APPROVED

MAY 21 2020

BOARD OF RECREATION AND PARK COMMISSIONERS

BOARD REPORT **NO.** 20-085

DATE May 21, 2020 C.D. 5

BOARD OF RECREATION AND PARK COMMISSIONERS

SUBJECT: CHEVIOT HILLS RECREATION CENTER SPORTS FIELD LIGHTING (W.O. #E170503) PROJECT (AKA PROP K SPORTS LIGHTING IMPROVEMENT: CHEVIOT HILLS RECREATION CENTER) – APPROVAL OF FINAL PLANS; CATEGORICAL EXEMPTION FROM THE PROVISIONS OF THE CALIFORNIA ENVIRONMENTAL QUALITY ACT (CEQA) PURSUANT TO ARTICLE III, SECTION 1, CLASS 1(1) [EXTERIOR ALTERATION OF EXISTING PUBLIC STRUCTURES WITH NO OR NEGLIGIBLE EXPANSION OF USE], CLASS 1(4) [REHABILITATION OF DETERIORATED EQUIPMENT TO MEET CURRENT STANDARDS OF PUBLIC SAFETY] AND CLASS 1(12) [OUTDOOR LIGHTING FOR SECURITY AND OPERATION] OF CITY CEQA GUIDELINES AND ARTICLE 19, SECTION 15301(d) OF CALIFORNIA CEQA GUIDELINES.

AP Diaz	________	S. Piña-Cortez	________
H. Fujita	________	for * C. Santo Domingo	DF
V. Israel	________	N. Williams	________

M. Shull

General Manager

Approved X Disapproved ________ Withdrawn ________

RECOMMENDATIONS

1. Approve the final plans, substantially in the form on file in the Board of Recreation and Park Commissioners (Board) Office and as attached to this Report, for the proposed Cheviot Hills Recreation Center Sports Field Lighting (W.O. #E170503) Project (AKA Prop K Sports Field Lighting Improvement: Cheviot Hills Recreation Center) (Project);

2. Find that the proposed Project is categorically exempt from the provisions of the California Environmental Quality Act (CEQA) pursuant to Article III, Section 1, Class 1(1) [Exterior alteration of existing public structures with no or negligible expansion of use], Class 1(4) [Rehabilitation of deteriorated equipment to meet current standards of public safety] and Class 1(12) [Outdoor lighting for security and operation] of City CEQA Guidelines and Article 19, Section 15301(d) of California CEQA Guidelines, and direct the Department of Recreation and Parks (RAP) staff to file a Notice of Exemption (NOE) with the City and Los Angeles County Clerk's Office;

3. Authorize RAP's Chief Accounting Employee or designee to prepare a check to the Los Angeles County Clerk, in the amount of $75.00 for the purpose of filing the NOE; and,

4. Authorize RAP's Chief Accounting Employee or designee to make technical corrections as necessary to carry out the intent of this Report.

SUMMARY

Cheviot Hills Recreation Center is located at 2551 Motor Avenue, Los Angeles, CA 90064 in Council District 5. This property includes a picnic area, tennis and basketball courts, children's play area, ball diamonds, and a gymnasium. Approximately 4,000 City residents live within a one-half mile walking distance of the recreation center.

The proposed Project is a Proposition K – L.A. for Kids Program Competitive Grant (9th Cycle) (Prop K) funded project. The scope of work consists of replacing existing lighting with new Light Emitting Diode (LED) light fixtures at a rectangular multi-use sports field with four (4) baseball diamonds, extending from the four corners, and multiple full and half-size soccer fields marked over the baseball fields. If an existing light pole is found to be unacceptable, the existing pole will be replaced with a new pole with LED light fixtures. The new LED lighting fixtures will provide improved quality of light, with reduced spillover of light onto adjacent properties and/or other areas of the recreation center. The new LED light fixtures will also reduce operational costs, by reducing energy consumption relative to current electrical usage. After review by RAP and Department of Public Works, Bureau of Engineering (BOE) staff, it was determined that the work can be completed by RAP pre-qualified contractors and BOE will provide construction management services.

A geotechnical investigation was conducted to determine the feasibility of this proposed Project, and the findings are documented in Attachment No. 2. As stated in the geotechnical report, it was determined that the proposed Project is feasible from a geotechnical standpoint.

BOE prepared the plans and specifications, and obtained all the necessary approvals for the proposed Project. As required by Prop K, three (3) Local Volunteer Neighborhood Oversight Committee (LVNOC) meetings were conducted. The first LVNOC meeting was conducted on July 12, 2018. The second and third LVNOC meetings were both conducted on the same date of May 22, 2019. The community, the LVNOC and the Office of Council District 5 are in full support of the proposed Project.

Funding for the proposed Project is available from the following funds and accounts:

FUNDING SOURCE	FUND/DEPT./ACCT. NO.
Proposition K	43K/10/10PPAC
Sites and Facilities	209/88/TBD

TREES AND SHADE

Since this proposed Project focuses on improving lighting for evening recreation activities, no trees will be removed and any existing trees near the proposed location(s) of new light standards will be protected during construction. Additional trees and shade structures are not part of the proposed scope of work.

ENVIRONMENTAL IMPACT

The proposed Project consists of exterior alterations with negligible or no expansion of use, rehabilitation of deteriorated equipment to meet current standards of public safety and installation of lighting for security and operations. As such, staff recommends that the Board determines that it is exempt from the provisions of CEQA pursuant to Article III, Section 1, Class 1(1), Class 1(4) and Class 1(12), of City CEQA Guidelines and Article 19, Section 15301(d) of California CEQA Guidelines. An NOE will be filed with the Los Angeles County Clerk upon the Board's approval.

FISCAL IMPACT

There is no immediate fiscal impact to RAP's General Fund. The proposed Project should reduce long term maintenance and operational costs, as it will replace existing, higher energy use sports court lighting systems with new, energy efficient LED lighting systems.

STRATEGIC PLAN INITIATIVES AND GOALS

Approval of this Board Report advances RAP's Strategic Plan by supporting:

Goal No. 5: Ensure an environmentally sustainable park system
Outcome No. 1: Decreased energy consumption and achieve a smaller carbon footprint
Result: The installation of the proposed LED lighting systems will decrease energy consumption resulting in a more sustainable park system.

This Report was prepared by Erick Chang, Project Manager, and reviewed by Neil Drucker, Proposition K Program Manager; Steven Fierce, Principal Architect, Architectural Division, BOE; and Darryl Ford, Superintendent, Planning, Maintenance and Construction Branch, RAP.

LIST OF ATTACHMENT(S)

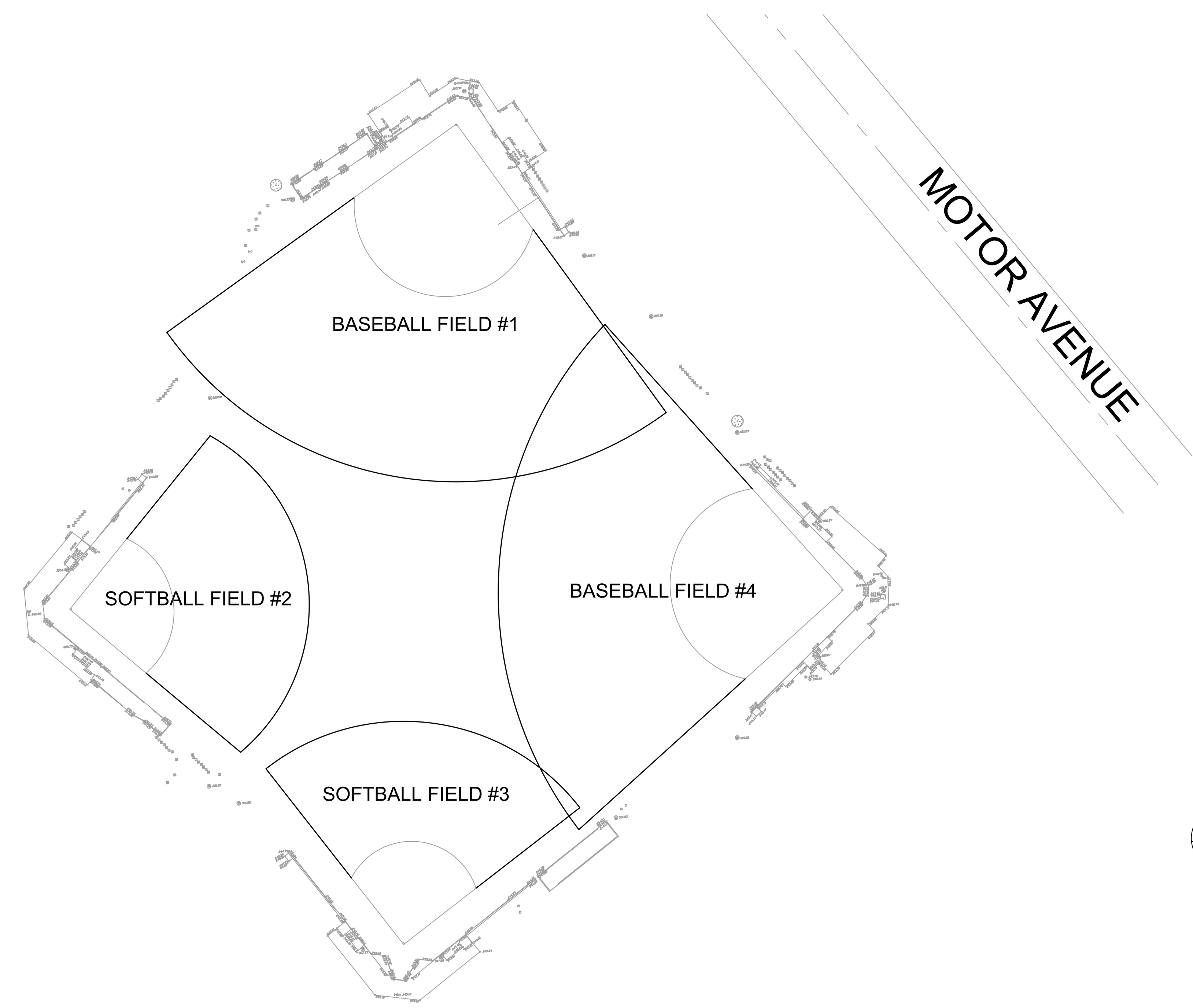
1) Final Plans for Cheviot Hills Recreation Center Sports Field Lighting Project (aka Prop K Sports Field Lighting Improvements: Cheviot Hills Recreation Center)

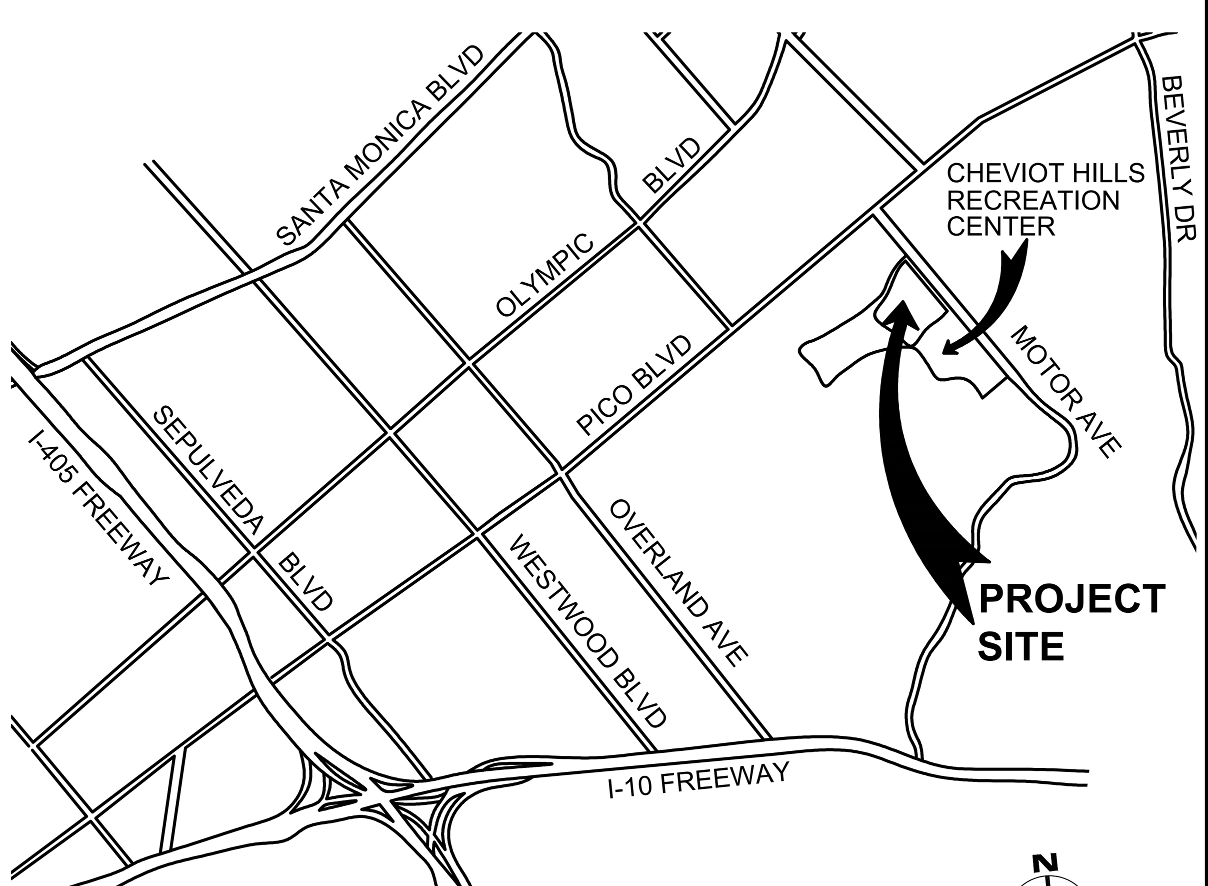
2) Geotechnical Report for Cheviot Hills Recreation Center Sports Field Lighting Project.

Attachment No. 1

CITY OF LOS ANGELES
DEPARTMENT OF PUBLIC WORKS
BUREAU OF ENGINEERING

PROP K SPORTS LIGHTING IMPROVEMENT: CHEVIOT HILLS RECREATION CENTER





(THOMAS GUIDE PAGE 632, GRID E-5)

VICINITY MAP

500' 250' 0' 250' 500' 1000'

GRAPHIC SCALE

DEPARTMENT OF RECREATION AND PARKS

MICHAEL SHULL
GENERAL MANAGER
221 N. FIGUEROA STREET, 4TH FLOOR
LOS ANGELES, CA 90012

PROJECT MANAGEMENT

DEPARTMENT OF PUBLIC WORKS
BUREAU OF ENGINEERING
ARCHITECTURAL DIVISION

STEVEN FIERCE, AIA
PRINCIPAL ARCHITECT

NEIL DRUCKER, PROPOSITION K
PROGRAM MANAGER

ERICK CHANG, RICHARD CAMPBELL
PROJECT MANAGERS
1149 SOUTH BROADWAY, 8TH FLOOR
LOS ANGELES, CA 90015
(213) 847- 4771
(213) 847- 1926 (FAX)
ERICK.CHANG@LACITY.ORG
RICHARD.CAMPBELL@LACITY.ORG

PROJECT TEAM

SURVEY: **DEPARTMENT OF PUBLIC WORKS**
BUREAU OF ENGINEERING
SURVEY DIVISION

WILLIAM KNIGHT
ASSISTANT DIVISION MANAGER

GEOTECHNICAL: **DEPARTMENT OF PUBLIC WORKS**
BUREAU OF ENGINEERING
GEOTECHNICAL ENGINEERING GROUP

PATRICK J. SCHMIDT
GROUP MANAGER
1149 SOUTH BROADWAY, SUITE 120

ELECTRICAL AND STRUCTURAL DESIGN: **PSOMAS**

ARIEF NAFTALI, PE, TE
DOUGLAS FREDERICKS, PE
PROJECT MANAGER
555 SOUTH FLOWER STREET, SUITE 4300
LOS ANGELES, CA 90071
(213) 223- 1400

CONSTRUCTION MANAGEMENT

DEPARTMENT OF PUBLIC WORKS
BUREAU OF ENGINEERING
CONSTRUCTION MANAGEMENT DIVISION

JOSE FUENTES
GROUP MANAGER
1149 SOUTH BROADWAY, 8TH FLOOR
LOS ANGELES, CA 90015

PLANS PREPARED BY:
PSOMAS
555 South Flower Street, Suite 4300
Los Angeles, CA 90071
(213) 223-1400 Fax (213) 223-1444

ENGINEERING
CITY OF LOS ANGELES

THIS PLAN WAS ELECTRONICALLY SIGNED AND STAMPED

REGISTERED PROFESSIONAL ENGINEER GARY LEE MOORE No. C-49446 CIVIL STATE OF CALIFORNIA

BUREAU OF ENGINEERING

VERTICAL CONTROL: BM # 11-08189 AND 11-50446 NAVD88 2000 ADJ
HORIZONTAL CONTROL: U.S.G.S. DATUM EFFECTIVE JULY 1, 1925

SHEET TITLE: TITLE SHEET

PROJECT: CHEVIOT HILLS RECREATION CENTER SPORTS LIGHTING IMPROVEMENTS

ADDRESS: 2551 MOTOR AVE LOS ANGELES, CA 90064

DEPARTMENT OF PUBLIC WORKS

NO.	REVISIONS:	DATE:	BY:

CIP NO.

INDEX NO. RP-300114

CITY OF LOS ANGELES

GARY LEE MOORE, P.E., ENV SP
CITY ENGINEER 03/10/2020 DATE
DEPUTY CITY ENGINEER/PROGRAM MANAGER 03/10/2020 DATE
CITY ENGINEER

WORK ORDER NO. E170503D

SHEET NO. TTL-1

SHEET 1 OF 9 SHEETS

THE CITY OF LOS ANGELES OR ITS OFFICERS OR AGENTS SHALL NOT BE RESPONSIBLE FOR THE ACCURACY OR COMPLETENESS OF ELECTRONIC COPIES OF THIS PLAN SHEET.

(DESIGN STAGE ONLY)

Sheet Version 4.0

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Attachment No. 2

CITY OF LOS ANGELES
DEPARTMENT OF PUBLIC WORKS
Bureau of Engineering
GEOTECHNICAL ENGINEERING DIVISION

November 8, 2017

CHEVIOT HILLS RECREATION CENTER – SPORTSFIELD LED LIGHTING
2551 MOTOR AVENUE
W.O. E170503D GED FILE NO. 17-167

1.0 INTRODUCTION

The Los Angeles Department of Public Works, Bureau of Engineering, Geotechnical Engineering Division (GED) has prepared this report to provide design and construction recommendations for the project. The project site, as shown on Figure 1 – Vicinity Map, is located south of the West Pico Boulevard and Motor Avenue intersection in the Cheviot Hills area of Los Angeles. The project site is within the existing Cheviot Hills Recreation Center at 2551 Motor Avenue.

2.0 PROJECT DESCRIPTION

The project site currently contains eighteen (18) existing 60-foot light poles surrounding the baseball field area. The existing light pole locations within the project site are presented on Figure 2 – Site Location Map. The project includes an initial evaluation of the existing light poles to determine if they are suitable for continued use. If a light pole is found to be acceptable, the fixtures will be replaced with new light-emitting diode (LED) lights. If a light pole is found to be unacceptable, the existing pole will be demolished and a new pole with LED lights will be installed. We understand the proposed LED light poles will be the same height as the existing light poles, approximately 60 feet high.

3.0 GEOTECHNICAL INVESTIGATION

Our geotechnical investigation consisted of field exploration and laboratory testing. The field exploration and laboratory testing was completed by Geotechnical Professionals Inc. (GPI). A copy of GPI’s data report is included in Appendix A of this report. The findings and recommendations in this report are based on the information presented in GPI’s report. The GED has reviewed their report, concurs with the information contained in it, and accepts responsibility for the use of its contents.

3.1 SUBSURFACE CONDITIONS

GPI drilled two hollow-stem auger (HSA) borings, each to a depth of approximately 21½ feet below ground surface (bgs). The boring locations are presented on the Site Plan, Figure 2, in GPI’s data report (Appendix A).

Uncertified fill was encountered in both borings. The fill consists of sandy lean clay and the fill thickness ranges from approximately 5 to 7½ feet bgs. The native soil in the north portion (CH-1) mostly consists of sand with varying amounts of silt and clay. The native soil in the south portion (CH-2) mostly consists of interbedded sand and lean clay. The sandy native soil in CH-2 contains varying amounts of silt and clay. The field Standard Penetration Test blow counts indicate that the granular native soils are generally medium dense to dense and the fine grained soils are generally very stiff to hard.

Groundwater was not encountered in either boring to the maximum explored depth of 21½ feet bgs. Groundwater levels are expected to fluctuate with seasonal rainfalls, dry weather (i.e. drought conditions), and pumping activities in the vicinity of the site. Nevertheless, groundwater is not expected to affect construction of the proposed light pole foundations.

3.2 LABORATORY TEST RESULTS

The laboratory testing program consisted of in-situ moisture content and dry density, fines content (percent passing the No. 200 sieve), direct shear, unconsolidated undrained (UU) triaxial, expansion index, and Atterberg Limits. The results of the Atterberg Limits tests indicate the plasticity index (PI) of the clayey fill material is 14 to 15. The expansion index of the same material was found to be 85. Based on these test results, the clayey fill material has a medium potential for shrink-swell behavior.

An unconsolidated undrained (UU) triaxial test was performed on a relatively undisturbed sample of the clayey fill material from CH-1, and the results indicate this material has an undrained shear strength of 4,260 pounds per square foot (psf).

Three direct shear tests were performed on relatively undisturbed samples of the native sandy soil between approximate depths of 10 and 15 feet bgs. The results indicate the ultimate friction angle and cohesion value ranges from 29 to 30 degrees and 108 to 252 psf, respectively. For additional information, refer to GPI's data report in Appendix A.

4.0 RECOMMENDATIONS

Based on the results of the geotechnical investigation, the proposed project is considered feasible from a geotechnical standpoint provided the recommendations presented in this report are incorporated into the design and construction. If changes in the design are made, or if changed conditions are encountered during construction, the GED shall be notified. Supplemental recommendations may be required.

4.1 SITE PREPARATION

Site preparation may initially involve the demolition of the existing lighting fixtures, including their foundations. Following demolition, the construction area should be cleared of any vegetation and stripped of miscellaneous debris and other deleterious material. Organic matter and other material that may interfere with construction should be removed.

4.2 NEW LIGHT POLE FOUNDATIONS

We recommend new light poles be supported on cast-in-drilled-hole (CIDH) piles. Piles shall be spaced a minimum distance of 3 pile diameters on center, and the minimum diameter shall be 30 inches. Based on the light pole plan, as presented on Figure 2, the minimum spacing requirement will be met.

4.2.1 2017 LABC Seismic Design Parameters

Seismic design parameters for the project are provided in accordance with the 2017 Los Angeles Building Code (LABC). Latitude 34.04603°N and Longitude 118.40929°W coordinates were used for the site location.

Seismic Design Parameters

Parameter	Value	Reference
Site Class	D	ASCE 7-10 Table 20.3-1
S_S	2.151	ASCE 7-10 Figure 22-1
S_1	0.798	ASCE 7-10 Figure 22-2
S_{MS}	2.151	ASCE 7-10 Equation 11.4-1
S_{M1}	1.197	ASCE 7-10 Equation 11.4-2
S_{DS}	1.434	ASCE 7-10 Equation 11.4-3
S_{D1}	0.798	ASCE 7-10 Equation 11.4-4
T_O (seconds)	0.111	ASCE 7-10 Chapter 11
T_S (seconds)	0.556	ASCE 7-10 Chapter 11

4.2.2 Axial Capacity in Compression

The minimum pile embedment depth shall be 11 feet below the lowest adjacent grade. The actual depths may be deeper and will likely depend on the lateral load analysis, which shall be performed by the structural engineer. Axial compression capacities (i.e. loads) are presented on Figure 3 for 30-inch, 36-inch, and 42-inch diameter CIDH piles. The axial compression capacities presented on Figure 3 assume the piles develop their capacity solely from skin friction or side resistance.

The total settlement is not expected to exceed ½-inch provided the piles are properly constructed (see Section 4.2.5).

4.2.3 Axial Capacity in Tension

The allowable axial tensile capacity may be assumed to be ½ the axial capacity in compression for the 30-inch, 36-inch and 42-inch diameter CIDH piles (Figure 3). The weight of the concrete shaft may be added to the tensile capacity.

4.2.4 Lateral Load Behavior

The lateral load behavior of a CIDH pile was evaluated using the LPILE (Ensoft, 2016) software program. LPILE (2016) uses load deflection (p-y) curves to approximate the relationship between soil resistance and pile deflection. The lateral load behavior was evaluated for a free head deflection of ½-inch. Also, we assumed a perfectly elastic pile and a cracked section. The modulus of elasticity for the cracked section was estimated to be 1802500 pounds per square inch (i.e. FS = 2).

The main inputs in the LPILE software for each soil layer are the unit weight and soil shear strength. The existing fill material (with a depth of 7½ feet bgs) was assumed to behave as “sand” with a total unit weight of 98 pounds per cubic foot (pcf), an effective friction angle of 20 degrees, and no cohesion. A request for modification of building ordinances for deriving lateral support from the existing uncertified fill will be submitted concurrently with this report. The native soil was assumed to behave as “cemented silt” with a total unit weight of 118 pcf, an effective friction angle of 29 degrees, and cohesion of 100 psf. The results of the LPILE analyses are presented in Appendix B of this report.

4.2.5 CIDH Pile Construction

We expect the CIDH piles can be drilled using conventional equipment. Due to the relatively cohesive nature of the soil, caving is not anticipated. However, if caving is encountered, steel casing shall be used to support the sides of the pile excavations. If casing is installed, the inside diameter of the casing shall be at least as large as the diameter of the piles. Drilling shall be completed within the casing.

The contractor shall remove loose soil (i.e. slough) from the bottom of the pile excavation. The drilled holes shall be plumb to within a tolerance of 2 percent. Upon completion of drilling, secure covers shall be placed over the excavations. Concrete placement shall be completed within 12 hours of drilling and drilled holes shall not be left open overnight. CIDH pile excavations shall be observed and approved by the GED during drilling and prior to installation of the pole itself.

Depending on the final depths and construction methods, concrete placement by the pump and tremie method may be required. Concrete shall not be allowed to free fall more than 6 feet. Concrete placement shall be performed in a manner such that it does not hit the side of the drilled hole.

If temporary casing is utilized, it shall be raised slowly during concrete placement as the drilled hole is filled with concrete. The bottom of the casing shall remain a minimum of 3 feet below the level of concrete during the pour.

5.0 CLOSURE

If you have any questions about this report, please contact Joy Welling at (213) 847-0492.

REGISTERED PROFESSIONAL ENGINEER
EASTON RENE FORCIER
No. GE 2948
Exp. 9-30-18
GEOTECHNICAL
STATE OF CALIFORNIA

11-8-17
Joy Welling, EIT 1557786
Civil Engineering Associate I

11-8-17
Easton R. Forcier, GE 2948
Geotechnical Engineer II

Figure 1 – Vicinity Map
Figure 2 – Site Location Map
Figure 3 – Allowable Downward Capacity of CIDH Pile vs. Depth
Appendix A – Data Report by Geotechnical Professionals, Inc.
Appendix B – LPILE Results

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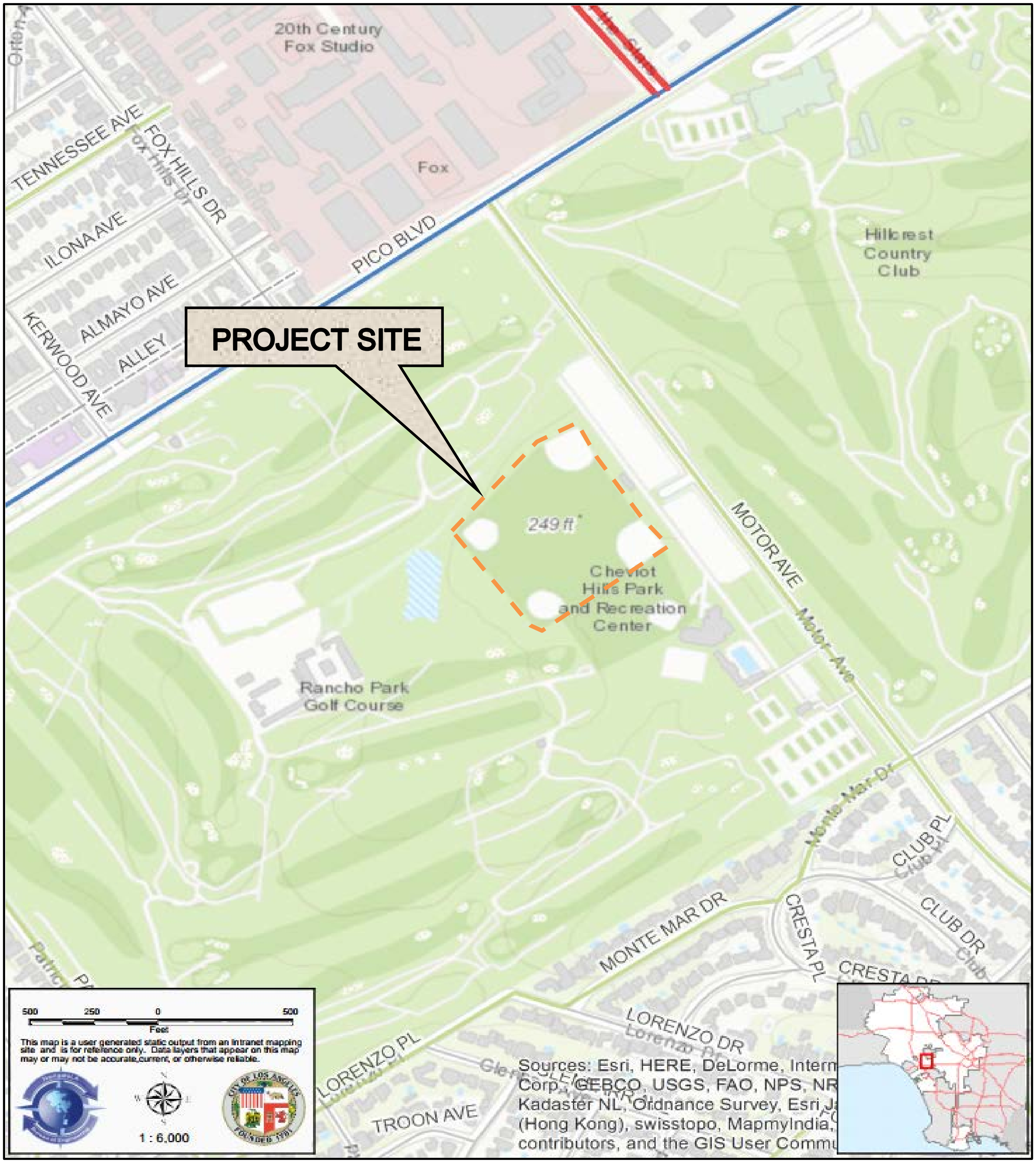
Figures



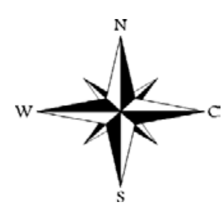
Reference: NavigateLA

VICINITY MAP

Cheviot Hills Recreation Center 2551 Motor Avenue Los Angeles, CA 90064	BUREAU OF ENGINEERING GEOTECHNICAL ENGINEERING DIVISION (GED) GED FILE NO.: 17-167 DATE: NOVEMBER 2017	Figure No. 1

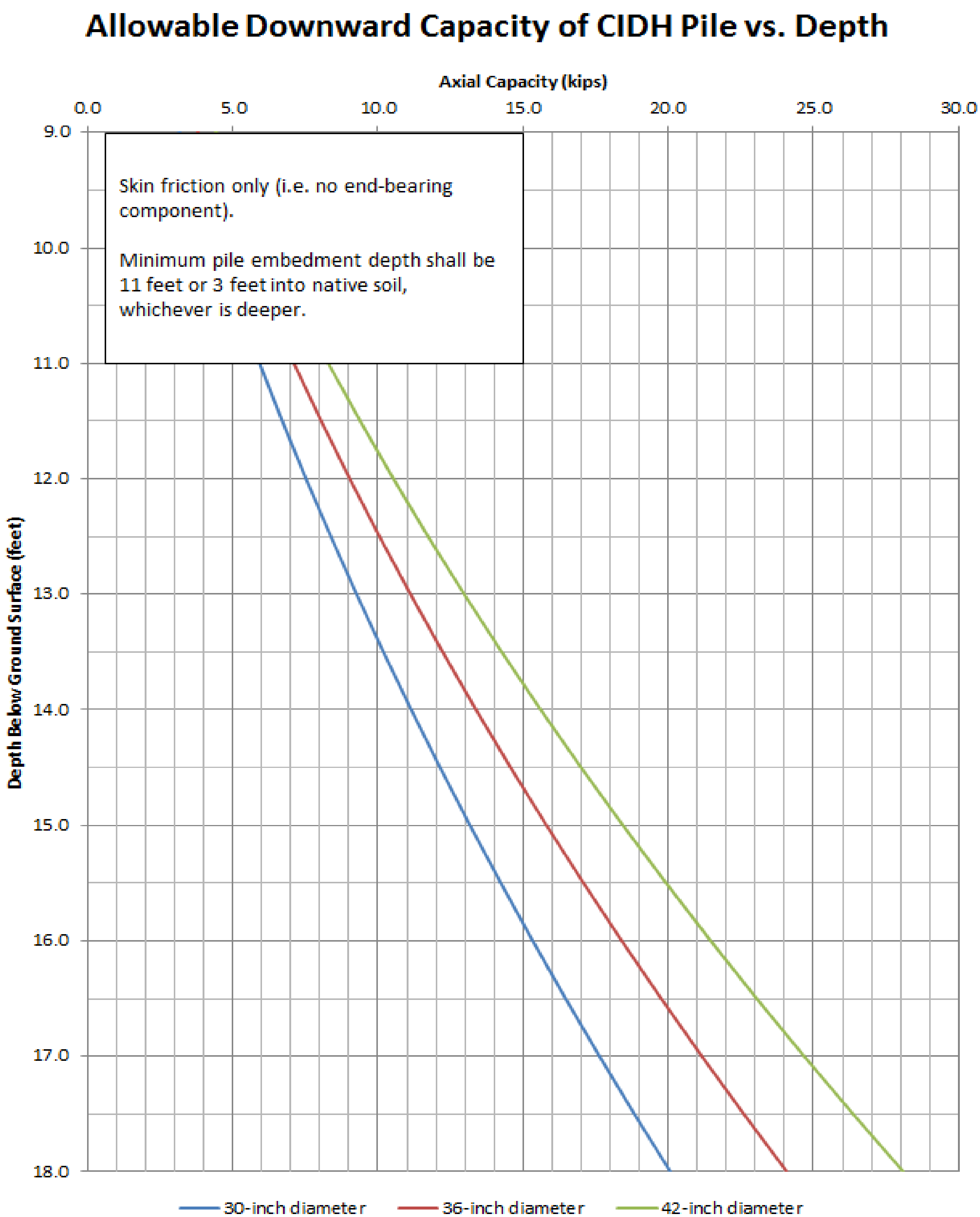
LEGEND:

Existing light pole location ~ 60-feet high



SITE LOCATION MAP

Cheviot Hills Recreation Center 2551 Motor Avenue Los Angeles, CA 90064	BUREAU OF ENGINEERING GEOTECHNICAL ENGINEERING DIVISION (GED) GED FILE NO.: 17-167 DATE: NOVEMBER 2017	Figure No. 2



Cheviot Hills Recreation Center 2551 Motor Avenue Los Angeles, CA 90064	BUREAU OF ENGINEERING GEOTECHNICAL ENGINEERING DIVISION (GED) GED FILE NO.: 17-167 DATE: NOVEMBER 2017	Figure No. 3

Appendix A

Geotechnical Professionals Inc.

Data Report

October 18, 2017

City of Los Angeles
Department of Public Works Bureau of Engineering
Geotechnical Engineering Group
1149 South Broadway, Suite 120
Los Angeles, California 90015

Attention: Mr. Patrick J. Schmidt
Acting Group Manager

Subject: Data Report
Geotechnical Investigation for
Cheviot Hills Recreation Center Sports Lighting Project
11430 Chandler Boulevard
Los Angeles, California
Contract No. C-121601, TOS No. 17-167
Work Order No. E170503D
GPI Project No. 2500.08I

Dear Mr. Schmidt:

This report presents geotechnical data from a subsurface field investigation and laboratory testing performed by Geotechnical Professionals Inc. (GPI) for the subject project. The site location is presented in Figure 1.

SCOPE OF WORK

The scope of the geotechnical investigation presented in this report was developed by the Geotechnical Engineering Group (GEO) of the City of Los Angeles Department of Public Works, as outlined in Task Order Solicitation No. 17-167 and further updated by GEO staff. We understand that GEO will review the data from this investigation and will be responsible for geotechnical recommendations for the subject project, as the Geotechnical Engineer of Record.

The geotechnical field investigation included two hollow-stem auger borings to depths of 21½ feet below site grades. The locations of the subsurface explorations were selected by GEO and marked in the field by GPI on September 7, 2017. The approximate locations are presented in Figure 2. A detailed description of field drilling procedures for the hollow-stem auger borings and logs are presented in Appendix A.

Our original scope included four borings. We were stopped from drilling after two borings at the direction of the park department due to permit issues and nearby filming within the recreation center. As directed, we eliminated two borings from our scope rather than remobilizing at a later date.
Geotechnical laboratory testing, as requested by GEO, included the following types and number of tests:

5736 Corporate Avenue • Cypress, CA 90630 • (714) 220-2211 • FAX (714) 220-2122

- 8 Moisture and Density (ASTM D 2216)
- 4 Percent Passing No. 200 Sieve (ASTM D 1140)
- 2 Atterberg Limits (ASTM D 4318)
- 2 sets Direct Shear Tests (ASTM D 3080)
- 1 Unconsolidated Undrained Triaxial Test (ASTM D 2850)
- 1 Expansion Index (ASTM D 4829)

A detailed description of laboratory test procedures and results are presented in Appendix B.

CONCLUDING REMARKS

GPI warrants that the services covered by this report were performed as requested by GEO, in accordance with the standard procedures indicated, and with the standard of care of the geotechnical engineering profession in Southern California at this time. No other warranty or representation is included or intended in this report.

We appreciate the opportunity of offering our services on this project. Do not hesitate to call us if you have any questions on the contents of this report.

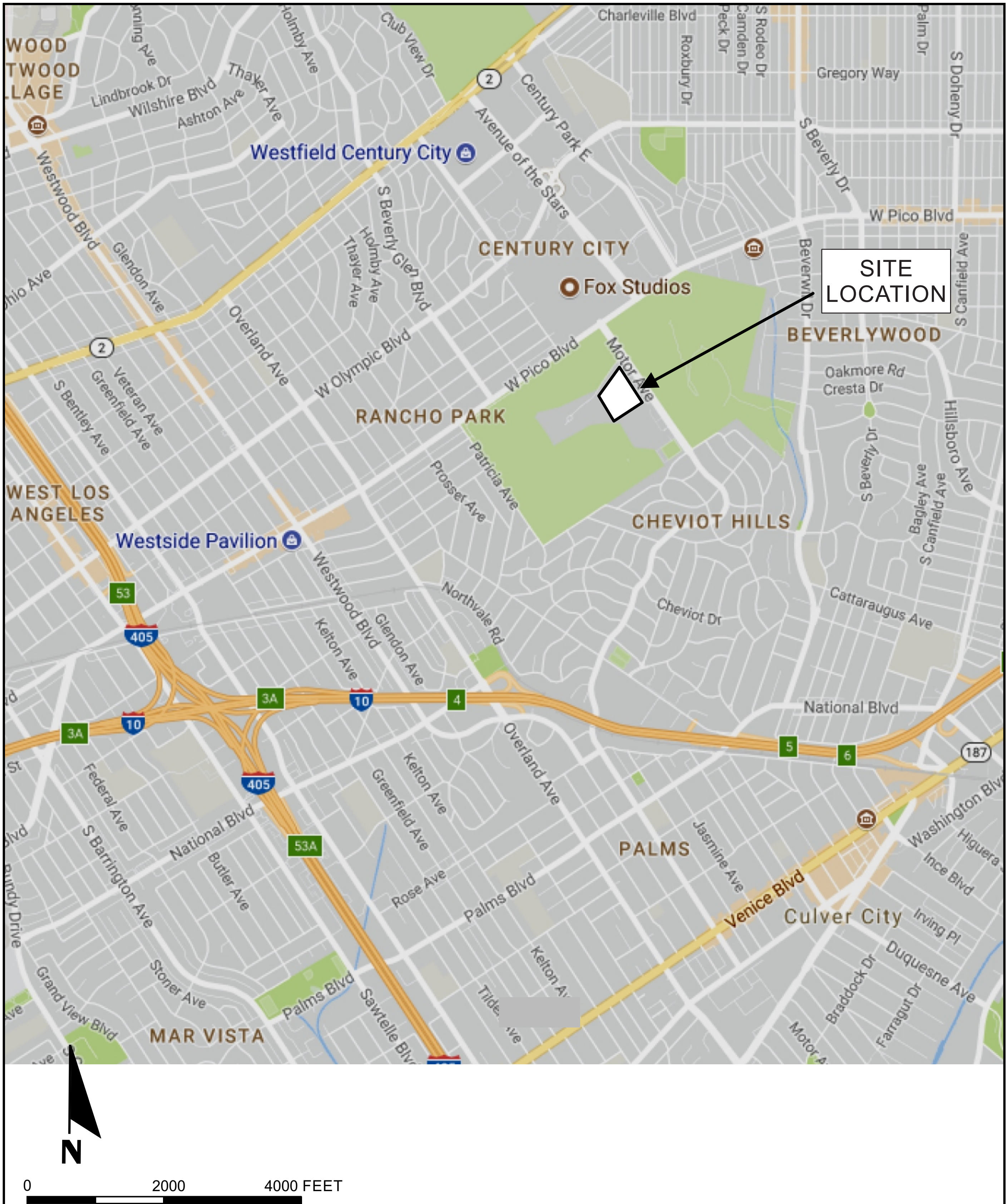
Respectfully submitted by,
Geotechnical Professionals Inc.

Donald A. Cords, G.E.
Principal

DAC:sph

OCT 18 2017

Attachments: Figure 1 - Site Location Map
Figure 2 - Site Plan
Appendix A - Exploratory Borings
Appendix B - Laboratory Test Results



BASE PLAN REPRODUCED FROM GOOGLE MAPS © 2017

GEOTECHNICAL PROFESSIONALS, INC.

CHEVIOT HILLS RECREATION CENTER

GPI PROJECT NO.: 2500.08I	SCALE: 1" = 2000'

SITE LOCATION MAP

FIGURE 1

N

0 150 300 FEET

EXPLANATION

CH-2 APPROXIMATE LOCATION AND NUMBER OF EXPLORATORY BORINGS

GEOTECHNICAL PROFESSIONALS, INC.

CHEVIOT HILLS RECREATION CENTER

GPI PROJECT NO.: 2500.08I | SCALE: 1" = 100'

SITE PLAN

FIGURE 2

APPENDIX A

APPENDIX A

EXPLORATORY BORINGS

The subsurface conditions at the site were investigated by drilling and sampling two hollow-stem auger borings. The borings were advanced to depths of 21½ feet below the existing ground surface. The borings were performed with a truck mounted hollow-stem auger drill rig.

Our original scope included four borings. We were stopped from drilling after two borings at the direction of the park department due to permit issues and nearby filming within the recreation center.

The locations of the explorations are shown on the Site Plan, Figure 2. The latitude/longitude and Northing/Easting of each boring location at the site are as follows:

Boring No.	Latitude	Longitude	UTM Easting	UTM Northing	UTM Zone
CH-1	34° 2’ 48.70”	-118° 24’ 34.71”	369889.11	3768248.06	11S
CH-2	34° 2’ 46.55”	-118° 24’ 33.11”	369929.46	3768181.29	11S

The latitude and longitude of the location were determined based on a handheld NAD 83 Coordinate System Global Positional System unit. The Universal Transverse Mercator (UTM) Easting/Northing locations were converted from the latitude/longitude.

Relatively undisturbed samples were obtained using a brass-ring lined sampler (ASTM D 3550) and split-spoon sampler by means of the Standard Penetration Test (SPT, ASTM D 6066). The brass-rings have an inside diameter of 2.42 inches. The ring samples were driven into the soil by a 140-pound hammer dropping 30 inches. The number of blows needed to drive the sampler into the soil was recorded as the penetration resistance. The spoon sampler was driven into the soil by a 140-pound hammer dropping 30 inches, employing the “free-fall” hammer described above. After an initial seating drive of 6 inches, the number of blows needed to drive the sampler into the soil a depth of 12 inches was recorded as the penetration resistance. These values are the raw uncorrected blowcounts.

Bulk samples of the soils within the upper 3 feet were obtained at all boring locations.

The field explorations for the investigation were performed under the continuous technical supervision of GPI's representative, who visually inspected the site, maintained detailed logs of the borings, classified the soils encountered, and obtained relatively undisturbed samples for examination and laboratory testing. The soils encountered in the borings were classified in the field and through further examination in the laboratory in accordance with the Unified Soils Classification System. Detailed logs of the borings are presented in Figures A-1 and A-2 in this appendix. Laboratory test results of moisture content and dry density are presented on the logs. For other laboratory tests, the type of test performed is shown with the following abbreviations:

DS – Direct Shear Test
UU – Unconsolidated Undrained Triaxial Test
#200 – Percent Passing No. 200 Sieve
AL – Atterberg Limits
EI – Expansion Index

Soil samples were screened for organic vapors using a photo-ionization detector (Mini-Rae 2000). Organic vapors were not detected above 50 ppm for any of the samples.

Upon completion of the borings, the boreholes were backfilled with soil cuttings. The ground surface elevations, as shown on the boring logs, at the exploration locations were estimated from topographic maps contained within NavigateLA website and should be considered to be very approximate.

LAB TESTING	PID	MOISTURE (%)	DRY DENSITY (PCF)	PENETRATION RESISTANCE (BLOWS/FT)	SAMPLE TYPE	DEPTH (FEET)	*DESCRIPTION OF SUBSURFACE MATERIALS* This summary applies only at the location of this boring and at the time of drilling. Subsurface conditions may differ at other locations and may change at this location with the passage of time. The data presented is a simplification of actual conditions encountered.	ELEVATION (FEET)
					B	0	Grass	
							Fill: **SANDY CLAY (CL)** dark brown, dry, with gravel	245
#200	0			15	S		@ 2.5 feet, slightly moist, stiff to very stiff, no gravel	
AL, UU	0	14.1	115	14	D	5	@ 5 feet, moist, stiff	
								240
	0			25	S		Natural: **SAND WITH CLAY (SP-SC)** reddish brown, slightly moist, medium dense	
DS	0	6.1	102	37	D	10		
							SAND (SP) light brown, slightly moist, medium dense	
								235
	0			47	S		@ 12.5 feet, dense	
DS	0	8.8	110	83	D	15	**SAND WITH SILT (SP-SM)** orangish brown, slightly moist, very dense	
								230
#200	0			47	S		**SAND WITH CLAY (SC-SM)** reddish brown, slightly moist, dense	
						20	**SANDY CLAY (CL)** greyish brown, slightly moist, hard	
	0	33.1	89	41	D		**SILTY SAND (SM)** light brown, slightly moist, dense	
							SILTY CLAY (CL) greyish brown, slightly moist, very stiff	
							SILTY SAND (SM) light brown, moist, dense, with clay	
							Total Depth 21.5 feet Latitude: 34.046861 Longitude: -118.409643	

SAMPLE TYPES
- C Rock Core
- S Standard Split Spoon
- D Drive Sample
- B Bulk Sample
- T Tube Sample

DATE DRILLED:
9-27-17

EQUIPMENT USED:
8" Hollow Stem Auger

GROUNDWATER LEVEL:
Not Encountered

GPI

PROJECT NO.: 2500.08I
CHEVIOT HILLS

LOG OF BORING NO. CH-1

FIGURE A-1

LAB TESTING	PID	MOISTURE (%)	DRY DENSITY (PCF)	PENETRATION RESISTANCE (BLOWS/FT)	SAMPLE TYPE	DEPTH (FEET)	DESCRIPTION OF SUBSURFACE MATERIALS	ELEVATION (FEET)
							This summary applies only at the location of this boring and at the time of drilling. Subsurface conditions may differ at other locations and may change at this location with the passage of time. The data presented is a simplification of actual conditions encountered.	
					B	0	Grass	
							Fill: **SANDY CLAY (CL)** dark brown, dry	245
	0	9.3	102	22	D		@ 2.5 feet, slightly moist, stiff to very stiff	
#200 AL	0			19	S	5	Natural: **CLAYEY SAND (SC)** brown and orange, slightly moist, medium dense	240
	0	9.6	113	62	D		**SANDY CLAY (CL)** dark brown, slightly moist, hard	
	0			41	S	10	**SAND WITH CLAY (SP-SC)** light brown, slightly moist, medium dense	235
DS	0	9.1	104	46	D		**SAND (SP)** orangish brown, moist, dense, trace clay	
	0			43	S	15	**SILTY SAND (SM)** light brown, slightly moist, dense	
							SANDY CLAY (CL) light brown, slightly moist, hard	230
#200	0	15.3	106	49	D		@ 17.5 feet, greyish brown, moist	
	0			43	D	20	**CLAY (CL)** grey, moist, very stiff	
							CLAYEY SAND (SC) grey and orange, moist, dense	225
							Total Depth 21.5 feet Latitude: 34.046264 Longitude: -118.409196	

SAMPLE TYPES
- C Rock Core
- S Standard Split Spoon
- D Drive Sample
- B Bulk Sample
- T Tube Sample

DATE DRILLED:
9-27-17

EQUIPMENT USED:
8" Hollow Stem Auger

GROUNDWATER LEVEL:
Not Encountered

GPI

PROJECT NO.: 2500.08I
CHEVIOT HILLS

LOG OF BORING NO. CH-2

FIGURE A-2

APPENDIX B

APPENDIX B

LABORATORY TESTS

INTRODUCTION

Representative undisturbed soil samples and bulk samples were carefully packaged in the field and sealed to prevent moisture loss. The samples were then transported to our Cypress office for examination and testing assignments. Laboratory tests were performed on selected representative samples as an aid in classifying the soils and to evaluate the physical properties of the soils affecting foundation design and construction procedures. Detailed descriptions of the laboratory tests are presented below under the appropriate test headings. Test results are presented on the boring logs and in the figures that follow.

MOISTURE CONTENT AND DRY DENSITY

Moisture content and dry density were determined from a number of the ring samples. The samples were first trimmed to obtain volume and wet weight and then were dried in accordance with ASTM D 2216. After drying, the weight of each sample was measured, and moisture content and dry density were calculated. Moisture content and dry density values are presented on the boring logs in Appendix A.

ATTERBERG LIMITS

Liquid and plastic limits were determined for selected samples in accordance with ASTM D 4318. The results of the Atterberg Limits tests are presented in Figure B-1.

PERCENT PASSING NO. 200 SIEVE

Four soil samples were dried, weighed, soaked in water until individual soil particles were separated, and then washed on the No. 200 sieve. That portion of the material retained on the No. 200 sieve was oven-dried and weighed to determine the percentage of the material passing the No. 200 sieve. A summary of the percentages passing the No. 200 sieve is presented below.

BORING NO.	DEPTH (ft)	SOIL DESCRIPTION	PERCENT PASSING No. 200 SIEVE
CH-1	2.5	Sandy Clay (CL)	53
CH-1	17.5	Sandy Clay (CL)	54
CH-2	5	Clayey Sand (SC)	45
CH-2	17.5	Sandy Clay (CL)	50

DIRECT SHEAR

Direct shear tests were performed on undisturbed samples in accordance with ASTM D 3080. The samples were placed in the shear machine, and a normal load was applied. The samples were inundated for 2 hours, allowed to consolidate, and then were sheared to failure at a strain rate of 0.002 inches per minute. The tests were repeated on additional test specimens under increased normal loads. Shear stress and sample deformation were monitored throughout the test. The results of the direct shear tests are presented in Figures B-2 to B-4.

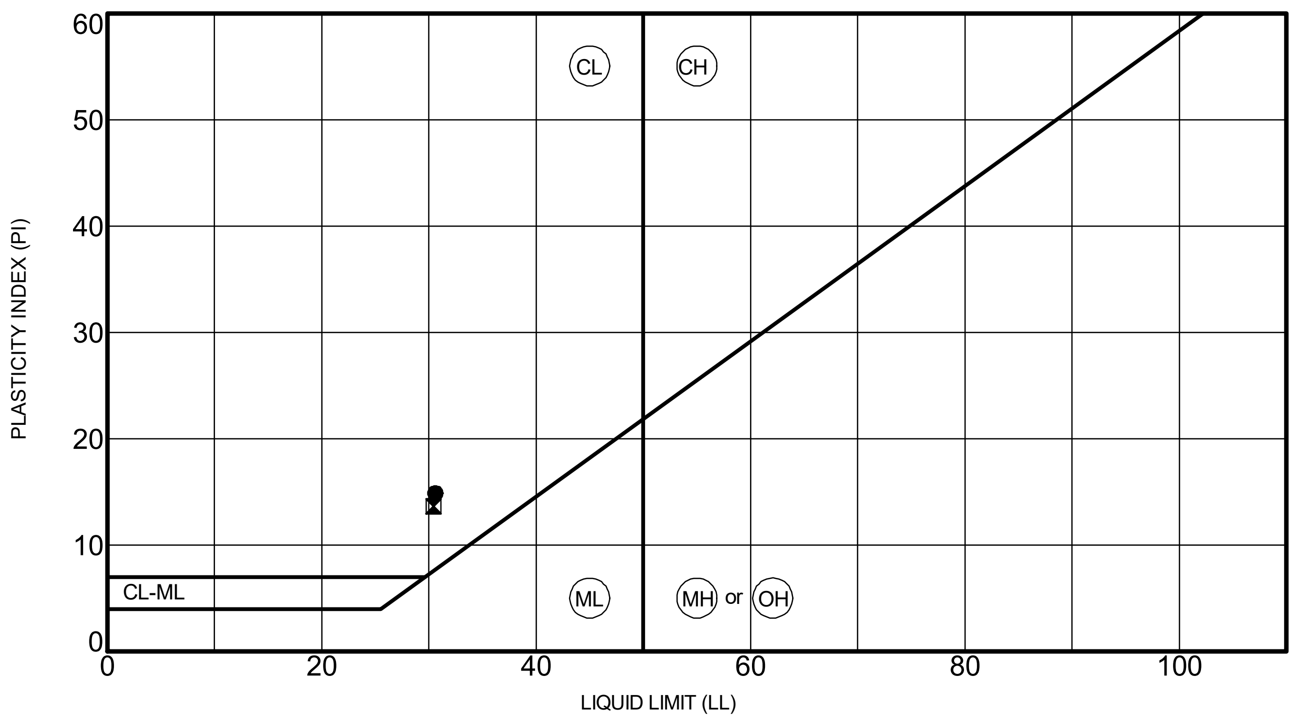
UNCONSOLIDATED UNDRAINED TRIAXIAL TESTS

Unconsolidated undrained triaxial tests were performed on a sample of cohesive soils in accordance with ASTM D 2850. The testing was performed by A.P. Engineer on a soil sample provided by GPI. Detailed test results are presented in Figure B-5.

EXPANSION INDEX

One expansion index test was performed in accordance with D 4829 on a composite bulk sample, representative of the soils in the upper 3 feet of the site. The test results are presented below:

BORING NO.	DEPTH (ft)	SOIL DESCRIPTION	EXPANSION INDEX
CH-2	0-3	Sandy Clay (CL)	85



	SAMPLE LOCATION		LL	PL	PI	Fines, %	Classification
●	CH-1	2.5	31	16	15		SANDY CLAY (CL)
⧗	CH-2	5.0	30	17	14		CLAYEY SAND (SC)

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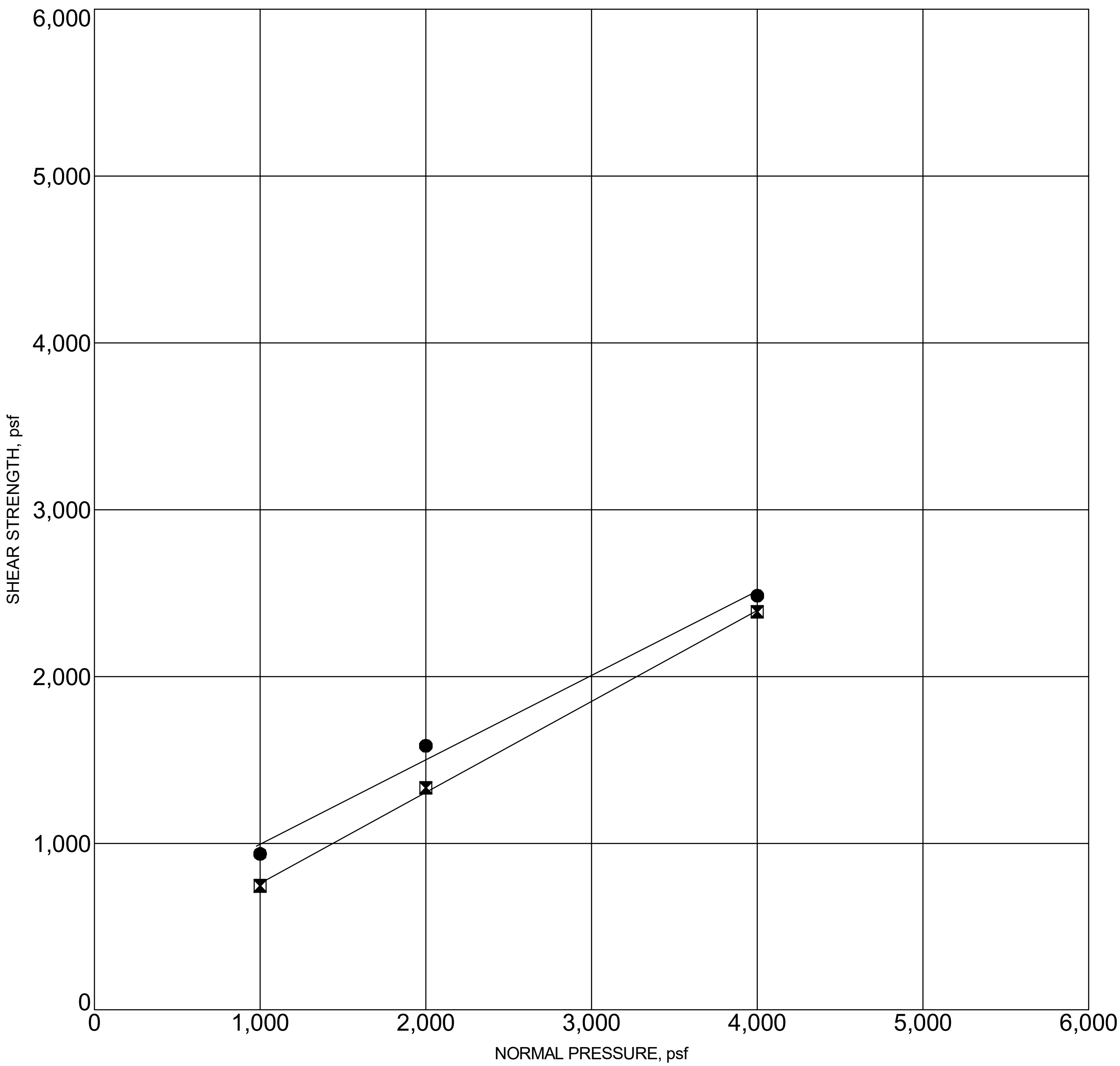
ATTERBERG LIMITS TEST RESULTS

FIGURE B-1



PEAK STRENGTH
Friction Angle= 27 degrees
Cohesion= 486 psf

ULTIMATE STRENGTH
Friction Angle= 29 degrees
Cohesion= 216 psf

Sample Location		Classification	DD,pcf	MC,%
CH-1	10.0	SAND WITH CLAY (SP-SC)	102	6.1

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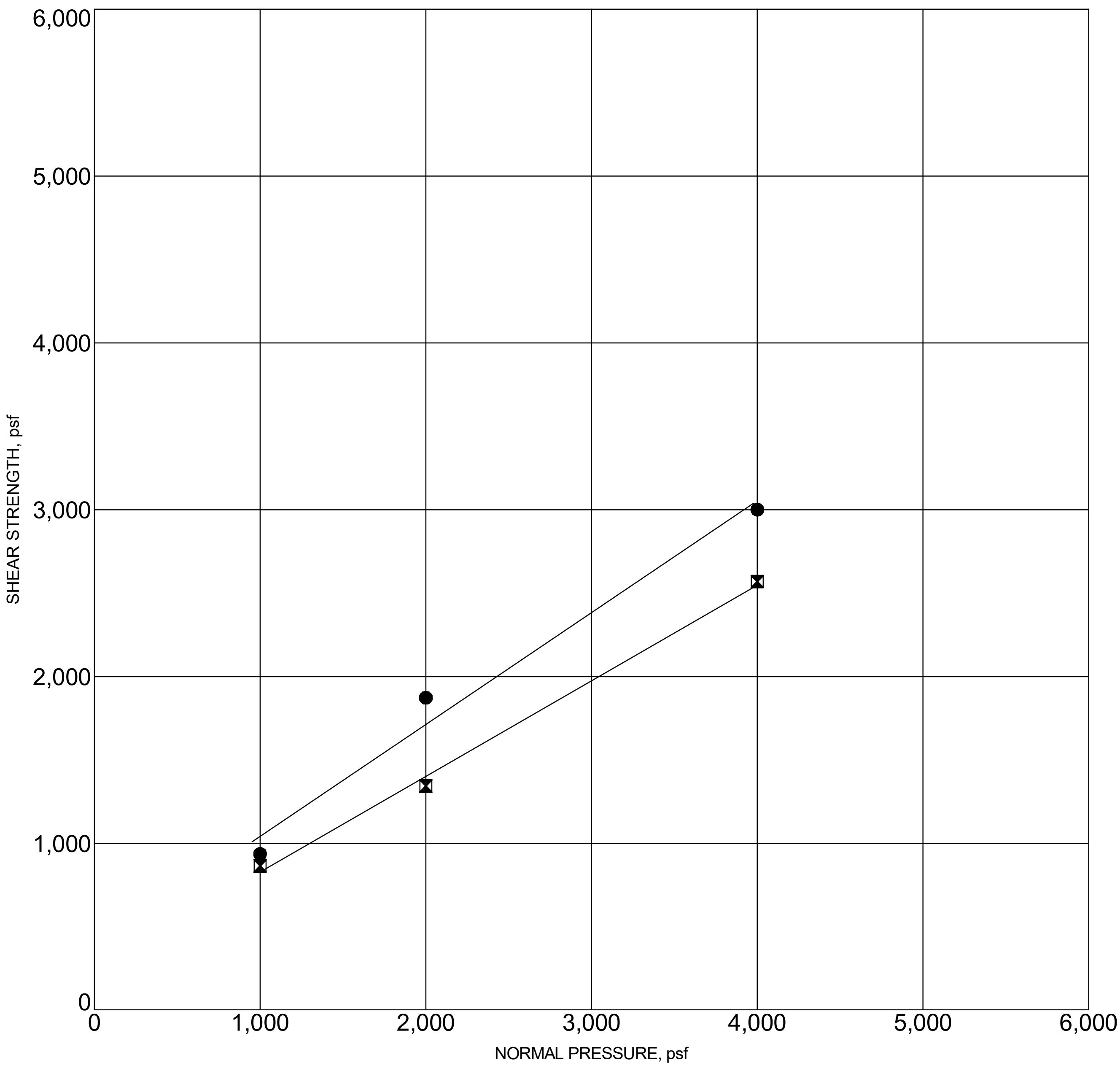
DIRECT SHEAR TEST RESULTS

FIGURE B-2



● **PEAK STRENGTH**
Friction Angle= 34 degrees
Cohesion= 372 psf

ULTIMATE STRENGTH
Friction Angle= 30 degrees
Cohesion= 252 psf

Sample Location		Classification	DD,pcf	MC,%
CH-1	15.0	SAND WITH SILT (SP-SM)	110	8.8

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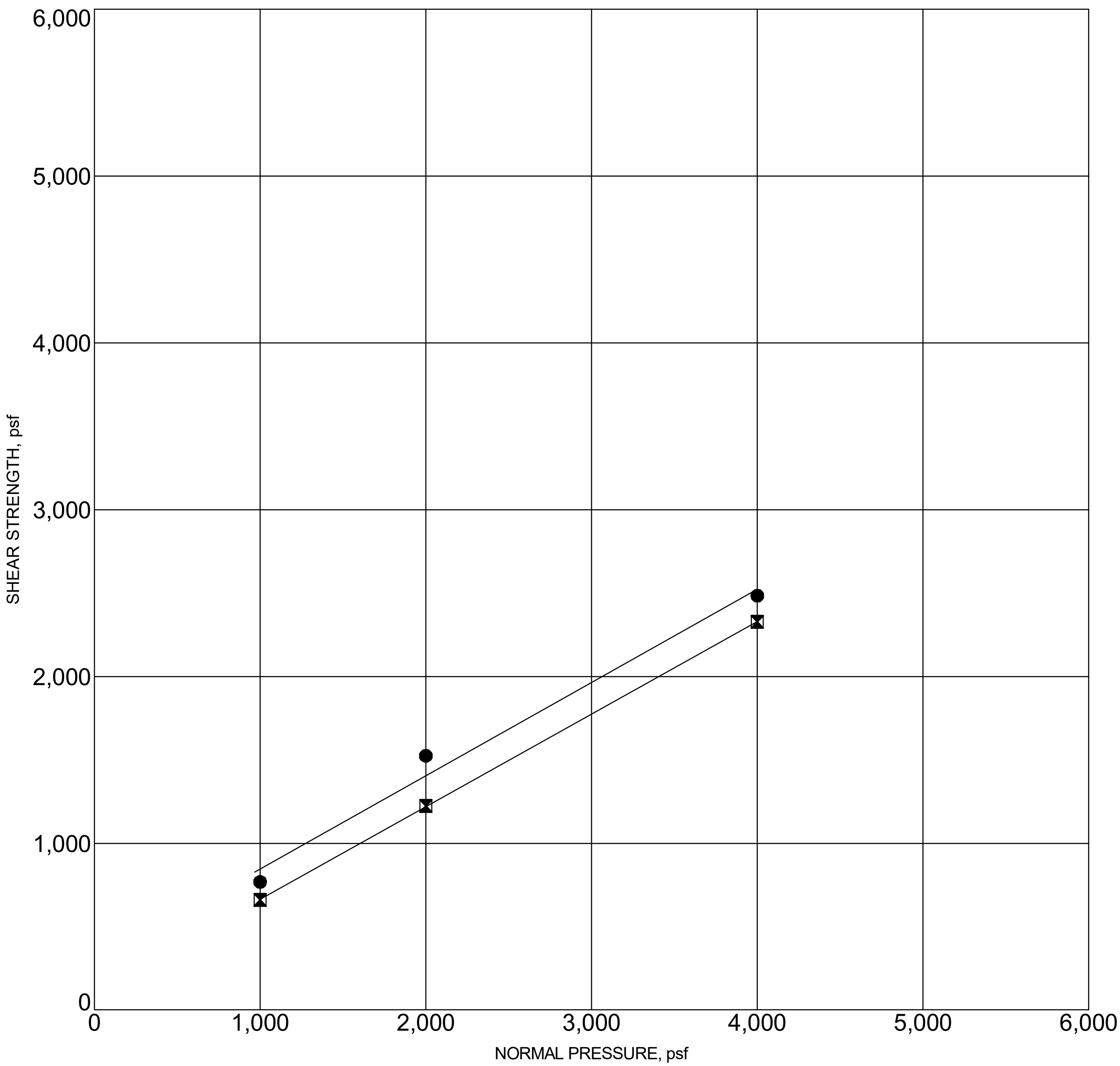
DIRECT SHEAR TEST RESULTS

FIGURE B-3



PEAK STRENGTH
Friction Angle= 29 degrees
Cohesion= 288 psf

ULTIMATE STRENGTH
Friction Angle= 29 degrees
Cohesion= 108 psf

Sample Location		Classification	DD,pcf	MC,%
CH-2	12.5	SAND (SP)	104	9.1

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DIRECT SHEAR TEST RESULTS

FIGURE B-4

AP Engineering and Testing, Inc.
DBE|MBE|SBE
2607 Pomona Boulevard | Pomona, CA 91768
t. 909.869.6316 | f. 909.869.6318 | www.aplaboratory.com

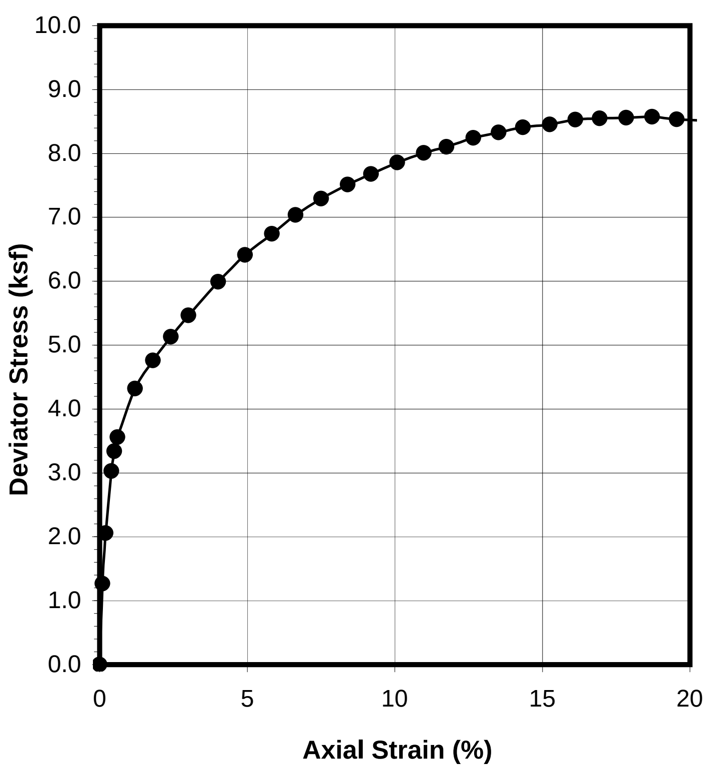
UNCONSOLIDATED UNDRAINED TRIAXIAL TEST (UU,Q)
ASTM D 2850

Client Name:	Geotechnical Professionals, Inc.	Tested By: ST	Date: 10/13/17
Project Name:	Cheviot Hills Rec. Lighting Project	Checked by: AP	Date: 10/13/17
Project No.:	2500.08I		
Boring No.:	CH-1		
Sample No.:	-	Depth (feet): 5	
Soil Description	Sandy Clay	Sample Type:	Mod. Cal.

Sample Diameter (inch):	2.406	Wet Unit Weight (pcf):	134.8
Sample Height (inch):	4.973	Dry Unit Weight (pcf):	118.1
Sample Weight (g):	800.44	Moisture Content (%):	14.2
Wt. of Wet Soil+Container (g):	219.13	Void Ratio for Gs=2.7:	0.43
Wt. of Dry Soil+Container (g):	209.43	% Saturation:	89.5
Wt. of Container (g):	140.94		

TEST DATA

Cell Pressure (ksf):	0.72
Back Pressure (ksf):	0.0
Tested Total Confining Pressure (ksf):	0.72
Shear Rate (%/min):	0.3
Maximum Deviator Stress (ksf):	8.57
Ultimate Deviator Stress (ksf):	8.51
Ultimate Undrained Shear Strength (ksf):	4.26
Axial Strain @ Maximum Stress (%)	18.72

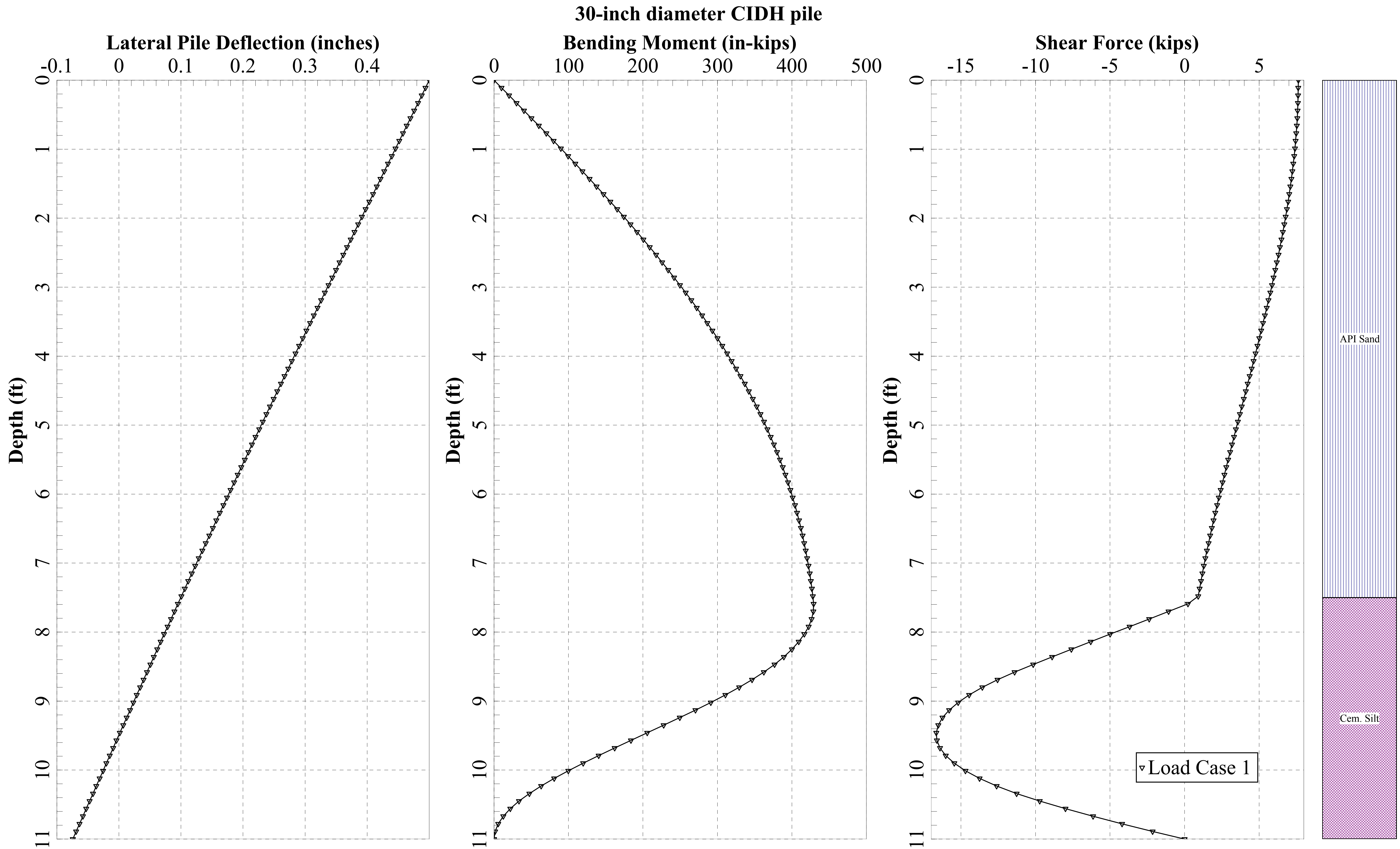


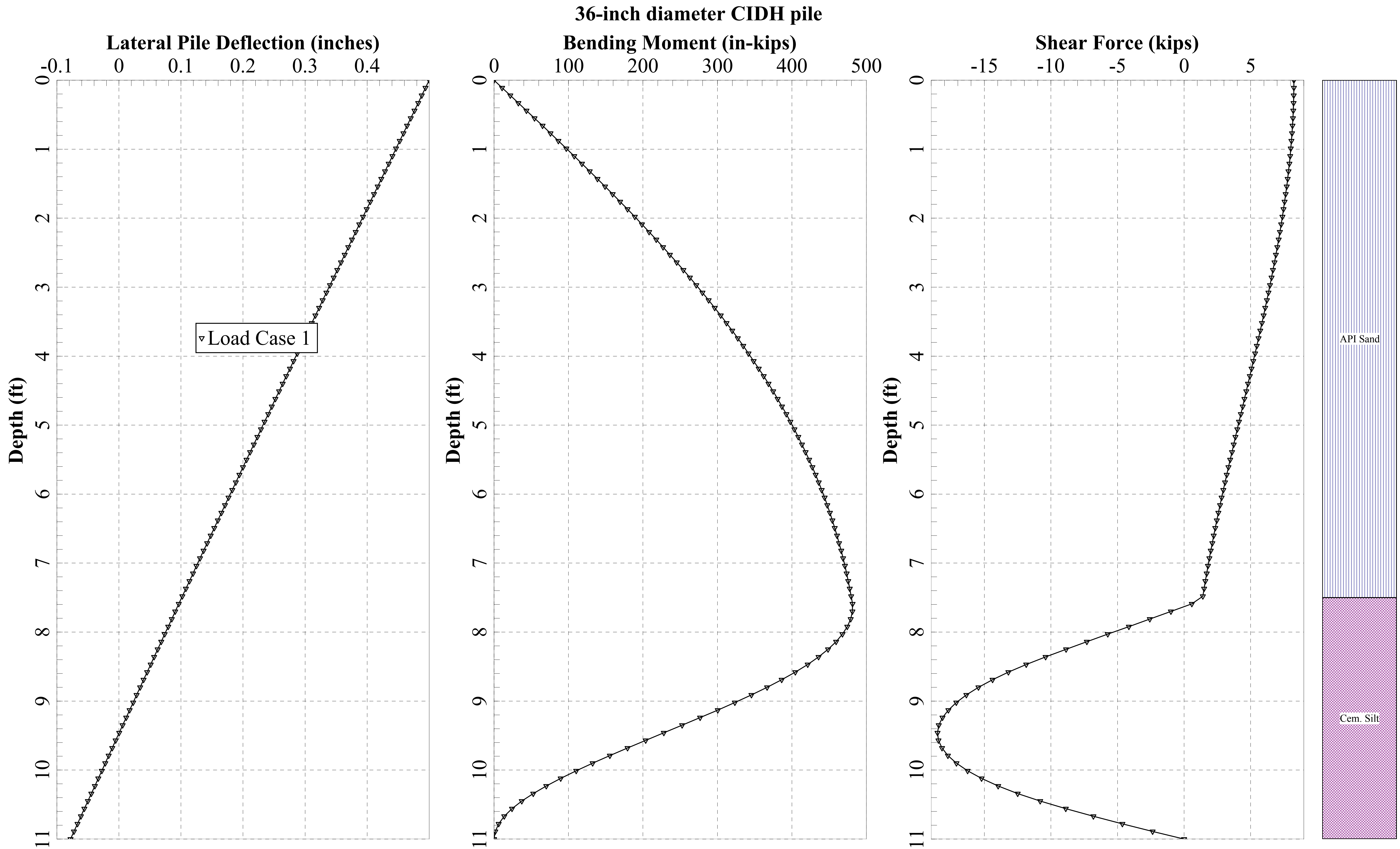
Load (lbs)	Def. (inch)	Area (sq.in)	Deviator Stress (ksf)	Axial Strain (%)
0	0.000	4.55	0.00	0.00
40	0.005	4.55	1.27	0.10
65	0.010	4.56	2.05	0.20
96	0.020	4.56	3.03	0.40
106	0.025	4.57	3.34	0.50
113	0.030	4.57	3.56	0.60
138	0.060	4.60	4.32	1.21
153	0.090	4.63	4.76	1.81
166	0.120	4.66	5.13	2.41
178	0.150	4.69	5.47	3.02
197	0.200	4.74	5.99	4.02
213	0.245	4.78	6.41	4.93
226	0.290	4.83	6.74	5.84
238	0.330	4.87	7.04	6.64
249	0.373	4.92	7.29	7.51
259	0.418	4.96	7.51	8.41
267	0.457	5.01	7.68	9.20
276	0.502	5.06	7.86	10.09
284	0.546	5.11	8.01	10.99
290	0.585	5.15	8.10	11.76
298	0.630	5.21	8.24	12.66
304	0.673	5.26	8.33	13.53
310	0.713	5.31	8.41	14.35
315	0.758	5.36	8.46	15.25
321	0.802	5.42	8.53	16.12
325	0.843	5.47	8.55	16.95
329	0.888	5.53	8.56	17.85
333	0.931	5.59	8.57	18.72
335	0.973	5.65	8.53	19.56
338	1.019	5.72	8.51	20.48

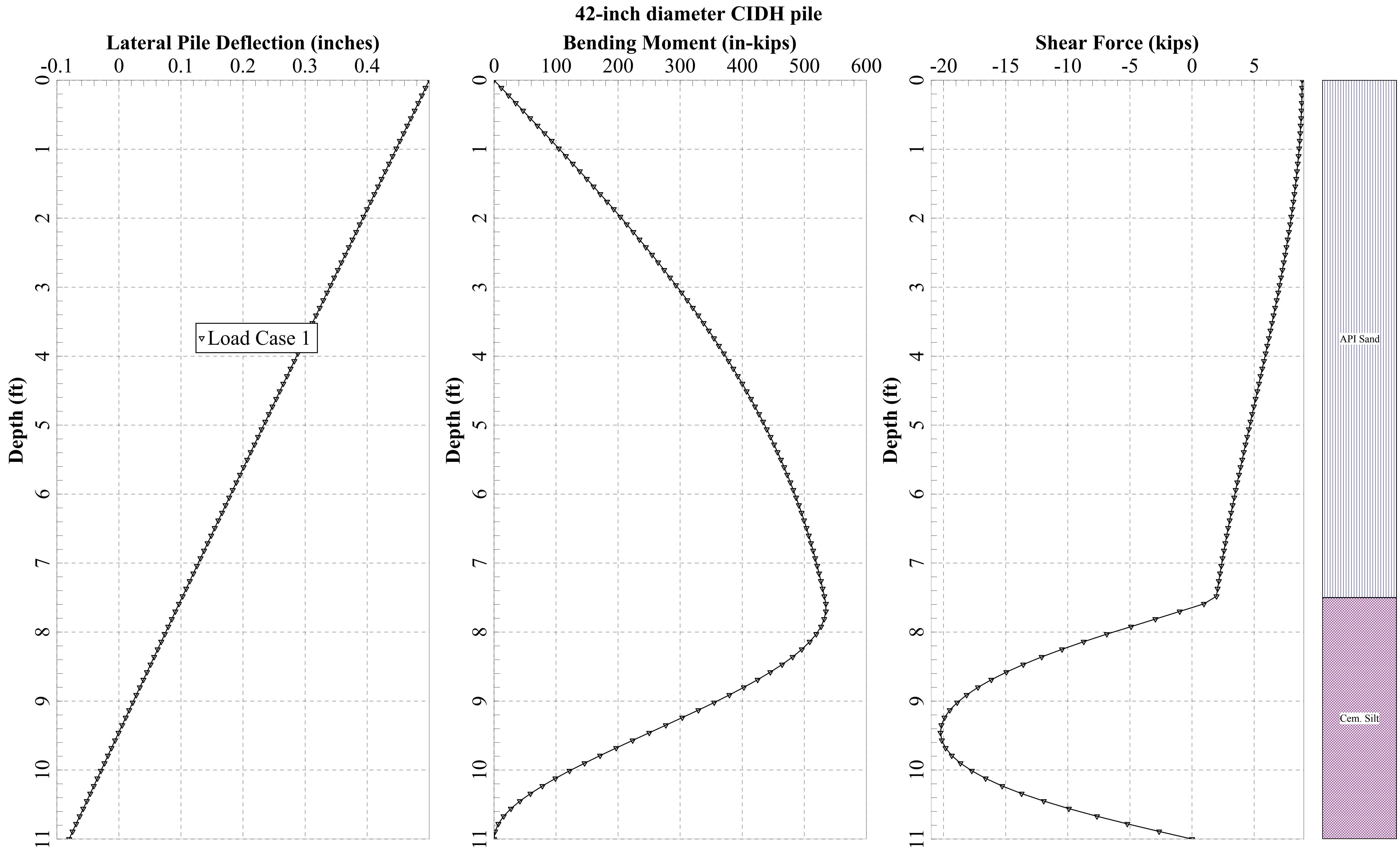
FIGURE B-5

Appendix B

LPILE Results


30-inch diameter CIDH pile
Lateral Pile Deflection (inches)
-0.1
0
0.1
0.2
0.3
0.4
Bending Moment (in-kips)
0
100
200
300
400
500
Shear Force (kips)
-15
-10
-5
0
5
Depth (ft)
0
1
2
3
4
5
6
7
8
9
10
11
API Sand
Cem. Silt
Load Case 1


36-inch diameter CIDH pile
Lateral Pile Deflection (inches)
Bending Moment (in-kips)
Shear Force (kips)
Depth (ft)
Load Case 1
API Sand
Cem. Silt


42-inch diameter CIDH pile
Lateral Pile Deflection (inches)
Bending Moment (in-kips)
Shear Force (kips)
Depth (ft)
Load Case 1
API Sand
Cem. Silt