Appendix IS-3

Geotechnical Feasibility Report

CITY OF LOS ANGELES

CALIFORNIA

ERIC GARCETTI
MAYOR

DEPARTMENT OF
BUILDING AND SAFETY
201 NORTH FIGUEROA STREET
LOS ANGELES, CA 90012

SOILS REPORT APPROVAL LETTER

October 23, 2020

LOG # 114991
SOILS/GEOLOGY FILE - 2

Mayer Brown LLP on Behalf of Seward Partners LLC
350 S. Grand Avenue., 25th Fl.
Los Angeles, CA 90071

TRACT:	1988 // LANDER TRACT NO. 2 (M P 4-57)
LOT(S):	6-8 // 1-4 & 8
LOCATION:	6450 - 6562 W SUNSET BLVD // 1420-1454 N. Wilcox Ave. and 1445-1447 & 1413-1443 N Cole Pl.

CURRENT REFERENCE REPORT/LETTER(S)	REPORT No.	DATE OF DOCUMENT	PREPARED BY
Addendum Report	LA-1429	10/06/2020	Group Delta Consultants, Inc.

PREVIOUS REFERENCE REPORT/LETTER(S)	REPORT No.	DATE OF DOCUMENT	PREPARED BY
Dept. Approval Letter	113343	06/17/2020	LADBS
Soils Report	LA-1429	05/15/2020	Group Delta Consultants, Inc.

The Grading Division of the Department of Building and Safety has reviewed the referenced addendum report providing supplemental recommendations for the proposed development.

The Department reviewed and conditionally approved the previous referenced report that provides recommendations for the proposed 15-story commercial building over three subterranean parking and a 15 feet high switchgear structure over 18 feet below grade level. The earth materials at the subsurface exploration locations consist of up to 2 feet of uncertified fill underlain by clay and clayey sand. The consultants recommend to support the proposed structure on conventional foundations bearing on native undisturbed soils.

The referenced reports are acceptable, provided the following conditions are complied with during site development:

(Note: Numbers in parenthesis ( ) refer to applicable sections of the 2020 City of LA Building Code. P/BC numbers refer the applicable Information Bulletin. Information Bulletins can be accessed on the internet at LADBS.ORG.)

1. All conditions of the Department approval letter dated 06/17/2020 (Log # 113343) shall be complied with.

2. All latest recommendations of the current referenced report that are in addition to or more restrictive than the conditions contained herein shall be incorporated into the plans.

3. The proposed structure and subterranean walls shall be designed to resist uplift and hydrostatic pressures that would develop due to the historic high groundwater level conditions or the current groundwater level, whichever is higher.

4. A design-level geotechnical investigation shall be conducted as recommended on page 2 of the 10/06/2020 report.

YING LIU
Geotechnical Engineer II

Log No. 114991
213-482-0480

cc: Group Delta Consultants, Inc., Project Consultant
LA District Office

CITY OF LOS ANGELES
DEPARTMENT OF BUILDING AND SAFETY
Grading Division

District	Log No.

APPLICATION FOR REVIEW OF TECHNICAL REPORTS

INSTRUCTIONS

A. Address all communications to the Grading Division, LADBS, 221 N. Figueroa St., 12th Fl., Los Angeles, CA 90012 Telephone No. (213)482-0480.
B. Submit two copies (three for subdivisions) of reports, one "pdf" copy of the report on a CD-Rom or flash drive, and one copy of application with items "1" through "10" completed.
C. Check should be made to the City of Los Angeles.

1. LEGAL DESCRIPTION
Tract: Tract No.1988; Lander Tract No. 2
Block: M.B.22/108;M.B. 4/57 Lots: B, 7 & 8; 1, 2, 3, 4 &8

2. PROJECT ADDRESS: 6450-6562 Sunset Blvd., 1445-1447 Cole Pl. and 1420-1454 Wilcox Ave; 1413-1443 Cole Pl.,1420-1438 Wilcox Ave. and 6503 De Longpre

3. OWNER: USR Real Estate Holdings LLC; 39 South LLC
Address: 500 Staples Dr. ; 1415 Cahuenga Blvd.
City: Framingham; Hollywood Zip: 01702; 90028
Phone (Daytime):

4. APPLICANT Michelle Sutherland
Address: 370 Amapola Ave.
City: Torrance Zip: 90501
Phone (Daytime): 310-520-5100
E-mail address: michelles@groupdelta.com

5. Report(s) Prepared by: Group Delta

6. Report Date(s): 10/06/2020

7. Status of project: ☑ Proposed ☐ Under Construction ☐ Storm Damage

8. Previous site reports? ☐ YES if yes, give date(s) of report(s) and name of company who prepared report(s)

9. Previous Department actions? ☐ YES if yes, provide dates and attach a copy to expedite processing.
Dates:

10. Applicant Signature: Position: Senior Geologist

(DEPARTMENT USE ONLY)

REVIEW REQUESTED	FEES	REVIEW REQUESTED	FEES
☐ Soils Engineering		No. of Lots	
☐ Geology		No. of Acres	
☐ Combined Soils Engr. & Geol.		☐ Division of Land	
☐ Supplemental		Other	363.00
☐ Combined Supplemental		☐ Expedite	
☐ Import-Export Route		☐ Response to Correction	
Cubic Yards:		☐ Expedite ONLY	
		Sub-total	
		Surcharge	89.86
		TOTAL FEE	452.86

Fee Due: 452.86
Fee Verified By: Date: 10.16.20
(Cashier Use Only)

Los Angeles Department of Building and Safety
Metro 4th Floor 10/16/2020 4:23:16 PM
User ID: rkhachatryan
Receipt Ref Nbr: 2020290001-148
Transaction ID: 2020290001-148-1
GRADING REPORT $363.00
SYSTEMS DEV SURCH $21.78
GEN PLAN MAINT SURCH $25.41
DEV SERV CENTER SURCH $10.89
CITY PLAN SURCH $21.78
MISC OTHER $10.00
Amount Paid: $452.86
PCIS Number: N/A
Job Address: 6450-6562 SUN SET BLVD , 1445-1447 COLE PL, 1420-1454 WILCOX AVE,
Owners Name: USR REAL ESTATE HOLDINGS LLC

ACTION BY:

THE REPORT IS: ☐ NOT APPROVED

☐ APPROVED WITH CONDITIONS ☐ BELOW ☐ ATTACHED

For Geology Date

For Soils Date

CITY OF LOS ANGELES
CALIFORNIA

ERIC GARCETTI
MAYOR

DEPARTMENT OF
BUILDING AND SAFETY
201 NORTH FIGUEROA STREET
LOS ANGELES, CA 90012

OSAMA YOUNAN, P.E.
GENERAL MANAGER
SUPERINTENDENT OF BUILDING

SOILS REPORT APPROVAL LETTER

June 17, 2020

LOG # 113343
SOILS/GEOLOGY FILE - 2

Mayer Brown LLP on Behalf of Seward Partners LLC
350 S. Grand Avenue., 25th Fl.
Los Angeles, CA 90071

TRACT:	1988 // LANDER TRACT NO. 2 (M P 4-57)
LOT(S):	6-8 // 1-4 & 8
LOCATION:	6450 - 6562 W SUNSET BLVD // 1420-1454 N. Wilcox Ave. and 1445-1447 & 1413-1443 N Cole Pl.

CURRENT REFERENCE REPORT/LETTER(S)	REPORT No.	DATE OF DOCUMENT	PREPARED BY
Soils Report	LA-1429	05/15/2020	Group Delta Consultants, Inc.

The Grading Division of the Department of Building and Safety has reviewed the referenced report that provides recommendations for the proposed 15-story commercial building over three subterranean parking and a 15 feet high switchgear structure over 18 feet below grade level. The earth materials at the subsurface exploration locations consist of up to 2 feet of uncertified fill underlain by clay and clayey sand. The consultants recommend to support the proposed structure on conventional foundations bearing on native undisturbed soils.

The referenced report is acceptable, provided the following conditions are complied with during site development:

(Note: Numbers in parenthesis ( ) refer to applicable sections of the 2020 City of LA Building Code. P/BC numbers refer the applicable Information Bulletin. Information Bulletins can be accessed on the internet at LADBS.ORG.)

1. Provide a notarized letter from all adjoining property owners allowing tie-back anchors on their property (7006.6).

2. The soils engineer shall review and approve the detailed plans prior to issuance of any permit. This approval shall be by signature on the plans that clearly indicates the soils engineer has reviewed the plans prepared by the design engineer; and, that the plans included the recommendations contained in their reports (7006.1).

3. All recommendations of the report that are in addition to or more restrictive than the conditions contained herein shall be incorporated into the plans.

4. A copy of the subject and appropriate referenced reports and this approval letter shall be attached to the District Office and field set of plans (7006.1). Submit one copy of the above reports to the Building Department Plan Checker prior to issuance of the permit.

5. A grading permit shall be obtained for all structural fill and retaining wall backfill (106.1.2).

6. All man-made fill shall be compacted to a minimum 90 percent of the maximum dry density of the fill material per the latest version of ASTM D 1557. Where cohesionless soil having less than 15 percent finer than 0.005 millimeters is used for fill, it shall be compacted to a minimum of 95 percent relative compaction based on maximum dry density. Placement of gravel in lieu of compacted fill is only allowed if complying with LAMC Section 91.7011.3.

7. Existing uncertified fill shall not be used for support of footings, concrete slabs or new fill (1809.2, 7011.3).

8. Drainage in conformance with the provisions of the Code shall be maintained during and subsequent to construction (7013.12).

9. The applicant is advised that the approval of this report does not waive the requirements for excavations contained in the General Safety Orders of the California Department of Industrial Relations (3301.1).

10. Temporary excavations that remove lateral support to the public way, adjacent property, or adjacent structures shall be supported by shoring. Note: Lateral support shall be considered to be removed when the excavation extends below a plane projected downward at an angle of 45 degrees from the bottom of a footing of an existing structure, from the edge of the public way or an adjacent property. (3307.3.1)

11. Prior to the issuance of any permit that authorizes an excavation where the excavation is to be of a greater depth than are the walls or foundation of any adjoining building or structure and located closer to the property line than the depth of the excavation, the owner of the subject site shall provide the Department with evidence that the adjacent property owner has been given a 30-day written notice of such intent to make an excavation (3307.1).

12. The soils engineer shall review and approve the shoring and/or underpinning plans prior to issuance of the permit (3307.3.2).

13. Prior to the issuance of the permits, the soils engineer and the structural designer shall evaluate all applicable surcharge loads for the design of the retaining walls and shoring.

14. Shoring shall be designed for the lateral earth pressures specified in the section titled "Lateral Earth Pressure" starting on page 9 of the referenced report; all surcharge loads shall be included into the design.

15. Shoring shall be designed for a maximum lateral deflection of 1 inch, provided there are no structures within a 1:1 plane projected up from the base of the excavation. Where a structure is within a 1:1 plane projected up from the base of the excavation, shoring shall be designed for a maximum lateral deflection of ½ inch, or to a lower deflection determined by the consultant that does not present any potential hazard to the adjacent structure.

16. A shoring monitoring program shall be implemented to the satisfaction of the soils engineer.

17. All foundations shall derive entire support from native undisturbed soils, as recommended and approved by the geologist and soils engineer by inspection.

18. Footings shall be reinforced with a minimum of four (4), ½-inch diameter (#4) deformed reinforcing bars. Two (2) bars shall be placed near the bottom and two (2) bars placed near the top of the footing.

19. The seismic design shall be based on a Site Class D, as recommended. All other seismic design parameters shall be reviewed by LADBS building plan check.

20. Basement walls shall be designed for the lateral earth pressures specified in the section titled "Basement Walls" starting on page 13 of the referenced report. All surcharge loads shall be included into the design.

21. All retaining walls shall be provided with a standard surface backdrain system and all drainage shall be conducted in a non-erosive device to the street in an acceptable manner (7013.11).

22. With the exception of retaining walls designed for hydrostatic pressure, all retaining walls shall be provided with a subdrain system to prevent possible hydrostatic pressure behind the wall. Prior to issuance of any permit, the retaining wall subdrain system recommended in the soils report shall be incorporated into the foundation plan which shall be reviewed and approved by the soils engineer of record (1805.4).

23. Installation of the subdrain system shall be inspected and approved by the soils engineer of record and the City grading/building inspector (108.9).

24. Basement walls and floors shall be waterproofed/damp-proofed with an LA City approved "Below-grade" waterproofing/damp-proofing material with a research report number (104.2.6).

25. Prefabricated drainage composites (Miradrain, Geotextiles) may be only used in addition to traditionally accepted methods of draining retained earth.

26. All roof, pad and deck drainage shall be conducted to the street in an acceptable manner in non-erosive devices or other approved location in a manner that is acceptable to the LADBS and the Department of Public Works (7013.10).

27. An on-site storm water infiltration system at the subject site shall not be implemented, as recommended.

28. All concentrated drainage shall be conducted in an approved device and disposed of in a manner approved by the LADBS (7013.10).

29. The soils engineer shall inspect all excavations to determine that conditions anticipated in the report have been encountered and to provide recommendations for the correction of hazards found during grading (7008, 1705.6 & 1705.8).

30. Prior to pouring concrete, a representative of the consulting soils engineer shall inspect and approve the footing excavations. The representative shall post a notice on the job site for the LADBS Inspector and the Contractor stating that the work inspected meets the conditions of the report. No concrete shall be poured until the LADBS Inspector has also inspected and approved the footing excavations. A written certification to this effect shall be filed with the Grading Division of the Department upon completion of the work. (108.9 & 7008.2)

31. Prior to excavation an initial inspection shall be called with the LADBS Inspector. During the initial inspection, the sequence of construction; [shoring; ABC slot cuts; underpinning; pile installation;] protection fences; and, dust and traffic control will be scheduled (108.9.1).

32. Installation of shoring, underpinning, slot cutting and/or pile excavations shall be performed under the inspection and approval of the soils engineer and deputy grading inspector (1705.6, 1705.8).

33. The installation and testing of tie-back anchors shall comply with the recommendations included in the report or the standard sheets titled "Requirement for Tie-back Earth Anchors", whichever is more restrictive. [Research Report #23835]

34. Prior to the placing of compacted fill, a representative of the soils engineer shall inspect and approve the bottom excavations. The representative shall post a notice on the job site for the LADBS Inspector and the Contractor stating that the soil inspected meets the conditions of the report. No fill shall be placed until the LADBS Inspector has also inspected and approved the bottom excavations. A written certification to this effect shall be included in the final compaction report filed with the Grading Division of the Department. All fill shall be placed under the inspection and approval of the soils engineer. A compaction report together with the approved soil report and Department approval letter shall be submitted to the Grading Division of the Department upon completion of the compaction. In addition, an Engineer's Certificate of Compliance with the legal description as indicated in the grading permit and the permit number shall be included (7011.3).

YING LIU
Geotechnical Engineer II

Log No. 113343
213-482-0480

cc: Group Delta Consultants, Inc., Project Consultant
LA District Office

CITY OF LOS ANGELES
DEPARTMENT OF BUILDING AND SAFETY
Grading Division

District LA	Log No. 113343

APPLICATION FOR REVIEW OF TECHNICAL REPORTS

INSTRUCTIONS

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C. Check should be made to the City of Los Angeles.

1. LEGAL DESCRIPTION
Tract: Tract No.1988; Lander Tract No. 2
Block: M.B.22/108;M.B. 4/57 Lots: B, 7 & 8; 1, 2, 3, 4 &8

2. PROJECT ADDRESS: 6450-6562 Sunset Blvd., 1445-1447 Cole Pl. and 1420-1454 Wilcox Ave; 1413-1443 Cole Pl.,1420-1438 Wilcox Ave. and 6503 De Longpre

3. OWNER: USR Real Estate Holdings LLC; 39 South LLC
Address: 500 Staples Dr. ; 1415 Cahuenga Blvd.
City: Framingham; Hollywood Zip: 01702; 90028
Phone (Daytime):

4. APPLICANT Michelle Sutherland
Address: 370 Amapola Ave.
City: Torrance Zip: 90501
Phone (Daytime): 310-520-5100
E-mail address: michelles@groupdelta.com

5. Report(s) Prepared by: Group Delta

6. Report Date(s): 05/15/2020

7. Status of project: ☑ Proposed ☐ Under Construction ☐ Storm Damage

8. Previous site reports? ☐ YES if yes, give date(s) of report(s) and name of company who prepared report(s)

9. Previous Department actions? ☐ YES if yes, provide dates and attach a copy to expedite processing.
Dates:

10. Applicant Signature: Michelle A Sutherland Position: Senior Geologist

(DEPARTMENT USE ONLY)

REVIEW REQUESTED	FEES	REVIEW REQUESTED		FEES
☒ Soils Engineering	363.00	No. of Lots		
☐ Geology		No. of Acres		
☐ Combined Soils Engr. & Geol.		☐ Division of Land		
☐ Supplemental		Other		
☐ Combined Supplemental		☒ Expedite		181.50
☐ Import-Export Route		☐ Response to Correction		
Cubic Yards:		☐ Expedite ONLY		
			Sub-total	544.50
			Surcharge	129.80
			TOTAL FEE	674.30

Fee Due: $674.30
Fee Verified By: HUP Date: 6/2/20
(Cashier Use Only)

LA Department of Building and Safety
LA [illegible]

GRADING REPORT [illegible]
SYSTEMS DEV SURCH [illegible]
GEN PLAN MAINT SURCH [illegible]
DEV SERV CENTER SURCH [illegible]
CITY PLAN SURCH [illegible]
PLAN APPROVAL FEE [illegible]
SYSTEMS DEV SURCH [illegible]
GEN PLAN MAINT SURCH [illegible]
DEV SERV CENTER SURCH [illegible]
CITY PLAN SURCH [illegible]
MISCELLANEOUS [illegible]

Sub Total: [illegible]

Receipt #: [illegible]

6450 Sunset Blvd.

ACTION BY:

THE REPORT IS: ☐ NOT APPROVED
☐ APPROVED WITH CONDITIONS ☐ BELOW ☐ ATTACHED

For Geology Date

For Soils Date

Mayer Brown, LLP on Behalf of 6450 Sunset Owner, LLC
350 South Grand Avenue, 25th FL.
Los Angeles, California 90071

October 6, 2020
Group Delta Project No. LA-1429

Attention: **Mr. Edgar Khalatian**

Subject: **Addendum No. 1 for Geotechnical Feasibility Report**
Supplemental Preliminary Recommendation
Proposed Sunset + Wilcox Project
6450 Sunset Blvd., 1429 & 1423 Wilcox Ave., and 1413 Cole Pl.
Los Angeles, California

This letter presents our supplemental recommendations for the proposed Sunset +Wilcox Project at the subject site. We previously performed a geotechnical feasibility study and presented the results in a report dated May 2020 (May 2020 Report). We understand that the design of the proposed basement level has been modified. Accordingly, the supplemental preliminary recommendations provided in this letter reflect the changes in design. The recommendations provided herein supplement those in the May 2020 Report and other recommendations in that report remain valid.

1.0 REVISED PROJECT DESCRIPTION

The Sunset and Wilcox Project site is located at the southeast corner of Sunset Boulevard and Wilcox Street and extends south, in part, to De Longpre Avenue in the City of Los Angeles, California. The Project includes development of a mixed-use commercial building with subterranean parking and a separate switchgear and generator structure (LADWP Building) with surface parking lot.

The main commercial building is planned to be constructed at the “Sunset Lot.” The Sunset Lot is a rectangular shaped property comprised of nine lots with a combined footprint area of 66,994 square feet. The proposed commercial building would be 15-stories in height with a mechanical roof top and three additional subterranean levels of parking, which would extend to a maximum depth of 52 feet. The estimated column loads at this time are 3,000-3,600 kips for dead load and 600 kips for live load.

The LADWP Building is planned to be constructed at the “De Longpre Lot.” The De Longpre Lot is a rectangular shaped property comprised of one lot with a footprint area of 6,909 square feet. The LADWP Building would be 15 feet in height above grade and 23 feet depth below grade subterranean level.

2.0 SUPPLEMENTAL GEOTECHNICAL RECOMMENDATIONS - FOUNDATION

Excavation of the proposed basement level will extend to a maximum depth of 52 feet below the existing grade. The existing groundwater depths ranges between 52.2 to 60.5 feet below ground. Shallow groundwater may be present seasonally following rains and could be encountered during basement excavation. Therefore, the bottom of excavation will likely be saturated during construction. Dewatering may be required during foundation construction. Based on the clayey nature of the onsite soils, it is our opinion that dewatering utilizing well points may not be feasible. Groundwater inflow to excavation collected and pump from sump may be used during construction.

The preliminary recommendations for foundation provided in the May 2020 Report remain applicable. However, since foundation and floor slab on grade will extend below the historical highest groundwater level, waterproofing should be installed around the foundation and portion of basement wall below the historical highest groundwater level. The proposed foundation systems should be designed to accommodate hydrostatic pressure based on the assumed historical high groundwater table.

The final foundation types and bearing capacity should be confirmed during the design-level geotechnical investigation.

3.0 NON-TECHNICAL RELATED CLARIFICATION TO MAY 2020 REPORT

In Section 2.1 Prior Field Investigation

The prior limited field investigation was performed at the Project Site on December 16 and 17, 2019.

In Section 3.3 Groundwater

The prior investigation, which was a Group Delta investigation, encountered groundwater at depth below ground surface at 52.2 feet and 60.5 feet. The data from the prior investigation was not included in the May 2020 Report.

In Section 4 Geologic/Soils CEQA Impact Geotechnical Evaluation

For the CEQA specific geology and soil impact evaluation, an evaluation of the checklist items was performed. First it was assessed if the potential hazard was present at the Project Site or may develop as a result of the proposed Project. Then the degree in which the potential may be present was evaluated. If there was a potentially significant hazard present, it is then evaluated if the hazard can be 1) reduced through regulatory compliance to a less than significant impact; 2) requires extensive mitigation which may result in changes to the Project Plan to reduce the impact to less than significant; 3) have significant impact even with mitigations; or 4) have significant impact with no known ability to mitigate. Below is the summary table presented in the reference report. Its contents are supported in the context of the referenced report and should not be used outside of this supplement document without the context of the referenced report. Here within the Table 1 – VII. Geology and Soils Impacts should now be referenced as Section 4 Table 1 – VII. Geology and Soils Impacts.

Section 4 Table 1 – VII. Geology and Soils Impacts

Geology and Soils Item	Impact	Regulatory Compliance Measures
a.i. Rupture of Earthquake Fault	No Impact	Alquist Priolo Act Compliance. The Project is not located on or nearby an active-fault
a.ii. Seismic Ground Shaking	Less than Significant with Regulatory Compliance Measures Incorporated	Building Code – Current Seismic Design Compliance
a.iii. Seismic Ground Failure	Less than Significant	None Required
a.iv. Landslides	Less than Significant with Regulatory Compliance Measures Incorporated	Building Code Compliance
b. Soil Erosion	No Impact	Best Management Practices Compliance
c. Ground Stability	No Impact	Building Code Compliance
d. Expansive Soil	Less than Significant with Regulatory Compliance Measures Incorporated	Building Code Compliance
e. Waste Water Management	Less than Significant with Regulatory Compliance Measures Incorporated	City of Los Angeles Low Impact Development Best Management Practices Handbook Compliance
f*. Destroy a Unique Geologic Feature	No Impact	NA

Note* - only the geotechnical related part of item f is addressed here within.

In Section 4.2 Seismic Setting

Table 1: List of Known Earthquake Faults Closest to the Subject Site, is renamed here within to Section 4.2 Table 1: List of Known Earthquake Faults Closest to the Subject Site.

In the report Figures, Figure 4 – Cross Section A-A' should be amended such that the cross section is labelled with A' at the southern extent of the section.

4.0 CLOSING

The recommendations were developed in accordance with generally accepted geotechnical engineering principles and practice. The professional engineering work and judgments presented in this memorandum meet the standard of care of our profession at this time. No other warranty, expressed or implied, is made.

Sincerely,
Group Delta Consultants, Inc.

Ethan Tsai, G.E.
Associate Geotechnical Engineer

Michelle A. Sutherland, P.G., C.E.G.
Senior Engineering Geologist

Geotechnical Feasibility
Proposed Sunset + Wilcox Project
6450 Sunset Blvd., 1429 & 1423 Wilcox Ave., and 1413 Cole Pl.
Los Angeles, California

Prepared by

GROUP DELTA CONSULTANTS, INC.
370 Amapola Ave., Suite 212
Torrance, California 90501
GDC Project No. LA-1429-1

May 15, 2020

GROUP DELTA

Mayer Brown, LLP on Behalf of Seward Partners, LLC
350 South Grand Avenue., 25th Fl.
Los Angeles, California 90071

May 15, 2020
GDC Project No. LA-1429

Attention: **Mr. Edgar Khalatian**

Subject: **Geotechnical Feasibility Report**
Proposed Sunset + Wilcox Project
6450 Sunset Blvd., 1429 & 1423 Wilcox Ave., and 1413 Cole Pl.
Los Angeles, California

Dear Mr. Khalatian,

Group Delta Consultants (GDC) is pleased to submit this geotechnical feasibility report for the Sunset + Wilcox Project at the subject site. Our scope of work was conducted in general accordance with change order No. 2 dated April 3, 2020 and the Consulting Agreement between Seward Partners, LLC and Group Delta Consultants, Inc. dated November 21, 2019.

We appreciate the opportunity to provide geotechnical services for this significant project. If you have any questions pertaining to this report, or if we can be of further service, please do not hesitate to contact us.

Sincerely,
Group Delta Consultants, Inc.

REGISTERED PROFESSIONAL ENGINEER
ETHAN TSAI
NO. GE 3004
EXP. 12/31/21
GEOTECHNICAL
STATE OF CALIFORNIA

PROFESSIONAL GEOLOGIST
MICHELLE ALLISON SUTHERLAND
No. EG2577
EXP. 2/29/22
CERTIFIED ENGINEERING GEOLOGIST
STATE OF CALIFORNIA

Ethan Tsai, G.E.
Associate Geotechnical Engineer

Michelle A. Sutherland, P.G., C.E.G.
Senior Engineering Geologist

TABLE OF CONTENTS

LIST OF FIGURES

LIST OF APPENDICES

Geotechnical Feasibility Report
Proposed Sunset + Wilcox Redevelopment
6450 Sunset Blvd., 1429 & 1423 Wilcox Ave., and 1413 Cole Pl.
Los Angeles, California

1.0 INTRODUCTION

This report was prepared to address the feasibility of the proposed Sunset + Wilcox Project from a geotechnical standpoint in preparation for the project Environmental Impact Report (EIR) submittal. This report includes a review of geotechnical related geological/soils CEQA checklist items as well as preliminary geotechnical foundation and construction recommendations for project planning.

1.1 Project Description

The Sunset and Wilcox Project site is located at the southeast corner of Sunset Boulevard and Wilcox Street and extends south, in part, to De Longpre Avenue in the City of Los Angeles, California. The site vicinity is shown in Figure 1. The Project includes development of a commercial office building with subterranean parking and a separate switchgear and generator structure with surface parking lot. The main commercial building is planned to be constructed at the Sunset Lot, location shown in Figures 2 and 3. The Sunset Lot is a rectangular shaped property comprised of nine lots with a combined footprint area of 66,994 square feet. The proposed commercial building is 15-stories in height with a roof top helipad and three additional subterranean levels of parking. The estimated column loads at this time are 3,000-3,600 kips for dead load and 600 kips for live load.

The switchgear and generator building is planned to be constructed at the De Longpre Lot, location shown in Figures 2 and 3. The De Longpre Lot is a rectangular shaped property comprised of one lot with a footprint area of 6,909 square feet. The proposed switchgear structure will be 15 feet in height above grade and 18 feet depth below grade subterranean level.

1.2 Scope of Work

This report is intended to address the primary geotechnical factors which may impact the planned Sunset + Wilcox Project and provide preliminary geotechnical recommendations for earthwork and foundation support. Our scope of work included the following:

- Review of regional geotechnical maps and reports published by the U.S. Geological Survey (USGS), California Geological Survey (CGS), and City of Los Angeles;
- Review prior subsurface field exploration at the site including the Due Diligence Investigations, dated January 24, 2020;

- Incorporate the current Sunset + Wilcox Project conceptual plans prepared by Gensler, dated May 4, 2020 in our evaluation;
- Perform a preliminary borehole percolation test within 5 feet to 15 feet depth below existing ground surface;
- Update figures to include conceptual plans dated March 18, 2020;
- Provide geotechnical background and evaluation for pertinent geology/soils CEQA Environmental Checklist items;
- Perform preliminary analyses to provide preliminary geotechnical recommendations for excavation, shoring, foundation design, earthwork, and construction-related issues; and
- Prepare a report to present our findings and preliminary recommendations.

2.0 GEOTECHNICAL INVESTIGATION AND LABORATORY TESTING

2.1 Prior Field Investigation

A limited field investigation was previously performed on the Project Site December 16 and 17, 2020. The prior field exploration is presented here within. The soil conditions beneath the Project Site were explored by drilling four hollow stem auger borings, B-1, B-2, B-3, and B-4, and sampled to a maximum depth of 61.5 feet below the existing grade. In addition to the prior exploration, boring INF-1 was drilled on April 3, 2020 to the depth of 16.5 feet, to perform percolation testing. The locations of these borings are shown on Figure 2, Exploration Plan. Details of the explorations and the logs are presented in Appendix A.

2.2 Laboratory Testing Program

Laboratory testing was performed on representative samples obtained during the field investigation to further evaluate and correlate the physical properties and engineering characteristics of the soils encountered. The following tests were performed/and or reviewed as part of this study:

- Moisture and density
- Grain size distribution
- Direct shear
- Consolidation
- Atterberg limits
- Corrosivity (pH, sulfate, chloride, electrical resistivity)
- Expansion index

All testing was done in general accordance with applicable ASTM specifications. Details of the laboratory testing program and test results are presented in Appendix B.

3.0 SITE CONDITIONS

3.1 Site Conditions

The Project Site is located in a densely developed area in the Hollywood area of Los Angeles, California, as shown in Figure 1. The Project Site is occupied by commercial buildings at the north, west, and south parcels, as shown in Figure 2. There is minimal vegetation, which includes only perimeter landscape. The rest of the Site is paved with at grade parking, sidewalks, and driveways. The Sunset Lot is bordered entirely by streets, on the north by Sunset Boulevard, the west by Wilcox Avenue, the east by Cole Place, and the south by a public alleyway. The De Longpre Lot is bordered by the public alleyway to the north, a single-story commercial building and at grade parking to the west, Cole Place to the east, and De Longpre Avenue to the south. Topography at the Site and surrounding area has a gentle down gradient to the south, topographically as illustrated in Figures 1 and 2.

3.2 Subsurface Conditions

Artificial fill materials were encountered within the borings to about 2 feet depth. The fill materials consist of silty to clayey sand with gravel. However, it should be noted that in the City of Los Angeles, it is common to encounter undocumented old fills and construction debris buried below developed properties. Deeper fills/debris may exist between exploration locations.

Older alluvial fan deposits (Qof) lie below the fill materials to maximum depth explored. From 2-foot depth to about 15-foot depth the alluvium consists of a medium dense, brown to dark brown, moist silty to clayey sand, within interbedded clayier layers. Below 15-ft depth to about 30-35 feet depth, the soil generally becomes a medium stiff to very stiff, light to dark brown, moist sandy lean clay to lean clay. There appears to be a layer of medium dense to dense sand from about 30 to 35-40ft depth. At about 35-40 feet depth, down to maximum depth explored the alluvium consists of very stiff to hard, light to dark brown, sandy lean clay to clayey sand. A geologic cross section presenting the general subsurface conditions is presented in Figure 4.

3.3 Groundwater

During the geotechnical feasibility study for this Project Site, soil borings were drilled to a maximum depth of 61.5 feet (about Elevation 288.5 feet) below the ground surface. Groundwater was encountered during our investigation at depths 52.2 feet to 60.5 feet, corresponding to approximate elevation of 290 feet. The Seismic Hazard Zone Report for the Hollywood Quadrangle (CGS, 1999) indicates that the historically highest ground water level in the site area is about 50 feet below ground surface. However, shallower perched ground water may be present seasonally following rains and could be encountered during basement excavation.

4.0 GEOLOGIC/SOILS CEQA IMPACT GEOTECHNICAL EVALUATION

The Sunset + Wilcox Project Site has been evaluated for “potential substantial adverse environmental effects” involving geology and soils according to the 2020 CEQA Statute & Guidelines Appendix G, which ask if the project would:

a) Expose people or structures to potential substantial adverse effects, involving the risk of loss, injury, or death involving:

i) Rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map issued by the State Geologist for the area of based on other substantial evidence of a known fault?

ii) Strong seismic ground shaking?

iii) Seismic-related ground failure, including liquefaction?

iv) Landslides?

b) Result in substantial soil erosion or the loss of topsoil?

c) Be located on a geologic unit or soil that is unstable, or that would become unstable as a result of the project, and potentially result in on- or off-site landslide, lateral spreading, subsidence, liquefaction, or collapse?

d) Be located on expansive soil, as defined in Table 18-1-B of the Uniform Building Code (1994), creating substantial risks to life or property?

e) Have soils incapable of adequately supporting the use of septic tanks or alternative waste water disposal systems where sewers are not available for the disposal of waste water?

f) Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?

The findings are summarized in Table 1 VII. Geology and Soils Impacts and discussed further in the sections below.

Table 1 – VII. Geology and Soils Impacts

Geology and Soils Item	Impact	Mitigation
a.i. Rupture of Earthquake Fault	Less than Significant with Mitigation Incorporated	Alquist Priolo Act Compliance. The Project is not located on or nearby an active-fault
a.ii. Seismic Ground Shaking	Less than Significant with Mitigation Incorporated	Building Code – Current Seismic Design Compliance
a.iii. Seismic Ground Failure	Less than Significant	None Required
a.iv. Landslides	Less than Significant with Mitigation Incorporated	Building Code Compliance
b. Soil Erosion	Less than Significant Mitigation Incorporated	Best Management Practices Compliance
c. Ground Stability	Less than Significant with Mitigation Incorporated	Building Code Compliance
d. Expansive Soil	Less than Significant with Mitigation Incorporated	Building Code Compliance
e. Waste Water Management	Less than Significant with Mitigation Incorporated	City of Los Angeles Low Impact Development Best Management Practices Handbook Compliance
f*. Destroy a Unique Geologic Feature	No Impact	NA

Note* - only the geotechnical related part of item f is addressed here within.

4.1 Geologic Setting

The Project Site is located within the seismically active Los Angeles Basin area of southern California. The basin began forming over 7 million years ago (Wright 1991). Today, the basin is undergoing transpressional stress bound by surrounding fault systems, including the Whittier, Palos Verdes, and Santa Monica-Hollywood-Raymond faults. Internally, the basin is filled with sedimentation thousands of feet thick structurally influenced by thrusting fault blocks and strike slip fault expressions trending northwest (Dolan, et al., 1995). Locally, the Project Site is near the northern boundary of the Los Angeles Basin within a broad alluvial fan gently sloping south (CGS, 2012). The alluvial fan deposits (Qof) are generally comprised of granitic and sedimentary erosional debris from the Santa Monica Mountains, north of the site. The Older Alluvial Fan deposits encountered below the site generally consist of overconsolidated and weathered clays with varying amounts of sand. The site with respect to Regional geology is presented in Figure 5.

4.2 Seismic Setting

The Project Site is located within the seismically active area of southern California and there is a high potential for the site to experience strong ground shaking from local and regional faults. These hazards and their potential impact can be mitigated with proper seismic design to have less than significant impacts. The intensity of ground shaking is highly dependent upon the distance of the Project Site to the earthquake source, the magnitude of the earthquake, and the underlying soil conditions. Data evaluated for the regional fault and seismic hazard at the site was obtained from USGS and CGS online earthquake catalog and Quaternary Fault Database resources unless otherwise noted. The Project Site in relation to regional seismic faults and significant historical earthquake epicenters is presented in Figure 6, Regional Seismicity and Fault Map.

Local historical earthquakes recorded within a 100 km radius of the Project Site from 1812 to present include 234 recorded events with M4.0 or greater (USGS, 01/22/2020). Of the 234 events, 5 were M6.0 and greater and include the 1971 M6.6 San Fernando Earthquake and the 1994 M6.7 Northridge Earthquake. Thirty-three recorded events were M5.0 to less than M6.0 earthquakes. The closest recorded seismic event is a M4.2 earthquake in 2001, epicentered about 4.2 miles southwest of the site. While not within the search radius, earthquakes of M7.0 and greater have been recorded in southern California. As recently as 2019, a M7.1 earthquake ruptured about 140 miles north, northeast of the site. A M7.5 earthquake occurred in 1952 located about 70 miles north of the site and a M7.3 earthquake in 1992 was located about 100 miles east of the site. No known earthquake related damage has been reported at the site. Construction in this area should be designed with accepted engineering practices and in compliance with current building codes that accommodate strong seismic ground motion. A list of nearby active faults considered capable of producing significant shaking at the site is provided in Table 1 below:

Table 1: List of Known Earthquake Faults Closest to the Subject Site

Abbreviated Fault Name	Fault Type	Max. Magnitude (Mw)	Slip Rate (mm/yr)	Approximate Closest Distance* (Km)
Hollywood	Strike Slip	6.7	1	0.6
Santa Monica Alt 2	Strike Slip	7.0	1	0.39
Newport Inglewood	Strike Slip	7.5	1.3	9
Elysian Park (Upper)	Blind Thrust	6.7	1.3	2.9
Puente Hills	Blind Thrust	7.0	0.7	7
San Andreas	Strike Slip	7.9	N/A	33.56

Notes: Distance as measured in Google Earth from CFM5.2 KMZ file, 2014 Hazardous Faults Model KMZ File, CGS Hollywood Quad EZRI KMZ, and USGS/CGS Quaternary Fault and Fold KMZ files

4.3 Earthquake Fault Rupture

Anywhere in southern California there is a potential for fault rupture hazard due to an earthquake. The potential impact of fault rupture hazard is considered to be more significant on and nearby earthquake faults. The Alquist-Priolo Act as well as Preliminary Fault Rupture Study areas within the city of Los Angeles are regulations intended to identify areas with higher potential for fault rupture hazard and mitigate this hazard by restricting new development for human occupancy on or nearby known earthquake faults. The Project Site is not located within a CGS identified Alquist-Priolo Earthquake Fault Zone of Required Investigation (2015) as shown in Figure 7; nor a city Preliminary Fault Rupture Study Area (Navigatela). The Project Site is situated centrally within the Hollywood Basin. The Hollywood Basin is structurally bound between the Hollywood Fault to the north and the North Salt Lake Fault to the south. The Hollywood Fault is the closest known active fault considered capable of surface fault rupture, located about 0.6 km north of the Project Site. The North Salt Lake Fault activity is unknown at this time, but considered a Quaternary active fault, located about 0.39 km south of the Project Site. There are no known faults trending below or nearby toward the Project Site. Therefore, the potential hazard for earthquake fault rupture at the Project Site is less than significant.

4.4 Seismic Induced Ground Failure

Liquefaction involves the sudden loss in strength of a saturated, cohesionless soil caused by the build-up of pore water pressure during cyclic loading, such as that produced by an earthquake. This increase in pore water pressure can temporarily transform the soil into a fluid mass, resulting in differential settlement, and can also cause ground deformations. Typically, liquefaction occurs in shallow groundwater areas where there are loose, cohesionless, fine grained soils.

The Project Site is not located in a State of California designated Liquefaction Hazard Zone (Figure 7). Historical high groundwater at the site is reported to be about 50 feet in depth (CDMG, 1999). Subsurface soil conditions beneath the historical highest ground water table consist predominantly of very stiff to dense clayey materials and is not susceptible to liquefaction or significant seismic settlements. There are no open slopes or waterways nearby which may present the seismic ground failure of lateral spreading. Therefore, the potential for seismic induced ground failure hazards such as liquefaction, seismic settlement, and lateral spreading onsite is considered less than significant.

4.5 Landslides

The Project Site and local vicinity have a gentle gradient down to the south with no significant slopes within the immediate vicinity of the Project Site. There are no mapped landslides or CGS designated Earthquake Zone of Required Investigation for landslide hazard at or adjacent the Project Site, as illustrated in Figure 7. The potential for landslide hazard at the Project Site is negligible. With proper engineered shoring and/or laying back of planned cut slopes and deep excavations, the potential hazard of slope instability at the Project Site to impact the surrounding developments is less than significant.

4.6 Soil Stability

4.6.1 Erosion

Substantial soil erosion can occur along slopes and gentle gradients where loose and weakly vegetated soils are present and exposed to surface water flow and/or wind. The current Project Site conditions have very minimal space where soil is open to the atmosphere, limited perimeter landscaping. The planned Sunset + Wilcox Project will cover the land with buildings and pavements. With best management practices during construction, erosion of soils would not be significant. The potential hazard of substantial soil erosion is negligible.

4.6.2 Collapse and/or Expansion

The soils onsite encountered during our field investigation indicate moist, very stiff/dense clayey soils that are not considered susceptible to collapse due to soil bridging and/or hydro collapse and should have no impact to on the planned development. Expansion test results indicate the clayey soils may have a potential to shrink and swell with changes in moisture content. Expansion potential impacts can be mitigated through proper design to be less than significant.

4.7 Waste Water Disposal

The city provides waste water disposal through the city sewer systems. The Project plans to develop low impact waste disposal systems to minimize disposal to the city sewer systems in compliance with the City of Los Angeles Low Impact Development Best Management Practices Handbook. Therefore, the impact for soils supporting wastewater disposal systems are considered less than significant.

4.8 Geologic Feature

The Project Site is situated within a densely developed area of Los Angeles, California. The site is currently developed with commercial structures and pavements. There is no natural landscape remaining at the Project Site or in the Project Site vicinity. Therefore, there is no potential hazard of destroying a natural geological feature of significance.

4.9 Naturally Occurring Methane

A revision of the General Plan Safety Element Exhibit E (1996) indicates the site is outside of major oil drilling areas. The closest State-Designated oil field is the Salt Lake, about 1 mile south from the site. The closest known well is about 1,600 feet south east of the site according to the online CalGEM GIS well finder accessed April 29, 2020. The site is not within a recognized City of Los Angeles Methane Zone or Methane Buffer Zone. Therefore, the potential naturally occurring oil and methane onsite is considered low with no impact to the Project Site.

5.0 INFILTRATION TEST

The boring percolation test was performed in boring INF-1 to evaluate the infiltration rate of the subsurface soil from the depth of 5 feet to 15 feet below the existing grade. The result of the infiltration test indicates that the infiltration rate is estimated to be 0.02 inch per hour. The City of Los Angeles Low Impact Development Best Management Practices Handbook Table 4.1 Infiltration Feasibility Screening indicates the infiltration practices are not feasible at the Project Site at the depths and location tested.

The field measurements, calculations, and well installation details are provided in Appendix C.

6.0 DISCUSSION AND RECOMMENDATIONS

6.1 General

Based on the results of our preliminary geotechnical investigation, it is our professional opinion that redevelopment of the Project Site for the Sunset + Wilcox Project is feasible from a geotechnical standpoint. Preliminary geotechnical recommendations for design planning are discussed in the following sections. A design-level geotechnical report will be required to develop geotechnical recommendations for final design, including possible supplemental geotechnical investigation to better define the subsurface conditions and confirm engineering parameters for detailed engineering analyses.

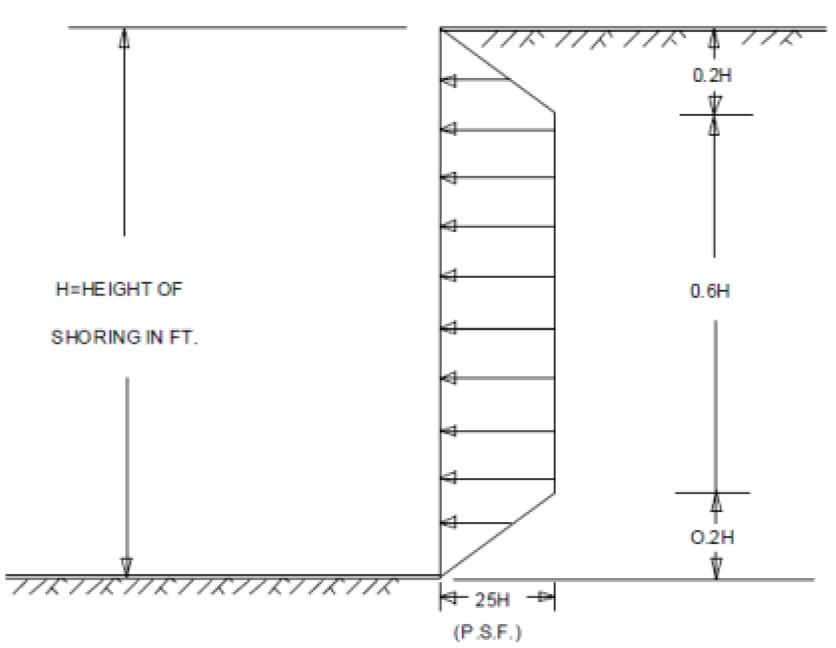
6.2 Excavation and Shoring

For construction of subterranean walls, conventional soldier beams with lagging for shoring is feasible. This method of shoring would consist of steel soldier piles placed in drilled holes, backfilled with concrete, and either tied back with earth anchors or braced internally. The tie-back anchors will have to be planned to avoid utilities in the street.

6.2.1 Lateral Earth Pressure

For cantilevered shoring, we recommend using a triangular pressure distribution for calculating earth pressures. At minimum, an active earth pressure equal to that of a fluid with a density of 35 pcf may be used for level retained ground, plus any groundwater pressure encountered in the excavation and any surcharge loads resulting from loads placed above the excavation and within a 1:1 plane extending upward from the base of the excavation. The active earth pressure condition assumes that the shoring will deflect at the top about 0.2 percent of the shoring height.

We recommend the use of a trapezoidal distribution of earth pressure. The recommended pressure distribution for the case where the grade is level behind the shoring is illustrated in the following diagram, with the maximum pressure equal to 25H in pounds per square foot, where H is the height of the shoring in feet, plus any surcharge loads resulting from loads placed above the excavation and within a 1:1 plane extending upward from the base of the excavation.



The recommended earth pressure provided above is preliminary value. The design earth pressure should be estimated based on the depth of the excavation, type of the retaining structure and soil properties.

In addition to the recommended earth pressure, the upper 10 feet of shoring adjacent to normal vehicular traffic should be designed to resist a uniform lateral pressure of 100 pounds per square foot, acting as a result of an assumed 300 pounds per square foot surcharge behind the shoring due to normal traffic. If the traffic is kept back at least 10 feet from the shoring, the traffic surcharge may be neglected. Furthermore, the shoring should be designed to resist any lateral surcharge pressure imposed by the foundations of any adjacent existing structures.

6.2.2 Soldier Pile

For soldier piles embedded in compacted fill or alluvial materials, and spaced at least 2 pile diameters on centers, an allowable passive pressure of 500 psf per foot of embedment (over twice the pile width) up to a maximum of 5,000 psf may be used. To develop the full passive pressure, provisions should be taken to assure firm contact between the soldier piles and the undisturbed soils. To support vertical loading, an allowable friction capacity of 450 pounds per square foot may be used for the portion of solider pile embedded below the proposed excavation elevation.

The concrete placed in the solider pile excavations may be a lean-mix concrete. However, the concrete used in that portion of the soldier pile which is below the planned excavated level should be of sufficient strength to adequately transfer the imposed loads to the surrounding soils. If lean-mix concrete is used around the soldier pile below the planned excavation level, only the passive resistance developed by the steel soldier pile itself may be used, not the entire diameter of the drilled hole.

Caving may be anticipated during drilling. Special technique, such as casing or drilling mud may be used to prevent caving. In addition, either lean-mix concrete or structural concrete should be pumped from the bottom up through a rigid pipe extending to the bottom of the drilled excavation, with the pipe being slowly withdrawn as the concrete level rises. The discharge end of the pipe should be at least 5 feet below the surface of the concrete at all times during placement. The discharge pipe should be kept full of concrete during the entire placing operation and should not be removed from the concrete until all of the concrete is placed and fresh concrete appears at the top of the pile. The volume of concrete pumped into the hole should be recorded and compared to design volume.

6.2.3 Lagging

Continuous lagging will be required throughout. The soldier piles and anchors should be designed for the full-anticipated lateral pressure. However, the pressure on the lagging will be less due to arching in the soils. We recommend that the lagging be designed for the recommended earth pressure but may be limited to a maximum value of 400 psf.

6.2.4 Anchors

Tieback anchors may be used to resist lateral loads. However, it has been our experience that friction anchors involve fewer installation problems and provide more uniform support than belled anchors. For design purposes, it may be assumed that the active wedge adjacent to the shoring may be defined by a plane projected upward from the base of the excavation 35° from vertical. Friction anchors should extend at least 20 feet beyond the active wedge or to a greater length as necessary to develop the desired capacities. For design purposes, it may be estimated that friction anchors will develop an average friction value of 500 psf. For post-grouted anchors, it may be estimated that the anchors will develop an average friction of 1,500 pounds per square foot in the overburden soils. Only the frictional resistance developed beyond the active wedge would be effective in resisting lateral loads. If the anchors are spaced at least 6 feet on centers, no reduction in the capacity of the anchors need be considered due to group action. Anchor capacities should be proof-tested during construction.

The values of anchor friction recommended above are only for preliminary estimation. If other configurations of tie-back anchors are developed during design phase, we can provide detail recommendation based upon the different configuration.

6.2.5 Anchor Installation

The anchors may be installed at angles of 15 to 40 degrees below the horizontal. Caving of the anchor holes may occur in the sandy alluvial fan deposits and provisions should be made to minimize such caving. The anchors should be filled with concrete placed by pumping from the tip out, and the concrete should extend from the tip of the anchor to the active wedge. If there is significant caving of the anchor shaft, we suggest that the portion of the anchor shaft within the active wedge be backfilled with sand before testing the anchor. This portion of the shaft should be filled tightly and flush with the face of the excavation. The sand backfill may contain a small amount of cement to allow the sand to be placed by pumping. For post-grouted anchors of 8-inch diameter or less, the anchor may be filled with concrete to the surface of the shoring.

All tieback anchor in the public way including alleys that are located within 20 feet of surface shall be removed after permanent wall is constructed. All other tiebacks shall be detensioned.

6.2.6 Internal Bracing

Raker bracing may be used to internally brace the soldier piles. If used, raker bracing could be supported laterally by temporary concrete footing (deadmen) or by the permanent interior footings. For design of such temporary footings, poured with the bearing surface normal to the rakers inclined at 45 to 60 degrees with the vertical, a bearing value of 6,000 pounds per square foot may be used, provided the shallowest point of the footing is at least 1 foot below the lowest adjacent grade. To reduce the movement of the shoring, the rakers should be tightly wedged against the footings and/or shoring system.

6.2.7 Deflection

It is difficult to accurately predict the amount of deflection of a shored excavation. It should be realized, however, that some deflection will occur. We estimate that this deflection could be on the order of about ¾ to 1 inch at the top of a 35-foot deep shored excavation. If greater deflection occurs during construction, additional bracing may be necessary to minimize damage to utilities in the adjacent streets. A greater lateral pressure could also be used in the shoring design to reduce deflection.

For shoring supporting the adjacent existing structure, the shoring should be designed to limit maximum deflection of ½ inch.

6.2.8 Monitoring

Some means of monitoring the performance of the shoring system and permanent retaining wall is recommended. The monitoring should consist of periodic surveying of the lateral and vertical locations of the tops of all the soldier piles and wall. We will be pleased to discuss this further with the design consultants and the contractor when the design of the shoring system and retaining wall has been finalized.

6.2.9 Anchor Testing

The soil engineer should select three of the initial anchors for Performance Tests to at least 150 percent of design load using procedures in accordance with PTI manual (1996). Remaining anchors should be proof tested to at least 150 percent of design load. Where satisfactory tests are not achieved on the initial anchors, the anchor diameter, and/or length should be increased until satisfactory test results are obtained.

For anchors tested for 150 percent of design load, the total deflection during the test should not exceed 12 inches. The rate of creep under the 150 percent test should not exceed 0.1 inch over a 15-minute period in order for the anchor to be approved for the design load.

After a satisfactory test, each anchor should be locked-off at the design load. The locked-off load should be verified by rechecking the load on the anchor. If the locked-off load varies by more than 10 percent from the design load, the load should be reset until the anchor is locked off within 10 percent of the design load. The installation of the anchors and the testing of the completed anchors should be observed by a representative of our firm.

6.2.10 Drainage

We recommend 1-cubic-foot crushed rock pockets with a horizontal spacing 8 feet or less be placed at the bottom of the shoring as part of the drainage system behind basement walls. The rock should be separated from the adjacent soils by an appropriate filter fabric.

6.3 Basement Walls

Braced basement walls should be designed to resist at-rest earth pressures. Accordingly, for the case where the grade is level behind the walls, a triangular distribution of lateral earth pressure equivalent to that developed by a fluid with a density of 60 pounds per cubic foot may be used. This earth pressure assumes that all walls are constructed with a properly designed drainage system to prevent buildup of hydrostatic pressures behind the wall. Any surcharge loadings occurring as a result of the traffic, any heavy crane loads, and stockpiled materials should be added to this pressure.

Basement walls adjacent to areas subject to vehicular traffic should be designed to resist a uniform lateral pressure of 100 pounds per square foot, acting as a result of an assumed 300 pounds per square foot surcharge behind the walls due to normal vehicular traffic. If the traffic is kept back at least 10 feet from the walls, the traffic surcharge can be neglected.

Applicable lateral and vertical surcharge pressures from adjacent buildings, foundations of minor structures should be estimated based on the magnitude and location of the load and added to the earth pressures stated above.

Basement walls should also be designed for seismic earth pressure. The basement walls should be designed to resist, an active pressure combined with a seismic increment of lateral active earth pressure. The combined active static and seismic lateral earth pressure were computed based on an k_{eq} of 0.54g (one-half of PGA_M). The combined active static and seismic lateral earth pressure is equivalent to a fluid with a density of 76 pounds per cubic foot. The active static lateral earth pressure is equivalent to a fluid with a density of 35 pounds per cubic foot. Therefore, a seismic increment of 41 pounds per cubic foot may be used for design of seismic earth pressure. Seismic earth pressure will be provided during final design investigation when structural feature is available.

6.4 Foundations

The site soils consist of medium dense to silty to clayey sand to a depth of about 15 feet below existing grade and become medium dense to dense sand and very stiff to hard clayey materials. Design of type of foundation and foundation capacities are based on the design structural column/wall loads and allowable total and differential settlement. According the preliminary plans, the bottom elevation for the commercial building in the Sunset Lot will be at the depth of about 30 feet below existing grade. The utility building in the De Longpre Lot is planned have a bottom elevation at the depth of about 18 feet below existing grade.

Based on the conceptual design of the proposed structures and preliminarily estimated structural column loads provided to us, proposed structures may be supported on mat foundations. A design-level geotechnical investigation will be required to develop recommendations for foundation design parameters and feasibility for the proposed structure supported on spread footings.

For preliminary analyses, the proposed commercial building in the Sunset Lot, which has three subterranean levels, may be supported on a mat foundation which may be designed to impose an allowable dead-plus-live load pressure of 5,000 psf. The proposed utility building in the De Longpre Lot, which has one subterranean levels, may be supported on a mat foundation which may be designed to impose an allowable dead-plus-live load pressure of 3,000 psf. The final foundation types and bearing capacity should be confirmed during the design-level geotechnical investigation.

6.5 Floor Slab

The onsite clayey materials are expansive and are classified as medium expansive. The floor slab subgrade should be replaced with at least 2-feet of non-expansive properly compacted fill soils. Moisture barriers and moisture control may be required.

6.6 Seismic Considerations

Seismic design parameters are obtained from the United States Geological Service (USGS) generic code-based seismic design maps webtool provided by the through the Office of Statewide Health Planning and Development (OSHPD) and the Structural Engineers Association of California (SEAOC) (https://seismicmaps.org/). We have assumed that the Project Site may be classified as Site Class D based on the subsurface conditions. Site Class should be confirmed during final design investigation.

The site coordinates used are: Latitude: 34.09768 Longitude: -118.3306

The summary of the Design Acceleration Parameters are presented in the following table:

Table 2: Summary of the Design Acceleration Parameters for the Project Site

Parameter	Value
PGA_m	1.086 g
S_s	2.111 g
S_1	0.745 g
Site Class	D-Default
F_a	1.2
F_v	1.7
S_{MS}	2.533 g
S_{M1}	1.267 g
S_{DS}	1.689 g
S_{D1}	0.844 g
C_{rs}	0.896
C_{r1}	0.896

Notes: If S_{D1} is used to obtain C_S with either equation 12.8-3 or 12.8-4 of ASCE 7-16, the value must be increased by a factor of 1.5. This may only be used for $T > 1.5\ T_S$.
(2) For $T \leq T_s$, SDS should be used only to obtain Cs using Equation 12.8-2

It should be noted that based on ASCE 7-16, section 11.4.8, for structures on site class D with S_1 values greater than 0.2 g, site-specific ground motion hazard analysis is required.

For structures with a fundamental period of 0.5s or less, the seismic design parameters for short period parameters provided herein may be used for structural design. F_v, S_{M1}, and S_{D1} value can only be used for calculation of T_s and should not be used for design. Proper penalty factors are included in determination of seismic response coefficient as recommended by ASCE 7-16.

7.0 LIMITATIONS

This geotechnical feasibility report was performed in accordance with generally accepted Geotechnical Engineering principles and practice. The professional engineering work and judgments presented in this report meet the standard of care of our profession at this time. No other warranty, expressed or implied, is made. This report has been prepared for the Seward Partners LLC, and their design consultants. It may not contain sufficient information for other parties or other purposes and should not be used for other projects or other purposes without review and approval by GDC. This feasibility report will not be sufficient to obtain a building permit from the City. A design-level geotechnical investigation will be required prior to developing final plans for the project.

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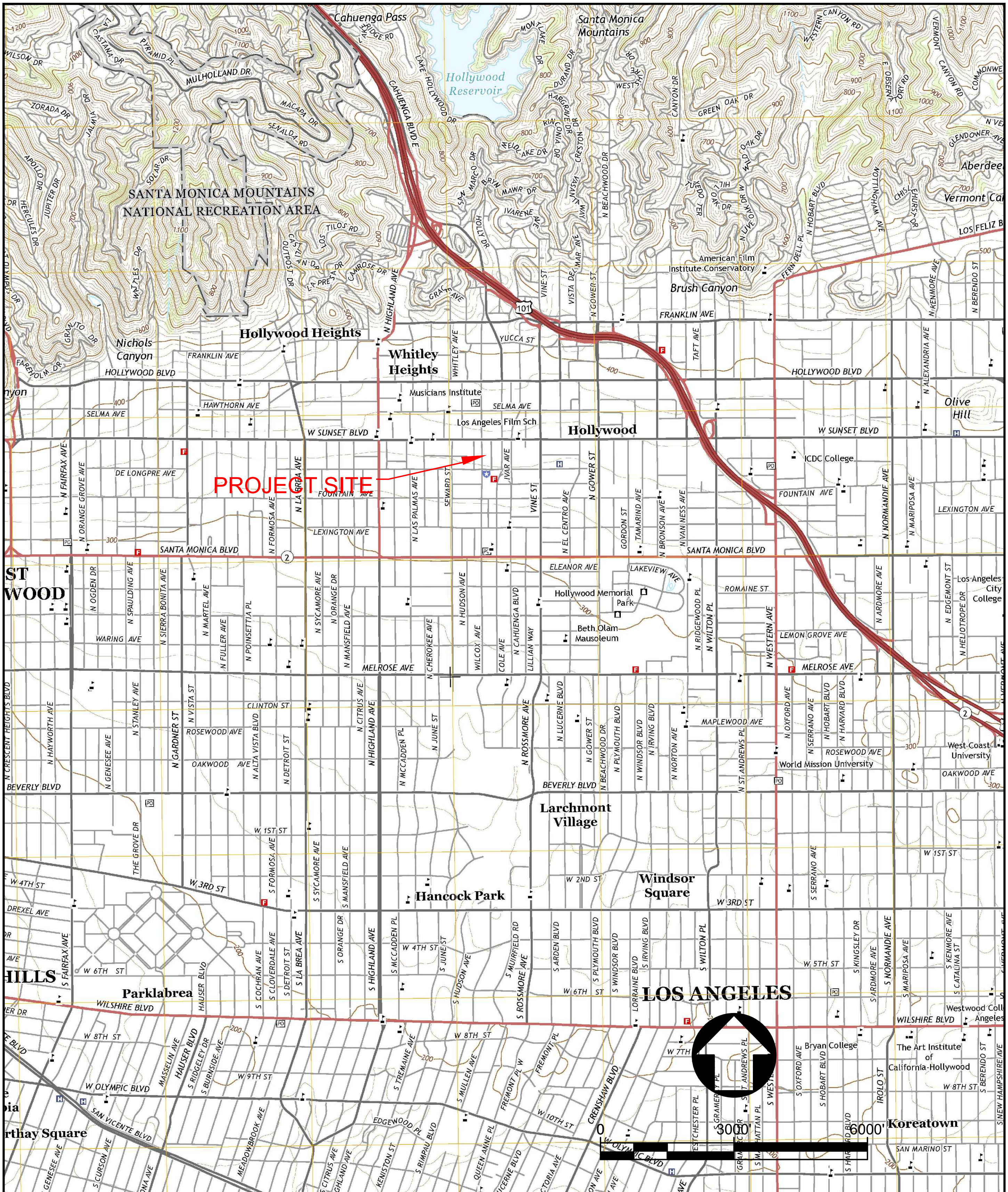

REFERENCE: HOLLYWOOD QUAD USGS 7.5 MINUTE SERIES

DATE: 04/09/2020	DRAWN BY: JMT	GROUP DELTA	GROUP DELTA CONSULTANTS, INC 370 Amapola Ave. Suite 212 Torrance, CA. 90501	SITE VICINITY MAP	PROJECT NUMBER: LA-1429
REVIEWED BY: MS	APPROVED BY: -			6450 SUNSET BOULEVARD, 1429 & 1423 WILCOX AVENUE, AND 1413 COLE PLACE, LOS ANGELES, CALIFORNIA	SCALE: AS SHOWN
PREPARED BY: -					FIGURE NUMBER: 1

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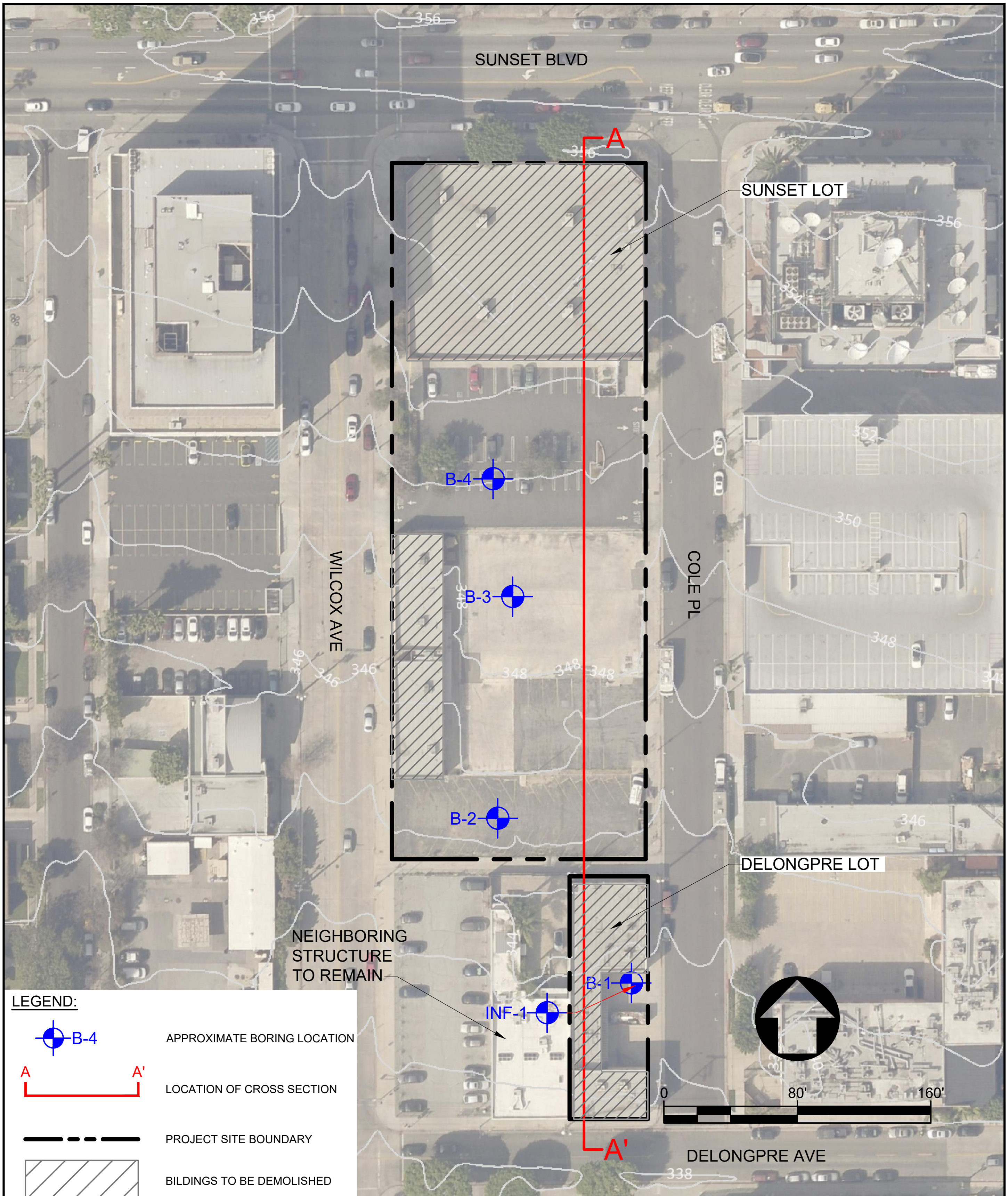

REFERENCE: BASE MAP COUNTY OF LA 2017 AERIAL AND 2FT CONTOURS

DATE: 04/09/2020	DRAWN BY: -	GROUP DELTA	GROUP DELTA CONSULTANTS, INC	EXPLORATION LOCATION PLAN	PROJECT NUMBER: LA-1429
REVIEWED BY: MS	APPROVED BY: JMT		370 Amapola Ave. Suite 212 Torrance, CA. 90501	6450 SUNSET BOULEVARD, 1429 & 1423 WILCOX AVENUE, AND 1413 COLE PLACE, LOS ANGELES, CALIFORNIA	SCALE: AS SHOWN
PREPARED BY: -					FIGURE NUMBER: 2

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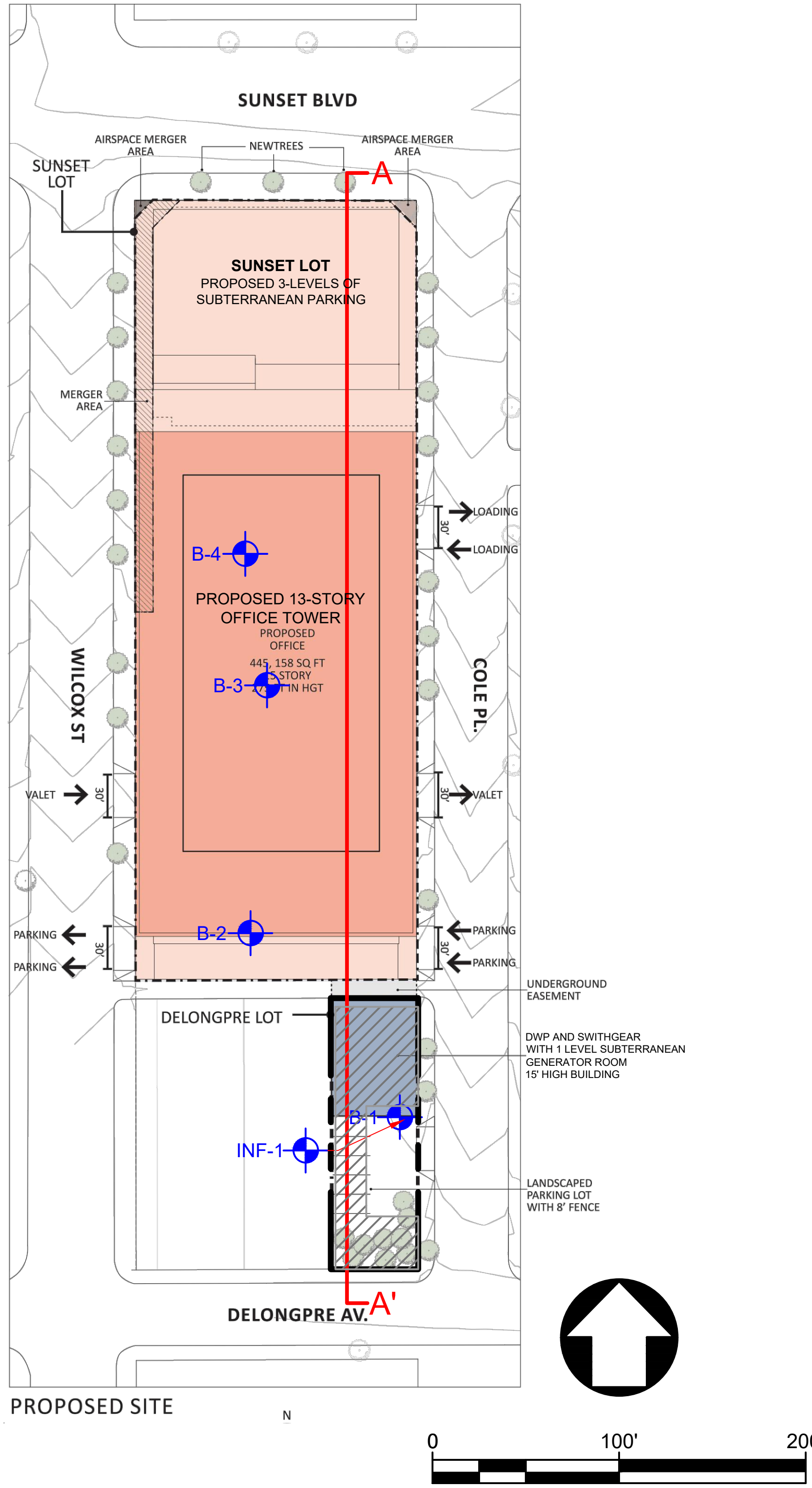

LEGEND:

B-4 APPROXIMATE BORING LOCATION

A A' LOCATION OF CROSS SECTION

PROJECT SITE BOUNDARY

REFERENCE: BASE MAP BY GENSLER DATED, MAY 4,2020

DATE: 05/14/2020	DRAWN BY: -	GROUP DELTA	GROUP DELTA CONSULTANTS, INC 370 Amapola Ave. Suite 212 Torrance, CA. 90501	SITE PLAN	PROJECT NUMBER: LA-1429
REVIEWED BY: MS	APPROVED BY: JMT			6450 SUNSET BOULEVARD, 1429 & 1423 WILCOX AVENUE, AND 1413 COLE PLACE, LOS ANGELES, CALIFORNIA	SCALE: AS SHOWN
PREPARED BY: -					FIGURE NUMBER: 3

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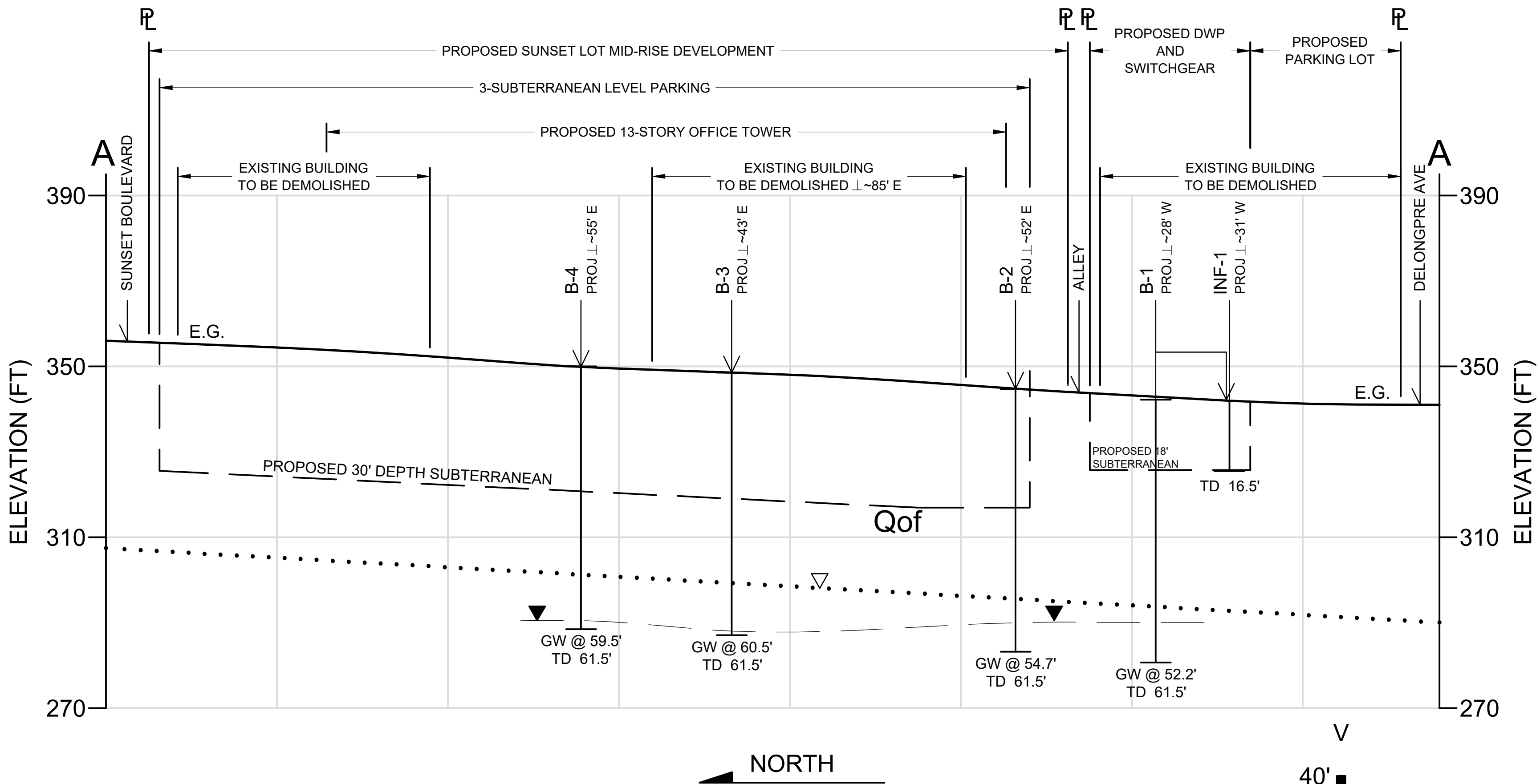

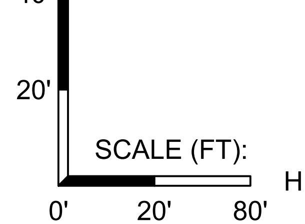

KEY:

HISTORICAL HIGH GROUND WATER DEPTH

GROUND WATER DEPTH ENCOUNTERED DURING DRILLING

Qof QUATERNARY OLDER ALLUVIAL FAN DEPOSITS GENERALLY SANDY CLAY AND CLAYEY SAND

DATE: 05/14/2020	DRAWN BY: JMT	GROUP DELTA CONSULTANTS, INC 370 Amapola Ave. Suite 212 Torrance, CA. 90501	CROSS SECTION A-A'	PROJECT NUMBER: LA-1429
REVIEWED BY: MS	APPROVED BY: -		6450 SUNSET BOULEVARD, 1429 & 1423 WILCOX AVENUE, AND 1413 COLE PLACE, LOS ANGELES, CALIFORNIA	SCALE: AS SHOWN
PREPARED BY: -				FIGURE NUMBER: 4

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MAP UNITS AND SYMBOL EXPLORATION

Late Holocene (Surficial Deposits)

af	**Artificial Fill** - deposits of fill resulting from human construction, mining, or quarrying activities; includes engineered fill for buildings, roads, dams, airport runways, harbor facilities, and waste landfills
Qsu	**Undifferentiated Surficial Deposits** - includes colluvium, slope wash, talus deposits, and other surface deposits of all ages; generally unconsolidated but locally may contain consolidated layers
Qls	**Landslide Deposits** - may include debris flows and older landslides of various earth material and movement types; unconsolidated to moderately well-consolidated
Qb	**Beach Deposits** - unconsolidated marine beach sediments consisting mostly of fine- and medium-grained, well-sorted sand
Qw	**Alluvial Wash Deposits** - unconsolidated sandy and gravelly sediment deposited in recently active channels of streams and rivers; may contain loose to moderately loose sand and silty sand
Qf	**Alluvial Fan Deposits** - unconsolidated boulders, cobbles, gravel, sand, and silt recently deposited where a river or stream issues from a confined valley or canyon; sediment typically deposited in a fan-shaped cone; gravelly sediment generally more dominant than sandy sediment
Qa	**Alluvial Valley Deposits** - unconsolidated clay, silt, sand, and gravel recently deposited parallel to localized stream valleys and/or spread more regionally onto alluvial flats of larger river valleys; sandy sediment generally more dominant than gravelly sediment
Qt	**Terrace Deposits** - includes marine and stream terrace deposits; marine deposits include slightly to moderately consolidated and bedded gravel and conglomerate, sand and sandstone, and silt and siltstone; river terrace deposits consist of unconsolidated thin- to thick-bedded gravel
Ql	**Lacustrine, Playa, and Estuarine (Paralic) Deposits** - mostly unconsolidated fine-grained sand, silt, mud, and clay from fresh water (lacustrine) lakes, saline (playa) dry lakes that are periodically flooded, and estuaries; deposits may contain salt and other evaporites
Qe	**Eolian and Dune Deposits** - unconsolidated, generally well-sorted wind-blown sand; may occur as dune forms or sheet sand

Holocene to Late Pleistocene (Surficial Deposits)

Qyf	**Young Alluvial Fan Deposits** - unconsolidated to slightly consolidated, undissected to slightly dissected boulder, cobble, gravel, sand, and silt deposits issued from a confined valley or canyon
Qya	**Young Alluvial Valley Deposits** - unconsolidated to slightly consolidated, undissected to slightly dissected clay, silt, sand, and gravel along stream valleys and alluvial flats of larger rivers

Late to Middle Pleistocene (Surficial Deposits)

Qof	**Old Alluvial Fan Deposits** - slightly to moderately consolidated, moderately dissected boulder, cobble, gravel, sand, and silt deposits issued from a confined valley or canyon
Qoa	**Old Alluvial Valley Deposits** - slightly to moderately consolidated, moderately dissected clay, silt, sand, and gravel along stream valleys and alluvial flats of larger rivers
Qot	**Old Terrace Deposits** - slightly to moderately consolidated, moderately dissected marine and stream terrace deposits
Qol	**Old Lacustrine, Playa, and Estuarine (Paralic) Deposits** - slightly to moderately consolidated, moderately dissected fine-grained sand, silt, mud, and clay from lake, playa, and estuarine deposits of various types

Middle to Early Pleistocene (Surficial Deposits)

Qvof	**Very Old Alluvial Fan Deposits** - moderately to well-consolidated, highly dissected boulder, cobble, gravel, sand, and silt deposits issued from a confined valley or canyon
Qvoa	**Very Old Alluvial Valley Deposits** - moderately to well-consolidated, highly dissected clay, silt, sand, and gravel along stream valleys and alluvial flats of larger rivers; generally uplifted and deformed

Quaternary (Bedrock)

Qss	**Coarse-grained formations of Pleistocene age and younger** - primarily sandstone and conglomerate
Qsh	**Fine-grained formations of Pleistocene age and younger** - includes fine-grained sandstone, siltstone, mudstone, shale, siliceous and calcareous sediments

Tertiary (Bedrock)

Tss	**Coarse-grained Tertiary age formations** - primarily sandstone and conglomerate
Tsh	**Fine-grained Tertiary age formations** - includes fine-grained sandstone, siltstone, mudstone, shale, siliceous and calcareous sediments
Tv	**Tertiary age formations of volcanic origin**

Mesozoic and Older (Bedrock)

Kss	**Coarse-grained Cretaceous age formations of sedimentary origin**
Ksh	**Fine-grained Cretaceous age formations of sedimentary origin**
pKm	**Cretaceous and pre-Cretaceous metamorphic formations of sedimentary and volcanic origin**
sp	**Serpentinite of all ages**
gr	**Granitic and other intrusive crystalline rocks of all ages**

Contact

Gradational contact

Reference contact -- Used to delineate geologic units that were mapped as separate units on the original source map, but are consolidated on this map.

Fault -- Includes strike-slip, normal, reverse, oblique, and unspecified slip

Lineament

Folds -- Showing direction of plunge where appropriate

- Anticline
- Overturned anticline
- Syncline

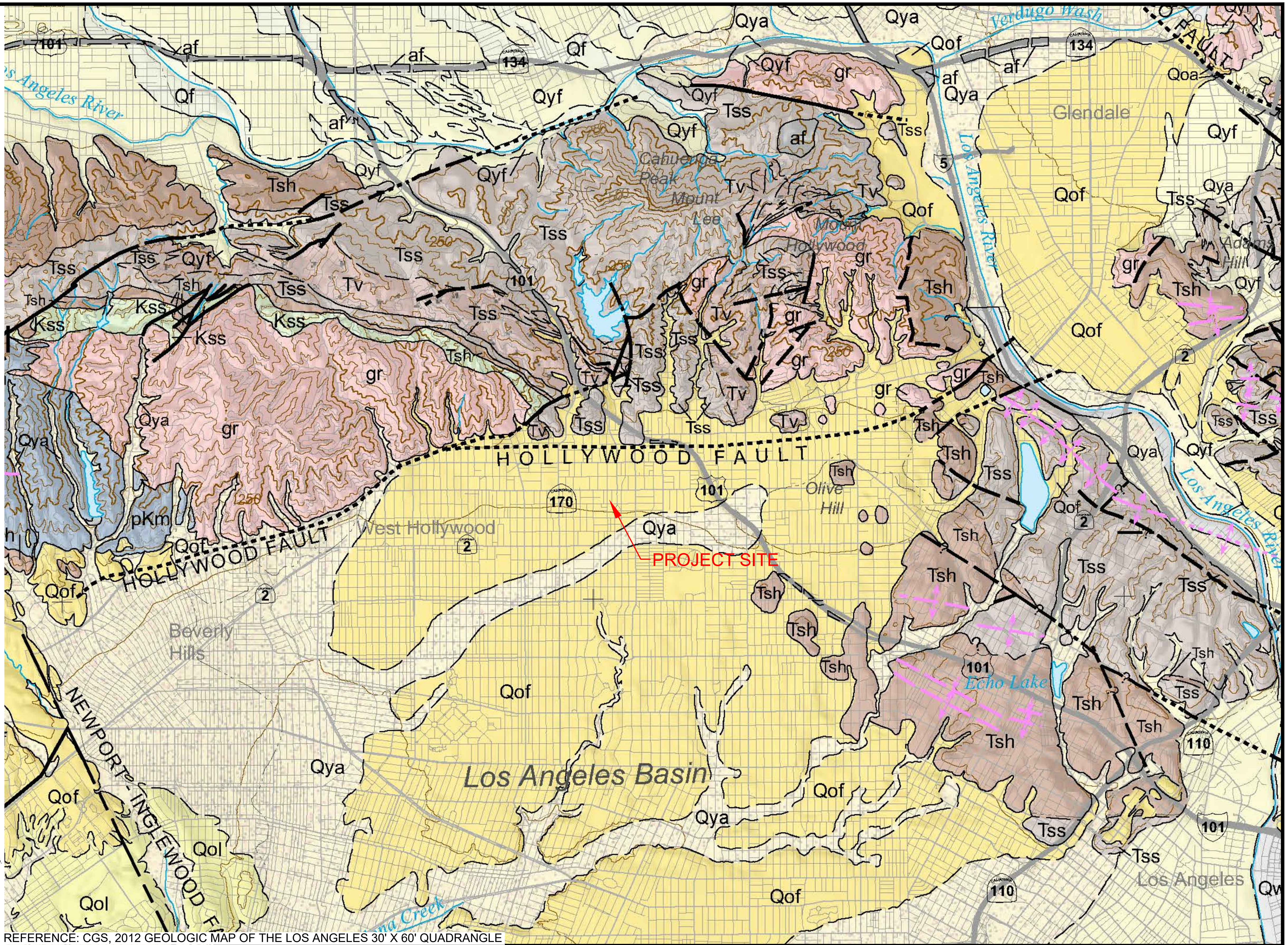
Dike

Stream

Spring

Road

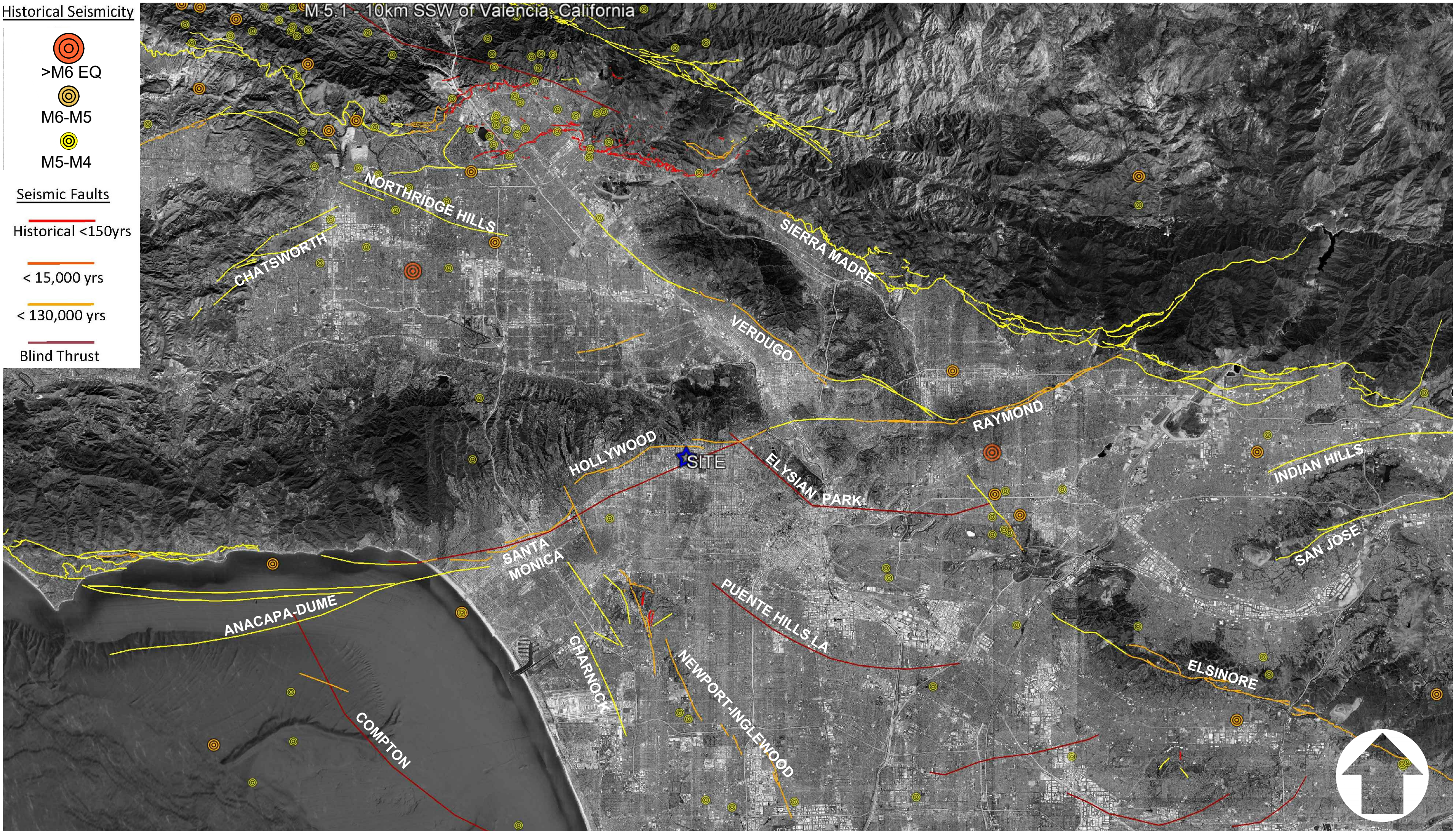
County boundary



REFERENCE: CGS, 2012 GEOLOGIC MAP OF THE LOS ANGELES 30' X 60' QUADRANGLE

0 5000' 10000'

DATE: 04/09/2020	DRAWN BY: JMT	GROUP DELTA CONSULTANTS, INC 370 Amapola Ave. Suite 212 Torrance, CA. 90501	REGIONAL GEOLOGY MAP	PROJECT NUMBER: LA-1429
REVIEWED BY: MS	APPROVED BY: -		6450 SUNSET BOULEVARD, 1429 & 1423 WILCOX AVENUE, AND 1413 COLE PLACE, LOS ANGELES, CALIFORNIA	SCALE: AS SHOWN
REVISED: -				FIGURE NUMBER: 5



REFERENCE: U.S. Geological Survey and California Geological Survey, 2006, Quaternary fault and fold database for the United States, accessed 7/27/2018, from USGS web site: http//earthquake.usgs.gov/hazards/qfaults/. M4.0 and greater on record with USGS Earthquake Catalog accessed 08292018. Community Fault Model V8

DATE: 04/09/2020	DRAWN BY: JMT	GROUP DELTA	GROUP DELTA CONSULTANTS, INC 370 Amapola Ave. Suite 212 Torrance, CA. 90501	REGIONAL SIESMICITY AND FAULT MAP	PROJECT NUMBER: LA-1429
REVIEWED BY: MS	APPROVED BY: -			6450 SUNSET BOULEVARD, 1429 & 1423 WILCOX AVENUE, AND 1413 COLE PLACE, LOS ANGELES, CALIFORNIA	SCALE: AS SHOWN
PREPARED BY: -					FIGURE NUMBER: 6

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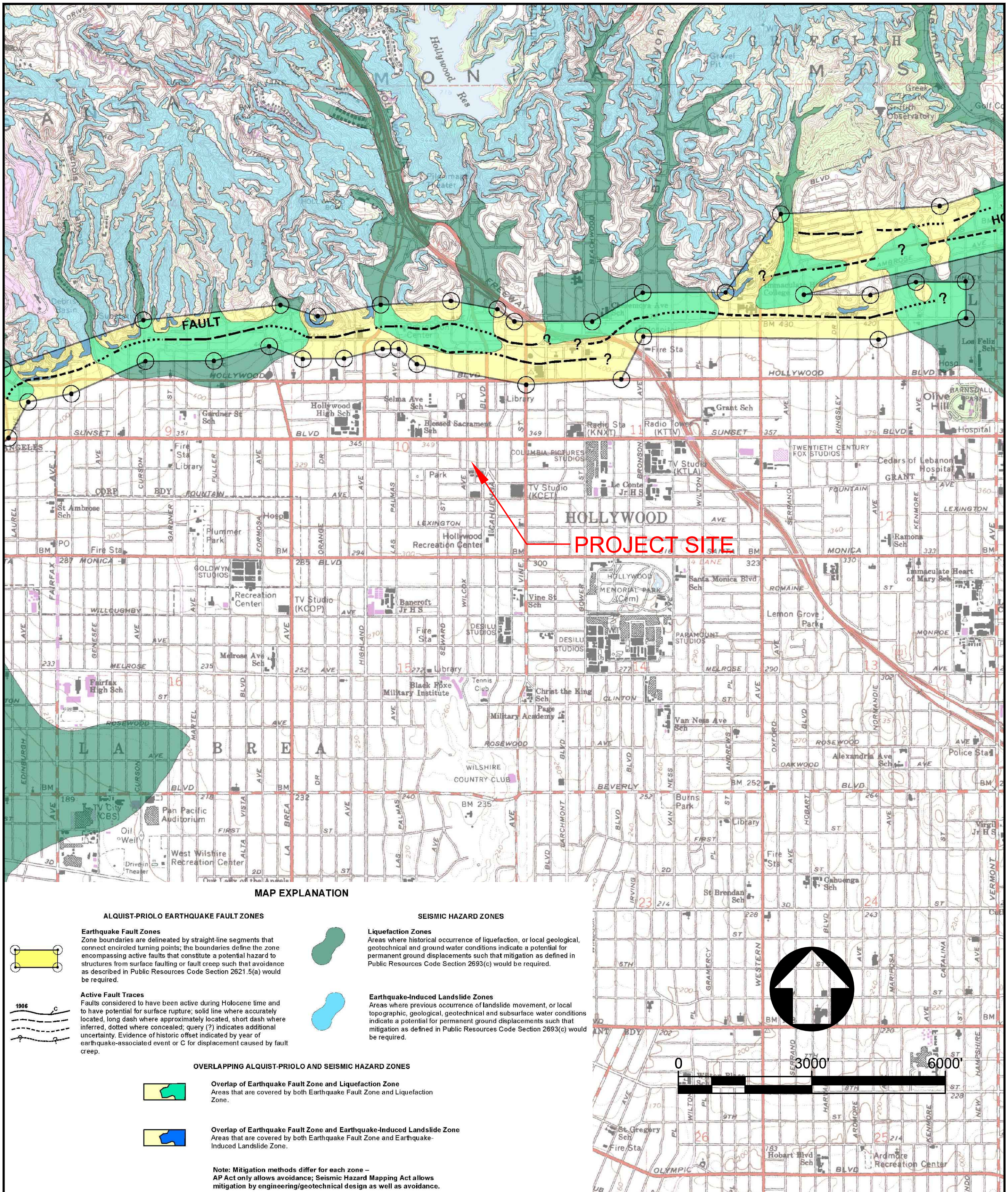

REFERENCE: CGS, EARTHQUAKE FAULT ZONES, 2014; SEISMIC HAZARD ZONES, 1999

DATE: 04/09/2020	DRAWN BY: JMT	GROUP DELTA	GROUP DELTA CONSULTANTS, INC 370 Amapola Ave. Suite 212 Torrance, CA. 90501	EARTHQUAKE ZONES OF REQUIRED INVESTIGATION	PROJECT NUMBER: LA-1429
REVIEWED BY: MS	APPROVED BY: -			6450 SUNSET BOULEVARD, 1429 & 1423 WILCOX AVENUE, AND 1413 COLE PLACE, LOS ANGELES, CALIFORNIA	SCALE: AS SHOWN
PREPARED BY: -					FIGURE NUMBER: 7

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APPENDIX A
Field Investigation

APPENDIX A
FIELD EXPLORATION

A.1 Introduction

A geotechnical subsurface investigation was conducted for the proposed development in Los Angeles, California on December 16 of 2019 and April 3 of 2020. The investigation consisted of drilling five hollow stem auger (HSA) borings and performing one bore hole percolation testing. The exploration locations and numbers are shown in **Figure 2**, **3** and **4** of the main report. Summary table of the recent field investigations by Group Delta is provided in Table A-1.

A.2 Soil Borings

Five HSA borings were drilled, four were drilled to the proposed depth of about 61.5 feet below existing grade and one HSA boring for infiltration testing was drilled to the proposed depth of about 16.5 feet. The borings were performed under continuous technical supervision of a Group Delta Consultant's field engineer, who maintained detailed log of the soil encountered, classified the materials, according to the Unified Soil Classification System (USCS), and assisted in obtaining soil samples.

Drive samples and bulk samples of the encountered materials were obtained from the borings and recorded on the boring log. Drive samples were obtained with a Modified California Sampler lined with 1-inch high metal sample rings and a Standard Penetration Test (SPT) sampler. The Modified California Sampler has an outside diameter of 3-inches, and the inside diameter of 2.5-inches with a 2.42-inches inside diameter cutting shoe. The samples were retained in brass rings and placed in sealed plastic canisters to prevent moisture loss. Standard penetration tests (SPT) were conducted using a standard 2-inch outside diameter, 1.375-inch inside diameter, split-spoon sampler in accordance with ASTM D1586. SPT samples were placed in sealable plastic bags to protect the natural moisture. The SPT and Modified California samplers were driven into the soil at the bottom of the borehole using a 140-pound hammer free falling 30 inches. The penetration resistance (or "blowcount") in blows per six inches of driving was recorded on the logs. Bulk samples were obtained in the upper 5 feet by a shovel and placed into polyethylene bags. Bulk samples were obtained for the infiltration testing zone of 5 feet depth to 15 depth below existing grade from the boring for infiltration testing.

A key for soil classification and a boring record legend are presented in Figures A-1a and A-1b and A-2a to A-2c respectively. The boring logs are presented in Figures A-3a to A-3c, A-4a to A-4c, A-5a to A-5c, A-6a to A-6c, and A-7.

A.3 List of Attached Tables and Figures

The following table and figures are attached and complete this appendix:

Table A-1	Summary of Group Delta's Field Exploration
Figure A-1a to A-1b	Key for Soil Classification

Figure A-2a to A-2c	Boring Record Legend
Figures A-3a to A-7	Boring Log

TABLES

Table A-1

Summary of Group Delta's Field Explorations

Exploration No.	Date Performed	Total Depth (ft)	Groundwater Depth (ft)	Exploration Type
B-1	12/19/2019	61.5	52.5	HSA
B-2	12/16/2019	61.5	54.7	HSA
B-3	12/16/2019	61.5	60.5	HSA
B-4	12/16/2019	61.5	59.5	HSA
INF-1	4/3/2020	16.5	Not encountered	HSA

FIGURES

GROUP SYMBOLS AND NAMES

Graphic / Symbol	Group Names
GW	Well-graded GRAVEL Well-graded GRAVEL with SAND
GP	Poorly graded GRAVEL Poorly graded GRAVEL with SAND
GW-GM	Well-graded GRAVEL with SILT Well-graded GRAVEL with SILT and SAND
GW-GC	Well-graded GRAVEL with CLAY (or SILTY CLAY) Well-graded GRAVEL with CLAY and SAND (or SILTY CLAY and SAND)
GP-GM	Poorly graded GRAVEL with SILT Poorly graded GRAVEL with SILT and SAND
GP-GC	Poorly graded GRAVEL with CLAY (or SILTY CLAY) Poorly graded GRAVEL with CLAY and SAND (or SILTY CLAY and SAND)
GM	SILTY GRAVEL SILTY GRAVEL with SAND
GC	CLAYEY GRAVEL CLAYEY GRAVEL with SAND
GC-GM	SILTY, CLAYEY GRAVEL SILTY, CLAYEY GRAVEL with SAND
SW	Well-graded SAND Well-graded SAND with GRAVEL
SP	Poorly graded SAND Poorly graded SAND with GRAVEL
SW-SM	Well-graded SAND with SILT Well-graded SAND with SILT and GRAVEL
SW-SC	Well-graded SAND with CLAY (or SILTY CLAY) Well-graded SAND with CLAY and GRAVEL (or SILTY CLAY and GRAVEL)
SP-SM	Poorly graded SAND with SILT Poorly graded SAND with SILT and GRAVEL
SP-SC	Poorly graded SAND with CLAY (or SILTY CLAY) Poorly graded SAND with CLAY and GRAVEL (or SILTY CLAY and GRAVEL)
SM	SILTY SAND SILTY SAND with GRAVEL
SC	CLAYEY SAND CLAYEY SAND with GRAVEL
SC-SM	SILTY, CLAYEY SAND SILTY, CLAYEY SAND with GRAVEL
PT	PEAT
	COBBLES COBBLES and BOULDERS BOULDERS

Graphic / Symbol	Group Names
CL	Lean CLAY Lean CLAY with SAND Lean CLAY with GRAVEL SANDY lean CLAY SANDY lean CLAY with GRAVEL GRAVELLY lean CLAY GRAVELLY lean CLAY with SAND
CL-ML	SILTY CLAY SILTY CLAY with SAND SILTY CLAY with GRAVEL SANDY SILTY CLAY SANDY SILTY CLAY with GRAVEL GRAVELLY SILTY CLAY GRAVELLY SILTY CLAY with SAND
ML	SILT SILT with SAND SILT with GRAVEL SANDY SILT SANDY SILT with GRAVEL GRAVELLY SILT GRAVELLY SILT with SAND
OL	ORGANIC lean CLAY ORGANIC lean CLAY with SAND ORGANIC lean CLAY with GRAVEL SANDY ORGANIC lean CLAY SANDY ORGANIC lean CLAY with GRAVEL GRAVELLY ORGANIC lean CLAY GRAVELLY ORGANIC lean CLAY with SAND
OL	ORGANIC SILT ORGANIC SILT with SAND ORGANIC SILT with GRAVEL SANDY ORGANIC SILT SANDY ORGANIC SILT with GRAVEL GRAVELLY ORGANIC SILT GRAVELLY ORGANIC SILT with SAND
CH	Fat CLAY Fat CLAY with SAND Fat CLAY with GRAVEL SANDY fat CLAY SANDY fat CLAY with GRAVEL GRAVELLY fat CLAY GRAVELLY fat CLAY with SAND
MH	Elastic SILT Elastic SILT with SAND Elastic SILT with GRAVEL SANDY elastic SILT SANDY elastic SILT with GRAVEL GRAVELLY elastic SILT GRAVELLY elastic SILT with SAND
OH	ORGANIC fat CLAY ORGANIC fat CLAY with SAND ORGANIC fat CLAY with GRAVEL SANDY ORGANIC fat CLAY SANDY ORGANIC fat CLAY with GRAVEL GRAVELLY ORGANIC fat CLAY GRAVELLY ORGANIC fat CLAY with SAND
OH	ORGANIC elastic SILT ORGANIC elastic SILT with SAND ORGANIC elastic SILT with GRAVEL SANDY elastic ELASTIC SILT SANDY ORGANIC elastic SILT with GRAVEL GRAVELLY ORGANIC elastic SILT GRAVELLY ORGANIC elastic SILT with SAND
OL/OH	ORGANIC SOIL ORGANIC SOIL with SAND ORGANIC SOIL with GRAVEL SANDY ORGANIC SOIL SANDY ORGANIC SOIL with GRAVEL GRAVELLY ORGANIC SOIL GRAVELLY ORGANIC SOIL with SAND

FIELD AND LABORATORY TESTS

C	Consolidation (ASTM D 2435-04)
CL	Collapse Potential (ASTM D 5333-03)
CP	Compaction Curve (CTM 216 - 06)
CR	Corrosion, Sulfates, Chlorides (CTM 643 - 99; CTM 417 - 06; CTM 422 - 06)
CU	Consolidated Undrained Triaxial (ASTM D 4767-02)
DS	Direct Shear (ASTM D 3080-04)
EI	Expansion Index (ASTM D 4829-03)
M	Moisture Content (ASTM D 2216-05)
OC	Organic Content (ASTM D 2974-07)
P	Permeability (CTM 220 - 05)
PA	Particle Size Analysis (ASTM D 422-63 [2002])
PI	Liquid Limit, Plastic Limit, Plasticity Index (AASHTO T 89-02, AASHTO T 90-00)
PL	Point Load Index (ASTM D 5731-05)
PM	Pressure Meter
PP	Pocket Penetrometer
R	R-Value (CTM 301 - 00)
SE	Sand Equivalent (CTM 217 - 99)
SG	Specific Gravity (AASHTO T 100-06)
SL	Shrinkage Limit (ASTM D 427-04)
SW	Swell Potential (ASTM D 4546-03)
TV	Pocket Torvane
UC	Unconfined Compression - Soil (ASTM D 2166-06) Unconfined Compression - Rock (ASTM D 2938-95)
UU	Unconsolidated Undrained Triaxial (ASTM D 2850-03)
UW	Unit Weight (ASTM D 4767-04)
VS	Vane Shear (AASHTO T 223-96 [2004])

SAMPLER GRAPHIC SYMBOLS

- Standard Penetration Test (SPT)
- Standard California Sampler
- Modified California Sampler
- Shelby Tube
- Piston Sampler
- NX Rock Core
- HQ Rock Core
- Bulk Sample
- Other (see remarks)

DRILLING METHOD SYMBOLS

- Auger Drilling
- Rotary Drilling
- Dynamic Cone or Hand Driven
- Diamond Core

WATER LEVEL SYMBOLS

- First Water Level Reading (during drilling)
- Static Water Level Reading (after drilling, date)

Ref.: Caltrans Soil and Rock Logging Classification, and Presentation Manual (2010)

DEFINITIONS FOR CHANGE IN MATERIAL

Term	Definition	Symbol
Material Change	Change in material is observed in the sample or core, and the location of change can be accurately measured.	
Estimated Material Change	Change in material cannot be accurately located because either the change is gradational or because of limitations in the drilling/sampling methods used.	- - - - - - - - -
Soil/Rock Boundary	Material changes from soil characteristics to rock characteristics.	

GROUP DELTA	GROUP DELTA CONSULTANTS, INC. GEOTECHNICAL ENGINEERS AND GEOLOGISTS	FIGURE NUMBER A-2b
	PROJECT NAME: 6450 Sunset Boulevard	PROJECT NUMBER LA1429
	BORING RECORD LEGEND #2	

CONSISTENCY OF COHESIVE SOILS

Descriptor	Shear Strength (tsf)	Pocket Penetrometer, PP Measurement (tsf)	Torvane, TV. Measurement (tsf)	Vane Shear, VS. Measurement (tsf)
Very Soft	< 0.12	< 0.25	< 0.12	< 0.12
Soft	0.12 - 0.25	0.25 - 0.50	0.12 - 0.25	0.12 - 0.25
Medium Stiff	0.25 - 0.50	0.50 - 1.0	0.25 - 0.50	0.25 - 0.50
Stiff	0.50 - 1.0	1.0 - 2.0	0.50 - 1.0	0.50 - 1.0
Very Stiff	1.0 - 2.0	2.0 - 4.0	1.0 - 2.0	1.0 - 2.0
Hard	> 2.0	> 4.0	> 2.0	> 2.0

APPARENT DENSITY OF COHESIONLESS SOILS

Descriptor	SPT N_{60} - Value (blows / foot)
Very Loose	0 - 5
Loose	5 - 10
Medium Dense	10 - 30
Dense	30 - 50
Very Dense	> 50

MOISTURE

Descriptor	Criteria
Dry	No discernable moisture
Moist	Moisture present, but no free water
Wet	Visible free water

PERCENT OR PROPORTION OF SOILS

Descriptor	Criteria
Trace	Particles are present but estimated to be less than 5%
Few	5 to 10%
Little	15 to 25%
Some	30 to 45%
Mostly	50 to 100%

PARTICLE SIZE

Descriptor		Size (in)
Boulder		> 12
Cobble		3 - 12
Gravel	Coarse	3/4 - 3
	Fine	1/5 - 3/4
Sand	Coarse	1/16 - 1/5
	Medium	1/64 - 1/16
	Fine	1/300 - 1/64
Silt and Clay		< 1/300

PLASTICITY OF FINE-GRAINED SOILS

Descriptor	Criteria
Nonplastic	A 1/8-inch thread cannot be rolled at any water content.
Low	The thread can barely be rolled, and the lump cannot be formed when drier than the plastic limit.
Medium	The thread is easy to roll, and not much time is required to reach the plastic limit; it cannot be rerolled after reaching the plastic limit. The lump crumbles when drier than the plastic limit.
High	It takes considerable time rolling and kneading to reach the plastic limit. The thread can be rerolled several times after reaching the plastic limit. The lump can be formed without crumbling when drier than the plastic limit.

CONSISTENCY OF COHESIVE SOILS VS. N_{60}

Description	SPT N_{60} (blows / foot)
Very Soft	0 - 2
Soft	2 - 4
Medium Stiff	4 - 8
Stiff	8 - 15
Very Stiff	15 - 30
Hard	> 30

Ref: Peck, Hansen, and Thornburn, 1974, "Foundation Engineering", Second Edition

Note: Only to be used (with caution) when pocket penetrometer or other data on undrained shear strength are unavailable. Not allowed by Caltrans Soil and Rock Logging and Classificaton Manual, 2010

CEMENTATION

Descriptor	Criteria
Weak	Crumbles or breaks with handling or little finger pressure.
Moderate	Crumbles or breaks with considerable finger pressure.
Strong	Will not crumble or break with finger pressure.

Ref.: Caltrans Soil and Rock Logging Classification, and Presentation Manual (2010), with the exception of consistency of cohesive soils vs. N_{60}.

GROUP DELTA

GROUP DELTA CONSULTANTS, INC. GEOTECHNICAL ENGINEERS AND GEOLOGISTS	FIGURE NUMBER A-2c
PROJECT NAME: 6450 Sunset Boulevard	PROJECT NUMBER LA1429

BORING RECORD LEGEND #3

BORING RECORD

PROJECT NAME	PROJECT NUMBER	HOLE ID
1413 Cole Pl., 1428 & 1424 Wilcox Ave	LA-1429-2	**B-1**

PROJECT FEATURE	OWNER	START DATE	FINISH DATE	SHEET NO.
	Seward Partners LLC	12/16/2019	12/16/2019	1 of 3

SEGMENT NO.	BOREHOLE LOCATION (Latitude; Longitude) DATUM: NAD 83	BOREHOLE LOCATION (Offset, Station, Line)
	34.09632°;-118.33009°	

DRILLING COMPANY	DRILL RIG	DRILLING METHOD	LOGGED BY	CHECKED BY
2R Drilling	CME 75	HSA	L.Keykhosropour	M.Sutherland

HAMMER TYPE (WEIGHT/DROP)	HAMMER EFFICIENCY (ERi)	BORING DIA. (in)	TOTAL DEPTH (ft)	GROUND ELEV (ft)	DEPTH/*ELEV.* GW (ft)
140 lb. 30"	80%*	8	61.5	341 NAVD 88	▽ 52.2 / *288.8* DURING DRILLING

DRIVE SAMPLER TYPE(S) & SIZE (ID)	NOTES	BOREHOLE BACKFILL & COMPLETION	
Bulk, ModCAL, SPT		Grout	▼ / AFTER DRILLING

DEPTH (feet)	ELEVATION (feet)	SAMPLE TYPE	SAMPLE NO.	PENETRATION RESISTANCE (BLOWS / 6 IN)	BLOWS/FT	SPT N^*_{60}	RECOVERY (%)	RQD (%)	MOISTURE (%)	DRY DENSITY (pcf)	ATTERBERG LIMITS (LL:PI)	OTHER TESTS	DRILLING METHOD	GRAPHIC LOG	DESCRIPTION AND CLASSIFICATION
0	341														Concrete Pavement
	340	Bulk	B-1												**Fill** Silty Sand with Gravel (SM), dark brown, dry, mostly sand with some silt and few gravel, low plasticity
															Native Silty Sand (SM), dark brown, dry, mostly sand with some silt, low plasticity
5	335	ModCAL	R-1	6 8 11	19	17									Silty Sand to Clayey Sand (SM to SC), medium dense, light brown to gray, dry, low to medium plasticity, PP = 2.5 tsf
10	330	SPT	S-2	2 3 3	6	8									Silty Sand to Clayey Sand (SM to SC), loose, light brown to gray, dry, low to medium plasticity
15	325	ModCAL	R-3	8 14 19	33	29						DS			Lean Clay with Sand (CL), very stiff, dark brown, moist, low to medium plasticity, PP = 4 tsf
20	320	SPT	S-4	4 3 4	7	9									Clayey Sand to Sandy Lean Clay (SC to CL), loose to stiff, light to dark brown, moist, low to medium plasticity
		Bulk	B-2												

FIGURE

A-3 a

BORING RECORD

PROJECT NAME	PROJECT NUMBER	HOLE ID
1413 Cole Pl., 1428 & 1424 Wilcox Ave	LA-1429-2	**B-1**

PROJECT FEATURE	OWNER	START DATE	FINISH DATE	SHEET NO.
	Seward Partners LLC	12/16/2019	12/16/2019	2 of 3

SEGMENT NO.	BOREHOLE LOCATION (Latitude; Longitude) DATUM: NAD 83	BOREHOLE LOCATION (Offset, Station, Line)
	34.09632°;-118.33009°	

DRILLING COMPANY	DRILL RIG	DRILLING METHOD	LOGGED BY	CHECKED BY
2R Drilling	CME 75	HSA	L.Keykhosropour	M.Sutherland

HAMMER TYPE (WEIGHT/DROP)	HAMMER EFFICIENCY (ERi)	BORING DIA. (in)	TOTAL DEPTH (ft)	GROUND ELEV (ft)	DEPTH/*ELEV.* GW (ft)
140 lb. 30"	80%*	8	61.5	341 NAVD 88	∇ 52.2 / *288.8* DURING DRILLING

DRIVE SAMPLER TYPE(S) & SIZE (ID)	NOTES	BOREHOLE BACKFILL & COMPLETION	
Bulk, ModCAL, SPT		Grout	▼ / AFTER DRILLING

DEPTH (feet)	ELEVATION (feet)	SAMPLE TYPE	SAMPLE NO.	PENETRATION RESISTANCE (BLOWS / 6 IN)	BLOWS/FT	SPT N^*_{60}	RECOVERY (%)	RQD (%)	MOISTURE (%)	DRY DENSITY (pcf)	ATTERBERG LIMITS (LL:PI)	OTHER TESTS	DRILLING METHOD	GRAPHIC LOG	DESCRIPTION AND CLASSIFICATION
	315	ModCAL	R-5	8 12 20	32	29									Clayey Sand to Sandy Clay (SC to CL), medium dense to very stiff, light to dark brown, moist, low to medium plasticity, PP = 3.75 tsf
30	310	SPT	S-6	7 9 9	18	24									Lean Clay with Sand (CL), very stiff, dark brown, moist, medium plasticity
35	305	ModCAL	R-7	9 20 32	52	46									Silty Sand (SM), dark brown, dense, moist, mostly sand with little silt and trace of gravel, low plasticity, PP = 3.5 tsf
40	300	SPT	S-8	4 4 8	12	16									Clayey Sand to Sandy Lean Clay (SC to CL), medium dense to very stiff, dark brown, moist, mostly sand/clay with some clay/sand and traces of gravel, medium plasticity.
45	295	ModCAL	R-9	16 38 50	88	79			13	122					Very dense to hard, dark brown, mostly sand/clay with some clay/sand and traces of gravel, medium plasticity, PP > 4 tsf

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FIGURE

A-3 b

BORING RECORD

PROJECT NAME 1413 Cole Pl., 1428 & 1424 Wilcox Ave			**PROJECT NUMBER** LA-1429-2	**HOLE ID** B-1
PROJECT FEATURE	**OWNER** Seward Partners LLC	**START DATE** 12/16/2019	**FINISH DATE** 12/16/2019	**SHEET NO.** 3 of 3
SEGMENT NO.	**BOREHOLE LOCATION (Latitude; Longitude)** 34.09632°;-118.33009°	**DATUM: NAD 83**	**BOREHOLE LOCATION (Offset, Station, Line)**	
DRILLING COMPANY 2R Drilling	**DRILL RIG** CME 75	**DRILLING METHOD** HSA	**LOGGED BY** L.Keykhosropour	**CHECKED BY** M.Sutherland
HAMMER TYPE (WEIGHT/DROP) 140 lb. 30"	**HAMMER EFFICIENCY (ERi)** 80%*	**BORING DIA. (in)** 8	**TOTAL DEPTH (ft)** 61.5 / **GROUND ELEV (ft)** 341 NAVD 88	**DEPTH/*ELEV.* GW (ft)** ▽ 52.2 / *288.8* DURING DRILLING
DRIVE SAMPLER TYPE(S) & SIZE (ID) Bulk, ModCAL, SPT	**NOTES**	**BOREHOLE BACKFILL & COMPLETION** Grout		▼ / AFTER DRILLING

DEPTH (feet)	ELEVATION (feet)	SAMPLE TYPE	SAMPLE NO.	PENETRATION RESISTANCE (BLOWS / 6 IN)	BLOWS/FT	SPT N^*_{60}	RECOVERY (%)	RQD (%)	MOISTURE (%)	DRY DENSITY (pcf)	ATTERBERG LIMITS (LL:PI)	OTHER TESTS	DRILLING METHOD	GRAPHIC LOG	DESCRIPTION AND CLASSIFICATION
	290	SPT	S-10	10 12 14	26	35									Clayey Sand (SC), dense, light to dark brown, wet, mostly sand with some clay and little silt, medium plasticity.
55	285	ModCAL	R-11	8 15 19	34	30									PP = 3.25
60	280	SPT	S-12	4 4 8	12	16									
65	275														Boring terminated at the depth of 61.5', backfilled with grout and patched with concrete. Ground water was encountered at the depth of 52.2'. * Hammer efficiency was assumed to be 80%.
70	270														

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FIGURE

A-3 c

BORING RECORD

PROJECT NAME	PROJECT NUMBER	HOLE ID
1413 Cole Pl., 1428 & 1424 Wilcox Ave	LA-1429-2	B-2

PROJECT FEATURE	OWNER	START DATE	FINISH DATE	SHEET NO.
	Seward Partners LLC	12/16/2019	12/16/2019	1 of 3

SEGMENT NO.	BOREHOLE LOCATION (Latitude; Longitude) DATUM: NAD 83	BOREHOLE LOCATION (Offset, Station, Line)
	34.09632°;-118.33009°	

DRILLING COMPANY	DRILL RIG	DRILLING METHOD	LOGGED BY	CHECKED BY
2R Drilling	CME 75	HSA	L.Keykhosropour	M.Sutherland

HAMMER TYPE (WEIGHT/DROP)	HAMMER EFFICIENCY (ERi)	BORING DIA. (in)	TOTAL DEPTH (ft)	GROUND ELEV (ft)	DEPTH/*ELEV.* GW (ft)
140 lb. 30"	80%*	8	61.5	344 NAVD 88	▽ 54.7 / *289.3* DURING DRILLING

DRIVE SAMPLER TYPE(S) & SIZE (ID)	NOTES	BOREHOLE BACKFILL & COMPLETION	
Bulk, ModCAL, SPT		Grout	▼ / AFTER DRILLING

DEPTH (feet)	ELEVATION (feet)	SAMPLE TYPE	SAMPLE NO.	PENETRATION RESISTANCE (BLOWS / 6 IN)	BLOWS/FT	SPT N^*_{60}	RECOVERY (%)	RQD (%)	MOISTURE (%)	DRY DENSITY (pcf)	ATTERBERG LIMITS (LL:PI)	OTHER TESTS	DRILLING METHOD	GRAPHIC LOG	DESCRIPTION AND CLASSIFICATION
0	344														Asphalt
															Fill Silty/Clayey Sand with Gravel (SM to SC), dark brown, dry, mostly sand with little to some silt/clay and few gravel, low plasticity
		Bulk	B-1												**Native** Silty Sand to Clayey Sand (SM to SC), dark brown, dry, mostly sand with some silt/clay, low plasticity
	340														
5		ModCAL	R-1	5 6 10	16	14					30:15				Clayey Sand to Sandy Lean Clay(SC to CL), medium dense to stiff, dark brown, moist, mostly sand/clay with some clay/sand, medium plasticity, PP = 2.75 tsf
	335														
10		SPT	S-2	4 3 4	7	9									Well-graded Sand with Clay (SW-SC), loose, light brown, moist, low plasticity
	330														
15		ModCAL	R-3	10 18 19	37	33			19	108					Clayey Sand to Sandy Lean Clay (SC to CL), hard, light to dark brown, moist, medium plasticity, PP = 4 tsf
	325														
20		SPT	S-4	3 4 6	10	13									Stiff
	320														

BORING RECORD

PROJECT NAME	PROJECT NUMBER	HOLE ID
1413 Cole Pl., 1428 & 1424 Wilcox Ave	LA-1429-2	**B-2**

PROJECT FEATURE	OWNER	START DATE	FINISH DATE	SHEET NO.
	Seward Partners LLC	12/16/2019	12/16/2019	2 of 3

SEGMENT NO.	BOREHOLE LOCATION (Latitude; Longitude) DATUM: NAD 83	BOREHOLE LOCATION (Offset, Station, Line)
	34.09632°;-118.33009°	

DRILLING COMPANY	DRILL RIG	DRILLING METHOD	LOGGED BY	CHECKED BY
2R Drilling	CME 75	HSA	L.Keykhosropour	M.Sutherland

HAMMER TYPE (WEIGHT/DROP)	HAMMER EFFICIENCY (ERi)	BORING DIA. (in)	TOTAL DEPTH (ft)	GROUND ELEV (ft)	DEPTH/*ELEV.* GW (ft)
140 lb. 30"	80%*	8	61.5	344 NAVD 88	⊻ 54.7 / *289.3* DURING DRILLING

DRIVE SAMPLER TYPE(S) & SIZE (ID)	NOTES	BOREHOLE BACKFILL & COMPLETION	
Bulk, ModCAL, SPT		Grout	▼ / AFTER DRILLING

DEPTH (feet)	ELEVATION (feet)	SAMPLE TYPE	SAMPLE NO.	PENETRATION RESISTANCE (BLOWS / 6 IN)	BLOWS/FT	SPT N^*_{60}	RECOVERY (%)	RQD (%)	MOISTURE (%)	DRY DENSITY (pcf)	ATTERBERG LIMITS (LL:PI)	OTHER TESTS	DRILLING METHOD	GRAPHIC LOG	DESCRIPTION AND CLASSIFICATION
			R-5	8 13 20	33	29									Clayey Sand (SC), medium dense, light to dark brown, moist, mostly sand with little to some clay, medium plasticity, PP = 3.75 tsf
	315														
30			S-6	5 6 9	15	20									Poorly-graded Sand to Poorly-graded Sand with Silt (SP to SP-SM), medium dense, light brown, moist, low plasticity
	310														
35			R-7	6 9 14	23	21			20	105					Clayey Sand to Sandy Lean Clay (SC to CL), medium dense to very stiff, light brown, moist, medium plasticity, PP = 3.5 tsf
	305														
40			S-8	4 5 7	12	16									Clayey Sand (SC), medium dense, light brown, moist, low to medium plasticity
	300														
45			R-9	8 19 33	52	46									Clayey Sand to Sandy Lean Clay (SC to CL), dense to hard, light to dark brown, moist, mostly sand/clay with some clay/sand, medium plasticity, PP > 4 tsf
	295														

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FIGURE

A-4 b

BORING RECORD

PROJECT NAME: 1413 Cole Pl., 1428 & 1424 Wilcox Ave	PROJECT NUMBER: LA-1429-2	HOLE ID: B-2	
PROJECT FEATURE:	OWNER: Seward Partners LLC	START DATE: 12/16/2019	FINISH DATE: 12/16/2019
SHEET NO.: 3 of 3			
SEGMENT NO.:	BOREHOLE LOCATION (Latitude; Longitude) DATUM: NAD 83: 34.09632°;-118.33009°	BOREHOLE LOCATION (Offset, Station, Line):	
DRILLING COMPANY: 2R Drilling	DRILL RIG: CME 75	DRILLING METHOD: HSA	LOGGED BY: L.Keykhosropour
CHECKED BY: M.Sutherland			
HAMMER TYPE (WEIGHT/DROP): 140 lb. 30"	HAMMER EFFICIENCY (ERi): 80%*	BORING DIA. (in): 8	TOTAL DEPTH (ft): 61.5
GROUND ELEV (ft): 344 NAVD 88	DEPTH/*ELEV.* GW (ft): ∇ 54.7 / *289.3* DURING DRILLING		
DRIVE SAMPLER TYPE(S) & SIZE (ID): Bulk, ModCAL, SPT	NOTES:	BOREHOLE BACKFILL & COMPLETION: Grout	▼ / AFTER DRILLING

DEPTH (feet)	ELEVATION (feet)	SAMPLE TYPE	SAMPLE NO.	PENETRATION RESISTANCE (BLOWS / 6 IN)	BLOWS/FT	SPT N^*_{60}	RECOVERY (%)	RQD (%)	MOISTURE (%)	DRY DENSITY (pcf)	ATTERBERG LIMITS (LL:PI)	OTHER TESTS	DRILLING METHOD	GRAPHIC LOG	DESCRIPTION AND CLASSIFICATION
		SPT	S-10	8 14 19	33	44									Clayey Sand (SC), dense, light brown, moist, mostly sand with some clay, medium plasticity
	290														
55		ModCAL	R-11	16 28 25	53	47								∇	Medium dense, wet, low to medium plasticity, PP = 3.75 tsf
	285														
60		SPT	S-12	6 10 11	21	28									
	280														Boring terminated at the depth of 61.5', backfilled with grout and patched with asphalt. Ground water was encountered at the depth of 54.7'. * Hammer efficiency was assumed to be 80%.
65															
	275														
70															
	270														

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BORING RECORD

PROJECT NAME	PROJECT NUMBER	HOLE ID
1413 Cole Pl., 1428 & 1424 Wilcox Ave	LA-1429-2	B-3

PROJECT FEATURE	OWNER	START DATE	FINISH DATE	SHEET NO.
	Seward Partners LLC	12/16/2019	12/16/2019	1 of 3

SEGMENT NO.	BOREHOLE LOCATION (Latitude; Longitude) DATUM: NAD 83	BOREHOLE LOCATION (Offset, Station, Line)
	34.09632°;-118.33009°	

DRILLING COMPANY	DRILL RIG	DRILLING METHOD	LOGGED BY	CHECKED BY
2R Drilling	CME 75	HSA	L.Keykhosropour	M.Sutherland

HAMMER TYPE (WEIGHT/DROP)	HAMMER EFFICIENCY (ERi)	BORING DIA. (in)	TOTAL DEPTH (ft)	GROUND ELEV (ft)	DEPTH/*ELEV.* GW (ft)
140 lb. 30"	80%*	8	61.5	348 NAVD 88	⊻ 60.5 / *287.5* DURING DRILLING

DRIVE SAMPLER TYPE(S) & SIZE (ID)	NOTES	BOREHOLE BACKFILL & COMPLETION	
Bulk, ModCAL, SPT		Grout	▼ / AFTER DRILLING

DEPTH (feet)	ELEVATION (feet)	SAMPLE TYPE	SAMPLE NO.	PENETRATION RESISTANCE (BLOWS / 6 IN)	BLOWS/FT	SPT N^*_{60}	RECOVERY (%)	RQD (%)	MOISTURE (%)	DRY DENSITY (pcf)	ATTERBERG LIMITS (LL:PI)	OTHER TESTS	DRILLING METHOD	GRAPHIC LOG	DESCRIPTION AND CLASSIFICATION
															Concrete Pavement
															Fill Fill Material (sand and gravel mixed with pieces of bricks)
	345		B-1									R			**Native** Silty Sand to Clayey Sand (SM to SC), dark brown, dry, mostly sand with little to some silt/clay, low to medium plasticity
5			R-1	4 6 7	13	12									Clayey Sand (SC), medium dense, dark brown, moist, mostly sand with few to little clay, low to medium plasticity, PP = 3.5 tsf
	340														
10			S-2	5 5 6	11	15			6						Clayey/Silty Sand with Gravel (SM to SC), medium dense, gray to light brown, moist, low plasticity
	335														
15			R-3	4 5 8	13	12									Light brown, mostly sand with little sIlt and clay, low plasticity, PP = 3.5 tsf
	330														
20			S-4	3 2 3	5	7									Clayey/Silty Sand (SM to SC), loose, dark brown, moist, low to medium plasticity
	325		B-2												

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FIGURE

A-5 a

BORING RECORD

PROJECT NAME	PROJECT NUMBER	HOLE ID
1413 Cole Pl., 1428 & 1424 Wilcox Ave	LA-1429-2	**B-3**

PROJECT FEATURE	OWNER	START DATE	FINISH DATE	SHEET NO.
	Seward Partners LLC	12/16/2019	12/16/2019	2 of 3

SEGMENT NO.	BOREHOLE LOCATION (Latitude; Longitude) DATUM: NAD 83	BOREHOLE LOCATION (Offset, Station, Line)
	34.09632°;-118.33009°	

DRILLING COMPANY	DRILL RIG	DRILLING METHOD	LOGGED BY	CHECKED BY
2R Drilling	CME 75	HSA	L.Keykhosropour	M.Sutherland

HAMMER TYPE (WEIGHT/DROP)	HAMMER EFFICIENCY (ERi)	BORING DIA. (in)	TOTAL DEPTH (ft)	GROUND ELEV (ft)	DEPTH/*ELEV.* GW (ft)
140 lb. 30"	80%*	8	61.5	348 NAVD 88	♀ 60.5 / *287.5* DURING DRILLING

DRIVE SAMPLER TYPE(S) & SIZE (ID)	NOTES	BOREHOLE BACKFILL & COMPLETION	
Bulk, ModCAL, SPT		Grout	▼ / AFTER DRILLING

DEPTH (feet)	ELEVATION (feet)	SAMPLE TYPE	SAMPLE NO.	PENETRATION RESISTANCE (BLOWS / 6 IN)	BLOWS/FT	SPT N^*_{60}	RECOVERY (%)	RQD (%)	MOISTURE (%)	DRY DENSITY (pcf)	ATTERBERG LIMITS (LL:PI)	OTHER TESTS	DRILLING METHOD	GRAPHIC LOG	DESCRIPTION AND CLASSIFICATION
			R-5	9 12 14	26	23									Clayey/Silty Sand (SM to SC), medium dense, light brown, moist, low to medium plasticity
	320														
30			S-6	3 4 6	10	13									Poorly-graded Sand to Poorly-graded Sand with Silt (SP to SP-SM), medium dense, light brown, moist, mostly sand with few silt, low plasticity
	315														
35			R-7	8 10 15	25	22									Clayey Sand to Sandy Lean Clay (SC to CL), medium dense to very stiff, light brown, moist, medium plasticity, PP = 2.5 tsf
	310														
40			S-8	4 4 8	12	16									Light to dark brown
	305														
45			R-9	11 40 37	77	69									Poorly-graded Sand (SP), very dense, light to dark brown, moist, mostly sand/clay with trace of silt and gravel, non-plastic, PP > 4 tsf
	300														

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FIGURE

A-5 b

BORING RECORD

PROJECT NAME 1413 Cole Pl., 1428 & 1424 Wilcox Ave			**PROJECT NUMBER** LA-1429-2		**HOLE ID** B-3
PROJECT FEATURE	**OWNER** Seward Partners LLC	**START DATE** 12/16/2019	**FINISH DATE** 12/16/2019		**SHEET NO.** 3 of 3
SEGMENT NO.	**BOREHOLE LOCATION (Latitude; Longitude)** DATUM: NAD 83 34.09632°;-118.33009°	**BOREHOLE LOCATION (Offset, Station, Line)**			
DRILLING COMPANY 2R Drilling	**DRILL RIG** CME 75	**DRILLING METHOD** HSA	**LOGGED BY** L.Keykhosropour		**CHECKED BY** M.Sutherland
HAMMER TYPE (WEIGHT/DROP) 140 lb. 30"	**HAMMER EFFICIENCY (ERi)** 80%*	**BORING DIA. (in)** 8	**TOTAL DEPTH (ft)** 61.5	**GROUND ELEV (ft)** 348 NAVD 88	**DEPTH/*ELEV.* GW (ft)** ▽ 60.5 / *287.5* DURING DRILLING
DRIVE SAMPLER TYPE(S) & SIZE (ID) Bulk, ModCAL, SPT	**NOTES**	**BOREHOLE BACKFILL & COMPLETION** Grout			▼ / AFTER DRILLING

DEPTH (feet)	ELEVATION (feet)	SAMPLE TYPE	SAMPLE NO.	PENETRATION RESISTANCE (BLOWS / 6 IN)	BLOWS/FT	SPT N^*_{60}	RECOVERY (%)	RQD (%)	MOISTURE (%)	DRY DENSITY (pcf)	ATTERBERG LIMITS (LL:PI)	OTHER TESTS	DRILLING METHOD	GRAPHIC LOG	DESCRIPTION AND CLASSIFICATION
		SPT	S-10	6 13 19	32	43									Poorly-graded Sand with Clay to Clayey Sand (SP-SC to SC), dense, light brown, moist, mostly sand with few to little clay, low to medium plasticity
	295														
55		ModCAL	R-11	12 19 39	58	52			16	117					Clayey Sand (SC), very dense, light brown, moist, mostly sand with some clay, medium plasticity, PP > 4 tsf
	290														
60		SPT	S-12	8 10 17	27	36								▽	
	285														Boring terminated at the depth of 61.5', backfilled with grout and patched with concrete. Ground water was encountered at the depth of 60.5'. * Hammer efficiency was assumed to be 80%.
65															
	280														
70															
	275														

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BORING RECORD

PROJECT NAME: 6450 Sunset Boulevard			PROJECT NUMBER: LA-1429	HOLE ID: B-4
PROJECT FEATURE:	OWNER: Seward Partners LLC	START DATE: 12/17/2019	FINISH DATE: 12/17/2019	SHEET NO.: 1 of 3
SEGMENT NO.:	BOREHOLE LOCATION (Latitude; Longitude) DATUM: NAD 83: 34.09632°;-118.33009°	BOREHOLE LOCATION (Offset, Station, Line):		
DRILLING COMPANY: 2R Drilling	DRILL RIG: CME 75	DRILLING METHOD: HSA	LOGGED BY: L.Keykhosropour	CHECKED BY: M.Sutherland
HAMMER TYPE (WEIGHT/DROP): 140 lb. 30"	HAMMER EFFICIENCY (ERi): 80%*	BORING DIA. (in): 8	TOTAL DEPTH (ft): 61.5	GROUND ELEV (ft): 350 NAVD 88
DEPTH/*ELEV.* GW (ft): ∇ 59.5 / *290.5* DURING DRILLING; ▼ / AFTER DRILLING				
DRIVE SAMPLER TYPE(S) & SIZE (ID): Bulk, ModCAL, SPT	NOTES:	BOREHOLE BACKFILL & COMPLETION: Grout		

DEPTH (feet)	ELEVATION (feet)	SAMPLE TYPE	SAMPLE NO.	PENETRATION RESISTANCE (BLOWS / 6 IN)	BLOWS/FT	SPT N^*_{60}	RECOVERY (%)	RQD (%)	MOISTURE (%)	DRY DENSITY (pcf)	ATTERBERG LIMITS (LL:PI)	OTHER TESTS	DRILLING METHOD	GRAPHIC LOG	DESCRIPTION AND CLASSIFICATION
															Asphalt
															Fill Silty Sand to Sandy Silt (SM to ML), dark brown, dry, mostly sand/silt with little to some silt/sand with little gravel, Low Plasticity
			B-1												**Native** Silty Sand to Sandy Silt (SM to ML), dark brown, dry, mostly sand/silt with little to some silt/sand, Low Plasticity
5	345		R-1	12 28 27	55	49									Silty Sand to Clayey Sand (SM to SC), dense, light brown, dry, low to medium plasticity, PP > 4 tsf
10	340		S-2	4 5 7	12	16									Medium dense, light brown, dry, mostly sand with little to some clay and silt, low to medium plasticity
15	335		R-3	10 9 15	24	21					38:22	C			Sandy Silt to Sandy Lean Clay (ML to CL), very stiff, light to dark brown, moist, medium plasticity, PP = 4 tsf
20	330		S-4	2 4 5	9	12			15						Silt to Lean Clay (ML to CL), stiff, light brown, moist, mostly silt/clay with some clay/silt and few sand, medium plasticity
			B-2									EI			

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FIGURE A-6 a

BORING RECORD

PROJECT NAME	PROJECT NUMBER	HOLE ID
6450 Sunset Boulevard	LA-1429	**B-4**

PROJECT FEATURE	OWNER	START DATE	FINISH DATE	SHEET NO.
	Seward Partners LLC	12/17/2019	12/17/2019	2 of 3

SEGMENT NO.	BOREHOLE LOCATION (Latitude; Longitude) DATUM: NAD 83	BOREHOLE LOCATION (Offset, Station, Line)
	34.09632°;-118.33009°	

DRILLING COMPANY	DRILL RIG	DRILLING METHOD	LOGGED BY	CHECKED BY
2R Drilling	CME 75	HSA	L.Keykhosropour	M.Sutherland

HAMMER TYPE (WEIGHT/DROP)	HAMMER EFFICIENCY (ERi)	BORING DIA. (in)	TOTAL DEPTH (ft)	GROUND ELEV (ft)	DEPTH/*ELEV.* GW (ft)
140 lb. 30"	80%*	8	61.5	350 NAVD 88	⊻ 59.5 / *290.5* DURING DRILLING

DRIVE SAMPLER TYPE(S) & SIZE (ID)	NOTES	BOREHOLE BACKFILL & COMPLETION	
Bulk, ModCAL, SPT		Grout	▼ / AFTER DRILLING

DEPTH (feet)	ELEVATION (feet)	SAMPLE TYPE	SAMPLE NO.	PENETRATION RESISTANCE (BLOWS / 6 IN)	BLOWS/FT	SPT N^*_{60}	RECOVERY (%)	RQD (%)	MOISTURE (%)	DRY DENSITY (pcf)	ATTERBERG LIMITS (LL:PI)	OTHER TESTS	DRILLING METHOD	GRAPHIC LOG	DESCRIPTION AND CLASSIFICATION
			R-5	7 12 23	35	31						DS			Lean Clay (CL), hard, light brown, moist, mostly clay with some silt, medium plasticity, PP = 3.5 tsf
30	320		S-6	4 5 5	10	13									Sandy Lean Clay to Clayey Sand (SC to CL), medium dense to stiff, light brown, moist, medium plasticity
35	315		R-7	16 13 34	47	42									Dense to hard, PP = 4 tsf
40	310		S-8	4 5 9	14	19			18						Lean Clay (CL), very stiff, dark brown, moist, mostly clay with some silt, medium plasticity, PP = 3.5 tsf
45	305		R-9	7 8 18	26	23									Trace of sand, PP = 2.5 tsf

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FIGURE

A-6 b

BORING RECORD

PROJECT NAME	PROJECT NUMBER	HOLE ID
6450 Sunset Boulevard	LA-1429	B-4

PROJECT FEATURE	OWNER	START DATE	FINISH DATE	SHEET NO.
	Seward Partners LLC	12/17/2019	12/17/2019	3 of 3

SEGMENT NO.	BOREHOLE LOCATION (Latitude; Longitude) DATUM: NAD 83	BOREHOLE LOCATION (Offset, Station, Line)
	34.09632°;-118.33009°	

DRILLING COMPANY	DRILL RIG	DRILLING METHOD	LOGGED BY	CHECKED BY
2R Drilling	CME 75	HSA	L.Keykhosropour	M.Sutherland

HAMMER TYPE (WEIGHT/DROP)	HAMMER EFFICIENCY (ERi)	BORING DIA. (in)	TOTAL DEPTH (ft)	GROUND ELEV (ft)	DEPTH/*ELEV.* GW (ft)
140 lb. 30"	80%*	8	61.5	350 NAVD 88	⊻ 59.5 / *290.5* DURING DRILLING

DRIVE SAMPLER TYPE(S) & SIZE (ID)	NOTES	BOREHOLE BACKFILL & COMPLETION	
Bulk, ModCAL, SPT		Grout	▼ / AFTER DRILLING

DEPTH (feet)	ELEVATION (feet)	SAMPLE TYPE	SAMPLE NO.	PENETRATION RESISTANCE (BLOWS / 6 IN)	BLOWS/FT	SPT N^*_{60}	RECOVERY (%)	RQD (%)	MOISTURE (%)	DRY DENSITY (pcf)	ATTERBERG LIMITS (LL:PI)	OTHER TESTS	DRILLING METHOD	GRAPHIC LOG	DESCRIPTION AND CLASSIFICATION
			S-10	6 13 19	32	43									Clayey Sand to Sandy Lean Clay (SC to CL), dense to hard, dark brown, moist, medium plasticity
55	295		R-11	12 23 36	59	53			12	120					Very dense to hard, PP > 4 tsf
60	290		S-12	8 6 14	20	27									Lean to Fat Clay (CL to CH), very stiff, light brown, wet, mostly clay with some silt and trace of sand, medium to high plasticity.
65	285														
70	280														

Boring terminated at the depth of 61.5', backfilled with grout and patched with asphalt.
Ground water was encountered at the depth of 59.5'.
* Hammer efficiency was assumed to be 80%.

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FIGURE

A-6 c

BORING RECORD

PROJECT NAME	PROJECT NUMBER	HOLE ID
6450 Sunset Boulevard	LA-1429	INF-1

PROJECT FEATURE	OWNER	START DATE	FINISH DATE	SHEET NO.
	Seward Partners LLC	4/3/2020	4/3/2020	1 of 1

SEGMENT NO.	BOREHOLE LOCATION (Latitude; Longitude) DATUM: NAD 83	BOREHOLE LOCATION (Offset, Station, Line)
	34.096460°;-118.330423°	

DRILLING COMPANY	DRILL RIG	DRILLING METHOD	LOGGED BY	CHECKED BY
2R Drilling	SIMCO 2800	HSA	A. Pradhan	M.Sutherland

HAMMER TYPE (WEIGHT/DROP)	HAMMER EFFICIENCY (ERi)	BORING DIA. (in)	TOTAL DEPTH (ft)	GROUND ELEV (ft)	DEPTH/*ELEV.* GW (ft)
140 lb. 30"	80%*	8	16.5	350 NAVD 88	⊻ NE / *NE* DURING DRILLING

DRIVE SAMPLER TYPE(S) & SIZE (ID)	NOTES	BOREHOLE BACKFILL & COMPLETION	
Bulk, ModCAL, SPT		Grout	▼ / AFTER DRILLING

DEPTH (feet)	ELEVATION (feet)	SAMPLE TYPE	SAMPLE NO.	PENETRATION RESISTANCE (BLOWS / 6 IN)	BLOWS/FT	SPT N^*_{60}	RECOVERY (%)	RQD (%)	MOISTURE (%)	DRY DENSITY (pcf)	ATTERBERG LIMITS (LL:PI)	OTHER TESTS	DRILLING METHOD	GRAPHIC LOG	DESCRIPTION AND CLASSIFICATION
0	350														CONCRETE (4.5") OVER CONCRETE (3")
		Bulk	Bulk-1												**Fill** SILTY SAND with GRAVEL (SM); brown, moist; few coarse to fine GRAVEL.
		Bulk	Bulk-2												**Native** SILTY SAND (SM); grey to reddish brown, moist; mostly fine to medium SAND; trace coarse SAND.
5	345														SANDY lean CLAY (CL); hard; greyish brown; moist; trace fine GRAVEL; medium plasticity.
		SPT	R-3	5 7 8	15	13									
		Bulk	Bulk-4												
10	340														Trace coarse SAND.
		SPT	R-5	5 6 8	14	12									
		Bulk	Bulk-6									#200			FINES 59%; SAND 40%; GRAVEL 1%.
15	335														Lean CLAY with SAND (CL); hard; reddish brown; moist; medium plasticity.
		SPT	R-7	6 10 12	22	20									
															Boring terminated at the depth of 16.5', backfilled with grout and patched with asphalt. Ground water was not encountered. * Hammer efficiency was assumed to be 80%.
20	330														

LX001_LOG_BORING_2018 LA1429.GPJ GDC2013.GDT 4/15/20

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Torrance, California 90501

FIGURE
A-7

APPENDIX B
Laboratory Testing

APPENDIX B
LABORATORY TESTING

B.1 Introduction

The laboratory testing was performed using appropriate American Society for Testing and Materials (ASTM) and Caltrans Test Methods (CTM).

Modified California drive samples, Standard Penetration Test (SPT) drive samples, and bulk samples collected during the field investigation were carefully sealed in the field to prevent moisture loss. The samples of earth materials were then transported to Group Delta's laboratory for further examination and testing. Tests were performed on selected samples as an aid in classifying the earth materials and to evaluate their physical properties and engineering characteristics. Laboratory testing for this investigation included:

- Soil Classification: USCS (ASTM D2487) and Visual Manual (ASTM D2488);
- Moisture content (ASTM D2216) and Dry Unit Weight (ASTM D2937);
- Atterberg Limits (ASTM D4318);
- Pocket Penetrometer;
- Direct Shear (ASTM D3080);
- One-Dimensional Consolidation (ASTM D2435)
- Soil Expansion Index (ASTM D4829)
- Sieve Analysis and Percent Passing No. 200 Sieve;
- Soil Corrosivity:
  - pH (CTM 643);
  - Water-Soluble Sulfate (ASTM D516, CTM 417);
  - Water-Soluble Chloride(Ion-Specific Probe, CTM 422);
  - Minimum Electrical Resistivity (CTM 643);

A brief description of the laboratory testing program and test results are presented below.

B.2 Soil Classification

The subsurface materials were classified visually in the field using the Unified Soil Classification System (USCS), in accordance with ASTM Test Methods D-2487 and D 2488 and following Caltrans Soil and Logging Classification and Presentation Manual (2010). Soil classifications were modified as necessary based on further inspection and testing in the laboratory. The soil classifications are presented on the key for soil classification and on the boring logs in Appendix A.

B.3 Moisture Content and Dry Unit Weight

The natural moisture content of selected SPT and California ring samples and dry unit weight of California ring samples were determined in general accordance with ASTM D2216 and ASTM D2937. Results of these tests are presented on the boring log in Appendix A.

B.4 Atterberg Limits

Soil plasticity was evaluated by measuring the Atterberg limits. This test includes Liquid Limit (LL) and Plastic Limit (PL) tests to determine the Plasticity Index (PI) in accordance with ASTM D4318. Results of these tests are illustrated in the plasticity chart shown in Figures B-1a and B-1b and on the boring log in Appendix A.

B.5 Pocket Penetrometer

The shear strengths of cohesive samples were evaluated using a pocket penetrometer. The pocket penetrometer is a hand held testing device, consisting of a small probe connected to a calibrated spring. As the probe is pushed into the soil a standardized distance, the spring compresses and records the unconfined compressive strength. The shear strength obtained from the pocket penetrometer is shown directly on the boring logs.

B.6 Direct Shear

Direct shear tests were performed on selected samples in accordance with ASTM D3080. After the initial weight and volume measurements were made, the samples were placed in a calibrated shear machine and a selected normal load was applied. Each sample was then saturated and allowed to consolidate, and then were sheared under a constant strain to failure. Shear stress and sample deformations were monitored throughout the test. The test results are presented in Figures B-2a and B-2b.

B.7 One-Dimensional Consolidation Test

The consolidation characteristics of the foundation soils were determined by performing one-dimensional consolidation in general accordance with ASTM D 2435, using a floating ring consolidometer and dead weight system. Results of the test from the current investigation IS presented in Figure B-3.

B.8 Soil Expansion Index

The expansion potential of the site soil was estimated using the Expansion Index Test in accordance with ASTM D 4829. The result of this test is discussed in the main report text.

B.9 Sieve Analysis and Percent Passing No. 200 Sieve

Determination of grain size distribution of soils was performed to separate particles into size ranges and to determine quantitatively the mass of particles in each range following ASTM D 6913. This test method uses a square opening sieve criterion in determining the gradation of soil between the 3-in. (75-mm) and No. 200 (75-µm) sieves. In cases where the gradation of particles smaller than No. 200 (75-µm) sieve is needed, Test Method D7928 was used to obtain the grain size distribution. Results of passing sieve no. 200 are shown in boring logs as percentage per soil type.

Soil Corrosivity

Tests were performed to determine corrosion potential of site soils on concrete and ferrous metals. Corrosivity testing included minimum electrical resistivity and soil pH (Caltrans method 643), water soluble chlorides (Orion 170A+ Ion Probe or Caltrans Test Method 422), and water-soluble sulfates (ASTM D516). The test result is summarized in Table B-1 and shown in Figure B-4.

B.10 List of Attached Tables and Figures

The following tables and figures are attached and complete this appendix:

Table B-1	Summary of Soil Corrosivity
Figure B-1a to B-1b	Atterberg Limits Test Result
Figure B-2a to B-2b	Direct Shear Test Results
Figure B-3	One-Dimensional Consolidation Test
Figure B-4	Soil Corrosivity

TABLES

Table B-1

Summary of Soil Corrosivity

Boring No.	Depth (ft)	Sample No.	pH	Sulfate Content (%)	Chloride Content (%)	Minimum Resistivity (ohm-cm)
B-3	0-5	B-1	7.25	0.04	<0.01	691

FIGURES

ATTERBERG LIMITS

ASTM D-4318 / AASHTO T-89 / CTM 204

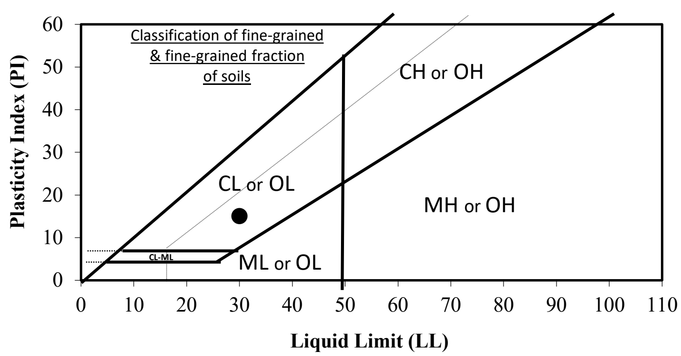
Project Name:	*6450 Sunset Blvd.*	Tested By :	*Eric Y.*	Date:	*12/30/19*
Project No. :	*LA1429*	Data Input By:	*Eric Y.*	Date:	*01/02/20*
Boring No.:	*B-2*	Checked By:	*LK*	Date:	
Sample No. :	*R-1*	Depth (ft.) :	*6*		
Initial Moisture:		Container No.:	*AL-1*		
Description.:	*Dark Brown Sandy Clay - CL*				

	PLASTIC LIMIT		LIQUID LIMIT			
TEST NO.	1	2	1	2	3	4
Number of Blows [N]			32	25	18	
Container No.	A	B	C	D	E	
Wet Wt. of Soil + Cont. (gm.)	21.90	21.83	27.60	28.89	29.92	
Dry Wt. of Soil + Cont. (gm.)	21.04	20.97	24.81	25.74	26.31	
Wt. of Container (gm.)	15.27	15.17	15.24	15.38	15.01	
Moisture Content (%) [Wn]	14.90	14.83	29.15	30.41	31.95	

LIQUID LIMIT	**30**
PLASTIC LIMIT	**15**
PLASTICITY INDEX	**15**

PI at "A" - Line = 0.73(LL-20) = **7.3**

One - Point Liquid Limit Calculation $LL=Wn(N/25)^{0.121}$



PROCEDURES USED

- [ ] Wet Preparation
  Multipoint Wet Preparation
- [x] Dry Preparation
  Multipoint Dry Preparation
- [x] Procedure A
  Multipoint Test
- [ ] Procedure B
  One-point Test

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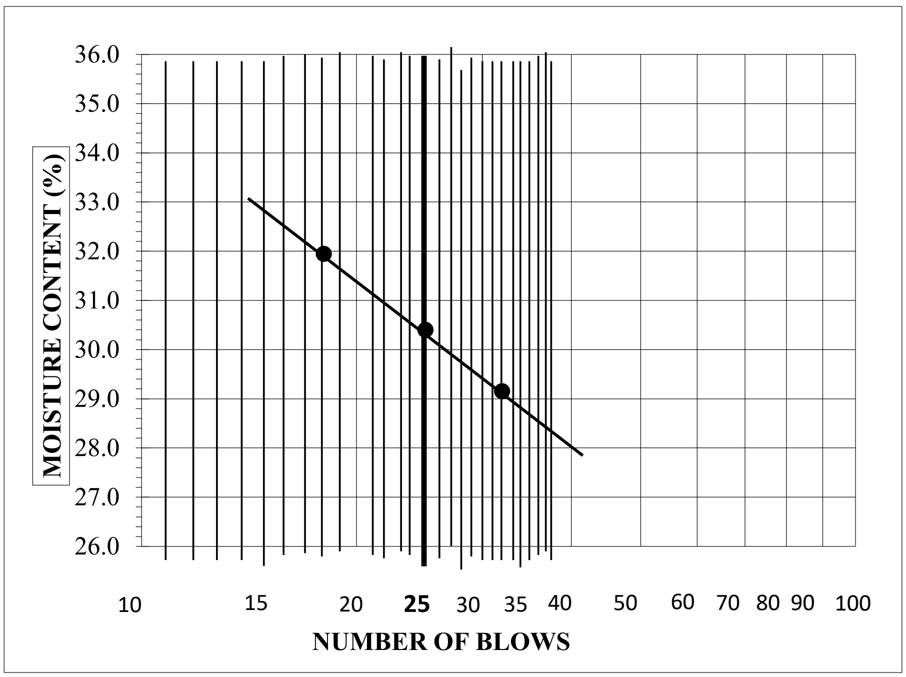


Figure B-1a

ATTERBERG LIMITS

ASTM D-4318 / AASHTO T-89 / CTM 204

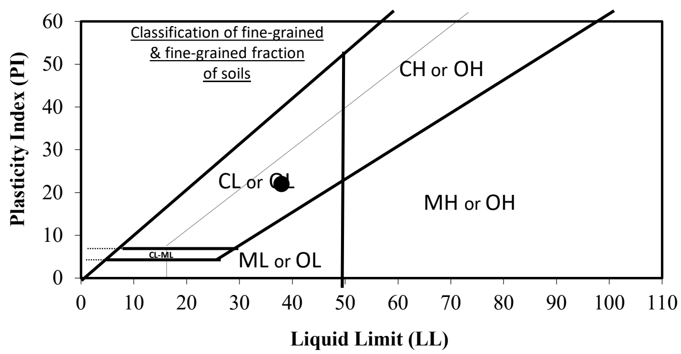
Project Name:	6450 Sunset Blvd.	Tested By :	Eric Y.	Date:	12/30/19
Project No. :	LA1429	Data Input By:	Eric Y.	Date:	01/02/20
Boring No.:	B-4	Checked By:	LK	Date:	
Sample No. :	R-3	Depth (ft.) :	16		
Initial Moisture:		Container No.:	AL-2		
Description.:	Brown Sandy Clay - CL				

	PLASTIC LIMIT		LIQUID LIMIT			
TEST NO.	1	2	1	2	3	4
Number of Blows [N]			33	24	17	
Container No.	A-16	A-17	A-18	A-19	A-20	
Wet Wt. of Soil + Cont. (gm.)	21.61	21.76	27.84	28.92	29.87	
Dry Wt. of Soil + Cont. (gm.)	20.68	20.82	24.49	25.07	25.71	
Wt. of Container (gm.)	14.97	15.04	15.29	14.95	15.18	
Moisture Content (%) [Wn]	16.29	16.26	36.41	38.04	39.51	

LIQUID LIMIT	**38**
PLASTIC LIMIT	**16**
PLASTICITY INDEX	**22**

PI at "A" - Line = 0.73(LL-20) = **13.1**

One - Point Liquid Limit Calculation $LL=Wn(N/25)^{0.121}$



PROCEDURES USED

- [ ] Wet Preparation
  Multipoint Wet Preparation
- [x] Dry Preparation
  Multipoint Dry Preparation
- [x] Procedure A
  Multipoint Test
- [ ] Procedure B
  One-point Test

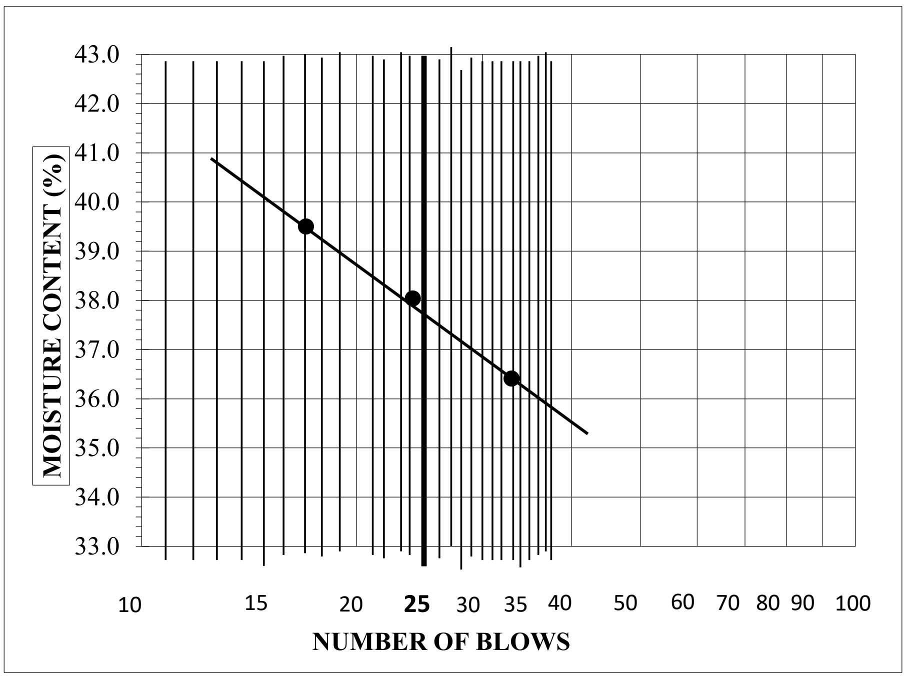


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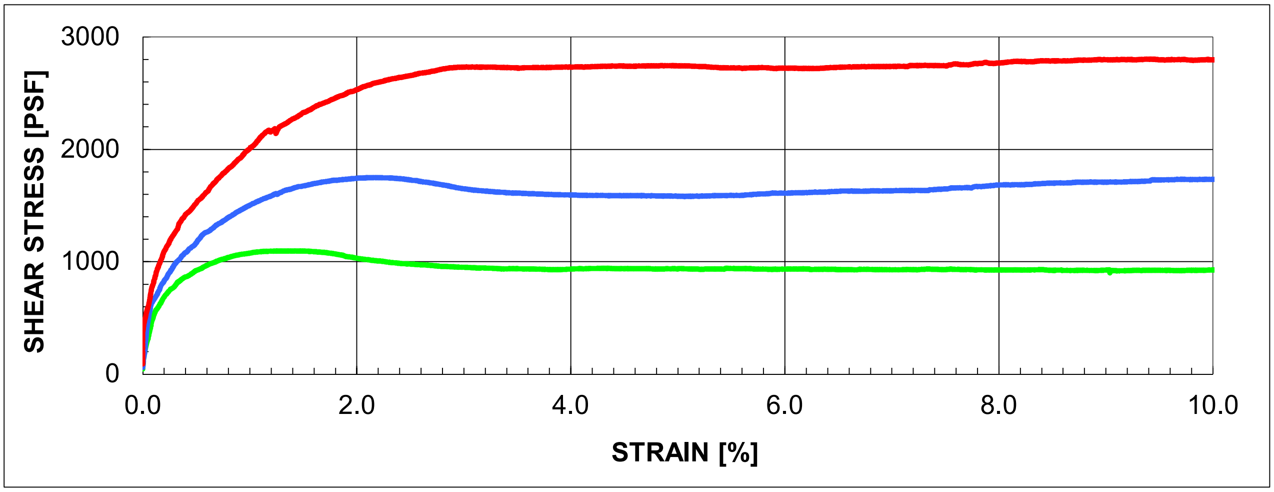
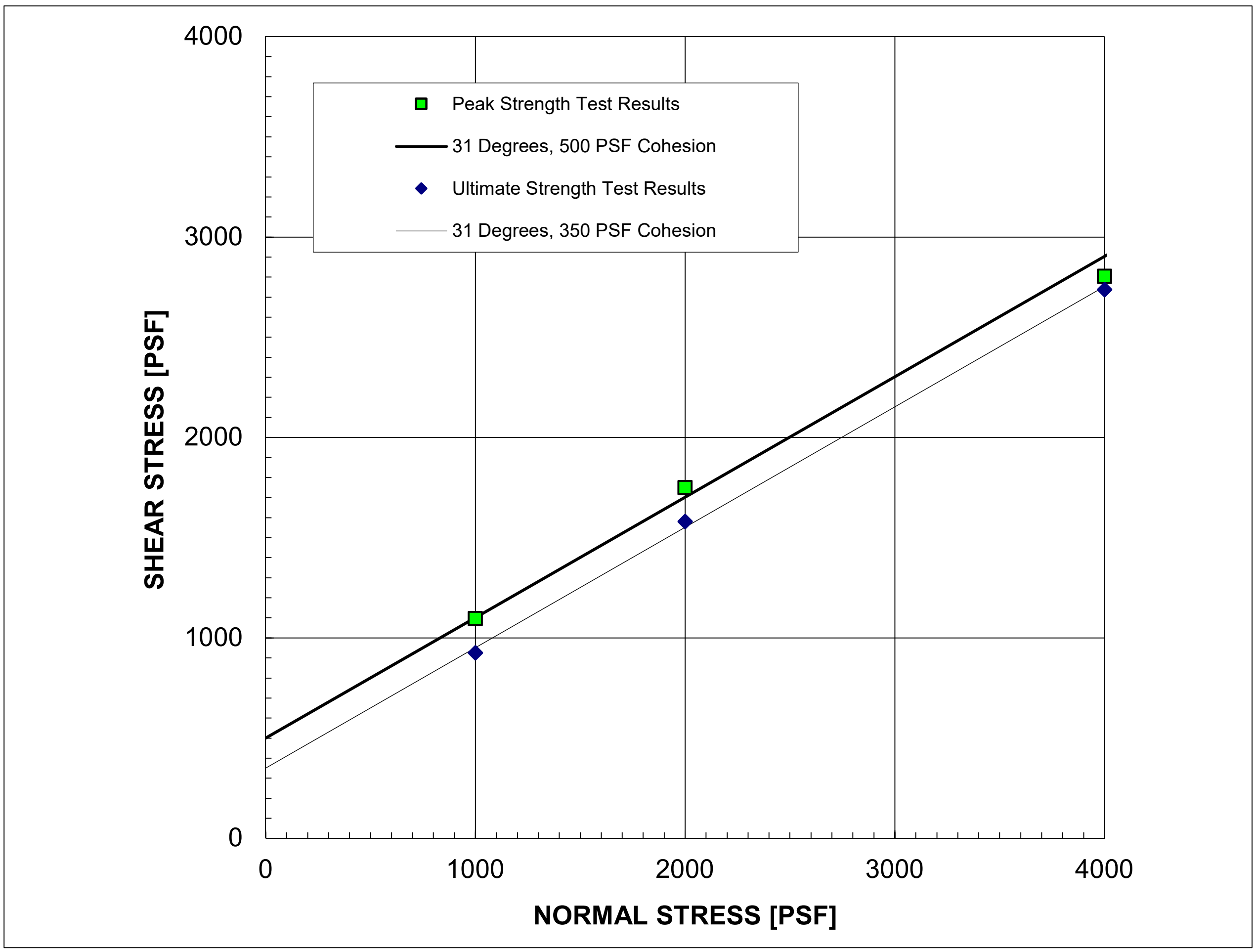
Figure B-1b





SAMPLE: B-1 @ 16'

Description:
Yellowish brown lean clay (CL)

	PEAK	ULTIMATE
ϕ'	31 °	31 °
C'	500 PSF	350 PSF

STRAIN RATE: 0.0002 IN/MIN

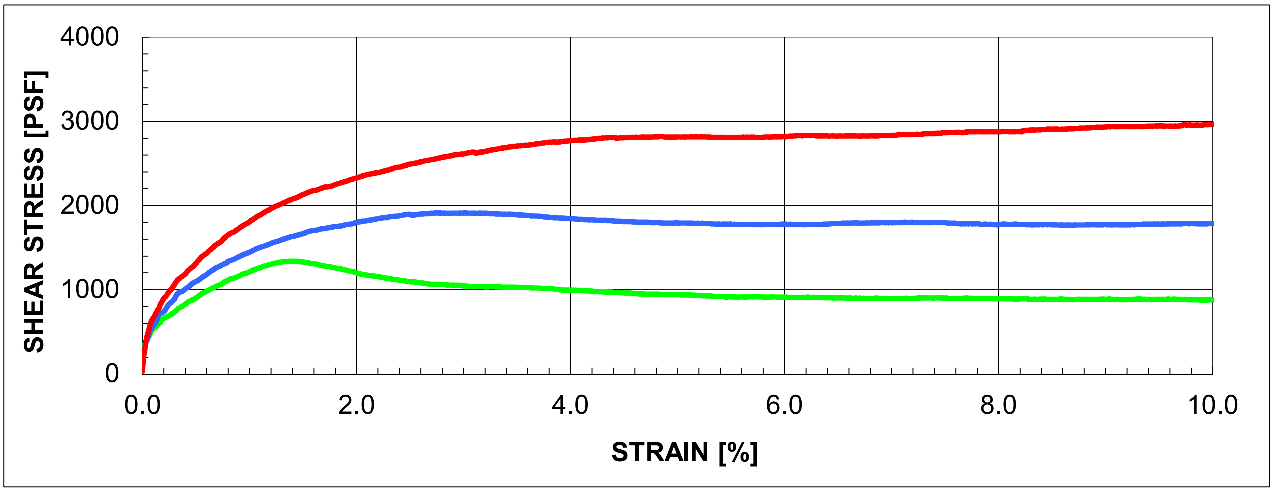
(Sample was consolidated and drained)

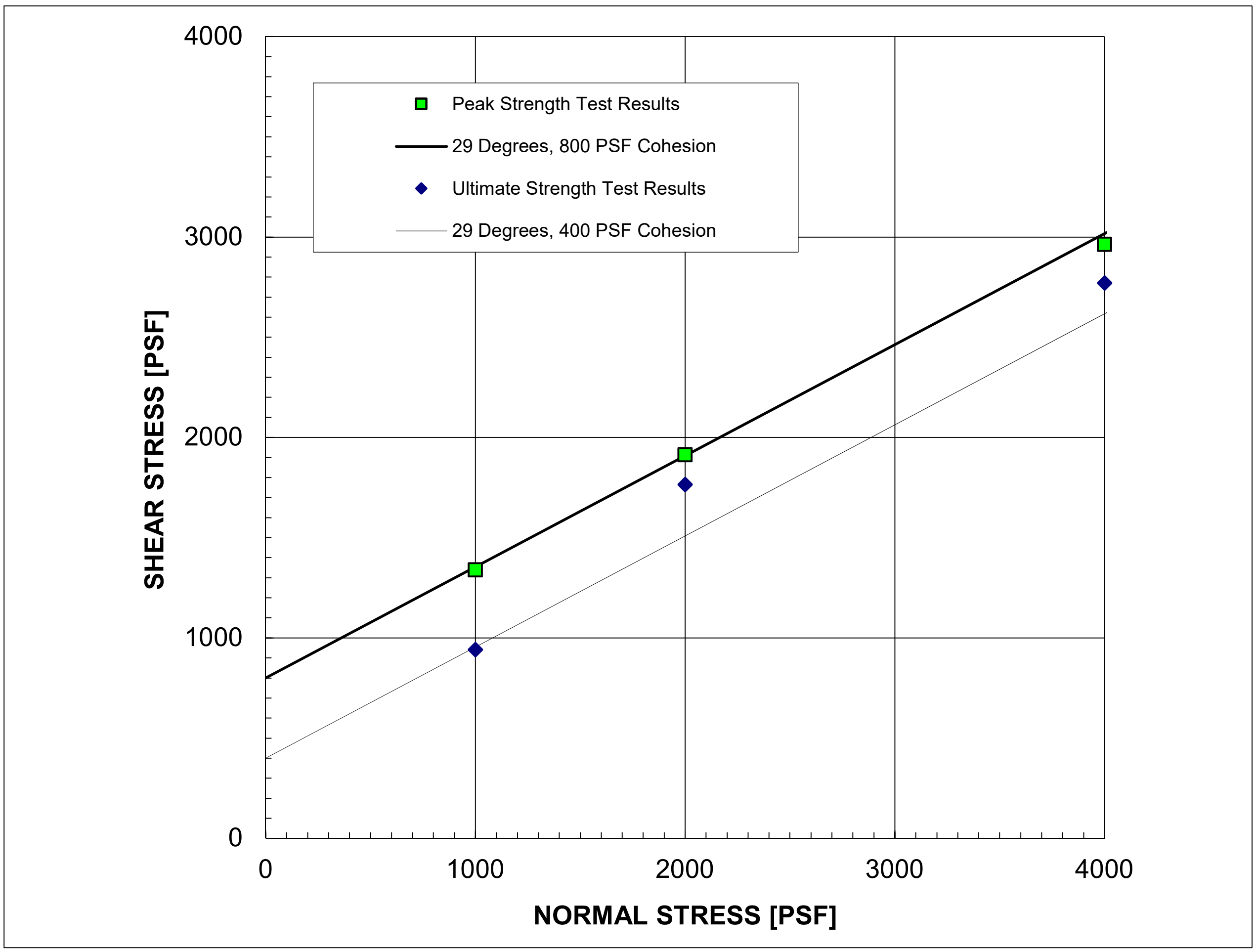
	IN-SITU	AS-TESTED
γ_d	110.2 PCF	110.2 PCF
w_c	15.0 %	19.6 %

GROUP DELTA

DIRECT SHEAR TEST RESULTS

Figure B-2a





SAMPLE: B-4 @ 25'

Description:
Yellowish brown lean clay (CL)

STRAIN RATE: 0.0002 IN/MIN
(Sample was consolidated and drained)

	PEAK	ULTIMATE
ϕ'	29 °	29 °
C'	800 PSF	400 PSF

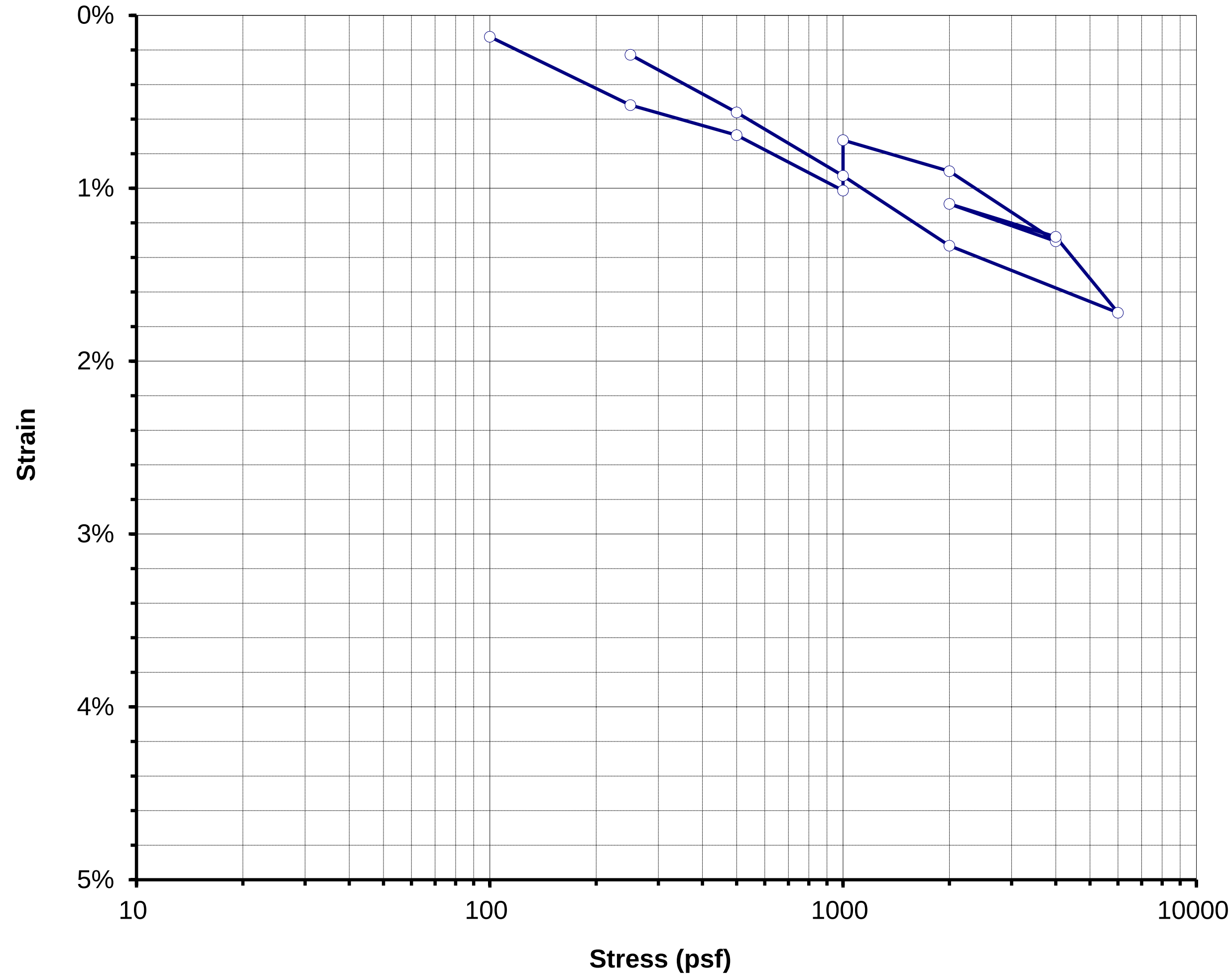
	IN-SITU	AS-TESTED
γ_d	115.7 PCF	115.7 PCF
w_c	14.4 %	16.9 %

GROUP DELTA

DIRECT SHEAR TEST RESULTS

Figure B-2b

CONSOLIDATION TEST RESULTS
ASTM D-2435



Boring No.	B-4	Sample Depth	16'
Sample No.	R-3	USCS	CL

BEFORE TEST

Initial Moisture Content:	15.25%	
Initial Dry Unit Wt:	114.3	pcf
Initial Total Unit Wt.:	131.7	pcf
Initial Void Ratio:	0.4540	
Initial Degree of Saturation:	89.5%	

AFTER TEST

Final Moisture Content:	17.33%	
Final Dry Unit Wt:	113.7	pcf
Final Total Unit Wt.:	133.4	pcf
Final Void Ratio:	0.4614	
Final Degree of Saturation:	100.0%	

Water Added at: 1000 psf

ATTERBERG LIMITS					
LL=	38	PL=	16	PI=	22

Assumed Specific Gravity of Solids, Gs: 2.66

PRESSURE (psf)	SAMPLE STRAIN	VOID RATIO
100	0.12%	0.452
250	0.52%	0.446
500	0.69%	0.444
1000	1.01%	0.439
1000	0.72%	0.443
2000	0.90%	0.441
4000	1.31%	0.435
2000	1.09%	0.438
4000	1.28%	0.435
6000	1.72%	0.429
2000	1.33%	0.435
1000	0.93%	0.440
500	0.56%	0.446
250	0.23%	0.451
100	-0.47%	0.461

PROJECT NUMBER:	LA1429	PROJECT NAME:	6450 Sunset Blvd.	Figure B-3

GROUP DELTA

CORROSIVITY TEST RESULTS
(ASTM D516, CTM 643)

SAMPLE	pH	RESISTIVITY (OHM-CM)	SULFATE CONTENT (%)	CHLORIDE CONTENT (%)
B-3 @ 0-5'	*7.25*	*691*	*0.04*	*< 0.01*

CORROSIVITY PARAMETERS

SULFATE CONTENT (%)	SULFATE EXPOSURE	CEMENT TYPE
0.00 to 0.10	Negligible	--
0.10 to 0.20	Moderate	II, IP(MS), IS(MS)
0.20 to 2.00	Severe	V
Above 2.00	Very Severe	V plus pozzolan

SOIL RESISTIVITY (OHM-CM)	GENERAL DEGREE OF CORROSIVITY TO FERROUS METALS
0 to 1,000	Very Corrosive
1,000 to 2,000	Corrosive
2,000 to 5,000	Moderately Corrosive
5,000 to 10,000	Mildly Corrosive
Above 10,000	Slightly Corrosive

CHLORIDE (Cl) CONTENT (%)	GENERAL DEGREE OF CORROSIVITY TO METALS
0.00 to 0.03	Negligible
0.03 to 0.15	Corrosive
Above 0.15	Severely Corrosive

APPENDIX C
Infiltration Test

APPENDIX C

BORING PERCOLATION TEST

The boring percolation test was performed in boring INF-1 to evaluate the infiltration rate of the subsurface soil from the depth of 5 feet to 15 feet below existing grade. The boring was drilled with a 10-inch diameter hollow stem auger and to the depth of 15 feet and a 3 -inch diameter PVC pipe was inserted to the bottom of the drilled hole. The pipe was perforated from 5 feet to 15 feet depth. The perforated section was wrapped in filter fabric and the annular space from 5 feet to 15 feet depth was filled with filter gravel. A bentonite plug was installed at the 5 feet depth.

Before performing the boring percolation test, the well was filled with water to presoak (saturate the soils with the purpose of developing a steady state flow within the test zone) for at least an hor. After the completion of the test, the well was abandoned by removing the PVC pipe casing and backfilled with cement grout.

Following presoaking, falling head permeability tests were conducted in each test well in accordance with Los Angeles County Administrative Manual (GS200.2) and ASTM 5912-96. The well casing was filled with water and then the level of water in the well was recorded at 10 minute intervals. The water levels were recorded a minimum of eight times. Stabilized rates were achieved in the readings, that is, the readings were within ten percent of each other in each of the two boring infiltration tests.

The field infiltration rates were calculated based on the percolation rate data in the following manner:

- Calculate the field percolation rate as the rate of drop in water level in inches per hour.
- Convert the percolation rate to a raw infiltration rate by accounting for flow out of the sides and bottom of the boreholes and the volume of water in the pipes.

Reduction Factors may be applied to the raw percolation rate based on the following:

- Use of the Boring Percolation Test Procedure;
- Site Variability; and
- Long-term siltation, plugging, and maintenance.

A reduction factor of 2 was added for using the boring percolation procedure. A reduction factor of 2 was used for site variability and 2 for long-term siltation, plugging, and maintenance. Therefore, a total reduction factor of 8.0 was used on the raw percolation rates. A summary of the recommended design infiltration rates is shown in the table below.

Table C-1: Summary of Boring Infiltration Tests

Test Well	Soil Type	Zone Evaluated (feet below grade)	Raw Percolation Rate (in/hr)	Recommended Design Infiltration Rate (in/hr)
INF-1	SANDY lean CLAY	5-10	0.15	0.02

Based on the County of Los Angeles Department of Public Works, Geotechnical and Materials Engineering Division, Guidelines for Geotechnical Investigation and Reporting Low Impact Development Stormwater Infiltration, the required minimum design infiltration rate is 0.3 inches per hour. The field measurements and the details of the infiltration rate calculations are attached hereafter.

LA1429

Boring Percolation Test

Field Measurement and Calculations

		Date	4/3/2020
Project Location	1413 Cole Pl, Los Angeles	Boring/Test Number	INF-1
Earth Description	Concrete slab/parking	Diameter of Boring (in)	10
Tested by	Asheesh Pradhan	Diameter of Casing (in)	3
Liquid Description	Clear water	Depth of Boring (ft)	15
Measurement method	Steel tape	Depth to Invert of BMP (ft)	5
		Depth to Water Table (ft)	NE
		Depth to Initial Water Depth (d1) (ft)	3.5

TIME INTERVAL STANDARD

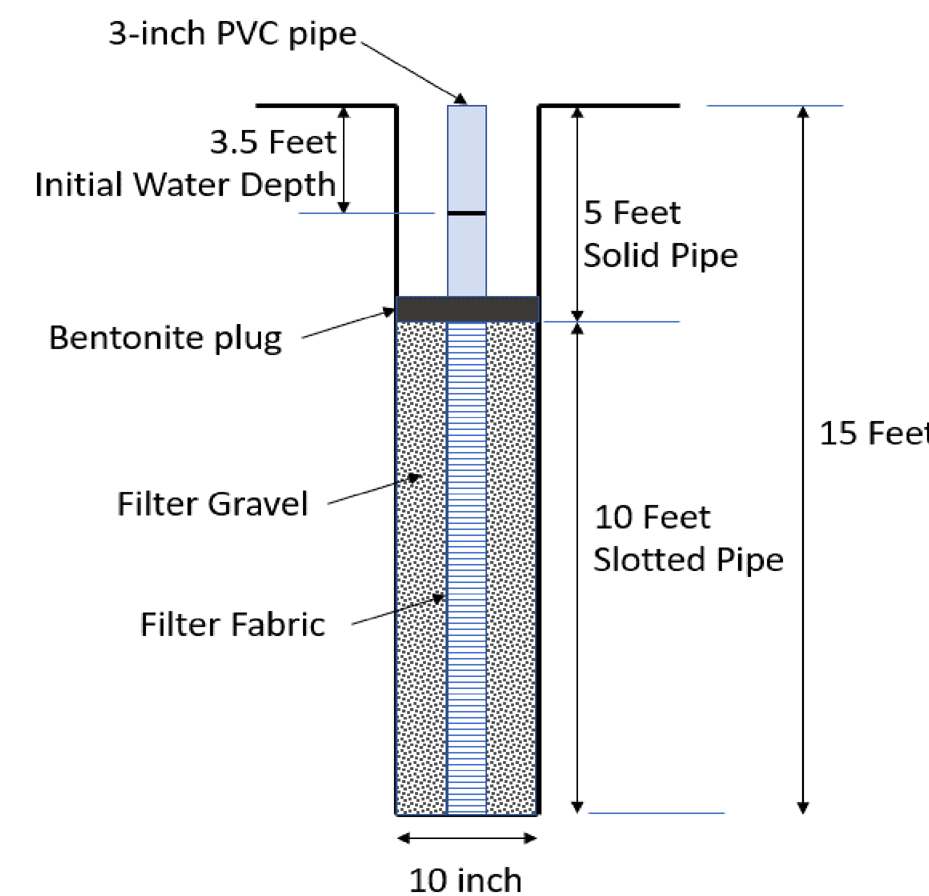
Start Time for Pre-Soak	8:12 AM	Water Remaining in Boring (Y/N)	Y
Start Time for Standard	9:30 AM	Standard Time Interval Between Readings (min)	10

Side surface area of the infiltration testing zone (in^2)	3769.9	Depth to the top of perforated casing (ft)	5
Bottom surface area of the infiltration testing zone (in^2)	71.5	Depth to the bottom of the perforated casing (ft)	15
Total surface area of infiltration testing zone (in^2)	3841.4	Depth to the bottom of the top plug (ft)	5
Volume of water per inch length of the casing (in^3)	7.1	Length of infiltration testing zone (ft)	10

REDUCTION FACTOR

Boring percolation (RF_t)	2
Site variability, number of tests, and thoroughness of subsurface investigation (RF_v)	2
Long-term siltation, plugging and maintenance (RF_s)	2
Total Reduction Factor, RF = RF_t X RF_v X RF_s	8

Reading Number	Time Start/End (hh:mm)	Elapsed Time Δtime (min)	Water Drop During Standard Time Interval Δd (in)	Volume of water infiltrated in 10 min (in^3)	Volume of water infiltrated in 1 hour (in^3)	Raw Infiltration Rate - Volume/Surface area (in/hr)	Percent change in Paercolation Rate (%)	Total Reduction Factor (RF)	Average of last three stabilitzed Infiltration Rate (in/hr)	Design Infiltration Rate = Measured Percolation Rate/RF
1	9:30:00 AM 9:40:00 AM	10	15.60	110.3	661.6	0.172		8	0.154	0.02
2	9:40:00 AM 9:50:00 AM	10	15.25	107.8	646.8	0.168	2			
3	9:52:00 AM 10:02:00 AM	10	14.88	105.2	631.1	0.164	2			
4	10:03:00 AM 10:13:00 AM	10	14.50	102.5	615.0	0.160	3			
5	10:14:00 AM 10:24:00 AM	10	14.00	99.0	593.8	0.155	3			
6	10:24:00 AM 10:34:00 AM	10	14.00	99.0	593.8	0.155	0			
7	10:34:00 AM 10:44:00 AM	10	13.88	98.1	588.7	0.153	1			
8	10:45:00 AM 10:55:00 AM	10	13.88	98.1	588.7	0.153	0			



Well Installation Diagram