Appendix IS-3

Preliminary Geotechnical Report

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for

Hollywood Toyota Site
Los Angeles, California

Prepared For:

6000 Hollywood Associates, LLC
444 South Flower Street, Suite 210
Los Angeles, California 90071

Prepared By:

Langan Engineering and Environmental Services, Inc.
18575 Jamboree Road, Suite 150
Irvine, California 92612

LANGAN

27 April 2023
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1.0 INTRODUCTION

Langan Engineering and Environmental Services, Inc. (LANGAN) has completed a preliminary geotechnical investigation to support the initial evaluation for the proposed mixed-use development (Project) at 6000 Hollywood Boulevard, Los Angeles, California (Site). The purpose of our investigation was to provide geotechnical engineering services in support of the California Environmental Quality Act (CEQA) analysis. Our scope of services was performed in accordance with our Consultant Services Agreement for Geotechnical Engineering Services, dated 20 March 2022, authorized by Office Untitled.

Provided herein is a summary of our understanding of the proposed mixed-used development, an overview of the geological and geotechnical information at the site, and our recommendations pertaining to the geotechnical design and construction considerations of the proposed development. Our recommendations follow the guidelines of the 2022 Los Angeles Building Code (2022 LABC).

2.0 PROJECT DESCRIPTION

2.1 Existing Conditions

The approximately 3.75-acre Site is comprised of large rectangular shaped property along Hollywood Boulevard and a smaller rectangular parcel attached in the south adjacent to Carlton Way. The Site is presently a car dealership with asphalt paved parking lots, one-story vehicle maintenance buildings, and one-story office building. The Site consist of multiple lots and is bound by Hollywood Boulevard to the North, an undeveloped lot to the east, a two-story commercial building to the west and two to four-story residential buildings and Carlton Way to the south. Based on the plan titled "Design Survey" by KPFF dated 11 June 2022, site elevations range from 392 feet in the northeast to 379 feet in the south. Retaining walls with a height of 1 to 3 feet are in the southeast portion of the site. The neighboring buildings to the west are directly adjacent to the property line. Entrance to possible below-grade levels were observed for some of the southern residential buildings. Based on the plans titled "LA CBD to North Hollywood, Vermont/Hollywood Tunnel, Plan, STA AR&AL 540+00 to STA AR&AL 549+92" by Rail Construction Corporation, Metro Red Line dated 5 August 1999, the Metro B Red Line runs underneath and parallel to Hollywood Boulevard. At its closest, the Metro B (Red) Line sidewall is approximately 16 feet away from the northern property limits. The Site vicinity is shown on Figure 1.

2.2 Proposed Development

Based on the plans titled "6000 Hollywood Blvd" by Office Untitled dated 28 March 2023, the proposed mixed-use development includes demolition of all existing structures and construction of a podium that will encompass the majority of the Site. The podium is proposed two to three levels below grade and up to three levels above grade. The second below grade level is proposed in the western portion of the Site with a rough grade pad elevation of 367.5 feet or approximately 20 to 25 feet below grade. The third below grade level is proposed in the eastern portion with a rough grade pad elevation of 357.5 feet or approximately 30 to 40 feet below grade. Deeper excavations for footings and/ or pile caps are anticipated. The at-grade level is proposed with parking stalls, retail shops, restaurants, offices, driveways, and lobby areas. The second and third above grade level are proposed with ten 2 to 4-story residential buildings (Buildings D1 to D10 and E), a 2-story retail building (Building E), landscaping that includes patios, terraces, walkways, and playgrounds. The podium is proposed to support a 6-story office building in the western

portion (Building A), and a 35-story tower in the eastern portion (Building B). In the southern rectangle adjacent to Carlton Way, a 4-story residential building (Building C) is proposed with a finished floor elevation of 378 feet. Structural loads are not available at this time and recommendations will be refined once structural loads are available.

3.0 REVIEW OF AVAILABLE INFORMATION

Information that was reviewed included publicly available geologic reports and aerial photographs. Referenced information included reports, maps and websites from the agencies listed below:

- United States Geological Survey (USGS),
- California Geological Survey (CGS),
- Federal Emergency Management Agency (FEMA) and
- California Geologic Energy Management Division (CalGEM) previously known as the Division of Oil, Gas & Geothermal Resources (DOGGR).

3.1 Regional and Local Geologic Setting

Regionally, the Site is located at the boundary of the Peninsular Ranges and Transverse Ranges geomorphic provinces. To the south, the Peninsular Ranges is a series of mountain ranges and valleys that trend northwest, sub-parallel to the San Andreas fault system. To the north, the Transverse Ranges is a series of mountains and valleys trending roughly east-west, due to regional north-south compression generated from the restraining bend in the San Andreas fault to the east. The Transverse Ranges structures are generally oblique to the common northwest structural grain of coastal California. The Santa Monica and Hollywood fault system forms the boundary between the two geomorphic provinces in this region.

Locally, the Site is situated on a southeast-sloping alluvial fan system, which, based on historical topographic contour data, likely emanated from Brush Canyon and adjacent canyons (Hoots,1931). The fan system is part of the Santa Monica-La Brea Plain that separates the rugged Santa Monica Mountains to the north from the low-relief Los Angeles (LA) Basin to the south. The LA Basin is an extensive sediment-filled depression characterized by northwest-trending strike slip faulting, characteristic of the Peninsular Ranges geomorphic province.

As shown on regional geologic mapping of the site area (Figure 2), CGS (Campbell et al., 2014) divides the older and younger alluvial fan deposits into multiple subunits. From oldest to youngest, the subunits are designated Qof1, Qof2, Qof3, and Qof4; and Qya1, Qya2, Qya3, and Qya4. The site area is mapped as Qof4, which is described as slightly to moderately consolidated silt, sand and gravel alluvial fan deposits.

3.2 Geologic and Seismic Hazards

LANGAN's geologic/geotechnical hazard review was performed in general accordance with CGS Special Publication 117A, "Guidelines for Evaluating and Mitigating Seismic Hazards in California" and City of Los Angeles website Zone Information and Map Access System (ZIMAS). The following subsections present the results of our review of the hazards as they pertain to the site.

- Regional Faulting and Seismicity – According to the CGS 2010 Fault Activity Map of California and the 2014 USGS Seismic Source Model, the closest mapped active faults to the site are the Hollywood fault (0.1 miles to the northwest), the Santa Monica fault (4.7 miles to the southwest), and the Newport Inglewood fault (4.8 miles to the southwest). Recognized and mapped faults that are locate within 100 kilometer (km) radius of the Site are shown on Figures 3A and 3B.

The site is located in an active seismic area that has historically been affected by moderate to strong levels of earthquake-induced ground shaking. Therefore, the proposed development is expected to experience strong levels of ground shaking from nearby faults as well as ground shaking from other active seismic areas in the southern California region.

- Regional Seismicity - A search of the USGS ANSS Comprehensive Earthquake Catalog indicates that as of 26 April 2023, 41 earthquakes with magnitudes of 5.0 or greater have occurred within a 100-km radius of the site since 1900. A summary of the USGS ANSS ComCat reported earthquake events are provided in Appendix A.
- Surface Fault Rupture – Based on our review of the CGS Earthquake Zones of Required Investigation Map (EZRIM) for the Hollywood Quadrangle (CGS, 2014) and the City of Los Angeles website ZIMAS, the Site is not located within a mapped Alquist-Priolo (A-P) Earthquake Fault Zone (EFZ) as defined by the A-P Earthquake Fault Zoning (A-P) Act. Our geologic review does not indicate the presence of active surface faulting within the Site as shown in Figure 4. However, the northern limits of the site are just outside of the southern limits of the Hollywood EFZ and a surface trace is mapped approximately 600 feet to the northwest of the Site, at its closest approach.
- Liquefaction – Liquefaction is a transformation of soil from a solid to a liquefied state during which saturated soil temporarily loses strength resulting from the buildup of excess pore water pressure, especially during earthquake-induced cyclic loading. Soil susceptible to liquefaction includes loose to medium dense sand and gravel, low-plasticity silt, and some low-plasticity clay deposits. Based on the EZRIM for the Hollywood Quadrangle (CGS, 2014) and City of Los Angeles website ZIMAS, the Site is not located within a state designated liquefaction hazard zone as shown on Figure 4.
- Lateral Spreading – Lateral spreading is a phenomenon in which surficial soil displaces along a shear zone that has formed within an underlying liquefied layer. The surficial blocks are transported downslope or in the direction of a free face, by earthquake and gravitational forces. The Site is relatively flat and does not include a free-facing slope. Therefore the potential for lateral spreading is considered low.
- Earthquake-Induced Landslide Areas – Based on our review of the Hollywood Quadrangle EZRIM (CGS, 2014), the Site is not located within an 'Earthquake-Induced Landslide' zone, see Figure 4. Additionally, the topography onsite and in the site vicinity, is relatively flat. Therefore, the potential for earthquake-induced landslide is considered low.
- Seismic-Induced Ground Deformations – Seismic-induced ground deformations include ground surface settlement and differential settlement resulting from liquefaction of saturated cohesionless soils and cyclic densification of unsaturated sands and gravels caused by earthquakes. The potential for seismic-induced ground deformation is discussed later in Section 6.2.
- Historically High Groundwater – Based on our review of the "Seismic Hazard Zone Report for the Hollywood 7.5-Minute Quadrangle, Los Angeles County, California" (CDMG, 1998), the historical high groundwater depth is mapped at approximately 80 feet.
- Flood Mapping – Based on the Federal Emergency Management Agency (FEMA) Flood Insurance Rate Map (FIRM) Number 06037C1605F, dated 26 September 2008, the Site is mapped as 'Area of Minimal Flood Hazard, Zone X'.

- Tsunami Inundation - A tsunami is a long high sea wave caused by an earthquake, submarine landslide, or other underwater disturbance. A seiche is an oscillation of surface water in an enclosed or semi-enclosed basin such as a lake, bay, or harbor. The Site is not located within an area potentially impacted by a Tsunami or seiche wave as mapped by the CGS (State of California, 2021).
- Oil Fields – Based on a search of the California Geologic Energy Management (CalGEM) Division's Well Finder online tool, accessed on 13 April 2022, the Site is not mapped within any oil field boundaries. The nearest plugged gas/oil well is located approximately 2,600 feet southwest of the Site. Therefore, since there is not local oil or gas extraction, the Site is not considered to be subjected to land subsidence due to oil or gas extraction from oil wells.
- Methane Zones – Based on the Los Angeles Department of Public Works, Engineering Division "Methane and Methane Buffer Zones" map, dated 31 March 2004, the Site is not mapped within a methane or methane buffer zone.
- Expansive Soils – Expansive soils experience swelling or shrinking due to moisture change as a result of cyclic wet/dry weather cycles, irrigation, landscaping, or site grading. Swelling and shrinking soils can result in differential movement of structures, including floor slabs and foundations, and site work, including hardscape, utilities, and sidewalks. Soils that exhibit shrinkage and swelling under these conditions generally consist of plastic clay. Expansive soil testing is discussed in Section 6.3.
- Soil Erosion – Soil erosion is the removal of soil by water and/or wind. Factors which influence the erosion potential include the soil type, amount of rainfall, wind, length and steepness of slopes, and the amount and type of vegetation covering the site and slopes. The Site is fully developed and has limited landscaping. The proposed development does not include slopes, or site features which may be susceptible to erosion; therefore, erosion potential of soils and loss of topsoil is considered to be low.

3.3 Aerial Photograph Review

As part of our geotechnical analysis, LANGAN reviewed historical aerial photographs dated between 1928 and 1986. Based on our review of the historical photographs, the Site was divided into multiple lots and the lots were developed with commercial or residential buildings in the 1928 aerial photograph. Trees can be observed on the lots. The neighboring property to the west appears undeveloped and trees can be observed on the property. The neighboring property to the east appears developed with a residential or commercial building, trees can be observed on the property. The neighboring properties to south appear to have residential buildings.

In the 1940 aerial photograph, the Site appears to have commercial buildings on some lots. The neighboring properties to the west, east and south appear unchanged from the 1928 aerial photograph. In the 1956 aerial photograph, the Site continues to appear to be divided into multiple lots with asphalt paved parking, vehicles and commercial buildings. The neighboring property to the east appears to have asphalt paved parking and a building in the south end. The neighboring property to the west appears as asphalt paved parking. The neighboring properties to the south appear unchanged from the 1940 aerial photograph. In the 1960 aerial photograph, the Site appears unchanged from the 1956 aerial photograph. Neighboring property to the west, east and south appear unchanged from the 1956 aerial photograph.

In the 1976 aerial photograph, the Site appears in its current form with asphalt paved parking and commercial buildings. Neighboring property to the west appears to have a commercial building.

Neighboring property to the east and south appear unchanged from the 1960 aerial photograph. In the 1986 aerial photograph, the Site and neighboring property to the south and west appear unchanged from the 1976 aerial photograph. The building in the eastern neighboring property is no longer visible. A list of the aerial photographs that were reviewed is attached in Appendix B.

4.0 SUBSURFACE INVESTIGATION

LANGAN's geotechnical field investigation consisted of seven (7) borings, identified as LB-1 to LB-7, that were drilled by Martini Drilling, Inc., on 22 to 25 February 2022 under full-time observation of a LANGAN field engineer. Borings were hand-augured to a depth of 5 feet and then drilled with hollow stem augers attached to truck mounted Central Mining Equipment (CME)-75 to a depth ranging from 41.5 to 101.5 feet.

Bulk samples of the upper 5 feet were collected at select boring locations. Standard Penetration Tests (SPT[1]) and relatively undisturbed ring samples were collected using a 3.0-inch-outer-diameter split-barrel California sampler lined with 2.42-inch-inner-diameter brass rings in accordance with ASTM D3550. Soil samples were visually examined and classified in the field in accordance with the Unified Soil Classification System (USCS). Upon completion, the borings were backfilled with cement-grout up to the ground surface, and the surface was patched with quick-set concrete. Excess soil cuttings were drummed.

Prior to drilling, the boring locations were marked out by a LANGAN field engineer. Underground Service Alert of Southern California (USA DigAlert) was contacted to locate and mark known public underground utilities within the public right-of-way. A Los Angeles County Department of Environmental Health water well permit was applied for and granted (SR0286749). A boring location plan is shown in Plate 1 and boring logs are included in Appendix C.

4.1 Laboratory Testing

Our laboratory testing program included the following analyses:

- Atterberg Limit – ASTM D4318
- Percent Fines – ASTM D1140
- Direct Shear – ASTM D3080
- Moisture and Density – ASTM D7263
- Consolidation – ASTM D2435
- Expansion Index – ASTM D4829
- Wash #200 Sieve – ASTM D1140
- Electrical Resistivity – CTM 643
- Chloride Content – CTM 422
- Sulfate Content – CTM 417
- Soil pH – CTM 643
- Modified Proctor – ASTM D1557

Laboratory testing was performed by Geo-Logic Associates, a City of Los Angeles certified testing agency (certification number 10198) under supervision of a California License Geotechnical Engineer (GE). We reviewed the laboratory testing results and accompanying certification letter and concur with the laboratory test data and accept responsibility for use of this data in our analysis. Laboratory test results are included in Appendix D.

[1] The Standard Penetration Test is a measure of the soil density and consistency. The SPT N-value is defined as the number of blows required to drive a 2-inch outer diameter split-barrel sampler 12-inches or 3.0-inch-outer-diameter split-barrel California sampler lined with 2.42-inch-inner-diameter brass rings, after an initial penetration of 6 inches, using a 140-pound automatic hammer free falling of a height of 30-inches (ASTM D1586).

5.0 SUBSURFACE CONDITIONS

In general, borings indicated that subsurface conditions consist of fill underlain by alluvium. Boring locations are shown in Plate 1 and generalized subsurface cross-sections are presented in Plate 2 and 3. Our interpretation of the subsurface conditions is summarized below.

- Undocumented Fill – Up to 11 feet of undocumented fill was encountered under asphalt pavement. Cohesive fill was described as brown, dark brown, clay or silt with varying amounts of sand and gravel. Cohesionless fill was described as gray, dark brown, sand with varying amounts of clay and gravel. A raw SPT blow count of 2 was encountered in LB-7 for cohesive fill and a raw SPT blow count of 11 was encountered in LB-3 for cohesionless fill. Laboratory results for undocumented fill are summarized below.

Table 1 - Undocumented Fill Lab Results Summary

Boring/Sample	Moisture Content (Percent)	Liquid Limit (Percent)	Plastic Limit (Percent)	Maximum Dry Density (pcf)	Optimum Moisture Content (Percent)
LB-4/S-1	14.4	34	18	--	--
LB-1/B-1	--	30	17	124.5	11.5
LB-3/B-1	--	37	19	115.5	15

- Alluvium – Alluvium was encountered underlying the undocumented fill to the maximum explored depth of 101.5 feet. Cohesive alluvium was described as brown, reddish brown, dark brown, silt or clay with varying amounts of sand and gravel. Cohesionless alluvium was described as brown, orangish brown, light brown, dark brown, gray brown, sand with varying amounts of silt, clay and gravel.

  For cohesive soil, raw SPT blow counts of 2 to 9 were generally encountered in the upper 25 feet with raw SPT blow counts of 11 to 34 encountered deeper than 25 feet. For cohesionless soil, raw SPT blow counts of 7 to 18 were generally encountered in the upper 35 feet with raw SPT blow counts of 20 or higher encountered below 35 feet. For cohesionless soil, one raw SPT blow count of 17 was encountered at a depth of 70 feet in LB-5. A raw SPT blow count of 17 and 12 was encountered at a depth of 65 and 70 feet, respectively, in LB-7. Laboratory test results for alluvium samples are listed below.

Table 2 - Alluvium Lab Results Summary

Boring/Sample	Moisture Content (Percent)	Dry Density (pcf)	Liquid Limit (Percent)	Plastic Limit (Percent)	Passing #200 Sieve (Percent)
LB-3/S-3	--	--	--	--	61
LB-3/S-7	--	--	--	--	40
LB-3/S-15	--	--	--	--	33
LB-3/S-17	20.9	--	34	18	--
LB-4/S-2	16.2	--	--	--	--
LB-4/S-3	--	--	34	18	--
LB-5/S-4	--	--	--	--	34

Table 2 - Alluvium Lab Results Summary Continued					
Boring/Sample	**Moisture Content (Percent)**	**Dry Density (pcf)**	**Liquid Limit (Percent)**	**Plastic Limit (Percent)**	**Passing #200 Sieve (Percent)**
LB-5/S-8	--	--	--	--	38
LB-5/S-10	12	--	31	15	--
LB-6/S-3	--	--	--	--	43
LB-6/S-6	--	--	--	--	40
LB-6/S-7	--	--	--	--	46
LB-7/S-2	10.1	105.8	--	--	--
LB-7/S-11	14.4	--	35	17	--
LB-7/S-12	--	--	--	--	51
LB-7/S-16	--	--	--	--	26
LB-7/S-19	--	--	--	--	14

Table 3 - Alluvium Direct Shear Test Results					
		Peak Values		**Ultimate Values**	
Boring/Sample	**Unit Weight (pcf)**	**Friction Angle (Degrees)**	**Cohesion (psf)**	**Friction Angle (Degrees)**	**Cohesion (psf)**
LB-7/S-2	116	34	100	34	100
LB-3/S-4	122	28	200	28	200
LB-6/S-6	135	37	400	37	0
LB-1/S-9	138	32	1400	32	600
LB-5/S-11	138	35	600	32	600
LB-3/S-12	125	37	600	37	200

- Groundwater – Groundwater was encountered in boring LB-3 and LB-5 at a depth of approximately 82 feet. Groundwater was encountered in boring LB-7 at a depth of approximately 89 feet. The historic high groundwater depth was reported at approximately 80 feet.

6.0 GEOTECHNICAL EVALUATION AND RECOMMENDATIONS

Our geotechnical evaluation and recommendations for seismic design, seismic settlement, expansive soil, foundation support, floor slabs, pavement design, corrosion and site design are provided below.

6.1 Preliminary Seismic Design Parameter

Based on our evaluation of the subsurface conditions, the soils underlying the Site may be characterized as Seismic Site Class D, in accordance with Chapter 20 of ASCE 7-16. As such, the following seismic design criteria may be used.

Criteria	Mapped Value (Site Class D)
MCE_R Spectral Response Acceleration at Short Periods, S_S	2.115g
MCE_R Spectral Response Acceleration at 1 second period, S_1	0.753g
Short Period Site Coefficient, F_a	1.0
Short Period Site Coefficient, F_v	2.5
Site-modified MCE_R Spectral Response Acceleration at Short Periods, S_{MS}	2.115g
Site-modified MCE_R Spectral Response Acceleration at 1 second period, S_{M1}	1.883g
Design Spectral Response Acceleration at short periods, S_{DS}	1.41g
Design Spectral Response Acceleration at 1 second period, S_{D1}	1.255g
MCE_G Peak Ground Acceleration, PGA_M	0.998g

The recommended mapped values of F_v, S_{M1}, and S_{D1} above have been increased by 150 percent in accordance with the exception of Section 11.4.8.1 of Supplement No. 3 to ASCE 7-16. If the structural engineer elects not to use this exception in the seismic design approach, we should be notified so that we may develop site-specific response spectra and seismic design criteria in accordance with Chapter 21 of ASCE 7-16.

6.2 Liquefaction and Cyclic Densification Evaluation

Based on the historical high groundwater depth of 80 feet and that the shallowest depth groundwater was encountered during our exploration was 82 feet, liquefaction of the upper 50 feet of soils is not expected. Cyclic densification was evaluated for LB-5 and LB-7 in accordance with the guidelines titled, "City of Los Angeles Information Bulletin for Liquefaction Analysis Guidelines", effective 1 January 2020. In accordance with the guidelines, two analyses were performed, the first with a 2/3 PGA_M (design earthquake or DE level of ground shaking) and the second with the full PGA_M (maximum considered earthquake or MCE level of ground shaking), where PGA_M is the Maximum Considered Earthquake geometric mean peak ground acceleration adjusted for site class effects.

Under the MCE level of ground shaking, the looser alluvial soils to a depth of 20 to 25 feet are susceptible to dry settlement. For most of the development on the northern part of the site the proposed excavation will remove the looser soils, therefore less than 1 inch of settlement induced by cyclic densification is estimated. Under the DE level of ground shaking, less than 1 inch of settlement induced by cyclic densification is estimated.

The four-story structure (Building C) proposed adjacent to Carlton Way does not have any below grade levels. Preliminary evaluation indicates that dry dynamic settlement up to 3 inches may be occur under the MCE level of ground shaking. Ground improvement to a depth of 20 feet can be used to reduce settlement induced by cyclic densification to 2 inches or less. Ground improvement to a depth of 25 feet can be used to reduce settlement induced by cyclic densification to 1 inch or less. Under the DE level of ground shaking, less than 1 inch of settlement induced by cyclic densification is estimated.

6.3 Expansive Soils

Laboratory testing of the upper 5 feet of soil in LB-1 and LB-3 resulted in expansive index of 29 and 53 or low to medium expansive potential. However, we expect the upper 25 feet of material to be removed for the podium therefore any hardscape elements not supported on the podium should be designed for medium expansive soils.

Methods commonly used to reduce the effects of expansive soils include controlling the moisture content of the soils prior to placement of surface finishes, use of impermeable barriers around foundations, confinement of expansive soils through the use of non-expansive soil caps, and chemical stabilization. The Site should be designed to promote positive drainage away from the pavements and landscaping should consist of mainly drought tolerant native planting that requires limited irrigation.

6.4 Adjacent Metro B (Red) Line

The Metro B (Red) Line operates under and parallel to Hollywood Boulevard. Based on the plans titled "LA CBD to North Hollywood, Vermont/Hollywood Tunnel, Plan, STA AR&AL 540+00 to STA AR&AL 549+92" by Rail Construction Corporation, Metro Red Line dated 5 August 1999, the sidewall of the Metro B (Red) Line is, at its closest, approximately 16 feet from the property line and approximately 72 feet below Hollywood Boulevard. The proposed 6 story office building (Building A) is approximately 22 feet away from the Metro B (Red) Line sidewall. The proposed 35 story tower (Building B) is approximately 28 feet away from the Metro B (Red) Line sidewall. Based on preliminary evaluation, the 6 story office building (Building A) and podium are not estimated to result in any new surcharge loading on the Metro B (Red) Line tunnel. Similarly, the majority of the proposed 35 story tower (Building B) foundations are set far enough away from the tunnel that surcharge is not anticipated. Foundations on the northern side of the 35 story tower (Building B) may need to be supported on deep foundations, depending on final load and column grid conditions. Recommendations for deep foundation systems are provided in Section 6.5.2.

6.5 Foundation Evaluation and Alternatives

Based on our evaluation of the subsurface data and our understanding of the proposed development, foundations are expected to be underlain by alluvium which is suitable for support of the structure. Based on our review of the subsurface information, we anticipate the proposed structure can supported on shallow foundations such as spread footings or a mat foundation. Additional foundation information is provided below.

6.5.1 Podium Foundations

Two below grade levels are proposed in the western portion of the Site with a rough grade pad elevation of 367.5 feet or approximately 20 to 25 feet below grade. Three below grade levels is proposed in the eastern portion with a rough grade pad elevation of 357.5 feet or approximately 30 to 40 feet below grade. Assuming foundations are at least 22 feet below grade, foundations can be designed bearing on alluvium. Based on the subsurface conditions encountered, shallow

foundations such as spread or continuous footings can be designed with the recommendations described below.

- Spread or Continuous Footing – Spread or continuous footings bearing on properly prepared subgrade consisting of alluvial soils or primary structural fill can be designed using an allowable bearing capacity of 5,000 to 6,000 psf. Foundations should be embedded a minimum of 24 inches below grade and at least 12 inches in width. The recommended allowable bearing capacity can be increased by one-third for transient loads such as wind and seismic for preliminary design.

  Spread or continuous footings designed in accordance with the above parameters are anticipated to settle less than one-inch under static loading, with differential settlements of less than ½-inch between adjacent columns. Settlements under dynamic loading are anticipated to be less than 1-inch.

  Any areas loosened during excavation should be over-excavated and re-compacted, alternatively the area can be backfilled with lean concrete placed in accordance with the recommendations included in this report.

  The foundation subgrade should be free of standing water and deleterious debris, firm and unyielding. The foundation subgrade should be observed and approved by a City of Los Angeles Deputy Grading Inspector prior to steel or concrete placement. The foundations should be constructed as soon as possible following subgrade approval. The contractor shall be responsible for maintaining the subgrade in its approved condition (i.e. free of water, debris, etc.) until the footing is constructed.

- Mat Foundation – If the number and size of spread footings becomes impractical, a feasible alternative is to support the structure on a mat foundation. For structures supported on mat foundations bearing on alluvium or primary structural fill, an allowable bearing pressure on the order of 5,000 psf or higher may be feasible. Depending on the distribution of bearing pressures, tributary area of the bearing pressures below the mat foundation, and the size of the mat foundation, total and differential settlements are expected to govern the recommended bearing capacities. As such, mat foundations are expected to be designed using vertical modulus of subgrade reaction by the structural engineer, in order to estimate settlements based on applied bearing pressures.

  For mat foundations bearing on alluvium or primary structural fill, a preliminary vertical modulus of subgrade reaction, K_1, of 150 psi/in may be used. It should be noted that this recommended value is appropriate for a 1 feet by 1 feet tributary area; therefore, the recommended value should be adjusted using the formula:

$$K_S = K_1 * \left(\frac{1+B}{2B}\right)^2$$

  where,

  K_S = adjusted vertical subgrade modulus for appropriate tributary area of the applied bearing pressure or foundation,
  B = tributary width of the applied bearing pressure or foundation.

  Near the edges of the mat foundation, acting over a width of B/6, the preliminary vertical modulus may be increased by a factor of 2. It should be noted that the above recommendations are preliminary and are appropriate for static (long-term) loading

conditions. We expect that additional analysis will be required when the design progresses as the engineer finalizes their model.

Mat foundations designed in accordance with the above preliminary recommendations are anticipated to settle less than 2 to 3 inches under static loading conditions with differential settlements of less than ¾-inch between adjacent columns. Seismic-induced settlements due to cyclic densification are estimated to be less than 1 inch with differential settlement of less than ¾-inch over 50 feet.

- Lateral Resistance: Foundations bearing on appropriately prepared subgrade comprised of alluvium or primary structural fill can be designed to resist lateral sliding using an allowable coefficient of friction of 0.3. Additionally, a passive resistance of 250 psf/foot which is based on an allowable ½-inch deflection may be used in combination with the sliding friction. The sliding resistance has a factor safety of 2.
- Subgrade Preparation – Following mass excavation, the excavation bottom should be proof-rolled and the subgrade should be verified to be firm and unyielding by a qualified City of Los Angeles Deputy Grading Inspector. Additional over-excavation may be necessary, as required by the City of Los Angeles Deputy Grading Inspector to remove unsuitable soils. Loose or disturbed soils at the bottom of the excavation should be removed and replaced with approved compacted fill or lean concrete.

6.5.2 Deep Foundations

If mat foundations are not considered feasible for supporting the proposed tower structures due building loads or excessive differential settlements between structures, or due to foundations potentially surcharging the Metro B (Red) Line tunnel, deep foundations are a feasible foundation support. Conventional deep foundation systems installed within the City of Los Angeles include cast-in-drilled-hole (CIDH) piles with 24 to 60 inch diameters. Due to the granular or cohesionless nature of the soils, CIDH piles may require the use of drilling fluid or casing for successful installation. Although less conventional, augered-cast-in-place (ACIP) and drilled displacement piles foundation systems have also been used in the City of Los Angeles area but require additional load testing and construction verification. Such piles typically range in diameter from 16 to 24 inches, however, larger diameter elements have been used. The design of deep foundation systems depend on the required loading, ground conditions, length, diameter, concrete/grout strength, and steel reinforcing. For preliminary design, we expect that 24-inch diameter piles that are 50 to 60 feet long may be designed with an axial capacity of 300 to 400 kips, based on a factor of safety of 2, which assumes site specific load tests are performed.

Estimates of lateral capacity will be a function of the foundation type, geometry, foundation stiffness, and soil conditions. We can provide these recommendations if requested by the structural engineer. Settlement estimates of deep foundation systems will be a function of the structural loading, foundation diameter and length, pile cap size, and various other factors.

Regardless of the drilled deep foundation type chosen, a pre-construction test pile and pile load test program is recommended to verify the pile element's geotechnical and structural capacities, as well as the contractor construction means and methods required to provide suitable piles on a production basis.

6.6 Building C Foundations

The 4-story residential building (Building C) adjacent to Carlton Way is proposed with a finished floor elevation of 378 feet or 1 to 3 feet below grade. The structure can be supported on a mat foundation bearing on 2 feet of primary structural fill with and an average bearing pressure of

3,000 to 5,000 psf can be used for design. The allowable bearing capacity can be increased by one-third for temporary transient loading, such as earthquake or wind.

Depending on the distribution of bearing pressures, tributary area of the bearing pressures below the mat foundation, and the size of the mat foundation, total and differential settlements are expected to govern the recommended bearing capacities. As such, mat foundations are expected to be designed using vertical modulus of subgrade reaction by the structural engineer, in order to estimate settlements based on applied bearing pressures.

For mat foundations bearing primary structural fill, a preliminary vertical modulus of subgrade reaction, K_1, of 100 pounds per cubic inch (psi/in) may be used. It should be noted that this recommended value is appropriate for a 1 feet by 1 feet tributary area; therefore, the recommended value should be adjusted using the formula:

$$K_S = K_1 * \left(\frac{1+B}{2B}\right)^2$$

where,
K_S = adjusted vertical subgrade modulus for appropriate tributary area of the applied bearing pressure or foundation,
B = tributary width of the applied bearing pressure or foundation.

Near the edges of the mat foundation, acting over a width of B/6, the preliminary vertical modulus may be increased by a factor of 2. It should be noted that the above recommendations are appropriate for static (long-term) loading conditions.

Mat foundations designed in accordance with the above recommendations are anticipated to settle less than 1 inch under static loading conditions with differential settlements of less than 1/2-inch between adjacent columns. Combined static plus seismi settlement will be less than 4 inches total and less than 2 inches differential.

Lateral Resistance: Foundations bearing on appropriately prepared subgrade comprised of primary structural fill can be designed to resist lateral sliding using an allowable coefficient of friction of 0.3. Additionally, a passive resistance of 200 psf/foot which is based on an allowable ½-inch deflection may be used in combination with the sliding friction.

Subgrade Preparation: Following mass excavation, the excavation bottom should be proof-rolled and the subgrade should be verified to be firm and unyielding by a qualified City of Los Angeles Deputy Grading Inspector. Additional over-excavation may be necessary, as required by the City of Los Angeles Deputy Grading Inspector to remove unsuitable soils. Loose or disturbed soils at the bottom of the excavation should be removed and replaced with approved primary structural fill, lean concrete or slurry.

6.7 Floor Slabs

We anticipate the floor slab can be designed as a slab-on grade bearing on an adequately prepared subgrade. For preliminary design, we recommend that slabs be designed in accordance with the 2022 City of Los Angeles Building Code using a vertical modulus of subgrade reaction of 150 psi/in. Floor slabs should be a minimum of 5 inches thick. A 15 mil moisture barrier can be used to protect moisture sensitive floor areas, the moisture barrier should be installed under the concrete floor slab with joints lapped not less than 6 inches and 4 inches of free draining material. Steel reinforcing should be designed by the project's Structure Engineer.

6.8 Below-Grade Walls

Below grade walls with a height of 20 to 40 feet are anticipated to meet rough grade pad elevation however deeper excavations are anticipated for foundations and/ or pile caps. Below grade walls are assumed with level backfill and retain alluvium. Below-grade walls are presumed to be fixed against rotation and restrained. Below-grade walls can be designed to resist soil and surcharge pressures using the parameters below.

- Coefficient of Friction = 0.25 to 0.3
- Soil Unit Weight = 120 pounds per cubic foot (pcf)
- Friction Angle = 28 to 34 degrees
- Equivalent Fluid Pressure (At-Rest Condition / Restrained Wall) = 60 to 70 psf/ft
- Equivalent Fluid Pressure (Active Condition / Unrestrained Wall) = 40 to 50 psf/ft
- The proposed retained soil height for the basement walls is greater than 6 feet. Therefore, additional earth pressures caused by seismic ground shaking should be considered in design. In accordance with the 2022 LABC, below-grade walls should be designed for seismic loading conditions using the active earth pressure plus the seismic thrust increment of 30 psf / foot. When retained soil heights are greater than 15 feet, lower height dependent seismic thrust earth pressures may be feasible, which are a function of the seismic site class, level of ground shaking, and retained soil height. The height dependent seismic thrust earth pressures are subject to approval by the City of Los Angeles structural and geotechnical plan reviewer.
- At-rest, active, passive, and seismic thrust increment should be considered to follow a triangular distribution.
- Lateral loads from surcharges on basement walls may be considered to impart surcharges to the restrained walls using an earth pressure coefficient of ½ for restrained walls presuming a uniform distribution. Surcharge loading from adjacent foundations should be considered where the adjacent foundations are supported on the soil above a 1H:1V theoretical influence line projecting upwards from the below-grade wall.
- Surcharge loading should consider adjacent streets, vehicular traffic, and sidewalks. Where vehicular traffic will pass within 10 feet of below-grade walls, temporary traffic loads should be considered in the design of walls. Traffic loads such as fire trucks or cars parked on the street beyond the side walk may be modeled by a minimum uniform pressure of 100 psf /foot applied on the upper 10 feet of the walls.
- A wall drainage system, such as uniformly spaced prefabricated drainage panels connected to a foundation (toe) drain, should be installed behind below-grade walls to divert water to an interior drainage and sump system. Typically, drainage panels are placed between lagging, soldier piles, and shotcrete basement walls and drain into a horizontal drainage composite attached to the bottom of the panels. Vertical pipes collect the water from the horizontal drainage composite and divert it to pipes that lead to interior concrete floor drains and sumps. Langan recommends the use of a pre-manufactured collection system that is designed to collect water from the drainage composite and convey it to interior pipes. This type of drainage panel system does not require rock pockets.

6.9 Corrosion Considerations

Chemical analyses performed on select samples are summarized below.

Table 4 - Summary of Chemical Test Results for Corrosion

Boring / Sample ID	Resistivity (ohm-cm)	pH	Sulfate (%)	Chloride (%)
LB-1/B-1	1,890	7.7	0.023	0.0066
LB-3/B-1	760	7.5	0.4995	0.0054

Based on the minimum resistivity, the upper 5 feet of soil at LB-1 is considered moderately corrosive to ferrous metals (Romanoff, 1957). Based on the minimum resistivity, the upper 5 feet of soil at LB-3 is considered corrosive to ferrous metals (Romanoff, 1957). All subsurface structures and utilities should be protected against corrosion. A corrosion expert should be consulted during the design phase for the most economical and effective corrosion protection if ferrous utilities are required.

Based on the American Concrete Institute (ACI) 318-19, concrete can be designed for sulfate exposure as class S0. The upper 5 feet of soil at LB-3 is considered sulfate exposure class S2. Considering the upper 25 feet will be removed for the podium, confirmatory testing of the proposed subgrade material should be performed during the design level investigation. Corrosion test results are attached in Appendix D.

6.10 Temporary Excavation Support

Temporary excavations up to 40 feet are anticipated for rough grading however deeper excavations for footings and/ or pile caps might be needed. Temporary excavations will be required to facilitate below-grade excavation for the proposed development and will need to be constructed in accordance with Cal/OSHA and City of Los Angeles requirements. Based on our project understanding, the excavations will occupy the entire footprint of the site. Therefore, temporary slopes are not anticipated to be utilized during construction. However, should temporary slopes be required, they should be constructed in accordance with Cal/OSHA and City of Los Angeles requirements.

We anticipate soldier beams and lagging with rakers or tiebacks could be used for temporary excavations support. Written permission allowing use of tiebacks will be required from adjacent property owners or public right-of-way. Prior to installation of tiebacks, the location of subsurface utilities as well as relative to the proposed tieback locations should be verified. If tiebacks are not feasible, Rakers with deadmen are often required.

Surcharge loading due to adjacent structures, temporary traffic and construction loading within a distance of 30 feet from top of the wall should be designed as a constant load equal to 1/3 the applied surcharge. Heavy concentrated construction surcharges (i.e. cranes, material storage, etc.) should be kept a minimum distance of 10 feet away from the wall unless the shoring system is designed for these concentrated loads. Surcharge loading should consider adjacent streets, vehicular traffic, and sidewalks. Where vehicular traffic will pass within 10 feet of shoring, temporary traffic loads should be considered in the design.

7.0 EARTHWORK RECOMMENDATIONS

7.1 Mass Excavation and Grading

Prior to the commencement of excavation and grading, a meeting should be held at the site with the owner, city inspector, excavation/grading contractor, civil engineer, and Geotechnical Engineer to discuss the work schedule and geotechnical aspects of the grading.

Any foundation and abandoned utility remnants or construction debris associated with former site structures encountered within excavations should be fully removed, where practical, and any void spaces that may be created should be backfilled with approved structural fill. If utility pipes are too deep to be removed economically, they should be filled with cement, sand grout or equivalent material that will prevent future collapse of the pipe.

Any soft, loose, or unsuitable soils identified by the City of Los Angeles Deputy Grading Inspector during subgrade preparation should be removed and replaced with approved structural fill. Any environmentally unsuitable soils encountered during the excavation process should be removed and properly disposed of off-site in accordance with all state and local regulations.

7.2 Excavation Obstructions

Based on available subsurface data, concrete from slabs, retaining walls and foundations from prior buildings may potentially be encountered during building and foundation excavations and shoring installation. The contractor should be aware of this potential and have proper equipment on site to excavate or bypass obstructions.

7.3 Fill Material and Compaction Criteria

Fill material (imported or on-site) should be free of organic and other deleterious materials and should have a maximum particle size no greater than 3 inches. The on-site granular portions of the alluvial soils containing less than 12 percent passing the #200 sieve are suitable for use as compacted fill. Any excavated on-site soils not meeting the gradation criteria should be mixed such that the gradation of the excavated soils is acceptable, as determined by the Geotechnical Engineer. All fills should be placed in accordance with the placement and compaction criteria discussed in this report.

Although not anticipated, imported fill should contain no more than 12 percent passing the #200 sieve by dry weight and have a plasticity index less than 7. Grain size distributions, maximum dry density, and optimum water content determinations should be made on representative samples of the proposed fill material.

Secondary structural fill should be placed in loose lifts no greater than 12 inches in thickness, moisture conditioned within 3 percent of optimum moisture content, and compacted to at least 95 percent of the laboratory maximum dry density for cohesionless soils and 90 percent of the maximum dry density for cohesive soils as determined by ASTM D1557 (Modified Proctor). Cohesive soils are defined as having more than 15 percent of particles passing the #200 sieve.

Primary structural fill placed within the building footprint should be placed in loose lifts no greater than 8 inches in loose lift thickness, moisture conditioned within 3 percent of optimum moisture content, and compacted to at least 95 percent of the laboratory maximum dry density as determined by ASTM D1557 (Modified Proctor).

All structural fill placement should be subject to controlled engineering observation by a City of Los Angeles Deputy Grading Inspector. No fill material should be placed on areas where free water is standing or on surfaces that the geotechnical consultant has not approved.

8.0 PROTECTION OF NEIGHBORING STRUCTURES

All new construction work should be performed so as not to adversely impact or cause loss of support to structures, hardscape and landscape elements, paving, or utilities to remain. At a minimum, a preconstruction conditions documentation comprised of photographic and videographic documentation of accessible and visible areas of neighboring structures, landscaped, and hardscaped areas including pavements and sidewalks should be considered before beginning construction at the Site.

9.0 FUTURE STUDIES

The conclusions and preliminary recommendation provide herein are based on project information provided to date and a limited number of borings. As part of schematic design, when structural loads are available, the following additional geotechnical studies should be provided:

- A design-level geotechnical investigation and evaluation that includes site-specific exploratory borings that extend below the proposed foundation level to confirm the subsurface conditions that were anticipated and which formed the basis of our preliminary recommendations.
- Development of site-specific response spectra in accordance with Chapter 21 of ASCE 7-16, if required by the project structural engineer.

10.0 CONCLUSIONS

The conclusions and preliminary recommendations provided in this report result from our interpretation of the geotechnical conditions existing at the site inferred from a limited number of borings, as well as architectural information provided by 6000 Hollywood Associates, LLC. Actual subsurface conditions may vary. Recommendations provided are dependent upon one another and no recommendation should be followed independent of the others.

Any proposed changes in structures or their locations should be brought to LANGAN's attention as soon as possible so that we can determine whether such changes affect our recommendations. Information on subsurface strata and groundwater levels shown on the logs represent conditions encountered only at the locations indicated and at the time of investigation. If different conditions are encountered during construction, they should immediately be brought to LANGAN's attention for evaluation, as they may affect our recommendations.

This report has been prepared to assist the Owner, architect, civil engineer, and structural engineer in the entitlement process and Environmental Impact Report, and is only applicable to the design of the specific project identified. The information in this report cannot be utilized or depended on by engineers or contractors who are involved in evaluations or designs of facilities (including underpinning, grouting, stabilization, etc.) on adjacent properties which are beyond the limits of that which is the specific subject of this report.

Environmental issues (such as permitting or potentially contaminated soil and groundwater) are outside the scope of this study and should be addressed in a separate evaluation.

11.0 REFERENCES

11.1 Publications, Codes, and Standards

American Concrete Institute (ACI) (2019), Building Code Requirements for Structural Concrete, ACI 318-19.

American Society of Civil Engineers (2016), Minimum Design Loads for Buildings and Other Structures, ASCE/SEI 7-16.

California Geologic Energy Management Division (CalGEM), Well Finder, http://maps.conservation.ca.gov/doggr/wellfinder, accessed 5 August 2020.

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California Occupational Safety and Health (Cal/OSHA), (2014), Title 8, Chapter 4, Article 6, Sections 1539 – 1547.

Campbell, R.H., Willis, C.J., Irvine, P.J., and Swanson, B.J., 2014, Preliminary Geologic Map of the Los Angeles 30' x 60' Quadrangle, Southern California, Version 2.1: United States Geological Survey, Scale 1:100,000.

City of Los Angeles, (2022), Amendments to the 2022 California Building Code, dated 23 December 2022

City of Los Angeles Department of Building and Safety, (2020), "Contents of Reports for Submittal to LADBS Grading Division", effective 1 January 2020.

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Hoots, H.W., 1931, Geology of the eastern part of the Santa Monica Mountains, Los Angeles County, California: U.S. Geological Survey, Professional Paper 165, scale 1:24,000.

State of California, (2021), Tsunami Hazard Area Map, Los Angeles County; produced by the California Geological Survey, the California Governor's Office of Emergency Services, and AECOM; dated 22 March 2021, mapped at multiple scales.

U.S. Geological Survey ANSS Comprehensive Earthquake Catalog (ComCat), https://earthquake.usgs.gov/data/comcat/, accessed 19 April 2022.

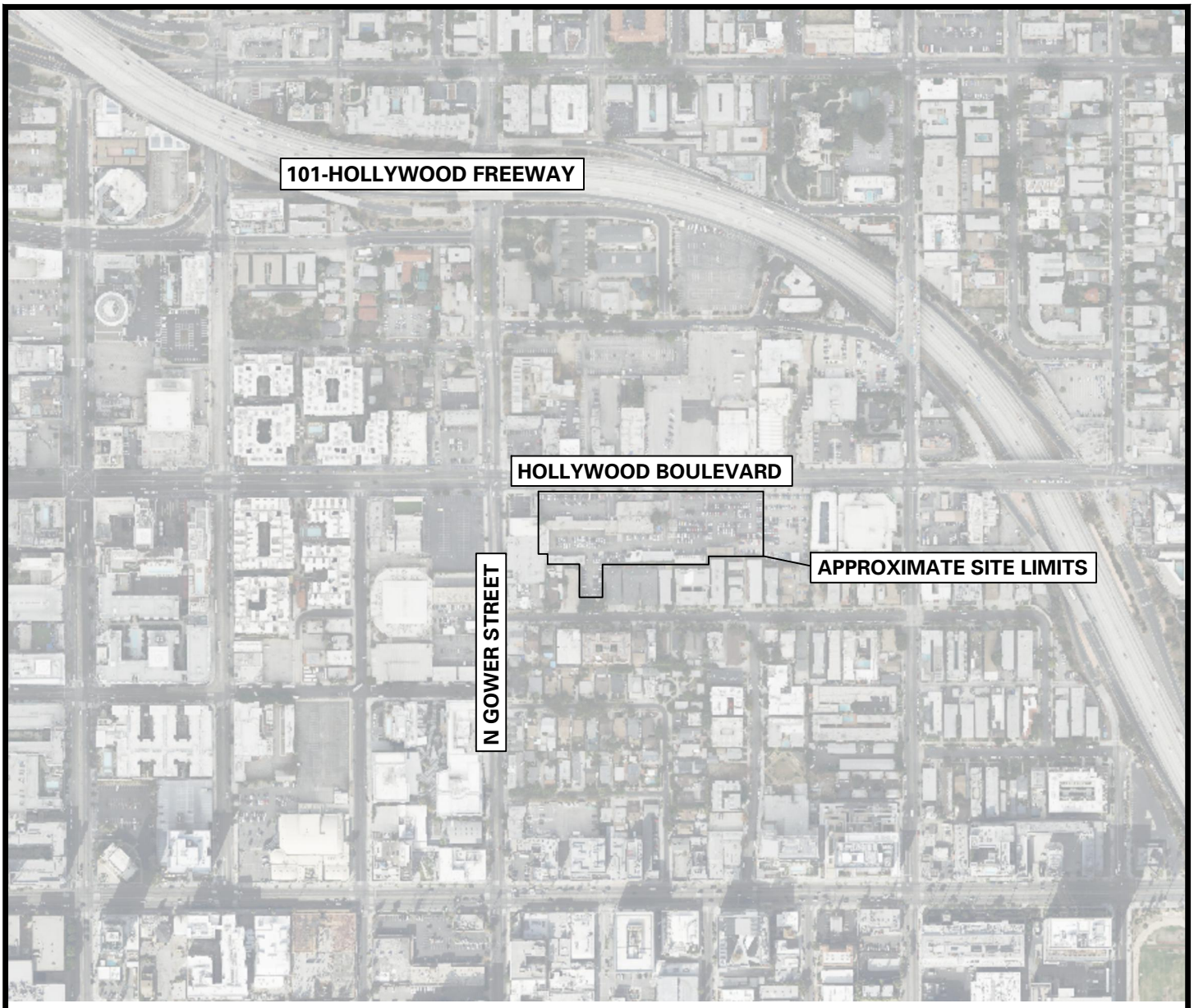
11.2 Plans

KPFF, (2022), ALTA/NSPS Land Title Survey, revised 14 February 2022

KPFF, (2022), Design Survey, Hollywood Toyota, prepared 11 June 2022

OFFICE UNTITLED, (2023), 6000 Hollywood Blvd, dated 28 March 2023

FIGURES and PLATE



NOTES:

1. BACKGROUND IMAGE REFERENCED FROM BING MAPS ON 21 FEBRUARY 2022.
2. SITE LIMITS REFERENCED FROM PLAN TITLED, "ALTA/NSPS LAND TITLE SURVERY" PREPARED BY KPFF, DATED 14 DECEMBER 2021.

LEGEND:

——— APPROXIMATE SITE LIMITS

500 0 250 500

SCALE IN FEET

DRAFT

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Project	HOLLYWOOD TOYOTA SITE LOS ANGELES LOS ANGELES COUNTY CALIFORNIA
Figure Title	SITE VICINITY MAP
Project No.	700109601
Date	APRIL 2022
Scale	AS SHOWN
Drawn By	RF
Figure No.	1

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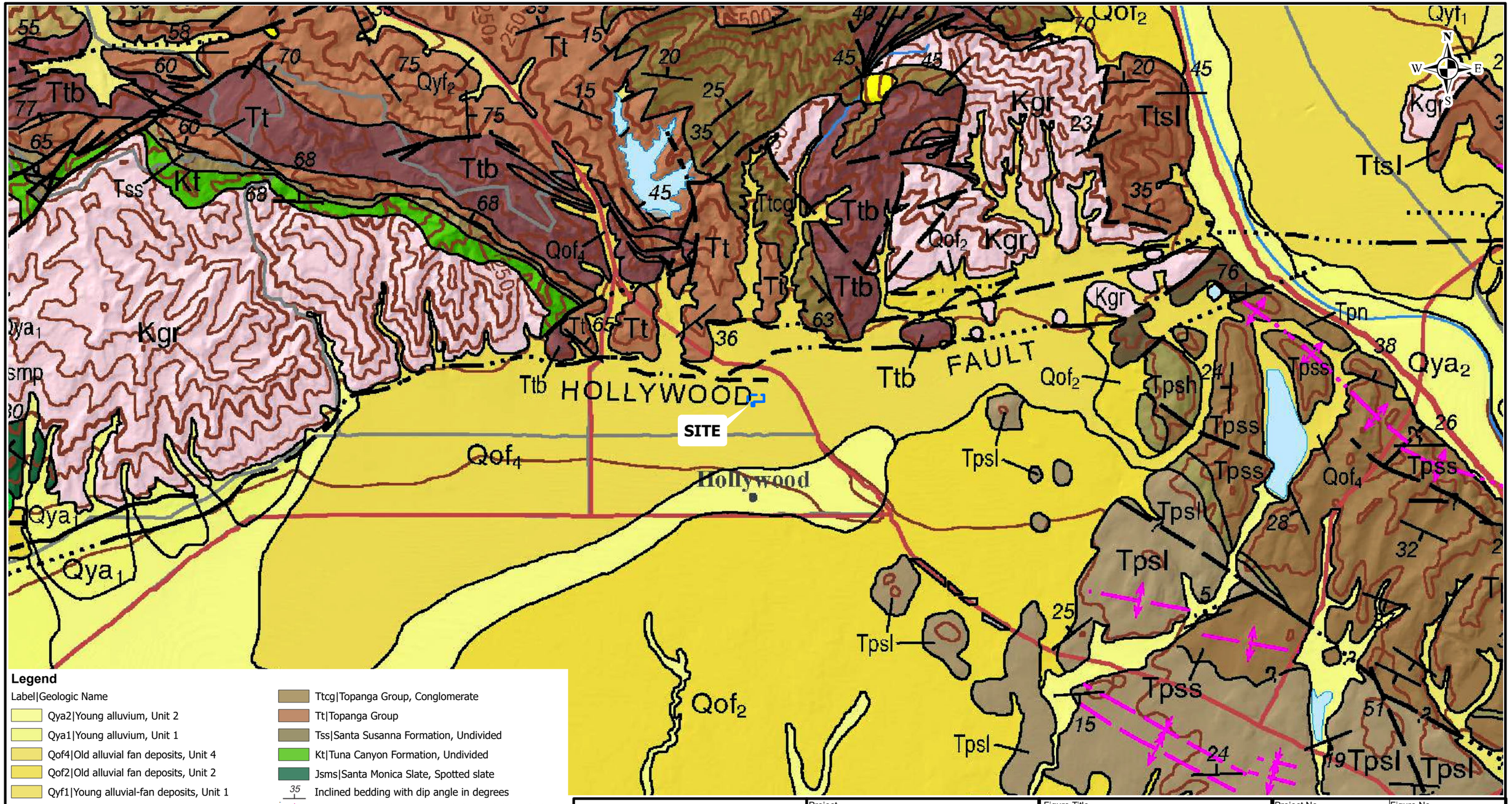

Legend

Label	Geologic Name
Qya2	Young alluvium, Unit 2
Qya1	Young alluvium, Unit 1
Qof4	Old alluvial fan deposits, Unit 4
Qof2	Old alluvial fan deposits, Unit 2
Qyf1	Young alluvial-fan deposits, Unit 1
Kgr	Granitic rocks
Tpss	Puente Formation, Sandstone
Tpsh	Puente Formation, Siliceous Shale
Tpn	Puente Formation, Undivided
Ttsl	Topanga Group, Siltstone
Tpsl	Puente Formation, Siltstone
Ttb	Topanga Group, Intrusive and extrusive volcanic rocks
Ttcg	Topanga Group, Conglomerate
Tt	Topanga Group
Tss	Santa Susanna Formation, Undivided
Kt	Tuna Canyon Formation, Undivided
Jsms	Santa Monica Slate, Spotted slate
35	Inclined bedding with dip angle in degrees
	Anticline - Soil where accurately located; long dash where approximately located; dotted where concealed
	Approximate Site Boundary

Notes:
1. Imagery courtesy of CGS 30'x60' for Los Angeles, Campbell 2014.
2. All features shown are approximate.

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LOS ANGELES COUNTY CALIFORNIA

Figure Title
REGIONAL GEOLOGIC MAP

Project No. 700109601	Figure No. 2
Date 4/15/2022	
Scale 1"=3,000'	
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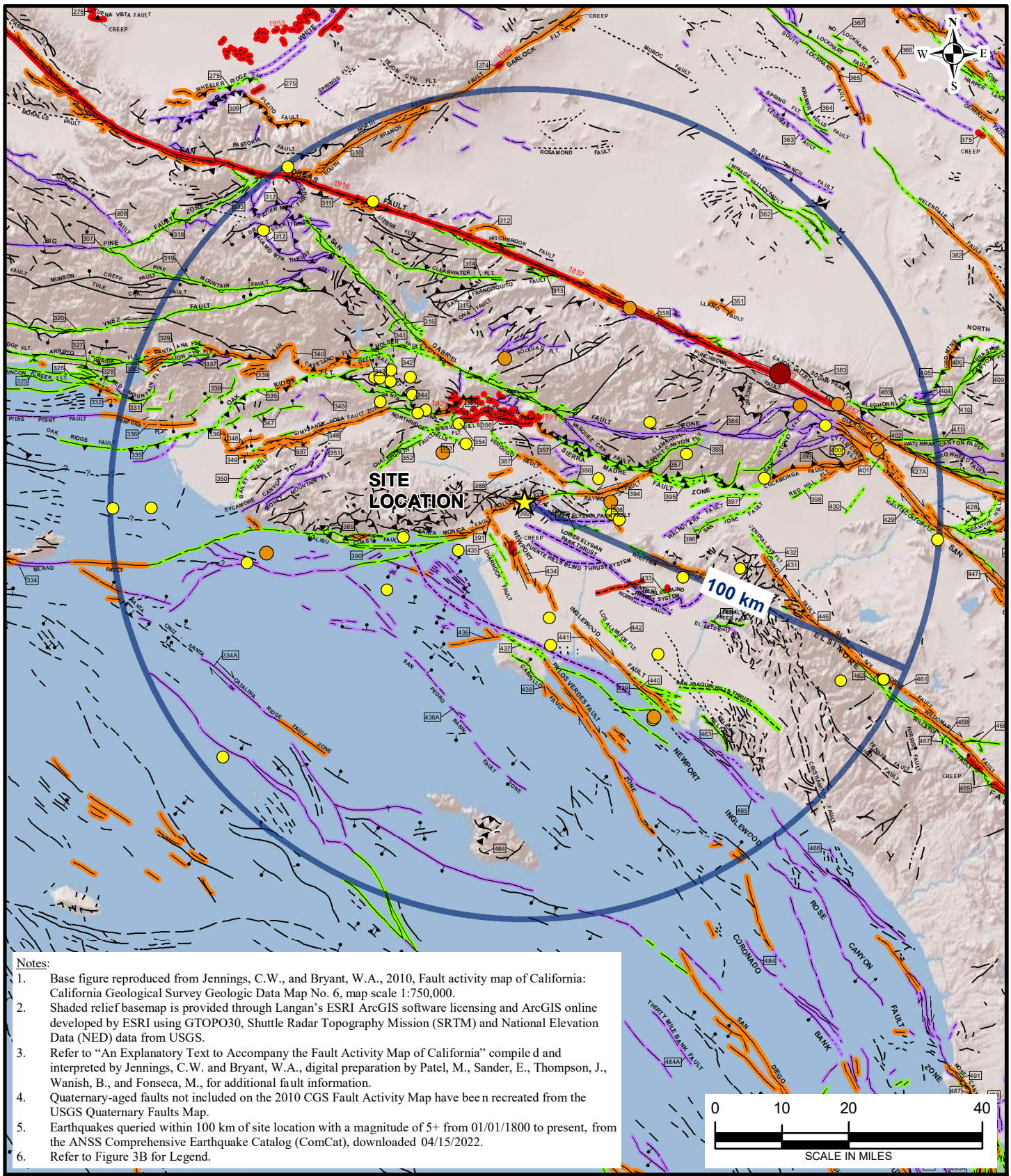

Notes:

1. Base figure reproduced from Jennings, C.W., and Bryant, W.A., 2010, Fault activity map of California: California Geological Survey Geologic Data Map No. 6, map scale 1:750,000.
2. Shaded relief basemap is provided through Langan's ESRI ArcGIS software licensing and ArcGIS online developed by ESRI using GTOPO30, Shuttle Radar Topography Mission (SRTM) and National Elevation Data (NED) data from USGS.
3. Refer to "An Explanatory Text to Accompany the Fault Activity Map of California" compile d and interpreted by Jennings, C.W. and Bryant, W.A., digital preparation by Patel, M., Sander, E., Thompson, J., Wanish, B., and Fonseca, M., for additional fault information.
4. Quaternary-aged faults not included on the 2010 CGS Fault Activity Map have bee n recreated from the USGS Quaternary Faults Map.
5. Earthquakes queried within 100 km of site location with a magnitude of 5+ from 01/01/1800 to present, from the ANSS Comprehensive Earthquake Catalog (ComCat), downloaded 04/15/2022.
6. Refer to Figure 3B for Legend.

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LOS ANGELES COUNTY CALIFORNIA

Figure Title
QUATERNARY FAULT ACTIVITY AND EARTHQUAKE EPICENTER MAP

Project No.	700109601
Date	APRIL 2022
Scale	1 inch = 20 miles
Drawn By	TO

Figure
3A

LEGEND:

Site Location

Fault Age

- Historic
- Holocene
- Late Quaternary
- Early Quaternary
- Pre-Quaternary Fault
- 100 km Search Radius

Earthquake Epicenter

- Magnitude 5.0 to 5.9
- Magnitude 6.0 to 6.9
- Magnitude 7.0 to 7.4
- Magnitude 7.5 to 8.0

Fault Symbols

- Bar and ball on downthrown side (relative or apparent).
- Relative or apparent direction of lateral movement.
- Direction of dip.
- Low angle fault (barbs on upper plate). Fault surface generally dips less than 45° but locally may have been subsequently steepened.
- 491 — Numbers refer to annotations listed in the appendices of the accompanying report.
- Structural discontinuity (offshore) separating differing Neogene structural domains.
- Brawley Seismic Zone.

Fault Classification

Fault along which historic (last 200 years) displacement has occurred and is associated with one or more of the following:
(a) a recorded earthquake with surface rupture. (Also included are some well-defined surface breaks caused by ground shaking during earthquakes, e.g. extensive ground breakage, not on the White Wolf fault, caused by the Arvin-Tehachapi earthquake of 1952). The date of the associated earthquake is indicated. Where repeated surface ruptures on the same fault have occurred, only the date of the latest movement may be indicated, especially if earlier reports are not well documented as to location of ground breaks.
(b) fault creep slippage - slow ground displacement usually without accompanying earthquakes.
(c) displaced survey lines.

1906 — A triangle to the right or left of the date indicates termination point of observed surface displacement. Solid red triangle indicates known location of rupture termination point. Open black triangle indicates uncertain or estimated location of rupture termination point.

1906 — Date bracketed by triangles indicates local fault break.

1906 — No triangle by date indicates an intermediate point along fault break.

CREEP — Fault that exhibits fault creep slippage. Hachures indicate linear extent of fault creep. Annotation (creep with leader) indicates representative locations where fault creep has been observed and recorded.

1906 / 1906 — Square on fault indicates where fault creep slippage has occured that has been triggered by an earthquake on some other fault. Date of causative earthquake indicated. Squares to right and left of date indicate terminal points between which triggered creep slippage has occurred (creep either continuous or intermittent between these end points).

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Project: HOLLYWOOD *TOYOTA SITE*
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LOS ANGELES COUNTY CALIFORNIA

Figure Title: QUATERNARY FAULT ACTIVITY AND EARTHQUAKE EPICENTER MAP

Project No.: 700109601
Date: APRIL 2022
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Figure: 3B

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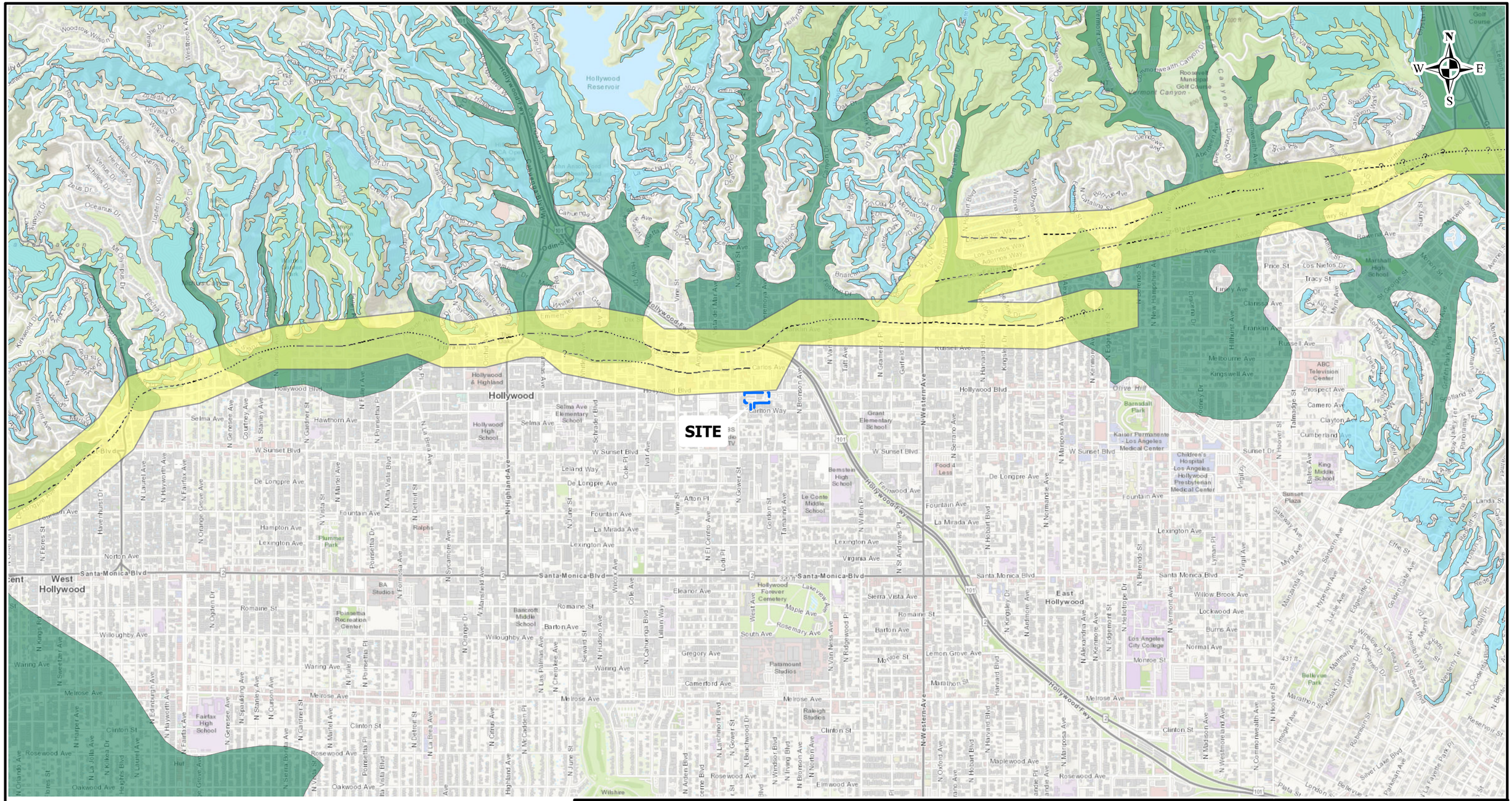

Legend

Fault Traces

- Accurately Located
- Approximately Located
- Approximately Located, Queried
- Inferred
- Concealed
- Concealed, Queried
- Fault Zones
- Landslide Zones
- Liquefaction Zones
- Approximate Site Boundary

Notes:
1. Landslide Zones, Liquefaction Zones, and Alquist-Priolo Earthquake Fault Zones data courtesy of the California Department of Conservation.
2. All features shown are approximate.

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Project
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Figure Title
EARTHQUAKE ZONES OF REQUIRED INVESTIGATION

Project No. 700109601	Figure 4
Date 4/15/2022	
Scale 1"=2,000'	
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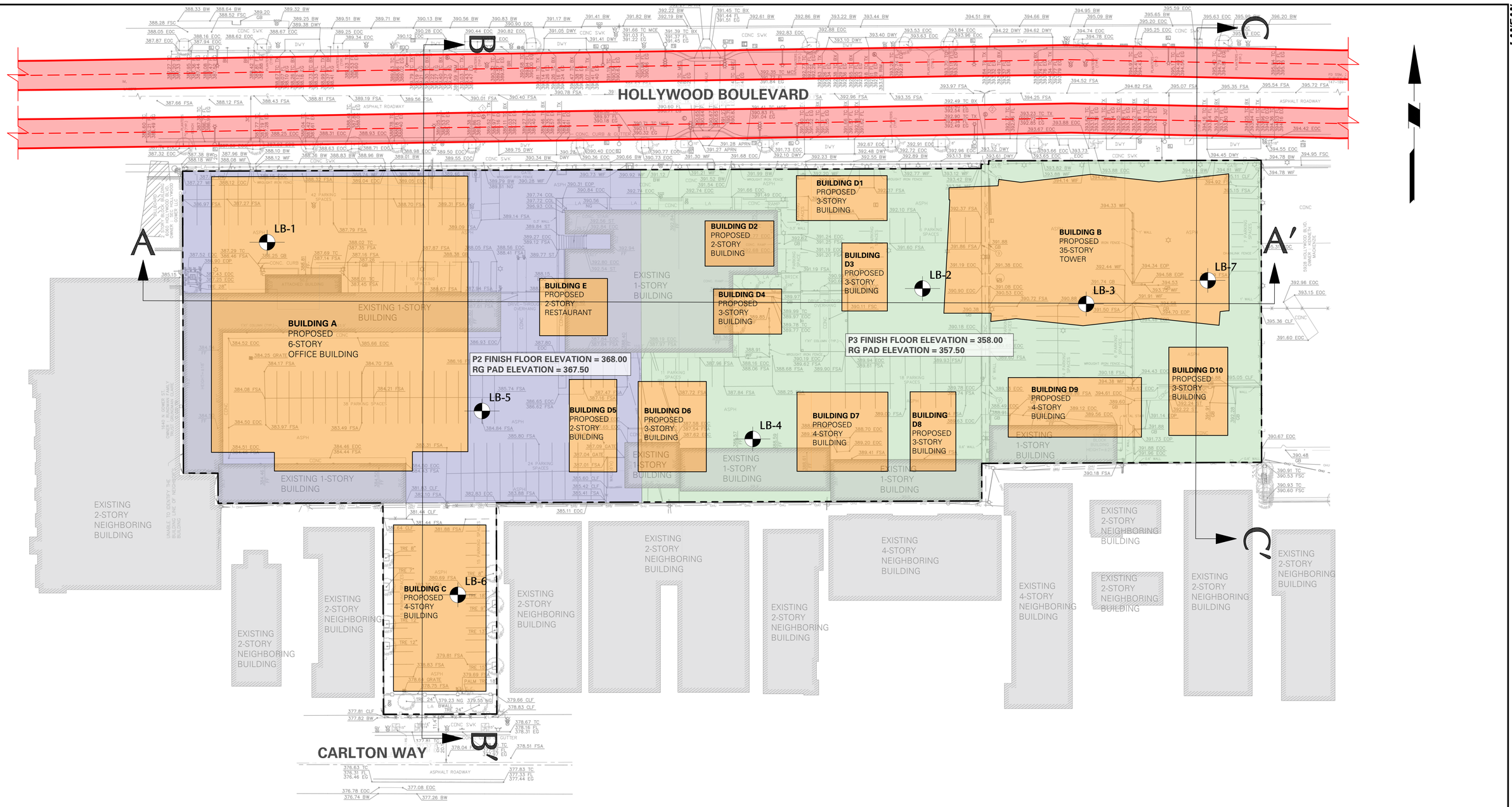

NOTES:

1. BACKGROUND IMAGE AND SITE LIMITS REFERENCED FROM PLAN TITLED, "DESIGN SURVERY" PREPARED BY KPFF, DATED 11 MAY 2022.
2. PROPOSED OFFICE BUILDING, TOWNHOUSE BUILDING, AND TOWER LIMITS ARE REFERENCED FROM THE PLANS TITLED "6000 HOLLYWOOD BLVD, ENTITLEMENT SET - PLOT PLAN" SHEET A0.51 BY OFFICEUNTITLED DATED 28 MARCH 2023.
3. PROPOSED PODIUM LIMITS AND FINISHING FLOOR ELEVATIONS ARE REFERENCED FROM THE PLANS TITLED "6000 HOLLYWOOD BLVD, ENTITLEMENT SET - ROUGH GRADING PLAN" SHEET C1.20 BY OFFICEUNTITLED DATED 28 MARCH 2023.
4. METRO RED LINE LOCATION REFERENCED FROM PLANS TITLED "LA CBD TO NORTH HOLLYWOOD, VERMONT/ HOLLYWOOD TUNNEL, PLAN STA AR&AL 540+00 TO STA AR&AL 549+92" DATED 5 AUGUST 1999 BY RAILROAD CONSTRUCTION CORPORATION METRO RED LINE.

LEGEND:

- APPROXIMATE SITE LIMITS
- APPROXIMATE METRO B RED LINE
- LB-4 APPROXIMATE BORING LOCATIONS
- APPROXIMATE PAD P1 LIMITS
- APPROXIMATE PAD P2 LIMITS
- APPROXIMATE EXISTING AND NEIGHBORING BUILDING LOCATIONS
- APPROXIMATE PROPOSED BUILDING LOCATIONS

30 0 15 30
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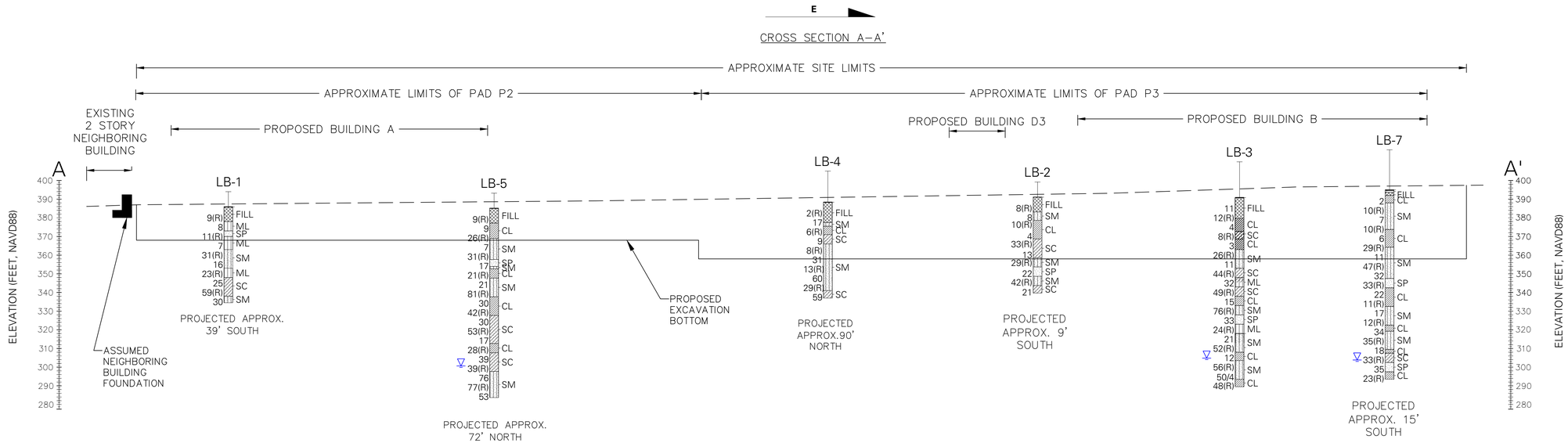
Project	Plate Title	Project No.	Plate No.
HOLLYWOOD TOYOTA SITE LOS ANGELES LOS ANGELES COUNTY CALIFORNIA	BORING LOCATION MAP	700109601 Date: APRIL 2023 Scale: AS SHOWN Drawn By: JX	1

Filename: \\langan.com\data\IRV\data6\700109601\Project Data_Discipline\Geotechnical\CAD - GEO\GeoFigures.dwg Date: 4/24/2023 Time: 09:27 User: jxu Style Table: Langan.stb Layout: BLM_new



LEGEND:

——— ———	EXISTING GROUND SURFACE LEVEL (DASHED WHERE INFERRED)
LB–7 (el±####)	BORING IDENTIFICATION
LB–7 (el±####)	INFERRED GROUND SURFACE ELEVATION (FEET) AT TIME OF BORING
N(R)	STANDARD PENETRATION TEST BLOWCOUNT: NUMBER OF BLOWS OF A 140–LB AUTOMATIC HAMMER FREE FALLING 30 INCHES TO DRIVE A 2–INCH–O.D. SPLIT SPOON SAMPLER 12 INCHES AFTER 6 INCHES OF INITIAL PENETRATION
N	
N(R)	STANDARD PENETRATION TEST BLOWCOUNT: NUMBER OF BLOWS OF A 140–LB AUTOMATIC HAMMER FREE FALLING 30 INCHES TO DRIVE A 3–INCH–O.D. CALIFORNIA MODIFIED SAMPLER 12 INCHES AFTER 6 INCHES OF INITIAL PENETRATION
▽	GROUNDWATER
●	METRO B RED LINE

KEY TO SYMBOLS:

SC (CLAYEY SAND) · CL (CLAY) · SM (silty SAND) · SP (SAND) · GP (GRAVEL) · FILL

NOTES:

1. THE FIGURE SHOWS GENERALIZED SUBSURFACE CONDITIONS AT THE RESPECTIVE BORING LOCATIONS. VARIATIONS IN CONDITIONS SHOULD BE EXPECTED BETWEEN BORING LOCATIONS. FOR A DETAILED DESCRIPTION OF CONDITIONS ENCOUNTERED SEE BORING LOGS.
2. LANGAN BORINGS LB–1 THROUGH LB–7 WERE DRILLED BY MARTINI DRILLING BETWEEN 22 AND 25 FEBRUARY 2022, UNDER FULL–TIME ENGINEERING OBSERVATION OF A LANGAN FIELD ENGINEER.
3. PROPOSED OFFICE BUILDING, TOWNHOUSE BUILDING, AND TOWER LIMITS ARE REFERENCED FROM THE PLANS TITLED "6000 HOLLYWOOD BLVD, ENTITLEMENT SET – PLOT PLAN" SHEET A0.51 BY OFFICEUNTITLED DATED 28 MARCH 2023.
4. PROPOSED PODIUM LIMITS AND FINISHING FLOOR ELEVATIONS ARE REFERENCED FROM THE PLANS TITLED "6000 HOLLYWOOD BLVD, ENTITLEMENT SET – ROUGH GRADING PLAN" SHEET C1.20 BY OFFICEUNTITLED DATED 28 MARCH 2023.
5. METRO RED LINE LOCATION REFERENCED FROM PLANS TITLED "LA CBD TO NORTH HOLLYWOOD, VERMONT/ HOLLYWOOD TUNNEL, PLAN STA AR&AL 540+00 TO STA AR&AL 549+92" DATED 5 AUGUST 1999 BY RAILROAD CONSTRUCTION CORPORATION METRO RED LINE.
6. SEE PLATE 1 FOR LOCATION OF CROSS–SECTION WITH RESPECT TO SITE PLAN.

30 15 0 30
SCALE IN FEET

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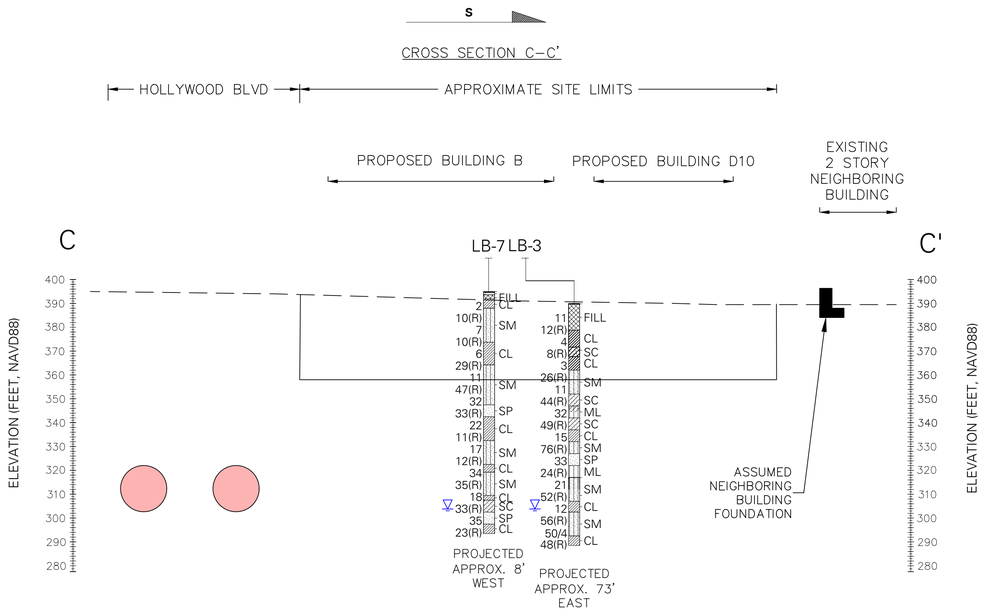
Project: HOLLYWOOD TOYOTA SITE
LOS ANGELES
LOS ANGELES COUNTY CALIFORNIA

Plate Title: GENERALIZED SUBSURFACE CROSS-SECTIONS A-A' AND B-B'

Project No.	700109601
Date	APRIL 2023
Scale	AS SHOWN
Drawn By	JX
Plate No.	2

Filename: \\langan.com\data\IRV\data\07\00109601\Project Data_Discipline\Geotechnical\CAD - GEO\GeoFigures.dwg Date: 4/24/2023 Time: 09:27 User: jxu Style Table: Langan.stb Layout: Xs_AB



LEGEND:

___ ___	EXISTING GROUND SURFACE LEVEL (DASHED WHERE INFERRED)
LB–7 (el±####)	BORING IDENTIFICATION
LB–7 (el±####)	INFERRED GROUND SURFACE ELEVATION (FEET) AT TIME OF BORING
N(R)– N	STANDARD PENETRATION TEST BLOWCOUNT: NUMBER OF BLOWS OF A 140–LB AUTOMATIC HAMMER FREE FALLING 30 INCHES TO DRIVE A 2–INCH–O.D. SPLIT SPOON SAMPLER 12 INCHES AFTER 6 INCHES OF INITIAL PENETRATION
N(R)	STANDARD PENETRATION TEST BLOWCOUNT: NUMBER OF BLOWS OF A 140–LB AUTOMATIC HAMMER FREE FALLING 30 INCHES TO DRIVE A 3–INCH–O.D. CALIFORNIA MODIFIED SAMPLER 12 INCHES AFTER 6 INCHES OF INITIAL PENETRATION
▽	GROUNDWATER
●	METRO B RED LINE

KEY TO SYMBOLS:

SC (CLAYEY SAND) CL (CLAY) SM (silty SAND) SP (SAND)

GP (GRAVEL) FILL

30 15 0 30
SCALE IN FEET

NOTES:

1. THE FIGURE SHOWS GENERALIZED SUBSURFACE CONDITIONS AT THE RESPECTIVE BORING LOCATIONS. VARIATIONS IN CONDITIONS SHOULD BE EXPECTED BETWEEN BORING LOCATIONS. FOR A DETAILED DESCRIPTION OF CONDITIONS ENCOUNTERED SEE BORING LOGS.
2. LANGAN BORINGS LB–1 THROUGH LB–7 WERE DRILLED BY MARTINI DRILLING BETWEEN 22 AND 25 FEBRUARY 2022, UNDER FULL–TIME ENGINEERING OBSERVATION OF A LANGAN FIELD ENGINEER.
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4. PROPOSED PODIUM LIMITS AND FINISHING FLOOR ELEVATIONS ARE REFERENCED FROM THE PLANS TITLED "6000 HOLLYWOOD BLVD, ENTITLEMENT SET – ROUGH GRADING PLAN" SHEET C1.20 BY OFFICEUNTITLED DATED 28 MARCH 2023.
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6. SEE PLATE 1 FOR LOCATION OF CROSS–SECTION WITH RESPECT TO SITE PLAN.

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Project: HOLLYWOOD TOYOTA SITE
LOS ANGELES
LOS ANGELES COUNTY CALIFORNIA

Plate Title: GENERALIZED SUBSURFACE CROSS-SECTION C-C'

Project No.	700109601
Date	APRIL 2023
Scale	AS SHOWN
Drawn By	JX
Plate No.	3

Filename: \\langan.com\data\IRV\data6\700109601\Project Data_Discipline\Geotechnical\CAD - GEO\GeoFigures.dwg Date: 4/24/2023 Time: 09:27 User: jxu Style Table: Langan.stb Layout: Xs_C

APPENDIX A
USGS ANSS Comprehensive Catalog Search Results

TABLE A.1 - USGS ANSS COMPREHENSIVE CATALOG SEARCH RESULTS

Date	Latitude	Longitude	Approximate Magnitude	Magnitude Type	Approximate Distance from Site (km)
3/29/2014	33.9325	-117.9158	5.10	Mw	42
7/29/2008	33.9485	-117.7663	5.44	Mw	54
4/26/1997	34.3690	-118.6700	5.07	Ml	44
6/26/1995	34.3940	-118.6690	5.02	Ml	46
3/20/1994	34.2310	-118.4750	5.24	Ml	20
1/29/1994	34.3060	-118.5790	5.06	Ml	33
1/19/1994	34.3780	-118.6190	5.07	Ml	41
1/19/1994	34.3790	-118.7120	5.06	Ml	47
1/18/1994	34.3770	-118.6980	5.24	Ml	46
1/17/1994	34.3260	-118.6980	5.58	Ml	43
1/17/1994	34.3400	-118.6140	5.20	Ml	38
1/17/1994	34.2750	-118.4930	5.89	Ml	25
1/17/1994	34.2130	-118.5370	6.70	Mw	23
6/28/1991	34.2700	-117.9930	5.80	Mw	36
2/28/1990	34.1440	-117.6970	5.51	Ml	58
12/3/1988	34.1510	-118.1300	5.02	Ml	18
10/4/1987	34.0740	-118.0980	5.25	Ml	21
10/1/1987	34.0610	-118.0790	5.90	Mw	23
9/4/1981	33.5575	-119.1195	5.45	Ml	95
1/1/1979	33.9165	-118.6872	5.21	Ml	39
2/21/1973	33.9790	-119.0502	5.30	Mw	69
2/9/1971	34.4160	-118.3700	5.30	Mh	35
2/9/1971	34.4160	-118.3700	5.80	Mh	35
2/9/1971	34.4160	-118.3700	5.80	Mh	35
2/9/1971	34.4160	-118.3700	6.60	Mw	35
9/12/1970	34.2548	-117.5343	5.22	Ml	74
11/14/1941	33.7907	-118.2637	5.12	Ml	35
9/21/1941	34.8382	-118.9335	5.10	Ml	99
5/31/1938	33.6993	-117.5112	5.23	Ml	87
3/11/1933	33.8500	-118.2660	5.00	Ml	28
3/11/1933	33.6238	-118.0012	5.29	Mh	61
3/11/1933	33.7667	-117.9850	5.02	Mh	48
3/11/1933	33.6308	-117.9995	6.40	Mw	60
8/31/1930	34.0300	-118.6430	5.25	Ms	31
4/18/1928	34.1000	-119.3000	5.20	Uk	90
8/4/1927	34.0000	-118.5000	5.30	Uk	20
7/23/1923	34.0000	-117.2500	5.96	Mw	99
10/23/1916	34.7000	-119.0000	5.50	Ml	91
5/15/1910	33.7000	-117.4000	5.30	Mw	96
5/13/1910	33.7000	-117.4000	5.00	Ml	96
4/11/1910	33.7000	-117.4000	5.00	Ml	96

Notes:

1. The listed Earthquake Catalog Search results obtained from USGS ANSS Comprehensive Catalog on 26 April 2023.
2. Earthquake Catalog search results include earthquake events within 100 km of the Site with magnitudes of 5.0 or greater since 1900.

APPENDIX B
Aerial Photographs Reviewed

TABLE B.1 – HISTORIC AERIAL PHOTOGRAPHS REVIEWED

Image Source	Flight ID	Frames	Date	Scale	Notes
UCSB	AMI_LA_86	12124	04/19/1986	36,000	The Site and neighboring property appear unchanged from 1976.
UCSB	TG_7600	11A-5	02/01/1976	24,000	The Site appears in its current form with asphalt paved parking and commercial buildings. Neighboring property to the west appears to have a commercial building. Neighboring property to the east and south appear unchanged from 1960.
UCSB	C_23870	1284	05/01/1960	14,400	The Site appears unchanged from 1956. Neighboring property to the west, east and south appear unchanged from 1956.
UCSB	C-22555	12-24	07/01/1956	14,400	The Site continues to appear to be divided into multiple lots with asphalt paved parking, vehicles and commercial buildings. The neighboring property to the east appears in its current form. The neighboring property to the west appears as asphalt paved parking. The neighboring property to the south appear unchanged from 1940.
UCSB	C_6630	50, 51	10/06/1940	24,000	The Site appears to have commercial buildings on some of the lots. Neighboring property to the west, east and south appear unchanged from 1928.
UCSB	C-300	K-117	01/01/1928	18,000	The Site appears to be divided into multiple lots. Buildings can be observed on each lot however difficult to tell if residential or commercial buildings. Trees can be observed in each lot. Neighboring property to the west appears to have trees. Neighboring property to the east appears to have trees and a residential or commercial building. Neighboring property to south appear with residential buildings.

APPENDIX C
Boring Logs

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Log of Boring **LB-1** Sheet 1 of 2

Project: Hollywood Toyota Site - Los Angeles	Project No.: 700109601
Location: 6000 Hollywood Blvd	Elevation and Datum: 100
Drilling Company: Martini Drilling	Date Started: 02/23/2022 / Date Finished: 02/23/2022
Drilling Equipment: CME75 Truck Mounted	Completion Depth: 51.5 ft / Rock Depth: -
Size and Type of Bit: 8-inch O.D. Hollow Stem Auger	Number of Samples: Disturbed 11 / Undisturbed - / Core -
Casing Diameter (in): - / Casing Depth (ft): -	Water Level (ft.): First - / Completion - / 24 HR. -
Casing Hammer: - / Weight (lbs): - / Drop (in): -	Drilling Foreman: Jeff Frazier
Sampler: 2-inch O.D. Split Spoon; 3-inch O.D. Cal Mod	Field Engineer: Albert Baron
Sampler Hammer: Automatic / Weight (lbs): 140 / Drop (in): 30	

Material Symbol	Elev. (ft)	Sample Description	Depth Scale	Sample Number	Type	Recov. (in)	Penetr. resist BL/6in	N-Value (Blows/ft)
	+100.0		0					
	+99.8	Asphalt 3-Inches thick. No aggregate base.						
		Undocumented Artificial Fill						
		Brown, CLAY, some silt, trace concrete and brick fragments, (CL), moist.	2	B-1	BAG			
			4					
		Stiff, brown, CLAY, some silt, some fine to coarse sand, trace concrete fragments, (CL), moist.	6	S-1	CR	6	4 4 5	9
	+92.0		8					
		Alluvium						
		Firm, brown, SILT, some fine to coarse sand, (ML), moist.	10	S-2	SS	18	3 5 3	8
	+87.0		12					
		Medium dense, tannish brown, fine to coarse SAND, (SP), dry.	14					
	+84.0		16	S-3A S-3B	CR	6	6 6 5	11
		Stiff, brown, SILT, some fine to coarse sand, trace clay (ML), moist.	18					
		Firm, brown, SILT, some fine to coarse sand, (ML), moist.	20	S-4	SS	18	3 3 4	7
	+77.0		22					
		Dense, brown, silty fine to coarse SAND, (SM), moist.	24					
			26	S-5	CR	6	11 15 16	31
			28					
			30					

Remarks (Drilling Fluid, Depth of Casing, Fluid Loss, Drilling Resistance, etc.)

Bulk Sample B-1 collected from 0 to 5 feet.

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Log of Boring **LB-1** Sheet 2 of 2

Project	Project No.
Hollywood Toyota Site - Los Angeles	700109601
Location	**Elevation and Datum**
6000 Hollywood Blvd	100

Material Symbol	Elev. (ft)	Sample Description	Depth Scale	Sample Data: Number	Type	Recov. (in)	Penetr. resist BL/6in	N-Value (Blows/ft)	Remarks (Drilling Fluid, Depth of Casing, Fluid Loss, Drilling Resistance, etc.)
	+70.0	Medium dense, brown, fine to coarse SAND, some silt, (SM), moist.	30	S-6	SS	18	5 9 7	16	
	+67.0	Very stiff, brown, SILT, some clay, some fine to medium sand, (ML), moist.	32 34 36	S-7	CR	6	7 11 12	23	
	+62.0	Medium dense, brown, fine to coarse SAND, some clay, (SC), moist.	38 40	S-8	SS	18	6 10 15	25	
		Very dense, brown, fine to coarse SAND, some clay, trace fine gravel, (SC), moist.	42 44 46	S-9	CR	6	13 24 35	59	
	+52.0	Dense, brown, fine to coarse SAND, some silt, some fine to coarse gravel, (SM), moist.	48 50	S-10	SS	18	6 12 18	30	
	+48.5	End of Boring at 51.5 feet. No groundwater encountered. Boring backfilled with grout.	52 54 56 58 60 62 64 66 67.5						

N-Value (Blows/ft) scale: 10 20 30 40

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Log of Boring **LB-2** Sheet 1 of 2

Project: Hollywood Toyota Site - Los Angeles	Project No.: 700109601
Location: 6000 Hollywood Blvd	Elevation and Datum: 100
Drilling Company: Martini Drilling	Date Started: 02/24/2022 / Date Finished: 02/24/2022
Drilling Equipment: CME75 Truck Mounted	Completion Depth: 51.5 ft / Rock Depth: -
Size and Type of Bit: 8-inch O.D. Hollow Stem Auger	Number of Samples: Disturbed 10 / Undisturbed - / Core -
Casing Diameter (in): - / Casing Depth (ft): -	Water Level (ft.): First - / Completion - / 24 HR. -
Casing Hammer: - / Weight (lbs): - / Drop (in): -	Drilling Foreman: Jeff Fraizer
Sampler: 2-inch O.D. Split Spoon; 3-inch O.D. Cal Mod	Field Engineer: Alexander Corob
Sampler Hammer: Automatic / Weight (lbs): 140 / Drop (in): 30	

Material Symbol	Elev. (ft)	Sample Description	Depth Scale	Sample Data: Number	Type	Recov. (in)	Penetr. resist BL/6in	N-Value (Blows/ft)	Remarks (Drilling Fluid, Depth of Casing, Fluid Loss, Drilling Resistance, etc.)
	+100.0		0					10 20 30 40	
	+99.8	Asphalt 2-Inches thick, No aggregate base.							
		Undocumented Artificial Fill							
		Firm, dark brown, sandy CLAY, some silt, (CL), moist.	2						
			4						
			6	S-1	CR	6	2 4 4	8	q_u=3.90 tsf (PP)
	+92.0		8						
		Alluvium							
		Loose, brown, silty fine to medium SAND, trace fine gravel, (SM), dry.	10	S-2	SS	15	3 4 4	8	
	+87.5		12						
		Medium dense, brown, sandy CLAY, some silt, trace fine gravel, (CL), moist.	14						
			16	S-3	CR	6	3 5 5	10	q_u=4.50 tsf (PP)
			18						
		Stiff, brown, sandy CLAY, some silt, (CL), moist.	20	S-4	SS	18	1 2 2	4	
	+77.5		22						
		Medium dense, brown, clayey fine to medium SAND, some silt, (SC), moist.	24						
			26	S-5	CR	6	6 11 22	33	
			28						
			30						

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Log of Boring **LB-2** Sheet 2 of 2

Project	Project No.
Hollywood Toyota Site - Los Angeles	700109601
Location	**Elevation and Datum**
6000 Hollywood Blvd	100

Material Symbol	Elev. (ft)	Sample Description	Depth Scale	Sample Data: Number	Type	Recov. (in)	Penetr. resist BL/6in	N-Value (Blows/ft)	Remarks (Drilling Fluid, Depth of Casing, Fluid Loss, Drilling Resistance, etc.)
	+70.0	Medium dense, brown clayey fine to medium SAND, some silt, (SC), moist.	30	S-6	SS	18	6 6 7	13	
	+67.5		32						
		Medium dense, light brown, silty fine to coarse SAND, some clay, (SM), moist.	34						
			36	S-7	CR	6	5 11 18	29	
	+62.5		38						
		Medium dense, light brown, fine to coarse SAND, trace silt, trace fine gravel, (SP), dry.	40	S-8	SS	18	3 10 12	22	
	+57.5		42						
		Dense, brown, silty fine to coarse SAND, some clay, (SM), moist.	44						
			46	S-9	CR	6	16 20 22	42	
	+52.5		48						
		Medium dense, brown, clayey fine to coarse SAND, some silt, (SC), moist.	50	S-10	SS	18	6 9 12	21	
	+48.5	End of Boring at 51.5 feet. No groundwater encountered. Boring backfilled with grout.	52						
			54						
			56						
			58						
			60						
			62						
			64						
			66						
			67.5						

N-Value (Blows/ft) scale: 10 20 30 40

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Log of Boring **LB-3** Sheet 1 of 3

Project: Hollywood Toyota Site - Los Angeles	Project No.: 700109601
Location: 6000 Hollywood Blvd	Elevation and Datum: 100
Drilling Company: Martini Drilling	Date Started: 02/22/2022 / Date Finished: 02/22/2022
Drilling Equipment: CME75 Truck Mounted	Completion Depth: 101.5 ft / Rock Depth: -
Size and Type of Bit: 8-inch O.D. Hollow Stem Auger	Number of Samples: Disturbed 21, Undisturbed -, Core -
Casing Diameter (in): - / Casing Depth (ft): -	Water Level (ft.): First ▽ 82, Completion ▼ -, 24 HR. ▼ -
Casing Hammer: - / Weight (lbs): - / Drop (in): -	Drilling Foreman: Jeff Frazier
Sampler: 2-inch O.D. Split Spoon; 3-inch O.D. Cal Mod	Field Engineer: Albert Baron, Julia Xu
Sampler Hammer: Automatic / Weight (lbs): 140 / Drop (in): 30	

Material Symbol	Elev. (ft)	Sample Description	Depth Scale	Sample Data: Number	Type	Recov. (in)	Penetr. resist BL/6in	N-Value (Blows/ft)
	+100.0		0					
	+99.7	Asphalt 4-Inches thick. No aggregate base.						
		Undocumented Artificial Fill						
		Brown, CLAY, some fine sand, some asphalt, brick and concrete fragments, (CL), moist.	2	B-1	BAG			
			4					
		Medium dense, gray fine to coarse, SAND, some fine to coarse gravel, some concrete fragments, (SP), dry.	6	S-1	SS	13	21 8 3	11
			8					
		Medium dense, gray, fine to coarse SAND, some fine to coarse gravel, (SP), dry.	10	S-2A / S-2B	CR	6	3 6 6	12
	+88.8	**Alluvium**						
		Stiff, brown, fine to coarse sandy CLAY, (CL), moist.	12					
			14					
		Firm, brown, CLAY, some fine to coarse sand, (CL), moist.	16	S-3	SS	15	1 2 2	4
	+82.0		18					
		Firm, brown, SAND, some clay, (SC), moist.	20	S-4	CR	6	3 4 4	8
	+77.0		22					
		Soft, brown, fine to coarse sandy CLAY, trace fine gravel, (CL), moist.	24					
			26	S-5	SS	18	1 2 1	3
	+72.0		28					
			30					

Remarks (Drilling Fluid, Depth of Casing, Fluid Loss, Drilling Resistance, etc.)

Bulk Sample B-1 collected from 0 to 5 feet.

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Log of Boring **LB-3** Sheet 2 of 3

Project	Project No.
Hollywood Toyota Site - Los Angeles	700109601
Location	**Elevation and Datum**
6000 Hollywood Blvd	100

Material Symbol	Elev. (ft)	Sample Description	Depth Scale	Sample Data: Number	Type	Recov. (in)	Penetr. resist BL/6in	N-Value (Blows/ft)	Remarks (Drilling Fluid, Depth of Casing, Fluid Loss, Drilling Resistance, etc.)
	+70.0	Medium dense, brown, silty fine to coarse SAND, some fine gravel, (SM), moist.	30	S-6	CR	18	6 12 14	26	
			32						
			34						
		Medium dense, brown, silty fine to coarse SAND, some fine to coarse gravel, (SM), moist.	36	S-7	SS	48	4 5 6	11	
	+62.0		38						
		Dense, brown, clayey fine to coarse SAND, some silt, (SC), moist.	40	S-8	CR	6	11 17 27	44	
	+57.0		42						
		Hard, brown, fine to coarse sandy SILT, trace fine to medium gravel, (ML), moist.	44						
			46	S-9	SS	17	9 14 18	32	
	+52.0		48						
		Dense, reddish brown to tan, clayey fine to coarse SAND, trace fine gravel, (SC), moist.	50	S-10	CR	6	10 18 31	49	
	+47.0		52						
		Stiff, reddish brown, sandy CLAY, fine to coarse sand, (CL), moist.	54						
			56	S-11	SS	18	2 6 9	15	
	+42.0		58						
		Very dense, tannish brown, fine to coarse SAND, some silt, some fine to coarse gravel, (SM), moist.	60	S-12	CR	6	18 36 40	76	
	+37.0		62						
		Dense, brown, fine to medium SAND, (SP), moist.	64						
			66	S-13	SS	6	9 16 17	33	
			67.5						

N-Value (Blows/ft) scale: 10 20 30 40

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Log of Boring **LB-3** Sheet 3 of 3

Project	Project No.
Hollywood Toyota Site - Los Angeles	700109601
Location	**Elevation and Datum**
6000 Hollywood Blvd	100

Material Symbol	Elev. (ft)	Sample Description	Depth Scale	Sample Data: Number	Type	Recov. (in)	Penetr. resist BL/6in	N-Value (Blows/ft)	Remarks (Drilling Fluid, Depth of Casing, Fluid Loss, Drilling Resistance, etc.)
	+32.5		67.5					10 20 30 40	
	+32.0		68						
		Very stiff, brown, SILT, some fine to medium sand, (ML), moist.	70	S-14	CR	6	9 11 13	24	
	+27.0		72						
		Medium dense, brown, fine to coarse SAND, some silt, some fine gravel, (SM), moist.	74						
			76	S-15	SS	12	6 9 12	21	
			78						
		Very dense, brown, fine to medium SAND, some silt, (SM), moist.	80	S-16	CR	6	16 28 24	52	
			82 ▽						
	+17.0		84						
		Stiff, brown, CLAY, some fine to coarse sand, (CL), wet.	86	S-17	SS	12	5 4 8	12	
	+12.5		88						
		Very dense, brown, fine to coarse SAND, some silt, some fine to medium gravel, (SM), wet.	90	S-18	CR	6	15 31 25	56	
			92						
			94						
		Very dense, reddish brown, fine to coarse SAND, some silt, (SM), moist.	96	S-19	SS	3	6 29 50/4	50/4	
	+2.5		98						
		Hard, reddish brown, CLAY, some fine to coarse sand, (CL), moist.	100	S-20	CR	6	7 14 34	48	
	-1.5		102						
		End Borehole at 101.5 feet. Groundwater encountered at 82 feet. Borehole backfilled with grout	104						
			105						

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Log of Boring **LB-4** Sheet 1 of 2

Project: Hollywood Toyota Site - Los Angeles	Project No.: 700109601
Location: 6000 Hollywood Blvd	Elevation and Datum: 100
Drilling Company: Martini Drilling	Date Started: 02/24/2022 / Date Finished: 02/24/2022
Drilling Equipment: CME75 Truck Mounted	Completion Depth: 51.5 ft / Rock Depth: -
Size and Type of Bit: 8-inch O.D. Hollow Stem Auger	Number of Samples: Disturbed 10 / Undisturbed - / Core -
Casing Diameter (in): - / Casing Depth (ft): -	Water Level (ft.): First - / Completion - / 24 HR. -
Casing Hammer: - / Weight (lbs): - / Drop (in): -	Drilling Foreman: Jeff Fraizer
Sampler: 2-inch O.D. Split Spoon; 3-inch O.D. Cal Mod	Field Engineer: Alexander Corob
Sampler Hammer: Automatic / Weight (lbs): 140 / Drop (in): 30	

Material Symbol	Elev. (ft)	Sample Description	Depth Scale	Sample Data: Number	Type	Recov. (in)	Penetr. resist BL/6in	N-Value (Blows/ft)
	+100.0		0					
	+99.8	Asphalt 3-Inches thick. No aggregate base.						
		Undocumented Artificial Fill						
			2	B-1	BAG			
			4					
		Very loose, dark brown, fine to coarse sandy CLAY, some silt, trace fine gravel, (CL), moist.	6	S-1	CR	6	WOH 1 1	2
			8					
		Medium dense, dark brown, fine to coarse sandy CLAY, some silt, trace fine gravel, (CL), moist.	10	S-2A / S-2B	SS	18	6 9 8	17
	+89.0	**Alluvium**						
		Medium dense, brown, silty fine to coarse SAND, trace clay, trace gravel, (SM), dry.	12					
	+87.0							
		Firm, brown, sandy CLAY, some silt, (CL), moist.	14					
			16	S-3	CR	6	2 3 3	6
	+82.5		18					
		Loose, brown, clayey fine to coarse SAND, some silt, (SC), moist.	20	S-4	SS	18	3 4 5	9
	+77.5		22					
		Loose, brown, silty fine to coarse SAND, trace clay, trace fine gravel, (SM), dry.	24					
			26	S-5	CR	6	4 3 5	8
			28					
			30					

Remarks (Drilling Fluid, Depth of Casing, Fluid Loss, Drilling Resistance, etc.)

Bulk Sample B-1 collected from 0 to 5 feet.

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Log of Boring **LB-4** Sheet 2 of 2

Project	Project No.
Hollywood Toyota Site - Los Angeles	700109601
Location	**Elevation and Datum**
6000 Hollywood Blvd	100

Material Symbol	Elev. (ft)	Sample Description	Depth Scale	Sample Data: Number	Type	Recov. (in)	Penetr. resist BL/6in	N-Value (Blows/ft)	Remarks (Drilling Fluid, Depth of Casing, Fluid Loss, Drilling Resistance, etc.)
	+70.0	Dense, brown, silty fine to coarse SAND, trace clay, trace fine gravel, (SM), dry.	30	S-6	SS	18	8 14 17	31	
			32						
			34						
		Medium dense, brown, silty fine to medium SAND, (SM), trace clay, trace fine gravel, moist.	36	S-7	CR	6	2 6 7	13	
			38						
		Very dense, brown silty fine to coarse SAND, some fine gravel, (SM), dry.	40	S-8	SS	18	26 31 29	60	
			42						
			44						
		Medium dense, brown silty fine to coarse SAND, trace clay, trace fine gravel, (SM), moist.	46	S-9	CR	6	7 12 17	29	
	+52.5		48						
		Very dense, orangish brown, clayey fine to coarse SAND, some silt, trace fine gravel, (SC), moist.	50	S-10	SS	18	12 22 37	59	
	+48.5		52						
		End of boring at 51.5 feet. No groundwater encountered. Boring backfilled with grout and surface patched with black dye.	54						
			56						
			58						
			60						
			62						
			64						
			66						
			67.5						

N-Value (Blows/ft) scale: 10 20 30 40

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Log of Boring **LB-5** Sheet 1 of 3

Project: Hollywood Toyota Site - Los Angeles	Project No.: 700109601
Location: 6000 Hollywood Blvd	Elevation and Datum: 100
Drilling Company: Martini Drilling	Date Started: 02/23/2022 / Date Finished: 02/23/2022
Drilling Equipment: CME75 Truck Mounted	Completion Depth: 101.5 ft / Rock Depth: -
Size and Type of Bit: 8-inch O.D. Hollow Stem Auger	Number of Samples: Disturbed 20 / Undisturbed - / Core -
Casing Diameter (in): - / Casing Depth (ft): -	Water Level (ft.): First ▽ 82.3 / Completion ▼ - / 24 HR. ▼ -
Casing Hammer: - / Weight (lbs): - / Drop (in): -	Drilling Foreman: Jeff Fraizer
Sampler: 2-inch O.D. Split Spoon; 3-inch O.D. Cal Mod	Field Engineer: Alexander Corob
Sampler Hammer: Automatic / Weight (lbs): 140 / Drop (in): 30	

Material Symbol	Elev. (ft)	Sample Description	Depth Scale	Sample Data: Number	Type	Recov. (in)	Penetr. resist BL/6in	N-Value (Blows/ft)	Remarks
	+100.0		0					10 20 30 40	(Drilling Fluid, Depth of Casing, Fluid Loss, Drilling Resistance, etc.)
	+99.8	Asphalt 2.5-Inches thick. No aggregate base.							
		Undocumented Artificial Fill Clayey SAND, trace silt and gravel, (SC).							
		Loose, dark brown, clayey fine to coarse SAND, some fine to coarse gravel, (SC), moist.	6	S-1	CR	6	3 4 5	9	
	+92.0	**Alluvium**	8						
		Stiff, brown, sandy CLAY, trace silt, (CL), moist.	10	S-2	SS	18	5 5 4	9	
		Very stiff, brown, sandy CLAY, trace silt, (CL), moist.	14						
	+83.8	Dense, brown, silty fine to coarse SAND, trace clay, (SM), moist.	16	S-3A / S-3B	CR	6	7 12 14	26	q_u=.90 tsf (PP)
		Loose, brown, silty fine to coarse SAND, trace clay, trace fine gravel, (SM), moist.	20	S-4	SS	18	2 3 4	7	
		Dense, brown, silty fine to coarse SAND, trace fine gravel, (SM), moist.	24	S-5	CR	6	5 10 21	31	
	+72.5		28						
			30						

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Log of Boring **LB-5** Sheet 2 of 3

Project	Project No.
Hollywood Toyota Site - Los Angeles	700109601
Location	**Elevation and Datum**
6000 Hollywood Blvd	100

Material Symbol	Elev. (ft)	Sample Description	Depth Scale	Sample Data: Number	Type	Recov. (in)	Penetr. resist BL/6in	N-Value (Blows/ft)	Remarks (Drilling Fluid, Depth of Casing, Fluid Loss, Drilling Resistance, etc.)
	+70.0		30					10 20 30 40	
		Medium dense, brown, fine to coarse SAND, trace silt, trace fine gravel, (SP), moist.		S-6A	SS	3	4 11 6	17	
	+68.8			S-6B					
		Medium dense, brown, silty fine to medium SAND, (SM), moist.	32			3			
	+67.5								
		Very stiff, brown, sandy CLAY, some silt, trace fine gravel, (CL), moist.	34	S-7	CR	6	4 6 15	21	q_u=4.50 tsf (PP)
	+62.5		36						
		Medium dense, brown, silty coarse SAND, some clay, trace fine gravel, (SM), moist.	38						
			40	S-8	SS	18	7 10 11	21	
			42						
			44						Added water
		Very dense, light brown, silty fine to coarse SAND, some fine to coarse gravel, trace clay, (SM), moist.	46	S-9	CR	6	25 43 38	81	
	+52.5								
		Very stiff, brown, sandy CLAY, some fine gravel, trace silt, (CL), moist.	48						
			50	S-10	SS	18	5 14 16	30	
			52						
			54						
		Hard, brown, sandy CLAY, some fine gravel, trace silt, (CL), moist.	56	S-11	CR	6	6 13 29	42	q_u=4.50 tsf (PP)
	+42.5								
		Dense, brown, clayey fine to coarse SAND, some silt, trace fine to coarse gravel, (SC), moist.	58						
			60	S-12	SS	18	4 14 16	30	
			62						
			64						
		Very dense, brown, clayey fine to coarse SAND, some silt, trace fine to coarse gravel, (SC), moist.	66	S-13	CR	6	8 21 32	53	
			67.5						

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Log of Boring **LB-5** Sheet 3 of 3

Project	Project No.
Hollywood Toyota Site - Los Angeles	700109601
Location	**Elevation and Datum**
6000 Hollywood Blvd	100

Material Symbol	Elev. (ft)	Sample Description	Depth Scale	Sample Data: Number	Type	Recov. (in)	Penetr. resist BL/6in	N-Value (Blows/ft)	Remarks (Drilling Fluid, Depth of Casing, Fluid Loss, Drilling Resistance, etc.)
	+32.5		67.5						
		Medium dense, brown, clayey fine to coarse SAND, some silt, trace fine to coarse gravel, (SC), moist.	68						
			70	S-14	SS	18	7 6 11	17	
	+27.5		72						
		Very stiff, brown, sandy CLAY, some silt, trace fine gravel, (CL), moist.	74						
			76	S-15	CR	6	9 13 15	28	q_u=4.50 tsf (PP)
	+22.5		78						
		Dense, brown, clayey SAND, some silt, trace fine gravel, (SC), moist.	80	S-16	SS	18	5 12 27	39	
			82 ▽						
		Dense, brown, clayey SAND, some silt, (SC), moist.	84						
			86	S-17	CR	6	10 17 22	39	
	+12.5		88						
		Very dense, brown, silty fine to coarse SAND, trace clay, (SM), moist.	90	S-18	SS	18	12 28 48	76	
			92						
		Very dense, brown, silty fine to coarse SAND, some clay, trace fine to coarse gravel, (SM), moist.	94						
			96	S-19	CR	6	12 29 48	77	
			98						
		Very dense, brown, silty fine to coarse SAND, some clay, (SM), wet.	100	S-20	SS	18	17 28 25	53	
	-1.5		102						
		End of Boring at 101.5 feet. Groundwater encountered at 82.25 feet. Boring backfilled with grout.	104						
			105						

N-Value (Blows/ft) scale: 10 20 30 40

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Log of Boring **LB-6** Sheet 1 of 2

Project: Hollywood Toyota Site - Los Angeles	Project No.: 700109601
Location: 6000 Hollywood Blvd	Elevation and Datum: 100
Drilling Company: Martini Drilling	Date Started: 02/24/2022 / Date Finished: 02/24/2022
Drilling Equipment: CME75 Truck Mounted	Completion Depth: 41.5 ft / Rock Depth: -
Size and Type of Bit: 8-inch O.D. Hollow Stem Auger	Number of Samples: Disturbed 8 / Undisturbed - / Core -
Casing Diameter (in): - / Casing Depth (ft): -	Water Level (ft.): First - / Completion - / 24 HR. -
Casing Hammer: - / Weight (lbs): - / Drop (in): -	Drilling Foreman: Jeff Fraizer
Sampler: 2-inch O.D. Split Spoon; 3-inch O.D. Cal Mod	Field Engineer: Alexander Corob
Sampler Hammer: Automatic / Weight (lbs): 140 / Drop (in): 30	

Material Symbol	Elev. (ft)	Sample Description	Depth Scale	Sample Data: Number	Type	Recov. (in)	Penetr. resist BL/6in	N-Value (Blows/ft)	Remarks
	+100.0		0					10 20 30 40	(Drilling Fluid, Depth of Casing, Fluid Loss, Drilling Resistance, etc.)
	+99.8	Asphalt 2-Inches thick. No aggregate base.							
		Undocumented Artificial Fill							
		Dark brown, SILT, some gravel, (ML), moist.	2						
	+97.5		4						
		Firm, dark brown, fine to coarse sandy CLAY, trace silt, (CL), dry.	6	S-1	SS	18	2 3 3	6	
			8						
		Alluvium							
		Very stiff, dark brown, fine to coarse sandy CLAY, trace silt, (CL), moist.	10	S-2	CR	6	8 13 13	26	q_u=4.50 tsf (PP)
	+87.5		12						
		Loose, light brown, silty fine to medium SAND, trace clay (SM), dry.	14						
			16	S-3	SS	18	3 5 4	9	
			18						
		Medium dense, light brown, silty fine to coarse SAND, trace clay, trace fince gravel (SM), dry.	20	S-4	CR	6	10 11 11	22	
			22						
			24						
		Medium dense, light brown, silty fine to coarse SAND, trace clay, trace fince gravel (SM), dry.	26	S-5	SS	18	6 10 12	22	
			28						
			30						

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Log of Boring **LB-6** Sheet 2 of 2

Project	Project No.
Hollywood Toyota Site - Los Angeles	700109601
Location	**Elevation and Datum**
6000 Hollywood Blvd	100

Material Symbol	Elev. (ft)	Sample Description	Depth Scale	Sample Data: Number	Type	Recov. (in)	Penetr. resist BL/6in	N-Value (Blows/ft)	Remarks (Drilling Fluid, Depth of Casing, Fluid Loss, Drilling Resistance, etc.)
	+70.0	Medium dense, light brown, silty fine to coarse SAND, some clay, trace fince gravel (SM), moist.	30	S-6	CR	6	8 11 14	25	
	+67.5		32						
		Very stiff, dark brown, clayey SAND, some silt, (SC), moist.	34						
			36	S-7	SS	18	3 7 11	18	
	+62.0		38						
		Hard, dark brown, sandy CLAY, some silt, (CL), moist.	40						
	+59.3			S-8A	CR	6	19 48 48	96	
	+58.5	Very dense, gray brown, fine to coarse SAND, some silt, trace clay (SM), moist.		S-8B					
		End of Boring at 41.5 feet.	42						
		No groundwater encountered.	44						
		Borehole backfilled with grout.	46						
			48						
			50						
			52						
			54						
			56						
			58						
			60						
			62						
			64						
			66						
			67.5						

N-Value (Blows/ft) scale: 10 20 30 40

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Log of Boring **LB-7** Sheet 1 of 3

Project: Hollywood Toyota Site - Los Angeles		Project No.: 700109601	
Location: 6000 Hollywood Blvd		Elevation and Datum: 100	
Drilling Company: Martini Drilling		Date Started: 02/25/2022	Date Finished: 02/25/2022
Drilling Equipment: CME75 Truck Mounted		Completion Depth: 101.5 ft	Rock Depth: -
Size and Type of Bit: 8-inch O.D. Hollow Stem Auger		Number of Samples: Disturbed 21	Undisturbed - / Core -
Casing Diameter (in): -	Casing Depth (ft): -	Water Level (ft.): First ▽ 89.3	Completion ▼ - / 24 HR. ▼ -
Casing Hammer: -	Weight (lbs): - / Drop (in): -	Drilling Foreman: Jeff Fraizer	
Sampler: 2-inch O.D. Split Spoon; 3-inch O.D. Cal Mod		Field Engineer: Alexander Corob	
Sampler Hammer: Automatic	Weight (lbs): 140 / Drop (in): 30		

Material Symbol	Elev. (ft)	Sample Description	Depth Scale	Sample Data: Number	Type	Recov. (in)	Penetr. resist BL/6in	N-Value (Blows/ft)	Remarks
	+100.0		0					10 20 30 40	(Drilling Fluid, Depth of Casing, Fluid Loss, Drilling Resistance, etc.)
	+99.6	Asphalt 4.5-Inches thick. No aggregate base.							
	+98.6	Concrete 12-Inches thick.							
		Undocumented Artificial Fill Brown, sandy CLAY, some silt, (CL).	2	B-1	BAG				Bulk sample B-1 collected from 0 to 5 feet.
			4						
		Soft, dark brown, sandy CLAY, (CL), moist.	6	S-1	SS	18	WOH 1 1	2	Fill terminates above 5', approximately 3'
	+93.0		8						
		Alluvium Medium dense, dark brown, silty fine to medium SAND, some clay, trace fine gravel, (SM), moist.	10	S-2	CR	6	4 5 5	10	
			12						
			14						
		Loose, brown, silty fine to coarse SAND, trace fine gravel, (SM), moist.	16	S-3	SS	18	3 3 4	7	
			18						
		Medium dense, brown, silty fine to coarse SAND, trace fine gravel, (SM), moist.	20	S-4A / S-4B	CR	6	4 5 5	10	q_u=4.50 tsf (PP)
	+78.8	Stiff, dark brown, sandy CLAY, trace silt, (CL), moist.	22						
			24						
		Firm, brown, sandy CLAY, some silt, (CL), moist.	26	S-5	SS	18	1 3 3	6	
			28						
			30						

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Log of Boring **LB-7** Sheet 2 of 3

Project	Project No.
Hollywood Toyota Site - Los Angeles	700109601
Location	**Elevation and Datum**
6000 Hollywood Blvd	100

Material Symbol	Elev. (ft)	Sample Description	Depth Scale	Sample Data: Number	Type	Recov. (in)	Penetr. resist BL/6in	N-Value (Blows/ft)	Remarks (Drilling Fluid, Depth of Casing, Fluid Loss, Drilling Resistance, etc.)
	+70.0		30					10 20 30 40	
	+69.3	Very stiff, brown, sandy CLAY, some silt, (CL), moist.		S-6A / S-6B	CR	6	9 15 14	29	
		Medium dense, light brown, silty fine to coarse SAND, trace fine gravel, (SM), dry.	32						
			34						
		Medium dense, light brown, silty fine to coarse SAND, trace fine gravel, (SM), moist.	36	S-7	SS	6	4 5 6	11	
			38						
		Dense, light brown, silty fine to coarse SAND, trace fine gravel, (SM), dry.	40	S-8	CR	18	11 20 27	47	
			42						
			44						
		Dense, light brown, silty fine to coarse SAND, trace fine gravel, (SM), dry.	46	S-9	SS	18	6 12 20	32	
	+52.5		48						
		Dense, light brown, fine to coarse SAND, trace silt, trace fine gravel, (SP), moist.	50	S-10	SS	18	10 16 17	33	
	+47.5		52						
		Very stiff, dark brown, sandy CLAY, some silt, trace fine gravel, (CL), moist.	54	S-11	SS	18	4 9 13	22	
			56						
			58						
		Very stiff, dark brown, sandy CLAY, trace silt, (CL), moist.	60	S-12	SS	18	2 4 7	11	
	+37.5		62						
			64						
		Medium dense, brown, silty fine to medium SAND, (SM), moist.	66	S-13	SS	18	5 11 6	17	
			67.5						

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Log of Boring **LB-7** Sheet 3 of 3

Project	Project No.
Hollywood Toyota Site - Los Angeles	700109601
Location	**Elevation and Datum**
6000 Hollywood Blvd	100

Material Symbol	Elev. (ft)	Sample Description	Depth Scale	Sample Data: Number	Type	Recov. (in)	Penetr. resist BL/6in	N-Value (Blows/ft)	Remarks (Drilling Fluid, Depth of Casing, Fluid Loss, Drilling Resistance, etc.)
	+32.5		67.5						
		Medium dense, brown, silty fine to medium SAND, trace clay, (SM), moist.	68						
			70	S-14	SS	18	7 6 6	12	
	+27.5		72						
			74						
	+24.3	Hard, brown, sandy CLAY, trace silt, (CL), moist.							
		Dense, brown, silty fine to medium SAND, (SM), moist.	76	S-15A S-15B	SS	18	4 12 22	34	
			78						
		Dense, brown, fine to medium SAND, some silt, trace clay, (SM), moist.	80	S-16	SS	18	5 11 24	35	
			82						
			84						
	+14.5	Medium dense, silty fine to medium SAND, trace clay, (SM), moist.		S-17A S-18B	SS	18	3 10 8	18	
		Very stiff, brown, sandy CLAY, trace silt, (CL), moist.	86						
	+12.5		88						
			90	S-18B	SS	18	5 14 19	33	
		Dense, brown, clayey fine to medium SAND, some silt, trace fine gravel, (SC), moist.							
	+7.5		92						
			94						
		Dense, light orangish brown, fine to coarse SAND, some silt, trace fine gravel, (SM), wet.	96	S-19	SS	18	6 15 20	35	
	+2.5		98						
		Very stiff, brown, sandy CLAY, trace silt, (CL), wet.	100	S-20	SS	18	4 8 15	23	
	-1.5								
		End of boring at 101.5 feet. Groundwater encountered at 89.3 feet. Boring backfilled with grout.	102						
			104						
			105						

N-Value (Blows/ft) scale: 10 20 30 40

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APPENDIX D
Laboratory Results

Geo-Logic
ASSOCIATES
Geologists • Hydrogeologists • Engineers

Date: April 27, 2022
Project No. 2012-0057

Langan Engineering
18575 Jamboree Road, Suite 150
Irvine, CA 92612

Attn.: **Jose Baron**

RE: **Langan Job No. 700109601 – Toyota Hollywood**
6000 Hollywood Boulevard, Los Angeles, CA 90028

Transmitted herewith are the results of laboratory testing performed by Geo-Logic Associates on the soil samples delivered to our office in March 2022. All tests listed below were performed by qualified personnel in our City of Los Angeles-certified laboratory (City of Los Angeles Testing Agency Certification No. 10198).

Dry Density & Water Content	ASTM D7263
Percent Passing #200	ASTM D422
Chloride Content	CT 422
Soluble Sulfate	CT 417
Minimum Resistivity & pH	CT 643
Maximum Dry Density & Water Content	ASTM D1557
Direct Shear	ASTM D3080
Consolidation	ASTM D2435
Expansion Index	ASTM D4829
Plasticity Index	ASTM D4318

Geo-Logic Associates

Robbie Warner
Supervising Geotechnical Engineer
GE 2690 (Expires 12/31/2023)

Attachments: Laboratory Test Results
Distribution: **Jose Baron**, Addressee (2)

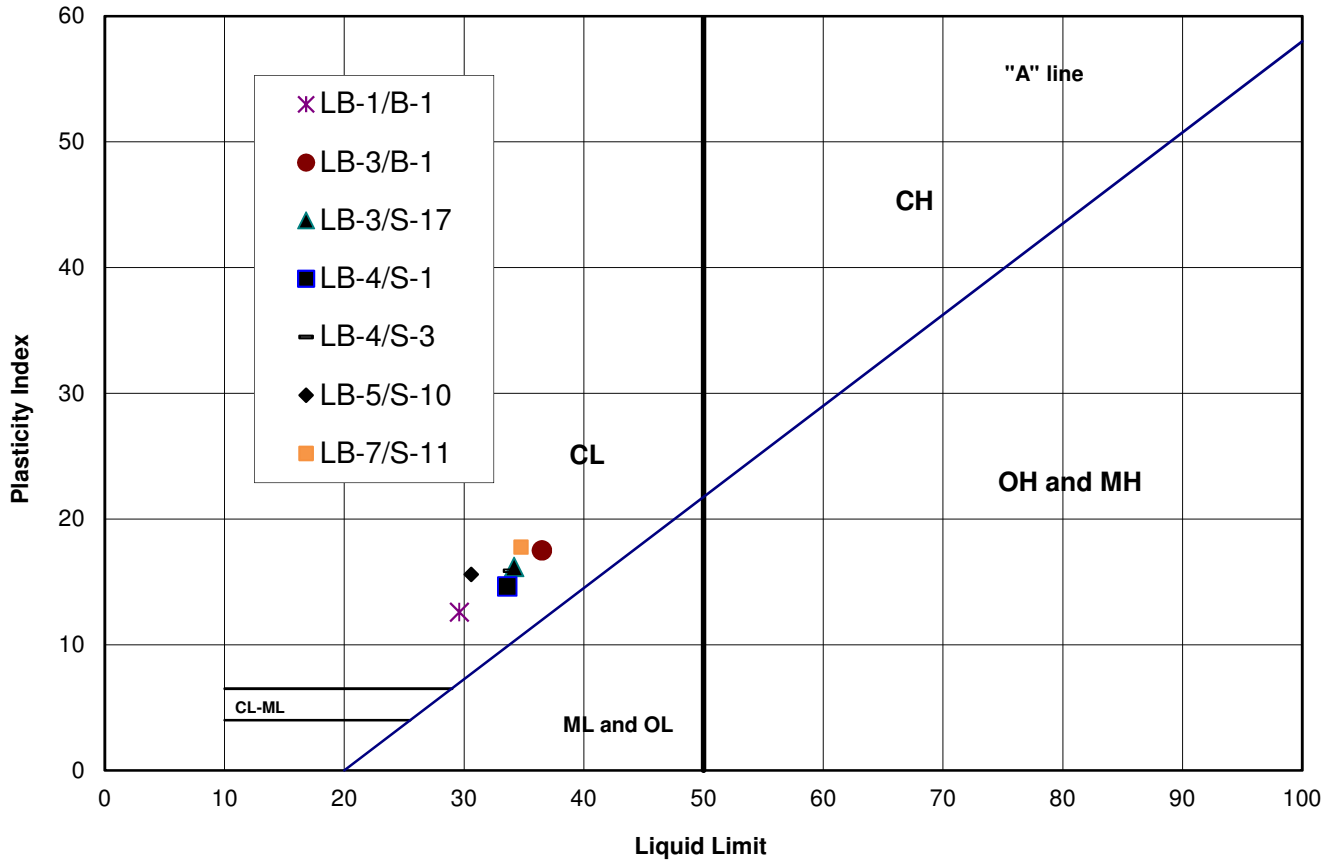
MOISTURE DENSITY TESTS

PROJECT Langan # 700109601 **JOB NO.** 2012-0057 **BY** LD **DATE** 03/29/22

Sample No.	LB-3 / S-17	LB-4/S-1	LB-4/S-2	LB-5/S-10	LB-7/S-2	LB-7/S-11		
Depth (ft)	85	5	15	50	10	55		
Testing								
Soil Type	Brown, Clay	Brown, Sandy Clay	Brown, Sandy Clay	Brown, Sandy Clay	Brown, Silty Sand w. some Clay	Brown, Sandy Clay		
Wet+Tare					553.2			
No. Ring					3			
Wet Weight	382.0	321.1	295.5	322.1	106.9	351.0		
Dry Weight	315.9	280.8	254.2	287.5	97.1	306.7		
Wet density					116.5			
% Water	20.9	14.4	16.2	12.0	10.1	14.4		
Dry Density					105.8			
O.B.Press(psf)								
Sample No.								
Depth (ft)								
Testing								
Soil Type								
Wet+Tare								
No. Ring								
Wet Weight								
Dry Weight								
Wet density								
% Water								
Dry Density								
O.B.Press(psf)								

Geo-Logic ASSOCIATES

PLASTICITY INDEX _ ASTM D4318



Sample	Depth	LL	PL	PI	USCS	Material Description
LB-1/B-1	0 - 5'	30	17	13	CL	
LB-3/B-1	0 - 5'	37	19	18	CL	
LB-3/S-17	85	34	18	16	CL	
LB-4/S-1	5	34	19	15	CL	
LB-4/S-3	15	34	18	16	CL	
LB-5/S-10	50	31	15	16	CL	
LB-7/S-11	55	35	17	18	CL	

Job Name: Langan # 700109601 Date: 3/29/22

Job No.: 2012-0057

Geo-Logic ASSOCIATES

WASH #200 SIEVE - ASTM D 1140-92

Job Name	Langan # 700109601	Date	3-29-22
Job No.	2012-0057	By	LD

Sample	LB-3/S-3	**Sample**	LB3/S-7	**Sample**	LB-3/S-15
Soil Type		Soil Type		Soil Type	
% water	18.0	% water	10.3	% water	10.3
Wet weight	183.8	Wet weight	228	Wet weight	245.1
Dry weight	155.8	Dry weight	206.7	Dry weight	222.2
+ 200 sieve	60.1	+ 200 sieve	124.9	+ 200 sieve	149.5
% Retained	38.6	% Retained	60.4	% Retained	67.3
%Pass. #200	**61**	**%Pass. #200**	**40**	**%Pass. #200**	**33**

Sample	LB-5/S-4	**Sample**	LB-5/S-8	**Sample**	LB-6/S-3
Soil Type		Soil Type		Soil Type	
% water	10.5	% water	10.6	% water	9.2
Wet weight	221.1	Wet weight	228.4	Wet weight	249.5
Dry weight	200.1	Dry weight	206.5	Dry weight	228.5
+ 200 sieve	132.5	+ 200 sieve	137.4	+ 200 sieve	130.8
% Retained	66.2	% Retained	66.5	% Retained	57.2
%Pass. #200	**34**	**%Pass. #200**	**33**	**%Pass. #200**	**43**

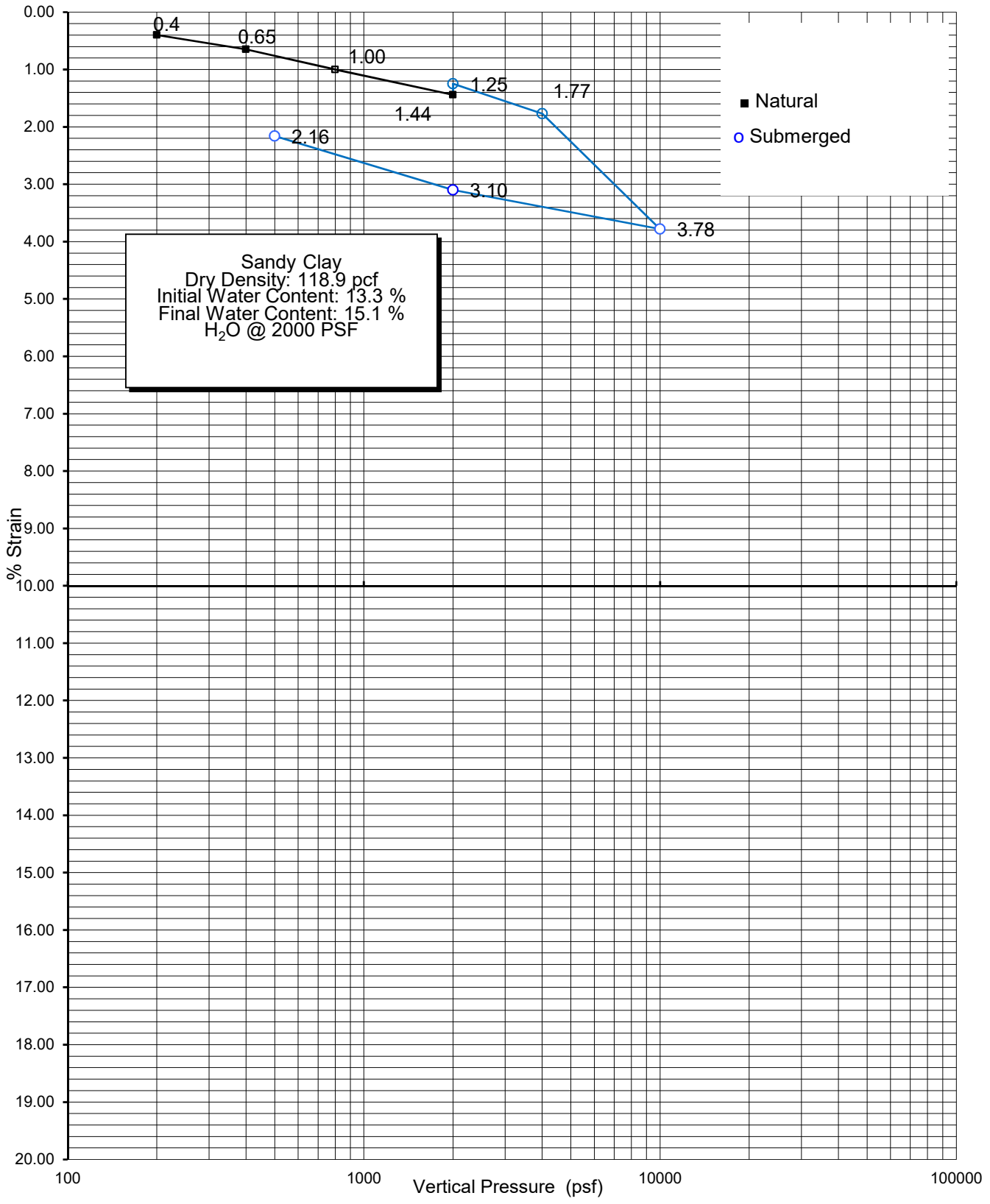
Sample	LB-6/S-7	**Sample**	LB-7/S-12	**Sample**	LB-7/S-16
Soil Type		Soil Type		Soil Type	
% water	11.0	% water	16.6	% water	9.4
Wet weight	249.8	Wet weight	165.7	Wet weight	246.9
Dry weight	225.0	Dry weight	142.1	Dry weight	225.7
+ 200 sieve	120.7	+ 200 sieve	69.3	+ 200 sieve	166.4
% Retained	53.6	% Retained	48.8	% Retained	73.7
%Pass. #200	**46**	**%Pass. #200**	**51**	**%Pass. #200**	**26**

Sample	LB-7/S-19	**Sample**	LB-6/S-6	**Sample**	
Soil Type		Soil Type		Soil Type	
% water	14.6	% water	9.0	% water	
Wet weight	273.6	Wet weight	179.3	Wet weight	
Dry weight	238.7	Dry weight	164.5	Dry weight	
+ 200 sieve	205.9	+ 200 sieve	98	+ 200 sieve	
% Retained	86.2	% Retained	59.6	% Retained	
%Pass. #200	**14**	**%Pass. #200**	**40**	**%Pass. #200**	

Geo-Logic ASSOCIATES

CONSOLIDATION TEST - ASTM D2435

Boring / Sample No.	LB-2 / S-3	Depth:	15'	Date	03-18-22



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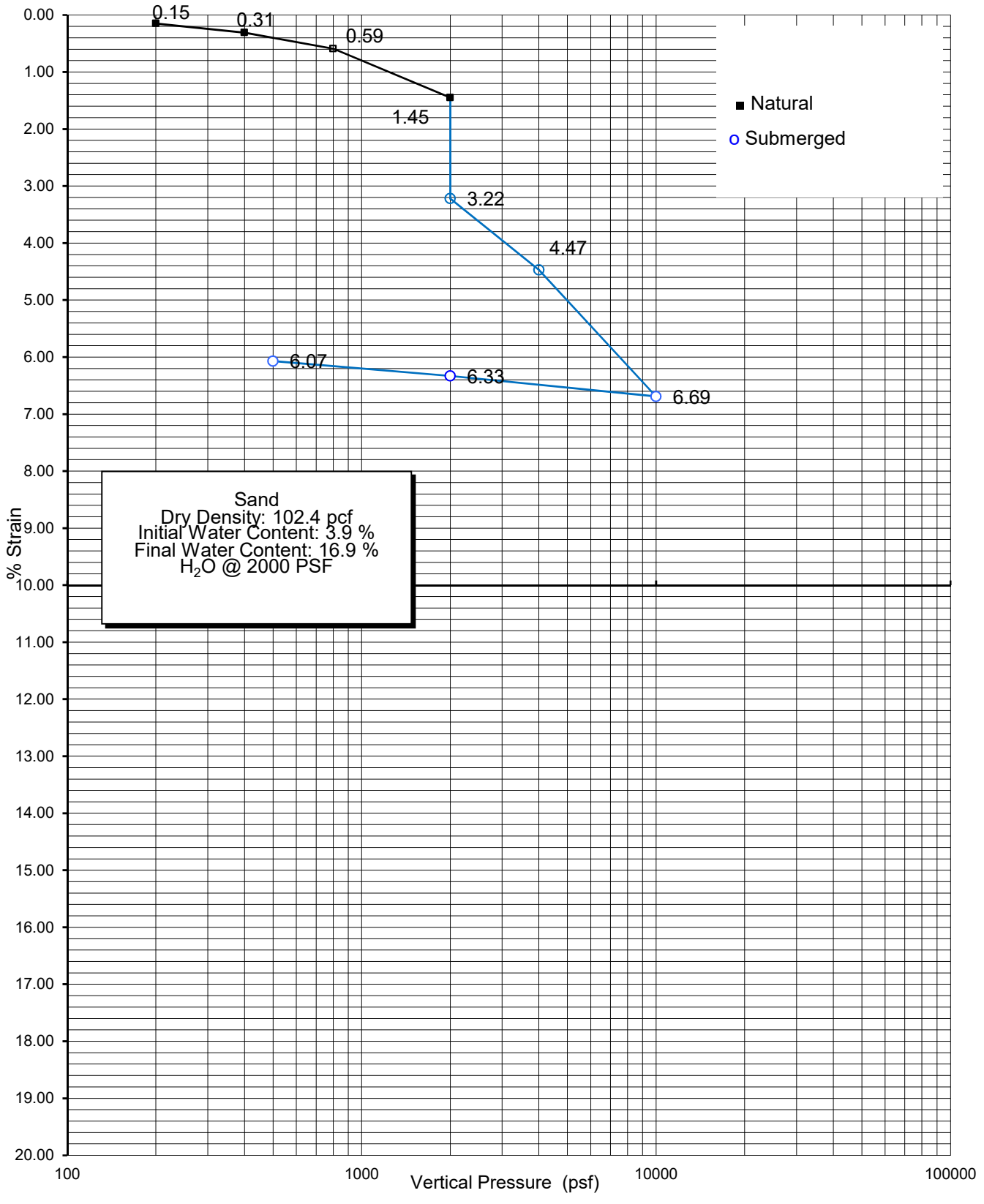
CONSOLIDATION TEST - ASTM D2435

Boring / Sample No.	LB-1 / S-3	Depth:	15'	Date	03-18-22



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EXPANSION INDEX - UBC 18-2 & ASTM D 4829-88

PROJECT Langan # 700109601 JOB NO. 2012-0057

Sample	LB-1/B-1		By LD		Sample	LB-3/B-1		By LD	
Sta. No.					Sta. No.				
Soil Type	Brown, Clay				Soil Type	Brown, Clay			
Date	Time	Dial Reading	Wet+Tare	617.3	Date	Time	Dial Reading	Wet+Tare	593.6
3/25/2022	16:20	0.4754	Tare	219.8	3/25/2022	16:20	0.3622	Tare	219.6
		H2O	Net Weight	397.5			H2O	Net Weight	374
3/26/2022	10:00	0.4464	% Water	10	3/26/2022	10:00	0.3092	% Water	12.5
			Dry Dens.	109.5				Dry Dens.	100.7
			% Max					% Max	
			Wet+Tare	651.1				Wet+Tare	642
			Tare	219.8				Tare	219.6
			Net Weight	431.3				Net Weight	422.4
INDEX	29	2.9%	% Water	19.4	**INDEX**	53	5.3%	% Water	27.1

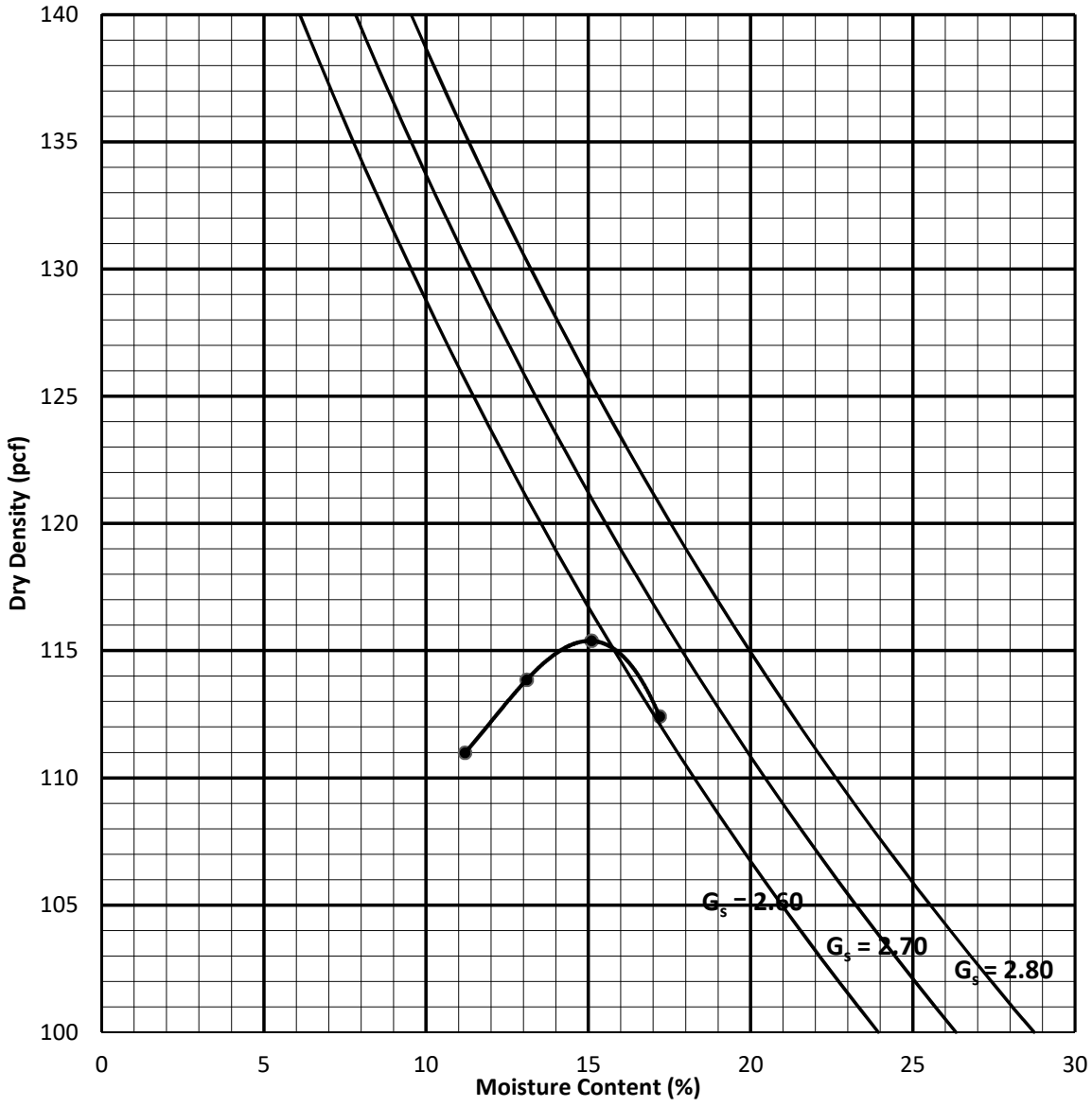
Sample			By		Sample			By	
Sta. No.					Sta. No.				
Soil Type					Soil Type				
Date		Dial Reading	Wet+Tare		Date		Dial Reading	Wet+Tare	
			Tare					Tare	
			Net Weight					Net Weight	
			% Water					% Water	
			Dry Dens.					Dry Dens.	
			% Max					% Max	
			Wet+Tare					Wet+Tare	
			Tare					Tare	
			Net Weight					Net Weight	
INDEX			% Water		**INDEX**			% Water	

COMPACTION TEST REPORT

Project: Langan # 700109601 **Job No.** 2003-035
Sample: LB-3/B-1 **Date:** 3/29/2022
Description: Brown, Clay

ASTM D1557	Method A	Volume (cf): 0.03333		# Blows: 25	# Layers: 5
Specimen		**A**	**B**	**C**	**D**
Wet Weight (grs)		1992	2008	1947	1866
Wet Density (pcf)		131.7	132.8	128.8	123.4
Moisture Content (%)		17.2	15.1	13.1	11.2
Dry Density (pcf)		112.4	115.4	113.9	111.0

Max. Dry Density : 115.5 pcf
Opt. Water Content: 15.0 %

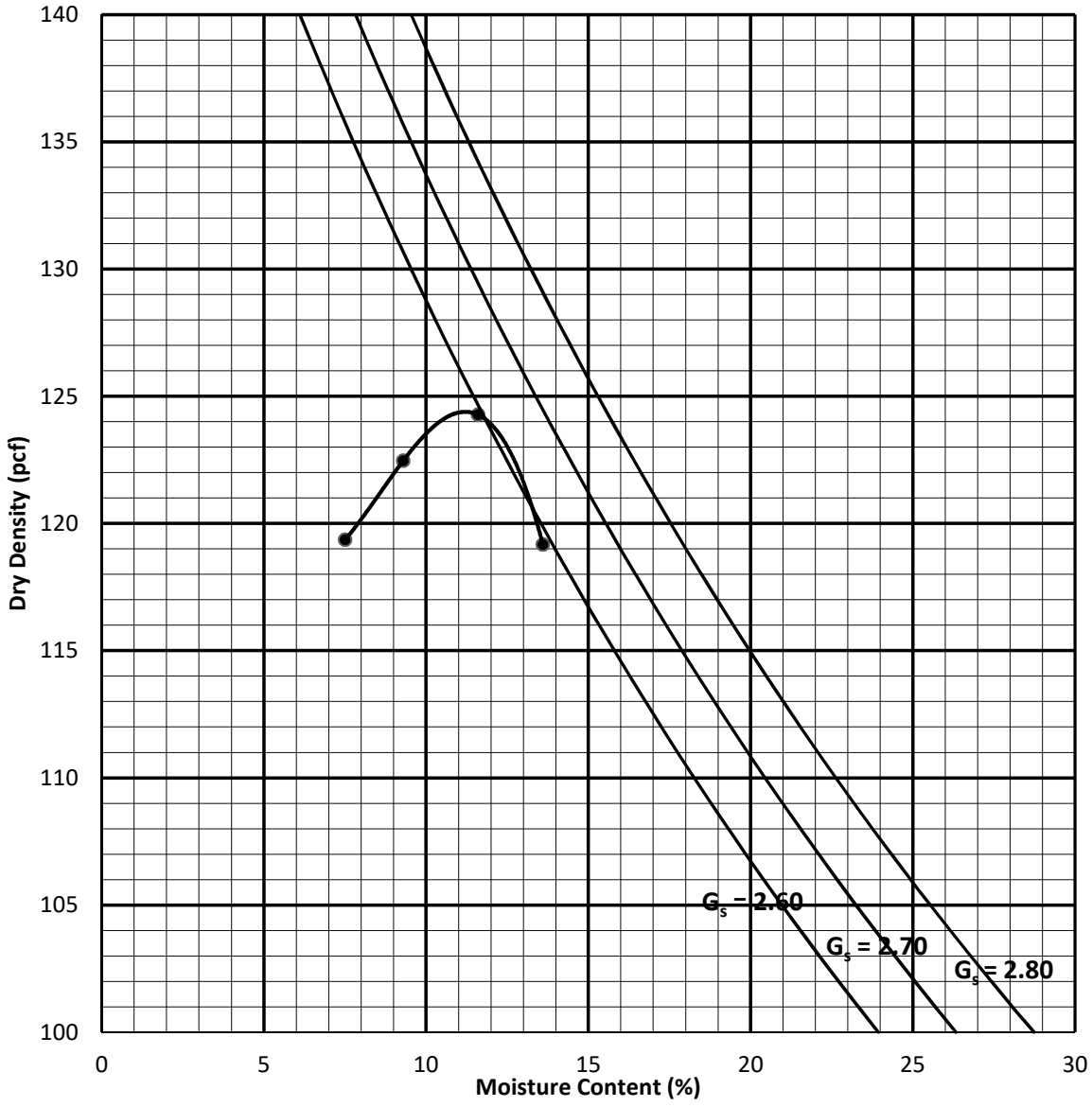


COMPACTION TEST REPORT

Project: Langan # 700109601 **Job No.** 2003-035
Sample: LB-1/B-1 **Date:** 3/29/2022
Description: Brown, Clay

ASTM D1557	Method A	Volume (cf): 0.03333		# Blows: 25	# Layers: 5
Specimen		**A**	**B**	**C**	**D**
Wet Weight (grs)		2097	2047	2024	1940
Wet Density (pcf)		138.7	135.4	133.9	128.3
Moisture Content (%)		11.6	13.6	9.3	7.5
Dry Density (pcf)		124.3	119.2	122.5	119.4

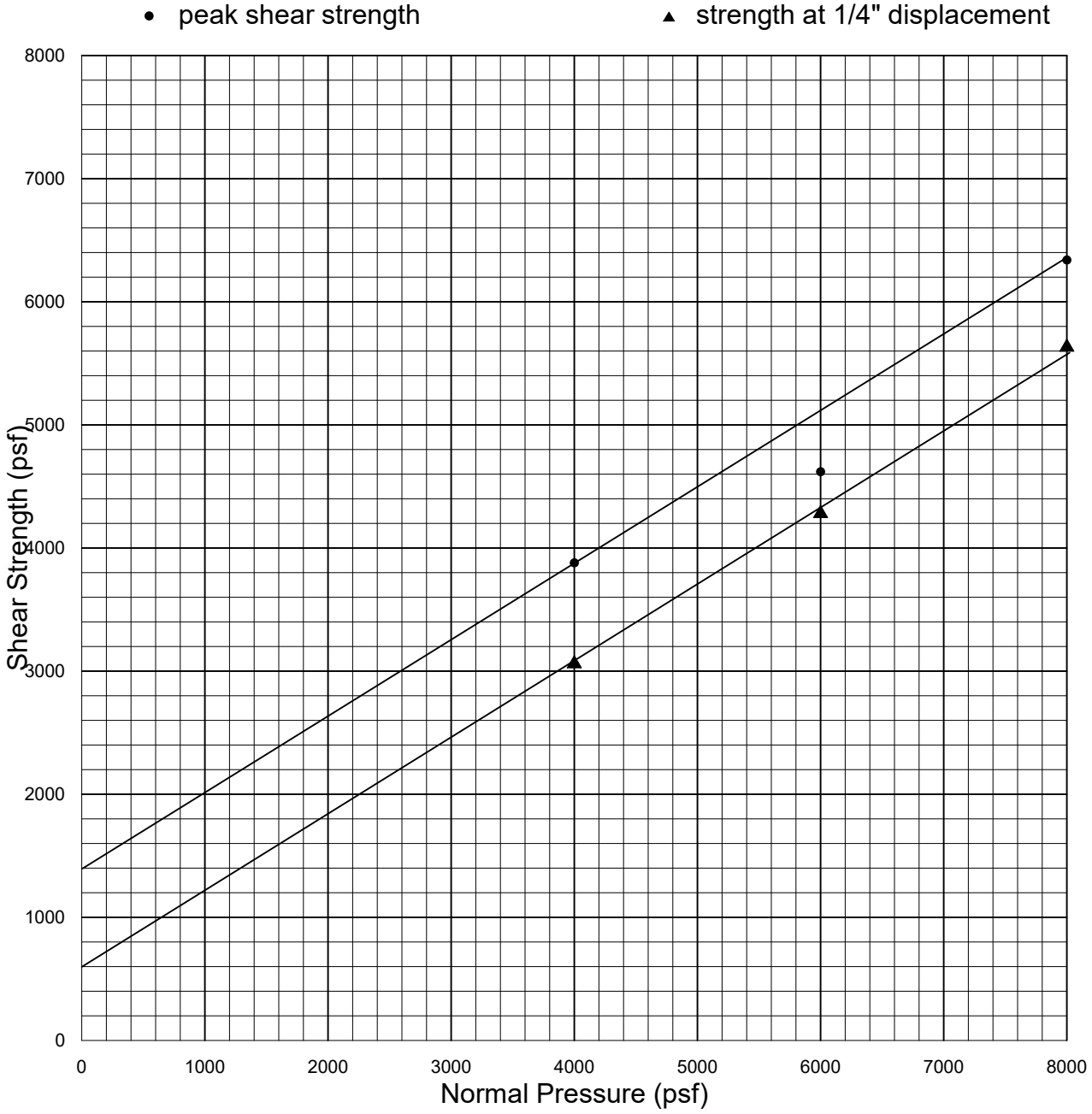
Max. Dry Density : 124.5 pcf
Opt. Water Content: 11.5 %



SAMPLE NO.:	LB-1 / B-1	LB-3 / B-1			
Depth	0 - 5'	0 - 5'			
DIRECT SHEAR TEST (type)					
Initial Moisture Content %					
Dry Density (pcf)					
Normal Stress (psf)					
Peak Shear Stress (psf)					
Ultimate Shear Stress (psf)					
Cohesion (psf)					
Internal Friction Angle (degrees)					
EXPANSION TEST UBC STD 18-2					
Initial Dry Density (pcf)					
Initial Moisture Content %					
Final Moisture Content %					
Pressure (psf)					
Expansion Index / Swell %					
CORROSIVITY TEST					
Resistivity (ASTM G57) (ohm-cm)	1890	760			
pH (ASTM D4972)	7.7	7.5			
CHEMICAL TESTS					
Soluble Sulfate (ASTM D4327) (%)	0.0230	0.4995			
Chloride Content (ASTM D4327) (%)	0.0066	0.0054			
Wash #200 Sieve (ASTM-1140) %					
Sand Equivalent (ASTM D2419)					

Geo-Logic ASSOCIATES

DIRECT SHEAR TEST - ASTM D-3080



Strain Rate: 0.0042 in. / min.

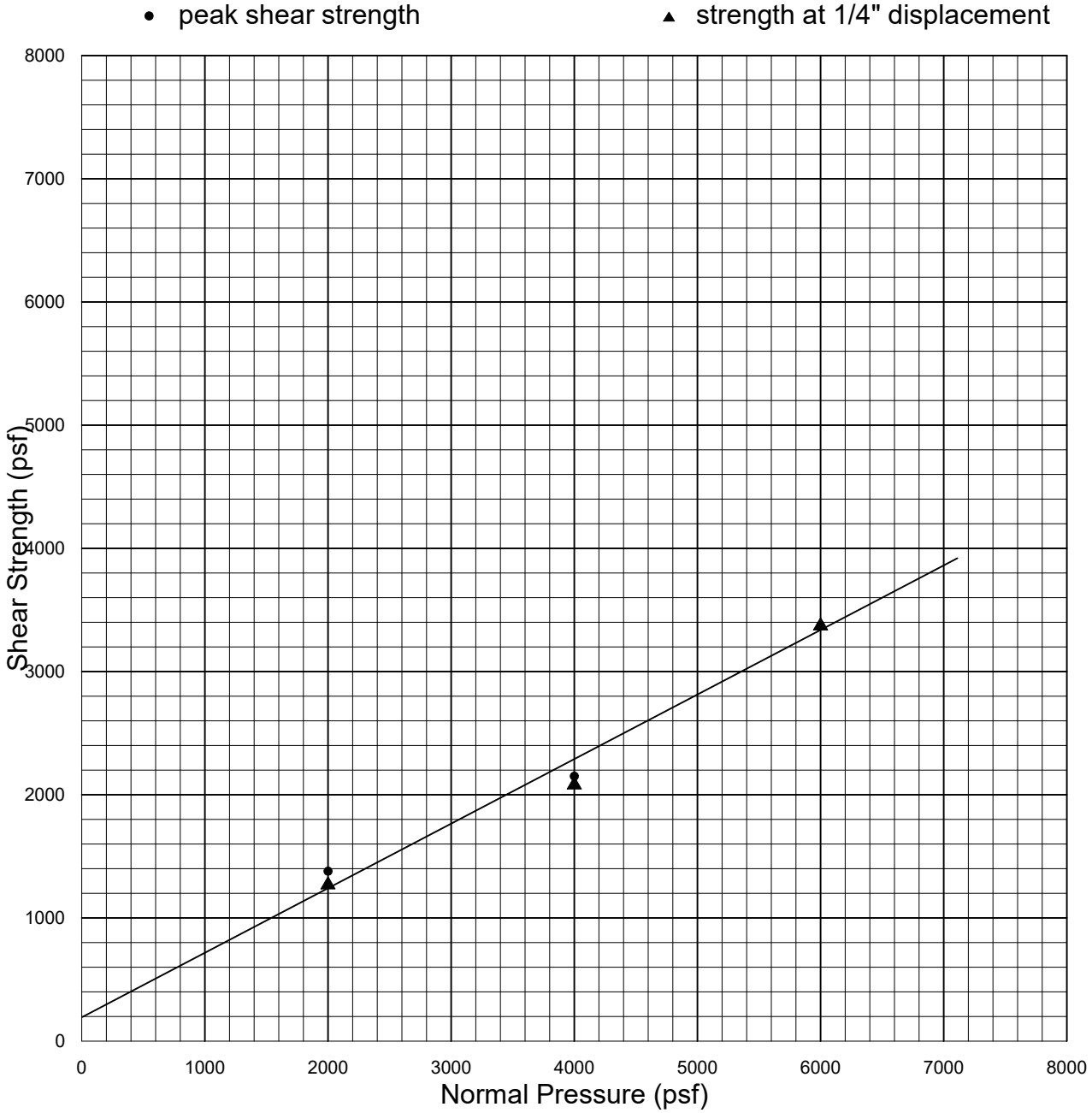
Sample	Type	Description	Dry Density (pcf)	Initial W.C. (%)	Final W.C. (%)
LB1/S9	Undisturbed & Saturated	Sand	123.5	11.6	13.7

Normal Pressure (psf)	Peak Shear Strength (psf)	Ultimate Shear Strength (psf)
4000	3880 @ 0.1250"	3060
6000	4620 @ 0.1500"	4280
8000	6340 @ 0.1505"	5630
	C = 1400 psf	C = 600 psf
	ϕ = 32 deg.	ϕ = 32 deg.

Date: 03-29-22

Geo**L**ogic **A**ssociates

DIRECT SHEAR TEST - ASTM D-3080



Strain Rate: 0.0042 in. / min.

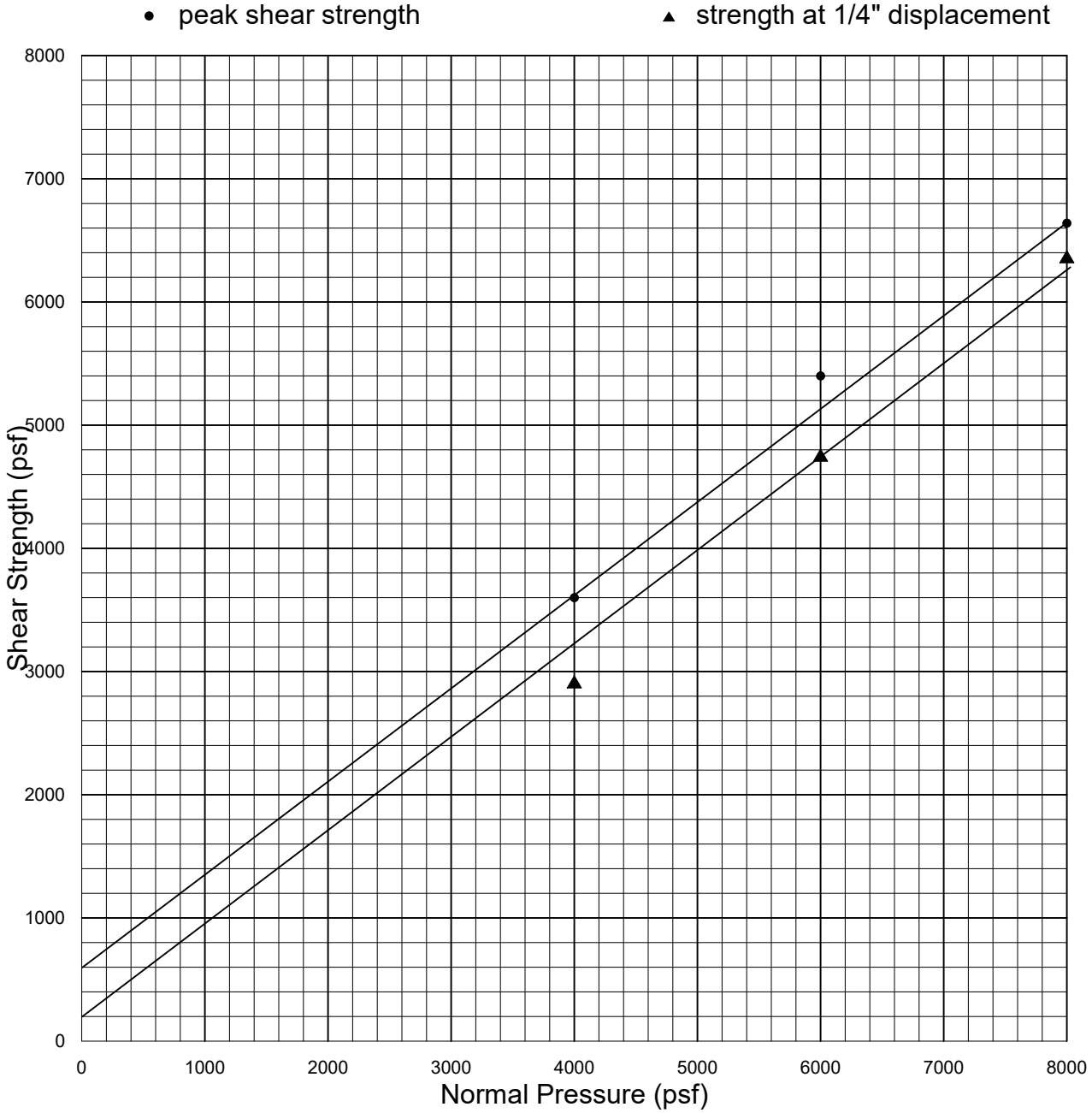
Sample	Type	Description	Dry Density (pcf)	Initial W.C. (%)	Final W.C. (%)
LB3/S4	Undisturbed & Saturated	Sand	98.3	24.1	25.7

Normal Pressure (psf)	Peak Shear Strength (psf)	Ultimate Shear Strength (psf)
2000	1380 @ 0.1055"	1270
4000	2150 @ 0.1100"	2080
6000	3370 @ 0.2450"	3370
	C = 200 psf	C = 200 psf
	ϕ = 27.5 deg.	ϕ = 27.5 deg.

Date: 03-29-22

Geo**L**ogic **A**ssociates

DIRECT SHEAR TEST - ASTM D-3080



Strain Rate: 0.0084 in. / min.

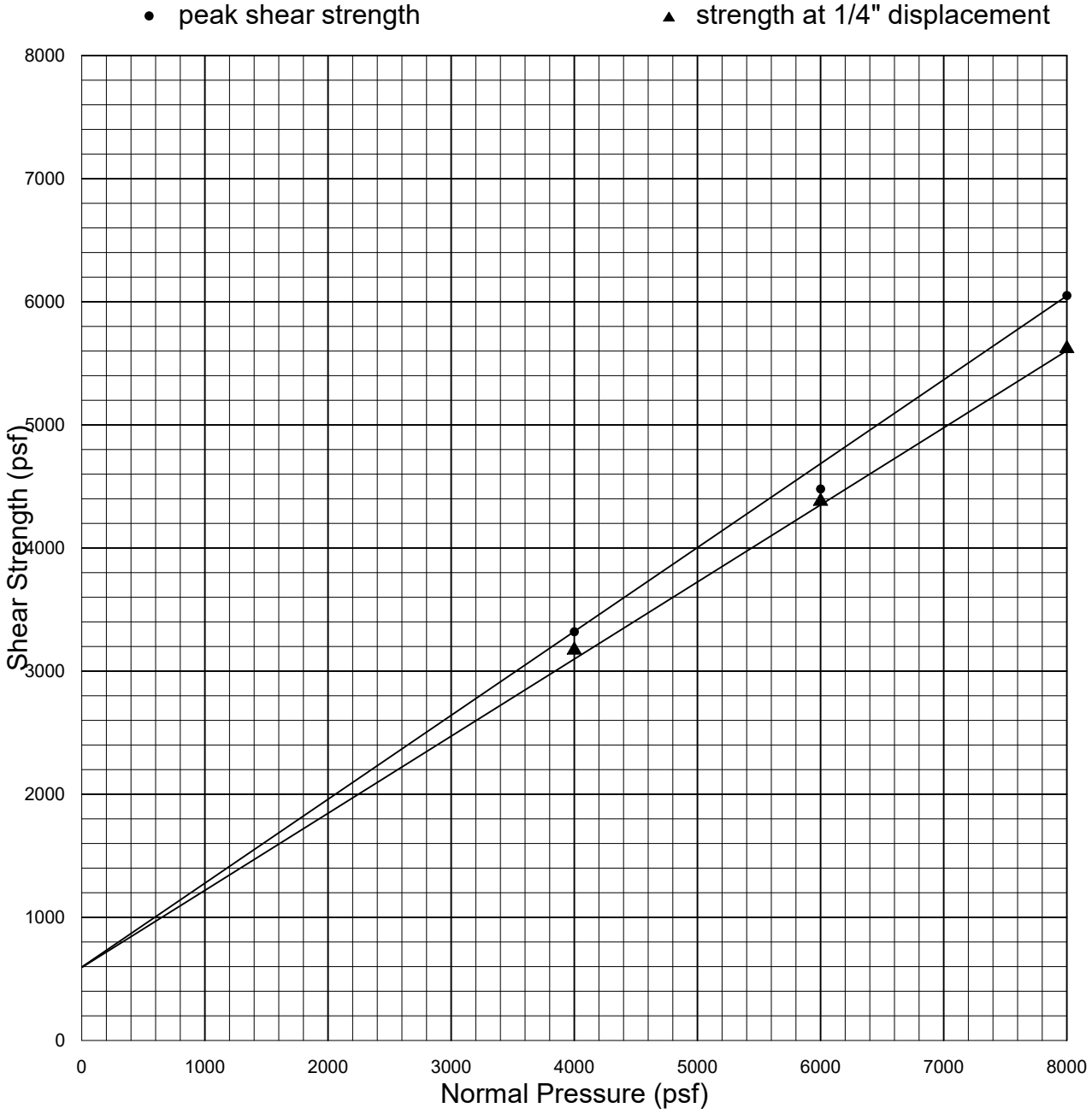
Sample	Type	Description	Dry Density (pcf)	Initial W.C. (%)	Final W.C. (%)
LB3/S12	Undisturbed & Saturated	Sand	118.7	5.2	15.7

Normal Pressure (psf)	Peak Shear Strength (psf)	Ultimate Shear Strength (psf)
4000	3600 @ 0.1450"	2900
6000	5400 @ 0.1655"	4740
8000	6640 @ 0.1855"	6350
	C = 600 psf	C = 200 psf
	ϕ = 37 deg.	ϕ = 37 deg.

Date: 03-29-22

Geo**L**ogic **A**ssociates

DIRECT SHEAR TEST - ASTM D-3080



Strain Rate: 0.0042 in. / min.

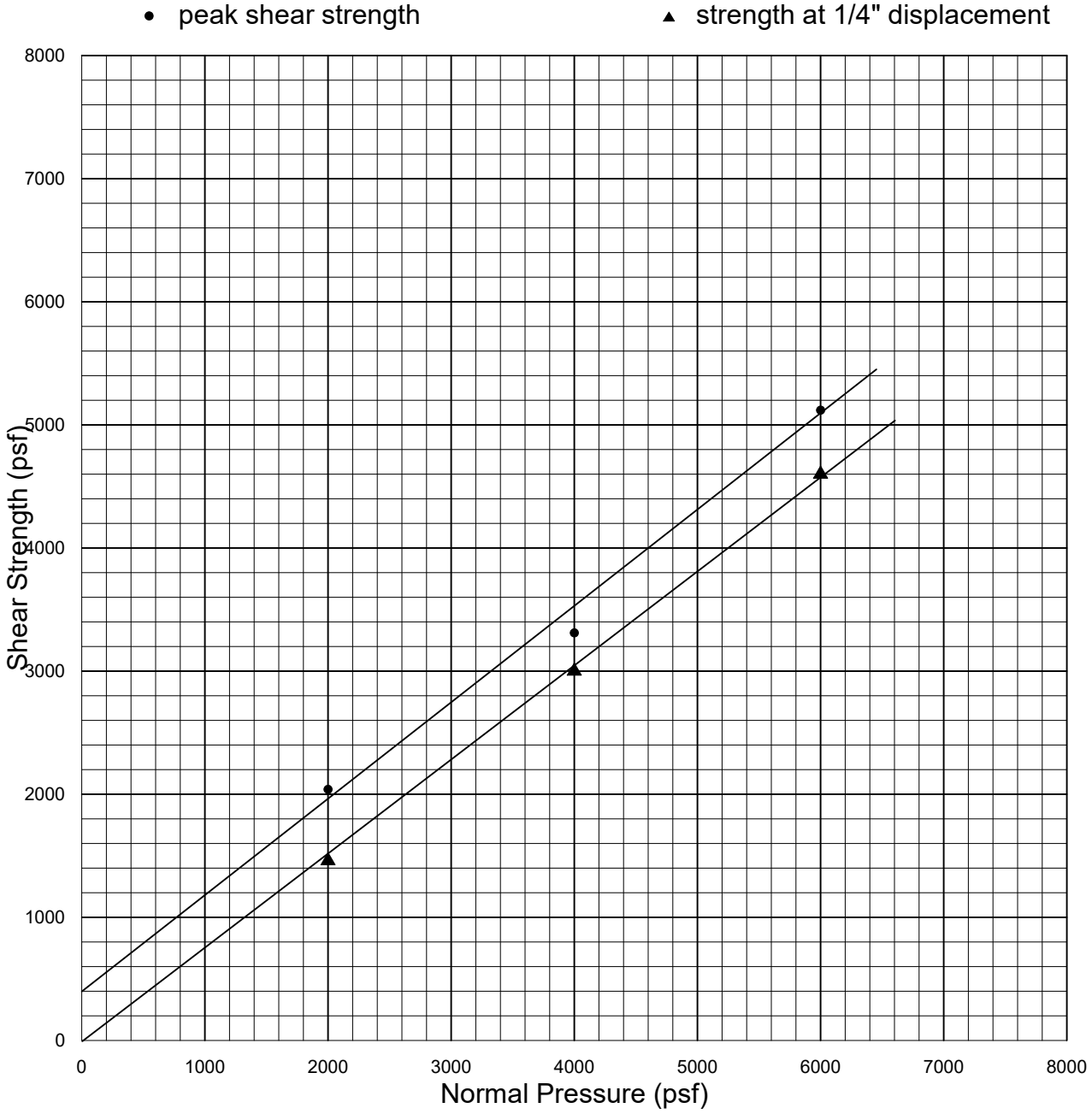
Sample	Type	Description	Dry Density (pcf)	Initial W.C. (%)	Final W.C. (%)
LB5/S11	Undisturbed & Saturated	Sandy Clay	123.0	11.9	14.2

Normal Pressure (psf)	Peak Shear Strength (psf)	Ultimate Shear Strength (psf)
4000	3320 @ 0.1405"	3170
6000	4480 @ 0.1655"	4380
8000	6050 @ 0.1605"	5620
	C = 600 psf	C = 600 psf
	ϕ = 34.5 deg.	ϕ = 32 deg.

Date: 03-29-22

Geo**L**ogic **A**ssociates

DIRECT SHEAR TEST - ASTM D-3080



Strain Rate: 0.0042 in. / min.

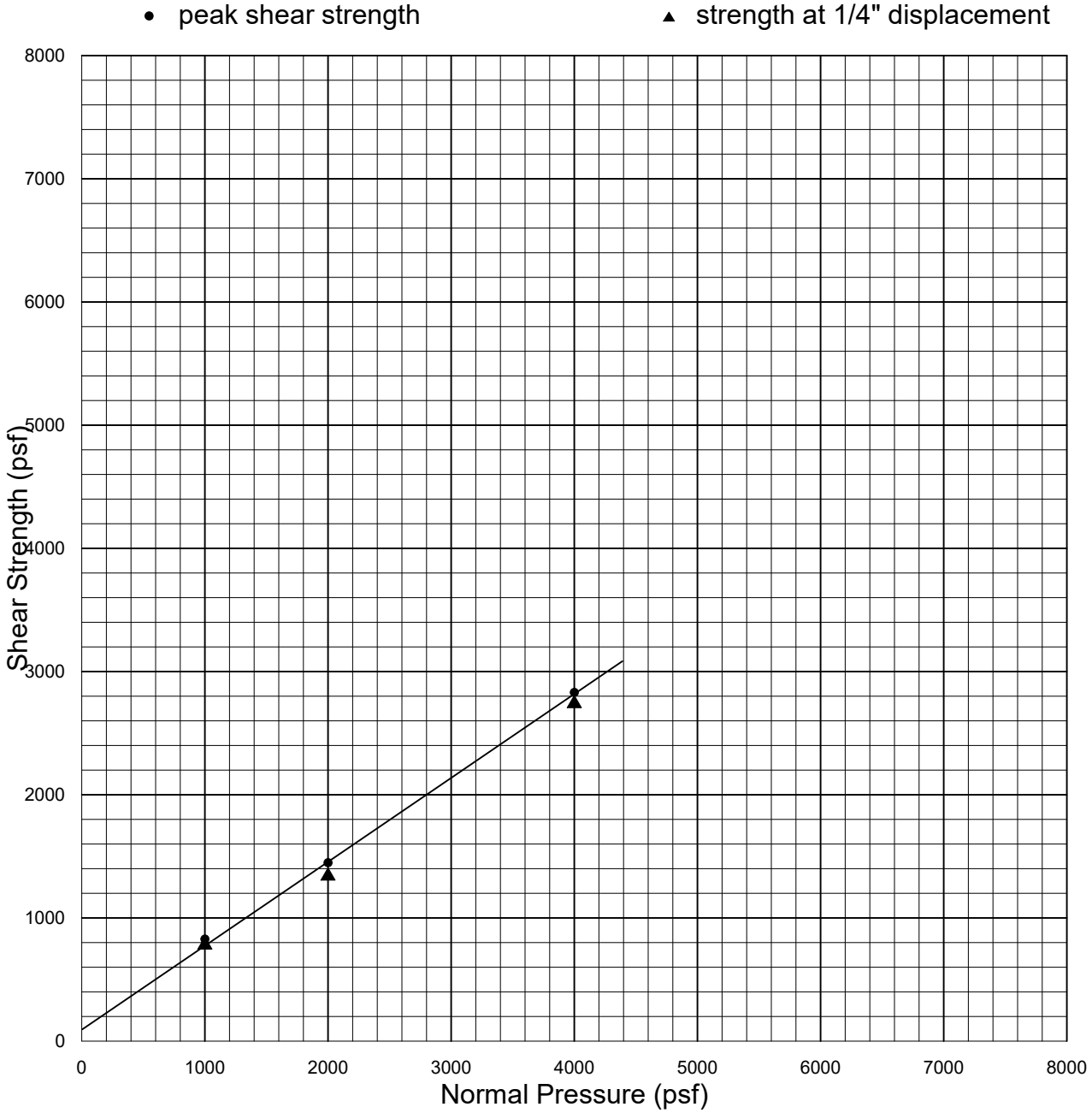
Sample	Type	Description	Dry Density (pcf)	Initial W.C. (%)	Final W.C. (%)
LB6/S6	Undisturbed & Saturated	Silty Sand	123.4	9.0	14.1

Normal Pressure (psf)	Peak Shear Strength (psf)	Ultimate Shear Strength (psf)
2000	2040 @ 0.1355"	1460
4000	3310 @ 0.1700"	3000
6000	5120 @ 0.1700"	4600
	C = 400 psf	C = 0 psf
	ϕ = 37 deg.	ϕ = 37 deg.

Date: 03-29-22

Geo**L**ogic **A**ssociates

DIRECT SHEAR TEST - ASTM D-3080



Strain Rate: 0.0084 in. / min.

Sample	Type	Description	Dry Density (pcf)	Initial W.C. (%)	Final W.C. (%)
LB7/S2	Undisturbed & Saturated	Silty Sand w. some Clay	105.8	10.1	17.0

Normal Pressure (psf)	Peak Shear Strength (psf)	Ultimate Shear Strength (psf)
1000	830 @ 0.1150"	780
2000	1450 @ 0.1205"	1340
4000	2830 @ 0.1755"	2740
	C = 100 psf	C = 100 psf
	ϕ = 34 deg.	ϕ = 34 deg.

Date: 03-29-22