred, dotted where concealed; query (?) indicates additional uncertainty. Evidence of historic offset indicated by year of earthquake-associated event or C for displacement caused by creep or possible creep.

Special Studies Zone Boundaries

These are delineated as straight-line segments that connect encircled turning points so as to define special studies zone segments.

Seaward projection zone boundary.

Properties within "zones of required investigation".

IMPORTANT – PLEASE NOTE

1) *This map may not show all faults that have the potential for surface fault rupture, either within the special studies zones or outside their boundaries.*
2) Faults shown are the basis for establishing the boundaries of the special studies zones.
3) The identification and location of these faults are based on the best available data. However, the quality of data used is varied. Traces have been drawn as accurately as possible at this map scale.
4) Fault information on this map is not sufficient to serve as a substitute for the geologic site investigations (special studies) required under Chapter 7.5 of Division 2 of California Public Resources Code.

STATE OF CALIFORNIA
THE RESOURCES AGENCY
DEPARTMENT OF CONSERVATION

LA JOLLA QUANDRANGLE
CALIFORNIA – SAN DIEGO CO.
7.5 MINUTE SERIES (TOPOGRAPHIC)

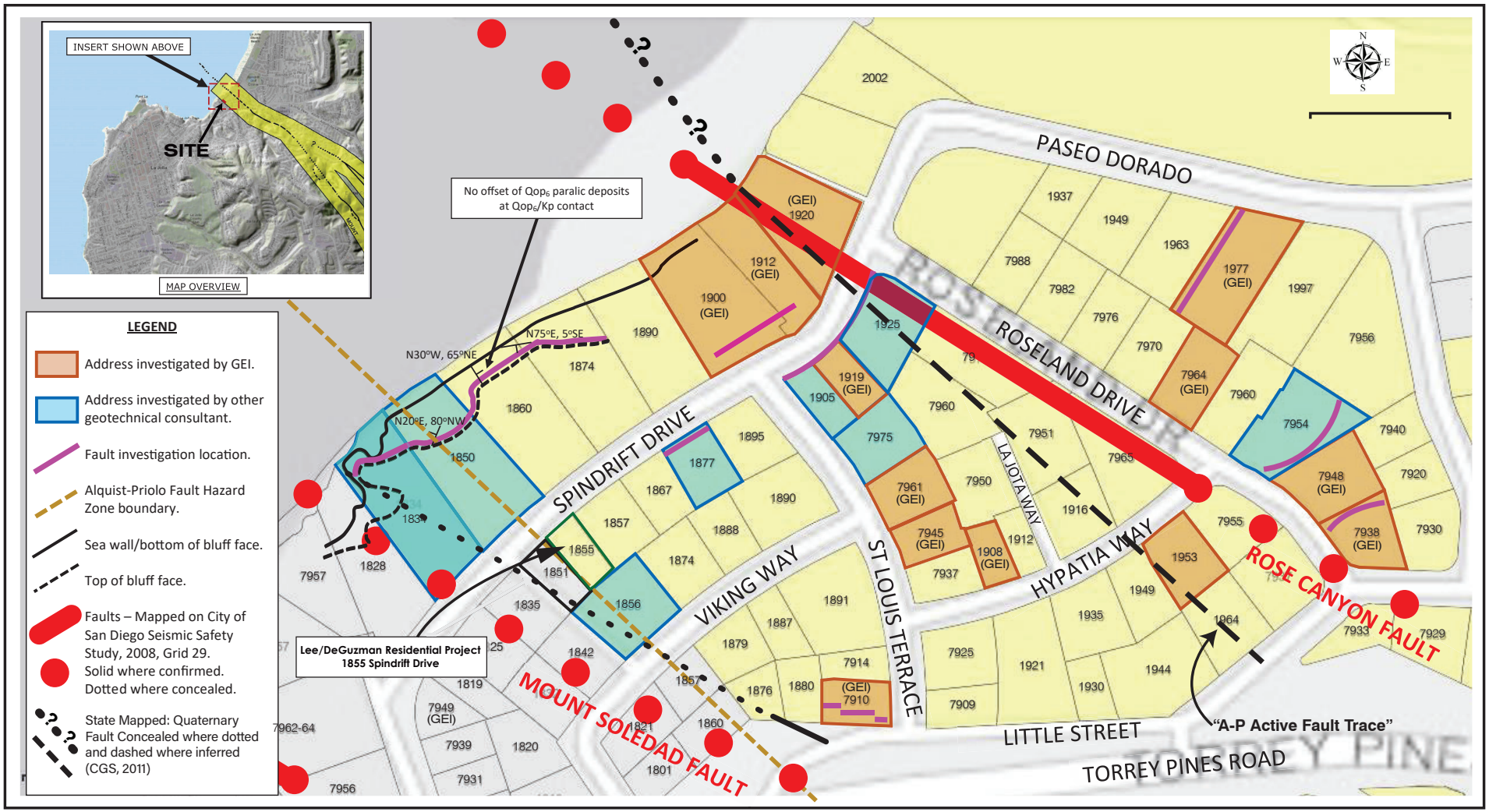
CALIFORNIA GEOLOGICAL SURVEY
JAMES F. DAVIS, STATE GEOLOGIST

Lee/De-Guzman Residential Property
1855 Spindrift Drive
La Jolla, CA.
Figure No. IVa
Job No. 22-13755

Geotechnical Exploration, Inc.

June 2023

22-13755-IVa.ai



PRIOR INVESTIGATION LOCATIONS ON EXPANDED ALQUIST-PRIOLO MAP

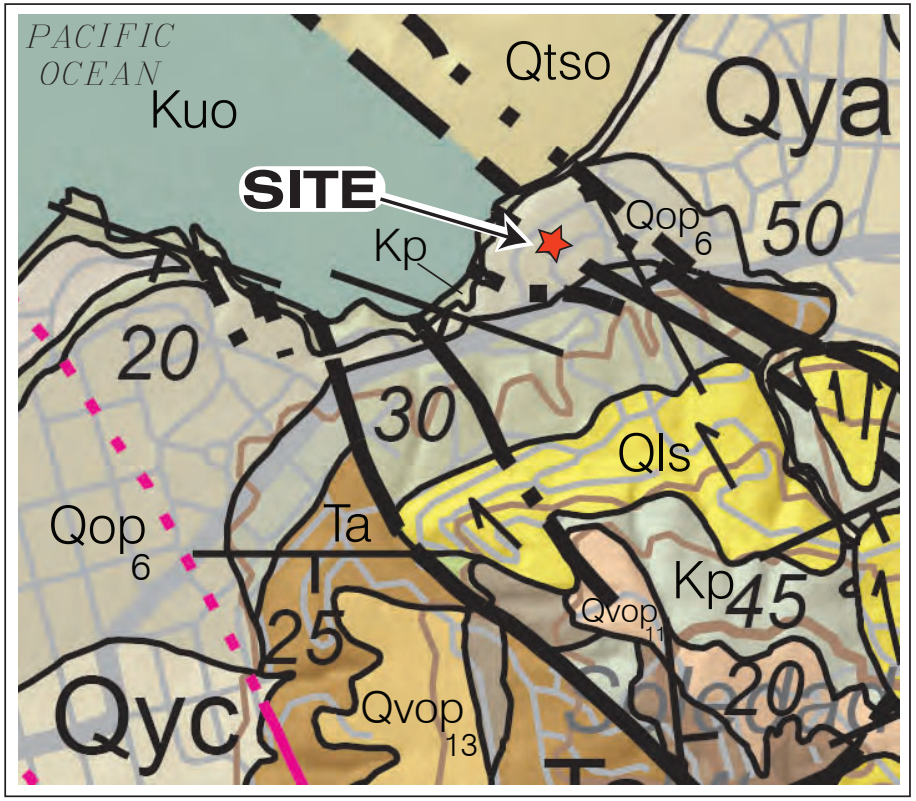
Lee/DeGuzman Residential Project
1855 Spindrift Drive
La Jolla, CA.

Figure No. IVb
Job No. 22-13755

Geotechnical Exploration, Inc.

June 2023

22-13755-FAULTS-IVb.ai



Lee/De-Guzman Residential Property
1855 Spindrift Drive
La Jolla, CA.

Base Map

Onshore base (hypsography, hydrography, and transportation) from U.S.G.S. digital line graph (DLG) data, San Diego 30' x 60' metric quadrangle. Shaded topographic base from U.S.G.S. digital elevation models (DEM's). Offshore bathymetric contours and shaded bathymetry from N.O.A.A. single and multibeam data. Projection is UTM, zone 11, North American Datum 1927.

This map was funded in part by the U.S. Geological Survey National Cooperative Geologic Mapping Program, STATEMAP Award no. 98HQAG2049.

Prepared in cooperation with the U.S. Geological Survey, Southern California Areal Mapping Project.

EXCERPT FROM

GEOLOGIC MAP OF THE SAN DIEGO 30' x 60' QUADRANGLE, CALIFORNIA

By
Michael P. Kennedy[1] and Siang S. Tan[1]
2008
Digital preparation by
Kelly R. Bovard[2], Anne G. Garcia[2], Diane Burns[2], and Carlos I. Gutierrez[1]

1. Department of Conservation, California Geological Survey
2. U.S. Geological Survey, Department of Earth Sciences, University of California, Riverside

S R AP S LS

Contact - Contact between geologic units; dotted where concealed.

Fault - Solid where accurately located; dashed where approximately located; dotted where concealed. U = upthrown block, D = downthrown block. Arrow and number indicate direction and angle of dip of fault plane.

Anticline - Solid where accurately located; dashed where approximately located; dotted where concealed. Arrow indicates direction of axial plunge.

Syncline - Solid where accurately located; dotted where concealed Arrow indicates direction of axial plunge.

Landslide - Arrows indicate principal direction of movement. Quired where existence is questionable

Strike and dip of beds

Inclined

Strike and dip of igneous joints
Inclined

Strike and dip of metamorphic foliation

Inclined

D SCR P AP S

- Qya — Young Alluvial Flood Plain Deposits
- Qls — Quaternary Landslide
- Qop_6 — Old Paralic Deposits, Unit 6
- $Qvop_{11}$ — Very Old Paralic Deposits, Unit 11
- $Qvop_{13}$ — Very Old Paralic Deposits, Unit 13
- Qtso — Undivided sediments and sedimentary rocks in offshore region
- Ta — Ardath Shale
- Kp — Point Loma Formation
- Kuo — Undivided rocks of the Roserio Group in the offshore area

Figure No. V
Job No. 22-13755

Geotechnical Exploration, Inc.
June 2023

LG -C RS A S -G .ai

Geotechnical Exploration, Inc.

EQUIPMENT: Track Mini

DIMENSION & TYPE OF EXCAVATION: 4 1/2" SSA
Cal/SPT - Continuous Core

DATE LOGGED: April 11, 2023

LOGGED BY: MM

SURFACE ELEVATION: +64.1' Above Mean Sea Level

REVIEWED BY: MM

GROUNDWATER/SEEPAGE DEPTH: Not Encountered

DEPTH (feet)	SYMBOL	SAMPLE	BLOWS / 6"	ELEVATION (MSL)	FIELD DESCRIPTION AND CLASSIFICATION DESCRIPTION AND REMARKS (Grain Size, Density, Moisture, Color)	U.S.C.S	IN-PLACE MOISTURE (%)	IN-PLACE DRY DENSITY (pcf)	OPTIMUM MOISTURE (%)	MAXIMUM DRY DENSITY (pcf)	Phi ANGLE (deg)	COHESION (PSF)	EXPANSION INDEX	% PASSING #200 SIEVE	SAMPLE O.D. (in)
1				63.6'	5-in. Concrete/Brick Cap. SILTY SAND, very silty, fine to medium grained sand, medium dense, moist, brown, some mix of light brown	SM									
2					**Artificial Fill (Qaf)**										
3															
4			3		SILTY SAND, fine to medium grained sand, medium dense, moist, light brown to brown.	SM									
5			3 4	58.6'	**Highly Weathered Old Paralic Deposits (Qop_6)**										
6			2 4		SILTY SAND, slightly silty, fine to medium grained sand, medium dense, moist, medium brown.	SM									
7			8 6		SILTY SAND, silty, fine to medium grained sand, dense, moist, dark red brown, abundant white grains, ($CaCo_3$?), no apparent bedding.	SM									
8			11 15												
9			14	54.8'	**Old Paralic Deposits (Qop_6)**										
10			18 25		SILTY SAND, silty, fine to medium grained, dense SANDSTONE, moist, dark orange brown and gray, upper 8" weathered.	SM									
11			17		@ 10.25' Grades to a silty fine sand, very dense SANDSTONE, moist to damp, yellow brown and orange brown, iron oxide staining and light gray, ocasional thin gray fractures.										
12			50/6"												
13			20 50/6"												
14				50.1'	**Point Loma Formation (Kp)**										
15					Bottom of Excavation at 14 ft. No Groundwater, No Caving, Backfilled with Cuttings Hand Augered to 4 feet										
16															
17															
18															
19															
20															
21															

FOOTING
PERCHED WATER TABLE
BULK BAG SAMPLE
1 IN-PLACE SAMPLE
MODIFIED CALIFORNIA SAMPLE
H IN-PLACE HAND-DRIVE SAMPLE
STANDARD PENETRATION TEST

* DISTURBED BLOWCOUNT

JOB NUMBER: 22-13755

JOB NAME:
Lee/DeGuzman Residence

SITE LOCATION:
1855 Spindrift Dr. La Jolla CA

LOG NO. B-1

FIGURE NO. VIa

Geotechnical Exploration, Inc.

EQUIPMENT: Track Mini

DIMENSION & TYPE OF EXCAVATION: 4 1/2" SSA Cal/SPT - Continuous Core

DATE LOGGED: April 11, 2023

LOGGED BY: MM

SURFACE ELEVATION: +64.3' Above Mean Sea Level

REVIEWED BY: MM

GROUNDWATER/SEEPAGE DEPTH: Not Encountered

DEPTH (feet)	SYMBOL	SAMPLE	BLOWS / 6"	ELEVATION (MSL)	FIELD DESCRIPTION AND CLASSIFICATION DESCRIPTION AND REMARKS (Grain Size, Density, Moisture, Color)	U.S.C.S	IN-PLACE MOISTURE (%)	IN-PLACE DRY DENSITY (pcf)	OPTIMUM MOISTURE (%)	MAXIMUM DRY DENSITY (pcf)	Phi ANGLE (deg)	COHESION (PSF)	EXPANSION INDEX	% PASSING #200 SIEVE	SAMPLE O.D. (in)
				63.9'	4-in. Concrete/Brick Cap.	SM									
1					SILTY SAND, fine to medium grained sand, medium dense, moist, dark brown.										
2					**Artificial Fill (Qaf)**										
				61.3'											
3					SILTY SAND, slightly silty, fine to medium grained sand, medium dense, moist, brown to dark reddish brown.	SM									
4			3												
5			4												
			5												
6			6												
			9		@ 6 ft. Very silty, abundant white grains ($CaCo_3$?) no apparent bedding.										
7			14												
			9		SILTY SAND, silty, fine to medium grained sand, dense, moist, dark red brown, abundant white grains, ($CaCo_3$?), no apparent bedding.										
8			13												
			16		**Old Paralic Deposits (Qop_6)**										
9			14	54.8'	Angular gravel above contact.										
			16		SILTY SAND, silty, fine grained sand, dense SANDSTONE, moist, dark orange brown and gray, upper 6" highly weathered.	SM									
10			23												
11			11		SILTY SAND, silty, fine grained sand, dense to very dense SANDSTONE, damp to moist, yellow brown and orange brown, iron oxide staining, and gray, occasional thin gray fractures.	SM									
			14												
12			16												
13			6												
			9		**Point Loma Formation (Kp)**										
14			20	49.8'											
15					Bottom of Excavation at 14.5 ft. No Groundwater, No Caving, Backfilled with Cuttings Hand Augered to 3 feet										
16															
17															
18															
19															
20															
21															

FOOTING

PERCHED WATER TABLE

BULK BAG SAMPLE

1 IN-PLACE SAMPLE

MODIFIED CALIFORNIA SAMPLE

H IN-PLACE HAND-DRIVE SAMPLE

STANDARD PENETRATION TEST

* **DISTURBED BLOWCOUNT**

JOB NUMBER: 22-13755

JOB NAME: Lee/DeGuzman Residence

SITE LOCATION: 1855 Spindrift Dr. La Jolla CA

LOG NO. **B-2**

FIGURE NO. **VIb**

Geotechnical Exploration, Inc.

EQUIPMENT: Track Mini

DIMENSION & TYPE OF EXCAVATION: 4 1/2" SSA
Cal/SPT - Continuous Core

DATE LOGGED: April 11, 2023

LOGGED BY: MM

SURFACE ELEVATION: +64.8' Above Mean Sea Level

REVIEWED BY: MM

GROUNDWATER/SEEPAGE DEPTH: Not Encountered

DEPTH (feet)	SYMBOL	SAMPLE	BLOWS / 6"	ELEVATION (MSL)	FIELD DESCRIPTION AND CLASSIFICATION DESCRIPTION AND REMARKS (Grain Size, Density, Moisture, Color)	U.S.C.S	IN-PLACE MOISTURE (%)	IN-PLACE DRY DENSITY (pcf)	OPTIMUM MOISTURE (%)	MAXIMUM DRY DENSITY (pcf)	Phi ANGLE (deg)	COHESION (PSF)	EXPANSION INDEX	% PASSING #200 SIEVE	SAMPLE O.D. (in)
				64.5'	4-in. Concrete/Brick Cap.										
1					SILTY SAND, silty, fine to medium grained sand, medium dense, moist, dark brown.	SM									
2					**Artificial Fill (Qaf)**										
3				61.8											
4					SILTY SAND, fine to medium grained sand, medium dense, moist, dark red brown.	SM									
5			7												
6			10 12		**Old Paralic Deposits (Qop_6)**										
7			10		SILTY SAND, silty, fine to medium grained sand, dense, moist, dark red brown, abundant white grains, ($CaCo_3$?), no apparent bedding.	SM									
8			15 16												
9				55.7'											
10			13 20 21		SILTY SAND, slightly silty, fine grained sand, very dense SANDSTONE, damp, yellow, iron oxide staining, veining, upper 6" weathered with manganese staining, white grains ($CaCo_3$?).	SM									
11			30		Grades to silty fine grained sand, very dense SANDSTONE, moist, light orange brown and light gray.	SM									
12			50/6"												
13			24												
14			50/6"												
15			19 20 45		Becomes predominantly light gray silty fine grained, very dense SANDSTONE, damp.	SM									
16				48.8'	**Point Loma Formation (Kp)**										
17					Bottom of Excavation at 16 ft. No Groundwater, No Caving, Backfilled with Cuttings Hand Augered to 3 feet										
18															
19															
20															
21															

FOOTING
PERCHED WATER TABLE
BULK BAG SAMPLE
1 IN-PLACE SAMPLE
MODIFIED CALIFORNIA SAMPLE
H IN-PLACE HAND-DRIVE SAMPLE
STANDARD PENETRATION TEST

* DISTURBED BLOWCOUNT

JOB NUMBER: 22-13755

JOB NAME:
Lee/DeGuzman Residence

SITE LOCATION:
1855 Spindrift Dr. La Jolla CA

LOG NO. B-3

FIGURE NO. VIc

Geotechnical Exploration, Inc.

EQUIPMENT: Track Mini

DIMENSION & TYPE OF EXCAVATION: 4 1/2" SSA Cal/SPT - Continuous Core

DATE LOGGED: April 11, 2023

LOGGED BY: HE

SURFACE ELEVATION: +72.8' Above Mean Sea Level

REVIEWED BY: MM

GROUNDWATER/SEEPAGE DEPTH: Not Encountered

DEPTH (feet)	SYMBOL	SAMPLE	BLOWS / 6"	ELEVATION (MSL)	FIELD DESCRIPTION AND CLASSIFICATION DESCRIPTION AND REMARKS (Grain Size, Density, Moisture, Color)	U.S.C.S	IN-PLACE MOISTURE (%)	IN-PLACE DRY DENSITY (pcf)	OPTIMUM MOISTURE (%)	MAXIMUM DRY DENSITY (pcf)	Phi ANGLE (deg)	COHESION (PSF)	EXPANSION INDEX	% PASSING #200 SIEVE	SAMPLE O.D. (in)
1					6-in. Concrete/Travertine Cap.										
					CLAYEY SAND, medium dense, very moist, brown, some mix of light brown sand.	SC									
2					4" Layer of lean slurry										
3					**Artificial Fill (Qaf)**				8.7	131.5	31.6	0	32	42	
4				68.8'											
5			10		SANDY CLAY, stiff to very stiff, moist to very moist, mottled red-brown, dark gray and brown	CL									
6			19												
			26				16.1	118.4							
7					SILTY SAND, silty, fine to medium grained sand, dense, moist, dark red brown, abundant white grains, ($CaCo_3$?), no apparent bedding.										
			7												
8			9												
			9		SILTY SAND, medium dense, very moist, mottle dark gray, red brown and brown, some clay.	SM									
9			11												
			12												
10			17		**Old Paralic Deposits (Qop_6)**										
			7												
11			12		SILTY CLAY, very stiff, very moist, mottled dark gray, red-brown, brown,	CL									
			18												
12			20		CLAYEY SAND, fine to medium grained, medium dense to dense, very moist, mottled dark gray, red brown and brown.	SC									
13			31												
			30												
14					SAND, fine to medium grained, dense, moist mottled red-brown and brown.	SP									
			17												
15			25												
			25		Becomes slightly silty, moist, red brown.										
16			20	56.8'	Becomes SILTY SAND, dense, very moist, brown with white grains.	SM									
			26			SM									
17			34		SILTY SAND, fine grained sand, very dense SANDSTONE, moist, mottled dark orange brown, brown and gray, moderately cemented, less mottled, more massive with depth.										
			50/2"	55.2'											
18					**Point Loma Formation (Kp)**										
19															
20					Bottom of Excavation at 17.7 ft. No Groundwater, No Caving, Backfilled with Cuttings Hand Augered to 5 feet										
21															

FOOTING

PERCHED WATER TABLE

BULK BAG SAMPLE

1 IN-PLACE SAMPLE

MODIFIED CALIFORNIA SAMPLE

H IN-PLACE HAND-DRIVE SAMPLE

STANDARD PENETRATION TEST

* **DISTURBED BLOWCOUNT**

JOB NUMBER: 22-13755

JOB NAME: Lee/DeGuzman Residence

SITE LOCATION: 1855 Spindrift Dr. La Jolla CA

LOG NO. **B-4**

FIGURE NO. **VId**

Geotechnical Exploration, Inc.

EQUIPMENT: Track Mini

DIMENSION & TYPE OF EXCAVATION: 4 1/2" SSA Cal/SPT - Continuous Core

DATE LOGGED: April 11, 2023

LOGGED BY: HE

SURFACE ELEVATION: +73.7' Above Mean Sea Level

REVIEWED BY: MM

GROUNDWATER/SEEPAGE DEPTH: Not Encountered

DEPTH (feet)	SYMBOL	SAMPLE	FTG. DEPTH	BLOWS / 6"	FIELD DESCRIPTION AND CLASSIFICATION DESCRIPTION AND REMARKS (Grain Size, Density, Moisture, Color)	U.S.C.S	IN-PLACE MOISTURE (%)	IN-PLACE DRY DENSITY (pcf)	OPTIMUM MOISTURE (%)	MAXIMUM DRY DENSITY (pcf)	Phi ANGLE (deg)	COHESION (PSF)	EXPANSION INDEX	% PASSING #200 SIEVE	SAMPLE O.D. (in)
1					**Lanscape Topsoil**										
2					CLAYEY SAND, medium dense, very moist, brown.	SC									
3				70.7'	**Artificial Fill (Qaf)**										
4					SANDY CLAY, stiff to very stiff, very moist, mottled gray brown and dark red-brown.	CL									
5			12												
6			24				12.2	128.9							
7			35												
8			9		SILTY SAND, silty, fine to medium grained sand, dense, moist, dark red brown, abundant white grains, ($CaCo_3$?), no apparent bedding.	SP									
9			10												
10			15		@ 7 ft. 10 in. CLAYEY SAND, medium dense, moist, gray brown and red brown.	SC									
11			13												
12			26		SILTY SAND, fine to medium grained, some coarse, dense, moist, gray brown and red brown, slightly clayey.	SM									
13			40												
14			26												
15			50/6"												
16			36		Becomes gray brown, red brown and dark olive gray, slightly clayey.										
17			50/6"												
18			18		**Old Paralic Deposits (Qop_6)**										
19			21												
20			26												
21			23												
			26												
			37	57.8'											
			21		SILTY SAND, fine grained sand, very dense SANDSTONE, moist, mottled dark orange brown, orange brown and gray, moist, very dense.	SM									
			32	56.7'											
			50/6"												
					Point Loma Formation (Kp)										
					Bottom of Excavation at 17.8 ft. No Groundwater, No Caving, Backfilled with Cuttings Hand Augered to 5 feet										

FOOTING

PERCHED WATER TABLE

BULK BAG SAMPLE

1 IN-PLACE SAMPLE

MODIFIED CALIFORNIA SAMPLE

H IN-PLACE HAND-DRIVE SAMPLE

STANDARD PENETRATION TEST

* DISTURBED BLOWCOUNT

JOB NUMBER: 22-13755

JOB NAME: Lee/DeGuzman Residence

SITE LOCATION: 1855 Spindrift Dr. La Jolla CA

LOG NO. B-5

FIGURE NO. VIe

Geotechnical Exploration, Inc.

EQUIPMENT: Track Mini

DIMENSION & TYPE OF EXCAVATION: 4 1/2" SSA
Cal/SPT - Continuous Core

DATE LOGGED: April 11, 2023

LOGGED BY: HE

SURFACE ELEVATION: +73.8' Above Mean Sea Level

REVIEWED BY: MM

GROUNDWATER/SEEPAGE DEPTH: Not Encountered

DEPTH (feet)	SYMBOL	SAMPLE	FTG. DEPTH	BLOWS / 6"	FIELD DESCRIPTION AND CLASSIFICATION DESCRIPTION AND REMARKS (Grain Size, Density, Moisture, Color)	U.S.C.S	IN-PLACE MOISTURE (%)	IN-PLACE DRY DENSITY (pcf)	OPTIMUM MOISTURE (%)	MAXIMUM DRY DENSITY (pcf)	Phi ANGLE (deg)	COHESION (PSF)	EXPANSION INDEX	% PASSING #200 SIEVE	SAMPLE O.D. (in)
1					**Lanscape Topsoil**										
1					CLAYEY SAND, medium dense, very moist, brown.	SC									
2					**Artificial Fill (Qaf)**										
3					SANDY CLAY, stiff, very moist, mottled dark gray brown and dark red-brown.	CL									
4															
5															
6					CLAYEY SAND, medium dense, very moist, mottled dark gray brown and red brown.	SC									
7															
8															
9															
10					SILTY SAND, fine to coarse grained, medium dense, very moist, dark olive gray and red brown, slightly clayey.	SM									
11															
12															
13					**Old Paralic Deposits (Qop_6)**										
14															
15				58.1'											
16				57.4'	SILTY SAND, fine grained sand, very dense SANDSTONE, very dense, moist, mottled orange brown and gray.	SM									
17					**Point Loma Formation (Kp)**										
18															
19					Bottom of Excavation at 16.3 ft. No Groundwater, No Caving, Backfilled with Cuttings Hand Augered to Bottom of Excavation										
20															
21															

FOOTING
PERCHED WATER TABLE
BULK BAG SAMPLE
1 IN-PLACE SAMPLE
MODIFIED CALIFORNIA SAMPLE
H IN-PLACE HAND-DRIVE SAMPLE
STANDARD PENETRATION TEST

* **DISTURBED BLOWCOUNT**

JOB NUMBER: 22-13755

JOB NAME:
Lee/DeGuzman Residence

SITE LOCATION:
1855 Spindrift Dr. La Jolla CA

LOG NO. **B-6**

FIGURE NO. **VIf**

Boring 9

Approximate El. 55'

DEPTH IN FEET	TEST DATA *MC	TEST DATA *DD	TEST DATA *BC	*OTHER TESTS	SAMPLE NUMBER	SOIL DESCRIPTION
						8" Asphalt Concrete
						Medium dense, moist, light to dark reddish brown silty fine to medium sand (SM) PLEISTOCENE TERRACE DEPOSITS (Q_3)
5			32		9-1	Light scattered gravels between 3½' to 4½' Scattered layer of gravels with cobbles at base
						Very dense, moist, yellowish brown silty fine to medium sand (SM) POINT LOMA FORMATION (Kp)
10			50/6"		9-2	
						Bottom of Hole
15						

Boring 10

DEPTH IN FEET	TEST DATA *MC	TEST DATA *DD	TEST DATA *BC	*OTHER TESTS	SAMPLE NUMBER	SOIL DESCRIPTION
						8" Asphalt Concrete
						Medium dense, moist, brown silty to clayey fine to medium sand (SM) PLEISTOCENE SLOPEWASH ? Clayey zones ?
5			20		10-1	
						Very dense, moist, light yellowish brown micaceous silty fine to medium sand (SM) POINT LOMA FORMATION (Kp)
10			50/6"		10-2	
						Bottom of Hole
15						

*For description of symbols, see Figure A-2

Figure No. VIIa
Job No. 22-13755

Geotechnical Exploration, Inc.

LOG OF TEST BORINGS 9 AND 10

DRAWN BY: mrk	CHECKED BY:	PROJECT NO: 501351-GE03	DATE: 10-2-81	FIGURE NO: A-12

Boring 11

Approximate El. 66'

DEPTH IN FEET	TEST DATA *MC	TEST DATA *DD	TEST DATA *BC	*OTHER TESTS	SAMPLE NUMBER	SOIL DESCRIPTION
						7" Asphalt Concrete
						Medium dense to dense, moist, brown silty clayey medium sand (SM) OLDER PLEISTOCENE TERRACE DEPOSITS (Qt)
5			50		11-1	Dense, moist, brown silty fine to coarse sand (SM) traces of white carbonate material ($CaCO_3$) OLDER PLEISTOCENE TERRACE DEPOSITS (Qt)
10			50/6"		11-2	Coarse clean sand from 6' to 7'
						Very dense, moist, yellowish brown, micaceous silty fine to medium sand (SM) POINT LOMA FORMATION (Kp) With thin clayey silt layers
15			60/6"		11-3	
						Bottom of Hole
20						
25						
30						
35						
40						

Figure No. VIIb
Job No. 22-13755

Geotechnical Exploration, Inc.

*For description of symbols, see Figure A-2

LOG OF TEST BORING 11

DRAWN BY: mrk	CHECKED BY: DS	PROJECT NO: 501351-GE03	DATE: 10-2-81	FIGURE NO: A-13

Boring 12

Approximate El. 71'

DEPTH IN FEET	TEST DATA *MC	TEST DATA *DD	TEST DATA *BC	*OTHER TESTS	SAMPLE NUMBER	SOIL DESCRIPTION
						6" Asphalt Concrete
						Dense, moist, brown silty clayey medium sand (SM) OLDER PLEISTOCENE TERRACE DEPOSIT (Qt)
5			42		12-1	Dense, moist, brown silty fine to coarse sand (SM) OLDER PLEISTOCENE TERRACE DEPOSITS (Qt) Traces of white carbonate material ($CaCO_2$)
						Clean coarse sand
10			88		12-2	Very dense, moist, light yellowish brown micaceous silty fine to medium sand (SM) POINT LOMA FORMATION
15			60/6"		12-3	
						Bottom of Hole
20						
25						
30						
35						
40						

*For description of symbols, see Figure A-2

Figure No. VIIc
Job No. 22-13755

Geotechnical Exploration, Inc.

LOG OF TEST BORING 12

DRAWN BY: mrk	CHECKED BY: DS	PROJECT NO: 501351-GE03	DATE: 10-2-81	FIGURE NO: A-14

Boring 13

Approximate El. 74'

DEPTH IN FEET	TEST DATA *MC	TEST DATA *DD	TEST DATA *BC	*OTHER TESTS	SAMPLE NUMBER	SOIL DESCRIPTION
						7" Asphalt Concrete
5			26		13-1	Medium dense, moist, brown silty clayey fine to medium sand (SM) OLDER PLEISTOCENE TERRACE DEPOSITS (Qt)
10			37		13-2	Dense, moist, brown silty fine to coarse sand (SM) with traces of white carbonite material ($CaCO_3$) OLDER PLEISTOCENE TERRACE DEPOSITS (Qt)
						← Clean coarse sand
15			50/6"		13-3	Very dense, moist, light yellowish brown micaceous silty fine to medium sand (SM) POINT LOMA FORMATION (Kp)
						Bottom of Hole
20						
25						
30						
35						
40						

*For description of symbols, see Figure A-2

Figure No. VIId
Job No. 22-13755

Geotechnical Exploration, Inc.

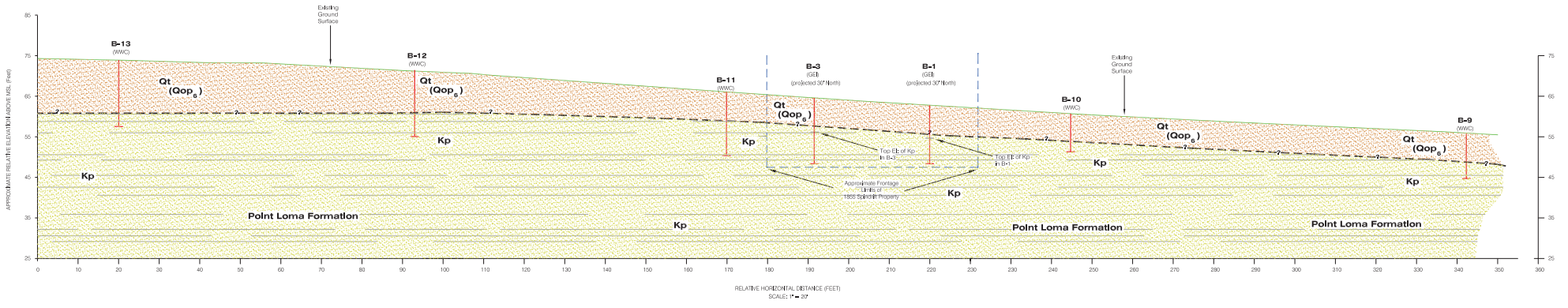
LOG OF TEST BORING 13

DRAWN BY: mrk	CHECKED BY: DS	PROJECT NO: 501351-GE03	DATE: 10-2-81	FIGURE NO: A-15

GEOLOGIC CROSS SECTION A-A'

Lee/DeGuzman Residential Property
1855 Spindrift Drive
La Jolla, CA.

N38°E ➡



Qt (Qop$_6$)	Terrace Deposits	B-1 (GEI)	Approximate Location of Exploratory Boring (GEI-2023)
Kp	Point Loma Formation	B-12 (WWC)	Approximate Location of Exploratory Boring (Woodward-Clyde , 1981)
-?- - -?-	Approximate Geologic Contact		

10 0 10 20 40

GRAPHIC SCALE
(FEET)

NOTE: This Cross Section is not to be used for legal purposes. Locations and dimensions are approximate. Actual property dimensions and locations of utilities may be obtained from the Approved Building Plans or the "As-Built" Grading Plans.

Figure No. VIIIa
Job No. 22-13755

Geotechnical Exploration, Inc.

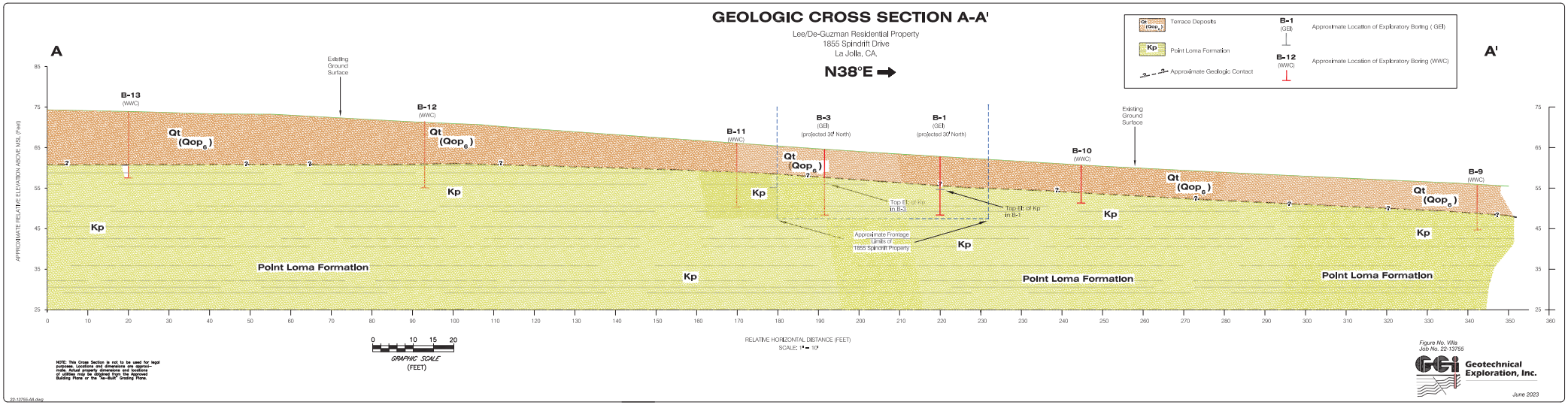
June 2023

22-13755-WA-REDUCED-20-SCALE-HATCH-5

GEOLOGIC CROSS SECTION A-A'

Lee/De-Guzman Residential Property
1855 Spindrift Drive
La Jolla, CA.

N38°E ➡



NOTE: This Cross Section is not to be used for legal purposes. Locations and dimensions are approximate. Actual property dimensions and locations may be determined by reference to the Recorded Building Plans or the "As-Built" Grading Plans.

Figure No. Villa
Job No. 22-13755

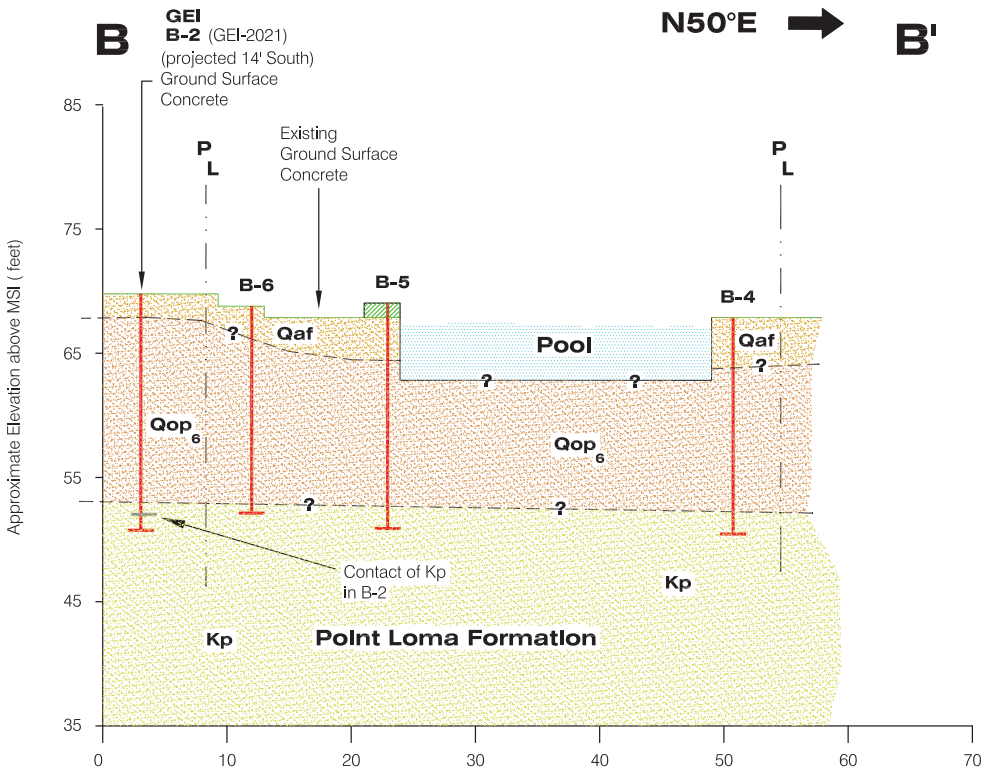
Geotechnical Exploration, Inc.

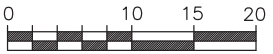
June 2023

22-13755-A4.dwg

GEOLOGIC CROSS SECTION B-B'

Lee/De-Guzman Residential Property
1855 Spindrift Drive
La Jolla, CA.





Qaf	Artificial Fill
Qop$_6$	Old Paralic Deposits Unit 6
Kp	Point Loma Formation
?--?--?	Approximate Geologic Contact
B-1	Approximate Location of Exploratory Boring

Figure No. VIIIb
Job No. 22-13755

Geotechnical Exploration, Inc.

June 2023

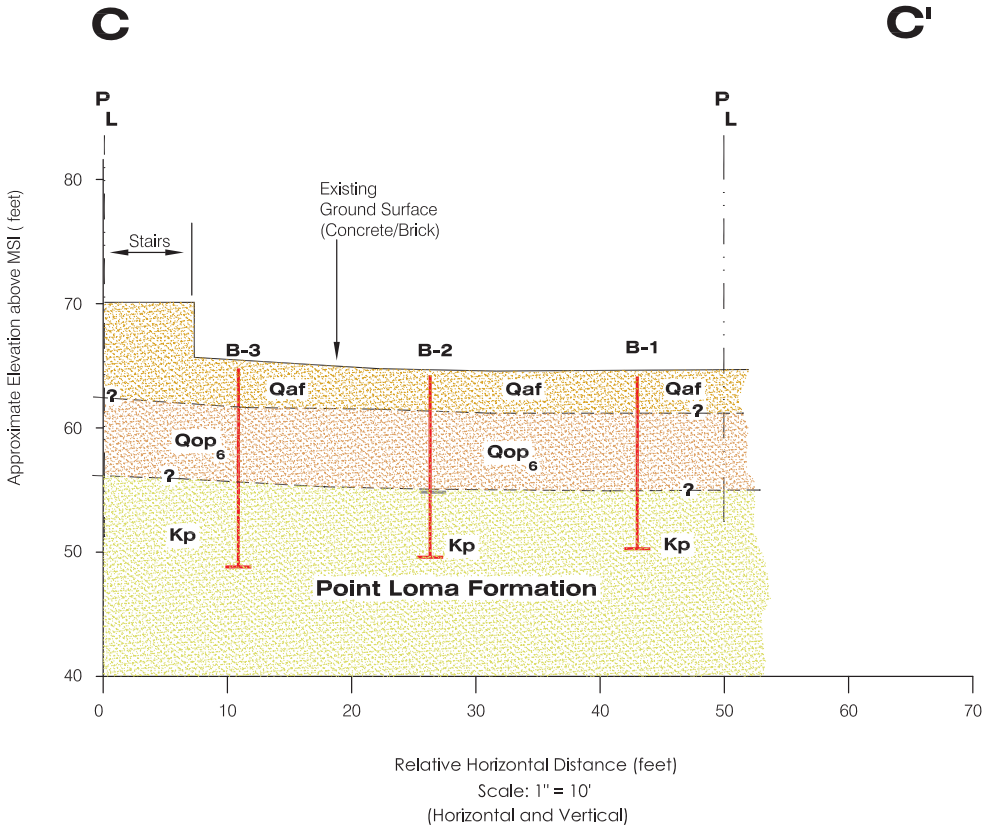
NOTE: This Cross Section is not to be used for legal purposes. Locations and dimensions are approximate. Actual property dimensions and locations of utilities may be obtained from the Approved Building Plans or the "As-Built" Grading Plans.

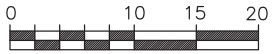
22-13755-BB.dwg

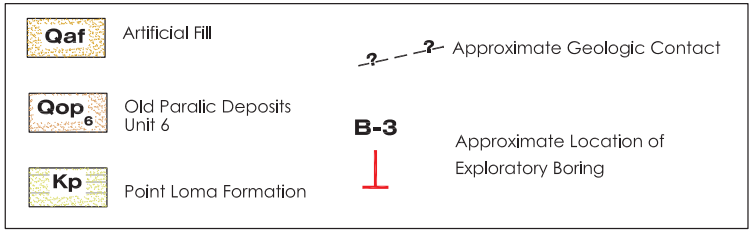
GEOLOGIC CROSS SECTION C-C'

Lee/De-Guzman Residential Property
1855 Spindrift Drive
La Jolla, CA.

N52°E







NOTE: This Cross Section is not to be used for legal purposes. Locations and dimensions are approximate. Actual property dimensions and locations of utilities may be obtained from the Approved Building Plans or the "As-Built" Grading Plans.

22-13755-CC.dwg

Figure No. VIIIc
Job No. 22-13755

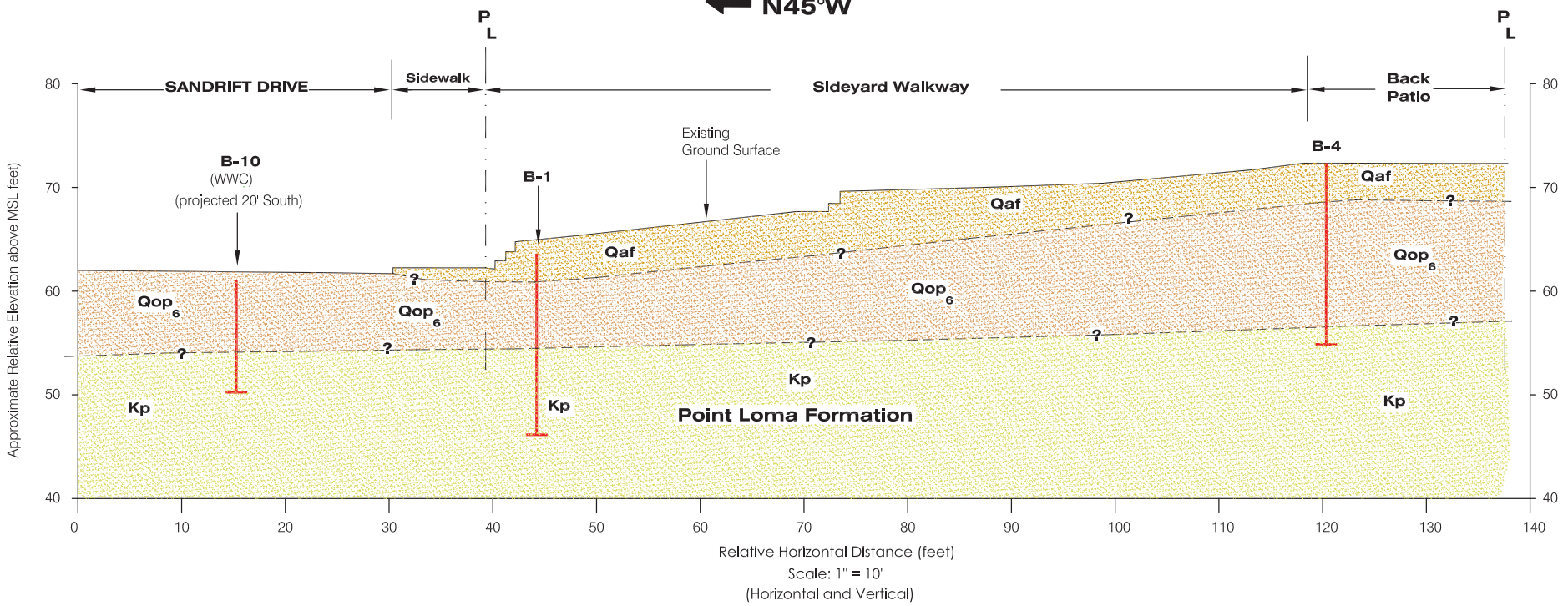
Geotechnical Exploration, Inc.

June 2023

GEOLOGIC CROSS SECTION D-D'

Lee/De-Guzman Residential Property
1855 Spindrift Drive
La Jolla, CA.

N45°W



Qaf — Artificial Fill

Qop6 — Old Paralic Deposits Unit 6

Kp — Point Loma Formation

? - - ? Approximate Geologic Contact

B-4 — Approximate Location of Exploratory Boring

0 10 15 20
GRAPHIC SCALE
(FEET)

NOTE: This Cross Section is not to be used for legal purposes. Locations and dimensions are approximate. Actual property dimensions and locations of utilities may be obtained from the Approved Building Plans or the "As-Built" Grading Plans.

22-13755-DD.dwg

Figure No. VIIId
Job No. 22-13755

Geotechnical Exploration, Inc.

June 2023

APPENDIX A
UNIFIED SOIL CLASSIFICATION SYSTEM (U.S.C.S.)
SOIL DESCRIPTION

Coarse-grained (More than half of material is larger than a No. 200 sieve)

GRAVELS, CLEAN GRAVELS (More than half of coarse fraction is larger than No. 4 sieve size, but smaller than 3")	GW	Well-graded gravels, gravel and sand mixtures, little or no fines.
	GP	Poorly graded gravels, gravel and sand mixtures, little or no fines.
GRAVELS WITH FINES	GC	Clay gravels, poorly graded gravel-sand-silt mixtures
SANDS, CLEAN SANDS (More than half of coarse fraction is smaller than a No. 4 sieve)	SW	Well-graded sand, gravelly sands, little or no fines
	SP	Poorly graded sands, gravelly sands, little or no fines.
SANDS WITH FINES	SM	Silty sands, poorly graded sand and silty mixtures.
	SC	Clayey sands, poorly graded sand and clay mixtures.

Fine-grained (More than half of material is smaller than a No. 200 sieve)

SILTS AND CLAYS		
Liquid Limit Less than 50	ML	Inorganic silts and very fine sands, rock flour, sandy silt and clayey-silt sand mixtures with a slight plasticity
	CL	Inorganic clays of low to medium plasticity, gravelly clays, silty clays, lean clays.
	OL	Organic silts and organic silty clays of low plasticity.
Liquid Limit Greater than 50	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.
HIGHLY ORGANIC SOILS	PT	Peat and other highly organic soils

APPENDIX B

Regional Geologic Description

In the Coastal Plain region, where the subject property is located, the "basement" consists of Mesozoic crystalline rocks. Basement rocks are also exposed as high relief areas (e.g., Black Mountain northeast of the subject property and Cowles Mountain near the San Carlos area of San Diego). Younger Cretaceous and Tertiary sediments lap up against these older features. These sediments form a "*layer cake*" sequence of marine and non-marine sedimentary rock units, with some formations up to 140 million years old. Faulting related to the La Nación and Rose Canyon Fault zones has broken up this sequence into a number of distinct fault blocks in the southwestern part of the county. Northwestern portions of the county are relatively undeformed by faulting (Demere, 1997).

The Peninsular Range forms the granitic spine of San Diego County. These rocks are primarily plutonic, forming at depth beneath the earth's crust 140 to 90 million years ago as the result of the subduction of an oceanic crustal plate beneath the North American continent. These rocks formed the much larger Southern California batholith. Metamorphism associated with the intrusion of these great granitic masses affected the much older sediments that existed near the surface over that period of time. These metasedimentary rocks remain as roof pendants of marble, schist, slate, quartzite and gneiss throughout the Peninsular Ranges. Locally, Miocene-age volcanic rocks and flows have also accumulated within these mountains (e.g., Jacumba Valley). Regional tectonic forces and erosion over time have uplifted and unroofed these granitic rocks to expose them at the surface (Demere, 1997).

The Salton Trough is the northerly extension of the Gulf of California. This zone is undergoing active deformation related to faulting along the Elsinore and San Jacinto Fault Zones, which are part of the major regional tectonic feature in the southwestern portion of California, the San Andreas Fault Zone. Translational movement along these fault zones has resulted in crustal rifting and subsidence. The Salton Trough, also referred to as the Colorado Desert, has been filled with sediments to depth of approximately 5 miles since the movement began in the early Miocene, 24 million years ago. The source of these sediments has been the local mountains as well as the ancestral and modern Colorado River (Demere, 1997).

As indicated previously, the San Diego area is part of a seismically active region of California. It is on the eastern boundary of the Southern California Continental Borderland, part of the Peninsular Ranges Geomorphic Province. This region is part of a broad tectonic boundary between the North American and Pacific Plates. The actual plate boundary is characterized by a complex system of active, major, right-lateral strike-slip faults, trending northwest/southeast. This fault system extends eastward to the San Andreas Fault (approximately 70 miles from San Diego) and westward to the San Clemente Fault (approximately 50 miles off-shore from San Diego) (Berger and Schug, 1991).

In California, major earthquakes can generally be correlated with movement on active faults. As defined by the California Division of Mines and Geology, now the California Geological Survey (CGS), an "active" fault, described by CGS (2018) as a Holocene-Active fault, is one that has had (ground) surface displacement within Holocene time, the last 11,700. In addition, "potentially active fault" has been amended to Pre-Holocene fault: a fault whose recency of past movement is older than 11,700 years, and thus does not meet the criteria of Holocene-Active fault as defined in the State Mining and Geology Board regulations.

In the City of San Diego, the lead agency for the project, three-tier fault classification is used as follows:

- *Holocene-Active Faults* have surface displacement within Holocene time, where Holocene time is the geological epoch that began 11,700 years before present.
- *Pre-Holocene Faults* have demonstrable displacement older than Holocene time.
- *Age-Undetermined Faults* are faults whose age of most recent movement is not known or is unconstrained by dating methods or by limitations in stratigraphic resolution.

During recent history, prior to April 2010, the San Diego County area has been relatively quiet seismically. The youngest paleoearthquake that cuts the early historical living surface is likely the 1862 San Diego earthquake that had an estimated magnitude of M6 (Legg and Agnew, 1979; Singleton et al., 2019). Paleoseismic trenches at the Presidio Hills Golf Course on the main trace of the Rose Canyon Fault contained evidence for historical ground rupturing earthquakes as recently as 1862 and the mid-1700s. Results of the study also suggest the Rose Canyon Fault has a ~700-800-year recurrence interval (Singleton et al., 2019).

On June 15, 2004, a M5.3 earthquake occurred approximately 45 miles southwest of downtown San Diego (26 miles west of Rosarito, Mexico). Another widely felt earthquake on a distant southern California fault was a M5.4 event that took place on July 29, 2008, west-southwest of the Chino Hills area of Riverside County.

Several earthquakes ranging from M5.0 to M6.0 occurred in northern Baja California, centered in the Gulf of California on August 3, 2009. A M5.8 earthquake followed by a M4.9 aftershock occurred on December 30, 2009, centered about 20 miles south of the Mexican border city of Mexicali.

On April 04, 2010, a large earthquake occurred in Baja California, Mexico. It was widely felt throughout the southwest including Phoenix, Arizona and San Diego in California. This M7.2 event, the Sierra El Mayor earthquake, occurred in northern Baja California, approximately 40 miles south of the Mexico-USA border at shallow depth along the principal plate boundary between the North American and Pacific plates. According to the U.S. Geological Survey this is an area with a high level of

historical seismicity, and it has recently also been seismically active, although this is the largest event to strike in this area since 1892. The April 04, 2010, earthquake appears to have been larger than the M6.9 earthquake in 1940 or any of the early 20th century events (e.g., 1915 and 1934) in this region of northern Baja California.

This event's aftershock zone extends significantly to the northwest, overlapping with the portion of the fault system that is thought to have ruptured in 1892. Ground motions for the April 04, 2010, main event, recorded at stations in San Diego and reported by the California Strong Motion Instrumentation Program (CSMIP), ranged up to 0.058g.

On July 07, 2010, a M5.4 earthquake occurred in Southern California at 4:53 pm (Pacific Time) about 30 miles south of Palm Springs, 25 miles southwest of Indio, and 13 miles north-northwest of Borrego Springs. The earthquake occurred near the Coyote Creek segment of the San Jacinto Fault. The earthquake exhibited right lateral slip to the northwest, consistent with the direction of movement on the San Jacinto Fault. It was followed by more than 60 aftershocks of M1.3 and greater during the first hour.

In the last 50 years, there have been four other earthquakes in the magnitude M5.0 range within 20 kilometers of the Coyote Creek segment: M5.8 in 1968, M5.3 on 2/25/1980, M5.0 on 10/31/2001, and M5.2 on 6/12/2005. The biggest earthquake near this location was the M6.0 Buck Ridge earthquake on 3/25/1937.