BOARD REPORT

DATE: January 16, 2020

BOARD OF RECREATION AND PARK COMMISSIONERS

SUBJECT: BALDWIN HILLS RECREATION CENTER SPORTS FIELD LIGHTING (W.O. #E170501) PROJECT (aka PROP K SPORTS LIGHTING IMPROVEMENT: BALDWIN HILLS RECREATION CENTER) – APPROVAL OF FINAL PLANS - CATEGORICAL EXEMPTION FROM THE CALIFORNIA ENVIRONMENTAL QUALITY ACT (CEQA) PURSUANT TO ARTICLE III, SECTION 1, CLASS 1(1) [EXTERIOR ALTERATIONS WHERE THERE BE NO OR NEGLIGIBLE EXPANSION OF USE], CLASS 1(4) [REHABILITATION OF DETERIORATED STRUCTURES] AND CLASS 1(12) [OUTDOOR LIGHTING FOR SECURITY AND OPERATION] OF THE CITY CEQA GUIDELINES AND ARTICLE 19 SECTIONS 15301(a) AND 15301(d) OF CALIFORNIA CEQA GUIDELINES

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

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Approved X Disapproved Withdrawn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 Baldwin Hills Recreation Center Sports Field Lighting (aka Prop K Sports Lighting Improvement: Baldwin Hills Recreation Center) (W.O. #E170501) Project (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 alterations where there be no or negligible expansion of use], Class 1(4) [rehabilitation of deteriorated structures] and Class 1(12) [outdoor lighting for security and operation] of City CEQA Guidelines and Article 19, Sections 15301(a) and 15301(d) of California CEQA Guidelines, and direct Department of Recreation and Parks (RAP) staff to file a Notice of Exemption (NOE) with the Los Angeles County Clerk;

3. Authorize RAP’s Chief Accounting Employee or designee to prepare a check to the Los Angeles County Clerk in the amount of Seventy-Five Dollars ($75.00) for the purpose of filing a NOE;

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

Baldwin Hills Recreation Center is located at 5401 Highlight Place, in Council District 10. This property includes picnic area, basketball courts, children’s play area, baseball diamonds, and a gymnasium. Approximately 3,500 City residents live within a one-half mile (1/2) walking distance of the recreation center.

The proposed Project is a Proposition K – L.A. for Kids Program Competitive grant (9th Cycle) funded project. The scope of work consists of replacing existing lighting at three (3) baseball diamonds and two (2) basketball courts with the new, Light Emitting Diode (LED) light fixtures. This will provide an improved quality of lighting, 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 Bureau of Engineering (BOE) staff, it was determined that the work can be completed by RAP pre-qualified contractors and for BOE to provide construction management services.

RAP’s Planning, Construction and Maintenance Division prepared the plans and specifications, and obtained all the necessary approvals for the proposed Project. As required by Proposition K, three (3) Local Volunteer Neighborhood Oversight Committee (LVNOC) meetings were conducted. The first LVNOC meeting was on November 14, 2016. The second LVNOC meeting was on March 7, 2017. The third LVNOC meeting was on April 11, 2017. The community, the LVNOC and Office of Council District 10 are in full support of the proposed Project.

Sufficient funds are available for the construction and construction contingencies of the proposed Project from the following funds and accounts:

<table>
<thead>
<tr>
<th>FUNDING SOURCE</th>
<th>FUND/DEPT./ACCT. NO.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Proposition K</td>
<td>43K/10/10NPFH</td>
</tr>
<tr>
<td>Sites and Facilities</td>
<td>209/88/TBD</td>
</tr>
</tbody>
</table>

TREES AND SHADE

No trees will be removed as a part of this proposed Project, and any existing trees near the proposed location(s) of new light standards to be installed as a part of this Project will be protected during the construction. Since this project focuses on improving lighting for evening recreation activities, additional trees and shade structures are not part of the scope. Furthermore, the approved Proposition K funds for this project do not include funds for the installation of shade structures and trees.

ENVIRONMENTAL IMPACT

The proposed Project consists of the removal and replacement of deteriorated light fixtures and controls for the existing baseball field and basketball courts to meet the current standard of public safety. As such, RAP staff recommends that the Board of Recreation and Park Commissioners
(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 as well as pursuant to Article 19, Sections 15301(a) and 15301(d) of California CEQA Guidelines. An NOE will be filed with the Los Angeles County Clerk upon approval by the Board.

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 the project 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, Interim Architectural Division Manager, BOE; Deborah Weintraub, Chief Deputy City Engineer, BOE; and Darryl Ford, Interim Superintendent, Planning, Construction and Maintenance Branch, RAP.

LIST OF ATTACHMENT(S)

1) Final Plans for Baldwin Hills Sport Field Lighting project (aka Prop K Sports Lighting Improvement: Baldwin Hills Recreation Center)  
2) Geotechnical Report for Baldwin Hills Recreation Center Sports Field Lighting Project.
DEPARTMENT OF RECREATION AND PARKS
CITY OF LOS ANGELES
PROP K SPORTS LIGHTING IMPROVEMENT: BALDWIN HILLS RC

ELECTRICAL SPECIFICATIONS

GENERAL REQUIREMENTS:
1. All electrical equipment and materials shall be in accordance with the provisions of the National Electrical Code (NEC).
2. All electrical installations shall be made by qualified and licensed electricians.
3. All electrical equipment and materials shall be installed in accordance with the manufacturer's instructions.
4. All electrical installations shall be inspected and approved by the appropriate authorities before the electrical power is turned on.
5. All electrical installations shall be tested for proper operation before the electrical power is turned on.

ELECTRICAL INSTALLATIONS:
1. All electrical installations shall be made in accordance with the NEC.
2. All electrical installations shall be made by qualified and licensed electricians.
3. All electrical installations shall be inspected and approved by the appropriate authorities before the electrical power is turned on.
4. All electrical installations shall be tested for proper operation before the electrical power is turned on.
5. All electrical installations shall be made in accordance with the NEC.
6. All electrical installations shall be made by qualified and licensed electricians.
7. All electrical installations shall be inspected and approved by the appropriate authorities before the electrical power is turned on.
8. All electrical installations shall be tested for proper operation before the electrical power is turned on.
9. All electrical installations shall be made in accordance with the NEC.
10. All electrical installations shall be made by qualified and licensed electricians.
11. All electrical installations shall be inspected and approved by the appropriate authorities before the electrical power is turned on.
12. All electrical installations shall be tested for proper operation before the electrical power is turned on.

ELECTRICAL PANELS:
1. All electrical panels shall be made in accordance with the NEC.
2. All electrical panels shall be made by qualified and licensed electricians.
3. All electrical panels shall be inspected and approved by the appropriate authorities before the electrical power is turned on.
4. All electrical panels shall be tested for proper operation before the electrical power is turned on.
5. All electrical panels shall be made in accordance with the NEC.
6. All electrical panels shall be made by qualified and licensed electricians.
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12. All electrical panels shall be tested for proper operation before the electrical power is turned on.

ELECTRICAL CABLES:
1. All electrical cables shall be made in accordance with the NEC.
2. All electrical cables shall be made by qualified and licensed electricians.
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4. All electrical cables shall be tested for proper operation before the electrical power is turned on.
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8. All electrical cables shall be tested for proper operation before the electrical power is turned on.
9. All electrical cables shall be made in accordance with the NEC.
10. All electrical cables shall be made by qualified and licensed electricians.
11. All electrical cables shall be inspected and approved by the appropriate authorities before the electrical power is turned on.
12. All electrical cables shall be tested for proper operation before the electrical power is turned on.

ELECTRICAL MACHINERY:
1. All electrical machinery shall be made in accordance with the NEC.
2. All electrical machinery shall be made by qualified and licensed electricians.
3. All electrical machinery shall be inspected and approved by the appropriate authorities before the electrical power is turned on.
4. All electrical machinery shall be tested for proper operation before the electrical power is turned on.
5. All electrical machinery shall be made in accordance with the NEC.
6. All electrical machinery shall be made by qualified and licensed electricians.
7. All electrical machinery shall be inspected and approved by the appropriate authorities before the electrical power is turned on.
8. All electrical machinery shall be tested for proper operation before the electrical power is turned on.
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10. All electrical machinery shall be made by qualified and licensed electricians.
11. All electrical machinery shall be inspected and approved by the appropriate authorities before the electrical power is turned on.
12. All electrical machinery shall be tested for proper operation before the electrical power is turned on.

ELECTRICAL CONTROL PANELS:
1. All electrical control panels shall be made in accordance with the NEC.
2. All electrical control panels shall be made by qualified and licensed electricians.
3. All electrical control panels shall be inspected and approved by the appropriate authorities before the electrical power is turned on.
4. All electrical control panels shall be tested for proper operation before the electrical power is turned on.
5. All electrical control panels shall be made in accordance with the NEC.
6. All electrical control panels shall be made by qualified and licensed electricians.
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9. All electrical control panels shall be made in accordance with the NEC.
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12. All electrical control panels shall be tested for proper operation before the electrical power is turned on.
CITY OF LOS ANGELES
DEPARTMENT OF PUBLIC WORKS
Bureau of Engineering
GEOTECHNICAL ENGINEERING GROUP

October 6, 2017

BALDWIN HILLS RECREATION CENTER – SPORTSFIELD LED LIGHTING
5401 HIGHLIGHT PLACE, LOS ANGELES, CA 90016
W.O. E1705010D GEO FILE NO. 16-095

1.0 INTRODUCTION

The Los Angeles Department of Public Works, Bureau of Engineering, Geotechnical Engineering Group (GEO) 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 on the northwest corner of Exposition Boulevard and Highlight Place in the Baldwin Hills area of Los Angeles. The project site is within the existing Baldwin Hills Recreation Center.

2.0 PROJECT DESCRIPTION

The project site is presented on Figure 2 – Site Location Map. The project includes installing a new light-emitting diode (LED) light pole to illuminate the baseball field in the northeast area of the park. We understand the proposed LED light pole may be up to approximately 80 feet high.

3.0 GEOTECHNICAL INVESTIGATION

Our geotechnical investigation consisted of field exploration and laboratory testing, which were both 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. GEO 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 four hollow-stem auger (HSA) borings to depths ranging from approximately 20½ to 21½ feet below ground surface (bgs). The boring locations are presented on the Test Boring Location Map and Aerial Photo in Standard’s data report (Appendix A). Although only one light pole is proposed at this time, GPI drilled borings in other areas of the site in the event the project scope changes in the future. Boring BH-2 was drilled in close proximity to the proposed light pole.

Uncertified fill up to approximately 13 feet thick was encountered in BH-2. The fill mostly consists of sandy lean clay to a depth of approximately 7½ feet and clayey sand below 7½ feet. A 2-foot thick layer of native organic soil (i.e. peat) was encountered at approximately 13 feet. The underlying native soil consists of sandy lean clay to the maximum explored depth of approximately 20½ feet.
The BH-2 boring log indicates groundwater was not encountered to the maximum explored depth of 20½ feet bgs; however, the native soil was wet and the boring was not open long enough for groundwater levels to stabilize. Based on information by the California Department of Conservation, Division of Mines and Geology (1998), the historical high groundwater depth is on the order of 10 feet.

3.2 LABORATORY TEST RESULTS

The laboratory testing program for all four HSA borings consisted of in-situ moisture content and dry density, fines content (percent passing the No. 200 sieve), grain size distribution, direct shear, unconsolidated undrained (UU) triaxial, expansion index, and Atterberg Limits. The laboratory testing program for BH-2 included in-situ moisture content and dry density, fines content, Atterberg Limits, and UU triaxial.

The results of the UU triaxial test indicate the ultimate undrained shear strength of the existing sandy lean clay fill from BH-2 is approximately 4,780 pounds per square foot (psf). The results of the UU triaxial test on a sample of the native clayey soil from BH-3 indicate the undrained shear strength is 3,470 psf.

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, GEO shall be notified. Supplemental recommendations may be required.

4.1 SITE PREPARATION

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. Earthwork associated with the new light pole is not anticipated.

4.2 NEW LIGHT POLE FOUNDATION

We recommend the new light pole be supported on a cast-in-drilled-hole (CIDH) pile with a minimum diameter of 30 inches. Recommendations are provided in the following sections.

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 34.02485°N and Longitude 118.36324°W coordinates were used for the site location.
Seismic Design Parameters

<table>
<thead>
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<th>Parameter</th>
<th>Value</th>
<th>Reference</th>
</tr>
</thead>
<tbody>
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<td>ASCE 7-10 Figure 22-1</td>
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<td>ASCE 7-10 Figure 22-2</td>
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<tr>
<td>$T_S$ (seconds)</td>
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<td>ASCE 7-10 Chapter 11</td>
</tr>
</tbody>
</table>

4.2.2 Axial Capacity in Compression

The minimum pile embedment depth shall be 18 feet or 3 feet into the native sandy clay, whichever is deeper. The minimum pile diameter shall be 30 inches. An allowable adhesion value of 500 psf per foot of embedment below 15 feet may be used to develop frictional resistance. If higher capacities are needed, an allowable adhesion value of 1000 psf per foot may be used below 20 feet. The actual pile length shall be determined by the structural engineer.

The total settlement is not expected to exceed ½-inch provided the pile is 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 (see Section 4.2.2). The weight of the concrete shaft may be added to the tensile capacity.

4.2.4 Lateral Load Behavior

The lateral load behavior of the 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, and the pile depth was assumed to be 18 feet. 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.

The uncertified fill and peat soil were both modeled in LPILE using a total unit weight of 98 pcf, effective friction angle of 20 degrees, and no cohesion. A request for modification of building ordinances for deriving lateral support from the existing undocumented fill will be submitted concurrently with this report.

The results of the LPILE analyses are summarized in Appendix B.
4.2.5 CIDH Pile Construction

We expect the CIDH pile can be drilled using conventional equipment. Caving conditions are not anticipated; however, if it occurs during the pile drilling, steel casing is required to support the sides of the excavation. 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 GEO during drilling and prior to installation of steel reinforcement.

Depending on the final depth 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 and so that the alignment of the steel reinforcement is not affected.

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 Easton Forcier at (213) 847-0476.

Figure 1 – Vicinity Map
Figure 2 – Proposed Light Pole Location Map
Appendix A – Data Report by Geotechnical Professionals, Inc. dated October 3, 2017
Appendix B – LPile Results

Q:\PROJECTS\2016\16-095 Baldwin Hills Recreation Center - Sportsfield LED Lighting\Reports\Report Text 10-6-17.docx
Reference: NavigateLA

Vicinity Map

Baldwin Hills Recreation Center
5401 Highlight Place
LOS ANGELES, CALIFORNIA

BUREAU OF ENGINEERING
GEOTECHNICAL ENGINEERING GROUP (GEO)
GEO FILE No.: 16-095
DATE: October 2017

FIGURE No. 1
Proposed Light Pole Location Map

Baldwin Hills Recreation Center
5401 Highlight Place
LOS ANGELES, CALIFORNIA

BUREAU OF ENGINEERING
GEOTECHNICAL ENGINEERING GROUP
(GEO)
GEO FILE No.: 16-095
DATE: October 2017

FIGURE No. 2
Appendix A

Geotechnical Professionals, Inc.

Data Report

dated October 3, 2017
October 3, 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  
Baldwin Hills Recreation Center Sports Lighting Project  
5401 Highlight Place  
Los Angeles, California  
Contract No. C-121801, TOS No. 16-095  
Work Order No. E170501D  
GPI Project No. 2500.081

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. 16-095 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 four hollow-stem auger borings to depths of 21 to 21½ feet below site grades. The locations of the subsurface explorations were selected by GEO and marked in the field with 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.

Geotechnical laboratory testing, as requested by GEO, included the following types and number of tests:

- 17 Moisture and Density (ASTM D 2216)
- 4 Percent Passing No. 200 Sieve (ASTM D 1140)
2 Full Sieve Analyses (ASTM D 6913)
2 Atterberg Limits (ASTM D 4318)
3 sets Direct Shear Tests (ASTM D 3080)
2 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

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

EXPLORATORY BORINGS

The subsurface conditions at the site were investigated by drilling and sampling four hollow-stem auger borings. The borings were advanced to depths of 21 to 21½ feet below the existing ground surface. 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:

<table>
<thead>
<tr>
<th>Boring No.</th>
<th>Latitude</th>
<th>Longitude</th>
<th>UTM Easting</th>
<th>UTM Northing</th>
<th>UTM Zone</th>
</tr>
</thead>
<tbody>
<tr>
<td>BH-1</td>
<td>33° 1’ 27.42&quot;</td>
<td>-118° 21’ 50.01&quot;</td>
<td>374078.90</td>
<td>3765687.14</td>
<td>11S</td>
</tr>
<tr>
<td>BH-2</td>
<td>33° 1’ 29.01&quot;</td>
<td>-118° 21’ 50.01&quot;</td>
<td>374139.11</td>
<td>3765735.58</td>
<td>11S</td>
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<tr>
<td>BH-3</td>
<td>33° 1’ 26.44&quot;</td>
<td>-118° 21’ 53.05&quot;</td>
<td>374000.57</td>
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<tr>
<td>BH-4</td>
<td>33° 1’ 24.73&quot;</td>
<td>-118° 21’ 52.42&quot;</td>
<td>374015.77</td>
<td>3765592.71</td>
<td>11S</td>
</tr>
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</table>

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 to A-4 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
GS – Full Sieve Analysis
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.
<table>
<thead>
<tr>
<th>SAMPLE TYPES</th>
<th>DATE DRILLED:</th>
<th>EQUIPMENT USED:</th>
<th>GROUNDWATER LEVEL:</th>
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<tr>
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<td>9-14-17</td>
<td>8” Hollow Stem Auger</td>
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<tr>
<td>S Standard Split Spoon</td>
<td></td>
<td></td>
<td></td>
</tr>
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<td>D Drive Sample</td>
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<td>B Bulk Sample</td>
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<td></td>
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</tr>
<tr>
<td>T Tube Sample</td>
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**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.

<table>
<thead>
<tr>
<th>LAB TESTING</th>
<th>PID</th>
<th>MOISTURE (%)</th>
<th>DRY DENSITY (pcf)</th>
<th>PENETRATION RESISTANCE (blow/sft)</th>
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<tr>
<td></td>
<td>0</td>
<td>9.7</td>
<td>89</td>
<td>46</td>
<td>D</td>
<td>105</td>
</tr>
<tr>
<td></td>
<td>0</td>
<td>14</td>
<td></td>
<td></td>
<td>S</td>
<td>100</td>
</tr>
<tr>
<td></td>
<td>0</td>
<td>80.5</td>
<td>40</td>
<td>18</td>
<td>D</td>
<td>95</td>
</tr>
<tr>
<td></td>
<td>DS</td>
<td>13.1</td>
<td>108</td>
<td>56</td>
<td>D</td>
<td></td>
</tr>
<tr>
<td></td>
<td>0</td>
<td>92/10²</td>
<td>S</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Fill: SANDY SILT (ML) light grey brown, slightly moist to dry, hard

Natural: SILTY SAND (SM) light brown, slightly moist, medium dense

SANDY CLAY (CL) dark brown, slightly moist, very stiff

SILTY SAND (SM) yellow brown, moist, medium dense

SANDY CLAY (CL) dark brown, wet, stiff, with gravel

SILT (ML) light grey, wet, soft

PEAT (OL) black, wet, soft

SAND (SP) light brown, wet, dense, trace gravel

@ 21 feet, with cobbles

Total depth 21.5 feet
Latitude: 34.253148
Longitude: -118.300251

**PROJECT NO.: 2500.08I**

Baldwin Hills Rec Center

LOG OF BORING NO. BH-1

FIGURE A-1
<table>
<thead>
<tr>
<th>LAB TESTING</th>
<th>PID</th>
<th>MOISTURE (%)</th>
<th>DRY DENSITY (pcf)</th>
<th>PENETRATION RESISTANCE (DECLARE)</th>
<th>SAMPLE TYPE</th>
<th>ELEVATION (FEET)</th>
</tr>
</thead>
<tbody>
<tr>
<td>UU</td>
<td>0</td>
<td>14.0</td>
<td>100</td>
<td>54</td>
<td>D</td>
<td>110</td>
</tr>
<tr>
<td>AL #200</td>
<td>0</td>
<td>11.4</td>
<td>103</td>
<td>33</td>
<td>S</td>
<td>105</td>
</tr>
<tr>
<td></td>
<td>0</td>
<td>5</td>
<td></td>
<td></td>
<td>S</td>
<td>100</td>
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<td>0</td>
<td>82.6</td>
<td>45</td>
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<td></td>
<td>0</td>
<td>13</td>
<td></td>
<td></td>
<td>S</td>
<td></td>
</tr>
<tr>
<td></td>
<td>6</td>
<td>19.6</td>
<td>67</td>
<td>84/3&quot;</td>
<td>D</td>
<td></td>
</tr>
</tbody>
</table>

**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.

- **Fill: SANDY CLAY (CL)** dark grey, moist, firm
- @ 5 feet, hard
- **CLAYEY SAND (SC)** dark grey, moist to moist, medium dense, trace gravel
- @ 13 feet, piece of wood
- **Natural: PEAT (OH)** black, wet, soft
- **SANDY CLAY (CL)** black, wet, stiff
- @ 20 feet, very moist, with cobble

Total depth 21 feet
Latitude: 34.024727
Longitude: -118.363247

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

**DATE DRILLED:** 9-14-17

**EQUIPMENT USED:** 8" Hollow Stem Auger

**GROUNDWATER LEVEL:** Not Encountered

**PROJECT NO.: 2500.08I**

**Baldwin Hills Rec Center**

**LOG OF BORING NO. BH-2**
<table>
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<th>LAB TESTING</th>
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<th>MOISTURE (%)</th>
<th>DRY DENSITY (pcf)</th>
<th>PENETRATION RESISTANCE (BLOOM),</th>
<th>SAMPLE TYPE</th>
<th>DESCRIPTION OF SUBSURFACE MATERIALS</th>
</tr>
</thead>
<tbody>
<tr>
<td>#200</td>
<td>EI</td>
<td>32</td>
<td>11.2</td>
<td>92</td>
<td>B</td>
<td>Fill: CLAYEY SAND (SC) dark grey, slightly moist, medium dense</td>
</tr>
<tr>
<td>AL</td>
<td>0</td>
<td>10</td>
<td>S</td>
<td></td>
<td></td>
<td>SANDY CLAY (CL) dark grey, slightly moist, very stiff</td>
</tr>
<tr>
<td></td>
<td>1</td>
<td>43.1</td>
<td>48</td>
<td>21</td>
<td>D</td>
<td>Natural: SANDY CLAY (CL) dark grey, wet, stiff</td>
</tr>
<tr>
<td></td>
<td>0</td>
<td>5</td>
<td>S</td>
<td></td>
<td></td>
<td>ORGANIC SILT / PEAT (OH) black, wet, stiff</td>
</tr>
<tr>
<td>UU</td>
<td>0</td>
<td>3.2</td>
<td>107</td>
<td>66</td>
<td>D</td>
<td>SILTY CLAY (CL) light grey, moist, firm</td>
</tr>
<tr>
<td></td>
<td>0</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>SILTY SAND (SM) brown, moist, loose</td>
</tr>
<tr>
<td></td>
<td>0</td>
<td>38</td>
<td>S</td>
<td></td>
<td></td>
<td>SANDY CLAY (CL) light grey, moist, stiff</td>
</tr>
<tr>
<td></td>
<td>0</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>SAND (SP) grey, dry, dense</td>
</tr>
<tr>
<td>DS</td>
<td>0</td>
<td>4.9</td>
<td>101</td>
<td>90/10&quot;</td>
<td>D</td>
<td>@ 17.5 feet, slightly moist, very dense</td>
</tr>
<tr>
<td></td>
<td>0</td>
<td></td>
<td></td>
<td>50/5&quot;</td>
<td>S</td>
<td></td>
</tr>
</tbody>
</table>

Total depth 21.5 feet
Latitude: 34.024010
Longitude: -118.364736
<table>
<thead>
<tr>
<th>SAMPLE TYPE</th>
<th>MOISTURE (%)</th>
<th>DRY DENSITY (pcf)</th>
<th>PENETRATION RESISTANCE (blows/ft)</th>
<th>ELEVATION (feet)</th>
</tr>
</thead>
<tbody>
<tr>
<td>DS</td>
<td>0</td>
<td>53.1</td>
<td>54</td>
<td>105</td>
</tr>
<tr>
<td></td>
<td>9</td>
<td>S</td>
<td></td>
<td></td>
</tr>
<tr>
<td>GS</td>
<td>0</td>
<td>40</td>
<td>S</td>
<td>100</td>
</tr>
<tr>
<td></td>
<td>2.8</td>
<td>50/5&quot;</td>
<td>D</td>
<td></td>
</tr>
<tr>
<td>GS</td>
<td>0</td>
<td>50/3&quot;</td>
<td>S</td>
<td>95</td>
</tr>
<tr>
<td></td>
<td>3.4</td>
<td>96</td>
<td>D</td>
<td></td>
</tr>
<tr>
<td></td>
<td>61</td>
<td>S</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>11.6</td>
<td>117</td>
<td>D</td>
<td>90</td>
</tr>
<tr>
<td></td>
<td>180</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**DESCRIPTION OF SUBSURFACE MATERIALS**

- **Fill:** SANDY CLAY (CL) light brown, slightly moist, stiff
- **Natural:** ORGANIC SILT (OH) black, wet, stiff
- **SAND (SP):** brown, dry, dense, trace gravel and cobbles @ 10 feet, very dense
- **SANDY CLAY (CL):** grey, slightly moist, hard

Total depth 21 feet
Latitude: 34.023424
Longitude: -118.364562

---

**SAMPLE TYPES**
- Rock Core
- Standard Split Spoon
- Drive Sample
- Bulk Sample
- Tube Sample

**DATE DRILLED:** 9-14-17

**EQUIPMENT USED:** 9" Hollow Stem Auger

**GROUNDWATER LEVEL:** Not Encountered

**PROJECT NO.: 2500.08I**

**LOG OF BORING NO. BH-4**

**FIGURE A-4**
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.

<table>
<thead>
<tr>
<th>BORING NO.</th>
<th>DEPTH (ft)</th>
<th>SOIL DESCRIPTION</th>
<th>PERCENT PASSING No. 200 SIEVE</th>
</tr>
</thead>
<tbody>
<tr>
<td>BH-1</td>
<td>7.5</td>
<td>Sandy Clay (CL)</td>
<td>54</td>
</tr>
<tr>
<td>BH-2</td>
<td>7.5</td>
<td>Clayey Sand (SC)</td>
<td>46</td>
</tr>
<tr>
<td>BH-3</td>
<td>0-3</td>
<td>Clayey Sand (SC)</td>
<td>49</td>
</tr>
<tr>
<td>BH-3</td>
<td>5</td>
<td>Sandy Clay (CL)</td>
<td>64</td>
</tr>
</tbody>
</table>
GRAIN SIZE DISTRIBUTION

A total of two 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. The retained material was run through a standard set of sieves in accordance with ASTM D 422. The weight of soil retained on each sieve was recorded and the total dry weight was calculated. The grain size distribution data from the full sieve analyses is presented in Figure B-2. A summary of the percentages passing the No. 200 sieve (ASTM D1140) is presented below.

<table>
<thead>
<tr>
<th>BORING NO.</th>
<th>DEPTH (ft)</th>
<th>SOIL DESCRIPTION</th>
<th>PERCENT PASSING No. 200 SIEVE</th>
</tr>
</thead>
<tbody>
<tr>
<td>BH-4</td>
<td>7.5</td>
<td>GRAVEL (GW) with sand and silt</td>
<td>10</td>
</tr>
<tr>
<td>BH-4</td>
<td>12.5</td>
<td>SAND (SP) with gravel and silt</td>
<td>6</td>
</tr>
</tbody>
</table>

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 sand 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 organic silt samples were inundated for 4 hours, allowed to consolidate, and then were sheared to failure at a strain rate of 0.001 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-3 to B-5.

UNCONSOLIDATED UNDRAINED TRIAXIAL TESTS

Unconsolidated undrained triaxial tests were performed on two samples of cohesive soils in accordance with ASTM D 2850. The testing was performed by A.P. Engineer on a soil samples provided by GPI. Detailed test results are presented in Figures B-6 and B-7.

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:

<table>
<thead>
<tr>
<th>BORING NO.</th>
<th>DEPTH (ft)</th>
<th>SOIL DESCRIPTION</th>
<th>EXPANSION INDEX</th>
</tr>
</thead>
<tbody>
<tr>
<td>BH-3</td>
<td>0-3</td>
<td>Sandy Clay (CL)</td>
<td>41</td>
</tr>
<tr>
<td>SAMPLE LOCATION</td>
<td>LL</td>
<td>PL</td>
<td>PI</td>
</tr>
<tr>
<td>-----------------</td>
<td>-----</td>
<td>----</td>
<td>----</td>
</tr>
<tr>
<td>BH-2</td>
<td>7.5</td>
<td>26</td>
<td>19</td>
</tr>
<tr>
<td>BH-3</td>
<td>5.0</td>
<td>98</td>
<td>69</td>
</tr>
</tbody>
</table>

PROJECT: BALDWIN HILLS REC CENTER

ACTERBERG LIMITS TEST RESULTS

FIGURE B-1
- **PEAK STRENGTH**
  Friction Angle = 38 degrees
  Cohesion = 624 psf

- **ULTIMATE STRENGTH**
  Friction Angle = 31 degrees
  Cohesion = 336 psf

<table>
<thead>
<tr>
<th>Sample Location</th>
<th>Classification</th>
<th>DD,pcf</th>
<th>MC,%</th>
</tr>
</thead>
<tbody>
<tr>
<td>BH-1</td>
<td>SAND (SP)</td>
<td>108</td>
<td>13.1</td>
</tr>
</tbody>
</table>

**PROJECT:** BALDWIN HILLS REC CENTER  
**PROJECT NO.:** 2500.08I

**DIRECT SHEAR TEST RESULTS**

**FIGURE B-3**
**PEAK STRENGTH**
Friction Angle = 37 degrees  
Cohesion = 312 psf

**ULTIMATE STRENGTH**
Friction Angle = 30 degrees  
Cohesion = 174 psf

<table>
<thead>
<tr>
<th>Sample Location</th>
<th>Classification</th>
<th>DD,pcf</th>
<th>MC, %</th>
</tr>
</thead>
<tbody>
<tr>
<td>BH-3</td>
<td>SAND (SP)</td>
<td>101</td>
<td>4.9</td>
</tr>
</tbody>
</table>

**DIRECT SHEAR TEST RESULTS**
**PEAK STRENGTH**
Friction Angle = 29 degrees
Cohesion = 324 psf

**ULTIMATE STRENGTH**
Friction Angle = 30 degrees
Cohesion = 228 psf

<table>
<thead>
<tr>
<th>Sample Location</th>
<th>Classification</th>
<th>DD, pcf</th>
<th>MC,%</th>
</tr>
</thead>
<tbody>
<tr>
<td>BH-4</td>
<td>ORGANIC SILT (OH)</td>
<td>54</td>
<td>53.1</td>
</tr>
</tbody>
</table>
UNCONSOLIDATED UNDRAINED TRIAXIAL TEST (UU,Q)
ASTM D 2850

Client Name: Geotechnical Professionals, Inc.
Project Name: Baldwin Hills
Project No.: 2500.08i
Boring No.: B-2
Sample No.: Depth (feet): 5
Soil Description: Sandy Clay
Sample Type: Mod. Cal.

Sample Diameter (inch): 2.414
Sample Height (inch): 4.863
Sample Weight (g): 703.09
Wt. of Wet Soil+Container (g): 890.20
Wt. of Dry Soil+Container (g): 772.94
Wt. of Container (g): 148.52

Wet Unit Weight (pcf): 120.3
Dry Unit Weight (pcf): 107.0
Moisture Content (%): 12.4
Void Ratio for Gs=2.7: 0.57
% Saturation: 58.2

TEST DATA

<table>
<thead>
<tr>
<th>Load (lbs)</th>
<th>Def. (inch)</th>
<th>Area (sq.in)</th>
<th>Deviator Stress (ksf)</th>
<th>Axial Strain (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>0.000</td>
<td>4.58</td>
<td>0.00</td>
<td>0.00</td>
</tr>
<tr>
<td>52</td>
<td>0.005</td>
<td>4.58</td>
<td>1.63</td>
<td>0.10</td>
</tr>
<tr>
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<td>4.89</td>
<td>0.41</td>
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<td>6.10</td>
<td>0.51</td>
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<td>7.16</td>
<td>0.62</td>
</tr>
<tr>
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<td>0.060</td>
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<td>13.11</td>
<td>1.23</td>
</tr>
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<td>13.43</td>
<td>1.85</td>
</tr>
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<td>4.83</td>
<td>8.98</td>
<td>5.20</td>
</tr>
<tr>
<td>304</td>
<td>0.298</td>
<td>4.88</td>
<td>8.98</td>
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<td>319</td>
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<td>7.91</td>
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<td>9.41</td>
<td>8.83</td>
</tr>
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<td>336</td>
<td>0.471</td>
<td>5.07</td>
<td>9.55</td>
<td>9.69</td>
</tr>
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<td>344</td>
<td>0.516</td>
<td>5.12</td>
<td>9.68</td>
<td>10.60</td>
</tr>
<tr>
<td>351</td>
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<td>5.17</td>
<td>9.77</td>
<td>11.50</td>
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<tr>
<td>354</td>
<td>0.602</td>
<td>5.22</td>
<td>9.76</td>
<td>12.38</td>
</tr>
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<td>0.646</td>
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<td>9.61</td>
<td>14.18</td>
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<td>9.54</td>
<td>15.06</td>
</tr>
<tr>
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<td>0.776</td>
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<td>9.68</td>
<td>15.96</td>
</tr>
<tr>
<td>373</td>
<td>0.820</td>
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<td>9.76</td>
<td>16.85</td>
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<td>0.906</td>
<td>5.63</td>
<td>9.70</td>
<td>18.64</td>
</tr>
<tr>
<td>380</td>
<td>0.951</td>
<td>5.69</td>
<td>9.62</td>
<td>19.55</td>
</tr>
<tr>
<td>382</td>
<td>0.994</td>
<td>5.75</td>
<td>9.56</td>
<td>20.45</td>
</tr>
</tbody>
</table>

FIGURE B-6
UNCONSOLIDATED UNDRAINED TRIAXIAL TEST (UU,Q)
ASTM D 2850

Client Name: Geotechnical Professionals, Inc.
Project Name: Baldwin Hills
Project No.: 2500.081
Boring No.: B-3
Sample No.: 12.5
Soil Description: Sandy Clay

Sample Diameter (inch): 2.415
Sample Height (inch): 4.810
Sample Weight (g): 660.95
Wt. of Wet Soil+Container (g): 799.17
Wt. of Dry Soil+Container (g): 701.88
Wt. of Container (g): 149.68

Sample Type: Mod. Cal.
Wet Unit Weight (pcf): 112.5
Dry Unit Weight (pcf): 95.6
Moisture Content (%): 17.7
Void Ratio for Gs=2.7: 0.76
% Saturation: 62.5

TEST DATA

<table>
<thead>
<tr>
<th>Load (lbs)</th>
<th>Def. (inch)</th>
<th>Area (sq.in)</th>
<th>Deviator Stress (ksf)</th>
<th>Axial Strain (%)</th>
</tr>
</thead>
<tbody>
<tr>
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Appendix B

LPILE Results
36-inch diameter
Bending Moment (in-kips)
42-inch diameter
Lateral Pile Deflection (inches)

Depth (ft)

Load Case 1

Sand
42-inch diameter
Bending Moment (in-kips)
42-inch diameter
Shear Force (kips)