April 13, 2016
Project No. 20163965.001A

Mr. Jim Reed, PE, RA, Leed®AP, RPA
Carrier Johnson + Culture
1301 Third Avenue
San Diego, California 92101

Subject: **Geotechnical Investigation**
Legacy International Center
Mission Valley Campus
875 Hotel Circle South
San Diego, California

Dear Mr. Reed:

This report presents the results of our geotechnical engineering investigation and recommendations for design and construction of the proposed Legacy International Center, located at 875 Hotel Circle South, Mission Valley, San Diego, California.

We appreciate this opportunity to be of service and look forward to continue working with you in the future. If you have any questions about this report or need additional services please contact us at (619) 831-4600.

Respectfully submitted,

KLEINFELDER

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GEOTECHNICAL INVESTIGATION
LEGACY INTERNATIONAL CENTER
MISSION VALLEY CAMPUS
875 HOTEL CIRCLE SOUTH
SAN DIEGO, CALIFORNIA
KLF PROJECT NO. 20163965.001A

APRIL 13, 2016

A Report Prepared for:

Mr. Jim Reed, PE, RA, Leed®AP, RPA
Carrier Johnson + Culture
1301 Third Avenue
San Diego, California 92101

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April 13, 2016

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1 INTRODUCTION

1.1 BACKGROUND

This report presents the results of Kleinfelder's geotechnical investigation for the proposed Legacy International Center, located at 875 Hotel Circle South, Mission Valley, San Diego, California. The project principally consists of four buildings associated with faith-based training, retail, commercial, recreational, administrative and hostelry which specifically includes the following elements:

- Deconstruction of existing structures: existing Mission Valley Resort Hotel, Valley Liquor Mart and Restaurant, and Frogs Gym (nonoperational and vacant)
- 2-story pavilion building
- 2-story museum building
- 5-story hotel
- 2-story spa and suites
- 4-story parking structure
- Various low retaining walls
- Pedestrian walkways and plaza areas
- Multiple landscape/hardscape features and pavements

The purpose of our geotechnical investigation was to evaluate the subsurface conditions at the site, determine potential geologic/seismic hazards, perform geotechnical engineering evaluations, and provide geotechnical recommendations for design. This report presents a review of a previous geotechnical site investigation and results from our current subsurface explorations, laboratory testing, geotechnical analyses, and our geotechnical conclusions and recommendations pertaining to the project site. Preliminary 100% Schematic Design drawings for the project are presented in Appendix A for reference. Proposed site grading and building locations are presented on Figure A1.0 of Appendix A and other various figures therein.

1.2 LOCATION

The Legacy International Center site is located in the Mission Valley area of San Diego, California. The physical address is 875 Hotel Circle South and is depicted on Figure 1, Site Vicinity Map.

The approximate coordinates of the project site are:

Latitude: 32.759°N Longitude: -117.171°W

An aerial photograph of the project site with proposed site improvements, previous exploration locations by others and our recent exploration locations is presented as Figure 2, Aerial Photograph with Proposed Improvements.

1.3 SITE AND PROJECT DESCRIPTION

The project area has several existing facilities currently operating and one large vacant building at the most southern portion of the site (Figure 2). The site is located at the existing Mission Valley Resort Hotel (operating), which is located throughout most of the northern portion of the site. A liquor store, bar and restaurant are located adjacent to a portion of the hotel and a Frogs Gym (nonoperational) is located on the southeastern side of the site and behind the hotel. Associated with the above facilities are two swimming pools, numerous paved driveways and parking lots, tennis courts, numerous concrete sidewalks and flatwork, as well as, several retaining wall structures. We understand that all existing site structures will be demolished prior to construction of the proposed Legacy International Center. Proposed improvement areas are located along the south side of Hotel Circle South. The ground surface throughout the majority of the improvement areas along Hotel Circle South have an approximate surface elevations between +24 to +34 feet Mean Sea Level (MSL), however, proposed development areas to the south reach elevations between +40 to +70 feet MSL.

We understand that new construction at the site will include the two 2-story buildings (pavilion and museum) and a 4-story parking structure at the lower elevation portion of the site. The two 2-story buildings are irregular in shape but will be roughly 300 feet by 100 feet in overall plan dimensions. The parking structure is nearly 400 feet in length by about 130 feet wide. A 5-story hotel building is planned at the most southern portion of the site. The hotel structure will be approximately 250 feet by 70 feet in plan dimension. All new buildings will be supported by deep pile foundations.

Other site improvements will include changes to existing grade for site improvements and decorative landscape/hardscape features throughout the site. The improvement areas will have various surface treatments including slab-on-grade concrete, block pavers and various low retaining walls. New flexible asphalt concrete and rigid concrete pavements are also proposed throughout the development area and for the widening of Hotel Circle South.

The general arrangement of the project improvements and the geotechnical explorations performed by Kleinfelder and other consultants are presented in Figure 2.

1.4 PURPOSE AND SCOPE OF SERVICES

The purpose of our geotechnical and geologic engineering services was to evaluate the soil and geologic conditions at the site and provide conclusions and recommendations for design and construction of the proposed site development. The scope of our investigation consisted of a literature review, three phases of subsurface investigation for geophysical testing, boreholes (small and large diameter) and cone penetration testing, geotechnical laboratory testing, engineering evaluation and analysis, and the preparation of this report.

The following geotechnical information and recommendations are presented in our report:

- Vicinity map and site plan showing approximate locations of field explorations
- Results of geophysical surveys
- Logs of soil boreholes
- Laboratory test results
- Results of cone penetration test soundings
- Discussion of field exploration methods and laboratory test procedures
- Discussion of the site and subsurface conditions
- Discussion of faulting and seismicity in the region
- Discussion of potential geologic hazards at the site
- Recommendations for seismic design per the 2013 California Building Code
- Discussion of groundwater conditions
- Discussion of anticipated excavation conditions
- Guidelines for earthwork construction including recommendations for site preparation, temporary slopes, trench excavations, removal depths of unsuitable soil, fill/backfill placement and compaction
- Discussion of possible foundation types
- Recommended geotechnical parameters for foundation design and estimated settlements
- Lateral earth pressures for retaining walls and temporary shoring

- Recommendations for supporting concrete slabs-on-grade and exterior flatwork
- Recommendations for flexible and rigid pavement design
- Discussion of soil properties affecting steel corrosion and concrete attack

The recommendations contained within this report are subject to the limitations presented in Section 5.0.

1.5 EXISTING GEOTECHNICAL INFORMATION

Existing geotechnical information for the Legacy International Center site that has been reviewed includes a geotechnical investigation and laboratory test report prepared by Geocon, Inc. The document reviewed is provided below:

- "Preliminary Geotechnical Investigation, Morris Cerullo World Outreach Pavilion, San Diego, California", prepared by Geocon, Inc., project no. 07817-52-02, dated March 6, 2013.

Excerpts of useful geologic and geotechnical data including key figures, borehole logs and laboratory test results from that report are presented in Appendix B, Previous Relevant Geotechnical Information. Approximate locations of pertinent previous explorations are shown on Figure 2 and Figure 3, Site Plan and Geologic Map.

2 INVESTIGATIVE METHODS

2.1 GEOLOGIC EVALUATION

Our geologic evaluation consisted of reviewing available aerial photographs, geotechnical reports and geologic maps listed in References, Section 6, along with observation of the existing site conditions during a site reconnaissance. The results of the evaluation are included in the following sections. Site geology is shown on Figure 3 and Figure 4, Regional Geologic Map.

2.2 SUBSURFACE INVESTIGATION

2.2.1 Borehole Explorations

Subsurface explorations were performed between February 16 and March 3, 2016 and consisted of drilling and sampling twelve small diameter hollow-stem auger Boreholes (B-1 through B-12), four small diameter hand auger locations (HA-1 through HA-4) and four large diameter Boreholes (LD-1 through LD-4). Boreholes were completed using truck-mounted drill rigs, with the exception of the hand auger excavations, and equipped with 7-inch outer diameter hollow-stem augers and 24-inch solid flight augers for the large diameter locations. Drill rigs were operated by Pacific Drilling and Western Foundations of San Diego, California. Depths of the boreholes ranged between 2 to 49 feet below the existing ground surface. During hollow-stem auger drilling below static groundwater elevations additional water, where needed, was added through the hollow-stem equipment to prevent possible intrusion of granular soils. Prior to sampling at depths below groundwater, the drilled depth was verified at each sample interval. Depth to static groundwater was measured during and after drilling if additional water was not added to the borehole location. The approximate borehole locations are indicated on Figures 2 and 3.

A staff engineer and an engineering geologist from our office logged the subsurface conditions encountered in the boreholes, and collected soil samples for further evaluation and laboratory testing. Selected bulk and relatively intact samples were retrieved from the boreholes, sealed, and transported to our laboratory for further evaluation. The approximate upper 5 feet of each borehole was hand-augered for utility clearance and thereafter the typical vertical sampling interval for field investigations was every 5 feet to the total depth explored alternating sampler types. We recorded the number of blows to drive both a Standard Penetration Test (SPT) sampler using 140 pound hammer dropped 30 inches in general accordance with ASTM D1586 and Modified California (Mod-Cal) sampler. However, no driven samples were collected at the large diameter locations, only grab bulk bag samples were taken for classification and laboratory testing. Graphic notations on the borehole log indicate the sampler type utilized at each sample depth. Upon completion, boreholes were backfilled with bentonite grout. The ground surface in asphalt paved areas was patched using cold patch asphalt or soil to match existing site conditions. A summary of the Kleinfelder field exploration program and the log of the exploratory borehole are presented in Appendix C, Borehole Logs.

2.2.2 Cone Penetration Tests

Ten cone penetrometer test (CPT) soundings were advanced to depths ranging from approximately 11 to 40 feet below the existing ground surface. The CPTs were performed by Gregg Drilling utilizing a 20-ton capacity electronic cone with a tip area of 2.33 in^2 and a sleeve area of 34.9 in^2. Cone measurements of tip resistance, sleeve resistance and pore water pressure were recorded in all CPTs. The CPT soundings are presented in Appendix D along. Soil descriptions noted on the CPT logs are inferred based on industry standard correlations to CPT measurements. Direct observations of soil conditions are not made with the CPT, and it is not always possible to clearly identify a soil type based solely on the CPT measurements. Inference of soil classifications from CPTs should be made with caution, and should be cross-checked against soil borehole data and available corresponding laboratory tests. The upper approximately 5 feet of CPT locations were hand excavated. The CPT logs are presented in Appendix D. The approximate CPT locations are shown on Figures 2 and 3.

2.2.3 Geophysical Surveys

A total of six refraction microtremor (ReMi) surveys were performed to evaluate shear wave velocity at various proposed improvement locations across the site. The surveys were performed to develop a compression wave and shear wave velocity profile below the site. This work was performed by Southwest Geophysics, Inc. of San Diego, California on February 1, 2016. Descriptions of the geophysical methods and results are presented in Appendix E, Geophysical Survey Results. The approximate locations of the ReMi surveys are shown on Figures 2 and 3.

2.3 LABORATORY TESTING

A laboratory testing program was conducted to substantiate field classifications and evaluate selected physical characteristics and engineering properties of the soils encountered. Moisture content, unit weight, Atterberg Limits (plasticity), sieve analyses, R-value, consolidation, direct shear strength, expansion index (EI), and corrosion tests were performed in general accordance with the applicable ASTM or Caltrans test methods. Results of the laboratory testing program are presented in Appendix F, Laboratory Test Results.

3 SITE CONDITIONS

3.1 GEOLOGIC SETTING

San Diego County is located within the southern portion of California's Peninsular Ranges Geomorphic Province (CGS, 2002). This province is characterized as an assemblage of north-to-northwest-trending, high-relief ranges stretching south from the Santa Monica Mountains in Los Angeles, through San Diego County, and well into Baja California, Mexico. Notable regional mountain ranges include the Santa Ana Mountains, the Laguna Mountains and the Cuyamaca Mountains. The development of this mountainous terrain is closely tied to the transform tectonics of the San Andreas Fault System. The local geologic conditions near the site are presented in Figure 4.

The County encompasses three geomorphic subzones that are set in a series of north-to-northwest trending belts, roughly parallel to the Pacific coastline. From west to east, these zones are composed of a relatively narrow, low-relief coastal plain; a dominant, central high-relief mountainous zone; and a low-lying desert zone on the east. The project is site is located within the western coastal plain subzone.

The coastal plain area, which includes the site, is underlain by a sequence of Cretaceous to Quaternary age sedimentary units which were deposited on an erosion surface cut into the igneous/metamorphic basement rocks described above. Cretaceous to Tertiary rocks consist of a variety of sandstones, claystones, siltstones and conglomerates. Quaternary sediments include numerous middle- to early-Pleistocene age marine terrace deposits and late-Pleistocene to Holocene age alluvium, estuarine and colluvial deposits. The terrace deposits were laid down on wave-cut platforms that occupy beveled surfaces at various elevations from near sea-level to over several hundred feet.

During the latest Pleistocene the land surface throughout San Diego County was down-cut and eroded by fluvial processes in response to a world-wide glacially induced drop in sea level. This erosional event resulted in the dissected system of east to west flowing drainages and intervening basins that empty into the Pacific Ocean. Near the coast, these drainages downcut several hundreds of feet below current sea-level elevations. Near the end of the Pleistocene epoch and continuing up to the present, sea-level gradually rose as the continental glaciers receded, which forced in-filling of the eroded drainages with alluvial sediments. Mission Valley which is drained by the San Diego River, is one of the larger of these in-filled drainage features of San Diego County.

The regional geology of the project area is depicted on the Regional Geologic Map (Kennedy 1975) of Figure 4. We also reviewed and updated geologic map covering the site by Kennedy and Tan (2008) as part of our geologic evaluation.

3.2 TECTONIC SETTING

California is the most tectonically active areas of the United States. This is because it straddles the boundary of two global tectonic plates known as the North American Plate (on the east) and the Pacific Plate (on the west). The main plate boundary fault is defined by the San Andreas fault which crosses through some of the most densely developed areas of both Southern and Northern California. It stretches northwest from the Gulf of California in Mexico, through the desert region of the Imperial Valley, crossing the San Bernardino region, and traversing up into northern California, where it eventually trends offshore near San Francisco (Jennings, 1994; Jennings and Bryant, 2010). Within southern California, the plate boundary is actually a complex system of numerous faults known as the San Andreas Fault System (SAFS) that spans a 150-mile wide zone from the main San Andreas fault in the Imperial Valley, westward to offshore of San Diego (Powell et al., 1993; and Wallace, 1990). This zone of faulting is depicted on Figure 5. The major faults east of the site (from east to west) include the San Andreas, San Jacinto, and Elsinore faults. Major faults west of San Diego include the Rose Canyon-Newport-Inglewood, Palos Verdes-Coronado Bank, San Diego Trough, and San Clemente faults.

The most dominant zone of active faulting within the San Diego region is the Rose Canyon Fault Zone (RCFZ). The fault zone extends through the coastal portion of metropolitan San Diego, north from the southern coast of Coronado up through La Jolla where it trends offshore near the La Jolla Shores Beach. North of La Jolla the fault and continues north-northwest subparallel to the coastline up towards Newport Beach. South of downtown San Diego, the fault zone splits into several splays that underlie San Diego Bay, Coronado, and the ocean floor south of Coronado. The fault zone consists of predominantly right-lateral strike-slip faults but certain segments also display normal, oblique, or reverse components. The nearest portion of the RCFZ to the site is approximately 1.4 miles west in the Old Town area.

Portions of the fault zone in the Mount Soledad, Rose Canyon, and downtown San Diego areas have been designated by the State of California (CDMG 1991, CGS 2003) as being active Earthquake Fault Zones. An active fault is one which has undergone movement within the last 11,000 years. Other studies (SANDAG 2014) have noted fault deformed features in the recent landscape in the Morena and Old Town areas. Studies indicate that the most recent earthquake on the Rose Canyon fault in San Diego occurred after A.D. 1523 but before the Spanish arrived in 1769. Two additional later earthquakes may have occurred, on offshore segments of the Rose Canyon fault in the 1800s (Figure 5). Further discussion of faulting and seismicity relative to the site is provided in the Section 4.1.1 of this report.

3.3 SITE GEOLOGY AND SUBSURFACE CONDITIONS

The project site is comprised of two distinct geologic areas. The area on the northern portion of the site ranges in elevation from approximately +23 feet above mean sea level (MSL) to approximately +40 feet MSL, and is considered a portion of the southern edge of the Mission Valley floodplain. This area is underlain by shallow fill soils, stream deposited alluvium, slope wash (colluvium) and alluvial fan deposits. These materials were deposited into an ancient Pleistocene channel/floodplain cut by the San Diego River. The bedrock material below the alluvial deposits consists of the Eocene age Stadium Conglomerate.

The southern portion of the site, steps up in elevation from approximately +40 to +70 feet MSL into a large north-draining side canyon off of the southern slope of Mission Valley. The southern slopes range up to 190 feet in height and have gradients of approximately 2:1 horizontal to vertical units. This southern side drainage area is underlain by relatively deep fill that was placed to create a pad for the former Frogs Gym and associated parking lot. The fill was placed over alluvial deposits which occupied the bottom areas of the drainage and Eocene age Stadium Conglomerate which form the canyon walls and underlies the alluvium. Colluvial deposits accumulated along the lower portions of the southern slopes, resting on top of the Stadium Conglomerate. The upper portions of the slope are underlain by another Eocene age unit known as the Mission Valley Formation. The Mission Valley Formation is not anticipated to occur on any portion of the project site.

The areal extent of these geologic units is depicted on Figure 3. Descriptions of these units are provided in the Borehole Logs (Appendix C), and generalized descriptions are provided in the subsequent sections below. The subsurface geologic conditions are depicted on the geologic cross-sections on Figures 6 through 10.

3.3.1 Artificial Fill (af)

Artificial fill soils were encountered in the southern areas of the site and are also occur to shallow depth below isolated locations in the northern area. The fill soils below the southern portion of the site were approximately placed within a U-shaped side drainage feature and thicken toward the central and northern portion of the site (Figure 3). It was encountered in three of the large diameter borings to depths of approximately 13½ feet in Boring LD-2, 26 feet in LD-3 and 5½ feet in LD-4. This prism of fill has a high gravel and cobble content and is comprised of a variety materials which include silty clay with sand, clayey sand, clayey sand with gravel, silty sand with gravel, sandy silt with gravel and sandy clay with gravel. Typically, the larger cobble clasts range up to approximately 8 inches in size. The largest clast encountered in the fill was a 15 inch boulder. It is likely that some boulders in excess of 18 inches may be present in the fill.

Shallow fill on the order of 3 feet was encountered at in Boring B-9 in the northern portion of the site. We anticipate it to occur at several other isolated areas, but is likely relatively shallow in depth. Our review of historical aerial photography shows that this portion of the site was relatively level prior to site development and thus, grading likely consisted of infill of low areas to build these areas up and create a suitable building pad for the current hotel site. It consists of lean clay with sand at Boring B-9. Due to the shallow depth of the fill and its occurrence as isolated patches, it has not been represented below the northern portion of the on the geologic map or cross-sections.

We did not obtain nor were we provided information on the placement and compaction of the fill below either the northern portion or southern portion of the project site and thus, the fill is considered undocumented.

3.3.2 Colluvial Deposits (Qc)

Colluvial Deposits typically accumulate as a wedge shaped mass along the lower portions of steep hillsides (Figure 3). This material is derived from downslope movement due to gravity and sheet-flow water erosion during rainfall. This results in transport of detrital material from the upper portions of a slope and depositing along the bottom area. These soils were encountered in Boring B-11 and observed on the slopes south of the hotel building pad. Below Boring B-11 they consisted of a variety of material including lean clay with sand, silty sand, well-graded and poorly-graded sands with gravel, and clayey sand with gravel and silt. The geologic map on Figure 3, shows the colluvial deposits in map view on the slopes surrounding the various building areas. Cross-sections B-B', C-C' and D-D', Figures 7 through 9, show colluvial deposits in the subsurface as isolated to the southern perimeter of the northern area and western and eastern edges of the southern site area. In cross sections C-C' and D-D' it is represented as inter-fingered with the alluvial deposits which indicates that it was accumulating at the same time as the alluvial deposits.

3.3.3 Alluvial Deposits (Qa)

Alluvial deposits were encountered below both the northern and southern portions of the site (Figure 3). These deposits are comprised of variable material units derived from several depositional processes. The alluvial deposits in the lower northern portion of the project site are comprised material shed from the southern side drainage and slopes and material carried downstream in Mission Valley by the San Diego River. The material shed from the south is comprised of slope and canyon were transported north out into the valley during severe rainstorms and alluvial fan deposits which outlet from the southern drainage. The subdued cone-shaped surface of the fan is apparent on the historical aerial photography and is also evident in current surface topography in the area surrounding the lobby of the hotel. Material deposited from the San Diego River include fluvial stream deposits, overbank deposits and some estuarine deposits.

Alluvial deposits were encountered in Borings B-1 through B-12, and in the borings in the previous study by Geocon (2013). The alluvial deposits were drilled through into the underlying bedrock at Boring B-2, B-3, B-5 and B-9 through B-11. Alluvial deposits are generally thicker to the north with a maximum basal depth of about 39½ feet at Boring B-2. Borings B-1, B-4, B-6 through B-8, and B-12 were terminated due to effective auger refusal on gravel and cobbles, prior to penetration of the bottom of the alluvial deposits. It was also encountered in hand auger Borings HA-1 through HA-4. The varying soil materials encountered are highly variable which is reflective of the different depositional processes. These encountered soils include the most soils in the spectrum from clays, silts, sands, gravels, cobbles and boulders with widely variable gradations. The gravel and cobble content typically is greater in areas closer to the slope. High blow counts were obtained on driven samples in zones containing a high gravel content and are not likely representative of the density/consistency of these layers. In zones with no or minimal gravel content, blow counts ranged from between 5 to 23 blows/foot for the standard penetrometer test sampler and 7 to 27 blows/foot for the modified California sampler.

Alluvial deposits derived from deposition within the southern drainage feature were encountered below fill soils within the southern portion of the project area in Borings LD-2, LD-3 and LD-4 (Figure 3). The alluvium was apparently deposited mostly during flash flooding from heavy rainstorm extends to a depth of about 39 feet at Boring LD-3 which is near the center of the old drainage feature. It has a high gravel and cobble content and is comprised mostly of sandy clay with gravel, clayey sand with gravel, silty sand with gravel, and poorly-graded sand with silt and gravel. Clast sizes typically ranges up to 8 inches in size with few boulders that ranged up to 12 inches. Due to the anticipated high gravel and cobble content, the borings in this area were planned to be drilled with a large diameter bucket rig. Boring LD-2 was drilled first and encountered very difficult drilling conditions while advancing through the alluvial deposits. While drilling Boring LD-3, the drill rig could not advance beyond 20 feet and a more powerful Watson 2500 auger rig was mobilized to the site. The Watson rig was able to penetrate through the alluvial deposits and underlying Stadium Conglomerate. Drive samples were not attempted due to the high rock content.

3.3.4 Stadium Conglomerate (Tst)

Stadium Conglomerate outcrops on the southern slopes and was encountered below the alluvial deposits in several of our borings at both the northern and southern areas of the project. At the northern portion of the site the Stadium Conglomerate was encountered at depths ranging from about 27 feet at Boring B-11 to 39½ feet at Boring B-2. On the southern side of the site it was encountered at the surface at Borings LD-1 and 39 feet at Boring LD-3. It is comprised of a moderately cemented cobble conglomerate with clast sizes typically ranging up to 8 inches and a few boulders up to 15 inches. Larger boulder up to 24 inches have been encountered locally and could underlie the site.

3.3.5 Groundwater

Groundwater was encountered in all twelve borings, Borings B-1 through B-12 drilled within the northern portion of the site in Borings LD-2 and LD-3 drilled within the southern portion. Approximate groundwater levels encountered in the borings are depicted on the Boring Logs (Appendix C) and in the geologic cross sections (Figures 6 through 10). In the twelve northern borings, the groundwater depth ranged between approximately 8 to 20½ feet which corresponds to elevations ranging between approximately +15.5 to +20½ feet above mean sea level (MSL). In Borings LD-2 and LD-3, groundwater was encountered at respective depths of approximately 37 feet and 43 feet. This corresponds to an approximate elevation of +12 feet and +27 feet MSL. Groundwater levels can fluctuate due to seasonal rainfall variations and climatic conditions such as drought or periods of extended rainfall. Other conditions which can alter groundwater are over irrigation and leaking water pipes or underground tanks. Groundwater levels were also recorded in the borings performed by Geocon (2013). They penetrated 11 borings and encountered groundwater in 9 borings ranging in depth between approximately 8 to 33½ feet.

4 DISCUSSIONS, ANALYSIS, AND RECOMMENDATIONS

Geotechnical engineering discussion, conclusions and recommendations for the support of the structural elements associated of the proposed Legacy International Center structures and other improvements are presented in the following sections. These discussions, conclusions and recommendations are based on Kleinfelder's understanding of the project, and the results of Kleinfelder's field explorations, laboratory testing, analyses and professional judgment.

4.1 POTENTIAL GEOLOGIC HAZARDS

Kleinfelder has reviewed the site with respects to potential geologic hazards. This evaluation is based on review of geologic maps, aerial photographs, our geologic site reconnaissance, boring and laboratory data and engineering analysis. The City of San Diego Seismic Safety Study (2008) classifies the site as within two potential geologic hazard zones. The majority of the site is within a "53" hazard category zone which is defined as an area of level or sloping terrain with unfavorable geologic structure with low to moderate risk. A narrow strip of the northernmost portion of the site is within a "31" hazard zone which is an area underlain by soils with a high potential for liquefaction.

Potential geologic hazards considered in our study include, surface rupture, seismic shaking, lurching, liquefaction, seismically induced settlement, tsunamis, seiche and flooding, landslides and expansive soils. The following sections discuss these hazards and their potential at this site in more detail.

4.1.1 Surface Rupture

As previously discussed in Section 3.2, the subject site is not underlain by known active or potentially active faults. The closest active fault is the Rose Canyon fault which is located approximately 1.4 miles to the west. The closest potentially active fault is the Texas Street fault located 1.6 miles to the east. The results of our site reconnaissance and review of historical aerial photography did not reveal indications of faults crossing the project site. Based on these data it is our opinion that the potential for ground rupture due to faulting at the site is low.

4.1.2 Ground Lurching

Ground lurching is defined as movement of low density materials on a bluff, steep slope, or embankment due to earthquake shaking. Steep fill slopes are particularly prone to lurching. The northern portion of the site is relatively flat with the southern portion comprised of natural hillsides underlain by very dense Stadium Conglomerate. Based on these conditions, it is our opinion that the hazard with respect to ground lurching is low.

4.1.3 Seismic Shaking and CBC Seismic Design Parameters

Our recommendations for seismic design parameters are in accordance with the 2013 California Building Code (CBC) and ASCE 7-10 (July 2013 errata) Minimum Design Loads for Buildings and Other Structures.

The most significant seismic event likely to affect the project site would be an earthquake with a Moment Magnitude of approximately M_m=7.0 (Petersen et al. 2008) resulting from rupture along the nearby Rose Canyon fault, which is located approximately 1.4 miles southwest of the site. Ground motion parameters for design were generated using the USGS Earthquake Hazards Program online application for US Seismic Design Maps using the site coordinates presented in Section 1.2 of this report (http://earthquake.usgs.gov/designmaps/us/application.php).

Site Class for seismic design of the project is dependent on the interpretation on several ground characteristics including shear wave velocity. In general, the results of the ReMi geophysical surveys indicate that the project area is underlain by fill soils, deep alluvial deposits over conglomerate material at depth with a shear wave velocity ranging from about 341 to 3,799 ft/sec (104 to 1158 m/sec) within the upper 100 feet (30 m) from the ground surface. The shear wave velocity increases to over 2,500 ft/sec (762 m/sec) at a depth of about 34 to 48 feet (10 to 15 m) depending on the location of the site. The average characteristic shear wave velocity for a depth of 100 feet (30 m) (Vs30) at the six locations completed at the site ranged from 1,394 to 2,044 ft/sec (424 to 623 m/sec).

These shear wave velocities for the site correspond to a California Building Code (CBC) Site Class "C" (Very Dense Soil and Soft Rock). However, in our opinion, these results may not be an accurate representation of the near surface ground behavior during a strong earthquake due to the presence of thick, saturated alluvial deposits which dampens the ground response.

Based on our field investigation including deep boreholes and CPT soundings, the upper 30 to 40 feet of the site may be predominately characterized as being Soft Soil (Site Class E) to Stiff Soil

(Site Class D). In this respect and using the ASCE 7-10, Section 20.3.1, Table 20.3-1-Site Classification, we recommend that the site be classified as Site Class D (Stiff Soil Profile). Based on Site Class D, the site is defined as stiff soil with average shear wave velocities within the upper 100 feet between 600 ft/s to 1,200 ft/s, average SPT 15 to 50, or average undrained shear strength 1,000 to 2,000 psf.

Seismic design parameters are based on the Site Class D designation and on the site locations with respect to mapped spectral acceleration parameters S_S and S_1. The recommended seismic design parameters are summarized in Table 1.

Table 1

Recommended 2013 CBC Seismic Design Parameters

Design Parameter	Symbol	Recommended Value	2013 CBC / (ASCE 7-10) Reference(s)
Site Class	--	D (stiff soil profile)	Section 1613.3.2 (Section 11.4.2)
Mapped MCE_R (5% damped) spectral acceleration for short periods (Site Class B)	S_s	1.206 g	Section 1613.3.1 (Section 11.4.1)
Mapped MCE_R (5% damped) spectral acceleration for a 1-sec period (Site Class B)	S_1	0.465 g	Section 1613.3.1 (Section 11.4.1)
Short Period Site Coefficient	F_a	1.017	Table 1613.3.3(1) (Table 11.4-1)
Long Period Site Coefficient (at 1-second period)	F_v	1.535	Table 1613.3.3(2) (Table 11.4-2)
Peak Ground Acceleration	PGA	0.538 g	(Section 11.4.5)
MCE_R Peak Ground Acceleration adjusted for site class effects (S_M at T=0)	PGA_M	0.538 g	N/A
MCE_R (5% damped) spectral response acceleration for short periods adjusted for site class (F_a*S_S)	S_{MS}	1.227 g	Section 1613.3.3 / (Section 11.4.3)
MCE_R (5% damped) spectral response acceleration at 1-second period adjusted for site class (F_v*S_1)	S_{M1}	0.714 g	Section 1613.3.3 / (Section 11.4.3)
Design spectral response acceleration (5% damped) at short periods (2/3*S_{MS})	S_{DS}	0.818 g	Section 1613.3.4 / (Section 11.4.4)
Design spectral response acceleration (5% damped) at 1-second period (2/3*S_{M1})	S_{D1}	0.476 g	Section 1613.3.4 / (Section 11.4.4)

Notes: MCE_R: Risk-Targeted Maximum Considered Earthquake
MCE_G: Maximum Considered Earthquake Geometric Mean

4.1.4 Liquefaction and Seismic Settlement

The term liquefaction describes a phenomenon in which saturated, cohesionless soils temporarily lose shear strength (liquefy) due to increased pore water pressures induced by strong, cyclic ground motions during an earthquake. Structures founded on or above potentially liquefiable soils may experience bearing capacity failures due to the temporary loss of foundation support, vertical settlements (both total and differential), and undergo lateral spreading. The factors known to influence liquefaction potential include soil type, relative density, grain size, confinement, depth to groundwater, and the intensity and duration of the seismic ground shaking. The cohesionless soils most susceptible to liquefaction are loose, saturated sands and some silts. Liquefaction is most prevalent in loose to medium dense, sandy and gravely soils below the groundwater table, but can also occur in non-plastic to low plasticity finer grained soil.

Evaluations of potential liquefaction susceptibility based on soil composition were made according to the criteria of Bray and Sancio (2006) (for the Seed et al. SPT analyses) and Boulanger and Idriss (2006) for the Idriss and Boulanger (2006 and 2008) and Youd et al. (2001) analyses. For CPT analyses, we used the recommendations of Youd et al. (2001) to consider layers with soil behavior type index, $I_c<2.6$ as potentially liquefiable.

For layers that met the compositional criteria, liquefaction triggering (factor of safety) analyses were performed using methodologies proposed by Youd et al. (2001), Idriss & Boulanger (2006, 2008), and Moss et al. (2006). The analyses utilized both SPT data from our hollow stem boreholes and tip resistance data from our CPT soundings. In order to perform liquefaction analysis, estimated of earthquake magnitude (M_W) and peak ground acceleration (PGA_M) are needed. Liquefaction analyses were evaluated for M_W =6.8 and a PGA_M=0.54g based on ASCE 7-10 (Site Soil Classification “D” – Stiff Soil). The groundwater depth in our analysis is 10 feet.

Liquefaction induced volumetric settlements were estimated using the methods of Tokimatsu and Seed (1987), Idriss and Boulanger (2008), and Cetin et al. (2009). In general, the Idriss and Boulanger (2008) and Cetin et al. (2009) methods provide reasonably consistent results, while the Tokimatsu and Seed (1987) method provides lower estimates of settlement.

The site is comprised of both coarse and fine grain soils. The coarse to fine sands are most susceptible to liquefaction. The calculations indicated that there are sand layers that are liquefiable under the design ground motion loading. Calculated post-liquefaction settlements generally range from 0 to 7 inches. Some shallow liquefiable layers are present that could cause seismic bearing capacity loss and settlement for conventional shallow foundations.

Another type of seismically induced ground failure that can occur as a result of seismic shaking is dynamic compaction, or seismic settlement. Such phenomena typically occur in unsaturated, loose granular material or poorly compacted fill soils. The granular soils encountered at the site ranged from loose to dense. Table 2 presents dynamic compaction settlement for the various borehole locations by Kleinfelder and others using the Tokimatsu and Seed (1987) method. Calculated dynamic compaction settlement generally range from 0 to 12 inches. For this reason we conclude that there is potential for shaking-related seismic settlement.

Table 2

Summary of Estimated Liquefaction and Dynamic Settlements

Exploration ID	Estimated Liquefaction Settlement (inches)	Estimated Dynamic Compaction Settlement (inches)	Estimated Total Settlement (inches)
CPT-1	1 - 2	2 - 4	3 - 6
CPT-2	1 - 4	0 - 1	1 - 5
CPT-3a	0.5 - 2	5 - 10	5.5 - 12
CPT-4a	2 - 4	1 - 1.5	3 - 5.5
CPT-5	1 - 3	7 - 12	8 - 15
CPT-6	3 - 6	4 - 5	7 - 11
CPT-7	1 - 2.5	0.5 - 1	1.5 - 3.5
CPT-8	1.5 - 4	0.4 - 0.6	1.9 - 4.6
B-1	0	0 - 1	0 - 1
B-2	1 - 2	0 - 2.5	1 - 4.5
B-3	4 - 7	0 - 2	4 - 9
B-5	0 - 1	2 - 4	2 - 5
B-6	0	0 - 0.5	0 - 0.5
B-7	0	0 - 0.5	0 - 0.5
B-8	0 - 1	0 - 0.5	0 - 1.5
B-9	0 - 1	0 - 0.5	0 - 1.5
B-10	0	0 - 0.5	0 - 0.5
B-11	0 - 2	0 - 0.5	0 - 2.5
B-12	0 - 1.5	0 - 0.5	0 - 2

Our liquefaction and seismic compaction analyses show potentially liquefiable soils and significant settlements for the lower portion of the site adjacent to Hotel Circle South if remedial measures are not integrated into the project design.

4.1.5 Flood and Seiche Hazards

The northern side of the project site is located within Mission Valley which is a relatively flat lying geomorphic feature part of the flood plain of the San Diego River. This area has been subjected to numerous flooding events over during the recorded history of this area of San Diego. According to a Federal Emergency Management Agency (FEMA) flood insurance map 06073C1618GG, much of the northern lower portion of the site is within a designated a 100-year flood zone. The map also indicates that the maximum potential base flood level could reach an elevation of 30 feet MSL or higher.

A seiche is an oscillatory wave that develops in an enclosed or partially enclosed body of water, such as a bay or lake, in response to seismic shaking from an earthquake. Review of recent aerial imagery does not indicate the presence of a body of water in close proximity to the site. Based on this the hazard with respects to seiche is considered low.

4.1.6 Landslides

Landslides are deep-seated ground failures (several tens to hundreds of feet deep) in which a large arcuate or block shaped section of a slope detaches and slides downhill. Landslides can cause damage to structures both above and below the slide mass. Several formations within the San Diego region are particularly prone to landslides. These formations generally have high clay content and mobilize when they become saturated with water. Other factors, such as steeply dipping bedding that project out of the face of the slope and/or the presence of fracture planes, will also increase the potential for a landslide.

Due to the generally level (flat lying) configuration of the northern portion of the site, a deep-seated landslide hazard here is considered negligible. However, the southern side of the site is comprised of hillslopes with an average gradient of approximately 2 to 1 horizontal to vertical units. Review of geologic maps (Kennedy 1975, Kennedy and Tan 2008) our review of aerial photography (USDA 1953) and our site reconnaissance did not reveal indication of these slope areas to be affected by a deep seated landslide. The hillsides are mainly composed of Stadium Conglomerate along the lower slope elevations from approximately +170 feet MSL and below. Above an elevation of approximately +170 feet MSL the slope is comprised of the Mission Valley Formation. The regional geologic maps (Kennedy 1975, Kennedy and Tan 2008) show the contact between these two formations at around elevation +100 feet MSL. Our site reconnaissance and information from the Geocon (2013) report indicate the contact is much closer to +170 MSL. The Stadium Conglomerate is comprised of a massive cobble conglomerate with a sandy matrix and the Mission Valley Formation is a sandstone. Both of these have a low clay content. Structural attitudes on the regional geologic maps some the bedding structure dipping predominantly to the south into the slope face. Based on all these data, it is our opinion that the hazard with respect to a deep seated landslide is low.

Notwithstanding, much of the lower portion of the hillsides have a variably thick overburden layer of colluvium (slope wash) which is characteristically less competent that underlying Stadium Conglomerate. The colluvium may be considered highly erodible evidenced by the deep gully erosion near the southwest corner of the site (Figure 3). Observations of the lower portion of the gully erosion indicated caving and sloughing more than 10 feet high. The collapsed slope material is easily eroded and transported downslope. Likewise, the adjacent north-facing steep cut slope in this area shows evidence of shallow sloughing and micro-instability. Mitigation measures for these areas are presented in Sections 4.2 (Slope Stability) and 4.3 (Earthwork) of this report.

4.1.7 Expansive Soils

Expansive soils are characterized by their ability to undergo significant volume changes (shrink or swell) due to variations in moisture content. Changes in soil moisture content can result from precipitation, landscape irrigation, utility leakage, roof drainage, perched groundwater, drought, or other factors and may result in unacceptable settlement or heave of structures or concrete slabs supported on grade.

Based on our explorations and test data, existing near surface soils at the site range from non-plastic granular soils to low plasticity silts and clays having an Expansion Index of approximately 5 (very low) to 41 (low). Further, Atterberg Limits tests indicate for other near surface soils at the site have a liquid limit on the order of 30 to 40 percent and plasticity index values on the order of 10 to 20 percent. Based on these results and our visual evaluation of soil variability at the site, the majority of soils within the upper 5 feet of the site are likely to have a low to moderate expansion potential. Recommendations for remedial earthwork are presented in the following section of this report.

4.2 SLOPE STABILITY

Limit equilibrium slope stability analyses were performed using the computer program Slope/W by Geo-Slope International (Version 8.12, 2012) for permanent construction conditions for the existing slope behind the proposed parking structure located near the southwest corner of the subject project. The slope consists of densely compacted conglomerate formational soils with a wedge shaped layer of colluvium (slopewash) material near the toe. The colluvium located at the toe of slope is steeply inclined and considered marginally stable based on direct field observations (Appendix G, Figure G-1) as described in Section 3.1.6 of this report. The existing slope is approximately 170 feet high and has an overall inclination of about 2H:1V. We have performed stability analyses for both current existing slope conditions and also an excavated 1.5 horizontal to 1 vertical (1.5H:1V) back-cut along the slope face (Appendix G, Figure G-3).

Spencer's method of slices was used, which satisfies both moment and force equilibrium. The analysis employed circular, composite and block slip surface searches. Slope stability analyses require assumptions, including development of soil strength parameters and geometry of subsurface conditions. These are developed based on results of field and laboratory investigations, review of existing published information, and previous experience in the site vicinity. The Mohr-Coulomb failure criteria were used to model the soil strengths. A summary of strength parameters is presented in Table 3. Analyses for static long-term conditions utilized estimated drained shear strength parameters. For the simulation of earthquake conditions a pseudo-static horizontal acceleration coefficient of 0.2g was used.

Table 3

Geotechnical Strength Parameters used for Slope Stability Analyses

Material	Total Unit Weight (pcf)	Internal Friction Angle (degrees)	Cohesion (psf)
Fill	120	34	50
Alluvium	120	34	50
Colluvium	110	32	100
Stadium Conglomerate	140	42	500

A summary of the slope stability analyses results are presented in Table 4. The graphic output for slope stability analyses is presented in Appendix G, Slope Stability Analyses Results. It is recommended that slopes should have a calculated static safety factor for static long-term conditions in excess of 1.5. A minimum pseudo-static safety factor of 1.1 is recommended for simulated earthquake conditions. The results of the slope stability analysis for static and pseudo-static conditions indicate that the calculated safety factors are in excess of these recommended minimum values. It is our opinion that the existing slope with newly imposed surface loads will be grossly stable.

Table 4

Summary of Slope Stability Analyses Results

Condition	Safety Factor
Existing slope – static	1.39
Existing slope – dynamic (0.2g)	1.03
Proposed 1½H:1V cut slope - static	1.67
Proposed 1½H:1V cut slope – dynamic (0.2g)	1.12

It is anticipated that all other constructed slopes will be made with compacted fill soil having an inclination not steeper than 2H:1V with a maximum height of 20 feet. No other cut slopes are planned.

Slope stability analyses require using geotechnical parameters selected form a wide range of possible values. There is a finite possibility that slopes having calculated Safety Factors as indicated above could become unstable. In our opinion, the probability of slopes having a calculated Safety Factor greater than 1.5 (static) and 1.1 (seismic) in becoming unstable is low.

Conditions of proposed slope excavation and construction should be further evaluated during mass grading by a representative from Kleinfelder. Additional investigation and analyses may be required if adverse geologic conditions such as perched groundwater, adversely oriented bedding, or weak soils are encountered.

Fill slopes are particularly susceptible to shallow slope sloughing in periods of rainfall, heavy irrigation and upslope runoff. Periodic slope maintenance may be required including rebuilding the outer one to two feet of fill slopes. Sloughing of fill slopes can be reduced by overbuilding and cutting back to the desired slope. To a lesser extent, sloughing can be reduced by backrolling slopes at frequent intervals during grading. Aa a minimum, we recommend that all fill slopes be trackwalked so that a dozer track covers all surfaces at least twice.

We recommend that all cut and fill slopes be planted, drained and maintained with a minimum amount of surface irrigation in accordance with the recommendations of the project landscape architect. We recommend that the excavated cut slope behind the proposed parking garage be covered with a thin layer of shotcrete to protect the slope from surficial erosion. The shotcrete should be provided with light steel reinforcement and securely fastened to the slope face. The slope face protected in this manner may also be suitable substrata for vines and other creeping vegetation.

All slopes are subject to some creep movement, whether the slopes are natural or man-made. Slope creep is a very slow, down-slope movement of the near surface soil along the slope face. The degree and depth of the movement is influenced by the soil type and moisture conditions. This movement is typical in slopes and is not considered a geologic hazard. However, it may affect structures built on or near the slope face/crest. We recommend that structures not be located within 10 feet of the top of slopes, unless specific evaluations of the structure's foundation is conducted by both the geotechnical consultant and structural engineers.

4.3 EARTHWORK

4.3.1 General

Based on the results of our site reconnaissance, document review, previous field explorations, laboratory testing, and data analysis, it is our opinion that the construction of the proposed project is feasible from a geotechnical standpoint provided our recommendations are incorporated into the design and construction of the project. Kleinfelder should be contacted to reevaluate our recommendations if changes are made to the planned site grading. All grading, excavation and backfill operations should be observed and tested by a representative of Kleinfelder.

4.3.1 Demolition

We understand all existing buildings, walkways, and pavements will be demolished and removed from the site. In the existing building areas, we anticipate the depth of removal and recompaction will be on the order of 1 to 3 feet below existing grades around the buildings. The actual depth of removal should be evaluated by a Kleinfelder engineer in the field at the time of construction.

We anticipate that removal of planter areas, light standards, and utilities in the existing pavement and parking areas will likely disrupt the near surface soils to depths greater than 12 inches. Excavations for the removal of these existing structures (including overly wet and saturated soils in existing planter areas) should be dished shaped to allow for access of the compaction equipment. The remaining voids should be filled with approved and properly compacted fill soils.

In the lower parking lot, the existing pavements cannot be pulverized and used as subgrade or common fill based on the analytical testing performed as part of the Hazardous Materials Study for the project site (Kleinfelder, 2016).

Demolition of the former swimming pool area adjacent to the west side of Frogs Gym may require significant removal of material and reconstruction of the adjacent north-facing fill slope.

4.3.2 Soil Characteristics

The existing near surface soils are considered unsuitable for structural support of floor slabs and shallow foundations in their current condition. These soils mainly consist of variable mixtures of both coarse and fine grain soils with zones of gravel, cobbles and boulders. These soils are underlain at depth by the Stadium Conglomerate formation which predominately contains a granular matrix with large amount of gravel, cobbles and boulders. The excavation of these soils should be possible using moderate to strong effort with conventional heavy-duty excavating equipment. Excavations into the Stadium Conglomerate formation may be more difficult to excavate. Special handling of oversized material (6 to 18-inches in diameter) should be planned.

4.3.3 Site Preparation

The existing structures, foundations, pavements, and landscaping should be demolished and removed prior to construction of any new improvement or structure. Man-made structures, including buried pipes, utilities, etc., should be completely removed within the building pad. Buried pipes outside of the building area should be capped as a minimum, however they should be evaluated by Kleinfelder on an individual basis during construction for potential additional measures. Excavations for removal of any man made items should be backfilled with properly compacted engineered fill. All surficial vegetation and deleterious material should be stripped and completely removed from the proposed site area.

4.3.4 Remedial Earthwork

As previously discussed, existing near surface soils are unsuitable for structural support of all ground level floor slabs and shallow foundations for the project. We recommend that these soils be excavated and recompacted as engineered fill to minimum depth of 3 feet in below shallow foundations and floor slabs and a depth of 12-inches in hardscape/pavement areas as described in the subsequent sections of this report. These soils should be compacted to a relative compaction of at least 90 percent per ASTM D1557.

4.3.5 Keyways and Benching

Keyways should be excavated at the base of fill slopes under the observation of Kleinfelder. The width and depth/elevation of each keyway should be provided by Kleinfelder based on an evaluation of the actual observed site conditions. The minimum key width is 15 feet. The entire key width should be excavated into competent formational material and tilted downward away from the slope toe at an inclination of at least 2 percent. The exposed keyway should be scarified to a minimum depth of 12 inches, brought to slightly above the optimum moisture content and recompacted prior to placing additional fill. The need for scarification should be evaluated at the time of grading by Kleinfelder and potentially waived in cemented and conglomerate material.

4.3.6 Engineered Fill

The majority of soils excavated from the site may be used as engineered fill, provided that they are free of oversized rock, organic materials, expansive clay, and deleterious debris. Oversize material in excess of 6 inches in diameter should not be used in structural fill and material larger than 3 inches should not be used within the upper 3 feet of subgrade. Although the optimum lift thickness for fill soils will be dependent on the type of compaction equipment utilized, fill should generally be placed in uniform lifts not exceeding approximately 8 to 12 inches in loose thickness.

Import materials (if any) should have an expansion index less than 30, a minimum R-value of 20, no greater than 30 percent of the particles passing the No. 200 sieve, and no particles greater than 3 inches in dimension.

General engineered fill should be moisture conditioned to between 0 and 2 percent above optimum moisture content, and compacted to a minimum of 90 percent of the ASTM D 1557 maximum dry density. An adjustment to the maximum dry density and optimum moisture content should be performed when there is more than 5 percent oversize particles (larger than ¾ inch) in the fill material. The adjustment should follow ASTM D4718.

4.3.7 Bulking and Shrinkage

Excavation of the onsite undisturbed formational materials for reuse as compacted fill will results in some bulking. Shrinkage may occur in loose surficial soils including colluvial deposits. The estimated bulking of the Stadium Conglomerate may be on the order of 5 to 10 percent. The estimated shrinkage of all other surficial soils may be on the order of 0 to 10 percent. Screening of oversize cobbles would impact these estimated values.

4.3.8 Temporary Excavations

Conditions of temporary excavations should be further evaluated during construction by a representative from Kleinfelder. Additional investigation and analyses may be required if adverse geologic conditions such as perched groundwater, adversely oriented bedding or weak soils are encountered.

Temporary excavations with a maximum height of 20 feet should be laid back or shored in accordance with the U.S. Occupational Safety and Health Administration (OSHA), Caltrans, and any other applicable regulations. For planning purposes, all near surface soils can be considered OSHA Type C soil. The actual OSHA soil type should be determined by the contractor's responsible person in the field at the time of construction. Type C soils should have 1½H:1V temporary construction excavation slopes up to 20 feet high. If stability of an excavation becomes questionable during construction, the excavation should be evaluated promptly by the geotechnical engineer. The maximum vertical unbraced excavation for soils is approximately 5 feet.

The soil classifications presented in this report may be used for the planning of temporary excavations in accordance with OSHA requirements. Construction personnel should be aware that soil conditions may change rapidly if soil moisture conditions change or if soils that have been disturbed by previous excavations are encountered. Measures should be taken to protect construction personnel from raveling of excavated slopes. All excavations should comply with current OSHA safety requirements.

No surcharge loads, such as the weight of heavy equipment, should be placed within 10 feet from the top of open excavations. Care should be taken during excavation to avoid removing support for any existing improvements, such as foundations, pavements, and buried utilities. The contractor is responsible for selecting, designing, and constructing temporary shoring systems (if needed) that adequately protect the existing structures, utilities, and other improvements. Temporary shoring excavations are provided below.

4.3.9 Excavation Backfill

All site preparation and earthwork operations should be performed in accordance with applicable codes. We recommend that site earthwork and construction be performed in accordance with the following recommendations. We recommend that site earthwork be performed in accordance with Section 300 of the most recent edition of the "Standard Specifications for Public Works Construction" (Green Book).

We recommend that all compacted fill consist of materials with a maximum particle size less than 3 inches in diameter. The compacted fill should also have an Expansion Index of 30 or less as evaluated by ASTM D 4829.

Compacted fill at a depth greater than 12 inches below final subgrade should be compacted to a minimum relative compaction of 90 percent in accordance with ASTM D1557. Compacted fill in the upper 12 inches of final pavement subgrade should be compacted to a minimum relative compaction greater than 95 percent in accordance with ASTM D1557.

Although the optimum lift thickness for fill soils will be dependent on the size and type of compaction equipment utilized, fill should generally be placed in uniform lifts not exceeding approximately 8 inches in loose thickness. In areas overlain by concrete, the upper 12 inches of subgrade soils should be moisture conditioned 0 to 2 percent above optimum content, and compacted to at least 90 percent relative compaction in accordance with ASTM D 1557.

4.3.10 Pavement and Slab-on-Grade Subgrade Preparation

In pavement areas and slab-on-grade for walkways or other hardscape/flatwork areas, the upper 12 inches of subgrade soils should be moisture conditioned between optimum to 2 percent above optimum content, and compacted to at least 95 percent relative compaction of the maximum laboratory dry density, as evaluated by ASTM D 1557. The maximum size clast in this zone should be limited to 3 inches in size.

4.3.11 Pipe Bedding and Trench Backfill

Pipe bedding should consist of granular material having a Sand Equivalent of not less than 30. The sand should be placed in a zone that extends a minimum of 3 inches below and 12 inches above the pipe for the full trench width. The bedding material should be compacted to a minimum of 90 percent of the maximum dry density. Trench backfill above pipe bedding may consist of approved, onsite or import soils placed in lifts no greater than 8 inches loose thickness and compacted to 90 percent of the maximum dry density. Backfill should not contain rocks over 3 inches in size. Sand cement slurry is an acceptable alternative to soil backfill, provided it contains a minimum of 2 sacks of cement per cubic yard of sand.

4.3.12 Erosion Prevention and Sedimentation Control

Evidence of deeply incised gully erosion is located within the existing slope immediately adjacent to proposed parking structure (Figure 3). It is recommended that this erosion condition be mitigated by excavating existing loose soils and backfilling them with suitable material and establishing new surface vegetation using the general guidelines presented in this section.

The potential for soil erosion is largely impacted by local soil characteristics, vegetative cover, topographic relief, and the frequency and intensity of rainfall and wind. Removal of vegetation and disturbance to surficial soils by construction activities may result in local increases of erosion rates in unprotected areas. As a result, sedimentation may increase in local drainages at site perimeters and slope intersections. Uncontrolled diversion of storm water runoff from the site to unlined drainage channels could result in extensive erosion due to concentrated flow. This is particularly true during and immediately following site grading.

Site development normally increases the amount of impervious area, thus increasing the volume of storm water runoff. Concentration of flow in drainage structures can result in increased flow velocities and erosion potential. Soils on slopes exposed by site development will be subject to erosion by wind and water. This can result in increased turbidity of runoff to the downstream area.

Erosion prevention and sedimentation control is a complex issue and is usually best addressed by sound planning and the use of Best Management Practices (BMPs). Erosion control BMPs are the "best" available technologies that are consistent with conventional local control practices. Implementation is dependent on site conditions and applicability of proven cost-effective methods. The selection and implementation of construction BMPs is dependent on what existing features need to be protected or mitigated.

BMPs for erosion and sediment control are selected to meet the specific objectives based on site conditions, serviceability, and cost. Various BMPs in combination or succession may be needed for a given area. Selection of erosion control BMPs should be based on minimizing disturbed areas, stabilizing disturbed areas, and protecting slopes and channels. It also should be based on retaining sediment on-site and controlling the site perimeter. All implemented BMPs should be regularly monitored and controlled after initial installation, as well as during and after any storm generating runoff, to determine maintenance requirements and the general condition of the installed system.

To reduce soil erosion and sediment transport, protective material such as gravel, crushed stone, pavement, and other effective erosion control materials should be used to stabilize exposed soils. Slopes should be provided with temporary drainage and erosion control measures during construction until permanent measures can be installed. Storm water runoff from construction areas should be conveyed to temporary diked detention areas for sediment deposition, then discharged to the existing natural drainage courses with velocities slow enough to prevent further erosion in the drainage courses.

Control of erosion and sedimentation on recently graded construction sites require both vegetative and structural measures. Vegetative species used to control erosion should be selected to accommodate the soil characteristics and climate at the site. Storm runoff control should be provided during and after completion of site grading by using diversion dikes and permanent drainage facilities. Sediment retention structures such as sediment basins, sediment traps or silt fences should be used to keep eroded material on the site. Straw bales used alone, or in combination with geotextiles, can be effective sediment retention structures when properly installed and maintained.

We recommend the following practices be part of the project:

- Use temporary plant cover, mulching, and/or structures to control runoff and protect areas subject to erosion during construction.
- Minimize soil exposure during the rainy season by proper timing of grading and construction and be prepared to shut down all earthwork if heavy precipitation occurs.
- Have erosion control equipment and materials onsite if needed in an emergency to quickly construct temporary collectors, diversion channels, intercept drains, berm, dikes, or filters.
- Accommodate the surface runoff from all disturbed areas. Prepare drainage-ways that handle concentrated or increased runoff from disturbed areas by using riprap or other lining materials to control erosion.
- Trap sediment-laden runoff in basins to allow soil particles to settle out before flows are released to receiving waters.
- Reduce erosion by limiting the area and time of exposure, and by the provision of diversion channels.

4.3.13 Site Drainage

Final elevations at the site should be planned so that positive drainage is established around structures such that surface water runoff is directed away from building foundations, floor slabs, pavements, top of slopes and other proposed elements of the project. Positive drainage is defined as a slope of 1 percent or more for a distance of 5 feet or more away from structure foundations. Roof gutters and downspouts should be installed on structures. Downspouts should discharge to controlled drainage systems. Planters should be built so that water exiting from them will not seep into the foundation areas or beneath slabs and pavement.

Maintenance personnel should be instructed to limit irrigation to the minimum necessary to properly sustain the landscaping plants. Should excessive irrigation, waterline breaks, or unusually high rainfall were to occur, saturated zones and perched groundwater may develop. Consequently, the site should be graded so that water drains away readily without saturating the foundation or landscaped areas. Potential sources of water, such as water pipes, drains, garden ponds, and the like, should be frequently examined for signs of leakage or damage. Any such leakage or damage should be repaired promptly.

4.3.14 Stormwater Infiltration

The feasibility of a stormwater infiltration system is dependent on the geologic, hydrogeologic and geotechnical conditions of a site. In general, near surface soils (upper 5 to 10 feet) at the site are of relatively low permeability. Based on our evaluation and experience with site materials, these near surface soils are expected to have an infiltration rate less than 0.5 in/hr. Based on our understanding of the overall site conditions and planned construction, the use of a stormwater infiltration system which would permit uncontrolled wetting and saturation of both compacted fill soils and natural undisturbed formational soils should not be utilized in the project design and construction. It is our opinion the site is not suitable for stormwater infiltration and that further evaluation by field testing is not warranted.

In our opinion, purposely allowing compacted fill soils at the site to become wetter than their controlled placed moisture content is not recommended. Wetting of compacted fill soils would increase the potential risks related to site settlement (hydro-consolidation), heaving of expansive soils and hydrostatic pressure build up behind basement and other retaining walls. In our opinion, no appreciable amount of stormwater infiltration is physically feasible without negative consequences that can be reasonably mitigated. The planned bioswales or bioretention systems for the site should be lined with an impermeable geosynthetic to mitigate the potential for undesirable infiltration.

4.3.15 Construction Observation

The recommendations presented in this report are based on our understanding of the proposed project and anticipated site conditions. The interpolated subsurface conditions should be evaluated by Kleinfelder personnel in the field during construction. Final project drawings and specifications should be reviewed by Kleinfelder prior to the commencement of construction. We should continuously observe the clearing/grubbing, earthwork/grading, foundation excavation/preparation, retaining wall construction and wall/trench backfilling operations. Such observations are considered essential to identify field conditions that differ from those anticipated, to adjust designs to actual field conditions and to determine that the grading is accomplished in general accordance with the recommendations of this report. Recommendations presented herein are contingent on Kleinfelder performing such services. Our personnel should perform sufficient testing of fill during grading to support our professional opinion as to compliance with earthwork recommendations.

4.4 DEEP FOUNDATIONS

4.4.1 General

Based on our understanding of the existing subsurface conditions at the site it is recommended that all of the proposed buildings be supported on deep foundations consisting of driven steel H-piles which are sufficiently embedded into the Stadium Conglomerate at depth. The estimated location of the Stadium Conglomerate contact is presented in the geologic cross sections (Figures 6 through 10).

4.4.2 Anticipated Soils and Predilling

Basically, the site can be divided into two separate zones. The first area being the lower area located between Hotel Circle South and the southern hillside. The upper 30 to 40 feet of materials in this general area is underlain by undocumented fill soils, colluvium and alluvium. These materials consist of variable mixtures of both fine and coarse grain soils with and without zones of gravel, cobbles and boulders that are moderately to highly compressible and of low to moderate strength.

The second area is where the proposed hotel building will be located within the canyon area at the southeast corner of the site. This area also has a variable thickness of undocumented fill soils overlying colluvium and alluvium. The variable thickness is due to the U-shaped bottom conditions of the canyon before it was infilled with the overlying materials. All existing soils have zones of cobble and boulders.

In general, it may be necessary to predrill some pile locations to ensure passage of the driven pile through zones of clastic material. Predrilling, if performed, should be made no larger than the maximum diagonal dimension of the pile to be driven. Predrilling through cobblers and boulders may be difficult with conventional solid-stem augers. However, predrilling with air-rotary percussion hammers or other rock penetrating system is possible.

4.4.3 Axial Capacity

Precise structural loads for each of the planned buildings is not known at this time. However, it is anticipated that the approximate column loads for each planned building are as follows:

- Pavilion and Museum Buildings – 30 to 180 tons
- Hotel Building – 100 to 300 tons
- Parking Structure – 150 to 450 tons

In general, driven piles should be able to obtain their structural axial capacity via skin friction and tip resistance from the Stadium Conglomerate only. No axial capacity should be assumed for portions of piles in fill soil, alluvium and colluvium. The maximum ultimate skin friction resistance of a driven pile in this material should be 2,000 psf (Safety Factor = 1). End bearing resistance for driven piles should be taken over the gross rectangular area of the H-pile. The maximum ultimate end bearing resistance of a driven pile should be taken as 50,000 psf (Safety Factor = 1). Appropriate safety factors should be applied to these values based on building code requirements to determine allowable values in the overall design of the foundation system. As a guide, safety factors of 2 and 3 are typical for allowable skin friction and end bearing resistance. Uplift capacity should be based on skin friction only. If pile spacing is at least 3 pile diameters center-to-center, no reduction in axial capacity is considered necessary. Estimated settlement for piles designed with appropriate safety factors may be on the order of ½ inch of less.

4.4.4 Lateral Capacity

The recommended procedure for evaluating the lateral capacity of vertical piles uses a beam-column-soils-structure interaction approach in which the soil response is modeled by stress-deflection relationship referred to as “P-Y” curves. The analytical procedure involves using the “real” P-Y response capability without internal safety factors and design lateral loads to produce bending moment profiles.

Preliminary analyses were performed using the computer program LPILE (Ensoft, version 3.0). Our analysis assumed free-head and fixed-head conditions for piles having a total length of 50 feet. The following geotechnical strength parameters and steel pile section properties were assumed in our preliminary analyses are presented in Tables 5 and 6, respectively.

Table 5

Geotechnical Strength Parameters used for Preliminary LPILE Analyses

Material	Depth (feet)	Total Unit Weight (pcf)	Internal Friction Angle (degrees)	Modulus of Subgrade Reaction (pci)
Colluvium	0 to 10	110	32	25
Alluvium	20 to 30	120	34	60
Stadium Conglomerate	30 to 60	140	42	125

Our preliminary analyses considered four different steel pile sections (i.e., HP8x36, HP10x57, HP12x74 and HP14x117); loads causing bending about both the strong and weak axes of the pile sections (i.e., X-X and Y-Y); and three head loading conditions (i.e., free-head w/ shear, free-head w/ moment and fixed-head w/ shear). The lateral load analyses cases performed are summarized in Table 7.

Table 6

Summary of Steel Pile Section Properties

Pile Designation	Flange Width (inch)	Depth (inch)	Area ($inch^2$)	Moment of Inertia X-X ($inch^4$)	Moment of Inertia Y-Y ($inch^4$)	Section Modulus X-X ($inch^3$)	Section Modulus Y-Y ($inch^3$)
HP8x36	8.155	8.02	10.6	119	40.3	29.8	9.88
HP10x57	10.225	9.99	16.8	294	101	58.8	19.7
HP12x74	12.215	12.13	21.8	569	186	93.8	30.4
HP14x117	14.885	14.21	34.4	1220	443	172	59.5

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Table 7

Lateral Load Analyses Cases for Static Single Pile

Case	Size	Axis	Head Condition	Load Type	Applied Loads	Appendix H Page
1	HP8X36	X-X (strong)	Free- Head	Shear	2, 4, 6, 8, 10 [tons]	H-2
2	HP8X36	X-X (strong)	Free- Head	Moment	50, 100, 150, 200 [ton-ft]	H-3
3	HP8X36	X-X (strong)	Fixed-Head	Shear	2, 4, 6, 8, 10 [tons]	H-4
4	HP8X36	Y-Y (weak)	Free- Head	Shear	2, 4, 6, 8, 10 [tons]	H-5
5	HP8X36	Y-Y (weak)	Free- Head	Moment	50, 100, 150, 200 [ton-ft]	H-6
6	HP8X36	Y-Y (weak)	Fixed-Head	Shear	2, 4, 6, 8, 10 [tons]	H-7
7	HP10X57	X-X (strong)	Free- Head	Shear	2, 4, 6, 8, 10 [tons]	H-8
8	HP10X57	X-X (strong)	Free- Head	Moment	50, 100, 150, 200 [ton-ft]	H-9
9	HP10X57	X-X (strong)	Fixed-Head	Shear	2, 4, 6, 8, 10 [tons]	H-10
10	HP10X57	Y-Y (weak)	Free- Head	Shear	2, 4, 6, 8, 10 [tons]	H-11
11	HP10X57	Y-Y (weak)	Free- Head	Moment	50, 100, 150, 200 [ton-ft]	H-12
12	HP10X57	Y-Y (weak)	Fixed-Head	Shear	2, 4, 6, 8, 10 [tons]	H-13
13	HP12X74	X-X (strong)	Free- Head	Shear	2, 4, 6, 8, 10 [tons]	H-14
14	HP12X74	X-X (strong)	Free- Head	Moment	50, 100, 150, 200 [ton-ft]	H-15
15	HP12X74	X-X (strong)	Fixed-Head	Shear	2, 4, 6, 8, 10 [tons]	H-16
16	HP12X74	Y-Y (weak)	Free- Head	Shear	2, 4, 6, 8, 10 [tons]	H-17
17	HP12X74	Y-Y (weak)	Free- Head	Moment	50, 100, 150, 200 [ton-ft]	H-18
18	HP12X74	Y-Y (weak)	Fixed-Head	Shear	2, 4, 6, 8, 10 [tons]	H-19
19	HP14x117	X-X (strong)	Free- Head	Shear	2, 4, 6, 8, 10 [tons]	H-20
20	HP14x117	X-X (strong)	Free- Head	Moment	50, 100, 150, 200 [ton-ft]	H-21
21	HP14x117	X-X (strong)	Fixed-Head	Shear	2, 4, 6, 8, 10 [tons]	H-22
22	HP14x117	Y-Y (weak)	Free- Head	Shear	2, 4, 6, 8, 10 [tons]	H-23
23	HP14x117	Y-Y (weak)	Free- Head	Moment	50, 100, 150, 200 [ton-ft]	H-24
24	HP14x117	Y-Y (weak)	Fixed-Head	Shear	2, 4, 6, 8, 10 [tons]	H-25

The results of our preliminary LPILE analyses are presented in Appendix H as graphic representations of pile deflection, bending moment, shear force and mobilized soil reaction versus applied load (Figures H-2 through H-25). Calculated pile head deflection as a function of pile length is also presented. Our preliminary results indicated that for the selected pile and head load conditions evaluated that the maximum lateral resistance obtained with about 20 feet of penetration below the ground surface. The graphic representations may be used to evaluate the behavior of the pile with respect to maximum positive and negative induced shear and bending moments, depths to maximum and minimum values, and other salient characteristics. Additional analyses should be performed once precise foundation reactions loads are developed by the structural engineer.

Analyses of pile foundations for lateral conditions is highly dependent on the pile dimensions, structural restraints, loading combinations, subsurface soil conditions and tolerable stresses/deformations. Typically it is desired to limit ground-line deformations to less than ¼ inch. We recommend that lateral load analyses and design of pile foundations be performed using finite element computer modeling that utilize the P-Y resistance methodology and the geotechnical strength parameters presented in Table 5. A computer program such as LPILE may be used for analyses and design. Kleinfelder can assist the project structural engineer with the detailed analyses and design of the pile foundations upon request.

4.4.5 Group Efficiency

The allowable bending moment resistance of pile foundations may also govern in the selection of allowable loads. In most cases, a closely spaced cluster of shafts has a total axial and lateral capacity that is less than the sum of the capacity of individual shafts in a group. We recommend that pile foundations be designed with a center-to-center spacing of no closer than 3 times the shaft diameter. Group efficiencies for pile foundations are presented in Table 8.

Table 8

Pile Foundation Group Efficiencies

Center-to-Center Spacing	Axial Group Efficiency	Lateral Group Efficiency (inline w/ group)	Lateral Group Efficiency (perpendicular to group)
3B	0.70	0.80	1.00
4B	0.75	0.84	1.00
5B	0.85	0.88	1.00

Table 8 (continued)

Pile Foundation Group Efficiencies

Center-to-Center Spacing	Axial Group Efficiency	Lateral Group Efficiency (inline w/ group)	Lateral Group Efficiency (perpendicular to group)
6B	0.90	0.92	1.00
7B	0.95	0.96	1.00
8B	1.00	1.00	1.00

Note: B = Pile diameter or width considered.

4.4.6 Downdrag

Due to the potential for a strong earthquake event that could cause liquefaction in saturated soils at the site (see Table 2), there is the possibility that the resulting liquefaction could result in a temporary loss of soil support of piles. However, since the piles should not be designed for any axial resistance in these materials (see Section 4.4.1), the potential axial resistance loss would be inconsequential. Notwithstanding, the upper non-saturated soils above the groundwater table may create significant negative downdrag loads on individual piles. An approximate estimate of the ultimate downdrag (Safety Factor = 1) may be assumed to be on the order of 1,000 psf over the pile perimeter within the upper non-saturated soils above a typical groundwater elevation of +15 feet MSL. For example, an HP14x117 has an overall perimeter length of about 4.8 feet. If the top of pile is at an elevation of +30 feet MSL, then the area potentially affected by unsaturated downdrag would be about 72 ft^2. This would result in about 36 tons of downdrag force.

4.4.7 Cast Steel Point Reinforcement

Steel piles are versatile and readily available types of piling. They can withstand rough handling and hard driving. Pile driving in materials containing a high percentage of cobbles and boulders may cause pile corners to bend and flanges to rip from the web which could compromise the pile capacity. In this respect it is recommended that each pile be provided with a protective cast steel point reinforcement. Point reinforcement may be attach in the field with minimal welding.

4.4.8 Corrosion

Preliminary soil corrosive screening is presented in Section 4.9 of this report. In general, existing onsite soils may be considered corrosive to severely corrosive due to relatively low electrical resistivity value results of tested soil ranging from about 500 to 1400 ohm-cm (NACE 1984).

Notwithstanding, the degree of corrosion depends on the working environment. A corrosion rate of about 0.3 to 0.5 mm/year can be assumed for steel piles embedded in soil (British Steel 1997). Corrosion of steel piles embedded in soil that are located below the groundwater table may be considered negligible. The long-term loss of the structural section of piles should be taken into account in their design.

Corrosion for pile may be minimized with the use of cathodic protection or special coatings. In our opinion, cathodic protection for steel piles is not considered economically justifiable. However, the use of high-density coal-tar epoxy coatings on the upper part of the pile above an anticipated groundwater elevation of about +15 feet MSL may be considered. Special coatings should be applied only to blast cleaned surfaces.

4.4.9 Pile Installation

In general, steel piling and installation requirements should conform to either the Standard Specifications for Public Works Construction, Sections 205-2 (Piles) and 305-1 (Pile Driving) and/or the Caltrans Standard Specifications, Section 49 (Piling). A project specific provision for piles and pile driving may be developed based on these standard specifications. All pile driving installations should be observed and documented by a representative of Kleinfelder.

Piles should be driven to their minimum design tip elevation and to a capacity criteria based on the design downward and uplift loading conditions. We recommend that the pile capacity be evaluated during driving in accordance with a suitable pile driving formula such as the Engineering New Record or Danish Formula. We anticipate that piles will need to be driven with a hammer delivering at least 40,000 to 50,000 foot-pounds of energy. However, the pile driving contractor shold be required to independently evaluate the anticipated subsurface conditions and provide a pile driving hammer that can adequately drive the piles to the design penetration depths.

Due to potential variations in the depth to resistant material at the pile tips and in the driving resistance, we recommend that at least 6 indicator piles be driven within each of the 4 buildings before production piles are ordered. The indicator piles should be spread uniformly across each building footprint. The purpose of the indicator piles is to verify the anticipated driving resistance and evaluate the length of the remainder of the production piles. Indicator piles should have lengths of at least 50 feet. At least half of the indicator piles should be redriven one day following initial installation in order to evaluate post-construction pile set-up and strength gain.

We recommend that the installation of the piling be observed by our firm so that modifications in the driving criteria and pile order lengths can be made. The indicator piles should be furnished and driven by the contractor (or subcontractor) who will be installing the remainder of the piles. Under normal circumstances each indicator pile will be left in place and utilized as one of the specified piles.

Indicator piles should be driven with the same size and type hammer operating with the same effective energy and efficiency as that to be used in driving the remainder of the piles. Prior to installing the indicator piles, the contractor should be required to obtain the services of a professional engineer to perform a wave equation analysis. The purpose of the wave equation analysis is to provide the contractor with a guide in the selection of properly sized driving equipment for the proposed piling to ensure the pile can be driven to final grade without exceeding allowable driving stresses. It also is used to provide a penetration rate expressed as a minimum number of blows per one inch of penetration to evaluate when the pile has been driven sufficiently to develop the required capacity. Graphs depicting the relationships between blows per inch (driving resistance) and ultimate static soil resistance (ultimate pile capacity) of the pile should be evaluated by our firm. The graphs can be used by the contractor and field personnel to monitor driving. Any changes in hammer type or sizes will require additional analysis.

A rule of thumb used and accepted by most engineers to avoid structural damage for piles is not to exceed a penetration rate of more than 10 blows per inch at the full rated capacity of the pile driving hammer. However, the minimum hammer energy and limiting penetration rate should be established by results of a wave equation analysis that has been correlated with results obtained from the use of a pile driving analyzer during driving of the test piles. Therefore, the specifications should require that, as a minimum, the contractor should obtain the services of a professional engineer to monitor the installation of the indicator piles with a pile driving analyzer.

Approval of the proposed driving system should be based upon the wave equation analysis indicating that the proposed driving system can develop a pile capacity of three times the design allowable load at a driving resistance not greater than 10 blows per inch within allowable driving stress limits. For this analysis, any skin friction contribution within 30 feet of the existing ground surface should be ignored to allow for potential seismic strength reduction.

Based on the wave equation analysis, the indicated driving resistance should be obtained for the last foot of driving at the specified pile length for all indicator piles. If the driving resistance is not achieved, the contractor should continue driving the indicator piles to the required driving resistance or the probable pile tip length, whichever comes first. Should the required driving criteria not be achieved by the time the pile length within the ground has reached the probable pile length, the pile should be allowed to set 24 hours, and the number of blows to drive the pile checked the following day. The restrike driving sequence should be performed with a warmed up hammer and should consist of striking the piles for 50 blows or until the pile penetrates an additional 3 inches. In the event the pile movement is less than ¼ inch during the restrike, the restrike may be terminated after 20 blows. If the restarting resistance is at least twice the driving resistance required, the pile may be considered satisfactory. If the driving resistance of the indicator piles at the probable pile tip length is less than required, the ordered production piles will need to be lengthened until the desired driving resistance is obtained. Anytime the driving resistance exceeds the required resistance by three times within 5 feet of the specified pile tip, the pile driving may be stopped.

At the end of the indicator pile program, the contractor should provide a written report that discusses hammer and driving system performance, driving stress levels, and pile integrity. The report should also provide a discussion at the pile capacity obtained from dynamic testing. We further recommend that dynamic pile testing be performed on five percent of the production piles installed per week. The production pile testing should be performed during initial driving and restrike driving to monitor hammer and drive system performance and assess pile installation stresses, integrity, and evaluate pile capacity.

It is likely that localized minor ground settlement may occur within the building pad around the driven piling. Depending on the pile spacing, it is also possible that heave may occur if the piles are closely driven and the pore water pressure within the saturated silts and clays is allowed to build. If heave is observed during the installation process, the specifications should require that the initial piles driven in several groups be surveyed immediately after driving and before subsequent piles are driven. If heaving is observed in the surveyed pile groups, the same piles should be resurveyed after the entire group has been installed, and any changes in elevations for the surveyed piles should be brought to the attention of the contractor and the geotechnical engineer.

We recommend that Kleinfelder perform a review of the developed plans and specifications for pile and pile driving.

4.5 SHALLOW FOUNDATIONS

It is anticipated that the planned 2-story spa and suites building will be founded on shallow foundations directly supported by undisturbed formational soils of the Stadium Conglomerate.

Shallow foundations founded on the Stadium Conglomerate may be designed using a maximum allowable bearing pressure of 5,000 psf. These design values can be increased by one-third for short term loads such as those due to wind and seismic forces. Total settlements may be on the order of ½ inch and 1 inch, respectively.

Resistance to horizontal loadings can be developed by passive earth pressure on the sides of footings and frictional resistance developed along the footing bottoms. Passive resistance to lateral earth pressure may be calculated using an equivalent fluid unit weight of 350 pcf for shallow footing embedded in the Stadium Conglomerate. A friction coefficient of 0.40 may be used. If friction is used in combination with passive pressure, then the friction coefficient should be reduced to 0.35.

Footings may experience a reduction in bearing capacity, or an increased potential to settle, when located in close proximity to existing or future utility trenches. Furthermore, stresses imposed by the footings on the utility lines may cause cracking, collapse, and/or loss of serviceability. To reduce the risk, utility excavations should not extend below a 2H:1V plane projected downward from 1 foot above the bottom of the outside edge of the footing. Also, no parallel utility excavations should be made within a lateral distance of 2 feet outside the footing.

Prior to placing reinforcing steel or concrete, footing excavations should be cleaned of all debris, loose or soft soil, and water. All footing excavations should be observed by the project geotechnical engineer or an engineering technician under the direction of the project geotechnical engineer prior to placement of reinforcing steel and concrete to check that the recommendations contained herein are implemented during construction.

4.6 RETAINING WALLS

Various conventional retaining walls and building basement walls (museum) are planned for the project. Cast-in-place concrete (CIP), masonry and mechanically stabilized earth (MSE) walls are considered suitable for exterior site retaining walls. We recommend that the walls be designed and constructed in accordance with the recommendations presented below. In the case of proprietary walls systems (e.g., Reinforced Earth™ or Keystone™), their design should be in accordance with the manufacturer's requirements.

4.6.1 Shallow Foundations

Retaining walls may be supported on shallow continuous foundations supported entirely on properly compacted fill. The museum basement walls should be supported on deep pile foundations which also support the building.

Retaining wall foundations should have a minimum width determined based on the structural and stability analyses performed by the wall designer. Retaining wall foundations should be embedded at least two feet below the lowest adjacent grade or to the depth necessary to provide adequate factors of safety against sliding and overturning as determined by the retaining wall designer, whichever is greater. Reinforcement should be provided as required.

Shallow foundations founded on properly compacted fill soils may be designed using a maximum allowable bearing pressure of 3,000 psf. This value can be increased by one-third for short term loads such as those due to wind and seismic forces. Total settlement may be on the order of one inch.

Resistance to horizontal loadings can be developed by passive earth pressure on the sides of footings and frictional resistance developed along the footing bottoms. Passive resistance to lateral earth pressure may be calculated using an equivalent fluid unit weight of 300 pcf for shallow footing embedded in properly compacted fill soils. A frictional coefficient of 0.35 may be applied to vertical dead loads supported on properly compacted fill soils and undisturbed formational soils, respectively. The base friction should be limited to 0.3 if combined with passive lateral resistance.

Footings may experience a reduction in bearing capacity, or an increased potential to settle, when located in close proximity to existing or future utility trenches. Furthermore, stresses imposed by the footings on the utility lines may cause cracking, collapse, and/or loss of serviceability. To reduce the risk, utility excavations should not extend below a 2H:1V plane projected downward from 1 foot above the bottom of the outside edge of the footing. Also, no parallel utility excavations should be made within a lateral distance of 2 feet outside the footing.

Prior to placing reinforcing steel or concrete, footing excavations should be cleaned of all debris, loose or soft soil, and water. All footing excavations should be observed by the project geotechnical engineer or an engineering technician under the direction of the project geotechnical engineer prior to placement of reinforcing steel and concrete to check that the recommendations contained herein are implemented during construction.

4.6.2 Active and At-Rest Lateral Earth Pressures

Lateral earth pressure values in terms of an equivalent fluid weight for level and sloping backfill are presented in Table 9 for walls backfilled with select granular, free-draining materials. For retaining wall design, select backfill material may be assumed to have a unit weight of 120 pcf and internal friction angle of 34 degrees.

Table 9
Equivalent Fluid Weights for Retaining Wall and Basement Design

Conditions	Level	2:1 Slope
Active	35 pcf	55 pcf
At-Rest	55 pcf	85 pcf

Unrestrained (yielding) cantilever walls should be designed for the active equivalent fluid weight values provided above. At-rest earth pressures should be used in the design of restrained (non-yielding) basement walls where the top of the wall is not expected to move laterally more than 0.001H (where H is the unbalanced wall height). Examples of restrained walls are generally walls for subterranean building levels, buried vaults and loading docks. These values assume a triangular distribution based on an equivalent fluid weight of backfill material consisting of non-expansive granular soils and that the backfill is well drained. Thirty percent of any uniform area surcharge placed at the top of the wall may be assumed to act as a uniform horizontal pressure over the entire wall for unrestrained retaining walls. This value should be increased to fifty percent for restrained retaining walls such as basement walls.

In addition to the recommended earth pressures, walls adjacent to vehicular traffic should be designed to resist a uniform lateral earth pressure of 120 psf acting as a result of normal mixed traffic loads behind the wall. The above lateral earth pressures assume no hydrostatic pressures. All walls should be provided with an adequate internal drainage system to reduce the likelihood of hydrostatic pressures.

The basement walls and all site retaining walls greater than five feet high should be designed to resist earthquake loading utilizing the following recommendations. A resultant seismic force (in pounds) for each linear foot of wall can be estimated as $10H^2$ where H is the height of the wall (in feet) above its base. The resultant seismic force acts at 0.5H above the wall base.

4.6.3 Wall Drainage

The recommended earth pressures do not include lateral pressures due to hydrostatic water pressures generated by infiltrating surface water that may accumulate behind the walls. Therefore, wall backfill materials should be free draining and provisions should be made to collect and remove excess water that may accumulate behind earth retaining structures.

Wall drainage may be provided by free-draining gravel surrounded by non-woven synthetic filter fabric or by prefabricated, synthetic drain panels. In either case, drainage should be collected by perforated pipes at the base of the wall and directed to a sump, storm drain, weep hole(s), or other suitable location for disposal. Note that the City of San Diego requires that the actual drainage location be shown on the as-built plans by the civil engineer and that the geotechnical engineer also observe and document the location.

The drainage should not be permitted to discharge over soil in a manner that would cause erosion. If utilized, we recommend that drainage gravel consist of durable stone having 100 percent passing the 1-inch sieve and zero percent passing the No. 4 sieve. Synthetic filter fabric should have an equivalent opening size (EOS), U.S. Standard Sieve, of between 40 and 70, a permeability of at least 0.02 centimeters per second, a minimum flow rate of 50 gallons per minute per square foot of fabric, and a minimum puncture strength of 50 pounds. The geotextile manufacturer's recommendations should be followed for installation of a drainage fabric system.

4.6.4 Backfill Placement

All backfill should be placed and compacted in accordance with recommendations provided for engineered fill. During grading and backfilling adjacent to any walls, heavy equipment should not be allowed to operate within a lateral distance of 5 feet from the wall, or within a lateral distance equal to the wall height, whichever is greater, to avoid overstressing of the wall. Within this zone, only hand operated equipment ("whackers", vibratory plates or pneumatic compactors) should be used to compact backfill soils.

4.7 CONCRETE SLAB-ON-GRADE FLOORS

This section pertains to recommendations for concrete slab-on-grade floors supported on engineered fill (i.e. undocumented fill soils have been completely or partially removed and replaced with properly placed and compacted engineered fill). We recommend that the upper 3 feet of soils below ground level floor slabs consist of properly compacted select fill soil. These soils should be compacted to a relative compaction of at least 90 percent per ASTM

D1557. Subgrade soil supporting floor slabs should be prepared in accordance with the earthwork recommendations of this report.

Floor slabs should be designed by the project structural engineer. However, we recommend a minimum thickness of 5 inches and a minimum reinforcement of No. 3 rebar with 18-inch horizontal spacing in both directions. The reinforcement should be placed near the center of the concrete slab. An equivalent welded wire fabric (WWF) may be used in lieu of conventional reinforcement bars.

Special precautions should be taken during the placement and curing of all concrete slabs. Excessive slump (high water-cement ratio) of the concrete and/or improper curing procedures used during either hot or cold weather conditions could lead to excessive shrinkage, cracking, or curling of the slabs. High water-cement ratio and/or improper curing may also greatly increase the water vapor permeability of concrete. We recommend a maximum water-cement ratio of 0.45 for floor slab concrete. We recommend that all concrete placement, joint spacing, and curing operations be performed in accordance with the recommended guidelines of the American Concrete Institute (ACI).

The floor slab should be underlain by at least 4 inches of clean, coarse sand or fine gravel to provide a capillary moisture break and uniform support to the slab. In cases where the floor may have a vapor/moisture sensitive covering (e.g. tile, linoleum, carpet, wood), may be in a humidity controlled environment, or may likely have one or both of these conditions in the future, we recommend a polyolefin vapor barrier membrane be utilized between the prepared subgrade and the bottom of the floor slab.

Subsurface moisture and vapor naturally migrate upward through the soil. Where the soil is covered by a building or pavement, this subsurface moisture will collect and transmit through the concrete slab-on-grade. Traditional Visqueen vapor barriers may be considered marginally effective and eventually disintegrate with time. To reduce the impact of this subsurface moisture and the potential impact of future introduced moisture (such as landscape irrigation or precipitation) we recommend utilizing a polyolefin vapor barrier membrane between the subgrade and slab-on-grade. This vapor barrier membrane should consist of a polyolefin sheeting at least 15 mil in thickness, have a water vapor permeance less than 0.01 perms (ASTM F 1249), a puncture resistance of at least 2200 grams (ASTM D 1709), and a tensile strength of at least 45 lbf/in (ASTM D 882).

The material specified above should be highly resistant to tearing, cracking, flaking, or puncturing during construction and should not disintegrate with time. A granular subbase below the membrane or a sand or gravel layer on top of the membrane is not required. In accordance with recommendations in ACI guidelines and many flooring companies, placement of the concrete slab may be directly on the vapor barrier. This eliminates the potential for water to be trapped in the blotter layer that could later be transmitted through the slab and adversely affect the flooring system. However, a reduced joint spacing, slab reinforcement, a low shrinkage mix design, and/or other measures to reduce the potential for slab curl should be implemented by the concrete slab designer.

We recommend that the vapor barrier be installed in accordance with ASTM E 1643, "Standard Practice for Installation of Water Vapor Retarders Used in Contact with Earth or Granular Fill Under Concrete Slabs". Some salient features of ASTM E 1643 are discussed below. All joints and seams should have a minimum 6-inch overlap and be taped. The area of tape adhesion should be free from dust, dirt and moisture. All penetrations must be sealed using a combination of membrane, tape and mastic. The tape and mastic used should conform to the vapor barrier manufacturer's recommendations. Care should be taken at the lateral terminations so that vapors do not go around the membrane. This may be accomplished by placing the membrane on top of the footing and against the vertical wall so that the membrane will be sandwiched between the footing, vertical wall and poured concrete floor slab. If damaged, the membrane should be repaired prior to placing concrete.

It is emphasized that we are not floor moisture proofing experts. We make no warranty or guarantee, nor provide any assurance that the recommendation above will reduce concrete slab-on-grade floor moisture penetration to any specific rate or level. The designers should consider all available measures for slab moisture protection. Exterior grading and/or adjacent landscaping have an impact on the potential moisture beneath floor slabs. Exterior grading and/or adjacent landscaping should be designed to address the potential for increased moisture below moisture sensitive slabs and should at least reference the recommendations contained in the Site Drainage section of this report.

4.8 EXTERIOR CONCRETE FLATWORK

Flatwork and exterior concrete should be supported on at least 12 inches of compacted, low to very low expansive engineered fill or undisturbed formational material. To mitigate the potential for localized point loads of cobble on concrete, we recommend a maximum particle size of 3 inches within the upper 12 inches. The concrete slabs for walkways and sidewalks should have a nominal thickness of 4 inches thick. Concrete slabs should be designed by the structural engineer but minimally should be reinforced with welded wire mesh placed at mid depth. To reduce the potential manifestation of distress due to movement of the underlying soil, we recommend that flatwork be constructed with crack-control joints at appropriate spacing.

Subgrade should be prepared in accordance with the earthwork recommendations presented earlier in this report but generally consist of scarifying the upper 6 inches, uniformly moisture conditioning to between optimum and 2 percent above optimum moisture content, and compacting to at least 95 percent relative compaction as per ASTM D 1557. Loose or yielding subgrade identified during earthwork operations may require additional remedial measures. Positive drainage should be established and maintained adjacent to flatwork.

4.9 PAVEMENTS

Grading for the project will result in significant excavation and recompaction of existing fill materials as well as importation of other soils to be used as compacted fill. As such, it is difficult to predict what type of soil will be present in the various pavement subgrade areas. The results of R-value testing ranged from 10 to 27. For purposes of analysis and preliminary design of pavements, we used an assumed R-value of 20. Different soils may be present in other portions of the site and site grading for the project may result in different subgrade soils. We recommend that laboratory tests be performed during site grading to substantiate this value or to provide revised pavement sections as required.

Pavement sections have been evaluated in general accordance with the Caltrans method for flexible pavement design. Traffic index (TI) values have been provided to facilitate the preliminary design of trafficked areas of the proposed facility. The TI values consist of 4.5, 6 and 11 to represent traffic volumes for surface parking, main driveway and Hotel Circle South areas, respectively. Recommended flexible pavement sections for these conditions are presented in Table 10.

Table 10

Flexible Pavement Sections

Area	Traffic Index	Asphalt Concrete over Aggregate Base	Asphalt Concrete over Cement Treated Base
Surface Parking	4.5	3” / 6”	-
Main Driveway	6	4” / 8”	-
Hotel Circle South	11	-	5” / 17”

As an alternative to asphalt concrete pavement sections, rigid Portland cement concrete (PCC) pavement sections may be constructed. Rigid pavements are recommended in areas that will be subject to relatively high static wheel loads such as trash/delivery trucks and bus stops. We recommend that PCC pavement be designed in accordance with the City of San Diego Pavement Design Standards Schedule "J", Drawing SDG-113 using an R-value range of 20 to 30.

The recommended pavement sections assume the following conditions:

1. The upper 12 inches of subgrade and base materials are compacted to a minimum of 95 percent of ASTM D1557 maximum dry density.
2. The finished subgrade is in a stable, non-pumping condition at the time aggregate base is laid and compacted.
3. Asphalt concrete pavement and aggregate base materials conform to Section 02510, Parts 2 and 3 of the Standard Specifications for Construction of Public Works (Green Book), current edition.
4. Portland cement concrete pavement conforms to Subsections 201-1 and 302-6 of the Green Book for Concrete Class 520-A-2500 (2,500 psi unconfined compressive strength) having a maximum slump of 3 inches.
5. All concrete curbs separating pavement from landscaped areas extend at least 6 inches into the subgrade to reduce movement of moisture into the aggregate base layer. This reduces the risk of pavement failures due to subsurface water originating from landscaped areas.

Concrete pavement should be constructed in an approximate 15-foot square grid system. If a square system is impractical, rectangular panels can be used with the longitudinal distance a maximum of 20 feet.

All longitudinal or transverse control joints should be constructed by hand forming or placing pre-molded fillers such as "zip strips." Longitudinal or transverse construction joints should be keyed. Expansion joints should be used to isolate fixed objects abutting or within the pavement area. Joints should run continuously and extend through integral curbs and thickened edges. We recommend that joint layout be adjusted to coincide with the corners of objects and structures. In addition, the following is recommended for concrete pavements:

1. Slope pavement at least 1/2 percent to provide drainage.
2. Provide rough surface texture for traction.

3. Cure concrete with curing compound or keep moist continuously for seven days.
4. Keep all traffic off concrete until its compressive strength exceeds 2,000 psi.
5. Consider using slip dowels on 24-inch centers to strengthen construction joints.

4.10 PRELIMINARY CORROSIVE SOIL SCREENING

A preliminary corrosive soil screening for on-site soil materials was completed to evaluate their potential effect on concrete and ferrous metals. Laboratory test results for pH, minimum electrical resistivity, and soluble chloride and sulfate content are presented in Table 11.

Table 11

Corrosion Test Results

Consultant	Borehole and Sample No.	Depth (ft)	pH	Sulfate (ppm)	Chloride (ppm)	Minimum ELECTRICAL Resistivity (ohm-cm)
Geocon	B-2-1	6	6.6	40	-	470
Geocon	B-7-1	11	7.1	19	-	870
Geocon	B-8-2	17	-	26	-	-
Geocon	B-10-2	11	-	40	-	-
Kleinfelder	B-1, S-1	0.5 to 5	8.7	190	90	960
Kleinfelder	B-10, S-1	0.5 to 5	8.9	180	60	770
Kleinfelder	B-12, S-1	0.5 to 5	8.5	530	50	830
Kleinfelder	LD-1, S-3	10.5 to 11	9.1	74	21	1400
Kleinfelder	LD-3, S-2	6 to 6.5	8.3	750	200	520
Kleinfelder	LD-4, S-1	4 to 4.5	8.9	170	290	560

In general, Caltrans considers a site to be aggressive if one or more of the following conditions exist for the representative soil samples taken at the site: chloride concentration is 500 parts per million (ppm) or greater, sulfate concentration is 2,000 ppm or greater, or the pH is 5.5 or less.

The Portland Cement Association (1988), correlates sulfate content to sulfate attack potential as presented in Table 12.

Table 12

Sulfate Attack Potential

Sulfate Content (ppm)	Sulfate Attack Potential
0 to 1,000	Negligible
1,000 to 2,000	Moderate
2,000 – 20,000	Severe
Over 20,000	Very Severe

The minimum electrical resistivity tests performed indicated that the soil is considered to be corrosive to buried unprotected metal objects. A commonly accepted correlation between soil resistivity and corrosivity towards unprotected ferrous metals (National Association of Corrosion Engineers (NACE), 1984) is presented in Table 13.

Table 13

Electrical Resistivity and Unprotected Ferrous Metals Corrosion Potential

Minimum Electrical Resistivity, ohm-cm	Corrosion Potential
0 to 1,000	Severely Corrosive
1,000 to 2,000	Corrosive
2,000 – 10,000	Moderately Corrosive
Over 10,000	Mildly Corrosive

Based on the NACE criteria, the onsite soils may be considered corrosive to severely corrosive. Preliminary corrosion tests are only an indicator of potential soil aggressivity for the sample tested. We recommend that the corrosion test results be reviewed and evaluated by the project designers considering the proposed improvements and project lifespan requirements. Kleinfelder does not practice corrosion engineering and the purpose of our tests is only to provide a preliminary screening. Additional sampling and testing may be performed after completion of grading for the proposed site improvements. A qualified corrosion engineer can be contacted to for detailed evaluation of corrosion potential with respect to construction materials at this site and review the proposed design.

5 LIMITATIONS

This report has been prepared for the exclusive use of Carrier Johnson + Culture and their consultants for specific application to the subject project. The findings, conclusions and recommendations presented in this report were prepared in accordance with generally accepted geotechnical engineering practice. No warranty, express or implied, is made.

The scope of services was limited to the field exploration program described in this report. It should be recognized that definition and evaluation of subsurface conditions are difficult. Judgments leading to conclusions and recommendations are generally made with incomplete knowledge of the subsurface conditions present due to the limitations of data from field studies. The conclusions presented herein are based on field explorations, laboratory testing, engineering analyses and professional judgement.

Kleinfelder offers various levels of investigative and engineering services to suit the varying needs of different clients. Although risk can never be eliminated, more detailed and extensive studies yield more information, which may help understand and manage the level of risk. Since detailed study and analysis involves greater expense, our clients participate in determining levels of service, which provide information for their purposes at acceptable levels of risk. The client and key members of the design team should discuss the issues addressed in this report with Kleinfelder, so that the issues are understood and applied in a manner consistent with the owner's budget, tolerance of risk and expectations for future performance and maintenance.

Recommendations contained in this report are based on our field observations and subsurface explorations, laboratory tests, and our understanding of the proposed construction. It is possible that soil or groundwater conditions could vary between or beyond the points explored. If soil or groundwater conditions are encountered during construction that differ from those described herein, the client is responsible for ensuring that Kleinfelder is notified immediately so that we may reevaluate the recommendations of this report. If the scope of the proposed construction, or locations of the improvements, changes from that described in this report, the conclusions and recommendations contained in this report are not considered valid until the changes are reviewed, and the conclusions of this report are modified or approved in writing, by Kleinfelder.

Our geotechnical scope of services for this subsurface exploration and geotechnical report did not include environmental assessments or evaluations regarding the presence or absence of wetlands or hazardous substances in the soil, surface water, or groundwater at this site. Kleinfelder cannot be responsible for interpretation by others of this report or the conditions encountered in the field. Kleinfelder must be retained so that all geotechnical aspects of construction will be monitored on a full-time basis by a representative from Kleinfelder, including site preparation, ground improvement, preparation of foundations, and placement of engineered fill and trench backfill. These services provide Kleinfelder the opportunity to observe the actual soil and groundwater conditions encountered during construction and to evaluate the applicability of the recommendations presented in this report to the site conditions. If Kleinfelder is not retained to provide these services, we will cease to be the engineer of record for this project and will assume no responsibility for any potential claim during or after construction on this project. If changed site conditions affect the recommendations presented herein, Kleinfelder must also be retained to perform a supplemental evaluation and to issue a revision to our original report.

This report, and any future addenda or reports regarding this site, may be made available to bidders to supply them with only the data contained in the report regarding subsurface conditions and laboratory test results at the point and time noted. Bidders may not rely on interpretations, opinion, recommendations, or conclusions contained in the report. Because of the limited nature of any subsurface study, the contractor may encounter conditions during construction which differ from those presented in this report. In such event, the contractor should promptly notify the owner so that Kleinfelder's geotechnical engineer can be contacted to confirm those conditions. We recommend the contractor describe the nature and extent of the differing conditions in writing and that the construction contract include provisions for dealing with differing conditions. Contingency funds should be reserved for potential problems during earthwork and foundation construction.

This report may be used only by the client and only for the purposes stated, within a reasonable time from its issuance, but in no event later than one year from the date of the report. Land use, site conditions (both on site and off site) or other factors may change over time, and additional work may be required with the passage of time. Any party, other than the client who wishes to use this report shall notify Kleinfelder of such intended use. Based on the intended use of this report and the nature of the new project, Kleinfelder may require that additional work be performed and that an updated report be issued. Non-compliance with any of these requirements by the client or anyone else will release Kleinfelder from any liability resulting from the use of this report by any unauthorized party.

Kleinfelder will assume no responsibility or liability whatsoever for any claim, damage, or injury which results from pre-existing hazardous materials being encountered or present on the project site, or from the discovery of such hazardous materials. Additional important information about this report is presented in the attached Geotechnical Business Council insert in Appendix I.

6 REFERENCES

American Public Works Association (APWA), 2015, “Green Book, Standard Specifications for Public Works Construction”.

American Society of Testing and Materials (ASTM), various standards.

British Steel, 1997, “Piling Handbook”, 7th edition, 1997.

California Division of Mines and Geology (CDMG), 1991, “State of California Special Studies Zones, La Jolla Quadrangle”, revised official map, effective: November 1, 1991.

California Geological Survey (CGS), 2003, “State of California Special Studies Zones, Point Loma Quadrangle”, revised official map, effective: May 1, 2003.

California Geological Survey (CGS). 2002. “California Geomorphic Provinces, Note 36”, revised December 2002.

City of San Diego, Development Services Department, 2008, Seismic Safety Study, Geologic Hazards and Faults, 2008.

Geocon, Inc., 2013, “Preliminary Geotechnical Investigation, Morris Cerullo World Outreach Pavilion, San Diego, California”, project no. 07817-52-02, dated March 6, 2013.

Jennings, C.W., 1994, “Fault Activity Map of California and Adjacent Areas”, California Division of Mines and Geology, California Geologic Map Series, Map No. 6.

Jennings, C.W. and Bryant, W.A., 2010, “Fault Activity Map of California”, Geologic Data Map No. 6.

Kennedy, M.P. 1975. Geology of the San Diego Metropolitan Area, California, Del Mar, La Jolla, Point Loma, La Mesa, Poway, and SW1/4 Escondido 7½ minute quadrangles, California Division of Mines and Geology, Bulletin 200, 56p.

Kennedy, M.P. and Tan, S.S. 2008. Geologic map of the San Diego 30’X60’ Quadrangle, California: California Geological Survey, Scale1:100,000.

Kleinfelder, 2016. Report of Limited Hazardous Building Materials Survey, Mission Valley Resort, 875 Hotel Circle South, San Diego, California, project no. 20163965, dated March 18, 2016.

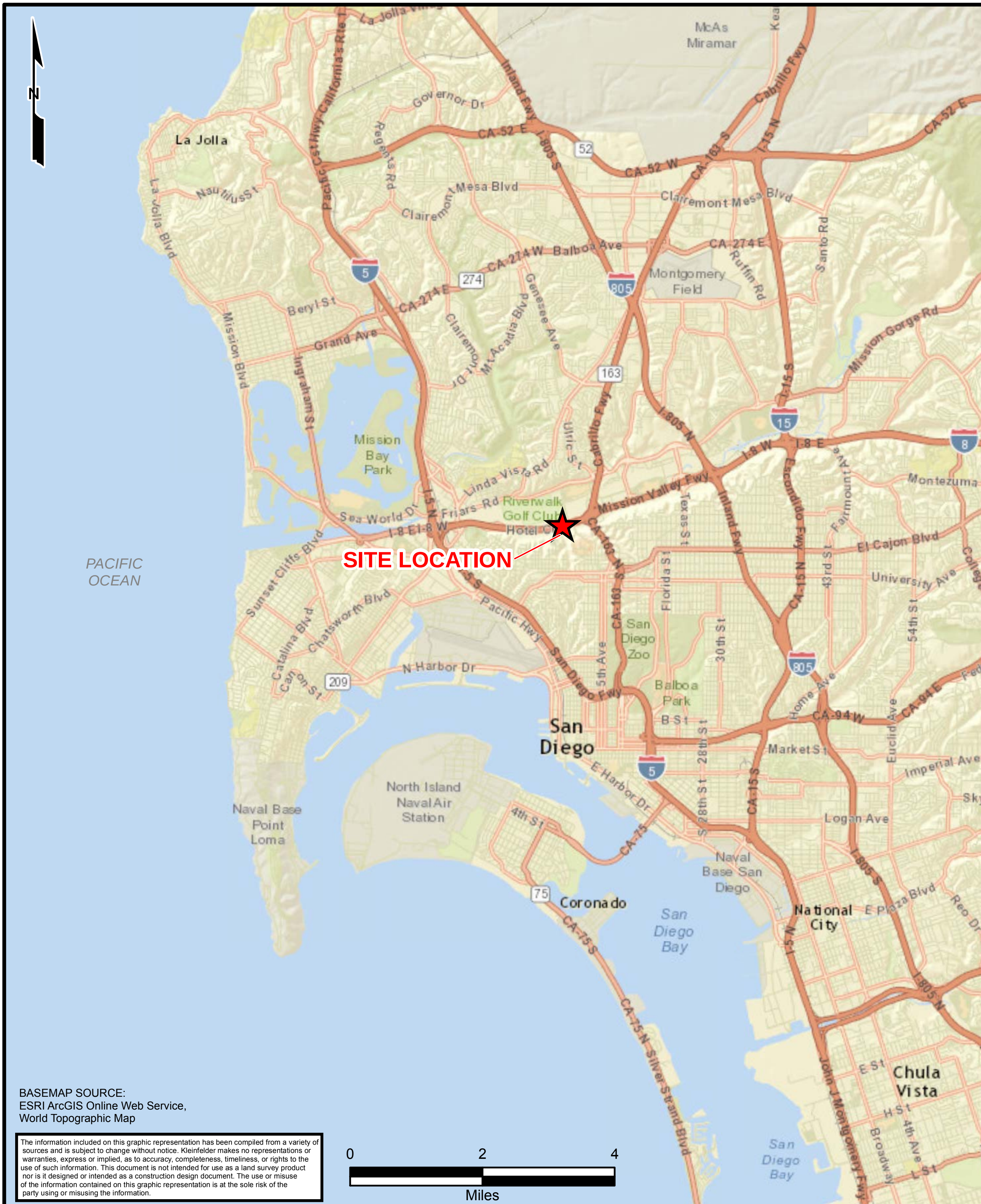
Powell, R.E., Weldon, II, R.J and Matti, J.C. (editors) 1993. “The San Andreas Fault System: displacement, palinspastic reconstruction, and geologic evolution”, Geological Society of America Memoir 178, 332p.

Treiman, J.A., 1993, “The Rose Canyon Fault Zone, Southern California”, California Division of Mines and Geology, Open File Report 93-02.

Wallace, R.E., 1990, “General features: The San Andreas fault system”, U.S. Geological Survey Professional Paper 1515, p. 3-12.

United States Department of Agriculture (USDA) 1953, Aerial Photographs AXN-3M-216 and AXN-3M-217.

FIGURES



BASEMAP SOURCE:
ESRI ArcGIS Online Web Service,
World Topographic Map

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SITE VICINITY MAP

LEGACY INTERNATIONAL CENTER
SAN DIEGO, CALIFORNIA

FIGURE

1

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LEGEND

RL-6 APPROXIMATE LOCATION OF REFRACTION MICROTREMOR (ReMi) LINE

PROPOSED STRUCTURE

APPROXIMATE PROJECT LIMITS

KLEINFELDER EXPLORATIONS, 2016

HA-4 APPROXIMATE LOCATION OF HAND AUGER BORING

B-12 APPROXIMATE LOCATION OF AUGER BORING

LD-4 APPROXIMATE LOCATION OF LARGE DIAMETER BORING

CPT-8 APPROXIMATE LOCATION OF CONE PENETROMETER TEST

GEOCON EXPLORATIONS, 2013

B-11 APPROXIMATE LOCATION OF AUGER BORING

TP-3 APPROXIMATE LOCATION OF TEST PIT

CPT-5 APPROXIMATE LOCATION OF CONE PENETROMETER TEST

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0 50 100 200

Feet

IMAGERY SOURCE:
ESRI ArcGIS Online Web Service,
World Imagery, NAIP 2014

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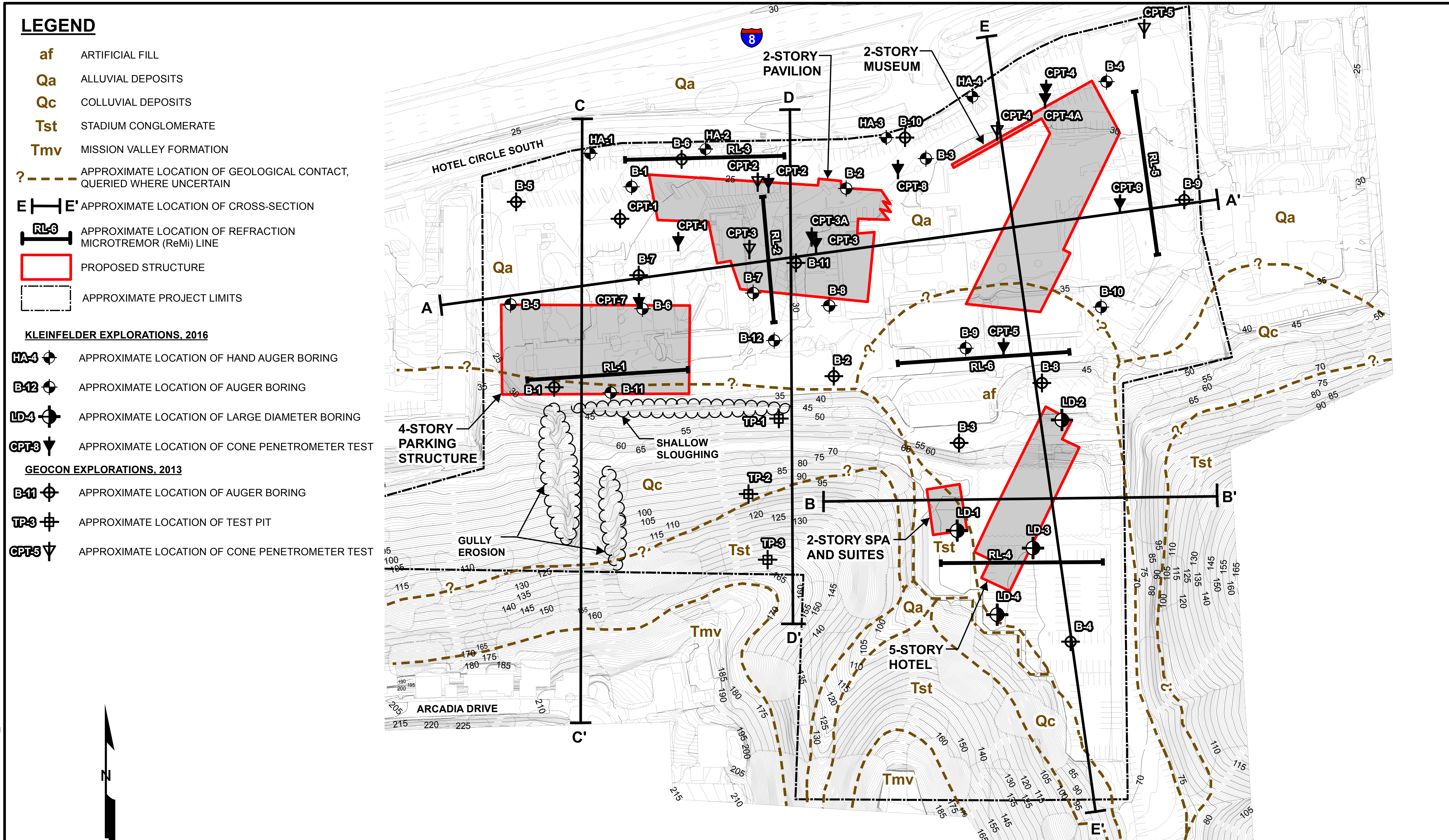
AERIAL PHOTOGRAPH WITH PROPOSED IMPROVEMENTS

LEGACY INTERNATIONAL CENTER
SAN DIEGO, CALIFORNIA

FIGURE

2



0 65 130 260
Feet

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NOTES:
- Elevation contours in feet.

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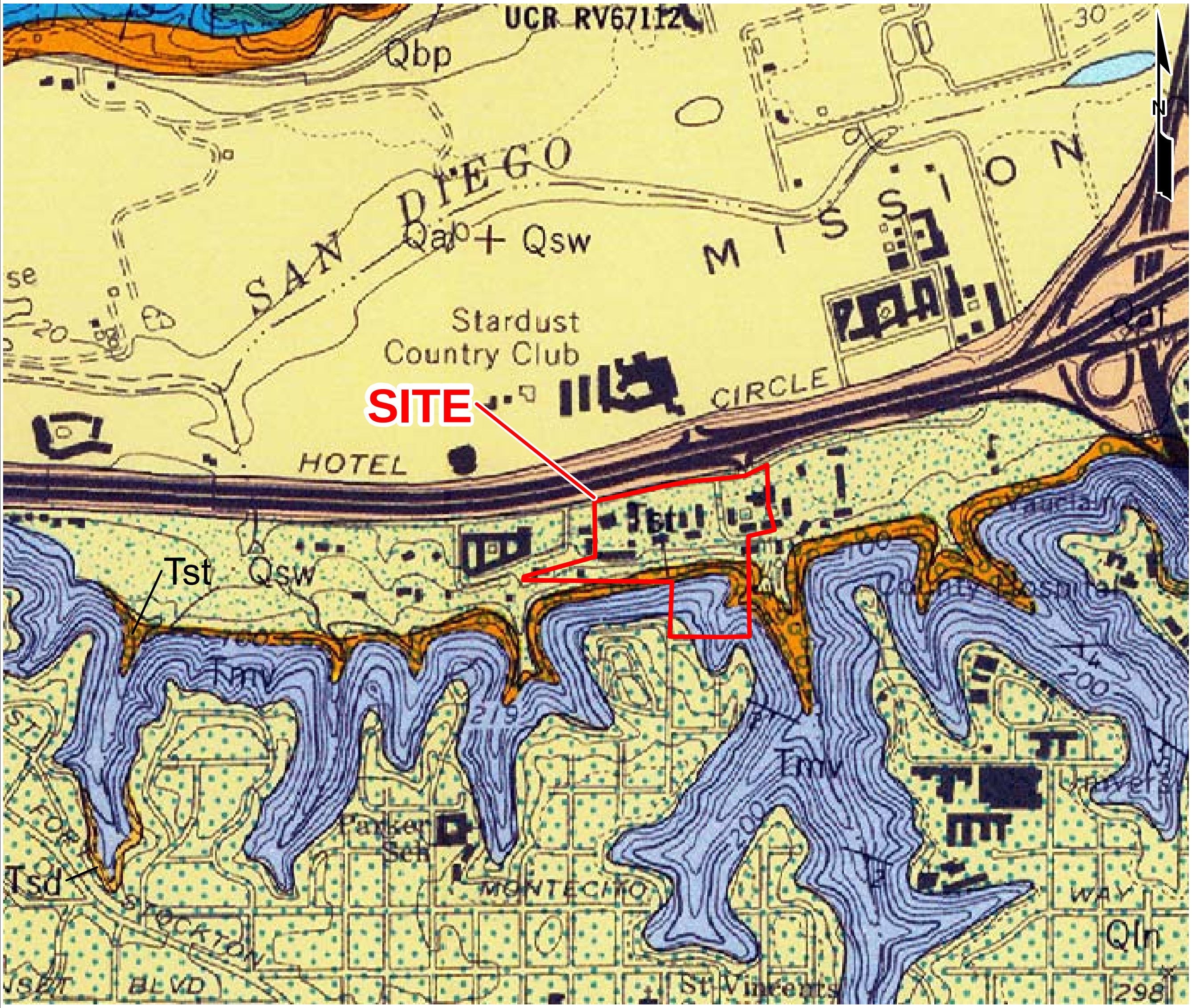
SITE PLAN AND GEOLOGIC MAP

LEGACY INTERNATIONAL CENTER
SAN DIEGO, CALIFORNIA

FIGURE
3



LEGEND

Qal - ALLUVIUM

Qsw - WASH DEPOSITS

Qln - LINDAVISTA FORMATION

Tmv - MISSION VALLEY FORMATION

Tst - STADIUM FORMATION

Tsd - SAN DIEGO FORMATION

SOURCE:
GEOLOGY OF THE LA JOLLA QUADRANGLE, KENNEDY 1975..

0 500 1,000 2,000
Feet

KLEINFELDER Bright People. Right Solutions. www.kleinfelder.com	PROJECT NO. 20163965 DRAWN: 3/25/2016 DRAWN BY: LM/JP CHECKED BY: TG FILE NAME: 20163965_Geo.mxd	REGIONAL GEOLOGIC MAP LEGACY INTERNATIONAL CENTER SAN DIEGO, CALIFORNIA	FIGURE 4

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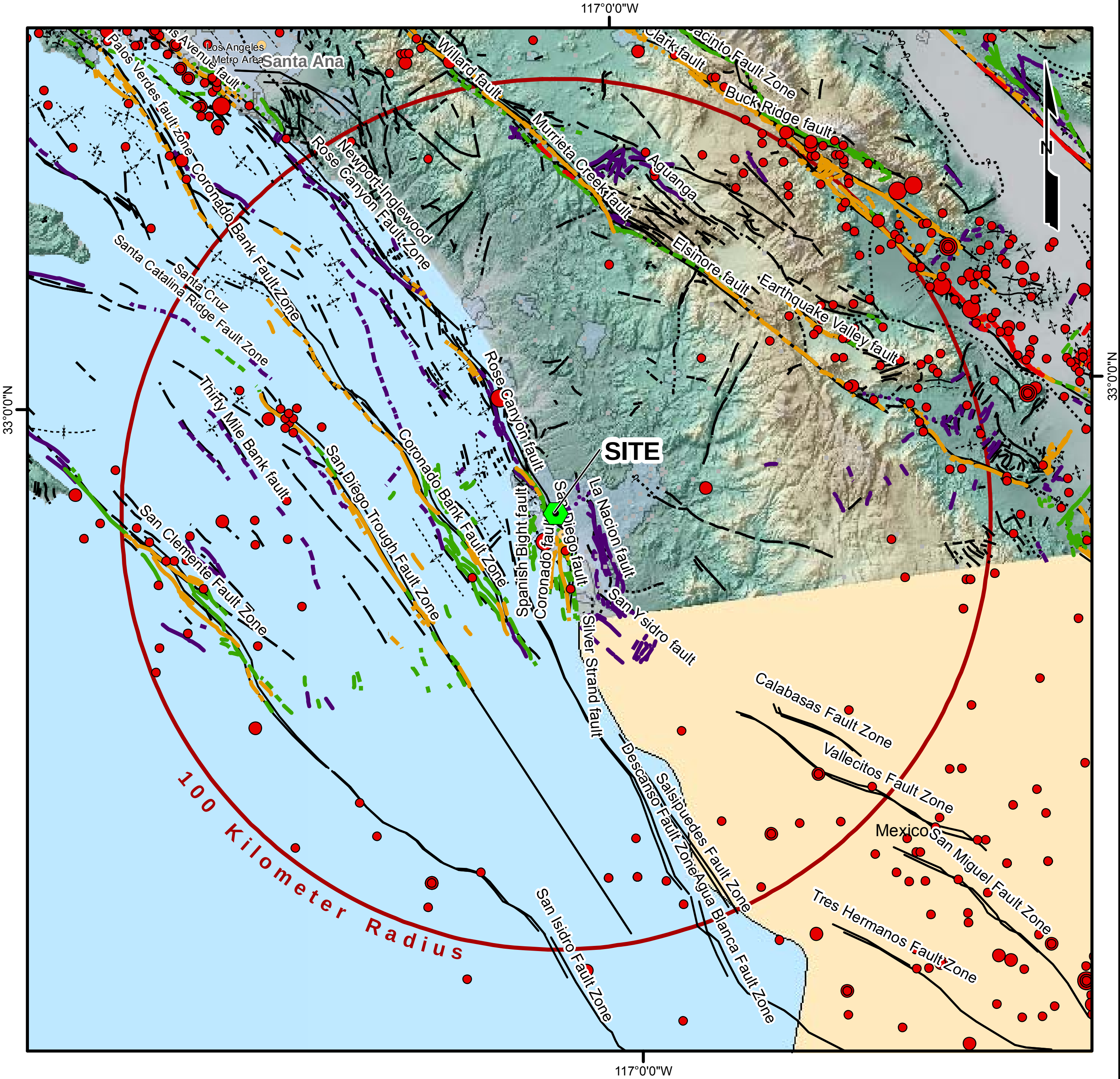

Faulting Legend

Quaternary Faults (Bryant, 2005; USGS, 2009)

Historic displacement (< 200 years)
- Mapped Fault Location
- Dashed were Approximated
- Concealed

Holocene displacement (< 11,000 years)
- Mapped Fault Location
- Dashed were Approximated
- Concealed

Late Quaternary displacement (< 750,000 years)
- Mapped Fault Location
- Dashed were Approximated
- Concealed

Quaternary displacement (< 1,600,000 years)
- Mapped Fault Location
- Dashed were Approximated
- Concealed

Pre-Quaternary Geologic Structures (CGS, 2000)
- fault, approx. located
- fault, approx. located, queried
- fault, certain
- fault, concealed
- fault, concealed, queried
- fault, inferred, queried

ANSS Earthquakes Magnitude
- 4.0 - 4.9
- 5.0 - 5.9
- 6.0 - 6.9
- 7.0 - 7.9
- 8.0 - 8.9

0 25 50 100
Kilometers

J:_clients\Legacy_Intl\20163965\MXD\20163965_EQ.mxd

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REGIONAL FAULT MAP
AND EARTHQUAKE EPICENTERS
(1800 - JUNE 2015)

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SAN DIEGO, CALIFORNIA

FIGURE
5

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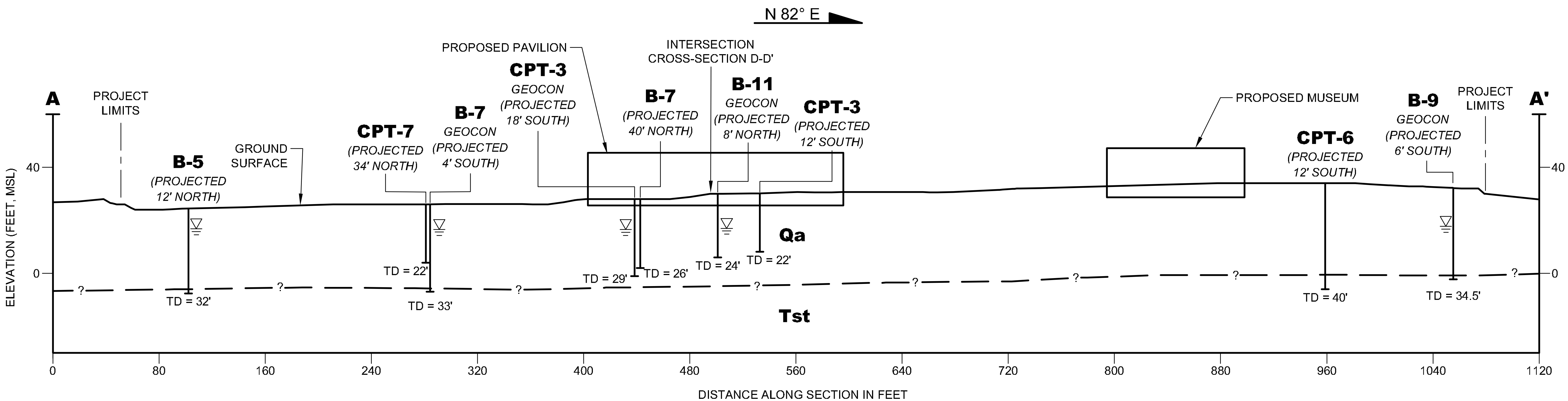

LEGEND

Qa	ALLUVIAL DEPOSITS
Tst	STADIUM CONGLOMERATE
?	APPROXIMATE LOCATION OF GEOLOGIC CONTACT, QUERIED WHERE UNCERTAIN
B-9 TD = 34'	APPROXIMATE LOCATION OF BORING, CPT, OR TEST PIT, SHOWING PROJECTION AND TOTAL DEPTH IN FEET
	GROUNDWATER ENCOUNTERED AT TIME OF DRILLING

NOTE:
ARTIFICIAL FILL OF LESS THAN 3 FEET IN DEPTH OCCURS IN ISOLATED AREAS AT SURFACE. NOT SHOWN.

40 20 0 40
APPROXIMATE VERTICAL SCALE (feet)

80 40 0 80
APPROXIMATE HORIZONTAL SCALE (feet)

2X VERTICAL EXAGGERATION

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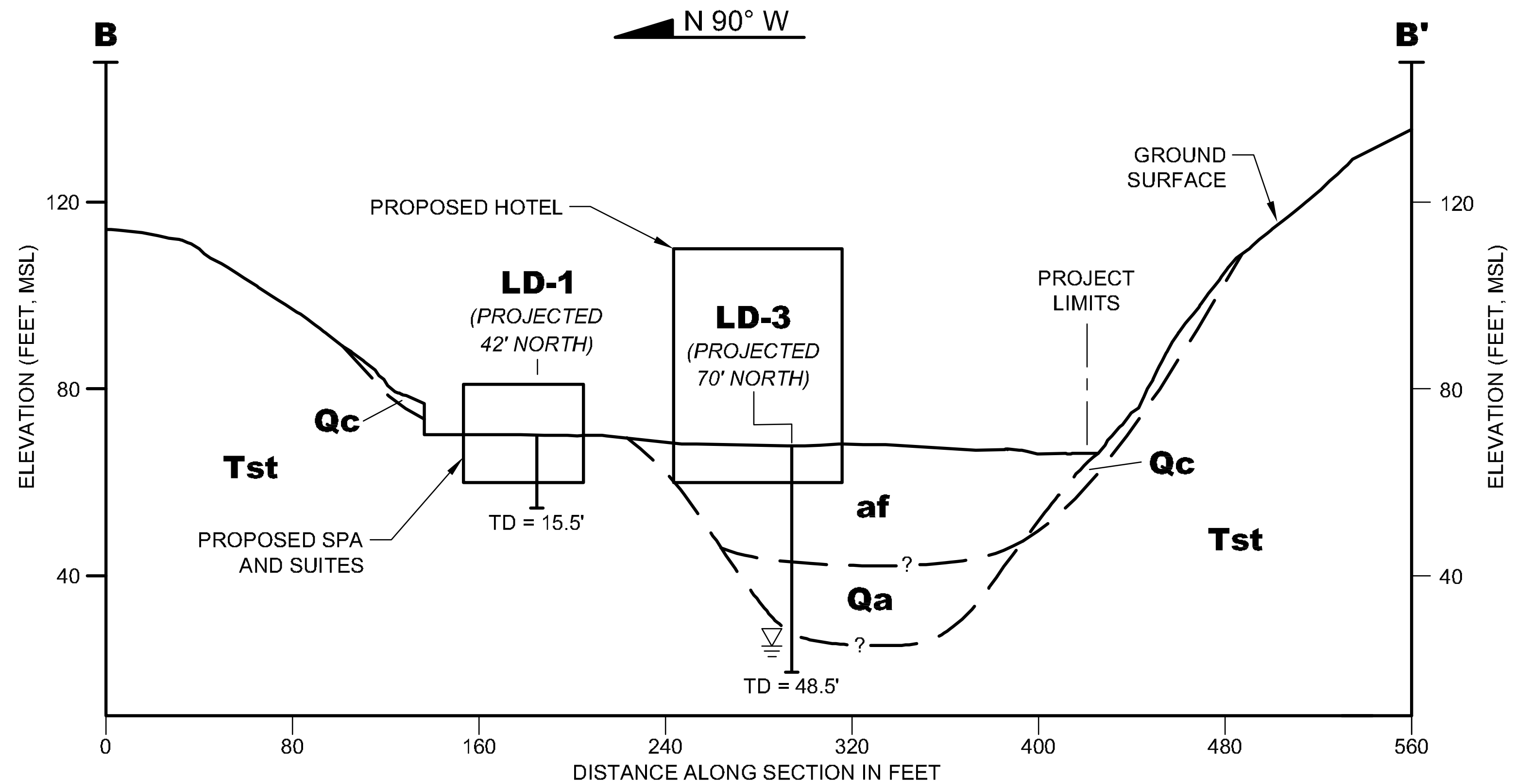
GEOLOGIC CROSS-SECTION A-A'

LEGACY INTERNATIONAL CENTER
SAN DIEGO, CALIFORNIA

FIGURE
6

ATTACHED IMAGES:
ATTACHED XREFS:



LEGEND

af	ARTIFICIAL FILL
Qa	ALLUVIAL DEPOSITS
Qc	COLLUVIAL DEPOSITS
Tst	STADIUM CONGLOMERATE
?	APPROXIMATE LOCATION OF GEOLOGIC CONTACT, QUERIED WHERE UNCERTAIN
B-9 TD = 34'	APPROXIMATE LOCATION OF BORING, CPT, OR TEST PIT SHOWING PROJECTION AND TOTAL DEPTH IN FEET
▽	GROUNDWATER ENCOUNTERED AT TIME OF DRILLING

40 20 0 40

APPROXIMATE VERTICAL SCALE (feet)

80 40 0 80

APPROXIMATE HORIZONTAL SCALE (feet)

2X VERTICAL EXAGGERATION

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GEOLOGIC CROSS-SECTION B-B'

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SAN DIEGO, CALIFORNIA

FIGURE
7

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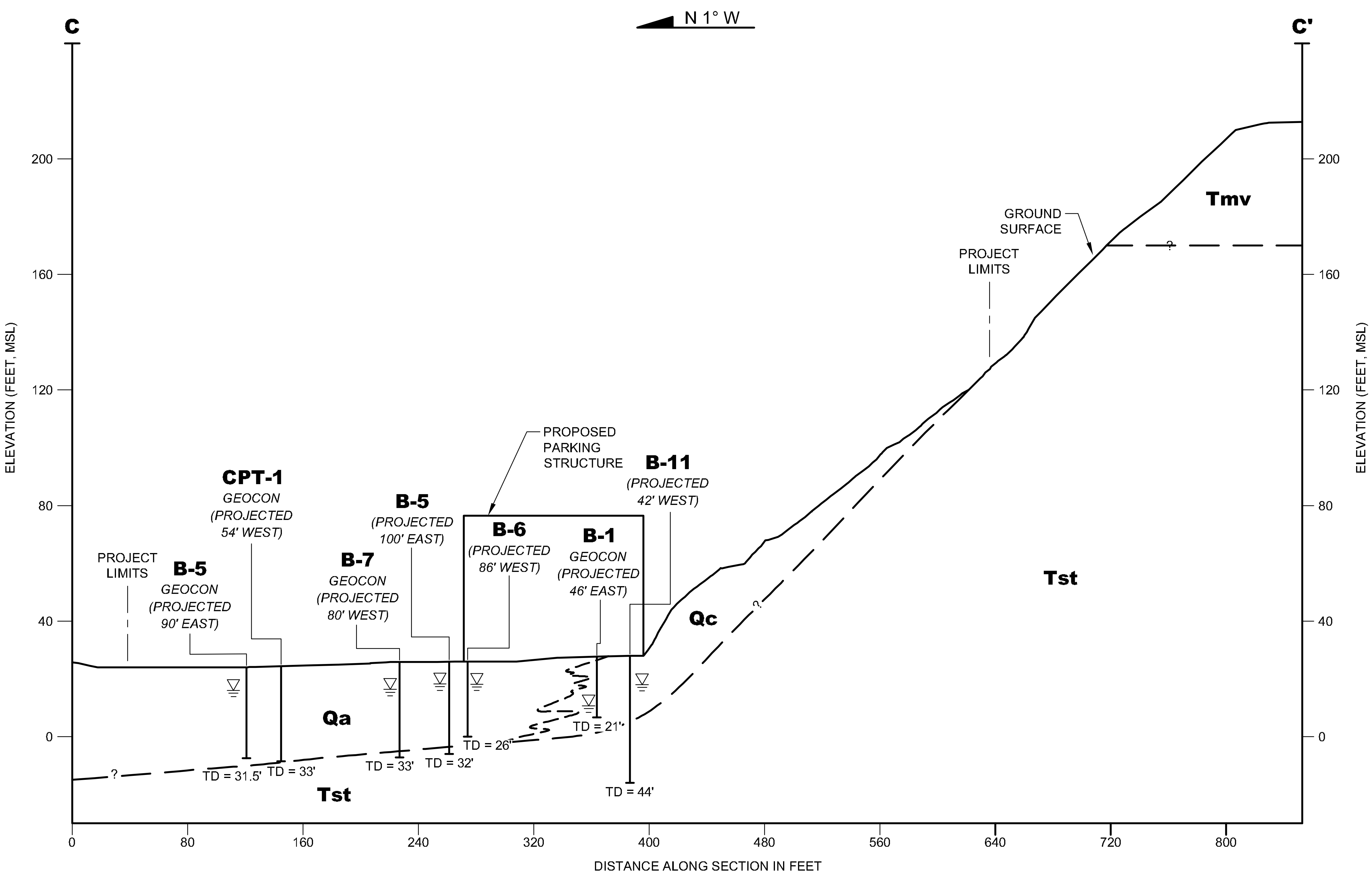
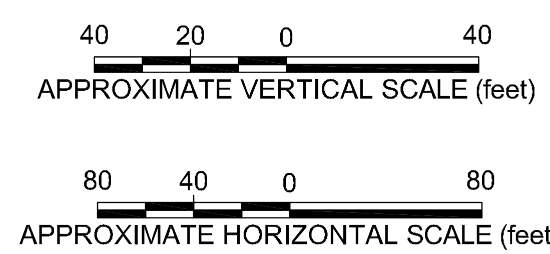


LEGEND

Qc	COLLUVIAL DEPOSITS
Qa	ALLUVIAL DEPOSITS
Tst	STADIUM CONGLOMERATE
Tmv	MISSION VALLEY FORMATION
?	APPROXIMATE LOCATION OF GEOLOGIC CONTACT, QUERIED WHERE UNCERTAIN
B-9 TD = 34'	APPROXIMATE LOCATION OF BORING, CPT, OR TEST PIT SHOWING PROJECTION AND TOTAL DEPTH IN FEET
▽	GROUNDWATER ENCOUNTERED AT TIME OF DRILLING



2X VERTICAL EXAGGERATION

NOTE:
ARTIFICIAL FILL OF LESS THAN 3 FEET IN DEPTH OCCURS IN ISOLATED AREAS NORTH OF STATION 400. NOT SHOWN.

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GEOLOGIC CROSS-SECTION C-C'

LEGACY INTERNATIONAL CENTER
SAN DIEGO, CALIFORNIA

FIGURE
8

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LAYOUT: C-C'
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ATTACHED IMAGES:
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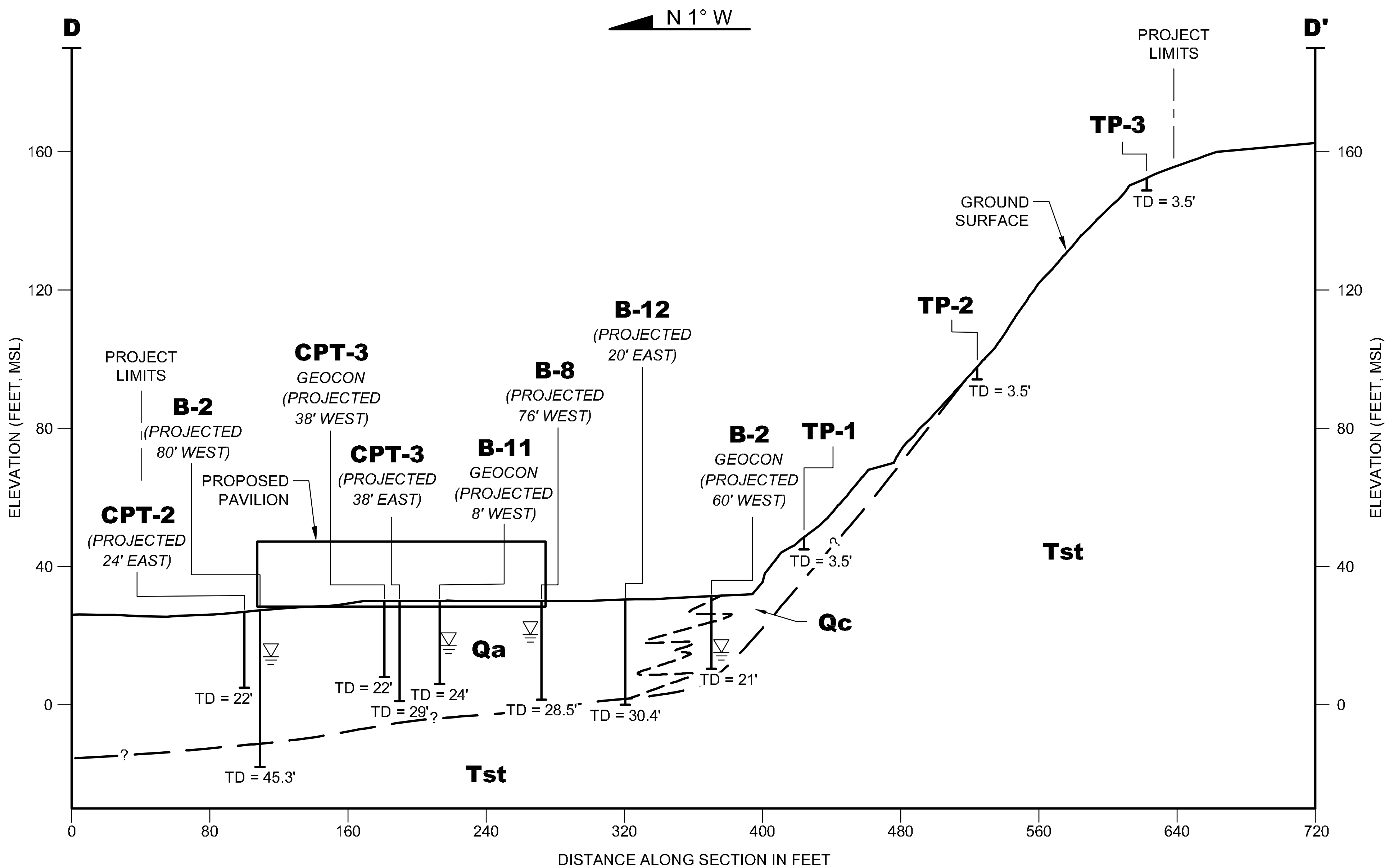

LEGEND

Qa	ALLUVIAL DEPOSITS
Qc	COLLUVIAL DEPOSITS
Tst	STADIUM CONGLOMERATE
?	APPROXIMATE LOCATION OF GEOLOGIC CONTACT, QUERIED WHERE UNCERTAIN
B-9 TD = 34'	APPROXIMATE LOCATION OF BORING, CPT, OR TEST PIT SHOWING PROJECTION AND TOTAL DEPTH IN FEET
	GROUNDWATER ENCOUNTERED AT TIME OF DRILLING

40 20 0 40
APPROXIMATE VERTICAL SCALE (feet)

80 40 0 80
APPROXIMATE HORIZONTAL SCALE (feet)

2X VERTICAL EXAGGERATION

NOTE:
ARTIFICIAL FILL OF LESS THAN 3 FEET IN DEPTH OCCURS IN ISOLATED AREAS NORTH OF STATION 400. NOT SHOWN.

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GEOLOGIC CROSS-SECTION D-D'

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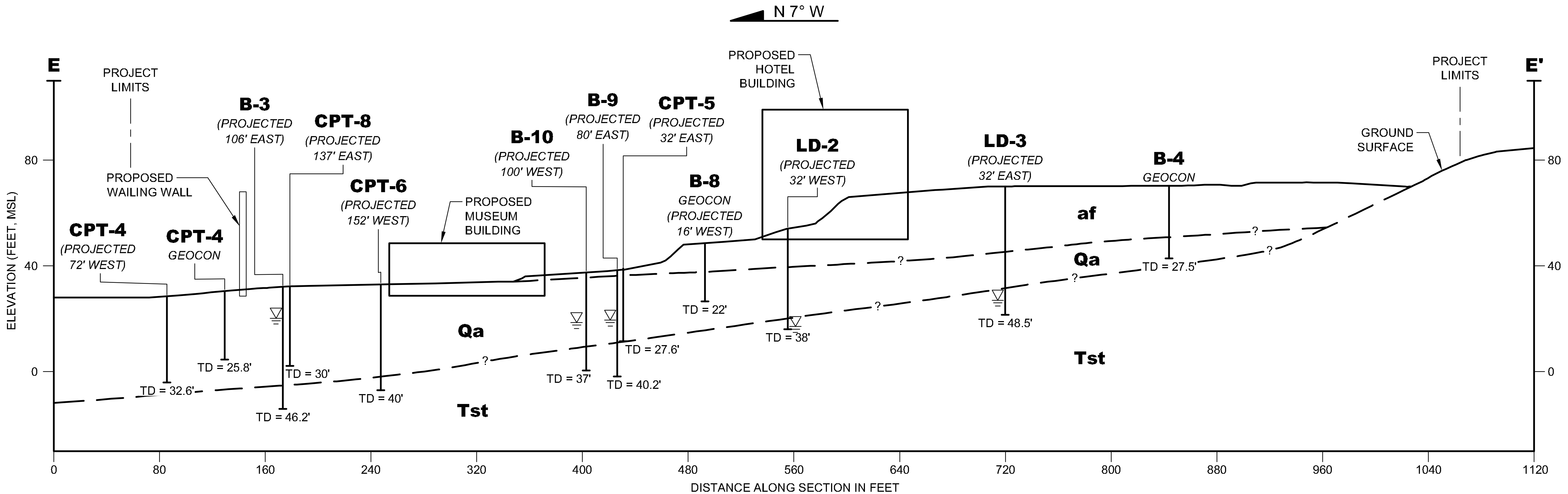
SAN DIEGO, CALIFORNIA

FIGURE
9



LEGEND

af	ARTIFICIAL FILL
Qa	ALLUVIAL DEPOSITS
Tst	STADIUM CONGLOMERATE
?	APPROXIMATE LOCATION OF GEOLOGIC CONTACT, QUERIED WHERE UNCERTAIN
B-9 TD = 34'	APPROXIMATE LOCATION OF BORING, CPT, OR TEST PIT SHOWING PROJECTION AND TOTAL DEPTH IN FEET
▽	GROUNDWATER ENCOUNTERED AT TIME OF DRILLING

NOTE:
ARTIFICIAL FILL OF LESS THAN 3 FEET IN DEPTH OCCURS IN ISOLATED AREAS NORTH OF STATION 340. NOT SHOWN.

80 40 0 80
APPROXIMATE HORIZONTAL SCALE (feet)

40 20 0 40
APPROXIMATE VERTICAL SCALE (feet)
2X VERTICAL EXAGGERATION

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GEOLOGIC CROSS-SECTION E-E'

LEGACY INTERNATIONAL CENTER
SAN DIEGO, CALIFORNIA

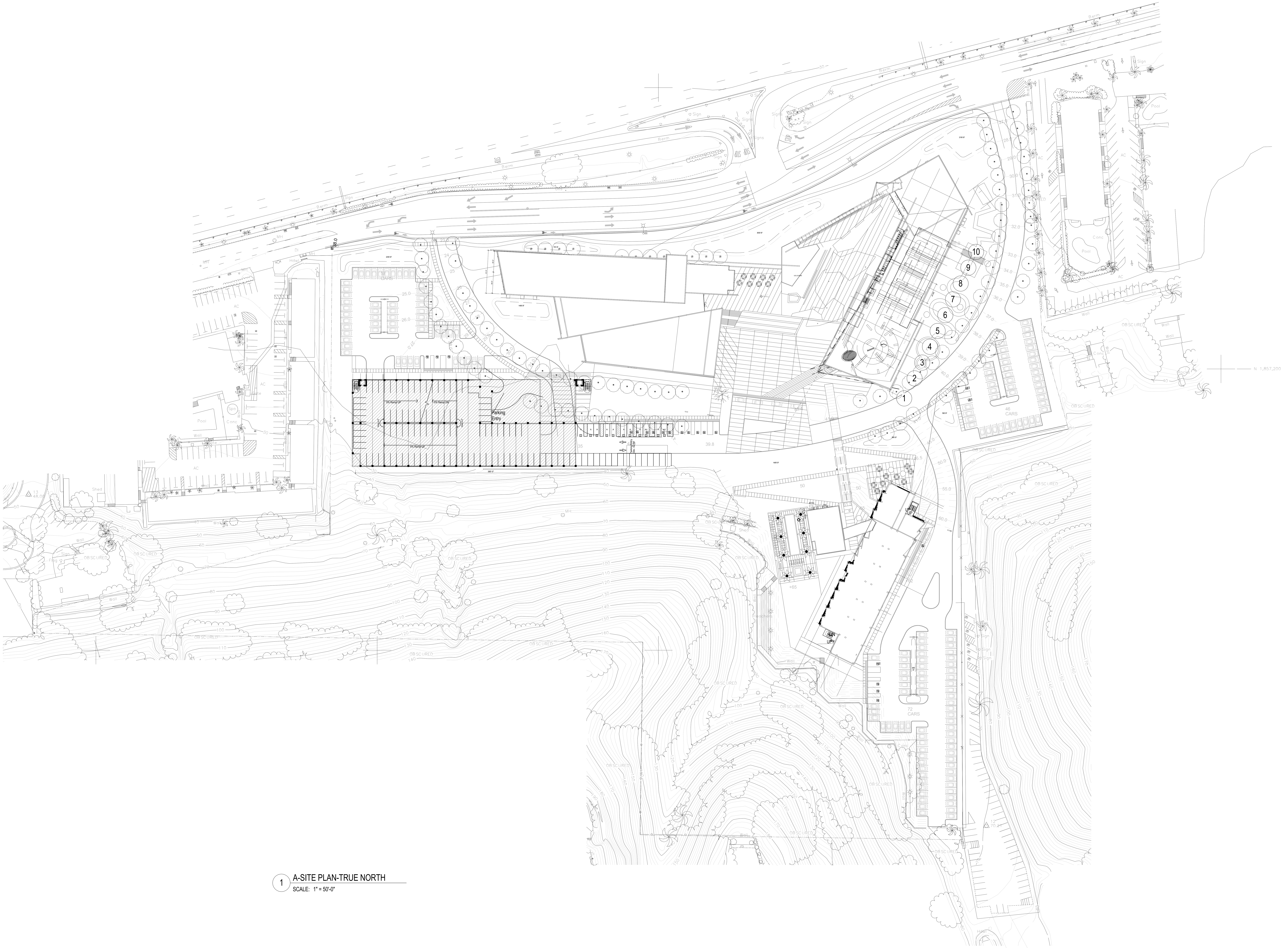
FIGURE
10

PLOTTED: 04 Apr 2016, 11:54am, jpatay LAYOUT: E-E' CAD FILE: J:_clients\Legacy_Intl\20163965\MXD\
ATTACHED IMAGES:
ATTACHED XREFS:

APPENDIX A
PRELIMINARY 100% SCHEMATIC DESIGN DRAWINGS

0 50 100 150

SCALE: 1" = 50' SCALE IN FEET



1 A-SITE PLAN-TRUE NORTH
SCALE: 1" = 50'-0"

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SITE PLAN

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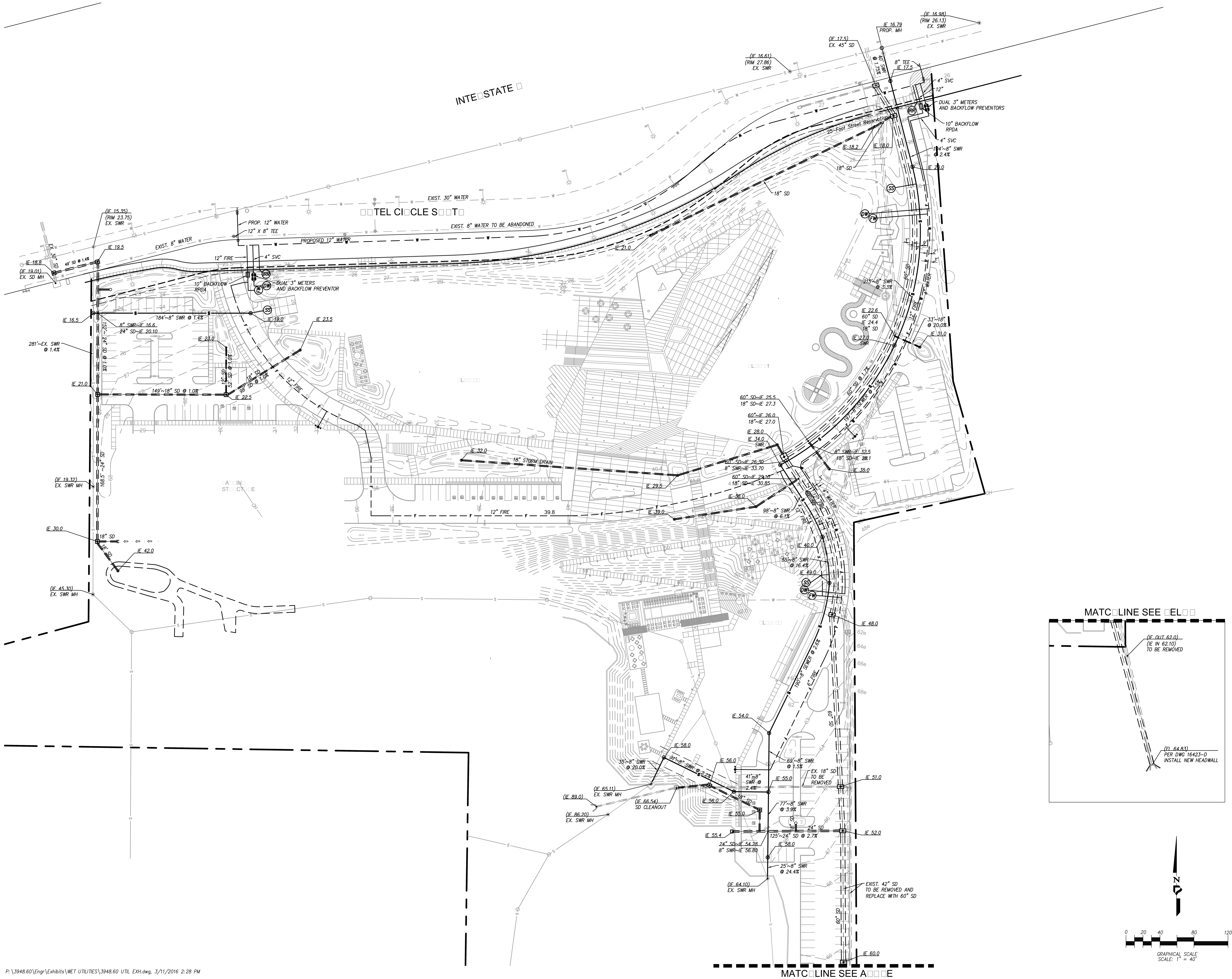

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PROJECT DESIGN CONSULTANTS
Planning | Landscape Architecture | Engineering | Survey
701 B Street, Suite 800
San Diego, CA 92101
619.235.6471 Tel
619.234.0349 Fax

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UTILITY PLAN

C1.1

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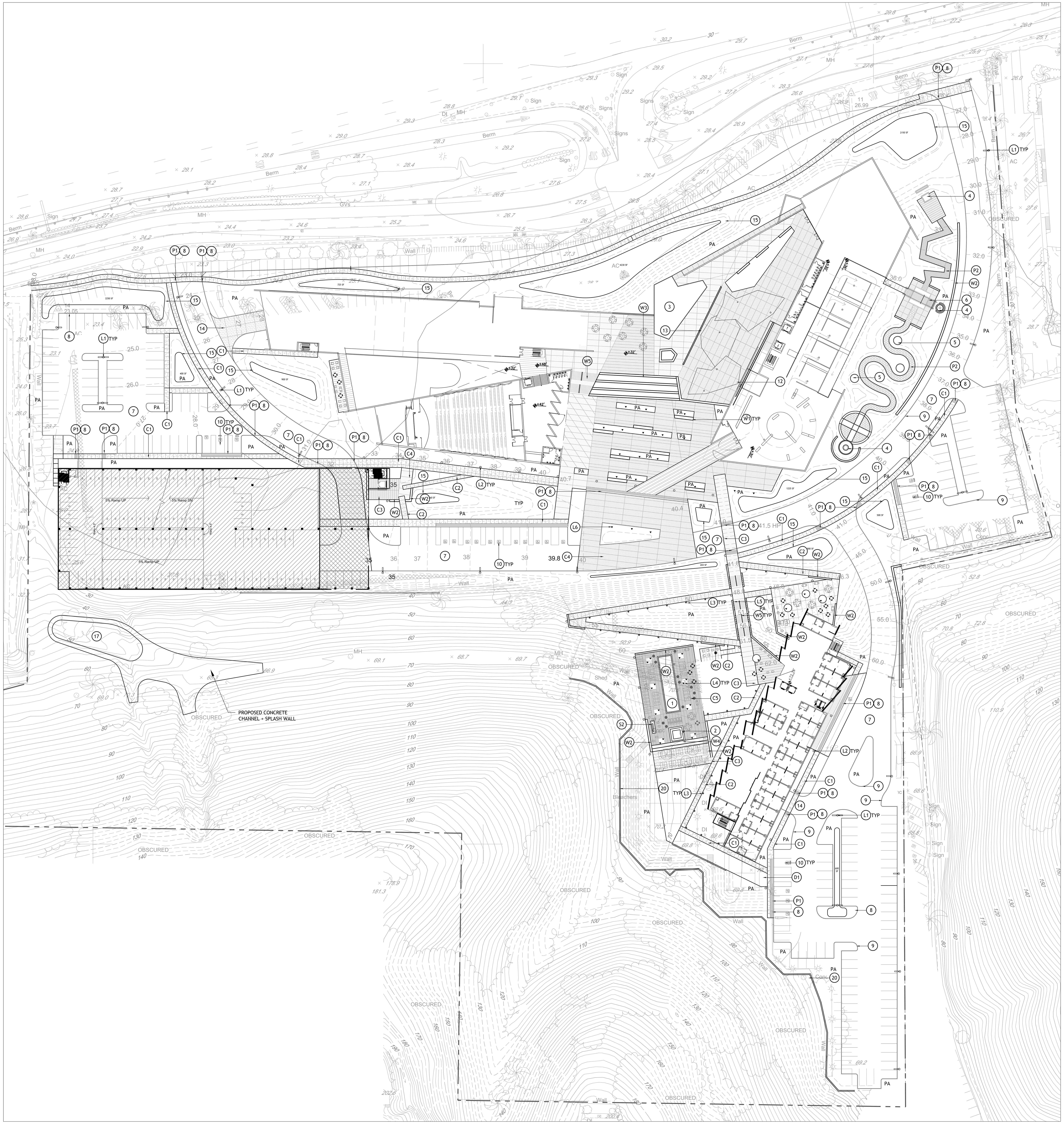

MATERIALS & PRODUCTS SCHEDULE

SYMBOL			ITEM	DETAIL
VEHICULAR	PEDESTRIAN		**PAVING**	
		C1	C.I.P. CONCRETE TYPE 1- SAND FINISH	
		C2	C.I.P. CONCRETE TYPE 2 - LIGHT EXPOSED AGGREGATE FINISH	
		C3	C.I.P. CONCRETE TYPE 3 - HEAVY EXPOSED AGGREGATE FINISH	
		C4	C.I.P. CONCRETE TYPE 4 - INTEGRAL COLOR SAND FINISH	
			POOL DECK PAVIVIG-TYPE TBD	
	EJ	C6	EXPANSION JOINT @ PED. PAVING	
		C7	SAWCUT JOINT @ PED. PAVING	
		C8	THICKENED EDGE PAVING 8" DEPTH	
			DECOMPOSED GRANITE	
		D1	COMPACTED GRAVEL (MAINTENANCE PATH)	
			UNIT PAVERS	
		P1	TRUNCATED DOME PAVERS	
		P2	PRECAST CONCRETE PAVERS ON AGGREGATE BASE	
			WALLS AND STAIRS	
		W1	C.I.P. CONCRETE SEAT WALL 36" WIDTH WITH LED LIGHT	
		W2	C.I.P CONCRETE RETAINING - 18" WIDTH ON GRADE	
		W3	C.I.P CONCRETE AMPHITHEATRE SEAT PLINTH- 24" WIDTH	
		W4	C.I.P CONCRETE SEAT STAIRS AT SPA - 36" WIDTH	
		W5	C.I.P CONCRETE STAIRS WITH STAINLESS STEEL HANDRAILS	
			SITE FURNSIHINGS	
		S1	BIKE RACKS	
		S2	LINEAR METAL FIREPIT	
			SITE LIGHTING	
		L1	VEHICULAR POLE LIGHT	
		L2	PEDESTRIAN POLE LIGHT	
		L3	PEDESTRIAN LIGHT BOLLARD	
		L4	TREE UPLIGHTS	
		L5	RECESSED WALL/STEP LIGHT	
		L6	LED STRIP LIGHT	
			OTHER	
		1	POOL AT HOTEL	
		2	SPA AT HOTEL	
		3	WATER FEATURE AT PLAZA	
		4	WATER FEATURE AT GARDEN OF EDEN	
		5	SCULPTURE/ FEATURE AT GARDEN OF EDEN	
		6	TRELLIS AT GARDEN OF EDEN	
		7	ASPHALT PAVING	
		8	0" C.I.P. CURB	
		9	6" C.I.P. CURB	
		10	ADA PARKING STALL + SIGN	
		11	PARKING STALL	
		12	SHADE CANOPY AT SOUK	
		13	PLAZA WALL AT SOUK/RETAIL	
		14	LOADING DOCK	
		15	LIMIT OF BIOSWALE LINER	
		16	SEWER ACCESS PATH	
		17	DEBRIS CATCHMENT BASIN	
		18	EXISTING MANHOLE	
		19	EXISTING STAIRS	
		20	EXISTING RETAINING WALL	
		PA	PLANTING AREA	

NOTES:

1. REFER TO CIVIL DEMOLITION PLAN FOR EXISTING ITEMS NOT CALLED OUT ON THESES DRAWINGS. PROTECT IN PLACE ALL PAVING , UTILITIES AND STRUCTURES NOT IDENTIFIED FOR DEMOLITION.
2. REFER TO CIVIL GRADING PLANS FOR ALL GRADING AND PAVING ELEVATION INFORMATION
3. NOTIFY OWNER'S AUTHORIZED REPRESENTATIVE OF ANY DISCREPANCIES WITH THE LAYOUT OF PROPOSED IMPROVEMENTS PRIOR TO INSTALLATION
4. ALL EXTERIOR CONCRETE FINISHES SHALL MEET OR EXCEED THE SLIP COEFFICIENT FOR EXTERIOR CONCRETE
5. NEW PAVING SHALL MATCH EXISTING GRADES AT ALL THRESHOLDS AND WALKWAYS

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HARDSCAPE FINISHES PLAN

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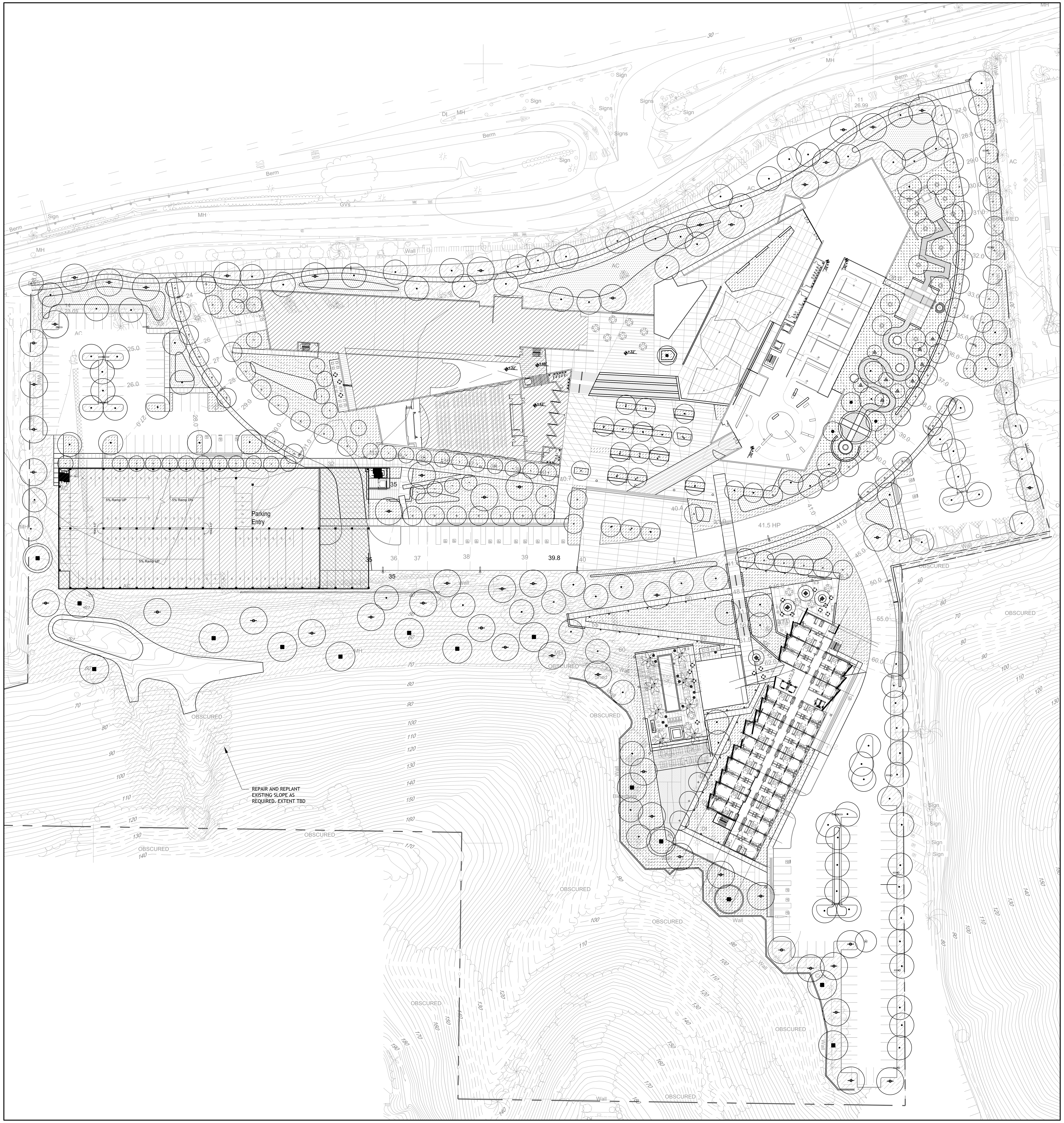

PLANT LEGEND

SYMBOL	BOTANICAL NAME	COMMON NAME	SIZE	FORM
	TREES SUCH AS:			
	CERCIDIUM X 'DESERT MUSEUM'	DESERT MUSEUM PALO VERDE	24" BOX	STANDARD
	JACARANDA MIMOSIFOLIA	JACARANDA	24" BOX	STANDARD
	LAGERSTROEMIA 'MUSKOGEE'	MUSKOGEE CRAPE MYRTLE	24" BOX	MULTI
	OLEA EUROPEA 'WILSONII'	FRUITLESS OVIVE	48" BOX	MULTI
	PLATANUS RACEMOSA	CALIFORNIA SYCAMORE	24" BOX	NATURAL
	PINUS TORREYANA	TORREY PINE	36" BOX	NATURAL
	QUERCUS AGRIFOLIA	COAST LIVE OAK	36" BOX	NATURAL
	SPECIMEN TREE TBD	VARIES, TBD	48" BOX	NATURAL
	ULMUS PARVIFOLIA	CHINESE ELM	48" BOX	NATURAL
	GARDEN TREE	VARIES, TBD	48" BOX	NATURAL
	FRUIT TREE	VARIES, TBD	48" BOX	NATURAL

HILLSIDE SLOPE PLANTS SUCH AS:		SIZE	SPACING	ESTIMATE
ARCTOSTAPHYLOS SPP	MANZANITA	1 GALLON	3' O.C.	90% 1 GALLON @ 30" O.C.
BACCHARIS 'PIGEON POINT'	COYOTE BRUSH	1 GALLON	30" O.C.	10% 5 GALLON @ 60" O.C.
CEANOTHUS G.H. 'YANKEE POINT'	YANKEE POINT CEANOTHUS	1 GALLON	42" O.C.	
DODONEA VISCOSA	PURPLE HOPSEED	15 GALLON	4' O.C.	
ENCELIA CALIFORNICA	CALIFORNIA SUNFLOWER	1 GALLON	30" O.C.	
ERIOGONUM FASCICULATUM	CALIFORNIA BUCKWHEAT	1 GALLON	2' O.C.	
IVA HAYSIANA	POVERTY WEED	1 GALLON	30" O.C.	
LEYMUS C. 'CANYON PRINCE'	CANYON PRINCE WILD RYE	1 GALLON	30" O.C.	
MISCANTHUS TRANSMORRISONENSIS	MAIDEN GRASS	5 GALLON	30" O.C.	
MUHLENBERGIA RIGENS	DEER GRASS	1 GALLON	4'-6" O.C.	
HETEROMELES ARBUTIFOLIA	TOYON	5 GALLON	4' O.C.	
RHAMNUS CALIFORNICA	COFFEEBERRY	1 GALLON	4' O.C.	
RHUS INTEGRIFOLIA	LEMONADEBERRY	5 GALLON	4' O.C.	
SALVIA MELLIFERA	BLACK SAGE	1 GALLON	30" O.C.	

RIPARIAN BIOSWALE PLANTS SUCH AS:		SIZE	SPACING	ESTIMATE
ARISTIDA PURPUREA	PURPLE THREE AWN	1 GALLON	18" O.C.	90% 1 GALLON @ 30" O.C.
CAREX SPISSA	SAN DIEGO SEDGE	1 GALLON	30" O.C.	10% 5 GALLON @ 60" O.C.
CHONDROPETALUM TECTORUM	CAPE RUSH	5 GALLON	3' O.C.	
CISTUS 'SUNSET'	ROCKROSE	1 GALLON	3' O.C.	
DIETES BICOLOR	FORTNIGHT LILY	5 GALLON	2' O.C.	
IVA HAYSIANA	POVERTY WEED	1 GALLON	30" O.C.	
LEYMUS C. 'CANYON PRINCE'	CANYON PRINCE WILD RYE	1 GALLON	30" O.C.	
MISCANTHUS TRANSMORRISONENSIS	MAIDEN GRASS	5 GALLON	30" O.C.	
MUHLENBERGIA RIGENS	DEER GRASS	1 GALLON	4'-6" O.C.	

MUSEUM/ HOTEL PLANTS SUCH AS:		SIZE	SPACING	ESTIMATE
ASPARAGUS DENSIFLORUS	FOXTAIL FERN	1 GALLON	2' O.C.	70% 1 GALLON @ 30" O.C.
AGAVE ATTENUATA BOUTIN BLUE	BLUE FOX TAIL AGAVE	5 GALLON		30% 5 GALLON @ 60" O.C.
AGAVE VILMORANIANA	OCTOPUS AGAVE	5 GALLON	4' O.C.	
AGAVE PARRYI TRUNCATA	ARTICHOKE AGAVE	5 GALLON	30" O.C.	
ALOE BARBARIDENSIS	ALOE VERA	5 GALLON	24" O.C.	
ARISTIDA PURPUREA	PURPLE THREE AWN	1 GALLON	18" O.C.	
BOUGAINVILLEA BRAZILENSIS	BOUGAINVILLEA	5 GALLON	48" O.C.	
CISTUS 'SUNSET'	ROCKROSE	1 GALLON	3' O.C.	
CORDYLINE 'RED SENSATION'	RED SENSATION CORDYLINE	5 GALLON	42" O.C.	
DIANELLA 'TASMANICA'	VARIEGATED FLAX LILY	1 GALLON	18" O.C.	
DIETES BICOLOR	FORTNIGHT LILY	5 GALLON	2' O.C.	
FURCRAEA FOETIDA	MAURITIUS HEMP	15 GALLON	4' O.C.	
HESPERALOE PARVIFLORA	RED YUCCA	5 GALLON	30" O.C.	
IVA HAYSIANA	POVERTY WEED	1 GALLON	30" O.C.	
LEYMUS C. 'CANYON PRINCE'	CANYON PRINCE WILD RYE	1 GALLON	30" O.C.	
MISCANTHUS TRANSMORRISONENSIS	MAIDEN GRASS	5 GALLON	30" O.C.	
PODOCARPUS 'ICEE BLUE'	ICEE BLUE YELLOW-WOOD	15 GALLON	30" O.C.	
SALVIA 'SANTA BARBARA'	SANTA BARBARA SAGE	1 GALLON	3' O.C.	

GARDEN OF EDEN/ SPECIAL AREAS PLANTS SUCH AS:			ESTIMATE
ALOE SPP.	ALOE SPECIES	1 GALLON	60% 1 GALLON @ 24" O.C.
AGAVE SPP.	AGAVE SPECIES	5 GALLON	30% 5 GALLON @ 36" O.C.
CACTUS SPP.	CACTUS SPECIES	5 GALLON	10% 15 GALLON @ 60" O.C.
FLOWERS SPP.	FLOWER VARIETIES	1GALLON	
FRUIT TREES SPECIES	FRUIT VARIETY	15 GALLON	
ORNAMENTAL GRASSES	MIXED GRASSES	1 GALLON	
LAVANDULA SPP.	LAVENDER SPECIES	1GALLON	
ROSA SPP.	ROSE SPECIES	1GALLON	
SALVIA SPP.	SAGE SPECIES	1GALLON	
VITUS VINIFERA	GRAPE SPECIES	5 GALLON	

TURF GRASS — ESTIMATE

SEASHORE PASPALUM SOD

MULCH

NOT SHOWN	ROCK MULCH - TYPE 1 SMALL (AT ALL PLANTING AREAS)	50% 3/8" - 50% 3/4" 'SAND BLAST'	PER SPECS	DECORATIVE STONE SOLUTIONS 800.699.1878
NOT SHOWN	ROCK MULCH - TYPE 2 LARGE (AT BIOSWALE AREAS)	75% 3" 'CUYAMACA RUBBLE', 25% 10" 'CUYAMACA RUBBLE'	PER SPECS	DECORATIVE STONE SOLUTIONS 800.699.1878

OTHER

ROOTBARRIER AT ALL TREES WITHIN 10' OF PAVING TYP.	BIO-BARRIER	PER SPECS	JOHN DEERE LANDSCAPES 800-347-4272
SOIL & PERCOLATION TEST LOCATION	ASSUME 10 FOR PROJECT	PER SPECS	

NOTES

1. ALL PLANTING AREAS TO RECEIVE ROCK MULCH TO 3" DEPTH MIN. — PER SPECS

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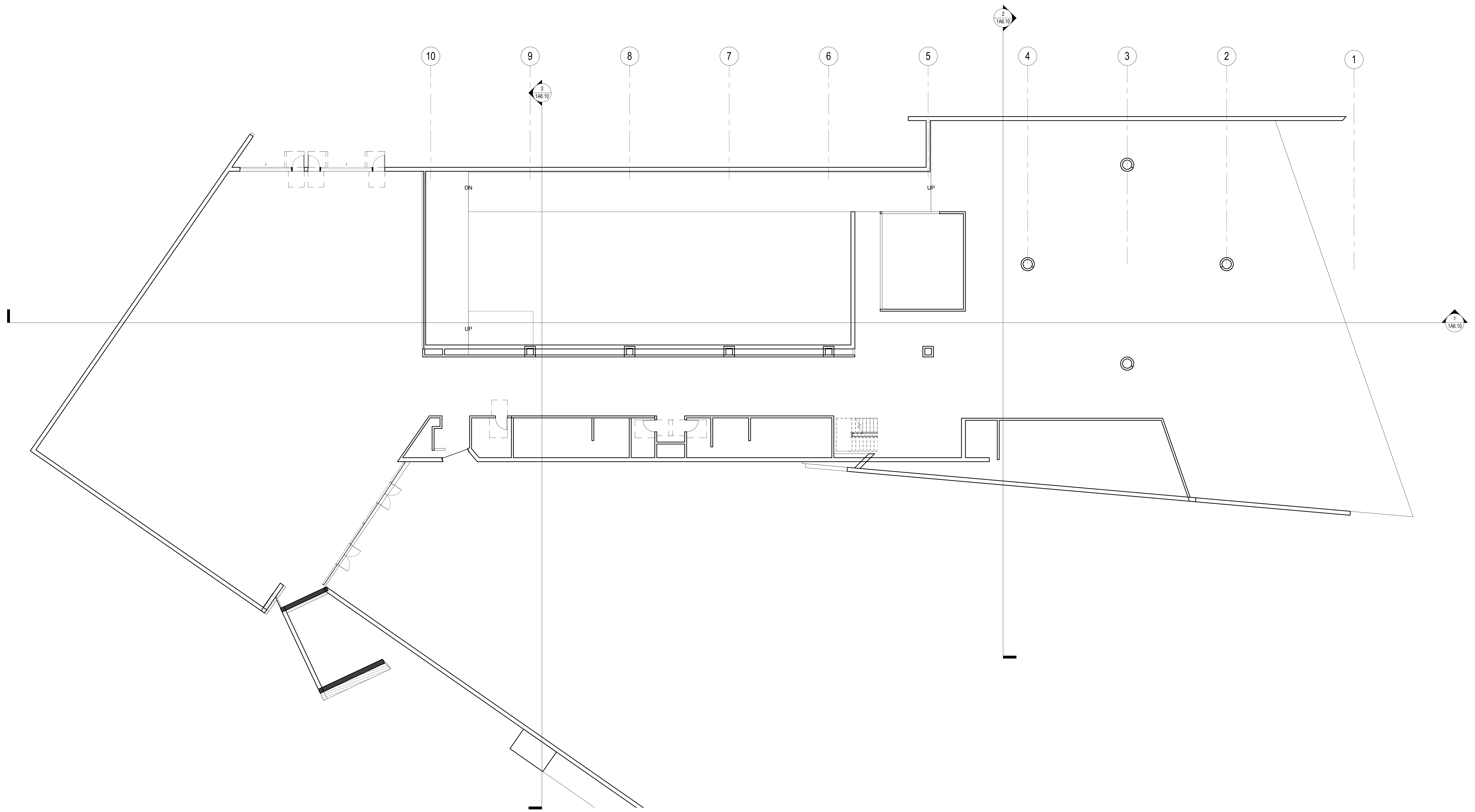

1 BASEMENT LEVEL
SCALE: 3/32" = 1'-0"

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FLOOR PLAN GENERAL NOTES

1. DIMENSIONS: ALL DIMENSIONS ARE TO FINISH FACE, CENTER OF WALL, COLUMN GRID LINES, OR FACE OF CONCRETE AND CMU WALLS (NOMINAL), U.O.N. WINDOW AND DOOR LOCATIONS ARE DIMENSIONED TO ROUGH OPENING. ALL "HOLD" OR "CLR" DIMENSIONS MUST BE MAINTAINED.

2. DOOR LOCATION: ALL DOORS, HINGE SIDE, SHALL BE LOCATED 4" FROM ADJACENT PERPENDICULAR WALL, U.O.N.

3. ALIGNMENT: WHERE NEW PARTITIONS ARE TO ALIGN WITH EXISTING PARTITIONS, REMOVE EXISTING CORNER BEAD(S), ALIGN, TAPE, AND SPACKLE WITH NEW PARTITION.

4. PENETRATIONS: PENETRATIONS OF FIRE-RESISTIVE WALLS, FLOOR-CEILINGS, AND ROOF-CEILINGS SHALL BE PROTECTED BY AN APPROVED PENETRATION FIRESTOP SYSTEM INSTALLED AS TESTED IN ACCORDANCE WITH ASTM E 119 OR UL 263 AND SHALL HAVE AN F RATING (AND A T RATING AT FLOORS ONLY) OF NOT LESS THAN THE REQUIRED RATING OF THE WALL OR FLOOR PENETRATED. PENETRATIONS OF ACOUSTICAL WALLS FOR PIPES, DUCTS, AND OUTLETS SHALL BE SEALED WITH AN ACOUSTICAL SEALANT.

5. WALL BACKING: BLOCKING OR BACKING SHALL BE PROVIDED IN PARTITIONS AS REQUIRED FOR WALL ATTACHED ITEMS. PROVIDE 6" HIGH, 16 GA. BACKING FOR CABINETRY, SHELVING, MARKER BOARDS, CHAIR RAILS, GRAB BARS, SHOWER SEATS, HANDRAILS, FIXTURES, EQUIPMENT, FURNISHINGS AND OTHER ITEMS AS REQUIRED. ALL WOOD BLOCKING, GROUNDS, ROUGH BUCKS AND MISCELLANEOUS BLOCKING SHALL BE FIRE RETARDANT TREATED IN ACCORDANCE WITH FIRE CODES.

6. WALL ACCESS PANELS: PROVIDE ACCESS PANELS AS REQUIRED PER APPLICABLE CODES FOR MAINENANCE ACCESS TO INSTALLED MEP EQUIPMENT. PROVIDE STAINLESS STEEL AT CERAMIC TILE LOCATIONS. COORDINATE TYPES AND LOCATIONS OF WALL ACCESS PANELS WITH CJ PRIOR TO INSTALLATION.

7. RETURN AIR WALL OPENINGS: PROVIDE RETURN AIR WALL OPENINGS ABOVE CEILINGS AS PER MECHANICAL DRAWINGS. REFER TO MECHANICAL DRAWINGS FOR SOUND BOOTS AT ACOUTICAL WALL LOCATIONS AND FIRE/SMOKE DAMPERS AT ALL FIRE-RATED WALLS.

FLOOR PLAN KEYNOTES

		DETAIL	SPEC SECTION
1	ROOF ACCESS LADDER	-	05 50 00
2	SEMI-RECESSED FIRE EXTINGUISHER CABINET	-	10 44 16
3	OPERABLE PARTITION. STC RATING 55.	-	10 22 26

FLOOR PLAN LEGEND

DETAIL	SPEC SECTION	SYMBOL	ITEM	REMARKS
		000	ROOM NUMBER	
		000	DOOR NUMBER	
		00	WINDOW NUMBER	
		FEC #	FIRE EXTINGUISHERS:	FEC #1 = 2A:10B:C, SEMI-RECESSED FEC #2 = 2A:10B:C, SEMI-RECESSED, FIRE-RATED FEC #3 = 4A:60B:C, SEMI-RECESSED, OUTSIDE MECH., ELEC, BOILER RMS
		FD	FLOOR DRAIN	SEE PLUMBING DWGS.
		FSR	FIRE SPRINKLER RISER LOCATION	SEE PLUMBING DWGS.
		DF	DRINKING FOUNTAIN	SEE PLUMBING DWGS.
			DIAGONAL BRACE FRAME	SEE STRUCTURAL DWGS.
			ASSISTIVE LISTENING SYSTEM REQUIRED IN THIS ROOM	

WALL LEGEND

SYMBOL	WALL TYPE	DESCRIPTION	DETAIL
	NR-#	NON-RATED STUD WALL	NR/ A8.10
	FR-#	1 HOUR FIRE-RATED STUD WALL	FR/ A8.10
	FR-#	2 HOUR FIRE-RATED STUD WALL	FR/ A8.10
	FR-#	3 HOUR FIRE-RATED STUD WALL	FR/ A8.10
	AC-#	ACOUSTICAL WALL	AC/ A8.10
	SW-#	SHAFT WALL	SH/ A8.10
	FW-#	FURRED WALL	FW/ A8.10
	LO-#	LOW WALL	LO/A8.10
	CA-#	CAVITY WALL	CA/ A8.10
	CM-#	CMU WALL	CM/ A8.10

NOTE: ALL WALLS/PARTITIONS SHOWN ON PLANS ARE TYPICAL UNLESS SPECIFICALLY NOTED OTHERWISE BY WALL TAG

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FLOOR PLAN - BASEMENT LEVEL

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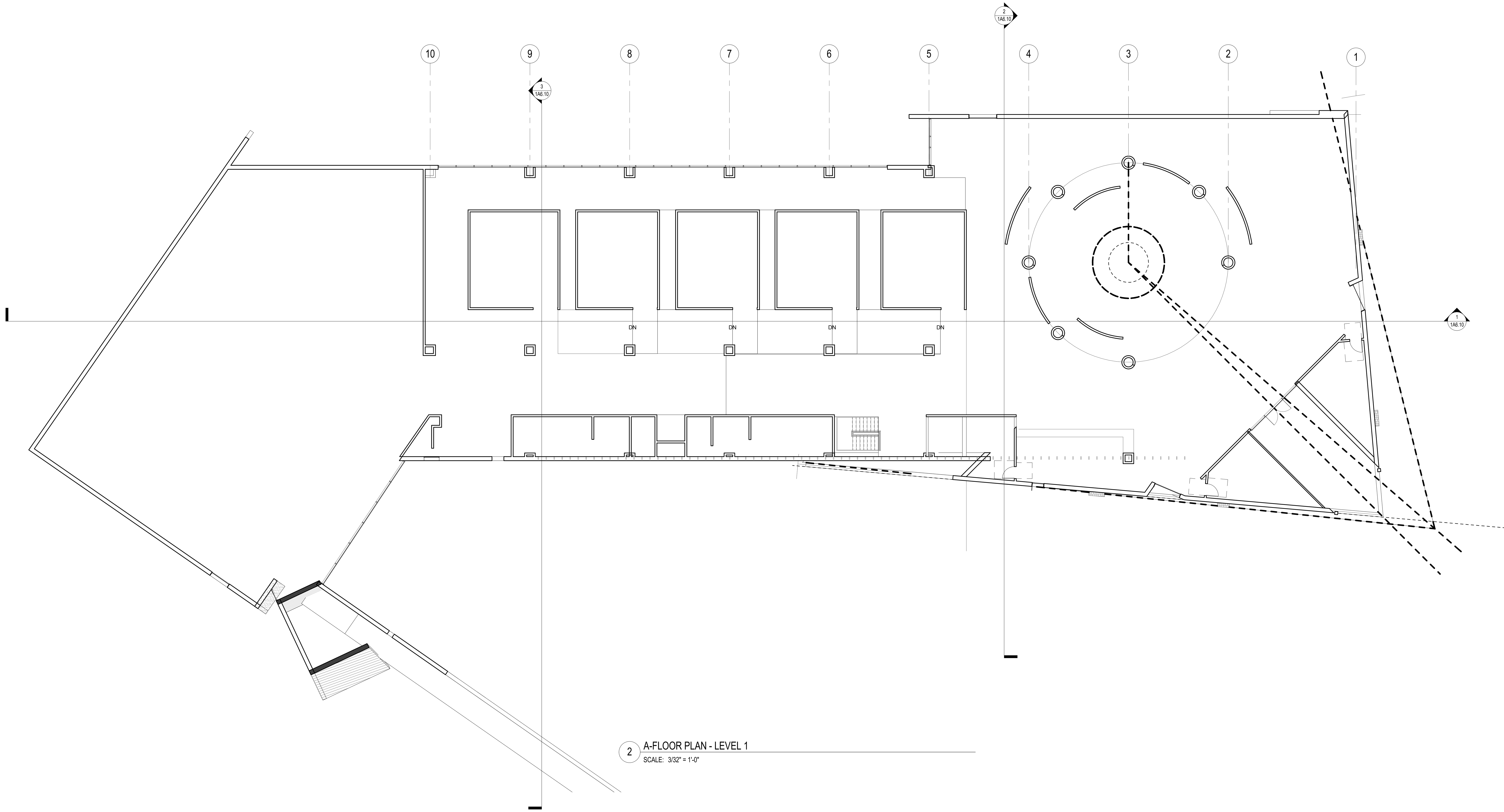

2 A-FLOOR PLAN - LEVEL 1
SCALE: 3/32" = 1'-0"

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FLOOR PLAN - ENTRY LEVEL

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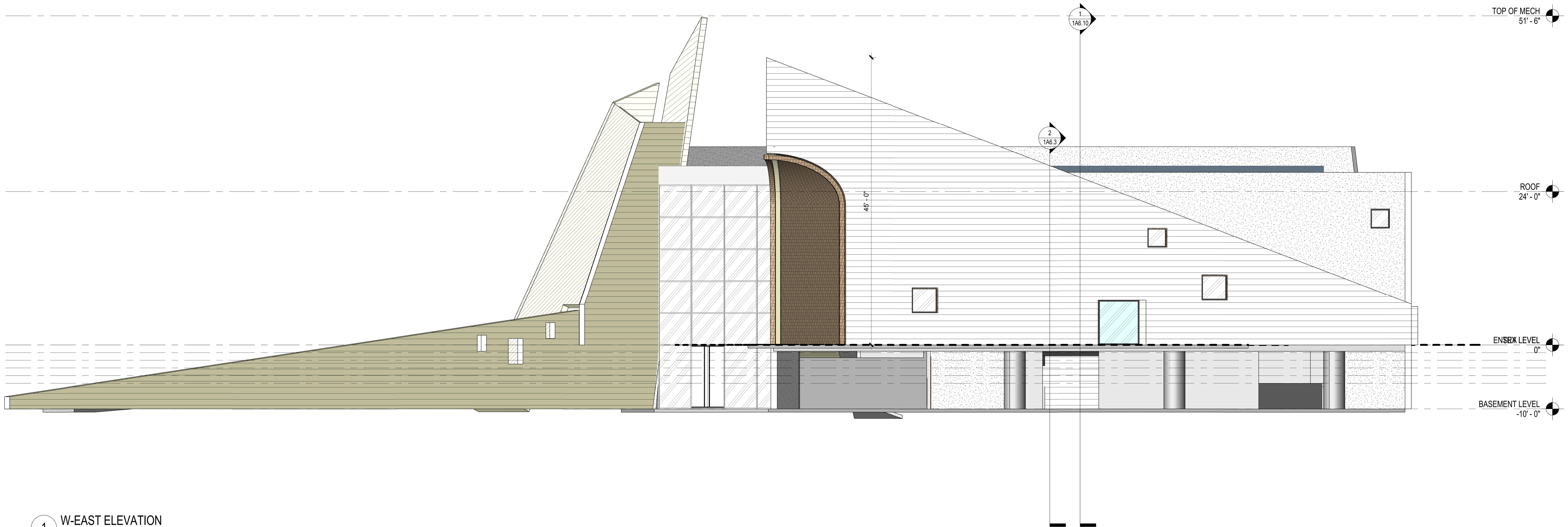

1 W-EAST ELEVATION
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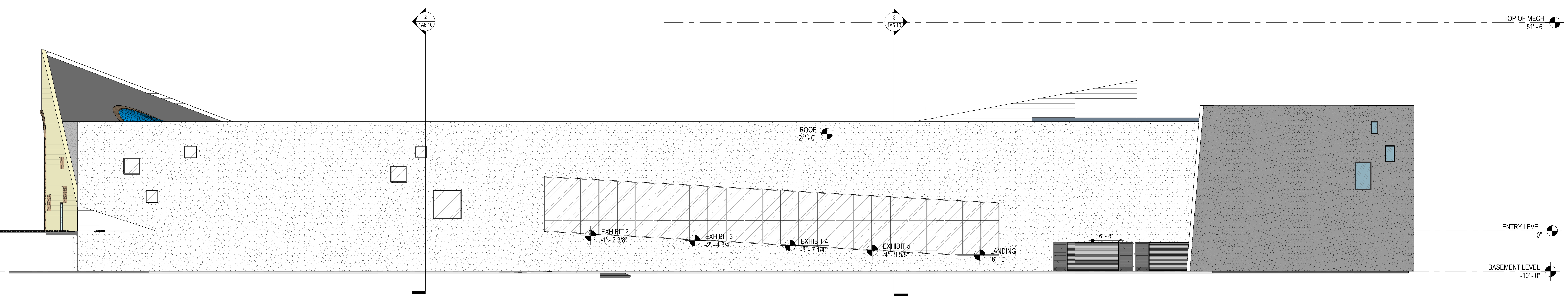

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EXTERIOR ELEVATIONS

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Section 3
SCALE: 1/8" = 1'-0"

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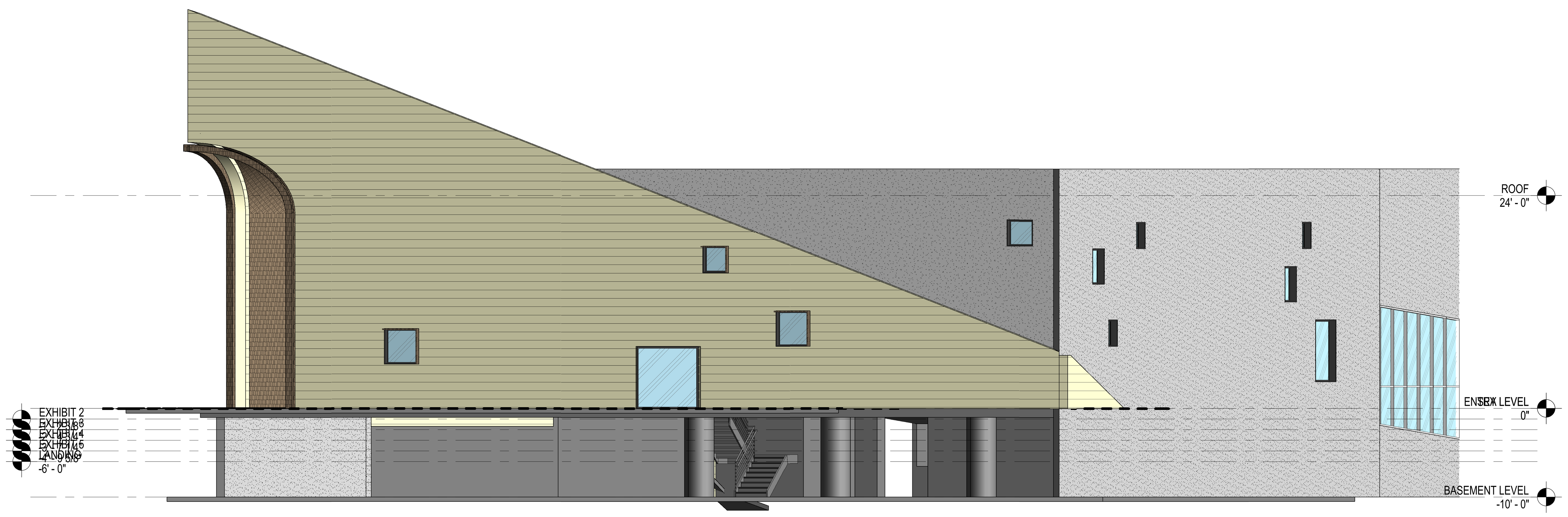

1 Section 8
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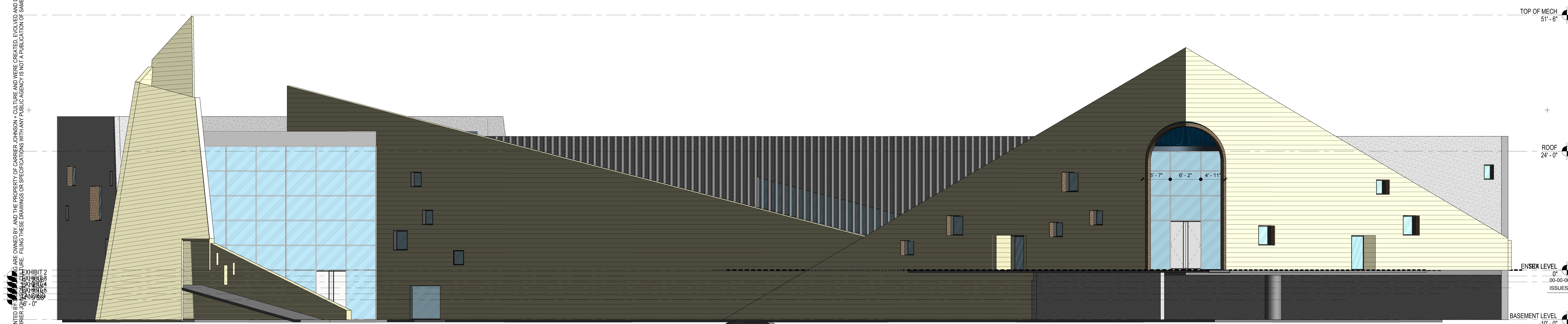

n 9
1/8" = 1'

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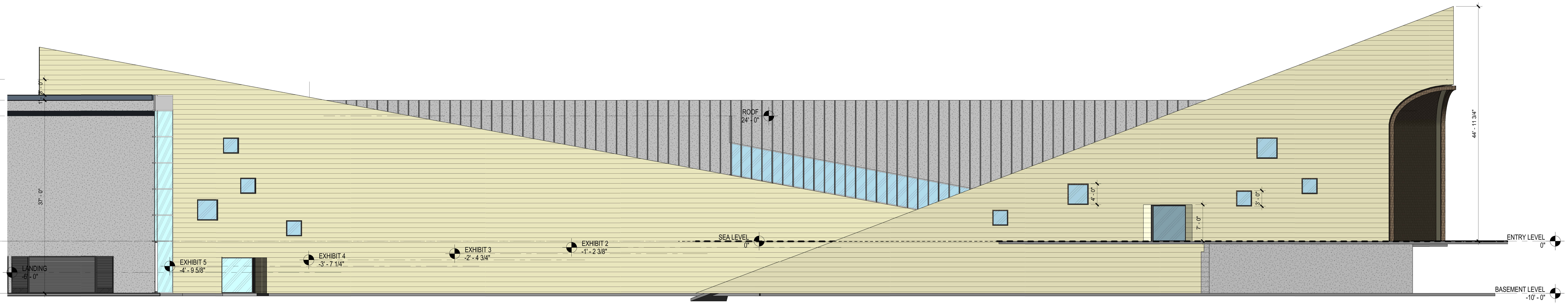
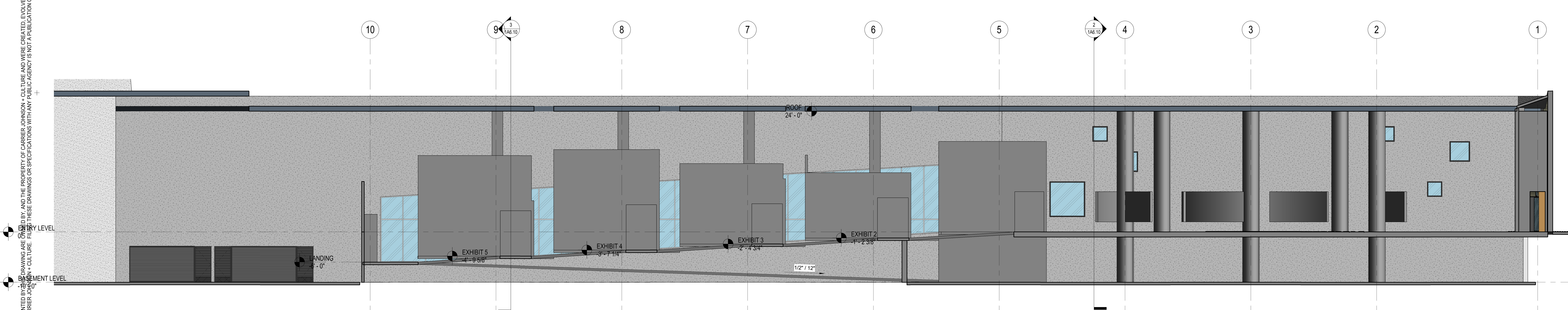


1 Section 10
SCALE: 1/8" = 1'-0"



2 Section 2
SCALE: 1/8" = 1'-0"

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architecture + environments + brand strategy + graphics

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875 HOTEL CIRCLE SOUTH
SAN DIEGO, CALIFORNIA

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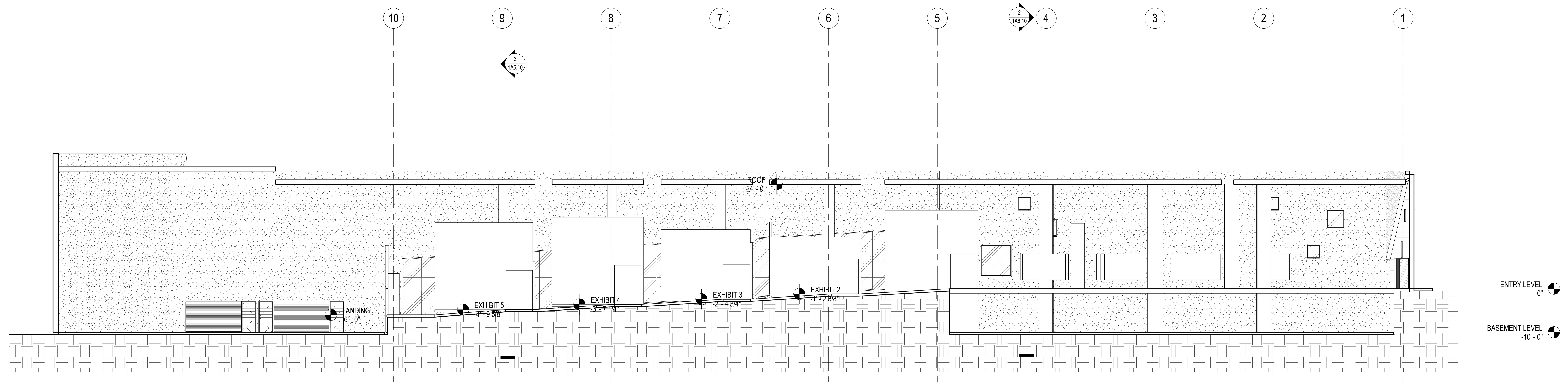
TITLE:

EXTERIOR ELEVATIONS

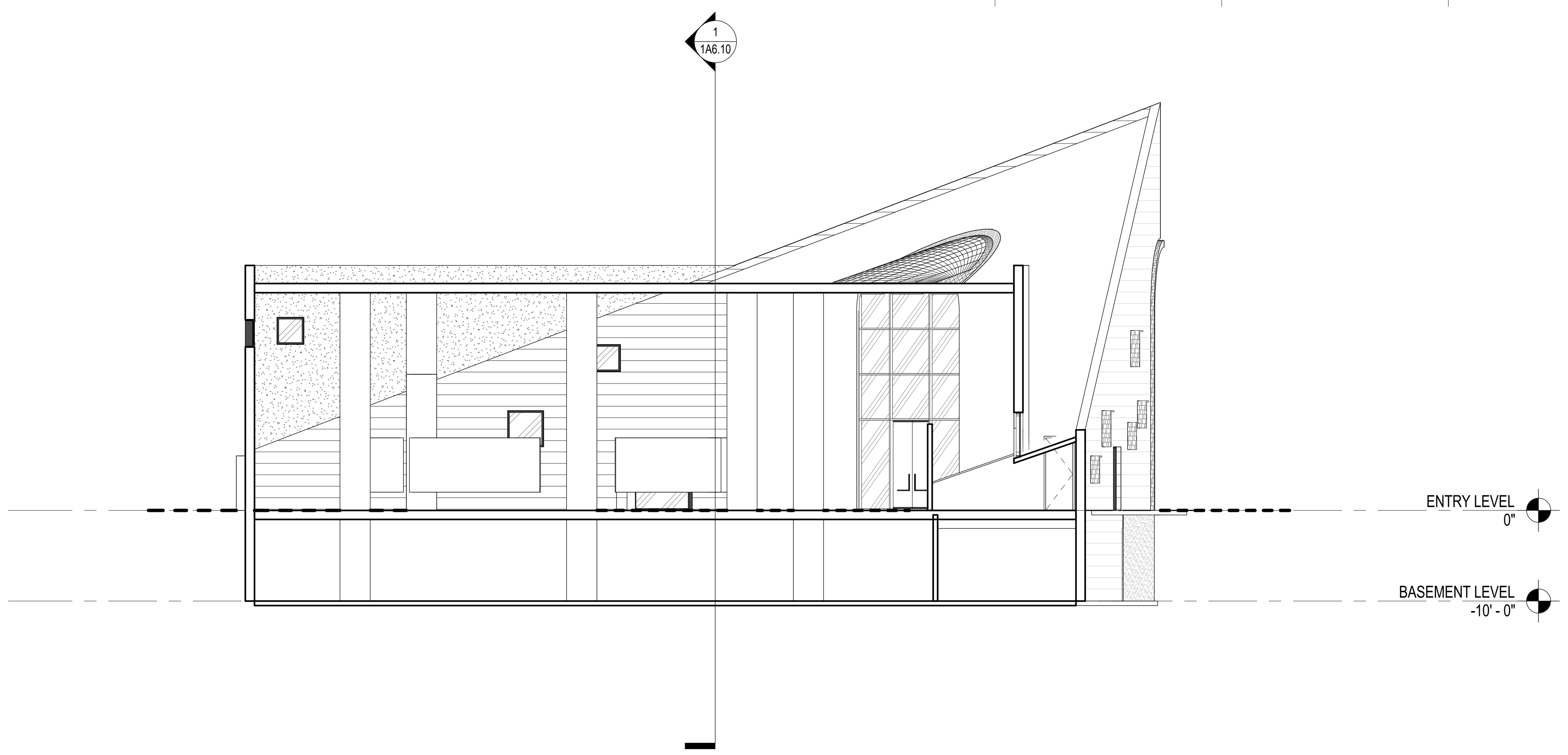
DRAWING NO:

1A6.3



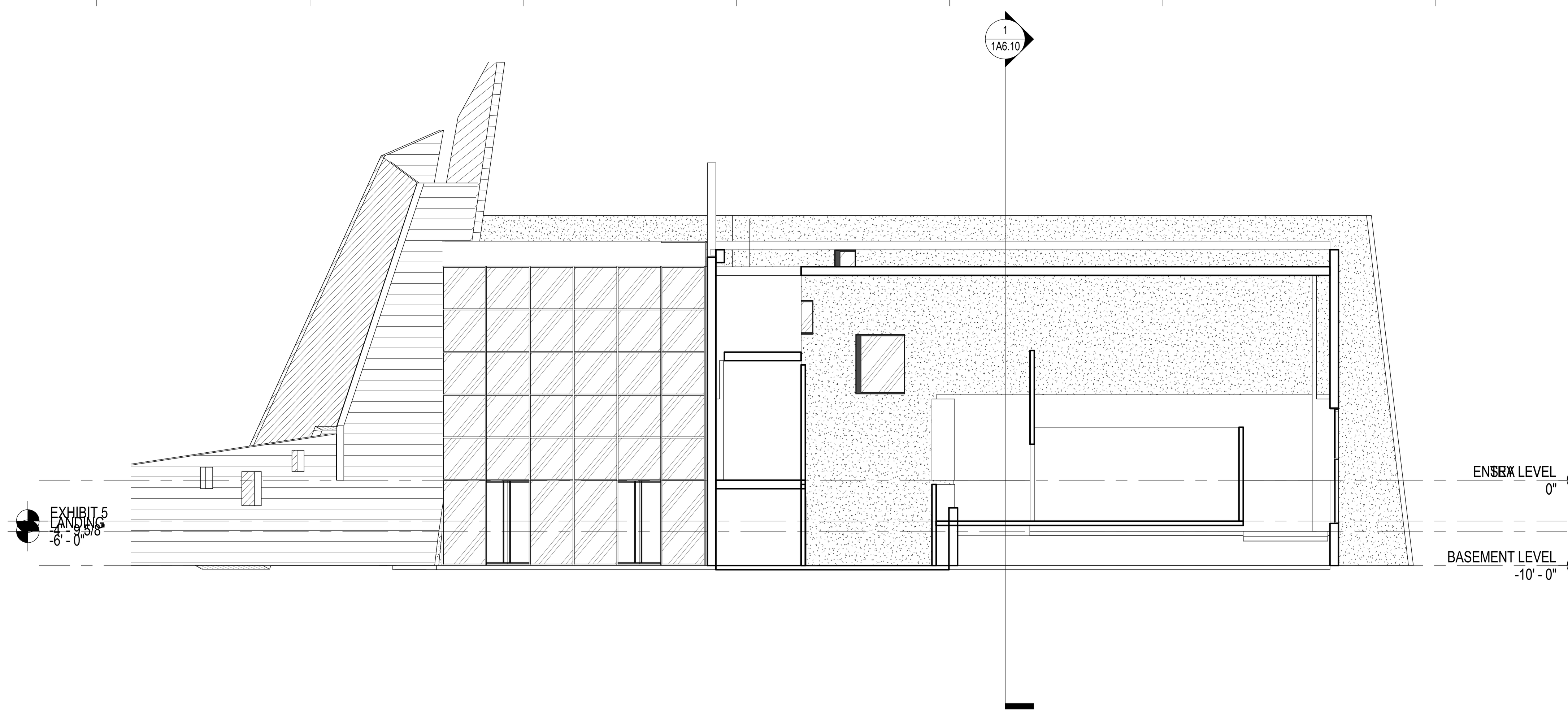
1 LONGITUDINAL SECTION

SCALE: 3/32" = 1'-0"



2 CROSS SECTION 1

SCALE: 3/32" = 1'-0"



3 CROSS SECTION 2

SCALE: 3/32" = 1'-0"

ELEVATION / SECTION GENERAL NOTES

REFERENCE POINTS:
VERTICAL DIMENSIONS ARE TO TOP OF JOINTS AND REVEALS, U.O.N.

METAL FINISHES:
ALL EXTERIOR STEEL AND MISCELLANEOUS METALS SHALL BE HOT DIP GALVANIZED AND PAINTED, U.O.N.

INSULATION:
PROVIDE THE FOLLOWING R-VALUES AT EXTERIOR WALLS AND ROOF CONSTRUCTION SURROUNDING CONDITIONED SPACES IN THE BUILDING ENVELOPE U.O.N., ROOFS: R-30, WALLS: R-19, FLOOR OVERHANGS: R-19.

WEATHER-TIGHTNESS:
ALL EXTERIOR JOINTS AND OPENINGS IN THE BUILDING ENVELOPE THAT ARE OBSERVABLE SOURCES OF AIR LEAKAGE SHALL BE CAULKED, GASKETED, WEATHER-STRIPPED, OR OTHERWISE SEALED.

PREMISES IDENTIFICATION:
ADDRESS NUMERALS SHALL BE PLACED IN SUCH A POSITION AS TO BE PLAINLY VISIBLE AND LEGIBLE FROM THE STREET OR ROAD FRONTING THE PROPERTY. NUMBERS SHALL CONTRAST WITH THEIR BACKGROUND. 12" HIGH NUMERALS WITH 11/2" WIDE STROKE WIDTH U.N.O.

GLASS TYPE LEGEND

SYMBOL	DESCRIPTION	U-FACTOR	SHGC
	GL-1 GLASS TYPE DESCRIPTION	####	####
	GL-2 GLASS TYPE DESCRIPTION	####	####
	GL-3 GLASS TYPE DESCRIPTION	####	####
	GL-4 GLASS TYPE DESCRIPTION	####	####

PROVIDE TEMPERED SAFETY GLAZING AS FOLLOWS: (CBC SECTION 2406)
A. GLAZING IN DOORS
B. FIXED GLAZING WITHIN 24" OF DOORS AND LOWER THAN 60" AFF
C. GLAZING ADJACENT TO A WALKING SURFACE WITH BOTTOM EDGE LESS THAN 18" AFF AND TOP EDGE GREATER THAN 36" AFF

carrierjohnson + CULTURE
architecture + environments + brand strategy + graphics

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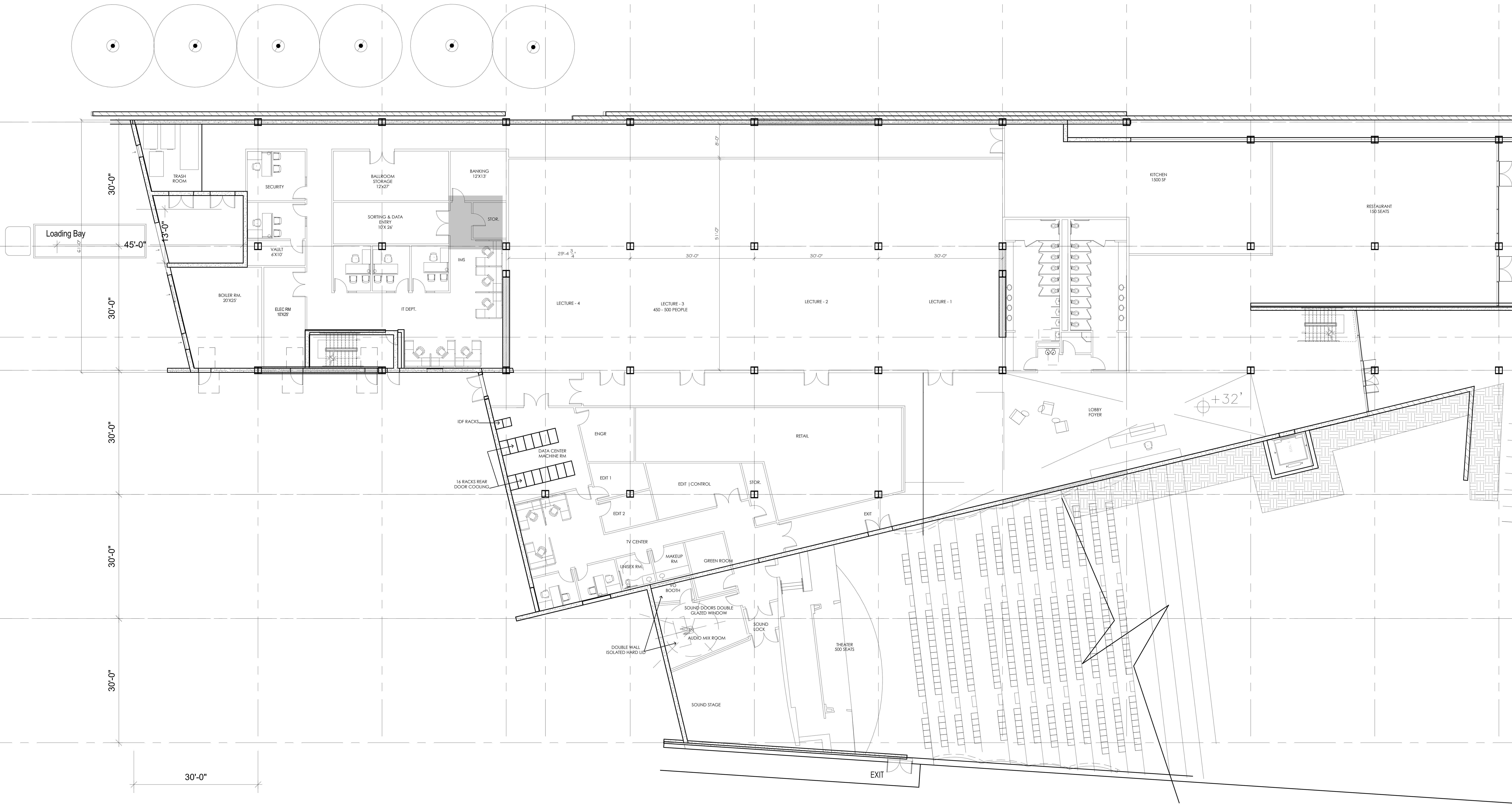
TITLE:

BUILDING SECTIONS

DRAWING NO:

1A6.10



1 A-FLOOR PLAN - LEVEL 1

SCALE: 3/32" = 1'-0"

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architecture + environments + brand strategy + graphics

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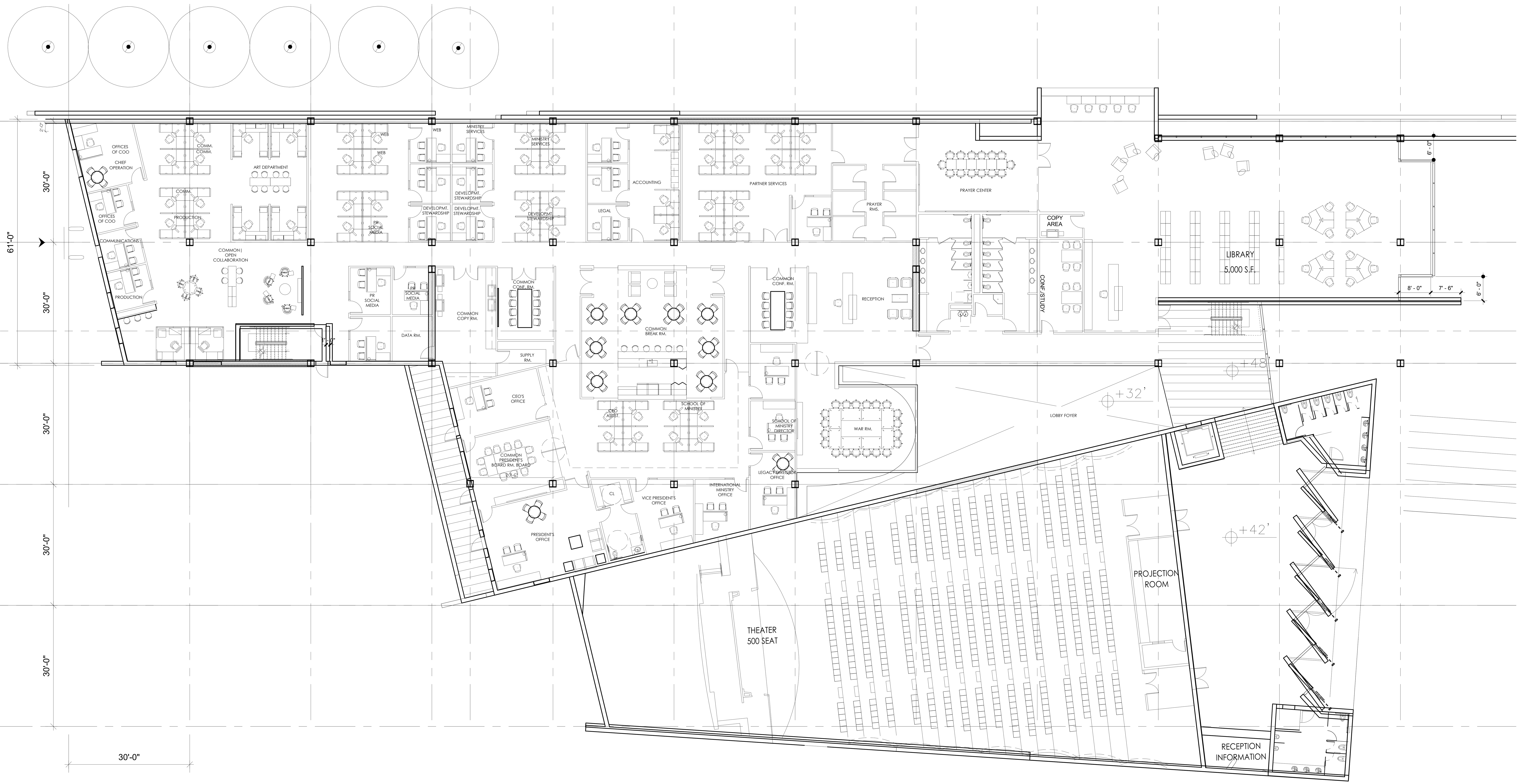
PLOT DATE:
2/17/2016 8:58:46 AM
TITLE:

FLOOR PLAN
LEVEL 1

DRAWING NO:

2A2.1



1 SECOND LEVEL
SCALE: 3/32" = 1'-0"

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architecture + environments + brand strategy + graphics
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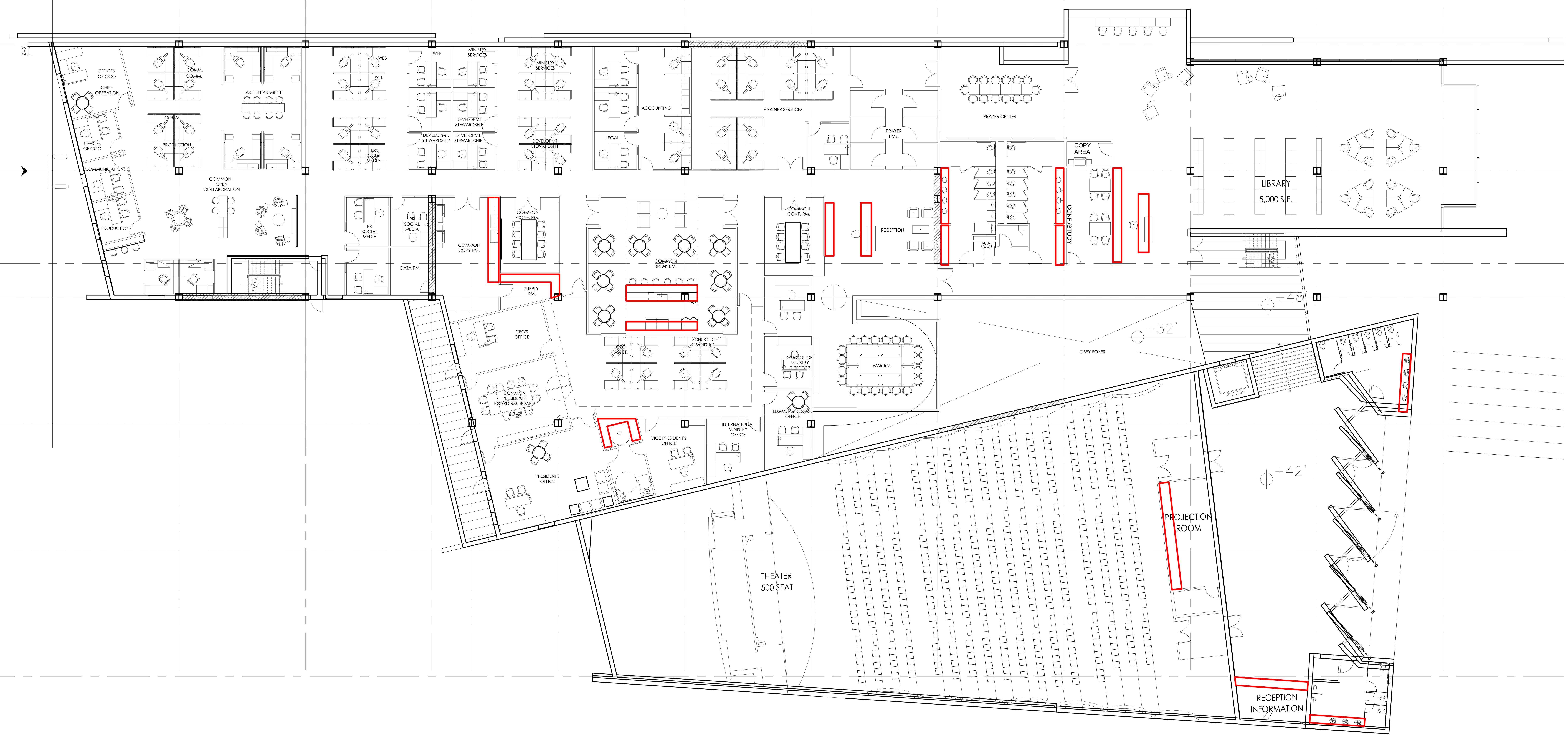
TITLE:

FLOOR PLAN
LEVEL 2

DRAWING NO:

2A2.2



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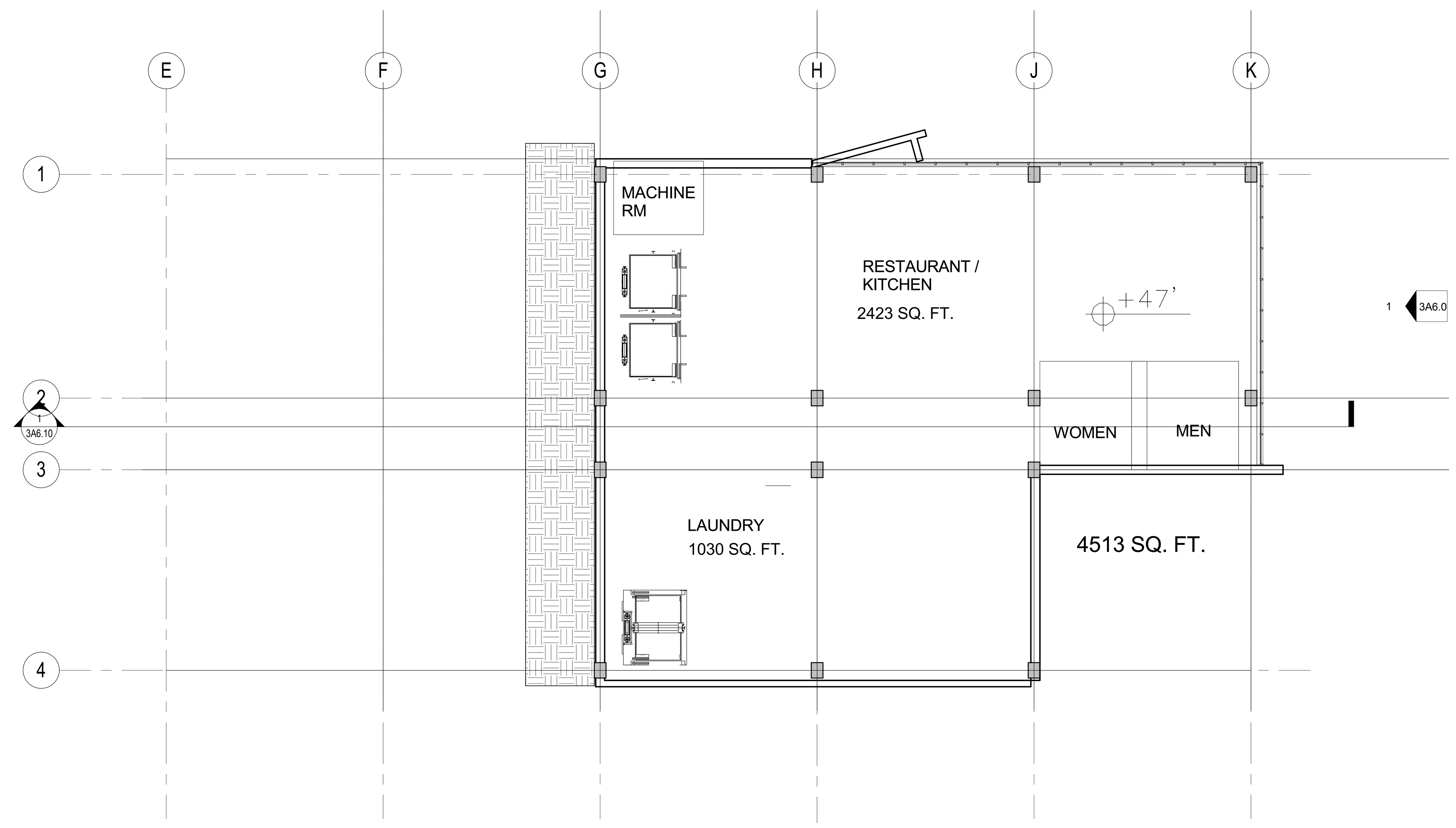
PLOT DATE:
2/17/2016 9:01:33 AM

TITLE:
PAVILION COLOR CODED CASEWORK - SECOND FLOOR

DRAWING NO:
2A4.31



1 BASEMENT LEVEL

SCALE: 3/32" = 1'-0"

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SYMBOL	WALL TYPE	DESCRIPTION	DETAIL
	NR-#	NON-RATED STUD WALL	NR/ A8.10
	FR-#	1 HOUR FIRE-RATED STUD WALL	FR/ A8.10
	FR-#	2 HOUR FIRE-RATED STUD WALL	FR/ A8.10
	FR-#	3 HOUR FIRE-RATED STUD WALL	FR/ A8.10
	AC-#	ACOUSTICAL WALL	AC/ A8.10
	SW-#	SHAFT WALL	SH/ A8.10
	FW-#	FURRED WALL	FW/ A8.10
	LO-#	LOW WALL	LO/A8.10
	CA-#	CAVITY WALL	CA/ A8.10
	CM-#	CMU WALL	CM/ A8.10

NOTE: ALL WALLS/PARTITIONS SHOWN ON PLANS ARE TYPICAL UNLESS SPECIFICALLY NOTED OTHERWISE BY WALL TAG

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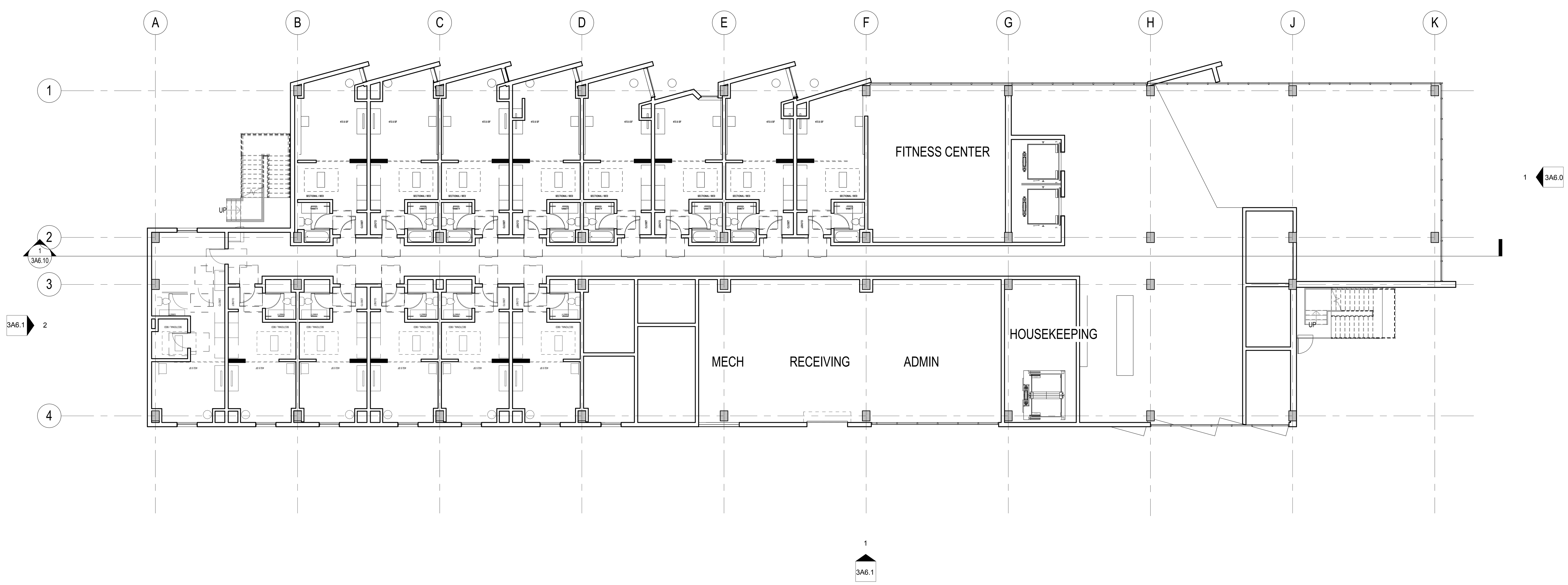
TITLE:

BASEMENT LEVEL FLOOR PLAN

DRAWING NO:

3A2.0



1 FIRST FLOOR - ENTRY LEVEL

SCALE: 3/32" = 1'-0"

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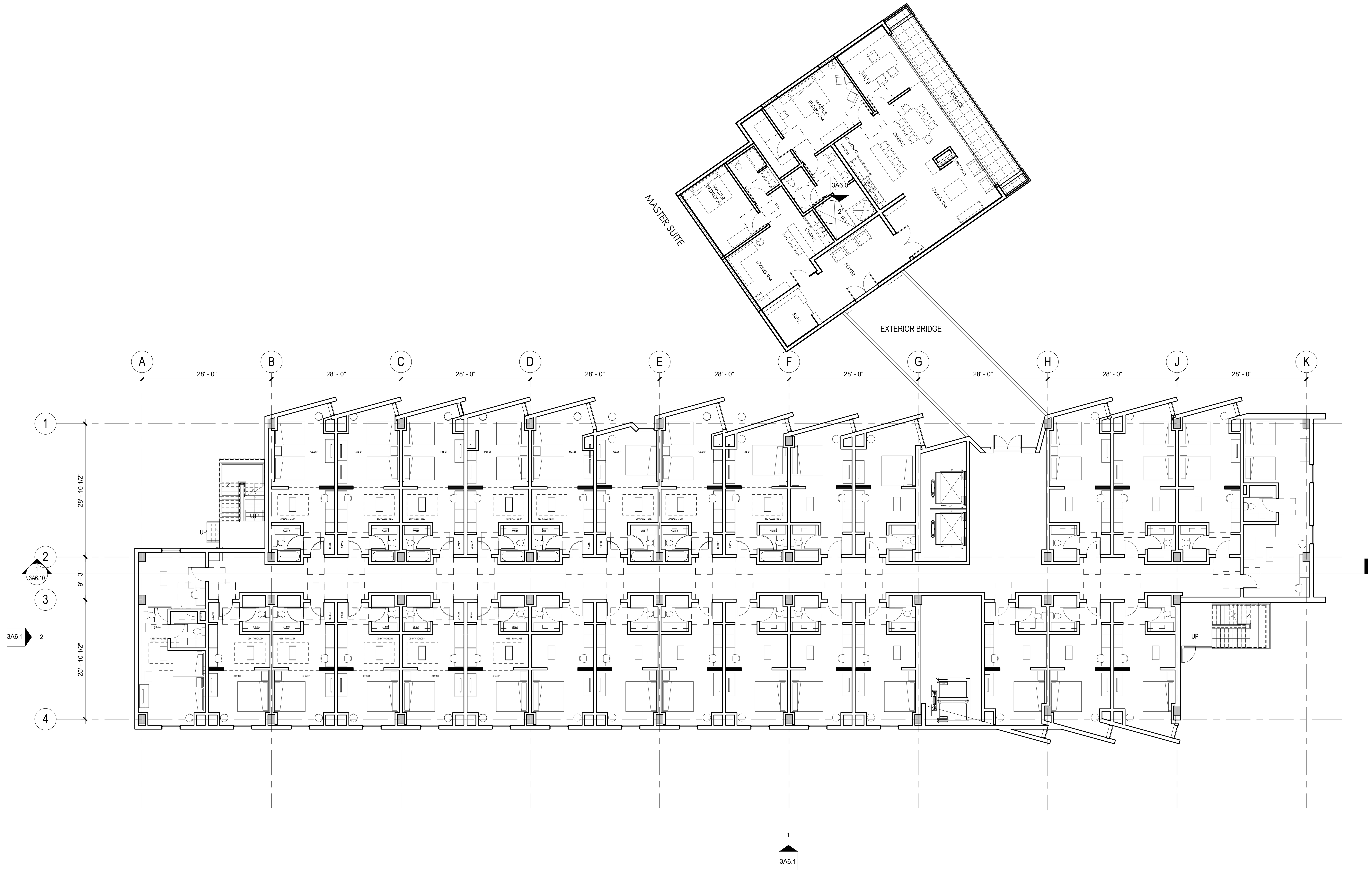
PLOT DATE:

TITLE:

FIRST LEVEL
FLOOR PLAN

DRAWING NO:

3A2.1



1 SECOND FLOOR
SCALE: 3/32" = 1'-0"

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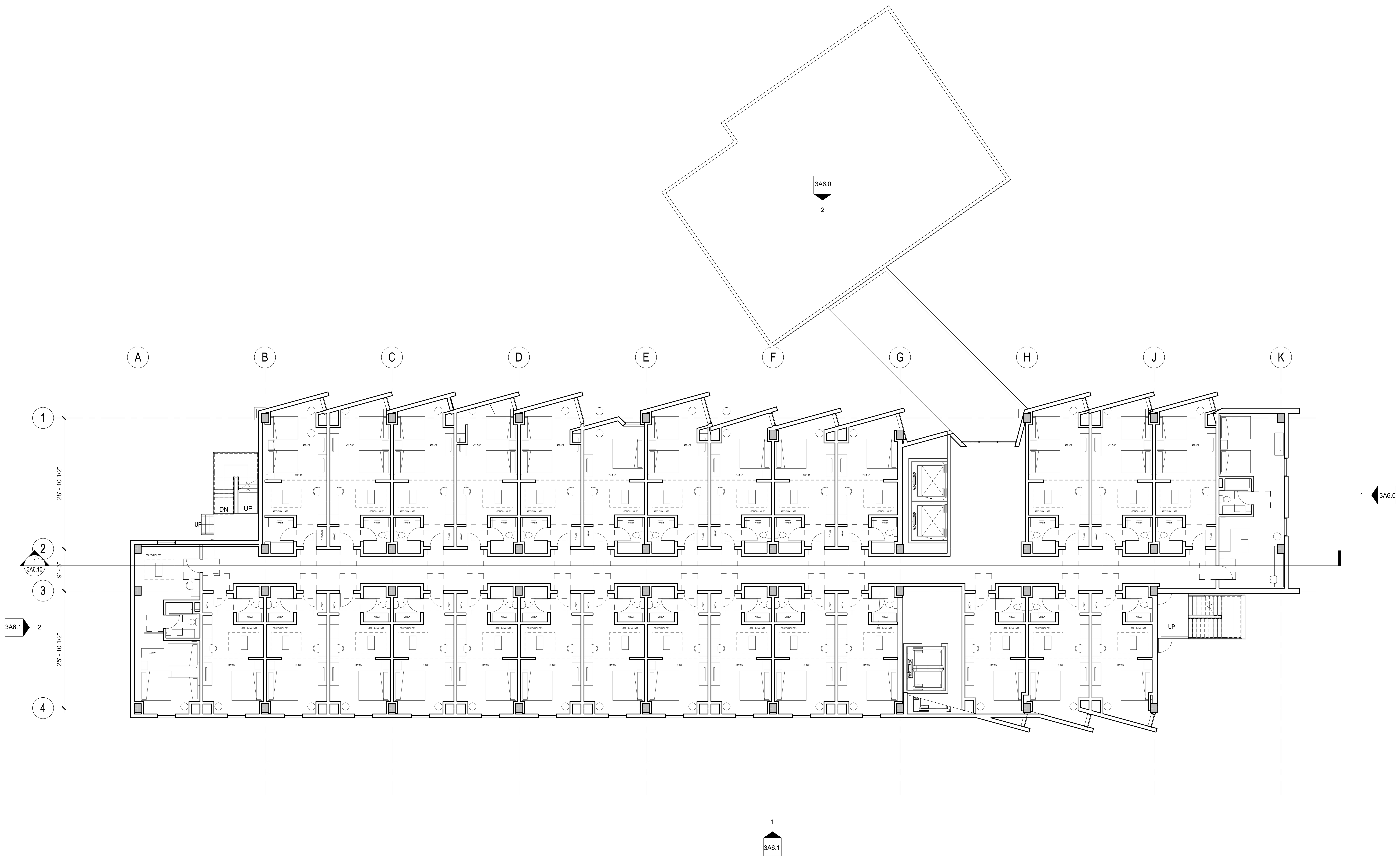
PLOT DATE:
2/17/2016 8:22:06 AM
TITLE:

SECOND LEVEL
FLOOR PLAN

DRAWING NO:

3A2.2



1 THIRD FLOOR & SPA / SUITES ROOF PLAN
SCALE: 3/32" = 1'-0"

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architecture + environments + brand strategy + graphics
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TITLE:

THIRD LEVEL FLOOR PLAN

DRAWING NO:

3A2.3

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architecture + environments + brand strategy + graphics
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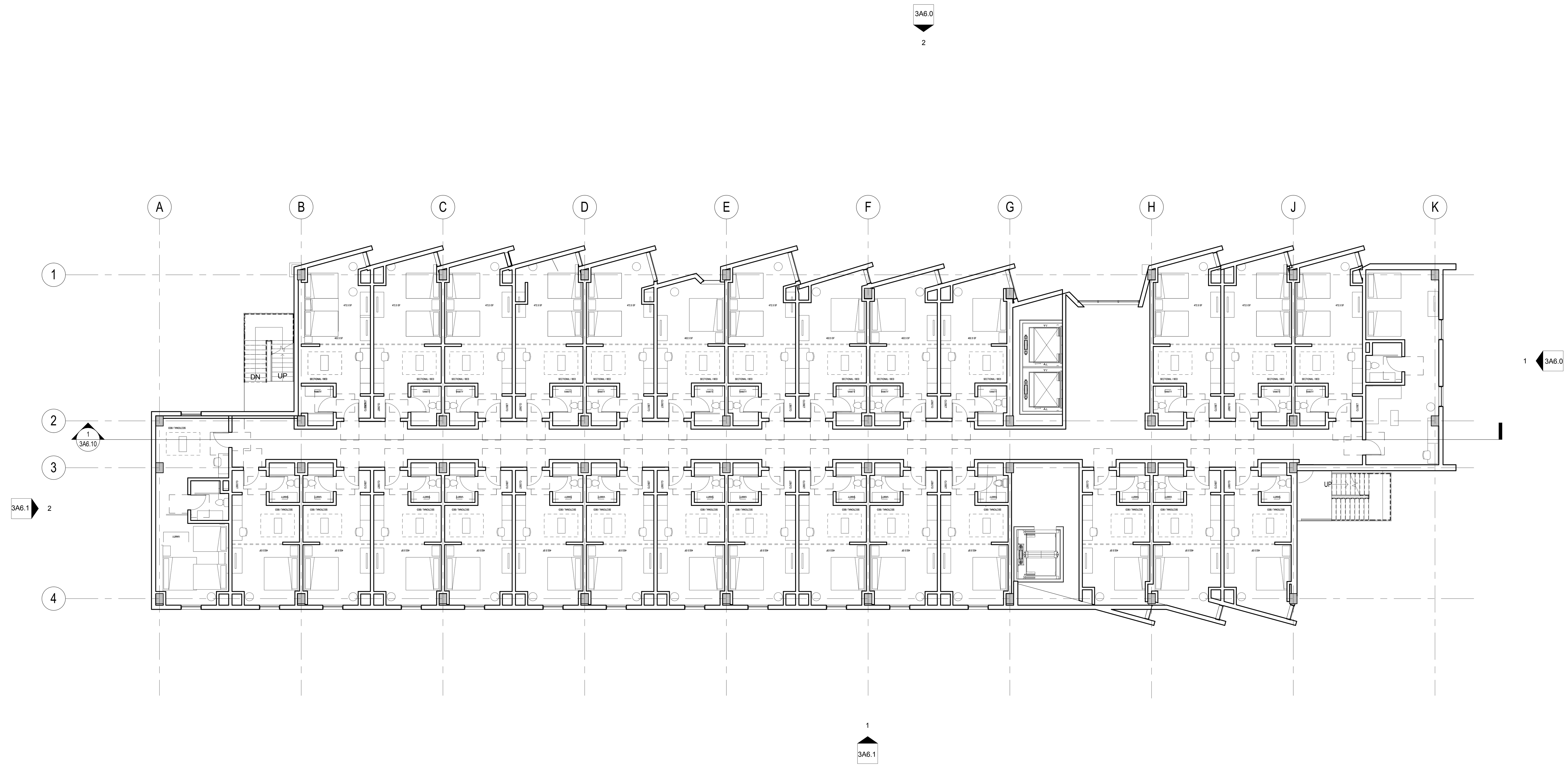

1 FOURTH FLOOR
SCALE: 3/32" = 1'-0"

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ISSUES:

PRELIMINARY NOT FOR CONSTRUCTION

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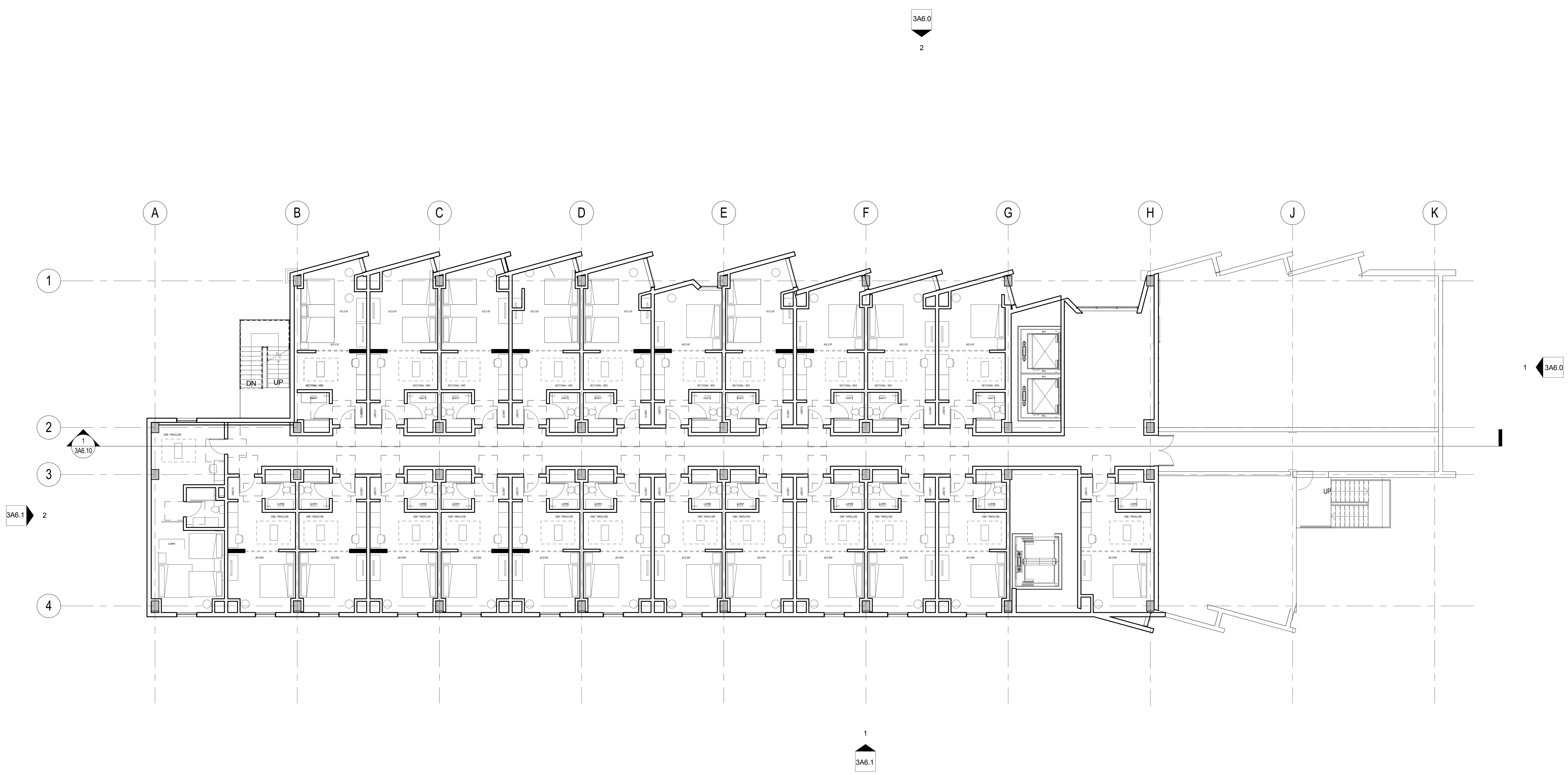
PLOT DATE:
2/17/2016 8:22:09 AM

TITLE:

FOURTH LEVEL
FLOOR PLAN

DRAWING NO:

3A2.4



1 FIFTH FLOOR

SCALE: 3/32" = 1'-0"

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PLOT DATE:
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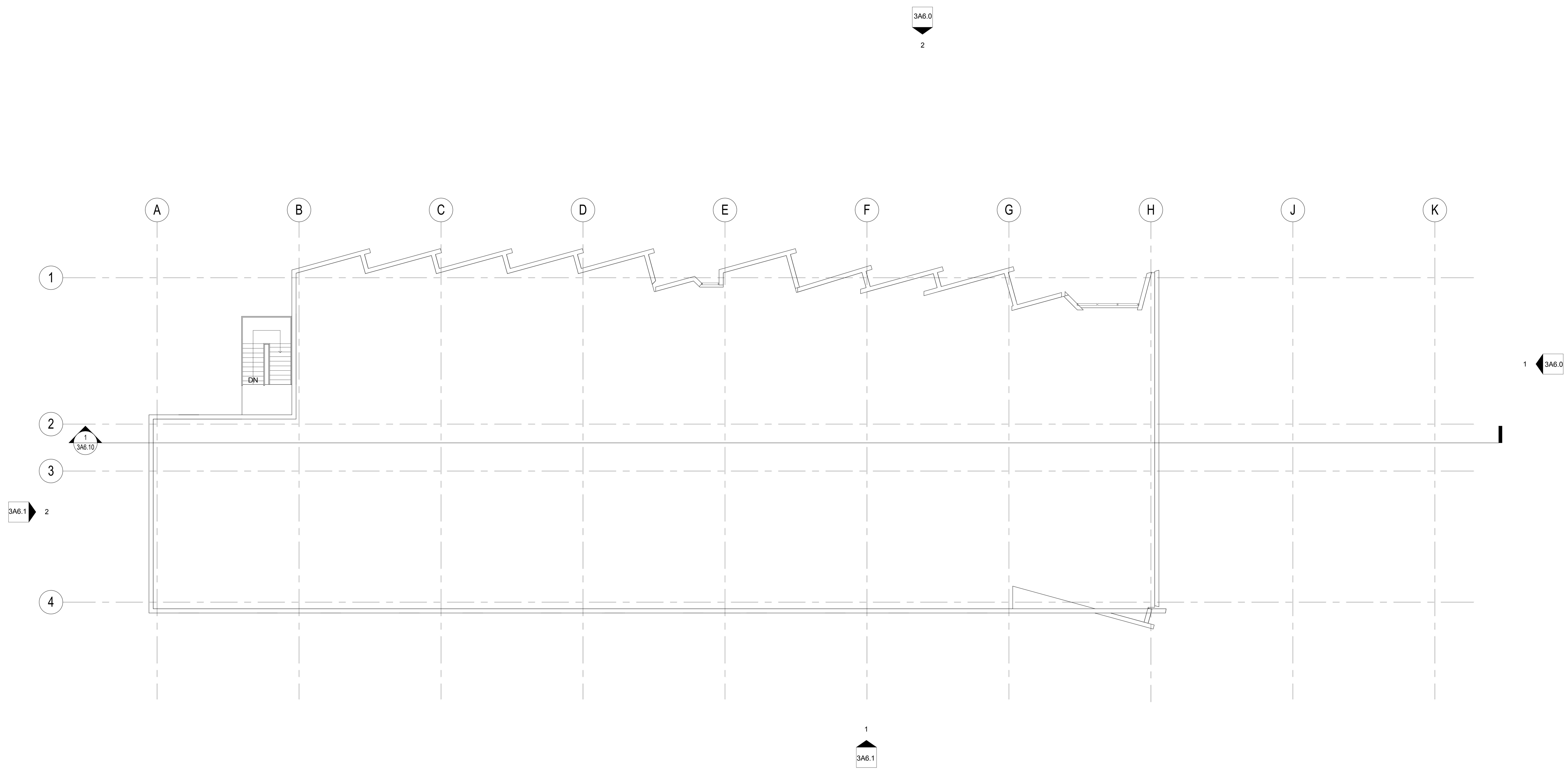
TITLE:

FIFTH LEVEL FLOOR PLAN

DRAWING NO:

3A2.5



1 ROOF LEVEL
SCALE: 3/32" = 1'-0"

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LEGACY INTERNATIONAL
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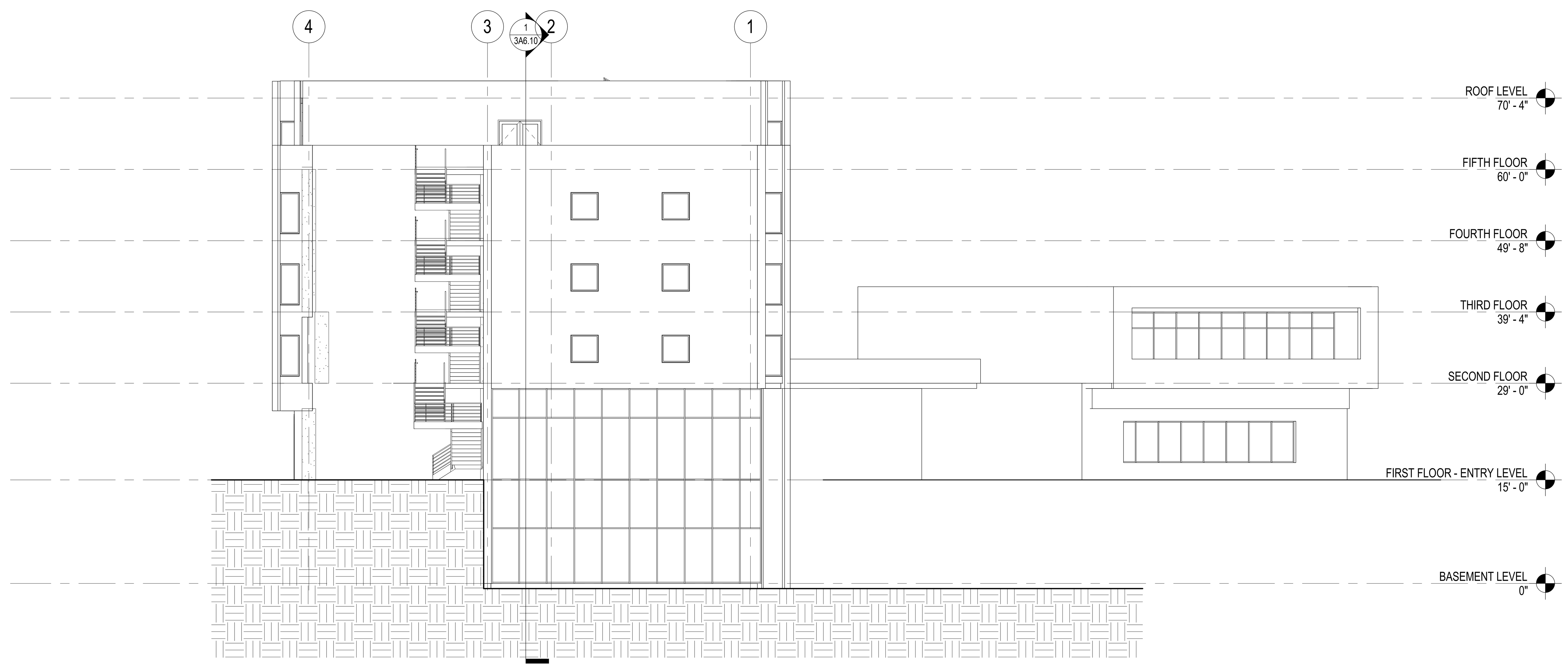
TITLE:

ROOF LEVEL PLAN

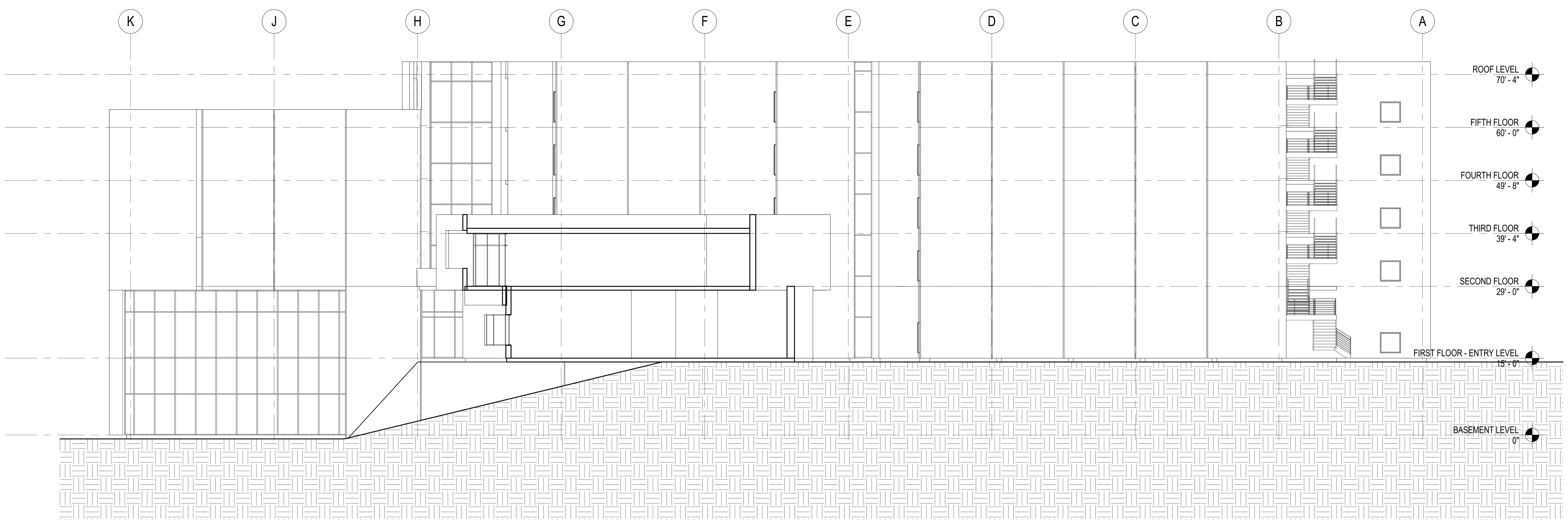
DRAWING NO:

3A2.6



1 S-EAST ELEVATION

SCALE: 3/32" = 1'-0"



2 S-NORTH ELEVATION

SCALE: 3/32" = 1'-0"

ELEVATION / SECTION GENERAL NOTES

REFERENCE POINTS:
VERTICAL DIMENSIONS ARE TO TOP OF JOINTS AND REVEALS, U.O.N.

METAL FINISHES:
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INSULATION:
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ADDRESS NUMERALS SHALL BE PLACED IN SUCH A POSITION AS TO BE PLAINLY VISIBLE AND LEGIBLE FROM THE STREET OR ROAD FRONTING THE PROPERTY. NUMBERS SHALL CONTRAST WITH THEIR BACKGROUND. 12" HIGH NUMERALS WITH 11/2" WIDE STROKE WIDTH U.N.O.

ELEVATION / SECTION KEYNOTES

	ELEVATION / SECTION KEYNOTES	SPEC SECTION
	DIVISION 3 - CONCRETE	
00	MATERIAL	00 00 00
00	MATERIAL	00 00 00
	DIVISION 4 - MASONRY	
00	MATERIAL	00 00 00
	DIVISION 5 - METALS	
00	MATERIAL	00 00 00
	DIVISION 7 - THERMAL & MOISTURE PROTECTION	
00	MATERIAL	00 00 00
00	MATERIAL	00 00 00
00	MATERIAL	00 00 00
00	MATERIAL	00 00 00
00	MATERIAL	00 00 00
	DIVISION 8 - OPENINGS	
00	MATERIAL	00 00 00
00	MATERIAL	00 00 00
00	MATERIAL	00 00 00
00	MATERIAL	00 00 00
00	MATERIAL	00 00 00
00	MATERIAL	00 00 00
	DIVISION 9 - FINISHES	
00	MATERIAL	00 00 00
	DIVISION 10 - SPECIALTIES	
00	MATERIAL	00 00 00
00	MATERIAL	00 00 00
	DIVISION 22 - PLUMBING SYSTEMS	
00	MATERIAL	DIV 00
00	MATERIAL	DIV 00
	DIVISION 26 - ELECTRICAL SYSTEMS	
00	MATERIAL	DIV 00

EXTERIOR MATERIAL LEGEND

SYMBOL	DESCRIPTION	SPEC SECTION
	MATERIAL #1	00 00 00
	MATERIAL #2	00 00 00
	MATERIAL #3	00 00 00
	MATERIAL #4	00 00 00

GLASS TYPE LEGEND

SYMBOL	DESCRIPTION	U-FACTOR	SHGC
	GL-1 GLASS TYPE DESCRIPTION	####	####
	GL-2 GLASS TYPE DESCRIPTION	####	####
	GL-3 GLASS TYPE DESCRIPTION	####	####
	GL-4 GLASS TYPE DESCRIPTION	####	####

PROVIDE TEMPERED SAFETY GLAZING AS FOLLOWS: (CBC SECTION 2406)
A. GLAZING IN DOORS
B. FIXED GLAZING WITHIN 24" OF DOORS AND LOWER THAN 60" AFF
C. GLAZING ADJACENT TO A WALKING SURFACE WITH BOTTOM EDGE LESS THAN 18" AFF AND TOP EDGE GREATER THAN 36" AFF

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EXTERIOR ELEVATIONS

DRAWING NO:

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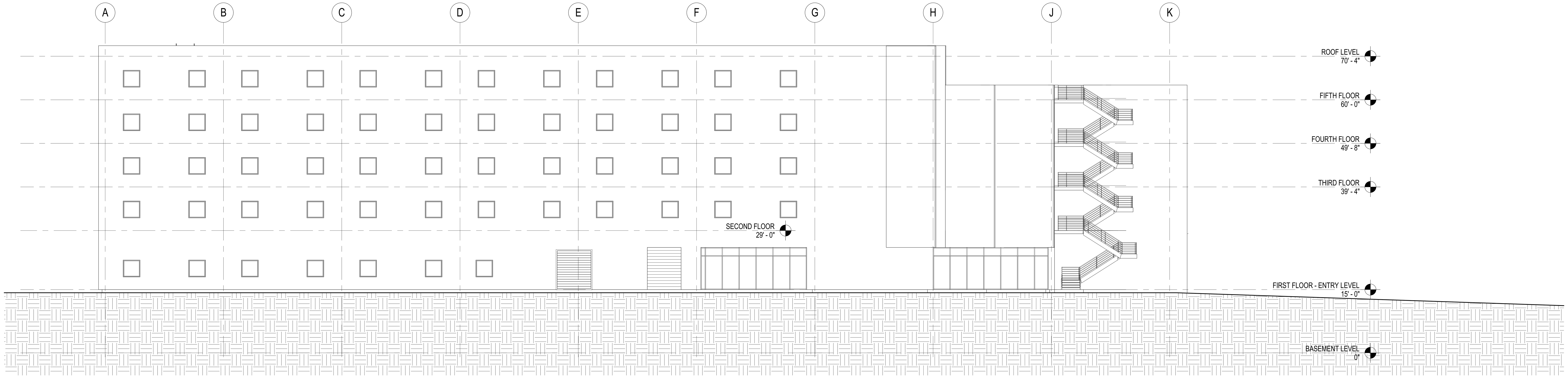
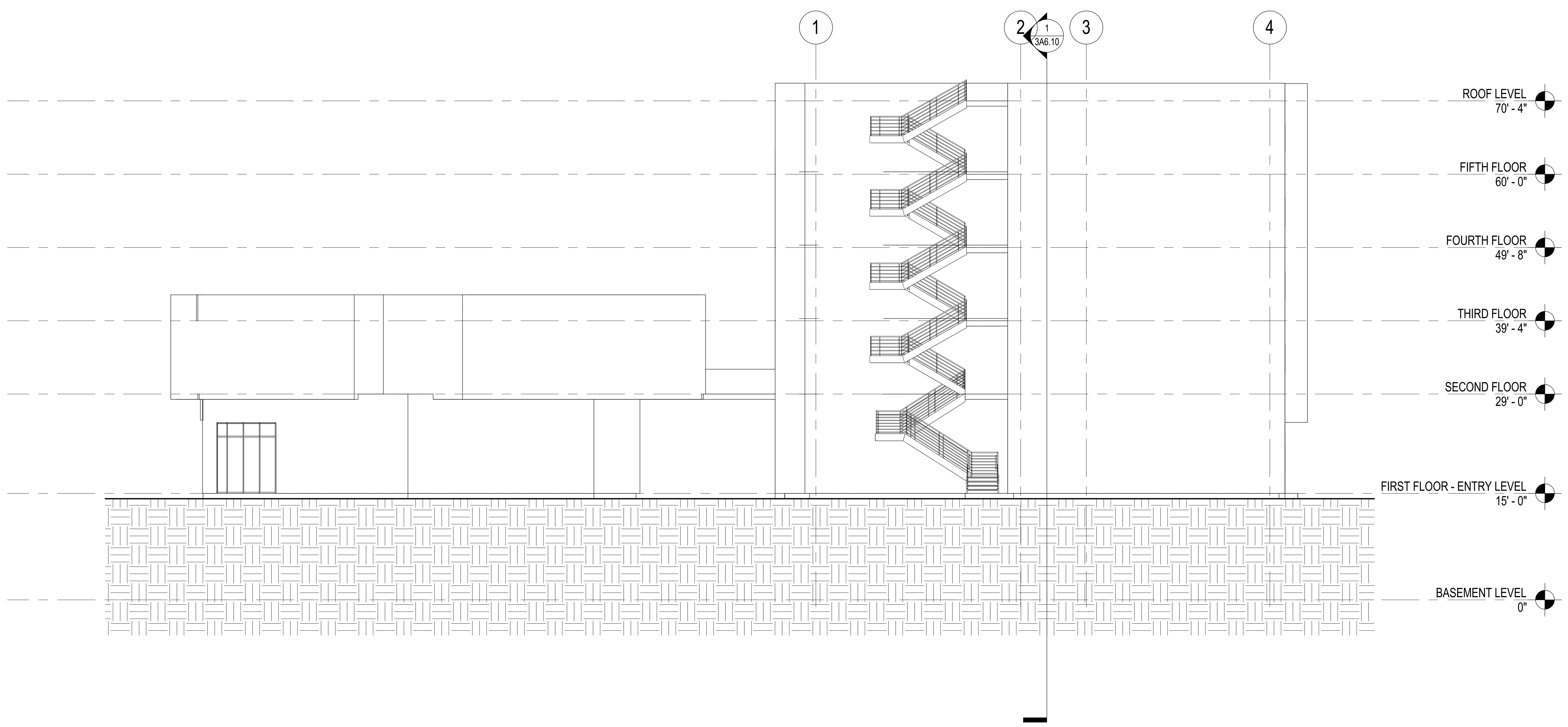


1 S-SOUTH ELEVATION
SCALE: 3/32" = 1'-0"



2 S-WEST ELEVATION
SCALE: 3/32" = 1'-0"

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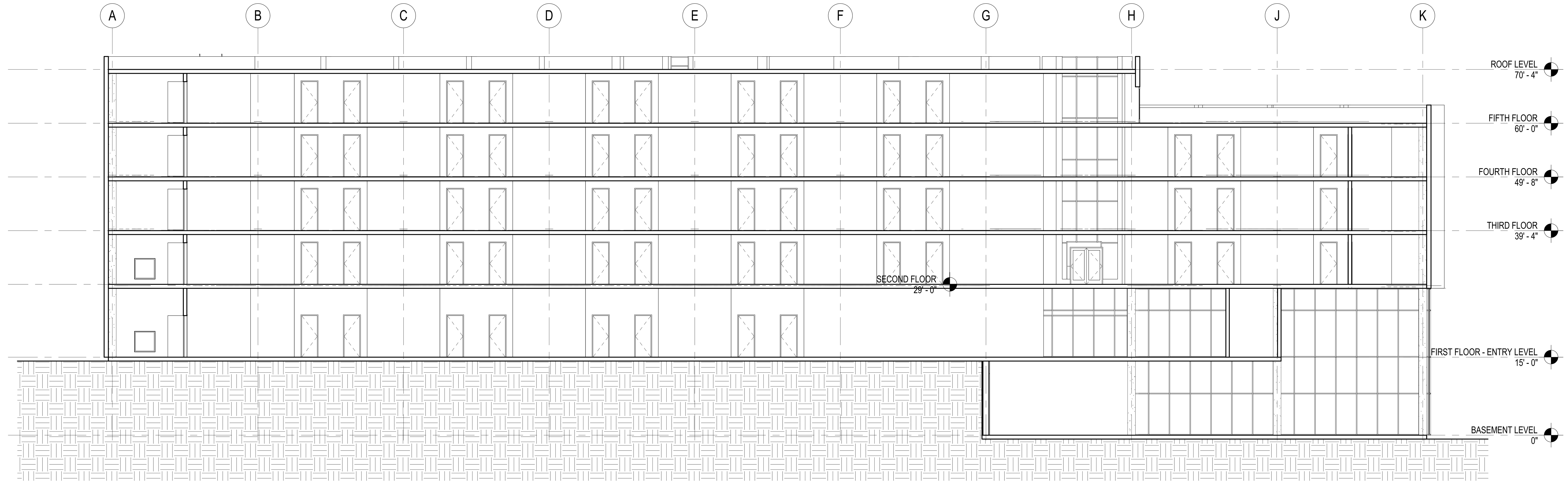
TITLE:

EXTERIOR ELEVATIONS

DRAWING NO:

3A6.1



1 LONGITUDINAL SECTION
SCALE: 3/32" = 1'-0"

ELEVATION / SECTION GENERAL NOTES

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	ELEVATION / SECTION KEYNOTES	SPEC SECTION
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00	MATERIAL	00 00 00
	DIVISION 4 - MASONRY	
00	MATERIAL	00 00 00
	DIVISION 5 - METALS	
00	MATERIAL	00 00 00
	DIVISION 7 - THERMAL & MOISTURE PROTECTION	
00	MATERIAL	00 00 00
00	MATERIAL	00 00 00
00	MATERIAL	00 00 00
00	MATERIAL	00 00 00
00	MATERIAL	00 00 00
	DIVISION 8 - OPENINGS	
00	MATERIAL	00 00 00
00	MATERIAL	00 00 00
00	MATERIAL	00 00 00
00	MATERIAL	00 00 00
00	MATERIAL	00 00 00
00	MATERIAL	00 00 00
	DIVISION 9 - FINISHES	
00	MATERIAL	00 00 00
	DIVISION 10 - SPECIALTIES	
00	MATERIAL	00 00 00
00	MATERIAL	00 00 00
	DIVISION 22 - PLUMBING SYSTEMS	
00	MATERIAL	DIV 00
00	MATERIAL	DIV 00
	DIVISION 26 - ELECTRICAL SYSTEMS	
00	MATERIAL	DIV 00

GLASS TYPE LEGEND

SYMBOL	DESCRIPTION	U-FACTOR	SHGC
	GL-1 GLASS TYPE DESCRIPTION	####	####
	GL-2 GLASS TYPE DESCRIPTION	####	####
	GL-3 GLASS TYPE DESCRIPTION	####	####
	GL-4 GLASS TYPE DESCRIPTION	####	####

PROVIDE TEMPERED SAFETY GLAZING AS FOLLOWS: (CBC SECTION 2406)
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B. FIXED GLAZING WITHIN 24" OF DOORS AND LOWER THAN 60" AFF
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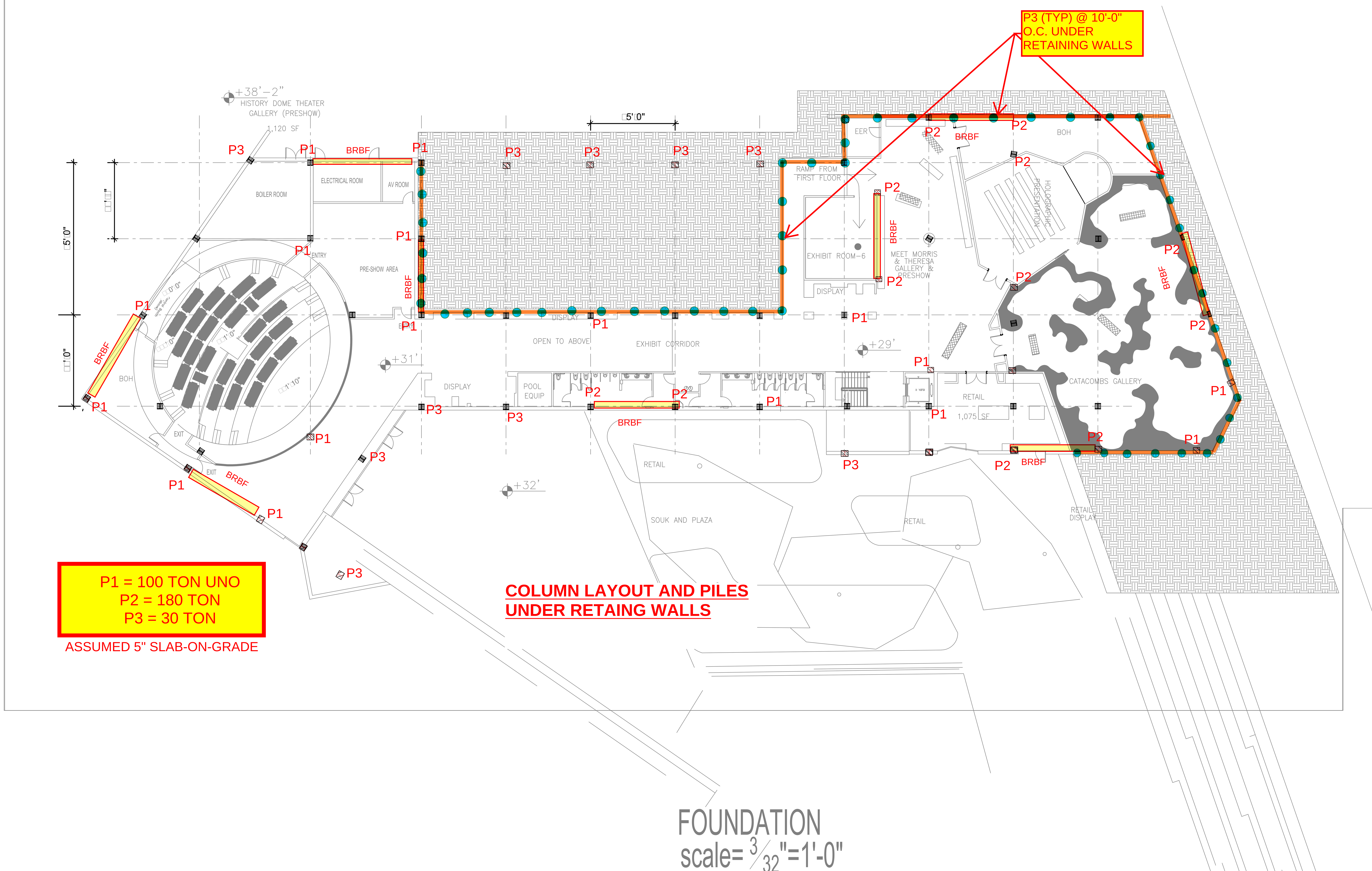

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architecture + environments + brand strategy + graphics

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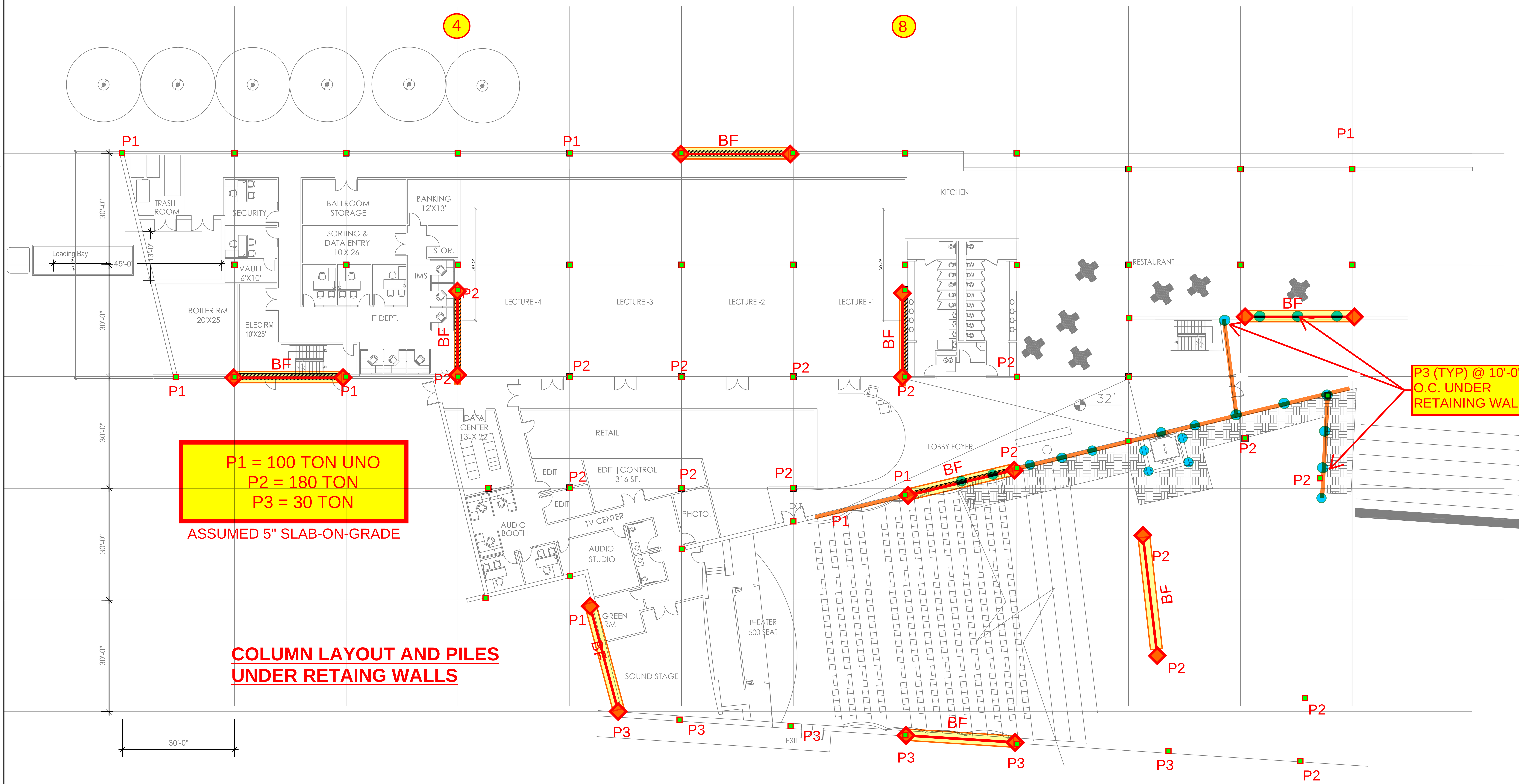
FOUNDATION PLAN

S1-200.1



FOUNDATION PLAN

AREA 28,265 SF

SCALE 3/32"=1'-0"

Pavillion

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architecture + environments + brand strategy + graphics
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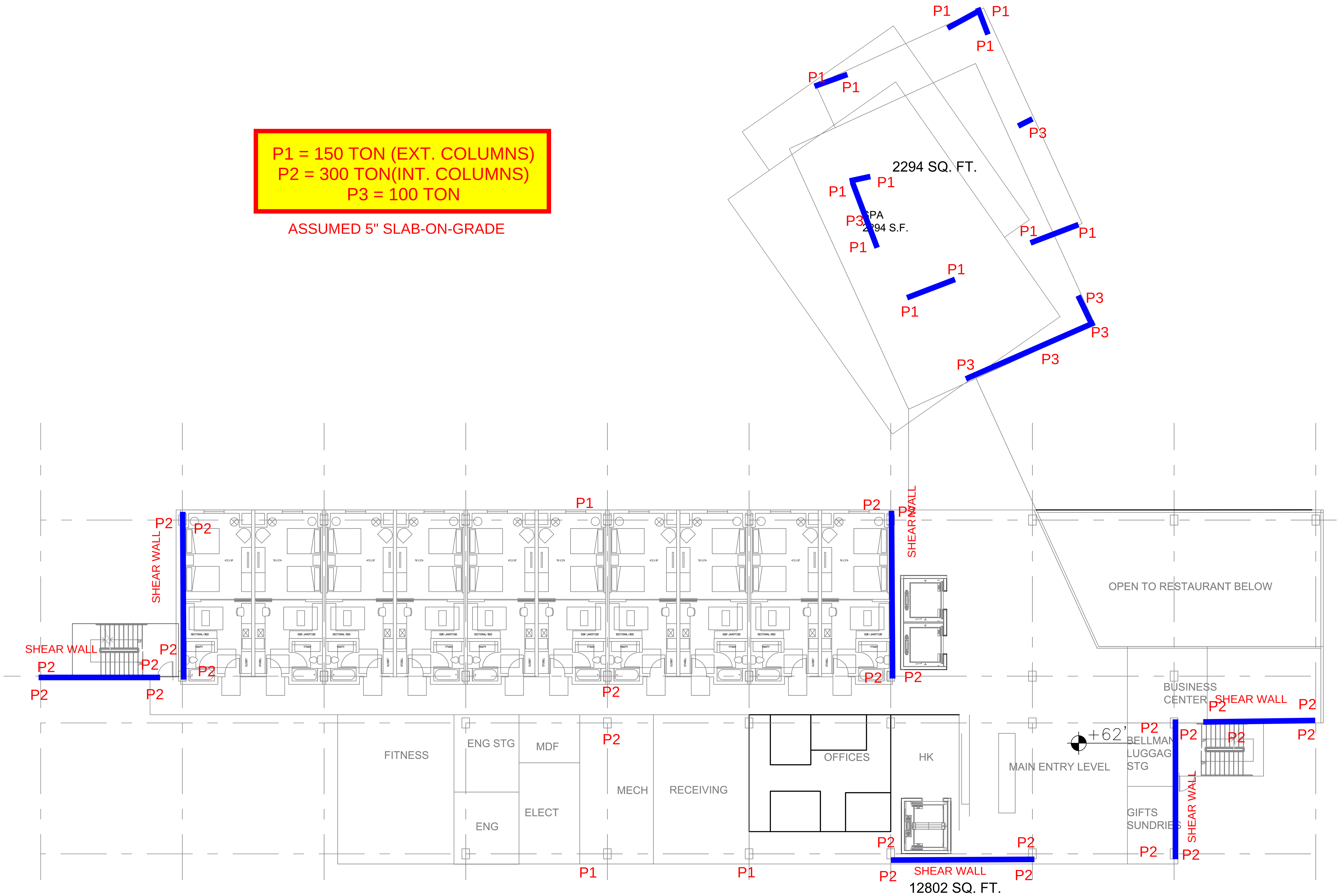
FOUNDATION PLAN

DRAWING NO:
S2-200.1

P1 = 150 TON (EXT. COLUMNS)
P2 = 300 TON(INT. COLUMNS)
P3 = 100 TON

ASSUMED 5" SLAB-ON-GRADE



ENTRY LEVEL - FLOOR 1 EL: +62.00'

10 ROOMS 15,096 S.F. (2294 + 12,802)

SCALE: ⅛"=1'-0"

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architecture + environments + brand strategy + graphics
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TITLE:
FOUNDATION PLAN
DRAWING NO:

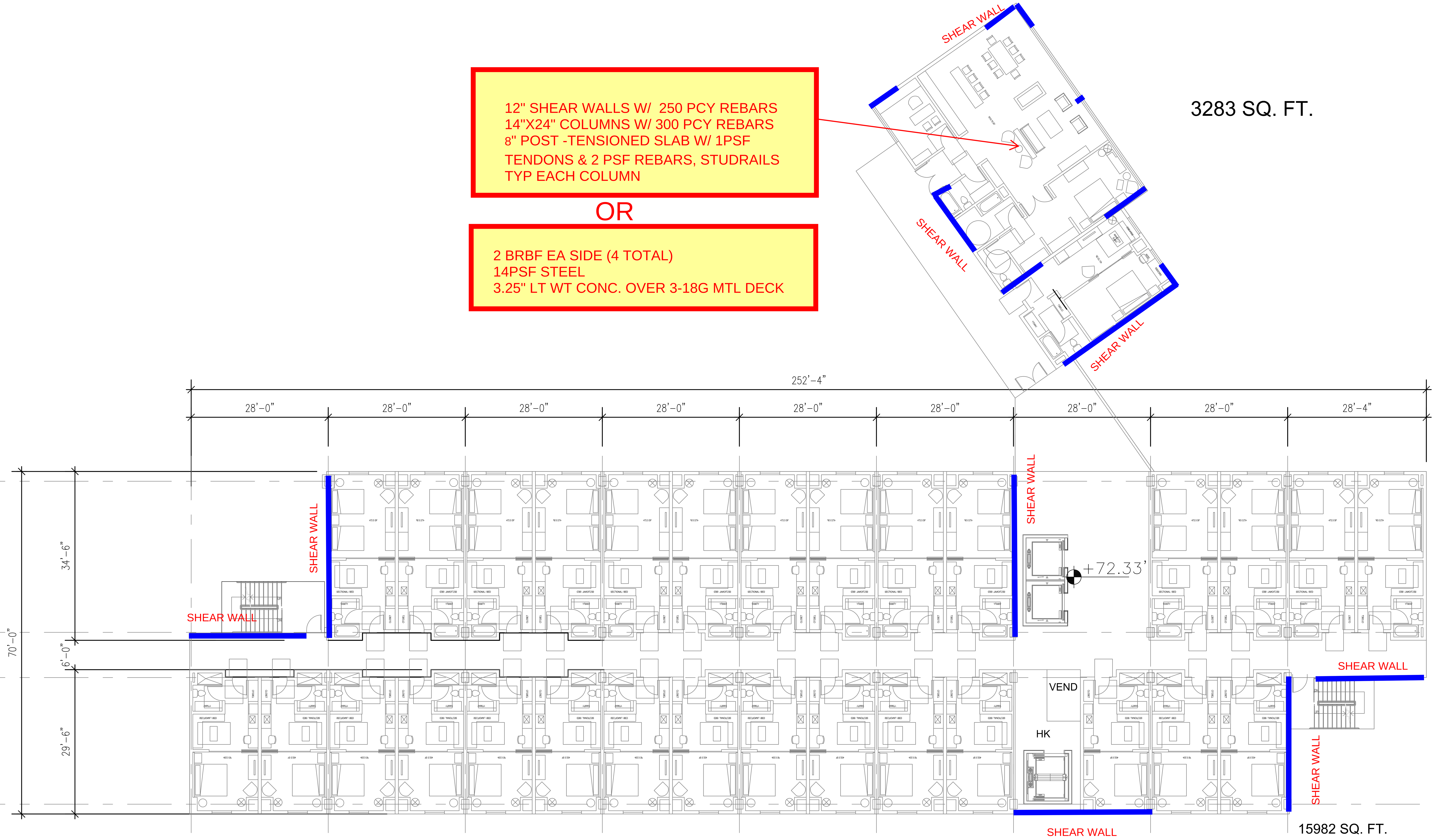
Hotel

S3-200.1

12" SHEAR WALLS W/ 250 PCY REBARS
14"X24" COLUMNS W/ 300 PCY REBARS
8" POST -TENSIONED SLAB W/ 1PSF TENDONS & 2 PSF REBARS, STUDRAILS TYP EACH COLUMN

OR

2 BRBF EA SIDE (4 TOTAL)
14PSF STEEL
3.25" LT WT CONC. OVER 3-18G MTL DECK



14" SHEAR WALLS W/ 300 PCY REBARS
14"X28" COLUMNS W/ 400 PCY REBARS
7" POST -TENSIONED SLAB W/ 1PSF TENDONS
2 PSF REBARS, STUDRAILS TYP EACH COLUMN

FLOOR 2 EL: +72.33.00'

30 ROOMS 19,265 S.F. (15,982 + 3283)

SCALE: $\frac{1}{8}$"=1'-0"

Hotel

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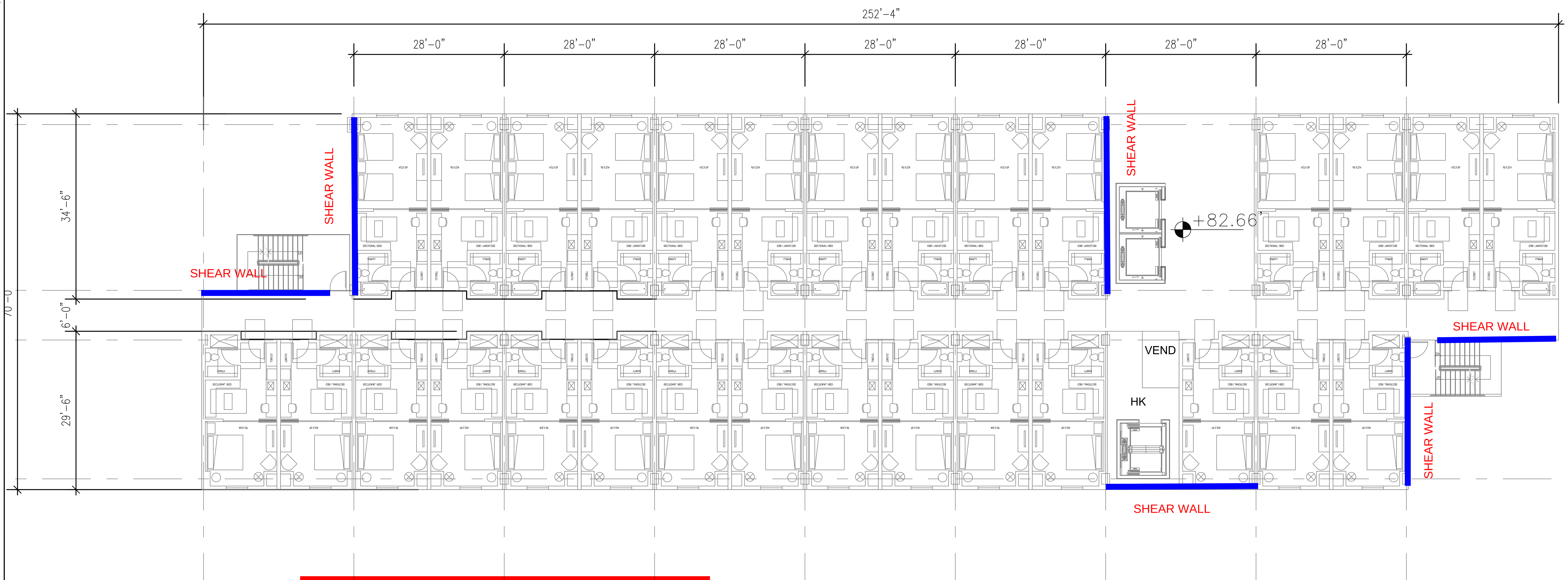
TITLE:
FLOOR PLAN 2
DRAWING NO:
S3-200.2



14" SHEAR WALLS W/ 300 PCY REBARS
14"X28" COLUMNS W/ 400 PCY REBARS
7" POST -TENSIONED SLAB W/ 1PSF TENDONS
2 PSF REBARS, STUDRAILS TYP EACH COLUMN

FLOOR 3 THROUGH 5 EL: 82.67 THRU 103.33"

29 ROOMS 15,982 S.F.

SCALE: ⅛"=1'-0"

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architecture + environments + brand strategy + graphics
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TITLE:

FLOOR PLAN 3

DRAWING NO:

Hotel

S3-200.3

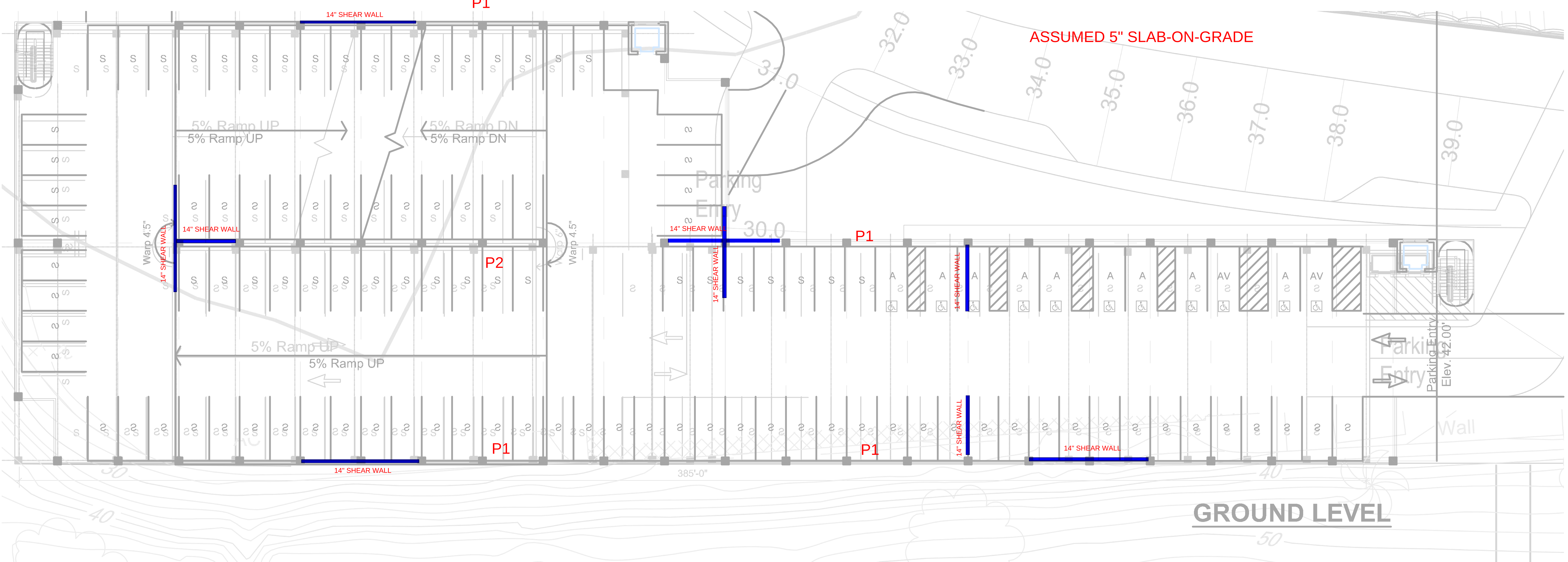
3 LEVEL GARAGE

P1 = 150 TON (EXT. COLUMNS)
P2 = 300 TON(INT. COLUMNS)
COLUMNS 20"X20"

4 LEVEL GARAGE

P1 = 225 TON (EXT. COLUMNS)
P2 = 450 TON(INT. COLUMNS)
COLUMNS 20"X20"

ASSUMED 5" SLAB-ON-GRADE



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architecture + environments + brand strategy + graphics
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TITLE:

Parking Garage

DRAWING NO:

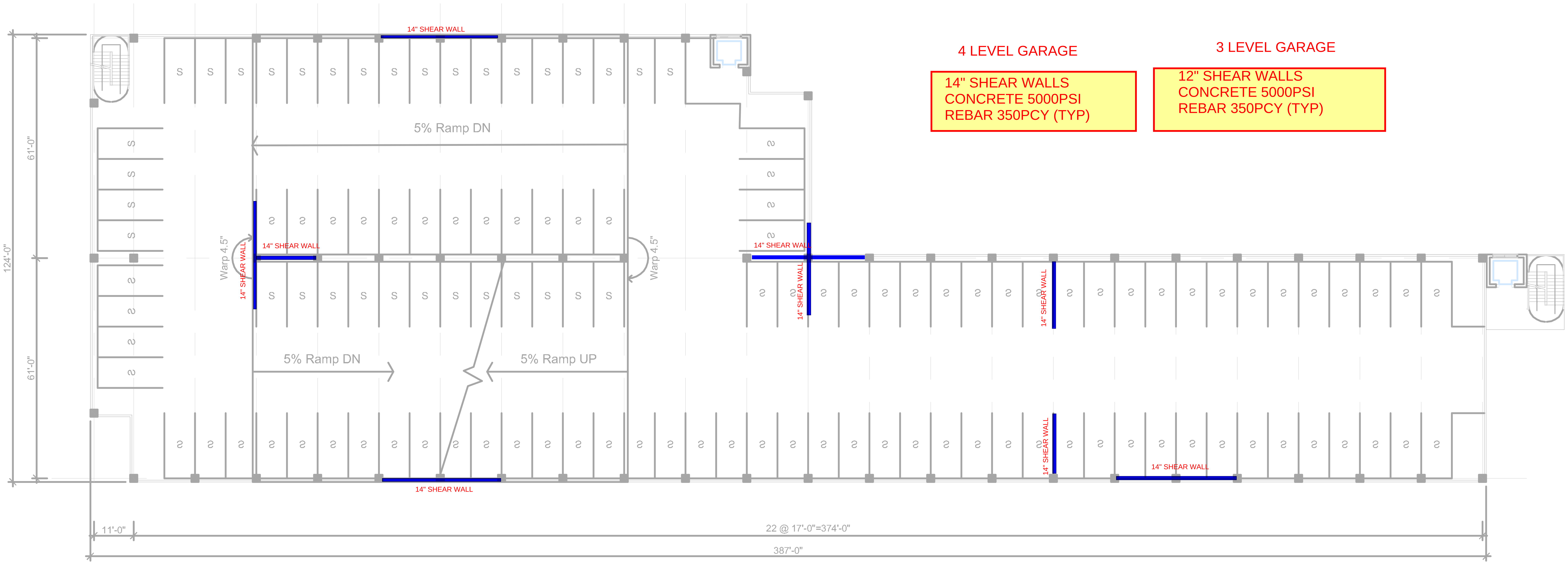
S4-200.1

4 LEVEL GARAGE

14" SHEAR WALLS
CONCRETE 5000PSI
REBAR 350PCY (TYP)

3 LEVEL GARAGE

12" SHEAR WALLS
CONCRETE 5000PSI
REBAR 350PCY (TYP)



TYPICAL LEVEL

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FILENAME:
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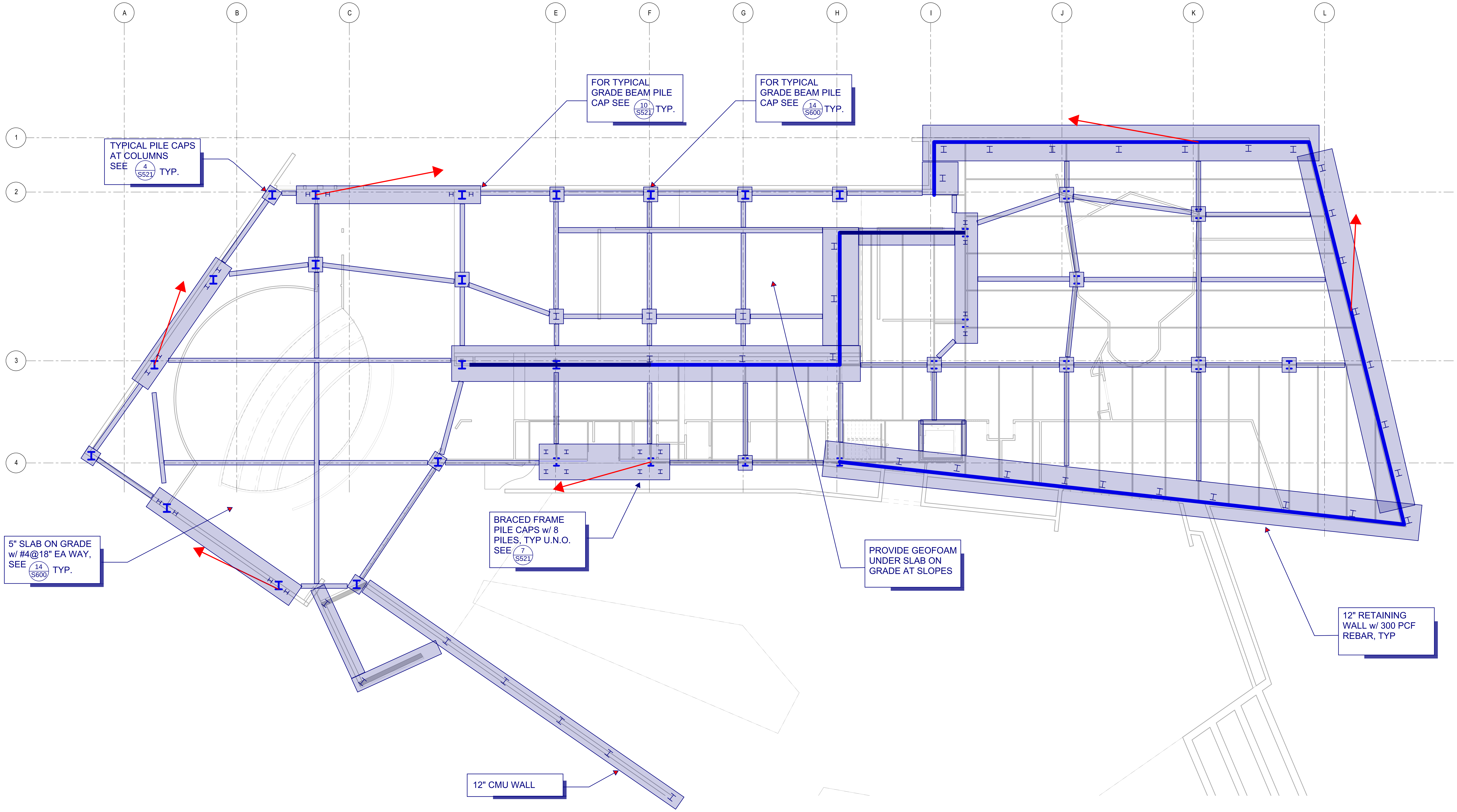
PLOT DATE:
TITLE:

Parking Garage

DRAWING NO:

S4-200.2



LOWER LEVEL - FOUNDATION PLAN

SCALE: 3/32" = 1'-0"

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architecture + environments + brand strategy + graphics
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LEGACY INTERNATIONAL
875 HOTEL CIRCLE SOUTH
SAN DIEGO, CALIFORNIA

03-18-2016 50%DD SUBMITTAL
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LOWER LEVEL - FOUNDATION PLAN

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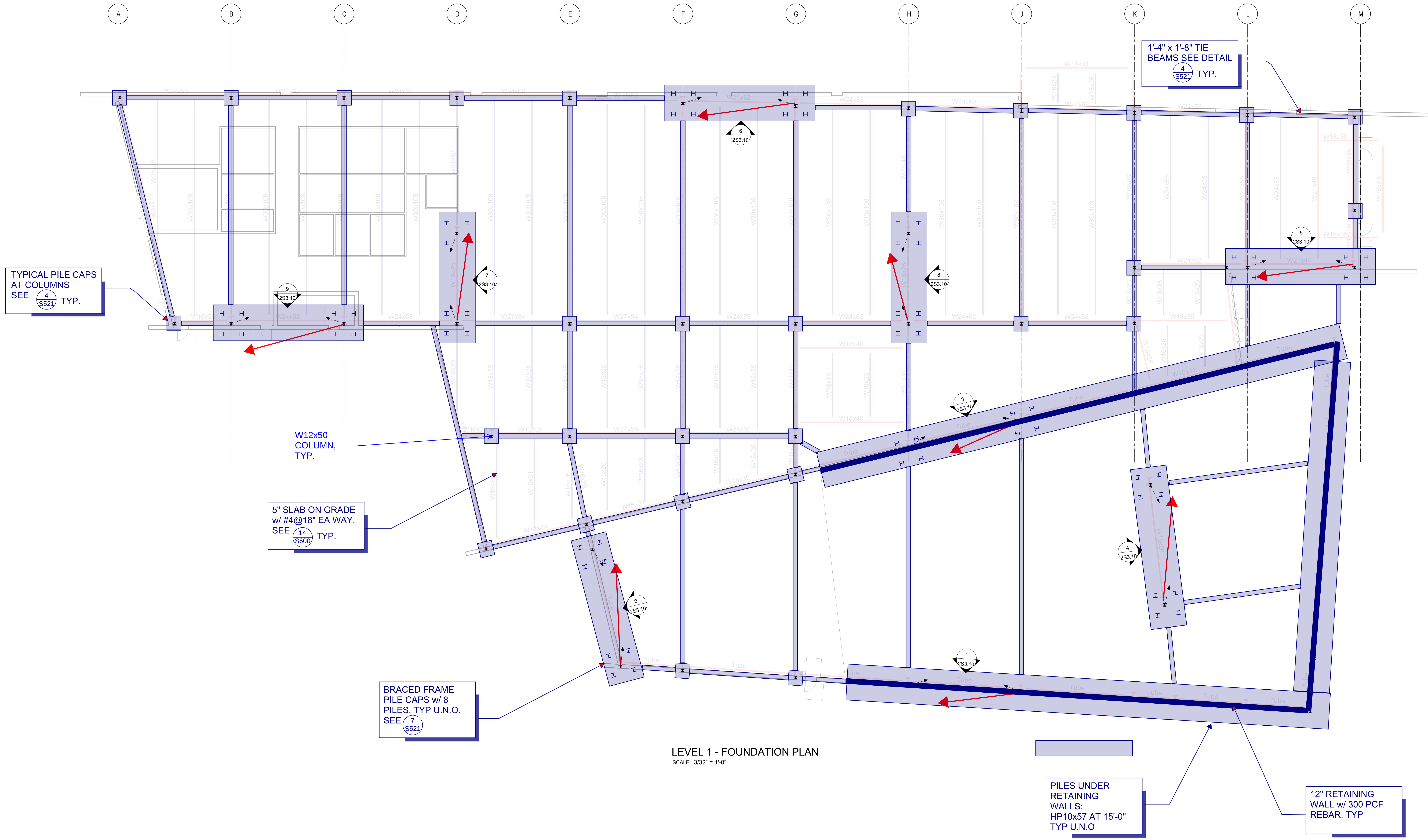
1S2.1



LEVEL 1 - FOUNDATION PLAN

SCALE: 3/32" = 1'-0"

carrierjohnson + CULTURE

architecture + environments + brand strategy + graphics

1301 third avenue san diego ca 92101

phone 619.239.2353 | fax 619.239.6227

LEGACY INTERNATIONAL

875 HOTEL CIRCLE SOUTH
SAN DIEGO CALIFORNIA

03-18-2016 50%DD SUBMITTAL

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5634.00

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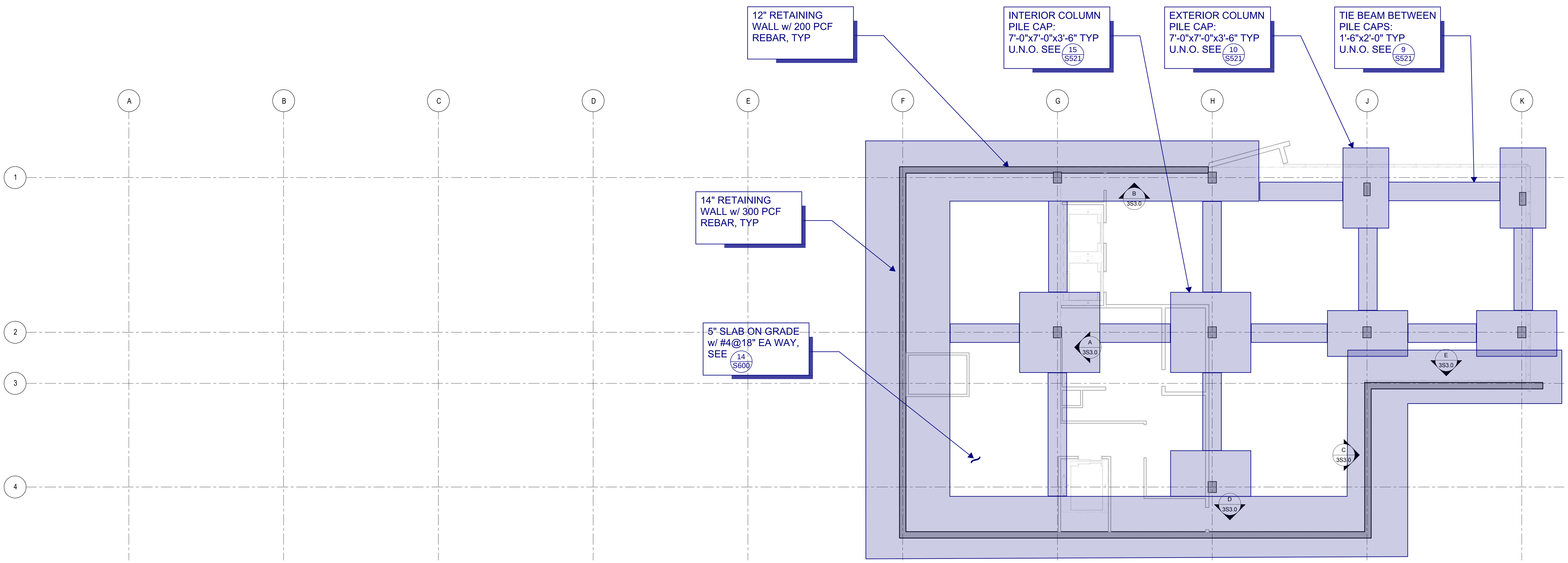
TITLE:

FOUNDATION PLAN

DRAWING NO:

2S2.1



LOWER LEVEL - FOUNDATION PLAN

SCALE: 1/8" = 1'-0"

TOP OF FOOTINGS 1'-6" BELOW F.F. U.N.O.

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architecture + environments + brand strategy + graphics
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SAN DIEGO, CALIFORNIA

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ISSUES:

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LOWER LEVEL - FOUNDATION PLAN

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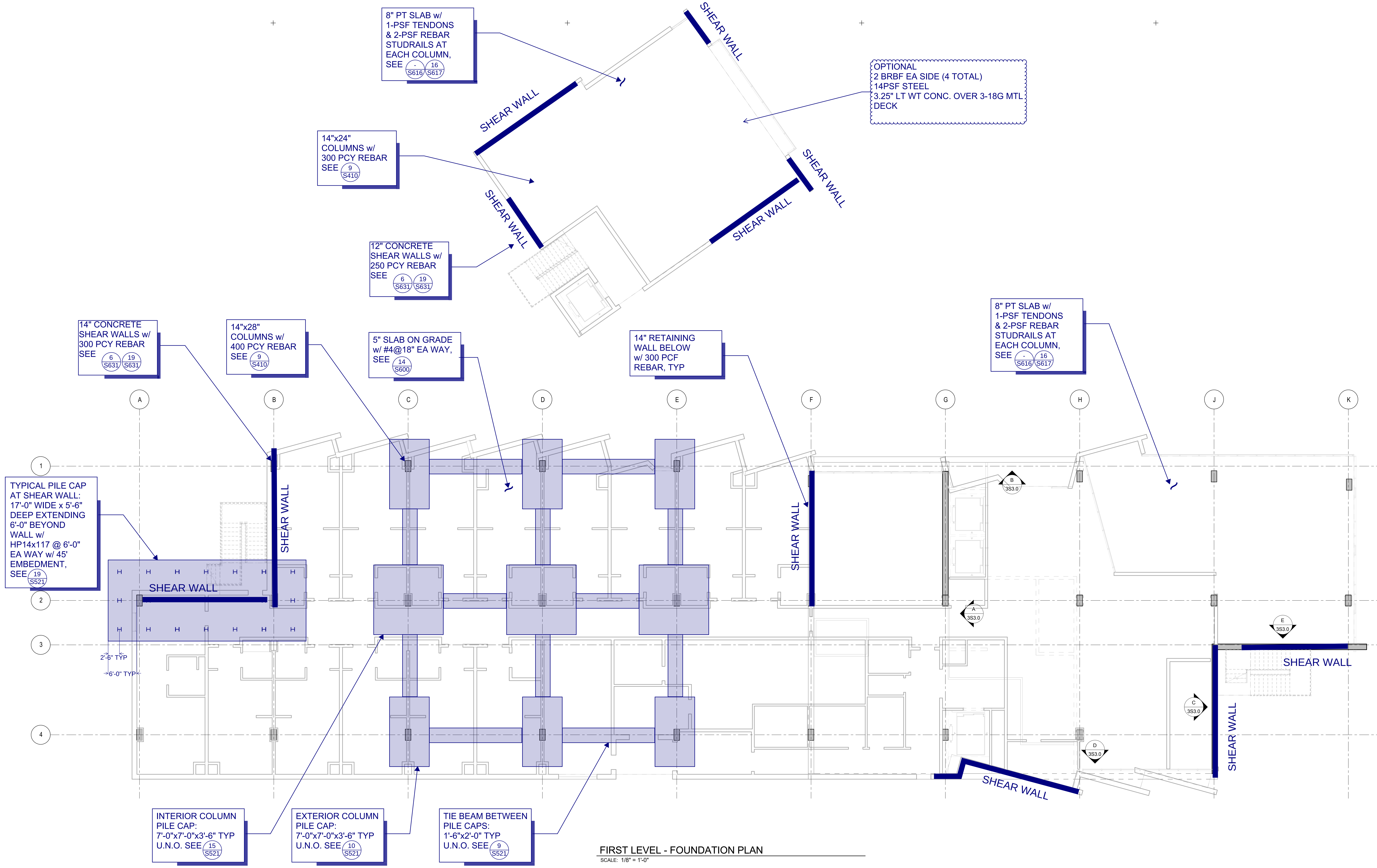
3S2.1



FIRST LEVEL - FOUNDATION PLAN

SCALE: 1/8" = 1'-0"

TOP OF FOOTINGS 1'-6" BELOW F.F. U.N.O.

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architecture + environments + brand strategy + graphics

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LEGACY INTERNATIONAL

875 HOTEL CIRCLE SOUTH
SAN DIEGO, CALIFORNIA

00-00-00 SUBMITTAL

ISSUES:

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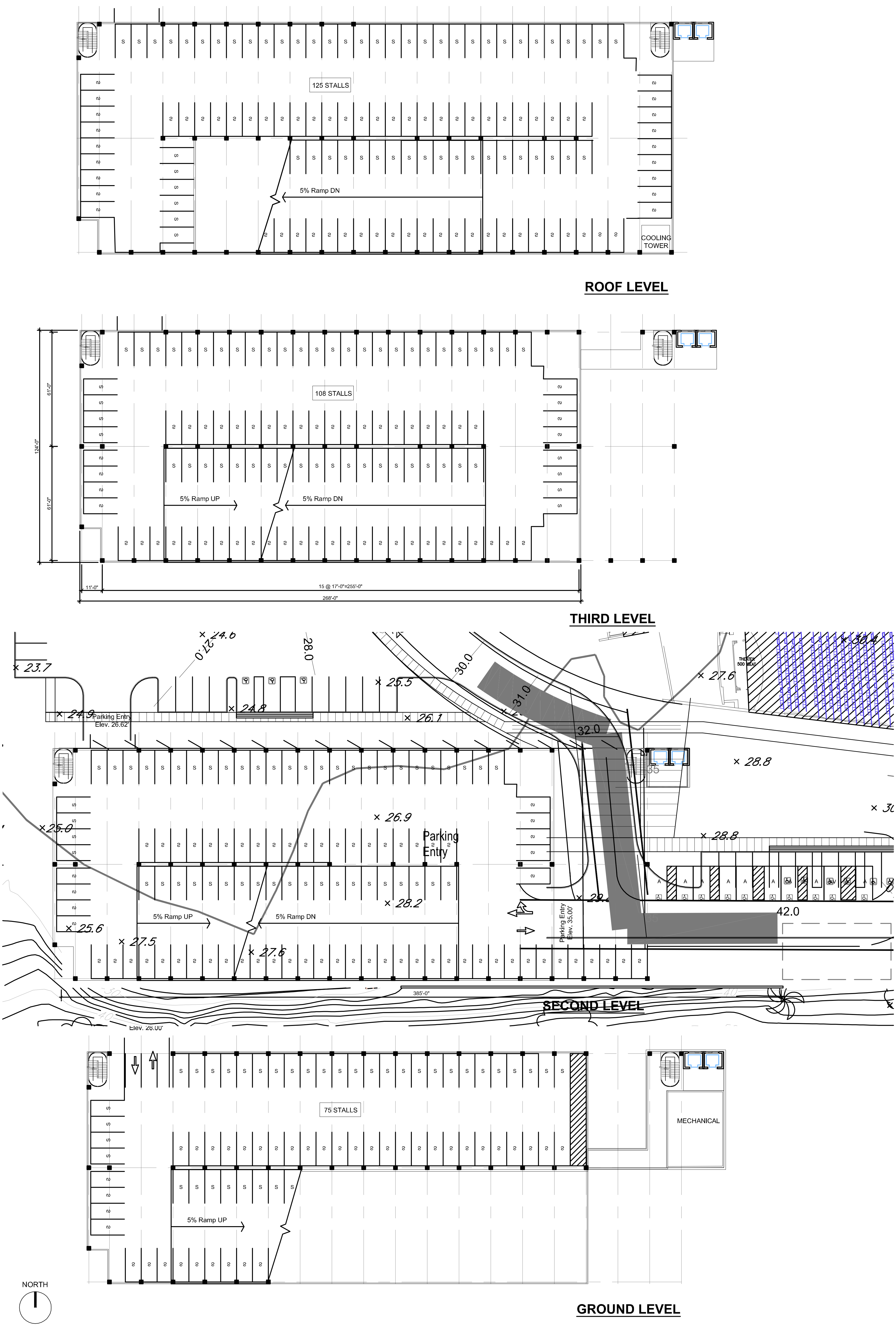
TITLE:

FIRST LEVEL - FOUNDATION PLAN

DRAWING NO:

3S2.2



WALKER
PARKING CONSULTANTS

Date: 02/17/2016

LEGACY INTERNATIONAL

Parking structure

APPENDIX B
PREVIOUS RELEVANT GEOTECHNICAL INFORMATION

PRELIMINARY
GEOTECHNICAL INVESTIGATION

MORRIS CERULLO
WORLD OUTREACH LEGACY PAVILION
SAN DIEGO, CALIFORNIA

GEOCON
INCORPORATED

GEOTECHNICAL
ENVIRONMENTAL
MATERIALS

PREPARED FOR

CARIBOU INDUSTRIES
% PROJECT DESIGN CONSULTANTS
SAN DIEGO, CALIFORNIA

MARCH 6, 2013
PROJECT NO. 07817-52-02

APPENDIX A

FIELD INVESTIGATION

We performed a previous field investigation in 2004 and 2007 including 11 borings and 5 cone penetration test soundings (CPTs) and 3 test pits. The approximate locations of the exploratory borings, test pits and CPTs are shown on the Geologic Map, Figure 2.

Test pits were excavated using a jackhammer and shovel on the southern slope area. Borings were drilled to depths ranging from 21 feet to 34½ feet below existing grade using a truck-mounted, high-torque, CME 75 drill rig equipped with 8-inch-diameter, hollow-stem augers or a Mayhew 1000 rotary wash rig. Relatively undisturbed samples were obtained by driving a 3-inch-diameter, split-tube sampler 12 inches into the undisturbed soil mass with blows from a hammer weighing 140 pounds, dropped from a height of 30 inches. The sampler was equipped with 1-inch-by-2½-inch brass sampler rings to facilitate removal and testing of the soil. Bulk samples were also obtained from drill cuttings and the test pits. The five CPTs were advanced to approximately depths between 12 and 45 feet.

The soil conditions encountered in the borings were visually examined, classified, and logged in general accordance with American Society for Testing and Materials (ASTM) practice for Description and Identification of Soils (Visual-Manual Procedure D 2488). Logs of the borings and test pits are presented on Figures A-1 through A-14. The logs depict the soil and geologic conditions encountered and the depth at which samples were obtained. The logs of CPT sounding are enclosed within this appendix.

PROJECT NO. 07817-22-01 (OLD 07345-52-01)

BORING B 1

ELEV. (MSL.) **27.5** DATE COMPLETED **07-12-2004**

EQUIPMENT **CME 75 HIGH-TORQUE** BY: **G. HORNER**

DEPTH IN FEET	SAMPLE NO.	LITHOLOGY	GROUNDWATER	SOIL CLASS (USCS)	MATERIAL DESCRIPTION	PENETRATION RESISTANCE (BLOWS/FT.)	DRY DENSITY (P.C.F.)	MOISTURE CONTENT (%)
0					3 inches **ASPHALT**			
0–4	B1-1			CL	**SLOPEWASH** Stiff to very stiff, moist, brown, Silty CLAY; with fine to medium sand and fine to coarse gravel -Grades to clayey sand			
4–9	B1-2			SC	Medium dense to dense, moist, brown, Silty to Clayey, fine to coarse SAND; some fine to coarse gravel	54	115.5	9.9
9–11.5	B1-3			SM	Medium dense, moist to wet, dark brown to black, fine to medium SAND; some silt	39	105.3	16.4
11.5–14.5				SC	Medium dense to dense, moist to wet, yellowish to orange-brown, Clayey, fine to medium SAND; some fine to coarse gravel			
14.5–21	B1-4		▼	SC	Very dense, wet, brown to reddish-brown, mottled, Silty to Clayey, fine to coarse SAND; some gravel	89/9"		11.2
20	B1-5				-Cobble fragment in tip of sampler	50/6"	106.1	20.6

BORING TERMINATED AT 21 FEET (Refusal)
Groundwater encountered at 17 feet
Backfilled with approximately 7.5 cu. ft. of bentonite grout

Figure A-1,
Log of Boring B 1, Page 1 of 1

07817-22-01 (OLD 07345-52-01).GPJ

SAMPLE SYMBOLS
- ... SAMPLING UNSUCCESSFUL
- ... STANDARD PENETRATION TEST
- ... DRIVE SAMPLE (UNDISTURBED)
- ... DISTURBED OR BAG SAMPLE
- ... CHUNK SAMPLE
- ▼ ... WATER TABLE OR SEEPAGE

NOTE: THE LOG OF SUBSURFACE CONDITIONS SHOWN HEREON APPLIES ONLY AT THE SPECIFIC BORING OR TRENCH LOCATION AND AT THE DATE INDICATED. IT IS NOT WARRANTED TO BE REPRESENTATIVE OF SUBSURFACE CONDITIONS AT OTHER LOCATIONS AND TIMES.

GEOCON

PROJECT NO. 07817-22-01 (OLD 07345-52-01)

BORING B 2

ELEV. (MSL.) 32 DATE COMPLETED 07-12-2004

EQUIPMENT CME 75 HIGH-TORQUE BY: G. HORNER

DEPTH IN FEET	SAMPLE NO.	LITHOLOGY	GROUNDWATER	SOIL CLASS (USCS)	MATERIAL DESCRIPTION	PENETRATION RESISTANCE (BLOWS/FT.)	DRY DENSITY (P.C.F.)	MOISTURE CONTENT (%)
0					3 inches **ASPHALT** 4 inches **BASE**			
2				CL	**SLOPEWASH** Medium stiff to stiff, moist, brown, Silty CLAY; trace sand			
4	B2-1				-Increase in silt, sand, and fine gravel	31	114.1	14.9
6				CL	Very stiff, moist, dark brown, fine Sandy SILT and CLAY; trace to some gravel			
8–12	B2-2			SC/GC	Dense, moist to wet, brown, Clayey, fine to medium SAND and fine to coarse GRAVEL	57	111.8	9.5
14–16			▼	SM/GM	Dense to very dense, wet, brown to reddish-brown, Silty, fine to coarse SAND and GRAVEL; trace clay; mottled -No recovery; cobble in tip of sampler	78		
18–20	B2-3			SM	Dense to very dense, wet, grayish-to orange-brown, fine to medium SAND; intermittent silty gravel/cobble beds	90/8"	108.7	15.6

BORING TERMINATED AT 21 FEET (Refusal)
Groundwater encountered at 16.3 feet
Backfilled with approximately 7.5 cu. ft. of bentonite grout

Figure A-2,
Log of Boring B 2, Page 1 of 1

07817-22-01 (OLD 07345-52-01).GPJ

SAMPLE SYMBOLS	... SAMPLING UNSUCCESSFUL	... STANDARD PENETRATION TEST	... DRIVE SAMPLE (UNDISTURBED)
	... DISTURBED OR BAG SAMPLE	... CHUNK SAMPLE	▼ ... WATER TABLE OR SEEPAGE

NOTE: THE LOG OF SUBSURFACE CONDITIONS SHOWN HEREON APPLIES ONLY AT THE SPECIFIC BORING OR TRENCH LOCATION AND AT THE DATE INDICATED. IT IS NOT WARRANTED TO BE REPRESENTATIVE OF SUBSURFACE CONDITIONS AT OTHER LOCATIONS AND TIMES.

GEOCON

PROJECT NO. 07817-22-01 (OLD 07345-52-01)

BORING B 3

ELEV. (MSL.) 52 DATE COMPLETED 07-12-2004

EQUIPMENT CME 75 HIGH-TORQUE BY: G. HORNER

DEPTH IN FEET	SAMPLE NO.	LITHOLOGY	GROUNDWATER	SOIL CLASS (USCS)	MATERIAL DESCRIPTION	PENETRATION RESISTANCE (BLOWS/FT.)	DRY DENSITY (P.C.F.)	MOISTURE CONTENT (%)
0					3.5 inches **ASPHALT**			
0–5				SC	**UNDOCUMENTED FILL** Loose to medium dense, moist, brown, Silty to Clayey, fine to medium SAND; some fine to medium gravel			
5	B3-1				Medium dense, damp to moist, pale orange to grayish brown, fine to coarse SAND; trace fine to coarse gravel; some clay within upper 3 feet	21	105.3	4.4
7	B3-2							
10	B3-3					38	109.0	4.2
11				SW	-Increase in coarse sand; intermittent layers of fine sand and silt			
14	B3-4							
15	B3-5					36	113.9	5.2
17				CL	**SLOPEWASH** Very stiff, moist, brown, Sandy CLAY; trace fine subrounded gravel			
19				SM/GM	Dense, damp to moist, pale yellowish brown, Silty, fine SAND and subrounded GRAVEL	50/4"		
23				SM	Dense to very dense, damp to wet, pale yellowish-brown to orange-brown to tan, Silty, fine to medium SAND; interbedded with moist, clayey layers; trace fine to medium gravel			
25	B3-6					50/2"		
26	B3-7							

Figure A-3,
Log of Boring B 3, Page 1 of 2

07817-22-01 (OLD 07345-52-01).GPJ

SAMPLE SYMBOLS
- ... SAMPLING UNSUCCESSFUL
- ... DISTURBED OR BAG SAMPLE
- ... STANDARD PENETRATION TEST
- ... CHUNK SAMPLE
- ... DRIVE SAMPLE (UNDISTURBED)
- ▼ ... WATER TABLE OR SEEPAGE

NOTE: THE LOG OF SUBSURFACE CONDITIONS SHOWN HEREON APPLIES ONLY AT THE SPECIFIC BORING OR TRENCH LOCATION AND AT THE DATE INDICATED. IT IS NOT WARRANTED TO BE REPRESENTATIVE OF SUBSURFACE CONDITIONS AT OTHER LOCATIONS AND TIMES.

GEOCON

PROJECT NO. 07817-22-01 (OLD 07345-52-01)

BORING B 3

ELEV. (MSL.) 52 DATE COMPLETED 07-12-2004

EQUIPMENT CME 75 HIGH-TORQUE BY: G. HORNER

DEPTH IN FEET	SAMPLE NO.	LITHOLOGY	GROUNDWATER	SOIL CLASS (USCS)	MATERIAL DESCRIPTION	PENETRATION RESISTANCE (BLOWS/FT.)	DRY DENSITY (P.C.F.)	MOISTURE CONTENT (%)
30	B3-8					92/10"	99.1	18.2
				GC	Dense to very dense, wet, tan to orange brown, GRAVEL and COBBLE in a Silty to Clayey, fine to medium SAND matrix			
32								
			▼					
34						50/4"		
					BORING TERMINATED AT 34.5 FEET (Refusal) Groundwater encountered at 33.5 feet Backfilled with approximately 12 cu. ft. of bentonite grout			

Figure A-3,
Log of Boring B 3, Page 2 of 2

07817-22-01 (OLD 07345-52-01).GPJ

SAMPLE SYMBOLS			
	☐ ... SAMPLING UNSUCCESSFUL	◧ ... STANDARD PENETRATION TEST	■ ... DRIVE SAMPLE (UNDISTURBED)
	⊠ ... DISTURBED OR BAG SAMPLE	◣ ... CHUNK SAMPLE	▼ ... WATER TABLE OR SEEPAGE

NOTE: THE LOG OF SUBSURFACE CONDITIONS SHOWN HEREON APPLIES ONLY AT THE SPECIFIC BORING OR TRENCH LOCATION AND AT THE DATE INDICATED. IT IS NOT WARRANTED TO BE REPRESENTATIVE OF SUBSURFACE CONDITIONS AT OTHER LOCATIONS AND TIMES.

GEOCON

PROJECT NO. 07817-22-01 (OLD 07345-52-01)

BORING B 4

ELEV. (MSL.) 69 DATE COMPLETED 07-12-2004

EQUIPMENT CME 75 HIGH-TORQUE BY: G. HORNER

DEPTH IN FEET	SAMPLE NO.	LITHOLOGY	GROUNDWATER	SOIL CLASS (USCS)	MATERIAL DESCRIPTION	PENETRATION RESISTANCE (BLOWS/FT.)	DRY DENSITY (P.C.F.)	MOISTURE CONTENT (%)
0					5 inches **CONCRETE**; 4 inches **BASE**			
2	B4-1			CL	**UNDOCUMENTED FILL** Stiff, moist, dark brownish gray to black, Silty CLAY with fine to coarse gravel; trace sand; organic odor			
6				ML	Moist, grayish brown, fine Sandy SILT with gravel and cobble; some clay -No recovery; cobble in tip of sampler	74		
10	B4-2			CL	Stiff to very stiff, damp to moist, dark brownish gray to black, Silty CLAY; some fine to coarse gravel	41	101.5	17.2
14	B4-3			CL/CH	Very stiff to hard, damp to moist, dark grayish to reddish brown, CLAY; trace sand, silt and gravel	50	114.2	12.9
16	B4-4							
20	B4-5			SC	**SLOPEWASH** Very dense, damp, light orange-brown to tan, fine SAND; with silt, clay and fine to coarse gravel	75	116.7	12.3
24	B4-6				-Gravel layer at approximately 24 feet -Medium dense	26		
26	B4-7				-Very dense	67		

BORING TERMINATED AT 27.5 FEET (Refusal)
No groundwater encountered
Backfilled with approximately 9.5 cu. ft. of bentonite grout

Figure A-4,
Log of Boring B 4, Page 1 of 1

07817-22-01 (OLD 07345-52-01).GPJ

SAMPLE SYMBOLS
- ... SAMPLING UNSUCCESSFUL
- ... DISTURBED OR BAG SAMPLE
- ... STANDARD PENETRATION TEST
- ... CHUNK SAMPLE
- ... DRIVE SAMPLE (UNDISTURBED)
- ... WATER TABLE OR SEEPAGE

NOTE: THE LOG OF SUBSURFACE CONDITIONS SHOWN HEREON APPLIES ONLY AT THE SPECIFIC BORING OR TRENCH LOCATION AND AT THE DATE INDICATED. IT IS NOT WARRANTED TO BE REPRESENTATIVE OF SUBSURFACE CONDITIONS AT OTHER LOCATIONS AND TIMES.

GEOCON

PROJECT NO. 07817-22-01 (OLD 07345-52-01)

BORING B 5

ELEV. (MSL.) 23 DATE COMPLETED 07-15-2004

EQUIPMENT MAYHEW 1000 ROTARY WASH BY: G. HORNER

DEPTH IN FEET	SAMPLE NO.	LITHOLOGY	GROUNDWATER	SOIL CLASS (USCS)	MATERIAL DESCRIPTION	PENETRATION RESISTANCE (BLOWS/FT.)	DRY DENSITY (P.C.F.)	MOISTURE CONTENT (%)
0					4 inches **ASPHALT**			
					8 inches **BASE**			
2				GM	**UNDOCUMENTED FILL** GRAVEL/COBBLE layer 1 to 3 feet			
4					**ALLUVIUM** Very soft to soft, wet, brownish gray, fine Sandy SILT; some clay, mica flakes, slight organic odor			
6	B5-1					2	94.2	29.9
8			▼	ML				
10	B5-2				-Grayish brown; trace clay	5	98.1	27.2
12								
14					Soft to medium stiff, wet, brownish-gray to gray, Clayey SILT to Silty CLAY; trace fine sand and mica flakes			
16						6		
18				CL				
20	B5-3					5	107.2	20.3
22					-Soft; some coarse sand and medium to coarse, subangular to subrounded gravel			
24								
26					-No recovery	4		
28					GRAVEL/COBBLE at 27 feet			
				GC	-No sample attempted due to gravel/cobble			

Figure A-5,
Log of Boring B 5, Page 1 of 2

07817-22-01 (OLD 07345-52-01).GPJ

SAMPLE SYMBOLS			
	... SAMPLING UNSUCCESSFUL	... STANDARD PENETRATION TEST	... DRIVE SAMPLE (UNDISTURBED)
	... DISTURBED OR BAG SAMPLE	... CHUNK SAMPLE	▼ ... WATER TABLE OR SEEPAGE

NOTE: THE LOG OF SUBSURFACE CONDITIONS SHOWN HEREON APPLIES ONLY AT THE SPECIFIC BORING OR TRENCH LOCATION AND AT THE DATE INDICATED. IT IS NOT WARRANTED TO BE REPRESENTATIVE OF SUBSURFACE CONDITIONS AT OTHER LOCATIONS AND TIMES.

GEOCON

DEPTH IN FEET	SAMPLE NO.	LITHOLOGY	GROUNDWATER	SOIL CLASS (USCS)	BORING B 5 ELEV. (MSL.) 23 DATE COMPLETED 07-15-2004 EQUIPMENT MAYHEW 1000 ROTARY WASH BY: G. HORNER	PENETRATION RESISTANCE (BLOWS/FT.)	DRY DENSITY (P.C.F.)	MOISTURE CONTENT (%)
					MATERIAL DESCRIPTION			
30								
					BORING TERMINATED AT 31.5 FEET Groundwater encountered at 8 feet Backfilled with approximately 11 cu. ft. of bentonite grout			

Figure A-5,
Log of Boring B 5, Page 2 of 2

07817-22-01 (OLD 07345-52-01).GPJ

SAMPLE SYMBOLS			
	... SAMPLING UNSUCCESSFUL	... STANDARD PENETRATION TEST	... DRIVE SAMPLE (UNDISTURBED)
	... DISTURBED OR BAG SAMPLE	... CHUNK SAMPLE	... WATER TABLE OR SEEPAGE

NOTE: THE LOG OF SUBSURFACE CONDITIONS SHOWN HEREON APPLIES ONLY AT THE SPECIFIC BORING OR TRENCH LOCATION AND AT THE DATE INDICATED. IT IS NOT WARRANTED TO BE REPRESENTATIVE OF SUBSURFACE CONDITIONS AT OTHER LOCATIONS AND TIMES.

GEOCON

BORING B 6

ELEV. (MSL.) **25** DATE COMPLETED **07-15-2004**

EQUIPMENT **MAYHEW 1000 ROTARY WASH** BY: **G. HORNER**

DEPTH IN FEET	SAMPLE NO.	LITHOLOGY	GROUNDWATER	SOIL CLASS (USCS)	MATERIAL DESCRIPTION	PENETRATION RESISTANCE (BLOWS/FT.)	DRY DENSITY (P.C.F.)	MOISTURE CONTENT (%)
0					4 inches **ASPHALT**			
					7 inches **BASE**			
2				GM	**UNDOCUMENTED FILL** GRAVEL/COBBLE layer 1 to 3 feet			
4					**ALLUVIUM** Soft, moist to wet, brownish to dark gray, SILT; some clay, trace medium gravel, fine sand and mica flakes; strong organic odor			
6	B6-1			ML		5		
8					Soft, wet, brownish gray to grayish brown, Silty to Sandy CLAY; slight organic odor; trace fine roots			
10			▼			4		
12				CL				
14								
16	B6-2				-Trace fine sand; coarse rounded gravel fragment in sampler	4	87.8	34.6
18					Soft, wet, brown, Silty, fine SAND; abundant mica flakes; some fine to medium gravel			
20	B6-3					5		
22				SM				
24								
26	B6-4			CL/GC	Very stiff to hard, moist, grayish-to orange-brown, Sandy CLAY -Gravel and cobble at 26 feet	55/11"	110.3	17.0

BORING TERMINATED AT 27 FEET (Refusal)
Groundwater encountered at 10 feet
Backfilled with approximately 9.5 cu. ft. of bentonite grout

Figure A-6,
Log of Boring B 6, Page 1 of 1

07817-22-01 (OLD 07345-52-01).GPJ

SAMPLE SYMBOLS			
	... SAMPLING UNSUCCESSFUL	... STANDARD PENETRATION TEST	... DRIVE SAMPLE (UNDISTURBED)
	... DISTURBED OR BAG SAMPLE	... CHUNK SAMPLE	▼ ... WATER TABLE OR SEEPAGE

NOTE: THE LOG OF SUBSURFACE CONDITIONS SHOWN HEREON APPLIES ONLY AT THE SPECIFIC BORING OR TRENCH LOCATION AND AT THE DATE INDICATED. IT IS NOT WARRANTED TO BE REPRESENTATIVE OF SUBSURFACE CONDITIONS AT OTHER LOCATIONS AND TIMES.

GEOCON

PROJECT NO. 07817-22-01 (OLD 07345-52-01)

BORING B 7

ELEV. (MSL.) 25.5 DATE COMPLETED 07-15-2004

EQUIPMENT MAYHEW 1000 ROTARY WASH BY: G. HORNER

DEPTH IN FEET	SAMPLE NO.	SOIL CLASS (USCS)	MATERIAL DESCRIPTION	PENETRATION RESISTANCE (BLOWS/FT.)	DRY DENSITY (P.C.F.)	MOISTURE CONTENT (%)
0			4 inches **ASPHALT**			
			2 inches **BASE**			
2		GM	**UNDOCUMENTED FILL** GRAVEL/COBBLE			
4		ML	**ALLUVIUM** Soft, moist, grayish-brown, Sandy to Clayey SILT; some fine to medium gravel			
6			-No recovery			
8			-Minimal recovery	4		
10	B7-1	CH	Stiff, moist, gray and reddish brown, CLAY; trace fine to coarse gravel/cobble, mottled	17		
12						
14		CL	Very stiff, wet, brown to reddish-brown, Sandy CLAY; trace fine to medium gravel			
16				37		
			-Minimal recovery -Grades more clayey			
18			-Gravel/cobble layer 18 to 19 feet			
20	B7-2	SM	Medium dense, saturated, brown, fine to coarse SAND, with silt and clay and some fine to medium gravel	19		
22						
24		SC	Dense to very dense, moist to wet, grayish-to orange-brown, Clayey SAND; some medium to coarse gravel/cobble			
26			-Sample disturbed due to cobble fragment in sampler	62/9"		
28						

Figure A-7,
Log of Boring B 7, Page 1 of 2

07817-22-01 (OLD 07345-52-01).GPJ

SAMPLE SYMBOLS			
	... SAMPLING UNSUCCESSFUL	... STANDARD PENETRATION TEST	... DRIVE SAMPLE (UNDISTURBED)
	... DISTURBED OR BAG SAMPLE	... CHUNK SAMPLE	... WATER TABLE OR SEEPAGE

NOTE: THE LOG OF SUBSURFACE CONDITIONS SHOWN HEREON APPLIES ONLY AT THE SPECIFIC BORING OR TRENCH LOCATION AND AT THE DATE INDICATED. IT IS NOT WARRANTED TO BE REPRESENTATIVE OF SUBSURFACE CONDITIONS AT OTHER LOCATIONS AND TIMES.

GEOCON

BORING B 7

ELEV. (MSL.) 25.5 DATE COMPLETED 07-15-2004

EQUIPMENT MAYHEW 1000 ROTARY WASH BY: G. HORNER

DEPTH IN FEET	SAMPLE NO.	LITHOLOGY	GROUNDWATER	SOIL CLASS (USCS)	MATERIAL DESCRIPTION	PENETRATION RESISTANCE (BLOWS/FT.)	DRY DENSITY (P.C.F.)	MOISTURE CONTENT (%)
30	B7-3				Dense to very dense, wet, reddish to yellowish brown, Clayey, medium to coarse SAND and GRAVEL/COBBLE	92/9"		12.9
32				SC/GC		50/2"		
					BORING TERMINATED AT 33 FEET (Refusal) Groundwater encountered at 9.5 feet Backfilled with approximately 11.5 cu. ft. of bentonite grout			

Figure A-7,
Log of Boring B 7, Page 2 of 2

07817-22-01 (OLD 07345-52-01).GPJ

SAMPLE SYMBOLS			
	... SAMPLING UNSUCCESSFUL	... STANDARD PENETRATION TEST	... DRIVE SAMPLE (UNDISTURBED)
	... DISTURBED OR BAG SAMPLE	... CHUNK SAMPLE	... WATER TABLE OR SEEPAGE

NOTE: THE LOG OF SUBSURFACE CONDITIONS SHOWN HEREON APPLIES ONLY AT THE SPECIFIC BORING OR TRENCH LOCATION AND AT THE DATE INDICATED. IT IS NOT WARRANTED TO BE REPRESENTATIVE OF SUBSURFACE CONDITIONS AT OTHER LOCATIONS AND TIMES.

PROJECT NO. 07817-22-01 (OLD 07345-52-01)

BORING B 8

ELEV. (MSL.) 49 DATE COMPLETED 07-16-2004

EQUIPMENT MAYHEW 1000 ROTARY WASH BY: G. HORNER

DEPTH IN FEET	SAMPLE NO.	LITHOLOGY	GROUNDWATER	SOIL CLASS (USCS)	MATERIAL DESCRIPTION	PENETRATION RESISTANCE (BLOWS/FT.)	DRY DENSITY (P.C.F.)	MOISTURE CONTENT (%)
0					3 inches **ASPHALT** 3 inches **BASE**			
2				SC/GC	**UNDOCUMENTED FILL** Medium dense to dense, moist, light brown, Silty to Clayey, fine to coarse SAND and GRAVEL/COBBLE			
4								
6	B8-1				**SLOPEWASH** Loose to medium dense, moist, brown, Silty, fine to medium SAND; some clay and fine to coarse angular to subrounded gravel, trace organics (stems)	9		
8								
10						24		
12				SM	-Minimal recovery; cobble in tip of sampler; increase in silt and clay			
14					-Gravel/cobble layer 13 to 14 feet			
16	B8-2				-Gravel/cobble layer 15 to 16 feet	13		
18								
20	B8-3			SC/GC	Dense to very dense, moist, brown, Clayey, fine to coarse SAND and GRAVEL; trace silt and organics (stems)	80		
22						50/1"		

BORING TERMINATED AT 22 FEET (Refusal)
No groundwater encountered
Backfilled with approximately 7.5 cu. ft. of bentonite grout

Figure A-8,
Log of Boring B 8, Page 1 of 1

07817-22-01 (OLD 07345-52-01).GPJ

SAMPLE SYMBOLS			
	... SAMPLING UNSUCCESSFUL	... STANDARD PENETRATION TEST	... DRIVE SAMPLE (UNDISTURBED)
	... DISTURBED OR BAG SAMPLE	... CHUNK SAMPLE	... WATER TABLE OR SEEPAGE

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GEOCON

BORING B 9

ELEV. (MSL.) 32 DATE COMPLETED 07-19-2004

EQUIPMENT MAYHEW 1000 ROTARY WASH BY: G. HORNER

DEPTH IN FEET	SAMPLE NO.	LITHOLOGY	GROUNDWATER	SOIL CLASS (USCS)	MATERIAL DESCRIPTION	PENETRATION RESISTANCE (BLOWS/FT.)	DRY DENSITY (P.C.F.)	MOISTURE CONTENT (%)
0					4 inches **ASPHALT** 4 inches **BASE**			
2					**ALLUVIUM** Loose, wet, brown, Silty, fine to medium SAND; some clay; trace roots, and fine to medium, subangular to subrounded gravel -Gravel/cobble at 1 foot			
4								
6				SM		6		
8								
10					Loose to medium dense, wet to saturated, Silty to Clayey, fine to medium SAND; some fine to coarse gravel	10		
12					-Minimal recovery			
14			▼	SC	Gravel/cobble from 14 to 17 feet			
16								
18					**SLOPEWASH** Very stiff, moist to wet, grayish-brown and tan to orange-brown, Sandy CLAY; some coarse sand and fine to coarse gravel/cobble	32		
20						18		
22				CL	-Increase in medium to coarse sand			
24					-Gravel/cobble from 23.5 to 24 feet			
26					-Grades to clayey sand			
	B9-1					12	111.2	18.1
28				SC	Loose to medium dense, saturated, brown, Clayey, fine to medium SAND; some silt and fine to medium gravel			

Figure A-9,
Log of Boring B 9, Page 1 of 2

07817-22-01 (OLD 07345-52-01).GPJ

SAMPLE SYMBOLS			
	... SAMPLING UNSUCCESSFUL	... STANDARD PENETRATION TEST	... DRIVE SAMPLE (UNDISTURBED)
	... DISTURBED OR BAG SAMPLE	... CHUNK SAMPLE	▼ ... WATER TABLE OR SEEPAGE

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GEOCON

BORING B 9

ELEV. (MSL.) **32** DATE COMPLETED **07-19-2004**

EQUIPMENT **MAYHEW 1000 ROTARY WASH** BY: **G. HORNER**

DEPTH IN FEET	SAMPLE NO.	LITHOLOGY	GROUNDWATER	SOIL CLASS (USCS)	MATERIAL DESCRIPTION	PENETRATION RESISTANCE (BLOWS/FT.)	DRY DENSITY (P.C.F.)	MOISTURE CONTENT (%)
30	B9-2				Loose, saturated, dark brown to orange-brown, Silty, fine to medium SAND; some clay and fine to medium gravel	6		
32				SM	-Gravel/cobble from 32 to 34.5 feet			
34								
					BORING TERMINATED AT 34.5 FEET (Refusal) Groundwater encountered at 14.5 feet Backfilled with approximately 12 cu. ft. of bentonite grout			

Figure A-9,
Log of Boring B 9, Page 2 of 2

07817-22-01 (OLD 07345-52-01).GPJ

SAMPLE SYMBOLS			
	... SAMPLING UNSUCCESSFUL	... STANDARD PENETRATION TEST	... DRIVE SAMPLE (UNDISTURBED)
	... DISTURBED OR BAG SAMPLE	... CHUNK SAMPLE	... WATER TABLE OR SEEPAGE

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PROJECT NO. 07817-22-01 (OLD 07345-52-01)

BORING B 10

ELEV. (MSL.) 28 DATE COMPLETED 07-19-2004

EQUIPMENT MAYHEW 1000 ROTARY WASH BY: G. HORNER

DEPTH IN FEET	SAMPLE NO.	LITHOLOGY	GROUNDWATER	SOIL CLASS (USCS)	MATERIAL DESCRIPTION	PENETRATION RESISTANCE (BLOWS/FT.)	DRY DENSITY (P.C.F.)	MOISTURE CONTENT (%)
0					4 inches **ASPHALT** 1 foot **BASE**			
2					**ALLUVIUM** Medium stiff to stiff, moist to wet, dark brown, Sandy to Clayey SILT; some fine to coarse gravel			
4								
6	B10-1			ML		12	107.4	18.0
8								
10	B10-2		▼		Medium dense, moist, light grayish-brown and tan to light orange-brown, Clayey, fine to medium SAND; trace silt and fine to coarse gravel	16		
12				SC				
14					-Gravel/cobble at 14 feet			
	B10-3					55	108.2	17.2
16				SC/GC	Dense, wet, light yellowish-and reddish-brown, Clayey, medium to coarse SAND and GRAVEL/COBBLE			
18								
20	B10-4				Dense, moist, grayish-to yellowish-brown, Clayey SAND, some silt, trace fine to coarse gravel	34		
22				SC				
24								
	B10-5					65	104.0	24.2
26					Soft to firm, saturated, dark brown to orange-brown, Sandy to Clayey SILT and GRAVEL/COBBLE			
28				ML/GM				

BORING TERMINATED AT 28.5 FEET (Refusal)
Groundwater encountered at 10.5 feet
Backfilled with approximately 10 cu. ft. of bentonite grout

Figure A-10,
Log of Boring B 10, Page 1 of 1

07817-22-01 (OLD 07345-52-01).GPJ

SAMPLE SYMBOLS			
	... SAMPLING UNSUCCESSFUL	... STANDARD PENETRATION TEST	... DRIVE SAMPLE (UNDISTURBED)
	... DISTURBED OR BAG SAMPLE	... CHUNK SAMPLE	▼ ... WATER TABLE OR SEEPAGE

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GEOCON

PROJECT NO. 07817-22-01 (OLD 07345-52-01)

BORING B 11

ELEV. (MSL.) **30.5** DATE COMPLETED **07-19-2004**

EQUIPMENT **MAYHEW 1000 ROTARY WASH** BY: **G. HORNER**

DEPTH IN FEET	SAMPLE NO.	LITHOLOGY	GROUNDWATER	SOIL CLASS (USCS)	MATERIAL DESCRIPTION	PENETRATION RESISTANCE (BLOWS/FT.)	DRY DENSITY (P.C.F.)	MOISTURE CONTENT (%)
0					3 inches **ASPHALT**			
					3 inches **BASE**			
2				GC	**UNDOCUMENTED FILL** Light brown, Silty to Sandy CLAY and GRAVEL/COBBLE -Gravel/cobble from 1 to 4 feet			
4 – 10				CL	**ALLUVIUM** Light brown, Sandy CLAY; some gravel/cobble			
10 – 15			▼ (13)	SC	Brown, Clayey, fine to medium SAND			
15 – 16.5				CL	Light brown, Sandy CLAY			
16.5 – 19				SC	Brown, Silty to Clayey, fine to medium SAND; some gravel/cobble			
19 – 20				CL	Light brown, Sandy CLAY; some silt and gravel/cobble			
20 – 24	B11-1			SC/GC	Brown, Silty to Clayey, fine to medium SAND and GRAVEL/COBBLE -Gravel/cobble fragments in sampler	90		

BORING TERMINATED AT 24 FEET
Groundwater encountered at 13 feet
Backfilled with approximately 8.5 cu. ft. of bentonite grout

Figure A-11,
Log of Boring B 11, Page 1 of 1

07817-22-01 (OLD 07345-52-01).GPJ

SAMPLE SYMBOLS
- ☐ ... SAMPLING UNSUCCESSFUL
- ▮ ... STANDARD PENETRATION TEST
- ■ ... DRIVE SAMPLE (UNDISTURBED)
- ☒ ... DISTURBED OR BAG SAMPLE
- ◣ ... CHUNK SAMPLE
- ▼ ... WATER TABLE OR SEEPAGE

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GEOCON

PROJECT NO. 07817-22-01

DEPTH IN FEET	SAMPLE NO.	LITHOLOGY	GROUNDWATER	SOIL CLASS (USCS)	TEST PIT TP 1 — ELEV. (MSL.) 48' DATE COMPLETED 04-10-2007 — EQUIPMENT JACK HAMMER (35 lb.) BY: B.W.	PENETRATION RESISTANCE (BLOWS/FT.)	DRY DENSITY (P.C.F.)	MOISTURE CONTENT (%)
					MATERIAL DESCRIPTION			
0	TP1-1			SM	**STADIUM CONGLOMERATE** Medium dense, dry, brown, Silty, fine SAND with trace clay and gravel; pinhole pores			
	TP1-2			SM	Medium dense, damp, brown, Silty, fine SAND; trace clay and approx. 10% to 15% of gravel			
2								
	TP1-3							
					TEST PIT TERMINATED AT 3½ FEET No groundwater encountered			

Figure A-12,
Log of Test Pit TP 1, Page 1 of 1

07817-22-01.GPJ

SAMPLE SYMBOLS			
	... SAMPLING UNSUCCESSFUL	... STANDARD PENETRATION TEST	... DRIVE SAMPLE (UNDISTURBED)
	... DISTURBED OR BAG SAMPLE	... CHUNK SAMPLE	... WATER TABLE OR SEEPAGE

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GEOCON

PROJECT NO. 07817-22-01

DEPTH IN FEET	SAMPLE NO.	LITHOLOGY	GROUNDWATER	SOIL CLASS (USCS)	TEST PIT TP 2 ELEV. (MSL.) 100' DATE COMPLETED 04-10-2007 EQUIPMENT JACK HAMMER (35 lb.) BY: B.W.	PENETRATION RESISTANCE (BLOWS/FT.)	DRY DENSITY (P.C.F.)	MOISTURE CONTENT (%)
					MATERIAL DESCRIPTION			
0				CL	**STADIUM CONGLOMERATE** Firm to very stiff, dry, brown, Silty CLAY; approx. 25% of gravel up to 3", trace sand; heavily burrowed in shallow depth			
2								
	TP2-1							
					TEST PIT TERMINATED AT 3½ FEET No groundwater encountered			

Figure A-13,
Log of Test Pit TP 2, Page 1 of 1

07817-22-01.GPJ

SAMPLE SYMBOLS			
	... SAMPLING UNSUCCESSFUL	... STANDARD PENETRATION TEST	... DRIVE SAMPLE (UNDISTURBED)
	... DISTURBED OR BAG SAMPLE	... CHUNK SAMPLE	▼ ... WATER TABLE OR SEEPAGE

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GEOCON

DEPTH IN FEET	SAMPLE NO.	LITHOLOGY	GROUNDWATER	SOIL CLASS (USCS)	TEST PIT TP 3 ELEV. (MSL.) 152' DATE COMPLETED 04-10-2007 EQUIPMENT JACK HAMMER (35 lb.) BY: B.W.	PENETRATION RESISTANCE (BLOWS/FT.)	DRY DENSITY (P.C.F.)	MOISTURE CONTENT (%)
					MATERIAL DESCRIPTION			
0 - 2	TP3-1			CL/GC	**STADIUM CONGLOMERATE** Firm to very stiff, dry, brown, Silty CLAY and GRAVEL/COBBLE up to 12", trace sand; heavily burrowed in shallow depth			
					TEST PIT TERMINATED AT 3½ FEET No groundwater encountered			

Figure A-14,
Log of Test Pit TP 3, Page 1 of 1

07817-22-01.GPJ

SAMPLE SYMBOLS			
	... SAMPLING UNSUCCESSFUL	... STANDARD PENETRATION TEST	... DRIVE SAMPLE (UNDISTURBED)
	... DISTURBED OR BAG SAMPLE	... CHUNK SAMPLE	... WATER TABLE OR SEEPAGE

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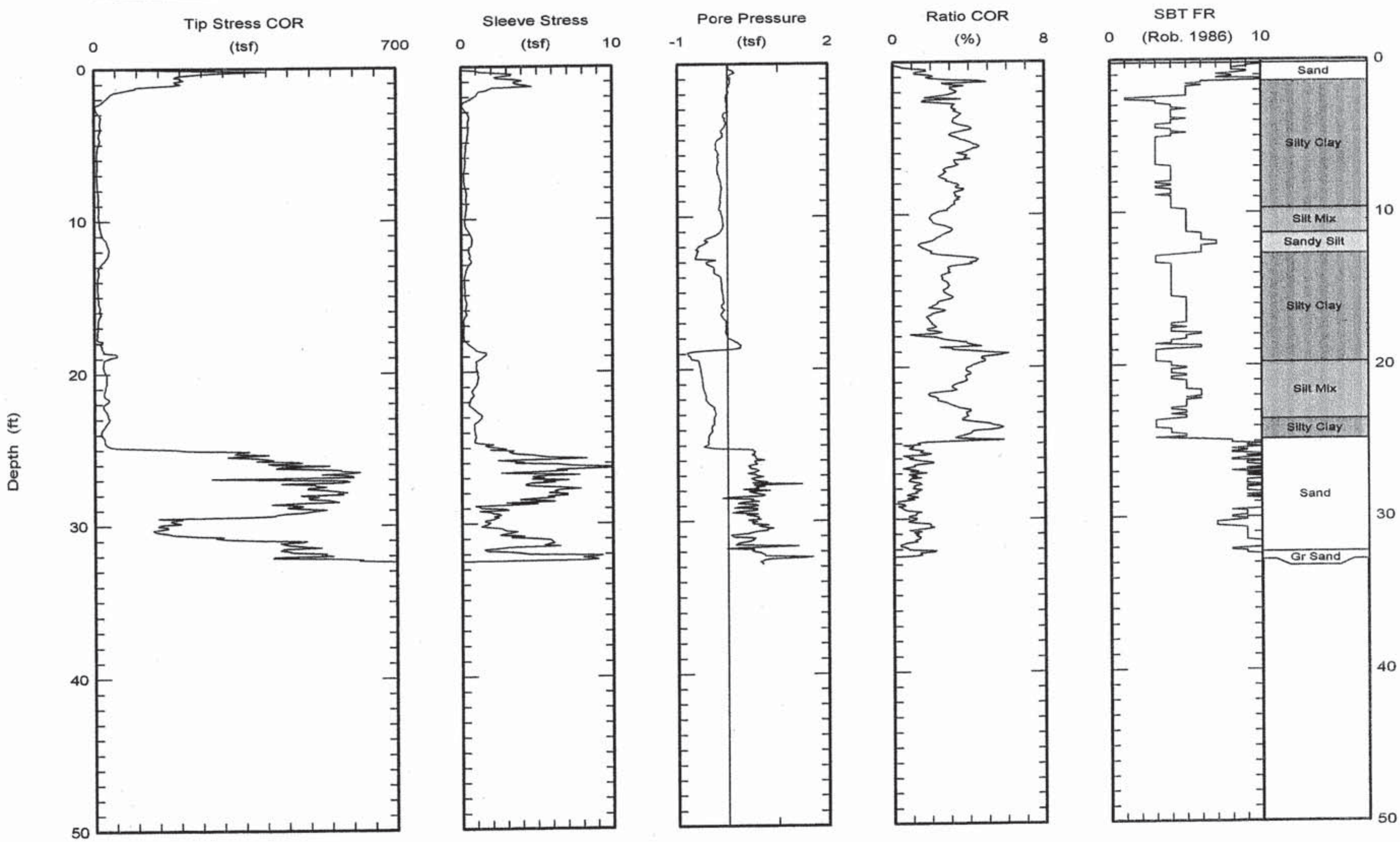
GEOCON

Kehoe Testing & Engineering Office: (714) 901-7270 Fax: (714) 901-7289 skehoe@msn.com	CPT Data 30 ton rig	Date: 12/Jul/2004 Test ID: CPT-1 Project: SanDiego
	Client: Geocon Cons. Job Site: Mission Valley Inn Redev	



Maximum depth: 32.83 (ft)

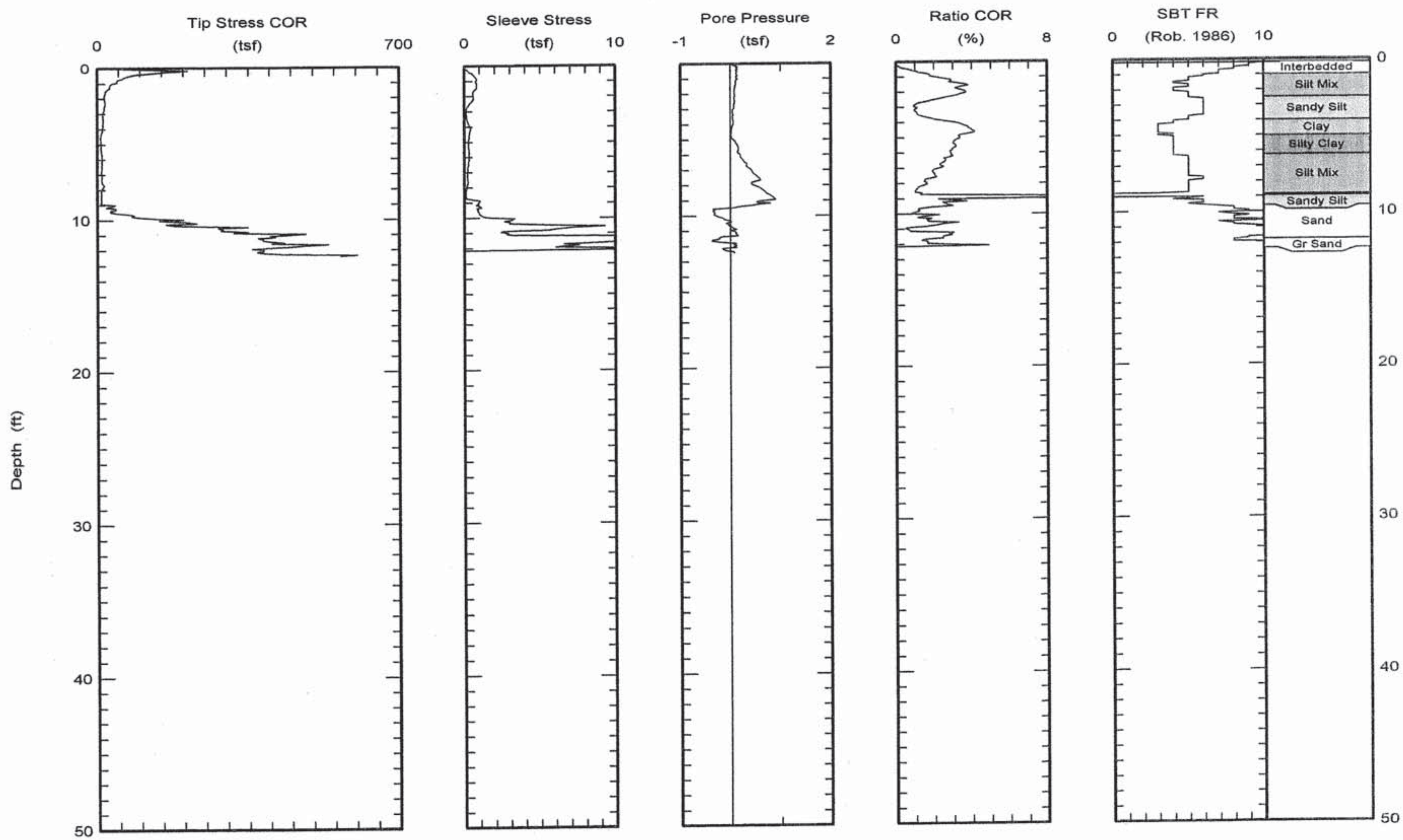
Test ID: CPT-1
File: C12L0401C.ECP

Kehoe Testing & Engineering
Office: (714) 901-7270
Fax: (714) 901-7289
skehoe@msn.com

CPT Data
30 ton rig

Date: 12/Jul/2004
Test ID: CPT-2
Project: SanDiego

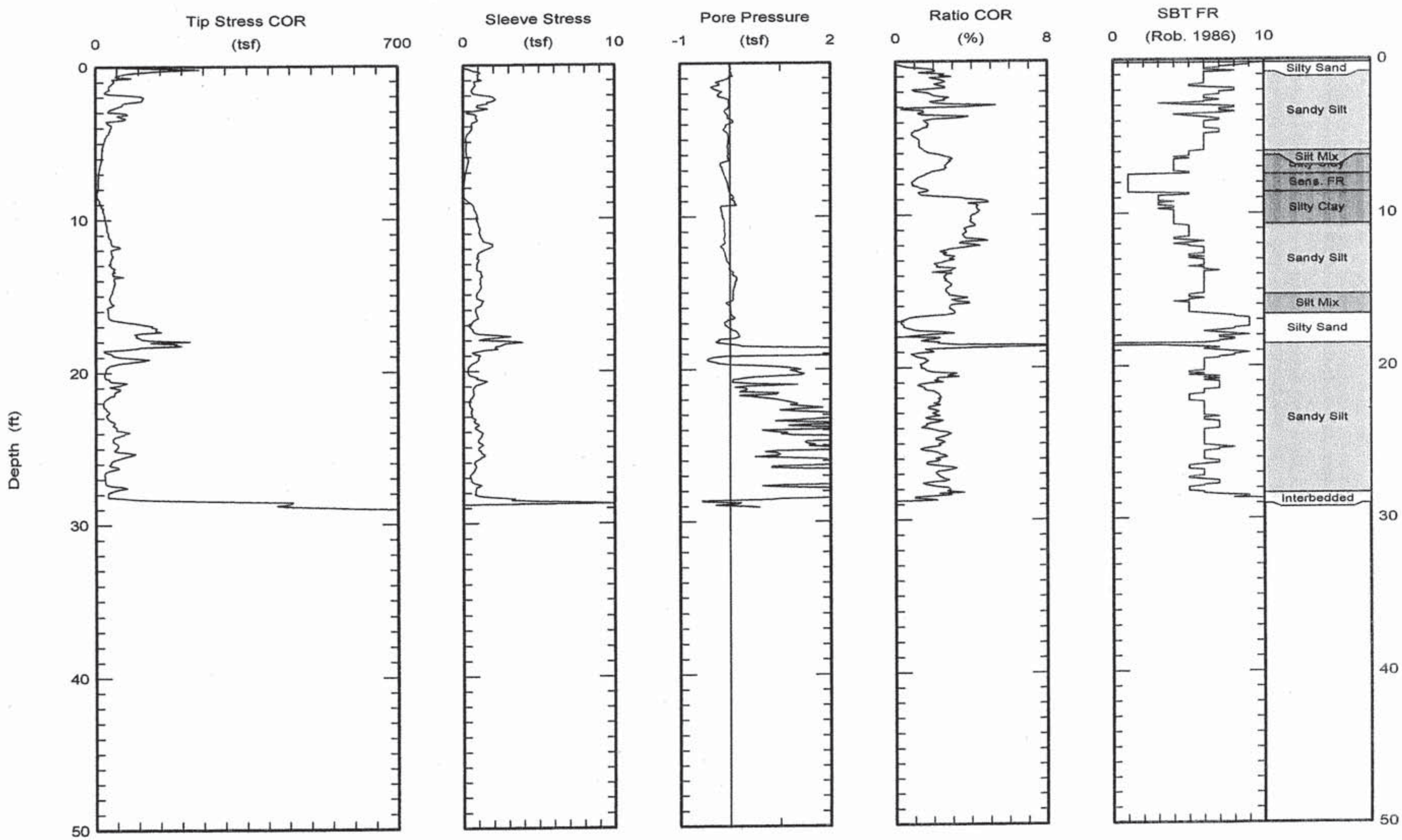
Client: Geocon Cons.
Job Site: Mission Valley Inn Redev



Maximum depth: 12.43 (ft)

Test ID: CPT-2
File: C12L0403C.ECP

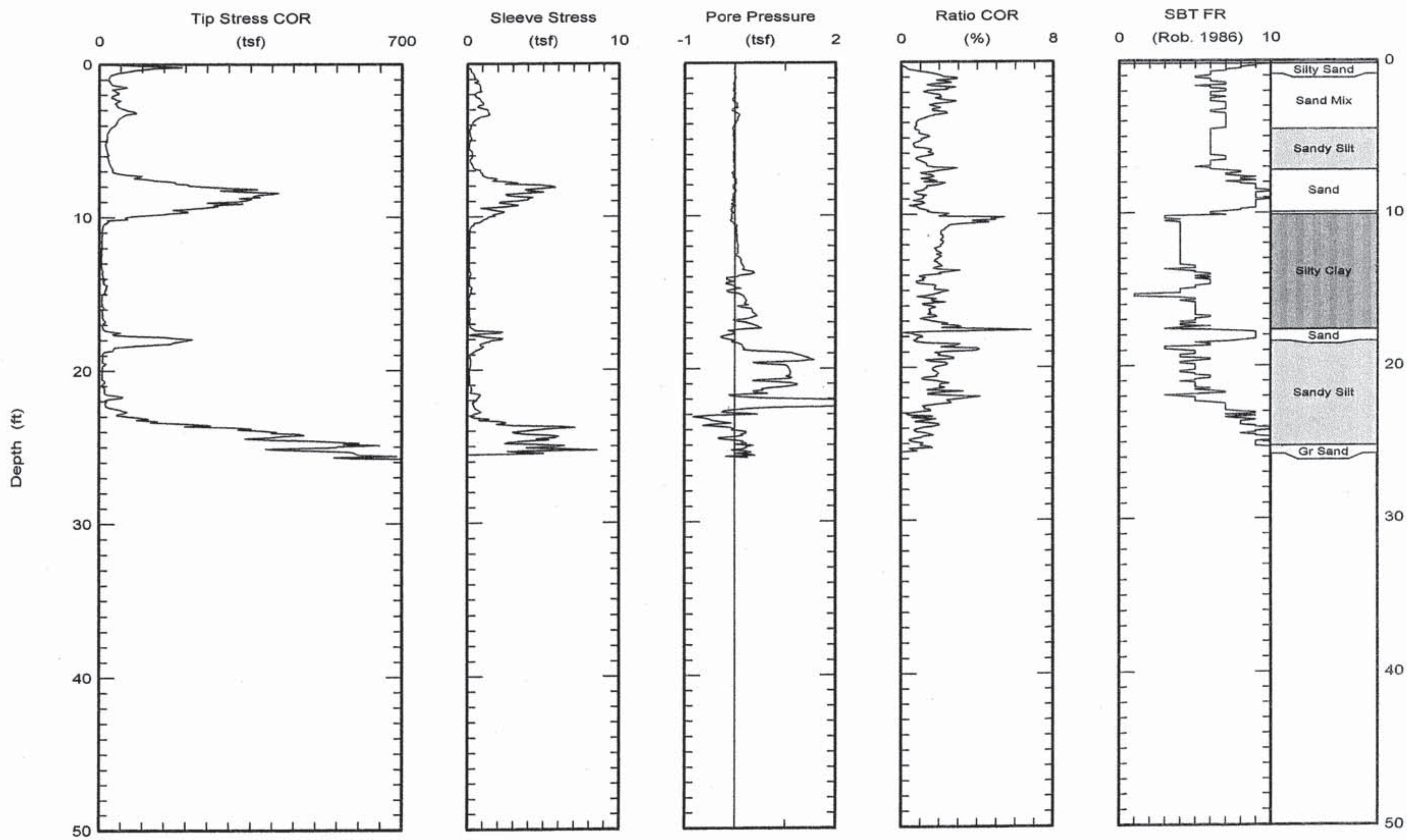
Kehoe Testing & Engineering Office: (714) 901-7270 Fax: (714) 901-7289 skehoe@msn.com	CPT Data 30 ton rig	Date: 12/Jul/2004 Test ID: CPT-3 Project: SanDiego
	Client: Geocon Cons. Job Site: Mission Valley Inn Redev	



Maximum depth: 29.06 (ft)

Test ID: CPT-3
File: C12L0402C.ECP

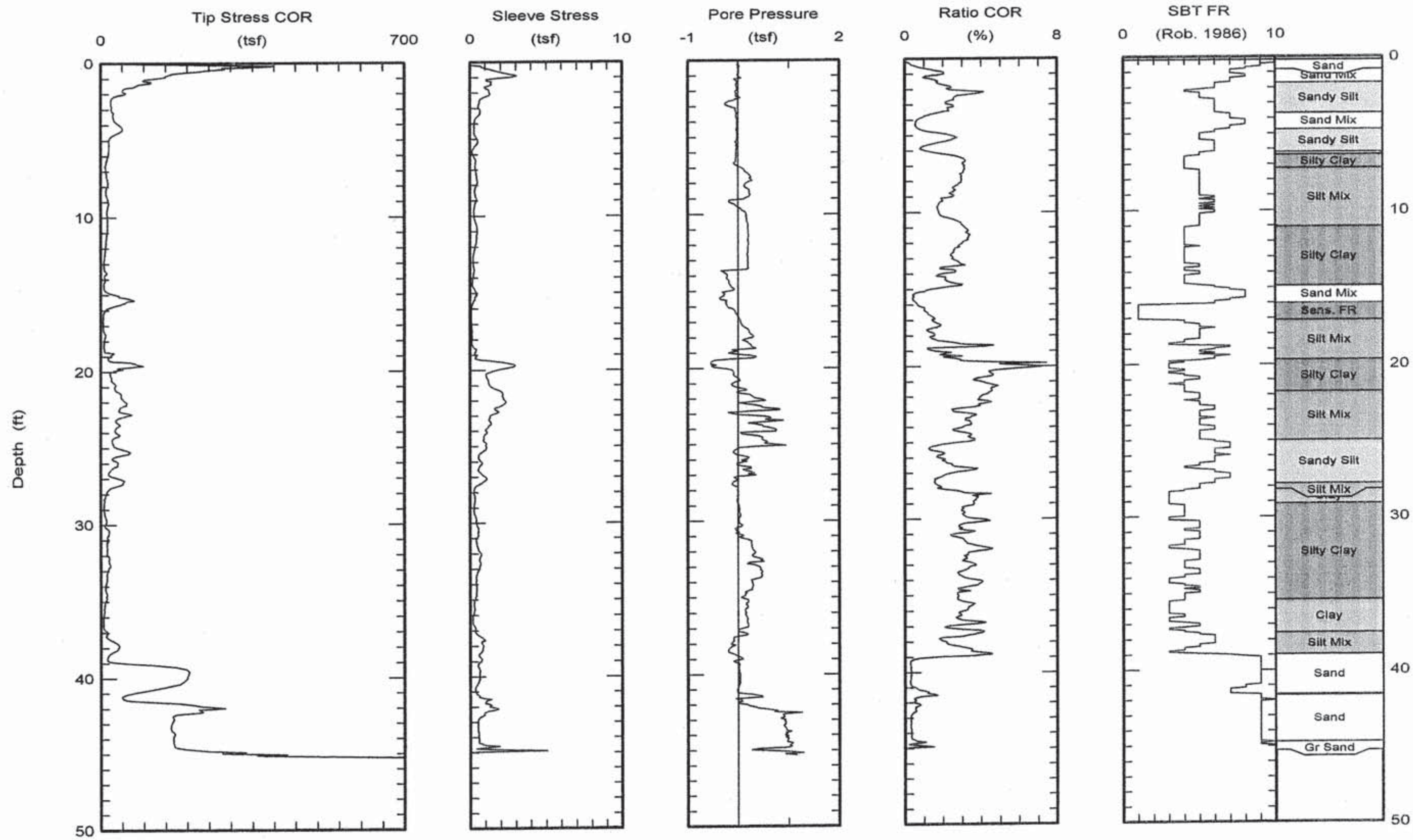
Kehoe Testing & Engineering Office: (714) 901-7270 Fax: (714) 901-7289 skehoe@msn.com	CPT Data 30 ton rig	Date: 12/Jul/2004 Test ID: CPT-4 Project: SanDiego
	Client: Geocon Cons. Job Site: Mission Valley Inn Redev	



Maximum depth: 25.83 (ft)

Test ID: CPT-4
File: C12L0404C.ECP

Kehoe Testing & Engineering Office: (714) 901-7270 Fax: (714) 901-7289 skehoe@msn.com	CPT Data 30 ton rig	Date: 12/Jul/2004 Test ID: CPT-5 Project: SanDiego
	Client: Geocon Cons. Job Site: Mission Valley Inn Redev	



Maximum depth: 45.31 (ft)

Test ID: CPT-5
File: C12L0405C.ECP

APPENDIX B

LABORATORY TESTING

We performed laboratory tests in general accordance with the test methods of the American Society for Testing and Materials (ASTM) or other suggested procedures. We tested selected ring samples for their in-place dry density, moisture content, shear strength, and consolidation characteristics. Samples were tested to evaluate compaction, gradation characteristics, Atterberg Limits, expansion, and soluble sulfate content, pH and resistivity, and resistance value (R-Value).

The results of our laboratory tests are presented in the following tables and graphs. The in-place dry density and moisture content results are presented on the exploratory boring logs in Appendix A.

TABLE B-I
SUMMARY OF LABORATORY MAXIMUM DRY DENSITY AND OPTIMUM MOISTURE CONTENT TEST RESULTS
(ASTM D 1557)

Sample No.	Description	Maximum Dry Density (pcf)	Optimum Moisture Content (% dry weight)
B1-1	Dark brown, Clayey SAND, trace gravel	129.2	9.8
B3-7	Yellowish brown, Silty/Clayey SAND, trace gravel	132.6	8.6
B4-4	Dark brown, CLAY/Clayey SAND, trace gravel	130.0	9.1
TP1-3/2-1/3-1*	Dark brown, Silty CLAY with gravel, trace sand	122.4	11.3

*Combined sample

TABLE B-II
SUMMARY OF LABORATORY EXPANSION INDEX TEST RESULTS
(ASTM D 4829)

Sample No.	Moisture Content (%)		Dry Density (pcf)	Expansion Index	Expansion Classification	2010 CBC Classification
	Before Test	After Test				
B1-1	8.8	18.3	111.2	24	Low	Expansive
B3-2	7.6	15.0	119.6	0	Very Low	Non-expansive
B3-4	7.8	15.1	118.2	0	Very Low	Non-expansive

TABLE B-III
SUMMARY OF LABORATORY DIRECT SHEAR TEST RESULTS
(ASTM D 3080)

Sample No.	Dry Density (pcf)	Moisture Content (%)	Unit Cohesion (psf)	Angle of Shear Resistance (degrees)
B3-8	99.1	18.2	100	39
B9-1	111.2	18.1	150	39
TP1-3/2-1/3-1*	109.5	11.7	180	27

*Combined sample compacted to 90 percent of maximum dry density.

TABLE B-IV
SUMMARY OF LABORATORY WATER-SOLUBLE SULFATE TEST RESULTS
(CALIFORNIA TEST NO. 417)

Sample No.	Water Soluble Sulfate Content (%)	Sulfate Rating*
B2-1	0.040	Not Applicable (S0)
B7-1	0.019	Not Applicable (S0)
B8-2	0.026	Not Applicable (S0)
B10-2	0.040	Not Applicable (S0)

*Reference: California Building Code Table 19-A-4.

TABLE B-V
SUMMARY OF LABORATORY POTENTIAL OF HYDROGEN (PH) AND RESISTIVITY TEST RESULTS
(CALIFORNIA TEST NO. 643)

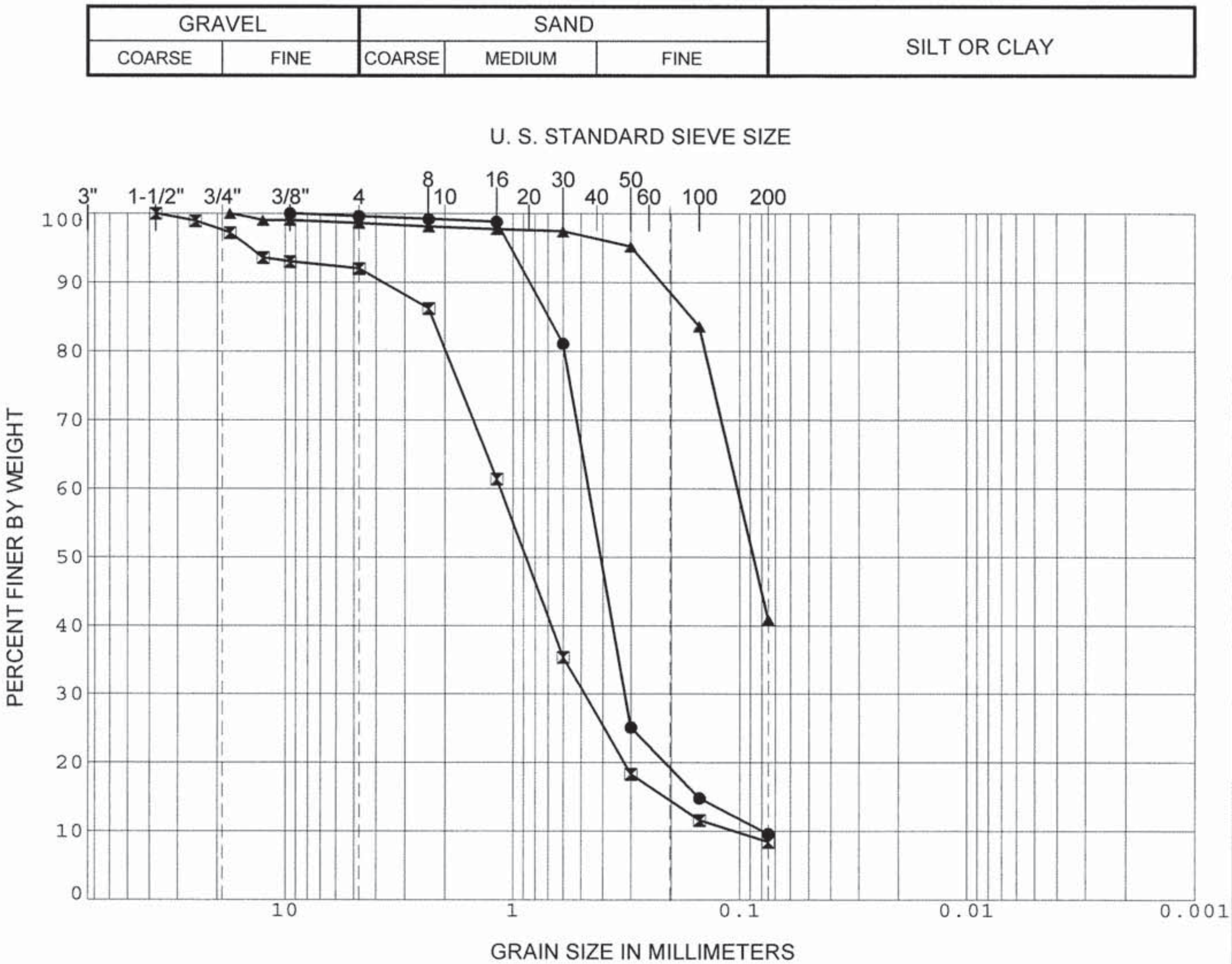
Sample No.	pH	Minimum Resistivity (ohm-centimeters)
B2-1	6.6	470
B7-1	7.1	870

TABLE B-VI
SUMMARY OF LABORATORY ATTERBERG LIMITS TEST RESULTS
(ASTM D 4318)

Sample No.	Liquid Limit (%)	Plastic Limit (%)	Plasticity Index
B7-2	26	14	12
B8-3	29	13	16

TABLE B-VII
SUMMARY OF LABORATORY RESISTANCE VALUE (R-VALUE) TEST RESULTS
(ASTM D 2844)

Sample No.	R-Value
B1-1	<5
B3-2	13
B3-4	70
B4-1	20



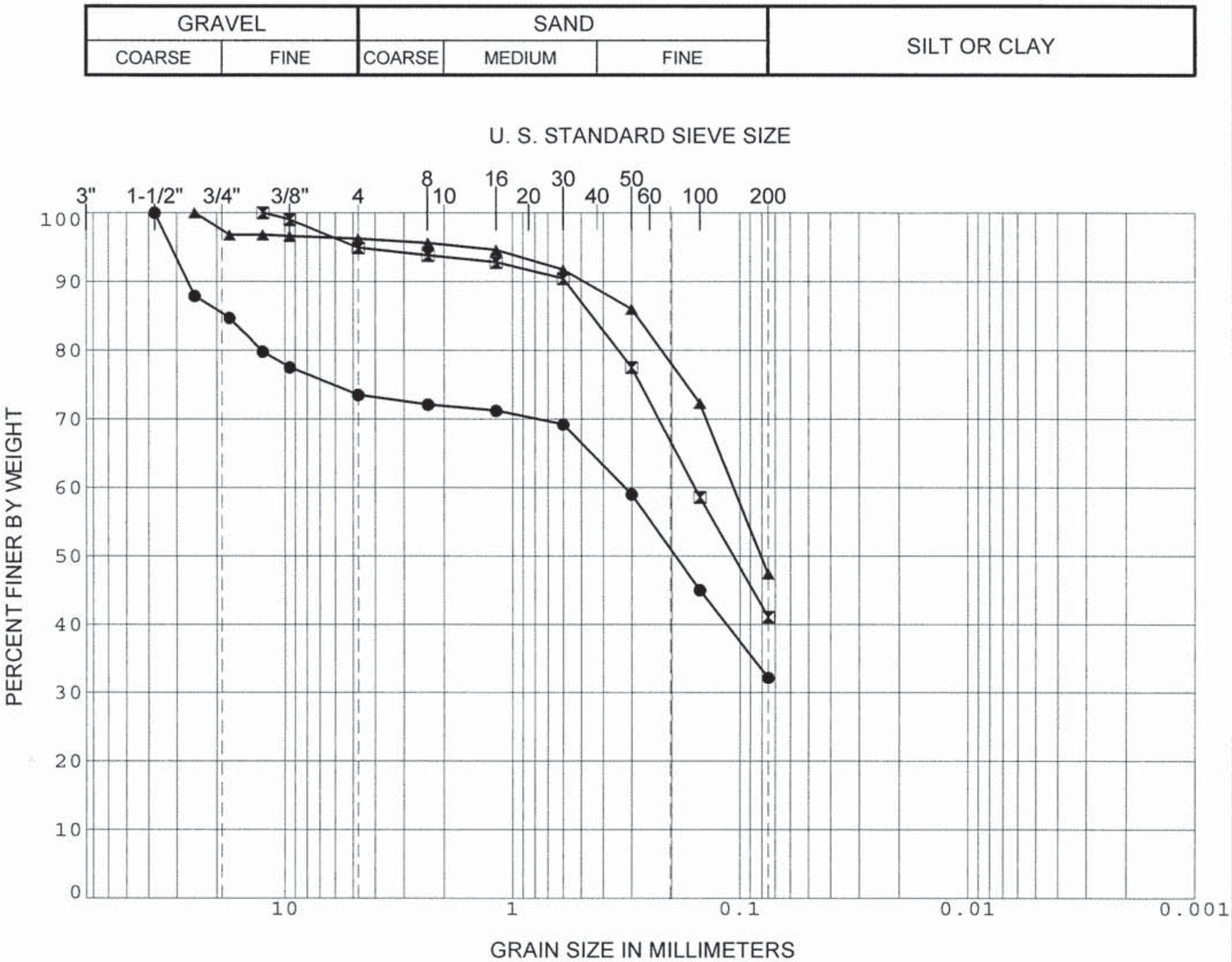
	SAMPLE	DEPTH (ft)	CLASSIFICATION	NAT WC	LL	PL	PI
●	B1-3	10.0	SM/SP				
⧗	B3-4	14.0	SW				
▲	B6-3	20.0	SM				

GRADATION CURVE

MISSION VALLEY MULTI-USE

SAN DIEGO, CALIFORNIA

PROJECT NO. 07817-22-01 (OLD 07345-52-01)



	SAMPLE	DEPTH (ft)	CLASSIFICATION	NAT WC	LL	PL	PI
●	B8-1	5.0	SM				
⧗	B8-2	16.0	SM				
▲	B9-2	30.0	SM				

GRADATION CURVE

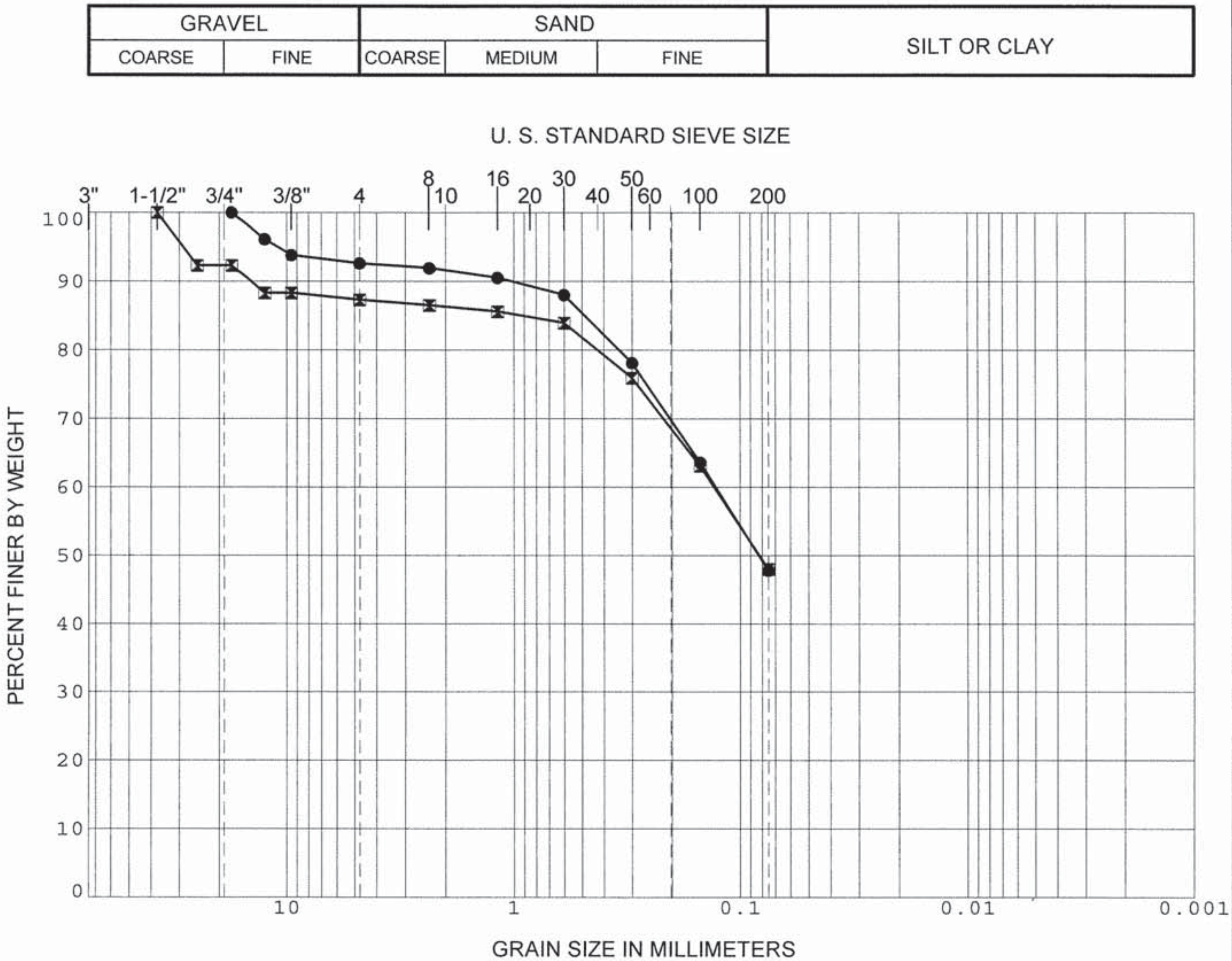
MISSION VALLEY MULTI-USE

SAN DIEGO, CALIFORNIA

07817-22-01 (OLD 07345-52-01).GPJ

Figure B-2

GEOCON



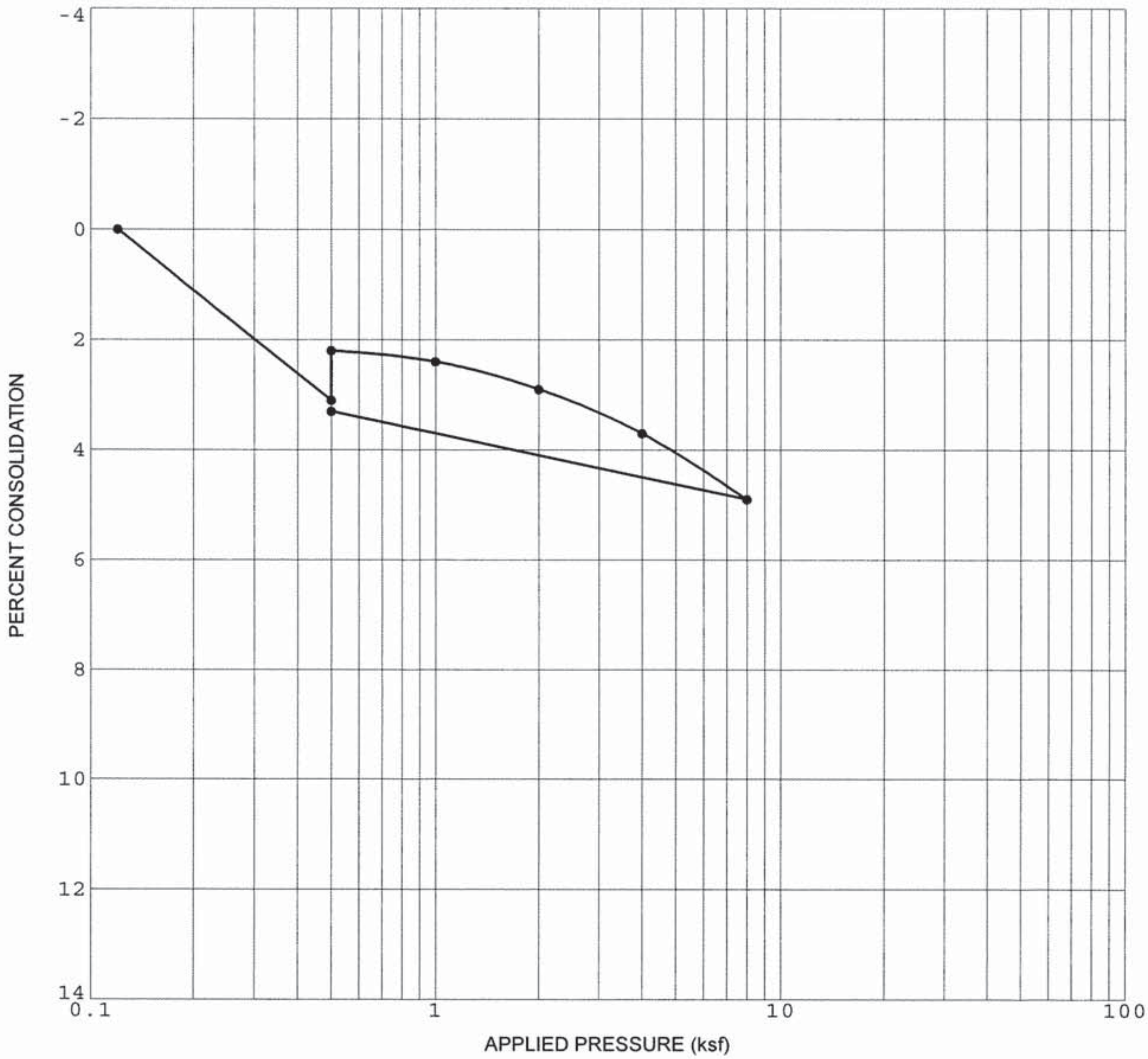
	SAMPLE	DEPTH (ft)	CLASSIFICATION	NAT WC	LL	PL	PI
●	B10-2	10.0	SC				
⧗	B10-4	20.0	SC				

GRADATION CURVE

MISSION VALLEY MULTI-USE

SAN DIEGO, CALIFORNIA

SAMPLE NO. B2-1



Initial Dry Density (pcf)	114.1
Initial Water Content (%)	14.9

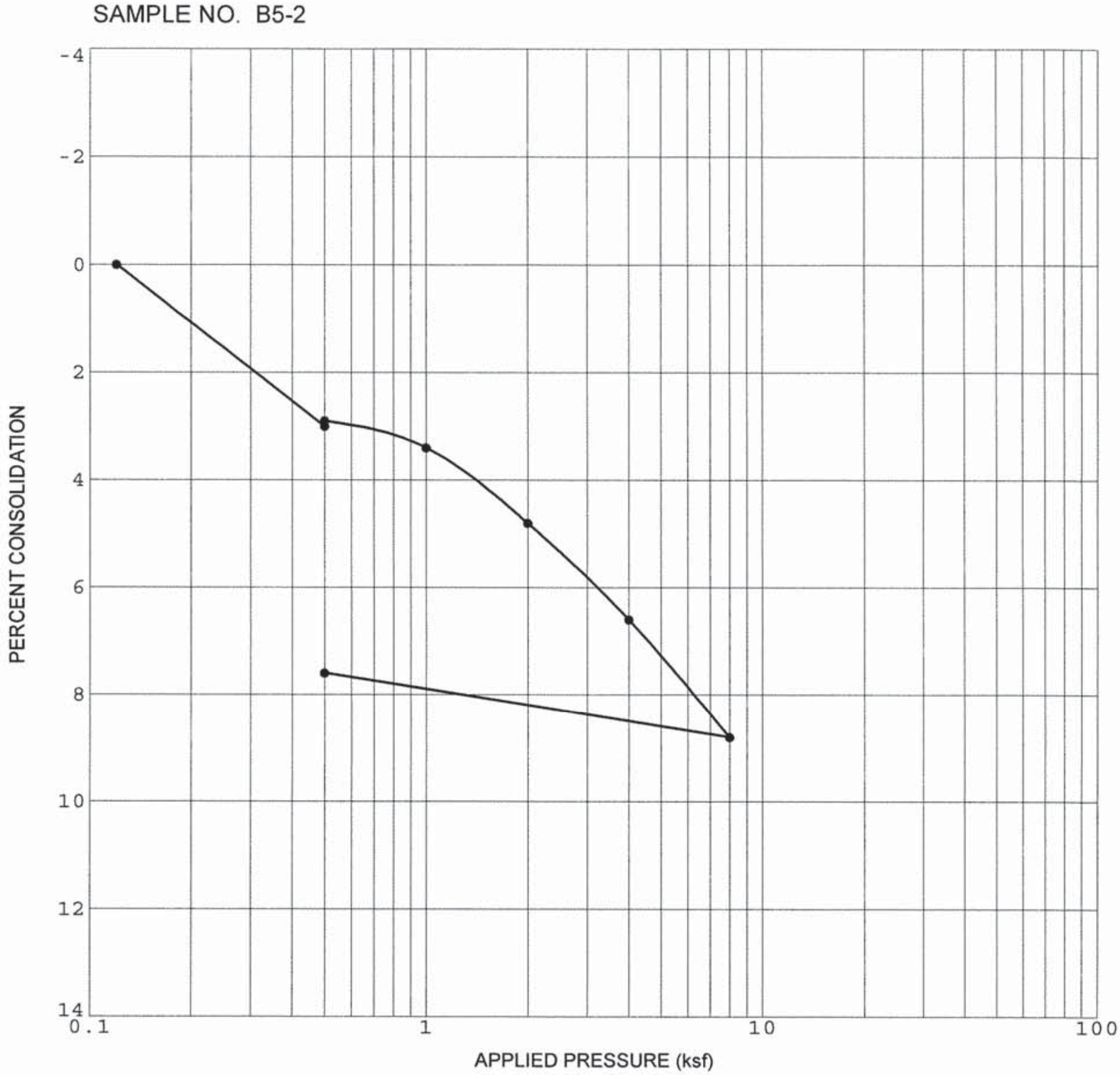
Initial Saturation (%)	87.2
Sample Saturated at (ksf)	.5

CONSOLIDATION CURVE

MISSION VALLEY MULTI-USE

SAN DIEGO, CALIFORNIA

PROJECT NO. 07817-22-01 (OLD 07345-52-01)



Initial Dry Density (pcf)	98.1
Initial Water Content (%)	27.2

Initial Saturation (%)	100+
Sample Saturated at (ksf)	.5

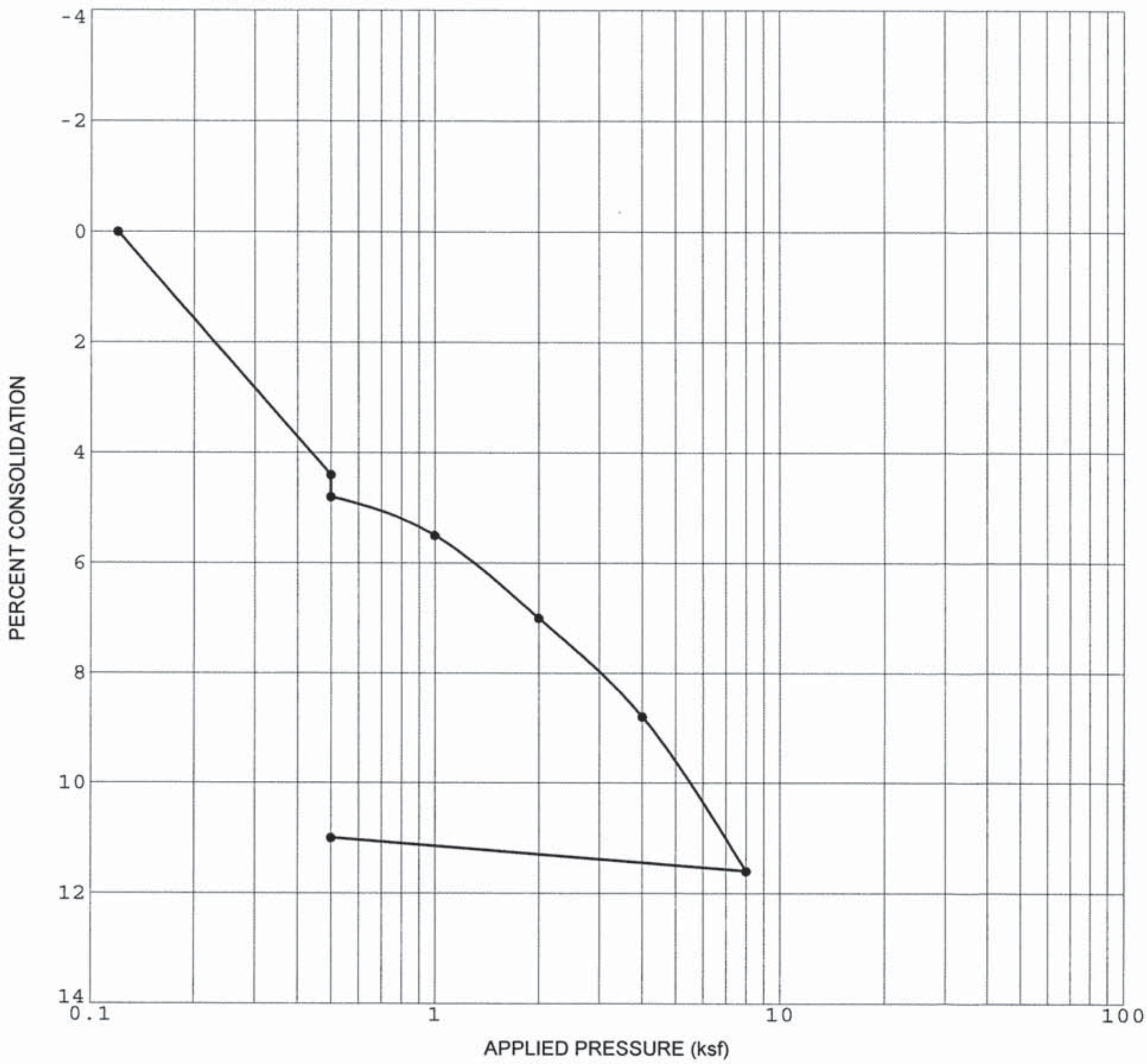
CONSOLIDATION CURVE

MISSION VALLEY MULTI-USE

SAN DIEGO, CALIFORNIA

PROJECT NO. 07817-22-01 (OLD 07345-52-01)

SAMPLE NO. B5-3



Initial Dry Density (pcf)	107.2		**Initial Saturation (%)**	98.4
Initial Water Content (%)	20.3		**Sample Saturated at (ksf)**	.5

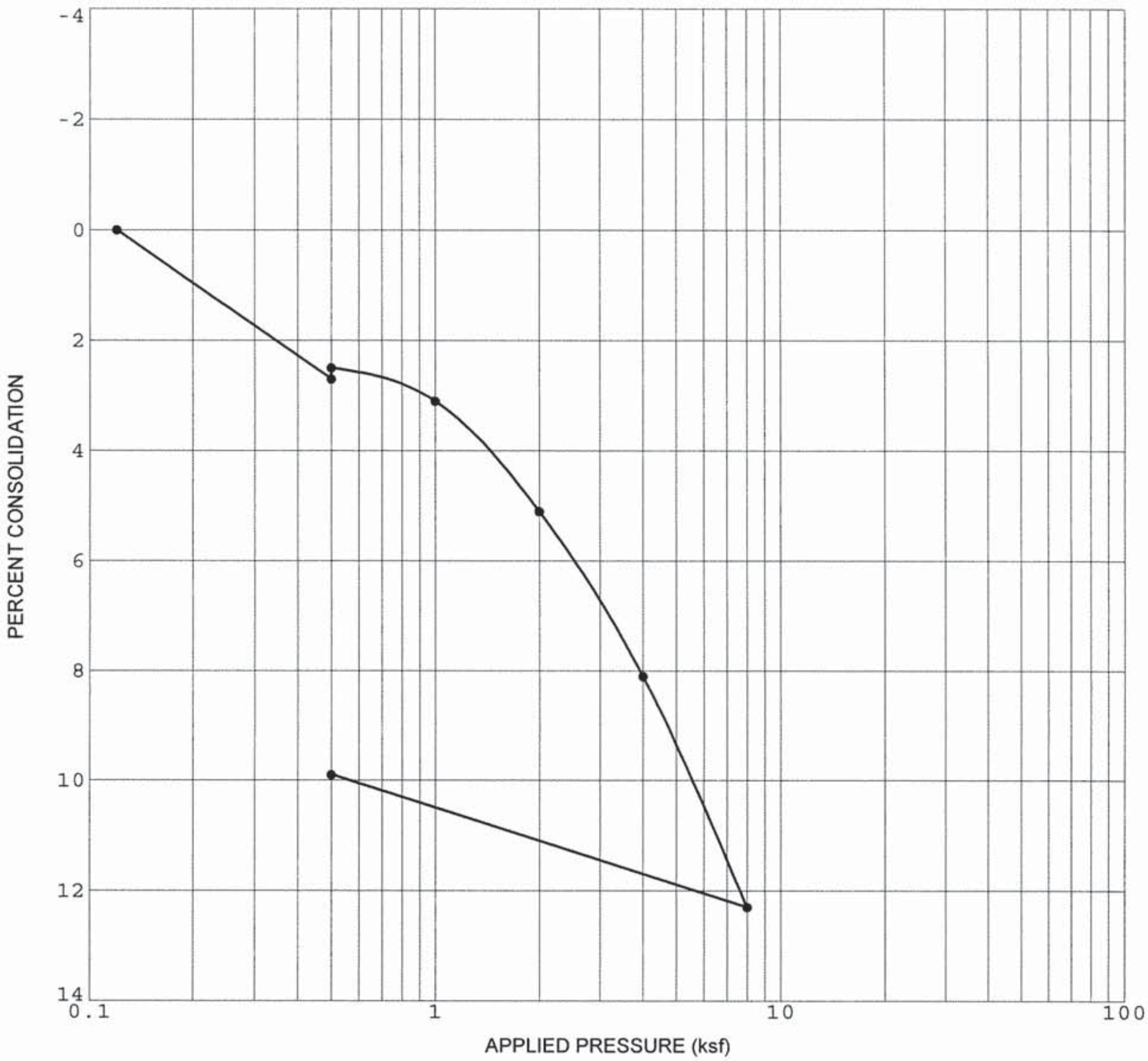
CONSOLIDATION CURVE

MISSION VALLEY MULTI-USE

SAN DIEGO, CALIFORNIA

PROJECT NO. 07817-22-01 (OLD 07345-52-01)

SAMPLE NO. B6-2



Initial Dry Density (pcf)	87.8		**Initial Saturation (%)**	100+
Initial Water Content (%)	34.6		**Sample Saturated at (ksf)**	.5

CONSOLIDATION CURVE

MISSION VALLEY MULTI-USE

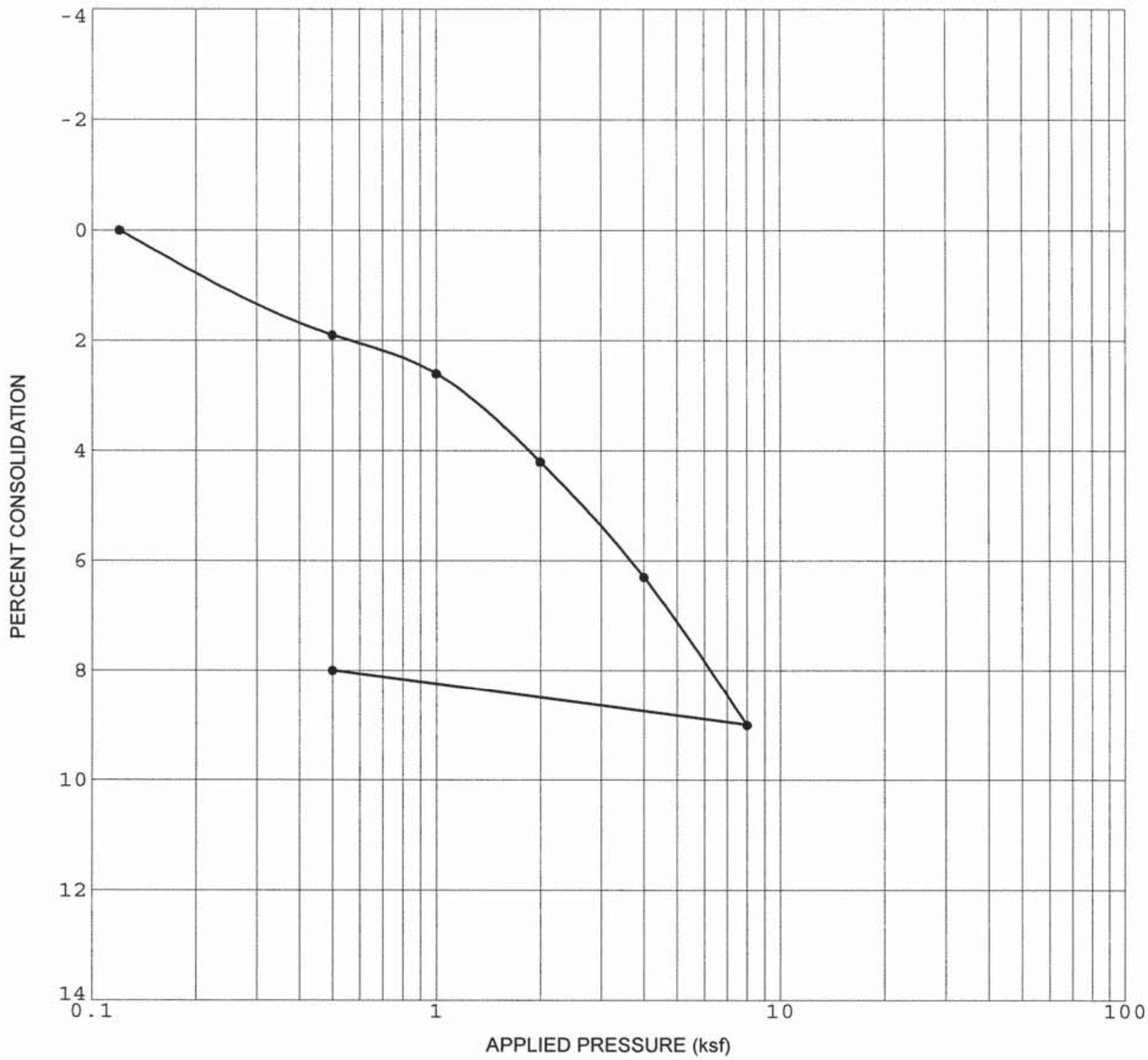
SAN DIEGO, CALIFORNIA

07817-22-01 (OLD 07345-52-01).GPJ

Figure B-7

GEOCON

SAMPLE NO. B10-1



Initial Dry Density (pcf)	107.4
Initial Water Content (%)	18.0

Initial Saturation (%)	87.7
Sample Saturated at (ksf)	.5

CONSOLIDATION CURVE

MISSION VALLEY MULTI-USE

SAN DIEGO, CALIFORNIA

APPENDIX C
BOREHOLE LOGS

APPENDIX C
BOREHOLE LOGS

The geotechnical borehole explorations for the project consisted of the drilling and logging four hand auger borings; twelve hollow-stem auger (HSA) borings; and four large diameter borings. Our field engineer used a hand auger tool to advance borings to depths up to 2 feet below ground surface. The HSA borings were advanced by Pacific Drilling of San Diego, California using a Unimog drill rig which was equipped with 7-inch diameter hollow stem augers. The HSA borings were advanced to depths up to approximately 46 feet below ground surface. The large diameter borings were advance by Western and Pacific Drilling of San Diego, California using Earth Drill Bucket Rig equipped with 24 inches rotary bucket auger or Watson 2500 drill rig equipped with 24 inches auger. Drilling occurred from February 16, 2016 through March 2, 2016. Figures 2 and 3 present the approximate locations of the boreholes.

A Unified Soil Classification System (USCS) chart, graphics key and borehole log legends are presented in Appendix C as Figure C-1 and C-2. The borehole logs are presented as Figures C-3 through C-22.

The borehole logs describe the earth materials encountered, samples obtained, and show field and laboratory tests performed. The logs also show the general location, borehole number, drilling date, and the names of the logger and drilling subcontractor. The boreholes were logged by our field engineer from Kleinfelder. The boundaries between soil types shown on the logs are approximate because the transition between different soil layers may be gradual. Bulk and intact samples of representative earth materials were obtained from the boreholes. The boreholes were backfilled after the total depth was attained.

In-place soil samples were obtained at the test boring locations using a Standard Penetration (SPT) or California-type Sampler driven a total of 18-inches (or until practical refusal) into the undisturbed soil at the bottom of the boring. The soil sampled by the SPT (2-inch O.D., 1.5 inches I.D.) or California-type sampler (3-inch O.D., 2.4 inches I.D.) was returned to our laboratory for testing. The samplers and associated rods (threaded) were driven using a 140-pound automatic hammer falling 30 inches. The total number of hammer blows required to drive the SPT sampler the final 12 inches is termed the blow count (or N-value) and is recorded on the Logs of Borings along with the blow count for each 6-inch interval. The blow count values on the boring logs are presented as field values and have not been corrected for the effects such as overburden pressure, sampler size, hammer efficiency, etc. This is the typical way to present information on the borehole logs and the mentioned corrections are performed for analysis purposes.

SAMPLE/SAMPLER TYPE GRAPHICS

- BAG SAMPLE
- BULK SAMPLE
- CALIFORNIA SAMPLER (3 in. (76.2 mm.) outer diameter)
- SHELBY TUBE SAMPLER
- STANDARD PENETRATION SPLIT SPOON SAMPLER (2 in. (50.8 mm.) outer diameter and 1-3/8 in. (34.9 mm.) inner diameter)

GROUND WATER GRAPHICS

- WATER LEVEL (level where first observed)
- WATER LEVEL (level after exploration completion)
- WATER LEVEL (additional levels after exploration)
- OBSERVED SEEPAGE

NOTES

- The report and graphics key are an integral part of these logs. All data and interpretations in this log are subject to the explanations and limitations stated in the report.
- Lines separating strata on the logs represent approximate boundaries only. Actual transitions may be gradual or differ from those shown.
- No warranty is provided as to the continuity of soil or rock conditions between individual sample locations.
- Logs represent general soil or rock conditions observed at the point of exploration on the date indicated.
- In general, Unified Soil Classification System designations presented on the logs were based on visual classification in the field and were modified where appropriate based on gradation and index property testing.
- Fine grained soils that plot within the hatched area on the Plasticity Chart, and coarse grained soils with between 5% and 12% passing the No. 200 sieve require dual USCS symbols, ie., GW-GM, GP-GM, GW-GC, GP-GC, GC-GM, SW-SM, SP-SM, SW-SC, SP-SC, SC-SM.
- If sampler is not able to be driven at least 6 inches then 50/X indicates number of blows required to drive the identified sampler X inches with a 140 pound hammer falling 30 inches.

UNIFIED SOIL CLASSIFICATION SYSTEM (ASTM D 2487)

COARSE GRAINED SOILS (More than half of material is larger than the #200 sieve)	GRAVELS (More than half of coarse fraction is larger than the #4 sieve)	CLEAN GRAVEL WITH <5% FINES	Cu≥4 and 1≤Cc≤3	**GW**	WELL-GRADED GRAVELS, GRAVEL-SAND MIXTURES WITH LITTLE OR NO FINES
			Cu<4 and/ or 1>Cc>3	**GP**	POORLY GRADED GRAVELS, GRAVEL-SAND MIXTURES WITH LITTLE OR NO FINES
		GRAVELS WITH 5% TO 12% FINES	Cu≥4 and 1≤Cc≤3	**GW-GM**	WELL-GRADED GRAVELS, GRAVEL-SAND MIXTURES WITH LITTLE FINES
				GW-GC	WELL-GRADED GRAVELS, GRAVEL-SAND MIXTURES WITH LITTLE CLAY FINES
			Cu<4 and/ or 1>Cc>3	**GP-GM**	POORLY GRADED GRAVELS, GRAVEL-SAND MIXTURES WITH LITTLE FINES
				GP-GC	POORLY GRADED GRAVELS, GRAVEL-SAND MIXTURES WITH LITTLE CLAY FINES
		GRAVELS WITH > 12% FINES		**GM**	SILTY GRAVELS, GRAVEL-SILT-SAND MIXTURES
				GC	CLAYEY GRAVELS, GRAVEL-SAND-CLAY MIXTURES
				GC-GM	CLAYEY GRAVELS, GRAVEL-SAND-CLAY-SILT MIXTURES
	SANDS (More than half of coarse fraction is smaller than the #4 sieve)	CLEAN SANDS WITH <5% FINES	Cu≥6 and 1≤Cc≤3	**SW**	WELL-GRADED SANDS, SAND-GRAVEL MIXTURES WITH LITTLE OR NO FINES
			Cu<6 and/ or 1>Cc>3	**SP**	POORLY GRADED SANDS, SAND-GRAVEL MIXTURES WITH LITTLE OR NO FINES
		SANDS WITH 5% TO 12% FINES	Cu≥6 and 1≤Cc≤3	**SW-SM**	WELL-GRADED SANDS, SAND-GRAVEL MIXTURES WITH LITTLE FINES
				SW-SC	WELL-GRADED SANDS, SAND-GRAVEL MIXTURES WITH LITTLE CLAY FINES
			Cu<6 and/ or 1>Cc>3	**SP-SM**	POORLY GRADED SANDS, SAND-GRAVEL MIXTURES WITH LITTLE FINES
				SP-SC	POORLY GRADED SANDS, SAND-GRAVEL MIXTURES WITH LITTLE CLAY FINES
		SANDS WITH > 12% FINES		**SM**	SILTY SANDS, SAND-GRAVEL-SILT MIXTURES
				SC	CLAYEY SANDS, SAND-GRAVEL-CLAY MIXTURES
				SC-SM	CLAYEY SANDS, SAND-SILT-CLAY MIXTURES

FINE GRAINED SOILS (More than half of material is smaller than the #200 sieve)	SILTS AND CLAYS (Liquid Limit less than 50)	**ML**	INORGANIC SILTS AND VERY FINE SANDS, SILTY OR CLAYEY FINE SANDS, SILTS WITH SLIGHT PLASTICITY
		CL	INORGANIC CLAYS OF LOW TO MEDIUM PLASTICITY, GRAVELLY CLAYS, SANDY CLAYS, SILTY CLAYS, LEAN CLAYS
		CL-ML	INORGANIC CLAYS-SILTS OF LOW PLASTICITY, GRAVELLY CLAYS, SANDY CLAYS, SILTY CLAYS, LEAN CLAYS
		OL	ORGANIC SILTS & ORGANIC SILTY CLAYS OF LOW PLASTICITY
	SILTS AND CLAYS (Liquid Limit greater than 50)	**MH**	INORGANIC SILTS, MICACEOUS OR DIATOMACEOUS FINE SAND OR SILT
		CH	INORGANIC CLAYS OF HIGH PLASTICITY, FAT CLAYS
		OH	ORGANIC CLAYS & ORGANIC SILTS OF MEDIUM-TO-HIGH PLASTICITY

KLEINFELDER
Bright People. Right Solutions.

PROJECT NO.:	20163965
DRAWN BY:	MAP
CHECKED BY:	SHR & MA
DATE:	3/25/2016
REVISED:	-

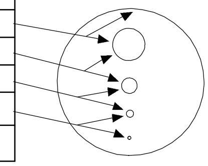
GRAPHICS KEY

Legacy International Center
San Diego, California

FIGURE
C-1

GRAIN SIZE

DESCRIPTION		SIEVE SIZE	GRAIN SIZE	APPROXIMATE SIZE
Boulders		>12 in. (304.8 mm.)	>12 in. (304.8 mm.)	Larger than basketball-sized
Cobbles		3 - 12 in. (76.2 - 304.8 mm.)	3 - 12 in. (76.2 - 304.8 mm.)	Fist-sized to basketball-sized
Gravel	coarse	3/4 -3 in. (19 - 76.2 mm.)	3/4 -3 in. (19 - 76.2 mm.)	Thumb-sized to fist-sized
	fine	#4 - 3/4 in. (#4 - 19 mm.)	0.19 - 0.75 in. (4.8 - 19 mm.)	Pea-sized to thumb-sized
Sand	coarse	#10 - #4	0.079 - 0.19 in. (2 - 4.9 mm.)	Rock salt-sized to pea-sized
	medium	#40 - #10	0.017 - 0.079 in. (0.43 - 2 mm.)	Sugar-sized to rock salt-sized
	fine	#200 - #40	0.0029 - 0.017 in. (0.07 - 0.43 mm.)	Flour-sized to sugar-sized
Fines		Passing #200	<0.0029 in. (<0.07 mm.)	Flour-sized and smaller

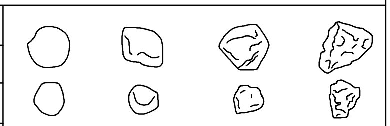


Munsell Color

NAME	ABBR
Red	R
Yellow Red	YR
Yellow	Y
Green Yellow	GY
Green	G
Blue Green	BG
Blue	B
Purple Blue	PB
Purple	P
Red Purple	RP
Black	N

ANGULARITY

DESCRIPTION	CRITERIA
Angular	Particles have sharp edges and relatively plane sides with unpolished surfaces
Subangular	Particles are similar to angular description but have rounded edges
Subrounded	Particles have nearly plane sides but have well-rounded corners and edges
Rounded	Particles have smoothly curved sides and no edges



Rounded Subrounded Subangular Angular

Particles Present

Amount	Percentage
trace	<5
few	5-10
little	15-25
some	30-45
and	50
mostly	50-100

PLASTICITY

DESCRIPTION	LL	FIELD TEST
Non-plastic	NP	A 1/8-in. (3 mm.) thread cannot be rolled at any water content.
Low (L)	< 30	The thread can barely be rolled and the lump or thread cannot be formed when drier than the plastic limit.
Medium (M)	30 - 50	The thread is easy to roll and not much time is required to reach the plastic limit. The thread cannot be rerolled after reaching the plastic limit. The lump or thread crumbles when drier than the plastic limit
High (H)	> 50	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 or thread can be formed without crumbling when drier than the plastic limit

MOISTURE CONTENT

DESCRIPTION	FIELD TEST
Dry	Absence of moisture, dusty, dry to the touch
Moist	Damp but no visible water
Wet	Visible free water, usually soil is below water table

REACTION WITH HYDROCHLORIC ACID

DESCRIPTION	FIELD TEST
None	No visible reaction
Weak	Some reaction, with bubbles forming slowly
Strong	Violent reaction, with bubbles forming immediately

APPARENT / RELATIVE DENSITY - COARSE-GRAINED SOIL

APPARENT DENSITY	SPT-N_{60} (# blows/ft)	MODIFIED CA SAMPLER (# blows/ft)	CALIFORNIA SAMPLER (# blows/ft)	RELATIVE DENSITY (%)
Very Loose	<4	<4	<5	0 - 15
Loose	4 - 10	5 - 12	5 - 15	15 - 35
Medium Dense	10 - 30	12 - 35	15 - 40	35 - 65
Dense	30 - 50	35 - 60	40 - 70	65 - 85
Very Dense	>50	>60	>70	85 - 100

NOTE: AFTER TERZAGHI AND PECK, 1948

CONSISTENCY - FINE-GRAINED SOIL

CONSISTENCY	UNCONFINED COMPRESSIVE STRENGTH (q_u)(psf)	CRITERIA
Very Soft	< 1000	Thumb will penetrate soil more than 1 in. (25 mm.)
Soft	1000 - 2000	Thumb will penetrate soil about 1 in. (25 mm.)
Firm	2000 - 4000	Thumb will indent soil about 1/4-in. (6 mm.)
Hard	4000 - 8000	Thumb will not indent soil but readily indented with thumbnail
Very Hard	> 8000	Thumbnail will not indent soil

STRUCTURE

DESCRIPTION	CRITERIA
Stratified	Alternating layers of varying material or color with layers at least 1/4-in. thick, note thickness
Laminated	Alternating layers of varying material or color with the layer less than 1/4-in. thick, note thickness
Fissured	Breaks along definite planes of fracture with little resistance to fracturing
Slickensided	Fracture planes appear polished or glossy, sometimes striated
Blocky	Cohesive soil that can be broken down into small angular lumps which resist further breakdown
Lensed	Inclusion of small pockets of different soils, such as small lenses of sand scattered through a mass of clay; note thickness
Homogeneous	Same color and appearance throughout

CEMENTATION

DESCRIPTION	FIELD TEST
Weakly	Crumbles or breaks with handling or slight finger pressure
Moderately	Crumbles or breaks with considerable finger pressure
Strongly	Will not crumble or break with finger pressure

KLEINFELDER
Bright People. Right Solutions.

PROJECT NO.: 20163965	SOIL DESCRIPTION KEY	FIGURE
DRAWN BY: MAP		
CHECKED BY: SHR & MA	Legacy International Center San Diego, California	C-2
DATE: 3/25/2016		
REVISED: -		

Date Begin - End:	2/25/2016	**Drilling Company:**	Pacific Drilling		**BORING LOG B-1**
Logged By:	S. Tena	**Drill Crew:**	Gordy & Raymond		
Hor.-Vert. Datum:	MSL	**Drilling Equipment:**	UNIMOG MARL 5	**Hammer Type - Drop:**	140 lb. Auto - 30 in.
Plunge:	-90 degrees	**Drilling Method:**	Hollow Stem Auger		
Weather:	Sunny	**Exploration Diameter:**	7 in. O.D.		

FIELD EXPLORATION: Approximate Ground Surface Elevation (ft.): 25; Surface Condition: Asphalt

Approximate Elevation (feet)	Depth (feet)	Graphical Log	Lithologic Description	Sample Number	Sample Type	Blow Counts(BC)= Uncorr. Blows/6 in. Pocket Pen(PP)= tsf	Recovery (NR=No Recovery)	USCS Symbol	Water Content (%)	Dry Unit Wt. (pcf)	Passing #4 (%)	Passing #200 (%)	Liquid Limit	Plasticity Index (NP=NonPlastic)	Additional Tests/ Remarks
			ASPHALT: 4 inches thick												
			Alluvial Deposits (Qa): **Lean CLAY (CL)**: fine-grained sand, subrounded gravel (1"), medium to high plasticity, black (10YR 2/1), moist, micaceous	S1											**pH=** 8.7 **Resistivity=** 960 ohm-cm **Sulfates=** 190 ppm **Chlorides=** 90 ppm **R-Value=** 11 **Expansion Index=** 33
20	5		- stiff below 5 feet	S2		BC=3 4 4 PP=1.0	4"								
			becomes **Silty SAND (SM)**												
15	10			S3			12"	SM	22.6	109.3	98	35	NP	NP	
			SILT (ML): very dark gray (5Y 3/1), wet, very soft, possible estuarine material												
10	15			S4		BC=2 2 3 PP=0	18"								
			becomes **Lean CLAY (CL):** dark olive gray (5Y 3/2), medium stiff, micaceous below 20 feet												
5	20			S5		BC=4 5 5 PP=0.5	18"	CL	31.9	91.1	100	92			
			Clayey SAND (SC): fine to coarse-grained sand, subrounded gravel (1"), dark brown (10YR 3/3), wet, dense, rock fragment at tip of sampler												
0	25			S6		BC=10 11 14	4"								
			- gravel/cobble content increases at 27 feet												Rig chatter from 27 to 30 feet due to cobbles and gravel
-5	30														

The boring was terminated at approximately 30 ft. below ground surface. The boring was backfilled with bentonite grout and patched with asphalt on February 25, 2016.

GROUNDWATER LEVEL INFORMATION:
▽ Groundwater was observed at approximately 7.8 ft. below ground surface during drilling.

KLEINFELDER Bright People. Right Solutions.	PROJECT NO.: 20163965	BORING LOG B-1	FIGURE
	DRAWN BY: MAP		C-3
	CHECKED BY: SHR & MA	Legacy International Center San Diego, California	
	DATE: 3/25/2016		
	REVISED: -		PAGE: 1 of 1

BORING LOG B-2

Date Begin - End:	2/24/2016	**Drilling Company:**	Pacific Drilling		
Logged By:	S. Tena	**Drill Crew:**	Gordy & Raymond		
Hor.-Vert. Datum:	MSL	**Drilling Equipment:**	UNIMOG MARL 5	**Hammer Type - Drop:**	140 lb. Auto - 30 in.
Plunge:	-90 degrees	**Drilling Method:**	Hollow Stem Auger		
Weather:	Sunny	**Exploration Diameter:**	7 in. O.D.		

FIELD EXPLORATION / LABORATORY RESULTS

Approximate Ground Surface Elevation (ft.): 29
Surface Condition: Asphalt

Approximate Elevation (feet)	Depth (feet)	Lithologic Description	Sample Number	Sample Type	Blow Counts(BC)= Uncorr. Blows/6 in. Pocket Pen(PP)= tsf	Recovery (NR=No Recovery)	USCS Symbol	Water Content (%)	Dry Unit Wt. (pcf)	Passing #4 (%)	Passing #200 (%)	Liquid Limit	Plasticity Index (NP=NonPlastic)	Additional Tests/ Remarks
		ASPHALT: 4 inches thick												
		Alluvial Deposits (Qa): **Lean CLAY with Sand (CL)**: fine-grained sand, medium plasticity, very dark brown (10YR 2/2), moist, micaceous	S1											
25														
	5	**Clayey SAND (SC)**: fine to medium-grained sand, very dark grayish brown (10YR 3/2), moist, loose, micaceous	S2		BC=2 3 2 PP=0.5	11"								
		Sandy Lean CLAY (CL) to Clayey SAND (SC): fine to medium-grained sand, medium to high plasticity, dark brown (10YR 3/3), moist, very stiff, micaceous												
20														
	10		S3		BC=6 9 14 PP=2.0	12"	SC	14.9	118.0	100	37	32	16	
		▽												Lense of gravel at 13 feet
15														
	15	- dark yellowish brown (10YR 4/4) below 15 feet - rock at tip of sampler	S4		BC=3 10 8 PP=3.0	18"								
10														
	20		S5			15"	SC	25.5	99.5	100	30	27	11	**Consolidation:** C_c=10.5% C_r=1%
		Lean CLAY with Sand (CL) to Clayey SAND (SC): fine to medium-grained sand, subangular gravel (<1"), medium plasticity, dark yellowish brown (10YR 3/4), wet, stiff, micaceous												
5														
	25		S6		BC=5 7 8 PP=1.5	14"	SC	17.8	115.0	100	44			
0		**Clayey SAND (SC)**: fine to medium-grained sand, subangular gravel (1"), dark yellowish brown (10YR 4/4), wet, very dense												
	30	- gravel zone from 31 to 32.5 feet	S7		BC=17 18 50/3"	6"								
		Well-graded SAND (SW): fine to coarse-grained sand, yellowish brown (10YR 5/6), wet, very dense												
-5														

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PROJECT NO.:	20163965	BORING LOG B-2	FIGURE
DRAWN BY:	MAP		C-4
CHECKED BY:	SHR & MA	Legacy International Center San Diego, California	
DATE:	3/25/2016		
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Date Begin - End:	2/24/2016	Drilling Company:	Pacific Drilling	BORING LOG B-2
Logged By:	S. Tena	Drill Crew:	Gordy & Raymond	
Hor.-Vert. Datum:	MSL	Drilling Equipment:	UNIMOG MARL 5	Hammer Type - Drop: 140 lb. Auto - 30 in.
Plunge:	-90 degrees	Drilling Method:	Hollow Stem Auger	
Weather:	Sunny	Exploration Diameter:	7 in. O.D.	

Approximate Ground Surface Elevation (ft.): 29
Surface Condition: Asphalt

Approximate Elevation (feet)	Depth (feet)	Graphical Log	Lithologic Description	Sample Number	Sample Type	Blow Counts(BC)= Uncorr. Blows/6 in. Pocket Pen(PP)= tsf	Recovery (NR=No Recovery)	USCS Symbol	Water Content (%)	Dry Unit Wt. (pcf)	Passing #4 (%)	Passing #200 (%)	Liquid Limit	Plasticity Index (NP=NonPlastic)	Additional Tests/ Remarks
			Well-graded SAND (SW): fine to coarse-grained sand, yellowish brown (10YR 5/6), wet, very dense - trace of Clayey SAND (SC) at tip of sampler	S8		BC=3 21 20	18"								Rig chatter at 35 feet
-10	40		**Stadium Conglomerate (Tst):** **CONGLOMERATE**: fine to medium-grained sand, gravel (<1.5"), brownish yellow (10YR 6/8), wet, very dense, high gravel and cobble content based on rig action			BC=50/2"	NR								Drill rig chatter at 39.5 feet due to gravel and cobbles Drill rig chatter from 41 to 45 feet
-15	45			S9		BC=50/3"	3"								
-20	50														
-25	55														
-30	60														
-35	65														
-40															

The boring was terminated at approximately 45.3 ft. below ground surface. The boring was backfilled with bentonite grout and patched with asphalt on February 24, 2016.

GROUNDWATER LEVEL INFORMATION:
Groundwater was observed at approximately 13.5 ft. below ground surface during drilling.

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BORING LOG B-2

Legacy International Center
San Diego, California

FIGURE
C-4

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BORING LOG B-3

Date Begin - End:	2/26/2016	**Drilling Company:**	Pacific Drilling
Logged By:	S. Tena	**Drill Crew:**	Gordy & Raymond
Hor.-Vert. Datum:	MSL	**Drilling Equipment:**	UNIMOG MARL 5
Plunge:	-90 degrees	**Drilling Method:**	Hollow Stem Auger
Weather:	Sunny	**Exploration Diameter:**	7 in. O.D.

Hammer Type - Drop: 140 lb. Auto - 30 in.

FIELD EXPLORATION / LABORATORY RESULTS

Approximate Ground Surface Elevation (ft.): 30
Surface Condition: Asphalt

Approximate Elevation (feet)	Depth (feet)	Lithologic Description	Sample Number	Sample Type	Blow Counts(BC)= Uncorr. Blows/6 in. Pocket Pen(PP)= tsf	Recovery (NR=No Recovery)	USCS Symbol	Water Content (%)	Dry Unit Wt. (pcf)	Passing #4 (%)	Passing #200 (%)	Liquid Limit	Plasticity Index (NP=NonPlastic)	Additional Tests/ Remarks
		ASPHALT: 4 inches thick **Alluvial Deposits (Qa):** **Clayey SAND (SC)**: fine to medium-grained sand, subrounded gravel (1"), very dark grayish brown (10YR 3/2), moist	S1											
25	5	- dark brown (10YR 3/3), loose, micaceous, presence of roots below 5 feet	S2		BC=3 3 3	9"								
20	10		S3			24"	SC	22.2	103.1	98	40	25	9	
15	15	- dark yellowish brown (10YR 4/4), wet below 15 feet	S4		BC=2 2 5	18"	SC	18.9	90.6	79	29			
														Rig chatter from 18 to 20 feet due to gravel and cobbles
10	20	**Lean CLAY with Sand (CL) to Clayey SAND (SC)**: fine-grained sand, medium plasticity, dark yellowish brown (10YR 4/6), wet, stiff, micaceous	S5		BC=3 5 5 PP=1.0	10"								
5	25	- very soft below 25 feet	S6		BC=5 5 6 PP=0	12"	SC	20.7	110.6	100	44	27	12	**Consolidation:** C_C=7.8% C_r=01%
		Well-graded SAND with Silt (SW-SM): fine to coarse-grained sand, subrounded gravel (1"), olive brown (2.5Y 4/4), wet, medium dense, micaceous, with intermittent gravel layer												
0	30	- possible fluvial material below 31 feet	S7		BC=6 6 9	9"								Intermittent gravel layers, drill rig chatter from 30 to 35 feet
		- becomes fine to coarse-grained sand, subrounded gravel (1"), light olive brown (2.5Y 5/6), dense below 33 feet												

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BORING LOG B-3

Legacy International Center
San Diego, California

FIGURE
C-5

Date Begin - End:	2/26/2016	Drilling Company:	Pacific Drilling		**BORING LOG B-3**
Logged By:	S. Tena	**Drill Crew:**	Gordy & Raymond		
Hor.-Vert. Datum:	MSL	**Drilling Equipment:**	UNIMOG MARL 5	**Hammer Type - Drop:**	140 lb. Auto - 30 in.
Plunge:	-90 degrees	**Drilling Method:**	Hollow Stem Auger		
Weather:	Sunny	**Exploration Diameter:**	7 in. O.D.		

FIELD EXPLORATION								LABORATORY RESULTS							
Approximate Elevation (feet)	Depth (feet)	Graphical Log	Approximate Ground Surface Elevation (ft.): 30 Surface Condition: Asphalt Lithologic Description	Sample Number	Sample Type	Blow Counts(BC)= Uncorr. Blows/6 in. Pocket Pen(PP)= tsf	Recovery (NR=No Recovery)	USCS Symbol	Water Content (%)	Dry Unit Wt. (pcf)	Passing #4 (%)	Passing #200 (%)	Liquid Limit	Plasticity Index (NP=NonPlastic)	Additional Tests/ Remarks
			Well-graded SAND with Silt (SW-SM): fine to coarse-grained sand, subrounded gravel (1"), olive brown (2.5Y 4/4), wet, medium dense, micaceous, with intermittent gravel layer	S8		BC=25 28	9"								Intermittent gravel, drill rig chatter from 36 to 40 feet
			Stadium Conglomerate (Tst): **CONGLOMERATE**: fine to coarse-grained sand, light olive brown (2.5Y 5/4), wet, micaceous, high gravel and cobble content based on rig action, rock fragment at tip of sampler												Rig chatter from 38 to 45 feet due to cobbles and gravel
-10	40			S9		BC=47 50/4"	6"								
			Clayey SANDSTONE: fine to coarse-grained sand, some gravel (<2.5"), brownish yellow (10YR 6/8), wet												
-15	45			S10		BC=50/5"	2"								
				S11		BC=35 50/4"									
-20	50														
-25	55														
-30	60														
-35	65														

The boring was terminated at approximately 46.3 ft. below ground surface. The boring was backfilled with bentonite grout and patched with asphalt on February 26, 2016.

GROUNDWATER LEVEL INFORMATION:
▽ Groundwater was observed at approximately 11.9 ft. below ground surface during drilling.

KLEINFELDER Bright People. Right Solutions.	PROJECT NO.: 20163965	BORING LOG B-3	FIGURE
	DRAWN BY: MAP		
	CHECKED BY: SHR & MA	Legacy International Center San Diego, California	C-5
	DATE: 3/25/2016		
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BORING LOG B-4

Date Begin - End:	2/26/2016	**Drilling Company:**	Pacific Drilling
Logged By:	S. Tena	**Drill Crew:**	Gordy & Raymond
Hor.-Vert. Datum:	MSL	**Drilling Equipment:**	UNIMOG MARL 5
Plunge:	-90 degrees	**Drilling Method:**	Hollow Stem Auger
Weather:	Sunny	**Exploration Diameter:**	7 in. O.D.

Approximate Elevation (feet)	Depth (feet)	Graphical Log	FIELD EXPLORATION: Approximate Ground Surface Elevation (ft.): 28 Surface Condition: Asphalt — Lithologic Description	Sample Number	Sample Type	Blow Counts(BC)= Blows/6 in. Pocket Pen(PP)= tsf	Recovery (NR=No Recovery)	LABORATORY RESULTS: USCS Symbol	Water Content (%)	Dry Unit Wt. (pcf)	Passing #4 (%)	Passing #200 (%)	Liquid Limit	Plasticity Index (NP=NonPlastic)	Additional Tests/ Remarks
			ASPHALT: 5 inches thick												
25			**Alluvial Deposits (Qa):** **Lean CLAY with Sand (CL)**: fine to medium-grained sand, subangular gravel (2"), medium plasticity, very dark gray (5YR 3/1), moist, micaceous, strong hydrocarbon odor												
	5														
20	10														
15	15														
10	20														
5	25														
0	30														
-5															

The boring was terminated at approximately 5 ft. below ground surface. The boring was backfilled with soil cuttings on February 26, 2016.

GROUNDWATER LEVEL INFORMATION:
Groundwater was not encountered during drilling or after completion.

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PROJECT NO.: 20163965	BORING LOG B-4	FIGURE
DRAWN BY: MAP		
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Date Begin - End:	2/25/2016	**Drilling Company:**	Pacific Drilling		**BORING LOG B-5**
Logged By:	S. Tena	**Drill Crew:**	Gordy & Raymond		
Hor.-Vert. Datum:	MSL	**Drilling Equipment:**	UNIMOG MARL 5	**Hammer Type - Drop:**	140 lb. Auto - 30 in.
Plunge:	-90 degrees	**Drilling Method:**	Hollow Stem Auger		
Weather:	Sunny	**Exploration Diameter:**	7 in. O.D.		

FIELD EXPLORATION / LABORATORY RESULTS

Approximate Ground Surface Elevation (ft.): 25
Surface Condition: Asphalt

Approximate Elevation (feet)	Depth (feet)	Lithologic Description	Sample Number	Blow Counts(BC)= Uncorr. Blows/6 in. Pocket Pen(PP)= tsf	Recovery (NR=No Recovery)	USCS Symbol	Water Content (%)	Dry Unit Wt. (pcf)	Passing #4 (%)	Passing #200 (%)	Liquid Limit	Plasticity Index (NP=NonPlastic)	Additional Tests/ Remarks
		ASPHALT: 4 inches thick											
		<u>Alluvial Deposits (Qa):</u> **Lean CLAY (CL)**: fine-grained sand, subrounded to subangular gravel (1"), medium plasticity, black (2.5Y 2.5/1), moist	S1										Rig chatter due to rock at 1 foot
20	5	- stiff below 5 feet	S2	BC=2 3 1 PP=1.0	12"								
		- very dark brown (2.5/2), very soft, micaceous below 6 feet	S3	PP=0		CL	23.5	91.8	100	59	28	10	
15	10	- medium to high plasticity, dark brown (7.5YR 3/2), wet, stiff below 10 feet	S4	BC=4 9 10 PP=1.0	5"								
		Silty SAND (SM): fine to coarse-grained sand, brown (7.5YR 4/4), wet, dense, micaceous											
10	15		S5	BC=7 11 12	14"	SM	15.1	117.2	98	16			
		Clayey SAND with Gravel (SC): fine to coarse-grained sand, subangular gravel (<1.5"), brown (7.5YR 4/4), wet, very dense, high gravel content based on rig action											
5	20		S6	BC=50/6"	6"								Rig chatter due to gravel and cobbles from 21 to 30 feet
0	25	- rock fragments, rock at tip of sampler	S7	BC=50/6"	6"								
-5	30	**<u>Stadium Conglomerate (Tst):</u>** **CONGLOMERATE**: brownish yellow (10YR 6/8), high gravel content based on rig action, rock (4") at tip of sampler	S8	BC=50/4"	3"								Rig chatter from 30 to 32 feet due to gravel and cobbles
													No advancement at 32 feet

The boring was terminated due to practical auger refusal (↑) at ~32 ft. and was backfilled with bentonite grout and patched with asphalt on February 25, 2016.

<u>GROUNDWATER LEVEL INFORMATION:</u>
Groundwater was observed at approximately 7.7 ft. below ground surface during drilling.

PROJECT NO.: 20163965	BORING LOG B-5	FIGURE
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Date Begin - End:	2/22/2016	**Drilling Company:**	Pacific Drilling		**BORING LOG B-6**
Logged By:	S. Tena	**Drill Crew:**	Gordy & Raymond		
Hor.-Vert. Datum:	MSL	**Drilling Equipment:**	UNIMOG MARL 5	**Hammer Type - Drop:**	140 lb. Auto - 30 in.
Plunge:	-90 degrees	**Drilling Method:**	Hollow Stem Auger		
Weather:	Sunny	**Exploration Diameter:**	7 in. O.D.		

FIELD EXPLORATION / LABORATORY RESULTS

Approximate Ground Surface Elevation (ft.): 26
Surface Condition: Asphalt

Approximate Elevation (feet)	Depth (feet)	Graphical Log	Lithologic Description	Sample Number	Sample Type	Blow Counts(BC)= Uncorr. Blows/6 in. Pocket Pen(PP)= tsf	Recovery (NR=No Recovery)	USCS Symbol	Water Content (%)	Dry Unit Wt. (pcf)	Passing #4 (%)	Passing #200 (%)	Liquid Limit	Plasticity Index (NP=NonPlastic)	Additional Tests/ Remarks
25	0		**ASPHALT**: 4 inches thick												
			Alluvial Deposits (Qa): **Lean CLAY (CL)**: medium to high plasticity, dark brown (10YR 3/3), moist	S1											Drill rig chatter due to cobbles at 2 feet
20	5					BC=11 7 8	NR								
			Lean CLAY with Sand (CL): hard	S2		BC=8 10 13 PP=1.0 PP=4.0	12"	CL	19.6	108.9	100	65	31	15	**Direct Shear:** c'= 647 psf ϕ'= 33.4°
15	10		- wet, stiff below 10 feet	S3		BC=3 4 6 PP=1.5	18"								
			Clayey SAND with Gravel (SC): fine to coarse-grained sand, subangular gravel (<2"), dark yellowish brown (10YR 4/6), wet, very dense												Drill rig chatter due to cobbles from 13.5 to 26 feet
10	15			S4		BC=35 33 26	12"								
5	20		- increase in clay below 20 feet	S5		BC=12 15 37	14"								
			- becomes yellowish brown (10YR 5/6) below 23 feet												
0	25			S6		BC=50/6"	6"								No advancement at 26 feet due to rock
-5	30														

The boring was terminated because of practical auger refusal (↑) at approximately 26 ft. below ground surface. The boring was backfilled with bentonite grout and patched with asphalt on February 22, 2016.

GROUNDWATER LEVEL INFORMATION:
▽ Groundwater was observed at approximately 7.4 ft. below ground surface during drilling.

KLEINFELDER Bright People. Right Solutions.	PROJECT NO.: 20163965	BORING LOG B-6	FIGURE
	DRAWN BY: MAP		
	CHECKED BY: SHR & MA	Legacy International Center San Diego, California	C-8
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Date Begin - End:	2/23/2016	**Drilling Company:**	Pacific Drilling		**BORING LOG B-7**
Logged By:	S. Tena	**Drill Crew:**	Gordy & Raymond		
Hor.-Vert. Datum:	MSL	**Drilling Equipment:**	UNIMOG MARL 5	**Hammer Type - Drop:**	140 lb. Auto - 30 in.
Plunge:	-90 degrees	**Drilling Method:**	Hollow Stem Auger		
Weather:	Sunny	**Exploration Diameter:**	7 in. O.D.		

FIELD EXPLORATION / LABORATORY RESULTS

Approximate Ground Surface Elevation (ft.): 28
Surface Condition: Asphalt

Approximate Elevation (feet)	Depth (feet)	Lithologic Description	Sample Number	Blow Counts(BC)= Uncorr. Blows/6 in. Pocket Pen(PP)= tsf	Recovery (NR=No Recovery)	USCS Symbol	Water Content (%)	Dry Unit Wt. (pcf)	Passing #4 (%)	Passing #200 (%)	Liquid Limit	Plasticity Index (NP=NonPlastic)	Additional Tests/ Remarks
	0	**ASPHALT**: 5 inches thick											
25		**Alluvial Deposits (Qa):** **Clayey SAND (SC)**: fine-grained sand, very dark brown (10YR 2/2), moist	S1										
	5			BC=8 9 12	NR								
		Lean CLAY with Sand (CL): fine-grained sand, medium to high plasticity, very dark brown (10YR 2/2), moist, hard, rock at tip of sampler	S2	BC=6 19 50/5" PP=4.5	10"								
20													
	10	**Sandy Lean CLAY with Gravel (CL)**: fine-grained sand, subangular gravel (2"), medium to high plasticity, grayish brown (2.5Y 5/2), moist, very stiff, micaceous - possible rock at tip of sampler	S3	BC=11 50/2" PP=2.0	5"								Drill rig chatter from 10 to 15 feet
15													
	15			BC=12 12 23	NR								
10		**Silty SAND with Gravel (SM)**: fine to coarse-grained sand, subangular gravel (<1.5"), light olive brown (2.5Y 5/6), wet, very dense, micaceous											Drill rig chatter due to gravel and cobbles from 17 to 27 feet
	20		S4	BC=33 31 16	9"								
5		- contains pockets of Clayey SAND (SC), light olive brown (2.5Y 5/4), micaceous below 23.5 feet											
	25		S5	BC=50/4"	4"								
0													
	30												
-5													

The boring was terminated at approximately 27 ft. below ground surface. The boring was backfilled with bentonite grout and patched with asphalt on February 23, 2016.

GROUNDWATER LEVEL INFORMATION:
∇ Groundwater was observed at approximately 11.5 ft. below ground surface during drilling.

KLEINFELDER Bright People. Right Solutions.	PROJECT NO.: 20163965	BORING LOG B-7	FIGURE
	DRAWN BY: MAP		
	CHECKED BY: SHR & MA	Legacy International Center San Diego, California	C-9
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gINT FILE: PROJECTWISE: 20163965_legacy International Center.gpj
gINT TEMPLATE: PROJECTWISE: KLF_STANDARD_GINT_LIBRARY_2016.GLB [KLF_BORING/TEST PIT SOIL LOG]

BORING LOG B-8

Date Begin - End:	2/24/2016	**Drilling Company:**	Pacific Drilling		
Logged By:	S. Tena	**Drill Crew:**	Gordy & Raymond		
Hor.-Vert. Datum:	MSL	**Drilling Equipment:**	UNIMOG MARL 5	**Hammer Type - Drop:**	140 lb. Auto - 30 in.
Plunge:	-90 degrees	**Drilling Method:**	Hollow Stem Auger		
Weather:	Sunny	**Exploration Diameter:**	7 in. O.D.		

FIELD EXPLORATION / LABORATORY RESULTS

Approximate Ground Surface Elevation (ft.): 30
Surface Condition: Asphalt

Approximate Elevation (feet)	Depth (feet)	Lithologic Description	Sample Number	Blow Counts(BC)= Uncorr. Blows/6 in. Pocket Pen(PP)= tsf	Recovery (NR=No Recovery)	USCS Symbol	Water Content (%)	Dry Unit Wt. (pcf)	Passing #4 (%)	Passing #200 (%)	Liquid Limit	Plasticity Index (NP=NonPlastic)	Additional Tests/ Remarks
		ASPHALT: 4 inches thick											
		Alluvial Deposits (Qa): **Lean CLAY (CL)**: fine to medium-grained sand, medium plasticity, dark yellowish brown (10YR 3/6), moist	S1										
25	5	**Clayey SAND (SC)**: fine to medium-grained sand, brown (10YR 5/3), moist, dense	S2	BC=6 10 13	12"	SC	15.8	111.9	100	49	34	18	**Direct Shear:** c'= 160 psf ϕ'= 43.4°
		Sandy Lean CLAY with Gravel (CL): fine to coarse-grained sand, medium to high plasticity, yellowish brown (10YR 5/6), moist, stiff											Drill rig chatter due to gravel and cobbles from 7 to 10 feet
20	10		S3	BC=5 12 10 PP=2.0	9"								
		Silty SAND with Gravel (SM): fine to coarse-grained sand, subangular gravel (1"), yellowish brown (10YR 5/4), wet, dense											
15	15		S4	BC=8 14 16	6"								Drill rig chatter due to gravel and cobbles from 15 to 20 feet
10	20	**Silty SAND (SM)**: fine-grained sand, light olive brown (2.5Y 5/4), wet, medium dense, micaceous											
			S5	BC=4 6 8	18"								
5	25	**Silty SAND with Gravel (SM)**: fine to coarse-grained sand, pockets of clay, light olive brown (2.5Y 5/4), wet, very dense	S6	BC=5 50/6"	8"								Hard drilling due to cobbles from 25 to 28.5 feet
				BC=50/0"	NR								No advancement at 28.5 feet
0	30	The boring was terminated because of practical auger refusal (↑) at approximately 28.5 ft. below ground surface. The boring was backfilled with bentonite grout and patched with asphalt on February 24, 2016.											

GROUNDWATER LEVEL INFORMATION:
∇ Groundwater was observed at approximately 9.7 ft. below ground surface during drilling.

KLEINFELDER Bright People. Right Solutions.	PROJECT NO.: 20163965	BORING LOG B-8	FIGURE
	DRAWN BY: MAP		C-10
	CHECKED BY: SHR & MA	Legacy International Center San Diego, California	
	DATE: 3/25/2016		
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Date Begin - End:	2/23/2016	**Drilling Company:**	Pacific Drilling		**BORING LOG B-9**
Logged By:	S. Tena	**Drill Crew:**	Gordy & Raymond		
Hor.-Vert. Datum:	MSL	**Drilling Equipment:**	UNIMOG MARL 5	**Hammer Type - Drop:**	140 lb. Auto - 30 in.
Plunge:	-90 degrees	**Drilling Method:**	Hollow Stem Auger		
Weather:	Sunny	**Exploration Diameter:**	7 in. O.D.		

FIELD EXPLORATION / LABORATORY RESULTS

Approximate Ground Surface Elevation (ft.): 36
Surface Condition: Asphalt

Approximate Elevation (feet)	Depth (feet)	Lithologic Description	Sample Number	Sample Type	Blow Counts(BC)= Uncorr. Blows/6 in. Pocket Pen(PP)= tsf	Recovery (NR=No Recovery)	USCS Symbol	Water Content (%)	Dry Unit Wt. (pcf)	Passing #4 (%)	Passing #200 (%)	Liquid Limit	Plasticity Index (NP=NonPlastic)	Additional Tests/ Remarks
35		**ASPHALT**: 5 inches thick												
		Artificial Fill (af): **Lean CLAY with Sand (CL)**: fine-grained sand, medium plasticity, dark brown (7.5YR 3/3), moist	S1											
		Alluvial Deposits (Qa): **Sandy Lean CLAY (CL)**: fine to medium-grained sand, medium to high plasticity, dark yellowish brown (10YR 4/6), moist, hard												Drill rig chatter due to rock from 4 to 5 feet
30	5		S2		BC=12 7 10 PP=4.0	18"								
		Clayey SAND with Gravel (SC): fine to medium-grained sand, subangular gravel (<2"), brown (7.5YR 4/4), moist, very dense												Drill rig chatter from 8 to 10 feet
25	10	- rock fragment at tip of sampler	S3		BC=39 50/6"	8"	SC	10.3	100.9	73	24	34	19	
		Silty SAND (SM): fine to medium-grained sand, subangular gravel (<1"), strong brown (7.5YR 4/6), moist, dense, presence of rock fragments												
20	15		S4		BC=15 14 9	12"								
		Clayey SAND with Gravel (SC): fine to coarse-grained sand, subangular gravel (1/2"), strong brown (7.5YR 4/6), moist, very dense, rock at bottom of sampler and in sample												
15	20		S5		BC=50/5"	5"								Drill rig chatter from 20 to 25 feet due to cobbles
10	25	**Clayey SAND (SC)**: fine-grained sand, light olive brown (2.5Y 5/6, wet, medium dense, micaceous	S6		BC=4 4 8	18"								
		Sandy SILT (ML): fine-grained sand, low plasticity, gray (2.5Y 6/1), wet, stiff, micaceous, mottled with iron oxide stains												
5	30				BC=21 13 14	NR								
		Stadium Conglomerate (Tst): **CONGLOMERATE**: fine-grained sand, medium plasticity, dark gray (2.5Y 4/1), wet, stiff, micaceous, high gravel and cobble content based on rig action	S7A S7B		BC=4 4 22 PP=1.5 PP=1.0	18"								Drill rig chatter from 32 to 40 feet due to cobbles

PROJECT NO.: 20163965	BORING LOG B-9	FIGURE
DRAWN BY: MAP		C-11
CHECKED BY: SHR & MA	Legacy International Center San Diego, California	
DATE: 3/25/2016		
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Date Begin - End:	2/23/2016	**Drilling Company:**	Pacific Drilling		**BORING LOG B-9**
Logged By:	S. Tena	**Drill Crew:**	Gordy & Raymond		
Hor.-Vert. Datum:	MSL	**Drilling Equipment:**	UNIMOG MARL 5	**Hammer Type - Drop:**	140 lb. Auto - 30 in.
Plunge:	-90 degrees	**Drilling Method:**	Hollow Stem Auger		
Weather:	Sunny	**Exploration Diameter:**	7 in. O.D.		

Approximate Elevation (feet)	Depth (feet)	Graphical Log	FIELD EXPLORATION: Approximate Ground Surface Elevation (ft.): 36 Surface Condition: Asphalt — Lithologic Description	Sample Number	Sample Type	Blow Counts(BC)= Uncorr. Blows/6 in. Pocket Pen(PP)= tsf	Recovery (NR=No Recovery)	LABORATORY RESULTS: USCS Symbol	Water Content (%)	Dry Unit Wt. (pcf)	Passing #4 (%)	Passing #200 (%)	Liquid Limit	Plasticity Index (NP=NonPlastic)	Additional Tests/ Remarks
0			**Stadium Conglomerate (Tst):** **CONGLOMERATE**: fine-grained sand, medium plasticity, dark gray (2.5Y 4/1), wet, stiff, micaceous, high gravel and cobble content based on rig action												
	40					BC=50/2"	NR								Sampler bouncing on cobble
-5															
	45														
-10															
	50														
-15															
	55														
-20															
	60														
-25															
	65														
-30															

The boring was terminated at approximately 40.2 ft. below ground surface. The boring was backfilled with bentonite grout and patched with asphalt on February 23, 2016.

GROUNDWATER LEVEL INFORMATION:
Groundwater was observed at approximately 22.5 ft. below ground surface during drilling.

KLEINFELDER Bright People. Right Solutions.	PROJECT NO.: 20163965	BORING LOG B-9		FIGURE
	DRAWN BY: MAP			
	CHECKED BY: SHR & MA	Legacy International Center San Diego, California		C-11
	DATE: 3/25/2016			
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Date Begin - End:	2/22/2016 - 2/23/2016	**Drilling Company:**	Pacific Drilling
Logged By:	S. Tena	**Drill Crew:**	Gordy & Raymond
Hor.-Vert. Datum:	MSL	**Drilling Equipment:**	UNIMOG MARL 5
Plunge:	-90 degrees	**Drilling Method:**	Hollow Stem Auger
Weather:	Sunny	**Exploration Diameter:**	7 in. O.D.

BORING LOG B-10

Hammer Type - Drop: 140 lb. Auto - 30 in.

Approximate Ground Surface Elevation (ft.): 36
Surface Condition: Asphalt

Approximate Elevation (feet)	Depth (feet)	Lithologic Description	Sample Number	Blow Counts(BC)= Uncorr. Blows/6 in. Pocket Pen(PP)= tsf	Recovery (NR=No Recovery)	USCS Symbol	Water Content (%)	Dry Unit Wt. (pcf)	Passing #4 (%)	Passing #200 (%)	Liquid Limit	Plasticity Index (NP=NonPlastic)	Additional Tests/ Remarks
	0	**ASPHALT**: 4 inches thick											
35		**Alluvial Deposits (Qa):** **Lean CLAY with Sand (CL) to Sandy Lean CLAY (CL)**: low to medium plasticity, dark yellowish brown (10YR 4/4), moist	S1										Cobble at 0.5 feet; **pH=** 8.9; **Resistivity=** 770 ohm-cm; **Sulfates=** 180 ppm; **Chlorides=** 60 ppm; **R-Value=** 10; **Expansion Index=** 44
30	5	- fine to medium-grained sand, medium plasticity, dark brown (10YR 3/3), traces of manganese oxide stains below 5 feet	S2	BC=11 12 14 PP=4.5	18"	CL			100	52	34	19	**Direct Shear:** c'= 1243 psf; ϕ'= 35.2°
		Clayey SAND (SC): fine to medium-grained sand, dark yellowish brown (10YR 4/6), moist, very dense											
25	10	- rock fragments at tip of sampler	S3	BC=20 41 28	9"								
		Clayey SAND with Gravel (SC): fine to coarse-grained sand, brown (7.5YR 4/4), moist, very dense, micaceous, rock fragments											Drill rig chatter due to cobbles and gravel from 13 to 15 feet
20	15		S4	BC=32 50/6"	8"								Drill rig chatter due to gravel from 16 to 20 feet
15	20	**Silty SAND with Gravel (SM)**: fine to coarse-grained sand, subangular gravel (<1.5"), yellowish brown (10YR 5/6), wet, very dense	S5	BC=13 14 29	9"								Drill rig chatter from 21 to 24 feet
10	25			BC=50/6"	NR								Sampler bouncing, probably due to cobbles
		Well-graded SAND with Silt (SW-SM): fine to coarse-grained sand, dark grayish brown (10YR 4/2), wet, very dense, micaceous											
5	30		S6	BC=14 20 24	18"	CL	15.7	112.9					

KLEINFELDER Bright People. Right Solutions.	PROJECT NO.: 20163965	BORING LOG B-10	FIGURE
	DRAWN BY: MAP		C-12
	CHECKED BY: SHR & MA	Legacy International Center San Diego, California	
	DATE: 3/25/2016		
	REVISED: -		PAGE: 1 of 2

Date Begin - End:	2/22/2016 - 2/23/2016	**Drilling Company:**	Pacific Drilling		**BORING LOG B-10**
Logged By:	S. Tena	**Drill Crew:**	Gordy & Raymond		
Hor.-Vert. Datum:	MSL	**Drilling Equipment:**	UNIMOG MARL 5	**Hammer Type - Drop:**	140 lb. Auto - 30 in.
Plunge:	-90 degrees	**Drilling Method:**	Hollow Stem Auger		
Weather:	Sunny	**Exploration Diameter:**	7 in. O.D.		

FIELD EXPLORATION / LABORATORY RESULTS

Approximate Ground Surface Elevation (ft.): 36
Surface Condition: Asphalt

Approximate Elevation (feet)	Depth (feet)	Graphical Log	Lithologic Description	Sample Number	Sample Type	Blow Counts(BC)= Uncorr. Blows/6 in. Pocket Pen(PP)= tsf	Recovery (NR=No Recovery)	USCS Symbol	Water Content (%)	Dry Unit Wt. (pcf)	Passing #4 (%)	Passing #200 (%)	Liquid Limit	Plasticity Index (NP=NonPlastic)	Additional Tests/ Remarks
0			**Silty SAND (SM)**: fine to coarse-grained sand, grayish brown (10YR 5/2), wet, very dense	S7A S7B		BC=15 16 50/4"	16"								No advancement at 37 feet
			Stadium Conglomerate (Tst): **CONGLOMERATE**: fine to coarse-grained sand, subangular gravel (1"), yellowish brown (10YR 5/6), wet, rock fragments in sampler												
-5	40		The boring was terminated because of practical auger refusal (↑) at approximately 37 ft. below ground surface. The boring was backfilled with bentonite grout and patched with asphalt on February 23, 2016.												
-10	45														
-15	50														
-20	55														
-25	60														
-30	65														

GROUNDWATER LEVEL INFORMATION:
- ▽ Groundwater was observed at approximately 17.6 ft. below ground surface during drilling.
- ▼ Groundwater was observed at approximately 18.9 ft. below ground surface at the end of drilling.

KLEINFELDER Bright People. Right Solutions.	PROJECT NO.: 20163965 DRAWN BY: MAP CHECKED BY: SHR & MA DATE: 3/25/2016 REVISED: -	BORING LOG B-10 Legacy International Center San Diego, California	FIGURE C-12 PAGE: 2 of 2

BORING LOG B-11

Date Begin - End:	2/19/2016	**Drilling Company:**	Pacific Drilling
Logged By:	S. Tena	**Drill Crew:**	Gordy & Raymond
Hor.-Vert. Datum:	MSL	**Drilling Equipment:**	UNIMOG MARL 5
Plunge:	-90 degrees	**Drilling Method:**	Hollow Stem Auger
Weather:	Sunny	**Exploration Diameter:**	7 in. O.D.

Hammer Type - Drop: 140 lb. Auto - 30 in.

FIELD EXPLORATION

Approximate Ground Surface Elevation (ft.): 28
Surface Condition: Asphalt

Approximate Elevation (feet)	Depth (feet)	Lithologic Description	Sample Number	Blow Counts(BC)= Uncorr. Blows/6 in. Pocket Pen(PP)= tsf	Recovery (NR=No Recovery)	USCS Symbol	Water Content (%)	Dry Unit Wt. (pcf)	Passing #4 (%)	Passing #200 (%)	Liquid Limit	Plasticity Index (NP=NonPlastic)	Additional Tests/ Remarks
	0	**ASPHALT**: 4 inches thick											
		Slope Wash Deposits (Qsw): **Lean CLAY with Sand (CL)**: fine to medium-grained sand, medium plasticity, brown (7.5YR 4/4), moist	S1										Drill rig chatter due to cobbles at 1 foot
25	5			BC=10 13 17	NR								Drill rig chatter due to cobbles at 5 feet
		Silty SAND (SM): fine to medium-grained sand, dark brown (7.5YR 3/4), moist, medium dense, micaceous	S2	BC=7 7 6	15"								
20	10	- fine to coarse-grained sand, cobbles (3"), brown (7.5YR 4/4), wet below 10 feet	S3	BC=10 7 9	12"								
		- increase in coarse-grained sand content, subrounded to subangular gravel (2") below 11.5 feet	S4	BC=4 5 5	14"								
15		**Poorly graded SAND with Gravel (SP)**: medium-grained sand, brownish yellow (10YR 6/6), wet, dense	S5	BC=10 15 16		SP	20.1	106.5	100	4.5	NP	NP	Drill rig chatter due to cobbles and gravel from 15 to 26 feet
	15	**Well-graded SAND with Gravel (SW)**: fine to coarse-grained subangular sand, yellowish brown (10YR 5/6), wet, dense	S6										
10		**Clayey SAND with Gravel (SC)**: fine to medium-grained sand, yellowish brown (10YR 5/6), wet, very dense, rock fragments (1.5") described as gravel	S7	BC=50/6"	4"								
5	20	- subrounded gravel (1") below 22 feet	S8	BC=50/5"	5"								
	25	- medium dense below 25 feet	S9A	BC=22 8 8	9"								
		SILT (ML): low plasticity, olive yellow (2.5Y 6/8) with very dark grayish brown (2.5Y 3/2), wet, very stiff, high angle fractures	S9B	PP=4.5									
0		**Stadium Conglomerate (Tst):** **CONGLOMERATE**: high gravel and cobble content based on rig action											Hard drilling due to cobbles and gravel from 27 to 35 feet
	30	- attempted sample, sampler bouncing on rock											Rock at 30 feet
-5													

LABORATORY RESULTS

KLEINFELDER
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DATE:	3/25/2016
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BORING LOG B-11

Legacy International Center
San Diego, California

FIGURE
C-13

KLEINFELDER - 550 West C Street, Suite 1200 | San Diego, CA 92101 | PH: 858.320.2000 | FAX: 858.320.2001 | www.kleinfelder.com

Date Begin - End:	2/19/2016	**Drilling Company:**	Pacific Drilling			**BORING LOG B-11**	
Logged By:	S. Tena	**Drill Crew:**	Gordy & Raymond				
Hor.-Vert. Datum:	MSL	**Drilling Equipment:**	UNIMOG MARL 5	**Hammer Type - Drop:**	140 lb. Auto - 30 in.		
Plunge:	-90 degrees	**Drilling Method:**	Hollow Stem Auger				
Weather:	Sunny	**Exploration Diameter:**	7 in. O.D.				

Approximate Ground Surface Elevation (ft.): 28
Surface Condition: Asphalt

Approximate Elevation (feet)	Depth (feet)	Graphical Log	Lithologic Description	Sample Number	Sample Type	Blow Counts(BC)= Uncorr. Blows/6 in. Pocket Pen(PP)= tsf	Recovery (NR=No Recovery)	USCS Symbol	Water Content (%)	Dry Unit Wt. (pcf)	Passing #4 (%)	Passing #200 (%)	Liquid Limit	Plasticity Index (NP=NonPlastic)	Additional Tests/ Remarks
			Stadium Conglomerate (Tst): **CONGLOMERATE**: high gravel and cobble content based on rig action - attempted sample, sampler bouncing on rock												Drill rig chatter from 35 to 40 feet
-10															
	40		- light olive brown (2.5Y 5/4), moist, Matrix: Clayey SAND, fine-grained sand below 40 feet	S10		BC=50/3"	3"								
			- olive yellow (2.5Y 6/8), very dense, fine to medium-grained sand, micaceous, iron oxide stains below 41.5 feet												
-15						BC=30 50/3"									
	45														
-20															
	50														
-25															
	55														
-30															
	60														
-35															
	65														
-40															

The boring was terminated at approximately 43.8 ft. below ground surface. The boring was backfilled with bentonite grout and patched with asphalt on February 19, 2016.

GROUNDWATER LEVEL INFORMATION:
Groundwater was observed at approximately 10 ft. below ground surface during drilling.

KLEINFELDER Bright People. Right Solutions.	PROJECT NO.: 20163965	BORING LOG B-11	FIGURE
	DRAWN BY: MAP		C-13
	CHECKED BY: SHR & MA	Legacy International Center San Diego, California	
	DATE: 3/25/2016		
	REVISED: -		PAGE: 2 of 2

Date Begin - End:	2/19/2016 - 2/22/2016	**Drilling Company:**	Pacific Drilling		**BORING LOG B-12**
Logged By:	S. Tena	**Drill Crew:**	Gordy & Raymond		
Hor.-Vert. Datum:	MSL	**Drilling Equipment:**	UNIMOG MARL 5	**Hammer Type - Drop:**	140 lb. Auto - 30 in.
Plunge:	-90 degrees	**Drilling Method:**	Hollow Stem Auger		
Weather:	Sunny	**Exploration Diameter:**	7 in. O.D.		

FIELD EXPLORATION / LABORATORY RESULTS

Approximate Ground Surface Elevation (ft.): 30
Surface Condition: Asphalt

Approximate Elevation (feet)	Depth (feet)	Lithologic Description	Sample Number	Sample Type	Blow Counts(BC)= Uncorr. Blows/6 in. Pocket Pen(PP)= tsf	Recovery (NR=No Recovery)	USCS Symbol	Water Content (%)	Dry Unit Wt. (pcf)	Passing #4 (%)	Passing #200 (%)	Liquid Limit	Plasticity Index (NP=NonPlastic)	Additional Tests/ Remarks
		ASPHALT: 4 inches thick												
		<u>**Alluvial Deposits (Qa):**</u> **Lean CLAY with Sand (CL) to Clayey SAND (SC)**: fine to medium-grained sand, medium plasticity, dark brown (7.5YR 3/3), moist	S1											**pH=** 8.5 **Resistivity=** 830 ohm-cm **Sulfates=** 530 ppm **Chlorides=** 50 ppm **R-Value=** 15 **Expansion Index=** 5
25	5	- subangular gravel (<0.5"), very stiff below 5 feet	S2		BC=14 24 27 PP=4.5	18"	SC	8.0	119.6		30	34	19	
		Lean CLAY (CL): fine to medium-grained sand, dark brown (7.5YR 3/2), moist, very stiff												
20	10		S3		BC=4 6 9 PP=2.5 PP=3.5	18"								
		Clayey SAND (SC): fine-grained sand, dark brown (7.5YR 3/3), wet, micaceous												
15	15		S4		BC=8 8 11		SC	17.9	110.4	95	34	30	12	
10	20	**Well-graded SAND with Silt and Gravel (SW-SM)**: fine to coarse-grained sand, brownish yellow (10YR 6/6), wet, very dense, possible rock at tip of sampler	S5		BC=5 12 50/4"	12"								Rig chatter due to cobbles and gravel from 22 to 30 feet
5	25													
0	30	- rock fragments at 30 feet	S6		BC=50/5"	4"								

The boring was terminated at approximately 30.4 ft. below ground surface. The boring was backfilled with bentonite grout and patched with asphalt on February 22, 2016.

<u>GROUNDWATER LEVEL INFORMATION:</u>
- Groundwater was observed at approximately 12.2 ft. below ground surface during drilling.
- Groundwater was observed at approximately 11.7 ft. below ground surface during drilling.

KLEINFELDER Bright People. Right Solutions.	PROJECT NO.: 20163965	BORING LOG B-12	FIGURE
	DRAWN BY: MAP		C-14
	CHECKED BY: SHR & MA	Legacy International Center San Diego, California	
	DATE: 3/25/2016		
	REVISED: -		PAGE: 1 of 1

Date Begin - End:	2/17/2016	**Drilling Company:**		**BORING LOG HA-1**
Logged By:	S. Tena	**Drill Crew:**		
Hor.-Vert. Datum:	MSL	**Drilling Equipment:**	Shovel	
Plunge:	-90 degrees	**Drilling Method:**	Hand Auger	
Weather:	Sunny	**Exploration Diameter:**	9 in. O.D.	

Approximate Elevation (feet)	Depth (feet)	Graphical Log	FIELD EXPLORATION Approximate Ground Surface Elevation (ft.): 23 Surface Condition: Grass Lithologic Description	Sample Number	Sample Type	Blow Counts(BC)= Uncorr. Blows/6 in. Pocket Pen(PP)= tsf	Recovery (NR=No Recovery)	LABORATORY RESULTS USCS Symbol	Water Content (%)	Dry Unit Wt. (pcf)	Passing #4 (%)	Passing #200 (%)	Liquid Limit	Plasticity Index (NP=NonPlastic)	Additional Tests/ Remarks
			GRASS / TOPSOIL: 4 inches thick												
			Alluvial Deposits (Qa): **Clayey SAND (SC)**: fine to medium-grained sand, very dark grayish brown (10YR 3/2), moist, micaceous	S1											**R-Value=** 27 Combined with Sample HA-2 S1 @ 0.5'-2'
20															
	5														
15															
	10														
10															

The hand exploration was terminated at approximately 2 ft. below ground surface. The hand exploration was backfilled with soil cuttings on February 17, 2016.

GROUNDWATER LEVEL INFORMATION:
Groundwater was not encountered during drilling or after completion.

KLEINFELDER Bright People. Right Solutions.	PROJECT NO.: 20163965 DRAWN BY: MAP CHECKED BY: SHR & MA DATE: 3/25/2016 REVISED: -	BORING LOG HA-1 Legacy International Center San Diego, California	FIGURE C-15 PAGE: 1 of 1

Date Begin - End:	2/17/2016	**Drilling Company:**	
Logged By:	S. Tena	**Drill Crew:**	
Hor.-Vert. Datum:	MSL	**Drilling Equipment:**	Shovel
Plunge:	-90 degrees	**Drilling Method:**	Hand Auger
Weather:	Sunny	**Exploration Diameter:**	9 in. O.D.

BORING LOG HA-2

Approximate Elevation (feet)	Depth (feet)	Graphical Log	FIELD EXPLORATION Approximate Ground Surface Elevation (ft.): 24 Surface Condition: Grass Lithologic Description	Sample Number	Sample Type	Blow Counts(BC)= Uncorr. Blows/6 in. Pocket Pen(PP)= tsf	Recovery (NR=No Recovery)	LABORATORY RESULTS USCS Symbol	Water Content (%)	Dry Unit Wt. (pcf)	Passing #4 (%)	Passing #200 (%)	Liquid Limit	Plasticity Index (NP=NonPlastic)	Additional Tests/ Remarks
			GRASS / TOPSOIL: 5 inches thick												
			Alluvial Deposits (Qa): **Clayey SAND (SC)**: fine to medium-grained sand, very dark grayish brown (10YR 3/2), micaceous	S1											**R-Value=** 27 Combined with Sample HA-1 S1 @ 0.5'-2'
20															
	5														
15															
	10														
10															

The hand exploration was terminated at approximately 2 ft. below ground surface. The hand exploration was backfilled with soil cuttings on February 17, 2016.

GROUNDWATER LEVEL INFORMATION:
Groundwater was not encountered during drilling or after completion.

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PROJECT NO.: 20163965	BORING LOG HA-2		FIGURE
DRAWN BY: MAP			
CHECKED BY: SHR & MA	Legacy International Center San Diego, California		C-16
DATE: 3/25/2016			
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Date Begin - End:	2/17/2016	**Drilling Company:**	
Logged By:	S. Tena	**Drill Crew:**	
Hor.-Vert. Datum:	MSL	**Drilling Equipment:**	Shovel
Plunge:	-90 degrees	**Drilling Method:**	Hand Auger
Weather:	Sunny	**Exploration Diameter:**	9 in. O.D.

BORING LOG HA-3

Approximate Elevation (feet)	Depth (feet)	Graphical Log	FIELD EXPLORATION: Approximate Ground Surface Elevation (ft.): 27 Surface Condition: Grass — Lithologic Description	Sample Number	Sample Type	Blow Counts(BC)= Uncorr. Blows/6 in. Pocket Pen(PP)= tsf	Recovery (NR=No Recovery)	LABORATORY RESULTS: USCS Symbol	Water Content (%)	Dry Unit Wt. (pcf)	Passing #4 (%)	Passing #200 (%)	Liquid Limit	Plasticity Index (NP=NonPlastic)	Additional Tests/ Remarks
			GRASS / TOPSOIL: 5 inches thick												
			Alluvial Deposits (Qa): **Clayey SAND (SC)**: fine to medium-grained sand, dark grayish brown (2.5Y 4/2), micaceous	S1											**R-Value=** 27 Combined with Sample HA-4 S1 @ 0.5'-2'
25															
	5														
20															
	10														
15															

The hand exploration was terminated at approximately 2 ft. below ground surface. The hand exploration was backfilled with soil cuttings on February 17, 2016.

GROUNDWATER LEVEL INFORMATION:
Groundwater was not encountered during drilling or after completion.

KLEINFELDER Bright People. Right Solutions.	PROJECT NO.: 20163965	BORING LOG HA-3	FIGURE
	DRAWN BY: MAP		C-17
	CHECKED BY: SHR & MA	Legacy International Center San Diego, California	
	DATE: 3/25/2016		
	REVISED: -		PAGE: 1 of 1

Date Begin - End:	2/17/2016	**Drilling Company:**	
Logged By:	S. Tena	**Drill Crew:**	
Hor.-Vert. Datum:	MSL	**Drilling Equipment:**	Shovel
Plunge:	-90 degrees	**Drilling Method:**	Hand Auger
Weather:	Sunny	**Exploration Diameter:**	9 in. O.D.

BORING LOG HA-4

Approximate Elevation (feet)	Depth (feet)	Graphical Log	FIELD EXPLORATION Approximate Ground Surface Elevation (ft.): 28 Surface Condition: Grass Lithologic Description	Sample Number	Sample Type	Blow Counts(BC)= Uncorr. Blows/6 in. Pocket Pen(PP)= tsf	Recovery (NR=No Recovery)	LABORATORY RESULTS USCS Symbol	Water Content (%)	Dry Unit Wt. (pcf)	Passing #4 (%)	Passing #200 (%)	Liquid Limit	Plasticity Index (NP=NonPlastic)	Additional Tests/ Remarks
			GRASS / TOPSOIL: 5 inches thick												
			Alluvial Deposits (Qa): **Clayey SAND (SC)**: fine to medium-grained sand, dark olive brown (2.5Y 3/3), micaceous	S1											**R-Value=** 27 Combined with Sample HA-3 S1 @ 0.5'-2'
25															
	5														
20															
	10														
15															

The hand exploration was terminated at approximately 2 ft. below ground surface. The hand exploration was backfilled with soil cuttings on February 17, 2016.

GROUNDWATER LEVEL INFORMATION:
Groundwater was not encountered during drilling or after completion.

Date Begin - End:	3/03/2016	**Drilling Company:**	Western
Logged By:	S. Rugg	**Drill Crew:**	Kirk & Bob
Hor.-Vert. Datum:	MSL	**Drilling Equipment:**	Watson 2500
Plunge:	-90 degrees	**Drilling Method:**	Auger
Weather:	Fog	**Exploration Diameter:**	24 in. O.D.

BORING LOG LD-1

FIELD EXPLORATION / LABORATORY RESULTS

Approximate Ground Surface Elevation (ft.): 70
Surface Condition: Concrete

Approximate Elevation (feet)	Depth (feet)	Lithologic Description	Sample Number	Sample Type	Blow Counts(BC)= Uncorr. Blows/6 in. Pocket Pen(PP)= tsf	Recovery (NR=No Recovery)	USCS Symbol	Water Content (%)	Dry Unit Wt. (pcf)	Passing #4 (%)	Passing #200 (%)	Liquid Limit	Plasticity Index (NP=NonPlastic)	Additional Tests/ Remarks
		CONCRETE: 3 inches thick												
		Stadium Conglomerate (Tst): **CONGLOMERATE**: medium-grained sand, well-graded to poorly-graded gravel and cobbles up to 11", with clay and sand (GW-GC to GP-GC), olive yellow (2.5Y 6/6), moist, very dense												
65	5	- 14" boulder at 5 feet	S1											
		- fines are mostly silt with some clay, brownish yellow (10YR 6/6) below 6 feet												
		- 13" boulder at 9 feet												
60	10		S2											
			S3				GP-GC	7.2		35	7.5			**pH=** 9.1 **Resistivity=** 1400 ohm-cm **Sulfates=** 74 ppm **Chlorides=** 21 ppm **R-Value=** 20 **Expansion Index=** 22
		- 15" boulder at 14 feet												
55	15		S4											
50	20													
45	25													
40	30													

The boring was terminated at approximately 15.5 ft. below ground surface. The boring was backfilled with interval layers of bentonite to surface on March 03, 2016.

GROUNDWATER LEVEL INFORMATION:
Groundwater was not encountered during drilling or after completion.

KLEINFELDER
Bright People. Right Solutions.

PROJECT NO.: 20163965	BORING LOG LD-1	FIGURE
DRAWN BY: MAP		
CHECKED BY: SHR & MA	Legacy International Center San Diego, California	C-19
DATE: 3/25/2016		
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Date Begin - End:	2/16/2016	**Drilling Company:**	Pacific Drilling	**BORING LOG LD-2**
Logged By:	S. Rugg	**Drill Crew:**	Dave & Salvador	
Hor.-Vert. Datum:	MSL	**Drilling Equipment:**	Earth Drill Bucket Rig	
Plunge:	-90 degrees	**Drilling Method:**	Rotary Bucket Auger	
Weather:	Sunny, warm	**Exploration Diameter:**	24 in. O.D.	

FIELD EXPLORATION / LABORATORY RESULTS

Approximate Ground Surface Elevation (ft.): 49
Surface Condition: Asphalt

Approximate Elevation (feet)	Depth (feet)	Lithologic Description	Sample Number	Sample Type	Blow Counts(BC)= Uncorr. Blows/6 in. Pocket Pen(PP)= tsf	Recovery (NR=No Recovery)	USCS Symbol	Water Content (%)	Dry Unit Wt. (pcf)	Passing #4 (%)	Passing #200 (%)	Liquid Limit	Plasticity Index (NP=NonPlastic)	Additional Tests/ Remarks
		ASPHALT: 3 inches thick												
		AGGREGATE BASE: 5 inches thick	S1											
45	5	<u>**Artificial Fill (af):**</u> **Silty SAND with Gravel (SM)**: fine to coarse-grained sand, fine to coarse-grained gravel, cobble up to 12", well-rounded cobble=10%, yellowish brown (10YR 5/6), moist												
40	10	**Clayey SAND with Gravel (SC)**: fine to medium-grained sand, fine to coarse-grained gravel, well-rounded cobble up to 8", medium plasticity, yellowish brown (10YR 5/6), moist - 15" boulder at 7 feet - roots at 8 feet												Difficult drilling on boulder at 9 feet
		Sandy SILT with Gravel (ML) to Clayey SAND (SC): fine-grained sand, fine to medium-grained gravel, medium plasticity, very dark grayish brown (10YR 3/2), moist	S2				SC	8.0		84	44	32	16	
35	15	<u>**Alluvial Deposits (Qa):**</u> **Sandy SILT (ML)**: fine-grained sand, fine-grained gravel, low plasticity, brown (10YR 4/3), moist, contains roots - carbonate at 16 feet	S3											
30	20	**Clayey SAND with Gravel (SC)**: fine to medium-grained sand, fine to coarse-grained gravel, cobble up to 11", medium plasticity, dark yellowish brown (10YR 4/4), moist	S4				SC	4.1		68	20	30	16	Boulder at 20.5 feet, estimated +18", very difficult drilling from 20.5 to 27.5 feet
25	25	- cobble size decreases, up to 4" below 22.5 feet	S5											
		- cobble up to 6", olive yellow (2.5Y 4/4) below 26.5 feet	S6											
20	30	- cobble up to 8", yellow (2.5Y 7/8) below 29 feet - fine to coarse-grained sand, cobble up to 4", dark brown (10YR 3/3) below 29.5 feet	S7											
15		**Sandy Lean CLAY with Gravel (CL)**: fine to medium-grained sand, fine to coarse-grained gravel, cobble up to 8", medium plasticity, yellowish brown (10YR 5/4), wet	S8											

KLEINFELDER Bright People. Right Solutions.	PROJECT NO.: 20163965 DRAWN BY: MAP CHECKED BY: SHR & MA DATE: 3/25/2016 REVISED: -	BORING LOG LD-2 Legacy International Center San Diego, California	FIGURE C-20 PAGE: 1 of 2

Date Begin - End:	2/16/2016	Drilling Company:	Pacific Drilling	**BORING LOG LD-2**
Logged By:	S. Rugg	**Drill Crew:**	Dave & Salvador	
Hor.-Vert. Datum:	MSL	**Drilling Equipment:**	Earth Drill Bucket Rig	
Plunge:	-90 degrees	**Drilling Method:**	Rotary Bucket Auger	
Weather:	Sunny, warm	**Exploration Diameter:**	24 in. O.D.	

FIELD EXPLORATION / LABORATORY RESULTS

Approximate Ground Surface Elevation (ft.): 49
Surface Condition: Asphalt

Approximate Elevation (feet)	Depth (feet)	Graphical Log	Lithologic Description	Sample Number	Sample Type	Blow Counts(BC)= Uncorr. Blows/6 in. Pocket Pen(PP)= tsf	Recovery (NR=No Recovery)	USCS Symbol	Water Content (%)	Dry Unit Wt. (pcf)	Passing #4 (%)	Passing #200 (%)	Liquid Limit	Plasticity Index (NP=NonPlastic)	Additional Tests/ Remarks
▽			**Stadium Conglomerate (Tst):** **CONGLOMERATE**: fine to medium-grained sand, fine to coarse-grained gravel, cobble up to 8", medium plasticity, light olive brown (2.5Y 5/4), wet												13 inch boulder at 36 feet
10	40														
5	45														
0	50														
-5	55														
-10	60														
-15	65														
-20															

The boring was terminated at approximately 38 ft. below ground surface. The boring was backfilled with interval layers of bentonite to surface on February 16, 2016.

GROUNDWATER LEVEL INFORMATION:
▽ Groundwater was observed at approximately 37 ft. below ground surface during drilling.

Date Begin - End:	2/22/2016 - 3/02/2016	**Drilling Company:**	Pacific Drilling / Western
Logged By:	S. Rugg	**Drill Crew:**	Dave & Salvador / Kirk & Bob
Hor.-Vert. Datum:	MSL	**Drilling Equipment:**	Earth Drill Bucket Rig / Watson 2500
Plunge:	-90 degrees	**Drilling Method:**	Rotary Bucket Auger / Auger
Weather:	Sunny, fog	**Exploration Diameter:**	24 in. O.D.

BORING LOG LD-3

FIELD EXPLORATION / LABORATORY RESULTS

Approximate Ground Surface Elevation (ft.): 70
Surface Condition: Concrete

Approximate Elevation (feet)	Depth (feet)	Lithologic Description	Sample Number	Sample Type	Blow Counts(BC)= Uncorr. Blows/6 in. Pocket Pen(PP)= tsf	Recovery (NR=No Recovery)	USCS Symbol	Water Content (%)	Dry Unit Wt. (pcf)	Passing #4 (%)	Passing #200 (%)	Liquid Limit	Plasticity Index (NP=NonPlastic)	Additional Tests/ Remarks
		CONCRETE PAVEMENT with #7 Rebar: 4 inches thick												
		Artificial Fill (af): **Silty CLAY with Sand (CL-ML)**: fine to medium-grained sand, fine to coarse-grained gravel, medium plasticity, olive brown (2.5Y 4/3), moist	S1											
65	5	- some cobble up to 8" and concrete debris at 5 feet												
		Clayey SAND with Gravel (SC) to Clayey GRAVEL with Sand (GC): fine to medium-grained sand, fine to coarse-grained gravel, cobble up to 8", medium plasticity, dark yellowish brown (10YR 3/4), moist	S2											**pH=** 8.3 **Resistivity=** 520 ohm-cm **Sulfates=** 750 ppm **Chlorides=** 200 ppm
60	10	- yellowish brown (10YR 5/4) below 10 feet	S3				GC	4.1		37	12			
		Clayey SAND (SC): fine to medium-grained sand, fine to coarse-grained gravel, medium plasticity, yellowish brown (10YR 5/4), moist												
		Sandy Lean CLAY with Gravel (CL) to Clayey SAND with Gravel (SC): fine to coarse-grained sand, fine to medium-grained gravel, medium plasticity, greenish black (10Y 2.5/1), moist, concrete debris at 13 feet	S4				SC	10.5		75	39	36	20	
55	15													
		Clayey SAND with Gravel (SC): fine to coarse-grained sand, fine to coarse-grained gravel, medium plasticity, dark greenish gray (10Y 3/1), moist, few wood debris - abundant carbonate at 17 feet - light olive brown (2.5Y 5/4) below 17 feet - 12" boulder, rootlets, brick debris at 19 feet												
50	20	**Sandy Lean CLAY with Gravel (CL) to Clayey SAND with Gravel (SC)**: fine-grained sand, cobble up to 8", medium plasticity, dark yellowish brown (10YR 4/4), moist	S5				SC	11.7		73	43			Boring terminated at 20 feet. Rig broke down. Hole backfilled with loose cuttings. Remobilized to site on 3/2/2016 and drilled out previous backfill from Bucket Rig attempt on 2/22/2016 with Watson 2500 rig and completed hole.
45	25													
		Alluvial Deposits (Qa): **Sandy Lean CLAY with Gravel (CL)**: yellowish brown (10YR 5/6)	S6											
40	30	**Poorly graded SAND with Silt and Gravel (SP-SM) to Well-Graded GRAVEL with Silt and Sand (GW-GM)**: medium-grained sand, cobbles up to 5", medium plasticity, brownish yellow (10YR 6/8), moist	S7				GW-GM	3.3		34	5.8			Heavy drill rig chatter from 30 to 39 feet due to nested cobbles

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BORING LOG LD-3

Legacy International Center
San Diego, California

FIGURE

C-21

Date Begin - End:	2/22/2016 - 3/02/2016	Drilling Company:	Pacific Drilling / Western
Logged By:	S. Rugg	Drill Crew:	Dave & Salvador / Kirk & Bob
Hor.-Vert. Datum:	MSL	Drilling Equipment:	Earth Drill Bucket Rig / Watson 2500
Plunge:	-90 degrees	Drilling Method:	Rotary Bucket Auger / Auger
Weather:	Sunny, fog	Exploration Diameter:	24 in. O.D.

BORING LOG LD-3

FIELD EXPLORATION / LABORATORY RESULTS

Approximate Ground Surface Elevation (ft.): 70
Surface Condition: Concrete

Approximate Elevation (feet)	Depth (feet)	Graphical Log	Lithologic Description	Sample Number	Sample Type	Blow Counts(BC)= Uncorr. Blows/6 in. Pocket Pen(PP)= tsf	Recovery (NR=No Recovery)	USCS Symbol	Water Content (%)	Dry Unit Wt. (pcf)	Passing #4 (%)	Passing #200 (%)	Liquid Limit	Plasticity Index (NP=NonPlastic)	Additional Tests/ Remarks
			Clayey SAND with Gravel (SC): medium-grained sand, cobbles up to 8", medium plasticity, dark yellowish brown (10YR 4/6), moist	S8											
			Silty SAND with Gravel (SM): medium-grained sand, cobbles up to 6", one 12" boulder, yellowish brown (10YR 5/6)												
30	40		**Clayey SAND with Gravel (SC)**: medium-grained sand, cobble up to 8", dark yellowish brown (10YR 4/6)												
			Stadium Conglomerate (Tst): **CONGLOMERATE**: medium-grained sand, cobble up to 4", well-graded sand, gravel and cobble, brownish yellow (10YR 6/6)	S9				SW-SM	16.4		90	9.2			
25	45		- medium-grained sand, gravel up to 3", strong brown (7.5YR 5/8), wet below 43 feet												Perched groundwater from 43 to 44.5 feet
			- cobble up to 5", yellow (10YR 7/6) below 44.5 feet	S10											
															Hole collapsing at 48.5 feet
20	50														
15	55														
10	60														
5	65														

The boring was terminated at approximately 48.5 ft. below ground surface. The boring was backfilled with interval layers of bentonite to surface on March 02, 2016.

GROUNDWATER LEVEL INFORMATION:
Perched groundwater was observed at approximately 43 ft. below ground surface during drilling.

PROJECT NO.: 20163965	BORING LOG LD-3	FIGURE
DRAWN BY: MAP		C-21
CHECKED BY: SHR & MA	Legacy International Center San Diego, California	
DATE: 3/25/2016		
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Date Begin - End:	3/02/2016	**Drilling Company:**	Western
Logged By:	S. Rugg	**Drill Crew:**	Kirk & Bob
Hor.-Vert. Datum:	MSL	**Drilling Equipment:**	Watson 2500
Plunge:	-90 degrees	**Drilling Method:**	Auger
Weather:	Sunny	**Exploration Diameter:**	24 in. O.D.

BORING LOG LD-4

Approximate Ground Surface Elevation (ft.): 70
Surface Condition: Concrete

Approximate Elevation (feet)	Depth (feet)	Lithologic Description	Sample Number	Sample Type	Blow Counts(BC)= Uncorr. Blows/6 in. Pocket Pen(PP)= tsf	Recovery (NR=No Recovery)	USCS Symbol	Water Content (%)	Dry Unit Wt. (pcf)	Passing #4 (%)	Passing #200 (%)	Liquid Limit	Plasticity Index (NP=NonPlastic)	Additional Tests/ Remarks
		CONCRETE PAVEMENT: 3 inches thick												
		Artificial Fill (af): **Clayey SAND with Gravel (SC)**: fine to medium-grained sand, cobble up to 7", one boulder at 13", medium plasticity, light olive brown (2.5Y 5/6), moist	S1	☒										**pH=** 8.9 **Resistivity=** 560 ohm-cm **Sulfates=** 170 ppm **Chlorides=** 290 ppm
65	5	**Alluvial Deposits (Qa):** **Clayey SAND with Gravel (SC)**: fine to medium-grained sand, cobble up to 8", medium plasticity, dark yellowish brown (10YR 4/6), moist	S2	☒			SC	4.3		54	22			
60	10	**Stadium Conglomerate (Tst):** **CONGLOMERATE**: fine to medium-grained sand, cobble up to 6", some clay, medium plasticity, dark brown (10YR 3/3), moist - cobble up to 10", dark yellowish brown (10YR 4/4) and poorly-graded SAND below 13.5 feet	S3	☒			SP-SC	3.5		54	12			
55	15	- cobble up to 6", one boulder at 13", well-graded gravel and cobble, brownish yellow (10YR 5/6) below 16.5 feet	S4	☒										
50	20	- cobble up to 6", strong brown (7.5YR 5/8) below 20 feet	S5	☒										
		- yellowish brown (10YR 5/8) below 23 feet - 15" boulder at 24 feet - brownish yellow (10YR 6/6) below 24 feet - 6" silty sandstone lense, light gray (10YR 7/1) at 25 feet	S6	☒										
45	25													
40	30													

The boring was terminated at approximately 26 ft. below ground surface. The boring was backfilled with interval layers of bentonite to surface on March 02, 2016.

GROUNDWATER LEVEL INFORMATION:
Groundwater was not encountered during drilling or after completion.

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PROJECT NO.: 20163965	BORING LOG LD-4		FIGURE
DRAWN BY: MAP			
CHECKED BY: SHR & MA	Legacy International Center San Diego, California		C-22
DATE: 3/25/2016			
REVISED: -			PAGE: 1 of 1

APPENDIX D
CONE PENETRATION TESTS

APPENDIX D
CONE PENETRATION TESTS

Cone penetrometer test (CPT) soundings were advanced by Gregg In-situ, Inc. personnel on February 11, 2016 through February 12, 2016 at ten locations under the supervision of a Kleinfelder engineer. The CPTs extended to depths of approximately 11 to 40 feet. The CPTs utilized a 25-ton truck capacity electronic cone with a tip area of 15 cm^2 and a 225 cm^2 sleeve area. The CPT soundings consisted of pushing the conical tipped rod into the soil at a constant rate of two centimeters per second. Resistance along the shaft of the rod, as well as resistance on the conical tip, was measured continuously.

Each CPT location was backfilled with hydrated bentonite chips and finished flush with the surrounding surface grade with asphalt patch or soil. The graphical data plots for each location are presented in this Appendix.

Soil descriptions on the CPT sounding are inferred based on correlations to CPT measurements. Direct observations of soil conditions encountered are not made with the CPT, and it is not always possible to clearly identify the soil type solely based on the CPT measurements. Where CPT interpretations were required for our analyses, Kleinfelder reviewed the results of the CPT sounding against our laboratory and test boreholes. Inference of the soil classifications from the CPT soundings by other parties should be made with caution, and should be cross checked with soil borehole data and available corresponding laboratory test data.

Cone Penetration Testing Procedure (CPT)

Gregg Drilling carries out all Cone Penetration Tests (CPT) using an integrated electronic cone system, *Figure CPT*.

The cone takes measurements of tip resistance (q_c), sleeve resistance (f_s), and penetration pore water pressure (u_2). Measurements are taken at either 2.5 or 5 cm intervals during penetration to provide a nearly continuous profile. CPT data reduction and basic interpretation is performed in real time facilitating on-site decision making. The above mentioned parameters are stored electronically for further analysis and reference. All CPT soundings are performed in accordance with revised ASTM standards (D 5778-12).

The 5mm thick porous plastic filter element is located directly behind the cone tip in the u_2 location. A new saturated filter element is used on each sounding to measure both penetration pore pressures as well as measurements during a dissipation test (*PPDT*). Prior to each test, the filter element is fully saturated with oil under vacuum pressure to improve accuracy.

When the sounding is completed, the test hole is backfilled according to client specifications. If grouting is used, the procedure generally consists of pushing a hollow tremie pipe with a "knock out" plug to the termination depth of the CPT hole. Grout is then pumped under pressure as the tremie pipe is pulled from the hole. Disruption or further contamination to the site is therefore minimized.

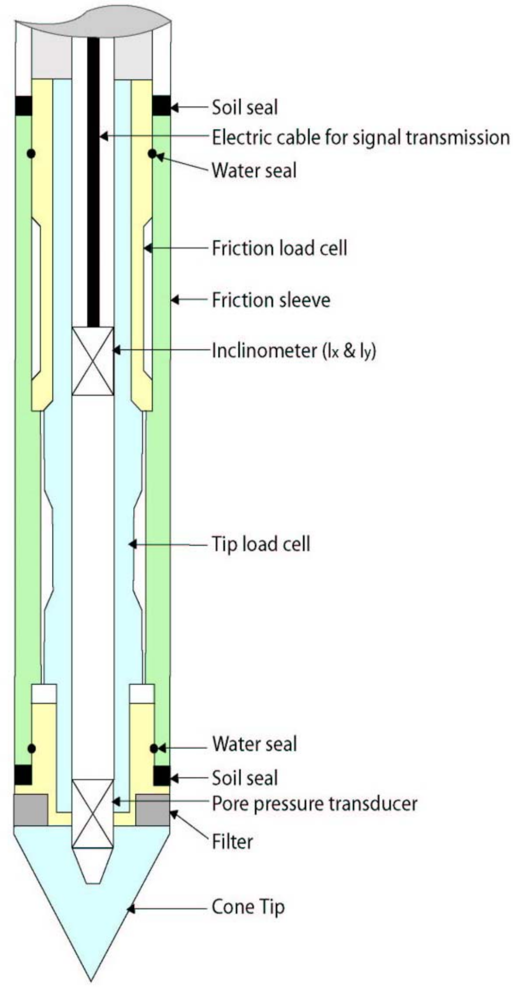


Figure CPT

Gregg 15cm^2 Standard Cone Specifications

Dimensions	
Cone base area	15 cm^2
Sleeve surface area	225 cm^2
Cone net area ratio	0.80
Specifications	
Cone load cell	
Full scale range	180 kN (20 tons)
Overload capacity	150%
Full scale tip stress	120 MPa (1,200 tsf)
Repeatability	120 kPa (1.2 tsf)
Sleeve load cell	
Full scale range	31 kN (3.5 tons)
Overload capacity	150%
Full scale sleeve stress	1,400 kPa (15 tsf)
Repeatability	1.4 kPa (0.015 tsf)
Pore pressure transducer	
Full scale range	7,000 kPa (1,000 psi)
Overload capacity	150%
Repeatability	7 kPa (1 psi)

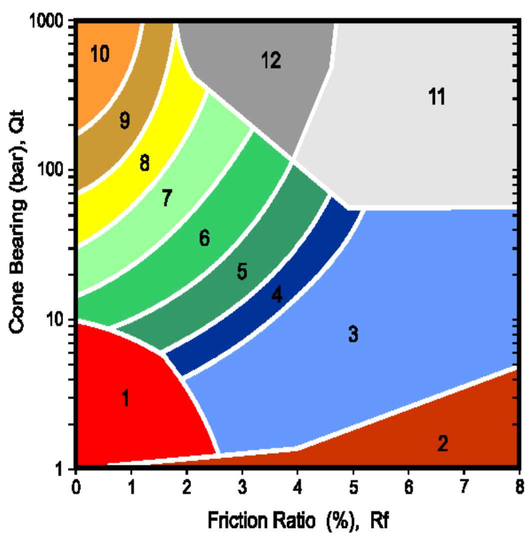
Note: The repeatability during field use will depend somewhat on ground conditions, abrasion, maintenance and zero load stability.

Cone Penetration Test Data & Interpretation

The Cone Penetration Test (CPT) data collected are presented in graphical and electronic form in the report. The plots include interpreted Soil Behavior Type (SBT) based on the charts described by Robertson (1990). Typical plots display SBT based on the non-normalized charts of Robertson et al (1986). For CPT soundings deeper than 30m, we recommend the use of the normalized charts of Robertson (1990) which can be displayed as SBTn, upon request. The report also includes spreadsheet output of computer calculations of basic interpretation in terms of SBT and SBTn and various geotechnical parameters using current published correlations based on the comprehensive review by Lunne, Robertson and Powell (1997), as well as recent updates by Professor Robertson (Guide to Cone Penetration Testing, 2015). The interpretations are presented only as a guide for geotechnical use and should be carefully reviewed. Gregg Drilling & Testing Inc. does not warranty the correctness or the applicability of any of the geotechnical parameters interpreted by the software and does not assume any liability for use of the results in any design or review. The user should be fully aware of the techniques and limitations of any method used in the software. Some interpretation methods require input of the groundwater level to calculate vertical effective stress. An estimate of the in-situ groundwater level has been made based on field observations and/or CPT results, but should be verified by the user.

A summary of locations and depths is available in Table 1. Note that all penetration depths referenced in the data are with respect to the existing ground surface.

Note that it is not always possible to clearly identify a soil type based solely on q_t, f_s, and u_2. In these situations, experience, judgment, and an assessment of the pore pressure dissipation data should be used to infer the correct soil behavior type.



ZONE		SBT
1		Sensitive, fine grained
2		Organic materials
3		Clay
4		Silty clay to clay
5		Clayey silt to silty clay
6		Sandy silt to clayey silt
7		Silty sand to sandy silt
8		Sand to silty sand
9		Sand
10		Gravely sand to sand
11		Very stiff fine grained*
12		Sand to clayey sand*

*over consolidated or cemented

Figure SBT (After Robertson et al., 1986) – Note: Colors may vary slightly compared to plots

Cone Penetration Test (CPT) Interpretation

Gregg uses a proprietary CPT interpretation and plotting software. The software takes the CPT data and performs basic interpretation in terms of soil behavior type (SBT) and various geotechnical parameters using current published empirical correlations based on the comprehensive review by Lunne, Robertson and Powell (1997). The interpretation is presented in tabular format using MS Excel. The interpretations are presented only as a guide for geotechnical use and should be carefully reviewed. Gregg does not warranty the correctness or the applicability of any of the geotechnical parameters interpreted by the software and does not assume any liability for any use of the results in any design or review. The user should be fully aware of the techniques and limitations of any method used in the software.

The following provides a summary of the methods used for the interpretation. Many of the empirical correlations to estimate geotechnical parameters have constants that have a range of values depending on soil type, geologic origin and other factors. The software uses 'default' values that have been selected to provide, in general, conservatively low estimates of the various geotechnical parameters.

Input:

1. Units for display (Imperial or metric) (atm. pressure, p_a = 0.96 tsf or 0.1 MPa)
2. Depth interval to average results (ft or m). Data are collected at either 0.02 or 0.05m and can be averaged every 1, 3 or 5 intervals.
3. Elevation of ground surface (ft or m)
4. Depth to water table, z_w (ft or m) – input required
5. Net area ratio for cone, a (default to 0.80)
6. Relative Density constant, C_{Dr} (default to 350)
7. Young's modulus number for sands, α (default to 5)
8. Small strain shear modulus number
   a. for sands, S_G (default to 180 for SBT_n 5, 6, 7)
   b. for clays, C_G (default to 50 for SBT_n 1, 2, 3 & 4)
9. Undrained shear strength cone factor for clays, N_{kt} (default to 15)
10. Over Consolidation ratio number, k_{ocr} (default to 0.3)
11. Unit weight of water, (default to γ_w = 62.4 lb/ft^3 or 9.81 kN/m^3)

Column

1. Depth, z, (m) – CPT data is collected in meters
2. Depth (ft)
3. Cone resistance, q_c (tsf or MPa)
4. Sleeve resistance, f_s (tsf or MPa)
5. Penetration pore pressure, u (psi or MPa), measured behind the cone (i.e. u_2)
6. Other – any additional data
7. Total cone resistance, q_t (tsf or MPa) $q_t = q_c + u\,(1-a)$

8	Friction Ratio, R_f (%)	$R_f = (f_s/q_t) \times 100\%$
9	Soil Behavior Type (non-normalized), SBT	see note
10	Unit weight, γ (pcf or kN/m^3)	based on SBT, see note
11	Total overburden stress, σ_v (tsf)	$\sigma_{vo} = \sigma\ z$
12	In-situ pore pressure, u_o (tsf)	$u_o = \gamma_w (z - z_w)$
13	Effective overburden stress, σ'_{vo} (tsf)	$\sigma'_{vo} = \sigma_{vo} - u_o$
14	Normalized cone resistance, Q_{t1}	$Q_{t1} = (q_t - \sigma_{vo}) / \sigma'_{vo}$
15	Normalized friction ratio, F_r (%)	$F_r = f_s / (q_t - \sigma_{vo}) \times 100\%$
16	Normalized Pore Pressure ratio, B_q	$B_q = u - u_o / (q_t - \sigma_{vo})$
17	Soil Behavior Type (normalized), SBT_n	see note
18	SBT_n Index, I_c	see note
19	Normalized Cone resistance, Q_{tn} (n varies with I_c)	see note
20	Estimated permeability, k_{SBT} (cm/sec or ft/sec)	see note
21	Equivalent SPT N_{60}, blows/ft	see note
22	Equivalent SPT $(N_1)_{60}$ blows/ft	see note
23	Estimated Relative Density, D_r, (%)	see note
24	Estimated Friction Angle, ϕ', (degrees)	see note
25	Estimated Young's modulus, E_s (tsf)	see note
26	Estimated small strain Shear modulus, Go (tsf)	see note
27	Estimated Undrained shear strength, s_u (tsf)	see note
28	Estimated Undrained strength ratio	s_u/σ_v'
29	Estimated Over Consolidation ratio, OCR	see note

Notes:

1 Soil Behavior Type (non-normalized), SBT (Lunne et al., 1997 and table below)

2 Unit weight, γ either constant at 119 pcf or based on Non-normalized SBT (Lunne et al., 1997 and table below)

3 Soil Behavior Type (Normalized), SBT_n Lunne et al. (1997)

4 SBT_n Index, I_c $I_c = ((3.47 - \log Q_{t1})^2 + (\log F_r + 1.22)^2)^{0.5}$

5 Normalized Cone resistance, Q_{tn} (n varies with Ic)

$Q_{tn} = ((q_t - \sigma_{vo})/pa)\ (pa/(\sigma'_{vo})^n$ and recalculate I_c, then iterate:

When $I_c < 1.64$, n = 0.5 (clean sand)
When $I_c > 3.30$, n = 1.0 (clays)
When $1.64 < I_c < 3.30$, $n = (I_c - 1.64)0.3 + 0.5$
Iterate until the change in n, $\Delta n < 0.01$

6 Estimated permeability, k_{SBT} based on Normalized SBT_n (Lunne et al., 1997 and table below)

7 Equivalent SPT N_{60}, blows/ft Lunne et al. (1997)

$$\frac{(q_t/p_a)}{N_{60}} = 8.5\left(1 - \frac{I_c}{4.6}\right)$$

8 Equivalent SPT $(N_1)_{60}$ blows/ft $(N_1)_{60} = N_{60}\, C_N,$
where $C_N = (pa/\sigma'_{vo})^{0.5}$

9 Relative Density, D_r, (%) $D_r^2 = Q_{tn} / C_{Dr}$
Only SBT_n 5, 6, 7 & 8 *Show 'N/A' in zones 1, 2, 3, 4 & 9*

10 Friction Angle, ϕ', (degrees) $\tan \phi ' = \frac{1}{2.68}\left[\log\left(\frac{q_c}{\sigma'_{vo}}\right) + 0.29\right]$

Only SBT_n 5, 6, 7 & 8 *Show'N/A' in zones 1, 2, 3, 4 & 9*

11 Young's modulus, E_s $E_s = \alpha\, q_t$
Only SBT_n 5, 6, 7 & 8 *Show 'N/A' in zones 1, 2, 3, 4 & 9*

12 Small strain shear modulus, Go

a. $G_o = S_G\,(q_t\ \ \sigma'_{vo}\ pa)^{1/3}$ *For SBT_n 5, 6, 7*

b. $G_o = C_G\, q_t$ *For SBT_n 1, 2, 3& 4*

Show 'N/A' in zones 8 & 9

13 Undrained shear strength, s_u $s_u = (q_t - \sigma_{vo}) / N_{kt}$
Only SBT_n 1, 2, 3, 4 & 9 *Show 'N/A' in zones 5, 6, 7 & 8*

14 Over Consolidation ratio, OCR $OCR = k_{ocr}\, Q_{t1}$
Only SBT_n 1, 2, 3, 4 & 9 *Show 'N/A' in zones 5, 6, 7 & 8*

The following updated and simplified SBT descriptions have been used in the software:

SBT Zones		**SBT_n Zones**	
1	sensitive fine grained	1	sensitive fine grained
2	organic soil	2	organic soil
3	clay	3	clay
4	clay & silty clay	4	clay & silty clay
5	clay & silty clay		
6	sandy silt & clayey silt		

7	silty sand & sandy silt	5	silty sand & sandy silt
8	sand & silty sand	6	sand & silty sand
9	sand		
10	sand	7	sand
11	very dense/stiff soil*	8	very dense/stiff soil*
12	very dense/stiff soil*	9	very dense/stiff soil*

*heavily overconsolidated and/or cemented

Track when soils fall with zones of same description and print that description (i.e. if soils fall only within SBT zones 4 & 5, print 'clays & silty clays')

Estimated Permeability (see Lunne et al., 1997)

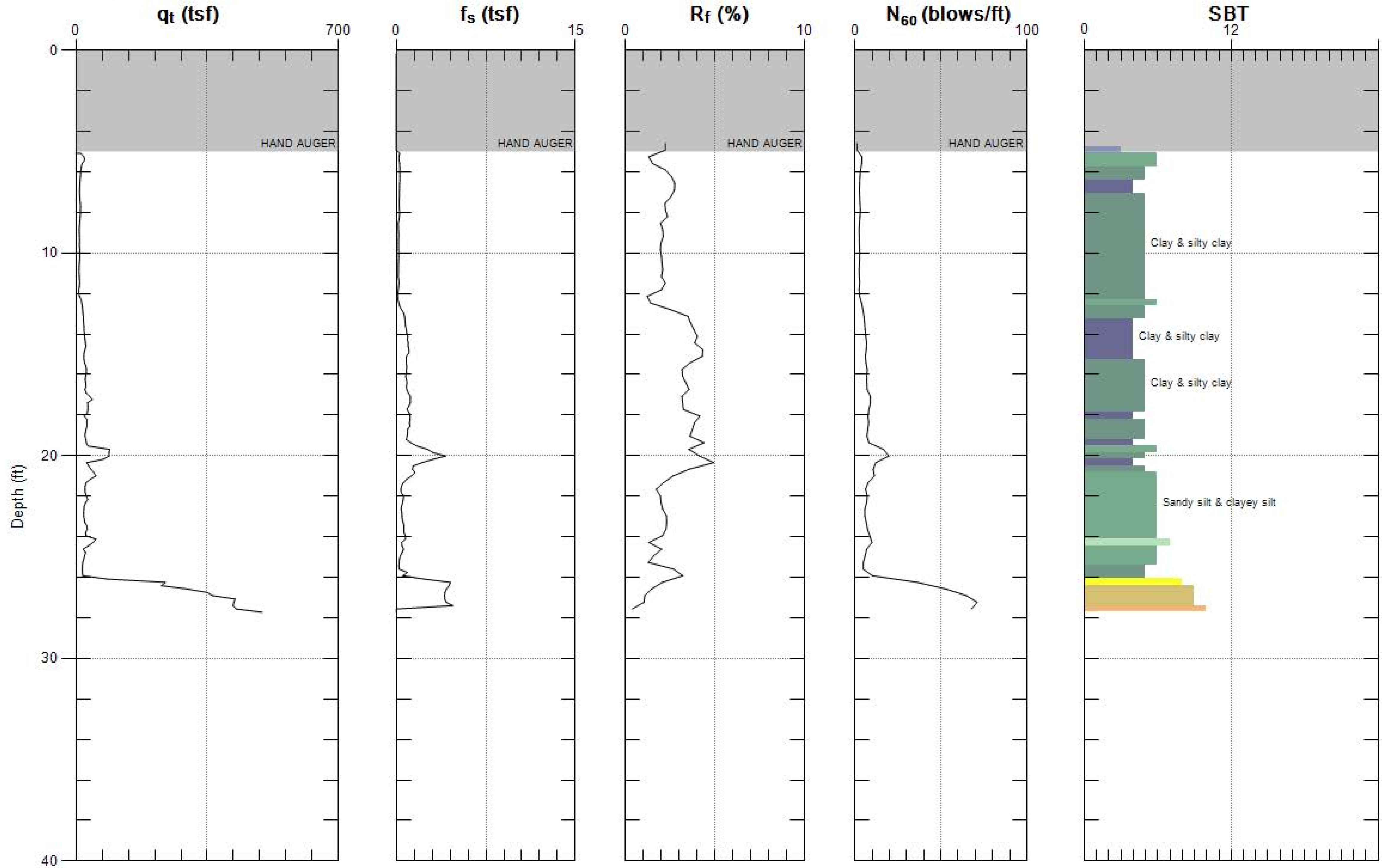
SBT_n	Permeability (ft/sec)	(m/sec)
1	3x 10^{-8}	1x 10^{-8}
2	3x 10^{-7}	1x 10^{-7}
3	1x 10^{-9}	3x 10^{-10}
4	3x 10^{-8}	1x 10^{-8}
5	3x 10^{-6}	1x 10^{-6}
6	3x 10^{-4}	1x 10^{-4}
7	3x 10^{-2}	1x 10^{-2}
8	3x 10^{-6}	1x 10^{-6}
9	1x 10^{-8}	3x 10^{-9}

Estimated Unit Weight (see Lunne et al., 1997)

SBT	Approximate Unit Weight (lb/ft^3)	(kN/m^3)
1	111.4	17.5
2	79.6	12.5
3	111.4	17.5
4	114.6	18.0
5	114.6	18.0
6	114.6	18.0
7	117.8	18.5
8	120.9	19.0
9	124.1	19.5
10	127.3	20.0
11	130.5	20.5
12	120.9	19.0

KLEINFELDER

Site: LEGACY INTL. CNTR.
Sounding: CPT-1
Engineer: T.GRINDSTAFF
Date: 2/11/2016 03:13



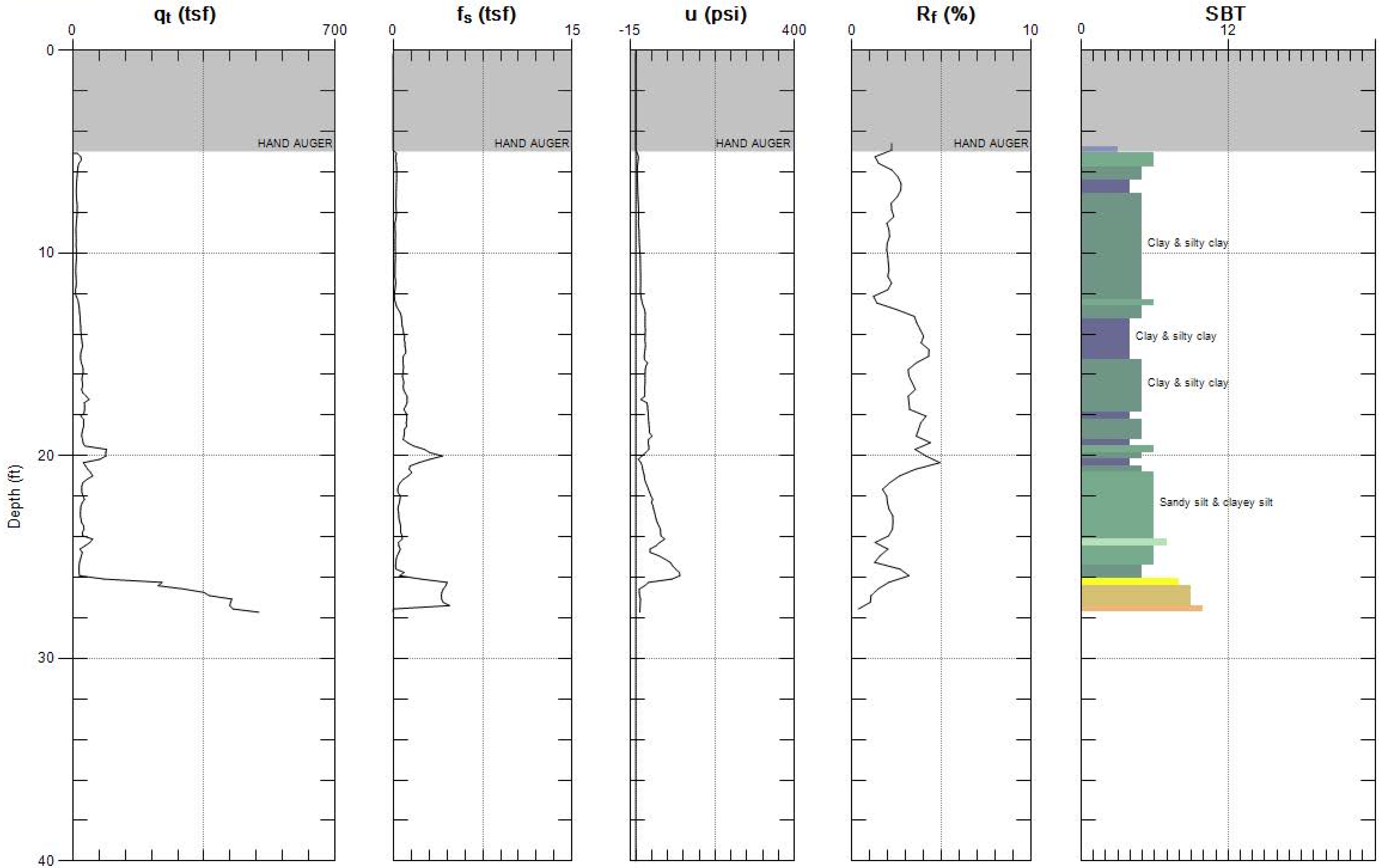
Max. Depth: 27.723 (ft)
Avg. Interval: 0.328 (ft)

SBT: Soil Behavior Type (Robertson 1990)

GREGG KLEINFELDER

Site: LEGACY INTL. CNTR.
Sounding: CPT-1

Engineer: T.GRINDSTAFF
Date: 2/11/2016 03:13



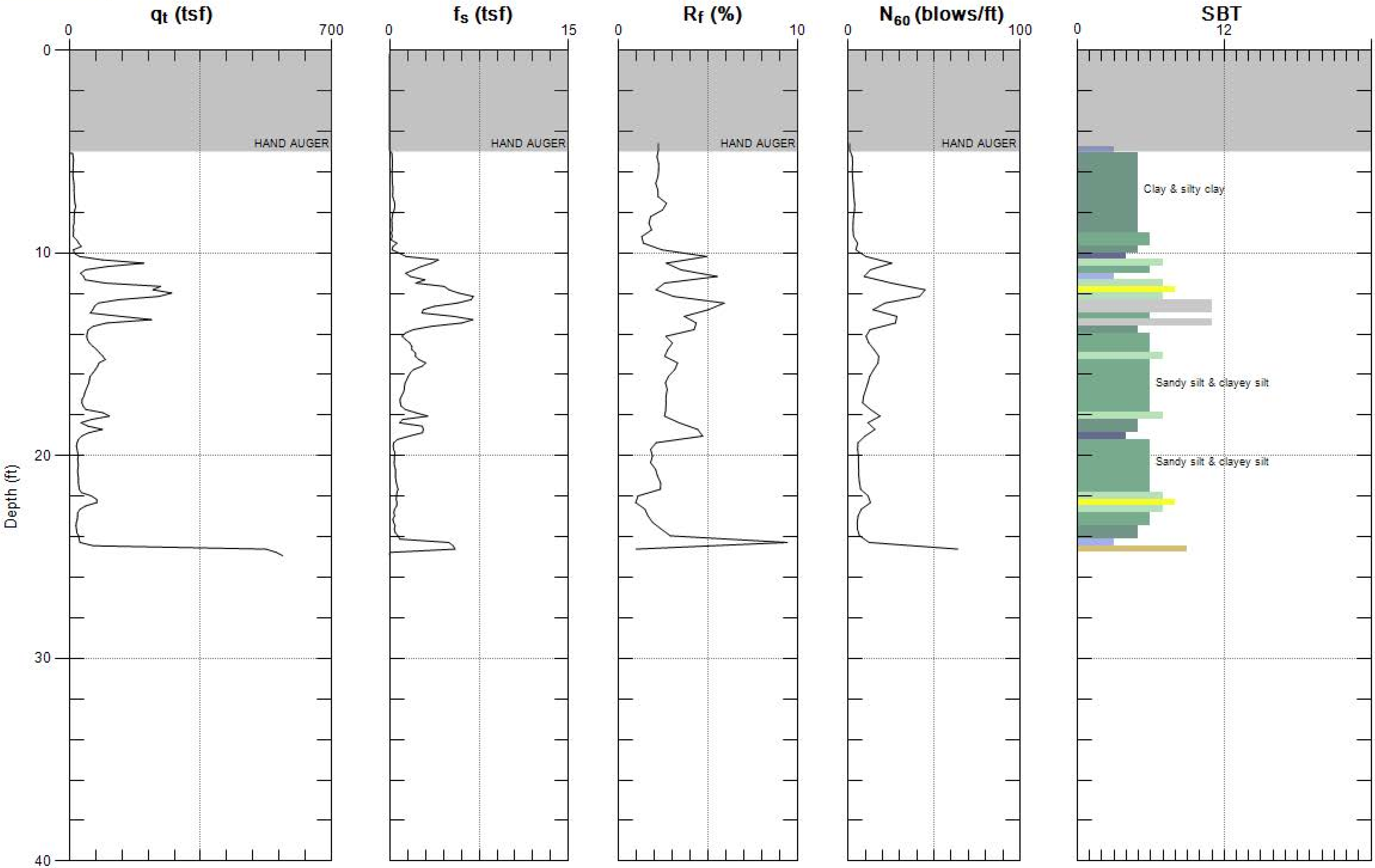
Max. Depth: 27.723 (ft)
Avg. Interval: 0.328 (ft)

SBT: Soil Behavior Type (Robertson 1990)

GREGG

KLEINFELDER

Site: LEGACY INTL. CNTR.
Engineer: T.GRINDSTAFF
Sounding: CPT-2
Date: 2/11/2016 02:10



Max. Depth: 24.934 (ft)
Avg. Interval: 0.328 (ft)

SBT: Soil Behavior Type (Robertson 1990)

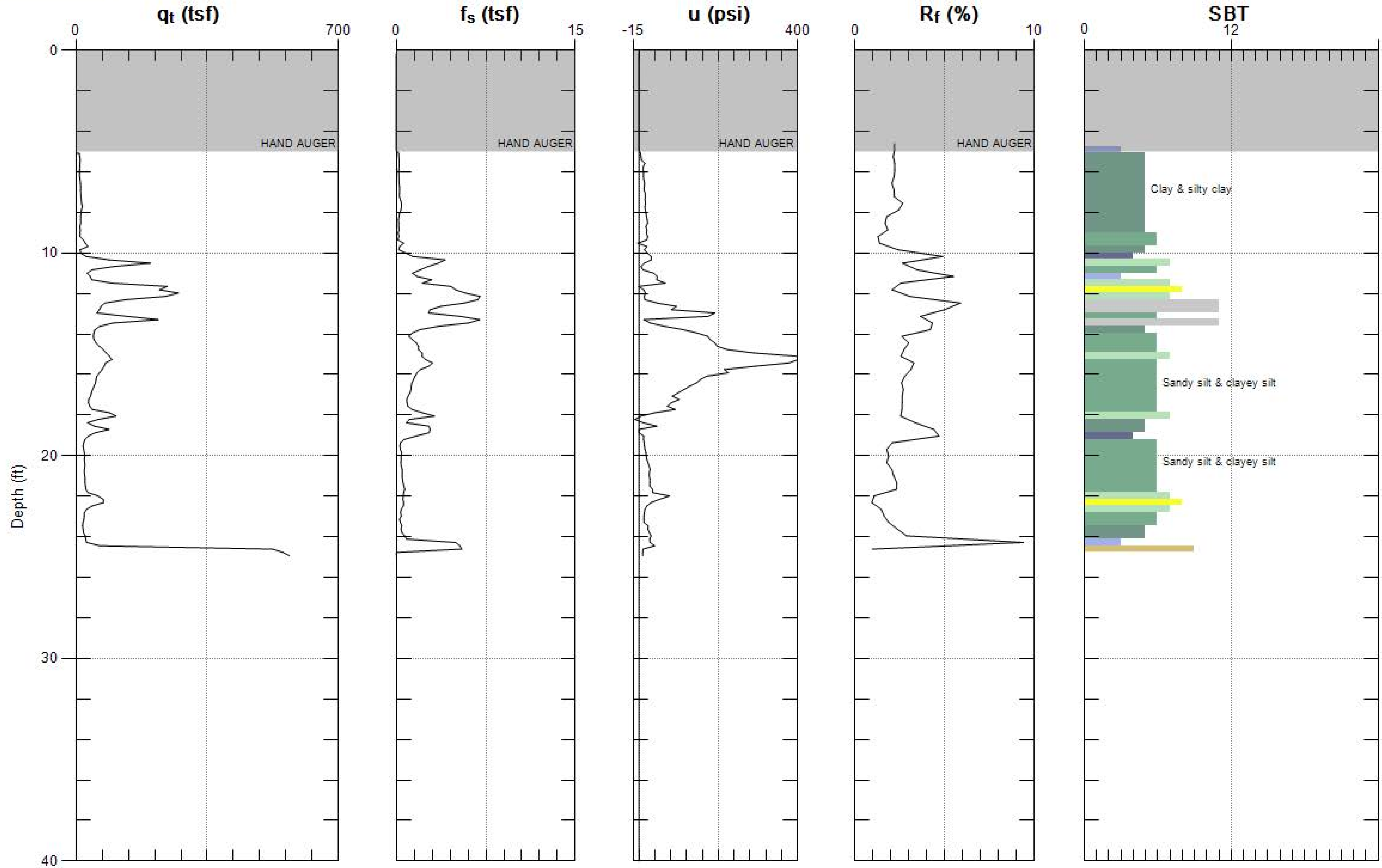
KLEINFELDER

Site: LEGACY INTL. CNTR.

Sounding: CPT-2

Engineer: T.GRINDSTAFF

Date: 2/11/2016 02:10



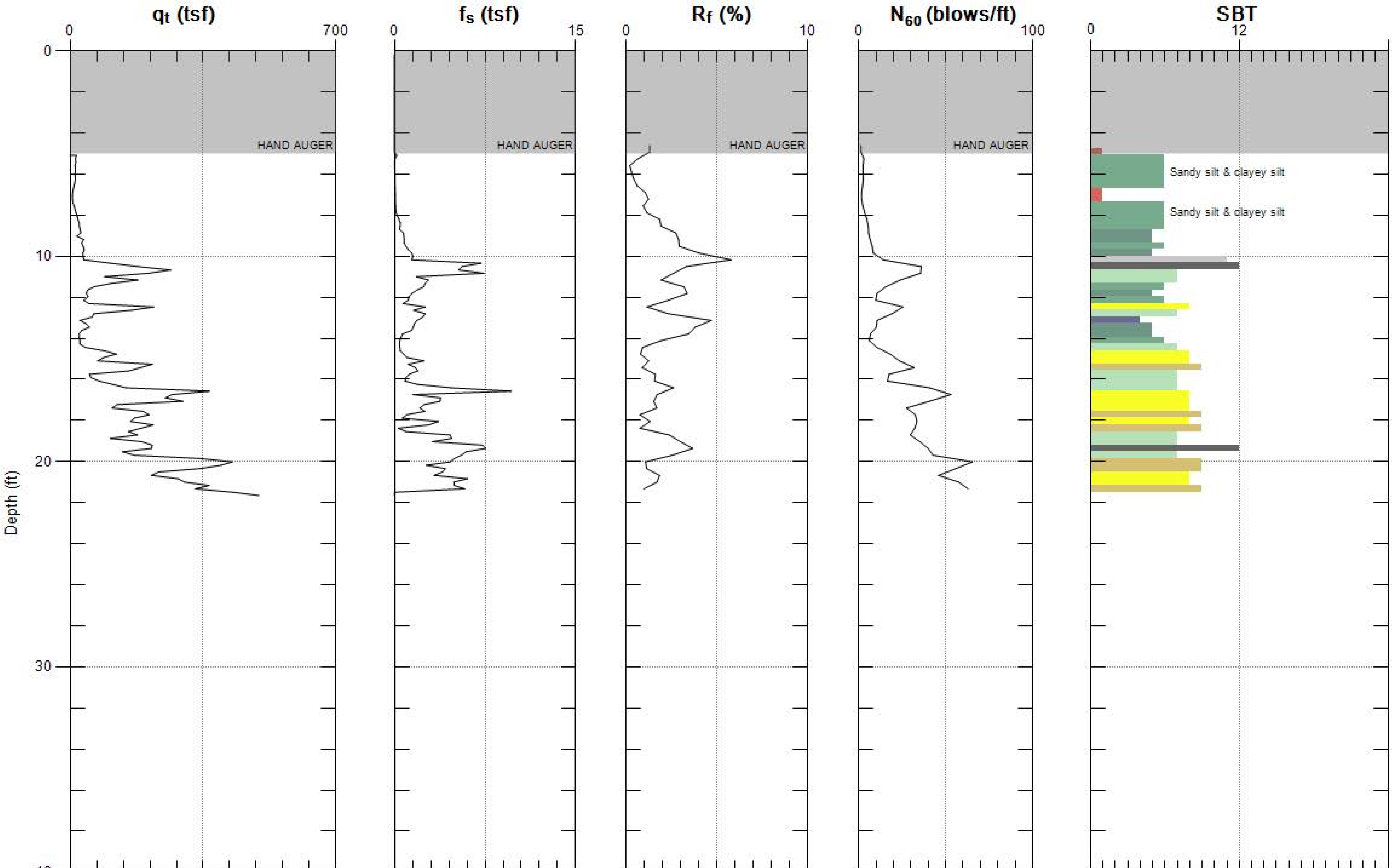
Max. Depth: 24.934 (ft)
Avg. Interval: 0.328 (ft)

SBT: Soil Behavior Type (Robertson 1990)

KLEINFELDER

Site: LEGACY INTL. CNTR.
Sounding: CPT-3a

Engineer: T.GRINDSTAFF
Date: 2/12/2016 10:42



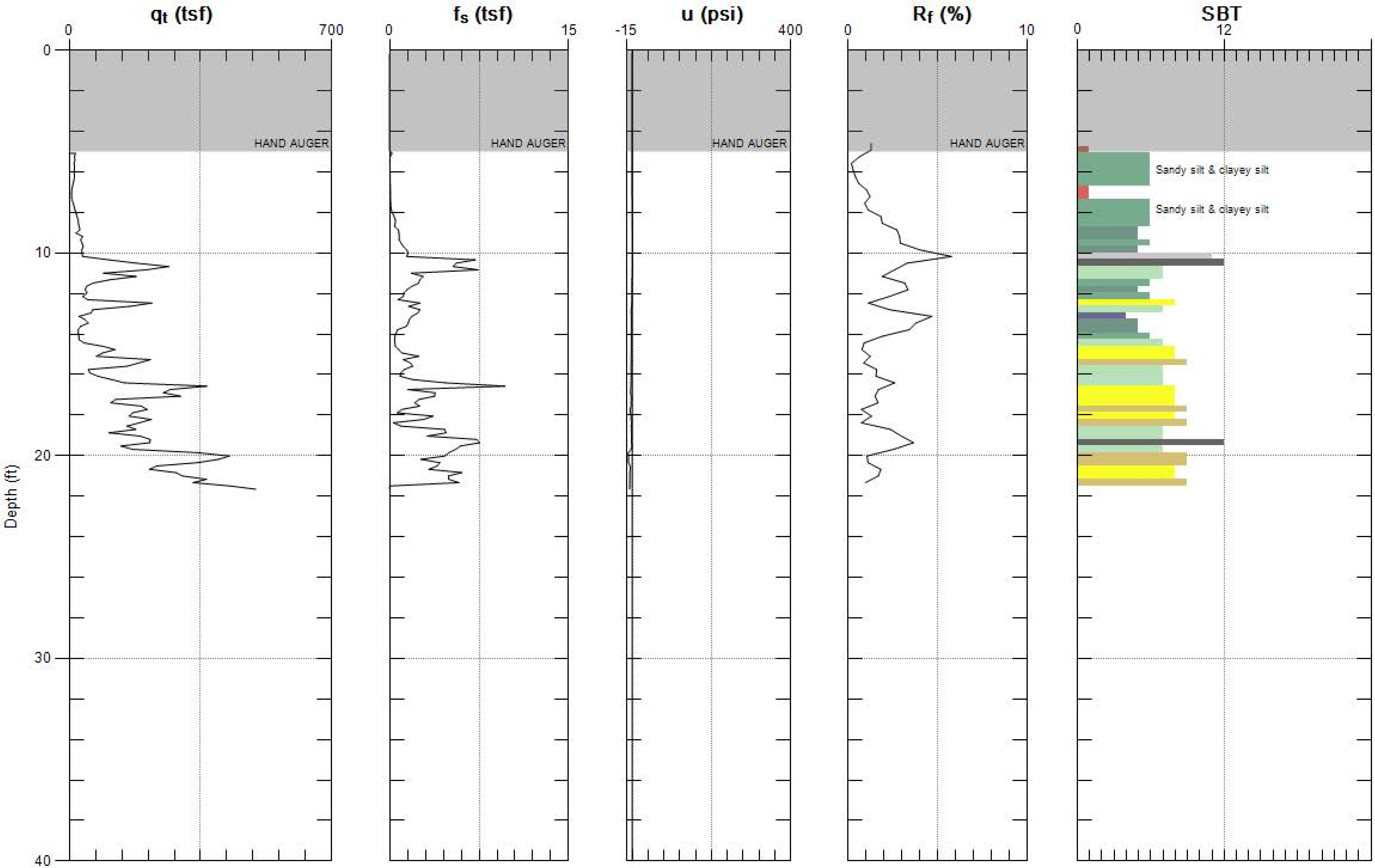
Max. Depth: 21.654 (ft)
Avg. Interval: 0.328 (ft)

SBT: Soil Behavior Type (Robertson 1990)

GREGG **KLEINFELDER**

Site: LEGACY INTL. CNTR.
Sounding: CPT-3a

Engineer: T.GRINDSTAFF
Date: 2/12/2016 10:42



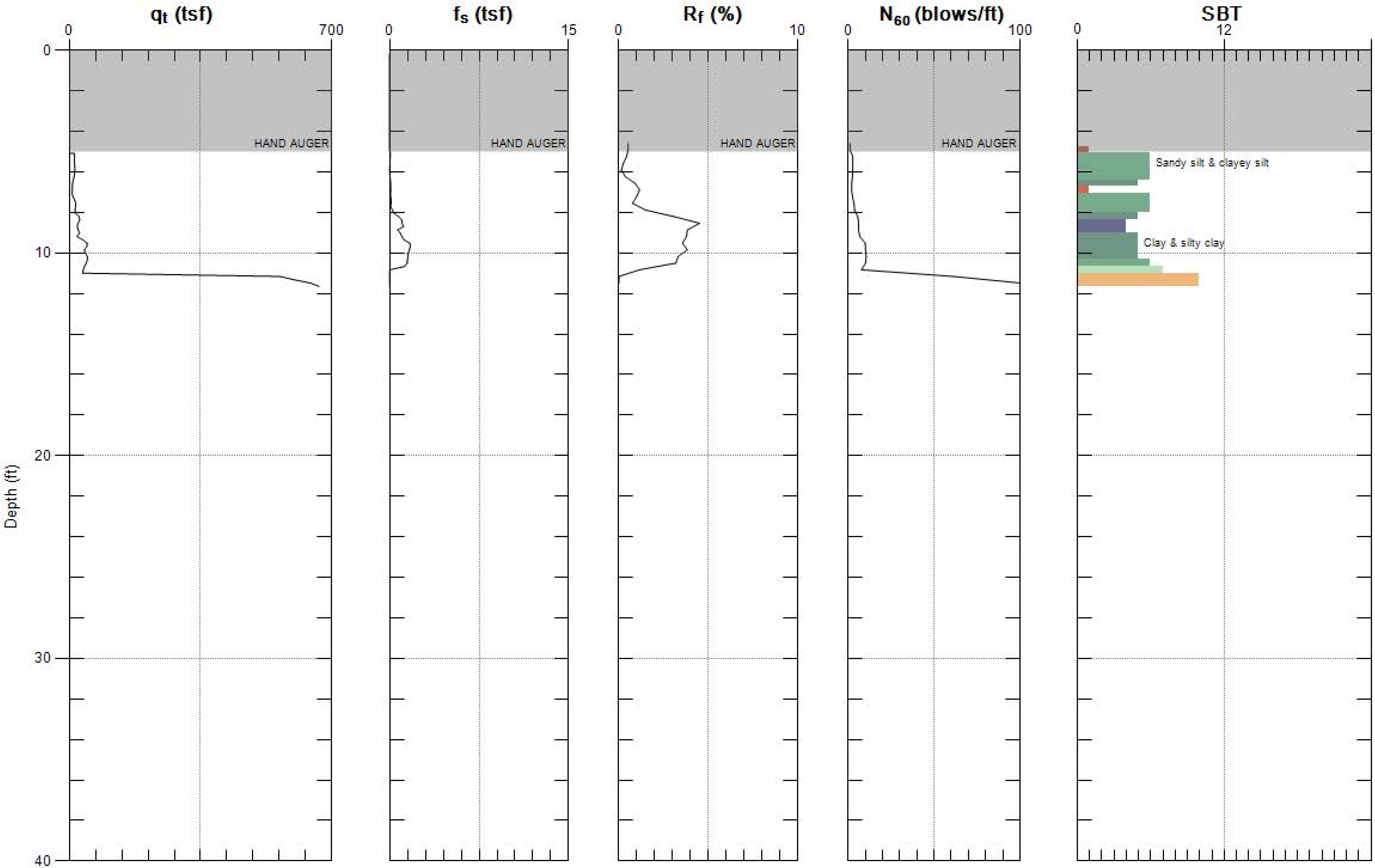
Max. Depth: 21.654 (ft)
Avg. Interval: 0.328 (ft)

SBT: Soil Behavior Type (Robertson 1990)

GREGG **KLEINFELDER**

Site: LEGACY INTL. CNTR.
Sounding: CPT-3

Engineer: T.GRINDSTAFF
Date: 2/12/2016 10:12

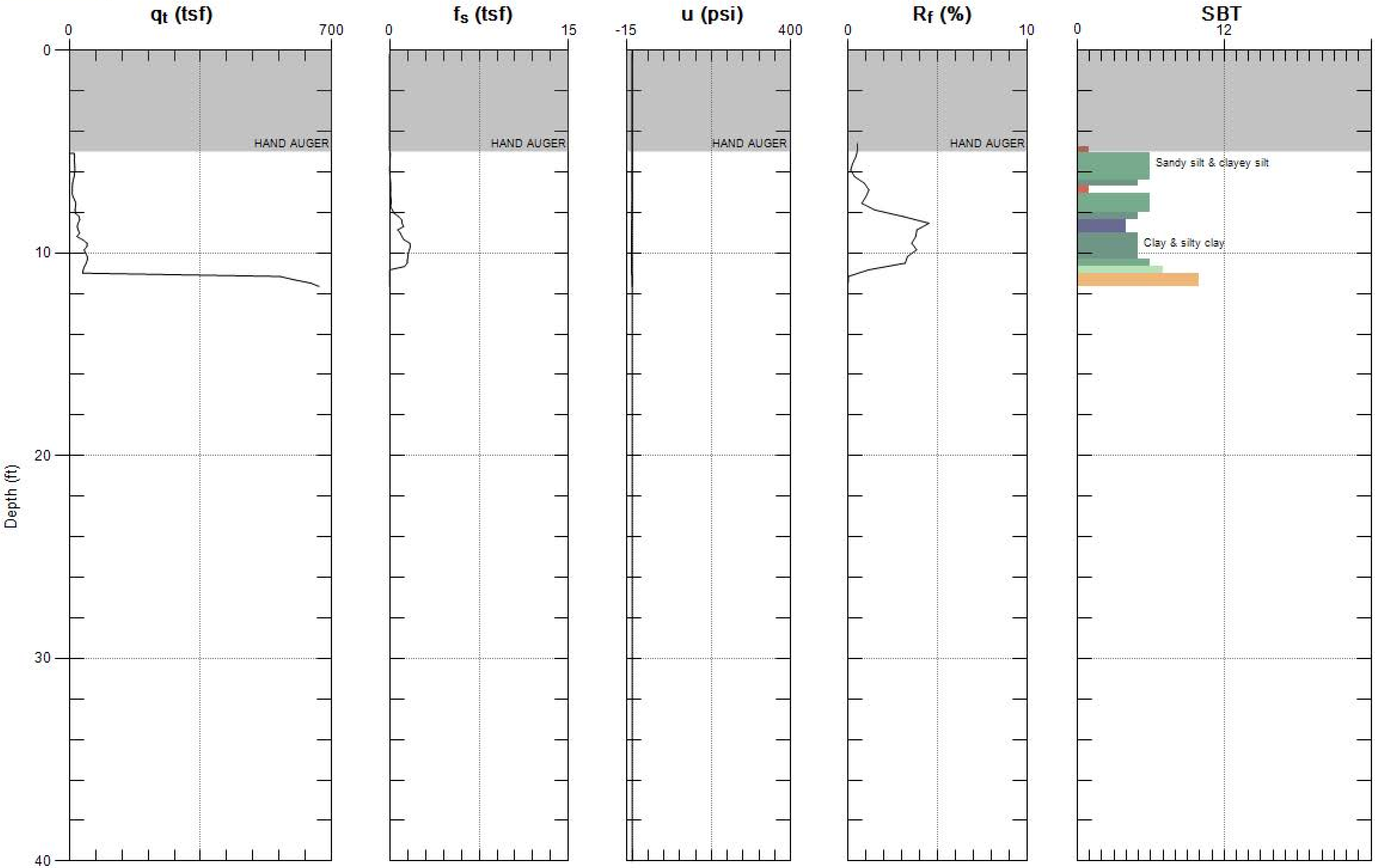


Max. Depth: 11.647 (ft)
Avg. Interval: 0.328 (ft)

SBT: Soil Behavior Type (Robertson 1990)

GREGG **KLEINFELDER**

Site: LEGACY INTL. CNTR.
Engineer: T.GRINDSTAFF
Sounding: CPT-3
Date: 2/12/2016 10:12

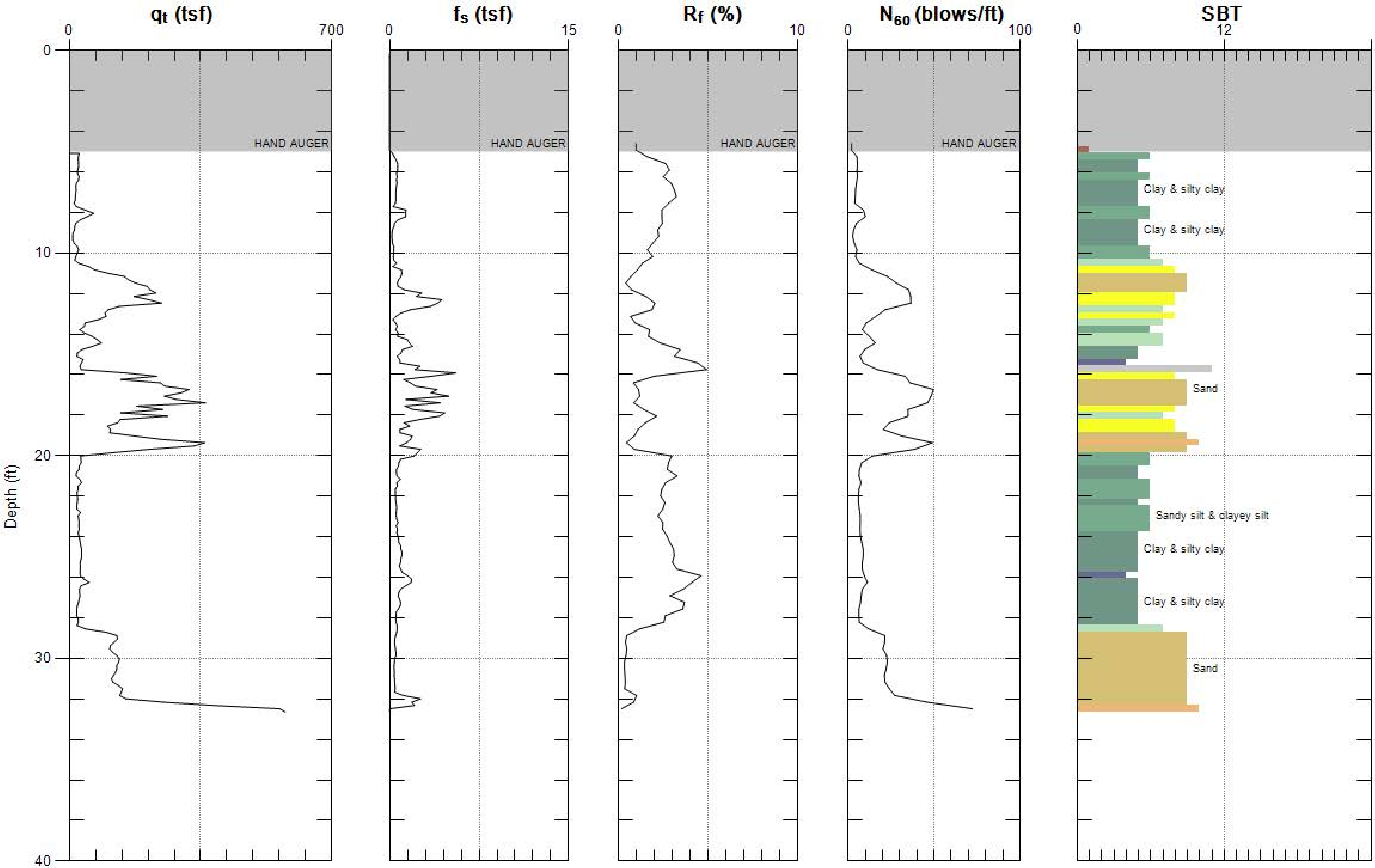


Max. Depth: 11.647 (ft)
Avg. Interval: 0.328 (ft)

SBT: Soil Behavior Type (Robertson 1990)

GREGG **KLEINFELDER**

Site: LEGACY INTL. CNTR. Engineer: T.GRINDSTAFF
Sounding: CPT-4a Date: 2/12/2016 08:15



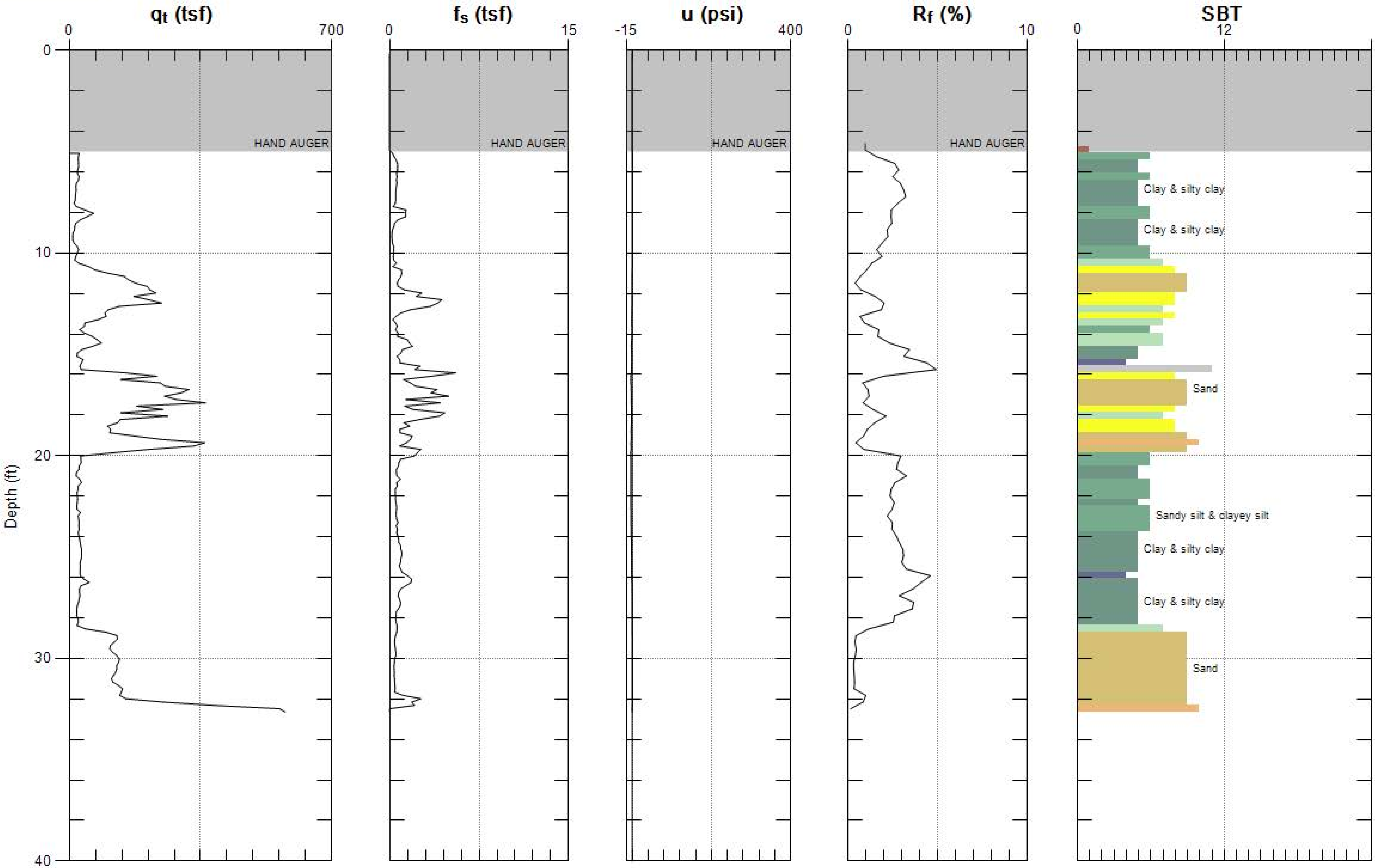
Max. Depth: 32.644 (ft)
Avg. Interval: 0.328 (ft)

SBT: Soil Behavior Type (Robertson 1990)

GREGG KLEINFELDER

Site: LEGACY INTL. CNTR.
Sounding: CPT-4a

Engineer: T.GRINDSTAFF
Date: 2/12/2016 08:15



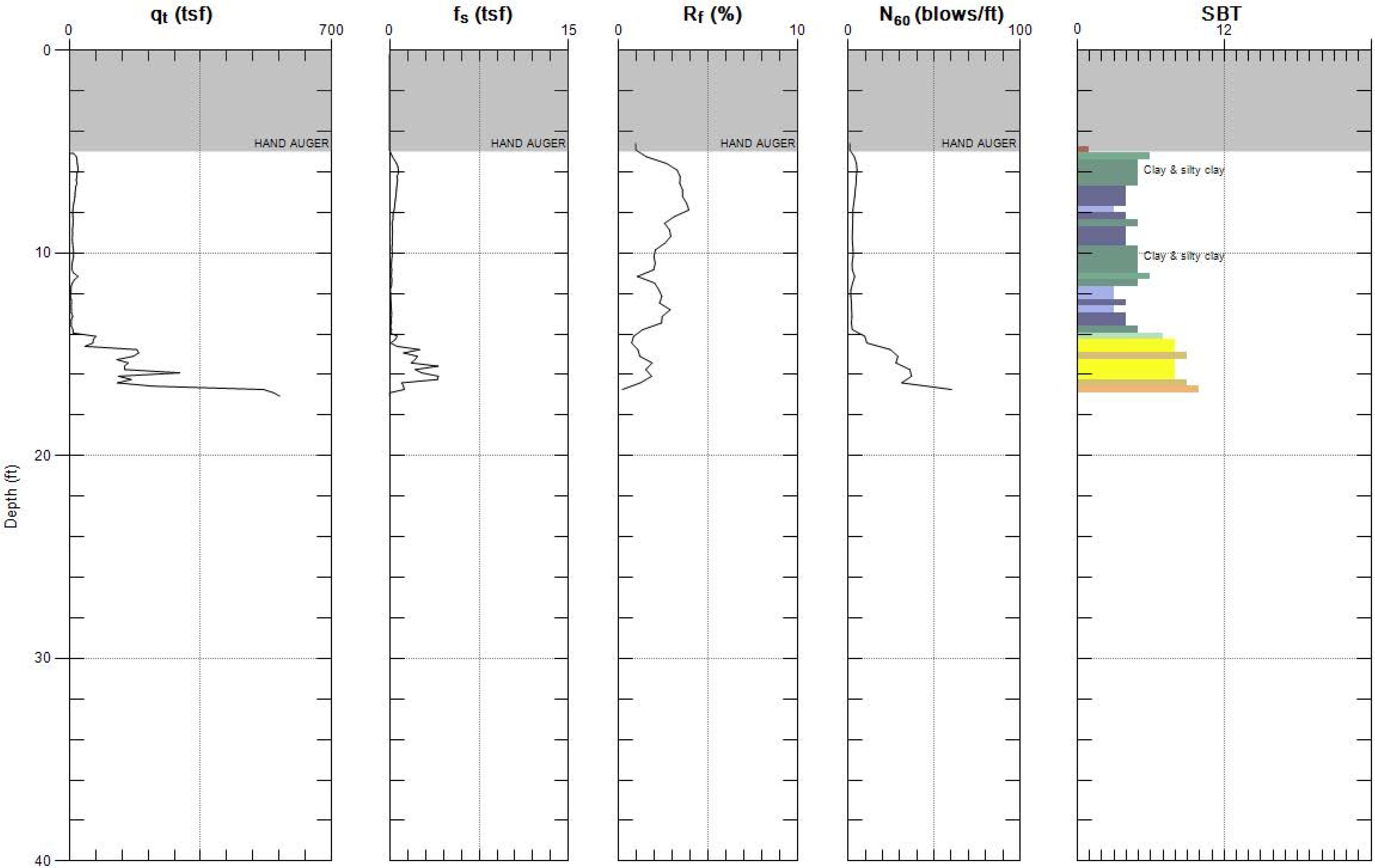
Max. Depth: 32.644 (ft)
Avg. Interval: 0.328 (ft)

SBT: Soil Behavior Type (Robertson 1990)

GREGG **KLEINFELDER**

Site: LEGACY INTL. CNTR. **Engineer: T.GRINDSTAFF**

Sounding: CPT-4 **Date: 2/12/2016 07:43**



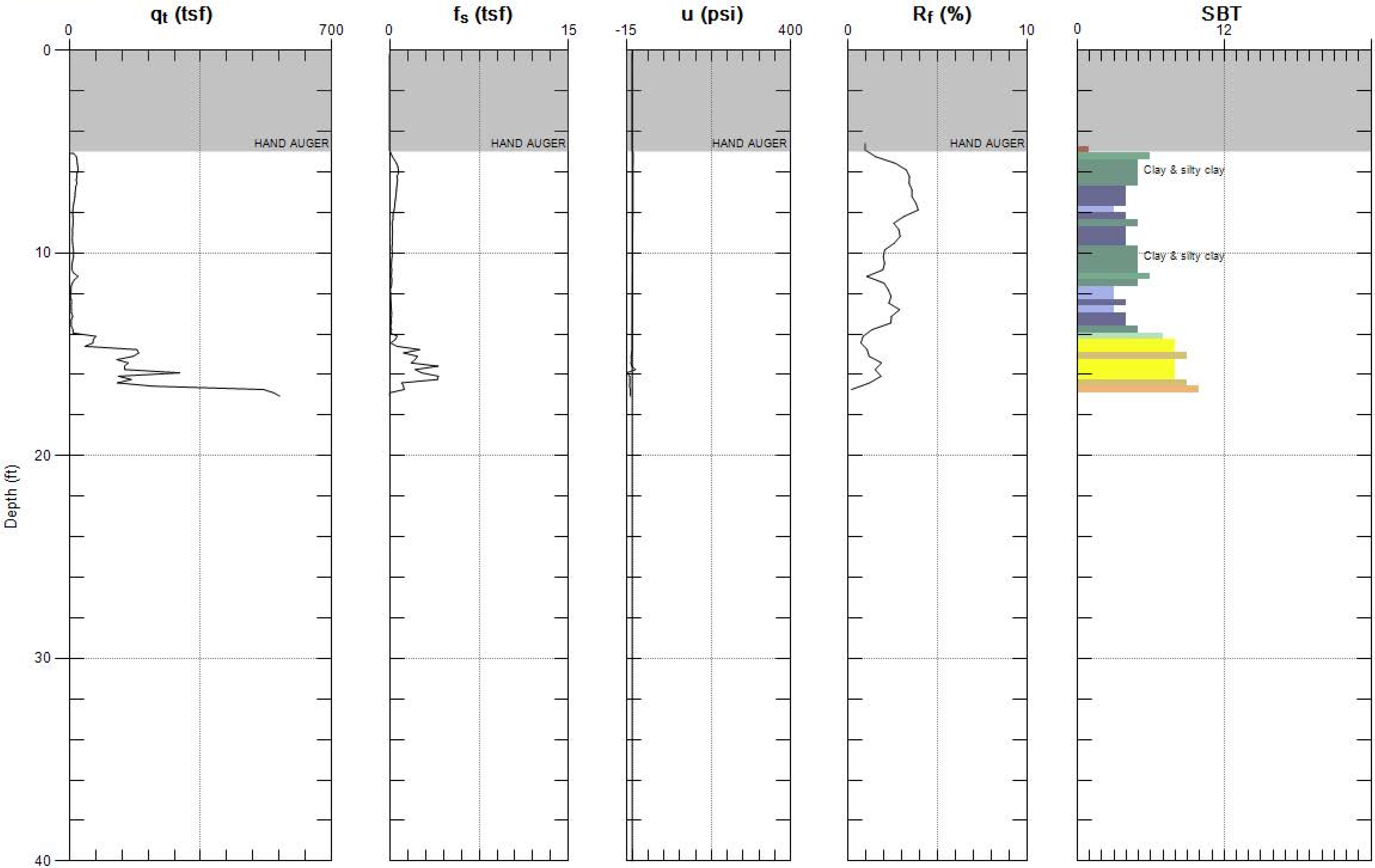
Max. Depth: 17.060 (ft)
Avg. Interval: 0.328 (ft)

SBT: Soil Behavior Type (Robertson 1990)

GREGG **KLEINFELDER**

Site: LEGACY INTL. CNTR. Engineer: T.GRINDSTAFF

Sounding: CPT-4 Date: 2/12/2016 07:43



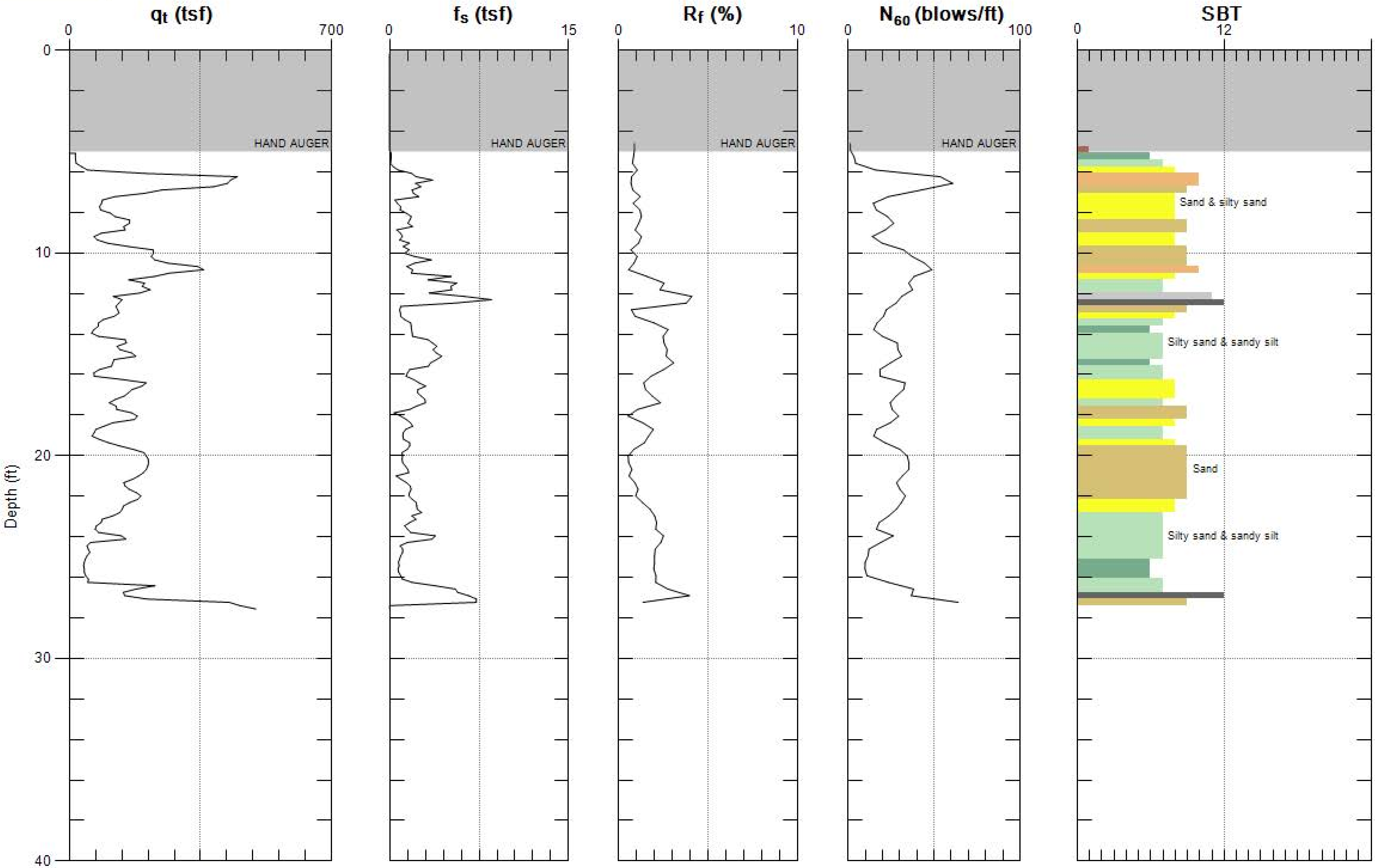
Max. Depth: 17.060 (ft)
Avg. Interval: 0.328 (ft)

SBT: Soil Behavior Type (Robertson 1990)

GREGG **KLEINFELDER**

Site: LEGACY INTL. CNTR.
Sounding: CPT-5

Engineer: T.GRINDSTAFF
Date: 2/12/2016 09:25



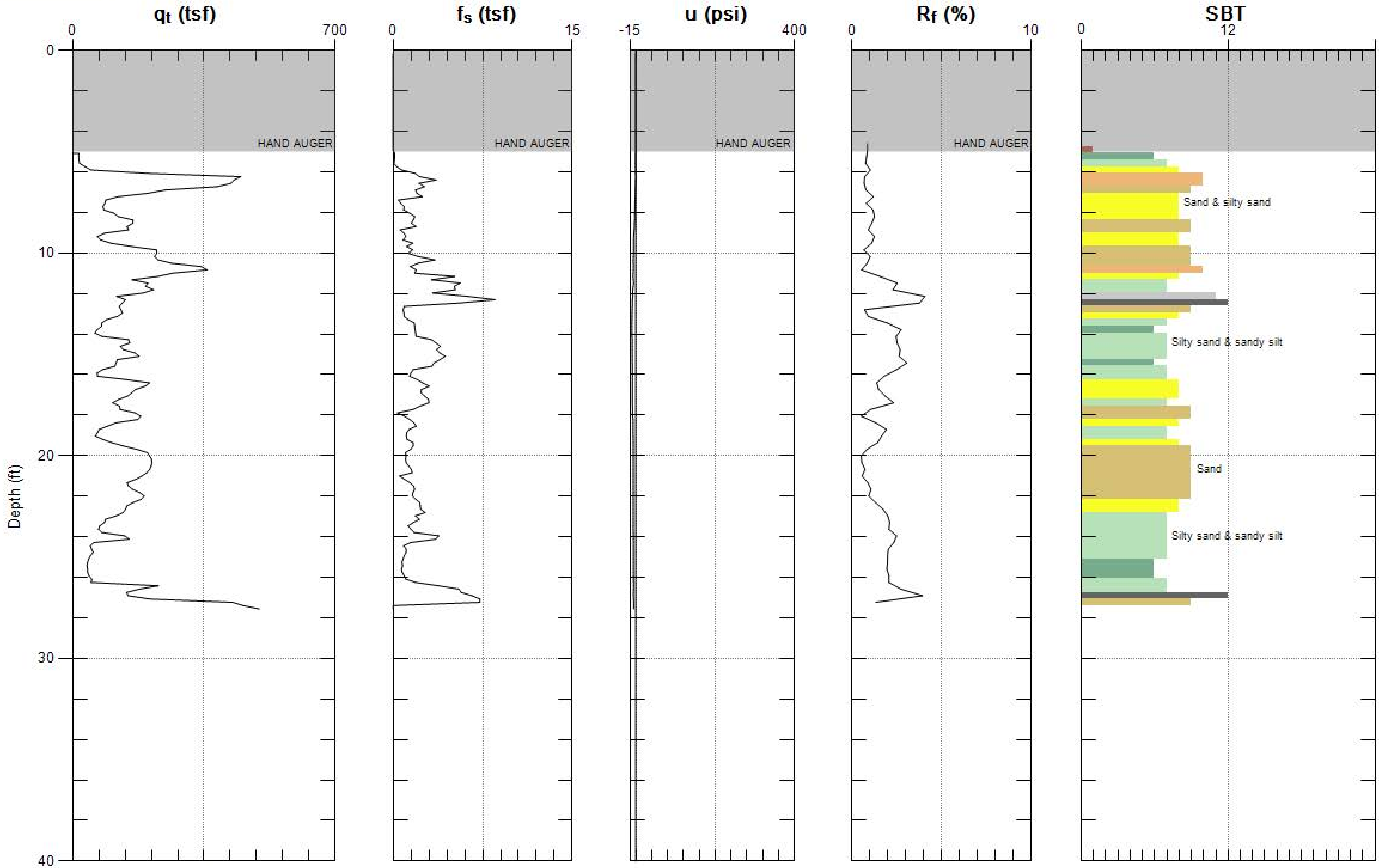
Max. Depth: 27.559 (ft)
Avg. Interval: 0.328 (ft)

SBT: Soil Behavior Type (Robertson 1990)

GREGG **KLEINFELDER**

Site: LEGACY INTL. CNTR.
Sounding: CPT-5

Engineer: T.GRINDSTAFF
Date: 2/12/2016 09:25

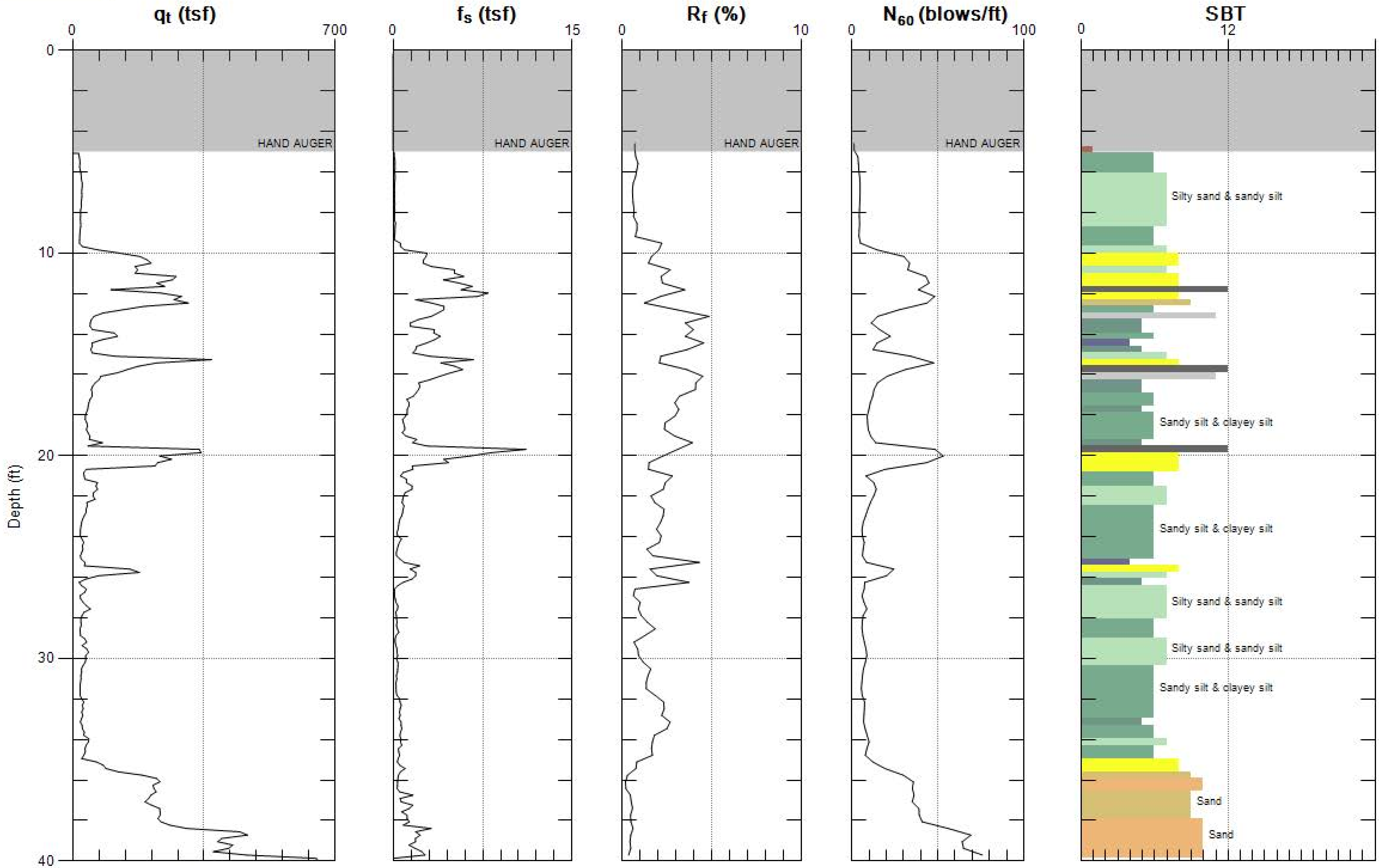


Max. Depth: 27.559 (ft)
Avg. Interval: 0.328 (ft)

SBT: Soil Behavior Type (Robertson 1990)

GREGG KLEINFELDER

Site: LEGACY INTL. CNTR.
Sounding: CPT-6
Engineer: T.GRINDSTAFF
Date: 2/12/2016 11:39



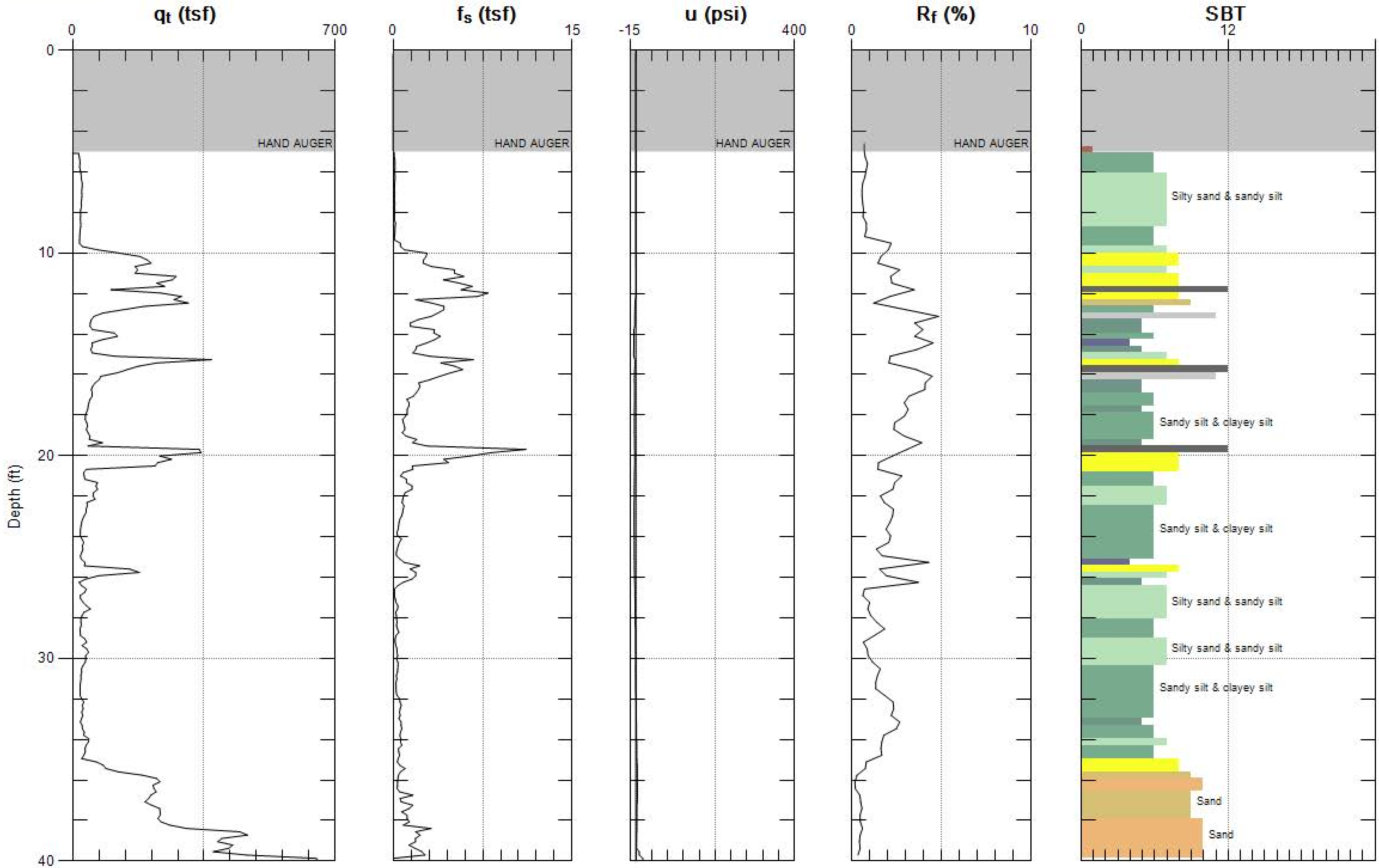
Max. Depth: 40.026 (ft)
Avg. Interval: 0.328 (ft)

SBT: Soil Behavior Type (Robertson 1990)

GREGG **KLEINFELDER**

Site: LEGACY INTL. CNTR.
Sounding: CPT-6

Engineer: T.GRINDSTAFF
Date: 2/12/2016 11:39

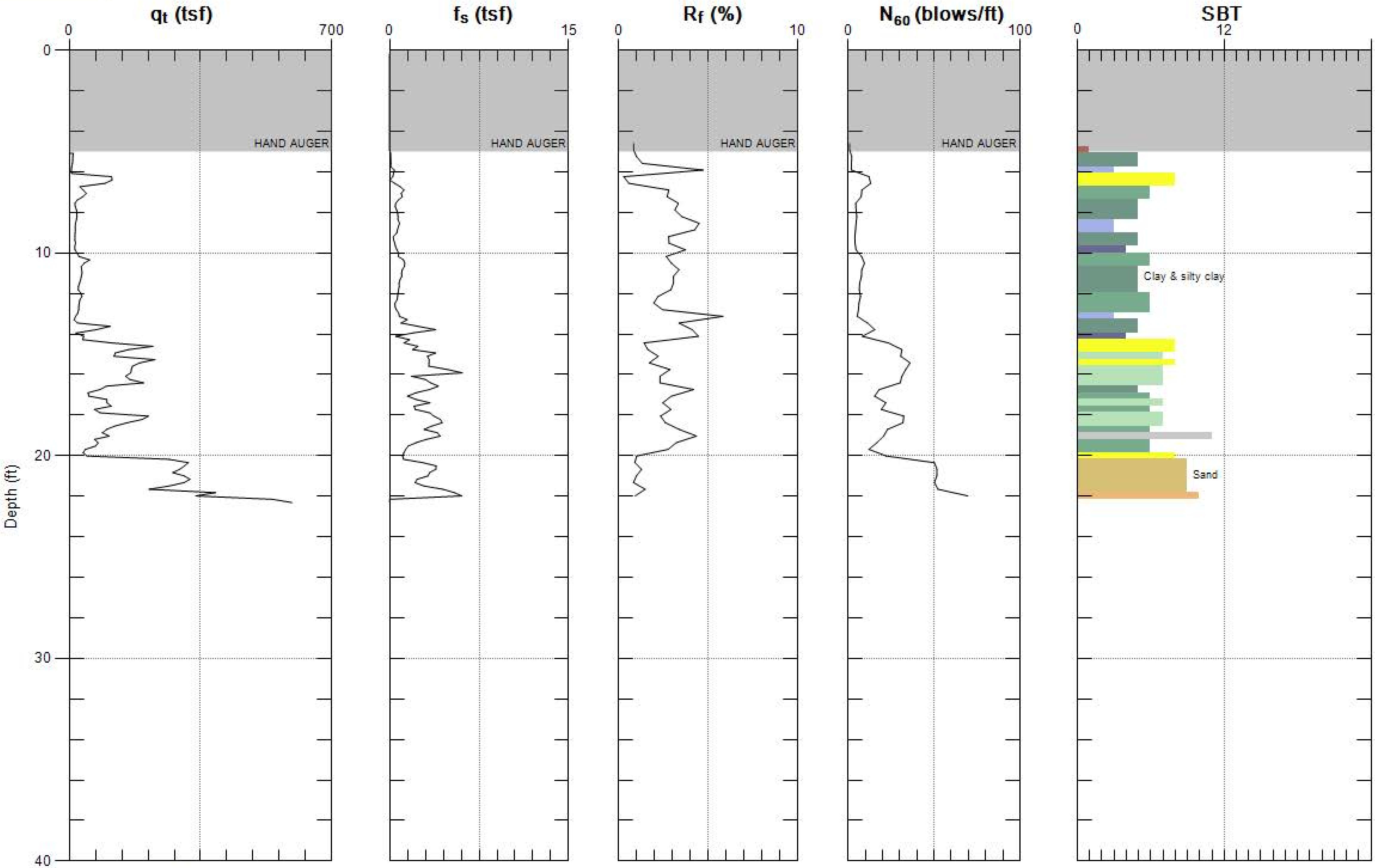


Max. Depth: 40.026 (ft)
Avg. Interval: 0.328 (ft)

SBT: Soil Behavior Type (Robertson 1990)

GREGG KLEINFELDER

Site: LEGACY INTL. CNTR.
Engineer: T.GRINDSTAFF
Sounding: CPT-7
Date: 2/12/2016 01:14



Max. Depth: 22.310 (ft)
Avg. Interval: 0.328 (ft)

SBT: Soil Behavior Type (Robertson 1990)

GREGG

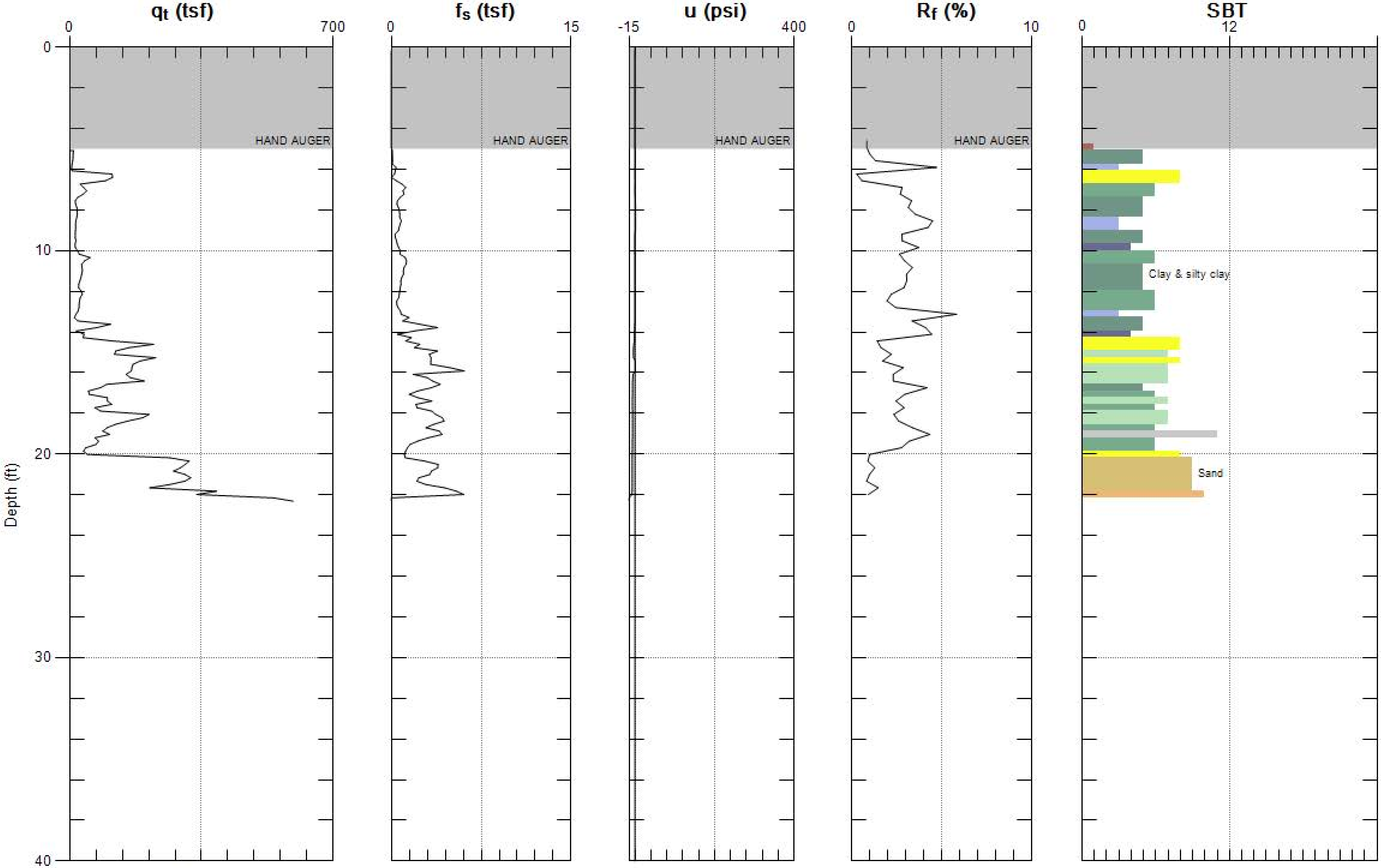
KLEINFELDER

Site: LEGACY INTL. CNTR.

Sounding: CPT-7

Engineer: T.GRINDSTAFF

Date: 2/12/2016 01:14



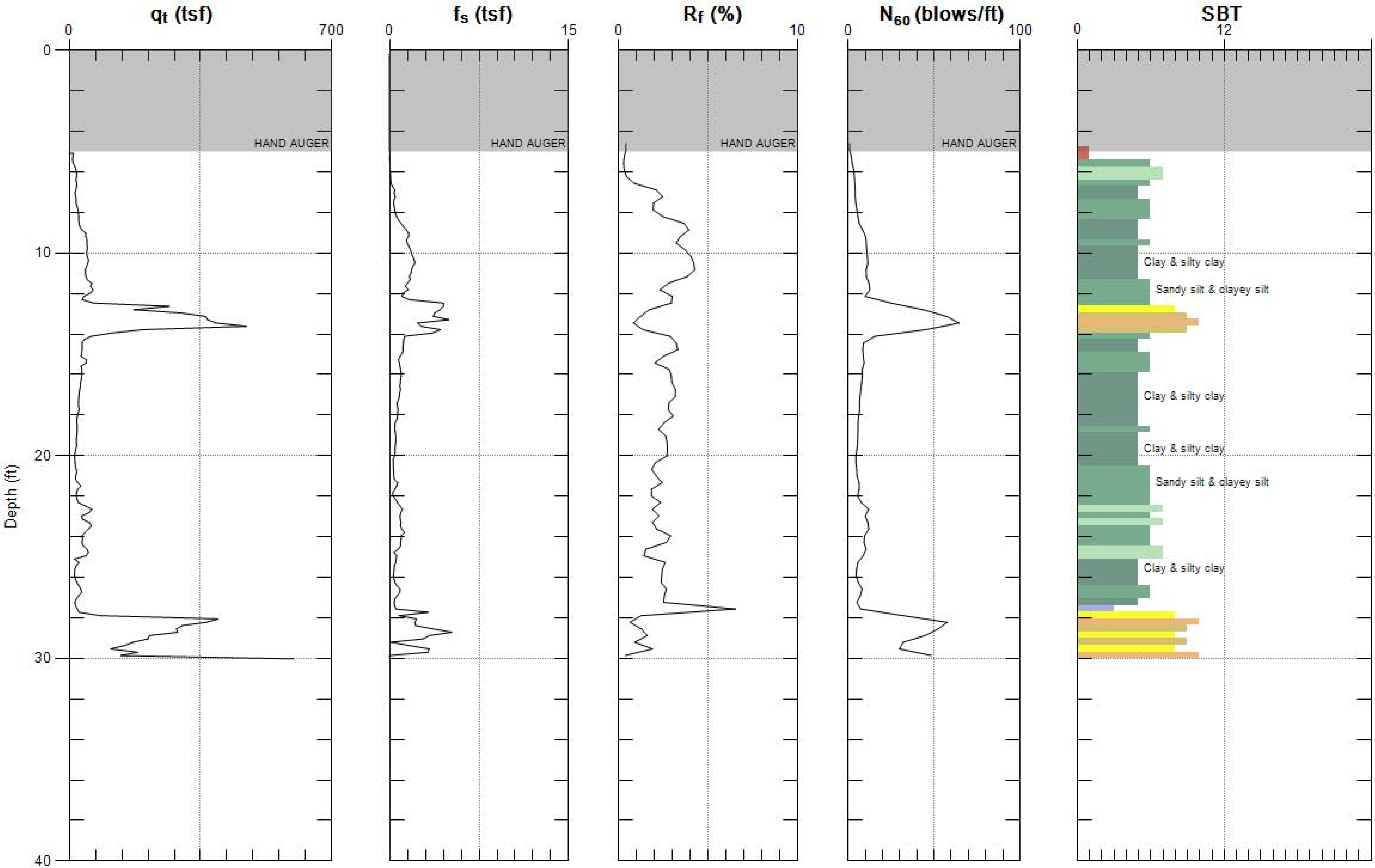
Max. Depth: 22.310 (ft)

Avg. Interval: 0.328 (ft)

SBT: Soil Behavior Type (Robertson 1990)

GREGG **KLEINFELDER**

Site: LEGACY INTL. CNTR. | Engineer: T.GRINDSTAFF
Sounding: CPT-8 | Date: 2/12/2016 02:08

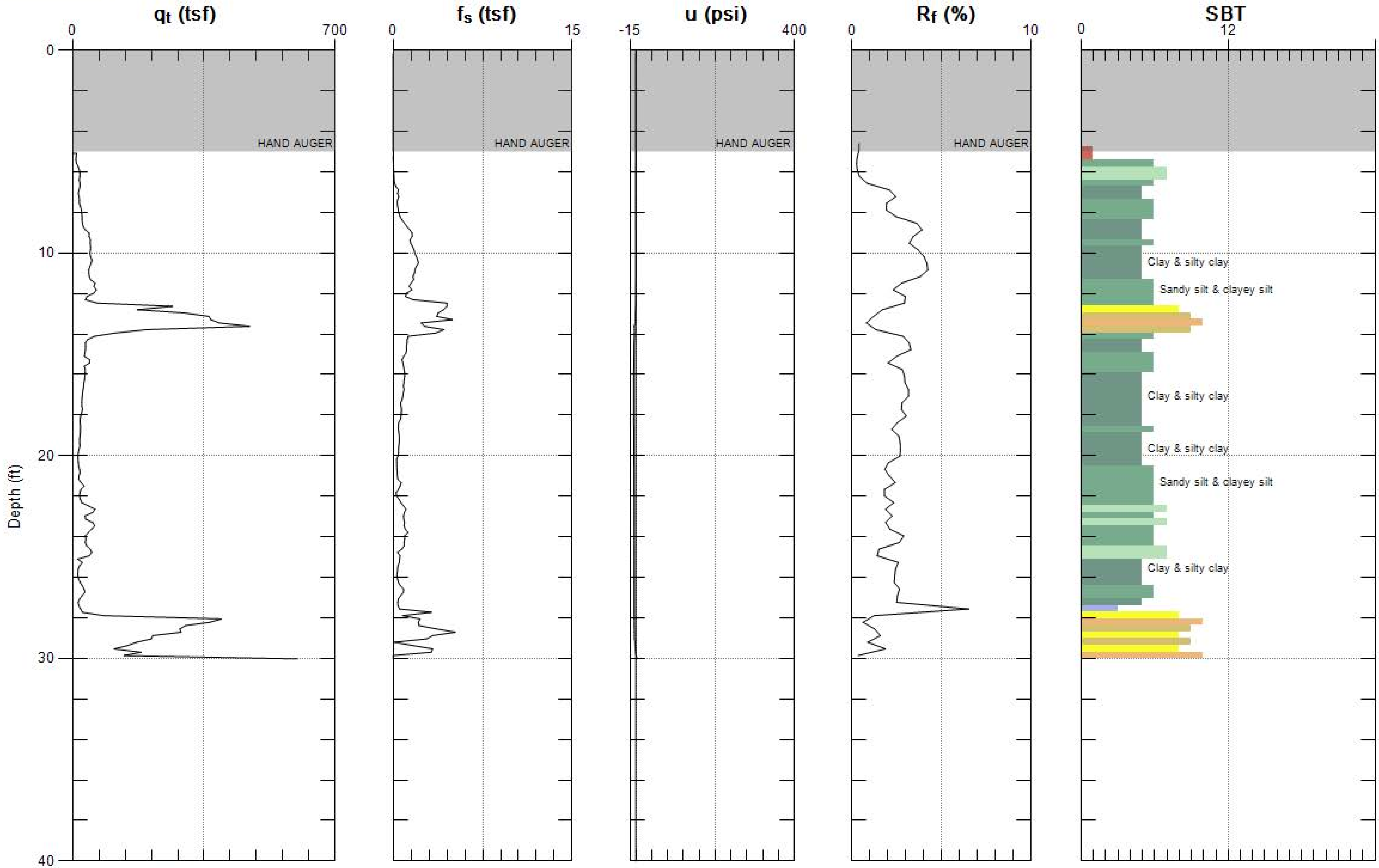


Max. Depth: 30.020 (ft)
Avg. Interval: 0.328 (ft)

SBT: Soil Behavior Type (Robertson 1990)

GREGG KLEINFELDER

Site: LEGACY INTL. CNTR.
Sounding: CPT-8
Engineer: T.GRINDSTAFF
Date: 2/12/2016 02:08



Max. Depth: 30.020 (ft)
Avg. Interval: 0.328 (ft)

SBT: Soil Behavior Type (Robertson 1990)

APPENDIX E
GEOPHYSICAL TESTING

February 22, 2016
Project No. 116047

Mr. Moises Arzamendi
Kleinfelder, Inc.
550 West C Street, Suite 1200
San Diego, CA 92101

Subject: Geophysical Seismic Evaluation
Legacy International Center
San Diego, California

Dear Mr. Arzamendi:

In accordance with your authorization, we have performed geophysical survey services pertaining to the proposed Legacy International Center located in the Mission Valley area of San Diego, California (Figure 1). The purpose of our survey was to develop Shear-wave velocity profiles for the project site. Our services were performed on February 1, 2016. This report presents the survey methodology, equipment used, analysis, and findings from our study.

Our scope of services included the performance of six refraction microtremor (ReMi) surveys at preselected areas of the project site (Figures 2 and 3). The ReMi technique uses recorded surface waves (specifically Rayleigh waves) that are contained in background noise to develop Shear-wave velocity profiles of the study areas down to a depth, in this case, of approximately 100 feet. The ReMi survey included the use of a 24-channel Geometrics Geode seismograph and 24 4.5-Hz vertical component geophones. The geophones were spaced 10 feet apart for line lengths of 230 feet at each of the locations. To facilitate the installation of the geophones, ¼-inch diameter holes were drilled approximately 2 inches into the asphalt pavement. Fifteen records, each 32 seconds long, were recorded and then downloaded to a computer. The data were later processed using SeisOpt® ReMi™ software.

Figures 4a through 4f, and Table 1 present the results from our survey. Based on our analysis of the collected data, the characteristic site Shear-wave velocities down to a depth of 100 feet range from 1,394 feet per second (fps) to 2,044 fps in the areas surveyed (CBC, 2010). These values correspond to a site classification of **C**.

TABLE 1
ReMi Results

Line No. (Long/Lat)[1]	Depth (feet)	Shear Wave Velocity (feet/second)
RL-1 (-117.171973966º / 32.758742994º) (-117.172719282º / 32.758699032º)	0 – 7	774
	7 – 13	781
	13 – 35	1,479
	35 – 100	3,768
RL-2 (-117.171679261º / 32.759495117º) (-117.171634533º / 32.758854990º)	0 – 8	555
	8 – 13	837
	13 –18	781
	18 – 37	1,286
	37 – 48	960
	48 – 100	2,915
RL-3 (-117.172287333º / 32.759549797º) (-117.171542754º / 32.759582725º)	0 – 8	341
	8 – 16	749
	16 –29	817
	29 – 38	1,472
	38 – 100	3,799
RL-4 (-117.170080777º / 32.758068516º) (-117.170829151º / 32.758049235º)	0 – 7	774
	7 – 15	953
	15 –43	1,472
	43 – 100	3,754
RL-5 (-117.169842281º / 32.759217894º) (-117.169946835º / 32.759842492º)	0 – 7	342
	7 – 15	681
	15 –26	885
	26 – 34	1,479
	34 – 100	3,799
RL-6 (-117.171008486º / 32.758787853º) (-117.170262645º / 32.758831810º)	0 – 4	774
	4 – 11	1,225
	11 –18	999
	18 – 46	1,519
	46 – 100	3,688
Note: 1 – WGS 1984		

The field evaluation and geophysical analyses presented in this report have been conducted in general accordance with current practice and the standard of care exercised by consultants performing similar tasks in the project area. No warranty, express or implied, is made regarding the conclusions and opinions presented in this report. There is no evaluation detailed enough to reveal every subsurface condition. Variations may exist and conditions not observed or described in this report may be present. Uncertainties relative to subsurface conditions can be reduced through additional subsurface exploration. Additional subsurface surveying will be performed upon request.

This document is intended to be used only in its entirety. No portion of the document, by itself, is designed to completely represent any aspect of the project described herein. Southwest Geophysics, Inc. should be contacted if the reader requires additional information or has questions regarding the content, interpretations presented, or completeness of this document. This report is intended exclusively for use by the client. Any use or reuse of the findings, conclusions, and/or recommendations of this report by parties other than the client is undertaken at said parties' sole risk.

We appreciate the opportunity to be of service on this project. Should you have any questions related to this report, please contact the undersigned at your convenience.

Sincerely,
SOUTHWEST GEOPHYSICS, INC.

Aaron Puente
Project Geologist/Geophysicist

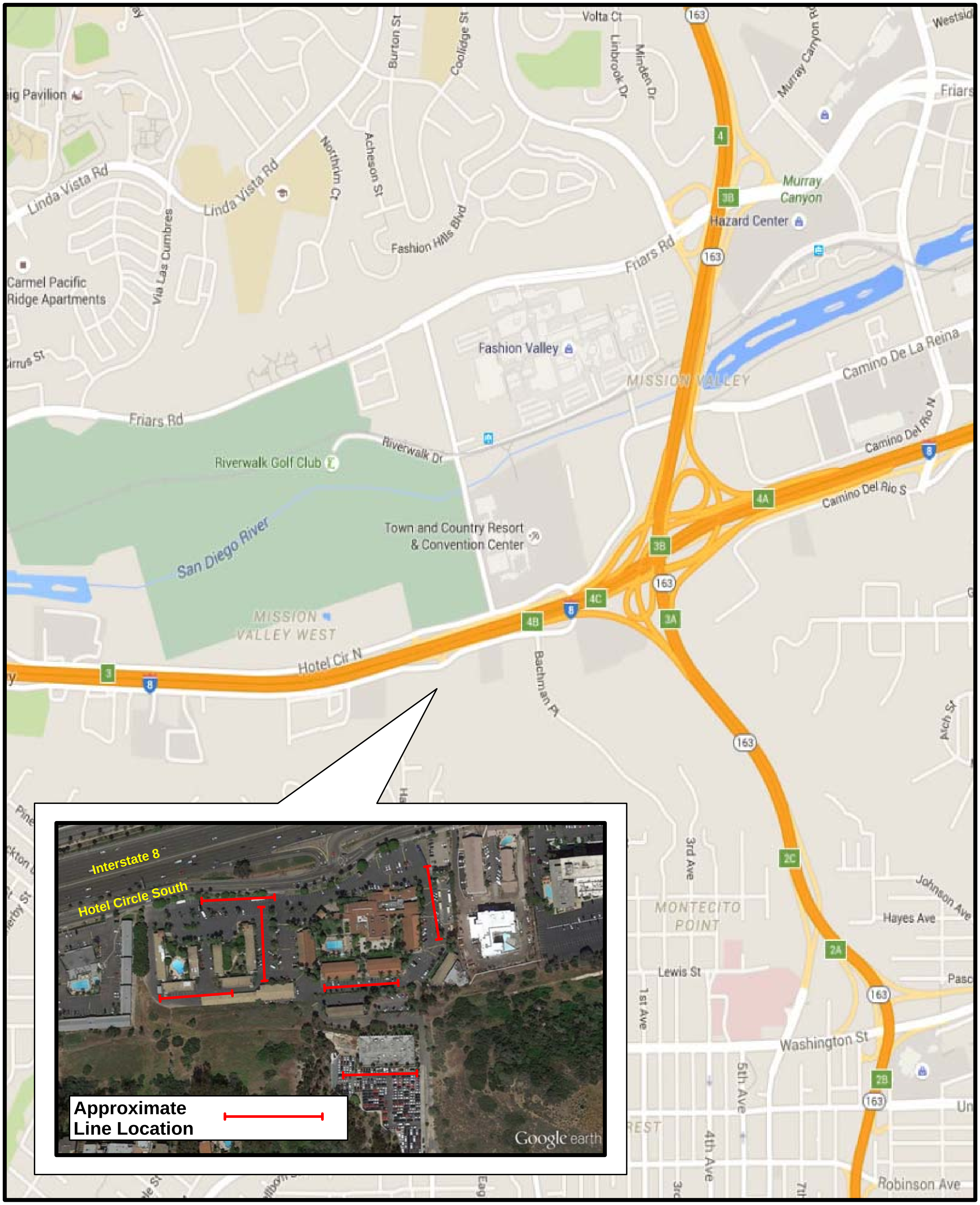
Hans van de Vrugt, C.E.G., P.Gp.
Principal Geologist/Geophysicist

REGISTERED GEOPHYSICIST
Hans van de Vrugt
No 1012
Exp. 2/29/16
STATE OF CALIFORNIA

ATP/HV/hv

Attachments:	Figure 1	– Site Location Map
	Figure 2	– Line Location Map
	Figure 3	– Site Photographs
	Figure 4a	– ReMi Results, RL-1
	Figure 4b	– ReMi Results, RL-2
	Figure 4c	– ReMi Results, RL-3
	Figure 4d	– ReMi Results, RL-4
	Figure 4e	– ReMi Results, RL-5
	Figure 4f	– ReMi Results, RL-6

Distribution: Addressee (electronic)



SITE LOCATION MAP	N	Legacy International Center San Diego, California	SOUTHWEST GEOPHYSICS INC. Figure 1
		Project No.: 116047 — Date: 02/16	

LINE LOCATION MAP	N	Legacy International Center San Diego, California Project No.: 116047 Date: 02/16	SOUTHWEST GEOPHYSICS INC. Figure 2	0 150 300 approximate scale in feet

SITE PHOTOGRAPHS

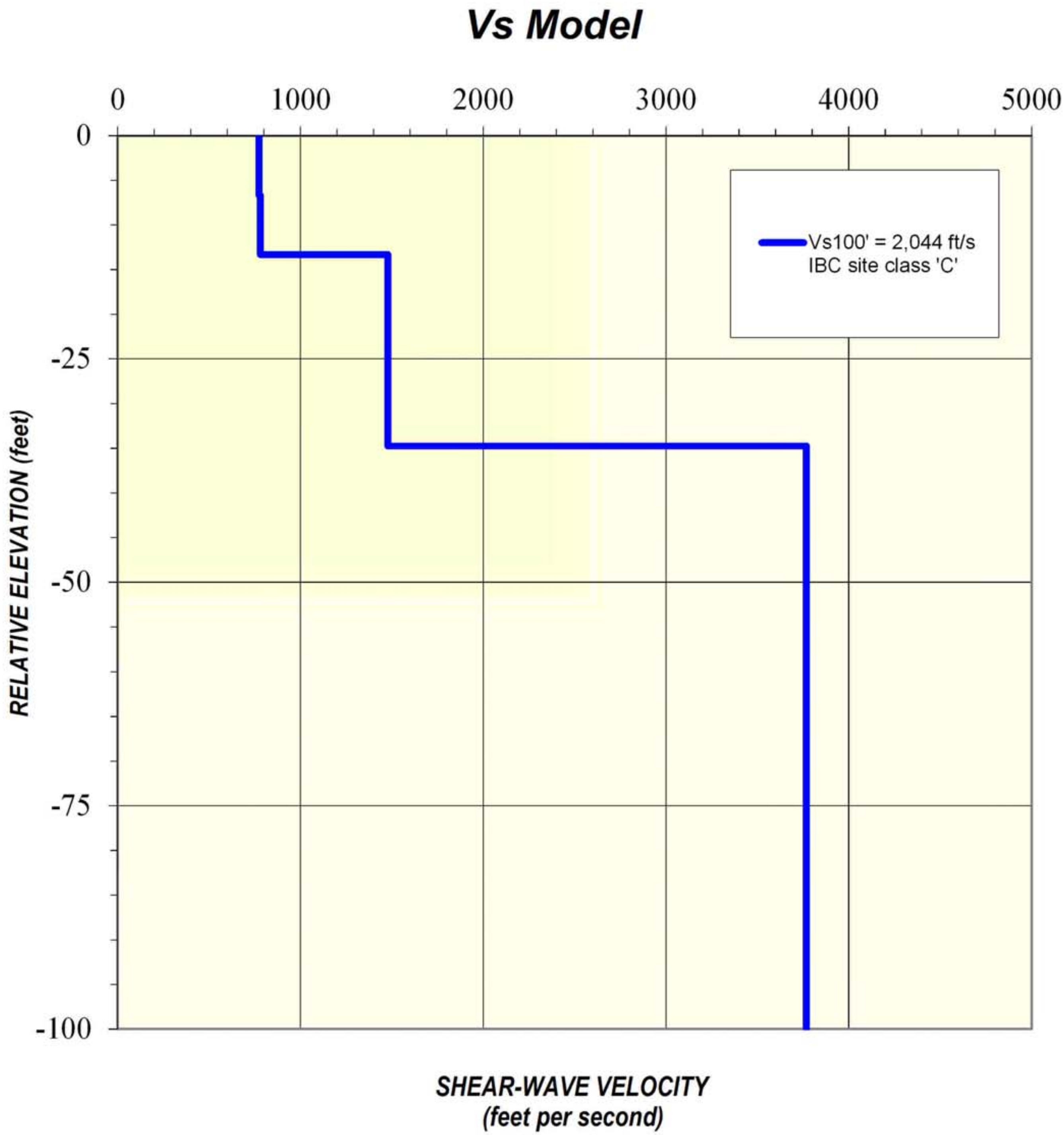
Legacy International Center
San Diego, California

Project No.: 116047

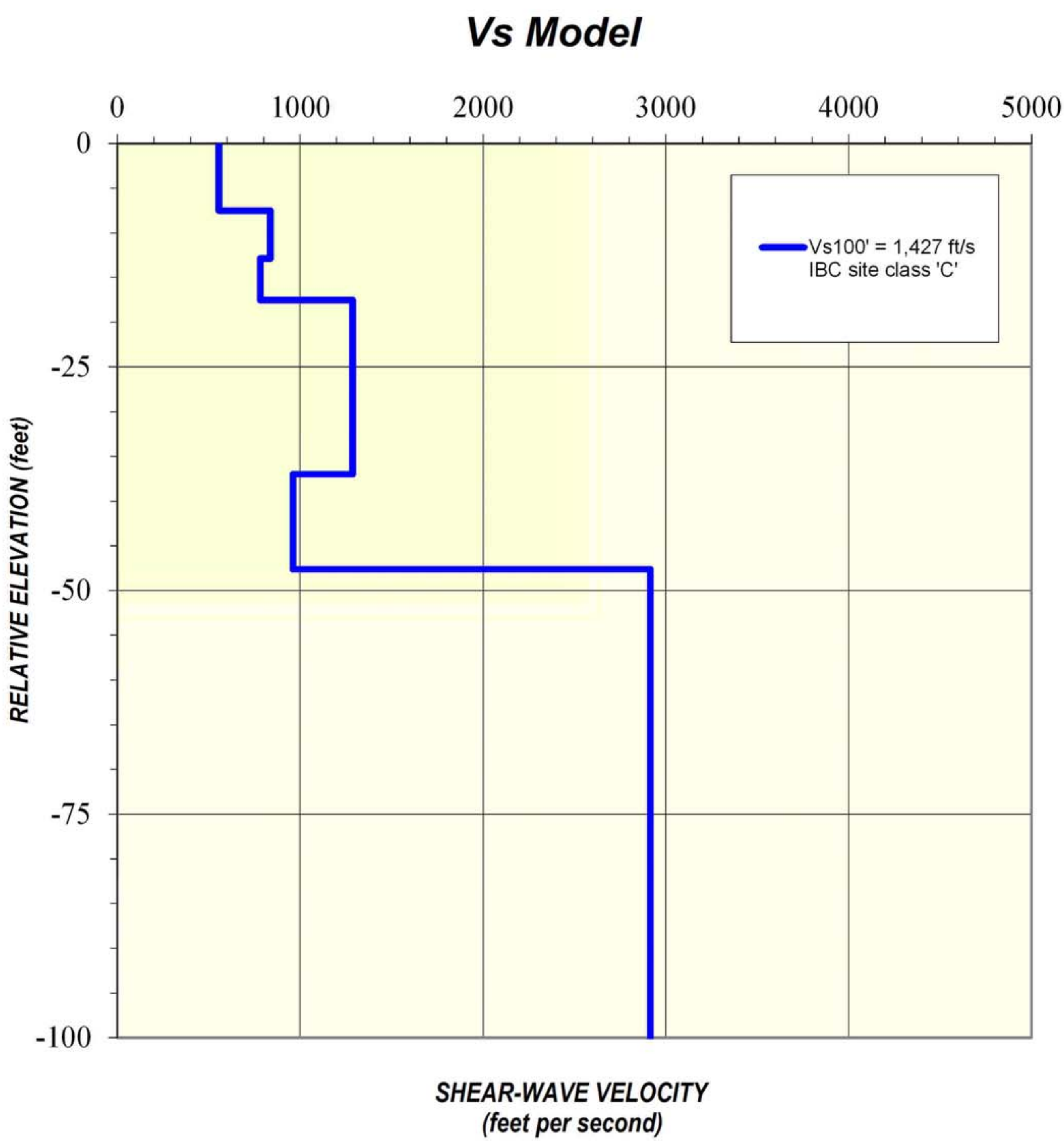
Date: 02/16

SOUTHWEST GEOPHYSICS INC.

Figure 3



ReMi RESULTS RL-1	Legacy International Center San Diego, California	SOUTHWEST GEOPHYSICS INC.
	Project No.: 116047 · Date: 02/16	Figure 4a



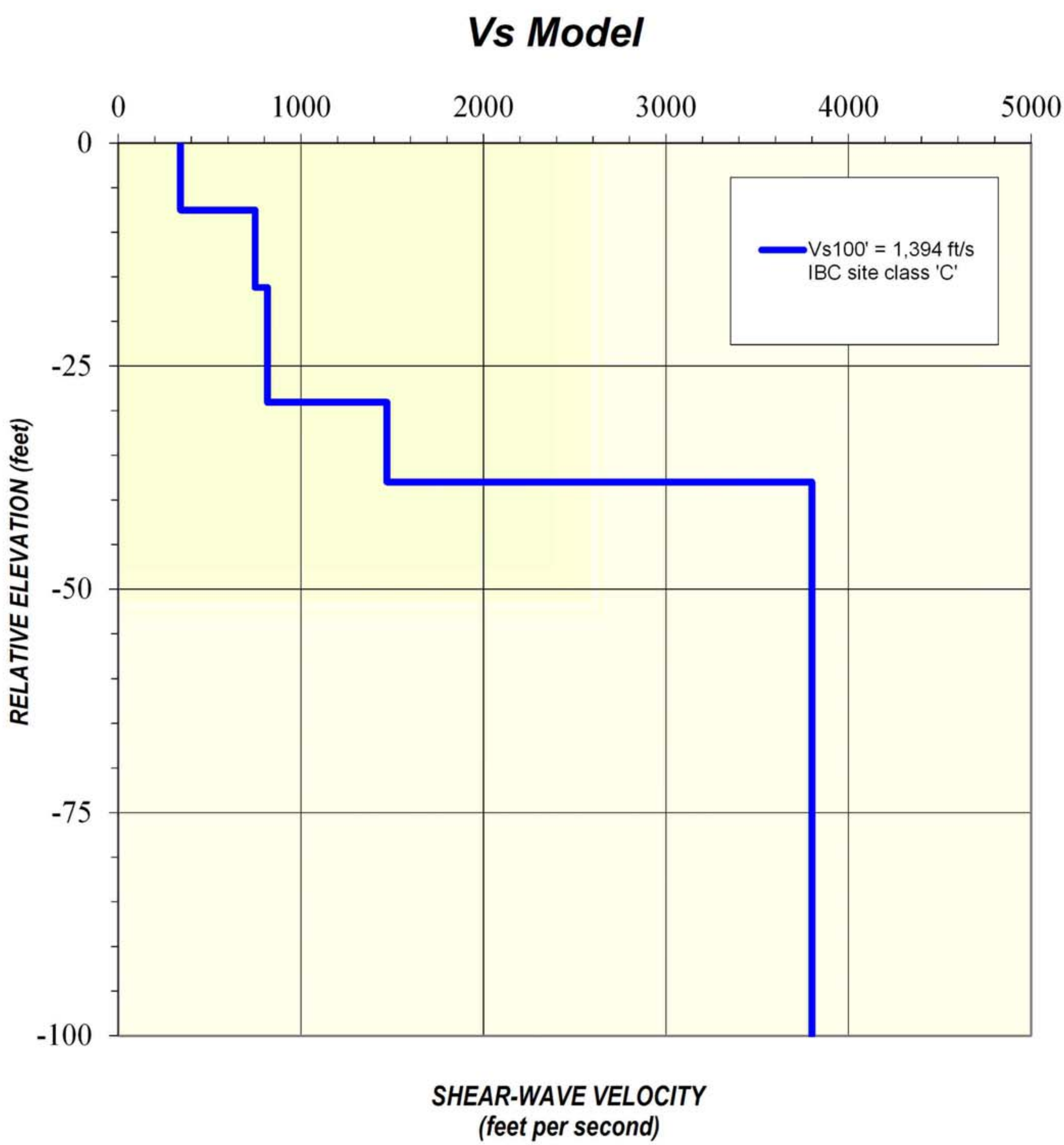
ReMi RESULTS
RL-2

Legacy International Center
San Diego, California

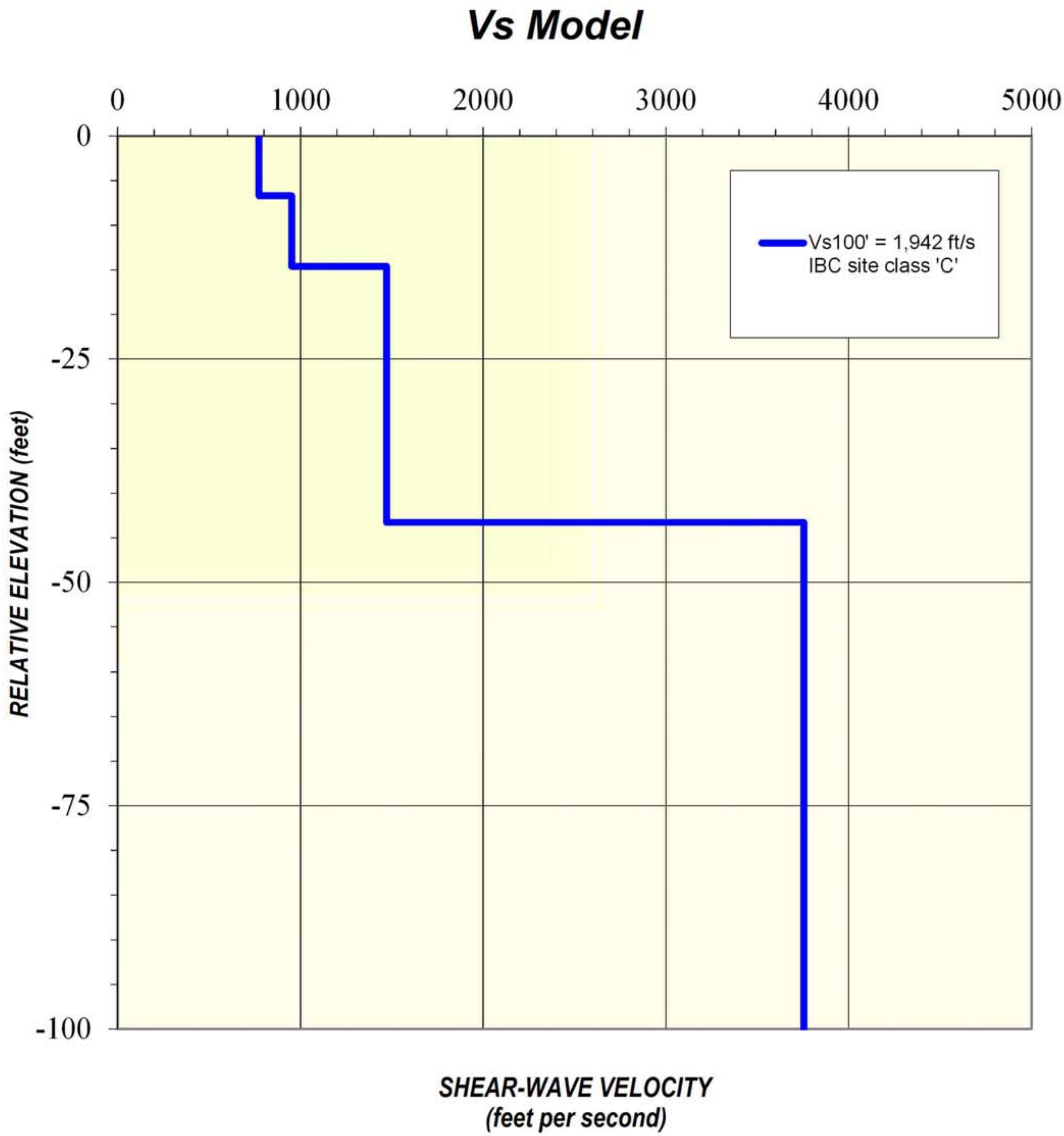
Project No.: 116047 | Date: 02/16

SOUTHWEST GEOPHYSICS INC.

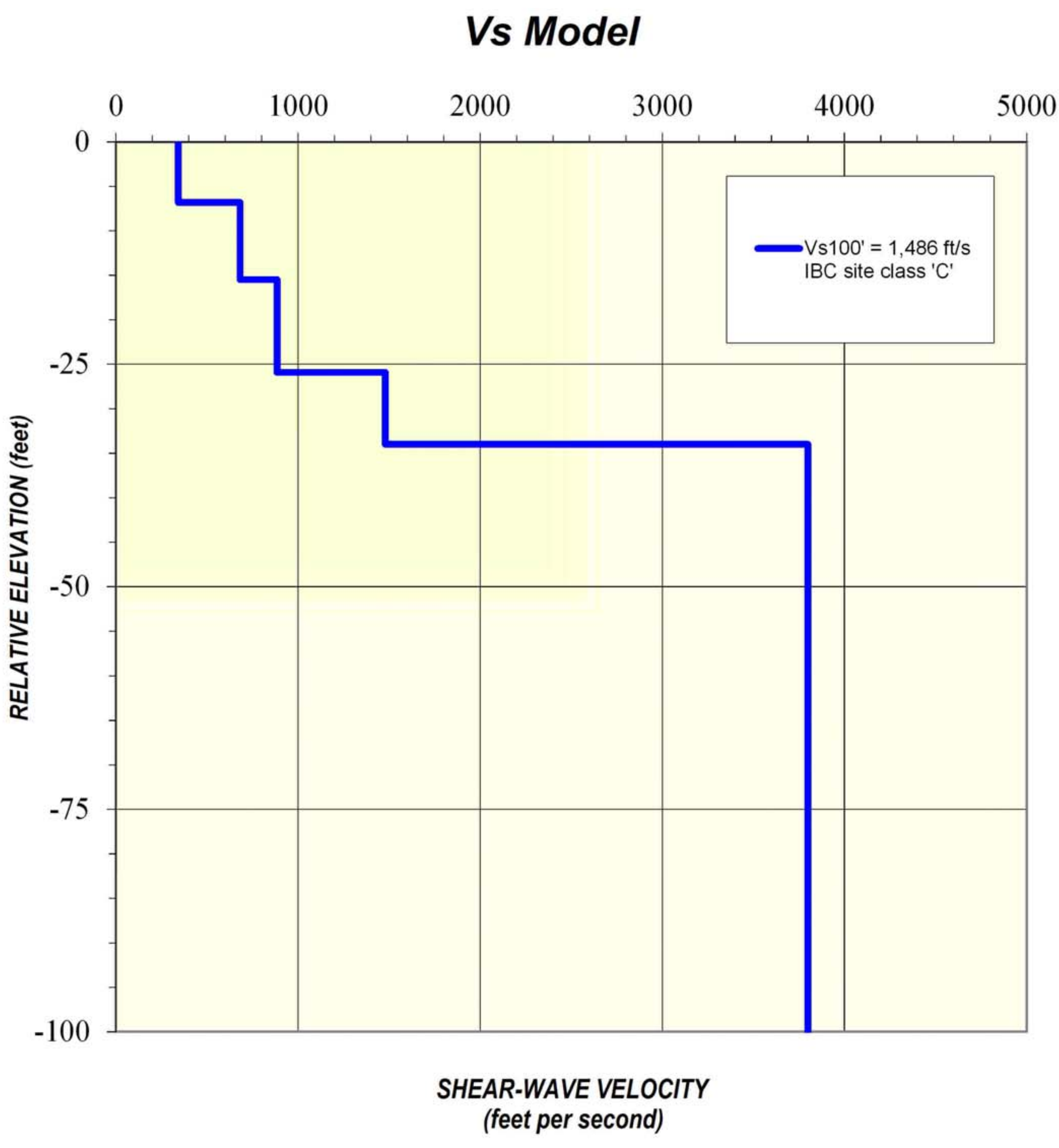
Figure 4b



ReMi RESULTS RL-3	Legacy International Center San Diego, California	SOUTHWEST GEOPHYSICS INC.
	Project No.: 116047 / Date: 02/16	Figure 4c



ReMi RESULTS **RL-4**	Legacy International Center San Diego, California Project No.: 116047 Date: 02/16	SOUTHWEST GEOPHYSICS INC. Figure 4d



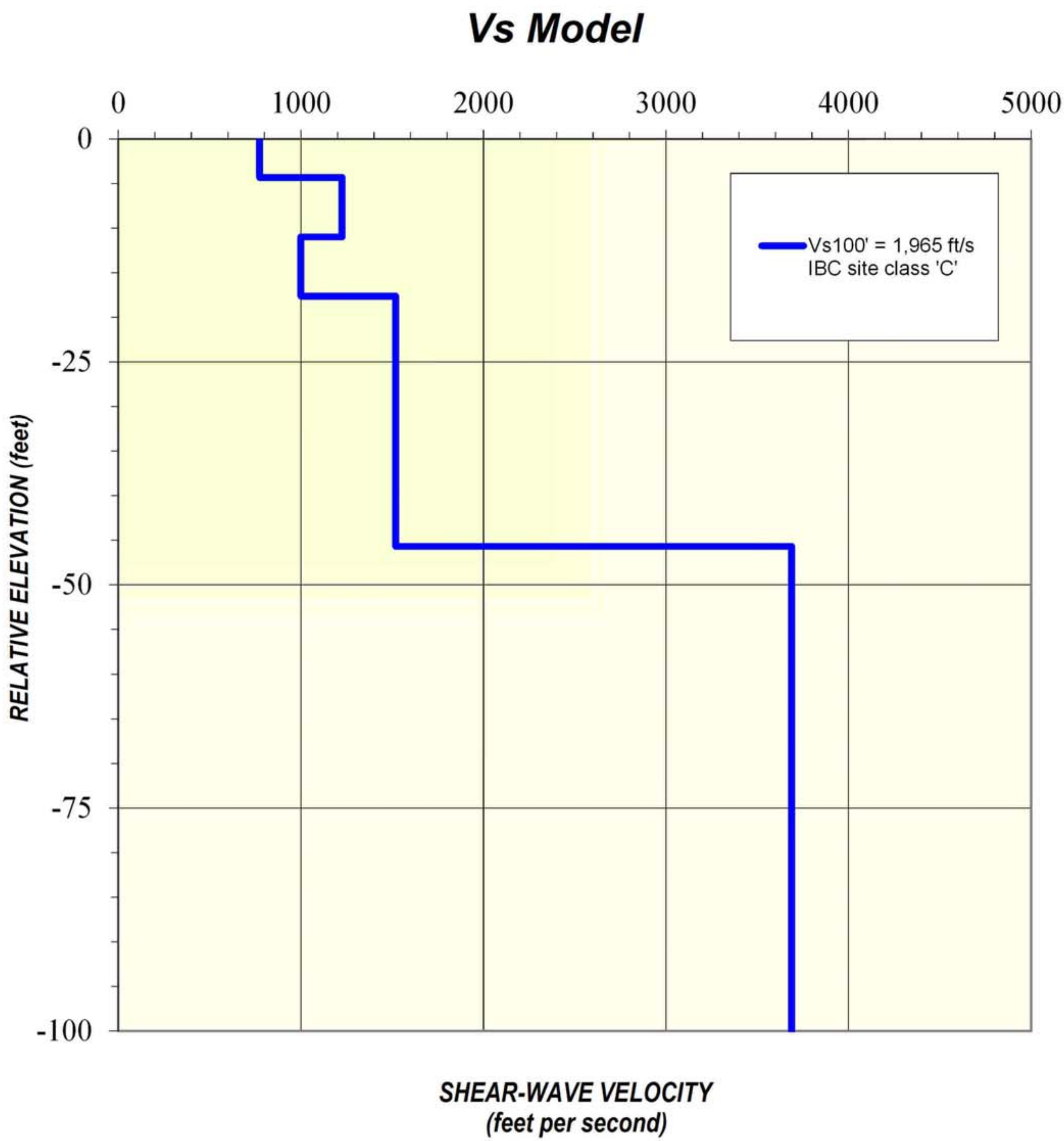
ReMi RESULTS
RL-5

Legacy International Center
San Diego, California

Project No.: 116047 | Date: 02/16

SOUTHWEST GEOPHYSICS INC.

Figure 4e



ReMi RESULTS RL-6	Legacy International Center San Diego, California	SOUTHWEST GEOPHYSICS INC. Figure 4f
	Project No.: 116047 / Date: 02/16	

APPENDIX F
LABORATORY TEST RESULTS

APPENDIX F
LABORATORY TEST RESULTS

Laboratory tests were performed on selected bulk and drive samples borehole explorations to estimate engineering characteristics of the various earth materials encountered. Testing was performed in accordance with ASTM Standards for Soil Testing and are presented in herein.

MOISTURE CONTENT AND DRY UNIT WEIGHT

Natural moisture content and dry unit weight tests were performed on selected drive samples collected from the boreholes in accordance with ASTM D 2216 and D2937, respectively.

SIEVE AND #200 WASH ANALYSIS

Sieve and #200 wash analyses were performed on representative samples of the materials encountered at the site to evaluate the gradation characteristics of the soil and to aid in classification. The tests were performed in general accordance with ASTM Test Method D 422.

ATTERBERG LIMITS

Atterberg limit tests were performed on selected soil samples to evaluate the plasticity characteristics (liquid limit, plastic limit, and plasticity index) of the soil and to aid in its classification. The test was performed in general accordance with ASTM Test Method D4318.

DIRECT SHEAR TEST

Direct shear strength tests were performed on representative soil samples. The test procedures were in general accordance with the ASTM D3080.

CONSOLIDATION TEST

Consolidation testing was performed on two relatively undisturbed samples in accordance with ASTM Standard Test Method D-2435. Results of the tests are summarized in the corresponding results summary tables and specific test result forms presented herein.

EXPANSION INDEX

Expansion index tests were performed on representative soil samples. The test procedures were in general accordance with the ASTM D4829.

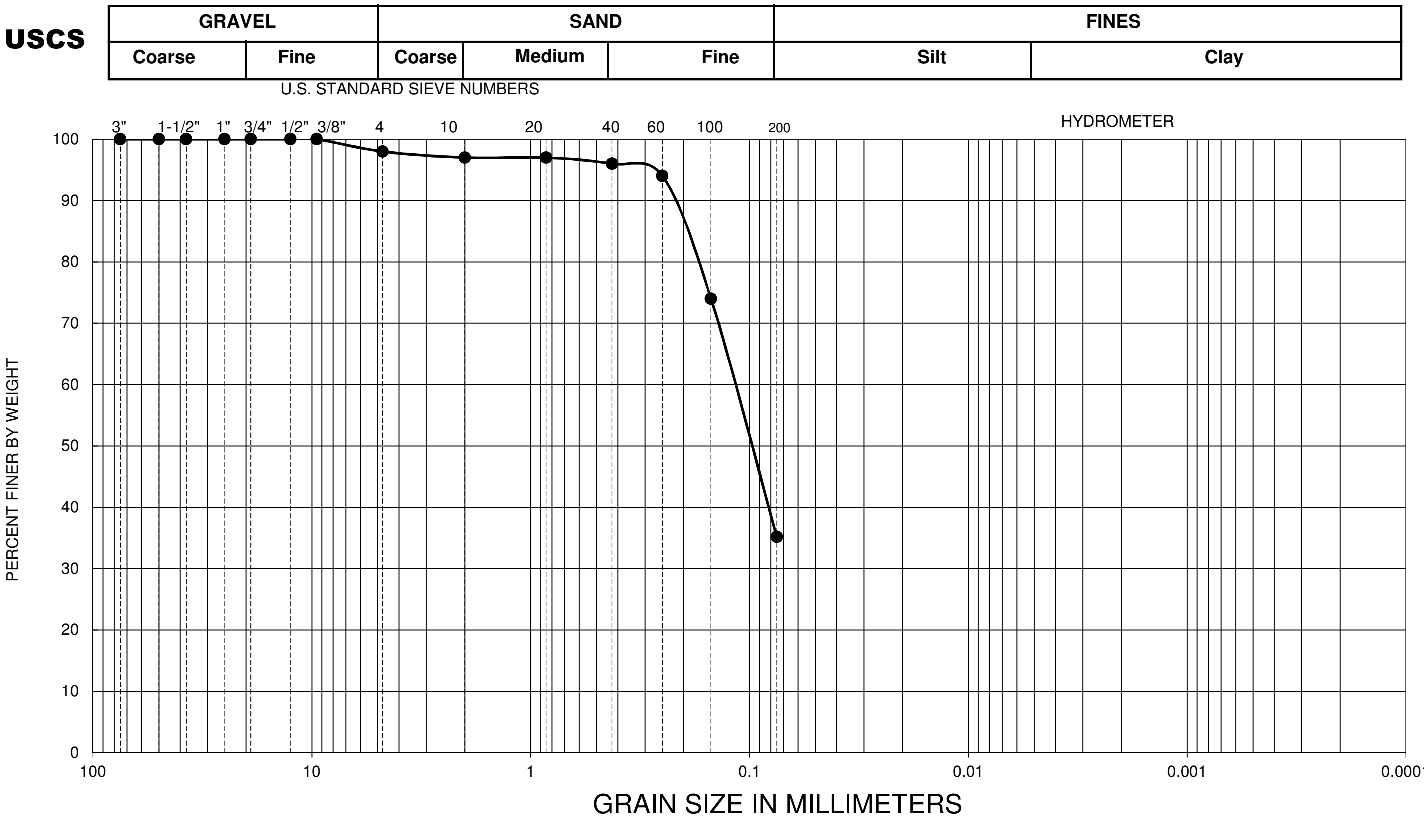
R-VALUE

R-Value tests were performed on selected soil samples to evaluate resistance value of the near surface soils. The tests were performed using modified effort in general accordance with ASTM Test Method D2844.

CORROSION TESTS

A series of chemical tests were performed on three representative samples of the near surface soils to estimated pH, resistivity and sulfate and chloride contents. The test procedures were in general accordance with the California Tests 417, 422, and 643.

Date Tested: 3/7/2016



Boring No.	Sample No.	Depth (ft)	Passing 200 (%)	USCS Classification
B1	S3	10-12	35.2	SM

Sample Description	dark brown Silty sand

	Sieve Size		% Passing
Sieve Analysis	3"	75 mm	100
	2"	50 mm	100
	1.5"	37.5 mm	100
	1"	25 mm	100
	3/4"	19 mm	100
	1/2"	12.5 mm	100
	3/8"	9.5 mm	100
	No. 4	4.75 mm	98
	No. 10	2.0 mm	97
	No. 20	0.85 mm	97
	No. 40	0.425 mm	96
	No. 60	0.25 mm	94
	No 100	0.15 mm	74
	No 200	.075 mm	35.2

PERFORMED IN GENERAL ACCORDANCE WITH ASTM D 6913

KLEINFELDER
Bright People. Right Solutions.

Checked by:	Moi A.	Tech:	Uly P.
Project No.	20163965	Date:	23-Mar-16

GRADATION TEST RESULTS

Legacy International Center
San Diego, California

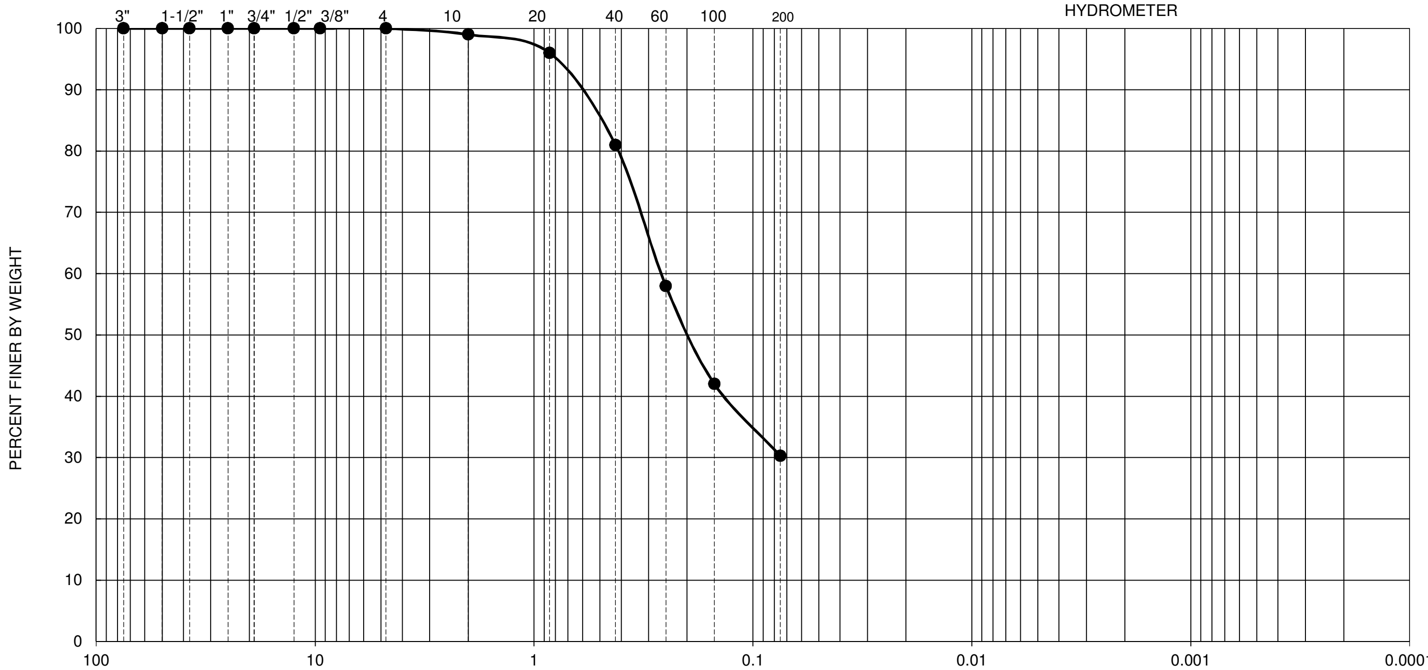
FIGURE

F-1

Date Tested: **3/7/2016**

USCS

GRAVEL		SAND			FINES	
Coarse	Fine	Coarse	Medium	Fine	Silt	Clay



GRAIN SIZE IN MILLIMETERS

Boring No.	Sample No.	Depth (ft)	Passing 200 (%)	USCS Classification
B2	S5	21	30.3	SC

Sample Description	yellowish brown Clayey sand

	Sieve Size		% Passing
Sieve Analysis	3"	75 mm	100
	2"	50 mm	100
	1.5"	37.5 mm	100
	1"	25 mm	100
	3/4"	19 mm	100
	1/2"	12.5 mm	100
	3/8"	9.5 mm	100
	No. 4	4.75 mm	100
	No. 10	2.0 mm	99
	No. 20	0.85 mm	96
	No. 40	0.425 mm	81
	No. 60	0.25 mm	58
	No 100	0.15 mm	42
	No 200	.075 mm	30.3

PERFORMED IN GENERAL ACCORDANCE WITH ASTM D 6913

KLEINFELDER
Bright People. Right Solutions.

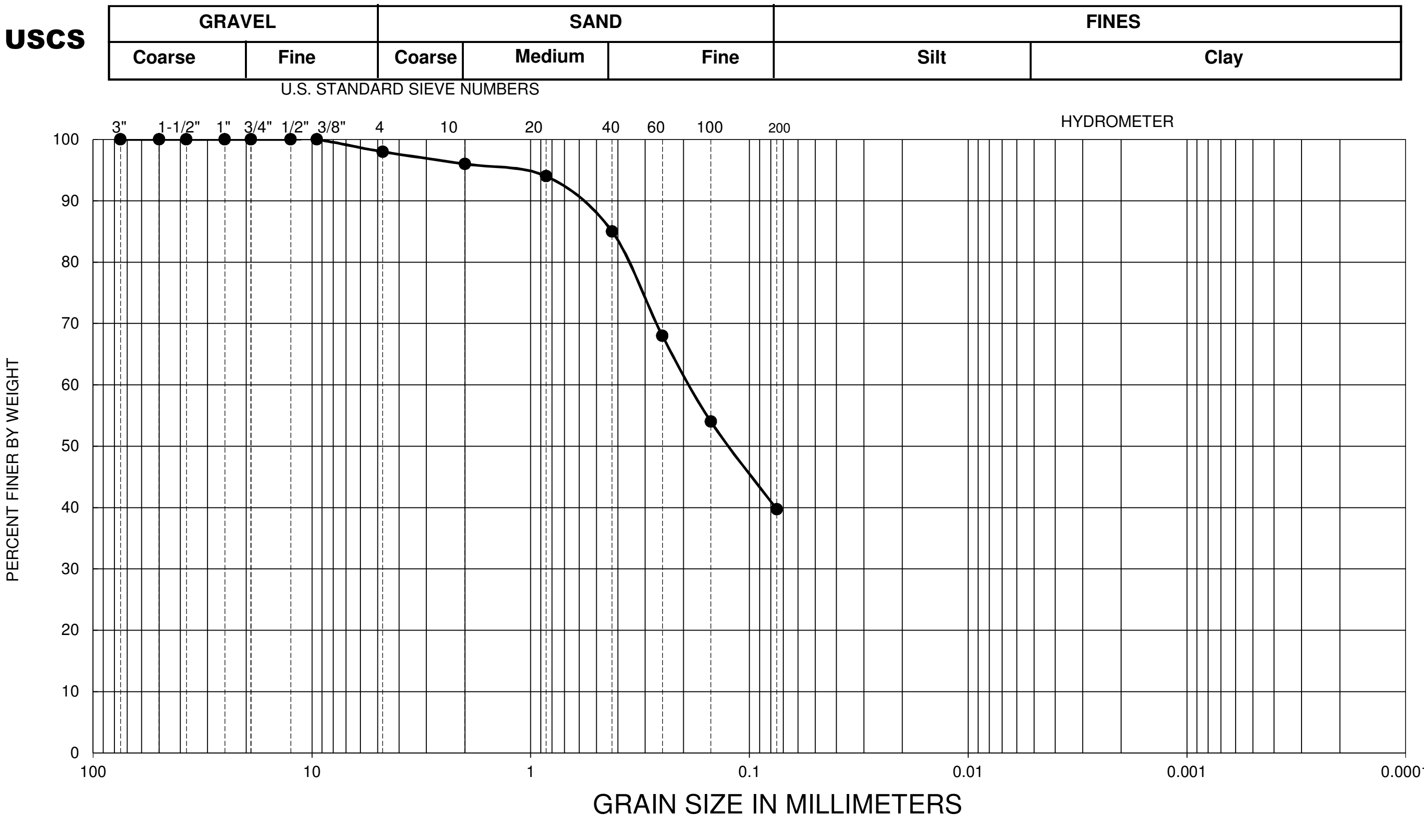
Checked by:	Moi A.	Tech:	Uly P.
Project No.	20163965	Date:	23-Mar-16

GRADATION TEST RESULTS

Legacy International Center
San Diego, California

FIGURE
F-2

Date Tested: 3/7/2016



Boring No.	Sample No.	Depth (ft)	Passing 200 (%)	USCS Classification
B3	S3	10-12	39.7	SC

Sample Description	daark yellowish brown	Clayey sand

	Sieve Size		% Passing
Sieve Analysis	3"	75 mm	100
	2"	50 mm	100
	1.5"	37.5 mm	100
	1"	25 mm	100
	3/4"	19 mm	100
	1/2"	12.5 mm	100
	3/8"	9.5 mm	100
	No. 4	4.75 mm	98
	No. 10	2.0 mm	96
	No. 20	0.85 mm	94
	No. 40	0.425 mm	85
	No. 60	0.25 mm	68
	No 100	0.15 mm	54
	No 200	.075 mm	39.7

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Project No.	20163965	Date:	23-Mar-16

GRADATION TEST RESULTS

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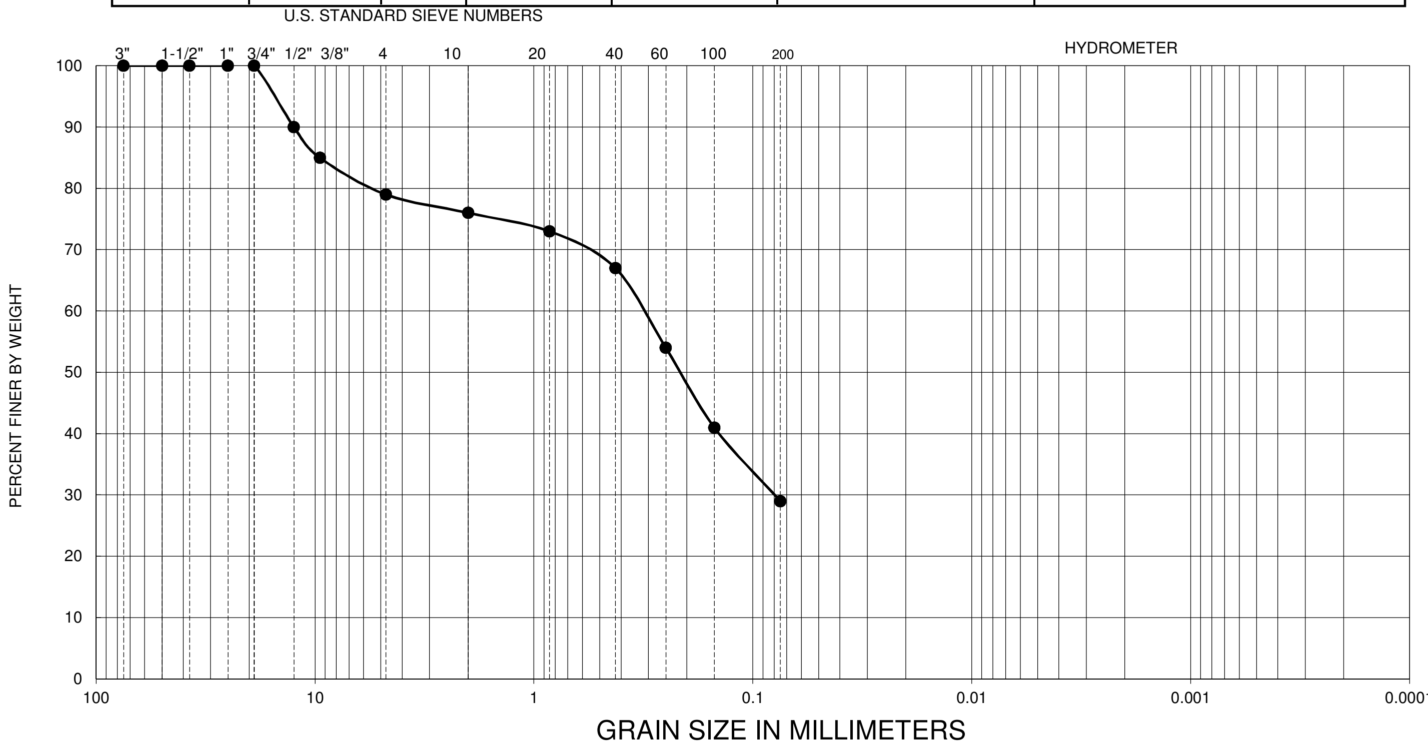
FIGURE

F-3

Date Tested: **3/7/2016**

USCS	**GRAVEL**		**SAND**			**FINES**	
	Coarse	**Fine**	**Coarse**	**Medium**	**Fine**	**Silt**	**Clay**



Boring No.	Sample No.	Depth (ft)	Passing 200 (%)	USCS Classification
B3	S4	16	29.0	SC

Sample Description	brown Clayey sand with gravel

	Sieve Size		% Passing
Sieve Analysis	3"	75 mm	100
	2"	50 mm	100
	1.5"	37.5 mm	100
	1"	25 mm	100
	3/4"	19 mm	100
	1/2"	12.5 mm	90
	3/8"	9.5 mm	85
	No. 4	4.75 mm	79
	No. 10	2.0 mm	76
	No. 20	0.85 mm	73
	No. 40	0.425 mm	67
	No. 60	0.25 mm	54
	No 100	0.15 mm	41
	No 200	.075 mm	29.0

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GRADATION TEST RESULTS

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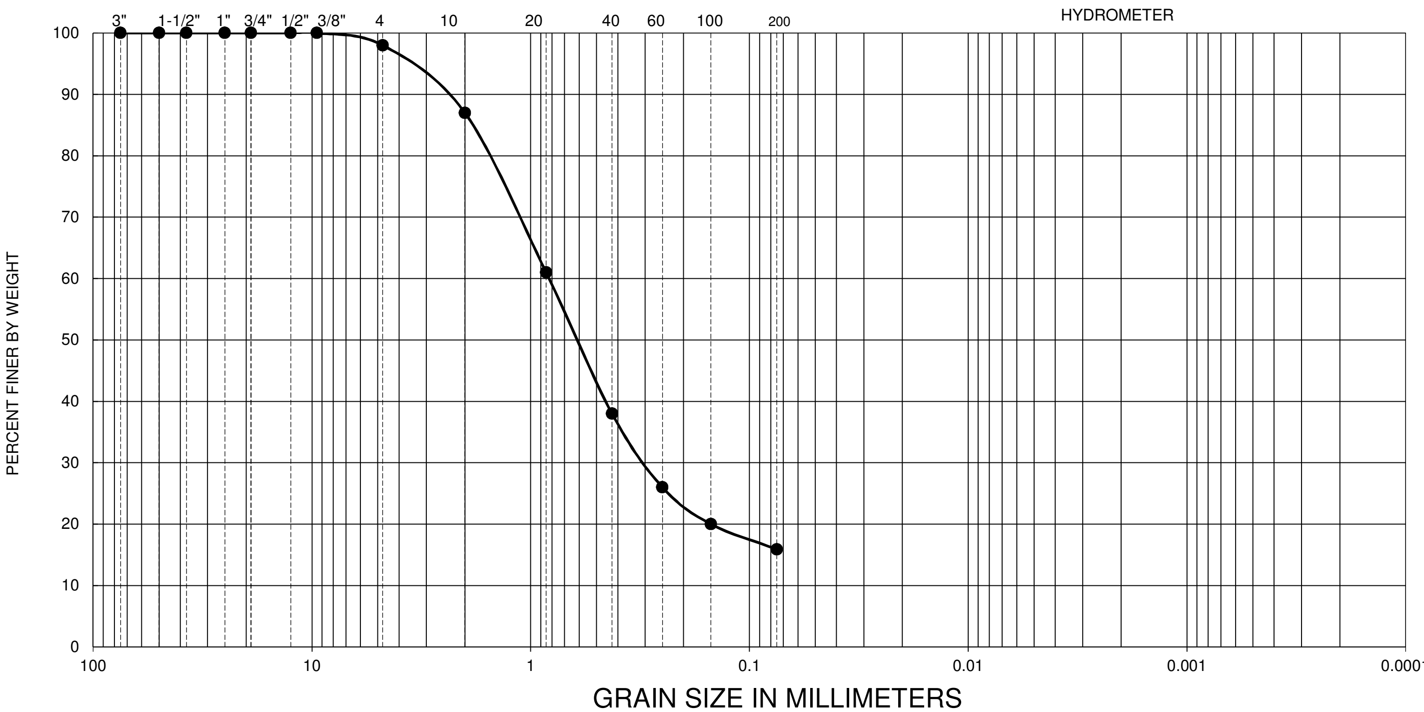
FIGURE

F-4

Date Tested: **3/1/2016**

USCS	GRAVEL		SAND			FINES	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay



Boring No.	Sample No.	Depth (ft)	Passing 200 (%)	USCS Classification
B5	S5	16	15.9	SM

Sample Description	brown Silty sand

	Sieve Size		% Passing
Sieve Analysis	3"	75 mm	100
	2"	50 mm	100
	1.5"	37.5 mm	100
	1"	25 mm	100
	3/4"	19 mm	100
	1/2"	12.5 mm	100
	3/8"	9.5 mm	100
	No. 4	4.75 mm	98
	No. 10	2.0 mm	87
	No. 20	0.85 mm	61
	No. 40	0.425 mm	38
	No. 60	0.25 mm	26
	No 100	0.15 mm	20
	No 200	.075 mm	15.9

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GRADATION TEST RESULTS

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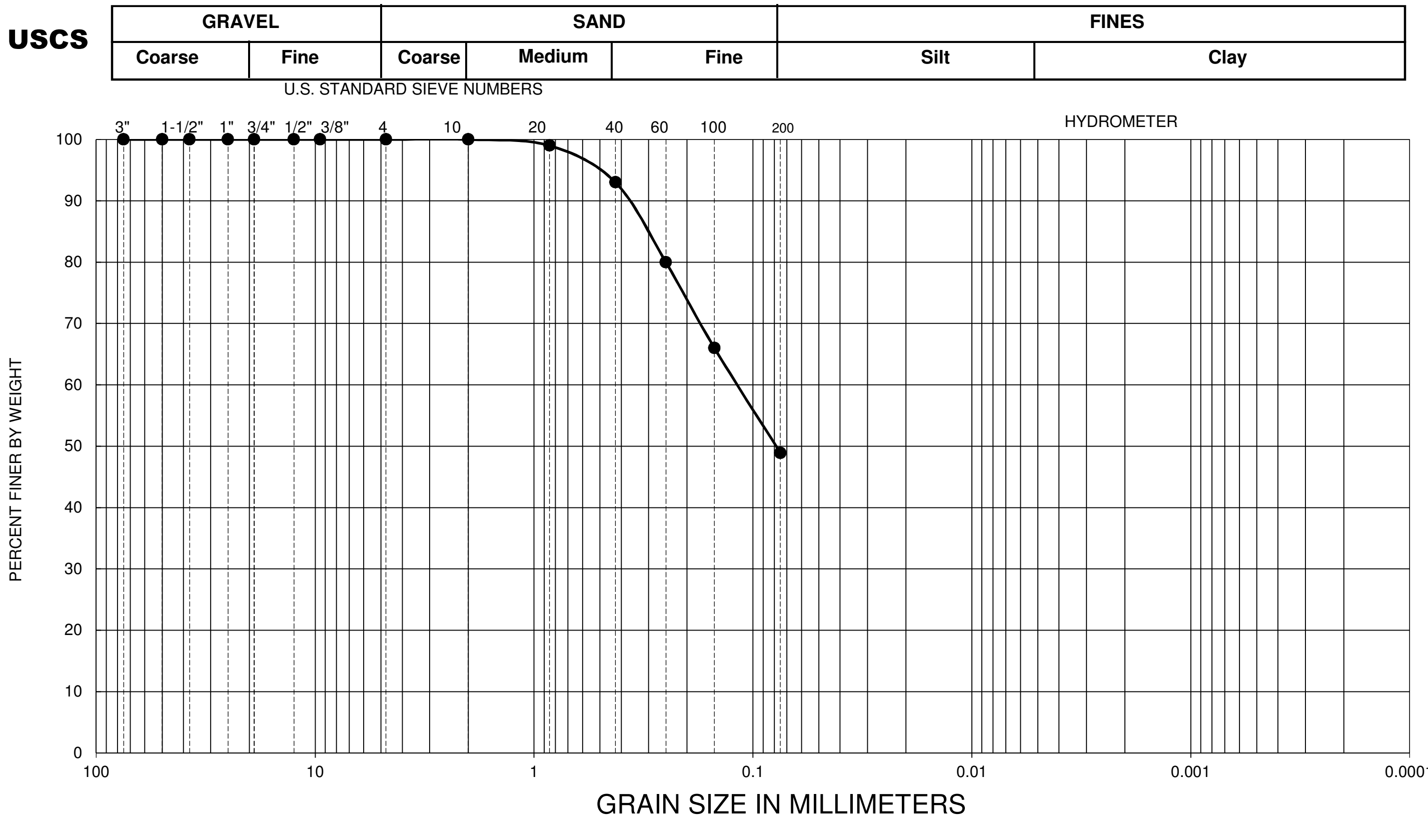
FIGURE
F-5

Date Tested: 3/7/2016



Boring No.	Sample No.	Depth (ft)	Passing 200 (%)	USCS Classification
B8	S2	6	48.9	SC

Sample Description	yellowish brown Clayey sand

	Sieve Size		% Passing
Sieve Analysis	3"	75 mm	100
	2"	50 mm	100
	1.5"	37.5 mm	100
	1"	25 mm	100
	3/4"	19 mm	100
	1/2"	12.5 mm	100
	3/8"	9.5 mm	100
	No. 4	4.75 mm	100
	No. 10	2.0 mm	100
	No. 20	0.85 mm	99
	No. 40	0.425 mm	93
	No. 60	0.25 mm	80
	No 100	0.15 mm	66
	No 200	.075 mm	48.9

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GRADATION TEST RESULTS

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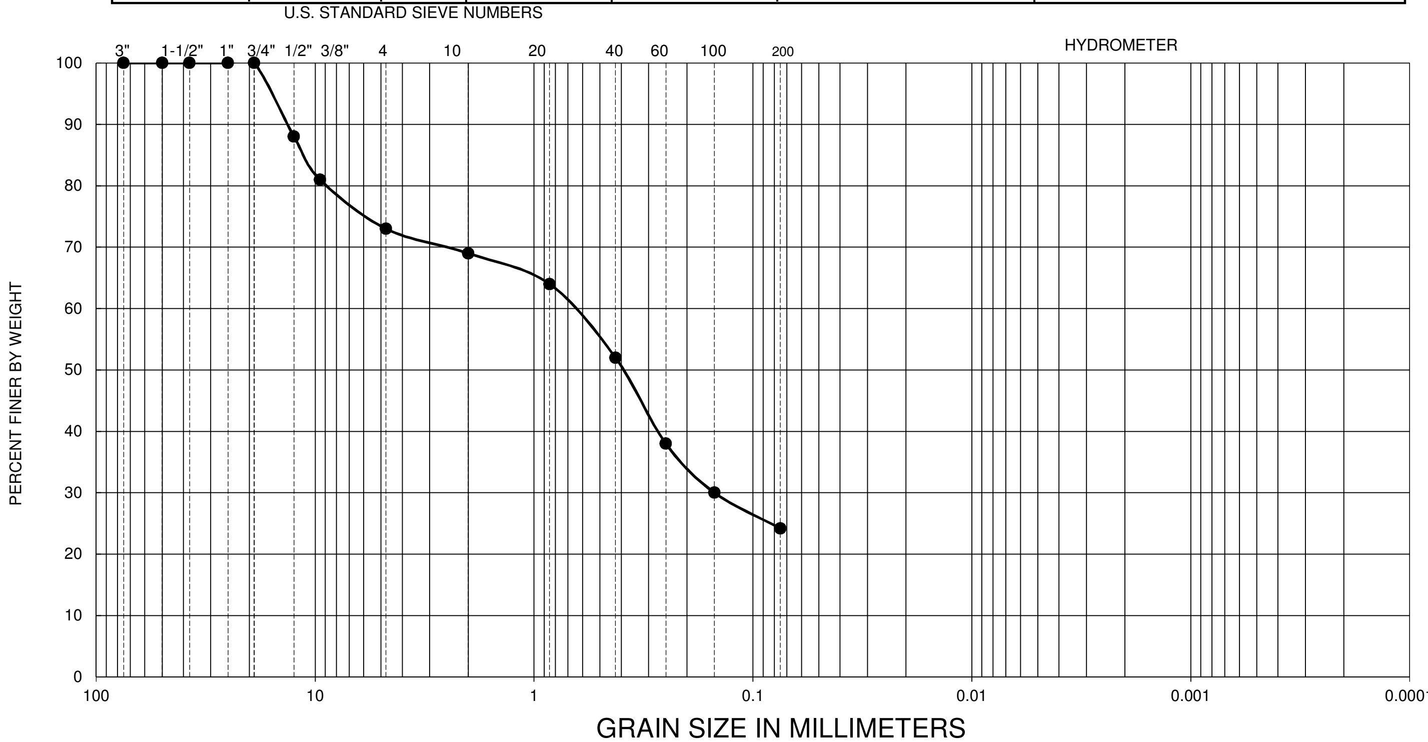
FIGURE
F-6

Date Tested: **3/2/2016**

USCS

GRAVEL		SAND			FINES	
Coarse	Fine	Coarse	Medium	Fine	Silt	Clay



Boring No.	Sample No.	Depth (ft)	Passing 200 (%)	USCS Classification
B9	S3	10.5	24.2	SC

Sample Description	brown Clayey sand with gravel

	Sieve Size		% Passing
Sieve Analysis	3"	75 mm	100
	2"	50 mm	100
	1.5"	37.5 mm	100
	1"	25 mm	100
	3/4"	19 mm	100
	1/2"	12.5 mm	88
	3/8"	9.5 mm	81
	No. 4	4.75 mm	73
	No. 10	2.0 mm	69
	No. 20	0.85 mm	64
	No. 40	0.425 mm	52
	No. 60	0.25 mm	38
	No 100	0.15 mm	30
	No 200	.075 mm	24.2

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GRADATION TEST RESULTS

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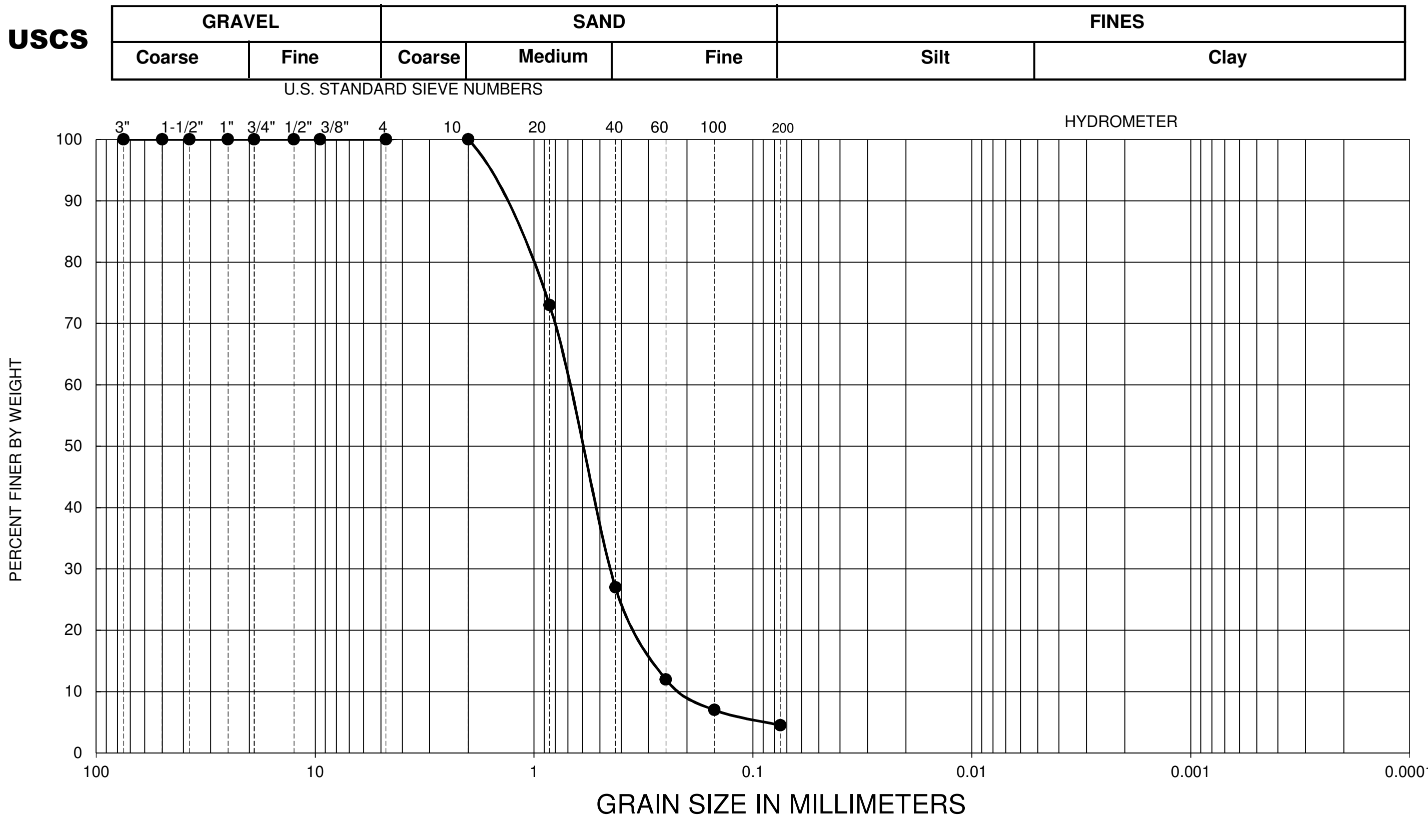
FIGURE

F-7

Date Tested: 3/1/2016



Boring No.	Sample No.	Depth (ft)	Passing 200 (%)	USCS Classification
B11	S5	15.5	4.5	SP

Sample Description	brown Poorly graded sand

	Sieve Size		% Passing
Sieve Analysis	3"	75 mm	100
	2"	50 mm	100
	1.5"	37.5 mm	100
	1"	25 mm	100
	3/4"	19 mm	100
	1/2"	12.5 mm	100
	3/8"	9.5 mm	100
	No. 4	4.75 mm	100
	No. 10	2.0 mm	100
	No. 20	0.85 mm	73
	No. 40	0.425 mm	27
	No. 60	0.25 mm	12
	No 100	0.15 mm	7
	No 200	.075 mm	4.5

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GRADATION TEST RESULTS

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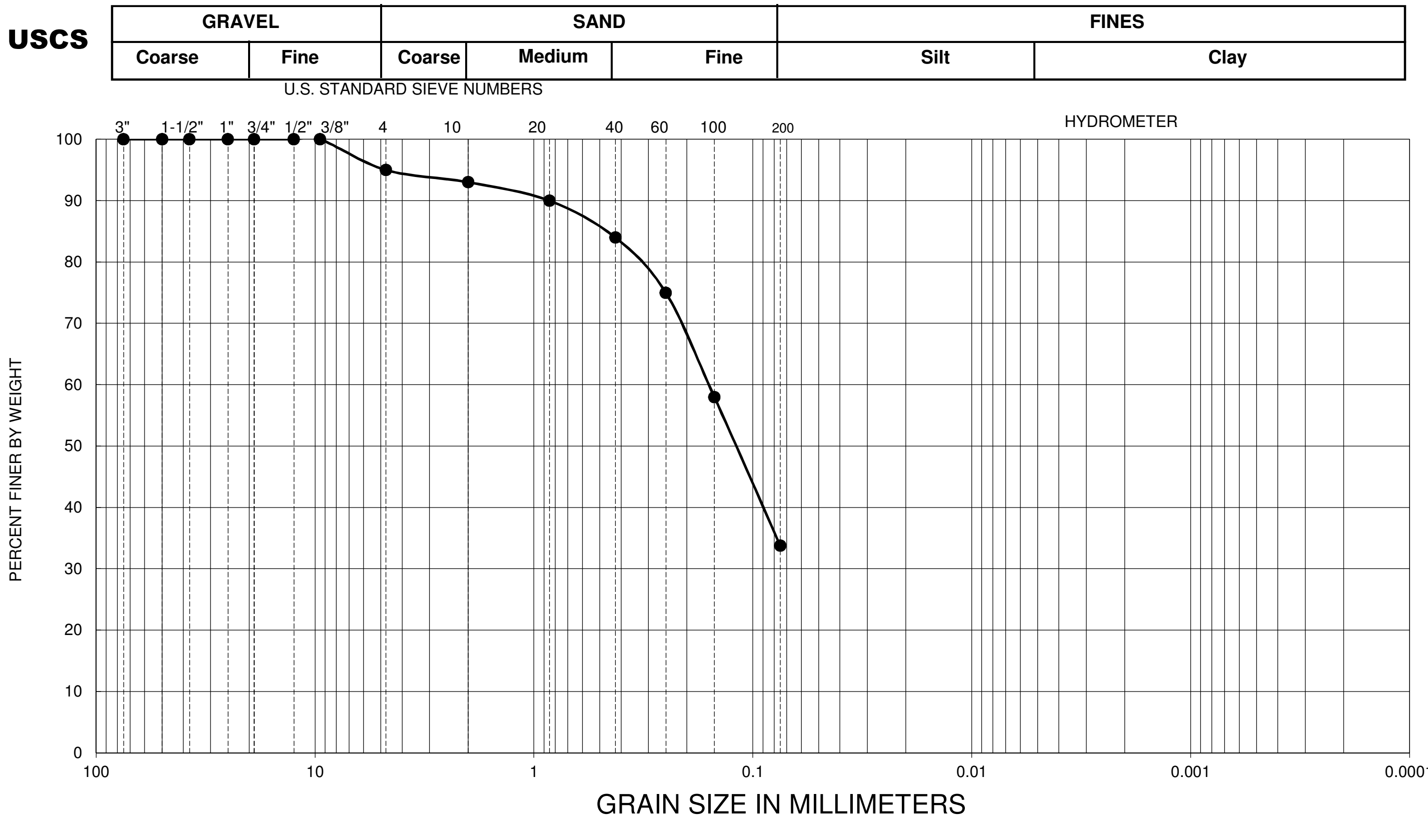
FIGURE
F-8

Date Tested: 3/1/2016



Boring No.	Sample No.	Depth (ft)	Passing 200 (%)	USCS Classification
B12	S4	16	33.8	SC

Sample Description	brown Clayey sand

Sieve Analysis	Sieve Size		% Passing
	3"	75 mm	100
	2"	50 mm	100
	1.5"	37.5 mm	100
	1"	25 mm	100
	3/4"	19 mm	100
	1/2"	12.5 mm	100
	3/8"	9.5 mm	100
	No. 4	4.75 mm	95
	No. 10	2.0 mm	93
	No. 20	0.85 mm	90
	No. 40	0.425 mm	84
	No. 60	0.25 mm	75
	No 100	0.15 mm	58
	No 200	.075 mm	33.8

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GRADATION TEST RESULTS

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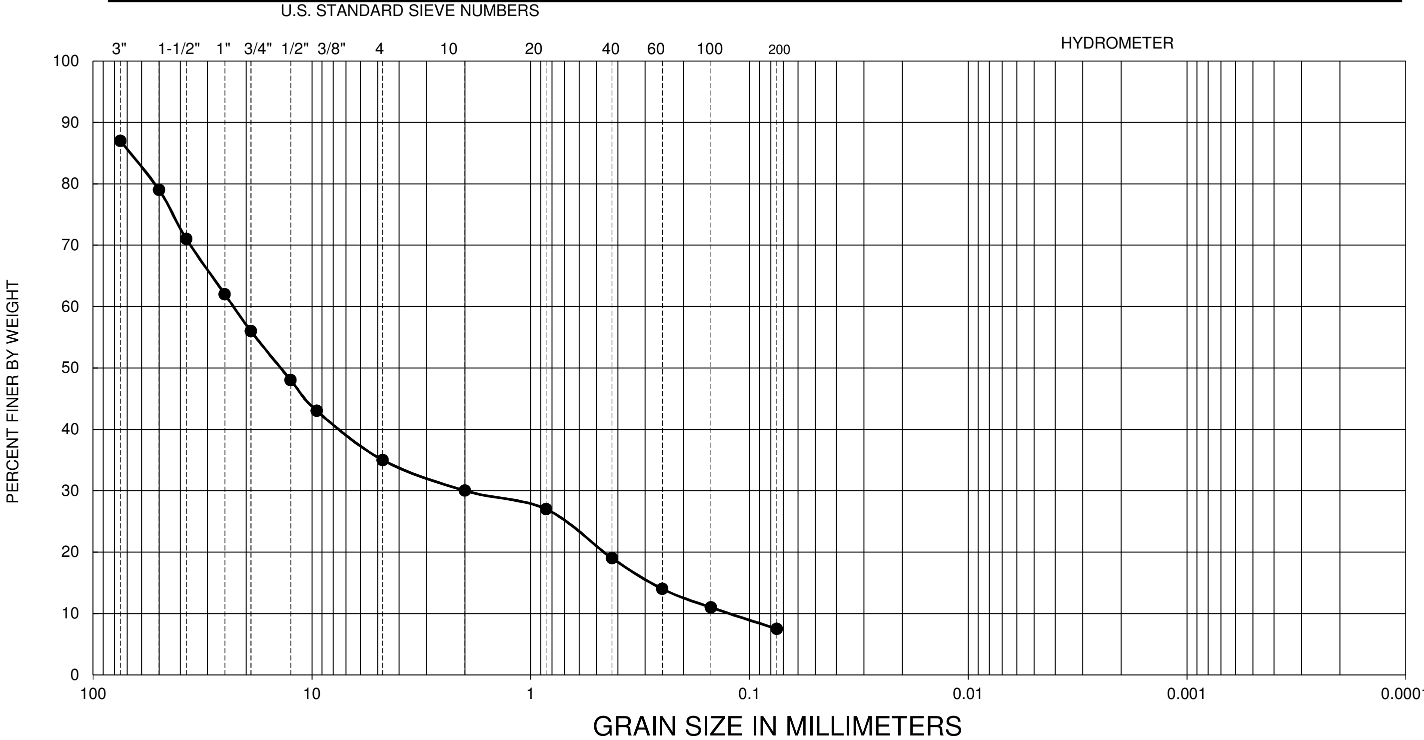
FIGURE
F-9

Date Tested: 3/18/2016

USCS

GRAVEL		SAND			FINES	
Coarse	Fine	Coarse	Medium	Fine	Silt	Clay



Boring No.	Sample No.	Depth (ft)	Passing 200 (%)	USCS Classification
LD1	S3	10.5-11	7.5	GW-GC

Sample Description	light yellowish brown	Well-graded gravel with clay and sand

	Sieve Size		% Passing
Sieve Analysis	3"	75 mm	87
	2"	50 mm	79
	1.5"	37.5 mm	71
	1"	25 mm	62
	3/4"	19 mm	56
	1/2"	12.5 mm	48
	3/8"	9.5 mm	43
	No. 4	4.75 mm	35
	No. 10	2.0 mm	30
	No. 20	0.85 mm	27
	No. 40	0.425 mm	19
	No. 60	0.25 mm	14
	No 100	0.15 mm	11
	No 200	.075 mm	7.5

Note: 100% passing 6".

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GRADATION TEST RESULTS

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FIGURE
F-10

Date Tested: 3/2/2016

USCS	GRAVEL		SAND			FINES	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay

Boring No.	Sample No.	Depth (ft)	Passing 200 (%)	USCS Classification
LD2	S2	11-12.5	44.0	SC

Sample Description	brown Clayey sand with gravel

	Sieve Size		% Passing
Sieve Analysis	3"	75 mm	100
	2"	50 mm	100
	1.5"	37.5 mm	100
	1"	25 mm	100
	3/4"	19 mm	100
	1/2"	12.5 mm	90
	3/8"	9.5 mm	87
	No. 4	4.75 mm	84
	No. 10	2.0 mm	82
	No. 20	0.85 mm	78
	No. 40	0.425 mm	70
	No. 60	0.25 mm	61
	No 100	0.15 mm	53
	No 200	.075 mm	44.0

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GRADATION TEST RESULTS

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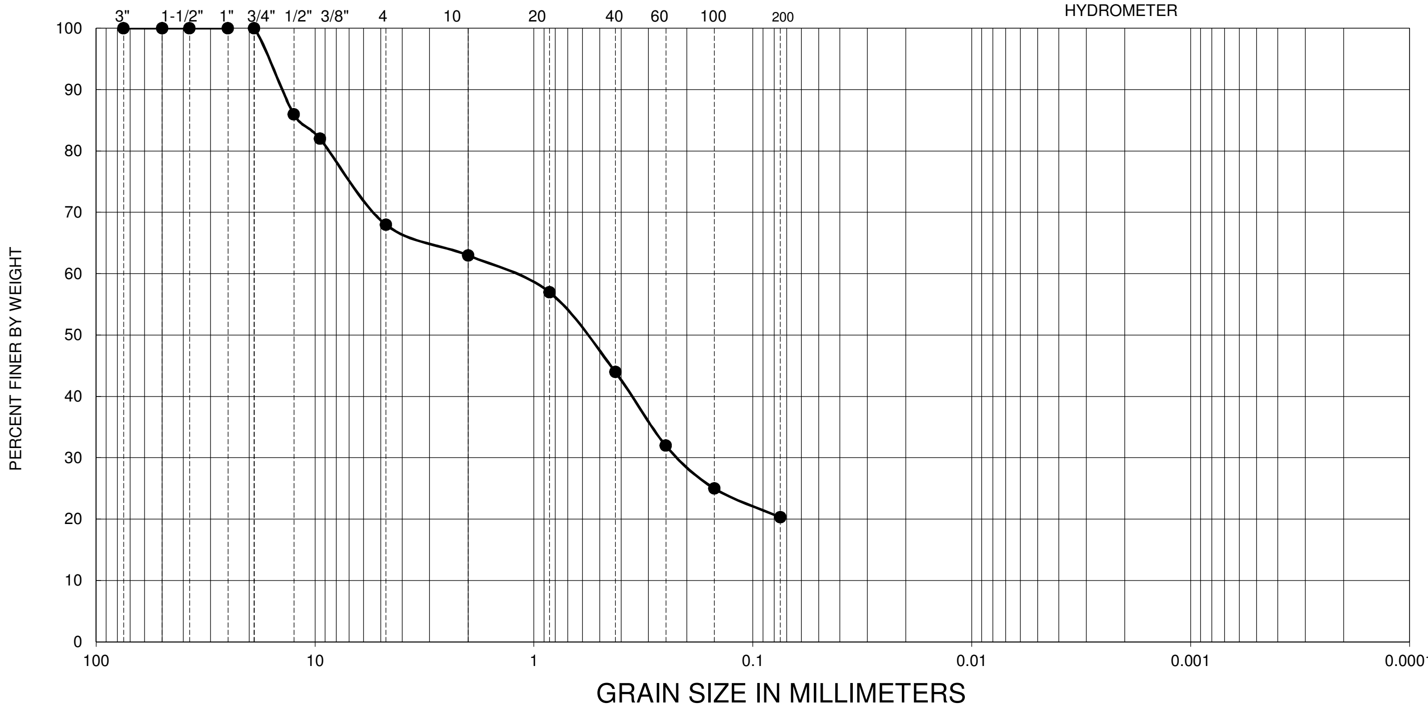
FIGURE
F-11

Date Tested: 3/2/2016

USCS

GRAVEL		SAND			FINES	
Coarse	Fine	Coarse	Medium	Fine	Silt	Clay



Boring No.	Sample No.	Depth (ft)	Passing 200 (%)	USCS Classification
LD2	S4	18-19	20.3	SC

Sample Description	light brown Clayey sand with gravel

	Sieve Size		% Passing
Sieve Analysis	3"	75 mm	100
	2"	50 mm	100
	1.5"	37.5 mm	100
	1"	25 mm	100
	3/4"	19 mm	100
	1/2"	12.5 mm	86
	3/8"	9.5 mm	82
	No. 4	4.75 mm	68
	No. 10	2.0 mm	63
	No. 20	0.85 mm	57
	No. 40	0.425 mm	44
	No. 60	0.25 mm	32
	No 100	0.15 mm	25
	No 200	.075 mm	20.3

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GRADATION TEST RESULTS

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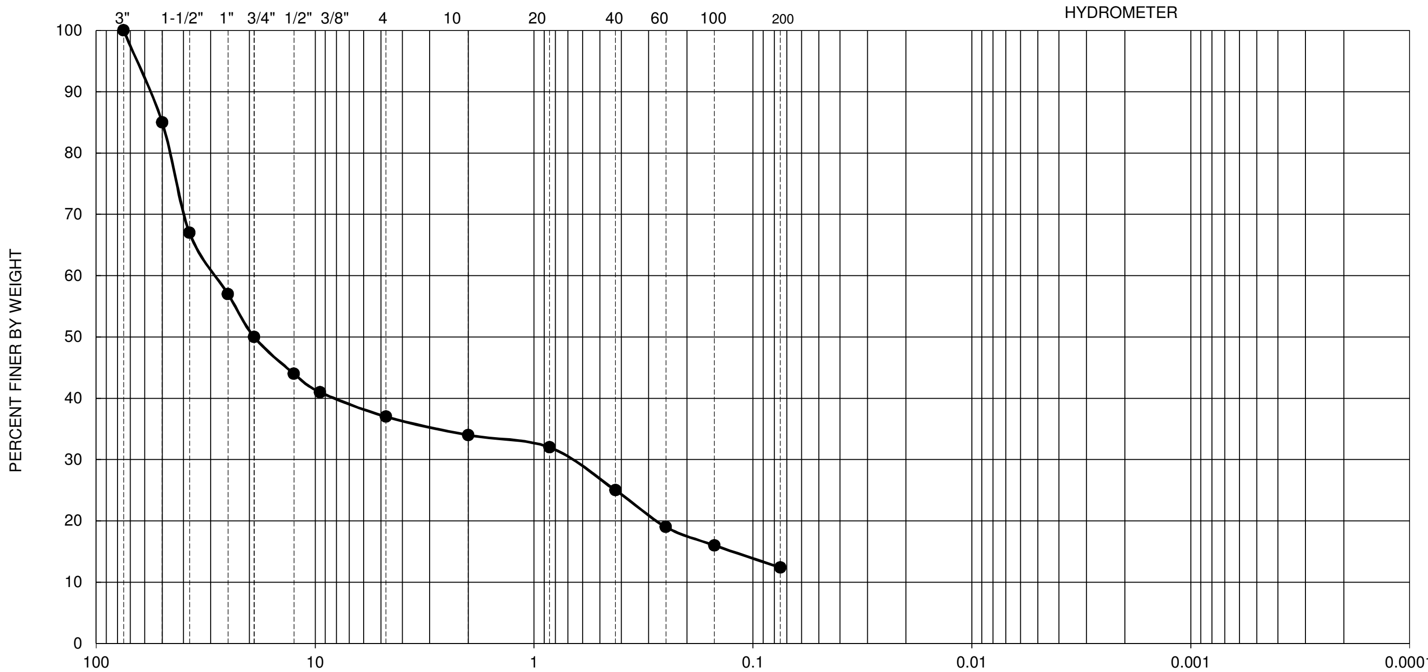
FIGURE
F-12

Date Tested: **3/18/2016**

USCS	GRAVEL		SAND			FINES	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay

U.S. STANDARD SIEVE NUMBERS



GRAIN SIZE IN MILLIMETERS

Boring No.	Sample No.	Depth (ft)	Passing 200 (%)	USCS Classification
LD3	S3	10-10.5	12.4	GC

Sample Description	yellowish brown Clayey gravel with sand

	Sieve Size		% Passing
Sieve Analysis	3"	75 mm	100
	2"	50 mm	85
	1.5"	37.5 mm	67
	1"	25 mm	57
	3/4"	19 mm	50
	1/2"	12.5 mm	44
	3/8"	9.5 mm	41
	No. 4	4.75 mm	37
	No. 10	2.0 mm	34
	No. 20	0.85 mm	32
	No. 40	0.425 mm	25
	No. 60	0.25 mm	19
	No 100	0.15 mm	16
	No 200	.075 mm	12.4

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GRADATION TEST RESULTS

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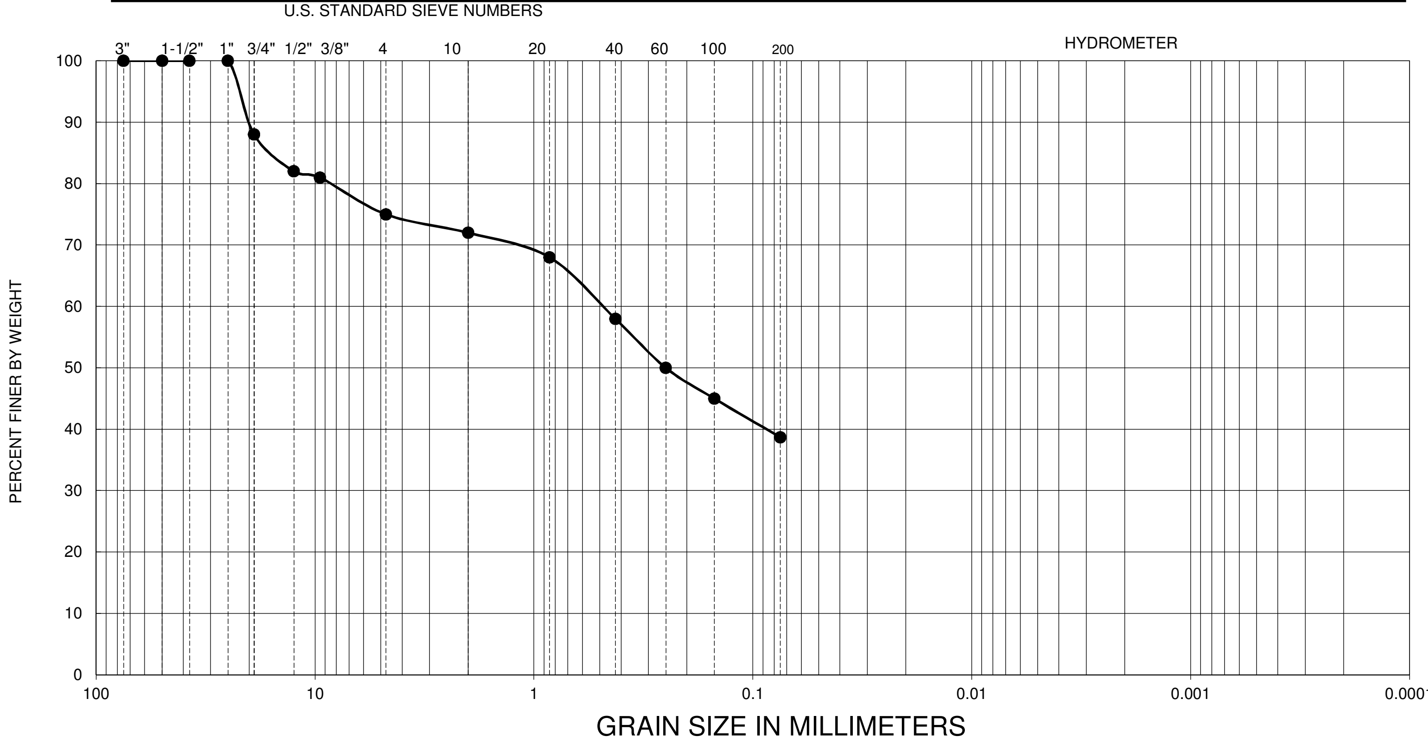
FIGURE

F-13

Date Tested: **3/17/2016**

USCS

GRAVEL		SAND			FINES	
Coarse	Fine	Coarse	Medium	Fine	Silt	Clay



Boring No.	Sample No.	Depth (ft)	Passing 200 (%)	USCS Classification
LD3	S4	13-13.5	38.7	SC

Sample Description	dark brown Clayey sand with gravel

	Sieve Size		% Passing
Sieve Analysis	3"	75 mm	100
	2"	50 mm	100
	1.5"	37.5 mm	100
	1"	25 mm	100
	3/4"	19 mm	88
	1/2"	12.5 mm	82
	3/8"	9.5 mm	81
	No. 4	4.75 mm	75
	No. 10	2.0 mm	72
	No. 20	0.85 mm	68
	No. 40	0.425 mm	58
	No. 60	0.25 mm	50
	No 100	0.15 mm	45
	No 200	.075 mm	38.7

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GRADATION TEST RESULTS

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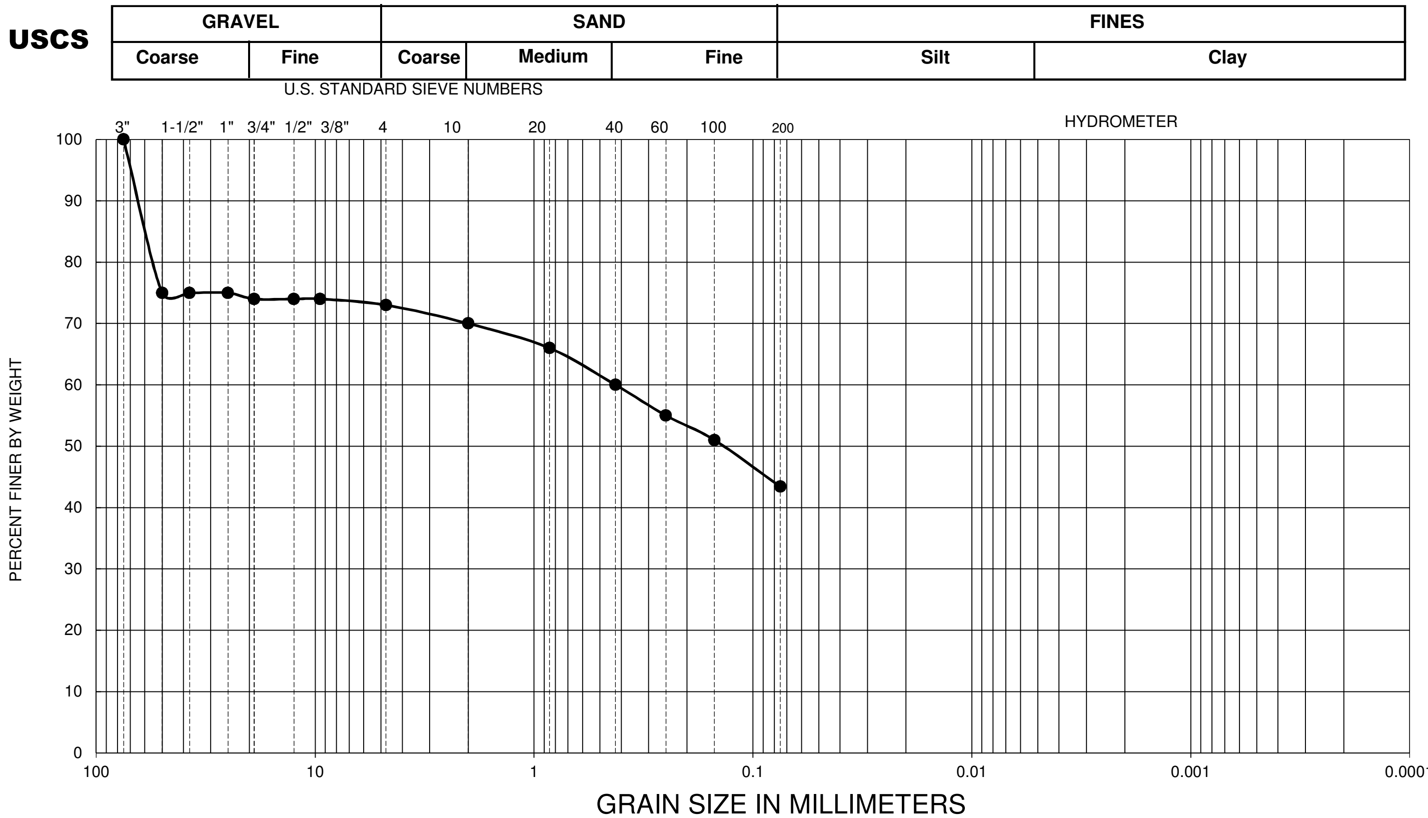
FIGURE **F-14**

Date Tested: 3/17/2016



Boring No.	Sample No.	Depth (ft)	Passing 200 (%)	USCS Classification
LD3	S5	21.5-22	43.4	SC

Sample Description	yellowish brown Clayey sand with gravel

Sieve Analysis	Sieve Size		% Passing
	3"	75 mm	100
	2"	50 mm	75
	1.5"	37.5 mm	75
	1"	25 mm	75
	3/4"	19 mm	74
	1/2"	12.5 mm	74
	3/8"	9.5 mm	74
	No. 4	4.75 mm	73
	No. 10	2.0 mm	70
	No. 20	0.85 mm	66
	No. 40	0.425 mm	60
	No. 60	0.25 mm	55
	No 100	0.15 mm	51
	No 200	.075 mm	43.4

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GRADATION TEST RESULTS

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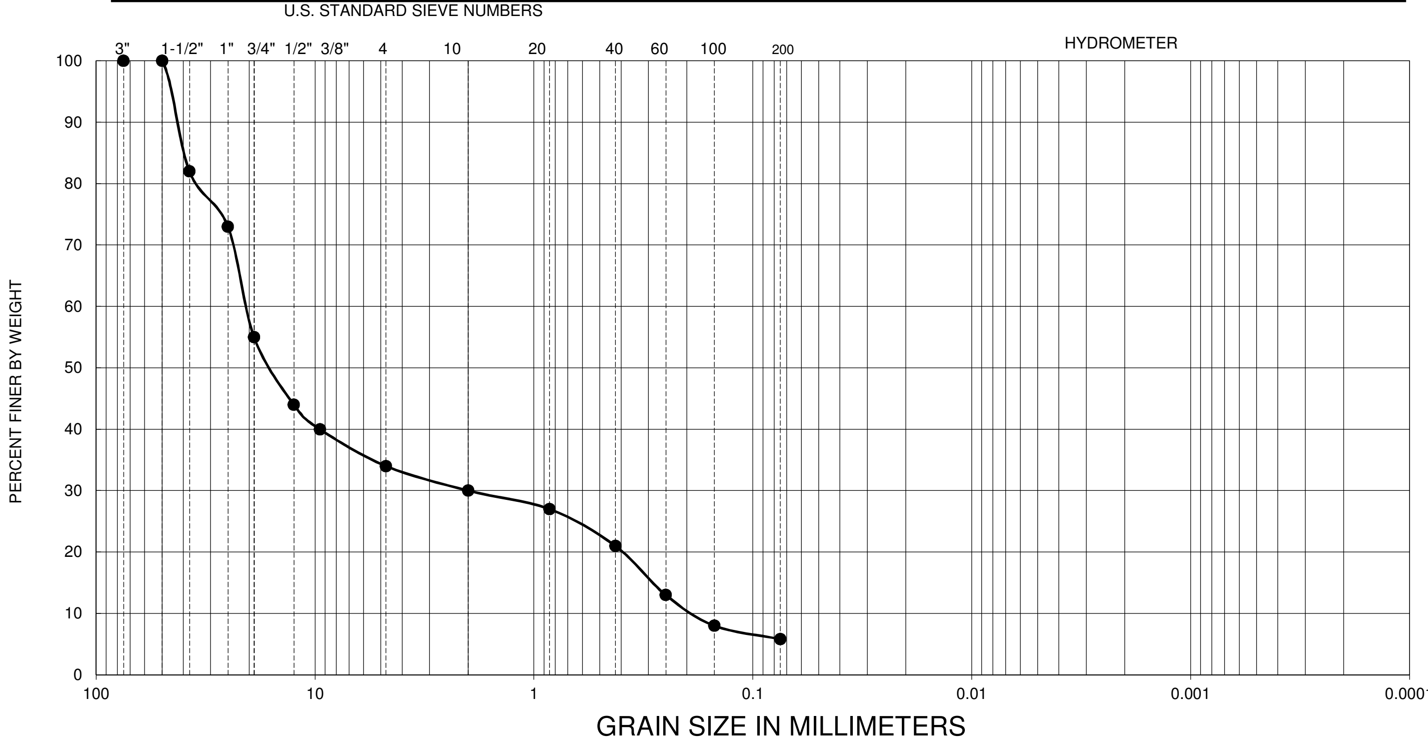
FIGURE
F-15

Date Tested: 3/18/2016

USCS	GRAVEL		SAND			FINES	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay



Boring No.	Sample No.	Depth (ft)	Passing 200 (%)	USCS Classification
LD3	S7	30-30.5	5.8	GW-GM

Sample Description	yellowish brown Well-graded gravel with silt and sand

	Sieve Size		% Passing
Sieve Analysis	3"	75 mm	100
	2"	50 mm	100
	1.5"	37.5 mm	82
	1"	25 mm	73
	3/4"	19 mm	55
	1/2"	12.5 mm	44
	3/8"	9.5 mm	40
	No. 4	4.75 mm	34
	No. 10	2.0 mm	30
	No. 20	0.85 mm	27
	No. 40	0.425 mm	21
	No. 60	0.25 mm	13
	No 100	0.15 mm	8
	No 200	.075 mm	5.8

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GRADATION TEST RESULTS

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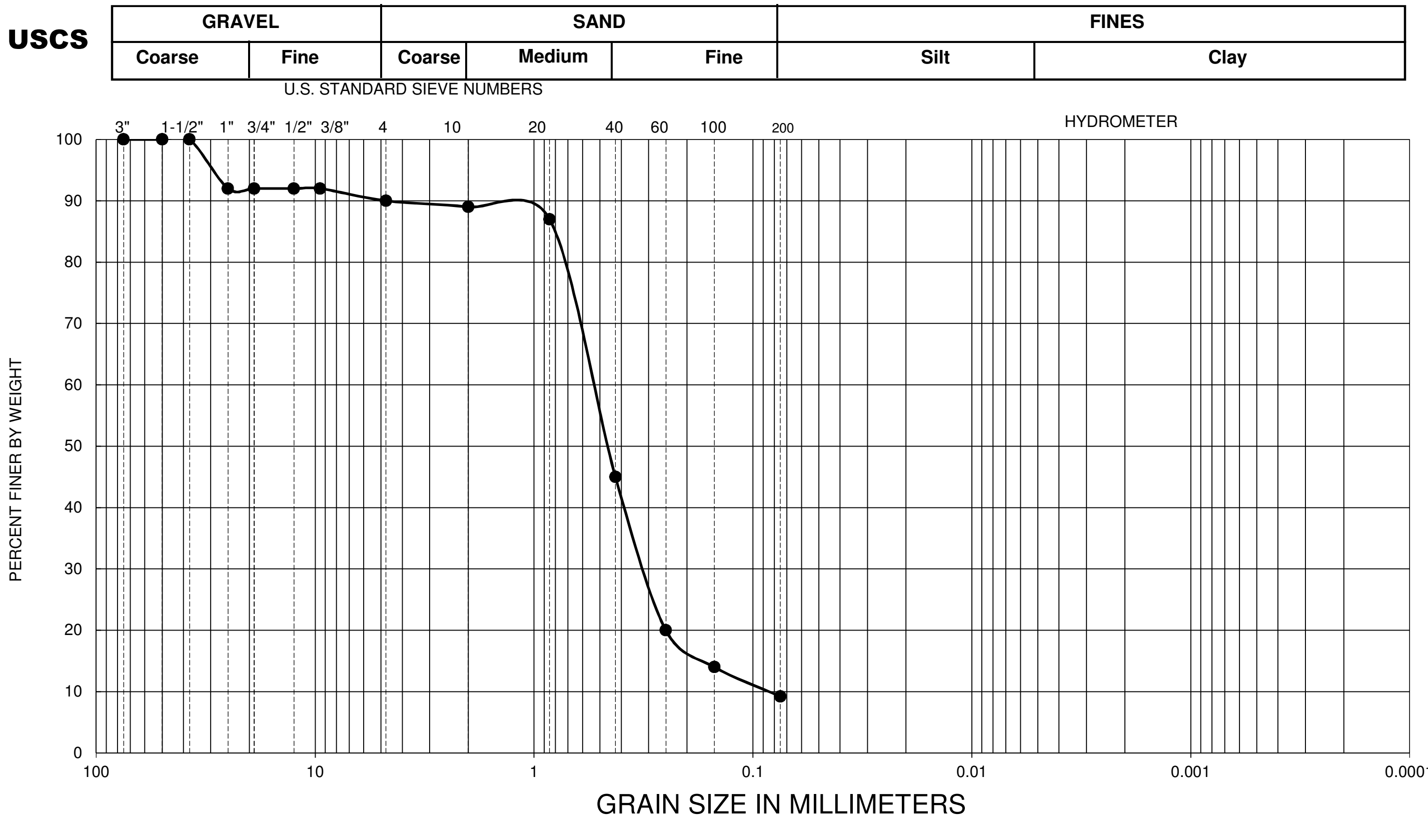
FIGURE
F-16

Date Tested: 3/17/2016



Boring No.	Sample No.	Depth (ft)	Passing 200 (%)	USCS Classification
LD3	S9	43-43.5	9.2	SW-SM

Sample Description	reddish brown Well-graded sand with silt

	Sieve Size		% Passing
Sieve Analysis	3"	75 mm	100
	2"	50 mm	100
	1.5"	37.5 mm	100
	1"	25 mm	92
	3/4"	19 mm	92
	1/2"	12.5 mm	92
	3/8"	9.5 mm	92
	No. 4	4.75 mm	90
	No. 10	2.0 mm	89
	No. 20	0.85 mm	87
	No. 40	0.425 mm	45
	No. 60	0.25 mm	20
	No 100	0.15 mm	14
	No 200	.075 mm	9.2

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GRADATION TEST RESULTS

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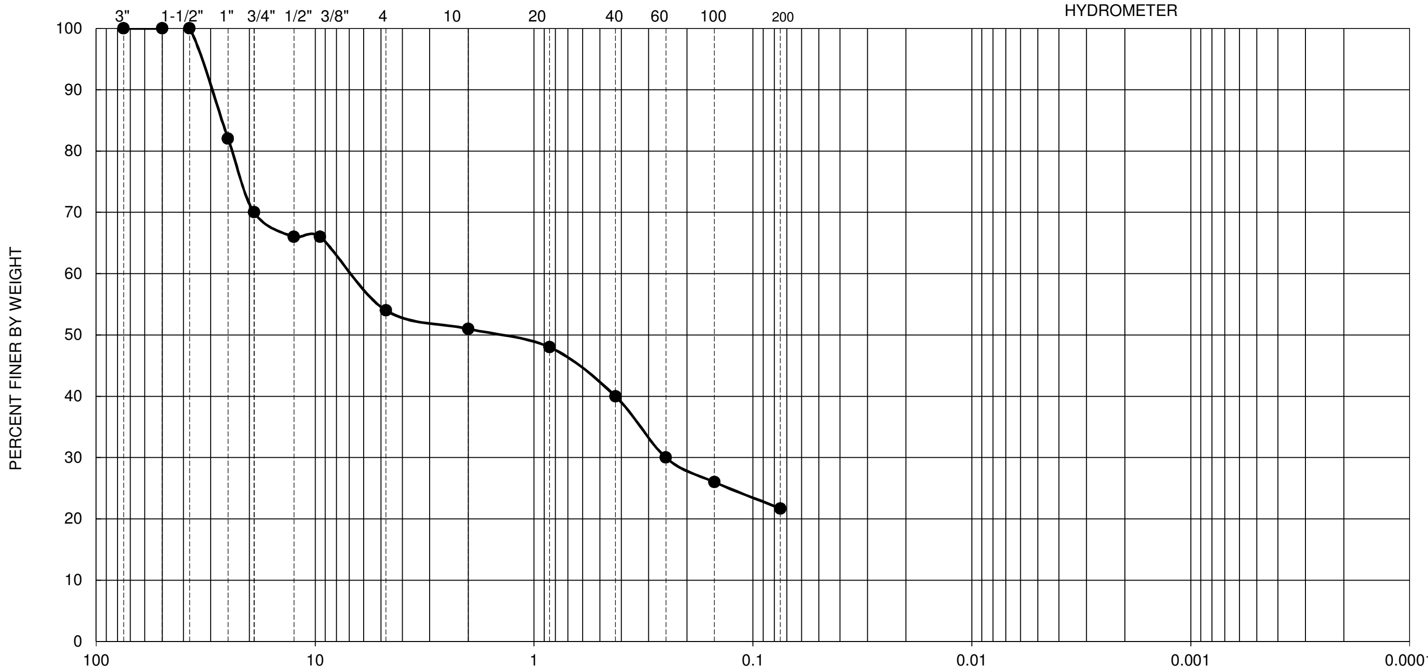
FIGURE

F-17

Date Tested: **3/18/2016**

USCS

GRAVEL		SAND			FINES	
Coarse	Fine	Coarse	Medium	Fine	Silt	Clay



Boring No.	Sample No.	Depth (ft)	Passing 200 (%)	USCS Classification
LD4	S2	9-9.5	21.7	SC

Sample Description	brown Clayey sand with gravel

	Sieve Size		% Passing
Sieve Analysis	3"	75 mm	100
	2"	50 mm	100
	1.5"	37.5 mm	100
	1"	25 mm	82
	3/4"	19 mm	70
	1/2"	12.5 mm	66
	3/8"	9.5 mm	66
	No. 4	4.75 mm	54
	No. 10	2.0 mm	51
	No. 20	0.85 mm	48
	No. 40	0.425 mm	40
	No. 60	0.25 mm	30
	No 100	0.15 mm	26
	No 200	.075 mm	21.7

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GRADATION TEST RESULTS

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FIGURE

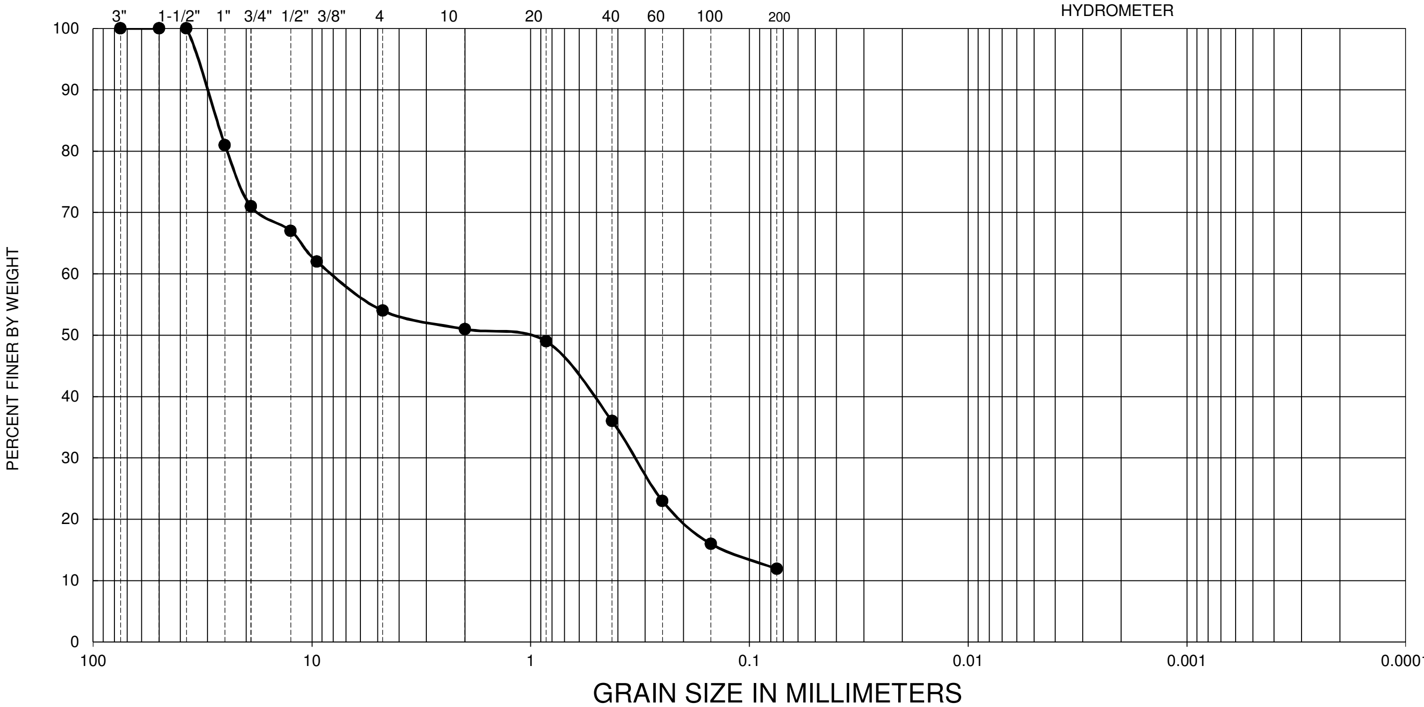
F-18

Date Tested: **3/18/2016**

USCS

GRAVEL		SAND			FINES	
Coarse	Fine	Coarse	Medium	Fine	Silt	Clay

U.S. STANDARD SIEVE NUMBERS



Boring No.	Sample No.	Depth (ft)	Passing 200 (%)	USCS Classification
LD4	S3	14-14.5	11.9	SP-SC

Sample Description	yellowish brown Poorly graded sand with clay and gravel

	Sieve Size		% Passing
Sieve Analysis	3"	75 mm	100
	2"	50 mm	100
	1.5"	37.5 mm	100
	1"	25 mm	81
	3/4"	19 mm	71
	1/2"	12.5 mm	67
	3/8"	9.5 mm	62
	No. 4	4.75 mm	54
	No. 10	2.0 mm	51
	No. 20	0.85 mm	49
	No. 40	0.425 mm	36
	No. 60	0.25 mm	23
	No 100	0.15 mm	16
	No 200	.075 mm	11.9

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GRADATION TEST RESULTS

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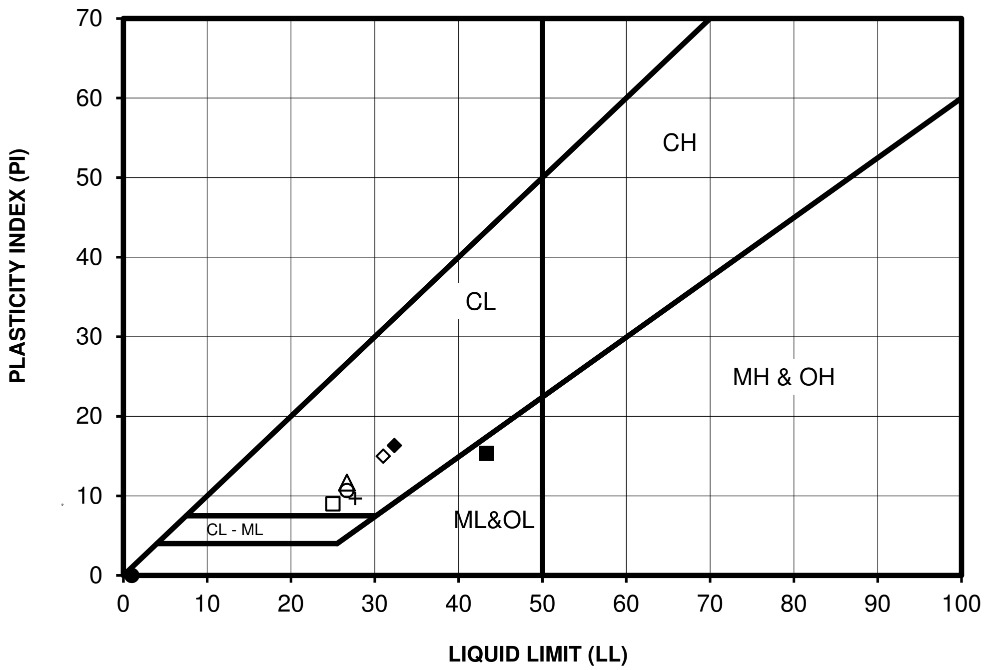
FIGURE

F-19

Date Tested : 3/4-14/2016

SYMBOL	SAMPLE NAME	DEPTH (ft)	LL	PL	PI	USCS CLASSIFICATION (Minus No. 40 Sieve Fraction)	USCS (Entire Sample)
●	B1-S3	10-12	NP	NP	NP	ML	SM
■	B1-S5	21	43	28	15	ML	SM
◆	B2-S3	11	32	16	16	CL	SC
○	B2-S5	21	27	16	11	CL	SC
□	B3-S3	10-12	25	16	9	CL	SC
△	B3-S6	26	27	15	12	CL	SC
+	B5-S3	6	28	18	10	CL	CL
◇	B6-S2	8.5	31	16	15	CL	CL



PERFORMED IN GENERAL ACCORDANCE WITH ASTM D 4318

Limitations: Pursuant to applicable codes, the results presented in this report are for the exclusive use of the client and the registered design professional in responsible charge. The results apply only to the samples tested. If changes to the specification were made and not communicated to Kleinfelder, Kleinfelder assumes no responsibility for pass/fail statements (meets/did not meet), if provided. This report may not be reproduced, except in full, without written approval of Kleinfelder.

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Bright People. Right Solutions.

ATTERBERG LIMITS TEST RESULTS

Legacy International Center
San Diego, California

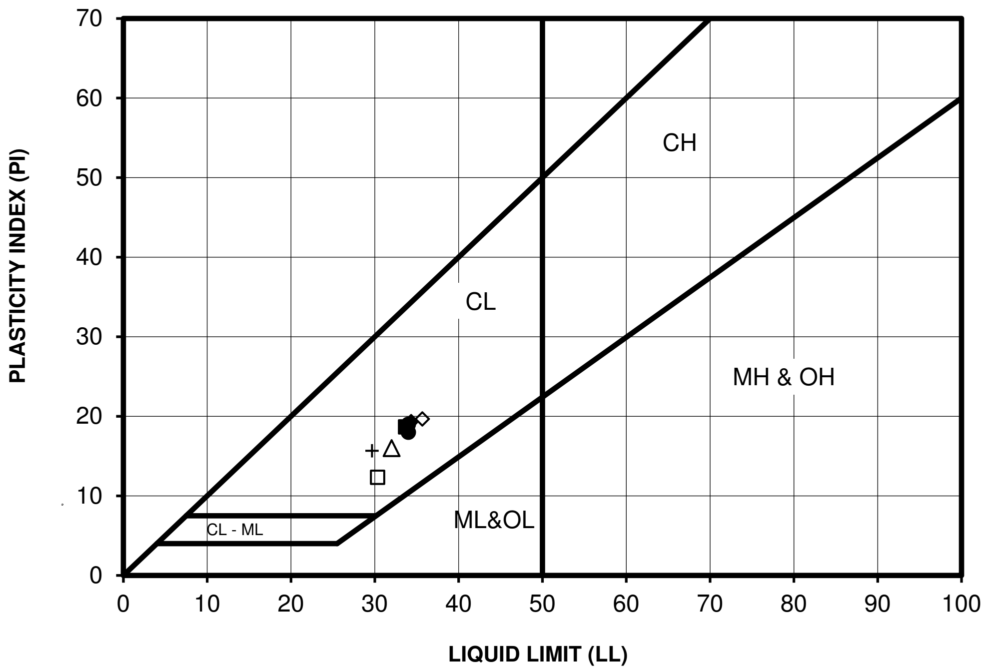
FIGURE

F-20

Checked by: Moi A.	TECH:Uly P.
PROJECT NO: 20163965	23-Mar-16

Date Tested : 3/10-23/2016

SYMBOL	SAMPLE NAME	DEPTH (ft)	LL	PL	PI	USCS CLASSIFICATION (Minus No. 40 Sieve Fraction)	USCS (Entire Sample)
●	B8-S2	6	34	16	18	CL	SC
■	B9-S3	10.5	34	15	19	CL	SC
◆	B10-S2	6	34	15	19	CL	CL
○	B12-S2	6	34	15	19	CL	SC
□	B12-S4	16	30	18	12	CL	SC
△	LD2-S2	11-12.5	32	16	16	CL	SC
+	LD2-S4	18-19	30	14	16	CL	SC
◇	LD3-S4	13-13.5	36	16	20	CL	SC



PERFORMED IN GENERAL ACCORDANCE WITH ASTM D 4318

Limitations: Pursuant to applicable codes, the results presented in this report are for the exclusive use of the client and the registered design professional in responsible charge. The results apply only to the samples tested. If changes to the specification were made and not communicated to Kleinfelder, Kleinfelder assumes no responsibility for pass/fail statements (meets/did not meet), if provided. This report may not be reproduced, except in full, without written approval of Kleinfelder.

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ATTERBERG LIMITS TEST RESULTS

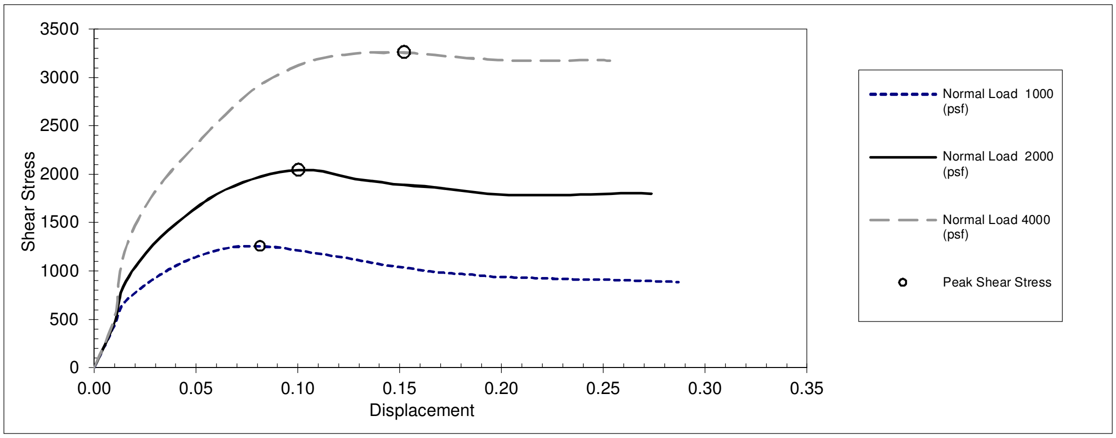
FIGURE

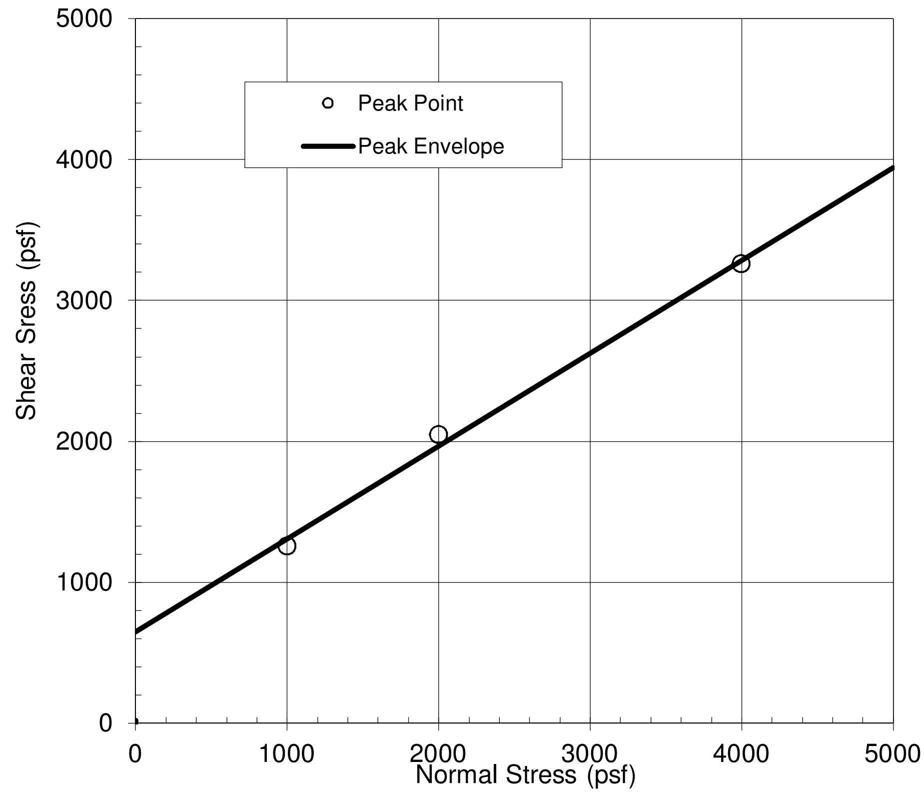
F-21

Legacy International Center San Diego, California

Checked by: Moi A. | TECH:Uly

PROJECT NO: 20163965 | 23-Mar-16





Strain Rate =	0.00709	inch/min		Shear Strength			
Date Tested:	3/3/2016			Peak			
Boring No.	Sample No.	Depth	UCSC	Cohesion (psf)	Friction Angle (deg)	Moisture Content (%)	Dry Density (pcf)
B6	S2	8.5'	CL	647	33.4	19.6	108.9
Sample description:		dark reddish brown sandy clay					

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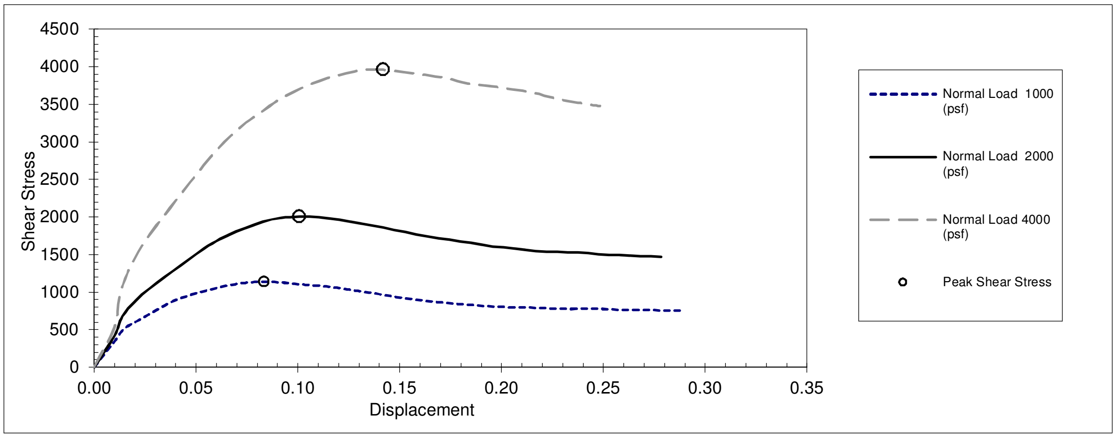
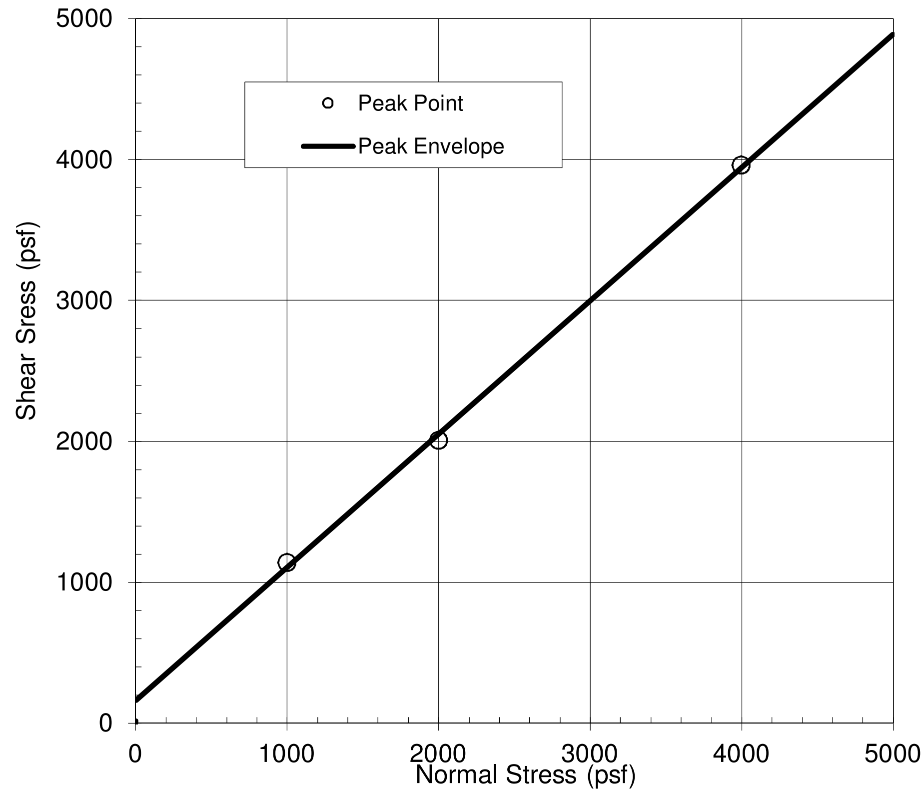
Checked By:	Tech : Uly	**Direct Shear Test Results (ASTM D 3080)**	Figure
Project # 20163965	23-Mar-16	**Legacy International Center San Diego, California**	**F-22**





Strain Rate =	0.00709	inch/min		Shear Strength			
Date Tested:	3/4/2016			Peak			
Boring No.	Sample No.	Depth	UCSC	Cohesion (psf)	Friction Angle (deg)	Moisture Content (%)	Dry Density (pcf)
B8	S2	6'	SC	160	43.4	15.8	111.9
Sample description:		yellowish brown clayey sand					

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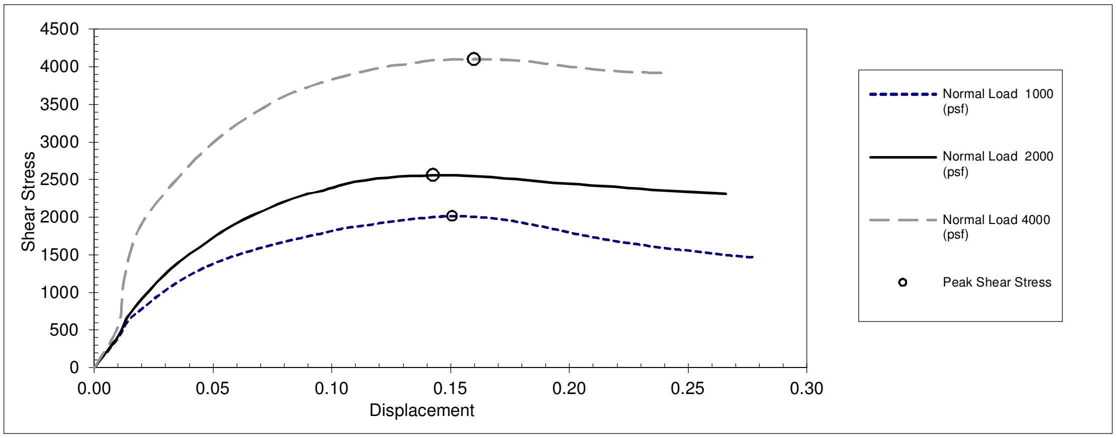
Direct Shear Test Results (ASTM D 3080)

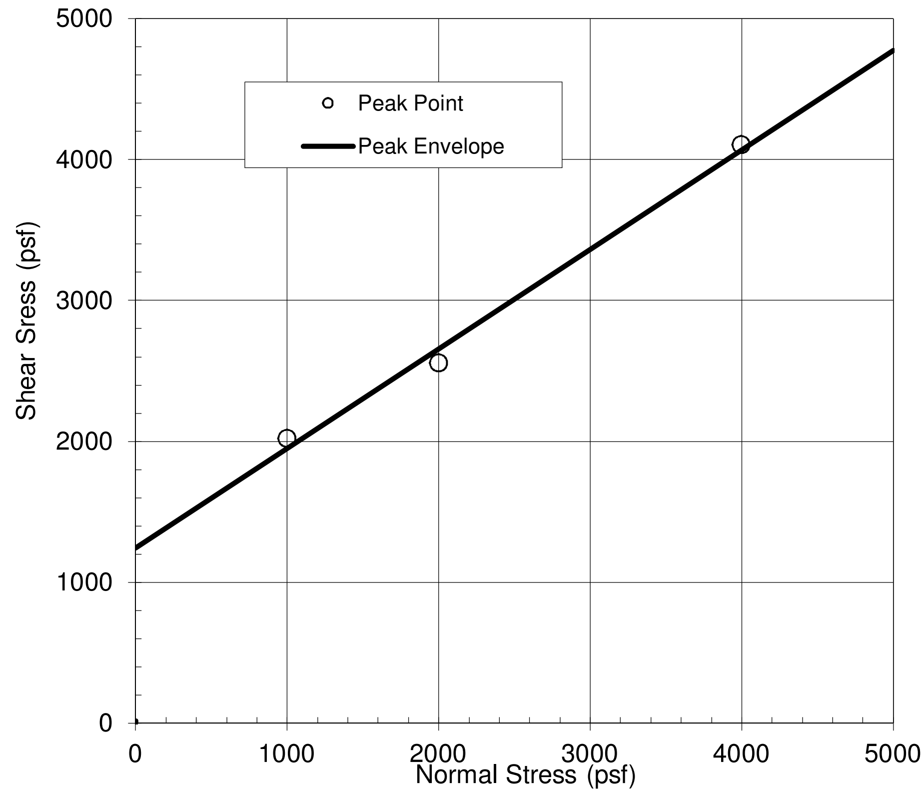
Figure

Legacy International Center
San Diego, California

F-23

Checked By:	Tech : Uly
Project # 20163965	23-Mar-16





Strain Rate =	0.00709	inch/min		Shear Strength			
Date Tested:	3/7/2016			Peak			
Boring No.	Sample No.	Depth	UCSC	Cohesion (psf)	Friction Angle (deg)	Moisture Content (%)	Dry Density (pcf)
B10	S2	6'	CL	1243	35.2	15.7	112.9
Sample description:		yellowish brown sandy clay					

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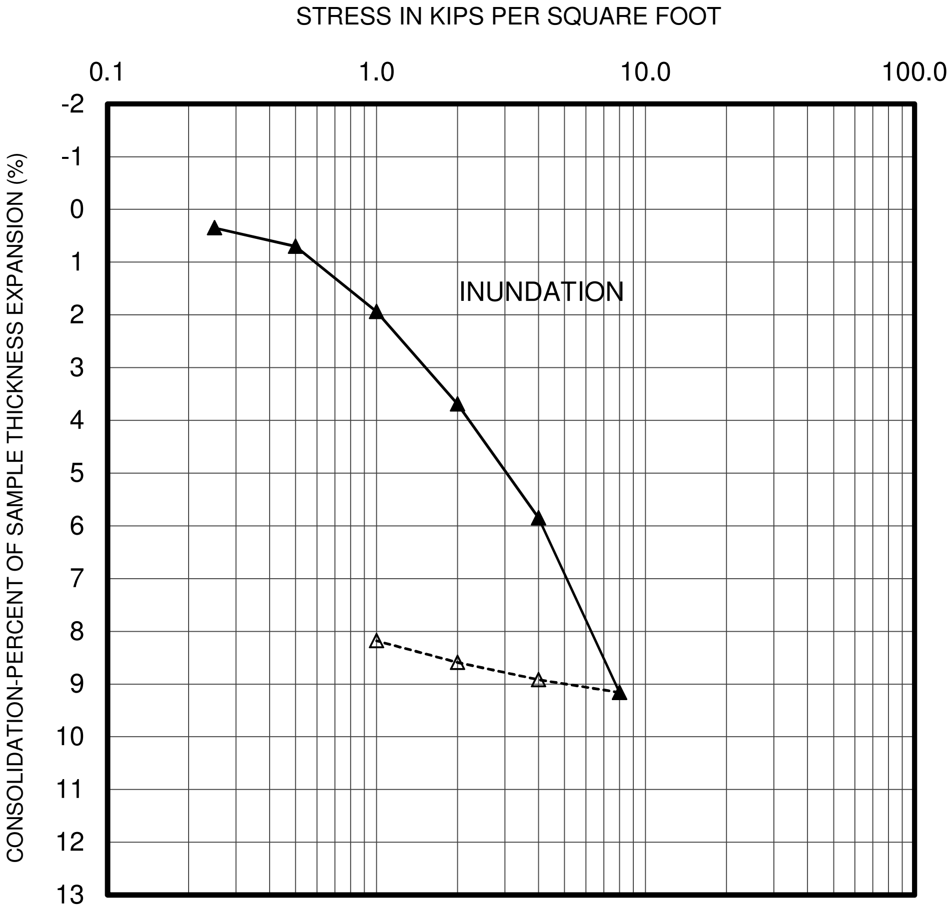
Direct Shear Test Results (ASTM D 3080)

Legacy International Center
San Diego, California

Figure
F-24

Checked By:	Tech : Uly
Project # 20163965	23-Mar-16



Moisture Content = 25.5%
Dry Density = 99.5 pcf
Cc' = 10.5%
Cr' = 1%

Seating Cycle	**Boring No.**		**B2**
Loading Prior to Inundation	**Sample No.**		**S5**
Loading After Inundation	**Depth**		**21'**
Rebound Cycle	**Sample Description**	yellowish brown clayey sand	

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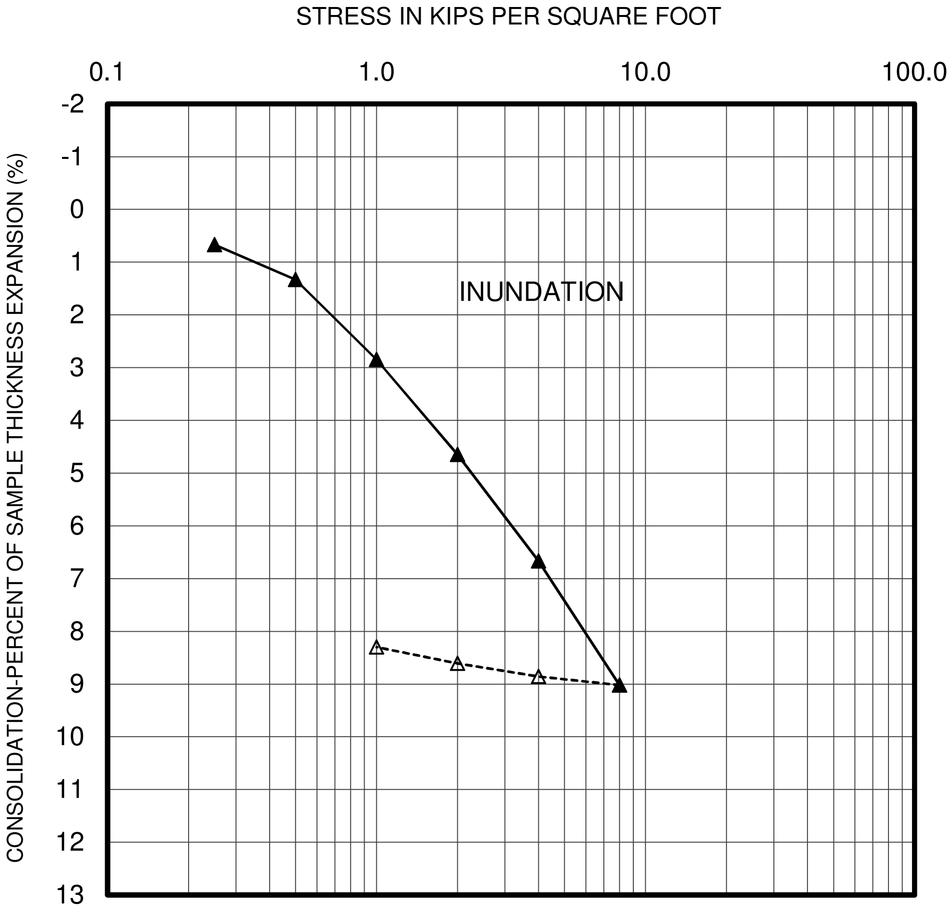
Checked by:	Moi A.	Tech	Uly
Project No.	20163965	Date:	3/23/2016

CONSOLIDATION TEST

Legacy International Center
San Diego, California

FIGURE

F-25



Moisture Content = 22.3%
Dry Density = 105.3 pcf
Cc' = 7.8%
Cr' = 1%

Legend			
Seating Cycle		**Boring No.**	**B3**
Loading Prior to Inundation		**Sample No.**	**S6**
Loading After Inundation		**Depth**	**26'**
Rebound Cycle		**Sample Description**	yellowish brown clayey sand

PERFORMED IN GENERAL ACCORDANCE WITH ASTM D 2435

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CONSOLIDATION TEST

Legacy International Center
San Diego, California

FIGURE
F-26

Checked by:	Moi A.	Tech	Uly
Project No.	20163965	Date:	3/23/2016

L A B O R A T O R Y   R E P O R T

Telephone (619) 425-1993   Fax 425-7917   Established 1928

C L A R K S O N   L A B O R A T O R Y   A N D   S U P P L Y   I N C.
350 Trousdale Dr. Chula Vista, Ca. 91910 www.clarksonlab.com
A N A L Y T I C A L   A N D   C O N S U L T I N G   C H E M I S T S

Date: March 10, 2016
Purchase Order Number: PROJ#20063965
Sales Order Number: 30520
Account Number: KLE
To:

Kleinfelder Inc.
550 West C Street Ste 1200
San Diego, CA 92101
Attention: Uly Panuncialman

Laboratory Number: SO5933-1   Customers Phone: 831-4600
Fax: 831-4619

Sample Designation:

One soil sample received on 03/08/16 at 12:27pm,
marked as follows:
Project: Legacy International Center
Project #: 20063965
Boring #: B1
Sample #: S1
Depth : 0.5-5'

Analysis By California Test 643, 1999, Department of Transportation Division of Construction, Method for Estimating the Service Life of Steel Culverts.

pH 8.7

Water Added (ml)	Resistivity (ohm-cm)
10	7800
5	3100
5	1800
5	1200
5	960
5	980
5	1100

30 years to perforation for a 16 gauge metal culvert.
39 years to perforation for a 14 gauge metal culvert.
54 years to perforation for a 12 gauge metal culvert.
69 years to perforation for a 10 gauge metal culvert.
84 years to perforation for a 8 gauge metal culvert.

Water Soluble Sulfate Calif. Test 417   0.019% (190 ppm)

Water Soluble Chloride Calif. Test 422   0.009% (90 ppm)

Laura Torres

Laura Torres
LT/dbb

Figure F-27

L A B O R A T O R Y   R E P O R T

Telephone (619) 425-1993   Fax 425-7917   Established 1928

C L A R K S O N   L A B O R A T O R Y   A N D   S U P P L Y   I N C.
350 Trousdale Dr. Chula Vista, Ca. 91910 www.clarksonlab.com
A N A L Y T I C A L   A N D   C O N S U L T I N G   C H E M I S T S

Date: March 10, 2016
Purchase Order Number: PROJ#20063965
Sales Order Number: 30520
Account Number: KLE
To:
--
Kleinfelder Inc.
550 West C Street Ste 1200
San Diego, CA 92101
Attention: Uly Panuncialman

Laboratory Number: SO5933-2   Customers Phone: 831-4600
Fax: 831-4619

Sample Designation:
--
One soil sample received on 03/08/16 at 12:27pm,
marked as follows:
Project: Legacy International Center
Project #: 20063965
Boring #: B10
Sample #: S1
Depth : 0.5-5'

Analysis By California Test 643, 1999, Department of Transportation Division of Construction, Method for Estimating the Service Life of Steel Culverts.

pH 8.9

Water Added (ml)	Resistivity (ohm-cm)
10	4300
5	1900
5	800
5	790
5	770
5	790
5	890

27 years to perforation for a 16 gauge metal culvert.
36 years to perforation for a 14 gauge metal culvert.
49 years to perforation for a 12 gauge metal culvert.
63 years to perforation for a 10 gauge metal culvert.
77 years to perforation for a 8 gauge metal culvert.

Water Soluble Sulfate	Calif. Test 417	0.018% (180 ppm)
Water Soluble Chloride	Calif. Test 422	0.006% (60 ppm)

Laura Torres

Laura Torres
LT/dbb

Figure F-28

L A B O R A T O R Y   R E P O R T

Telephone (619) 425-1993   Fax 425-7917   Established 1928

C L A R K S O N L A B O R A T O R Y A N D S U P P L Y I N C.
350 Trousdale Dr. Chula Vista, Ca. 91910 www.clarksonlab.com
A N A L Y T I C A L A N D C O N S U L T I N G C H E M I S T S

Date: March 10, 2016
Purchase Order Number: PROJ#20063965
Sales Order Number: 30520
Account Number: KLE
To:

Kleinfelder Inc.
550 West C Street Ste 1200
San Diego, CA 92101
Attention: Uly Panuncialman

Laboratory Number: SO5933-3   Customers Phone: 831-4600
Fax: 831-4619

Sample Designation:

One soil sample received on 03/08/16 at 12:27pm,
marked as follows:
Project: Legacy International Center
Project #: 20063965
Boring #: B12
Sample #: S1
Depth : 0.5-5'

Analysis By California Test 643, 1999, Department of Transportation Division of Construction, Method for Estimating the Service Life of Steel Culverts.

pH 8.5

Water Added (ml)	Resistivity (ohm-cm)
10	6500
5	3100
5	1300
5	860
5	830
5	840
5	890

28 years to perforation for a 16 gauge metal culvert.
37 years to perforation for a 14 gauge metal culvert.
51 years to perforation for a 12 gauge metal culvert.
65 years to perforation for a 10 gauge metal culvert.
79 years to perforation for a 8 gauge metal culvert.

Water Soluble Sulfate	Calif. Test 417	0.053% (530 ppm)
Water Soluble Chloride	Calif. Test 422	0.005% (50 ppm)

Laura Torres

Laura Torres
LT/dbb

Figure F-29

L A B O R A T O R Y   R E P O R T

Telephone (619) 425-1993   Fax 425-7917   Established 1928

C L A R K S O N L A B O R A T O R Y A N D S U P P L Y I N C.
350 Trousdale Dr. Chula Vista, Ca. 91910 www.clarksonlab.com
A N A L Y T I C A L A N D C O N S U L T I N G C H E M I S T S

Date: March 24, 2016
Purchase Order Number: PROJ#20163965
Sales Order Number: 30688
Account Number: KLE

To:

Kleinfelder Inc.
550 West C Street Ste 1200
San Diego, CA 92101
Attention: Uly Panuncialman

Laboratory Number: SO5948   Customers Phone: 831-4600
Fax: 831-4619

Sample Designation:

One soil sample received on 03/22/16 at 3:00pm,
Project: Legacy International Center
Project #: 20163965
Boring #: LD-1
Sample #: S3
Depth: 10.5' - 11'

Analysis By California Test 643, 1999, Department of Transportation Division of Construction, Method for Estimating the Service Life of Steel Culverts.

pH 9.1

Water Added (ml)	Resistivity (ohm-cm)
10	4500
5	2200
5	1600
5	1400
5	1500
5	1600
5	1700

35 years to perforation for a 16 gauge metal culvert.
46 years to perforation for a 14 gauge metal culvert.
63 years to perforation for a 12 gauge metal culvert.
81 years to perforation for a 10 gauge metal culvert.
98 years to perforation for a 8 gauge metal culvert.

Water Soluble Sulfate Calif. Test 417   0.007% (74PPM)

Water Soluble Chloride Calif. Test 422   0.002% (21PPM)

Laura Torres

Laura Torres
LT/ilv

L A B O R A T O R Y   R E P O R T

Telephone (619) 425-1993   Fax 425-7917   Established 1928

C L A R K S O N   L A B O R A T O R Y   A N D   S U P P L Y   I N C.
350 Trousdale Dr. Chula Vista, Ca. 91910 www.clarksonlab.com
A N A L Y T I C A L   A N D   C O N S U L T I N G   C H E M I S T S

Date: March 23, 2016
Purchase Order Number: 20163965
Sales Order Number: 30661
Account Number: KLE
To:
--
Kleinfelder Inc.
550 West C Street Ste 1200
San Diego, CA 92101
Attention: Uly Panuncialman

Laboratory Number: SO5946-2   Customers Phone: 831-4600
Fax: 831-4619

Sample Designation:
--
One soil sample received on 03/18/16 at 2:25pm
marked as:
Project: Legacy International Center
Project #: 20163965
Boring #: LD-3
Sample #: S2
Depth: 6'- 6.5'

Analysis By California Test 643, 1999, Department of Transportation Division of Construction, Method for Estimating the Service Life of Steel Culverts.

pH 8.3

Water Added (ml)	Resistivity (ohm-cm)
15	1700
5	850
5	590
5	570
5	550
5	540
5	520
5	530
5	590

23 years to perforation for a 16 gauge metal culvert.
30 years to perforation for a 14 gauge metal culvert.
42 years to perforation for a 12 gauge metal culvert.
54 years to perforation for a 10 gauge metal culvert.
65 years to perforation for a 8 gauge metal culvert.

Water Soluble Sulfate Calif. Test 417 0.075% (750 ppm)

Water Soluble Chloride Calif. Test 422 0.020% (200 ppm)

Laura Torres

Laura Torres
LT/dbb

Figure F-31

L A B O R A T O R Y   R E P O R T

Telephone (619) 425-1993   Fax 425-7917   Established 1928

C L A R K S O N   L A B O R A T O R Y   A N D   S U P P L Y   I N C.
350 Trousdale Dr. Chula Vista, Ca. 91910 www.clarksonlab.com
A N A L Y T I C A L   A N D   C O N S U L T I N G   C H E M I S T S

Date: March 23, 2016
Purchase Order Number: 20163965
Sales Order Number: 30661
Account Number: KLE
To:

Kleinfelder Inc.
550 West C Street Ste 1200
San Diego, CA 92101
Attention: Uly Panuncialman

Laboratory Number: SO5946-1   Customers Phone: 831-4600
Fax: 831-4619

Sample Designation:

One soil sample received on 03/18/16 at 2:25pm
marked as:
Project: Legacy International Center
Project #: 20163965
Boring #: LD-4
Sample #: S1
Depth: 4'- 4.5'

Analysis By California Test 643, 1999, Department of Transportation Division of Construction, Method for Estimating the Service Life of Steel Culverts.

pH 8.9

Water Added (ml)	Resistivity (ohm-cm)
10	1900
5	1100
5	630
5	580
5	560
5	580
5	630

24 years to perforation for a 16 gauge metal culvert.
31 years to perforation for a 14 gauge metal culvert.
43 years to perforation for a 12 gauge metal culvert.
55 years to perforation for a 10 gauge metal culvert.
67 years to perforation for a 8 gauge metal culvert.

Water Soluble Sulfate	Calif. Test 417	0.017% (170 ppm)
Water Soluble Chloride	Calif. Test 422	0.029% (290 ppm)

Laura Torres

Laura Torres
LT/dbb

Figure F-32

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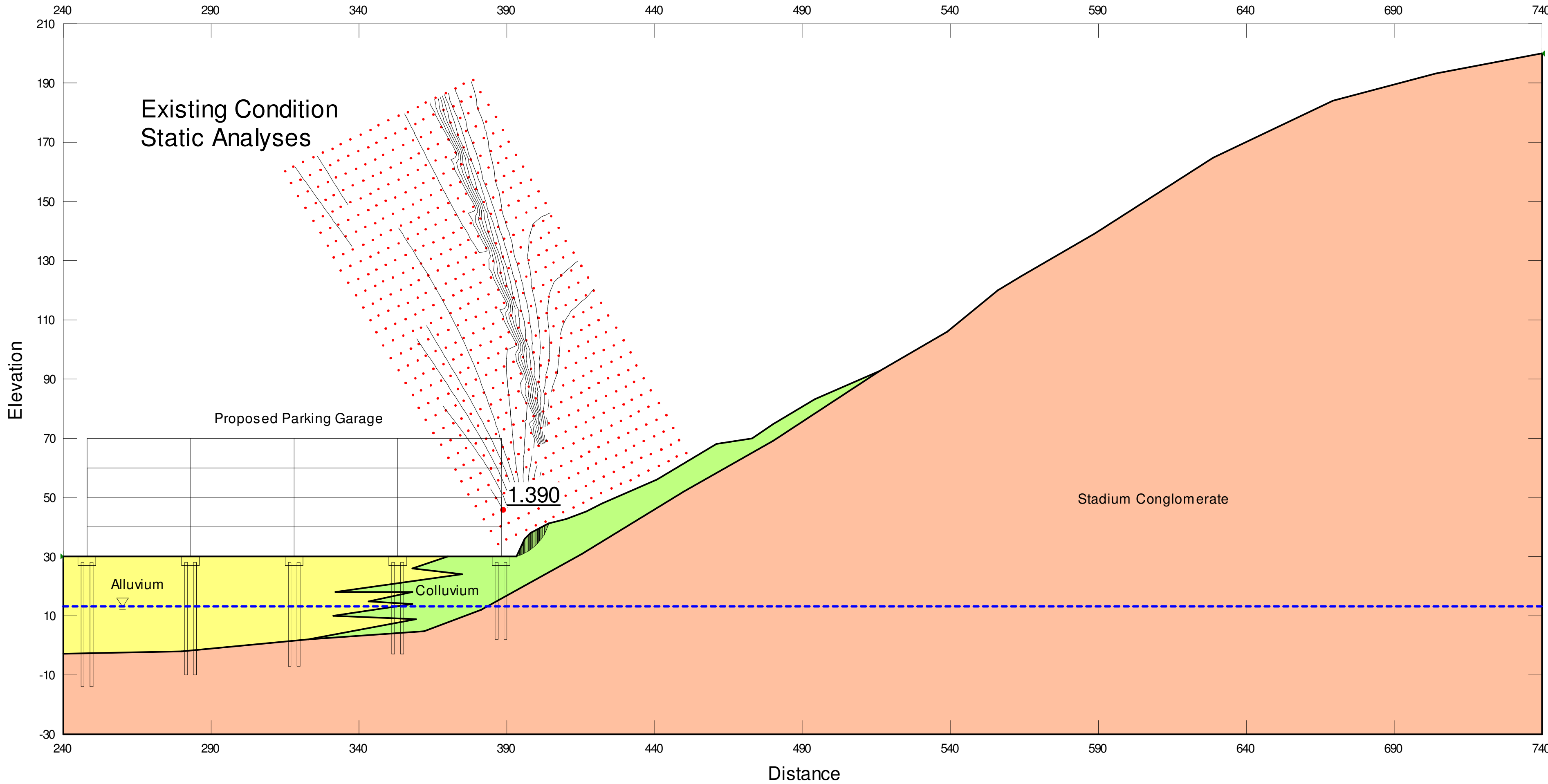
APPENDIX G
SLOPE STABILITY ANALYSES RESULTS



DESIGNED BY: M. Arzamendi	DATE 3/16
DRAWN BY: M. Arzamendi	3/16
CHECKED BY: T. Grindstaff	3/16

KLEINFELDER
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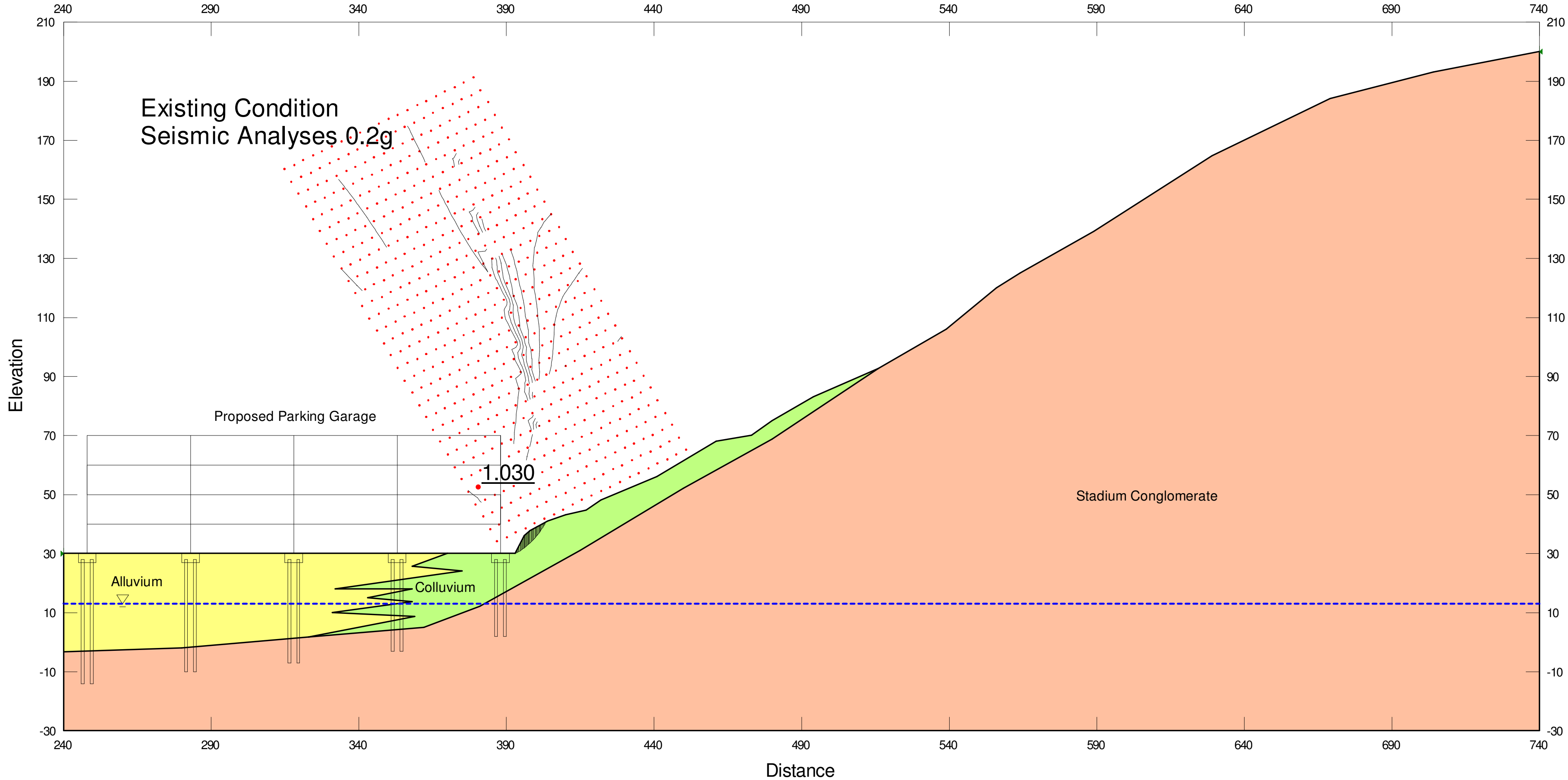
Legacy International Center
San Diego, California

Slope Stability Analyses
Existing Condition
Static Analyses

SCALE NONE

20163965.001A

FIGURE NO. G-1



DESIGNED BY: M. Arzamendi	DATE 3/16	Legacy International Center San Diego, California	SCALE NONE
DRAWN BY: M. Arzamendi	3/16		
CHECKED BY: T. Grindstaff	3/16	Slope Stability Analyses Existing Condition Seismic Analyses 0.2g	20163965.001A
			FIGURE NO. G-2

KLEINFELDER
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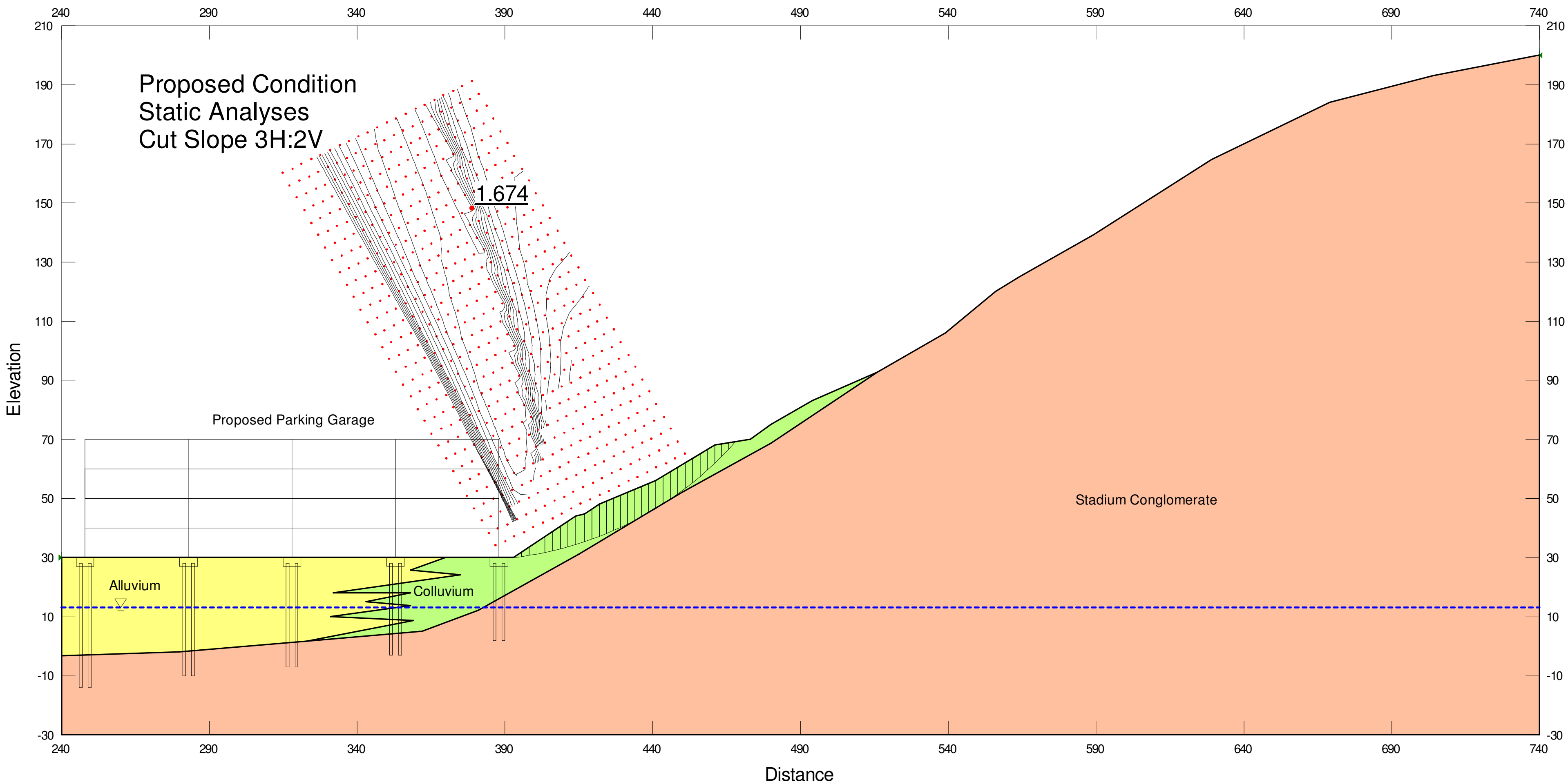
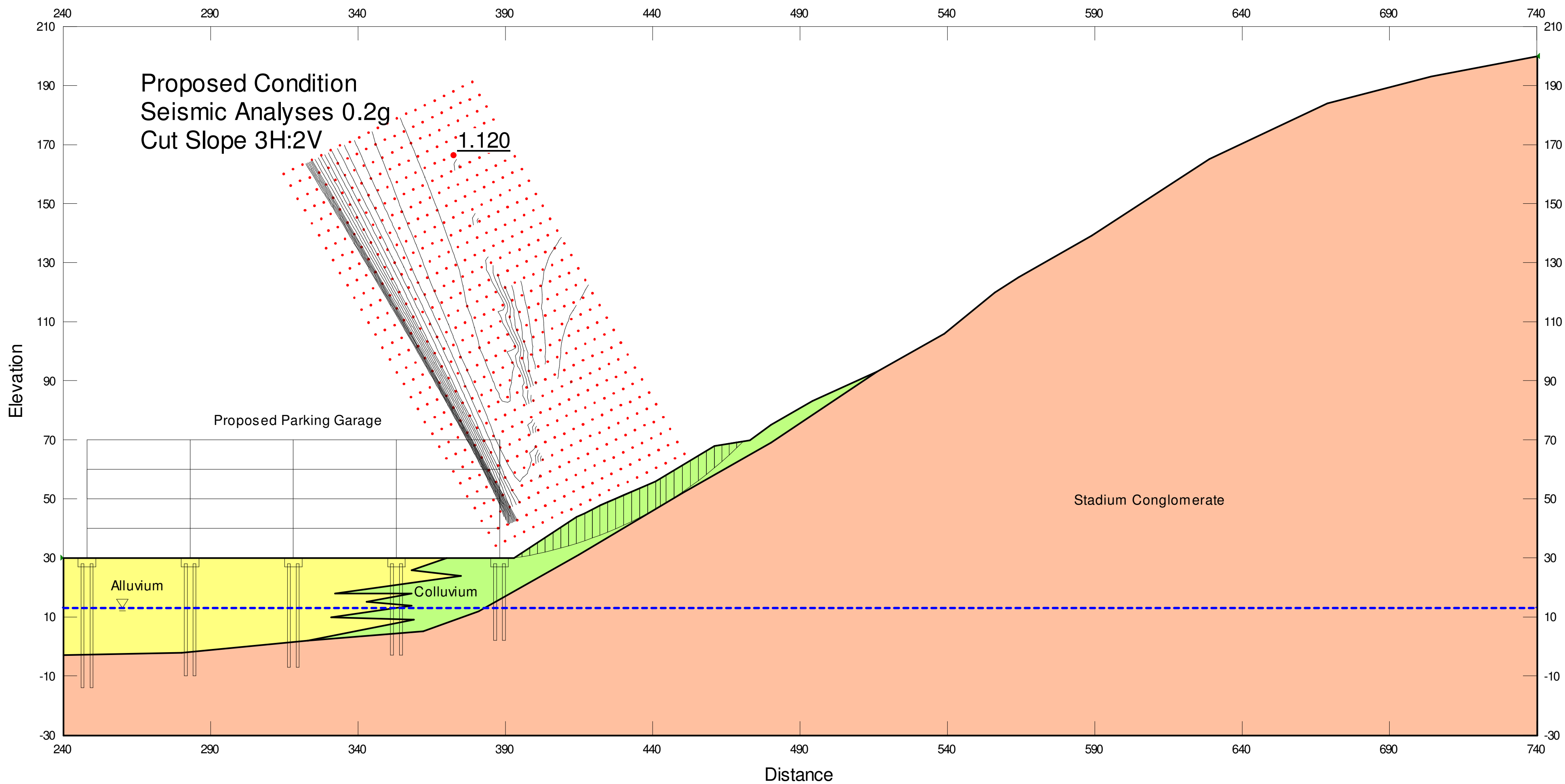


DESIGNED BY: M. Arzamendi	DATE 3/16	Legacy International Center San Diego, California	SCALE NONE
DRAWN BY: M. Arzamendi	3/16		
CHECKED BY: T. Grindstaff	3/16	Slope Stability Analyses Proposed Conditions Static Analyses	20163965.001A
			FIGURE NO. G-3

KLEINFELDER
Bright People. Right Solutions.



DESIGNED BY: M. Arzamendi	DATE 3/16	Legacy International Center San Diego, California	SCALE NONE	
DRAWN BY: M. Arzamendi	3/16		20163965.001A	
CHECKED BY: T. Grindstaff	3/16	Slope Stability Analyses Proposed Condition Seismic Analyses 0.2g	FIGURE NO.	G-4

KLEINFELDER
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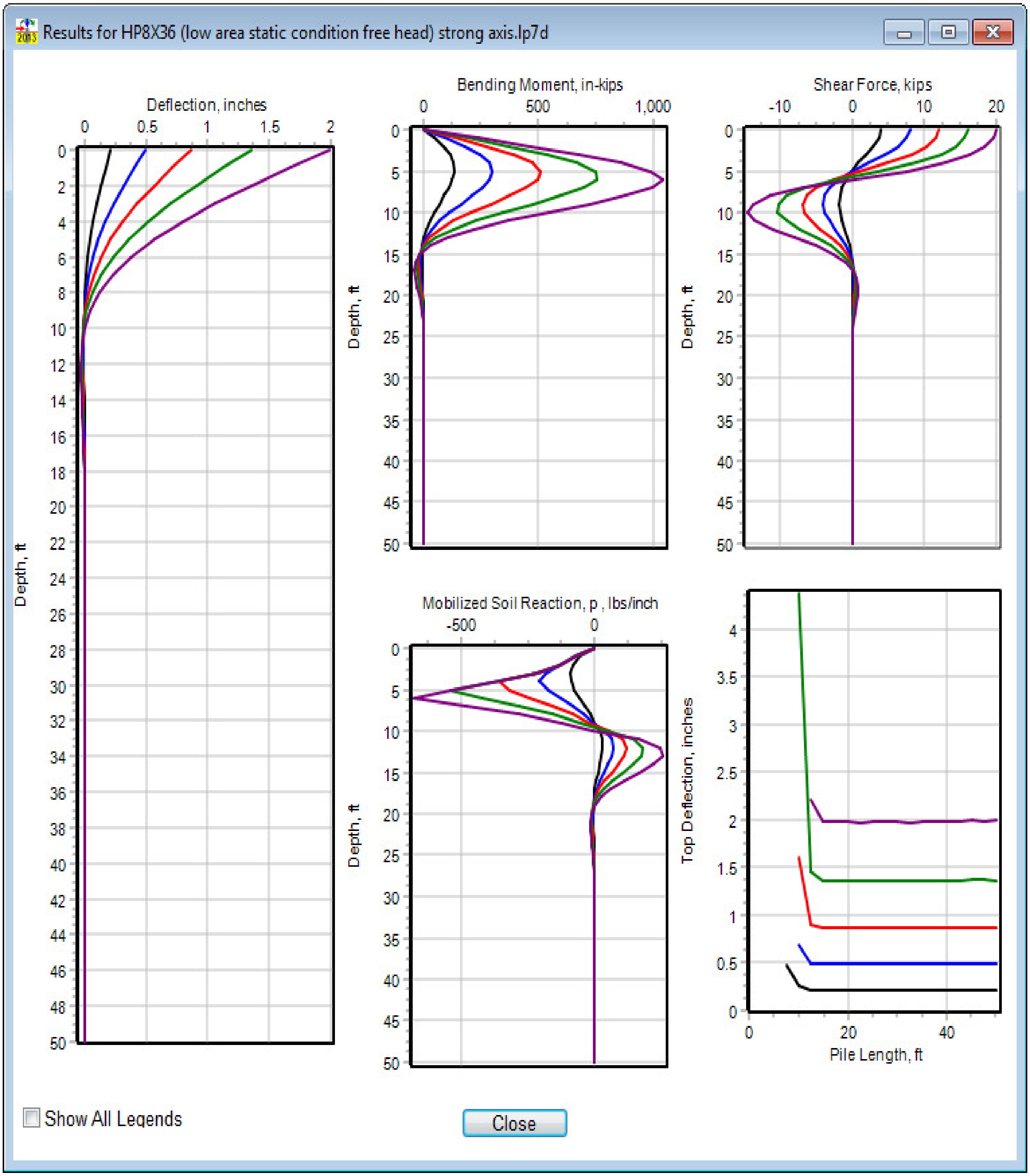
APPENDIX H
LPILE ANALYSES RESULTS SUMMARY

Summary of Steel Pile Section Properties

Pile Designation	Flange Width (inch)	Depth (inch)	Area (inch^2)	Moment of Inertia X-X (inch^4)	Moment of Inertia Y-Y (inch^4)	Section Modulus X-X (inch^3)	Section Modulus Y-Y (inch^3)
HP8X36	8.155	8.02	10.6	119	40.3	29.8	9.88
HP10X57	10.225	9.99	16.8	294	101	58.8	19.7
HP12X74	12.215	12.13	21.8	569	186	93.8	30.4
HP14x117	14.885	14.21	34.4	1220	443	172	59.5

Lateral Load Analyses Cases for Static Single Pile

Case	Pile Type	Size	Axis	Head Condition	Load Type	Applied Loads	Page
1	Steel	HP8X36	X-X (strong)	Free- Head	Shear	2, 4, 6, 8, 10 [tons]	H-2
2	Steel	HP8X36	X-X (strong)	Free- Head	Moment	50, 100, 150, 200 [ton-ft]	H-3
3	Steel	HP8X36	X-X (strong)	Fixed-Head	Shear	2, 4, 6, 8, 10 [tons]	H-4
4	Steel	HP8X36	Y-Y (weak)	Free- Head	Shear	2, 4, 6, 8, 10 [tons]	H-5
5	Steel	HP8X36	Y-Y (weak)	Free- Head	Moment	50, 100, 150, 200 [ton-ft]	H-6
6	Steel	HP8X36	Y-Y (weak)	Fixed-Head	Shear	2, 4, 6, 8, 10 [tons]	H-7
7	Steel	HP10X57	X-X (strong)	Free- Head	Shear	2, 4, 6, 8, 10 [tons]	H-8
8	Steel	HP10X57	X-X (strong)	Free- Head	Moment	50, 100, 150, 200 [ton-ft]	H-9
9	Steel	HP10X57	X-X (strong)	Fixed-Head	Shear	2, 4, 6, 8, 10 [tons]	H-10
10	Steel	HP10X57	Y-Y (weak)	Free- Head	Shear	2, 4, 6, 8, 10 [tons]	H-11
11	Steel	HP10X57	Y-Y (weak)	Free- Head	Moment	50, 100, 150, 200 [ton-ft]	H-12
12	Steel	HP10X57	Y-Y (weak)	Fixed-Head	Shear	2, 4, 6, 8, 10 [tons]	H-13
13	Steel	HP12X74	X-X (strong)	Free- Head	Shear	2, 4, 6, 8, 10 [tons]	H-14
14	Steel	HP12X74	X-X (strong)	Free- Head	Moment	50, 100, 150, 200 [ton-ft]	H-15
15	Steel	HP12X74	X-X (strong)	Fixed-Head	Shear	2, 4, 6, 8, 10 [tons]	H-16
16	Steel	HP12X74	Y-Y (weak)	Free- Head	Shear	2, 4, 6, 8, 10 [tons]	H-17
17	Steel	HP12X74	Y-Y (weak)	Free- Head	Moment	50, 100, 150, 200 [ton-ft]	H-18
18	Steel	HP12X74	Y-Y (weak)	Fixed-Head	Shear	2, 4, 6, 8, 10 [tons]	H-19
19	Steel	HP14x117	X-X (strong)	Free- Head	Shear	2, 4, 6, 8, 10 [tons]	H-20
20	Steel	HP14x117	X-X (strong)	Free- Head	Moment	50, 100, 150, 200 [ton-ft]	H-21
21	Steel	HP14x117	X-X (strong)	Fixed-Head	Shear	2, 4, 6, 8, 10 [tons]	H-22
22	Steel	HP14x117	Y-Y (weak)	Free- Head	Shear	2, 4, 6, 8, 10 [tons]	H-23
23	Steel	HP14x117	Y-Y (weak)	Free- Head	Moment	50, 100, 150, 200 [ton-ft]	H-24
24	Steel	HP14x117	Y-Y (weak)	Fixed-Head	Shear	2, 4, 6, 8, 10 [tons]	H-25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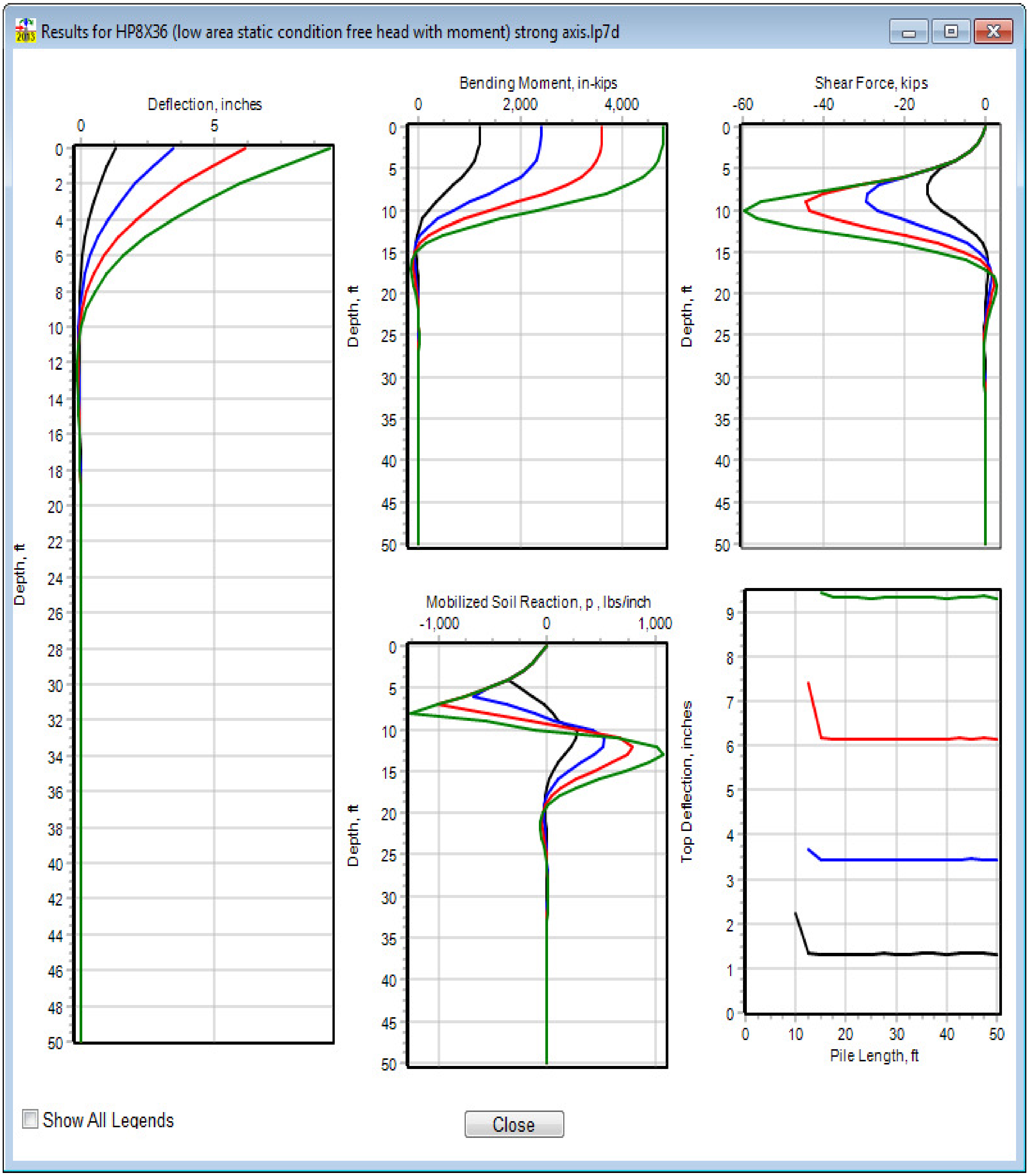

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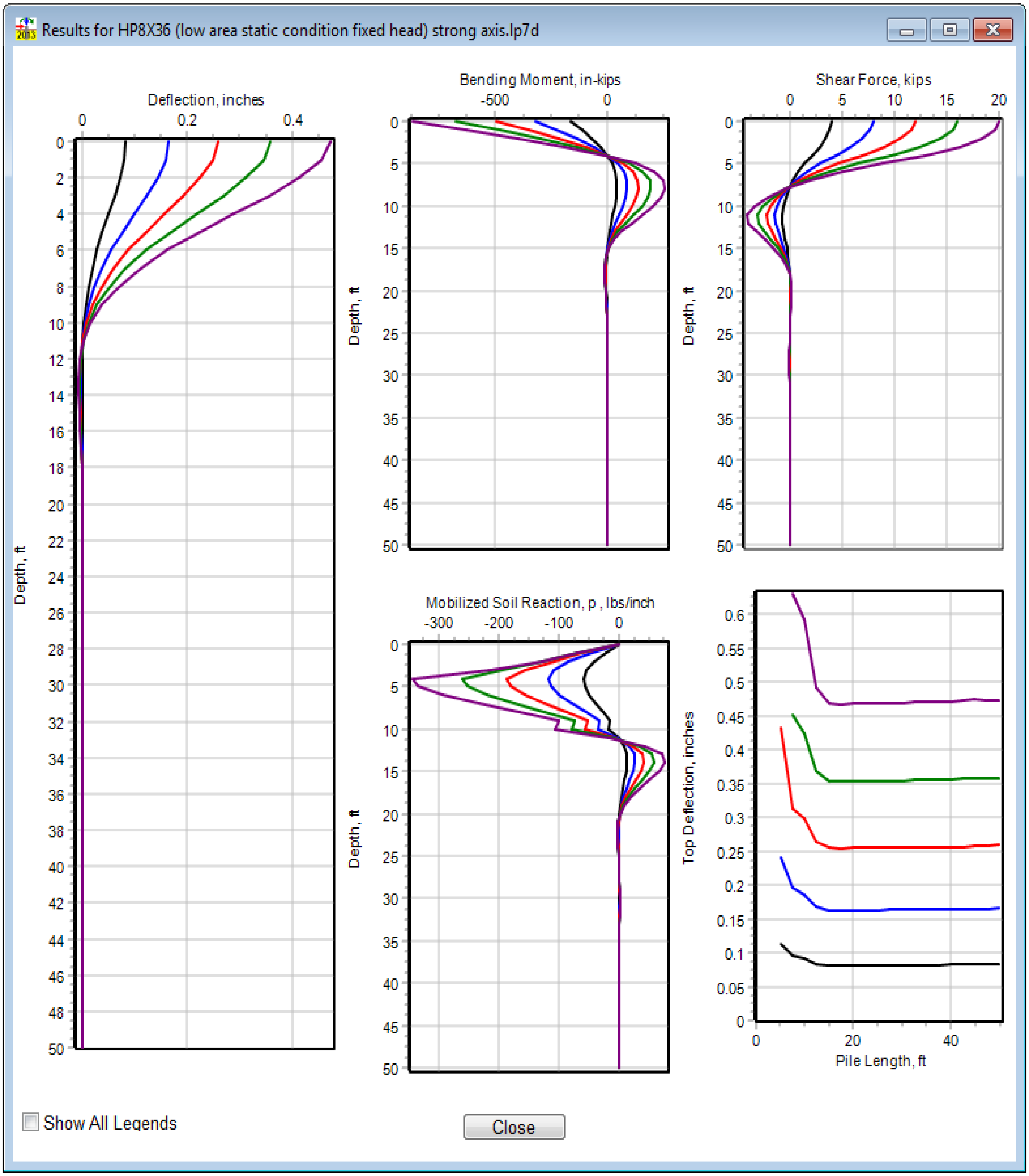

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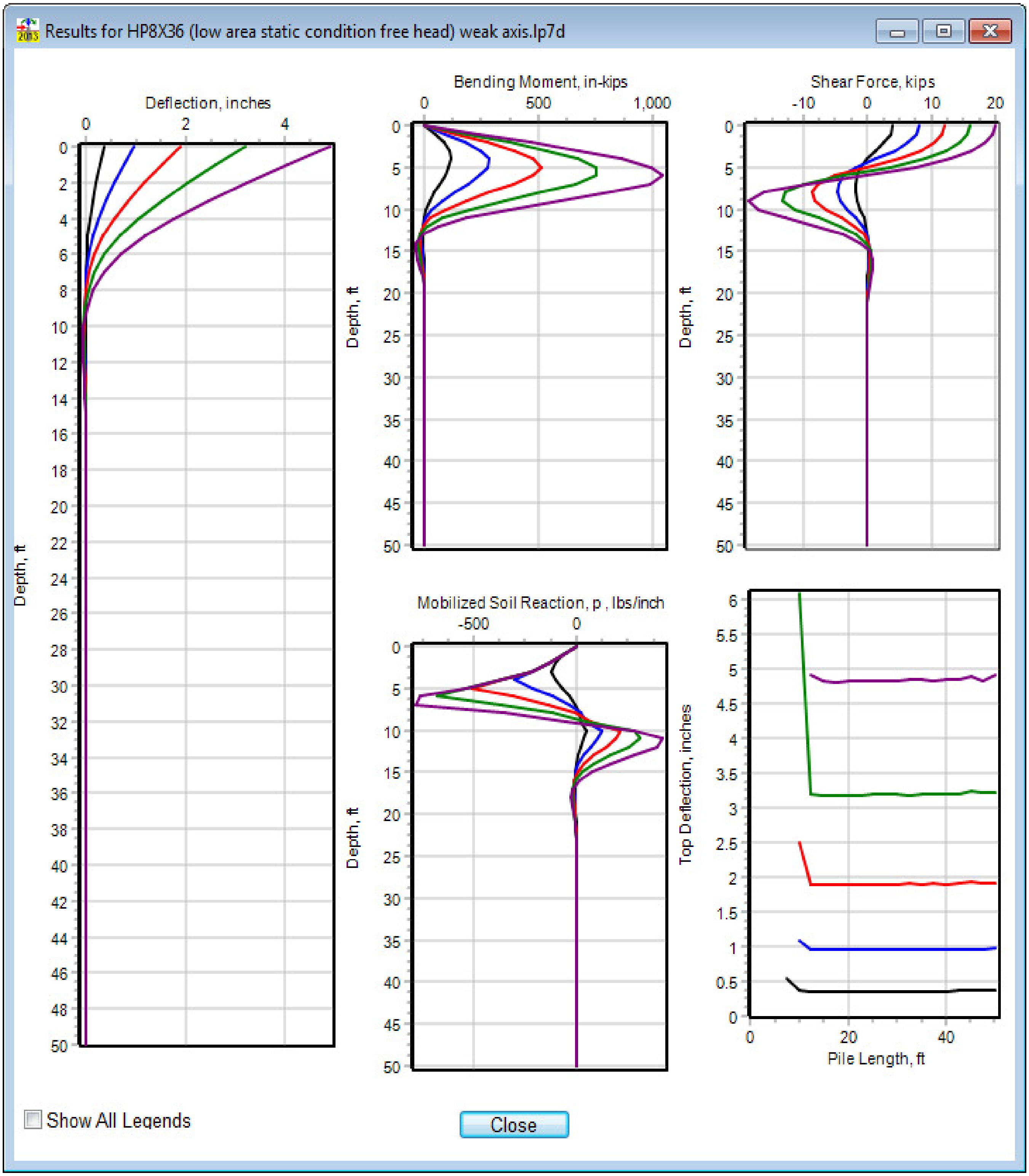

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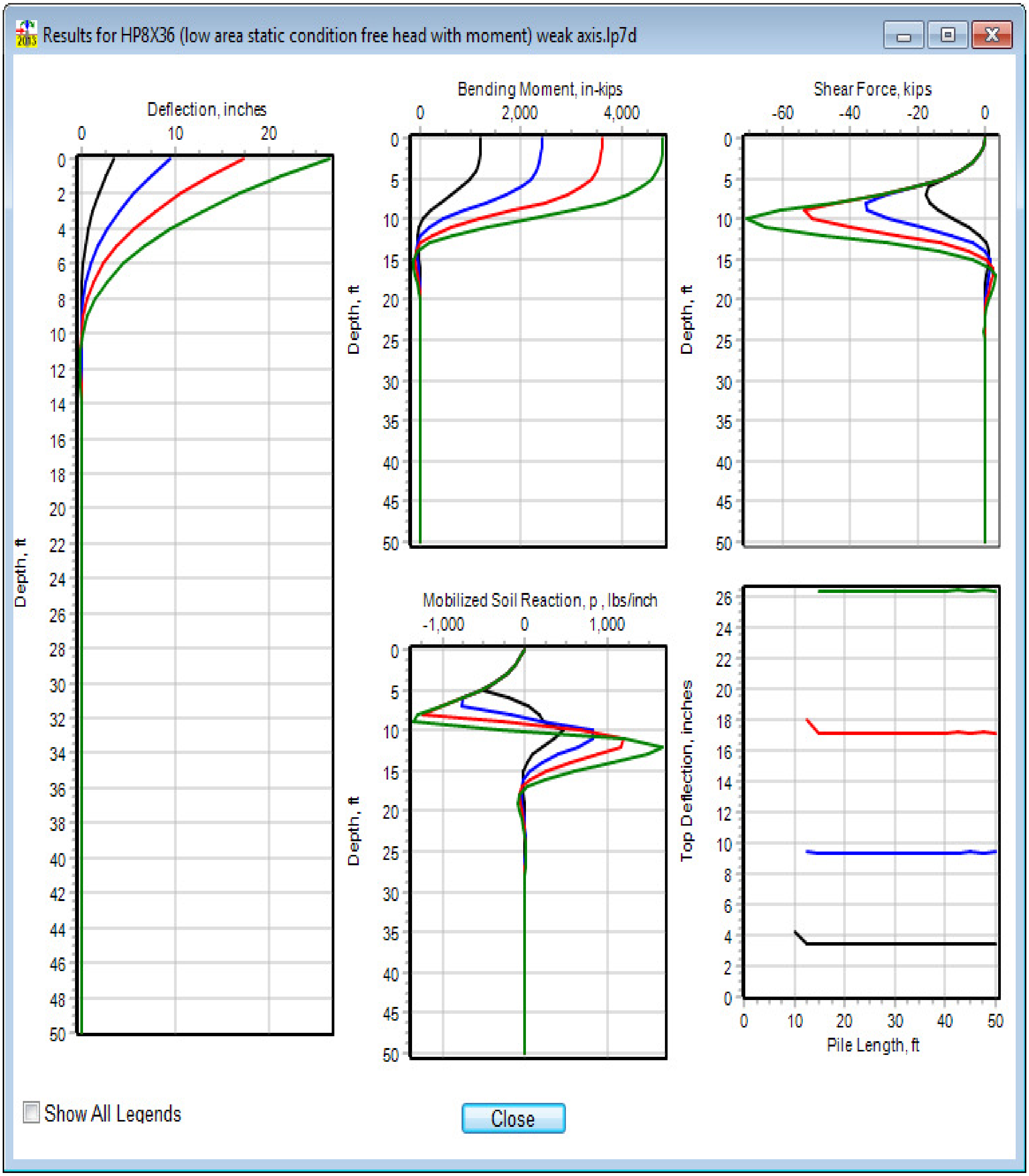

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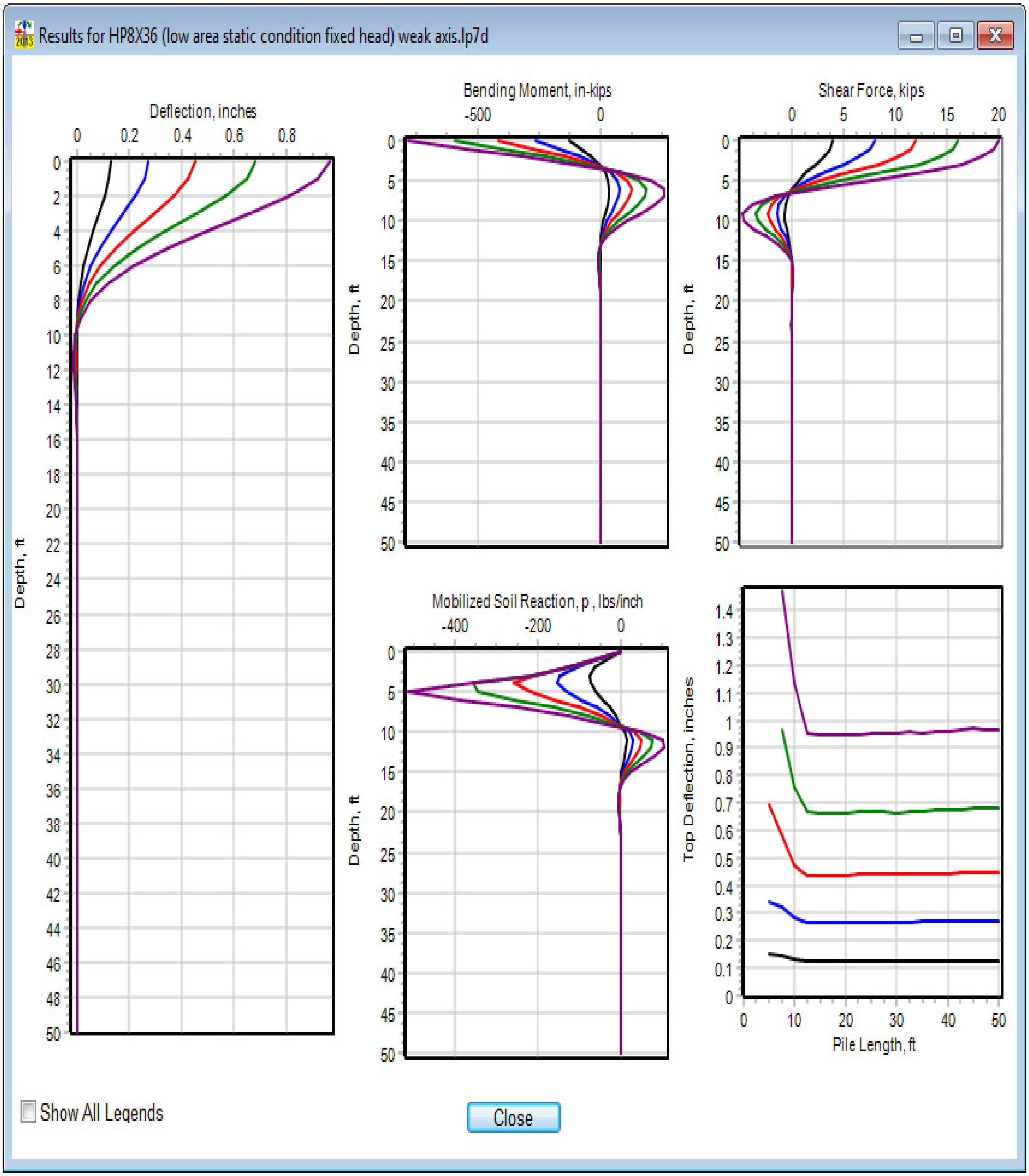
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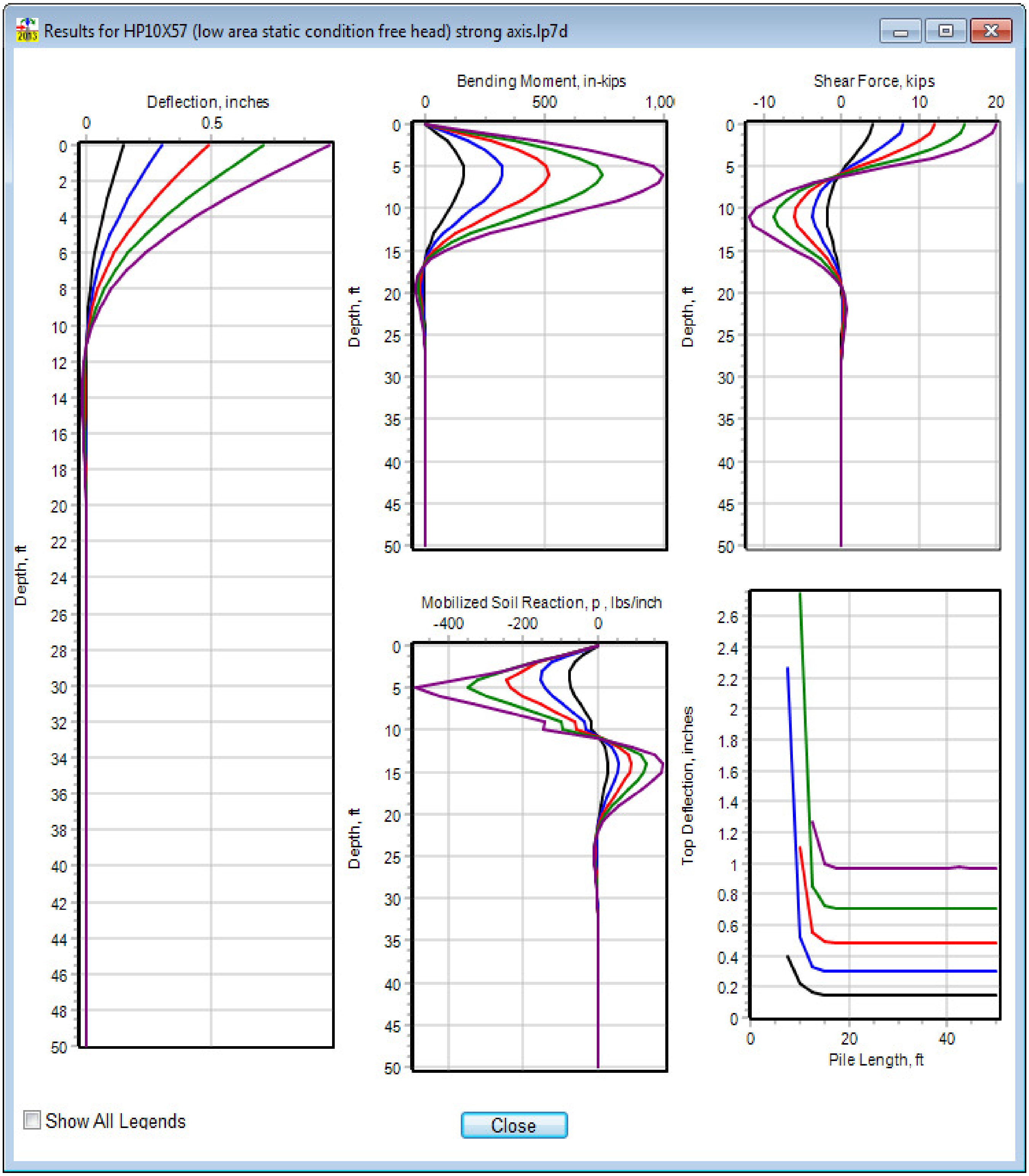
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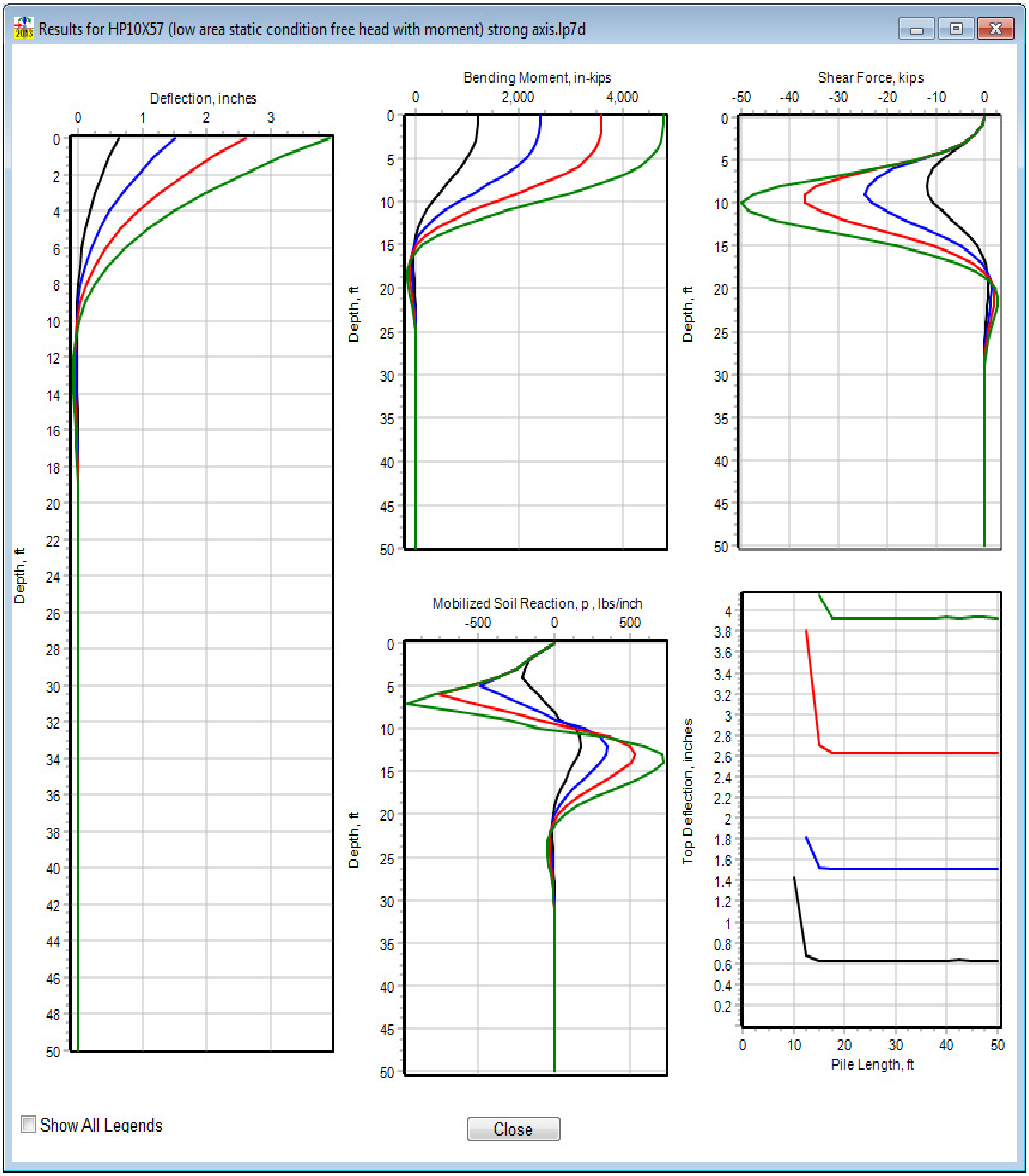

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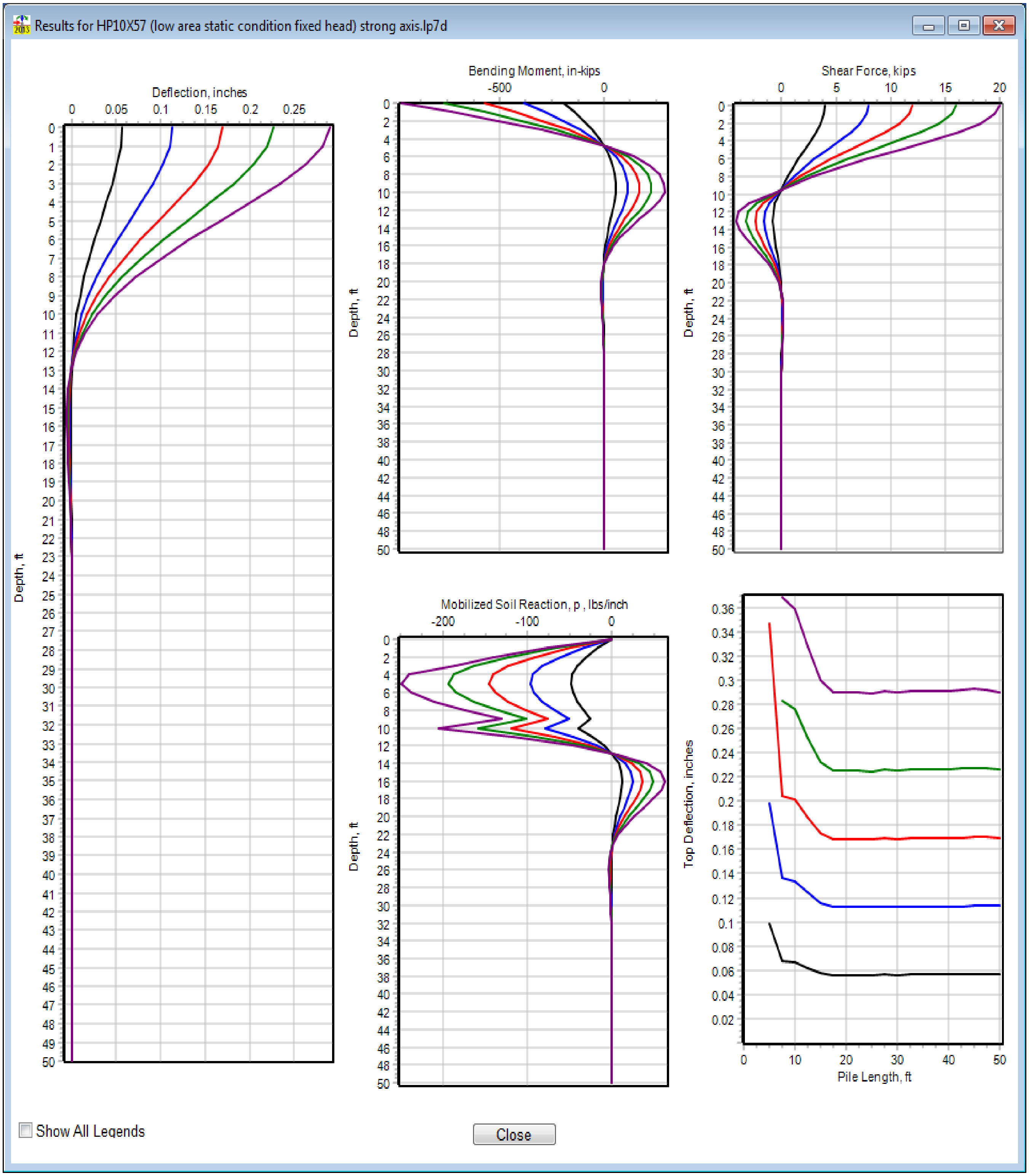

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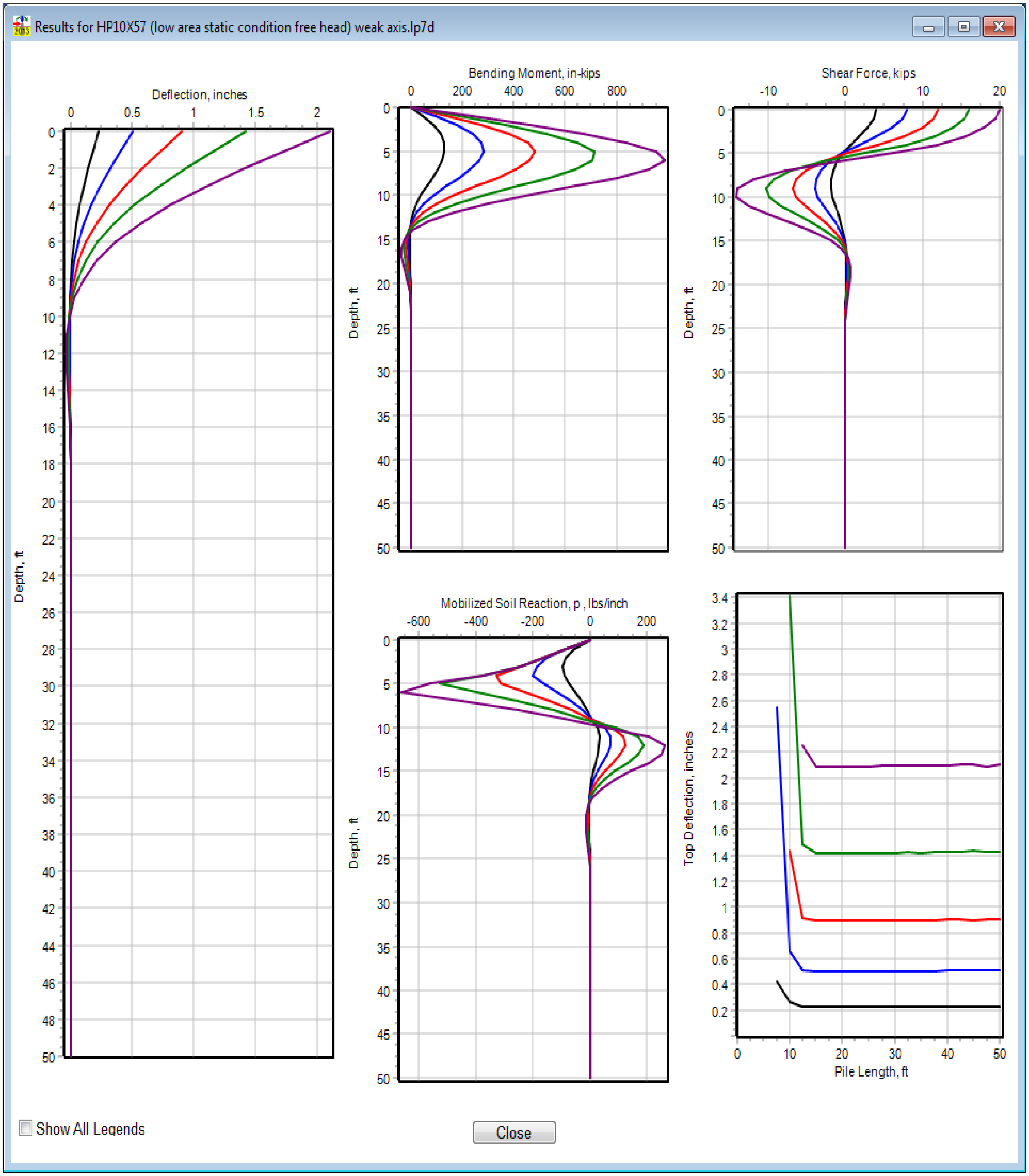

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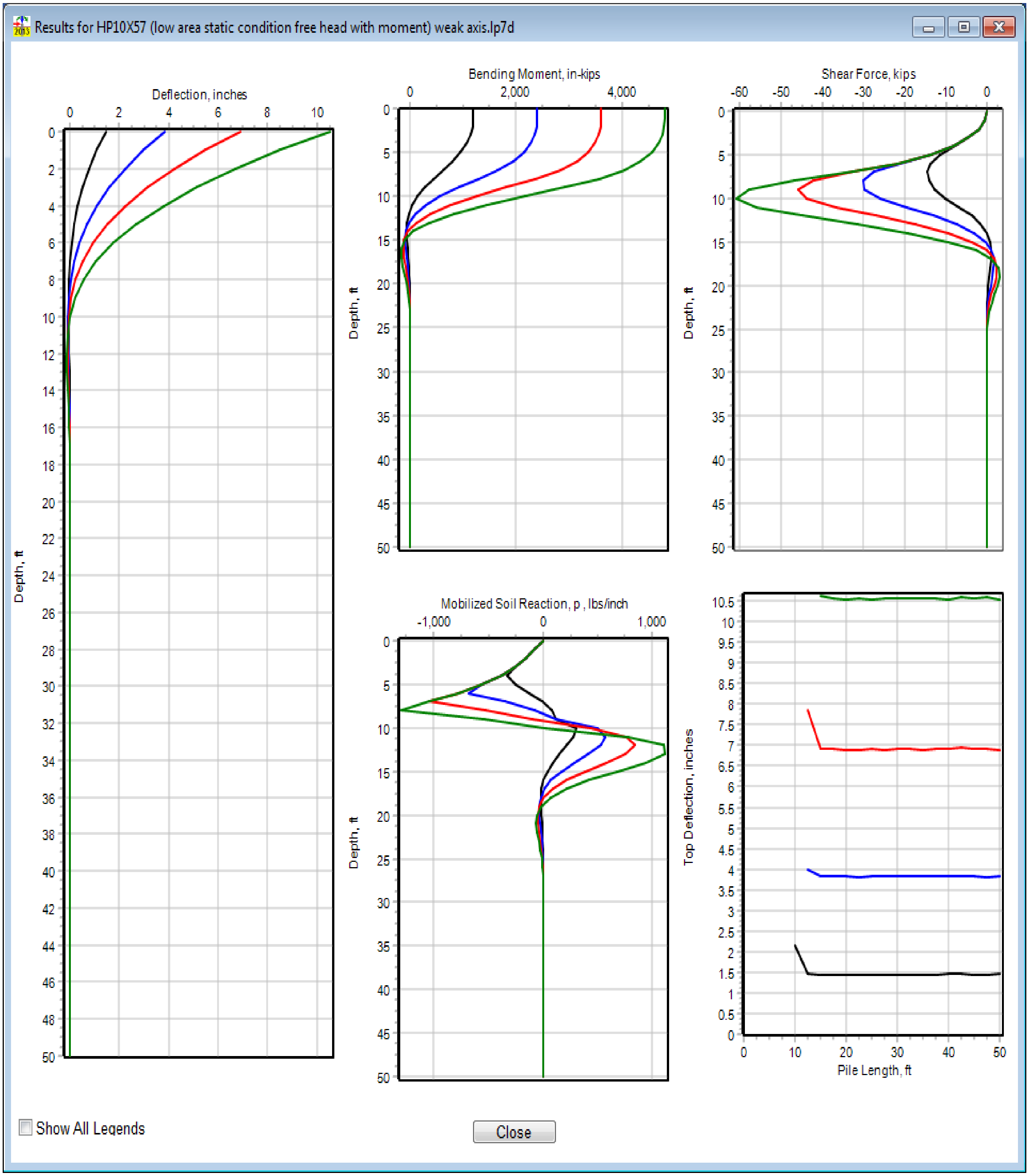
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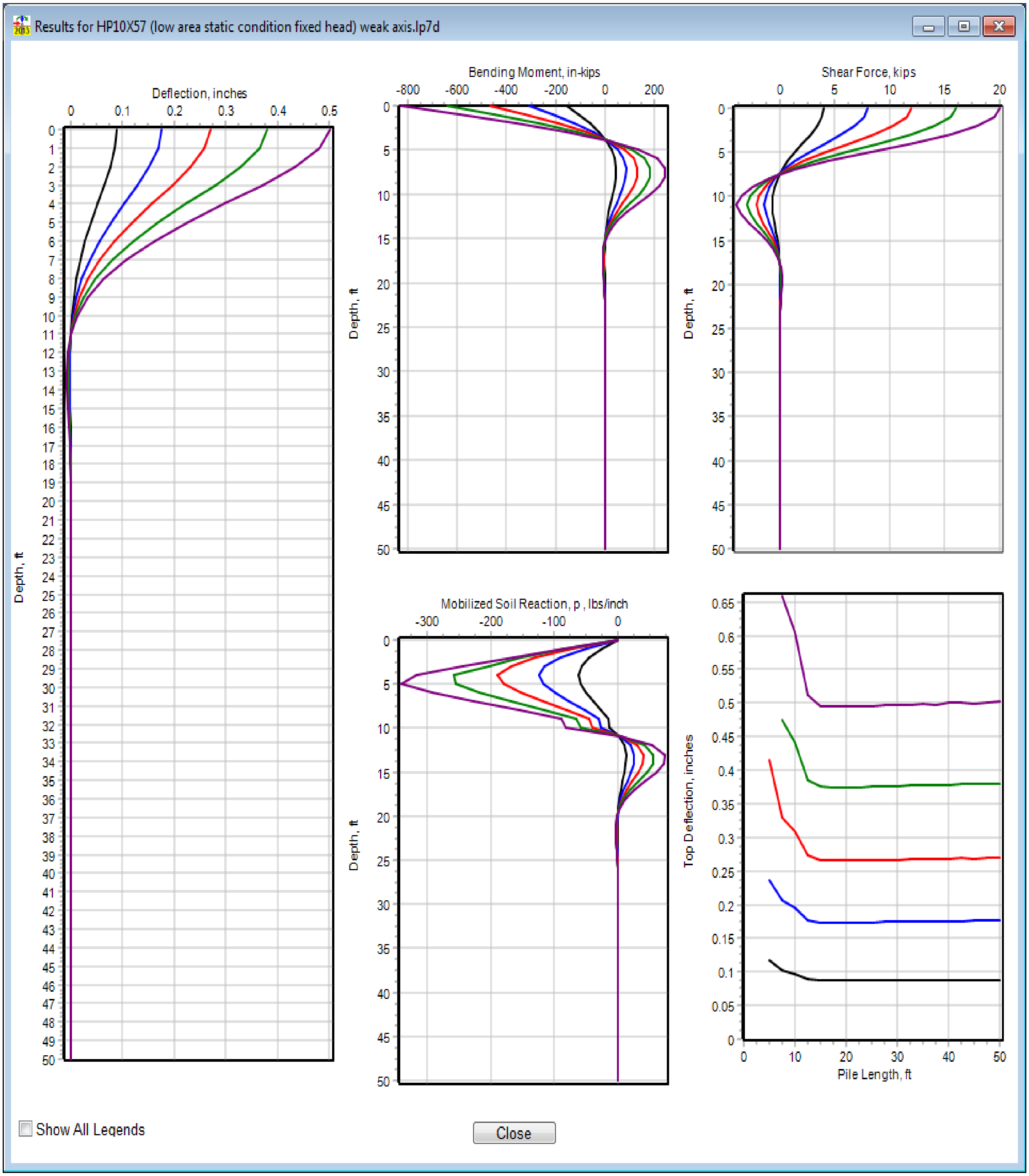

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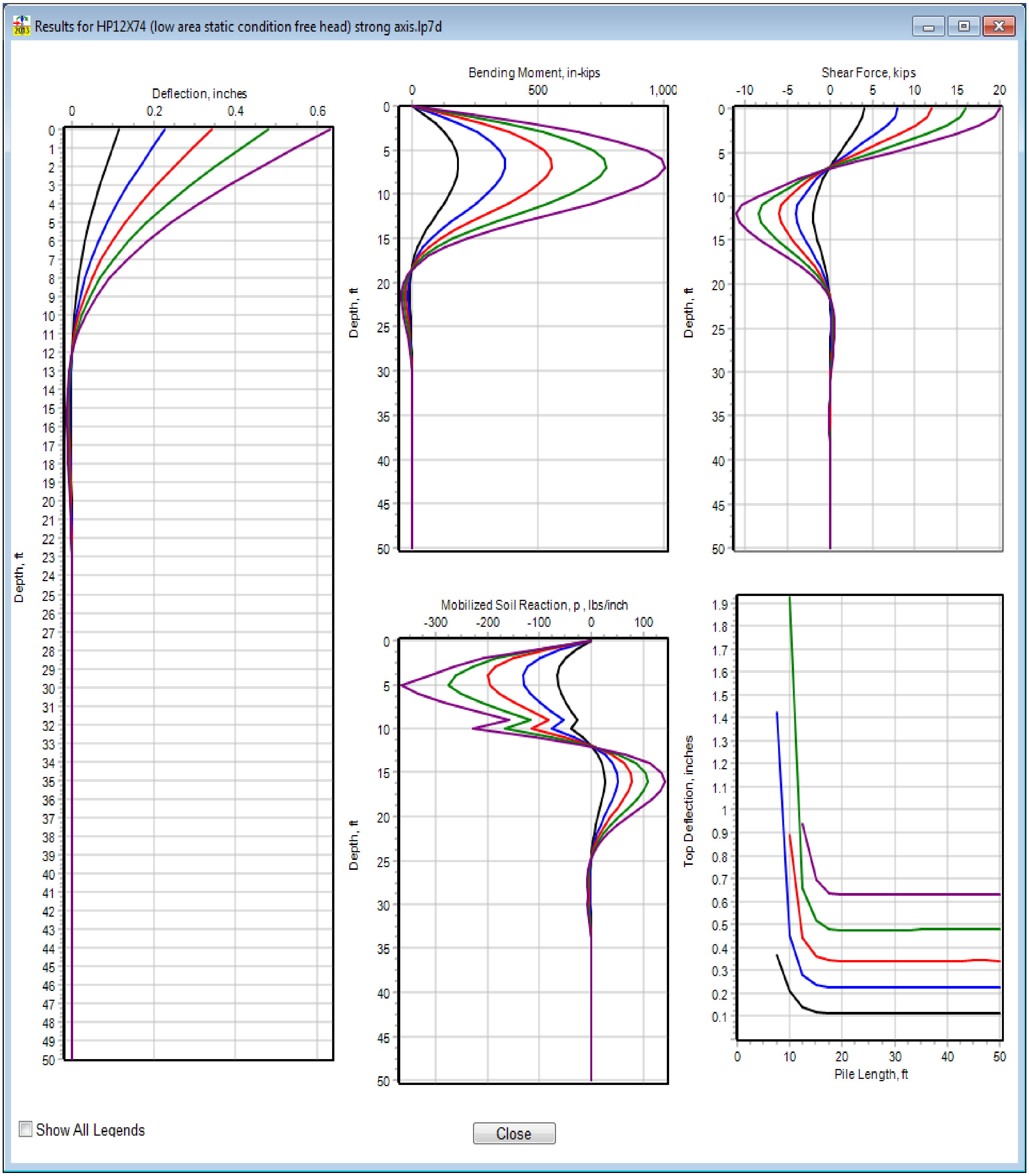
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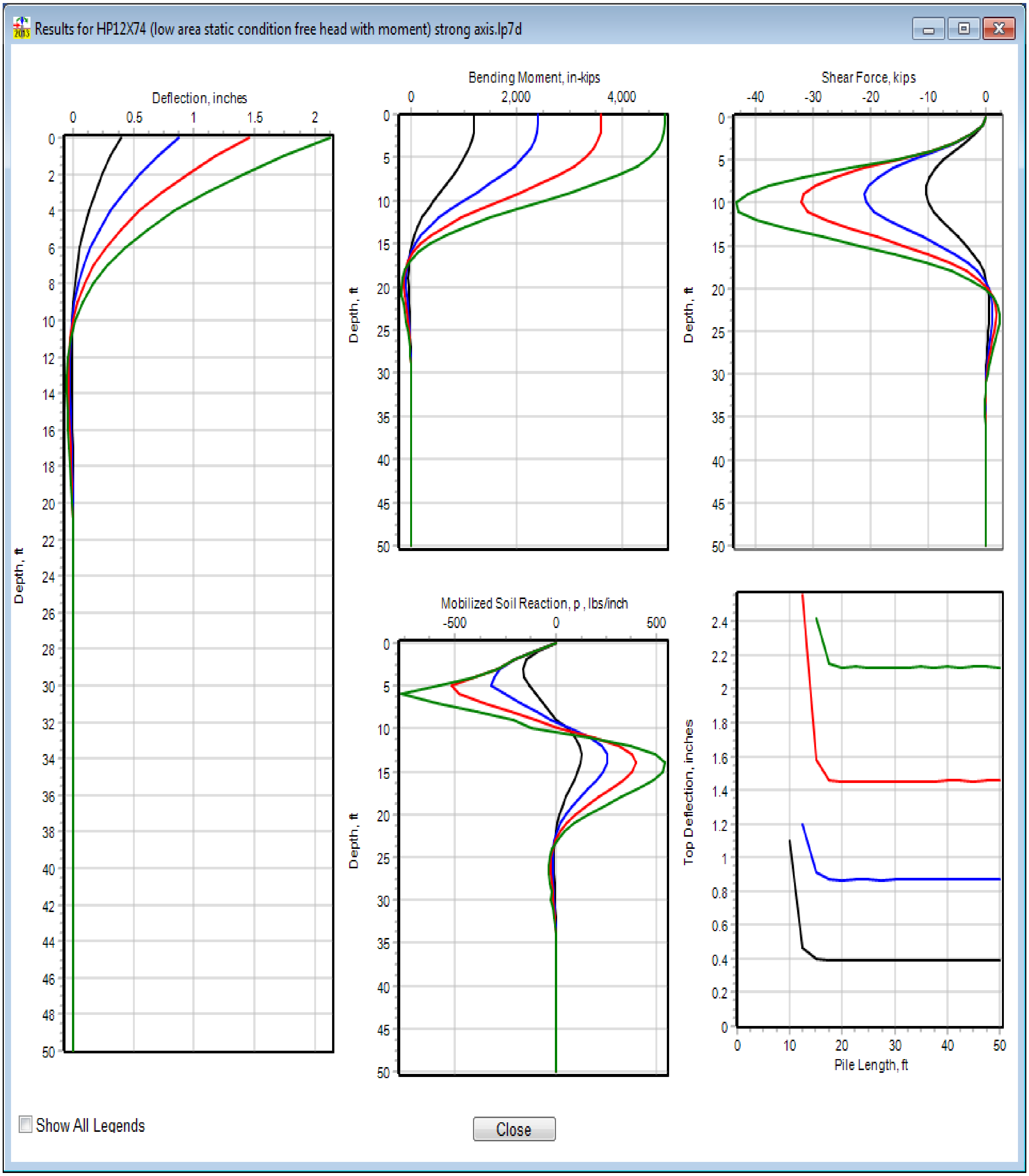

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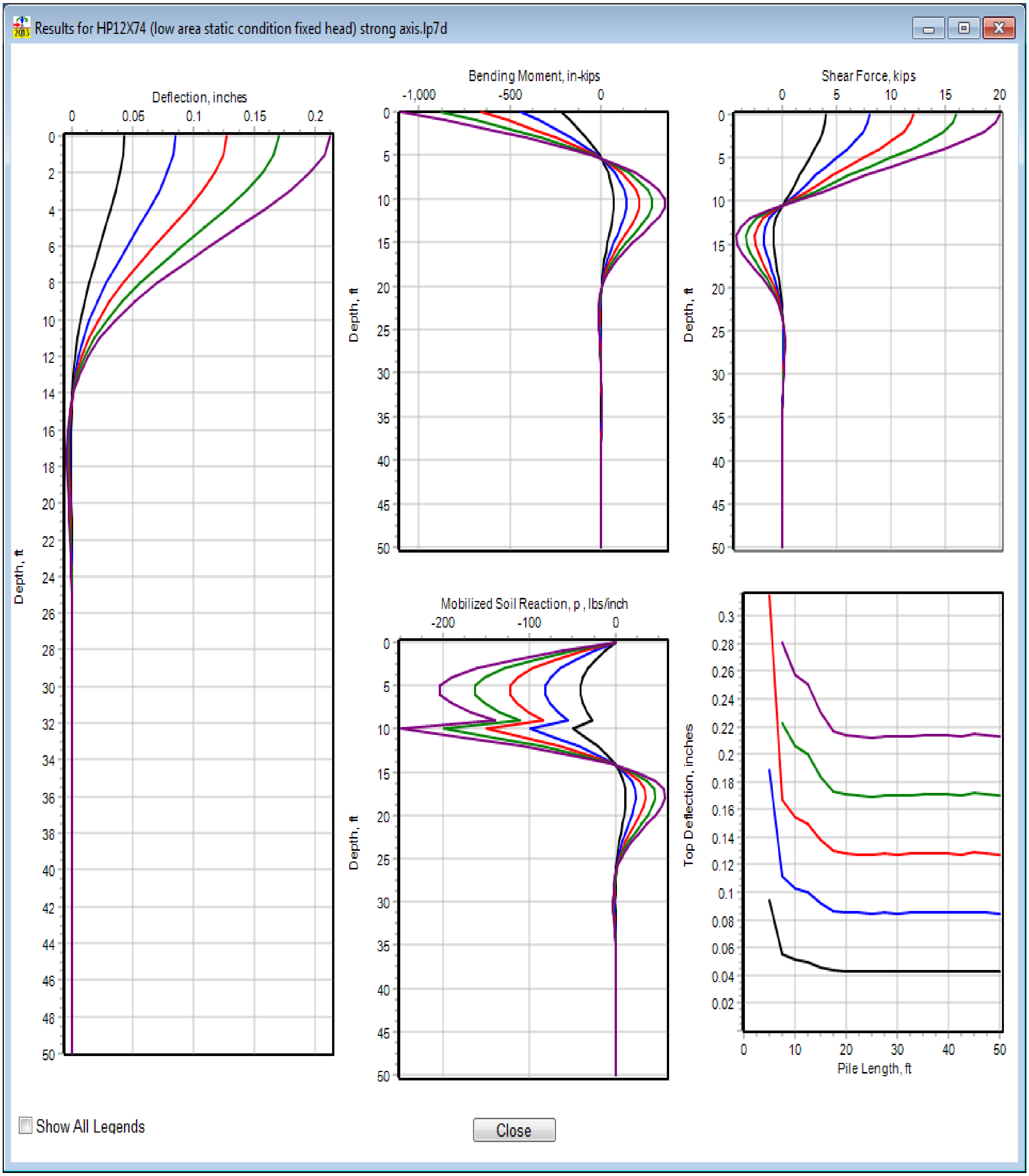

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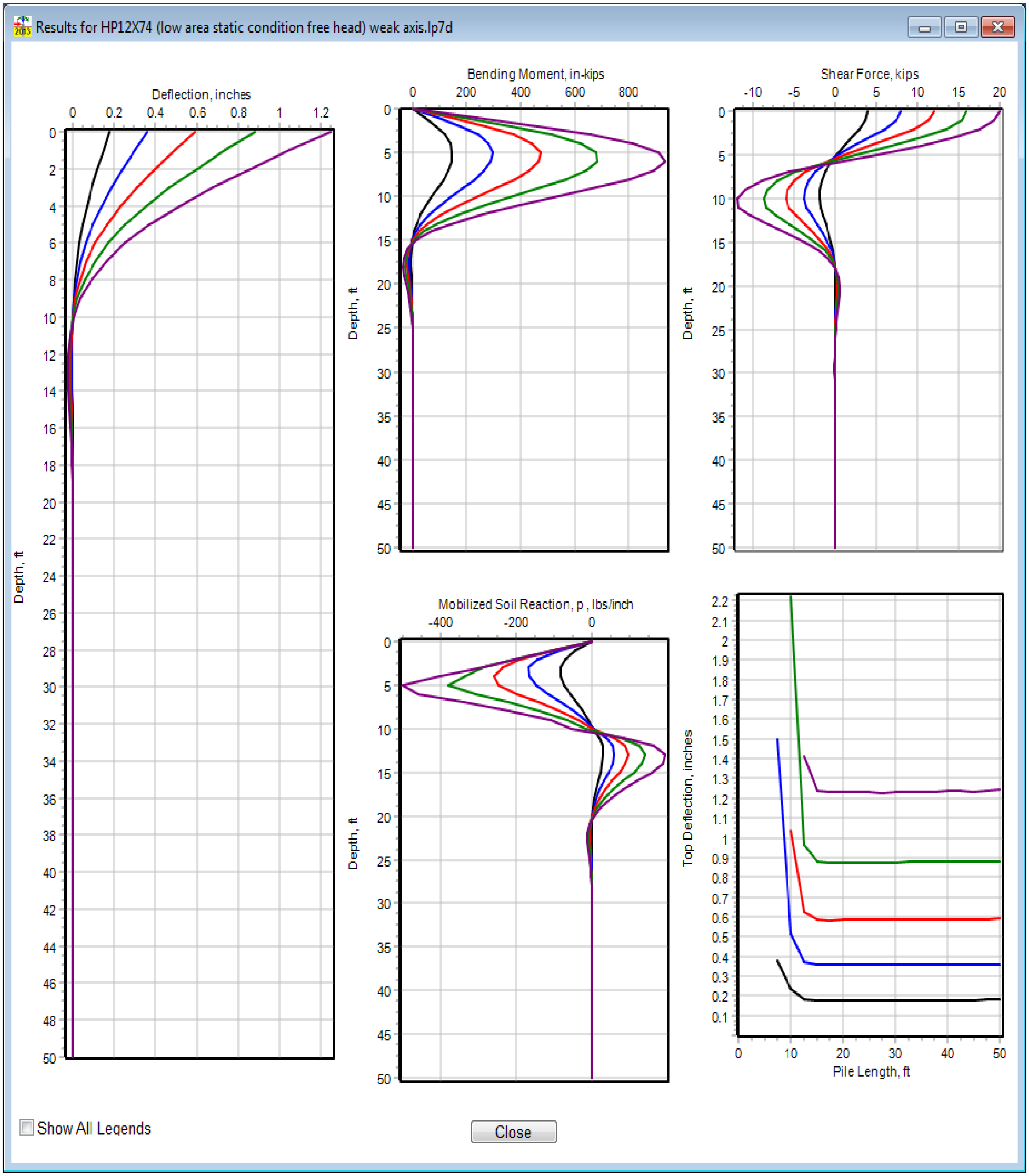

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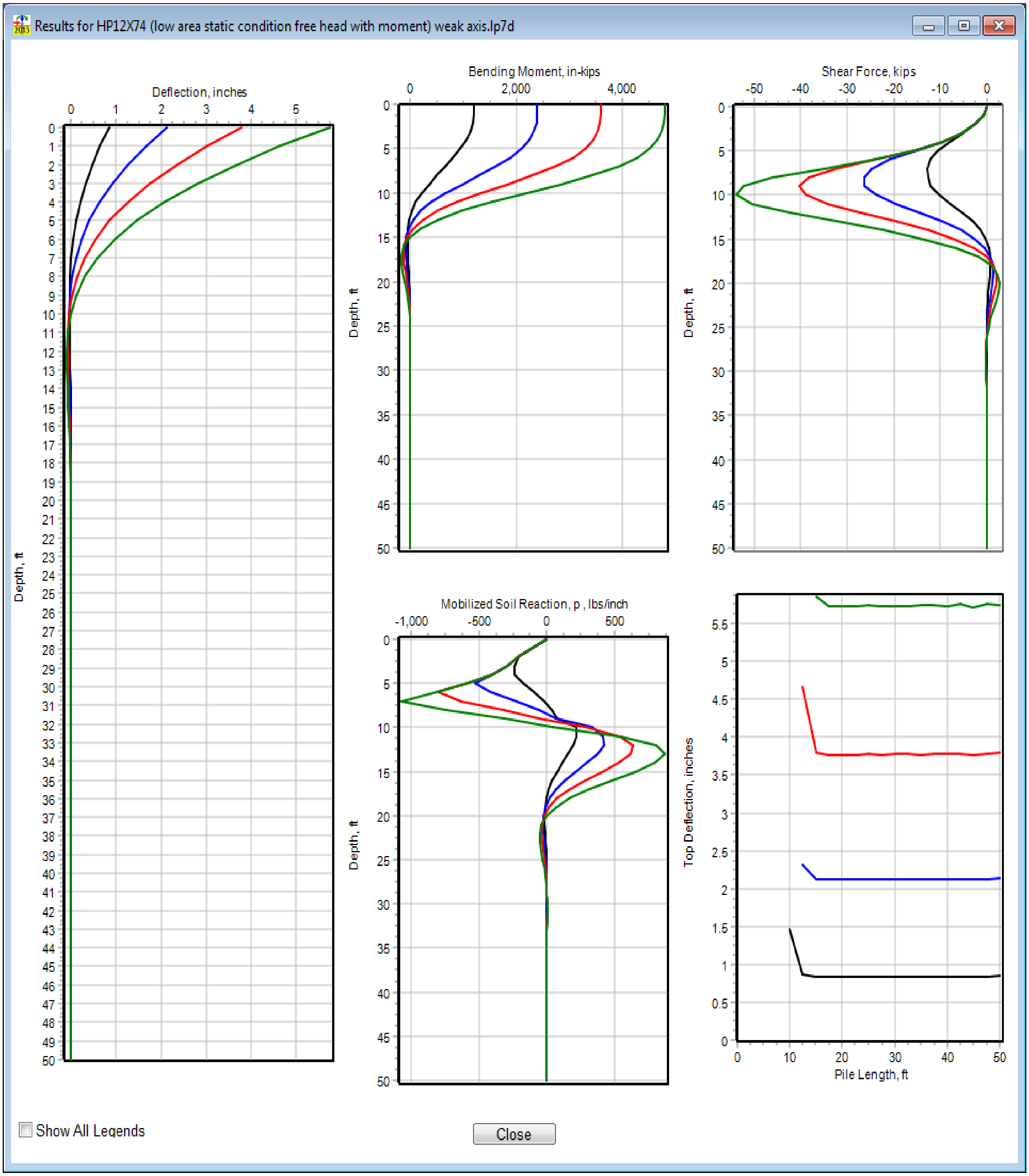

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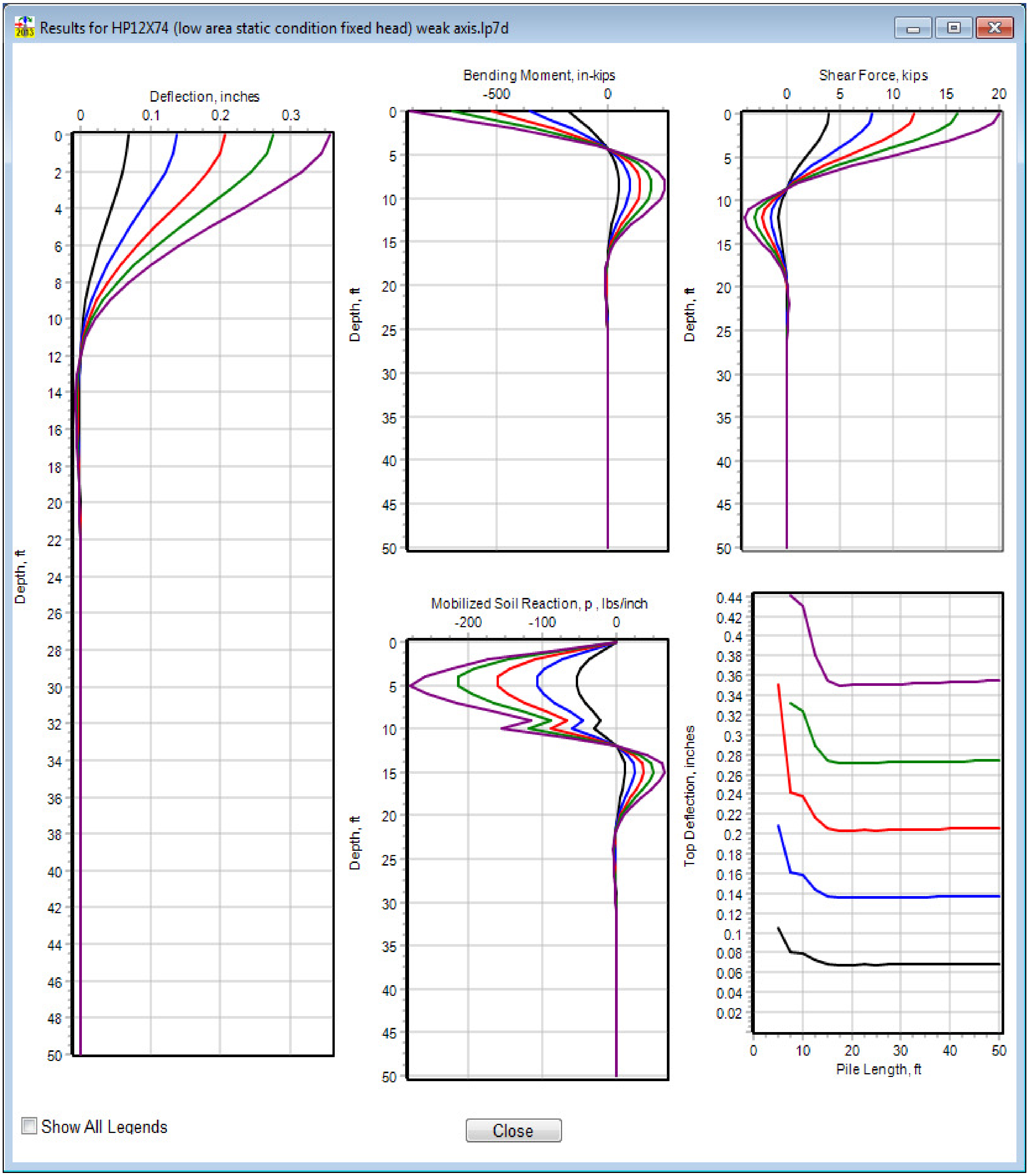
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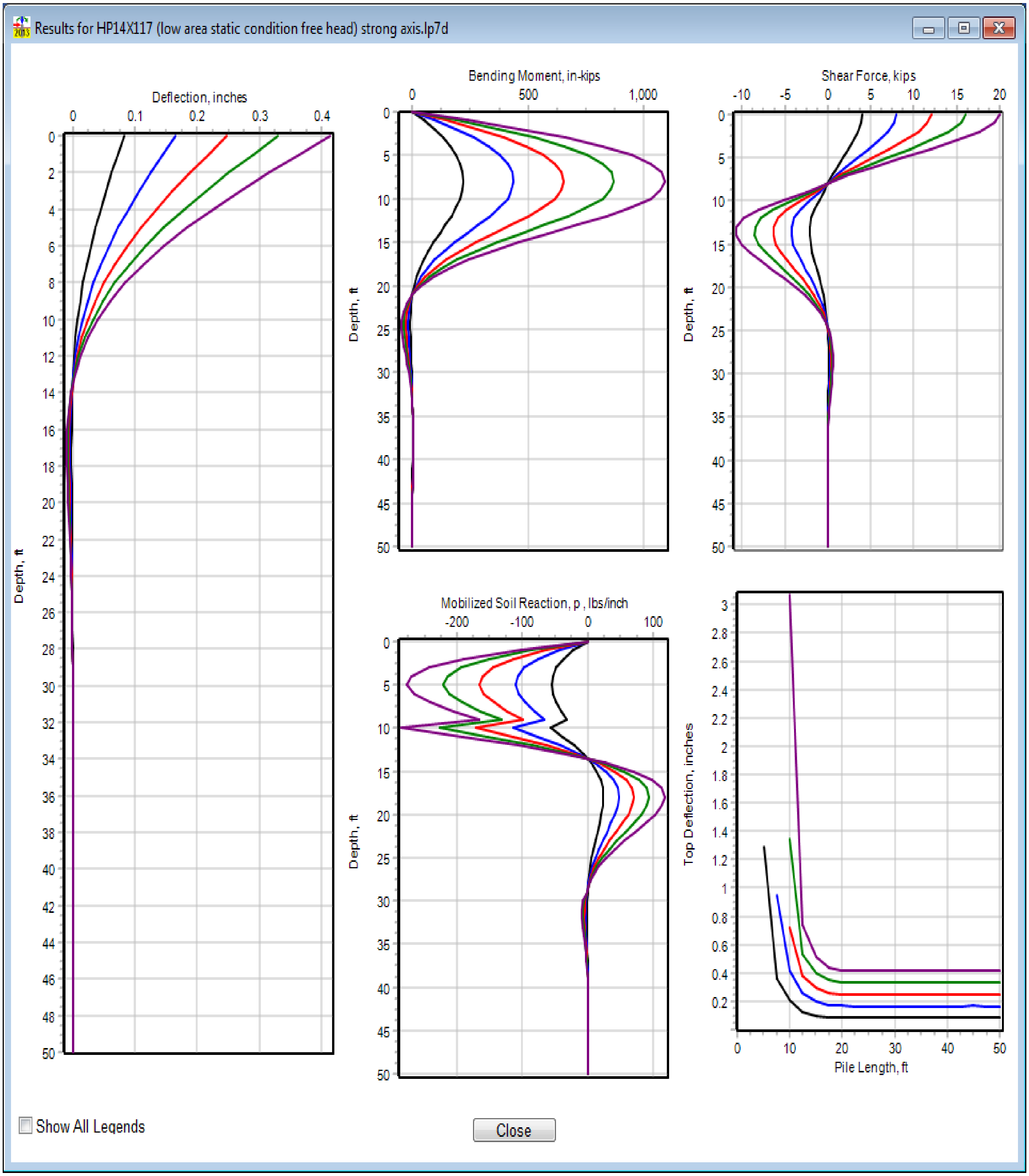
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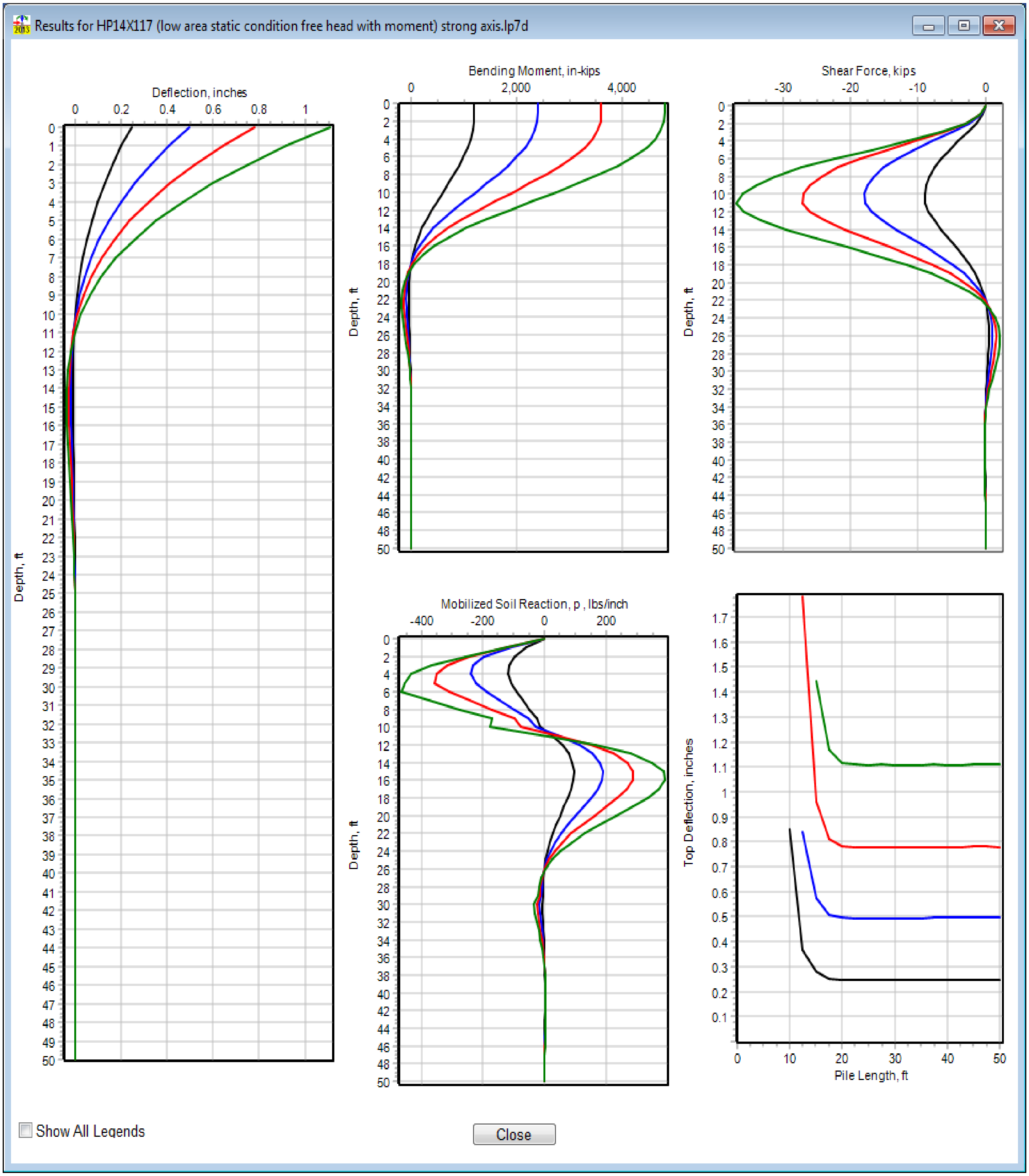
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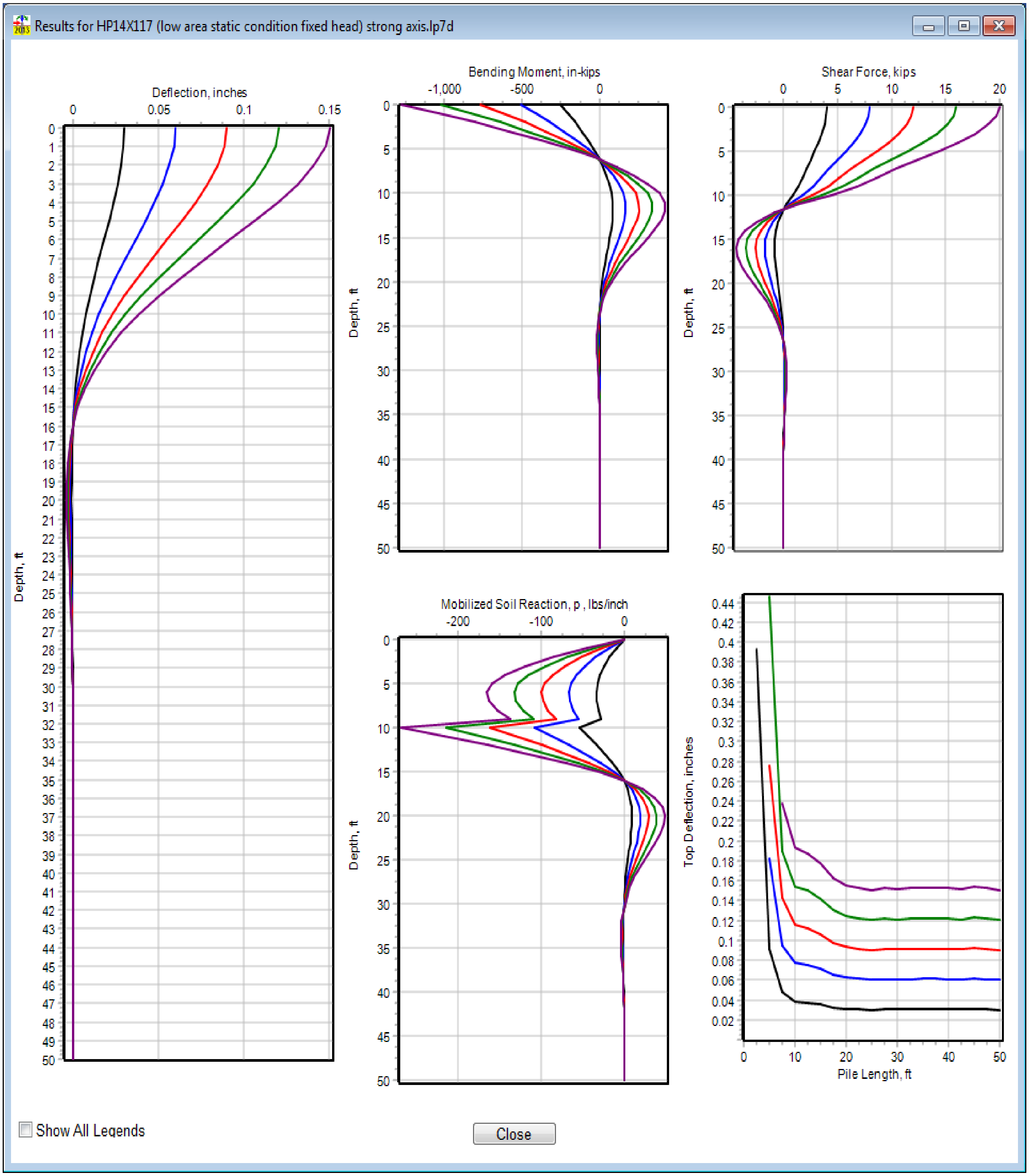
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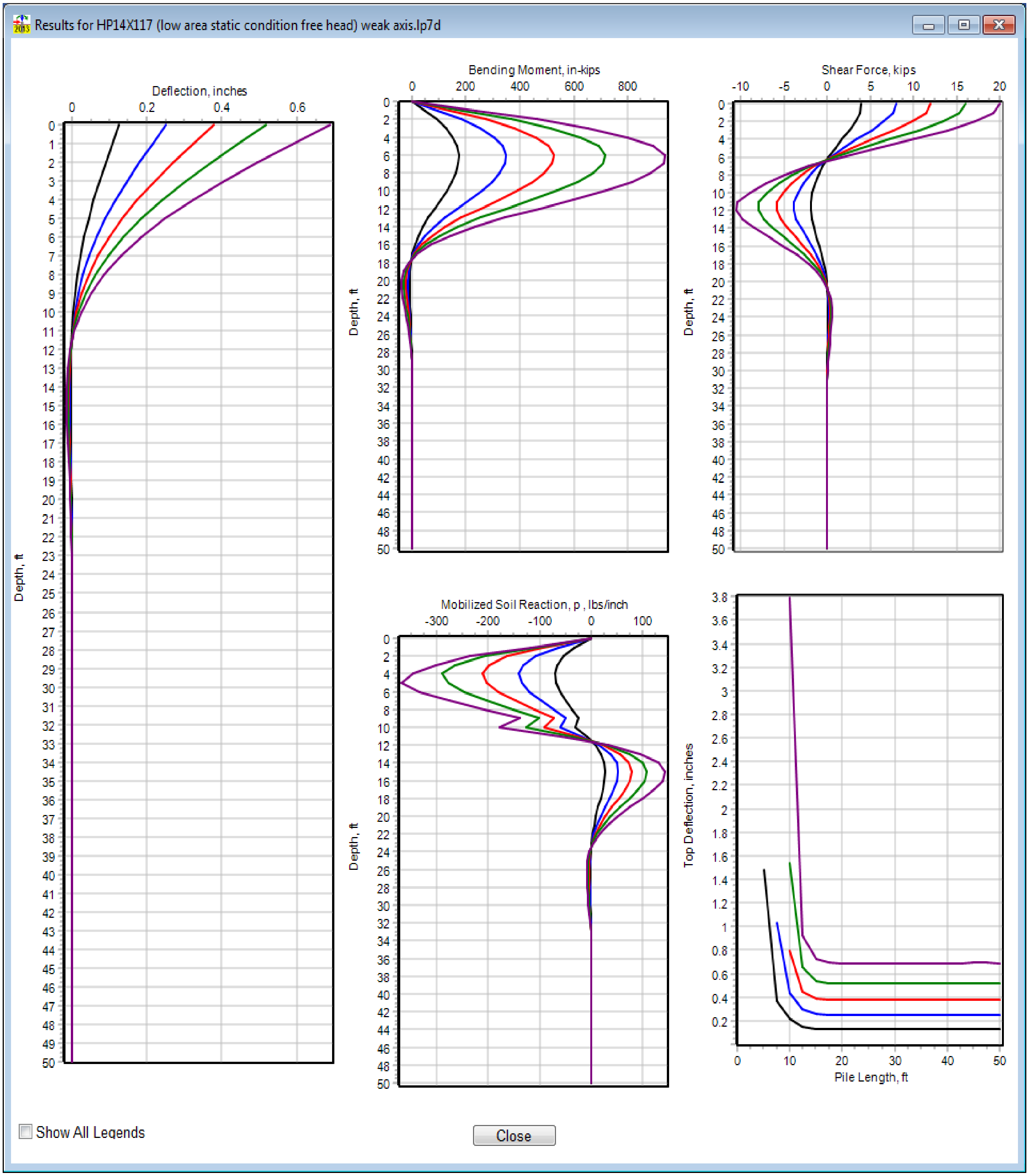

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Shear Force, kips
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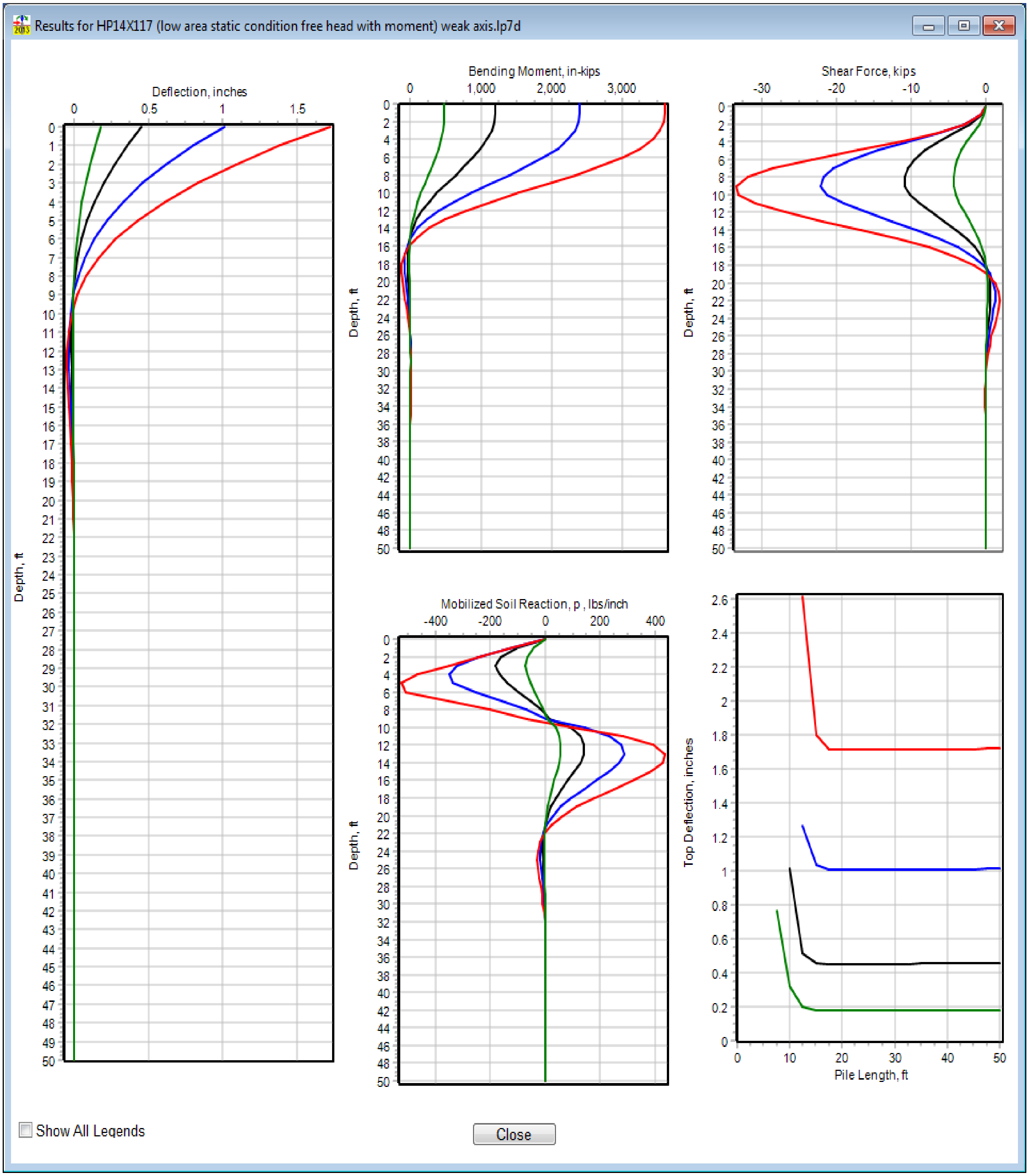
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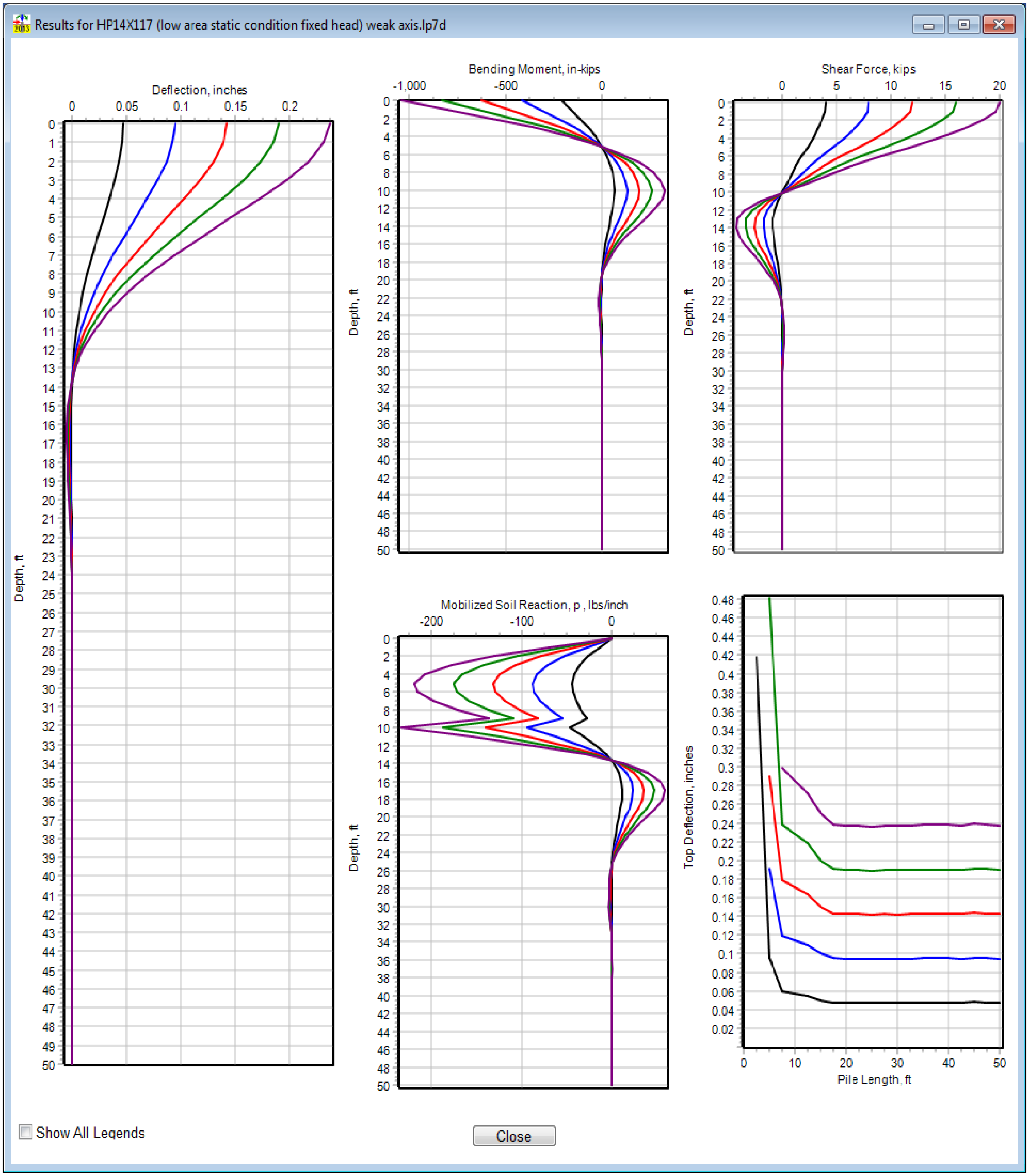
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Shear Force, kips
Mobilized Soil Reaction, p , lbs/inch
Top Deflection, inches
Pile Length, ft
Show All Legends
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APPENDIX I
GEOTECHNICAL BUSINESS COUNCIL INSERT

Important Information about This

Geotechnical-Engineering Report

Subsurface problems are a principal cause of construction delays, cost overruns, claims, and disputes.

While you cannot eliminate all such risks, you can manage them. The following information is provided to help.

Geotechnical Services Are Performed for Specific Purposes, Persons, and Projects

Geotechnical engineers structure their services to meet the specific needs of their clients. A geotechnical-engineering study conducted for a civil engineer may not fulfill the needs of a constructor — a construction contractor — or even another civil engineer. Because each geotechnical- engineering study is unique, each geotechnical-engineering report is unique, prepared *solely* for the client. No one except you should rely on this geotechnical-engineering report without first conferring with the geotechnical engineer who prepared it. *And no one — not even you* — should apply this report for any purpose or project except the one originally contemplated.

Read the Full Report

Serious problems have occurred because those relying on a geotechnical-engineering report did not read it all. Do not rely on an executive summary. Do not read selected elements only.

Geotechnical Engineers Base Each Report on a Unique Set of Project-Specific Factors

Geotechnical engineers consider many unique, project-specific factors when establishing the scope of a study. Typical factors include: the client's goals, objectives, and risk-management preferences; the general nature of the structure involved, its size, and configuration; the location of the structure on the site; and other planned or existing site improvements, such as access roads, parking lots, and underground utilities. Unless the geotechnical engineer who conducted the study specifically indicates otherwise, do not rely on a geotechnical-engineering report that was:

- not prepared for you;
- not prepared for your project;
- not prepared for the specific site explored; or
- completed before important project changes were made.

Typical changes that can erode the reliability of an existing geotechnical-engineering report include those that affect:

- the function of the proposed structure, as when it's changed from a parking garage to an office building, or from a light-industrial plant to a refrigerated warehouse;
- the elevation, configuration, location, orientation, or weight of the proposed structure;
- the composition of the design team; or
- project ownership.

As a general rule, *always* inform your geotechnical engineer of project changes—even minor ones—and request an assessment of their impact. *Geotechnical engineers cannot accept responsibility or liability for problems that occur because their reports do not consider developments of which they were not informed.*

Subsurface Conditions Can Change

A geotechnical-engineering report is based on conditions that existed at the time the geotechnical engineer performed the study. *Do not rely on a geotechnical-engineering report whose adequacy may have been affected by*: the passage of time; man-made events, such as construction on or adjacent to the site; or natural events, such as floods, droughts, earthquakes, or groundwater fluctuations. *Contact the geotechnical engineer before applying this report to determine if it is still reliable.* A minor amount of additional testing or analysis could prevent major problems.

Most Geotechnical Findings Are Professional Opinions

Site exploration identifies subsurface conditions only at those points where subsurface tests are conducted or samples are taken. Geotechnical engineers review field and laboratory data and then apply their professional judgment to render an opinion about subsurface conditions throughout the site. Actual subsurface conditions may differ — sometimes significantly — from those indicated in your report. Retaining the geotechnical engineer who developed your report to provide geotechnical-construction observation is the most effective method of managing the risks associated with unanticipated conditions.

A Report's Recommendations Are Not Final

Do not overrely on the confirmation-dependent recommendations included in your report. *Confirmation-dependent recommendations are not final,* because geotechnical engineers develop them principally from judgment and opinion. Geotechnical engineers can finalize their recommendations *only* by observing actual subsurface conditions revealed during construction. *The geotechnical engineer who developed your report cannot assume responsibility or liability for the report's confirmation-dependent recommendations if that engineer does not perform the geotechnical-construction observation required to confirm the recommendations' applicability.*

A Geotechnical-Engineering Report Is Subject to Misinterpretation

Other design-team members' misinterpretation of geotechnical-engineering reports has resulted in costly problems. Confront that risk by having your geotechnical engineer confer with appropriate members of the design team after submitting the report. Also retain your geotechnical engineer to review pertinent elements of the design team's plans and specifications. Constructors can also misinterpret a geotechnical-engineering report. Confront that risk by having your geotechnical engineer participate in prebid and preconstruction conferences, and by providing geotechnical construction observation.

Do Not Redraw the Engineer's Logs

Geotechnical engineers prepare final boring and testing logs based upon their interpretation of field logs and laboratory data. To prevent errors or omissions, the logs included in a geotechnical-engineering report should *never* be redrawn for inclusion in architectural or other design drawings. Only photographic or electronic reproduction is acceptable, *but recognize that separating logs from the report can elevate risk.*

Give Constructors a Complete Report and Guidance

Some owners and design professionals mistakenly believe they can make constructors liable for unanticipated subsurface conditions by limiting what they provide for bid preparation. To help prevent costly problems, give constructors the complete geotechnical-engineering report, *but* preface it with a clearly written letter of transmittal. In that letter, advise constructors that the report was not prepared for purposes of bid development and that the report's accuracy is limited; encourage them to confer with the geotechnical engineer who prepared the report (a modest fee may be required) and/or to conduct additional study to obtain the specific types of information they need or prefer. A prebid conference can also be valuable. *Be sure constructors have sufficient time* to perform additional study. Only then might you be in a position to give constructors the best information available to you, while requiring them to at least share some of the financial responsibilities stemming from unanticipated conditions.

Read Responsibility Provisions Closely

Some clients, design professionals, and constructors fail to recognize that geotechnical engineering is far less exact than other engineering disciplines. This lack of understanding has created unrealistic expectations that have led to disappointments, claims, and disputes. To help reduce the risk of such outcomes, geotechnical engineers commonly include a variety of explanatory provisions in their reports. Sometimes labeled "limitations," many of these provisions indicate where geotechnical engineers' responsibilities begin and end, to help others recognize their own responsibilities and risks. *Read these provisions closely.* Ask questions. Your geotechnical engineer should respond fully and frankly.

Environmental Concerns Are Not Covered

The equipment, techniques, and personnel used to perform an *environmental* study differ significantly from those used to perform a *geotechnical* study. For that reason, a geotechnical-engineering report does not usually relate any environmental findings, conclusions, or recommendations; e.g., about the likelihood of encountering underground storage tanks or regulated contaminants. *Unanticipated environmental problems have led to numerous project failures.* If you have not yet obtained your own environmental information, ask your geotechnical consultant for risk-management guidance. *Do not rely on an environmental report prepared for someone else.*

Obtain Professional Assistance To Deal with Mold

Diverse strategies can be applied during building design, construction, operation, and maintenance to prevent significant amounts of mold from growing on indoor surfaces. To be effective, all such strategies should be devised for the *express purpose* of mold prevention, integrated into a comprehensive plan, and executed with diligent oversight by a professional mold-prevention consultant. Because just a small amount of water or moisture can lead to the development of severe mold infestations, many mold- prevention strategies focus on keeping building surfaces dry. While groundwater, water infiltration, and similar issues may have been addressed as part of the geotechnical- engineering study whose findings are conveyed in this report, the geotechnical engineer in charge of this project is not a mold prevention consultant; *none of the services performed in connection with the geotechnical engineer's study were designed or conducted for the purpose of mold prevention. Proper implementation of the recommendations conveyed in this report will not of itself be sufficient to prevent mold from growing in or on the structure involved.*

Rely, on Your GBC-Member Geotechnical Engineer for Additional Assistance

Membership in the Geotechnical Business Council of the Geoprofessional Business Association exposes geotechnical engineers to a wide array of risk-confrontation techniques that can be of genuine benefit for everyone involved with a construction project. Confer with you GBC-Member geotechnical engineer for more information.

GEOTECHNICAL BUSINESS COUNCIL
of the Geoprofessional Business Association

8811 Colesville Road/Suite G106, Silver Spring, MD 20910
Telephone: 301/565-2733 Facsimile: 301/589-2017
e-mail: info@geoprofessional.org www.geoprofessional.org

KLEINFELDER
Bright People. Right Solutions.

November 8, 2016
Project No. 20163965.001A

Mr. Jim Reed, PE, RA, Leed®AP, RPA
Carrier Johnson + Culture
1301 Third Avenue
San Diego, California 92101

Subject: **Addendum No. 1**
Foundation Recommendations
Legacy International Center
Mission Valley Campus
875 Hotel Circle South
San Diego, California

Dear Mr. Reed:

In response to the request of Farid Mohseni of KPFF, Kleinfelder is pleased to present revised foundation design recommendations for the proposed Legacy International Center in San Diego, California. This letter should be considered as an addendum to our geotechnical investigation report dated April 13, 2016 and is subject to the same limitations presented therein.

DESIGN GROUNDWATER ELEVATIONS

Groundwater conditions at the site are described in Section 3.3.5 of our report. Groundwater surface elevations are variable across the site and may fluctuate due to seasonal precipitation and extended climatic conditions such as drought or periods of extended rainfall. We understand that it is desired to have a single estimated maximum groundwater elevation for the design of planned building foundations. In this respect, we suggest the use of the following:

Building	Estimated Maximum Groundwater Elevation (feet MSL)
Museum	+22
Pavilion	+22
Parking Structure	+22
Hotel	+30

DEEP FOUNDATIONS

Axial Capacity

In general, driven piles should be able to obtain their structural axial capacity via skin friction and tip resistance from the Stadium Conglomerate only. No axial capacity should be assumed for portions of piles in fill soil, alluvium and colluvium. The maximum ultimate skin friction resistance of a driven pile in this material should be 2,000 psf (Safety Factor = 1). The maximum ultimate end bearing resistance in the Stadium Conglomerate should be taken as 400,000 psf (Safety Factor = 1) over the actual end area of the H-pile (or pile tip protection, if used). Appropriate safety factors should be applied to these values based on building code requirements to determine allowable values in the overall design of the foundation system. Uplift capacity should be based on skin friction only within the Stadium Conglomerate. No reduction in axial capacity is considered necessary if pile spacing is at least 3 pile diameters center-to-center and the piles designed for high resistance end bearing conditions in the Stadium Conglomerate. Estimated settlement for piles designed with appropriate safety factors may be on the order of ½ inch of less.

Lateral Resistance

Preliminary analyses for lateral resistance of various steel piles sections are presented in Section 4.4.4 of our report. We understand that additional preliminary analyses are desired for HP10x57 and HP14x117 steel piles for fixed-head shear loads ranging from 10 to 18 tons. The results of all preliminary lateral resistance analyses are attached. The additional analyses are presented as Cases 25 through 29. In addition, pile caps may be designed for a passive lateral resistance based on an assumed equivalent fluid weight of 300 pcf in properly compacted fill soils. Group efficiency for laterally loaded piles is presented in Table 8 of our report.

Downdrag Loads

An approximate estimate of the ultimate downdrag (Safety Factor = 1) may be assumed to be on the order of 500 psf over the gross pile perimeter within the soils above an elevation of +15 feet MSL for the Museum, Pavilion and Parking Structure. Downdrag is not expected for the Hotel pile foundations. Inasmuch as the driven piles embedded into the Stadium Conglomerate are expected to have very high downward axial resistance, the expected downdrag loads are not expected to contribute any significant additional settlement.

Corrosion Rates

In Section 4.10 of out report we present the results of 10 set of soil corrosion test results perform by both Geocon (4 sets) and Kleinfelder (6 sets). These tests included pH, sulfates, chlorides and electrical resistivity. Based on the low electrical resistivity test results (<2000 ohm-cm) and the NACE criteria discussed therein, the onsite soils may be considered corrosive to severely corrosive. Notwithstanding, the majority of soils tested have a pH greater than 8 which is helps lower the aggressiveness of the soil. Preliminary corrosion tests are only an indicator of potential soil aggressivity for the sample tested.

As a revised preliminary evaluation, a corrosion rate of unprotected metal surfaces in direct contact with onsite soil above the groundwater table may be expected to undergo corrosion rates of at least 0.05 to 0.1 mm/year (or more). The corrosion rate may be expected to be significantly less below the groundwater table.

Corrosion for pile may be minimized with the use of cathodic protection or special coatings. In our opinion, cathodic protection for steel piles is not considered economically justifiable. However, the use of high-density coal-tar epoxy coatings on the upper part of the pile above an anticipated groundwater elevation of about +15 feet MSL may be considered. Special coatings should be applied only to blast cleaned surfaces.

We recommend that the corrosion test results be reviewed and evaluated by the project designers considering the proposed improvements and project lifespan requirements. Kleinfelder does not practice corrosion engineering and the purpose of our tests is only to provide a preliminary screening. Additional sampling and testing may be performed after completion of grading for the proposed site improvements. A qualified corrosion engineer can be contacted to for detailed evaluation of corrosion potential with respect to construction materials at this site and review the proposed design.

Respectfully submitted,

KLEINFELDER

REGISTERED PROFESSIONAL ENGINEER
MOI ARZAMENDI
No. GE 2275
Exp: 6-30-17
GEOTECHNICAL
STATE OF CALIFORNIA

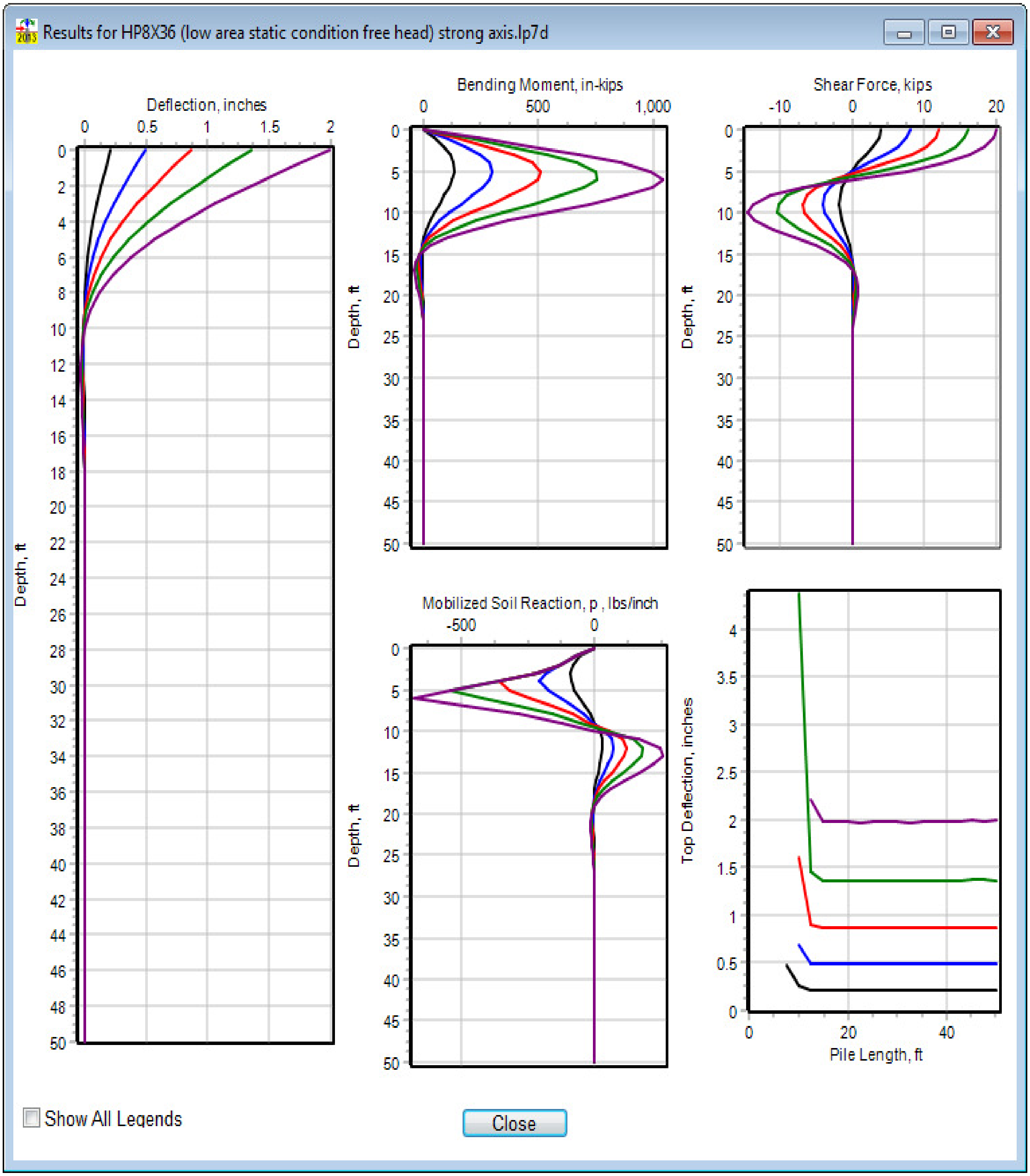
Moi Arzamendi, PE, GE2275
Senior Project Geotechnical Engineer

Summary of Steel Pile Section Properties

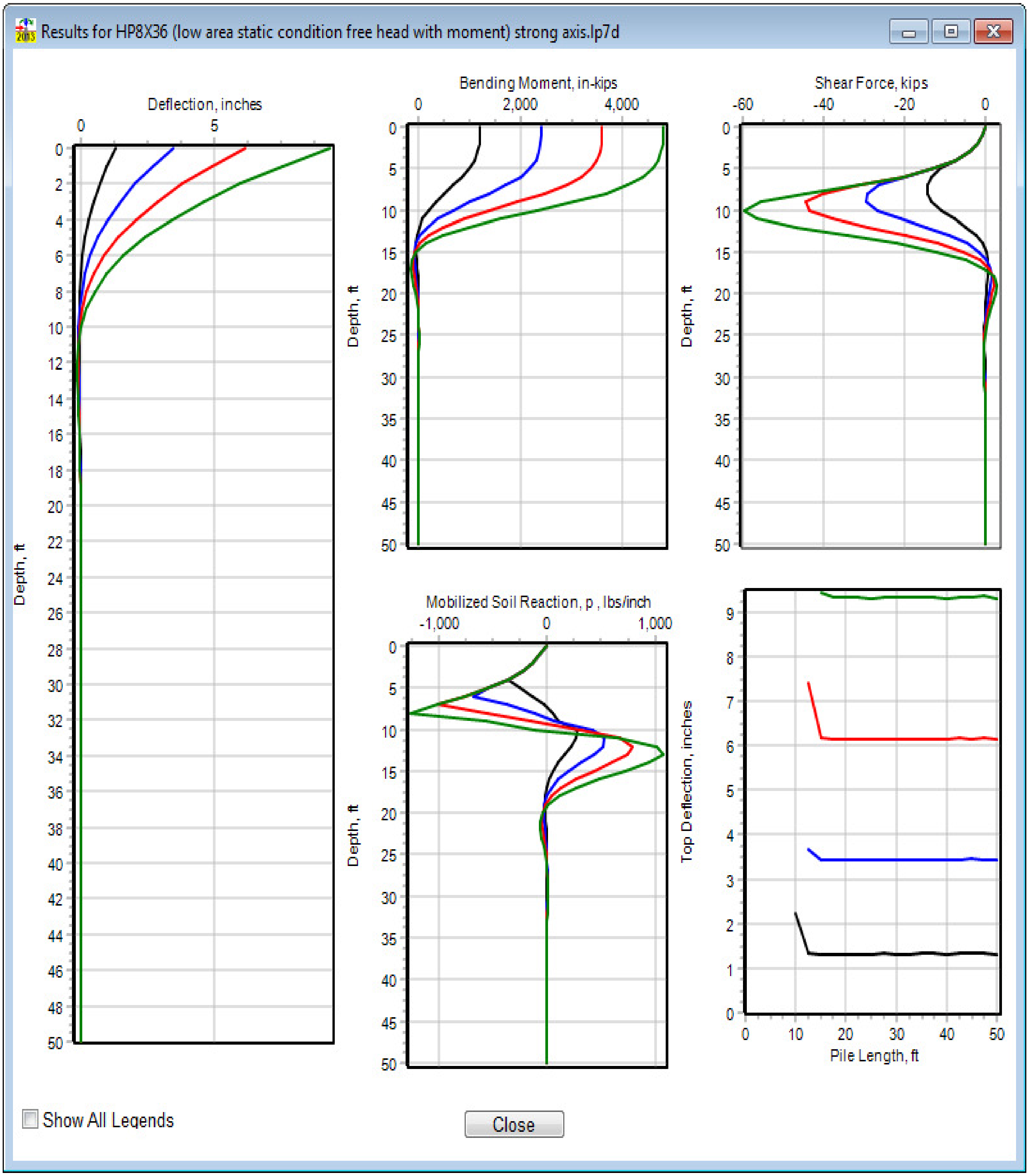
Pile Designation	Flange Width (inch)	Depth (inch)	Area ($inch^2$)	Moment of Inertia X-X ($inch^4$)	Moment of Inertia Y-Y ($inch^4$)	Section Modulus X-X ($inch^3$)	Section Modulus Y-Y ($inch^3$)
HP8X36	8.155	8.02	10.6	119	40.3	29.8	9.88
HP10X57	10.225	9.99	16.8	294	101	58.8	19.7
HP12X74	12.215	12.13	21.8	569	186	93.8	30.4
HP14x117	14.885	14.21	34.4	1220	443	172	59.5

Lateral Load Analyses Cases for Static Single Pile

Case	Pile Type	Size	Axis	Head Condition	Load Type	Applied Loads	Page
1	Steel	HP8X36	X-X (strong)	Free- Head	Shear	2, 4, 6, 8, 10 [tons]	H-2
2	Steel	HP8X36	X-X (strong)	Free- Head	Moment	50, 100, 150, 200 [ton-ft]	H-3
3	Steel	HP8X36	X-X (strong)	Fixed-Head	Shear	2, 4, 6, 8, 10 [tons]	H-4
4	Steel	HP8X36	Y-Y (weak)	Free- Head	Shear	2, 4, 6, 8, 10 [tons]	H-5
5	Steel	HP8X36	Y-Y (weak)	Free- Head	Moment	50, 100, 150, 200 [ton-ft]	H-6
6	Steel	HP8X36	Y-Y (weak)	Fixed-Head	Shear	2, 4, 6, 8, 10 [tons]	H-7
7	Steel	HP10X57	X-X (strong)	Free- Head	Shear	2, 4, 6, 8, 10 [tons]	H-8
8	Steel	HP10X57	X-X (strong)	Free- Head	Moment	50, 100, 150, 200 [ton-ft]	H-9
9	Steel	HP10X57	X-X (strong)	Fixed-Head	Shear	2, 4, 6, 8, 10 [tons]	H-10
10	Steel	HP10X57	Y-Y (weak)	Free- Head	Shear	2, 4, 6, 8, 10 [tons]	H-11
11	Steel	HP10X57	Y-Y (weak)	Free- Head	Moment	50, 100, 150, 200 [ton-ft]	H-12
12	Steel	HP10X57	Y-Y (weak)	Fixed-Head	Shear	2, 4, 6, 8, 10 [tons]	H-13
13	Steel	HP12X74	X-X (strong)	Free- Head	Shear	2, 4, 6, 8, 10 [tons]	H-14
14	Steel	HP12X74	X-X (strong)	Free- Head	Moment	50, 100, 150, 200 [ton-ft]	H-15
15	Steel	HP12X74	X-X (strong)	Fixed-Head	Shear	2, 4, 6, 8, 10 [tons]	H-16
16	Steel	HP12X74	Y-Y (weak)	Free- Head	Shear	2, 4, 6, 8, 10 [tons]	H-17
17	Steel	HP12X74	Y-Y (weak)	Free- Head	Moment	50, 100, 150, 200 [ton-ft]	H-18
18	Steel	HP12X74	Y-Y (weak)	Fixed-Head	Shear	2, 4, 6, 8, 10 [tons]	H-19
19	Steel	HP14x117	X-X (strong)	Free- Head	Shear	2, 4, 6, 8, 10 [tons]	H-20
20	Steel	HP14x117	X-X (strong)	Free- Head	Moment	50, 100, 150, 200 [ton-ft]	H-21
21	Steel	HP14x117	X-X (strong)	Fixed-Head	Shear	2, 4, 6, 8, 10 [tons]	H-22
22	Steel	HP14x117	Y-Y (weak)	Free- Head	Shear	2, 4, 6, 8, 10 [tons]	H-23
23	Steel	HP14x117	Y-Y (weak)	Free- Head	Moment	50, 100, 150, 200 [ton-ft]	H-24
24	Steel	HP14x117	Y-Y (weak)	Fixed-Head	Shear	2, 4, 6, 8, 10 [tons]	H-25
25	Steel	HP10X57	X-X (strong)	Fixed-Head	Shear	10, 12, 14, 16, 18 [tons]	H-26
26	Steel	HP10X57	Y-Y (weak)	Fixed-Head	Shear	10, 12, 14, 16, 18 [tons]	H-27
27	Steel	HP14x117	X-X (strong)	Fixed-Head	Shear	10, 12, 14, 16, 18 [tons]	H-28
28	Steel	HP14x117	Y-Y (weak)	Fixed-Head	Shear	10, 12, 14, 16, 18 [tons]	H-29



Results for HP8X36 (low area static condition free head) strong axis.lp7d
Deflection, inches
Depth, ft
Bending Moment, in-kips
Shear Force, kips
Mobilized Soil Reaction, p , lbs/inch
Top Deflection, inches
Pile Length, ft
Show All Legends
Close



Results for HP8X36 (low area static condition free head with moment) strong axis.lp7d
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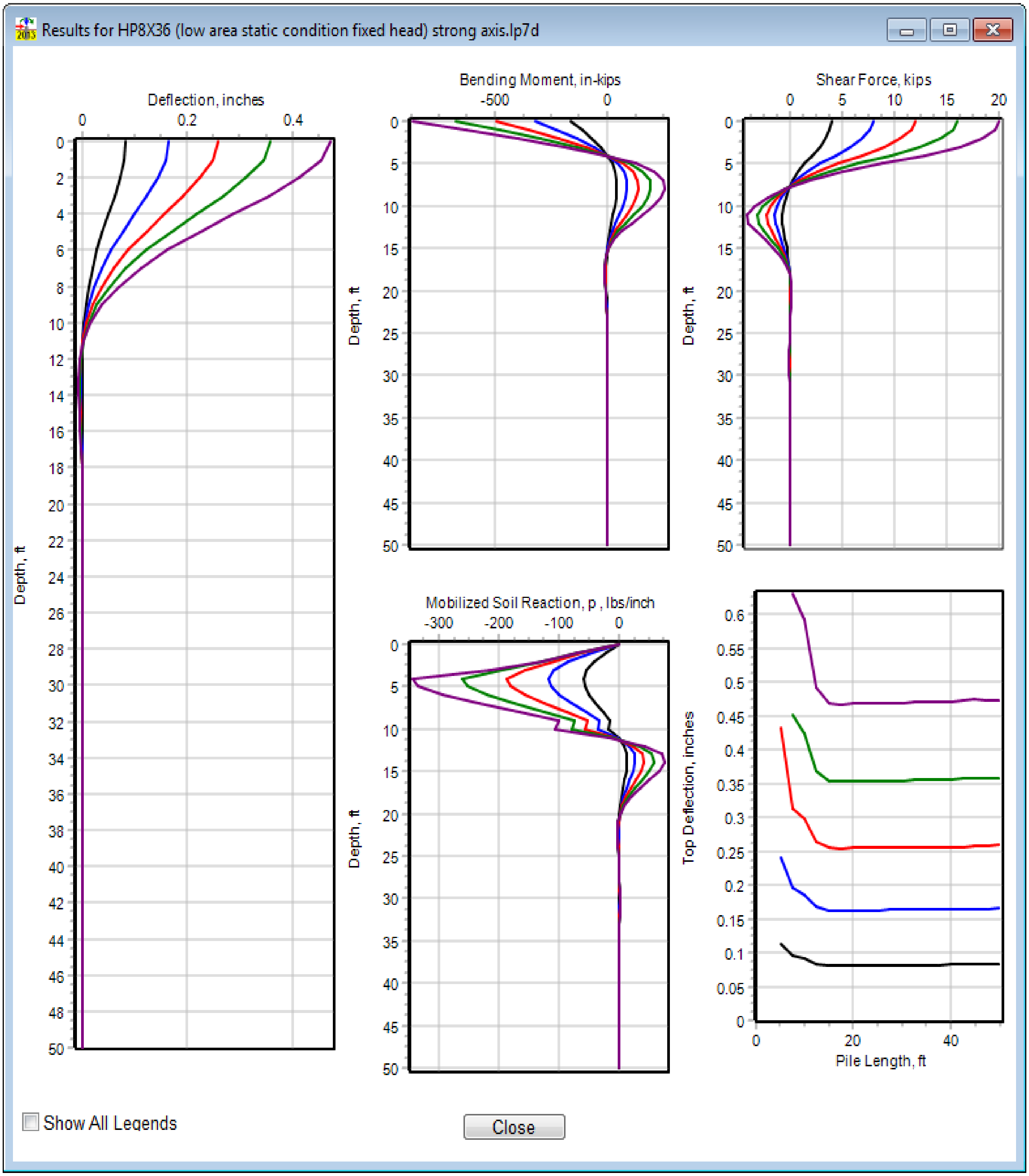
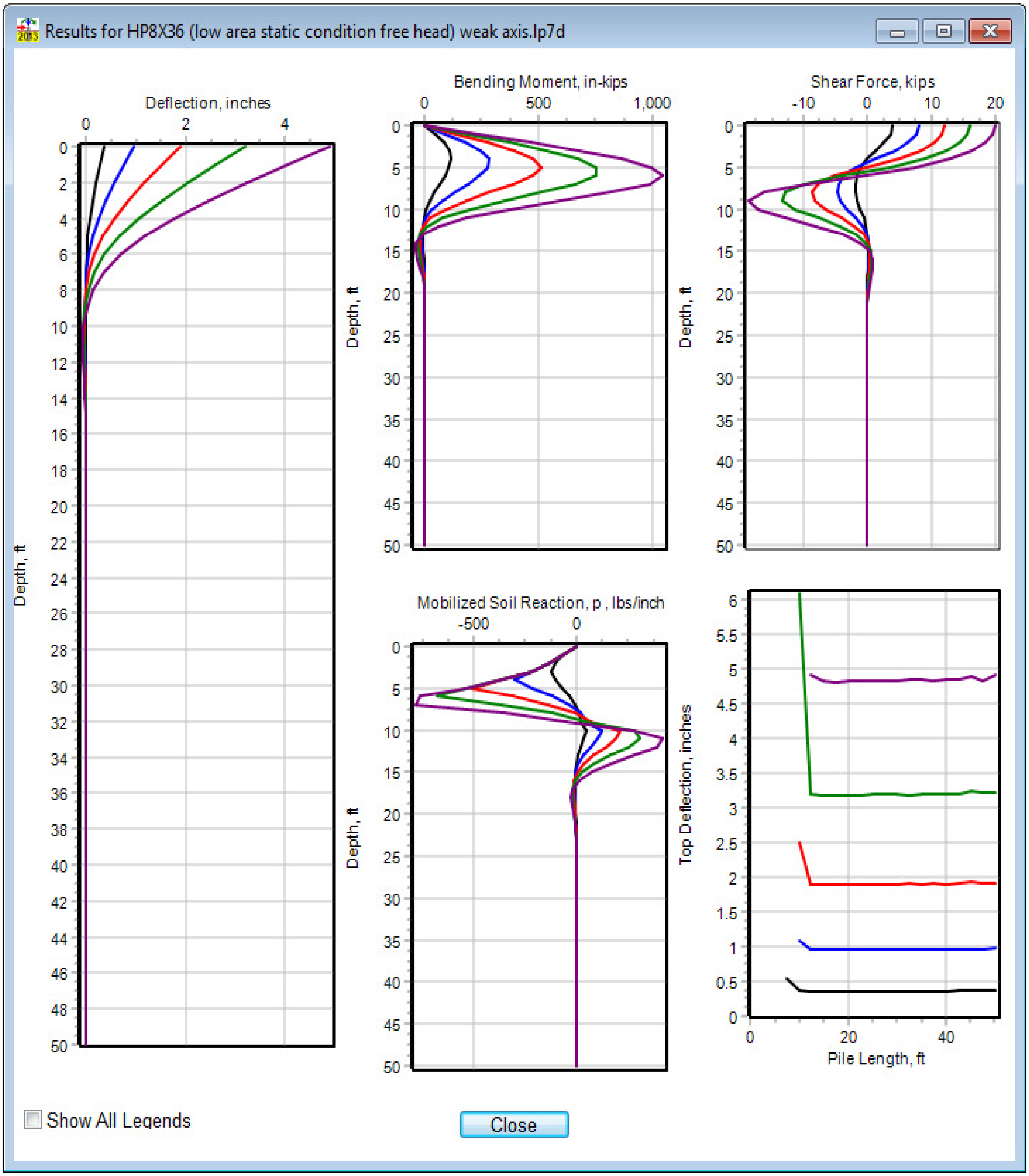
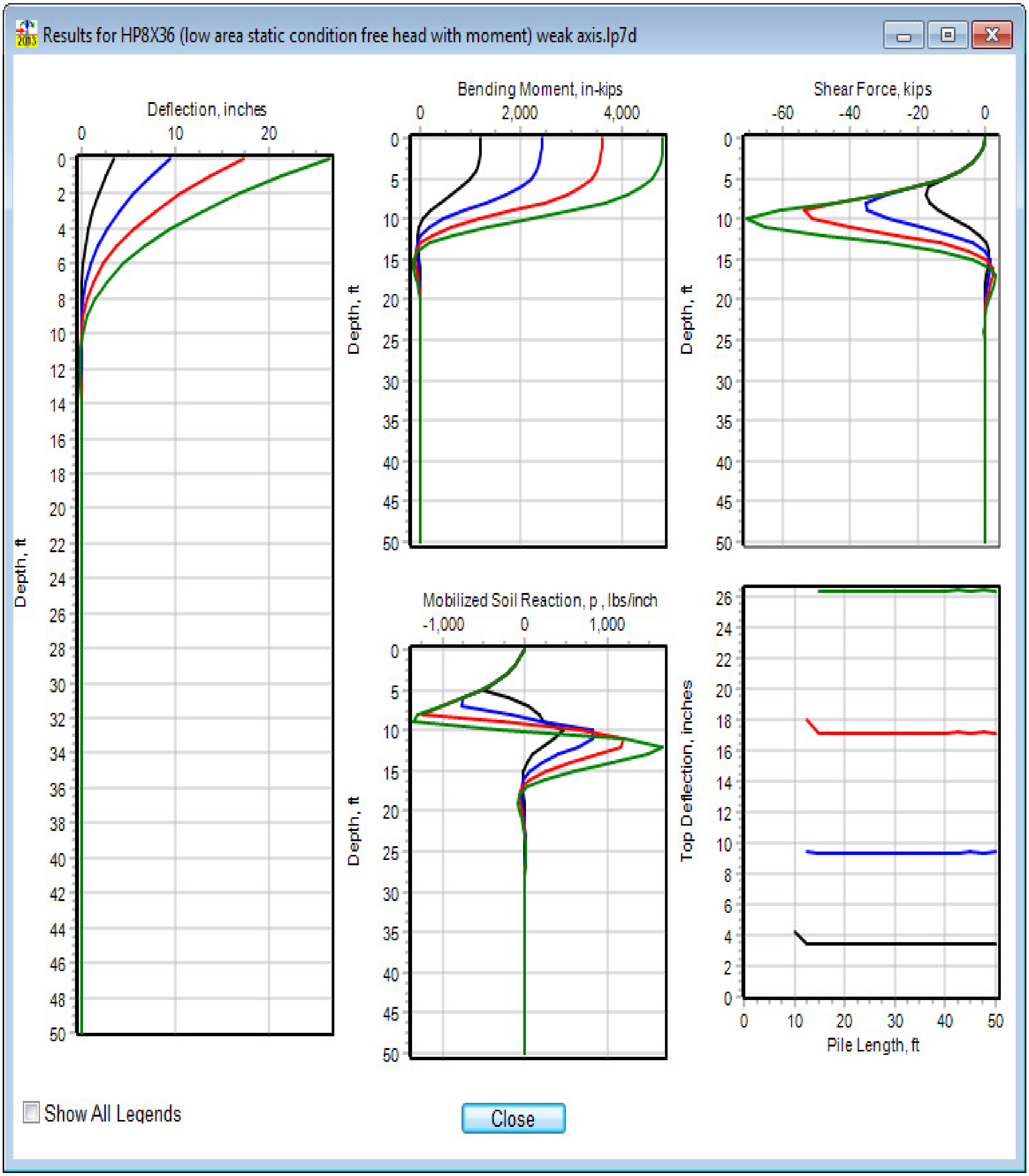
Depth, ft
Bending Moment, in-kips
Shear Force, kips
Mobilized Soil Reaction, p , lbs/inch
Top Deflection, inches
Pile Length, ft
Show All Legends
Close



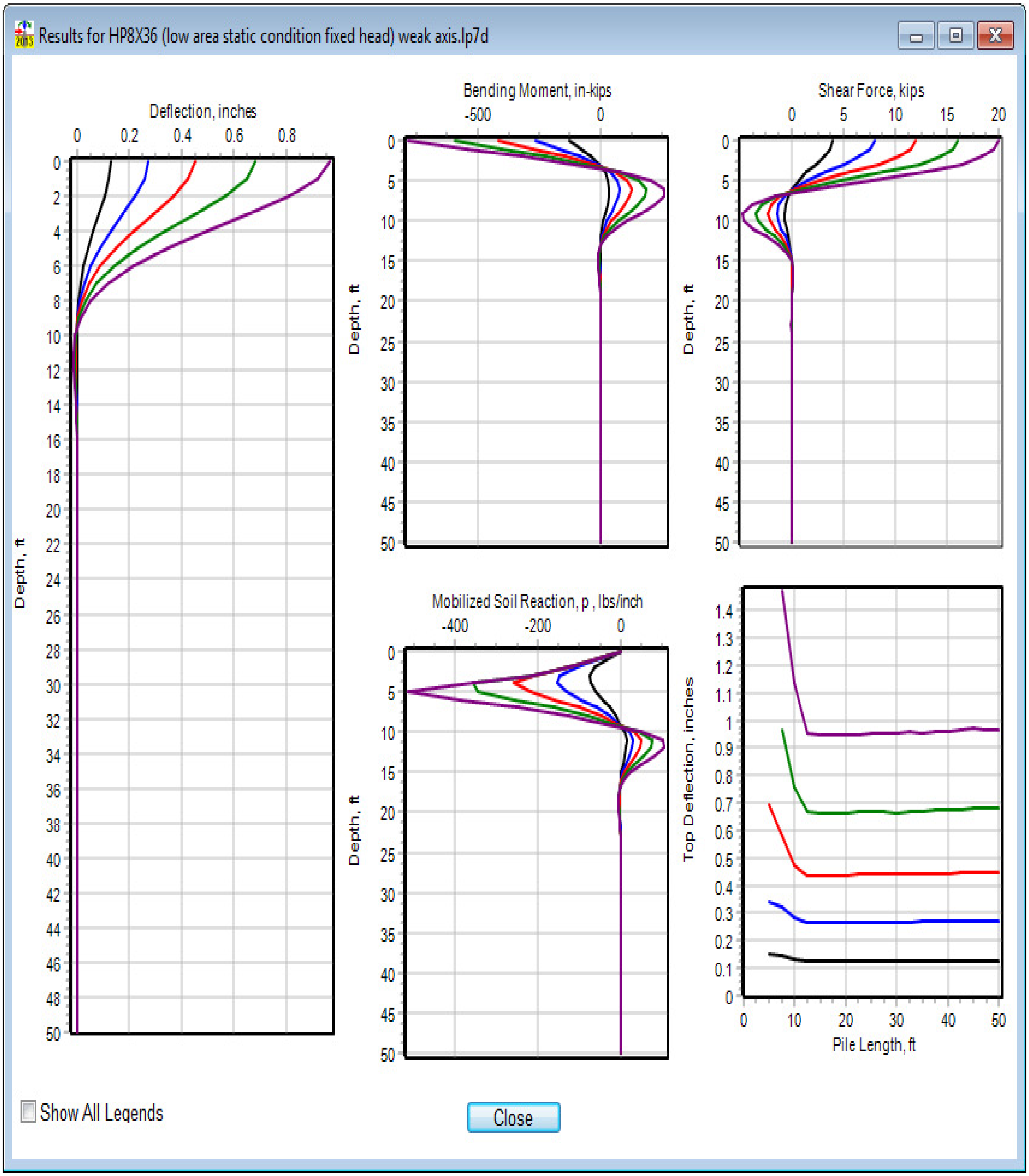
Results for HP8X36 (low area static condition fixed head) strong axis.lp7d
Deflection, inches
Depth, ft
Bending Moment, in-kips
Shear Force, kips
Mobilized Soil Reaction, p , lbs/inch
Top Deflection, inches
Pile Length, ft
Show All Legends
Close



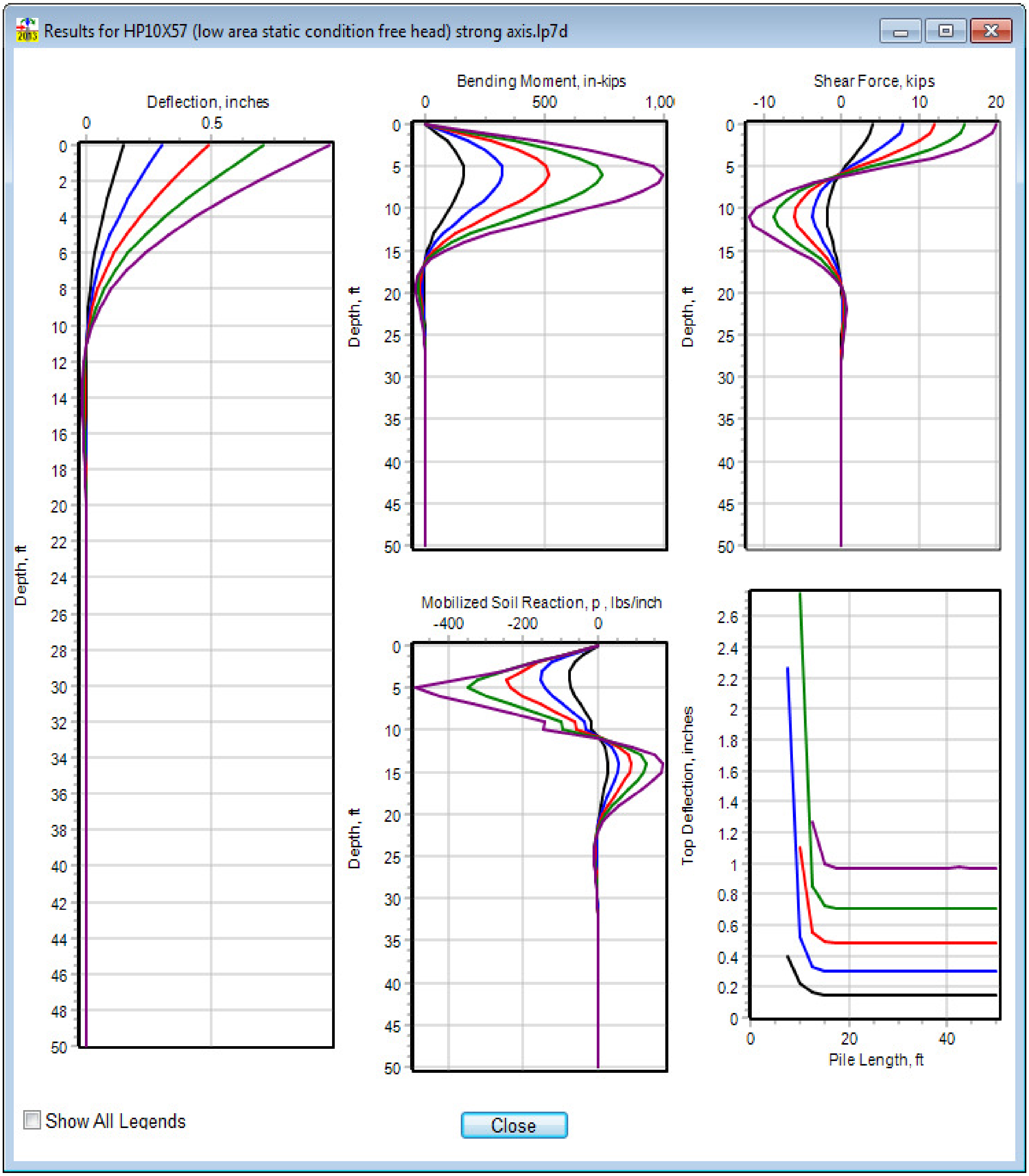
Results for HP8X36 (low area static condition free head) weak axis.lp7d
Deflection, inches
Depth, ft
Bending Moment, in-kips
Shear Force, kips
Mobilized Soil Reaction, p , lbs/inch
Top Deflection, inches
Pile Length, ft
Show All Legends
Close

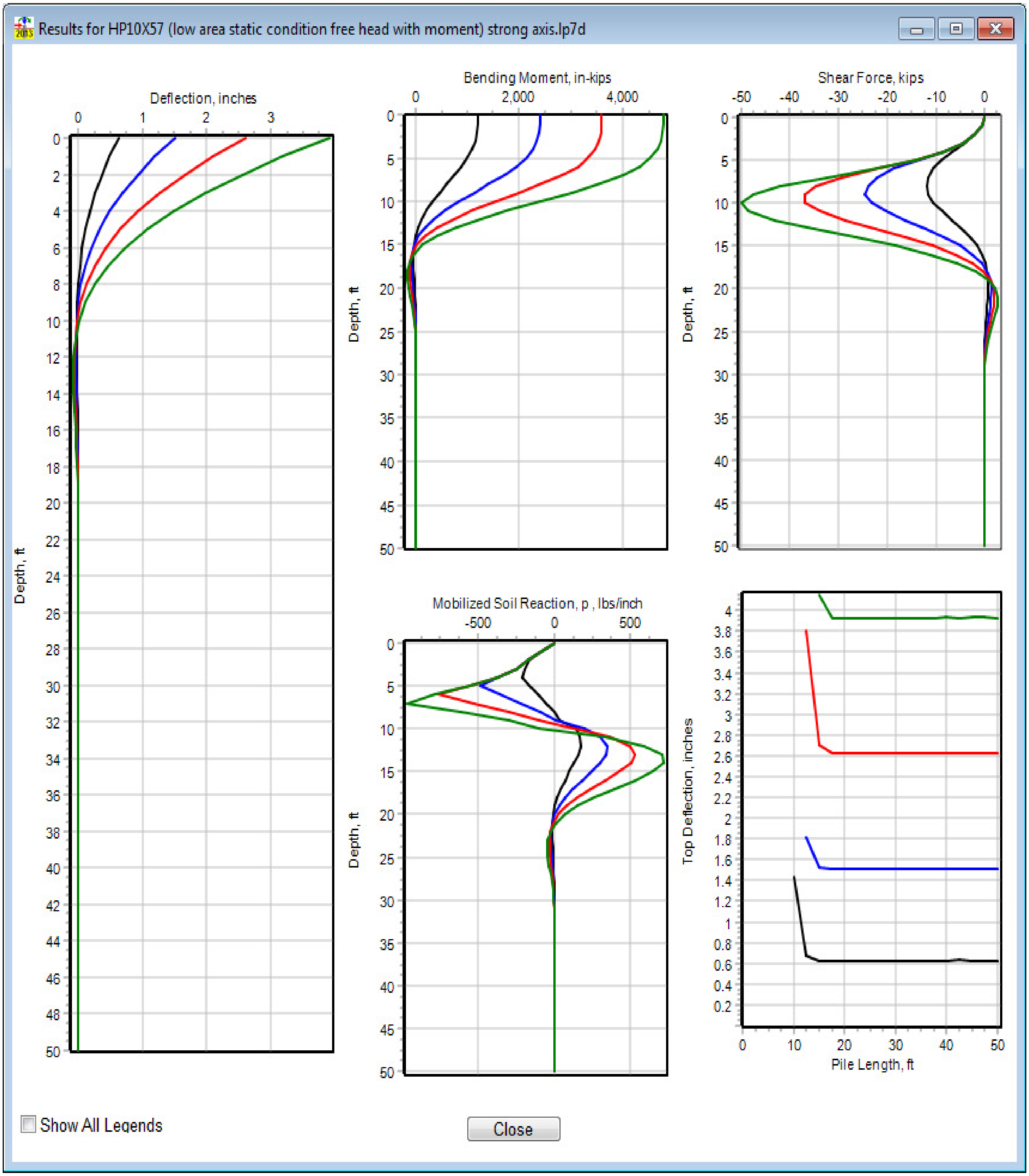


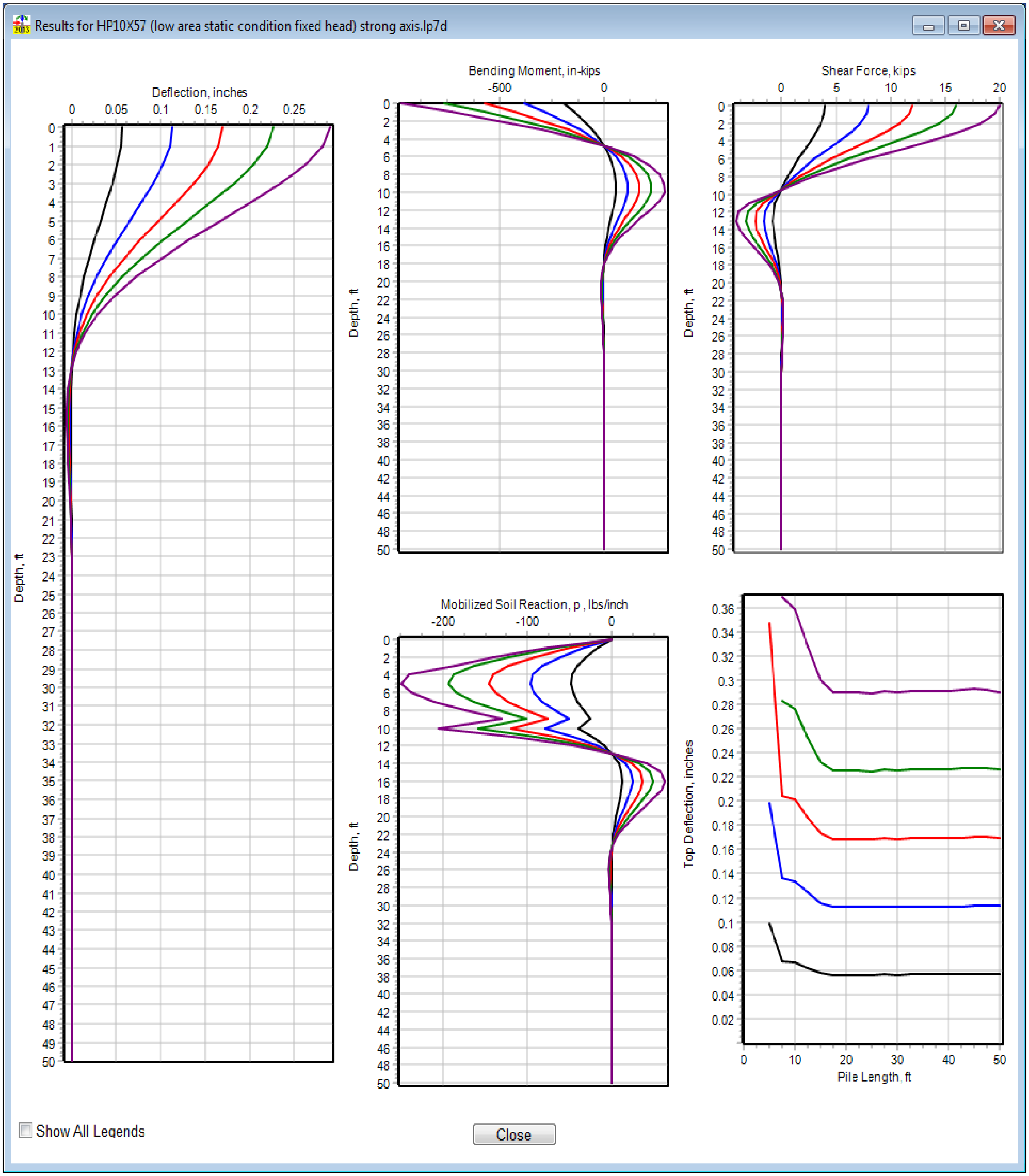
Results for HP8X36 (low area static condition free head with moment) weak axis.lp7d
Deflection, inches
Depth, ft
Bending Moment, in-kips
Shear Force, kips
Mobilized Soil Reaction, p , lbs/inch
Top Deflection, inches
Pile Length, ft
Show All Legends
Close

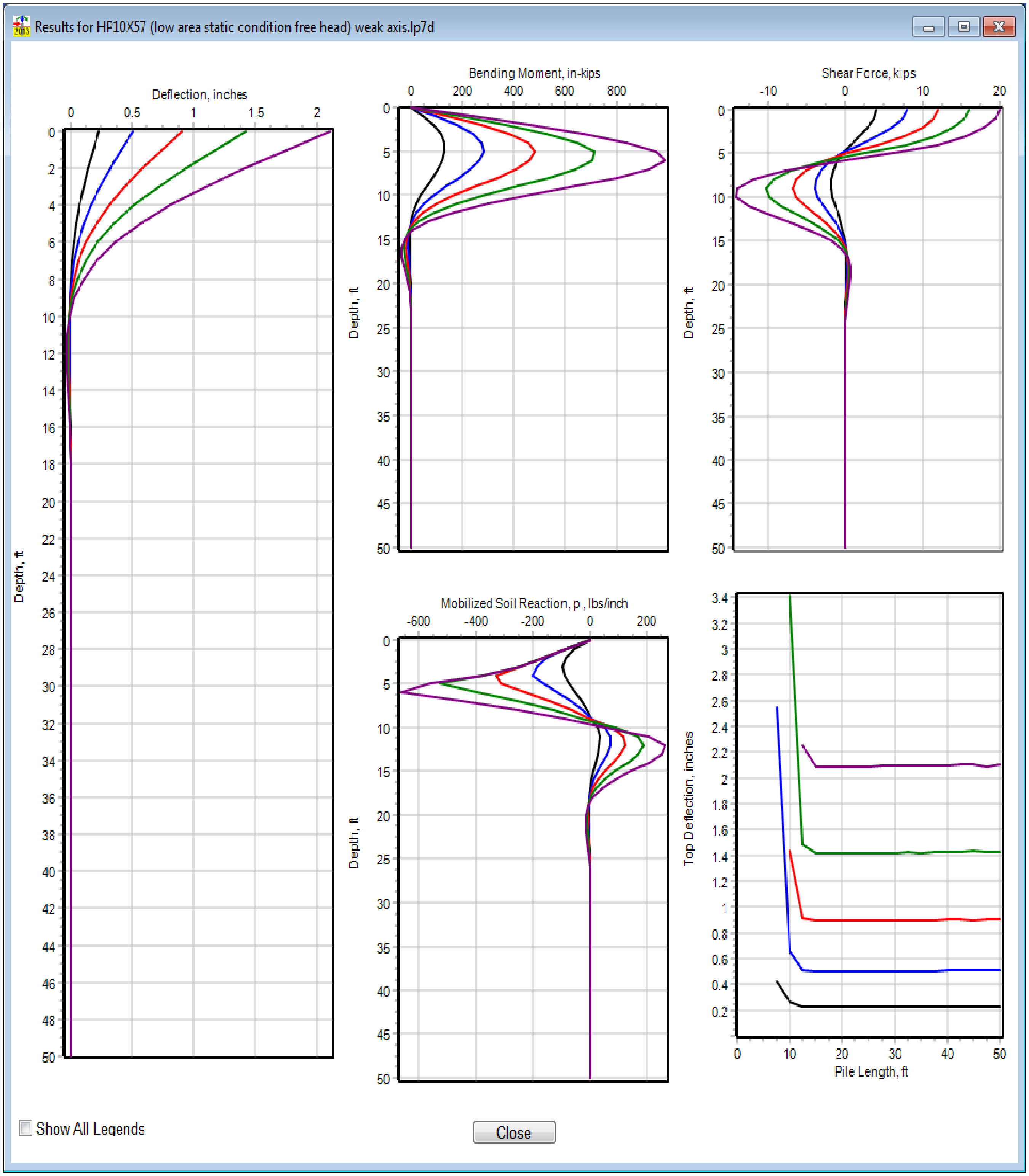


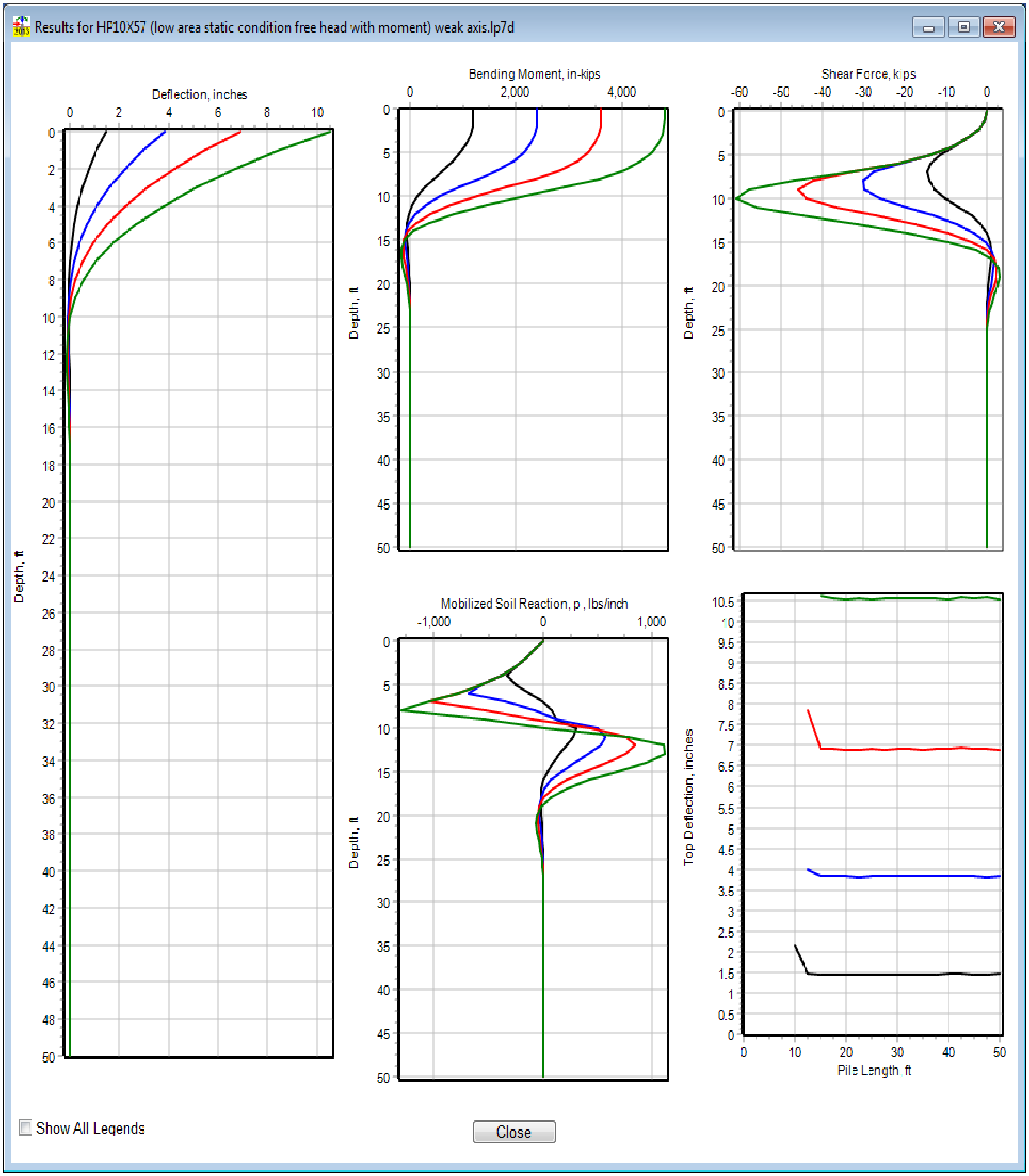
Results for HP8X36 (low area static condition fixed head) weak axis.lp7d
Deflection, inches
Bending Moment, in-kips
Shear Force, kips
Mobilized Soil Reaction, p , lbs/inch
Depth, ft
Top Deflection, inches
Pile Length, ft
Show All Legends
Close

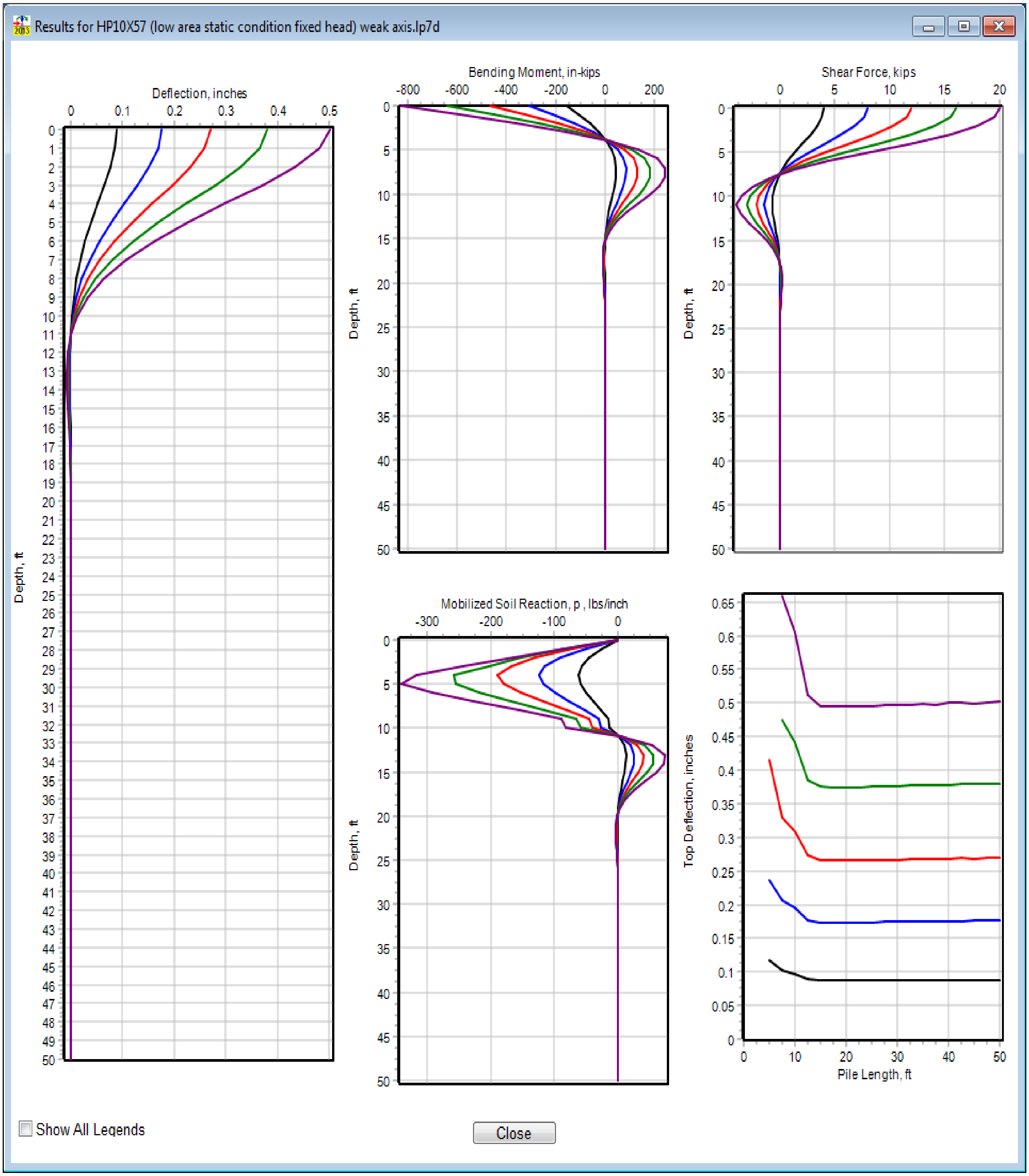

Results for HP10X57 (low area static condition free head) strong axis.lp7d
Deflection, inches
Depth, ft
Bending Moment, in-kips
Shear Force, kips
Mobilized Soil Reaction, p , lbs/inch
Top Deflection, inches
Pile Length, ft
Show All Legends
Close


Results for HP10X57 (low area static condition free head with moment) strong axis.lp7d
Deflection, inches
Depth, ft
Bending Moment, in-kips
Shear Force, kips
Mobilized Soil Reaction, p , lbs/inch
Top Deflection, inches
Pile Length, ft
Show All Legends
Close

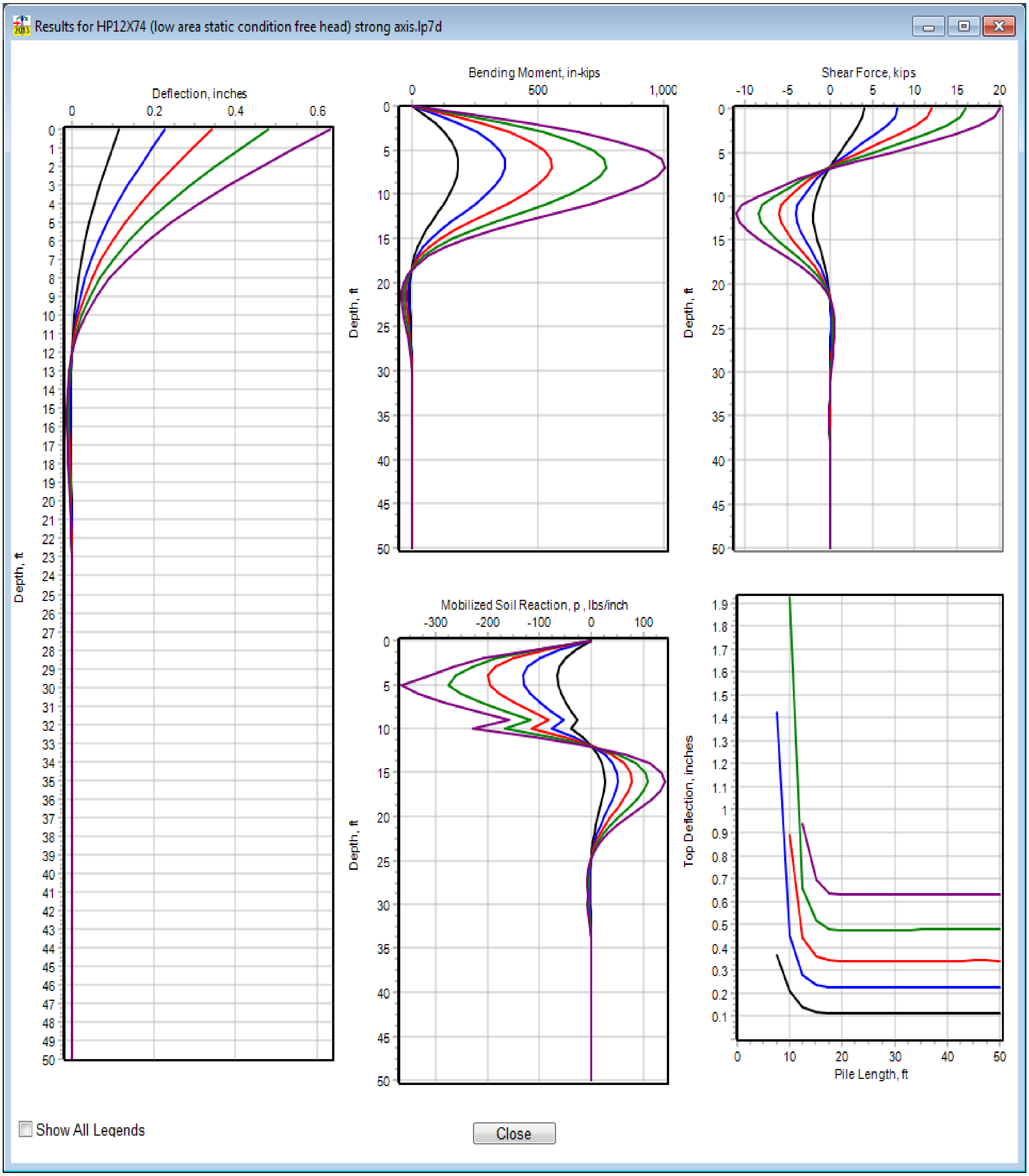

Results for HP10X57 (low area static condition fixed head) strong axis.lp7d
Deflection, inches
Depth, ft
Bending Moment, in-kips
Shear Force, kips
Mobilized Soil Reaction, p , lbs/inch
Top Deflection, inches
Pile Length, ft
Show All Legends
Close

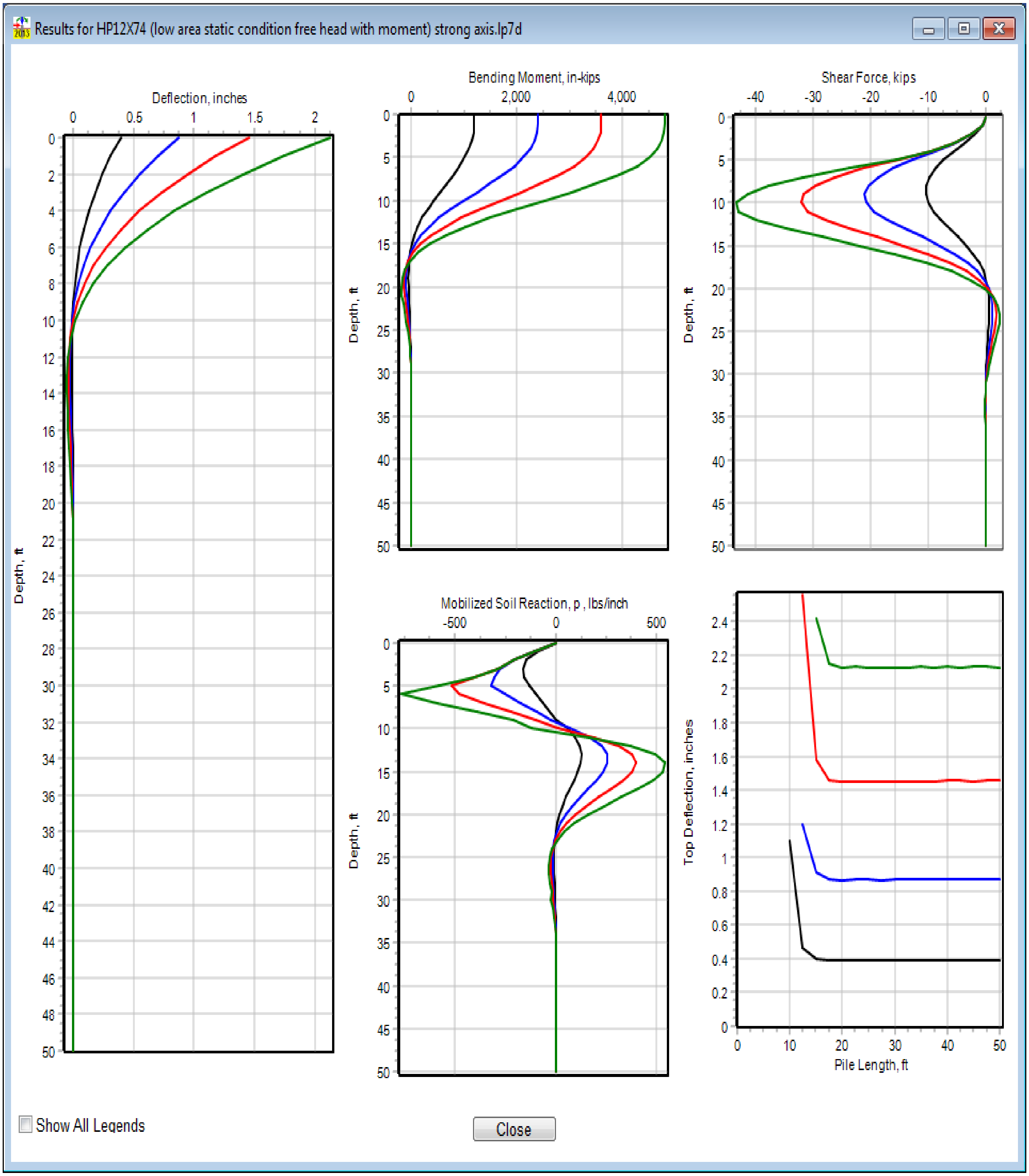

Results for HP10X57 (low area static condition free head) weak axis.lp7d
Deflection, inches
Depth, ft
Bending Moment, in-kips
Depth, ft
Shear Force, kips
Depth, ft
Mobilized Soil Reaction, p , lbs/inch
Depth, ft
Top Deflection, inches
Pile Length, ft
Show All Legends
Close

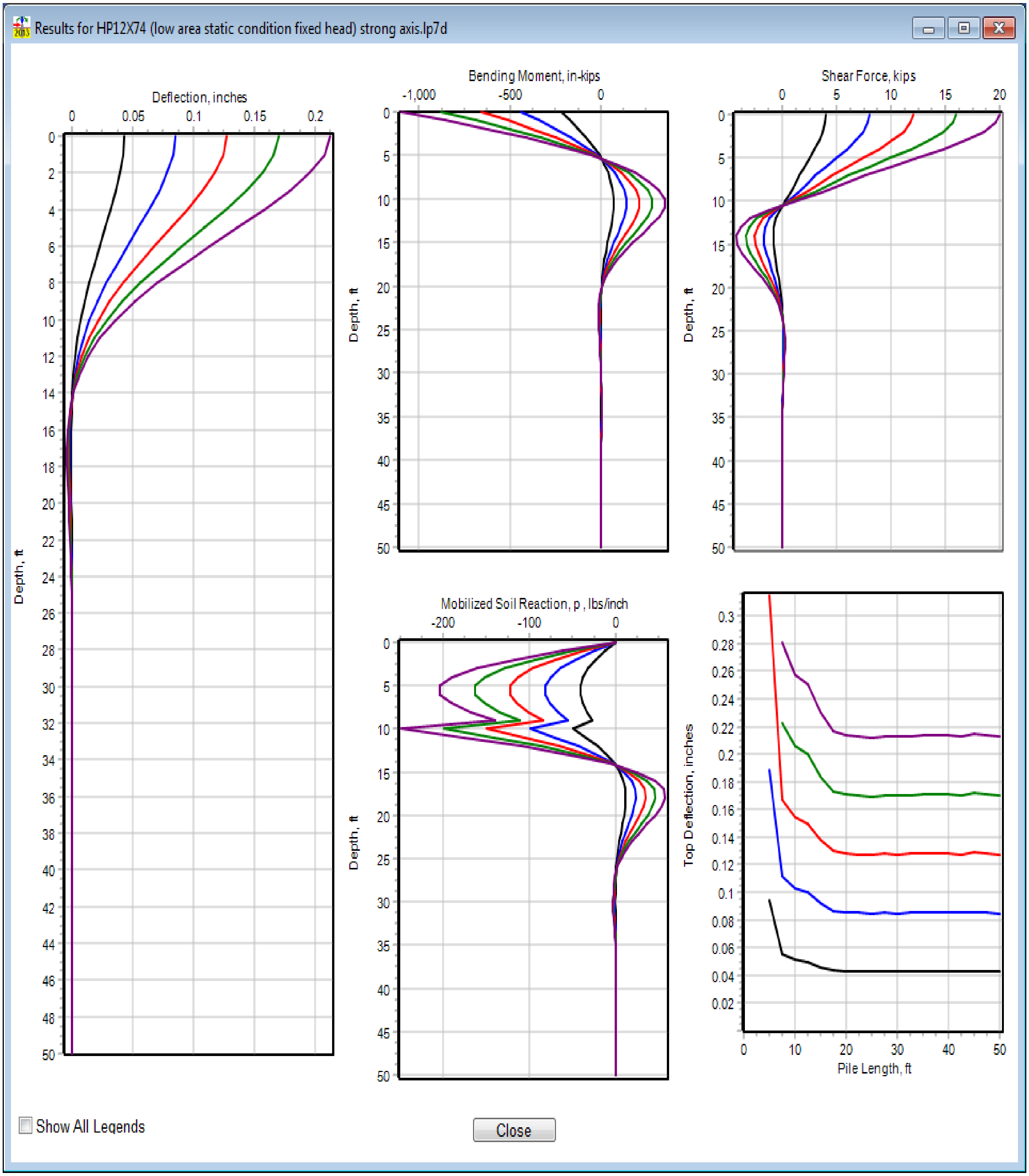

Results for HP10X57 (low area static condition free head with moment) weak axis.lp7d
Deflection, inches
Depth, ft
Bending Moment, in-kips
Shear Force, kips
Mobilized Soil Reaction, p , lbs/inch
Top Deflection, inches
Pile Length, ft
Show All Legends
Close

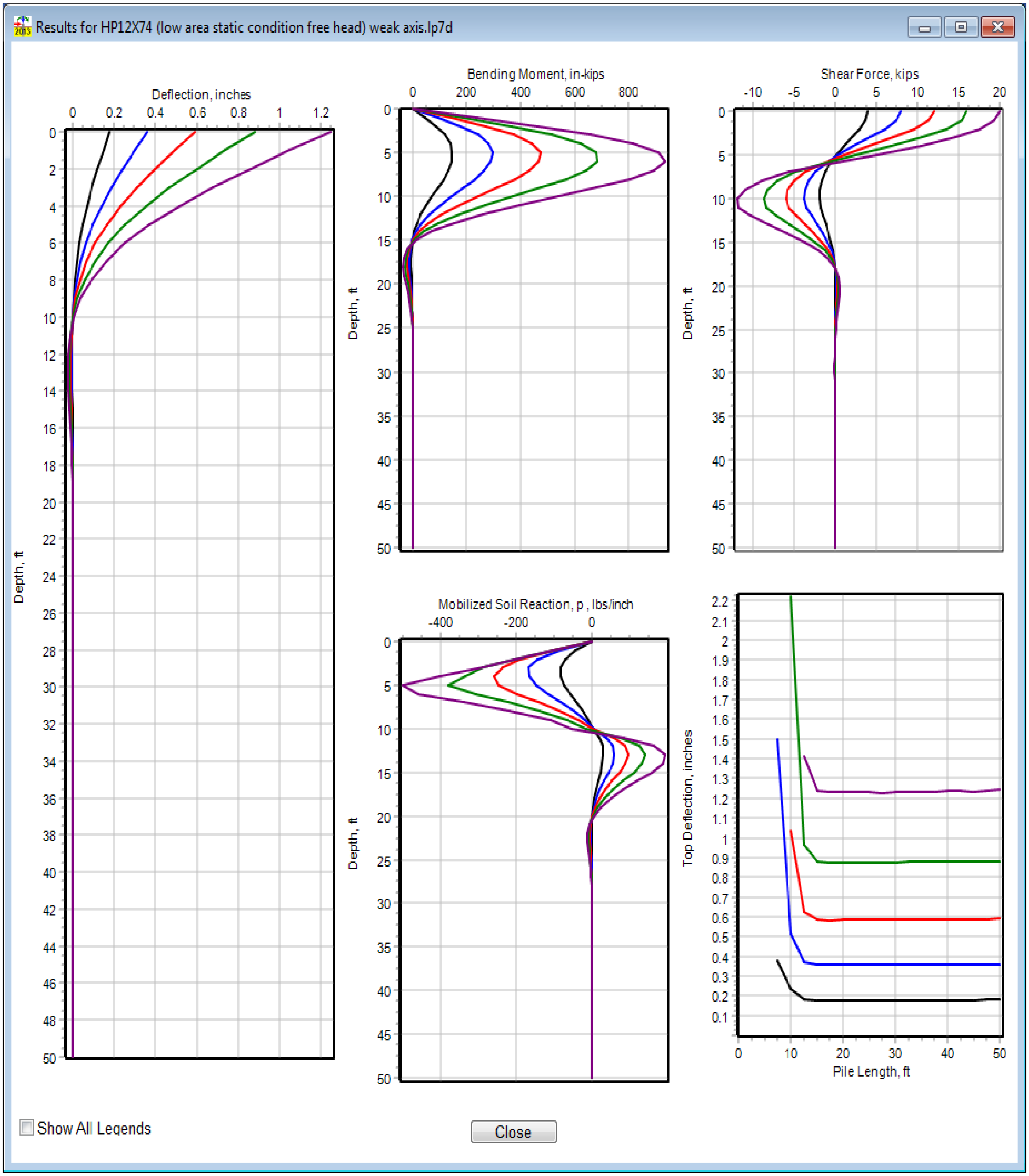


Results for HP10X57 (low area static condition fixed head) weak axis.lp7d
Deflection, inches
Depth, ft
Bending Moment, in-kips
Depth, ft
Shear Force, kips
Depth, ft
Mobilized Soil Reaction, p , lbs/inch
Depth, ft
Top Deflection, inches
Pile Length, ft
Show All Legends
Close

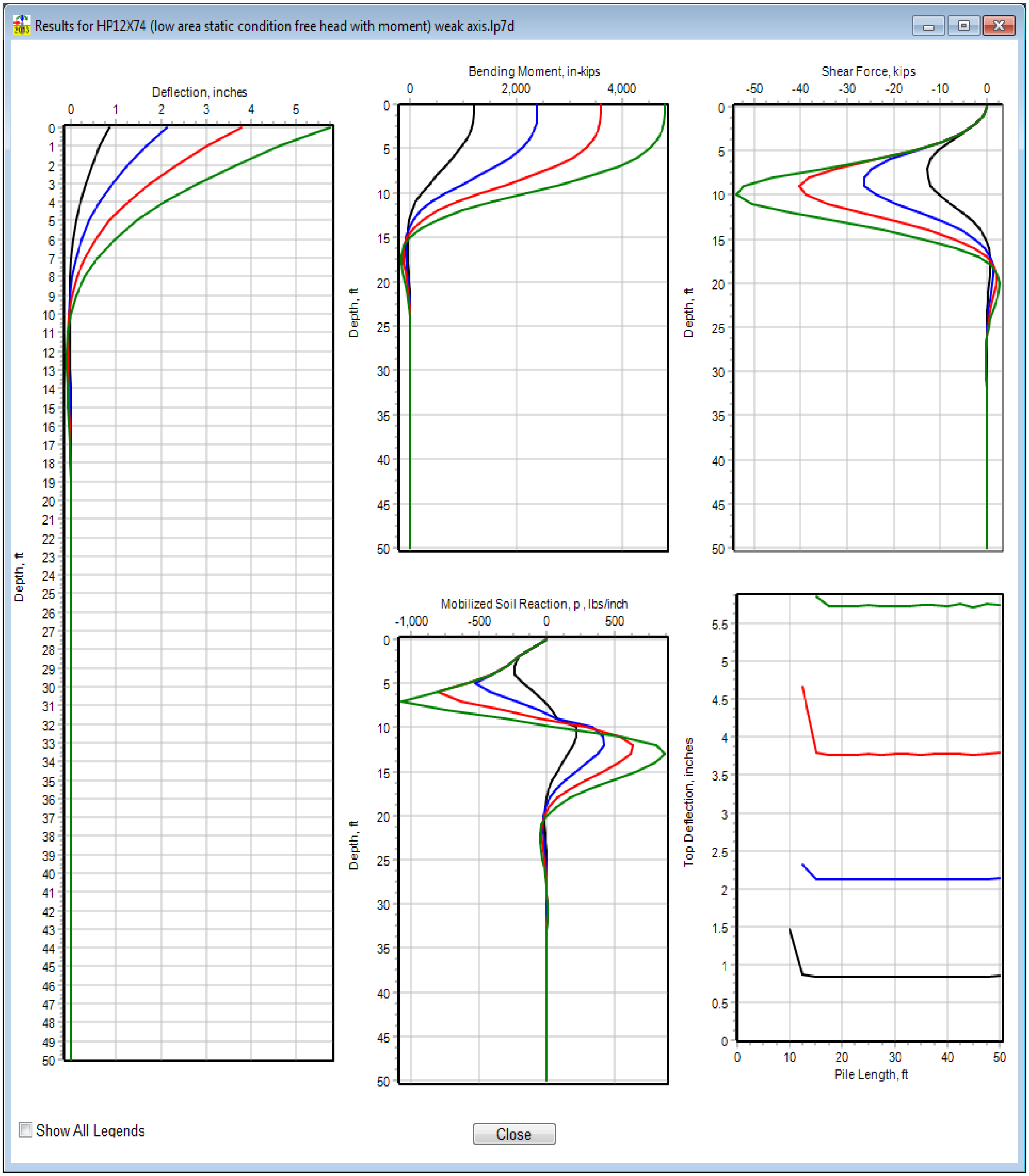

Results for HP12X74 (low area static condition free head) strong axis.lp7d
Deflection, inches
Depth, ft
Bending Moment, in-kips
Depth, ft
Shear Force, kips
Depth, ft
Mobilized Soil Reaction, p , lbs/inch
Depth, ft
Top Deflection, inches
Pile Length, ft
Show All Legends
Close

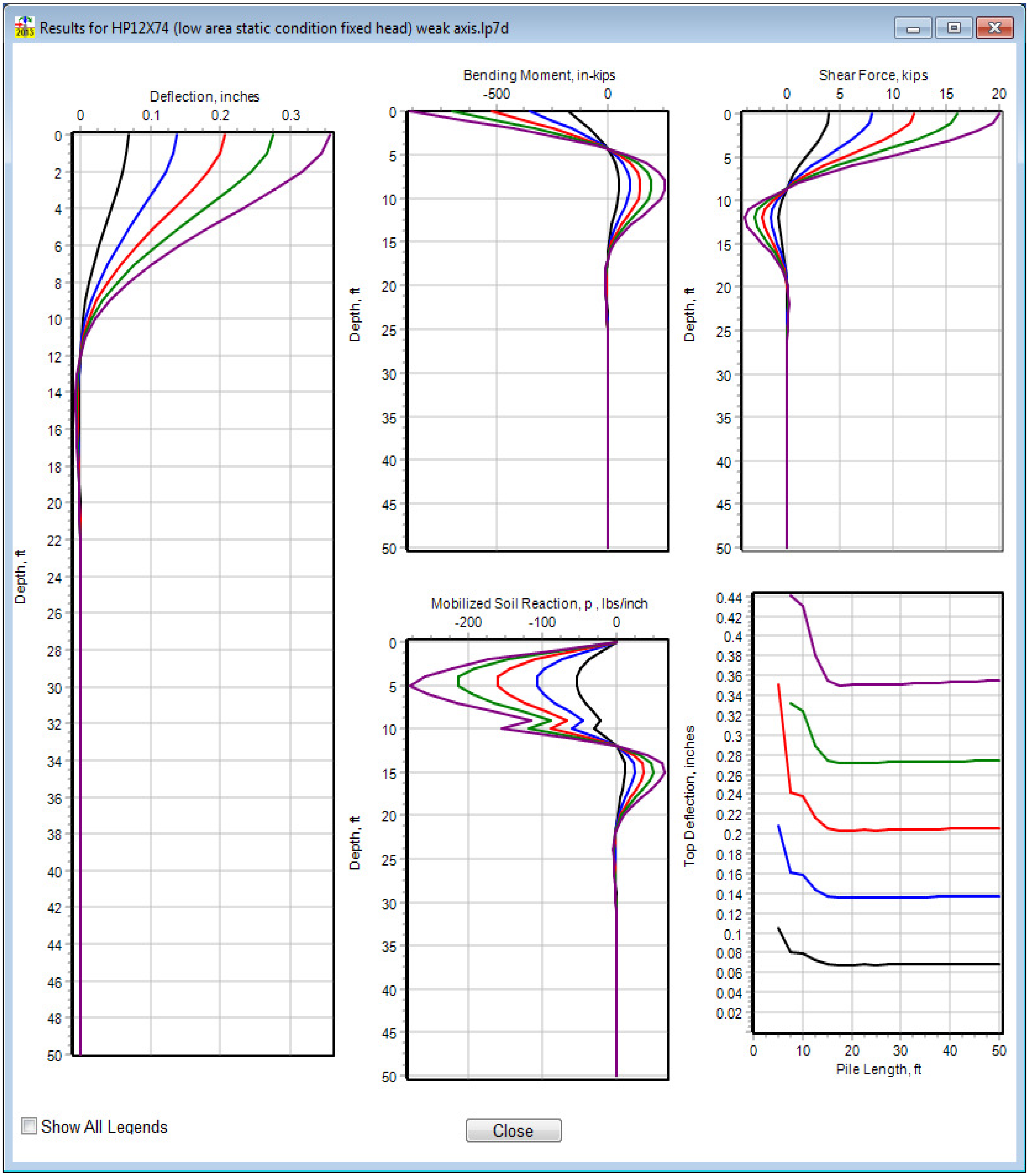

Results for HP12X74 (low area static condition free head with moment) strong axis.lp7d
Deflection, inches
Depth, ft
Bending Moment, in-kips
Shear Force, kips
Mobilized Soil Reaction, p , lbs/inch
Top Deflection, inches
Pile Length, ft
Show All Legends
Close

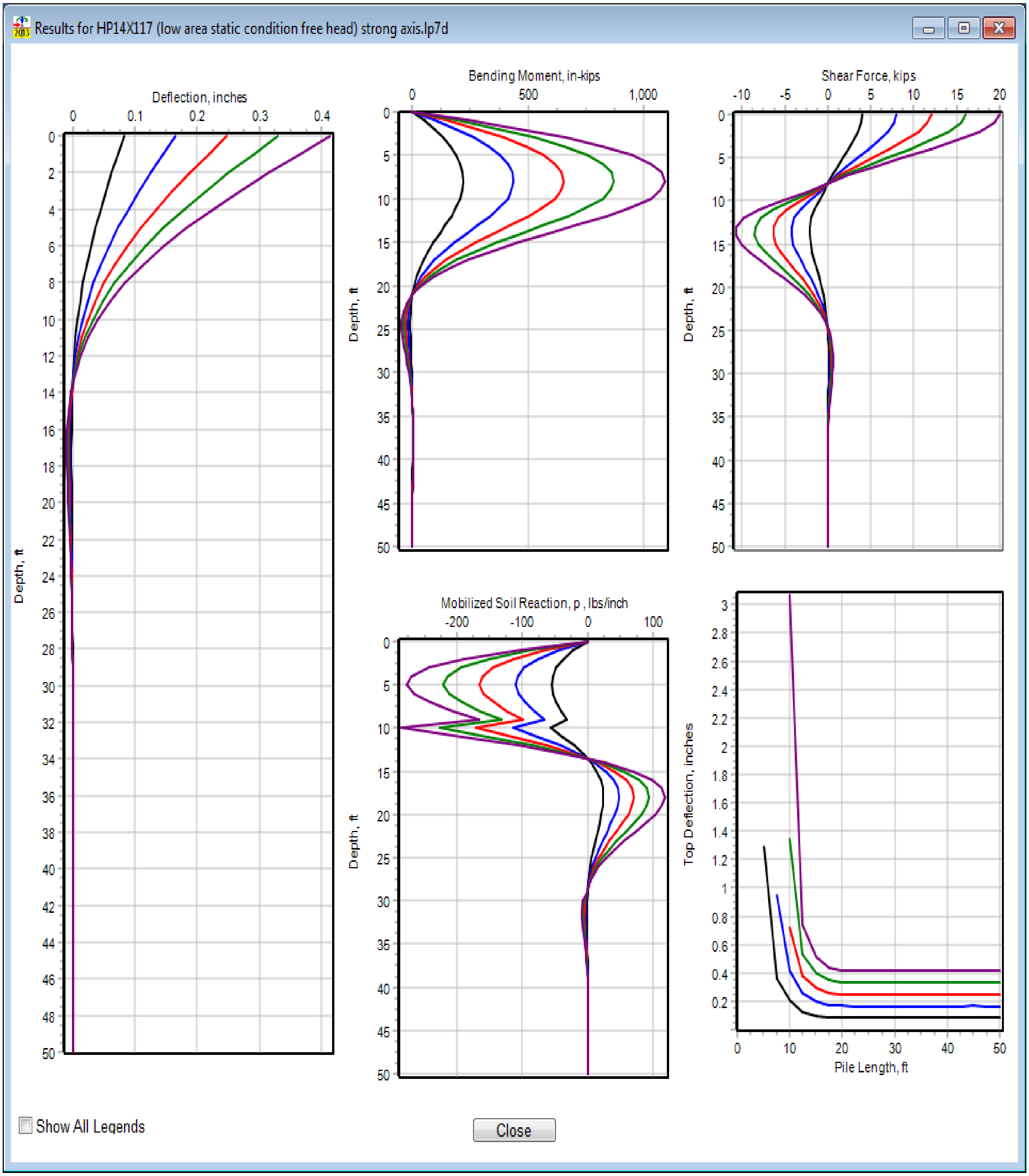

Results for HP12X74 (low area static condition fixed head) strong axis.lp7d
Deflection, inches
Depth, ft
Bending Moment, in-kips
Depth, ft
Shear Force, kips
Depth, ft
Mobilized Soil Reaction, p , lbs/inch
Depth, ft
Top Deflection, inches
Pile Length, ft
Show All Legends
Close



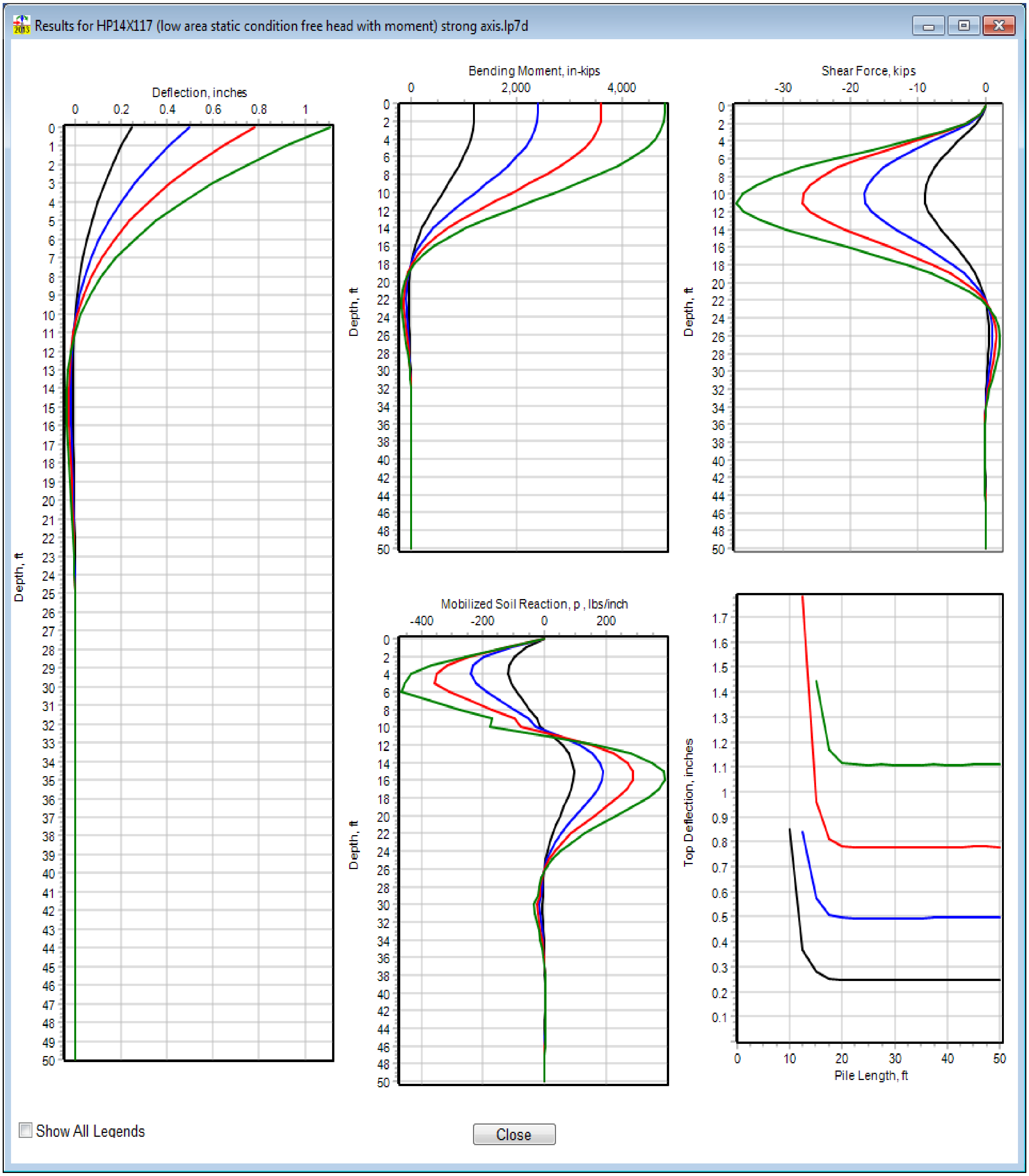
Results for HP12X74 (low area static condition free head) weak axis.lp7d
Deflection, inches
Depth, ft
Bending Moment, in-kips
Depth, ft
Shear Force, kips
Depth, ft
Mobilized Soil Reaction, p , lbs/inch
Depth, ft
Top Deflection, inches
Pile Length, ft
Show All Legends
Close


Results for HP12X74 (low area static condition free head with moment) weak axis.lp7d
Deflection, inches
Depth, ft
Bending Moment, in-kips
Depth, ft
Shear Force, kips
Depth, ft
Mobilized Soil Reaction, p , lbs/inch
Depth, ft
Top Deflection, inches
Pile Length, ft
Show All Legends
Close

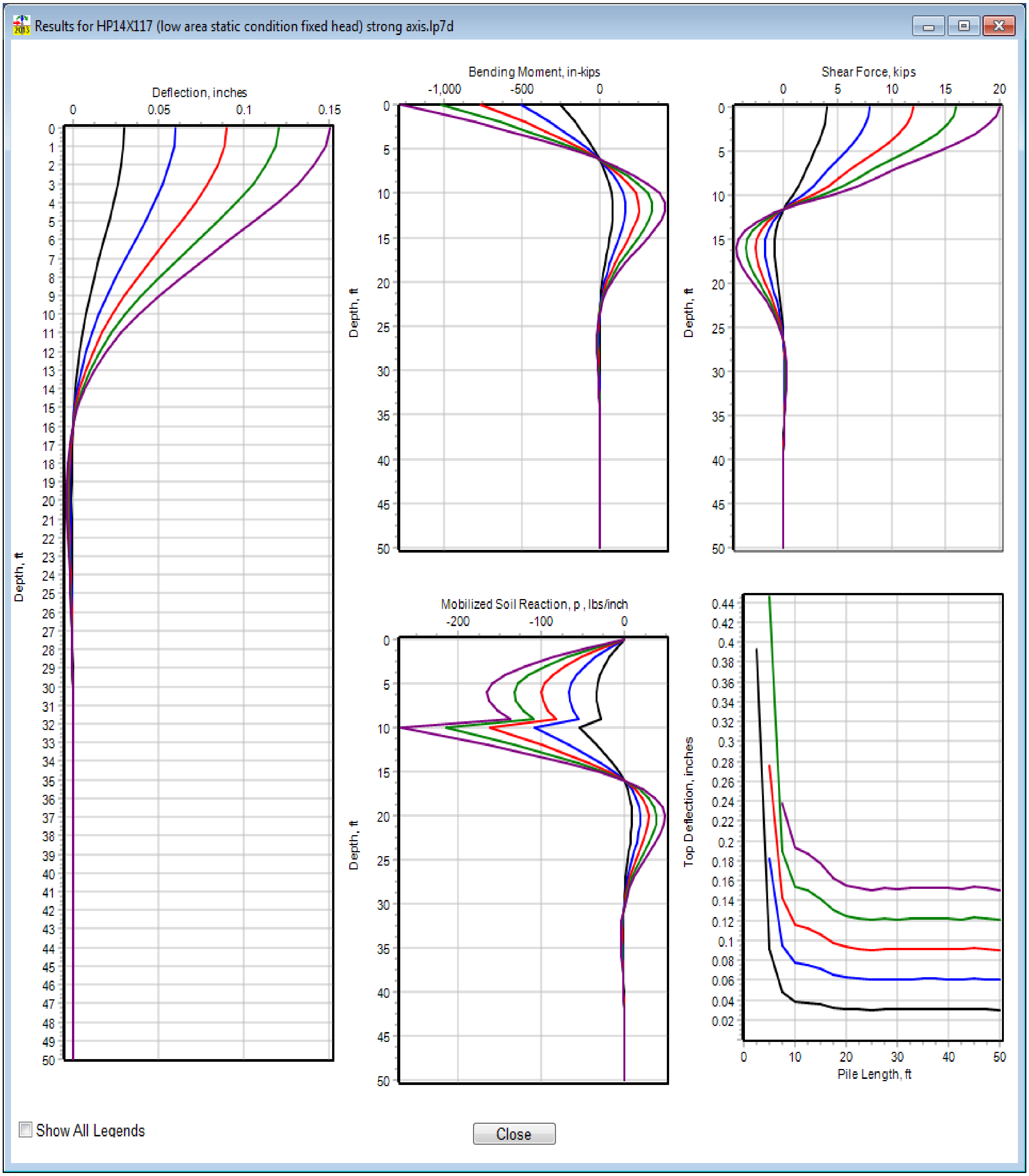

Results for HP12X74 (low area static condition fixed head) weak axis.lp7d
Deflection, inches
Depth, ft
Bending Moment, in-kips
Shear Force, kips
Mobilized Soil Reaction, p , lbs/inch
Top Deflection, inches
Pile Length, ft
Show All Legends
Close



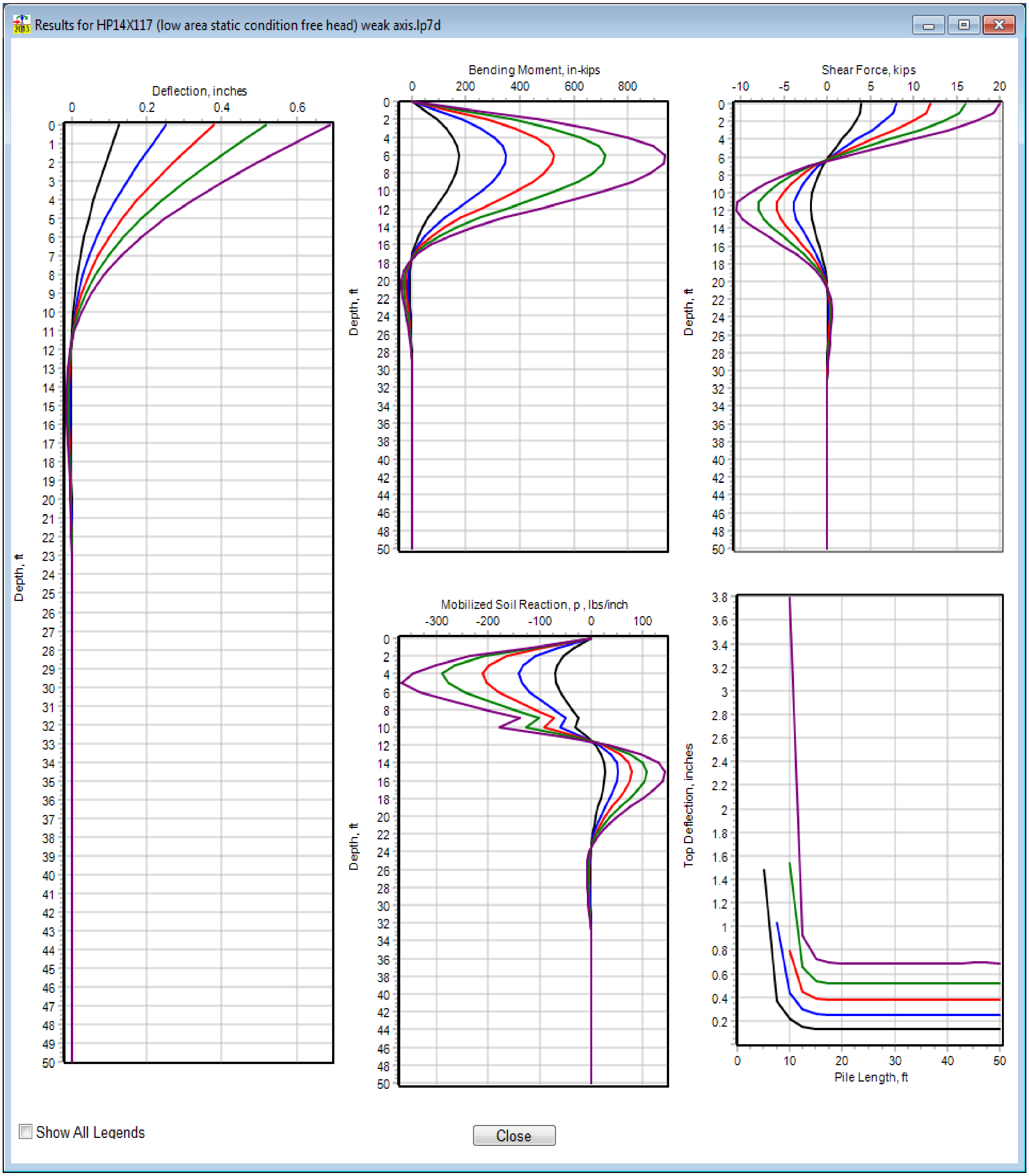
Results for HP14X117 (low area static condition free head) strong axis.lp7d
Deflection, inches
Depth, ft
Bending Moment, in-kips
Shear Force, kips
Mobilized Soil Reaction, p , lbs/inch
Top Deflection, inches
Pile Length, ft
Show All Legends
Close



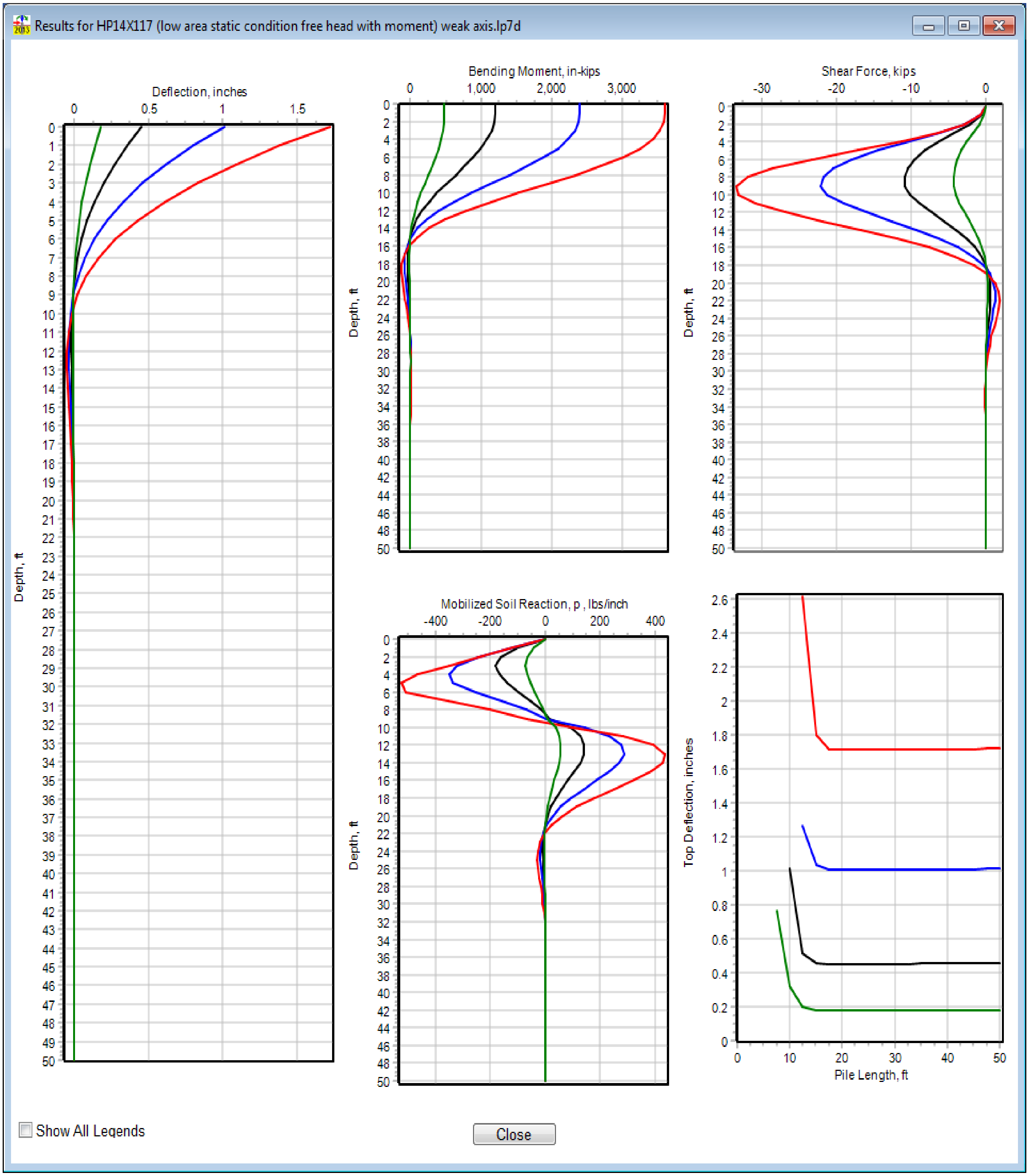
Results for HP14X117 (low area static condition free head with moment) strong axis.lp7d
Deflection, inches
Depth, ft
Bending Moment, in-kips
Shear Force, kips
Mobilized Soil Reaction, p , lbs/inch
Top Deflection, inches
Pile Length, ft
Show All Legends
Close



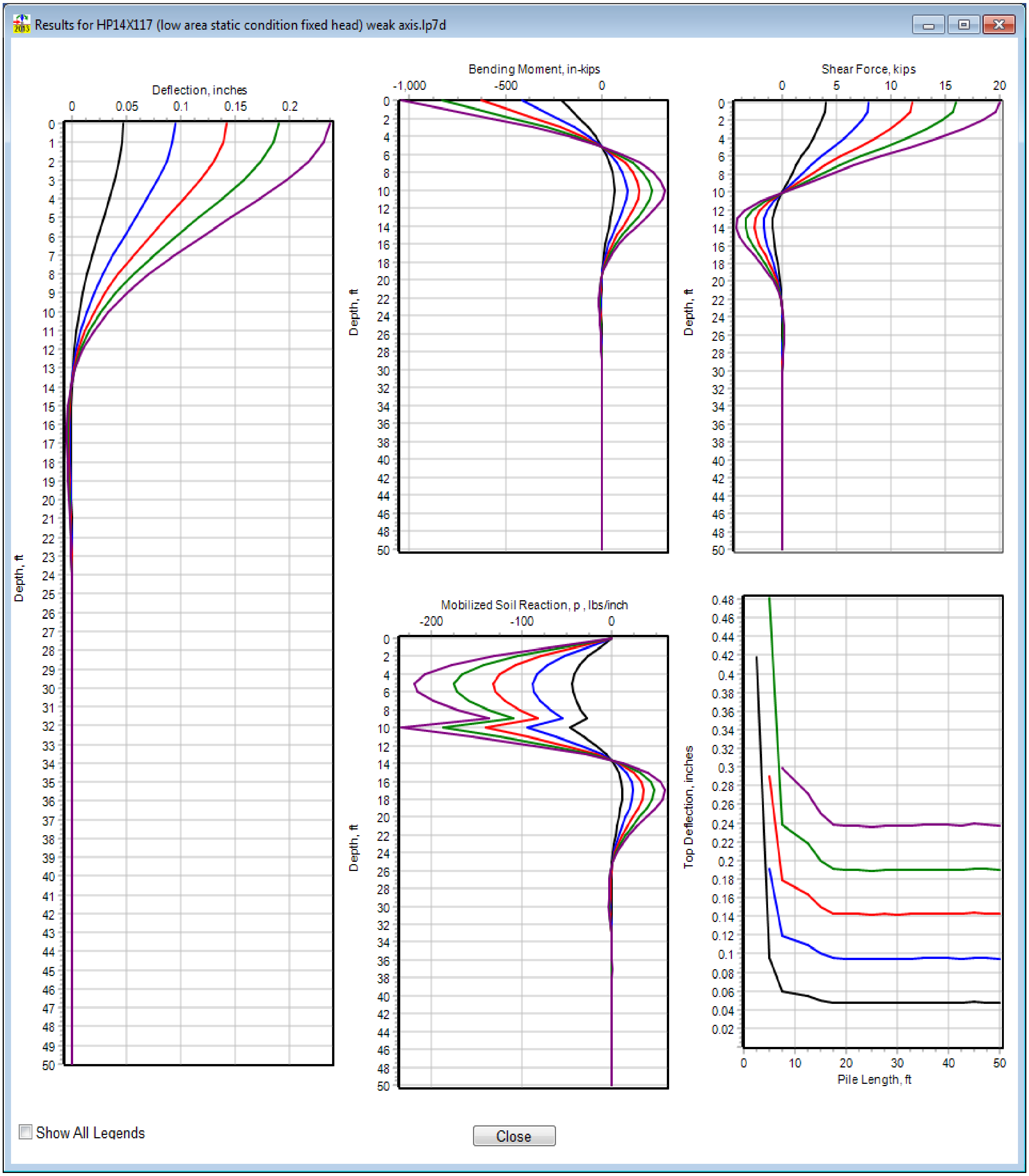
Results for HP14X117 (low area static condition fixed head) strong axis.lp7d
Deflection, inches
Depth, ft
Bending Moment, in-kips
Shear Force, kips
Mobilized Soil Reaction, p , lbs/inch
Top Deflection, inches
Pile Length, ft
Show All Legends
Close



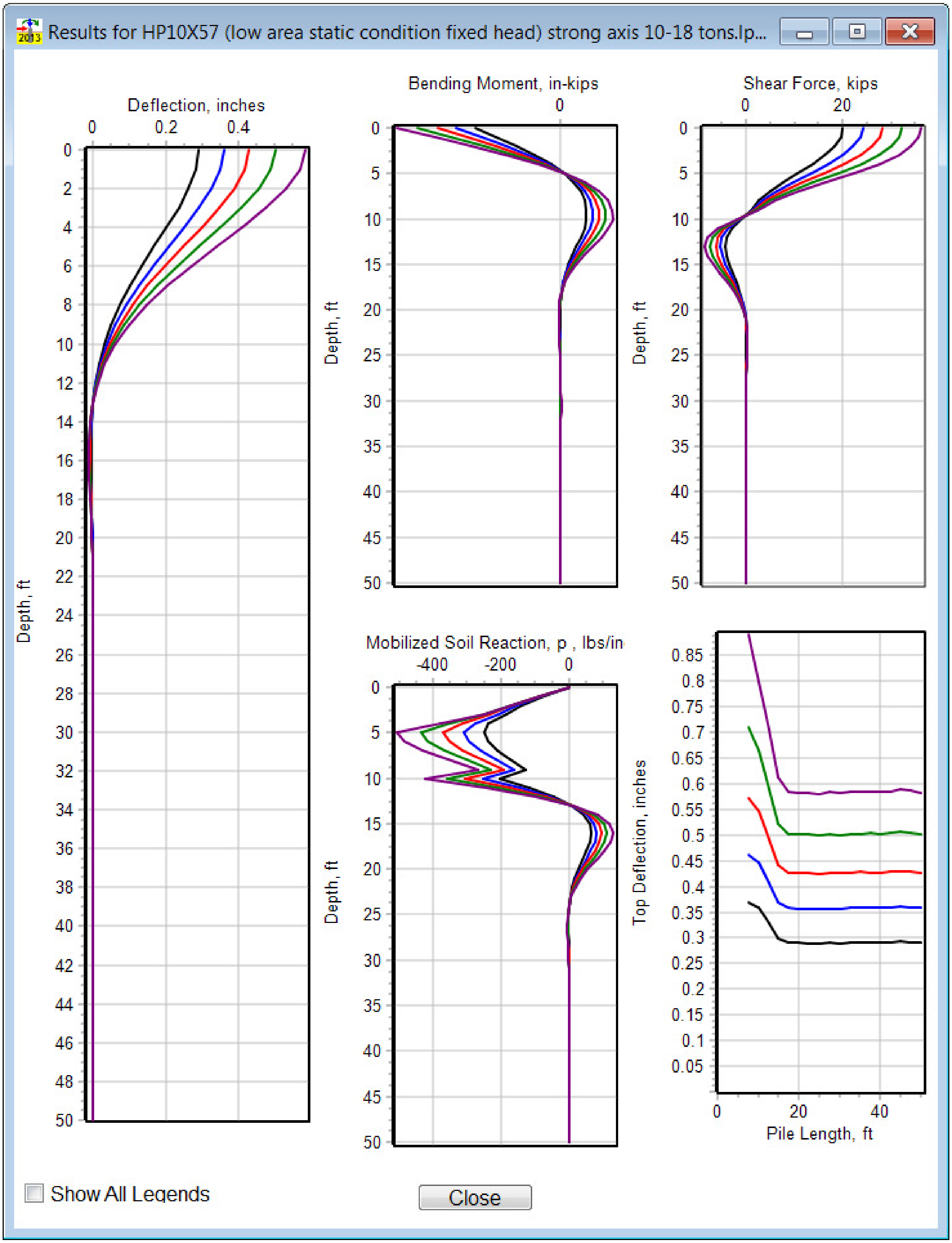
Results for HP14X117 (low area static condition free head) weak axis.lp7d
Deflection, inches
Depth, ft
Bending Moment, in-kips
Depth, ft
Shear Force, kips
Depth, ft
Mobilized Soil Reaction, p , lbs/inch
Depth, ft
Top Deflection, inches
Pile Length, ft
Show All Legends
Close



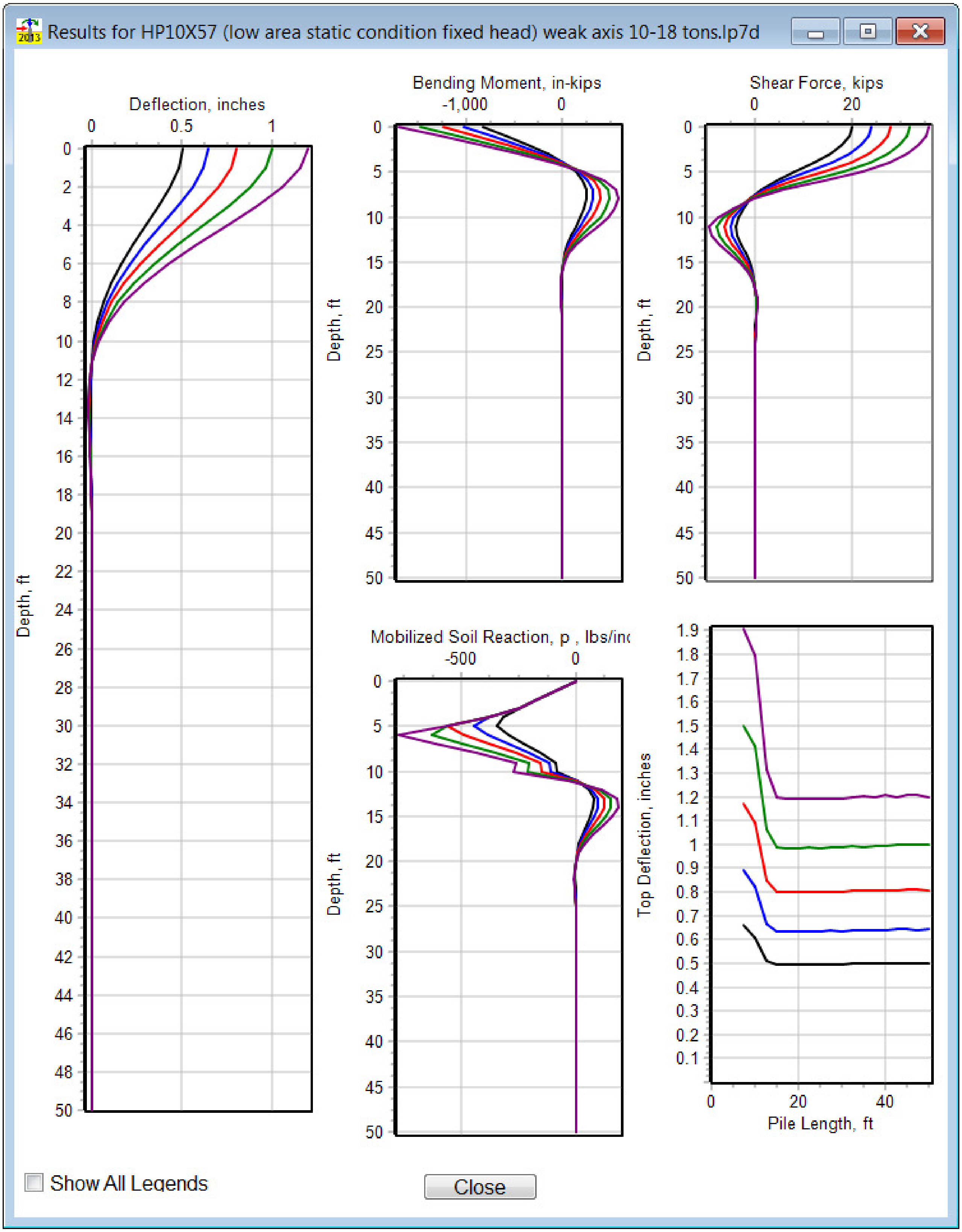
Results for HP14X117 (low area static condition free head with moment) weak axis.lp7d
Deflection, inches
Depth, ft
Bending Moment, in-kips
Shear Force, kips
Mobilized Soil Reaction, p , lbs/inch
Top Deflection, inches
Pile Length, ft
Show All Legends
Close



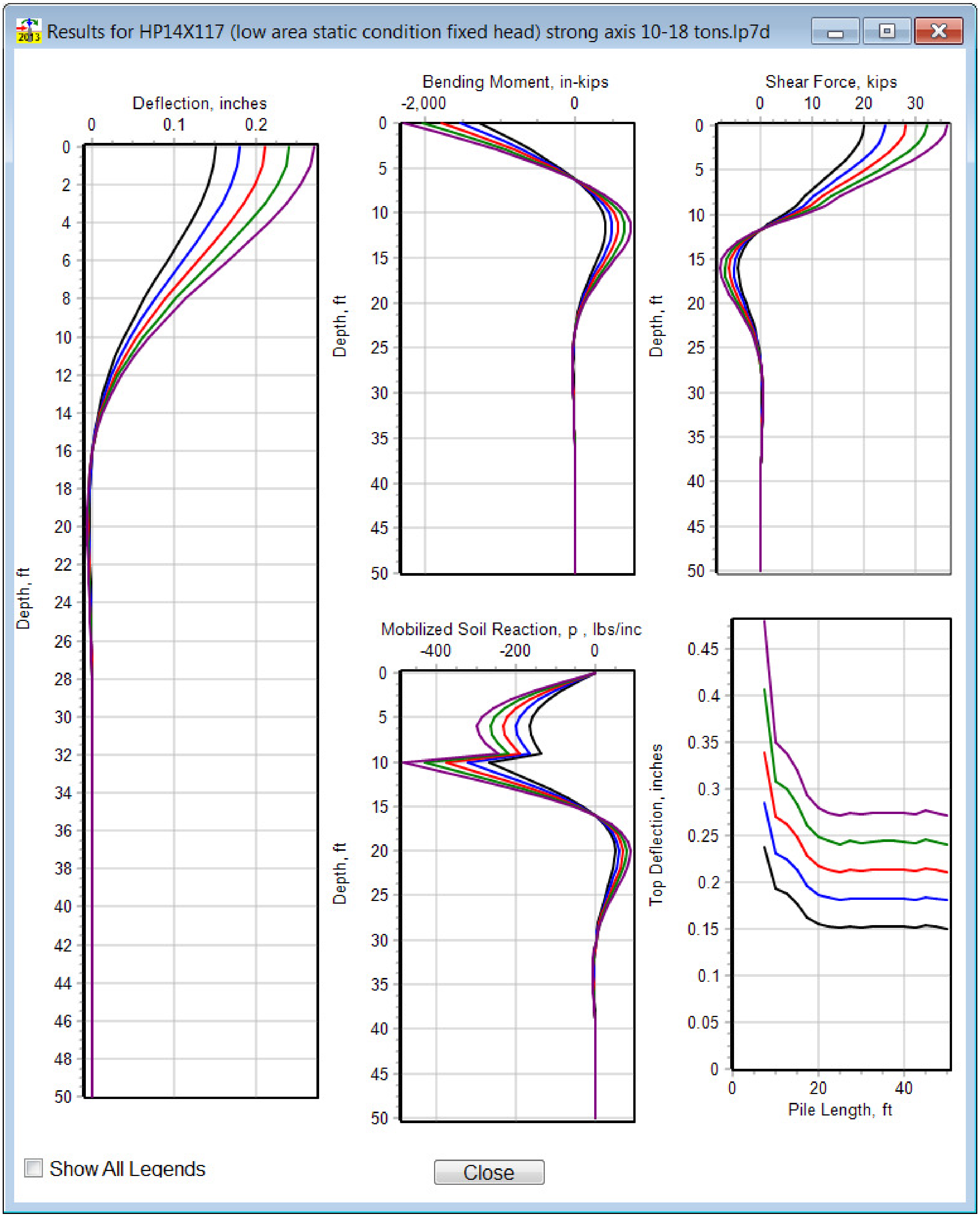
Results for HP14X117 (low area static condition fixed head) weak axis.lp7d
Deflection, inches
Depth, ft
Bending Moment, in-kips
Shear Force, kips
Mobilized Soil Reaction, p , lbs/inch
Top Deflection, inches
Pile Length, ft
Show All Legends
Close

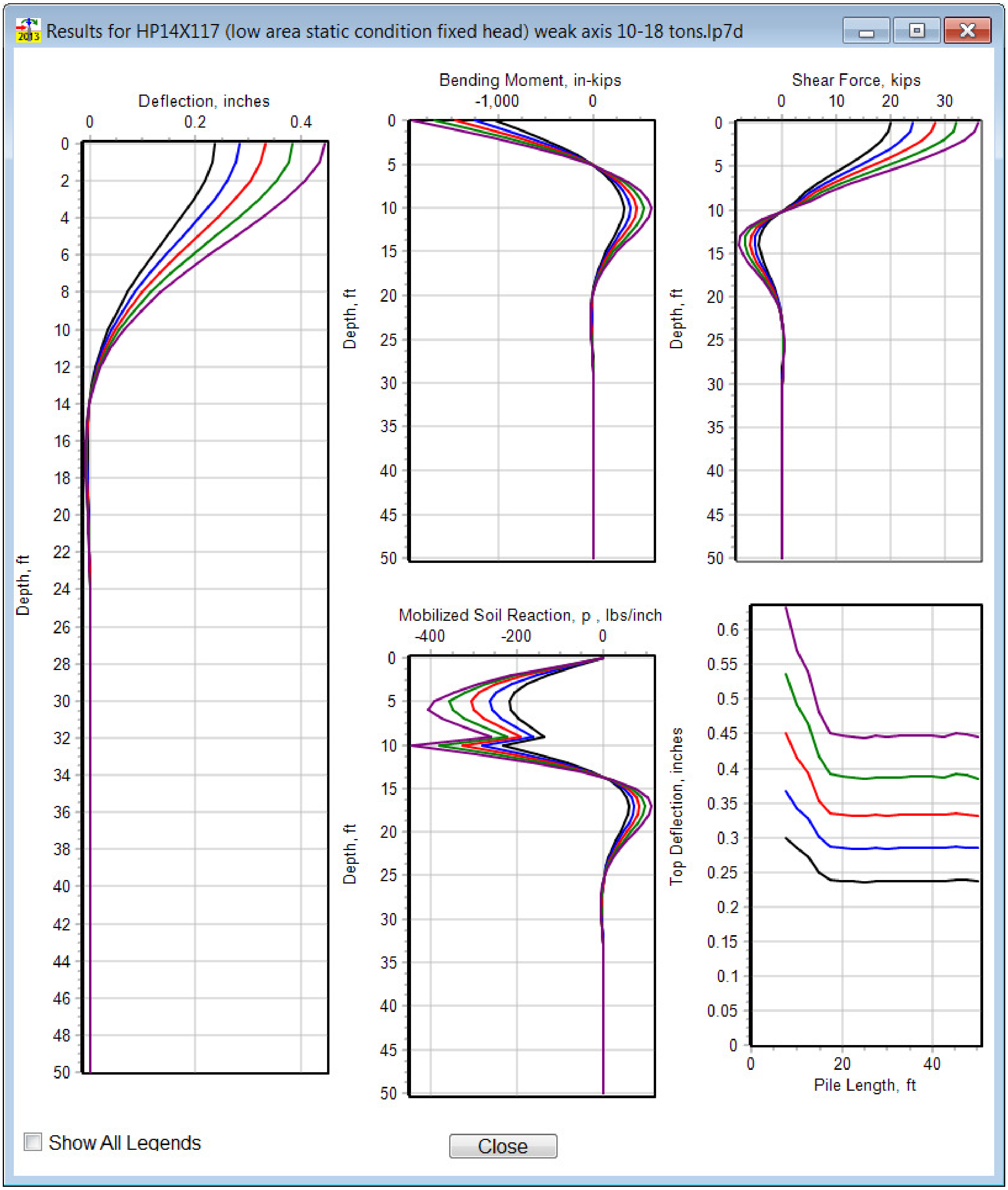


Results for HP10X57 (low area static condition fixed head) strong axis 10-18 tons.lp...
Deflection, inches
Depth, ft
Bending Moment, in-kips
Depth, ft
Shear Force, kips
Depth, ft
Mobilized Soil Reaction, p , lbs/in
Depth, ft
Top Deflection, inches
Pile Length, ft
Show All Legends
Close



Results for HP10X57 (low area static condition fixed head) weak axis 10-18 tons.lp7d
Deflection, inches
Depth, ft
Bending Moment, in-kips
Shear Force, kips
Mobilized Soil Reaction, p , lbs/inc
Top Deflection, inches
Pile Length, ft
Show All Legends
Close


Results for HP14X117 (low area static condition fixed head) strong axis 10-18 tons.lp7d
Deflection, inches
Depth, ft
Bending Moment, in-kips
Shear Force, kips
Mobilized Soil Reaction, p , lbs/inc
Top Deflection, inches
Pile Length, ft
Show All Legends
Close



Results for HP14X117 (low area static condition fixed head) weak axis 10-18 tons.lp7d
Deflection, inches
Depth, ft
Bending Moment, in-kips
Shear Force, kips
Mobilized Soil Reaction, p , lbs/inch
Top Deflection, inches
Pile Length, ft
Show All Legends
Close

KLEINFELDER
Bright People. Right Solutions.

March 1, 2017
Project No. 20163965.001A

Mr. Jim Reed, PE, RA, Leed®AP, RPA
Carrier Johnson + Culture
1301 Third Avenue
San Diego, California 92101

Subject: **Addendum No. 2**
Geotechnical Response to City of San Diego Review Comments
Legacy International Center
Mission Valley Campus
875 Hotel Circle South
San Diego, California

Dear Mr. Reed:

In response to the request of Mr. Chris Morrow of Project Design Consultants, Kleinfelder is pleased to present our response to City of San Diego LDR-Geology Cycle 45 review comments for the proposed Legacy International Center in San Diego, California. This letter should be considered as an addendum to our geotechnical investigation report dated April 13, 2016 and is subject to the same limitations presented therein.

With the exception of the three comments below, the other review comments will be addressed by other consultants.

> **Issue 19: Submit an addendum geotechnical report that specifically addresses the Draft Final Environmental Impact Report (DFEIR) for the Legacy International Center Project. The project's geotechnical consultant (Kleinfelder) must indicate they have reviewed the referenced (or revised) DFEIR and are in agreement with the geologic and geotechnical information contained in the document.**

Response: This letter constitutes the requested addendum. Kleinfelder has reviewed the revised DFEIR provided by the environmental consultant on March 1, 2017. We are in agreement with the geologic and geotechnical information contained in the document.

> **Issue 20: The project's current geotechnical consultant indicates that an existing non-conforming cut slope has a factor of safety of 1.39, which is less than the standard factor of safety of 1.5 or greater. The consultant should address their recommendations to improve the factor of safety of this slope to 1.5 or greater.**

Response: The subject slope with an existing calculated safety factor of 1.39 will be regraded as part of site grading to achieve a safety factor in excess of 1.5. This is indicated in Table 4 of Section 4.2 of the referenced geotechnical report. Note that the upper two lines represent the existing conditions for static and pseudo-static conditions and and the following two lines represent post-grading conditions.

Issue 24: The project's geotechnical consultant recommended that all of the proposed buildings be supported on deep foundations (Kleinfelder, April 13, 2016, section 4.4.1, page 30). The environmental consultant should determine if the deep foundations are project elements or impact mitigation measures and revise GEO-1 as deemed necessary.

Response: We concur with the environmental consultants that the use of deep foundations should be an element of project design rather than a mitigation measure. The reviewed DFEIR has been revised to reflect this.

Respectfully submitted,

KLEINFELDER

Kevin Crennan

REGISTERED PROFESSIONAL ENGINEER
KEVIN M. CRENNAN
No. 2511
EXP. 12/31/17
GEOTECHNICAL
STATE OF CALIFORNIA

Kevin Crennan, PE, GE 2511
Senior Geotechnical Engineer

KLEINFELDER
Bright People. Right Solutions.

March 17, 2017
Project No. 20163965.001A

Mr. Jim Reed, PE, RA, Leed®AP, RPA
Carrier Johnson + Culture
1301 Third Avenue
San Diego, California 92101

Subject: **Addendum No. 3**
Geotechnical Response to City of San Diego Review Comments
Legacy International Center
Mission Valley Campus
875 Hotel Circle South
San Diego, California

Dear Mr. Reed:

In response to the request of Mr. Chris Morrow of Project Design Consultants, Kleinfelder is pleased to present our response to March 15, 2017 City of San Diego LDR-Geology Cycle 55 review comments for the proposed Legacy International Center in San Diego, California. This letter should be considered as an addendum to our geotechnical investigation report dated April 13, 2016 and is subject to the same limitations presented therein.

With the exception of the three comments below, the other review comments will be addressed by other consultants.

> **Issue 20: The project's current geotechnical consultant indicates that an existing non-conforming cut slope has a factor of safety of 1.39, which is less than the standard factor of safety of 1.5 or greater. The consultant should address their recommendations to improve the factor of safety of this slope to 1.5 or greater.**

Response: This comment was previously addressed in our Addendum 2 response with additional information provided herein. The subject slope with an existing calculated safety factor of 1.39 will be regraded as part of site grading to achieve a safety factor in excess of 1.5. The slope stability analysis performed for the geotechnical report demonstrated that the cut slope could achieve a safety factor in excess of 1.5 for a slope inclination of 1.5:1. This is indicated in Table 4 of Section 4.2 and Figures G2 through G-4of the referenced geotechnical report along with Figures G1 through G-4. In compliance with the San Diego Municipal Code, we recommend that all slopes higher than 8 feet be constructed with an inclination of 2:1. Our review of the project grading plans verifies that all slopes are designed for an inclination of 2:1. This is clearly indicted on the revised plan dated March 17, 2017. Therefore, it is our opinion that all slopes will achieve a static safety factor in excess of 1.5.

Issue 31: As previously requested, project's geotechnical consultant should address their recommendations to improve slope stability to a factor of safety of this slope to 1.5 or greater.

Response: See response above to Issue 20. All slopes should be constructed with an inclination of 2:1 or flatter. These graded slopes will have a factor of safety of 1.5 or greater.

Respectfully submitted,

KLEINFELDER

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Legacy International Center
875 Hotel Circle South, San Diego, CA. 92108

12-08-2016 LIC RESUBMITTAL
11-18-2016 LIC RESUBMITTAL
ISSUES: 09-30-2016 LIC SUBMITTAL

PRELIMINARY NOT FOR CONSTRUCTION

PROJECT NO:
5634.00
FILE NAME:
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DRAWN BY: Author
CHECKED BY: Checker
PLOT DATE:
3/2/2017 3:32:20 PM
TITLE:
SIMULATION & VIEW CORRIDOR LOCATION KEY MAP
DRAWING NO:
LIC A0.3

VC-1 View Corridor

VC-2 View Corridor

VP-1 View looking Southeast

VP-2 View looking South

VP-3 View looking Soutwest

RECON

Noise Analysis for the Legacy International Center, San Diego, California

Prepared for

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Prepared by

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RECON Number 6919.2
December 8, 2016

William A. Maddux, Senior
Air/Noise/GHG Analyst

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Acronyms

ADT	Average Daily Trips
APN	Assessor's Parcel Number
Caltrans	California Department of Transportation
CEQA	California Environmental Quality Act
CNEL	Community Noise Equivalent Level
dB	decibel
dB(A)	A-weighted decibel sound level
dB(A)Leq	A-weighted average decibel sound level
FHWA	Federal Highway Administration
HVAC	Heating, Ventilation, and Air Conditioning
I-8	Interstate 8
LOS	Level of Service
TNM	Traffic Noise Model
v/l/h	vehicles per lane per hour

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1.0 Executive Summary

The Legacy International Center project (project) would redevelop the existing Mission Valley Resort Hotel property located south of Interstate 8 (I-8) at 875 Hotel Circle South. The project site consists of two parcels: Assessor's Parcel Number 444-060-10 and 444-060-11, totaling approximately 18.1 acres.

This report discusses potential noise impacts from the construction and operation of the project. As part of this assessment, the compatibility of the project with the existing noise environment, which is dominated by vehicle traffic on I-8, is evaluated against the City of San Diego's (City) noise and land use compatibility guidelines. In addition to compatibility, the potential for off-site traffic noise impacts, noise impacts to adjacent receivers from future on-site sources, and noise impacts from construction activity is assessed. Where impacts have been identified, measures are identified to comply with the City's noise standards.

1.1 Traffic Noise

The project includes several different uses, including religious, restaurant, theaters, administrative offices, and lodging (hotel units). Following land use and noise compatibility guidelines from the City's General Plan, commercial uses are compatible with a community noise equivalent level (CNEL) of 65 decibels (dB) and visitor accommodations are compatible with noise levels up to 60 CNEL. Based on the modeling of on-site traffic noise levels, largely dominated by I-8, future noise levels would be consistent with the City noise and land use compatibility standards.

Additional modeling was conducted at the façade of buildings to verify interior noise levels would comply with City standards. Commercial services are compatible with interior noise levels up to 50 CNEL and visitor accommodations are compatible with interior noise levels up to 45 CNEL. Based on the energy- and insulation-efficiency requirements of the 2013 California Building Code, it was assumed the project design would include the use of double-glazed windows. Concrete tilt-up and masonry construction with double-glazed windows would provide a minimum of a 35 dB exterior to interior noise level reduction. Based on potential sound level attenuation provided by the structure, interior noise levels at proposed commercial uses would not exceed 42 CNEL and interior noise levels at proposed visitor accommodations would not exceed 34 CNEL. Therefore, interior noise levels would be consistent with the City's interior compatibility standard.

1.2 On-site Generated Noise

1.2.1 HVAC System

At this stage in design, specific heating, ventilation, and air conditioning (HVAC) units have not been identified. Thus, for purposes of the noise analysis, it was assumed each building would use 20-ton HVAC units. Based on a review of specifications for a potential manufacturer, a representative noise level for a 20-ton unit would be a sound level of 86 dB at 3 feet. Based on these inputs, it was determined that noise levels would not exceed the applicable limits at the property line. However, as the specific design has not been chosen at this stage, the project has to provide specifications for the selection and placement of rooftop HVAC prior to issuance of building permits.

1.3 Construction Noise

Noise due to construction of the project would not exceed the limits of the City's Noise Abatement and Control Ordinance. Additionally, construction of the project would only occur between the hours of 7:00 A.M. and 7:00 P.M., Monday through Saturday, and thus would comply with local standards and regulations.

2.0 Introduction

2.1 Project Description

The project would redevelop the existing Mission Valley Resort Hotel property located south of Interstate 8 (I-8) at 875 Hotel Circle South. The project site consists of two parcels: Assessor's Parcel Number (APN) 444-060-10 and 444-060-11, totaling approximately 18.1 acres.

In response to comments made during the public review distribution of the DEIR and during the Mission Valley Planning Group hearing, revisions to the Legacy International Center project have been made. Specifically, a decision was made by the applicant to refine the project and reduce the size of the project. This update to the noise technical report covers the refined project which now includes three main buildings: The Legacy Vision Center (with grand lobby, reception, History Dome Theater, artifact museum, and catacombs); the Pavilion (with learning center, restaurant, executive offices, wellness center, and theater); and the Legacy Hotel with 127 hotel units. The following is a summary of the refinements to the project since the circulation of the DEIR for public review:

- Reduction of building square footage (including parking structures) from 532,178 square feet to 306,879 square feet (42.3 percent reduction).

- Reduction of the total number of buildings from five to three (excludes parking structures).

- Combination of the welcoming center and “history dome” theater building into “Legacy Vision Center” and combination of the executive offices into a new pavilion building.

- Change of the proposed timeshare units to hotel units.

- Reduction of the acreage of grading required such that findings for encroachment into Environmentally Sensitive Lands (ESL) steep slopes is no longer required. The project site is located in the city of San Diego, south of I-8 and west of Interstate 163. The project site is surrounded by commercial development to the north and west and partially to the east. Undeveloped land borders the site on the southeast and southwest corners. Figure 1 shows the regional location of the project. Figure 2 shows an aerial photograph of the project and vicinity. Figure 3 shows the proposed site plan.

Project Location

FIGURE 1
Regional Location

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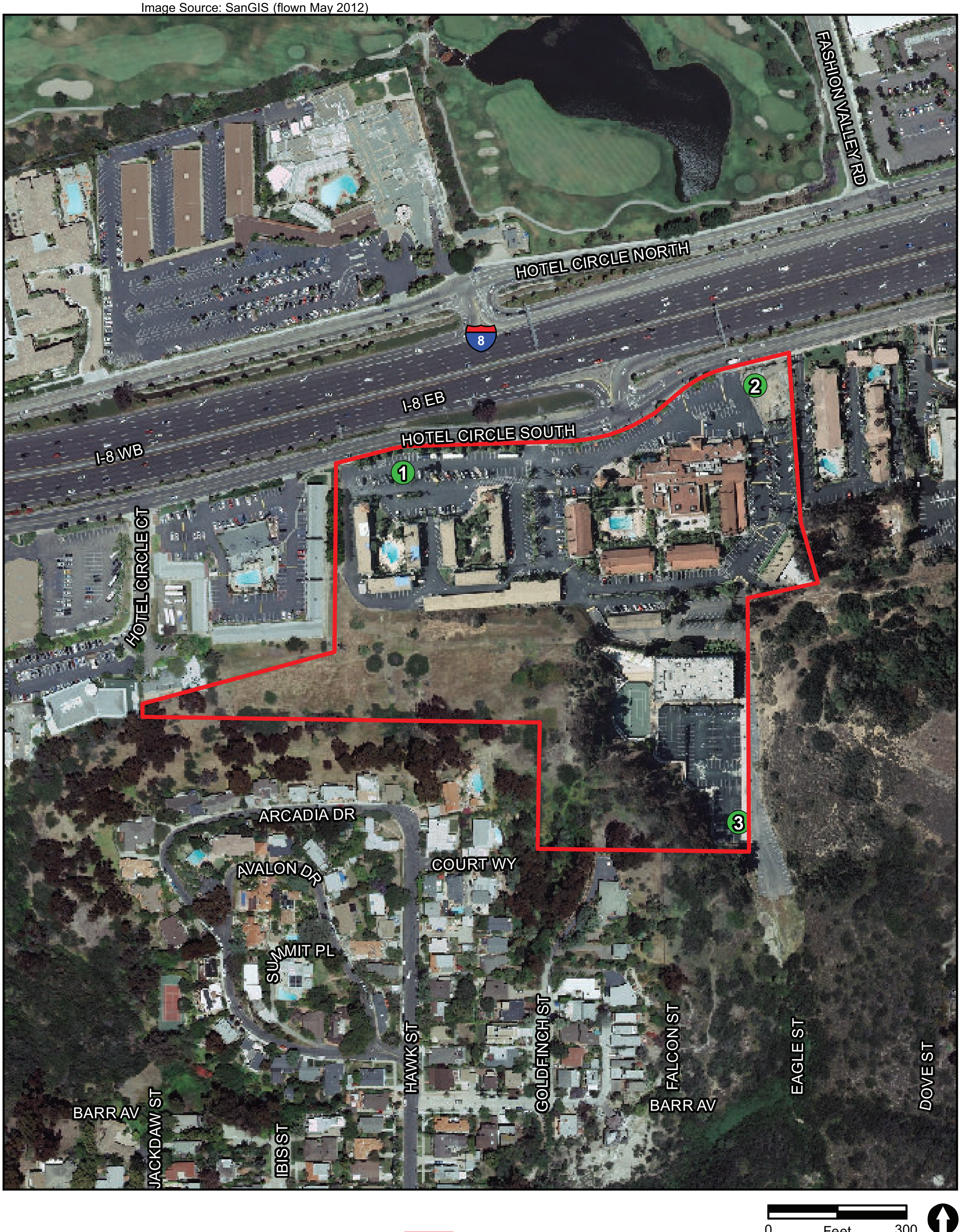
Image Source: SanGIS (flown May 2012)



Project Boundary

Noise Measurement Locations

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FIGURE 2

Project Location on Aerial Photograph

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Map Source: carrierjohnson + culture

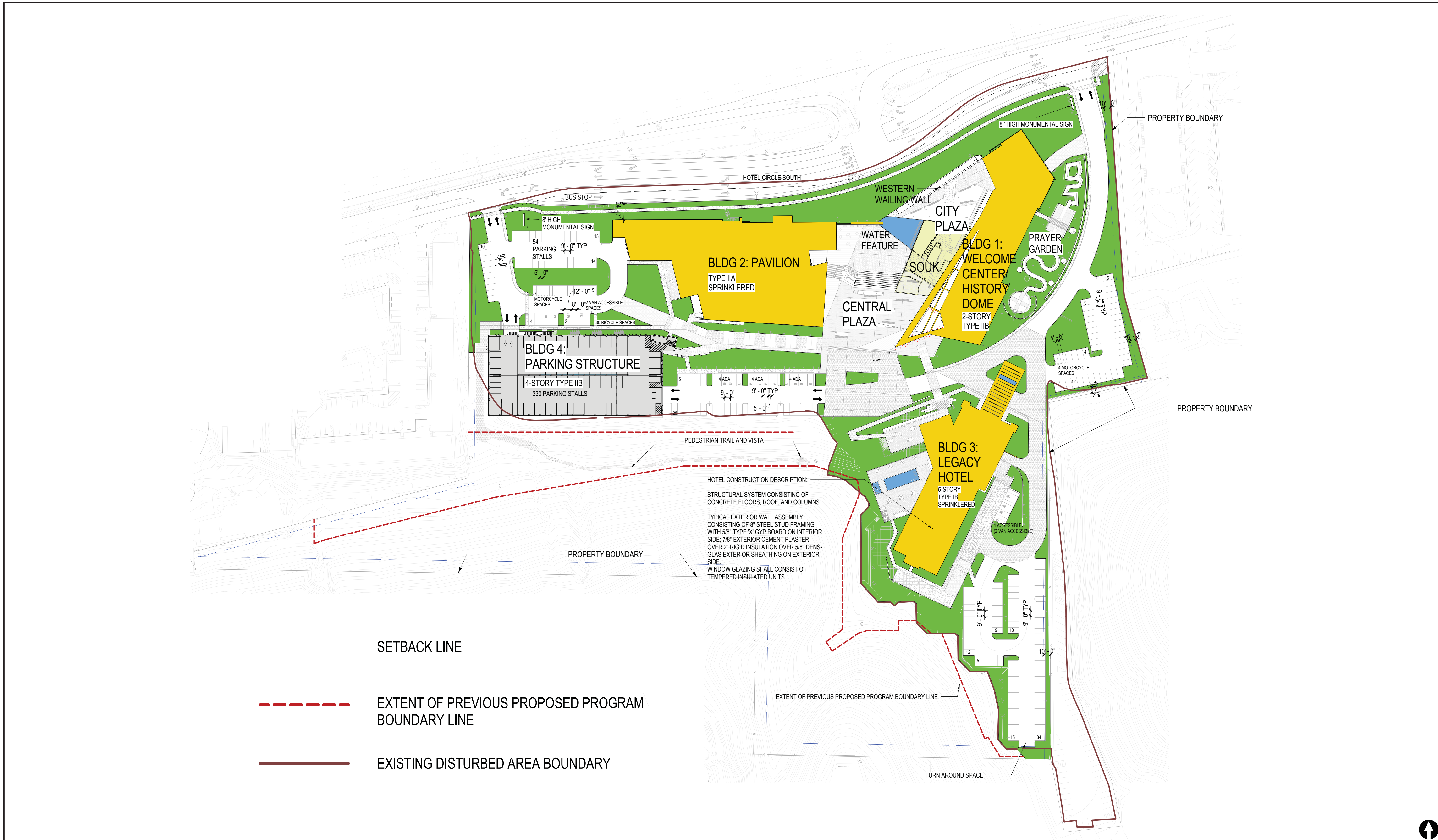

FIGURE 3
Site Plan

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2.2 Fundamentals of Noise

The unit of measurement used to describe a noise level is the decibel (dB). Decibels are measured on a logarithmic scale that quantifies sound intensity in a manner similar to the Richter scale used for earthquake magnitudes. A 10 dB increase represents a 10-fold increase in sound intensity, a 20 dB change is a 100-fold difference, 30 dB is a 1,000-fold increase, etc. Thus, a doubling of the energy of a noise source, such as doubling of traffic volume, would increase the noise level by 3 dB; a halving of the energy would result in a 3 dB decrease.

The human ear is not equally sensitive to all frequencies within the sound spectrum. Therefore, a method called “A-weighting” is used to filter noise frequencies that are not audible to the human ear. A-weighting approximates the frequency response of the average young ear when listening to most ordinary everyday sounds. When people make relative judgments of the loudness or annoyance of a sound, their judgments correlate well with the “A-weighted” levels of those sounds. Therefore, the A-weighted noise scale is used for measurements and standards involving the human perception of noise. In this report, all noise levels are A-weighted, and “dB(A)” is understood to identify the A-weighted decibel.

The sound power level indicates the total acoustic energy that a source radiates to its environment. The sound pressure level is a measure of the effect of the energy on an acoustic source and depends on the distance to the source and acoustic properties of the surrounds of the source. The sound power level of a source is a fixed value, while the sound pressure level depends on position and environment. Because the sound power of a noise source is constant and specific, it can be used to calculate the expected sound pressure. The calculation requires detailed information about the noise source's environment. Usually a noise source with a lower sound power generates less sound pressure.

The impact of noise is not a function of loudness alone. The time of day when noise occurs and the duration of the noise are also important. In addition, most noise that lasts for more than a few seconds is variable in its intensity. Consequently, a variety of noise descriptors have been developed. The noise descriptors used for this study are the one-hour equivalent noise level (L_{eq}) and the community noise equivalent level (CNEL).

The L_{eq} is the average A-weighted decibel [dB(A)] sound level over a one-hour period. The CNEL is a 24-hour A-weighted average sound level [dB(A) L_{eq}] from midnight to midnight obtained after the addition of 5 dB to sound levels occurring between 7:00 P.M. and 10:00 P.M., and 10 dB to sound levels occurring between 10:00 P.M. and 7:00 A.M. A-weighting is a frequency correction that often correlates well with the subjective response of humans to noise. Adding 5 dB and 10 dB to the evening and nighttime hours, respectively, accounts for the added sensitivity of humans to noise during these time periods.

Sound from a small localized source (approximating a "point" source) radiates uniformly outward as it travels away from the source in a spherical pattern. However, traffic noise is not a single, stationary point source of sound. The movement of vehicles makes the source of the sound appear to emanate from a line (line source) rather than a point when viewed over some time interval. From the source to the receiver, noise changes both in level and frequency spectrum. The most obvious change is the decrease in noise as the distance from the source increases. The manner in which noise reduces with distance depends on the following important factors: ground absorption, atmospheric effects and refraction, shielding by natural and man-made features, noise barriers, diffraction, and reflection. For a point or stationary noise source, such as construction equipment, the attenuation or drop-off in noise level would be at least 6 dB(A) for each doubling of unobstructed distance between source and the receiver and could increase to 7.5 dB(A) depending on the acoustic characteristics of the intervening ground. For a linear noise source, such as vehicles traveling on a roadway, the attenuation or drop-off in noise level would be approximately 3 dB(A) for each doubling of unobstructed distance between source and the receiver and could increase to 4.5 dB(A) depending on the acoustic characteristics of the intervening ground.

Change in noise levels is perceived as follows: 3 dB(A) barely perceptible, 5 dB(A) readily perceptible, and 10 dB(A) perceived as a doubling or halving of noise (California Department of Transportation [Caltrans] 2013).

3.0 Existing Conditions

Existing noise levels at the project site were measured on June 19, 2013, using a Larson-Davis Model 820 Type 1 Integrating Sound Level Meter, serial number 1824. The following parameters were used:

Filter:	A-weighted
Response:	Slow
Time History Period:	5 seconds

The meter was calibrated before and after measurements. Three ground-floor measurements (5 feet above the ground) were taken.

As shown in Figure 2, the project site is currently developed as the Mission Valley Resort, a restaurant, a gas station, a health club, and a liquor store. Noise measurements were taken to obtain existing ambient noise levels. The weather was warm and partly cloudy with a slight breeze. A total of three 15-minute measurements were made on the project site, as described below. The primary source of on-site noise was due to traffic on I-8 and Hotel Circle South. The locations of the measurements are shown on Figure 2, and the noise measurement data are contained in Attachment 1.

Measurement 1 was located at the northwestern portion of the project site, approximately 50 feet from the edge of Hotel Circle South. The main noise source at this location was vehicle traffic on Hotel Circle South and I-8. Traffic volumes were counted on Hotel Circle South, and the results are shown in Table 1. The average measured noise level during Measurement 1 was 66.9 dB(A) L_{eq}.

Measurement 2 was located at the northeastern portion of the project site, approximately 50 feet from the edge of Hotel Circle South. The main noise source at this location was vehicle traffic on Hotel Circle South and I-8. During the measurement period, traffic was moving freely on I-8. The average measured noise level during Measurement 2 was 68.6 dB(A) L_{eq}.

Measurement 3 was located at the southeastern portion of the project site. While not visible at the Measurement 3 location, the main noise source was vehicle traffic on Hotel Circle South and I-8. The average measured noise level during Measurement 3 was 47.5 dB(A) L_{eq}.

TABLE 1
15-MINUTE TRAFFIC COUNTS

Measure-ment	Roadway	Direction	Autos	Heavy Trucks	Medium Trucks	Motor-cycles	Buses
1	Hotel Circle South	Eastbound	116	2	3	2	2
		Westbound	84	1	0	0	0
2	Hotel Circle South	Eastbound	76	0	1	0	0
		Westbound	44	0	0	0	1

4.0 Applicable Standards

4.1 Traffic Noise

4.1.1 CEQA Significance Determination Thresholds

The City developed and published Significance Determination Thresholds for use in CEQA determinations. The CEQA significance standards are shown in Table 2. Based on the City's 2011 Significance Determination Thresholds, a significant noise impact would occur if implementation of the project would:

1. Result in the exposure of noise-sensitive land uses to future noise levels which exceed those established in the adopted General Plan, noise ordinance, Airport Land Use Commission Plans, or applicable standards of other agencies.

2. Result in a substantial increase in the existing ambient noise levels.

3. Result in increased land use incompatibilities associated with noise.

4. Result in construction or operation noise levels during the breeding season that would exceed 60 dB(A) L_{eq} or the existing ambient noise level, if above 60 dB(A) L_{eq}.

TABLE 2
TRAFFIC NOISE SIGNIFICANCE THRESHOLDS
(dB(A) CNEL)

Structure of Proposed Use that would be Impacted by Traffic Noise	Interior Space	Exterior Useable Space[1]	General Indication of Potential Significance
Single-family detached	45 dB	65 dB	Structure or outdoor useable area[2] is <50 feet from the center of the closest (outside) lane on a street with existing or future ADTs >7,500
Multi-family, school, library, hospital, day care center, hotel, motel, park, convalescent home	Development Services Department ensures 45 dB pursuant to Title 24	65 dB	
Office, church, business, professional uses	n/a	70 dB	Structure or outdoor useable area is <50 feet from the center of the closest lane on a street with existing or future ADTs >20,000
Commercial, retail, industrial, outdoor spectator sports uses	n/a	75 dB	Structure or outdoor useable area is <50 feet from the center of the closest lane on a street with existing or future ADTs >40,000

ADT = Average Daily Trips
[1] If a project is currently at or exceeds the significance thresholds for traffic noise described above and noise levels would result in less than a 3 dB increase, then the impact is not considered significant.

4.1.1.1 General Plan

The City's Noise Element of the General Plan specifies compatibility standards for different categories of land use. The noise land use compatibility guidelines are intended to be used for future development within San Diego to prevent future incompatibilities. The City's land use/noise compatibility guidelines are shown in Table 3.

TABLE 3
CITY OF SAN DIEGO - LAND USE/NOISE COMPATIBILITY GUIDELINES

Land Use Category	Exterior Noise Exposure [dB(A) CNEL]				
		60	65	70	75
Parks and Recreational					
Parks, Active and Passive Recreation					
Outdoor Spectator Sports, Golf Courses; Water Recreational Facilities; Indoor Recreation Facilities					
Agricultural					
Crop Raising & Farming; Community Gardens, Aquaculture, Dairies; Horticulture Nurseries & Greenhouses, Animal Raising, Maintain & Keeping; Commercial Stables					
Residential					
Single Dwelling Units; Mobile Homes		45			
Multiple Dwelling Units **For uses affected by aircraft noise, refer to Policies NE-D.2. & NE-D.3.*		45	45*		
Institutional					
Hospitals; Nursing Facilities; Intermediate Care Facilities; Kindergarten through Grade 12 Educational Facilities; Libraries; Museums; Places of Worship; Child Care Facilities		45			
Other Educational Facilities including Vocational/Trade Schools and Colleges and Universities)		45	45		
Cemeteries					
Retail Sales					
Building Supplies/Equipment; Food, Beverages & Groceries; Pets & Pet Supplies; Sundries, Pharmaceutical, & Convenience Sales; Wearing Apparel & Accessories			50	50	
Commercial Services					
Building Services; Business Support; Eating & Drinking; Financial Institutions; Maintenance & Repair; Personal Services; Assembly & Entertainment (includes public and religious assembly); Radio & Television Studios; Golf Course Support			50	50	
Visitor Accommodations		45	45	45	
Offices					
Business & Professional; Government; Medical, Dental & Health Practitioner; Regional & Corporate Headquarters			50	50	
Vehicle and Vehicular Equipment Sales and Services Use					
Commercial or Personal Vehicle Repair & Maintenance; Commercial or Personal Vehicle Sales & Rentals; Vehicle Equipment & Supplies Sales & Rentals; Vehicle Parking					
Wholesale, Distribution, Storage Use Category					
Equipment & Materials Storage Yards; Moving & Storage Facilities; Warehouse; Wholesale Distribution					
Industrial					
Heavy Manufacturing; Light Manufacturing; Marine Industry; Trucking & Transportation Terminals; Mining & Extractive Industries					
Research & Development				50	

	Compatible	Indoor Uses	Standard construction methods should attenuate exterior noise to an acceptable indoor noise level. Refer to Section I.
		Outdoor Uses	Activities associated with the land use may be carried out.
	Conditionally Compatible	Indoor Uses	Building structure must attenuate exterior noise to the indoor noise level indicated by the number for occupied areas. Refer to Section I.
		Outdoor Uses	Feasible noise mitigation techniques should be analyzed and incorporated to make the outdoor activities acceptable. Refer to Section I.
	Incompatible	Indoor Uses	New construction should not be undertaken.
		Outdoor Uses	Severe noise interference makes outdoor activities unacceptable.

Source: City of San Diego Noise Element (2015)

4.2 On-site Generated Noise

Stationary noise sources are also regulated by the City's Noise Abatement and Control Ordinance. Section 59.5.0401 of the City's Noise Abatement and Control Ordinance states that:

> A. It shall be unlawful for any person to cause noise by any means to the extent that the one-hour average sound level exceeds the applicable limit.
>
> B. The sound level limit at a location on a boundary between two zoning districts is the arithmetic mean of the respective limits for the two districts…

The applicable noise limits are summarized in Table 4.

TABLE 4
APPLICABLE NOISE LEVEL LIMITS

Land Use	Time of Day	One-Hour Average Sound Level [dB(A) L_{eq}]
Single-family Residential	7:00 A.M. to 7:00 P.M.	50
	7:00 P.M. to 10:00 P.M.	45
	10:00 P.M. to 7:00 A.M.	40
Multi-family Residential (up to a maximum density of 1 unit/2,000 square feet)	7:00 A.M. to 7:00 P.M.	55
	7:00 P.M. to 10:00 P.M.	50
	10:00 P.M. to 7:00 A.M.	45
All Other Residential	7:00 A.M. to 7:00 P.M.	60
	7:00 P.M. to 10:00 P.M.	55
	10:00 P.M. to 7:00 A.M.	50
Commercial	7:00 A.M. to 7:00 P.M.	65
	7:00 P.M. to 10:00 P.M.	60
	10:00 P.M. to 7:00 A.M.	60
Industrial or Agricultural	Anytime	75

The project site is zoned MVPD-MV-M/SP (Mission Valley – Multiple Use), the properties to the east and west are zoned MVPD-MV-CV (Mission Valley – Commercial Visitor), and the properties to the south are zoned RS-1-1 and RS-1-7 (Single-Family Residential).

The applicable noise limits between the project site and the neighboring commercial uses are 65 dB(A) L_{eq} between 7:00 A.M. and 7:00 P.M., and 60 dB(A) L_{eq} between 7:00 P.M. and 7:00 A.M. The applicable noise limits between the project site and the neighboring residential uses are 57.5 dB(A) L_{eq} between 7:00 A.M. and 7:00 P.M., 52.5 dB(A) L_{eq} between 7:00 P.M. and 10:00 P.M., and 50 dB(A) L_{eq} between 10:00 P.M. and 7:00 A.M.

4.3 Construction Noise

Section 59.5.0404 of the City's Noise Abatement and Control Ordinance states that:

> A. It shall be unlawful for any person, between the hours of 7:00 P.M. of any day and 7:00 A.M. of the following day, or on legal holidays as specified in Section 21.04 of the San Diego Municipal Code, with exception of Columbus Day and Washington's Birthday, or on Sundays, to erect, construct, demolish, excavate for, alter or repair any building or structure in such a manner as to create disturbing, excessive or offensive noise. . . .
>
> B. . . . it shall be unlawful for any person, including the City of San Diego, to conduct any construction activity so as to cause, at or beyond the property lines of any property zoned residential, an average sound level greater than 75 decibels during the 12-hour period from 7:00 A.M. to 7:00 P.M.

5.0 Analysis Methodology

5.1 Traffic Noise Analysis

5.1.1 Modeling Parameters

The main source of traffic noise at the project site is I-8 and Hotel Circle South. Traffic noise is also generated on Bachman Place.

Noise generated by future traffic was modeled using SoundPLAN. The SoundPLAN program (Navcon Engineering 2015) uses the FHWA's Traffic Noise Model algorithms and reference levels to calculate noise levels at selected receiver locations. The model uses various input parameters, such as traffic volumes; vehicle mix, distribution, and speed; roadway lengths and gradients; distances between sources, barriers, and receivers; and shielding provided by intervening terrain, barriers, and structures. Topography, roadways, and receivers were input into the model using three-dimensional coordinates. Traffic noise levels were calculated based on the peak traffic hour. Peak hour traffic volumes were calculated as 10 percent of the total average daily trips (ADT). Calculations were completed for a daytime hour, and the resulting noise levels were weighted and combined into CNEL values. Typically, the predicted CNEL and the maximum daytime hourly L_{eq} calculated are equal.

"Pavement" ground conditions were assumed for the analysis of future conditions, since a large portion of the site is paved. Flat site conditions were assumed. The average annual temperature in the project area is 63 degrees Fahrenheit. The average relative humidity was assumed to be 69 percent based on the yearly average humidity at Lindbergh Field (Western Regional Climate Center 2013).

Existing and future (year 2035) traffic volumes on Hotel Circle South and Bachman Place were obtained from the project traffic impact analysis prepared for the project (Linscott Law and Greenspan Engineers 2016). The traffic report did not include an analysis of traffic on I-8. Thus, existing and future traffic volumes on I-8 were assumed to be a maximum level of service (LOS) C; i.e., approximately 1,850 vehicles per lane per hour (v/l/h) during the peak hour, and similarly the access ramps were assumed to have an maximum hourly LOS C volume of 1,000 v/l/h. Maximum LOS C represents the maximum traffic volumes at full speed, which generates the highest noise levels. A lower LOS would include fewer vehicles, while high LOS rating would result in higher traffic volumes but slower speeds. Thus, under either scenario, these conditions would result in lower noise levels.

In the project vicinity, I-8 is an eight-lane, east-west freeway. It is the primary highway in San Diego and Imperial counties and extends from Point Loma in the west to Interstate 10 in Arizona. The freeway segment adjacent to the project consists of eight general purpose travel lanes with a posted speed limit of 65 miles per hour.

The vehicle classification mix for the I-8 was developed from Caltrans traffic operations data and truck counts for nearest freeway segments east and west of the project site, which were averaged to determine the vehicle classification mix, or the percentage of automobiles, medium trucks, and heavy trucks from the total volume. Based on this data, I-8 has a current traffic vehicle classification mix of 96.0 percent autos, 2.0 percent medium trucks, and 1.9 percent heavy trucks (Caltrans 2012). While the data did not include bus or motorcycle specific data, 1 percent of the automobiles were modeled as buses, and 0.5 percent were modeled as motorcycles. Thus, the vehicle classification mix used for the modeling of general purpose freeway lanes, access ramps, and local roadways was 94.5 percent automobiles, 0.5 percent motorcycles, 1 percent buses, 3 percent medium trucks, and 1 percent heavy trucks.

5.2 On-site Generated Noise Analysis

5.2.1 HVAC Parameters

It is not known at this time which manufacturer, brand, or model of unit or units will be selected for use in the project. It was assumed that 20-ton HVAC units would be located on the rooftop of each building and a capacity of approximately 1-ton per 500 square feet would be required. With these assumptions, the Legacy Vision Center would require four 20-ton units, the pavilion would require six 20-ton units, and the Legacy Village would require nine 20-ton units.

Based on review of various manufacturer specifications for example units, a representative noise level for a 20-ton unit would be a sound power level of 92 dB. This is approximately equal to a sound pressure level of 83 dB(A) L_{eq} at 3 feet. For a 20-ton unit, the representative noise level of 83 dB(A) L_{eq} at 3 feet per unit was used for this analysis. The units were assumed to be placed near the center of the rooftop of each building.

During the nighttime hours, less mechanical cooling would be required, and thus the nighttime noise levels would be lower as the HVAC units would operate less time in a given hour. For assessment purposes, the HVAC were modeled with all units operating at 100 percent capacity during the day and evening and all units operating at 75 percent capacity during the night.

5.3 Construction Noise Analysis

Construction noise would be generated by diesel engine-driven construction equipment used for site preparation and grading, removal of existing structures and pavement, loading, unloading, and placing materials and paving. Diesel engine-driven trucks also would bring materials to the site and remove the spoils from excavation.

Under load conditions, diesel engine noise levels may be 85 to 90 dB(A) at a distance of 50 feet from the equipment (FHWA 2006). Occasional pavement breaking would be performed, which would generate noise levels of 90 dB(A) at 50 feet from the equipment (FHWA 2006). Construction equipment noise is considered a “point source” and, as described in Section 2.2, attenuates over distance at a rate of 6 dB(A) for each doubling of distance. Thus, a noise level of 85 dB(A) at 50 feet would be 79 dB(A) at 100 feet and 73 dB(A) at 200 feet from the source.

During excavating, grading, and paving operations, equipment moves to different locations and goes through varying load cycles, and there are breaks for the operators and for non-equipment tasks, such as measurement. Although maximum noise levels may be 85 to 90 dB(A) at a distance of 50 feet during most construction activities, hourly average noise levels would be 82 dB(A) at 50 feet from the center of construction activity when assessing the loudest pieces of equipment working simultaneously.

6.0 Future Acoustical Environment and Impacts

6.1 Traffic Noise

6.1.1 On-site

The noise affecting the site is dominated by traffic noise generated on I-8. Using the traffic parameters discussed in Section 5.1, future ground-floor contours were calculated across the project site. Future traffic noise contours are shown on Figure 4. As shown in Figure 4, noise levels in exceed 75 CNEL along the northern boundary of the project site. Noise levels were modeled for a series of 19 receivers to determine noise levels at potential outdoor use areas and the façade of the proposed new buildings. Receiver locations are shown in Figure 4 and modeled noise levels are summarized in Table 5. Modeling input and output are provided in Attachment 2.

TABLE 5
FUTURE TRAFFIC NOISE LEVELS
(CNEL)

Receiver	Location	CNEL				
		1st Floor	2nd Floor	3rd Floor	4th Floor	5th Floor
1	Legacy Vision Center Northwest Façade	76	77	-	-	-
2	Legacy Vision Center Northeast Façade	72	74	-	-	-
3	Legacy Vision Center West Façade	62	65	-	-	-
4	Eastern Garden North End	65	-	-	-	-
5	Eastern Garden Central Patio	63	-	-	-	-
6	Eastern Garden South End	62	-	-	-	-
7	Wailing Wall	63	-	-	-	-
8	Souk	64	-	-	-	-
9	Pavilion Eastern Outdoor Area	65	-	-	-	-
10	Central Plaza	64	-	-	-	-
11	Pavilion North Façade East end	74	75	-	-	-
12	Pavilion North Façade West end	75	76	-	-	-
13	Pavilion Western Outdoor Area	63	-	-	-	-
14	Area South of Pavilion	56	-	-	-	-
15	Legacy Village North Façade	58	62	65	67	68
16	Legacy Village North Patio Area	58	-	-	-	-
17	Legacy Village Pool Area	54	-	-	-	-
18	Legacy Village West Façade	59	61	63	65	66
19	Legacy Village Southeast Façade	45	51	53	54	55

As shown in Table 5, noise levels at potential outdoor use areas associated with the visitor accommodation (Legacy Village) portion of the project would range from 54 to 58 CNEL. Visitor accommodations are compatible with exterior noise levels up to 60 CNEL and are conditionally compatible with noise levels between 60 and 75 CNEL. Thus,

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FIGURE 4

Future Traffic Noise Contours

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noise levels at these exterior uses would be consistent with the City's exterior noise standard of 60 CNEL.

As shown in Table 5, noise levels at potential outdoor use areas associated with the commercial portion of the project (Legacy Vision Center and pavilion) would range from 56 to 65 CNEL. Commercial services and office land uses are compatible with exterior noise levels up to 65 CNEL and are conditionally compatible with noise levels between 65 and 75 CNEL. Thus, noise levels at these exterior uses would be consistent with the City's exterior noise standard of 65 CNEL.

Noise levels were also modeled at building façades to determine compliance with the City's interior noise standard. These receiver locations were modeled at elevations corresponding to each floor of the proposed building. Based on the energy- and insulation-efficiency requirements of the 2013 California Building Code, it was assumed the project design would include the use of double-glazed windows. Concrete tilt-up and masonry construction with double-glazed windows would provide a minimum of a 35 dB exterior to interior noise level reduction (FHWA 2011). Therefore, noise levels interior noise levels would be 35 dB less than that reported at the building façades.

Noise levels at the façades of the Legacy Vision Center and pavilion would range from 62 to 77 CNEL. Thus, interior noise levels are not anticipated to exceed 42 CNEL. Commercial services and office land uses are compatible with interior noise levels up to 50 CNEL. Therefore, the Legacy Vision Center and pavilion would be consistent with the City's interior noise standards.

Noise levels at the façades of the Legacy Village would range from 45 to 68 CNEL. Thus, interior noise levels are not anticipated to exceed 34 CNEL. Visitor accommodations are compatible with interior noise levels up to 45 CNEL. Therefore, the Legacy Village would be consistent with the City's interior noise standards.

All exterior and interior noise levels would be consistent with the City's land use and noise compatibility standards. Therefore, on-site traffic noise impacts would be less than significant.

6.1.2 Off-Site

The project would increase traffic volumes on local roadways. Noise level increases would be greatest nearest the project site, which would represent the greatest concentration of project-related traffic. The project would not substantially alter the vehicle classifications mix on local or regional roadways, nor would the project alter the speed on an existing roadway or create a new roadway; thus, the primary factor affecting off-site noise levels would be increased traffic volumes. Direct impacts were determined by comparing existing average daily traffic volumes with the "existing plus project" condition at full build-out. Cumulative impacts were determined by comparing the “future with project” and “no project” conditions and determining the project’s contribution to the future cumulative noise levels.

6.1.2.1 Direct Off-site Traffic Noise

Table 6 presents the existing average daily traffic volumes for the existing condition, and for the existing condition with the project at full build-out. Off-site traffic noise impacts have been evaluated based on the calculated change in noise levels due to the increase or decrease in traffic volumes from the existing condition.

A substantial noise increase is defined as an increase of 3 dB(A) CNEL above existing conditions as stated in the City’s CEQA significance standards. As shown in Table 6, direct off-site noise level increases due to the project would be less than 1 dB. Therefore, direct off-site noise impacts associated with the project would be less than significant.

6.1.2.2 Cumulative Off-site Traffic Noise

Similar to direct traffic noise impacts, a cumulative traffic noise impact occurs when the noise level would exceed the applicable standard and a substantial noise level increase compared to existing noise occurs. The project’s contribution to the future noise level is determined by comparing the existing condition with the no project conditions. The project would result in a cumulatively considerable increase if the project would contribute 1 CNEL or more to the cumulative increase.

As shown in Table 6, cumulatively substantial off-site noise level increases would occur along Hotel Circle South, Hotel Circle North, and Fashion Valley Road. However, the project would contribute less than 1 CNEL to these segments. Therefore, while cumulative noise impacts would occur, the project would result in a less than cumulatively considerable off-site noise level increase, and cumulative traffic noise impacts associated with the project would be less than significant.

TABLE 6
OFF-SITE NOISE LEVEL INCREASES

Street Segment	No Project ADT	Project ADT	Direct Increase CNEL	Project Contribution CNEL
Existing and Existing plus Project				
Hotel Circle N				
I-8 WB Ramps to Fashion Valley Road	16,800	16,930	>1	>1
Fashion Valley Road to Camino De La Reina	13,170	13,310	>1	>1
Hotel Circle S				
I-8 EB Ramps to Project Driveway (E)	14,390	14,510	>1	>1
Project Driveway (E) to Bachman Place	14,390	14,530	>1	>1
Bachman Place to Camino De La Reina	14,350	14,490	>1	>1
Cumulative and Cumulative plus Project				
Hotel Circle N				
I-8 WB Ramps to Fashion Valley Road	31,220	31,350	>1	>1
Fashion Valley Road to Camino De La Reina	21,260	21,400	>1	>1
Hotel Circle S				
I-8 EB Ramps to Project Driveway (E)	NA	NA	>1	>1
Project Driveway (E) to Bachman Place	20,750	20,980	>1	>1
Bachman Place to Camino De La Reina	19,520	19,660	>1	>1

6.2 On-site Generated Noise

The primary noise sources on-site would be mechanical equipment associated with buildings. Other secondary noise sources would include parking lots, patrons visiting the site, and landscape maintenance. Due to the proximity to I-8 and as demonstrated by the noise level contours shown in Figure 4, these secondary activities would not be audible at adjacent properties over I-8 traffic. Additionally, no on-site outdoor public address has been included in the project plans. Therefore the following discussion focuses on the mechanical equipment.

The applicable noise limits between the project site and the neighboring commercial uses are 65 dB(A) L_{eq} between 7:00 A.M. and 7:00 P.M., and 60 dB(A) L_{eq} between 7:00 P.M. and 7:00 A.M. The applicable noise limits between the project site and the neighboring residential uses are 57.5 dB(A) L_{eq} between 7:00 A.M. and 7:00 P.M., 52.5 dB(A) L_{eq} between 7:00 P.M. and 10:00 P.M., and 50 dB(A) L_{eq} between 10:00 P.M. and 7:00 A.M.

6.2.1 HVAC System

As discussed previously, anticipated HVAC equipment includes four 20-ton units for the Legacy Vision Center would require, six 20-ton units for the pavilion, and nine 20-ton units for the Legacy Village. Noise levels were modeled for a series of nine receivers located along the project property line to determine noise levels at the property boundaries. Receiver and source locations are shown in Figure 5.

Noise levels at the property lines due to the HVAC units were calculated as described in Section 5.0, Analysis Methodology. The noise level for each unit on each proposed building was modeled based on the distance and height from the proposed HVAC units to the ground level property boundary. Shielding effects due to a 3-foot-high rooftop parapet were included. The noise levels at the property line are summarized in Table 7. Calculations are contained in Attachment 2.

TABLE 7
HVAC NOISE LEVELS

	HVAC Noise Level [dB(A) L_{eq}]		Noise Ordinance Limit		
Receiver	Daytime/Evening	Nighttime	Daytime	Evening	Nighttime
1	40	39	65	60	60
2	42	41	65	60	60
3	43	42	65	60	60
4	38	37	65	60	60
5	41	39	57.5	52.5	50
6	44	42	57.5	52.5	50
7	50	48	57.5	52.5	50
8	46	44	57.5	52.5	50
9	44	43	57.5	52.5	50
10	46	45	57.5	52.5	50
11	42	41	57.5	52.5	50
12	43	42	57.5	52.5	50
13	44	43	57.5	52.5	50
14	44	43	57.5	52.5	50
15	45	44	65	60	60
16	40	39	65	60	60
17	39	38	65	60	60

As shown in Table 7, maximum hourly noise levels at the property line due to the HVAC units are projected to be less than the property line noise limits. However, as the specific design has not been chosen at this stage, the project has been conditioned to provide specifications for the selection and placement of rooftop HVAC prior to issuance of building permits. Mitigation measure NM-1 establishes a requirement for further noise analysis.

NM-1: Prior to the issuance of a building permit, the applicant, or its designee, will prepare an acoustical study(s) of proposed mechanical equipment, which will identify all noise-generating equipment, predict noise levels at property lines from all identified equipment, and recommend measures to be implemented (e.g., enclosures, barriers, site orientation), as necessary, to comply with the City Noise Ordinance Section 59.5.0401.

Image source: SanGIS (flown May 2012)

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FIGURE 5

Daytime HVAC Noise Contours

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6.3 Construction Noise

Noise associated with the demolition, grading, building, and paving for the project will potentially result in short-term impacts to surrounding properties. A variety of noise-generating equipment would be used during the construction phase of the project, such as scrapers, backhoes, front-end loaders, and concrete saws, along with others. The exact number and pieces of construction equipment required are not known at this time. In the absence of specifics, it was assumed that the loudest noise levels would occur during grading activities. Grading activities are estimated to generate worst-case average noise levels of 84 dB(A) L_{eq} at a distance of 50 feet from the center of the activity (Federal Transit Administration 2006).

The Noise Ordinance states that ". . . it shall be unlawful for any person, including the City of San Diego, to conduct any construction activity so as to cause, at or beyond the property lines of any property zoned residential, an average sound level greater than 75 decibels during the 12-hour period from 7:00 A.M. to 7:00 P.M."

Construction noise generally can be treated as a point source and would attenuate at approximately 6 dB(A) for every doubling of distance. Construction activities, such as grading, generate the loudest noise levels. A grading noise level of 84 dB(A) L_{eq} at 50 feet would attenuate to approximately 75 dB(A) L_{eq} at 140 feet from the noise source.

Residential uses are located south of the project site. A steep slope separates the residential uses and the proposed grading area. Grading would not occur closer than 300 feet from the project boundary that is shared with the residential uses. A grading noise level of 82 dB(A) L_{eq} at 50 feet would attenuate to approximately 66 dB(A) L_{eq} or less at 300 feet from the noise source. Noise levels from construction would not exceed 75 dB(A) L_{eq}.

Additionally, construction of the project would only occur between the hours of 7:00 A.M. and 7:00 P.M., Monday through Saturday, and thus would comply with local standards and regulations.

7.0 Conclusions

7.1 Traffic Noise

As discussed in Section 6.1, exterior noise levels in the commercial portion of the project (Legacy Vision Center and pavilion) would range from 56 to 65 and exterior noise levels at the visitor accommodation portion of the project (Legacy Village) would range from 54 to 58 CNEL. According to the City's General Plan, the commercial portion is considered compatible with noise levels up to 65 CNEL and the visitor accommodation portion is considered compatible with noise levels up to 60 CNEL. Therefore, the project would be consistent with the City's exterior noise standards.

Interior noise levels commercial portion of the project (Legacy Vision Center and pavilion) would range from 62 to 77 and exterior noise levels at the visitor accommodation portion of the project (Legacy Village) would range from 45 to 68 CNEL. Accounting for exterior-to-interior noise level reduction achieved by standard construction techniques, interior noise levels at the commercial portion are not anticipated exceed 42 CNEL and interior noise levels at the visitor accommodations portion of the project are not anticipated to exceed 34 CNEL. These noise levels do not exceed the City's interior noise standards of 50 CNEL and 45 CNEL, respectively. All exterior and interior noise levels would be consistent with the City's land use and noise compatibility standards. Therefore, on-site traffic noise impacts would be less than significant.

7.2 On-site Generated Noise

7.2.1 HVAC System

As discussed in Section 6.2, maximum hourly daytime and nighttime noise levels at the property line due to the HVAC units are projected to reach up to 50 and 48 dB(A) Leq, respectively. Noise levels of this magnitude would be less than the City property line limits for the adjoining properties. However, as the specific design has not been chosen at this stage, the project has been conditioned to provide specifications for the selection and placement of rooftop HVAC prior to issuance of building permits. Mitigation measure NM-1 establishes a requirement for further noise analysis.NM-1: Prior to the issuance of a building permit, the applicant, or its designee, will prepare an acoustical study(s) of proposed mechanical equipment, which will identify all noise-generating equipment, predict noise levels at property lines from all identified equipment, and recommend measures to be implemented (e.g., enclosures, barriers, site orientation), as necessary, to comply with the City Noise Ordinance Section 59.5.0401.

Implementation: Project applicant(s) and primary contractor(s) of all project phases.

Timing: Prior to issuance of building permit.

Enforcement: City

After implementation of Noise Mitigation Measure 1, noise levels will comply with City standards.

7.3 Construction Noise

Noise due to construction of the project would not exceed the limits of the City's Noise Abatement and Control Ordinance. Additionally, construction of the project would only occur between the hours of 7:00 A.M. and 7:00 P.M., Monday through Saturday, and thus would comply with local standards and regulations.

8.0 References Cited

California Department of Transportation (Caltrans)

2012 Annual Average Daily Truck Traffic on the California State Highway System. Compiled by Traffic and Vehicle Data Systems. 2011.

2013 Technical Noise Supplement. November.

Federal Highway Administration (FHWA)

2004 Traffic Noise Model, version 2.5.

2006 Road Construction Noise Model User's Guide, Final Report, January.

2011 Highway Traffic Noise Analysis and Abatement Policy and Guidance. June.

Federal Transit Administration

2006 Transit Noise and Vibration Impact Assessment. Washington, DC. May.

Linscott Law and Greenspan Engineers

2016 Traffic Impact Study Addendum for the Legacy International Center Project. November 21.

Navcon Engineering

2013 Sound Plan version 7.1, Library Sound Power Data, Parking lot.

2015 SoundPLAN Essential version 3.0.

Western Regional Climate Center

2013 Western U.S. Climate Historical Summaries: http://www.wrcc.dri.edu/cgi-bin/cliMAIN.pl?ca7740. Accessed March 15.

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ATTACHMENTS

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ATTACHMENT 1

Noise Measurement Data

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Measurement 1

Date	Time	Duration	Leq		SEL	Lmax	Lmin	Peak	Uwpk	L(5)	L(10)	L(33)	L(50)	L(67)	L(90)
16-Jun-13	11:00:00	60	67.1	307716830.4	84.9	76	62.6	88.9	98.9	73.2	70.3	65.6	64.9	64.2	63.3
16-Jun-13	11:01:00	60	67	300712340.2	84.8	74.7	62.5	88.4	97	71.3	69	66.5	65.6	64.8	63.9
16-Jun-13	11:02:00	60	66.7	280641084.8	84.5	71.9	63.3	84.9	95.6	70.8	70.1	66.5	65.8	65.3	64
16-Jun-13	11:03:00	60	66.7	280641084.8	84.5	72.8	63.7	85.8	93.9	69.7	68.5	66.7	65.9	65.3	64.4
16-Jun-13	11:04:00	60	66.3	255947711.3	84.1	68.8	64.3	84.9	93.9	68.2	67.8	66.7	66.1	65.6	64.7
16-Jun-13	11:05:00	60	64.8	181197103.2	82.6	67.8	61.8	81.6	91.7	66.8	66.2	65	64.5	64.1	63.2
16-Jun-13	11:06:00	60	65.4	208042110.3	83.2	69.1	61.2	83.9	93.9	68.2	67.4	65.5	64.9	64.4	62.7
16-Jun-13	11:07:00	60	66.2	250121630.1	84	70.4	62	84.6	94.3	69.5	69	66.7	65.3	64.3	62.6
16-Jun-13	11:08:00	60	69.5	534750562.9	87.2	81	62	91.7	106.2	76.9	68.4	66.5	65.8	64.9	63.2
16-Jun-13	11:09:00	60	67.3	322219077.8	85.1	75.1	63.8	83.6	98.3	70.5	69.3	66.9	66.5	66.2	64.9
16-Jun-13	11:10:00	60	69	476596940.8	86.8	77.6	63	98.2	101.6	74.8	72.8	67.5	66.5	65.6	64.3
16-Jun-13	11:11:00	60	66.5	268010155.3	84.3	70.2	63.4	82.6	94.8	69.3	68.5	66.5	65.8	65.4	64.8
16-Jun-13	11:12:00	60	66.7	280641084.8	84.5	70.3	64.2	86.4	91.7	69.1	68.4	67.2	66.3	65.7	65
16-Jun-13	11:13:00	60	66.2	250121630.1	84	70.5	64.1	82.7	92.8	68.9	67.8	66.5	65.9	65.3	64.4
16-Jun-13	11:14:00	60	66.3	255947711.3	84	67.8	64.2	81.1	94.8	67.7	67.3	66.6	66.3	65.9	64.8
	sum	900		4.45E+09											
	min/ave	15.00	**66.9**												
	Hours	0.3													

Measurement 2

Date	Time	Duration	Leq		SEL	Lmax	Lmin	Peak	Uwpk	L(5)	L(10)	L(33)	L(50)	L(67)	L(90)
16-Jun-13	11:37:00	60	68.1	387392537.4	85.9	71.9	64.7	83.6	96.4	70.9	69.8	68.6	68.2	66.8	65.4
16-Jun-13	11:38:00	60	67.2	314884476.1	85	68.9	64.5	83.7	92.8	68.6	68.2	67.5	67.1	66.7	66.1
16-Jun-13	11:39:00	60	68.5	424767470.6	86.2	72.8	65.5	90.3	96.4	71.4	70.4	68.5	67.9	67.4	66.5
16-Jun-13	11:40:00	60	67.9	369957001.1	85.7	70.3	65.2	84	92.8	69.9	69.2	68.3	67.8	67.4	66.4
16-Jun-13	11:41:00	60	68.5	424767470.6	86.2	74.8	66.4	86.6	93.9	70.8	70	68.6	67.8	67.3	66.5
16-Jun-13	11:42:00	60	69.2	499058262.7	87	74.2	66.9	87.9	92.8	72.4	71.2	69.2	68.5	67.9	67.3
16-Jun-13	11:43:00	60	68.1	387392537.4	85.9	70.3	65.3	82.5	93.9	70	69.6	68.6	68.1	67.5	66.4
16-Jun-13	11:44:00	60	68	378574406.7	85.8	70.7	66.2	85.8	97	70	69.4	68.1	67.7	67.3	66.6
16-Jun-13	11:45:00	60	68.7	444786144.8	86.5	72.4	66.7	85.6	100.4	71.2	70.3	68.7	68.4	68	67.3
16-Jun-13	11:46:00	60	67.5	337404795.1	85.2	69.7	64.7	82.7	93.9	69.6	69.2	67.9	67	66.5	65.6
16-Jun-13	11:47:00	60	68.9	465748270	86.6	72	66.2	84.6	97	71.1	70.7	69.3	68.5	67.9	66.7
16-Jun-13	11:48:00	60	69.1	487698309.7	86.9	72.4	65.5	86.8	97.7	70.9	70.8	70	69	68.2	66.7
16-Jun-13	11:49:00	60	68.5	424767470.6	86.3	73.3	64.2	85.7	95.6	72.1	70.7	68.7	67.8	67	65.4
16-Jun-13	11:50:00	60	69	476596940.8	86.8	72.5	66	87.7	97	71.5	70.8	69.4	68.7	68.2	66.8
16-Jun-13	11:51:00	60	70.5	673211072.6	88.3	77.3	65.9	90.8	99.9	74.9	72.7	70.4	69.3	68.4	66.8
	sum	900		6.50E+09											
	min/ave	15.00	**68.6**												
	Hours	0.3													

Measurement 2

Date	Time	Duration	Leq		SEL	Lmax	Lmin	Peak	Uwpk	L(5)	L(10)	L(33)	L(50)	L(67)	L(90)
16-Jun-13	12:20:00	60	48.7	4447861.448	66.5	54.7	45.4	67.5	0	53.6	52.7	47.4	46.8	46.4	46
16-Jun-13	12:21:00	60	47.4	3297245.243	65.2	49.7	46.2	62.3	84.3	48.8	48.5	47.7	47.2	46.8	46.2
16-Jun-13	12:22:00	60	48.1	3873925.374	65.9	49.8	46.5	63	0	49.7	49.3	48.5	48	47.6	46.8
16-Jun-13	12:23:00	60	47.1	3077168.304	64.9	48.7	46	63.5	88.8	48.2	47.9	47.3	46.9	46.6	46.2
16-Jun-13	12:24:00	60	46.7	2806410.848	64.5	48	45.7	62	84.3	47.8	47.7	47	46.7	46.4	45.9
16-Jun-13	12:25:00	60	47.7	3533061.932	65.5	50.9	45.8	68.8	92.8	50.1	48.9	47.8	47.5	47.1	46.3
16-Jun-13	12:26:00	60	47.1	3077168.304	64.9	49.3	46.3	64.6	91.7	48.3	47.9	47.4	47	46.7	46.3
16-Jun-13	12:27:00	60	46.4	2619094.993	64.2	48	45.3	64.8	86.8	47.7	47.4	46.7	46.4	46.1	45.4
16-Jun-13	12:28:00	60	47.4	3297245.243	65.2	49.7	46.2	61.8	90.3	48.6	48	47.6	47.3	47	46.3
16-Jun-13	12:29:00	60	46.6	2742529.138	64.4	48	45	66.5	93.9	47.8	47.6	46.8	46.5	46.2	45.5
16-Jun-13	12:30:00	60	47	3007123.402	64.7	48.9	45.2	65.2	97.7	48	47.9	47.3	46.9	46.5	45.8

16-Jun-13	12:31:00	60	50.3	6429115.831	68.1	61.8	45.9	74.2	86.8	55.4	50.6	47.9	47.6	47.3	46.5
16-Jun-13	12:32:00	60	47.5	3374047.951	65.3	51.2	44.6	78.1	95.6	49.7	49.3	47.8	47.1	46.5	45.4
16-Jun-13	12:33:00	60	47	3007123.402	64.7	49.2	44.6	64.2	90.3	48.7	48.4	47.3	46.7	46.2	45.3
16-Jun-13	12:34:00	60	45.7	2229211.375	63.4	47.2	43.7	61.2	0	46.9	46.8	46.1	45.7	45.2	44.3
	sum	900		5.08E+07											
	min/ave	15.00	**47.5**												
	Hours	0.3													

ATTACHMENT 2

Traffic Noise Model Input/Output

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Emissions Traffic Noise

Stationing (km)	ADT (Veh/24h)	Traffic values Vehicles type	Vehicle name	day (Veh/h)	Speed (km/h)	Control device	Constr. Speed (km/h)	Affect. veh. (%)	Road surface	Gradient Min / Max (%)
Hotel Circle EB	Traffic direction:	In entry direction								
0+000	20832	Total	-	868	-	none	-	-	Average (of DGAC and PCC)	-13
0+000	20832	Automobiles	-	820	48	none	-	-	Average (of DGAC and PCC)	-13
0+000	20832	Medium trucks	-	26	48	none	-	-	Average (of DGAC and PCC)	-13
0+000	20832	Heavy trucks	-	9	48	none	-	-	Average (of DGAC and PCC)	-13
0+000	20832	Buses	-	9	48	none	-	-	Average (of DGAC and PCC)	-13
0+000	20832	Motorcycles	-	4	48	none	-	-	Average (of DGAC and PCC)	-13
0+000	20832	Auxiliary Vehicle	-	-	-	none	-	-	Average (of DGAC and PCC)	-13
0+433	22752	Total	-	948	-	none	-	-	Average (of DGAC and PCC)	0.0 / 2.3
0+433	22752	Automobiles	-	896	48	none	-	-	Average (of DGAC and PCC)	0.0 / 2.3
0+433	22752	Medium trucks	-	28	48	none	-	-	Average (of DGAC and PCC)	0.0 / 2.3
0+433	22752	Heavy trucks	-	9	48	none	-	-	Average (of DGAC and PCC)	0.0 / 2.3
0+433	22752	Buses	-	9	48	none	-	-	Average (of DGAC and PCC)	0.0 / 2.3
0+433	22752	Motorcycles	-	5	48	none	-	-	Average (of DGAC and PCC)	0.0 / 2.3
0+433	22752	Auxiliary Vehicle	-	-	-	none	-	-	Average (of DGAC and PCC)	0.0 / 2.3
0+585	23592	Total	-	983	-	none	-	-	Average (of DGAC and PCC)	-1.4
0+585	23592	Automobiles	-	929	48	none	-	-	Average (of DGAC and PCC)	-1.4
0+585	23592	Medium trucks	-	29	48	none	-	-	Average (of DGAC and PCC)	-1.4
0+585	23592	Heavy trucks	-	10	48	none	-	-	Average (of DGAC and PCC)	-1.4
0+585	23592	Buses	-	10	48	none	-	-	Average (of DGAC and PCC)	-1.4
0+585	23592	Motorcycles	-	5	48	none	-	-	Average (of DGAC and PCC)	-1.4
0+585	23592	Auxiliary Vehicle	-	-	-	none	-	-	Average (of DGAC and PCC)	-1.4
0+675	25176	Total	-	1049	-	none	-	-	Average (of DGAC and PCC)	-0.0375
0+675	25176	Automobiles	-	991	48	none	-	-	Average (of DGAC and PCC)	-0.0375
0+675	25176	Medium trucks	-	31	48	none	-	-	Average (of DGAC and PCC)	-0.0375
0+675	25176	Heavy trucks	-	10	48	none	-	-	Average (of DGAC and PCC)	-0.0375
0+675	25176	Buses	-	10	48	none	-	-	Average (of DGAC and PCC)	-0.0375
0+675	25176	Motorcycles	-	5	48	none	-	-	Average (of DGAC and PCC)	-0.0375
0+675	25176	Auxiliary Vehicle	-	-	-	none	-	-	Average (of DGAC and PCC)	-0.0375
0+903	25464	Total	-	1061	-	none	-	-	Average (of DGAC and PCC)	-16.5
0+903	25464	Automobiles	-	1003	48	none	-	-	Average (of DGAC and PCC)	-16.5
0+903	25464	Medium trucks	-	32	48	none	-	-	Average (of DGAC and PCC)	-16.5
0+903	25464	Heavy trucks	-	11	48	none	-	-	Average (of DGAC and PCC)	-16.5
0+903	25464	Buses	-	11	48	none	-	-	Average (of DGAC and PCC)	-16.5
0+903	25464	Motorcycles	-	5	48	none	-	-	Average (of DGAC and PCC)	-16.5
0+903	25464	Auxiliary Vehicle	-	-	-	none	-	-	Average (of DGAC and PCC)	-16.5
0+998	-					-	-	-	-	-

Hotel Circle WB	Traffic direction:	In entry direction								
0+000	25464	Total	-	1061	-	none	-	-	Average (of DGAC and PCC)	0.6
0+000	25464	Automobiles	-	1003	48	none	-	-	Average (of DGAC and PCC)	0.6
0+000	25464	Medium trucks	-	32	48	none	-	-	Average (of DGAC and PCC)	0.6
0+000	25464	Heavy trucks	-	11	48	none	-	-	Average (of DGAC and PCC)	0.6
0+000	25464	Buses	-	11	48	none	-	-	Average (of DGAC and PCC)	0.6
0+000	25464	Motorcycles	-	5	48	none	-	-	Average (of DGAC and PCC)	0.6
0+000	25464	Auxiliary Vehicle	-	-	-	none	-	-	Average (of DGAC and PCC)	0.6
0+074	25176	Total	-	1049	-	none	-	-	Average (of DGAC and PCC)	-37
0+074	25176	Automobiles	-	991	48	none	-	-	Average (of DGAC and PCC)	-37
0+074	25176	Medium trucks	-	31	48	none	-	-	Average (of DGAC and PCC)	-37
0+074	25176	Heavy trucks	-	10	48	none	-	-	Average (of DGAC and PCC)	-37
0+074	25176	Buses	-	10	48	none	-	-	Average (of DGAC and PCC)	-37
0+074	25176	Motorcycles	-	5	48	none	-	-	Average (of DGAC and PCC)	-37
0+074	25176	Auxiliary Vehicle	-	-	-	none	-	-	Average (of DGAC and PCC)	-37
0+330	23592	Total	-	983	-	none	-	-	Average (of DGAC and PCC)	0.0 / 1.8
0+330	23592	Automobiles	-	929	48	none	-	-	Average (of DGAC and PCC)	0.0 / 1.8
0+330	23592	Medium trucks	-	29	48	none	-	-	Average (of DGAC and PCC)	0.0 / 1.8
0+330	23592	Heavy trucks	-	10	48	none	-	-	Average (of DGAC and PCC)	0.0 / 1.8
0+330	23592	Buses	-	10	48	none	-	-	Average (of DGAC and PCC)	0.0 / 1.8
0+330	23592	Motorcycles	-	5	48	none	-	-	Average (of DGAC and PCC)	0.0 / 1.8
0+330	23592	Auxiliary Vehicle	-	-	-	none	-	-	Average (of DGAC and PCC)	0.0 / 1.8
0+413	22752	Total	-	948	-	none	-	-	Average (of DGAC and PCC)	44
0+413	22752	Automobiles	-	896	48	none	-	-	Average (of DGAC and PCC)	44
0+413	22752	Medium trucks	-	28	48	none	-	-	Average (of DGAC and PCC)	44
0+413	22752	Heavy trucks	-	9	48	none	-	-	Average (of DGAC and PCC)	44
0+413	22752	Buses	-	9	48	none	-	-	Average (of DGAC and PCC)	44
0+413	22752	Motorcycles	-	5	48	none	-	-	Average (of DGAC and PCC)	44
0+413	22752	Auxiliary Vehicle	-	-	-	none	-	-	Average (of DGAC and PCC)	44
0+555	20832	Total	-	868	-	none	-	-	Average (of DGAC and PCC)	-1
0+555	20832	Automobiles	-	820	48	none	-	-	Average (of DGAC and PCC)	-1
0+555	20832	Medium trucks	-	26	48	none	-	-	Average (of DGAC and PCC)	-1
0+555	20832	Heavy trucks	-	9	48	none	-	-	Average (of DGAC and PCC)	-1
0+555	20832	Buses	-	9	48	none	-	-	Average (of DGAC and PCC)	-1
0+555	20832	Motorcycles	-	4	48	none	-	-	Average (of DGAC and PCC)	-1
0+555	20832	Auxiliary Vehicle	-	-	-	none	-	-	Average (of DGAC and PCC)	-1
0+995	-					-	-	-	-	-
Bachman SB	Traffic direction:	In entry direction								
0+000	5496	Total	-	229	-	none	-	-	Average (of DGAC and PCC)	-0.083333333
0+000	5496	Automobiles	-	216	48	none	-	-	Average (of DGAC and PCC)	-0.083333333
0+000	5496	Medium trucks	-	7	48	none	-	-	Average (of DGAC and PCC)	-0.083333333
0+000	5496	Heavy trucks	-	2	48	none	-	-	Average (of DGAC and PCC)	-0.083333333
0+000	5496	Buses	-	2	48	none	-	-	Average (of DGAC and PCC)	-0.083333333
0+000	5496	Motorcycles	-	1	48	none	-	-	Average (of DGAC and PCC)	-0.083333333
0+000	5496	Auxiliary Vehicle	-	-	-	none	-	-	Average (of DGAC and PCC)	-0.083333333
0+266	-					-	-	-	-	-
Bachman NB	Traffic direction:	In entry direction								
0+000	5496	Total	-	229	-	none	-	-	Average (of DGAC and PCC)	2.4
0+000	5496	Automobiles	-	216	48	none	-	-	Average (of DGAC and PCC)	2.4
0+000	5496	Medium trucks	-	7	48	none	-	-	Average (of DGAC and PCC)	2.4
0+000	5496	Heavy trucks	-	2	48	none	-	-	Average (of DGAC and PCC)	2.4
0+000	5496	Buses	-	2	48	none	-	-	Average (of DGAC and PCC)	2.4
0+000	5496	Motorcycles	-	1	48	none	-	-	Average (of DGAC and PCC)	2.4
0+000	5496	Auxiliary Vehicle	-	-	-	none	-	-	Average (of DGAC and PCC)	2.4
0+261	-					-	-	-	-	-
I-8 EB	Traffic direction:	In entry direction								
0+000	88800	Total	-	3700	-	none	-	-	Average (of DGAC and PCC)	-8.25
0+000	88800	Automobiles	-	3500	105	none	-	-	Average (of DGAC and PCC)	-8.25
0+000	88800	Medium trucks	-	74	105	none	-	-	Average (of DGAC and PCC)	-8.25
0+000	88800	Heavy trucks	-	70	105	none	-	-	Average (of DGAC and PCC)	-8.25
0+000	88800	Buses	-	37	105	none	-	-	Average (of DGAC and PCC)	-8.25
0+000	88800	Motorcycles	-	19	105	none	-	-	Average (of DGAC and PCC)	-8.25
0+000	88800	Auxiliary Vehicle	-	-	-	none	-	-	Average (of DGAC and PCC)	-8.25
1+004	-					-	-	-	-	-

I-8 EB	Traffic direction:	In entry direction								
0+000	88800	Total	-	3700	-	none	-	-	Average (of DGAC and PCC)	-8.8
0+000	88800	Automobiles	-	3500	105	none	-	-	Average (of DGAC and PCC)	-8.8
0+000	88800	Medium trucks	-	74	105	none	-	-	Average (of DGAC and PCC)	-8.8
0+000	88800	Heavy trucks	-	70	105	none	-	-	Average (of DGAC and PCC)	-8.8
0+000	88800	Buses	-	37	105	none	-	-	Average (of DGAC and PCC)	-8.8
0+000	88800	Motorcycles	-	19	105	none	-	-	Average (of DGAC and PCC)	-8.8
0+000	88800	Auxiliary Vehicle	-	-	-	none	-	-	Average (of DGAC and PCC)	-8.8
1+003	-					-	-	-	-	-
I-8 EB Offramp	Traffic direction:	In entry direction								
0+000	23064	Total	-	961	-	none	-	-	Average (of DGAC and PCC)	-22
0+000	23064	Automobiles	-	909	105	none	-	-	Average (of DGAC and PCC)	-22
0+000	23064	Medium trucks	-	19	105	none	-	-	Average (of DGAC and PCC)	-22
0+000	23064	Heavy trucks	-	18	105	none	-	-	Average (of DGAC and PCC)	-22
0+000	23064	Buses	-	10	105	none	-	-	Average (of DGAC and PCC)	-22
0+000	23064	Motorcycles	-	5	105	none	-	-	Average (of DGAC and PCC)	-22
0+000	23064	Auxiliary Vehicle	-	-	-	none	-	-	Average (of DGAC and PCC)	-22
0+135	-					-	-	-	-	-
I-8 EB Onramp	Traffic direction:	In entry direction								
0+000	23064	Total	-	961	-	none	-	-	Average (of DGAC and PCC)	-0.090909091
0+000	23064	Automobiles	-	909	105	none	-	-	Average (of DGAC and PCC)	-0.090909091
0+000	23064	Medium trucks	-	19	105	none	-	-	Average (of DGAC and PCC)	-0.090909091
0+000	23064	Heavy trucks	-	18	105	none	-	-	Average (of DGAC and PCC)	-0.090909091
0+000	23064	Buses	-	10	105	none	-	-	Average (of DGAC and PCC)	-0.090909091
0+000	23064	Motorcycles	-	5	105	none	-	-	Average (of DGAC and PCC)	-0.090909091
0+000	23064	Auxiliary Vehicle	-	-	-	none	-	-	Average (of DGAC and PCC)	-0.090909091
0+285	-					-	-	-	-	-
I-8 WB	Traffic direction:	In entry direction								
0+000	88800	Total	-	3700	-	none	-	-	Average (of DGAC and PCC)	-8.4
0+000	88800	Automobiles	-	3500	105	none	-	-	Average (of DGAC and PCC)	-8.4
0+000	88800	Medium trucks	-	74	105	none	-	-	Average (of DGAC and PCC)	-8.4
0+000	88800	Heavy trucks	-	70	105	none	-	-	Average (of DGAC and PCC)	-8.4
0+000	88800	Buses	-	37	105	none	-	-	Average (of DGAC and PCC)	-8.4
0+000	88800	Motorcycles	-	19	105	none	-	-	Average (of DGAC and PCC)	-8.4
0+000	88800	Auxiliary Vehicle	-	-	-	none	-	-	Average (of DGAC and PCC)	-8.4
0+998	-					-	-	-	-	-
I-8 WB	Traffic direction:	In entry direction								
0+000	88800	Total	-	3700	-	none	-	-	Average (of DGAC and PCC)	-5.166666667
0+000	88800	Automobiles	-	3500	105	none	-	-	Average (of DGAC and PCC)	-5.166666667
0+000	88800	Medium trucks	-	74	105	none	-	-	Average (of DGAC and PCC)	-5.166666667
0+000	88800	Heavy trucks	-	70	105	none	-	-	Average (of DGAC and PCC)	-5.166666667
0+000	88800	Buses	-	37	105	none	-	-	Average (of DGAC and PCC)	-5.166666667
0+000	88800	Motorcycles	-	19	105	none	-	-	Average (of DGAC and PCC)	-5.166666667
0+000	88800	Auxiliary Vehicle	-	-	-	none	-	-	Average (of DGAC and PCC)	-5.166666667
0+999	-					-	-	-	-	-

Modeling Results Table - Traffic Noise

#	Description	Noise Level dB(A)				
		1st Floor	2nd Floor	3rd Floor	4th Floor	5th Floor
1	Vision Center Northwest Façade	76	77	-	-	-
2	Vision Center Northeast Façade	72	74	-	-	-
3	Vision Center West Façade	62	65	-	-	-
4	Eastern Garden North End	65	-	-	-	-
5	Eastern Garden Central Patio	63	-	-	-	-
6	Eastern Garden South End	62	-	-	-	-
7	Wailing Wall	63	-	-	-	-
8	Souk	64	-	-	-	-
9	Pavilion Eastern Outdoor Area	65	-	-	-	-
10	Central Plaza	64	-	-	-	-
11	Pavilion North Façade East end	74	75	-	-	-
12	Pavilion North Façade West end	75	76	-	-	-
13	Pavilion Western Outdoor Area	63	-	-	-	-
14	South of Pavilion Building	56	-	-	-	-
15	Legacy Village North Façade	58	62	65	67	68
16	Legacy Village North Patio Area	58	-	-	-	-
17	Legacy Village Pool Area	54	-	-	-	-
18	Legacy Village West Façade	59	61	63	65	66
19	Legacy Village Southeast Façade	45	51	53	54	55

ATTACHMENT 3

SoundPLAN Data – HVAC

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Source Noise Levels

Source Name	Daytime Reference Sound Power Level	Nighttime Reference Sound Power Level
1	92.0	90.8
2	92.0	90.8
3	92.0	90.8
4	92.0	90.8
5	92.0	90.8
6	92.0	90.8
7	92.0	90.8
8	92.0	90.8
9	92.0	90.8
10	92.0	90.8
11	92.0	90.8
12	92.0	90.8
13	92.0	90.8
14	92.0	90.8
15	92.0	90.8
16	92.0	90.8
17	92.0	90.8
18	92.0	90.8
19	92.0	90.8

Modeling Results Table - HVAC Noise

#	Description	Noise Level dB(A)	
		Daytime	Nightime
1	Northwestern Property Line	40	39
2	Western Property Line	42	41
3	Western Property Line	43	42
4	Western Property Line	38	37
5	Southwestern Property Line	41	39
6	Southern Property Line	44	42
7	Southern Property Line	50	48
8	Southern Property Line	46	44
9	Southern Property Line	44	43
10	Southern Property Line	46	45
11	Southern Property Line	42	41
12	Southeastern Property Line	43	42
13	Eastern Property Line	44	43
14	Eastern Property Line	44	43
15	Eastern Property Line	45	44
16	Eastern Property Line	40	39
17	Northeastern Property Line	39	38

Project No. 07817-52-02
July , 2013

Caribou Industries
℅ Project Design Consultants
701 B Street, Suite 800
San Diego, California 92101

Attention: Mr. Greg Shields

Subject: PHASE I ENVIRONMENTAL SITE ASSESSMENT
MORRIS CERULLO WORLD OUTREACH LEGACY PAVILION
SAN DIEGO, CALIFORNIA

Dear Mr. Shields:

As you requested on behalf of Project Design Consultants, we have performed a Phase I Environmental Site Assessment (ESA) for the 18.94-acre property referred to as Morris Cerullo World Outreach Legacy Pavilion (the Site) located at 901 Hotel Circle South and 925 (formerly 755) Hotel Circle South in San Diego, California. The Site is currently occupied by the Mission Valley Resort which includes approximately 11 buildings utilized for guest quarters, a restaurant and bar, a convenience store, maintenance and support facilities, and a former health club. In addition, a vacant pad that was formerly the location of a gasoline station is on the northeastern corner of the Site. The Site is further identified by San Diego County Assessor's Parcel Numbers 444-060-10 and -11.

You requested the Phase I ESA to provide information regarding the potential for existing hazardous substances or petroleum products at the Site prior to demolition of the existing site improvements and the construction of a new complex. We understand the complex will include a grand entry lake, welcome center, outreach pavilion and amphitheater, a 2- to 3-story pavilion building, a 2-story executive office building, and 5-story residential/hotel building. Subterranean parking will be constructed below the majority of the Site however the limits and size of the parking structure(s) are unknown at this time.

The accompanying report presents the details of our Phase I ESA. Please contact us if you have any questions or if we may be of further service.

Sincerely,

GEOCON INCORPORATED

Sean K. Keffer
Staff Geologist

Matthew W. Lesh
Senior Project Geologist

(2) Addressee

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PHASE I AND LIMITED PHASE II ENVIRONMENTAL SITE ASSESSMENT Page

PHASE I ENVIRONMENTAL SITE ASSESSMENT

1. INTRODUCTION

This report presents the results of a Phase I Environmental Site Assessment (ESA) for the approximate 18.94-acre property referred to as Morris Cerullo World Outreach Legacy Pavilion (the Site) located at 901 Hotel Circle South and 925 (formerly 755) Hotel Circle South in San Diego, California (Figure 1). The Site is currently occupied by the Mission Valley Resort which includes approximately 11 buildings utilized for guest quarters, a restaurant and bar, a convenience store, maintenance and support facilities, and a former health club. In addition, a vacant pad that was formerly the location of a gasoline station is on the northeastern corner of the Site.

The Phase I ESA was requested by Project Design Consultants (the Client) to provide information regarding the potential for existing hazardous substances or petroleum product impacts prior to demolition of the existing site improvements and the construction of a new complex.

1.1 Purpose and Objectives

The purpose of the Phase I ESA was to identify "recognized environmental conditions" (RECs) and "historical RECs" as defined by the American Society for Testing and Materials (ASTM) *Designation E 1527-05 Standard Practice for Environmental Site Assessments: Phase I Environmental Site Assessment Process.* Section 1.1.1 of the ASTM *Designation E 1527-05* defines a REC as "the presence or likely presence of any hazardous substances or petroleum products on a property under conditions that indicate an existing release, a past release, or a material threat of a release of any hazardous substances or petroleum products into structures on the property or into the ground, ground water, or surface water of the property." The term as further defined by ASTM "is not intended to include *de minimis* conditions that generally do not present a threat to human health or the environment and that generally would not be the subject of an enforcement action if brought to the attention of appropriate governmental agencies." Section 3.2.39 defines "Historical REC" as an "environmental condition, which in the past would have been considered a recognized environmental condition, but which may or may not be considered a recognized environmental condition currently."

The Phase I ESA was also conducted in general accordance with the requirements of 40 Code of Federal Regulations (CFR) Part 312 titled *Standards and Practices for All Appropriate Inquiries,* as required under Sections 101(35)(B)(ii) and (iii) of the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA). The purpose of conducting an all appropriate inquiries investigation into the previous ownership and uses of a property is to meet the provisions necessary for the landowner, contiguous property owner, and/or bona fide prospective purchaser to qualify for certain landowner liability protections under CERCLA.

The main components of this report and their objectives, as specified by the referenced standards, include the following:

- **Physical Setting:** The objective of reviewing physical setting references was to obtain information concerning the topographic, geologic, and hydrogeologic characteristics of the Site and vicinity. Such information may be indicative of the direction and/or extent that a contaminant could migrate in the event of a spill or release.

- **Records Review:** The objective of the records review was to obtain information that could potentially help identify RECs at or potentially affecting the Site. We reviewed publicly available Federal, State, and local regulatory agency records for the Site.

- **Site History:** The objective of consulting historical references was to assess previous uses of the Site and surrounding area to identify those that could have led to RECs on or near the Site. Historical sources reviewed included aerial photographs, topographic maps, and city directories. In addition, we conducted interviews with persons who were expected to be reasonably knowledgeable about historical uses of the Site.

- **Site Reconnaissance:** The objective of the site reconnaissance was to observe site conditions and activities for indications of evidence of RECs. Offsite properties and features were also viewed, but solely from the vantage of the Site and public thoroughfares.

1.2 Scope of Services

The scope of services was performed in general accordance with ASTM *Designation E 1527-05* and our Proposal No. LG-12307 dated October 26, 2012, as requested by the Client.

1.3 Report Limitations

This report has been prepared exclusively for the Client. The information obtained is only relevant for the dates of the records reviewed or as of the date of the latest site visit. Therefore, the information contained herein is only valid as of the date of the report and will require an update to reflect recent records/site visits.

The Client should recognize that this report is not a comprehensive site characterization and should not be construed as such. The findings and conclusions presented in this report are predicated on the site reconnaissance, a review of the specified regulatory records, and a review of the historical usage of the Site, as presented in this report. The Client should also understand that wetlands, asbestos-containing building materials, lead-containing paint, lead in drinking water, radon, mercury related to mining activities, methane, and mold surveys were not included in the scope of services for this assessment. Assessment for potential naturally occurring hazards such as asbestos and arsenic also was not included.

Therefore, the report should only be deemed conclusive with respect to the information obtained. No guarantee or warranty of the results of the assessment is implied within the intent of this report or any subsequent reports, correspondence or consultation, either express or implied. We strived to conduct the services summarized herein in accordance with the local standard of care in the geographic region at the time the services were rendered.

1.4 Data Gaps

A data gap is defined by ASTM *Designation E 1527-05* as “a lack of or inability to obtain information required by this practice despite good faith efforts by the environmental professional to gather such information.” Data gaps could include such things as insufficient historical information, the inability to interview persons with direct site knowledge (e.g., the owner(s), past owner(s), tenants, workers, etc.) or the lack of access to all parts of a site during the site reconnaissance.

As discussed in Section 6, we were not provided access to a storage room in the southwest corner of Building 8 during our site reconnaissance. However, based on other information sources reviewed as part of this Phase I ESA and access to all other areas of the Site, it is our opinion that the lack of access to the storage room does not represent a significant data gap.

2. SITE DESCRIPTION

This section provides information regarding the location and physical characteristics of the Site, including its size, topography, geologic, soil, and hydrogeologic conditions.

2.1 Location and Legal Description

The Site is located at 901 Hotel Circle South and 925 (formerly 755) Hotel Circle South in San Diego, California (Figure 1). The Site is further identified by San Diego County Assessor’s Parcel Numbers 444-060-10 and -11 (Appendix A). The Site is depicted in Sections 22, 23, 26, and 27 of Township 16 South, Range 3 West, San Bernardino Base and Meridian on the United States Geological Survey’s (USGS) *La Jolla, 7.5-minute Topographic Map*.

2.2 Site and Vicinity General Characteristics

The Site is located within a mixed residential, commercial, and recreational area of San Diego, approximately 70 feet south of Interstate 8 Freeway (I-8). Figure 2 depicts the site boundaries, features, and surrounding properties.

2.2.1 Topography

The southern portion of the Site consists of a steep undeveloped hillside that descends to a relatively flat pad area in the central and northern portions of the Site that is currently developed. The United States Geological Survey’s (USGS, 1996) *La Jolla, California 7.5-minute Topographic Map* indicates the relatively flat area ranges in elevation from approximately 40 to 50 feet above Mean Sea Level (MSL). The undeveloped hillside ascends to an elevation of about 110 to 160 feet MSL within the site boundaries and continues to a maximum elevation of approximately 180 feet MSL.

2.2.2 Geologic Conditions

The Site is located in the Peninsular Ranges geomorphic province of Southern California (Norris and Webb, 1990). This geomorphic province extends roughly 900 miles from the Transverse Ranges north of the Los Angeles Basin to the tip of Baja California and varies in width from approximately 30 to 100 miles. In general, the province consists of rugged mountains underlain by Mesozoic igneous and metamorphic rocks to the east, and a dissected coastal plain underlain by Cenozoic sediments to the west. The province is traversed by a group of faults and fault zones trending roughly northwest.

Geologic conditions in the site vicinity were obtained from the *Preliminary Geologic Map of the San Diego 30' x 60'Quadrangle, California* (Tan and Kennedy, 2005). The Site is mapped as underlain by Quaternary marine beach sand and artificial fill followed by the middle Eocene Mission Valley Formation and Stadium Conglomerate. The marine beach deposits generally consist of unconsolidated fine- and medium-grained sands. Artificial fill is characterized as deposits resulting from human construction, mining or quarrying and includes compacted engineered fill and non-compacted non-engineered fill. The Mission Valley Formation is characterized by fine to medium grained sandstone containing cobble conglomerate tongues. The Stadium Conglomerate is characterized as a massive cobble conglomerate with a coarse-grained sandstone matrix.

We performed geotechnical investigations at the Site in 2004 and 2007 which included advancing 11 soil borings up to a depth of 34.5 feet. Undocumented fill and alluvium consisting of clay, silty clay, sand, and silty to clayey sand was encountered to the maximum depth explored. Gravel and cobbles were also observed within the undocumented fill in isolated areas of the site.

2.2.3 Hydrologic and Hydrogeologic Conditions

We obtained information pertaining to groundwater quality in the vicinity of the Site from the California State Water Resources Control Board (SWRCB). The Site is in the Mission San Diego Hydrologic Sub Area (907.11) of the Lower San Diego Hydrologic Area (907.10) of the San Diego Hydrologic Unit (907.00). Groundwater in the Mission San Diego Hydrologic Sub Area is designated as having existing or potential beneficial uses for municipal, agricultural, and industrial supply (SWRCB, 1994).

In an effort to assess local groundwater conditions, we reviewed reports available on the SWRCB GeoTracker website (http://geotracker.waterboards.ca.gov) for nearby facilities with historical groundwater monitoring information. A Chevron gasoline station, 925 (formerly 755) Hotel Circle Drive, was formerly located on the northeastern corner of the Site. According to the *Second Quarter2010 Semi-Annual Groundwater Monitoring Report* prepared by Stantec and dated May 21, 2010, the depth to groundwater measured in monitoring wells formerly installed on the Site ranged from 7.61 to 10.04 feet. The groundwater flow direction adjacent to the west of the station was estimated to be towards the southeast. Further west, the gradient was estimated to be towards the southwest.

2.3 Current and Planned Uses of the Site

The Site is currently occupied by the Mission Valley Resort which includes 11 buildings and associated parking lots. Buildings numbers 1 through 8 are utilized as office space, guest facilities, a restaurant, a bar, and a convenience store. Support facilities include a laundry and maintenance building, a storage building, and a health and fitness club (currently vacant). In addition, a vacant pad that was formerly the location of a Chevron gasoline station is on the northeastern corner of the Site.

We understand that the future plans for the Site include demolishing the existing site improvements and construction of a new complex. The complex will include a grand entry lake, welcome center, outreach pavilion and amphitheater, a 2- to 3-story pavilion building, a 2-story executive office building, and 5-story residential/hotel building. Subterranean parking will be constructed below the majority of the Site however the limits and size of the parking structure(s) are unknown at this time. A conceptual development plan is in Appendix B.

2.4 Descriptions of Structures, Roads, Other Improvements on the Site

Information including the approximate footprint and general use for each of the 11 buildings that currently occupy the Site is summarized as follows:

- Building 1 – Approximately 32,000 square-feet, constructed of wood, stucco and brick. The building includes the check-in desk for the resort and office spaces, a bar, a family restaurant, a convenience store, and guest rooms.

- Buildings 2 through 4 – Approximately 8,000 square-feet each, constructed of wood and brick. The two-story buildings are each used as guest quarters.

- Buildings 5 and 6 – Approximately 5,000 square-feet each, constructed of wood and brick. The two-story buildings are each used as guest quarters.

- Buildings 7 and 8 – Each building includes a group of three two-story wood and stucco structures, totaling approximately 16,000 square-feet, used as guest quarters.

- Storage Building – Located southeast of Building 5 and used for storage purposes.

- Laundry and Maintenance Building – Located south of Building 7 and houses a laundry facility, a fitness room, maintenance facility, boiler room, and equipment storage rooms.

- Health and Fitness Club - Approximately 14,000 square-foot concrete tilt-up two-story building. The building is currently vacant.

The reminder of the Site is occupied by landscaped areas and asphalt parking lots. Additional description of onsite improvements is in Section 6.

2.5 Current Uses of Adjoining Properties

Adjacent properties to the west and east are occupied by hotels. An undeveloped slope is adjacent to the south followed by single-family residences. Hotel Circle South is adjacent to the north followed by Interstate 8. Additional information regarding adjacent properties is in Section 6.

3. USER–PROVIDED INFORMATION

This section provides responses to inquiries made to the Client for site information. The Client was asked if they know of previous environmental reports or documents that may exist and, if so, whether copies could be provided. They were also asked if they have knowledge of legal or administrative proceedings involving the Site. A representative of the Client completed a User Questionnaire regarding these items, a copy of which is in Appendix C.

3.1 Title, Appraisal and Sale Agreement Records

We were not provided a copy of a title or appraisal report, or any sale agreement records.

3.2 Environmental Liens or Activity and Use Limitations

The representative stated that he they are unaware of any environmental liens on, or use limitations for, the Site.

3.3 Specialized Knowledge

The representative stated that they have no specialized knowledge for the Site.

3.4 Commonly Known or Reasonably Ascertainable Information

The representative provided no commonly known information or reasonably ascertainable information unique to the Site.

3.5 Owner, Property Manager, and Occupant Information

The representative indicated that Site is currently owned by Plaza Del Sol. Current occupant information is in Section 2.3. We interviewed Mr. Roger Artz, a representative of the site owner, via a questionnaire (Appendix C). Pertinent information from the interview is presented in Section 7.0.

3.6 Valuation Reduction for Environmental Issues

The Client indicated that they were not aware of any environmental conditions which could lead to a potential valuation reduction of the Site.

3.7 Reason for Performing Phase I ESA

A Phase I ESA was requested by the Client to obtain information regarding the potential for existing hazardous substances or petroleum impacts at the Site as part of updating their records prior to demolition of existing site structures and construction of a new complex.

4. RECORDS REVIEW

This section summarizes our review of readily available agency records for the Site and properties and facilities in the surrounding vicinity.

4.1 Standard Environmental Record Sources

Environmental Data Resources, Inc. (EDR) performed a search of Federal, State, and local databases for the Site and surrounding area. The search distance for the review extended one mile from the Site. A copy of the report entitled *The EDR Radius Map^{TM} Report with GeoCheck®*, dated February 15, 2013, is in Appendix D. The following table summarizes the databases that reported listings within the search radius.

Database Name	Search Radius (Mile)	Number of Listings
FEDERAL DATABASES		
RCRA-LQG (Large Quantity Generators)	¼	1
FINDS (Environmental Protection Agency Facility Index System)	TP	3
STATE AND LOCAL DATABASES		
ENVIROSTOR (Department of Toxic Substance Control [DTSC] Site Mitigation and Brownfields Reuse Program)	1	4
LUST (Leaking Underground Storage Tanks)	½	15
SLIC (California Regional Water Quality Control Board [RWQCB] Spills, Leaks, Investigations, and Cleanup Program)	½	7
SAN DIEGO CO. SAM (San Diego County Site Assessment and Mitigation Program)	½	8
UST (Underground Storage Tanks)	¼	1
SAN DIEGO CO. HMMD (San Diego County Hazardous Materials Management Division)	TP	2
HIST UST (Historical UST Properties/Facilities)	¼	4
SWEEPS UST (Statewide Environmental Evaluation and Planning System USTs)	¼	4
CORTESE (SWRCB LUST facilities and SWF/LF Sites)	½	1
HIST CORTESE (SWRCB Historical LUST facilities and Solid Waste/Landfill Sites)	½	9
Notify 65 (Proposition 65 Records)	1	7
HAZNET (Hazardous Waste Facility and Manifest Information)	TP	3
EMI (Emissions Inventory Data)	TP	1
HWP (DTSC Hazardous Waste and Corrective Action Facilities)	1	2
EDR PROPRIETARY INFORMATION		
EDR Historical Auto Stations	¼	10

Note: TP – Target Property (the Site)

4.1.1 Site

The following table summarizes information provided in the EDR report for listed facilities associated with the Site, the status of their listings, and their potential, if any, to impact (or have impacted) the Site.

SUMMARY OF SITE LISTINGS

Property Name	Address	Databases	Pertinent Information/Potential to Impact the Site
Chevron Station	925 (formerly 755) Hotel Circle South	SAN DIEGO CO. HMMD EDR Historical Auto Stations RCRA-LQG FINDS HAZNET HIST CORTESE LUST EMI SAN DIEGO CO. SAM UST SWEEPS UST	SAN DIEGO CO. HMMD – Several violations noted from 2004 to 2009 related to record-keeping and maintenance of secondary containment systems. The last inspection was conducted in May 2010 and the permit for this facility expired in June 2010. EDR Historical Auto Stations – Noted as a gasoline station from 1975 to 2009. LUST – Release of gasoline discovered during tank upgrading in 1999. Case noted as preliminary assessment underway in 1999 and remedial investigation in 2001. SAN DIEGO CO. SAM – Closed cases in May 1993, July 1993, and January 1994 for failed tank integrity tests. Case for 1999 release of gasoline noted as closed in November 2010. SWEEPS UST – Three 10,000-gallon gasoline USTs formerly associated with this facility. Potential to have impacted the Site.

Additional information regarding the listings for the Site is in Section 4.2.

4.1.2 Offsite Properties

The following table summarizes information provided in the EDR report for listed properties reportedly located within ¼-mile from the Site, the status of their listings, and their potential, if any, to impact the Site. Referenced distances are based on field observations and may differ from those reported by EDR.

SUMMARY OF OFFSITE PROPERTY LISTINGS

Property Name	Address	Approximate Distance and Direction from the Site	Databases	Pertinent Information/Potential to Impact the Site
Stardust Mobil	1110 Hotel Circle North	310 feet N	EDR Historical Auto Stations	EDR Historical Auto Stations - Noted as a gasoline station from 1970 to 1984. Unlikely for this facility to have impacted the Site due to lack of reported spills or leaks.
Sewer Release	950 Hotel Circle North	320 feet N	CHMIRS Notify 65	CHMIRS – Spill of 1,575 gallons of sewage due to a blockage in a sewer main. Release was mitigated under the oversight of the San Diego County Health Services Dept. Due to the nature of this release as well as the distance from the Site, it is unlikely to have adversely affected the Site.
San Diego Automotive Repair	1235 Hotel Circle South	360 feet SW	EDR Historical Auto Stations	EDR Historical Auto Stations - Noted as a gasoline station in 2002. Unlikely for this facility to have impacted the Site due to lack of reported spills or leaks.
Town & Country Union 76	504 Hotel Circle North	470 feet NE	LUST HIST UST SLIC CORTESE HIST CORTESE HAZNET SAN DIEGO CO. SAM SWEEPS UST EDR Historical Auto Stations	LUST – Release of gasoline that affected soil and groundwater closed in 1989. Case closed in 1992. HIST UST – 7,400-gallon and 5,300-gallon gasoline USTs and 500-gallon waste oil UST formerly associated with this facility. SWEEPS UST – 10,000-gallon UST reported for this facility in 1992. EDR Historical Auto Stations – Noted as a gasoline station from 1961 to 1975. Unlikely for this facility to have impacted the Site based on the closed status of case and distance from the Site. Additional information is in Section 4.2.
Maxon Precision Motors	4420 Hotel Circle South	520 feet SW	EDR Historical Auto Stations	EDR Historical Auto Stations - Noted as a gasoline station in 2004. Unlikely for this facility to have impacted the Site due to lack of reported spills or leaks.

4.1.3 Orphan Summary

The Orphan Summary in the EDR report identifies properties that have incomplete address information and therefore could not be accurately plotted. The Orphan Summary lists 20 facilities and/or properties. Based on information provided for the listed properties, their locations, and the databases on which the properties were listed, no significant adverse impact to the Site is expected from these properties.

4.2 Additional Environmental Record Sources

We performed a search of additional readily available environmental record sources. The search distance for the review extended approximately ¼-mile from the Site, unless otherwise noted. A summary of our findings is presented below.

4.2.1 GeoTracker and EnviroStor Websites

The SWRCB's GeoTracker database (http://geotracker.swrcb.ca.gov/) and the DTSC's EnviroStor database (http://www.envirostor.dtsc.ca.gov/public/) were reviewed for information regarding the Site and nearby properties/facilities of concern. No properties within 1/4-mile of the Site were listed on EnviroStor. The site address 925 (formerly 775) Hotel Circle South was referenced on the GeoTracker database as a Chevron gasoline station. Four closed unauthorized release cases under the oversight of the County of San Diego – Department of Environmental Health (DEH) are associated with this facility and pertinent information for each case is summarized below.

- DEH Case No. H21151-001 – Unauthorized release of gasoline reported during tank integrity testing in April 1993. The case was closed by DEH in May 1993.

- DEH Case No. H21151-002 – Unauthorized release of gasoline reported during tank integrity testing in July 1993. The case was closed by DEH in July 1993.

- DEH Case No. H21151-003 – Unauthorized release of gasoline reported during tank integrity testing in August 1993. The case was closed by DEH in January 1994.

- DEH Case No. H21151-004 – Unauthorized release of gasoline discovered during tank upgrade activities in November 1998. The upgrade activities included removal of four gasoline and waste oil USTs and the installation of three new 10,000-gallon gasoline USTs. Analysis of soil samples collected from the base of the of the tank excavation following removal of the older USTs showed elevated concentrations of Total Petroleum Hydrocarbons as gasoline (TPHg), benzene, toluene, ethylbenzene, and total xylenes (BTEX), and methyl tert-butyl ether (MTBE). Approximately 160 tons of impacted soil were excavated from the tank pit and disposed of offsite, however residual soil impacts were detected in a sample collected from the southeastern portion of the pit at a depth of 10 feet.

  Additional assessment activities were conducted by Secor (currently Stantec) from 2000 to 2008 including the installation of nine onsite monitoring wells. Initial groundwater monitoring was performed in January 2001 and analytical results showed elevated concentrations of TPHg, BTEX, and MTBE. Groundwater monitoring at the station continued on quarterly to semi-annual basis and was most recently conducted in April 2010.

In March 2010 (revised June 2010) Stantec submitted a Corrective Action Plan (CAP) to the DEH for review and comment. The CAP included a request for closure of the unauthorized release case due to the delineation of dissolved-phase hydrocarbons in groundwater, significant declines of hydrocarbon concentrations in groundwater samples, and an acceptable health risk assessment under commercial land use. Stantec estimated that residual concentrations of hydrocarbons in groundwater would reach State of California Maximum Contaminant Levels (MCLs) approximately three years following the April 2010 monitoring event. Stantec also estimated that 37 cubic yards of impacted soil remained at the Site in the southeastern corner of the tank pit.

The station was decommissioned under the oversight of DEH in April 2010 which included removal of the three 10,000-gallon USTs, dispenser islands, and associated product piping. No visible corrosion was observed an each the USTs at the time of removal and analysis of soil samples collected from the base of the UST excavation showed no detections of TPHg, BTEX, MTBE, or naphthalene. With the exception of trace concentrations of naphthalene, these constituents were also not detected in soil samples collected from below the dispenser islands and product piping. A summary of the UST removal and soil sampling results was submitted by Stantec to DEH in June 2010 report.

Following review of the CAP and UST removal report, DEH issued a closure letter for Case No. H21151-004 on November 29, 2010. In the closure letter, the DEH noted that their review was based on a commercial/hotel resort land use, which we understand is the current proposed use for the Site. A copy of the closure letter as well as figures and tables from the CAP and the UST removal report are in Appendix E.

Based on the closed status of the cases, lack of proposed change in land use for the Site, and removal of the USTs, dispensers, and piping, the unauthorized releases associated with the former Chevron gasoline station are considered a Historical REC.

One offsite property within 1/4-mile of the Site, Hotel Circle 76, located at 504 Hotel Circle North, was listed on GeoTracker. An unauthorized release case was opened in May 1989 due to a leak of gasoline that affected soil and groundwater. The case was closed by DEH in August 1992. Additional information was not provided. Based on the distance of this facility and closed status of the case, there is low likelihood that this historical offsite release has negatively impacted the Site.

4.2.2 State of California Department of Conservation, Division of Oil, Gas and Geothermal Resources (DOGGR)

We reviewed the State of California Department of Conservation, Division of Oil, Gas, and Geothermal Resources (DOGGR) online mapping system (http://maps.conservation.ca.gov) for information on any oil or gas wells on or near the Site. According to the DOGGR website, well “Balboa” 1 is located approximately 3,000 feet east of the Site. The well status is noted as “idle”. Based on the distance and status of the well, it is unlike to adversely affect the Site.

4.2.3 County of San Diego Department of Agriculture, Weights and Measures

We submitted a request to the County of San Diego, Department of Agriculture, Weights and Measures, Pesticide Use Enforcement Division regarding possible use of restricted pesticides/herbicides at the Site. The Department maintains such records for approximately four years. According to the County, no record of pesticide/herbicide use was reported for the addresses or APNs associated with the Site for the period of 2009 through 2012.

4.2.4 San Diego Air Pollution Control District

We submitted a request to the San Diego Air Pollution Control District (APCD) for records pertaining to the Site. According to the APCD, no records were on file for the addresses or APNs associated with the Site.

4.2.5 County of San Diego - Department of Environmental Health

We submitted a request to the DEH for records pertaining to the Site. According to the DEH, records associated with the former Chevron gasoline station at 925 (formerly 775) Hotel Circle South were available. However, due to the compressive summary of assessment activities at this facility on the GeoTracker website (Section 4.2.1), additional records were not reviewed at the DEH.

5. HISTORICAL USE

This section summarizes information obtained from a variety of sources regarding the historical uses of the Site and identifies those uses that could have led to RECs. The sources of information included historical aerial photographs, historical topographic maps, and an abstract of city directories provided by EDR. According to EDR, Sanborn maps do not exist for the Site or site vicinity and were not reviewed as part of this assessment.

5.1 Aerial Photographs

Historical aerial photographs provided by EDR for the years 1953, 1964, 1974, 1980, 1989, 1994, 2005, 2009, and 2010 (Appendix F) were reviewed for indications of past land uses that had the potential to have impacted the Site through the use, storage or disposal of hazardous substances and/or petroleum. The following table summarizes the observations of the Site and adjacent properties on the aerial photographs.

Year	Observations	
	Site	**Adjacent Properties**
1953 (1"= 500')	Approximately five rural residential structures appear to have been located in the central and eastern portions of the Site. The remainder of the Site appears to have been vacant fields.	Interstate 8 was located north of the Site as a four-lane highway. Commercial structures and a golf course were located further north. Rural residential and vacant fields were east and west of the Site. Residential neighborhoods were located south of the Site.

Year	Observations	
	Site	**Adjacent Properties**
1964 (1”= 500’)	The Site appears to have been developed with the eight main site buildings, associated parking lots, and two pools in their current configuration. A gasoline station was on the northeastern corner of the Site.	Interstate 8 appears to have been expanded into a multilane freeway with an on- and off-ramps north of the Site. A hotel appears to have been added to the golf course north of the Site. Hotels also appear to have been constructed east and west of the Site. The southern adjacent properties appear similar to that observed in the 1953 aerial photograph.
1974 (1” = 500’)	The Site appears similar to that observed in the 1964 aerial photograph.	Additional commercial structures appear to have been east and west of the Site. A shopping mall is appears northeast of the Site.
1980 (1” = 500’)	Building 1 appears to have been expanded and the eastern half of the laundry and maintenance building was constructed south of Building 7. The southeastern portion of the Site appears to have been developed with the health club, associated parking lot, swimming pool, and tennis courts.	Adjacent properties appear similar to those observed in the 1974 aerial photograph.
1989 (1” = 500’)	The western portion of the laundry and maintenance building was constructed. All other site features appear similar to that observed in the 1980 aerial photograph.	Adjacent properties appear similar to those observed in the 1980 aerial photograph.
1994 (1” = 500’)	The Site appears similar to that observed in the 1989 aerial photograph.	Adjacent properties appear similar to those observed in the 1989 aerial photograph.
2005 (1” = 500’)	Some of the health club tennis courts appear to have been converted into parking lots. All else for the Site appears similar to that observed in the 1994 aerial photograph.	Adjacent properties appear similar to those observed in the 1994 aerial photograph.
2009 (1” = 500’)	The Site appears similar to that observed in the 2005 aerial photograph.	Adjacent properties appear similar to those observed in the 2005 aerial photograph.
2010 (1” = 500’)	The Site appears similar to that observed in the 2009 aerial photograph, except the gasoline station on the northeastern portion of the Site is now a vacant lot.	Adjacent properties appear similar to those observed in the 2009 aerial photograph.

The Site appears to have been developed with rural residential and vacant fields prior to the construction of the Mission Valley Resort by at least 1964. No direct evidence of RECs was observed in the site vicinity based on review of the aerial photographs, with the exception of the gasoline service station on the northeastern corner of the Site which is discussed in Section 4.

5.2 Topographic Maps

Historical topographic maps provided by EDR for the years 1904, 1953, 1967, 1975, and 1996 were reviewed and are in Appendix G. The following table summarizes observations of the Site and adjacent properties on the historical topographic maps.

Year	Observations	
	Site	**Adjacent Properties**
1904 (1: 250,000)	No site features or land uses are depicted.	No structures are depicted on the adjacent properties.
1953 (1:24,000)	Three rural structures are depicted on the Site.	Rural structures are depicted in the site vicinity to the east and west. Interstate 8 is depicted north of the Site as a four-lane highway and a golf course is depicted further north. Property to the south is developed with residential neighborhoods.
1967 (1: 1:24,000)	The Site is depicted with the eight main buildings.	The eastern and western adjacent properties are developed with hotels and the golf course is now labeled "Stardust Country Club."
1975 (1: 24,000)	The health club building is depicted on the southern portion of the Site.	Additional commercial structures are depicted in the site vicinity.
1996 (1: 50,000)	The Site is depicted as urban development.	The surrounding area is depicted as urban development.

No direct evidence of RECs was observed on the Site or in the site vicinity based on review of the topographic maps.

5.3 City Directory

EDR prepared an abstract of city directories including city, cross-reference, and telephone directories. The directories were reviewed at approximately five-year intervals, if available, from 1903 through 2012. A copy of the EDR city directory abstract including information regarding offsite facilities is in Appendix H.

The Site is listed as having been occupied by:

901 Hotel Circle South

- 1980 to 2012 – California Style Barber Shop, Atlas Health Club, Club Massage, Frogs Club One, Club One Inc, A Leap Ahead, Tina Tran and Co., O'Connor's Flower Shop, Massage Extraordinaire, Anna Kelly, Quest Holistic Center, Fit Test, and Valley Hair Designs.

925 Hotel Circle South

- 2006 to 2012 – Fipp Investments, Zouvas Investment Group, Pearl River Packing International, Bridgepoint Capital Advisors, Inc., and Meistrich Capital Resources Inc.

Former 755 Hotel Circle South

- 1980 to 2006 – Chevron Station
- 1970 to 1975 – Standard Stations Inc.

Former 857 Hotel Circle South

- 2012 – Mission Valley Resort
- 2006 – Quality Resort

Former 875 Hotel Circle South

- 1970 to 2012 – Mission Valley Resort, Red Candle Steak House, Hotel Circle Bottle Shop Liquors, Atlas Air Conditioning and Refrigeration, Mission Valley Inn Coffee Shop, Exchange Club, La Hacienda Steak House Restaurant, Mission Valley Inn Cocktail Lounge, Mission Valley Inn, Quality Resort, Intel Routing, Inc., Restaurant Valley Liquor, Bonita Flowers Hotel Circle, and Valley Kitchen Restaurant.

Properties adjacent to the Site are listed as having been occupied by:

4392 through 4396 Arcadia Drive (Southern Adjacent Property)

- 1921 to 2006 – Residential

907 through 947 Court Way (Southern Adjacent Property)

- 1927 to 2006 – Residential

950 Hotel Circle North (Northern Adjacent Property)

- 2007 to 2012 – Stardust & Hair & Nail Design, Enterprise Rent-A-Car, Gallery for Hair, Spectator Tickets, The Marketplace, Image Staffing, Inc., Postcards American Bistro, Convection Photos Com, Inc., Handlery Hotel and Resort.

715 Hotel Circle South (Eastern Adjacent Property)

- 1970 to 2000 – Residential

945 Hotel Circle South (Western Adjacent Property)

- 2007 to 2012 – Hutcheson Bumpermedic LLC, and Meistrich Capital Resources.

The Site majority of the addresses listed in the city directories consist of various commercial and resort-related businesses with the exception of the former gasoline station on the northeastern corner of the Site (former 755 Hotel Circle South) from 1975 to 2006. Additional information regarding the station is in Section 4. Adjacent properties listed in the city directories consist of various residential and commercial businesses.

6. SITE RECONNAISSANCE

This section summarizes observations of the Site and surrounding properties made during the site reconnaissance.

6.1 Methodology and Limiting Conditions

Ms. Alexis Fowler and Mr. Sean Keffer with Geocon performed the site reconnaissance on February 27, 2013, by walking throughout the interior and exterior areas of the Site. We were accompanied by Mr. Bill Biggs (a representative for the Mission Valley Resort) during the site reconnaissance. We did not have access to a storage room in the southwest corner of Building 8 but were granted access to all other areas of the Site. We observed two unoccupied guest rooms as a representative sample of guest accommodations at the Site.

We performed the offsite survey by making observations of adjacent properties from the Site and adjacent roads. Weather on the day of the site reconnaissance was sunny with temperatures in the mid-70s. Photographs of various site features and offsite properties are appended. Site features are illustrated in Figure 2.

6.2 General Site Setting

The Site is located in an area of predominantly high-density commercial structures, single-family residences, public roadways, and interstates. Hotel Circle South is adjacent to the north of the Site followed by Interstate 8, commercial properties are to the east and west, and undeveloped slopes and residential properties are to the south.

6.3 Onsite Survey

The 18.94-acre Site consists of approximately 11 structures related to commercial hotel use and a former health club. The remainder of the Site is developed with asphalt parking areas, grass courtyards, swimming pools, and a vacant pad that was the formerly the location of a gasoline station (Photograph Nos. 1 through 7). We observed evidence of de minimis oil staining throughout the parking areas.

Building 1 contains a check-in desk, office spaces, a family restaurant and bar, a convenience store, and guest rooms. Two 90-gallon grease traps related to the restaurant are located below the floor in the kitchen (Photograph No. 8). Mr. Biggs indicated the traps are emptied and cleaned monthly. Natural gas piping was observed entering the east side of Building 1 (Photograph No. 9). An electrical service panel was located south of Building 4 (Photograph No. 10). Storm drain inlets were observed on the southeast and northwest portions of the Site (Photograph No. 11).

Buildings 2 through 8 are used for guest accommodations (Photographs 12 and 13) and a storage building is located southeast of Building 5. Items observed in the area of the storage building include televisions, drywall, furniture, toilets, cans of paint, and a 50-pound tank of R-22 refrigerant used for servicing guest room air conditioning units (Photograph Nos. 14 through 17).

A laundry and maintenance building is located south of Building 7. Laundry operations are conducted in the eastern portion of the building and six washing machines and empty 5-gallon buckets of detergent and fabric softener were observed (Photograph No. 18). Maintenance facilities are located in the western portion of the building and caulking, lubricants, fluorescent lights, and fuel and oil containers were observed (Photograph Nos. 19 and 20). No leaking containers or staining was observed within the laundry or maintenance areas.

A storage area is located adjacent to the south of the laundry and maintenance building. We observed service vehicles, lawn mowers, a battery charging station, bags of water-softening salt and fertilizer in the storage area (Photograph Nos. 21 and 22). An air compressor with de minimis staining was located in the eastern portion of the storage area (Photograph No. 23). We observed a spool of cable and a corroding 5-gallon can labeled as paint thinner in a grassy area adjacent to the west of the storage area (Photograph Nos. 24 and 25).

A vacant health club building is located on the southeastern portion of the Site. The two-story building contains racquetball courts, offices, saunas, showers and workout areas (Photograph Nos. 26 and 27). We observed two floor drains in a former wash room in the central portion of the building (Photograph No. 28). Significant staining was not observed in the area of the drains. The exterior areas of the health club included a swimming pool, parking areas, and basketball and tennis courts with cement bleachers.

Several pad-mounted electrical transformers were observed throughout the Site, predominately along the northern, western, and eastern site boundaries (Photographs Nos. 29 and 30). None of the observed transformers displayed evidence of past or current staining. Concrete debris was observed on the vacant lot that was the former location of a gasoline station (Photograph No. 5). We observed a monitoring well cover on Hotel Circle South directly north of the former fuel station. Other apparent former well locations on the Site appear to have been destroyed.

We observed the following potentially asbestos containing materials (ACM): vinyl flooring, carpet mastic, drywall, tape, joint compound, textured wall and ceilings, and acoustic ceiling panels in the restaurant and fitness room. We did not observe the roof; however roofing materials are commonly known to contain ACM.

No direct evidence of RECs was observed during the site reconnaissance.

6.4 Offsite Survey

Properties within the site vicinity include commercial developments, single-family residences, and undeveloped slopes. Observations of properties adjacent to the Site are summarized below:

- **North –** The Site is bordered to the north by Hotel Circle South followed by Interstate 8 (Photograph Nos. 31 and 32).
- **West –** The Site is bordered to the west by the Travelodge hotel (Photograph No. 33).
- **South –** An undeveloped slope is adjacent to the south of the Site (Photograph Nos. 34 and 35) followed by single-family residences (Photograph No. 36).
- **East** – The Vagabond Inn is adjacent to the east of the Site (Photograph No. 5).

No direct evidence of RECs was observed on the surrounding properties and facilities.

7. INTERVIEWS

We interviewed Mr. Roger Artz, a representative of the site owner, via a questionnaire (Appendix C). Mr. Artz indicated that the Site has been owned and managed by Plaza Del Sol for approximately one year and that the Site has been used for a resort/hotel since 1970. He also indicated that the majority of the hotel/resort buildings were constructed in 1965. He stated that he is aware that a fuel station was formerly located on the Site and that the USTs and piping were removed prior to their acquisition of the Site. He stated that he is unaware of environmental liens or use limitations associated with the Site and of any existing environmental concerns at the Site.

We also interviewed Mr. Bill Biggs, a representative of the Mission Valley Resort that currently occupies the Site. Mr. Biggs indicated the main hotel/resort structures were built in the 1950's and that a lead-containing paint and ACM survey had been previously completed at the Site. According to Mr. Biggs, the health club on the southern portion of the Site was shut down in approximately 2007.

8. SUMMARY OF FINDINGS

We have performed a Phase I ESA in general conformance with the scope and limitations of ASTM *Designation E 1527-05*, for the 18.94-acre property referred to as Morris Cerullo World Outreach Legacy Pavilion located at 901 Hotel Circle South and 925 (formerly 755) Hotel Circle South in San Diego, California. The Site is currently occupied by the Mission Valley Resort which includes approximately 11 buildings utilized for guest quarters, a restaurant and bar, a convenience store, maintenance and support facilities, and a former health club. In addition, a vacant pad that was formerly the location of a gasoline station is in the northeastern corner of the Site. We understand the future plans for the Site include demolishing the existing site improvements and the construction of a new hotel/resort complex.

The following table presents a summary of findings and opinions associated with the Phase I ESA performed at the Site, including known or suspect RECs, historical RECs, and de minimis environmental conditions.

Assessment Category	Observed (Y/N)	REC (Y/N)	Recommended Actions
Hazardous Substances/Petroleum Products	N	N	Historical REC – former operation of a Chevron gasoline station on the Site until 2010.
Hazardous Wastes	Y	N	NFA
Non-Hazardous Wastes	Y	N	NFA
Aboveground/Underground Storage Tanks	N	N	Historical REC – former USTs associated with the operation of a Chevron gasoline station.
Unidentified Substance Containers	N	N	NFA
Equipment Potentially Containing PCBs	N	N	NFA
Wastewater Systems	N	N	NFA
Evidence of Releases	Y	N	DM – Surficial oil staining observed in the parking lots and near air compressor south of laundry and maintenance building. Historical REC – Four closed DEH cases associated with historical releases of gasoline at the former Chevron station.
Pools of Liquid, Pits, Ponds, Lagoons	N	N	NFA
Wells	N	N	NFA
Other Site Issues	N	N	NFA
Nearby Properties	N	N	NFA
Historical Land Use – Site	N	N	NFA
Historical Land Use – Nearby Properties	N	N	NFA

Recommended Action:
AA = Additional action recommended.
NFA = No further action required at this time.
DM = De minimis condition requiring no further action at this time.

9. CONCLUSIONS AND RECOMMENDATIONS

We have performed a Phase I ESA, in general conformance with the scope and limitations of ASTM *Designation E 1527-05*, for the 18.94-acre property referred to as Morris Cerullo World Outreach Legacy Pavilion located at 901 Hotel Circle South and 925 (formerly 755) Hotel Circle South in San Diego, California. Exceptions to, or deletions from, this practice are described in Section 1.4 of this report.

As summarized in Section 8, Historical RECs related to the former Chevron station on northeastern corner of the Site were identified. Historical operations at the station included the use of USTs, dispenser islands, and product piping. In addition, four unauthorized releases of gasoline were reported in the regulatory databases searched by EDR and on the GeoTracker website.

The station was decommissioned in 2010 which included removal of the USTs, dispenser islands, and product piping. Each of the four unauthorized release cases was mitigated and DEH issued closure for each case based on a commercial/hotel resort land use, which we understand is the current proposed use for the Site. Based on the closed status of the cases, lack of proposed change in land use for the Site, and decommissioning of the station, additional assessment does not appear to be warranted at this time. However, if residual impacted soils are encountered during future redevelopment activities, we recommend they are segregated and characterized for potential reuse or disposal options.

The Phase I ESA also identified *de minimis* environmental conditions at the Site due to the observance of oil staining in the parking lots and near an air compressor south of the laundry and maintenance building. No assessment of the *de minimis* conditions is recommended.

10. REFERENCES

American Society for Testing and Materials *Designation E 1527-05 Standard Practice for Environmental Site Assessments: Phase I Environmental Site Assessment Process*, 2005.

California State Water Resources Control Board, GeoTracker website, http://geotracker.swrcb.ca.gov/.

California State Water Resources Control Board, *Water Quality Control Plan for the San Diego Basin (9), San Diego, California*, 1994.

Division of Oil, Gas & Geothermal Resources – DOGGR Home Page, State of California Department of Conservation, http://maps.conservation.ca.gov/doms/index.html.

Department of Toxic Substance Control (DTSC) EnviroStor website, http://www.envirostor.dtsc.ca.gov/public/.

Norris, R. M. and Webb, R. W. *Geology of California* (2nd edn). New York: John Wiley & Sons, Inc. 1990.

Tan, S. S. and Kennedy, M. P. (2005). *Geologic Map of the San Diego 30' X 60' Quadrangle, California*, United States Geological Survey, Department of Earth Sciences, University of California, Riverside.

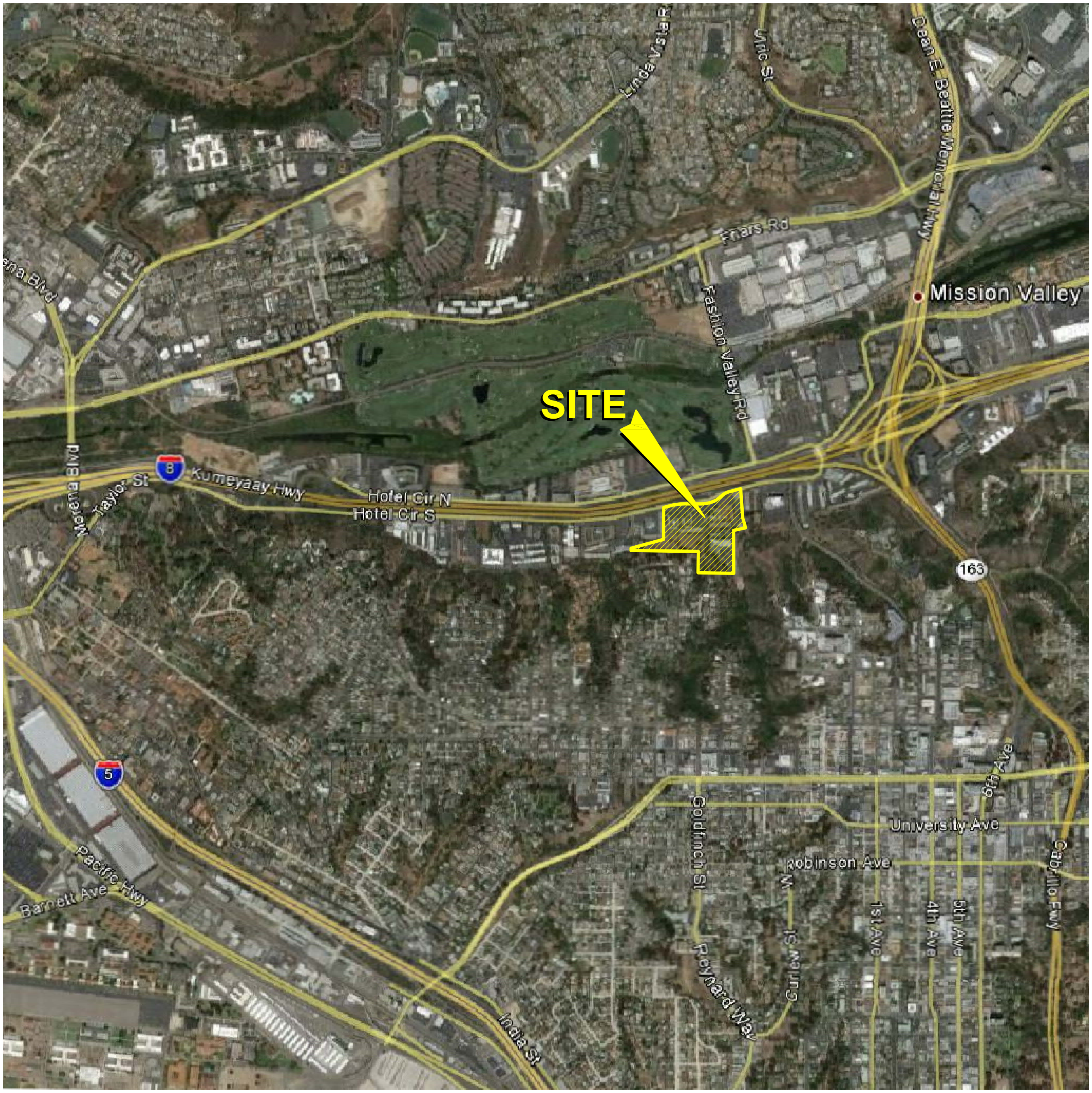
United States Geological Survey, *La Jolla, California Quadrangle Topographic Map (7.5', 1:24,000),* 1996.

11. QUALIFICATIONS

This Phase I ESA report was prepared by Mr. Matthew Lesh and Mr. Sean Keffer. We declare that, to the best of our professional knowledge and belief, we meet the definition of Environmental Professional as defined in Section 312.10 of 40 CFR Part 312. We have the specific qualifications based on education, training, and experience, to assess a property of the nature, history, and setting of the subject property. We have developed and performed the all appropriate inquiries in conformance with the standards and practices set forth in 40 CFR Part 312.

Mr. Lesh has an MS degree in Geological Science and over 12 years of experience in environmental investigation and remediation, including implementation of soil and groundwater remedial actions for private and government clients. He has managed a wide variety of projects for clients in the transportation, educational, and residential and commercial development industries under the oversight of the Regional Water Quality Control Board, Environmental Protection Agency, and Department of Toxic Substances Control. Mr. Lesh has extensive experience in the performance of Phase I ESAs of commercial, industrial, and agricultural properties throughout Southern California.

Mr. Keffer has a BS degree in Geological Science and experience in the preparation and management of Phase I ESAs and other site investigation activities. Mr. Keffer performs research, environmental assessments, and field sampling programs for industrial sites, commercial/retail areas, residential and agricultural properties, and transportation corridors.



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NO SCALE

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VICINITY MAP

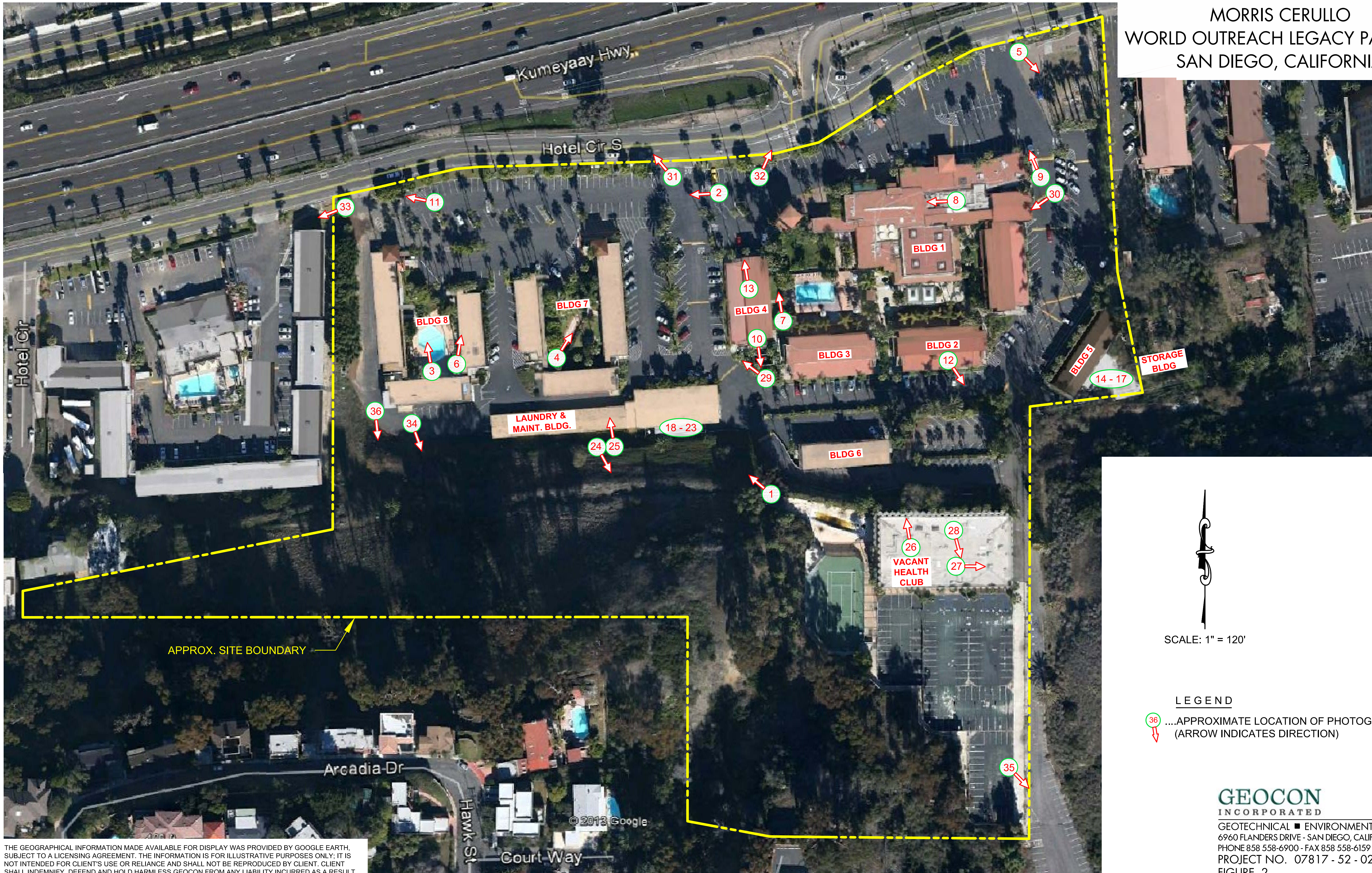
MORRIS CERULLO WORLD OUTREACH LEGACY PAVILION
SAN DIEGO, CALIFORNIA

SK / RS		DSK/GTYPD	DATE JULY 2013	PROJECT NO. 07817 - 52 - 02	FIG. 1

Vicinity Map

Y:\PROJECTS\07817-52-02 (MCWO Pavilion)\ENVIRONMENTAL\DETAILS\GVicinity Map.dwg

MORRIS CERULLO WORLD OUTREACH LEGACY PAVILION SAN DIEGO, CALIFORNIA



SCALE: 1" = 120'

LEGEND

36 ....APPROXIMATE LOCATION OF PHOTOGRAPH (ARROW INDICATES DIRECTION)

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SITE PLAN

PROJECT NO. 07817 - 52 - 02
FIGURE 2
DATE JULY 2013

Photograph #1
View of the Site looking northwest from the south-central portion of the Site.

Photograph #2
View of the Site looking west across the parking area adjacent to Hotel Circle South.

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MORRIS CERULLO WORLD OUTREACH LEGACY PAVILION
SAN DIEGO, CALIFORNIA

PROJECT NO. 07817-52-02

Photograph #3
Building 8 courtyard and swimming pool.

Photograph #4
Building 7 courtyard.

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SAN DIEGO, CALIFORNIA

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Photograph #5
Former fuel station on northeast corner of the Site. The Vagabond Inn is visible in background.

Photograph #6
Guest Rooms at Building 8.

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PROJECT NO. 07817-52-02

Photograph #7
Guest rooms at Building 4.

Photograph #8
Grease trap in restaurant kitchen.

Photograph #9
Natural gas supply at Building 1.

Photograph #10
Electrical Panel south of Building 4.

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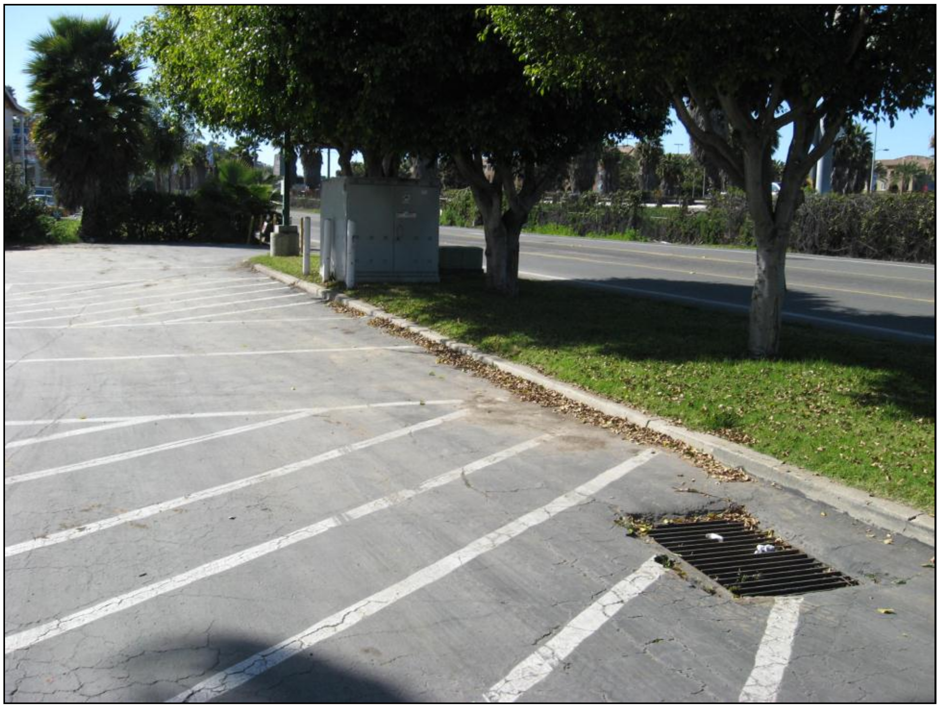
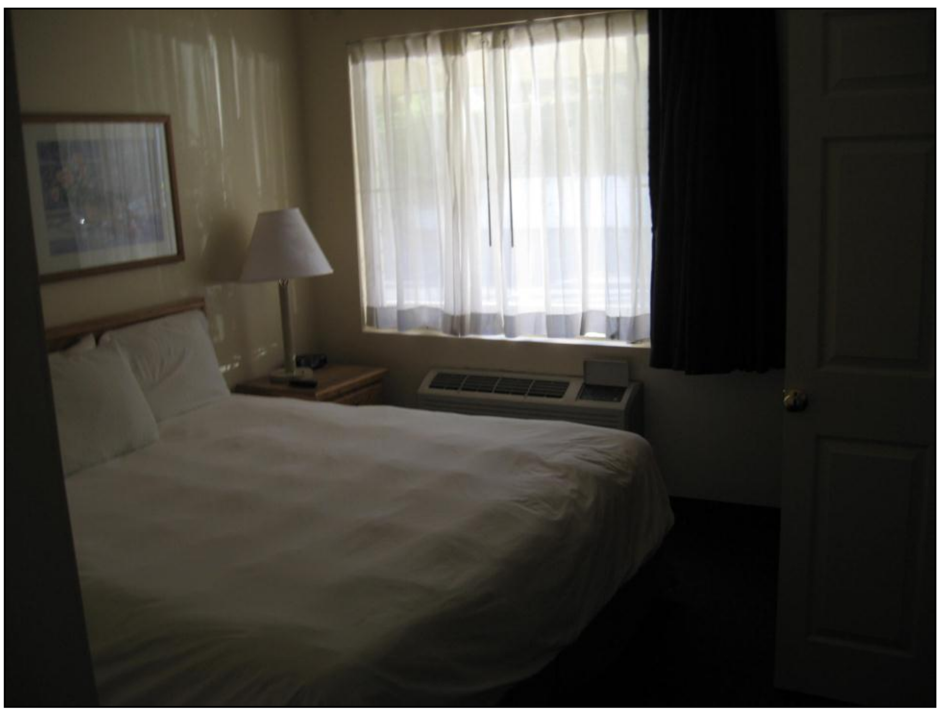
SAN DIEGO, CALIFORNIA

PROJECT NO. 07817-52-02



Photograph #11
Storm Drain inlet and pad mounted transformer on northwest corner of the Site.



Photograph #12
Guest accommodations in Building 2.

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SAN DIEGO, CALIFORNIA

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Photograph # 13
Guest accommodations in Building 4.

Photograph #14
Storage area behind Building 5.

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Photograph #15
Stored furniture and televisions.

Photograph #16
Paint storage area in storage building.

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SAN DIEGO, CALIFORNIA

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Photograph #17
50-pound bottle of R-22 refrigerant for air conditioner servicing.

Photograph #18
Empty 5-gallon buckets of laundry cleaners.

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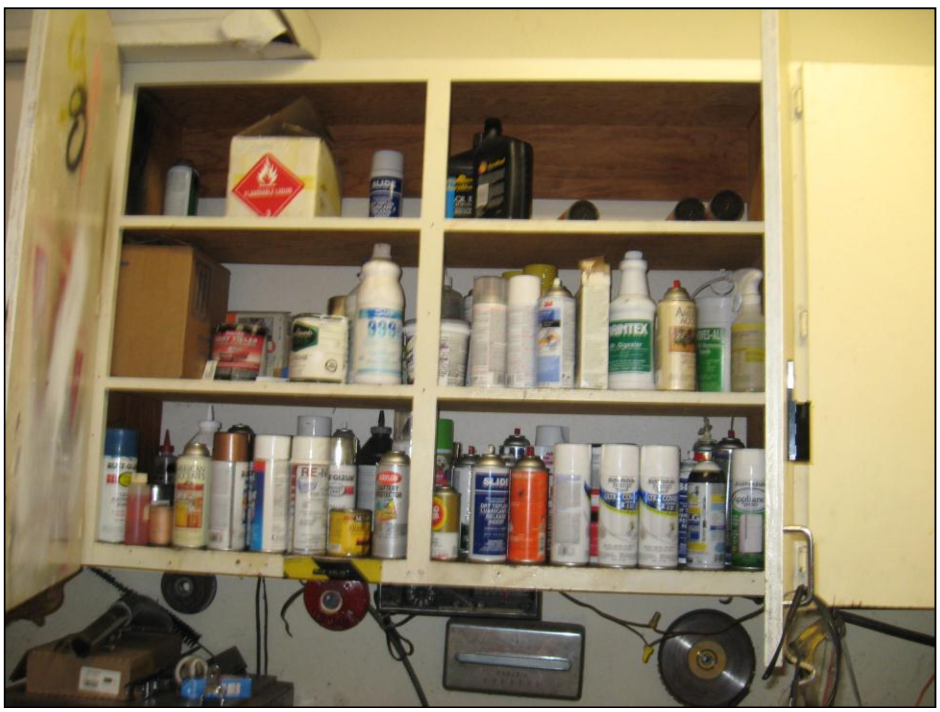
Photograph #19
Maintenance facilities interior.



Photograph #20
Cabinet containing lubricants in the maintenance facilities.

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SITE PHOTOGRAPHS

SAN DIEGO TECHNOLOGY CENTER SITE I
SAN DIEGO, CALIFORNIA

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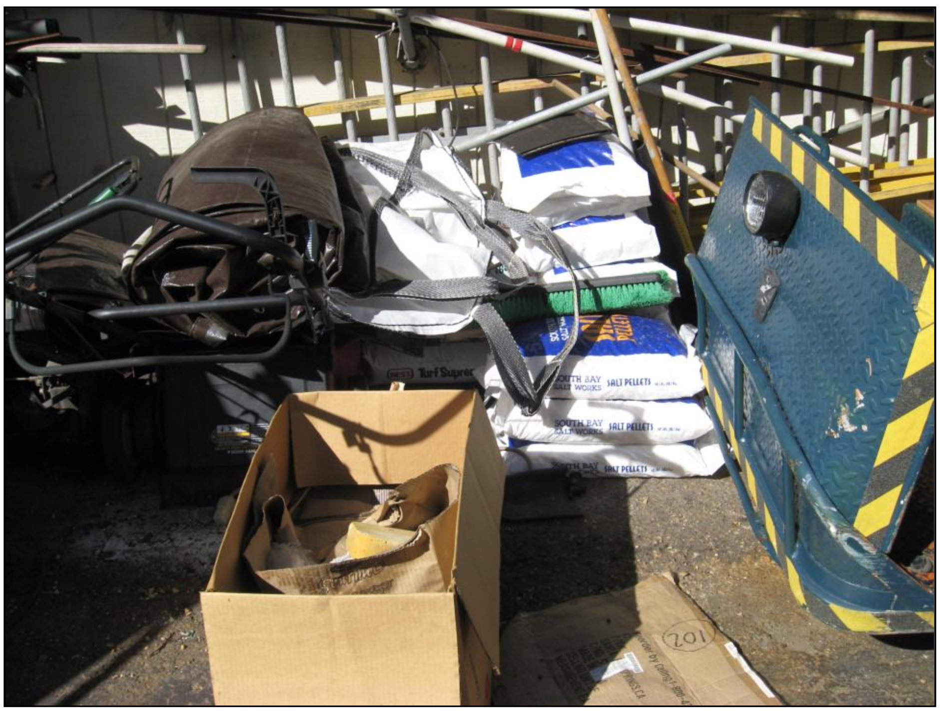
Photograph #21
Storage area south of laundry and maintenance building.



Photograph #22
Bags of salt and fertilizer south of the laundry and maintenance building.

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Photograph #23
Air compressor with de minimis staining behind maintenance building.

Photograph #24
5-gallon can and cable spool adjacent to maintenance area.

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Photograph #25
5-gallon can label.

Photograph #26
Vacant health club racquetball court interior.

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Photograph #27
Former workout area on second floor of vacant health club.

Photograph #28
Floor drains in cleaning room of vacant health club.

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SAN DIEGO, CALIFORNIA

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Photograph #29
Finned transformer south of Building 4.

Photograph #30
Finned transformer east of building 1.

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SAN DIEGO, CALIFORNIA

PROJECT NO. 07817-52-02

Photograph #31
Hotel Circle South and Interstate 8 looking northwest from the central portion of the Site.

Photograph #32
Hotel Circle South and properties beyond looking northeast from the central portion of the Site.

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SAN DIEGO, CALIFORNIA

PROJECT NO. 07817-52-02

Photograph #33
Travelodge hotel adjacent to the west of the Site.

Photograph #34
Undeveloped slope looking south from the southwestern portion of the Site

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MORRIS CERULLO WORLD OUTREACH LEGACY
PAVILION
SAN DIEGO, CALIFORNIA

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Photograph #35
Undeveloped slope looking southeast from the southeastern portion of the Site.

Photograph #36
Single-family residences south of the undeveloped slope.

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MORRIS CERULLO WORLD OUTREACH LEGACY PAVILION
SAN DIEGO, CALIFORNIA

PROJECT NO. 07817-52-02

December 16, 2016
Project No. 20163965.001A

Mr. Jim Reed, PE, RA, Leed®AP, RPA
Carrier Johnson + Culture
1301 Third Avenue
San Diego, California 92101

SUBJECT: Soil Vapor Survey Report
Legacy International Center, Mission Valley Campus
875 Hotel Circle South
San Diego, California

Dear Mr. Reed:

Kleinfelder is pleased to provide Carrier Johnson + Culture (Client) this *Soil Vapor Survey Report* for the proposed Legacy International Center, located at 875 Hotel Circle South (Site), Mission Valley, San Diego, California (Figure 1). This report summarizes the soil vapor probe installation, sampling, and the soil vapor sample analytical results. The scope of services for Kleinfelder's soil vapor survey was described in Kleinfelder's *Proposal for Soil Vapor Survey* dated November 14, 2016.

BACKGROUND

The northeast corner of the site was previously occupied by a Chevron service station which has an associated closed leaking underground storage tank (LUST) case. In 2016, Kleinfelder drilled two geotechnical bores west of the former service station and observed strong hydrocarbon odors in both bores. Based on Kleinfelder's field observations and review of environmental documents pertaining to the LUST case, residual soil and groundwater contamination may exist beneath the site. Kleinfelder understands a museum is proposed to be constructed near the northeast portion of the Site. To identify potential health risks to future building occupants, Kleinfelder performed a soil vapor survey at the northeast portion of the Site, including the proposed location of the future museum.

INVESTIGATION PREPARATORY ACTIVITIES

Health and Safety Plan Preparation

Prior to initiation of field activities, Kleinfelder updated its Site-specific Health and Safety Plan that included information regarding possible chemical hazards, physical hazards, monitoring equipment, and contingency plans for emergencies that may arise during field activities. This plan was based on the general knowledge of chemical characteristics of materials reportedly present on the Site. Based on the proposed field services and probable environmental conditions, Level D Protection (personal protective equipment including gloves, steel-toe rubber

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boots, hard hat, and eye protection) was identified as adequate for performing the field activities described herein, and an upgrade was not required during field work.

Permit Procurement

There were no permits required for the soil vapor probe installation and sampling activities that are described in this report.

Bore Location Marking and Geophysical Utility Clearance and Survey

In advance of the ground-intrusive field work, Kleinfelder marked the proposed soil vapor probe locations on November 15, 2016. Underground Service Alert of Southern California (USASC) was contacted on the same day to assist in locating subsurface public utilities. Notification was provided to USASC a minimum of 48 hours (2 business days) prior to initiating intrusive environmental sampling activities.

In addition to the USASC notification, Kleinfelder also subcontracted a geophysical service provider to identify and mark public and private water lines, electric lines, gas lines, and other identified subsurface utilities proximal to the sampling locations. The geophysical survey was performed on November 17, 2016, ahead of ground-intrusive activities. No utility conflicts were encountered at the proposed exploration areas.

SOIL VAPOR SURVEY

Soil Vapor Probe Installation and Sampling Activities

Twelve soil vapor probes set at approximately 5.5 feet below ground surface (bgs) were installed in existing parking areas and drive aisles, west-southwest of a former Chevron gasoline service station. Five of the soil vapor probes were installed within the footprint of the proposed museum building. Soil vapor probe installation, purging, and sampling were performed in general accordance with guidance issued by the San Diego Department of Environmental Health in its Site Assessment and Mitigation Manual, and in general accordance with guidance for performing active soil vapor investigations issued jointly in July 2015 by the California Environmental Protection Agency (Cal/EPA) Department of Toxic Substances Control (DTSC), California Regional Water Quality Control Board, Los Angeles Region (LARWQCB), and California Regional Water Quality Control Board, San Francisco Region (SFRWQCB).

The soil vapor probes were installed on November 17, 2016 by Kleinfelder's subcontractor H&P Mobile Geochemistry (H&P) using a direct-push drilling rig equipped with 0.75-inch outer diameter (OD) drill rods. Soil vapor probes were designated SV-1 through SV-12. The approximate soil vapor probe locations are depicted on Figure 2.

Following completion of bore advancement, a sufficient length of 0.125-inch OD Nylaflow™ tubing with an airstone vapor implant connected to the bottom was inserted through the drill rod into the bore, and the implant was set at approximately 5.5 feet bgs. An appropriate amount of sand pack to completely surround the vapor implant and extend from a few inches below to above it (approximately 4.5 to 5.5 feet bgs) was then poured into the annulus between the tubing and bore wall. The sand pack was topped with approximately 6 inches of dry bentonite granules, and then the annulus was filled with bentonite granules, which were hydrated in lifts. The end of the tubing was left slightly above the ground surface and capped.

After installation, the soil vapor probes were left to equilibrate for a minimum of 2 hours pursuant to the previously-cited California guidance for performing active soil vapor investigations. Before purging each probe, a shut-in test of the probe was performed for 60 seconds, with 1,1-difluoroethane (1,1-DFA) applied proximal to the sampling train as a leak check. The vacuum was monitored during purging and remained at less than 100 inches of water. Three probe volumes were purged prior to sampling each soil vapor probe. The probe volume was calculated based on the volume of the vapor probe tip and tubing and assumptions of 40-percent sand porosity and 50 percent dry bentonite porosity. A flow of approximately 200 milliliters per minute (ml/min) was maintained for the required time duration to purge three purge volumes from the probe. A vapor sample was collected from each of the soil vapor probes in a glass syringe for analysis in H&P's on-Site mobile laboratory. After each vapor probe was sampled for volatile organic compounds (VOCs), Kleinfelder collected field methane readings at each probe location using a Landtec GEM 2000 methane gas monitor.

Following completion of sampling activities, each soil vapor probe was abandoned by pulling the tubing and rehydrating the bentonite. Vapor probe locations were patched at the surface with asphalt cold patch to match the surrounding ground surface.

Laboratory Analyses

The soil vapor samples were analyzed on Site for VOCs by a California Environmental Laboratory Accreditation Program-accredited laboratory using United States Environmental Protection Agency (US EPA) Method 8260B for the full list of target analytes.

INVESTIGATIVE RESULTS

The soil vapor analytical results are also presented in Table 1 and Figure 3. The methane monitoring results are also presented in Table 2 and Figure 4. The laboratory report for the analyses is attached. Kleinfelder's interpretation and discussion of the results are presented in the "Evaluation of Analytical Results" section of this report.

In summary, the results indicate the following:

- Volatile total petroleum hydrocarbons (TPHv) were present at concentrations above the laboratory reporting limits in five of the soil vapor samples. The reported concentrations ranged between 390,000 to 31,000,000 micrograms per cubic meter (µg/m^3). The maximum TPHv concentrations was present in vapor sample SV7.
- The VOCs benzene, ethylbenzene, m,p-xylenes, naphthalene, isopropylbenzene and n-propylbenzene were present in one or more vapor samples at concentrations at or above their respective laboratory reporting limits.
    - Benzene was present at concentrations of 180 µg/m^3 and 200,000 µg/m^3 in vapor samples SV4 and SV7, respectively.
    - Ethylbenzene was present at a concentration of 48,000 µg/m^3 in vapor sample SV7.

- Xylenes (m,p) were present at a concentration of 31,000 µg/m^3 in vapor sample SV7.
- Naphthalene was present at a concentration of 110 µg/m^3 in vapor sample SV5.
- Isopropylbenzene was present at a concentration of 21,000 µg/m^3 in vapor sample SV7.
- N-propylbenzene was present at a concentration of 44,000 µg/m^3 in vapor sample SV7.

- Methane was measured at concentrations ranging between 0.1 percent methane to 73.2 percent methane. The maximum methane concentration was measured from vapor probe SV7 (73.2 percent methane) and the second highest methane concentration was measured in SV1 (19.4 percent methane). Methane measured in the remaining soil vapor probes ranged from 0.1 to 2.2 percent methane.

EVALUATION OF ANALYTICAL RESULTS

Kleinfelder compared the detected VOC concentrations to screening levels for residential and commercial/industrial air provided in the June 2016 update of the California Department of Toxic Substances Control (DTSC) Human and Ecological Risk Office (HERO) Human Health Risk Assessment (HHRA) Note No. 3, for those VOCs having published HERO air screening values. The United Stated Environmental Protection Agency's (US EPA's) Regional Screening Levels (RSLs) for residential and industrial air (last updated May 2016) were used for VOCs that do not have HERO air screening values but have RSLs. Note that the HERO's screening values and US EPA's RSLs listed in Table 1 incorporate attenuation factors of 0.001 for a future residential building and 0.0005 for a future commercial building to address expected attenuation from the subsurface to indoor air, pursuant to vapor intrusion guidance issued by the DTSC in October 2011.

As indicated in Table 1, TPHv, and the VOCs benzene, ethylbenzene, m,p-xylenes, naphthalene, isopropylbenzene, and n-propylbenzene were present at concentrations at or above their respective reporting limits in various soil vapor samples. The comparison of the results to the screening levels identified above indicate the measured TPHv, benzene, and ethylbenzene concentrations in SV7, located nearest to the former Chevron gasoline service station, exceed respective soil vapor screening levels for future residential and commercial properties. Furthermore, TPHv concentrations in SV1, SV4, and SV5 also exceed the TPH soil vapor screening levels for both future residential and commercial properties. Note soil vapor probe SV4 is located within the footprint of the proposed museum building.

Kleinfelder's field monitoring for methane identified concentrations in vapor probe SV7 (73.2 percent methane) and vapor probe SV1 (19.4 percent methane) exceed the methane Lower Explosive Limit (LEL) of 5.0 percent by volume. The methane measurements from the remaining vapor probes were equal to or less than 2.2 percent methane, and below the methane LEL. Both probes SV7 and SV1 are located nearest the former Chevron Station, northeast of the proposed museum building.

CONCLUSIONS AND RECOMMENDATIONS

Kleinfelder's field observations and evaluations of the analytical results of samples collected during the subject soil vapor survey have revealed the possibility for soil vapor intrusion of

VOCs into the proposed museum building. Based on the results, it appears a soil vapor contaminant plume is present at or near the former Chevron gasoline service station, and extends beneath the north corner of the future museum building.

The detected methane concentrations exceeding the methane LEL are currently present in areas that are outside of the proposed building footprint within the parking lot (vapor probes SV1 and SV7). However, if methane continues to migrate to the southwest and extends beneath the proposed building there is potential for explosive conditions to occur as methane could potentially accumulate in closed spaces within the building.

Based on the soil vapor and methane survey results, Kleinfelder recommends the client consider the implementation of mitigation measures to reduce the risk associated with vapor intrusion to future building occupants. These measures may include the installation of a vapor mitigation system designed to mitigate the migration of hydrocarbon and methane vapors into the future building, installation of a soil vapor extraction system, and/or removal of the residual hydrocarbon contaminants associated with the former Chevron gasoline station.

Prior to commencement of construction activities, Kleinfelder recommends the preparation of a Soil Management Plan to address monitoring, management, handling, and disposal of potentially-contaminated soil, and to address other environmental concerns that may arise during proposed Site redevelopment activities.

LIMITATIONS

This work was performed in a manner consistent with that level of care and skill ordinarily exercised by other members of Kleinfelder's profession practicing in the same locality, under similar conditions, and at the date the services were provided. Our conclusions, opinions, and recommendations are based on a limited number of observations and data. It is possible that conditions could vary between or beyond the data evaluated. Kleinfelder makes no other representation, guarantee, or warranty, express or implied, regarding the services, communication (oral or written), report, opinion, or instrument of service provided.

This report may be used only by the Client and the registered design professional in responsible charge and only for the purposes stated for this specific engagement within a reasonable time from its issuance, but in no event later than two years from the date of the report.

The work performed was based on project information provided by the Client. If the Client does not retain Kleinfelder to review any plans and specifications, including any revisions or modifications to the plans and specifications, Kleinfelder assumes no responsibility for the suitability of our recommendations. In addition, if there are any changes in the field to the plans and specifications, the Client must obtain written approval from Kleinfelder's engineer that such changes do not affect our recommendations. Failure to do so will vitiate Kleinfelder's recommendations.

Kleinfelder offers various levels of investigative and engineering services to suit the varying needs of different clients. It should be recognized that definition and evaluation of geologic and environmental conditions comprise a difficult and inexact science. Judgments leading to conclusions and recommendations are generally made with incomplete knowledge of the subsurface conditions present due to the limitations of data from field studies. Although risk can never be eliminated, more-detailed and extensive studies yield more information, which may help understand and manage the level of risk. Since detailed study and analysis involves greater expense, our clients participate in determining levels of service that provide adequate information for their purposes at acceptable levels of risk. More extensive studies, including subsurface studies or field tests, should be performed to reduce uncertainties. Acceptance of this report will indicate that the Client has reviewed the document and determined that it does not need or want a greater level of service than provided.

During the course of the performance of Kleinfelder's services, hazardous materials may have been discovered. Kleinfelder assumes no responsibility or liability whatsoever for any claim, loss of property value, damage, or injury that results from preexisting hazardous materials being encountered or present on the Site, or from the discovery of such hazardous materials. Nothing contained in this report should be construed or interpreted as requiring Kleinfelder to assume the status of an owner, operator, or generator, or person who arranges for disposal, transport, storage, or treatment of hazardous materials within the meaning of any governmental statute, regulation, or order. The Client is solely responsible for directing notification of all governmental agencies, and the public at large, of the existence, release, treatment, or disposal of any hazardous materials observed at the Site, either before or during performance of Kleinfelder's services. The Client is responsible for directing all arrangements to lawfully store, treat, recycle, dispose, or otherwise handle hazardous materials, including cuttings and samples resulting from Kleinfelder's services.

CLOSING REMARKS

Kleinfelder thanks the Client for the opportunity to provide its professional environmental services, and looks forward to future work with you on other projects. If you have questions or would like to discuss the report in further detail, please contact Paolo Dizon, Kleinfelder's Project Manager, at 949.727.4466.

Sincerely,

KLEINFELDER

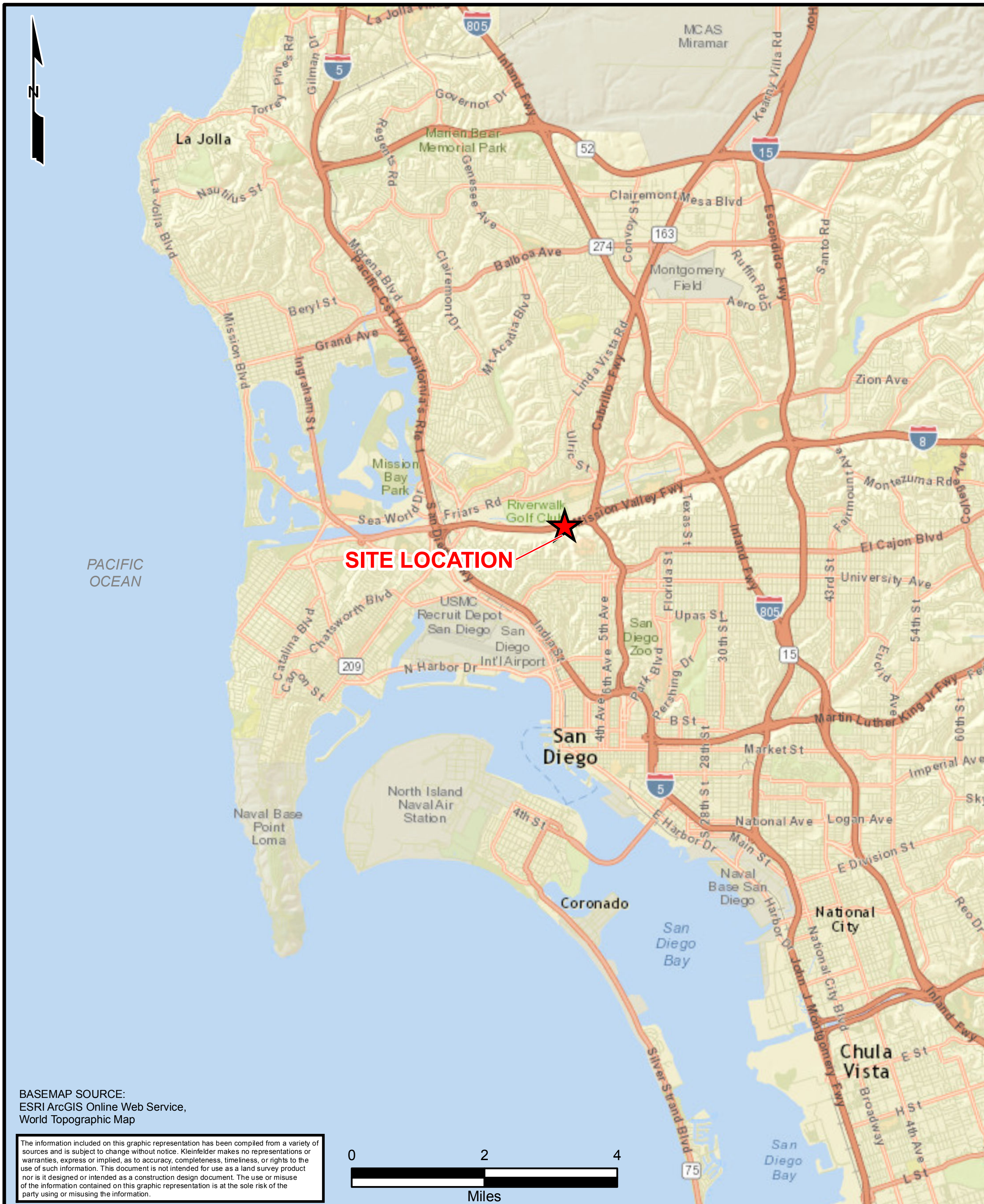
Lindsey Dandridge-Perry
Staff Geologist

William D. Golightly, PE
Vice President

cc: Lori Cathcart, Kleinfelder
Moises Arzamendi, Kleinfelder
Paolo Dizon, Kleinfelder

Attachments: Figures
Tables
Analytical Laboratory Report

FIGURES



BASEMAP SOURCE:
ESRI ArcGIS Online Web Service,
World Topographic Map

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PROJECT NO.	20163965
DRAWN:	12/2/2016
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CHECKED BY:	LD
FILE NAME:	20163965_VicSV.mxd

SITE LOCATION MAP

SOIL VAPOR SURVEY REPORT
LEGACY INTERNATIONAL CENTER,
MISSION VALLEY CAMPUS
875 HOTEL CIRCLE SOUTH, SAN DIEGO, CA

FIGURE
1

Path: J:_clients\Legacy_Intl\20163965\MXD\20163965_SV.mxd

0 15 30 60

Feet

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PROJECT NO.	20163965
DRAWN:	12/13/2016
DRAWN BY:	JP
CHECKED BY:	LD
FILE NAME:	20163965_SV.mxd

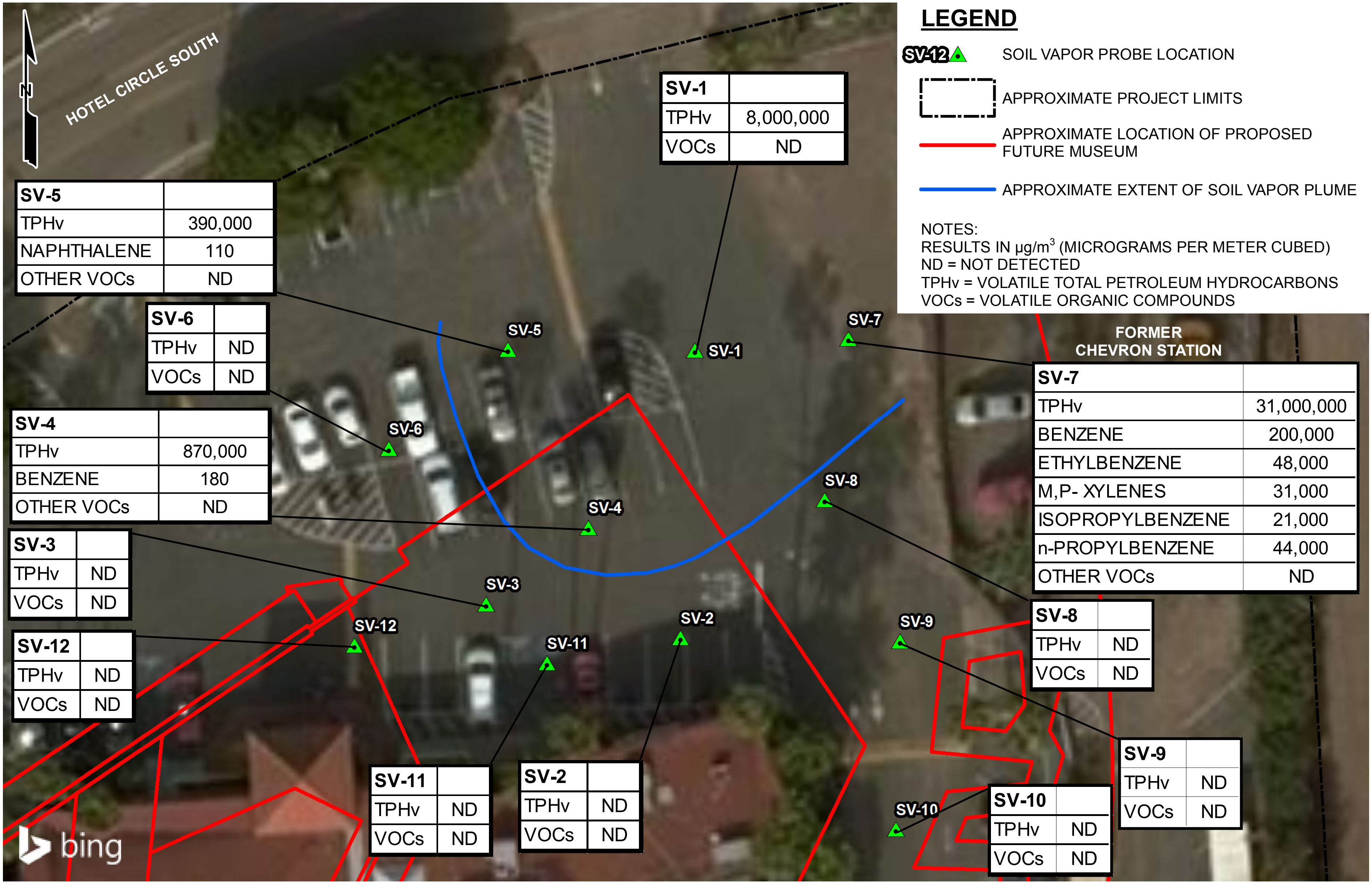
AERIAL PHOTOGRAPH WITH SOIL VAPOR PROBE LOCATIONS

SOIL VAPOR SURVEY REPORT
LEGACY INTERNATIONAL CENTER,
MISSION VALLEY CAMPUS
875 HOTEL CIRCLE SOUTH, SAN DIEGO, CA

FIGURE

2

Path: J:_clients\Legacy_Intl\20163965\MXD\20163965_results.mxd



SV-1	
TPHv	8,000,000
VOCs	ND

SV-5	
TPHv	390,000
NAPHTHALENE	110
OTHER VOCs	ND

SV-6	
TPHv	ND
VOCs	ND

SV-4	
TPHv	870,000
BENZENE	180
OTHER VOCs	ND

SV-3	
TPHv	ND
VOCs	ND

SV-12	
TPHv	ND
VOCs	ND

SV-11	
TPHv	ND
VOCs	ND

SV-2	
TPHv	ND
VOCs	ND

SV-7	
TPHv	31,000,000
BENZENE	200,000
ETHYLBENZENE	48,000
M,P- XYLENES	31,000
ISOPROPYLBENZENE	21,000
n-PROPYLBENZENE	44,000
OTHER VOCs	ND

SV-8	
TPHv	ND
VOCs	ND

SV-9	
TPHv	ND
VOCs	ND

SV-10	
TPHv	ND
VOCs	ND

LEGEND

SV-12 SOIL VAPOR PROBE LOCATION

APPROXIMATE PROJECT LIMITS

APPROXIMATE LOCATION OF PROPOSED FUTURE MUSEUM

APPROXIMATE EXTENT OF SOIL VAPOR PLUME

NOTES:
RESULTS IN µg/m^3 (MICROGRAMS PER METER CUBED)
ND = NOT DETECTED
TPHv = VOLATILE TOTAL PETROLEUM HYDROCARBONS
VOCs = VOLATILE ORGANIC COMPOUNDS

0 15 30 60
Feet

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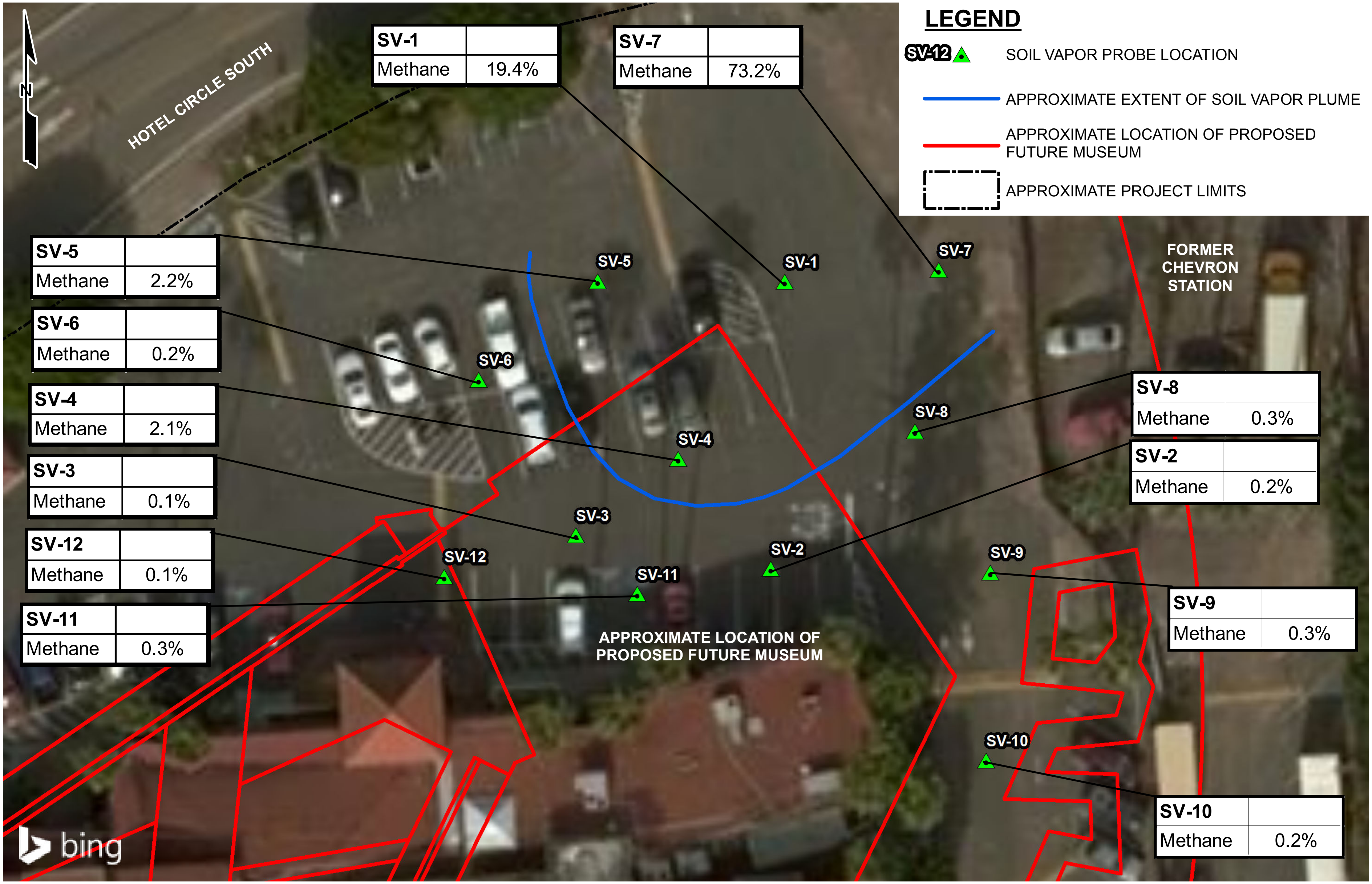
SITE PLAN SHOWING SOIL VAPOR SAMPLE RESULTS

SOIL VAPOR SURVEY REPORT
LEGACY INTERNATIONAL CENTER,
MISSION VALLEY CAMPUS
875 HOTEL CIRCLE SOUTH, SAN DIEGO, CA

FIGURE
3

Path: J:_clients\Legacy_Intl\20163965\MXD\20163965_ME.mxd



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SITE PLAN SHOWING METHANE READINGS

SOIL VAPOR SURVEY REPORT
LEGACY INTERNATIONAL CENTER,
MISSION VALLEY CAMPUS
875 HOTEL CIRCLE SOUTH, SAN DIEGO, CA

FIGURE
4

TABLES

Table 1
Soil Vapor Analytical Results Summary
Legacy International
875 Hotel Circle South
San Diego, California

Probe	Sampled	Sample	TPHv (µg/m3)	VOCs						
				Benzene (µg/m3)	Toluene (µg/m3)	Ethylbenzene (µg/m3)	m,p-Xylenes (µg/m3)	Naphthalene (µg/m3)	Isopropylbenzene (µg/m3)	n-Propylbenzene (µg/m3)
			8260SV							
SV1	11/17/2016	SV1	**8,000,000**	ND<10,000	ND<100,000	ND<50,000	ND<50,000	ND<10,000	ND<50,000	ND<50,000
	11/17/2016	SV1 Dup	**7,900,000**	ND<10,000	ND<100,000	ND<50,000	ND<50,000	ND<10,000	ND<50,000	ND<50,000
SV2	11/17/2016	SV2	ND<200,000	ND<100	ND <1,000	ND<500	ND<500	ND<100	ND<500	ND<500
SV3	11/17/2016	SV3	ND<200,000	ND<100	ND <1,000	ND<500	ND<500	ND<100	ND<500	ND<500
SV4	11/17/2016	SV4	**870,000**	180	ND <1,000	ND<500	ND<500	ND<100	ND<500	ND<500
SV5	11/17/2016	SV5	**390,000**	ND<100	ND <1,000	ND<500	ND<500	110	ND<500	ND<500
SV6	11/17/2016	SV6	ND<200,000	ND<100	ND <1,000	ND<500	ND<500	ND<100	ND<500	ND<500
SV7	11/17/2016	SV7	**31,000,000**	**200,000**	ND <140000	**48,000**	31,000	ND<4,000	21,000	44,000
SV8	11/17/2016	SV8	ND<200,000	ND<100	ND <1,000	ND<500	ND<500	ND<100	ND<500	ND<500
SV9	11/17/2016	SV9	ND<200,000	ND<100	ND <1,000	ND<500	ND<500	ND<100	ND<500	ND<500
SV10	11/17/2016	SV10	ND<200,000	ND<100	ND <1,000	ND<500	ND<500	ND<100	ND<500	ND<500
SV11	11/17/2016	SV11	ND<200,000	ND<100	ND <1,000	ND<500	ND<500	ND<100	ND<500	ND<500
SV12	11/17/2016	SV12	ND<200,000	ND<100	ND <1,000	ND<500	ND<500	ND<100	ND<500	ND<500
SL - Residential			31,000* / 630,000*	97	310,000	1,100*	100,000*	83*	420,000*	1,000,000*
SL - Commercial/Industrial			260,000*/ 5,200,000*	840	2,600,000	9,800*	880,000*	720*	3,600,000*	8,800,000*

Notes:

VOCs	Volatile organic compounds
TPHv	Volatile total petroleum hydrocarbons as gasoline
µg/m^3	Micrograms per liter
bgs	Below ground surface
8260B	United States Environmental Protection Agency (US EPA) analytical method number
ND	Not detected above the reporting limit, which is shown in parentheses
SL	Soil vapor screening levels, based on indoor air screening levels provided in the California Environmental Protection Agency, Department of Toxic Substances Control (DTSC), Office of Human and Ecological Risk's Human Health Risk Assessment Note No. 3, dated January 2016; note that values with an asterisk (*) are instead based on US EPA May 2016 indoor air Regional Screening Levels; each screening level incorporates an attenuation factor of 0.001 for a future residential building or 0.0005 for a future commercial building, pursuant to October 2011 California Department of Toxic Substances Control guidance. Note that the regional screening levels under TPHv are for the aromatic/aliphatic TPH regional screening levels.
NV	Compound has no published US EPA or DTSC SL
Bold value	Exceeds commercial/industrial screening value

Table 2
Methane Monitoring Results Summary
Legacy International
875 Hotel Circle South
San Diego, California

Vapor Probe	Date Monitored	Oxygen (%)	Methane (%)
SV1	11/17/2016	2.8	**19.4**
SV2	11/17/2016	10.4	0.2
SV3	11/17/2016	5.9	0.1
SV4	11/17/2016	1.6	**2.1**
SV5	11/17/2016	1.2	**2.2**
SV6	11/17/2016	3.6	0.2
SV7	11/17/2016	2.1	**73.2**
SV8	11/17/2016	1.9	0.3
SV9	11/17/2016	14.7	0.3
SV10	11/17/2016	13.7	0.2
SV11	11/17/2016	8.9	0.3
SV12	11/17/2016	10.8	0.1

Notes: % percent
Bold value Exceeds lower explosive limit of 5 percent methane

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ANALYTICAL LABORATORY REPORT

H&P Mobile Geochemistry Inc.

23 November 2016

Mr. Paolo Dizon
Kleinfelder - Irvine
2 Ada Street, Suite 250
Irvine, CA 92618

H&P Project: KL111716-L3
Client Project: 20163965.001A / 875 Hotel Cir S

Dear Mr. Paolo Dizon:

Enclosed is the analytical report for the above referenced project. The data herein applies to samples as received by H&P Mobile Geochemistry, Inc. on 17-Nov-16 which were analyzed in accordance with the attached Chain of Custody record(s).

The results for all sample analyses and required QA/QC analyses are presented in the following sections and summarized in the documents:

- Sample Summary
- Case Narrative (if applicable)
- Sample Results
- Quality Control Summary
- Notes and Definitions / Appendix
- Chain of Custody
- Sampling Logs (if applicable)

Unless otherwise noted, I certify that all analyses were performed and reviewed in compliance with our Quality Systems Manual and Standard Operating Procedures. This report shall not be reproduced, except in full, without the written approval of H&P Mobile Geochemistry, Inc.

We at H&P Mobile Geochemistry, Inc. sincerely appreciate the opportunity to provide analytical services to you on this project. If you have any questions or concerns regarding this analytical report, please contact me at your convenience at 760-804-9678.

Sincerely,

Lisa Eng for

Janis La Roux
Laboratory Director

H&P Mobile Geochemistry, Inc. is certified under the California ELAP, the National Environmental Laboratory Accreditation Conference (NELAC) and the Department of Defense Accreditation Programs.

H&P Mobile
Geochemistry Inc.

2470 Impala Drive
Carlsbad, CA 92010
760-804-9678 Phone
760-804-9159 Fax

Kleinfelder - Irvine	Project: KL111716-L3	
2 Ada Street, Suite 250	Project Number: 20163965.001A / 875 Hotel Cir S	Reported:
Irvine, CA 92618	Project Manager: Mr. Paolo Dizon	23-Nov-16 13:23

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
SV1	E611069-01	Vapor	17-Nov-16	17-Nov-16
SV1 Dup	E611069-02	Vapor	17-Nov-16	17-Nov-16
SV8	E611069-03	Vapor	17-Nov-16	17-Nov-16
SV9	E611069-04	Vapor	17-Nov-16	17-Nov-16
SV10	E611069-05	Vapor	17-Nov-16	17-Nov-16
SV7	E611069-06	Vapor	17-Nov-16	17-Nov-16
SV2	E611069-07	Vapor	17-Nov-16	17-Nov-16
SV11	E611069-08	Vapor	17-Nov-16	17-Nov-16
SV3	E611069-09	Vapor	17-Nov-16	17-Nov-16
SV12	E611069-10	Vapor	17-Nov-16	17-Nov-16
SV6	E611069-11	Vapor	17-Nov-16	17-Nov-16
SV5	E611069-12	Vapor	17-Nov-16	17-Nov-16
SV4	E611069-13	Vapor	17-Nov-16	17-Nov-16

H&P Mobile
Geochemistry Inc.

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760-804-9678 Phone
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Kleinfelder - Irvine 2 Ada Street, Suite 250 Irvine, CA 92618	Project: KL111716-L3 Project Number: 20163965.001A / 875 Hotel Cir S Project Manager: Mr. Paolo Dizon	Reported: 23-Nov-16 13:23

DETECTIONS SUMMARY

Sample ID: **SV1** Laboratory ID: **E611069-01**

Analyte	Result	Reporting Limit	Units	Method	Notes
TPHv (C5 - C12)	**8000000**	2000000	ug/m3	H&P 8260SV	

Sample ID: **SV1 Dup** Laboratory ID: **E611069-02**

Analyte	Result	Reporting Limit	Units	Method	Notes
TPHv (C5 - C12)	**7900000**	2000000	ug/m3	H&P 8260SV	

Sample ID: **SV8** Laboratory ID: **E611069-03**

Analyte	Result	Reporting Limit	Units	Method	Notes
No Detections Reported					

Sample ID: **SV9** Laboratory ID: **E611069-04**

Analyte	Result	Reporting Limit	Units	Method	Notes
No Detections Reported					

Sample ID: **SV10** Laboratory ID: **E611069-05**

Analyte	Result	Reporting Limit	Units	Method	Notes
No Detections Reported					

Sample ID: **SV7** Laboratory ID: **E611069-06**

Analyte	Result	Reporting Limit	Units	Method	Notes
Benzene	**200000**	4000	ug/m3	H&P 8260SV	
Ethylbenzene	**48000**	20000	ug/m3	H&P 8260SV	
m,p-Xylene	**31000**	20000	ug/m3	H&P 8260SV	
Isopropylbenzene (Cumene)	**21000**	20000	ug/m3	H&P 8260SV	
n-Propylbenzene	**44000**	20000	ug/m3	H&P 8260SV	
TPHv (C5 - C12)	**31000000**	800000	ug/m3	H&P 8260SV	

Sample ID: **SV2** Laboratory ID: **E611069-07**

Analyte	Result	Reporting Limit	Units	Method	Notes
No Detections Reported					

H&P Mobile
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760-804-9678 Phone
760-804-9159 Fax

Kleinfelder - Irvine 2 Ada Street, Suite 250 Irvine, CA 92618	Project: KL111716-L3 Project Number: 20163965.001A / 875 Hotel Cir S Project Manager: Mr. Paolo Dizon	Reported: 23-Nov-16 13:23

Sample ID: **SV11** Laboratory ID: **E611069-08**

Analyte	Result	Reporting Limit	Units	Method	Notes
No Detections Reported					

Sample ID: **SV3** Laboratory ID: **E611069-09**

Analyte	Result	Reporting Limit	Units	Method	Notes
No Detections Reported					

Sample ID: **SV12** Laboratory ID: **E611069-10**

Analyte	Result	Reporting Limit	Units	Method	Notes
No Detections Reported					

Sample ID: **SV6** Laboratory ID: **E611069-11**

Analyte	Result	Reporting Limit	Units	Method	Notes
No Detections Reported					

Sample ID: **SV5** Laboratory ID: **E611069-12**

Analyte	Result	Reporting Limit	Units	Method	Notes
Naphthalene	**110**	100	ug/m3	H&P 8260SV	
TPHv (C5 - C12)	**390000**	200000	ug/m3	H&P 8260SV	

Sample ID: **SV4** Laboratory ID: **E611069-13**

Analyte	Result	Reporting Limit	Units	Method	Notes
Benzene	**180**	100	ug/m3	H&P 8260SV	
TPHv (C5 - C12)	**870000**	200000	ug/m3	H&P 8260SV	

H&P Mobile
Geochemistry Inc.

2470 Impala Drive
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Kleinfelder - Irvine 2 Ada Street, Suite 250 Irvine, CA 92618	Project: KL111716-L3 Project Number: 20163965.001A / 875 Hotel Cir S Project Manager: Mr. Paolo Dizon	Reported: 23-Nov-16 13:23

Volatile Organic Compounds by H&P 8260SV

H&P Mobile Geochemistry, Inc.

Analyte	Result	Reporting Limit	Units	Dilution Factor	Batch	Prepared	Analyzed	Method	Notes
SV1 (E611069-01) Vapor Sampled: 17-Nov-16 Received: 17-Nov-16									**R-05**
1,1-Difluoroethane (LCC)	ND	50000	ug/m3	5	EK61711	17-Nov-16	17-Nov-16	H&P 8260SV	
Dichlorodifluoromethane (F12)	ND	50000	"	"	"	"	"	"	
Chloromethane	ND	50000	"	"	"	"	"	"	
Vinyl chloride	ND	5000	"	"	"	"	"	"	
Bromomethane	ND	50000	"	"	"	"	"	"	
Chloroethane	ND	50000	"	"	"	"	"	"	
Trichlorofluoromethane (F11)	ND	50000	"	"	"	"	"	"	
1,1-Dichloroethene	ND	50000	"	"	"	"	"	"	
Methylene chloride (Dichloromethane)	ND	50000	"	"	"	"	"	"	
1,1,2 Trichlorotrifluoroethane (F113)	ND	50000	"	"	"	"	"	"	
Methyl tertiary-butyl ether (MTBE)	ND	50000	"	"	"	"	"	"	
trans-1,2-Dichloroethene	ND	50000	"	"	"	"	"	"	
Diisopropyl ether (DIPE)	ND	100000	"	"	"	"	"	"	
1,1-Dichloroethane	ND	50000	"	"	"	"	"	"	
Ethyl tert-butyl ether (ETBE)	ND	100000	"	"	"	"	"	"	
2,2-Dichloropropane	ND	50000	"	"	"	"	"	"	
cis-1,2-Dichloroethene	ND	50000	"	"	"	"	"	"	
Chloroform	ND	10000	"	"	"	"	"	"	
Bromochloromethane	ND	50000	"	"	"	"	"	"	
1,1,1-Trichloroethane	ND	50000	"	"	"	"	"	"	
1,1-Dichloropropene	ND	50000	"	"	"	"	"	"	
Carbon tetrachloride	ND	10000	"	"	"	"	"	"	
1,2-Dichloroethane (EDC)	ND	10000	"	"	"	"	"	"	
Tertiary-amyl methyl ether (TAME)	ND	100000	"	"	"	"	"	"	
Benzene	ND	10000	"	"	"	"	"	"	
Trichloroethene	ND	10000	"	"	"	"	"	"	
1,2-Dichloropropane	ND	50000	"	"	"	"	"	"	
Bromodichloromethane	ND	50000	"	"	"	"	"	"	
Dibromomethane	ND	50000	"	"	"	"	"	"	
cis-1,3-Dichloropropene	ND	50000	"	"	"	"	"	"	
Toluene	ND	100000	"	"	"	"	"	"	
trans-1,3-Dichloropropene	ND	50000	"	"	"	"	"	"	
1,1,2-Trichloroethane	ND	50000	"	"	"	"	"	"	
1,2-Dibromoethane (EDB)	ND	50000	"	"	"	"	"	"	
1,3-Dichloropropane	ND	50000	"	"	"	"	"	"	
Tetrachloroethene	ND	10000	"	"	"	"	"	"	
Dibromochloromethane	ND	50000	"	"	"	"	"	"	
Chlorobenzene	ND	10000	"	"	"	"	"	"	

H&P Mobile
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Kleinfelder - Irvine 2 Ada Street, Suite 250 Irvine, CA 92618	Project: KL111716-L3 Project Number: 20163965.001A / 875 Hotel Cir S Project Manager: Mr. Paolo Dizon	Reported: 23-Nov-16 13:23

Volatile Organic Compounds by H&P 8260SV

H&P Mobile Geochemistry, Inc.

Analyte	Result	Reporting Limit	Units	Dilution Factor	Batch	Prepared	Analyzed	Method	Notes
SV1 (E611069-01) Vapor Sampled: 17-Nov-16 Received: 17-Nov-16									**R-05**
Ethylbenzene	ND	50000	ug/m3	5	EK61711	17-Nov-16	17-Nov-16	H&P 8260SV	
1,1,1,2-Tetrachloroethane	ND	50000	"	"	"	"	"	"	
m,p-Xylene	ND	50000	"	"	"	"	"	"	
o-Xylene	ND	50000	"	"	"	"	"	"	
Styrene	ND	50000	"	"	"	"	"	"	
Bromoform	ND	50000	"	"	"	"	"	"	
Isopropylbenzene (Cumene)	ND	50000	"	"	"	"	"	"	
1,1,2,2-Tetrachloroethane	ND	50000	"	"	"	"	"	"	
1,2,3-Trichloropropane	ND	50000	"	"	"	"	"	"	
n-Propylbenzene	ND	50000	"	"	"	"	"	"	
Bromobenzene	ND	50000	"	"	"	"	"	"	
1,3,5-Trimethylbenzene	ND	50000	"	"	"	"	"	"	
2-Chlorotoluene	ND	50000	"	"	"	"	"	"	
4-Chlorotoluene	ND	50000	"	"	"	"	"	"	
tert-Butylbenzene	ND	50000	"	"	"	"	"	"	
1,2,4-Trimethylbenzene	ND	50000	"	"	"	"	"	"	
sec-Butylbenzene	ND	50000	"	"	"	"	"	"	
p-Isopropyltoluene	ND	50000	"	"	"	"	"	"	
1,3-Dichlorobenzene	ND	50000	"	"	"	"	"	"	
1,4-Dichlorobenzene	ND	50000	"	"	"	"	"	"	
n-Butylbenzene	ND	50000	"	"	"	"	"	"	
1,2-Dichlorobenzene	ND	50000	"	"	"	"	"	"	
1,2-Dibromo-3-chloropropane	ND	500000	"	"	"	"	"	"	
1,2,4-Trichlorobenzene	ND	50000	"	"	"	"	"	"	
Hexachlorobutadiene	ND	50000	"	"	"	"	"	"	
Naphthalene	ND	10000	"	"	"	"	"	"	
1,2,3-Trichlorobenzene	ND	50000	"	"	"	"	"	"	
Tertiary-butyl alcohol (TBA)	ND	500000	"	"	"	"	"	"	
Surrogate: Dibromofluoromethane		*105 %*	*75-125*		*"*	*"*	*"*	*"*	
Surrogate: 1,2-Dichloroethane-d4		*107 %*	*75-125*		*"*	*"*	*"*	*"*	
Surrogate: Toluene-d8		*110 %*	*75-125*		*"*	*"*	*"*	*"*	
Surrogate: 4-Bromofluorobenzene		*116 %*	*75-125*		*"*	*"*	*"*	*"*	

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Kleinfelder - Irvine	Project:	KL111716-L3	
2 Ada Street, Suite 250	Project Number:	20163965.001A / 875 Hotel Cir S	Reported:
Irvine, CA 92618	Project Manager:	Mr. Paolo Dizon	23-Nov-16 13:23

Volatile Organic Compounds by H&P 8260SV

H&P Mobile Geochemistry, Inc.

Analyte	Result	Reporting Limit	Units	Dilution Factor	Batch	Prepared	Analyzed	Method	Notes
SV1 Dup (E611069-02) Vapor Sampled: 17-Nov-16 Received: 17-Nov-16									**R-05**
1,1-Difluoroethane (LCC)	ND	50000	ug/m3	5	EK61711	17-Nov-16	17-Nov-16	H&P 8260SV	
Dichlorodifluoromethane (F12)	ND	50000	"	"	"	"	"	"	
Chloromethane	ND	50000	"	"	"	"	"	"	
Vinyl chloride	ND	5000	"	"	"	"	"	"	
Bromomethane	ND	50000	"	"	"	"	"	"	
Chloroethane	ND	50000	"	"	"	"	"	"	
Trichlorofluoromethane (F11)	ND	50000	"	"	"	"	"	"	
1,1-Dichloroethene	ND	50000	"	"	"	"	"	"	
Methylene chloride (Dichloromethane)	ND	50000	"	"	"	"	"	"	
1,1,2 Trichlorotrifluoroethane (F113)	ND	50000	"	"	"	"	"	"	
Methyl tertiary-butyl ether (MTBE)	ND	50000	"	"	"	"	"	"	
trans-1,2-Dichloroethene	ND	50000	"	"	"	"	"	"	
Diisopropyl ether (DIPE)	ND	100000	"	"	"	"	"	"	
1,1-Dichloroethane	ND	50000	"	"	"	"	"	"	
Ethyl tert-butyl ether (ETBE)	ND	100000	"	"	"	"	"	"	
2,2-Dichloropropane	ND	50000	"	"	"	"	"	"	
cis-1,2-Dichloroethene	ND	50000	"	"	"	"	"	"	
Chloroform	ND	10000	"	"	"	"	"	"	
Bromochloromethane	ND	50000	"	"	"	"	"	"	
1,1,1-Trichloroethane	ND	50000	"	"	"	"	"	"	
1,1-Dichloropropene	ND	50000	"	"	"	"	"	"	
Carbon tetrachloride	ND	10000	"	"	"	"	"	"	
1,2-Dichloroethane (EDC)	ND	10000	"	"	"	"	"	"	
Tertiary-amyl methyl ether (TAME)	ND	100000	"	"	"	"	"	"	
Benzene	ND	10000	"	"	"	"	"	"	
Trichloroethene	ND	10000	"	"	"	"	"	"	
1,2-Dichloropropane	ND	50000	"	"	"	"	"	"	
Bromodichloromethane	ND	50000	"	"	"	"	"	"	
Dibromomethane	ND	50000	"	"	"	"	"	"	
cis-1,3-Dichloropropene	ND	50000	"	"	"	"	"	"	
Toluene	ND	100000	"	"	"	"	"	"	
trans-1,3-Dichloropropene	ND	50000	"	"	"	"	"	"	
1,1,2-Trichloroethane	ND	50000	"	"	"	"	"	"	
1,2-Dibromoethane (EDB)	ND	50000	"	"	"	"	"	"	
1,3-Dichloropropane	ND	50000	"	"	"	"	"	"	
Tetrachloroethene	ND	10000	"	"	"	"	"	"	
Dibromochloromethane	ND	50000	"	"	"	"	"	"	
Chlorobenzene	ND	10000	"	"	"	"	"	"	

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Kleinfelder - Irvine	Project: KL111716-L3	
2 Ada Street, Suite 250	Project Number: 20163965.001A / 875 Hotel Cir S	Reported:
Irvine, CA 92618	Project Manager: Mr. Paolo Dizon	23-Nov-16 13:23

Volatile Organic Compounds by H&P 8260SV

H&P Mobile Geochemistry, Inc.

Analyte	Result	Reporting Limit	Units	Dilution Factor	Batch	Prepared	Analyzed	Method	Notes
SV1 Dup (E611069-02) Vapor Sampled: 17-Nov-16 Received: 17-Nov-16									**R-05**
Ethylbenzene	ND	50000	ug/m3	5	EK61711	17-Nov-16	17-Nov-16	H&P 8260SV	
1,1,1,2-Tetrachloroethane	ND	50000	"	"	"	"	"	"	
m,p-Xylene	ND	50000	"	"	"	"	"	"	
o-Xylene	ND	50000	"	"	"	"	"	"	
Styrene	ND	50000	"	"	"	"	"	"	
Bromoform	ND	50000	"	"	"	"	"	"	
Isopropylbenzene (Cumene)	ND	50000	"	"	"	"	"	"	
1,1,2,2-Tetrachloroethane	ND	50000	"	"	"	"	"	"	
1,2,3-Trichloropropane	ND	50000	"	"	"	"	"	"	
n-Propylbenzene	ND	50000	"	"	"	"	"	"	
Bromobenzene	ND	50000	"	"	"	"	"	"	
1,3,5-Trimethylbenzene	ND	50000	"	"	"	"	"	"	
2-Chlorotoluene	ND	50000	"	"	"	"	"	"	
4-Chlorotoluene	ND	50000	"	"	"	"	"	"	
tert-Butylbenzene	ND	50000	"	"	"	"	"	"	
1,2,4-Trimethylbenzene	ND	50000	"	"	"	"	"	"	
sec-Butylbenzene	ND	50000	"	"	"	"	"	"	
p-Isopropyltoluene	ND	50000	"	"	"	"	"	"	
1,3-Dichlorobenzene	ND	50000	"	"	"	"	"	"	
1,4-Dichlorobenzene	ND	50000	"	"	"	"	"	"	
n-Butylbenzene	ND	50000	"	"	"	"	"	"	
1,2-Dichlorobenzene	ND	50000	"	"	"	"	"	"	
1,2-Dibromo-3-chloropropane	ND	500000	"	"	"	"	"	"	
1,2,4-Trichlorobenzene	ND	50000	"	"	"	"	"	"	
Hexachlorobutadiene	ND	50000	"	"	"	"	"	"	
Naphthalene	ND	10000	"	"	"	"	"	"	
1,2,3-Trichlorobenzene	ND	50000	"	"	"	"	"	"	
Tertiary-butyl alcohol (TBA)	ND	500000	"	"	"	"	"	"	
Surrogate: Dibromofluoromethane		*110 %*	*75-125*		"	"	"	"	
Surrogate: 1,2-Dichloroethane-d4		*106 %*	*75-125*		"	"	"	"	
Surrogate: Toluene-d8		*112 %*	*75-125*		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		*113 %*	*75-125*		"	"	"	"	

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Kleinfelder - Irvine	Project: KL111716-L3	
2 Ada Street, Suite 250	Project Number: 20163965.001A / 875 Hotel Cir S	Reported:
Irvine, CA 92618	Project Manager: Mr. Paolo Dizon	23-Nov-16 13:23

Volatile Organic Compounds by H&P 8260SV

H&P Mobile Geochemistry, Inc.

Analyte	Result	Reporting Limit	Units	Dilution Factor	Batch	Prepared	Analyzed	Method	Notes
SV8 (E611069-03) Vapor Sampled: 17-Nov-16 Received: 17-Nov-16									
1,1-Difluoroethane (LCC)	ND	500	ug/m3	0.05	EK61711	17-Nov-16	17-Nov-16	H&P 8260SV	
Dichlorodifluoromethane (F12)	ND	500	"	"	"	"	"	"	
Chloromethane	ND	500	"	"	"	"	"	"	
Vinyl chloride	ND	50	"	"	"	"	"	"	
Bromomethane	ND	500	"	"	"	"	"	"	
Chloroethane	ND	500	"	"	"	"	"	"	
Trichlorofluoromethane (F11)	ND	500	"	"	"	"	"	"	
1,1-Dichloroethene	ND	500	"	"	"	"	"	"	
Methylene chloride (Dichloromethane)	ND	500	"	"	"	"	"	"	
1,1,2 Trichlorotrifluoroethane (F113)	ND	500	"	"	"	"	"	"	
Methyl tertiary-butyl ether (MTBE)	ND	500	"	"	"	"	"	"	
trans-1,2-Dichloroethene	ND	500	"	"	"	"	"	"	
Diisopropyl ether (DIPE)	ND	1000	"	"	"	"	"	"	
1,1-Dichloroethane	ND	500	"	"	"	"	"	"	
Ethyl tert-butyl ether (ETBE)	ND	1000	"	"	"	"	"	"	
2,2-Dichloropropane	ND	500	"	"	"	"	"	"	
cis-1,2-Dichloroethene	ND	500	"	"	"	"	"	"	
Chloroform	ND	100	"	"	"	"	"	"	
Bromochloromethane	ND	500	"	"	"	"	"	"	
1,1,1-Trichloroethane	ND	500	"	"	"	"	"	"	
1,1-Dichloropropene	ND	500	"	"	"	"	"	"	
Carbon tetrachloride	ND	100	"	"	"	"	"	"	
1,2-Dichloroethane (EDC)	ND	100	"	"	"	"	"	"	
Tertiary-amyl methyl ether (TAME)	ND	1000	"	"	"	"	"	"	
Benzene	ND	100	"	"	"	"	"	"	
Trichloroethene	ND	100	"	"	"	"	"	"	
1,2-Dichloropropane	ND	500	"	"	"	"	"	"	
Bromodichloromethane	ND	500	"	"	"	"	"	"	
Dibromomethane	ND	500	"	"	"	"	"	"	
cis-1,3-Dichloropropene	ND	500	"	"	"	"	"	"	
Toluene	ND	1000	"	"	"	"	"	"	
trans-1,3-Dichloropropene	ND	500	"	"	"	"	"	"	
1,1,2-Trichloroethane	ND	500	"	"	"	"	"	"	
1,2-Dibromoethane (EDB)	ND	500	"	"	"	"	"	"	
1,3-Dichloropropane	ND	500	"	"	"	"	"	"	
Tetrachloroethene	ND	100	"	"	"	"	"	"	
Dibromochloromethane	ND	500	"	"	"	"	"	"	
Chlorobenzene	ND	100	"	"	"	"	"	"	

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Kleinfelder - Irvine 2 Ada Street, Suite 250 Irvine, CA 92618	Project: KL111716-L3 Project Number: 20163965.001A / 875 Hotel Cir S Project Manager: Mr. Paolo Dizon	Reported: 23-Nov-16 13:23

Volatile Organic Compounds by H&P 8260SV

H&P Mobile Geochemistry, Inc.

Analyte	Result	Reporting Limit	Units	Dilution Factor	Batch	Prepared	Analyzed	Method	Notes
SV8 (E611069-03) Vapor Sampled: 17-Nov-16 Received: 17-Nov-16									
Ethylbenzene	ND	500	ug/m3	0.05	EK61711	17-Nov-16	17-Nov-16	H&P 8260SV	
1,1,1,2-Tetrachloroethane	ND	500	"	"	"	"	"	"	
m,p-Xylene	ND	500	"	"	"	"	"	"	
o-Xylene	ND	500	"	"	"	"	"	"	
Styrene	ND	500	"	"	"	"	"	"	
Bromoform	ND	500	"	"	"	"	"	"	
Isopropylbenzene (Cumene)	ND	500	"	"	"	"	"	"	
1,1,2,2-Tetrachloroethane	ND	500	"	"	"	"	"	"	
1,2,3-Trichloropropane	ND	500	"	"	"	"	"	"	
n-Propylbenzene	ND	500	"	"	"	"	"	"	
Bromobenzene	ND	500	"	"	"	"	"	"	
1,3,5-Trimethylbenzene	ND	500	"	"	"	"	"	"	
2-Chlorotoluene	ND	500	"	"	"	"	"	"	
4-Chlorotoluene	ND	500	"	"	"	"	"	"	
tert-Butylbenzene	ND	500	"	"	"	"	"	"	
1,2,4-Trimethylbenzene	ND	500	"	"	"	"	"	"	
sec-Butylbenzene	ND	500	"	"	"	"	"	"	
p-Isopropyltoluene	ND	500	"	"	"	"	"	"	
1,3-Dichlorobenzene	ND	500	"	"	"	"	"	"	
1,4-Dichlorobenzene	ND	500	"	"	"	"	"	"	
n-Butylbenzene	ND	500	"	"	"	"	"	"	
1,2-Dichlorobenzene	ND	500	"	"	"	"	"	"	
1,2-Dibromo-3-chloropropane	ND	5000	"	"	"	"	"	"	
1,2,4-Trichlorobenzene	ND	500	"	"	"	"	"	"	
Hexachlorobutadiene	ND	500	"	"	"	"	"	"	
Naphthalene	ND	100	"	"	"	"	"	"	
1,2,3-Trichlorobenzene	ND	500	"	"	"	"	"	"	
Tertiary-butyl alcohol (TBA)	ND	5000	"	"	"	"	"	"	
Surrogate: Dibromofluoromethane		*111 %*	*75-125*		*"*	*"*	*"*	*"*	
Surrogate: 1,2-Dichloroethane-d4		*109 %*	*75-125*		*"*	*"*	*"*	*"*	
Surrogate: Toluene-d8		*111 %*	*75-125*		*"*	*"*	*"*	*"*	
Surrogate: 4-Bromofluorobenzene		*118 %*	*75-125*		*"*	*"*	*"*	*"*	

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Kleinfelder - Irvine 2 Ada Street, Suite 250 Irvine, CA 92618	Project: KL111716-L3 Project Number: 20163965.001A / 875 Hotel Cir S Project Manager: Mr. Paolo Dizon	Reported: 23-Nov-16 13:23

Volatile Organic Compounds by H&P 8260SV

H&P Mobile Geochemistry, Inc.

Analyte	Result	Reporting Limit	Units	Dilution Factor	Batch	Prepared	Analyzed	Method	Notes
SV9 (E611069-04) Vapor Sampled: 17-Nov-16 Received: 17-Nov-16									
1,1-Difluoroethane (LCC)	ND	500	ug/m3	0.05	EK61711	17-Nov-16	17-Nov-16	H&P 8260SV	
Dichlorodifluoromethane (F12)	ND	500	"	"	"	"	"	"	
Chloromethane	ND	500	"	"	"	"	"	"	
Vinyl chloride	ND	50	"	"	"	"	"	"	
Bromomethane	ND	500	"	"	"	"	"	"	
Chloroethane	ND	500	"	"	"	"	"	"	
Trichlorofluoromethane (F11)	ND	500	"	"	"	"	"	"	
1,1-Dichloroethene	ND	500	"	"	"	"	"	"	
Methylene chloride (Dichloromethane)	ND	500	"	"	"	"	"	"	
1,1,2 Trichlorotrifluoroethane (F113)	ND	500	"	"	"	"	"	"	
Methyl tertiary-butyl ether (MTBE)	ND	500	"	"	"	"	"	"	
trans-1,2-Dichloroethene	ND	500	"	"	"	"	"	"	
Diisopropyl ether (DIPE)	ND	1000	"	"	"	"	"	"	
1,1-Dichloroethane	ND	500	"	"	"	"	"	"	
Ethyl tert-butyl ether (ETBE)	ND	1000	"	"	"	"	"	"	
2,2-Dichloropropane	ND	500	"	"	"	"	"	"	
cis-1,2-Dichloroethene	ND	500	"	"	"	"	"	"	
Chloroform	ND	100	"	"	"	"	"	"	
Bromochloromethane	ND	500	"	"	"	"	"	"	
1,1,1-Trichloroethane	ND	500	"	"	"	"	"	"	
1,1-Dichloropropene	ND	500	"	"	"	"	"	"	
Carbon tetrachloride	ND	100	"	"	"	"	"	"	
1,2-Dichloroethane (EDC)	ND	100	"	"	"	"	"	"	
Tertiary-amyl methyl ether (TAME)	ND	1000	"	"	"	"	"	"	
Benzene	ND	100	"	"	"	"	"	"	
Trichloroethene	ND	100	"	"	"	"	"	"	
1,2-Dichloropropane	ND	500	"	"	"	"	"	"	
Bromodichloromethane	ND	500	"	"	"	"	"	"	
Dibromomethane	ND	500	"	"	"	"	"	"	
cis-1,3-Dichloropropene	ND	500	"	"	"	"	"	"	
Toluene	ND	1000	"	"	"	"	"	"	
trans-1,3-Dichloropropene	ND	500	"	"	"	"	"	"	
1,1,2-Trichloroethane	ND	500	"	"	"	"	"	"	
1,2-Dibromoethane (EDB)	ND	500	"	"	"	"	"	"	
1,3-Dichloropropane	ND	500	"	"	"	"	"	"	
Tetrachloroethene	ND	100	"	"	"	"	"	"	
Dibromochloromethane	ND	500	"	"	"	"	"	"	
Chlorobenzene	ND	100	"	"	"	"	"	"	

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Kleinfelder - Irvine	Project: KL111716-L3	
2 Ada Street, Suite 250	Project Number: 20163965.001A / 875 Hotel Cir S	Reported:
Irvine, CA 92618	Project Manager: Mr. Paolo Dizon	23-Nov-16 13:23

Volatile Organic Compounds by H&P 8260SV

H&P Mobile Geochemistry, Inc.

Analyte	Result	Reporting Limit	Units	Dilution Factor	Batch	Prepared	Analyzed	Method	Notes
SV9 (E611069-04) Vapor Sampled: 17-Nov-16 Received: 17-Nov-16									
Ethylbenzene	ND	500	ug/m3	0.05	EK61711	17-Nov-16	17-Nov-16	H&P 8260SV	
1,1,1,2-Tetrachloroethane	ND	500	"	"	"	"	"	"	
m,p-Xylene	ND	500	"	"	"	"	"	"	
o-Xylene	ND	500	"	"	"	"	"	"	
Styrene	ND	500	"	"	"	"	"	"	
Bromoform	ND	500	"	"	"	"	"	"	
Isopropylbenzene (Cumene)	ND	500	"	"	"	"	"	"	
1,1,2,2-Tetrachloroethane	ND	500	"	"	"	"	"	"	
1,2,3-Trichloropropane	ND	500	"	"	"	"	"	"	
n-Propylbenzene	ND	500	"	"	"	"	"	"	
Bromobenzene	ND	500	"	"	"	"	"	"	
1,3,5-Trimethylbenzene	ND	500	"	"	"	"	"	"	
2-Chlorotoluene	ND	500	"	"	"	"	"	"	
4-Chlorotoluene	ND	500	"	"	"	"	"	"	
tert-Butylbenzene	ND	500	"	"	"	"	"	"	
1,2,4-Trimethylbenzene	ND	500	"	"	"	"	"	"	
sec-Butylbenzene	ND	500	"	"	"	"	"	"	
p-Isopropyltoluene	ND	500	"	"	"	"	"	"	
1,3-Dichlorobenzene	ND	500	"	"	"	"	"	"	
1,4-Dichlorobenzene	ND	500	"	"	"	"	"	"	
n-Butylbenzene	ND	500	"	"	"	"	"	"	
1,2-Dichlorobenzene	ND	500	"	"	"	"	"	"	
1,2-Dibromo-3-chloropropane	ND	5000	"	"	"	"	"	"	
1,2,4-Trichlorobenzene	ND	500	"	"	"	"	"	"	
Hexachlorobutadiene	ND	500	"	"	"	"	"	"	
Naphthalene	ND	100	"	"	"	"	"	"	
1,2,3-Trichlorobenzene	ND	500	"	"	"	"	"	"	
Tertiary-butyl alcohol (TBA)	ND	5000	"	"	"	"	"	"	
Surrogate: Dibromofluoromethane		*116 %*	*75-125*		*"*	*"*	*"*	*"*	
Surrogate: 1,2-Dichloroethane-d4		*117 %*	*75-125*		*"*	*"*	*"*	*"*	
Surrogate: Toluene-d8		*105 %*	*75-125*		*"*	*"*	*"*	*"*	
Surrogate: 4-Bromofluorobenzene		*110 %*	*75-125*		*"*	*"*	*"*	*"*	

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Kleinfelder - Irvine	Project:	KL111716-L3	
2 Ada Street, Suite 250	Project Number:	20163965.001A / 875 Hotel Cir S	Reported:
Irvine, CA 92618	Project Manager:	Mr. Paolo Dizon	23-Nov-16 13:23

Volatile Organic Compounds by H&P 8260SV

H&P Mobile Geochemistry, Inc.

Analyte	Result	Reporting Limit	Units	Dilution Factor	Batch	Prepared	Analyzed	Method	Notes
SV10 (E611069-05) Vapor Sampled: 17-Nov-16 Received: 17-Nov-16									
1,1-Difluoroethane (LCC)	ND	500	ug/m3	0.05	EK61711	17-Nov-16	17-Nov-16	H&P 8260SV	
Dichlorodifluoromethane (F12)	ND	500	"	"	"	"	"	"	
Chloromethane	ND	500	"	"	"	"	"	"	
Vinyl chloride	ND	50	"	"	"	"	"	"	
Bromomethane	ND	500	"	"	"	"	"	"	
Chloroethane	ND	500	"	"	"	"	"	"	
Trichlorofluoromethane (F11)	ND	500	"	"	"	"	"	"	
1,1-Dichloroethene	ND	500	"	"	"	"	"	"	
Methylene chloride (Dichloromethane)	ND	500	"	"	"	"	"	"	
1,1,2 Trichlorotrifluoroethane (F113)	ND	500	"	"	"	"	"	"	
Methyl tertiary-butyl ether (MTBE)	ND	500	"	"	"	"	"	"	
trans-1,2-Dichloroethene	ND	500	"	"	"	"	"	"	
Diisopropyl ether (DIPE)	ND	1000	"	"	"	"	"	"	
1,1-Dichloroethane	ND	500	"	"	"	"	"	"	
Ethyl tert-butyl ether (ETBE)	ND	1000	"	"	"	"	"	"	
2,2-Dichloropropane	ND	500	"	"	"	"	"	"	
cis-1,2-Dichloroethene	ND	500	"	"	"	"	"	"	
Chloroform	ND	100	"	"	"	"	"	"	
Bromochloromethane	ND	500	"	"	"	"	"	"	
1,1,1-Trichloroethane	ND	500	"	"	"	"	"	"	
1,1-Dichloropropene	ND	500	"	"	"	"	"	"	
Carbon tetrachloride	ND	100	"	"	"	"	"	"	
1,2-Dichloroethane (EDC)	ND	100	"	"	"	"	"	"	
Tertiary-amyl methyl ether (TAME)	ND	1000	"	"	"	"	"	"	
Benzene	ND	100	"	"	"	"	"	"	
Trichloroethene	ND	100	"	"	"	"	"	"	
1,2-Dichloropropane	ND	500	"	"	"	"	"	"	
Bromodichloromethane	ND	500	"	"	"	"	"	"	
Dibromomethane	ND	500	"	"	"	"	"	"	
cis-1,3-Dichloropropene	ND	500	"	"	"	"	"	"	
Toluene	ND	1000	"	"	"	"	"	"	
trans-1,3-Dichloropropene	ND	500	"	"	"	"	"	"	
1,1,2-Trichloroethane	ND	500	"	"	"	"	"	"	
1,2-Dibromoethane (EDB)	ND	500	"	"	"	"	"	"	
1,3-Dichloropropane	ND	500	"	"	"	"	"	"	
Tetrachloroethene	ND	100	"	"	"	"	"	"	
Dibromochloromethane	ND	500	"	"	"	"	"	"	
Chlorobenzene	ND	100	"	"	"	"	"	"	

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Kleinfelder - Irvine 2 Ada Street, Suite 250 Irvine, CA 92618	Project: KL111716-L3 Project Number: 20163965.001A / 875 Hotel Cir S Project Manager: Mr. Paolo Dizon	Reported: 23-Nov-16 13:23

Volatile Organic Compounds by H&P 8260SV

H&P Mobile Geochemistry, Inc.

Analyte	Result	Reporting Limit	Units	Dilution Factor	Batch	Prepared	Analyzed	Method	Notes
SV10 (E611069-05) Vapor Sampled: 17-Nov-16 Received: 17-Nov-16									
Ethylbenzene	ND	500	ug/m3	0.05	EK61711	17-Nov-16	17-Nov-16	H&P 8260SV	
1,1,1,2-Tetrachloroethane	ND	500	"	"	"	"	"	"	
m,p-Xylene	ND	500	"	"	"	"	"	"	
o-Xylene	ND	500	"	"	"	"	"	"	
Styrene	ND	500	"	"	"	"	"	"	
Bromoform	ND	500	"	"	"	"	"	"	
Isopropylbenzene (Cumene)	ND	500	"	"	"	"	"	"	
1,1,2,2-Tetrachloroethane	ND	500	"	"	"	"	"	"	
1,2,3-Trichloropropane	ND	500	"	"	"	"	"	"	
n-Propylbenzene	ND	500	"	"	"	"	"	"	
Bromobenzene	ND	500	"	"	"	"	"	"	
1,3,5-Trimethylbenzene	ND	500	"	"	"	"	"	"	
2-Chlorotoluene	ND	500	"	"	"	"	"	"	
4-Chlorotoluene	ND	500	"	"	"	"	"	"	
tert-Butylbenzene	ND	500	"	"	"	"	"	"	
1,2,4-Trimethylbenzene	ND	500	"	"	"	"	"	"	
sec-Butylbenzene	ND	500	"	"	"	"	"	"	
p-Isopropyltoluene	ND	500	"	"	"	"	"	"	
1,3-Dichlorobenzene	ND	500	"	"	"	"	"	"	
1,4-Dichlorobenzene	ND	500	"	"	"	"	"	"	
n-Butylbenzene	ND	500	"	"	"	"	"	"	
1,2-Dichlorobenzene	ND	500	"	"	"	"	"	"	
1,2-Dibromo-3-chloropropane	ND	5000	"	"	"	"	"	"	
1,2,4-Trichlorobenzene	ND	500	"	"	"	"	"	"	
Hexachlorobutadiene	ND	500	"	"	"	"	"	"	
Naphthalene	ND	100	"	"	"	"	"	"	
1,2,3-Trichlorobenzene	ND	500	"	"	"	"	"	"	
Tertiary-butyl alcohol (TBA)	ND	5000	"	"	"	"	"	"	
Surrogate: Dibromofluoromethane		*116 %*	*75-125*		*"*	*"*	*"*	*"*	
Surrogate: 1,2-Dichloroethane-d4		*112 %*	*75-125*		*"*	*"*	*"*	*"*	
Surrogate: Toluene-d8		*108 %*	*75-125*		*"*	*"*	*"*	*"*	
Surrogate: 4-Bromofluorobenzene		*110 %*	*75-125*		*"*	*"*	*"*	*"*	

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Kleinfelder - Irvine	Project: KL111716-L3	
2 Ada Street, Suite 250	Project Number: 20163965.001A / 875 Hotel Cir S	Reported:
Irvine, CA 92618	Project Manager: Mr. Paolo Dizon	23-Nov-16 13:23

Volatile Organic Compounds by H&P 8260SV

H&P Mobile Geochemistry, Inc.

Analyte	Result	Reporting Limit	Units	Dilution Factor	Batch	Prepared	Analyzed	Method	Notes
SV7 (E611069-06) Vapor Sampled: 17-Nov-16 Received: 17-Nov-16									
1,1-Difluoroethane (LCC)	ND	20000	ug/m3	2	EK61711	17-Nov-16	17-Nov-16	H&P 8260SV	
Dichlorodifluoromethane (F12)	ND	20000	"	"	"	"	"	"	
Chloromethane	ND	20000	"	"	"	"	"	"	
Vinyl chloride	ND	2000	"	"	"	"	"	"	
Bromomethane	ND	20000	"	"	"	"	"	"	
Chloroethane	ND	20000	"	"	"	"	"	"	
Trichlorofluoromethane (F11)	ND	20000	"	"	"	"	"	"	
1,1-Dichloroethene	ND	20000	"	"	"	"	"	"	
Methylene chloride (Dichloromethane)	ND	20000	"	"	"	"	"	"	
1,1,2 Trichlorotrifluoroethane (F113)	ND	20000	"	"	"	"	"	"	
Methyl tertiary-butyl ether (MTBE)	ND	20000	"	"	"	"	"	"	
trans-1,2-Dichloroethene	ND	20000	"	"	"	"	"	"	
Diisopropyl ether (DIPE)	ND	40000	"	"	"	"	"	"	
1,1-Dichloroethane	ND	20000	"	"	"	"	"	"	
Ethyl tert-butyl ether (ETBE)	ND	40000	"	"	"	"	"	"	
2,2-Dichloropropane	ND	20000	"	"	"	"	"	"	
cis-1,2-Dichloroethene	ND	20000	"	"	"	"	"	"	
Chloroform	ND	4000	"	"	"	"	"	"	
Bromochloromethane	ND	20000	"	"	"	"	"	"	
1,1,1-Trichloroethane	ND	20000	"	"	"	"	"	"	
1,1-Dichloropropene	ND	20000	"	"	"	"	"	"	
Carbon tetrachloride	ND	4000	"	"	"	"	"	"	
1,2-Dichloroethane (EDC)	ND	4000	"	"	"	"	"	"	
Tertiary-amyl methyl ether (TAME)	ND	40000	"	"	"	"	"	"	
Benzene	**200000**	4000	"	"	"	"	"	"	
Trichloroethene	ND	4000	"	"	"	"	"	"	
1,2-Dichloropropane	ND	20000	"	"	"	"	"	"	
Bromodichloromethane	ND	20000	"	"	"	"	"	"	
Dibromomethane	ND	20000	"	"	"	"	"	"	
cis-1,3-Dichloropropene	ND	20000	"	"	"	"	"	"	
Toluene	ND	40000	"	"	"	"	"	"	
trans-1,3-Dichloropropene	ND	20000	"	"	"	"	"	"	
1,1,2-Trichloroethane	ND	20000	"	"	"	"	"	"	
1,2-Dibromoethane (EDB)	ND	20000	"	"	"	"	"	"	
1,3-Dichloropropane	ND	20000	"	"	"	"	"	"	
Tetrachloroethene	ND	4000	"	"	"	"	"	"	
Dibromochloromethane	ND	20000	"	"	"	"	"	"	
Chlorobenzene	ND	4000	"	"	"	"	"	"	

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Kleinfelder - Irvine 2 Ada Street, Suite 250 Irvine, CA 92618	Project: KL111716-L3 Project Number: 20163965.001A / 875 Hotel Cir S Project Manager: Mr. Paolo Dizon	Reported: 23-Nov-16 13:23

Volatile Organic Compounds by H&P 8260SV

H&P Mobile Geochemistry, Inc.

Analyte	Result	Reporting Limit	Units	Dilution Factor	Batch	Prepared	Analyzed	Method	Notes
SV7 (E611069-06) Vapor Sampled: 17-Nov-16 Received: 17-Nov-16									
Ethylbenzene	**48000**	20000	ug/m3	2	EK61711	17-Nov-16	17-Nov-16	H&P 8260SV	
1,1,1,2-Tetrachloroethane	ND	20000	"	"	"	"	"	"	
m,p-Xylene	**31000**	20000	"	"	"	"	"	"	
o-Xylene	ND	20000	"	"	"	"	"	"	
Styrene	ND	20000	"	"	"	"	"	"	
Bromoform	ND	20000	"	"	"	"	"	"	
Isopropylbenzene (Cumene)	**21000**	20000	"	"	"	"	"	"	
1,1,2,2-Tetrachloroethane	ND	20000	"	"	"	"	"	"	
1,2,3-Trichloropropane	ND	20000	"	"	"	"	"	"	
n-Propylbenzene	**44000**	20000	"	"	"	"	"	"	
Bromobenzene	ND	20000	"	"	"	"	"	"	
1,3,5-Trimethylbenzene	ND	20000	"	"	"	"	"	"	
2-Chlorotoluene	ND	20000	"	"	"	"	"	"	
4-Chlorotoluene	ND	20000	"	"	"	"	"	"	
tert-Butylbenzene	ND	20000	"	"	"	"	"	"	
1,2,4-Trimethylbenzene	ND	20000	"	"	"	"	"	"	
sec-Butylbenzene	ND	20000	"	"	"	"	"	"	
p-Isopropyltoluene	ND	20000	"	"	"	"	"	"	
1,3-Dichlorobenzene	ND	20000	"	"	"	"	"	"	
1,4-Dichlorobenzene	ND	20000	"	"	"	"	"	"	
n-Butylbenzene	ND	20000	"	"	"	"	"	"	
1,2-Dichlorobenzene	ND	20000	"	"	"	"	"	"	
1,2-Dibromo-3-chloropropane	ND	200000	"	"	"	"	"	"	
1,2,4-Trichlorobenzene	ND	20000	"	"	"	"	"	"	
Hexachlorobutadiene	ND	20000	"	"	"	"	"	"	
Naphthalene	ND	4000	"	"	"	"	"	"	
1,2,3-Trichlorobenzene	ND	20000	"	"	"	"	"	"	
Tertiary-butyl alcohol (TBA)	ND	200000	"	"	"	"	"	"	
Surrogate: Dibromofluoromethane		*110 %*	*75-125*		"	"	"	"	
Surrogate: 1,2-Dichloroethane-d4		*116 %*	*75-125*		"	"	"	"	
Surrogate: Toluene-d8		*124 %*	*75-125*		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		*113 %*	*75-125*		"	"	"	"	

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Kleinfelder - Irvine 2 Ada Street, Suite 250 Irvine, CA 92618	Project: KL111716-L3 Project Number: 20163965.001A / 875 Hotel Cir S Project Manager: Mr. Paolo Dizon	Reported: 23-Nov-16 13:23

Volatile Organic Compounds by H&P 8260SV

H&P Mobile Geochemistry, Inc.

Analyte	Result	Reporting Limit	Units	Dilution Factor	Batch	Prepared	Analyzed	Method	Notes
SV2 (E611069-07) Vapor Sampled: 17-Nov-16 Received: 17-Nov-16									
1,1-Difluoroethane (LCC)	ND	500	ug/m3	0.05	EK61711	17-Nov-16	17-Nov-16	H&P 8260SV	
Dichlorodifluoromethane (F12)	ND	500	"	"	"	"	"	"	
Chloromethane	ND	500	"	"	"	"	"	"	
Vinyl chloride	ND	50	"	"	"	"	"	"	
Bromomethane	ND	500	"	"	"	"	"	"	
Chloroethane	ND	500	"	"	"	"	"	"	
Trichlorofluoromethane (F11)	ND	500	"	"	"	"	"	"	
1,1-Dichloroethene	ND	500	"	"	"	"	"	"	
Methylene chloride (Dichloromethane)	ND	500	"	"	"	"	"	"	
1,1,2 Trichlorotrifluoroethane (F113)	ND	500	"	"	"	"	"	"	
Methyl tertiary-butyl ether (MTBE)	ND	500	"	"	"	"	"	"	
trans-1,2-Dichloroethene	ND	500	"	"	"	"	"	"	
Diisopropyl ether (DIPE)	ND	1000	"	"	"	"	"	"	
1,1-Dichloroethane	ND	500	"	"	"	"	"	"	
Ethyl tert-butyl ether (ETBE)	ND	1000	"	"	"	"	"	"	
2,2-Dichloropropane	ND	500	"	"	"	"	"	"	
cis-1,2-Dichloroethene	ND	500	"	"	"	"	"	"	
Chloroform	ND	100	"	"	"	"	"	"	
Bromochloromethane	ND	500	"	"	"	"	"	"	
1,1,1-Trichloroethane	ND	500	"	"	"	"	"	"	
1,1-Dichloropropene	ND	500	"	"	"	"	"	"	
Carbon tetrachloride	ND	100	"	"	"	"	"	"	
1,2-Dichloroethane (EDC)	ND	100	"	"	"	"	"	"	
Tertiary-amyl methyl ether (TAME)	ND	1000	"	"	"	"	"	"	
Benzene	ND	100	"	"	"	"	"	"	
Trichloroethene	ND	100	"	"	"	"	"	"	
1,2-Dichloropropane	ND	500	"	"	"	"	"	"	
Bromodichloromethane	ND	500	"	"	"	"	"	"	
Dibromomethane	ND	500	"	"	"	"	"	"	
cis-1,3-Dichloropropene	ND	500	"	"	"	"	"	"	
Toluene	ND	1000	"	"	"	"	"	"	
trans-1,3-Dichloropropene	ND	500	"	"	"	"	"	"	
1,1,2-Trichloroethane	ND	500	"	"	"	"	"	"	
1,2-Dibromoethane (EDB)	ND	500	"	"	"	"	"	"	
1,3-Dichloropropane	ND	500	"	"	"	"	"	"	
Tetrachloroethene	ND	100	"	"	"	"	"	"	
Dibromochloromethane	ND	500	"	"	"	"	"	"	
Chlorobenzene	ND	100	"	"	"	"	"	"	

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Kleinfelder - Irvine	Project: KL111716-L3	
2 Ada Street, Suite 250	Project Number: 20163965.001A / 875 Hotel Cir S	Reported:
Irvine, CA 92618	Project Manager: Mr. Paolo Dizon	23-Nov-16 13:23

Volatile Organic Compounds by H&P 8260SV

H&P Mobile Geochemistry, Inc.

Analyte	Result	Reporting Limit	Units	Dilution Factor	Batch	Prepared	Analyzed	Method	Notes
SV2 (E611069-07) Vapor Sampled: 17-Nov-16 Received: 17-Nov-16									
Ethylbenzene	ND	500	ug/m3	0.05	EK61711	17-Nov-16	17-Nov-16	H&P 8260SV	
1,1,1,2-Tetrachloroethane	ND	500	"	"	"	"	"	"	
m,p-Xylene	ND	500	"	"	"	"	"	"	
o-Xylene	ND	500	"	"	"	"	"	"	
Styrene	ND	500	"	"	"	"	"	"	
Bromoform	ND	500	"	"	"	"	"	"	
Isopropylbenzene (Cumene)	ND	500	"	"	"	"	"	"	
1,1,2,2-Tetrachloroethane	ND	500	"	"	"	"	"	"	
1,2,3-Trichloropropane	ND	500	"	"	"	"	"	"	
n-Propylbenzene	ND	500	"	"	"	"	"	"	
Bromobenzene	ND	500	"	"	"	"	"	"	
1,3,5-Trimethylbenzene	ND	500	"	"	"	"	"	"	
2-Chlorotoluene	ND	500	"	"	"	"	"	"	
4-Chlorotoluene	ND	500	"	"	"	"	"	"	
tert-Butylbenzene	ND	500	"	"	"	"	"	"	
1,2,4-Trimethylbenzene	ND	500	"	"	"	"	"	"	
sec-Butylbenzene	ND	500	"	"	"	"	"	"	
p-Isopropyltoluene	ND	500	"	"	"	"	"	"	
1,3-Dichlorobenzene	ND	500	"	"	"	"	"	"	
1,4-Dichlorobenzene	ND	500	"	"	"	"	"	"	
n-Butylbenzene	ND	500	"	"	"	"	"	"	
1,2-Dichlorobenzene	ND	500	"	"	"	"	"	"	
1,2-Dibromo-3-chloropropane	ND	5000	"	"	"	"	"	"	
1,2,4-Trichlorobenzene	ND	500	"	"	"	"	"	"	
Hexachlorobutadiene	ND	500	"	"	"	"	"	"	
Naphthalene	ND	100	"	"	"	"	"	"	
1,2,3-Trichlorobenzene	ND	500	"	"	"	"	"	"	
Tertiary-butyl alcohol (TBA)	ND	5000	"	"	"	"	"	"	
Surrogate: Dibromofluoromethane		*115 %*	*75-125*		"	"	"	"	
Surrogate: 1,2-Dichloroethane-d4		*113 %*	*75-125*		"	"	"	"	
Surrogate: Toluene-d8		*108 %*	*75-125*		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		*111 %*	*75-125*		"	"	"	"	

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Kleinfelder - Irvine	Project: KL111716-L3	
2 Ada Street, Suite 250	Project Number: 20163965.001A / 875 Hotel Cir S	Reported:
Irvine, CA 92618	Project Manager: Mr. Paolo Dizon	23-Nov-16 13:23

Volatile Organic Compounds by H&P 8260SV

H&P Mobile Geochemistry, Inc.

Analyte	Result	Reporting Limit	Units	Dilution Factor	Batch	Prepared	Analyzed	Method	Notes
SV11 (E611069-08) Vapor Sampled: 17-Nov-16 Received: 17-Nov-16									
1,1-Difluoroethane (LCC)	ND	500	ug/m3	0.05	EK61711	17-Nov-16	17-Nov-16	H&P 8260SV	
Dichlorodifluoromethane (F12)	ND	500	"	"	"	"	"	"	
Chloromethane	ND	500	"	"	"	"	"	"	
Vinyl chloride	ND	50	"	"	"	"	"	"	
Bromomethane	ND	500	"	"	"	"	"	"	
Chloroethane	ND	500	"	"	"	"	"	"	
Trichlorofluoromethane (F11)	ND	500	"	"	"	"	"	"	
1,1-Dichloroethene	ND	500	"	"	"	"	"	"	
Methylene chloride (Dichloromethane)	ND	500	"	"	"	"	"	"	
1,1,2 Trichlorotrifluoroethane (F113)	ND	500	"	"	"	"	"	"	
Methyl tertiary-butyl ether (MTBE)	ND	500	"	"	"	"	"	"	
trans-1,2-Dichloroethene	ND	500	"	"	"	"	"	"	
Diisopropyl ether (DIPE)	ND	1000	"	"	"	"	"	"	
1,1-Dichloroethane	ND	500	"	"	"	"	"	"	
Ethyl tert-butyl ether (ETBE)	ND	1000	"	"	"	"	"	"	
2,2-Dichloropropane	ND	500	"	"	"	"	"	"	
cis-1,2-Dichloroethene	ND	500	"	"	"	"	"	"	
Chloroform	ND	100	"	"	"	"	"	"	
Bromochloromethane	ND	500	"	"	"	"	"	"	
1,1,1-Trichloroethane	ND	500	"	"	"	"	"	"	
1,1-Dichloropropene	ND	500	"	"	"	"	"	"	
Carbon tetrachloride	ND	100	"	"	"	"	"	"	
1,2-Dichloroethane (EDC)	ND	100	"	"	"	"	"	"	
Tertiary-amyl methyl ether (TAME)	ND	1000	"	"	"	"	"	"	
Benzene	ND	100	"	"	"	"	"	"	
Trichloroethene	ND	100	"	"	"	"	"	"	
1,2-Dichloropropane	ND	500	"	"	"	"	"	"	
Bromodichloromethane	ND	500	"	"	"	"	"	"	
Dibromomethane	ND	500	"	"	"	"	"	"	
cis-1,3-Dichloropropene	ND	500	"	"	"	"	"	"	
Toluene	ND	1000	"	"	"	"	"	"	
trans-1,3-Dichloropropene	ND	500	"	"	"	"	"	"	
1,1,2-Trichloroethane	ND	500	"	"	"	"	"	"	
1,2-Dibromoethane (EDB)	ND	500	"	"	"	"	"	"	
1,3-Dichloropropane	ND	500	"	"	"	"	"	"	
Tetrachloroethene	ND	100	"	"	"	"	"	"	
Dibromochloromethane	ND	500	"	"	"	"	"	"	
Chlorobenzene	ND	100	"	"	"	"	"	"	

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Kleinfelder - Irvine 2 Ada Street, Suite 250 Irvine, CA 92618	Project: KL111716-L3 Project Number: 20163965.001A / 875 Hotel Cir S Project Manager: Mr. Paolo Dizon	Reported: 23-Nov-16 13:23

Volatile Organic Compounds by H&P 8260SV

H&P Mobile Geochemistry, Inc.

Analyte	Result	Reporting Limit	Units	Dilution Factor	Batch	Prepared	Analyzed	Method	Notes
SV11 (E611069-08) Vapor Sampled: 17-Nov-16 Received: 17-Nov-16									
Ethylbenzene	ND	500	ug/m3	0.05	EK61711	17-Nov-16	17-Nov-16	H&P 8260SV	
1,1,1,2-Tetrachloroethane	ND	500	"	"	"	"	"	"	
m,p-Xylene	ND	500	"	"	"	"	"	"	
o-Xylene	ND	500	"	"	"	"	"	"	
Styrene	ND	500	"	"	"	"	"	"	
Bromoform	ND	500	"	"	"	"	"	"	
Isopropylbenzene (Cumene)	ND	500	"	"	"	"	"	"	
1,1,2,2-Tetrachloroethane	ND	500	"	"	"	"	"	"	
1,2,3-Trichloropropane	ND	500	"	"	"	"	"	"	
n-Propylbenzene	ND	500	"	"	"	"	"	"	
Bromobenzene	ND	500	"	"	"	"	"	"	
1,3,5-Trimethylbenzene	ND	500	"	"	"	"	"	"	
2-Chlorotoluene	ND	500	"	"	"	"	"	"	
4-Chlorotoluene	ND	500	"	"	"	"	"	"	
tert-Butylbenzene	ND	500	"	"	"	"	"	"	
1,2,4-Trimethylbenzene	ND	500	"	"	"	"	"	"	
sec-Butylbenzene	ND	500	"	"	"	"	"	"	
p-Isopropyltoluene	ND	500	"	"	"	"	"	"	
1,3-Dichlorobenzene	ND	500	"	"	"	"	"	"	
1,4-Dichlorobenzene	ND	500	"	"	"	"	"	"	
n-Butylbenzene	ND	500	"	"	"	"	"	"	
1,2-Dichlorobenzene	ND	500	"	"	"	"	"	"	
1,2-Dibromo-3-chloropropane	ND	5000	"	"	"	"	"	"	
1,2,4-Trichlorobenzene	ND	500	"	"	"	"	"	"	
Hexachlorobutadiene	ND	500	"	"	"	"	"	"	
Naphthalene	ND	100	"	"	"	"	"	"	
1,2,3-Trichlorobenzene	ND	500	"	"	"	"	"	"	
Tertiary-butyl alcohol (TBA)	ND	5000	"	"	"	"	"	"	
Surrogate: Dibromofluoromethane		*122 %*	*75-125*		"	"	"	"	
Surrogate: 1,2-Dichloroethane-d4		*116 %*	*75-125*		"	"	"	"	
Surrogate: Toluene-d8		*107 %*	*75-125*		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		*111 %*	*75-125*		"	"	"	"	

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Kleinfelder - Irvine 2 Ada Street, Suite 250 Irvine, CA 92618	Project: KL111716-L3 Project Number: 20163965.001A / 875 Hotel Cir S Project Manager: Mr. Paolo Dizon	Reported: 23-Nov-16 13:23

Volatile Organic Compounds by H&P 8260SV

H&P Mobile Geochemistry, Inc.

Analyte	Result	Reporting Limit	Units	Dilution Factor	Batch	Prepared	Analyzed	Method	Notes
SV3 (E611069-09) Vapor Sampled: 17-Nov-16 Received: 17-Nov-16									
1,1-Difluoroethane (LCC)	ND	500	ug/m3	0.05	EK61711	17-Nov-16	17-Nov-16	H&P 8260SV	
Dichlorodifluoromethane (F12)	ND	500	"	"	"	"	"	"	
Chloromethane	ND	500	"	"	"	"	"	"	
Vinyl chloride	ND	50	"	"	"	"	"	"	
Bromomethane	ND	500	"	"	"	"	"	"	
Chloroethane	ND	500	"	"	"	"	"	"	
Trichlorofluoromethane (F11)	ND	500	"	"	"	"	"	"	
1,1-Dichloroethene	ND	500	"	"	"	"	"	"	
Methylene chloride (Dichloromethane)	ND	500	"	"	"	"	"	"	
1,1,2 Trichlorotrifluoroethane (F113)	ND	500	"	"	"	"	"	"	
Methyl tertiary-butyl ether (MTBE)	ND	500	"	"	"	"	"	"	
trans-1,2-Dichloroethene	ND	500	"	"	"	"	"	"	
Diisopropyl ether (DIPE)	ND	1000	"	"	"	"	"	"	
1,1-Dichloroethane	ND	500	"	"	"	"	"	"	
Ethyl tert-butyl ether (ETBE)	ND	1000	"	"	"	"	"	"	
2,2-Dichloropropane	ND	500	"	"	"	"	"	"	
cis-1,2-Dichloroethene	ND	500	"	"	"	"	"	"	
Chloroform	ND	100	"	"	"	"	"	"	
Bromochloromethane	ND	500	"	"	"	"	"	"	
1,1,1-Trichloroethane	ND	500	"	"	"	"	"	"	
1,1-Dichloropropene	ND	500	"	"	"	"	"	"	
Carbon tetrachloride	ND	100	"	"	"	"	"	"	
1,2-Dichloroethane (EDC)	ND	100	"	"	"	"	"	"	
Tertiary-amyl methyl ether (TAME)	ND	1000	"	"	"	"	"	"	
Benzene	ND	100	"	"	"	"	"	"	
Trichloroethene	ND	100	"	"	"	"	"	"	
1,2-Dichloropropane	ND	500	"	"	"	"	"	"	
Bromodichloromethane	ND	500	"	"	"	"	"	"	
Dibromomethane	ND	500	"	"	"	"	"	"	
cis-1,3-Dichloropropene	ND	500	"	"	"	"	"	"	
Toluene	ND	1000	"	"	"	"	"	"	
trans-1,3-Dichloropropene	ND	500	"	"	"	"	"	"	
1,1,2-Trichloroethane	ND	500	"	"	"	"	"	"	
1,2-Dibromoethane (EDB)	ND	500	"	"	"	"	"	"	
1,3-Dichloropropane	ND	500	"	"	"	"	"	"	
Tetrachloroethene	ND	100	"	"	"	"	"	"	
Dibromochloromethane	ND	500	"	"	"	"	"	"	
Chlorobenzene	ND	100	"	"	"	"	"	"	

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Kleinfelder - Irvine	Project:	KL111716-L3	
2 Ada Street, Suite 250	Project Number:	20163965.001A / 875 Hotel Cir S	Reported:
Irvine, CA 92618	Project Manager:	Mr. Paolo Dizon	23-Nov-16 13:23

Volatile Organic Compounds by H&P 8260SV

H&P Mobile Geochemistry, Inc.

Analyte	Result	Reporting Limit	Units	Dilution Factor	Batch	Prepared	Analyzed	Method	Notes
SV3 (E611069-09) Vapor Sampled: 17-Nov-16 Received: 17-Nov-16									
Ethylbenzene	ND	500	ug/m3	0.05	EK61711	17-Nov-16	17-Nov-16	H&P 8260SV	
1,1,1,2-Tetrachloroethane	ND	500	"	"	"	"	"	"	
m,p-Xylene	ND	500	"	"	"	"	"	"	
o-Xylene	ND	500	"	"	"	"	"	"	
Styrene	ND	500	"	"	"	"	"	"	
Bromoform	ND	500	"	"	"	"	"	"	
Isopropylbenzene (Cumene)	ND	500	"	"	"	"	"	"	
1,1,2,2-Tetrachloroethane	ND	500	"	"	"	"	"	"	
1,2,3-Trichloropropane	ND	500	"	"	"	"	"	"	
n-Propylbenzene	ND	500	"	"	"	"	"	"	
Bromobenzene	ND	500	"	"	"	"	"	"	
1,3,5-Trimethylbenzene	ND	500	"	"	"	"	"	"	
2-Chlorotoluene	ND	500	"	"	"	"	"	"	
4-Chlorotoluene	ND	500	"	"	"	"	"	"	
tert-Butylbenzene	ND	500	"	"	"	"	"	"	
1,2,4-Trimethylbenzene	ND	500	"	"	"	"	"	"	
sec-Butylbenzene	ND	500	"	"	"	"	"	"	
p-Isopropyltoluene	ND	500	"	"	"	"	"	"	
1,3-Dichlorobenzene	ND	500	"	"	"	"	"	"	
1,4-Dichlorobenzene	ND	500	"	"	"	"	"	"	
n-Butylbenzene	ND	500	"	"	"	"	"	"	
1,2-Dichlorobenzene	ND	500	"	"	"	"	"	"	
1,2-Dibromo-3-chloropropane	ND	5000	"	"	"	"	"	"	
1,2,4-Trichlorobenzene	ND	500	"	"	"	"	"	"	
Hexachlorobutadiene	ND	500	"	"	"	"	"	"	
Naphthalene	ND	100	"	"	"	"	"	"	
1,2,3-Trichlorobenzene	ND	500	"	"	"	"	"	"	
Tertiary-butyl alcohol (TBA)	ND	5000	"	"	"	"	"	"	
Surrogate: Dibromofluoromethane		*118 %*	*75-125*		"	"	"	"	
Surrogate: 1,2-Dichloroethane-d4		*116 %*	*75-125*		"	"	"	"	
Surrogate: Toluene-d8		*109 %*	*75-125*		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		*115 %*	*75-125*		"	"	"	"	

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Kleinfelder - Irvine	Project: KL111716-L3	
2 Ada Street, Suite 250	Project Number: 20163965.001A / 875 Hotel Cir S	Reported:
Irvine, CA 92618	Project Manager: Mr. Paolo Dizon	23-Nov-16 13:23

Volatile Organic Compounds by H&P 8260SV

H&P Mobile Geochemistry, Inc.

Analyte	Result	Reporting Limit	Units	Dilution Factor	Batch	Prepared	Analyzed	Method	Notes
SV12 (E611069-10) Vapor Sampled: 17-Nov-16 Received: 17-Nov-16									
1,1-Difluoroethane (LCC)	ND	500	ug/m3	0.05	EK61711	17-Nov-16	17-Nov-16	H&P 8260SV	
Dichlorodifluoromethane (F12)	ND	500	"	"	"	"	"	"	
Chloromethane	ND	500	"	"	"	"	"	"	
Vinyl chloride	ND	50	"	"	"	"	"	"	
Bromomethane	ND	500	"	"	"	"	"	"	
Chloroethane	ND	500	"	"	"	"	"	"	
Trichlorofluoromethane (F11)	ND	500	"	"	"	"	"	"	
1,1-Dichloroethene	ND	500	"	"	"	"	"	"	
Methylene chloride (Dichloromethane)	ND	500	"	"	"	"	"	"	
1,1,2 Trichlorotrifluoroethane (F113)	ND	500	"	"	"	"	"	"	
Methyl tertiary-butyl ether (MTBE)	ND	500	"	"	"	"	"	"	
trans-1,2-Dichloroethene	ND	500	"	"	"	"	"	"	
Diisopropyl ether (DIPE)	ND	1000	"	"	"	"	"	"	
1,1-Dichloroethane	ND	500	"	"	"	"	"	"	
Ethyl tert-butyl ether (ETBE)	ND	1000	"	"	"	"	"	"	
2,2-Dichloropropane	ND	500	"	"	"	"	"	"	
cis-1,2-Dichloroethene	ND	500	"	"	"	"	"	"	
Chloroform	ND	100	"	"	"	"	"	"	
Bromochloromethane	ND	500	"	"	"	"	"	"	
1,1,1-Trichloroethane	ND	500	"	"	"	"	"	"	
1,1-Dichloropropene	ND	500	"	"	"	"	"	"	
Carbon tetrachloride	ND	100	"	"	"	"	"	"	
1,2-Dichloroethane (EDC)	ND	100	"	"	"	"	"	"	
Tertiary-amyl methyl ether (TAME)	ND	1000	"	"	"	"	"	"	
Benzene	ND	100	"	"	"	"	"	"	
Trichloroethene	ND	100	"	"	"	"	"	"	
1,2-Dichloropropane	ND	500	"	"	"	"	"	"	
Bromodichloromethane	ND	500	"	"	"	"	"	"	
Dibromomethane	ND	500	"	"	"	"	"	"	
cis-1,3-Dichloropropene	ND	500	"	"	"	"	"	"	
Toluene	ND	1000	"	"	"	"	"	"	
trans-1,3-Dichloropropene	ND	500	"	"	"	"	"	"	
1,1,2-Trichloroethane	ND	500	"	"	"	"	"	"	
1,2-Dibromoethane (EDB)	ND	500	"	"	"	"	"	"	
1,3-Dichloropropane	ND	500	"	"	"	"	"	"	
Tetrachloroethene	ND	100	"	"	"	"	"	"	
Dibromochloromethane	ND	500	"	"	"	"	"	"	
Chlorobenzene	ND	100	"	"	"	"	"	"	

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Kleinfelder - Irvine	Project:	KL111716-L3	
2 Ada Street, Suite 250	Project Number:	20163965.001A / 875 Hotel Cir S	Reported:
Irvine, CA 92618	Project Manager:	Mr. Paolo Dizon	23-Nov-16 13:23

Volatile Organic Compounds by H&P 8260SV

H&P Mobile Geochemistry, Inc.

Analyte	Result	Reporting Limit	Units	Dilution Factor	Batch	Prepared	Analyzed	Method	Notes
SV12 (E611069-10) Vapor Sampled: 17-Nov-16 Received: 17-Nov-16									
Ethylbenzene	ND	500	ug/m3	0.05	EK61711	17-Nov-16	17-Nov-16	H&P 8260SV	
1,1,1,2-Tetrachloroethane	ND	500	"	"	"	"	"	"	
m,p-Xylene	ND	500	"	"	"	"	"	"	
o-Xylene	ND	500	"	"	"	"	"	"	
Styrene	ND	500	"	"	"	"	"	"	
Bromoform	ND	500	"	"	"	"	"	"	
Isopropylbenzene (Cumene)	ND	500	"	"	"	"	"	"	
1,1,2,2-Tetrachloroethane	ND	500	"	"	"	"	"	"	
1,2,3-Trichloropropane	ND	500	"	"	"	"	"	"	
n-Propylbenzene	ND	500	"	"	"	"	"	"	
Bromobenzene	ND	500	"	"	"	"	"	"	
1,3,5-Trimethylbenzene	ND	500	"	"	"	"	"	"	
2-Chlorotoluene	ND	500	"	"	"	"	"	"	
4-Chlorotoluene	ND	500	"	"	"	"	"	"	
tert-Butylbenzene	ND	500	"	"	"	"	"	"	
1,2,4-Trimethylbenzene	ND	500	"	"	"	"	"	"	
sec-Butylbenzene	ND	500	"	"	"	"	"	"	
p-Isopropyltoluene	ND	500	"	"	"	"	"	"	
1,3-Dichlorobenzene	ND	500	"	"	"	"	"	"	
1,4-Dichlorobenzene	ND	500	"	"	"	"	"	"	
n-Butylbenzene	ND	500	"	"	"	"	"	"	
1,2-Dichlorobenzene	ND	500	"	"	"	"	"	"	
1,2-Dibromo-3-chloropropane	ND	5000	"	"	"	"	"	"	
1,2,4-Trichlorobenzene	ND	500	"	"	"	"	"	"	
Hexachlorobutadiene	ND	500	"	"	"	"	"	"	
Naphthalene	ND	100	"	"	"	"	"	"	
1,2,3-Trichlorobenzene	ND	500	"	"	"	"	"	"	
Tertiary-butyl alcohol (TBA)	ND	5000	"	"	"	"	"	"	
Surrogate: Dibromofluoromethane		*113 %*	*75-125*		"	"	"	"	
Surrogate: 1,2-Dichloroethane-d4		*110 %*	*75-125*		"	"	"	"	
Surrogate: Toluene-d8		*107 %*	*75-125*		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		*109 %*	*75-125*		"	"	"	"	

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Kleinfelder - Irvine	Project:	KL111716-L3	
2 Ada Street, Suite 250	Project Number:	20163965.001A / 875 Hotel Cir S	Reported:
Irvine, CA 92618	Project Manager:	Mr. Paolo Dizon	23-Nov-16 13:23

Volatile Organic Compounds by H&P 8260SV

H&P Mobile Geochemistry, Inc.

Analyte	Result	Reporting Limit	Units	Dilution Factor	Batch	Prepared	Analyzed	Method	Notes
SV6 (E611069-11) Vapor Sampled: 17-Nov-16 Received: 17-Nov-16									
1,1-Difluoroethane (LCC)	ND	500	ug/m3	0.05	EK61711	17-Nov-16	17-Nov-16	H&P 8260SV	
Dichlorodifluoromethane (F12)	ND	500	"	"	"	"	"	"	
Chloromethane	ND	500	"	"	"	"	"	"	
Vinyl chloride	ND	50	"	"	"	"	"	"	
Bromomethane	ND	500	"	"	"	"	"	"	
Chloroethane	ND	500	"	"	"	"	"	"	
Trichlorofluoromethane (F11)	ND	500	"	"	"	"	"	"	
1,1-Dichloroethene	ND	500	"	"	"	"	"	"	
Methylene chloride (Dichloromethane)	ND	500	"	"	"	"	"	"	
1,1,2 Trichlorotrifluoroethane (F113)	ND	500	"	"	"	"	"	"	
Methyl tertiary-butyl ether (MTBE)	ND	500	"	"	"	"	"	"	
trans-1,2-Dichloroethene	ND	500	"	"	"	"	"	"	
Diisopropyl ether (DIPE)	ND	1000	"	"	"	"	"	"	
1,1-Dichloroethane	ND	500	"	"	"	"	"	"	
Ethyl tert-butyl ether (ETBE)	ND	1000	"	"	"	"	"	"	
2,2-Dichloropropane	ND	500	"	"	"	"	"	"	
cis-1,2-Dichloroethene	ND	500	"	"	"	"	"	"	
Chloroform	ND	100	"	"	"	"	"	"	
Bromochloromethane	ND	500	"	"	"	"	"	"	
1,1,1-Trichloroethane	ND	500	"	"	"	"	"	"	
1,1-Dichloropropene	ND	500	"	"	"	"	"	"	
Carbon tetrachloride	ND	100	"	"	"	"	"	"	
1,2-Dichloroethane (EDC)	ND	100	"	"	"	"	"	"	
Tertiary-amyl methyl ether (TAME)	ND	1000	"	"	"	"	"	"	
Benzene	ND	100	"	"	"	"	"	"	
Trichloroethene	ND	100	"	"	"	"	"	"	
1,2-Dichloropropane	ND	500	"	"	"	"	"	"	
Bromodichloromethane	ND	500	"	"	"	"	"	"	
Dibromomethane	ND	500	"	"	"	"	"	"	
cis-1,3-Dichloropropene	ND	500	"	"	"	"	"	"	
Toluene	ND	1000	"	"	"	"	"	"	
trans-1,3-Dichloropropene	ND	500	"	"	"	"	"	"	
1,1,2-Trichloroethane	ND	500	"	"	"	"	"	"	
1,2-Dibromoethane (EDB)	ND	500	"	"	"	"	"	"	
1,3-Dichloropropane	ND	500	"	"	"	"	"	"	
Tetrachloroethene	ND	100	"	"	"	"	"	"	
Dibromochloromethane	ND	500	"	"	"	"	"	"	
Chlorobenzene	ND	100	"	"	"	"	"	"	

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Kleinfelder - Irvine 2 Ada Street, Suite 250 Irvine, CA 92618	Project: KL111716-L3 Project Number: 20163965.001A / 875 Hotel Cir S Project Manager: Mr. Paolo Dizon	Reported: 23-Nov-16 13:23

Volatile Organic Compounds by H&P 8260SV

H&P Mobile Geochemistry, Inc.

Analyte	Result	Reporting Limit	Units	Dilution Factor	Batch	Prepared	Analyzed	Method	Notes
SV6 (E611069-11) Vapor Sampled: 17-Nov-16 Received: 17-Nov-16									
Ethylbenzene	ND	500	ug/m3	0.05	EK61711	17-Nov-16	17-Nov-16	H&P 8260SV	
1,1,1,2-Tetrachloroethane	ND	500	"	"	"	"	"	"	
m,p-Xylene	ND	500	"	"	"	"	"	"	
o-Xylene	ND	500	"	"	"	"	"	"	
Styrene	ND	500	"	"	"	"	"	"	
Bromoform	ND	500	"	"	"	"	"	"	
Isopropylbenzene (Cumene)	ND	500	"	"	"	"	"	"	
1,1,2,2-Tetrachloroethane	ND	500	"	"	"	"	"	"	
1,2,3-Trichloropropane	ND	500	"	"	"	"	"	"	
n-Propylbenzene	ND	500	"	"	"	"	"	"	
Bromobenzene	ND	500	"	"	"	"	"	"	
1,3,5-Trimethylbenzene	ND	500	"	"	"	"	"	"	
2-Chlorotoluene	ND	500	"	"	"	"	"	"	
4-Chlorotoluene	ND	500	"	"	"	"	"	"	
tert-Butylbenzene	ND	500	"	"	"	"	"	"	
1,2,4-Trimethylbenzene	ND	500	"	"	"	"	"	"	
sec-Butylbenzene	ND	500	"	"	"	"	"	"	
p-Isopropyltoluene	ND	500	"	"	"	"	"	"	
1,3-Dichlorobenzene	ND	500	"	"	"	"	"	"	
1,4-Dichlorobenzene	ND	500	"	"	"	"	"	"	
n-Butylbenzene	ND	500	"	"	"	"	"	"	
1,2-Dichlorobenzene	ND	500	"	"	"	"	"	"	
1,2-Dibromo-3-chloropropane	ND	5000	"	"	"	"	"	"	
1,2,4-Trichlorobenzene	ND	500	"	"	"	"	"	"	
Hexachlorobutadiene	ND	500	"	"	"	"	"	"	
Naphthalene	ND	100	"	"	"	"	"	"	
1,2,3-Trichlorobenzene	ND	500	"	"	"	"	"	"	
Tertiary-butyl alcohol (TBA)	ND	5000	"	"	"	"	"	"	
Surrogate: Dibromofluoromethane		*114 %*	*75-125*		*"*	*"*	*"*	*"*	
Surrogate: 1,2-Dichloroethane-d4		*115 %*	*75-125*		*"*	*"*	*"*	*"*	
Surrogate: Toluene-d8		*106 %*	*75-125*		*"*	*"*	*"*	*"*	
Surrogate: 4-Bromofluorobenzene		*109 %*	*75-125*		*"*	*"*	*"*	*"*	

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Kleinfelder - Irvine	Project: KL111716-L3	
2 Ada Street, Suite 250	Project Number: 20163965.001A / 875 Hotel Cir S	Reported:
Irvine, CA 92618	Project Manager: Mr. Paolo Dizon	23-Nov-16 13:23

Volatile Organic Compounds by H&P 8260SV

H&P Mobile Geochemistry, Inc.

Analyte	Result	Reporting Limit	Units	Dilution Factor	Batch	Prepared	Analyzed	Method	Notes
SV5 (E611069-12) Vapor Sampled: 17-Nov-16 Received: 17-Nov-16									
1,1-Difluoroethane (LCC)	ND	500	ug/m3	0.05	EK61711	17-Nov-16	17-Nov-16	H&P 8260SV	
Dichlorodifluoromethane (F12)	ND	500	"	"	"	"	"	"	
Chloromethane	ND	500	"	"	"	"	"	"	
Vinyl chloride	ND	50	"	"	"	"	"	"	
Bromomethane	ND	500	"	"	"	"	"	"	
Chloroethane	ND	500	"	"	"	"	"	"	
Trichlorofluoromethane (F11)	ND	500	"	"	"	"	"	"	
1,1-Dichloroethene	ND	500	"	"	"	"	"	"	
Methylene chloride (Dichloromethane)	ND	500	"	"	"	"	"	"	
1,1,2 Trichlorotrifluoroethane (F113)	ND	500	"	"	"	"	"	"	
Methyl tertiary-butyl ether (MTBE)	ND	500	"	"	"	"	"	"	
trans-1,2-Dichloroethene	ND	500	"	"	"	"	"	"	
Diisopropyl ether (DIPE)	ND	1000	"	"	"	"	"	"	
1,1-Dichloroethane	ND	500	"	"	"	"	"	"	
Ethyl tert-butyl ether (ETBE)	ND	1000	"	"	"	"	"	"	
2,2-Dichloropropane	ND	500	"	"	"	"	"	"	
cis-1,2-Dichloroethene	ND	500	"	"	"	"	"	"	
Chloroform	ND	100	"	"	"	"	"	"	
Bromochloromethane	ND	500	"	"	"	"	"	"	
1,1,1-Trichloroethane	ND	500	"	"	"	"	"	"	
1,1-Dichloropropene	ND	500	"	"	"	"	"	"	
Carbon tetrachloride	ND	100	"	"	"	"	"	"	
1,2-Dichloroethane (EDC)	ND	100	"	"	"	"	"	"	
Tertiary-amyl methyl ether (TAME)	ND	1000	"	"	"	"	"	"	
Benzene	ND	100	"	"	"	"	"	"	
Trichloroethene	ND	100	"	"	"	"	"	"	
1,2-Dichloropropane	ND	500	"	"	"	"	"	"	
Bromodichloromethane	ND	500	"	"	"	"	"	"	
Dibromomethane	ND	500	"	"	"	"	"	"	
cis-1,3-Dichloropropene	ND	500	"	"	"	"	"	"	
Toluene	ND	1000	"	"	"	"	"	"	
trans-1,3-Dichloropropene	ND	500	"	"	"	"	"	"	
1,1,2-Trichloroethane	ND	500	"	"	"	"	"	"	
1,2-Dibromoethane (EDB)	ND	500	"	"	"	"	"	"	
1,3-Dichloropropane	ND	500	"	"	"	"	"	"	
Tetrachloroethene	ND	100	"	"	"	"	"	"	
Dibromochloromethane	ND	500	"	"	"	"	"	"	
Chlorobenzene	ND	100	"	"	"	"	"	"	

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Kleinfelder - Irvine	Project:	KL111716-L3	
2 Ada Street, Suite 250	Project Number:	20163965.001A / 875 Hotel Cir S	Reported:
Irvine, CA 92618	Project Manager:	Mr. Paolo Dizon	23-Nov-16 13:23

Volatile Organic Compounds by H&P 8260SV

H&P Mobile Geochemistry, Inc.

Analyte	Result	Reporting Limit	Units	Dilution Factor	Batch	Prepared	Analyzed	Method	Notes
SV5 (E611069-12) Vapor Sampled: 17-Nov-16 Received: 17-Nov-16									
Ethylbenzene	ND	500	ug/m3	0.05	EK61711	17-Nov-16	17-Nov-16	H&P 8260SV	
1,1,1,2-Tetrachloroethane	ND	500	"	"	"	"	"	"	
m,p-Xylene	ND	500	"	"	"	"	"	"	
o-Xylene	ND	500	"	"	"	"	"	"	
Styrene	ND	500	"	"	"	"	"	"	
Bromoform	ND	500	"	"	"	"	"	"	
Isopropylbenzene (Cumene)	ND	500	"	"	"	"	"	"	
1,1,2,2-Tetrachloroethane	ND	500	"	"	"	"	"	"	
1,2,3-Trichloropropane	ND	500	"	"	"	"	"	"	
n-Propylbenzene	ND	500	"	"	"	"	"	"	
Bromobenzene	ND	500	"	"	"	"	"	"	
1,3,5-Trimethylbenzene	ND	500	"	"	"	"	"	"	
2-Chlorotoluene	ND	500	"	"	"	"	"	"	
4-Chlorotoluene	ND	500	"	"	"	"	"	"	
tert-Butylbenzene	ND	500	"	"	"	"	"	"	
1,2,4-Trimethylbenzene	ND	500	"	"	"	"	"	"	
sec-Butylbenzene	ND	500	"	"	"	"	"	"	
p-Isopropyltoluene	ND	500	"	"	"	"	"	"	
1,3-Dichlorobenzene	ND	500	"	"	"	"	"	"	
1,4-Dichlorobenzene	ND	500	"	"	"	"	"	"	
n-Butylbenzene	ND	500	"	"	"	"	"	"	
1,2-Dichlorobenzene	ND	500	"	"	"	"	"	"	
1,2-Dibromo-3-chloropropane	ND	5000	"	"	"	"	"	"	
1,2,4-Trichlorobenzene	ND	500	"	"	"	"	"	"	
Hexachlorobutadiene	ND	500	"	"	"	"	"	"	
Naphthalene	**110**	100	"	"	"	"	"	"	
1,2,3-Trichlorobenzene	ND	500	"	"	"	"	"	"	
Tertiary-butyl alcohol (TBA)	ND	5000	"	"	"	"	"	"	
Surrogate: Dibromofluoromethane		*103 %*	*75-125*		"	"	"	"	
Surrogate: 1,2-Dichloroethane-d4		*98.9 %*	*75-125*		"	"	"	"	
Surrogate: Toluene-d8		*111 %*	*75-125*		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		*115 %*	*75-125*		"	"	"	"	

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2 Ada Street, Suite 250	Project Number:	20163965.001A / 875 Hotel Cir S	Reported:
Irvine, CA 92618	Project Manager:	Mr. Paolo Dizon	23-Nov-16 13:23

Volatile Organic Compounds by H&P 8260SV

H&P Mobile Geochemistry, Inc.

Analyte	Result	Reporting Limit	Units	Dilution Factor	Batch	Prepared	Analyzed	Method	Notes
SV4 (E611069-13) Vapor Sampled: 17-Nov-16 Received: 17-Nov-16									
1,1-Difluoroethane (LCC)	ND	500	ug/m3	0.05	EK61711	17-Nov-16	17-Nov-16	H&P 8260SV	
Dichlorodifluoromethane (F12)	ND	500	"	"	"	"	"	"	
Chloromethane	ND	500	"	"	"	"	"	"	
Vinyl chloride	ND	50	"	"	"	"	"	"	
Bromomethane	ND	500	"	"	"	"	"	"	
Chloroethane	ND	500	"	"	"	"	"	"	
Trichlorofluoromethane (F11)	ND	500	"	"	"	"	"	"	
1,1-Dichloroethene	ND	500	"	"	"	"	"	"	
Methylene chloride (Dichloromethane)	ND	500	"	"	"	"	"	"	
1,1,2 Trichlorotrifluoroethane (F113)	ND	500	"	"	"	"	"	"	
Methyl tertiary-butyl ether (MTBE)	ND	500	"	"	"	"	"	"	
trans-1,2-Dichloroethene	ND	500	"	"	"	"	"	"	
Diisopropyl ether (DIPE)	ND	1000	"	"	"	"	"	"	
1,1-Dichloroethane	ND	500	"	"	"	"	"	"	
Ethyl tert-butyl ether (ETBE)	ND	1000	"	"	"	"	"	"	
2,2-Dichloropropane	ND	500	"	"	"	"	"	"	
cis-1,2-Dichloroethene	ND	500	"	"	"	"	"	"	
Chloroform	ND	100	"	"	"	"	"	"	
Bromochloromethane	ND	500	"	"	"	"	"	"	
1,1,1-Trichloroethane	ND	500	"	"	"	"	"	"	
1,1-Dichloropropene	ND	500	"	"	"	"	"	"	
Carbon tetrachloride	ND	100	"	"	"	"	"	"	
1,2-Dichloroethane (EDC)	ND	100	"	"	"	"	"	"	
Tertiary-amyl methyl ether (TAME)	ND	1000	"	"	"	"	"	"	
Benzene	**180**	100	"	"	"	"	"	"	
Trichloroethene	ND	100	"	"	"	"	"	"	
1,2-Dichloropropane	ND	500	"	"	"	"	"	"	
Bromodichloromethane	ND	500	"	"	"	"	"	"	
Dibromomethane	ND	500	"	"	"	"	"	"	
cis-1,3-Dichloropropene	ND	500	"	"	"	"	"	"	
Toluene	ND	1000	"	"	"	"	"	"	
trans-1,3-Dichloropropene	ND	500	"	"	"	"	"	"	
1,1,2-Trichloroethane	ND	500	"	"	"	"	"	"	
1,2-Dibromoethane (EDB)	ND	500	"	"	"	"	"	"	
1,3-Dichloropropane	ND	500	"	"	"	"	"	"	
Tetrachloroethene	ND	100	"	"	"	"	"	"	
Dibromochloromethane	ND	500	"	"	"	"	"	"	
Chlorobenzene	ND	100	"	"	"	"	"	"	

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Volatile Organic Compounds by H&P 8260SV

H&P Mobile Geochemistry, Inc.

Analyte	Result	Reporting Limit	Units	Dilution Factor	Batch	Prepared	Analyzed	Method	Notes
SV4 (E611069-13) Vapor Sampled: 17-Nov-16 Received: 17-Nov-16									
Ethylbenzene	ND	500	ug/m3	0.05	EK61711	17-Nov-16	17-Nov-16	H&P 8260SV	
1,1,1,2-Tetrachloroethane	ND	500	"	"	"	"	"	"	
m,p-Xylene	ND	500	"	"	"	"	"	"	
o-Xylene	ND	500	"	"	"	"	"	"	
Styrene	ND	500	"	"	"	"	"	"	
Bromoform	ND	500	"	"	"	"	"	"	
Isopropylbenzene (Cumene)	ND	500	"	"	"	"	"	"	
1,1,2,2-Tetrachloroethane	ND	500	"	"	"	"	"	"	
1,2,3-Trichloropropane	ND	500	"	"	"	"	"	"	
n-Propylbenzene	ND	500	"	"	"	"	"	"	
Bromobenzene	ND	500	"	"	"	"	"	"	
1,3,5-Trimethylbenzene	ND	500	"	"	"	"	"	"	
2-Chlorotoluene	ND	500	"	"	"	"	"	"	
4-Chlorotoluene	ND	500	"	"	"	"	"	"	
tert-Butylbenzene	ND	500	"	"	"	"	"	"	
1,2,4-Trimethylbenzene	ND	500	"	"	"	"	"	"	
sec-Butylbenzene	ND	500	"	"	"	"	"	"	
p-Isopropyltoluene	ND	500	"	"	"	"	"	"	
1,3-Dichlorobenzene	ND	500	"	"	"	"	"	"	
1,4-Dichlorobenzene	ND	500	"	"	"	"	"	"	
n-Butylbenzene	ND	500	"	"	"	"	"	"	
1,2-Dichlorobenzene	ND	500	"	"	"	"	"	"	
1,2-Dibromo-3-chloropropane	ND	5000	"	"	"	"	"	"	
1,2,4-Trichlorobenzene	ND	500	"	"	"	"	"	"	
Hexachlorobutadiene	ND	500	"	"	"	"	"	"	
Naphthalene	ND	100	"	"	"	"	"	"	
1,2,3-Trichlorobenzene	ND	500	"	"	"	"	"	"	
Tertiary-butyl alcohol (TBA)	ND	5000	"	"	"	"	"	"	
Surrogate: Dibromofluoromethane		*114 %*	*75-125*		"	"	"	"	
Surrogate: 1,2-Dichloroethane-d4		*110 %*	*75-125*		"	"	"	"	
Surrogate: Toluene-d8		*113 %*	*75-125*		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		*110 %*	*75-125*		"	"	"	"	

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Petroleum Hydrocarbon Analysis

H&P Mobile Geochemistry, Inc.

Analyte	Result	Reporting Limit	Units	Dilution Factor	Batch	Prepared	Analyzed	Method	Notes
SV1 (E611069-01) Vapor Sampled: 17-Nov-16 Received: 17-Nov-16									
TPHv (C5 - C12)	**8000000**	2000000	ug/m3	5	EK61711	17-Nov-16	17-Nov-16	H&P 8260SV	
SV1 Dup (E611069-02) Vapor Sampled: 17-Nov-16 Received: 17-Nov-16									
TPHv (C5 - C12)	**7900000**	2000000	ug/m3	5	EK61711	17-Nov-16	17-Nov-16	H&P 8260SV	
SV8 (E611069-03) Vapor Sampled: 17-Nov-16 Received: 17-Nov-16									
TPHv (C5 - C12)	ND	200000	ug/m3	0.05	EK61711	17-Nov-16	17-Nov-16	H&P 8260SV	
SV9 (E611069-04) Vapor Sampled: 17-Nov-16 Received: 17-Nov-16									
TPHv (C5 - C12)	ND	200000	ug/m3	0.05	EK61711	17-Nov-16	17-Nov-16	H&P 8260SV	
SV10 (E611069-05) Vapor Sampled: 17-Nov-16 Received: 17-Nov-16									
TPHv (C5 - C12)	ND	200000	ug/m3	0.05	EK61711	17-Nov-16	17-Nov-16	H&P 8260SV	
SV7 (E611069-06) Vapor Sampled: 17-Nov-16 Received: 17-Nov-16									
TPHv (C5 - C12)	**31000000**	800000	ug/m3	2	EK61711	17-Nov-16	17-Nov-16	H&P 8260SV	
SV2 (E611069-07) Vapor Sampled: 17-Nov-16 Received: 17-Nov-16									
TPHv (C5 - C12)	ND	200000	ug/m3	0.05	EK61711	17-Nov-16	17-Nov-16	H&P 8260SV	
SV11 (E611069-08) Vapor Sampled: 17-Nov-16 Received: 17-Nov-16									
TPHv (C5 - C12)	ND	200000	ug/m3	0.05	EK61711	17-Nov-16	17-Nov-16	H&P 8260SV	
SV3 (E611069-09) Vapor Sampled: 17-Nov-16 Received: 17-Nov-16									
TPHv (C5 - C12)	ND	200000	ug/m3	0.05	EK61711	17-Nov-16	17-Nov-16	H&P 8260SV	

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Kleinfelder - Irvine	Project: KL111716-L3	
2 Ada Street, Suite 250	Project Number: 20163965.001A / 875 Hotel Cir S	Reported:
Irvine, CA 92618	Project Manager: Mr. Paolo Dizon	23-Nov-16 13:23

Petroleum Hydrocarbon Analysis

H&P Mobile Geochemistry, Inc.

Analyte	Result	Reporting Limit	Units	Dilution Factor	Batch	Prepared	Analyzed	Method	Notes
SV12 (E611069-10) Vapor Sampled: 17-Nov-16 Received: 17-Nov-16									
TPHv (C5 - C12)	ND	200000	ug/m3	0.05	EK61711	17-Nov-16	17-Nov-16	H&P 8260SV	
SV6 (E611069-11) Vapor Sampled: 17-Nov-16 Received: 17-Nov-16									
TPHv (C5 - C12)	ND	200000	ug/m3	0.05	EK61711	17-Nov-16	17-Nov-16	H&P 8260SV	
SV5 (E611069-12) Vapor Sampled: 17-Nov-16 Received: 17-Nov-16									
TPHv (C5 - C12)	**390000**	200000	ug/m3	0.05	EK61711	17-Nov-16	17-Nov-16	H&P 8260SV	
SV4 (E611069-13) Vapor Sampled: 17-Nov-16 Received: 17-Nov-16									
TPHv (C5 - C12)	**870000**	200000	ug/m3	0.05	EK61711	17-Nov-16	17-Nov-16	H&P 8260SV	

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Kleinfelder - Irvine	Project:	KL111716-L3	
2 Ada Street, Suite 250	Project Number:	20163965.001A / 875 Hotel Cir S	Reported:
Irvine, CA 92618	Project Manager:	Mr. Paolo Dizon	23-Nov-16 13:23

Volatile Organic Compounds by H&P 8260SV - Quality Control
H&P Mobile Geochemistry, Inc.

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch EK61711 - EPA 5030										
Blank (EK61711-BLK1)				Prepared & Analyzed: 17-Nov-16						
1,1-Difluoroethane (LCC)	ND	500	ug/m3							
Dichlorodifluoromethane (F12)	ND	500	"							
Chloromethane	ND	500	"							
Vinyl chloride	ND	50	"							
Bromomethane	ND	500	"							
Chloroethane	ND	500	"							
Trichlorofluoromethane (F11)	ND	500	"							
1,1-Dichloroethene	ND	500	"							
Methylene chloride (Dichloromethane)	ND	500	"							
1,1,2 Trichlorotrifluoroethane (F113)	ND	500	"							
Methyl tertiary-butyl ether (MTBE)	ND	500	"							
trans-1,2-Dichloroethene	ND	500	"							
Diisopropyl ether (DIPE)	ND	1000	"							
1,1-Dichloroethane	ND	500	"							
Ethyl tert-butyl ether (ETBE)	ND	1000	"							
2,2-Dichloropropane	ND	500	"							
cis-1,2-Dichloroethene	ND	500	"							
Chloroform	ND	100	"							
Bromochloromethane	ND	500	"							
1,1,1-Trichloroethane	ND	500	"							
1,1-Dichloropropene	ND	500	"							
Carbon tetrachloride	ND	100	"							
1,2-Dichloroethane (EDC)	ND	100	"							
Tertiary-amyl methyl ether (TAME)	ND	1000	"							
Benzene	ND	100	"							
Trichloroethene	ND	100	"							
1,2-Dichloropropane	ND	500	"							
Bromodichloromethane	ND	500	"							
Dibromomethane	ND	500	"							
cis-1,3-Dichloropropene	ND	500	"							
Toluene	ND	1000	"							
trans-1,3-Dichloropropene	ND	500	"							
1,1,2-Trichloroethane	ND	500	"							
1,2-Dibromoethane (EDB)	ND	500	"							

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Geochemistry Inc.

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Carlsbad, CA 92010
760-804-9678 Phone
760-804-9159 Fax

Kleinfelder - Irvine	Project: KL111716-L3	
2 Ada Street, Suite 250	Project Number: 20163965.001A / 875 Hotel Cir S	Reported:
Irvine, CA 92618	Project Manager: Mr. Paolo Dizon	23-Nov-16 13:23

Volatile Organic Compounds by H&P 8260SV - Quality Control

H&P Mobile Geochemistry, Inc.

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch EK61711 - EPA 5030										
Blank (EK61711-BLK1)				Prepared & Analyzed: 17-Nov-16						
1,3-Dichloropropane	ND	500	ug/m3							
Tetrachloroethene	ND	100	"							
Dibromochloromethane	ND	500	"							
Chlorobenzene	ND	100	"							
Ethylbenzene	ND	500	"							
1,1,1,2-Tetrachloroethane	ND	500	"							
m,p-Xylene	ND	500	"							
o-Xylene	ND	500	"							
Styrene	ND	500	"							
Bromoform	ND	500	"							
Isopropylbenzene (Cumene)	ND	500	"							
1,1,2,2-Tetrachloroethane	ND	500	"							
1,2,3-Trichloropropane	ND	500	"							
n-Propylbenzene	ND	500	"							
Bromobenzene	ND	500	"							
1,3,5-Trimethylbenzene	ND	500	"							
2-Chlorotoluene	ND	500	"							
4-Chlorotoluene	ND	500	"							
tert-Butylbenzene	ND	500	"							
1,2,4-Trimethylbenzene	ND	500	"							
sec-Butylbenzene	ND	500	"							
p-Isopropyltoluene	ND	500	"							
1,3-Dichlorobenzene	ND	500	"							
1,4-Dichlorobenzene	ND	500	"							
n-Butylbenzene	ND	500	"							
1,2-Dichlorobenzene	ND	500	"							
1,2-Dibromo-3-chloropropane	ND	5000	"							
1,2,4-Trichlorobenzene	ND	500	"							
Hexachlorobutadiene	ND	500	"							
Naphthalene	ND	100	"							
1,2,3-Trichlorobenzene	ND	500	"							
Tertiary-butyl alcohol (TBA)	ND	5000	"							
Surrogate: Dibromofluoromethane	*2730*		*"*	*2500*		*109*	*75-125*			

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Kleinfelder - Irvine 2 Ada Street, Suite 250 Irvine, CA 92618	Project: KL111716-L3 Project Number: 20163965.001A / 875 Hotel Cir S Project Manager: Mr. Paolo Dizon	Reported: 23-Nov-16 13:23

Volatile Organic Compounds by H&P 8260SV - Quality Control
H&P Mobile Geochemistry, Inc.

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch EK61711 - EPA 5030										
Blank (EK61711-BLK1)				Prepared & Analyzed: 17-Nov-16						
Surrogate: 1,2-Dichloroethane-d4	*2800*		*ug/m3*	*2500*		*112*	*75-125*			
Surrogate: Toluene-d8	*2740*		*"*	*2500*		*109*	*75-125*			
Surrogate: 4-Bromofluorobenzene	*2710*		*"*	*2500*		*108*	*75-125*			
LCS (EK61711-BS1)				Prepared & Analyzed: 17-Nov-16						
Dichlorodifluoromethane (F12)	5160	500	ug/m3	5000		103	70-130			
Vinyl chloride	5230	50	"	5000		105	70-130			
Chloroethane	5190	500	"	5000		104	70-130			
Trichlorofluoromethane (F11)	5480	500	"	5000		110	70-130			
1,1-Dichloroethene	5180	500	"	5000		104	70-130			
Methylene chloride (Dichloromethane)	5150	500	"	5000		103	70-130			
1,1,2 Trichlorotrifluoroethane (F113)	5540	500	"	5000		111	70-130			
trans-1,2-Dichloroethene	5420	500	"	5000		108	70-130			
1,1-Dichloroethane	5150	500	"	5000		103	70-130			
cis-1,2-Dichloroethene	5530	500	"	5000		111	70-130			
Chloroform	5610	100	"	5000		112	70-130			
1,1,1-Trichloroethane	5650	500	"	5000		113	70-130			
Carbon tetrachloride	5630	100	"	5000		113	70-130			
1,2-Dichloroethane (EDC)	5590	100	"	5000		112	70-130			
Benzene	5250	100	"	5000		105	70-130			
Trichloroethene	5560	100	"	5000		111	70-130			
Toluene	5350	1000	"	5000		107	70-130			
1,1,2-Trichloroethane	5520	500	"	5000		110	70-130			
Tetrachloroethene	5090	100	"	5000		102	70-130			
Ethylbenzene	5150	500	"	5000		103	70-130			
1,1,1,2-Tetrachloroethane	5320	500	"	5000		106	70-130			
m,p-Xylene	10400	500	"	10000		104	70-130			
o-Xylene	5060	500	"	5000		101	70-130			
1,1,2,2-Tetrachloroethane	5180	500	"	5000		104	70-130			
Surrogate: Dibromofluoromethane	*2830*		*"*	*2500*		*113*	*75-125*			
Surrogate: 1,2-Dichloroethane-d4	*2790*		*"*	*2500*		*112*	*75-125*			
Surrogate: Toluene-d8	*2760*		*"*	*2500*		*110*	*75-125*			

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Kleinfelder - Irvine	Project:	KL111716-L3	
2 Ada Street, Suite 250	Project Number:	20163965.001A / 875 Hotel Cir S	Reported:
Irvine, CA 92618	Project Manager:	Mr. Paolo Dizon	23-Nov-16 13:23

Volatile Organic Compounds by H&P 8260SV - Quality Control

H&P Mobile Geochemistry, Inc.

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch EK61711 - EPA 5030										
LCS (EK61711-BS1)				Prepared & Analyzed: 17-Nov-16						
Surrogate: 4-Bromofluorobenzene	*2790*		*ug/m3*	*2500*		*112*	*75-125*			

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Kleinfelder - Irvine 2 Ada Street, Suite 250 Irvine, CA 92618	Project: KL111716-L3 Project Number: 20163965.001A / 875 Hotel Cir S Project Manager: Mr. Paolo Dizon	Reported: 23-Nov-16 13:23

Petroleum Hydrocarbon Analysis - Quality Control

H&P Mobile Geochemistry, Inc.

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch EK61711 - EPA 5030										
Blank (EK61711-BLK1)				Prepared & Analyzed: 17-Nov-16						
TPHv (C5 - C12)	ND	200000	ug/m3							

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Kleinfelder - Irvine	Project:	KL111716-L3	
2 Ada Street, Suite 250	Project Number:	20163965.001A / 875 Hotel Cir S	Reported:
Irvine, CA 92618	Project Manager:	Mr. Paolo Dizon	23-Nov-16 13:23

Notes and Definitions

R-05	The sample was diluted due to the presence of high levels of non-target analytes resulting in elevated reporting limits.
LCC	Leak Check Compound
ND	Analyte NOT DETECTED at or above the reporting limit
MDL	Method Detection Limit
%REC	Percent Recovery
RPD	Relative Percent Difference

Appendix

H&P Mobile Geochemistry, Inc. is approved as an Environmental Testing Laboratory and Mobile Laboratory in accordance with the DoD-ELAP and the ISO 17025 programs, certification number L15-279-R1

H&P is approved by the State of Arizona as an Environmental Testing Laboratory and Mobile Laboratory, certification numbers AZM758 and AZ0779.

H&P is approved by the State of California as an Environmental Laboratory and Mobile Laboratory in conformance with the Environmental Laboratory Accreditation Program (ELAP) for the category of Volatile and Semi-Volatile Organic Chemistry of Hazardous Waste, certification numbers 2740, 2741, 2743, 2744, 2745, 2754 & 2930.

H&P is approved by the State of Florida Department of Health under the National Environmental Laboratory Accreditation Conference (NELAC) certification number E871100.

The complete list of stationary and mobile laboratory certifications along with the fields of testing (FOTs) and analyte lists are available at www.handpmg.com/about/certifications.

H&P Mobile Geochemistry, Inc.

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& Field Office - Signal Hill, CA
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VAPOR / AIR Chain of Custody

DATE: 11/17/16
Page 1 of 2

Lab Client and Project Information

Lab Client/Consultant: Kleinfelder	Project Name / #: 20163965.001A
Lab Client Project Manager: Paolo M. Dizon	Project Location: 875 Hotel Circle South SD
Lab Client Address: 2 Ada Suite 250	Report E-Mail(s): PDizon@kleinfelder.com
Lab Client City, State, Zip: Irvine CA 92618	LDandridge@ "
Phone Number: 949-727-4466	jmwilliams@ "

Sample Receipt (Lab Use Only)

Date Rec'd: 11/17/16	Control #: 161067.01
H&P Project # K2111716-23	
Lab Work Order # E611069/EK61711	
Sample Intact: ☐ Yes ☒ No ☐ See Notes Below	
Receipt Gauge ID:	Temp: 23°
Outside Lab:	
Receipt Notes/Tracking #:	
Lab PM Initials:	

Reporting Requirements

☒ Standard Report ☐ Level III ☐ Level IV
☐ Excel EDD ☐ Other EDD:
☐ CA Geotracker Global ID:

Turnaround Time

☐ 5-7 day Stnd ☐ 24-Hr Rush
☐ 3-day Rush ☒ Mobile Lab
☐ 48-Hr Rush ☐ Other:

Sampler Information

Sampler(s): Scott Mayfield
Signature: [signature]
Date: 11/17/16

Additional Instructions to Laboratory:

☐ Check if Project Analyte List is Attached

***Preferred VOC units (please choose one):**

☐ µg/L ☒ µg/m³ ☐ ppbv ☐ ppmv

SAMPLE NAME	FIELD POINT NAME (if applicable)	DATE mm/dd/yy	TIME 24hr clock	SAMPLE TYPE Indoor Air (IA), Ambient Air (AA), Subslab (SS), Soil Vapor (SV)	CONTAINER SIZE & TYPE 400mL/1L/6L Summa or Tedlar or Tube	CONTAINER ID (###)	Lab use only: Receipt Vac	VOCs Standard Full List ☒ 8260SV ☐ TO-15	VOCs Short List / Project List ☐ 8260SV ☐ TO-15	Oxygenates ☒ 8260SV ☐ TO-15	Naphthalene ☐ 8260SV ☐ TO-15 ☐ TO-17m	TPHv as Gas ☒ 8260SVm ☐ TO-15m	TPHv as Diesel (sorbent tube) ☐ TO-17m	Aromatic/Aliphatic Fractions ☐ 8260SVm ☐ TO-15m	Leak Check Compound ☒ DFA ☐ IPA ☐ He	Methane by EPA 8015m	Fixed Gases by ASTM D1945 ☐ CO2 ☐ O2 ☐ N2			
SV1	@13:00 171	11/17/16	1056	SV	Glass Syr.	171		X		X		X			X					
SV1 Dup	@13:01 175		1057			173		X		X		X			X					
SV8	@1405 171		1341			193		X		X		X			X					
SV9	@1429 175		1356			252		X		X		X			X					
SV10			1400			240		X		X		X			X					
SV7			1453			252		X		X		X			X					
SV2			1456			173		X		X		X			X					
SV11			1524			193		X		X		X			X					
SV3			1527			240		X		X		X			X					
SV12			1623			171		X		X		X			X					

Approved/Relinquished by:	Company:	Date:	Time:	Received by:	Company:	Date:	Time:
[signature]	Kleinfelder	11/17/16	1821	[signature]	H&P	11/17/16	1821

*Approval constitutes as authorization to proceed with analysis and acceptance of conditions on back

H&P Mobile Geochemistry, Inc.

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VAPOR / AIR Chain of Custody

DATE: 11/17/16

Lab Client and Project Information

Lab Client/Consultant: Kleinfelder	Project Name / #: 20163965.001A
Lab Client Project Manager: Paolo M. Dizon	Project Location: 875 Hotel Circle South SD
Lab Client Address: 2 Ada Suite 250	Report E-Mail(s):
Lab Client City, State, Zip: Irvine CA 92618	
Phone Number: 949-727-4466	

Sample Receipt (Lab Use Only)

Date Rec'd: 11/17/16	Control #: 161067.01
H&P Project # KL111716-23	
Lab Work Order # E611069/EK61711	
Sample Intact: ☐ Yes ☑ No ☐ See Notes Below	
Receipt Gauge ID:	Temp: 23°
Outside Lab:	
Receipt Notes/Tracking #:	
Lab PM Initials:	

Reporting Requirements

☒ Standard Report ☐ Level III ☐ Level IV
☐ Excel EDD ☐ Other EDD:
☐ CA Geotracker Global ID:

Turnaround Time

☐ 5-7 day Stnd ☐ 24-Hr Rush
☐ 3-day Rush ☒ Mobile Lab
☐ 48-Hr Rush ☐ Other:

Sampler Information

Sampler(s): Scott Mayfield
Signature: [signature]
Date: 11/17/16

Additional Instructions to Laboratory:

☐ Check if Project Analyte List is Attached

Preferred VOC units (please choose one):

☐ μg/L ☒ μg/m^3 ☐ ppbv ☐ ppmv

SAMPLE NAME	FIELD POINT NAME (if applicable)	DATE mm/dd/yy	TIME 24hr clock	SAMPLE TYPE Indoor Air (IA), Ambient Air (AA), Subslab (SS), Soil Vapor (SV)	CONTAINER SIZE & TYPE 400mL/1L/6L Summa or Tedlar or Tube	CONTAINER ID (###)	Lab use only: Receipt Vac	VOCs Standard Full List ☒ 8260SV ☐ TO-15	VOCs Short List / Project List ☐ 8260SV ☐ TO-15	Oxygenates ☒ 8260SV ☐ TO-15	Naphthalene ☐ 8260SV ☐ TO-15 ☐ TO-17m	TPHv as Gas ☒ 8260SVm ☐ TO-15m	TPHv as Diesel (sorbent tube) ☐ TO-17m	Aromatic/Aliphatic Fractions ☐ 8260SVm ☐ TO-15m	Leak Check Compound ☒ DFA ☐ IPA ☐ He	Methane by EPA 8015m	Fixed Gases by ASTM D1945 ☐ CO2 ☐ O2 ☐ N2			
SV6		11/17/16	1629	SV	Glass Syr.	175		X		X		X			X					
SV5	@1743 [illegible]	↓	1652	↓	↓	193		X		X		X			X					
SV4			1656			173		X		X		X			X					

Approved/Relinquished by:	Company:	Date:	Time:	Received by:	Company:	Date:	Time:
[signature]	Kleinfelder	11/17/16	1821	[signature]	H&P	11/17/16	1821

*Approval constitutes as authorization to proceed with analysis and acceptance of conditions on back

Rev 08/18/2014

H&P Mobile Geochemistry Inc.

Log Sheet: Soil Vapor Sampling with Syringe

H&P Project #: KL111716 - 23
Date: 11/17/16
Site Address: 875 Hotel Circle South SD
Page: 1 of 2
Consultant: Kleinfelder
H&P Rep(s): Scott Mayfield & Thu Nguyen
Consultant Rep(s): Jason Williams
Reviewed: DB
Scanned: DB

Equipment Info
Inline Gauge ID#: T28
Pump ID#: /

Purge Volume Information
PV Amount: 3PV
PV Includes: ☑ Tubing ☑ Sand 40% ☑ Dry Bent 50%

Leak Check Compound
A cloth saturated with LCC is placed around tubing connections and probe seal. This is done for all samples unless otherwise noted.
☑ 1,1-DFA ☐ 1,1,1,2-TFA ☐ IPA ☐ Other:

	Sample Information				Probe Specs							Purge & Collection Information						
	Point ID	Syringe ID	Sample Volume (cc)	Sample Time	Probe Depth (ft)	Tubing Length (ft)	Tubing OD (in.)	Sand Ht (in.)	Sand Dia (in.)	Dry Bent. Ht (in.)	Dry Bent. Dia (in.)	Shut In Test 60 sec (✓)	Leak Check (✓)	Purge Vol (mL)	Purge Flow Rate (mL/min)	Pump Time (min:sec)	Sample Flow Rate (mL/min)	ProbeVac ☑ Hg ☐ H_2O
1	SV1	171	50	1056	5.5	7	1/8	12	.75	6	.75	✓	✓	189	<200	–	<200	0
2	SV1 Dup	173	50	1057	5.5	7	1/8	12	.75	6	.75	–	✓	239	<200	–	<200	0
3	SV1 resample	171	50	1300	"	"	"	"	"	"	"	✓	✓	289	"	–	"	0
4	SV1 Dup resample	175	50	1301	"	"	"	"	"	"	"	–	✓	339	"	–	"	0
5	SV8	193	50	1341	"	"	"	"	"	"	"	✓	✓	189	"	–	"	0
6	SV9	252	50	1356	"	"	"	"	"	"	"	✓	✓	189	"	–	"	0
7	SV10	240	50	1400	"	"	"	"	"	"	"	✓	✓	189	"	–	"	0
8	SV8 resample	171	50	1405	"	"	"	"	"	"	"	✓	✓	239	"	–	"	0
9	SV9 resample	175	50	1429	"	"	"	"	"	"	"	✓	✓	239	"	–	"	0
10	SV7	252	50	1453	"	"	"	"	"	"	"	✓	✓	189	"	–	"	0
11	SV2	173	50	1456	"	"	"	"	"	"	"	✓	✓	189	"	–	"	0
12	SV11	193	50	1524	"	"	"	"	"	"	"	✓	✓	189	"	–	"	0

Site Notes such as weather, visitors, scope deviations, health & safety issues, etc. (When making sample specific notes, reference the line number above):

H&P Mobile Geochemistry Inc.

FMS004
Revision: 3
Revised: 1/15/2016
Effective: 1/25/2016
Page 1 of 1

Log Sheet: Soil Vapor Sampling with Syringe

H&P Project #: KL111716 - L3
Date: 11/17/16
Site Address: 875 Hotel Circle South SD
Page: 2 of 2
Consultant: Kleinfelder
H&P Rep(s): Scott Mayfield & Thu Nguyen
Consultant Rep(s): Jason Williams
Reviewed: DB
Scanned: DB

Equipment Info
Inline Gauge ID#: T28
Pump ID#:

Purge Volume Information
PV Amount: 3PV
PV Includes: ☑ Tubing ☑ Sand 40% ☑ Dry Bent 50%

Leak Check Compound
A cloth saturated with LCC is placed around tubing connections and probe seal. This is done for all samples unless otherwise noted.
☑ 1,1-DFA
☐ 1,1,1,2-TFA
☐ IPA
☐ Other:

	Sample Information				Probe Specs							Purge & Collection Information						
	Point ID	Syringe ID	Sample Volume (cc)	Sample Time	Probe Depth (ft)	Tubing Length (ft)	Tubing OD (in.)	Sand Ht (in.)	Sand Dia (in.)	Dry Bent. Ht (in.)	Dry Bent. Dia (in.)	Shut In Test 60 sec (✓)	Leak Check (✓)	Purge Vol (mL)	Purge Flow Rate (mL/min)	Pump Time (min:sec)	Sample Flow Rate (mL/min)	ProbeVac ☐ Hg ☐ H_2O
1	SV3	240	50	1527	5.5	7	1/8	12	.75	6	7.5	✓	✓	189	<200	—	<200	0
2	SV12	171	50	1623	"	"	"	"	"	"	"	✓	✓	189	"	—	"	0
3	SV6	175	50	1629	"	"	"	"	"	"	"	✓	✓	189	"	—	"	0
4	SV5	193	50	1652	"	"	"	"	"	"	"	✓	✓	189	"	—	"	0
5	SV4	173	50	1656	"	"	"	"	"	"	"	✓	✓	189	"	—	"	0
6	SV5 resample	171	50	1743	"	"	"	"	"	"	"	✓	✓	239	"	—	"	0.
7																		
8																		
9																		
10																		
11																		
12																		

Site Notes such as weather, visitors, scope deviations, health & safety issues, etc. (When making sample specific notes, reference the line number above):

CAP CONSISTENCY CHECKLIST SUBMITTAL APPLICATION

- The Checklist is required only for projects subject to CEQA review.[2]
- If required, the Checklist must be included in the project submittal package. Application submittal procedures can be found in Chapter 11: Land Development Procedures of the City's Municipal Code.
- The requirements in the Checklist will be included in the project's conditions of approval.
- The applicant must provide an explanation of how the proposed project will implement the requirements described herein to the satisfaction of the Planning Department.

Application Information

Contact Information

Project No./Name: LEGACY INTERNATIONAL CENTER

Property Address: 875 HOTEL CIRCLE SOUTH SAN DIEGO, CA

Applicant Name/Co.: MORRIS CERULLO LEGACY CENTER FOUNDATION LLC

Contact Phone: 858.277.2200 ext 2244 Contact Email: jpenner@mcwe.com

Was a consultant retained to complete this checklist? ☐ Yes ☐ No If Yes, complete the following

Consultant Name: Lance Unverzagt Contact Phone: 619.308.9333 ext 172

Company Name: RECON Contact Email: lanceu@reconenvironmental.com

Project Information

1. What is the size of the project (acres)? 18.1 acres
2. Identify all applicable proposed land uses:
   - ☐ Residential (indicate # of single-family units):
   - ☐ Residential (indicate # of multi-family units):
   - ☒ Commercial (total square footage): 118,031
   - ☐ Industrial (total square footage):
   - ☒ Other (describe): 73,751 (museum, theater, exhibit)
3. Is the project located in a Transit Priority Area? ☒ Yes ☐ No
4. Provide a brief description of the project proposed: REDEVELOPMENT OF (E) MISSION VALLEY RESORT INTO A WORLD CLASS DESTINATION FOR RELIGIOUS TOURISM PROVIDING MIX OF ADMIN, LODGING, RETAIL, ENTERTAINMENT, RECREATIONAL, AND OFFICE USES.

[2] Certain projects seeking ministerial approval may be required to complete the Checklist. For example, projects in a Community Plan Implementation Overlay Zone may be required to use the Checklist to qualify for ministerial level review. See Supplemental Development Regulations in the project's community plan to determine applicability.

CAP CONSISTENCY CHECKLIST QUESTIONS

Step 1: Land Use Consistency

The first step in determining CAP consistency for discretionary development projects is to assess the project's consistency with the growth projections used in the development of the CAP. This section allows the City to determine a project's consistency with the land use assumptions used in the CAP.

Step 1: Land Use Consistency		
Checklist Item (Check the appropriate box and provide explanation and supporting documentation for your answer)	Yes	No
1. Is the proposed project consistent with the existing General Plan and Community Plan land use and zoning designations?;[3] OR, 2. If the proposed project is not consistent with the existing land use plan and zoning designations, does the project include a land use plan and/or zoning designation amendment that would result in an equivalent or less GHG-intensive project when compared to the existing designations?; OR, 3. If the proposed project is not consistent with the existing land use plan and zoning designations, and includes a land use plan and/or zoning designation amendment that would result in an increase in GHG emissions when compared to the existing designations, would the project be located in a Transit Priority Area (TPA) and implement CAP Strategy 3 actions, as determined in Step 3 to the satisfaction of the Development Services Department?	■	☐

If "***Yes***," proceed to Step 2 of the Checklist. For questions 2 and 3 above, provide estimated project emissions under both existing and proposed designation(s) for comparison. For question 3 above, complete Step 3.

If "***No***," in accordance with the City's Significance Determination Thresholds, the project's GHG impact is significant. The project must nonetheless incorporate each of the measures identified in Step 2 to mitigate cumulative GHG emissions impacts unless the decision maker finds that a measure is infeasible in accordance with CEQA Guidelines Section 15091. Proceed and complete Step 2 of the Checklist.

[3] This question may also be answered in the affirmative if the project is consistent with SANDAG Series 12 growth projections, which were used to determine the CAP projections, as determined by the Planning Department.

Step 2: CAP Strategies Consistency

The second step of the CAP consistency review is to review and evaluate a project's consistency with the applicable strategies and actions of the CAP. Step 2 only applies to development projects that involve permits that would require a certificate of occupancy from the Building Official or projects comprised of one and two family dwellings or townhouses as defined in the California Residential Code and their accessory structures.[4] All other development projects that would not require a certificate of occupancy from the Building Official shall implement Best Management Practices for construction activities as set forth in the Greenbook (for public projects).

Step 2: CAP Strategies Consistency			
Checklist Item (Check the appropriate box and provide explanation for your answer)	Yes	No	N/A
Strategy 1: Energy & Water Efficient Buildings			
1. *Cool/Green Roofs.* • Would the project include roofing materials with a minimum 3-year aged solar reflection and thermal emittance or solar reflection index equal to or greater than the values specified in the voluntary measures under California Green Building Standards Code (Attachment A)?; OR • Would the project roof construction have a thermal mass over the roof membrane, including areas of vegetated (green) roofs, weighing at least 25 pounds per square foot as specified in the voluntary measures under California Green Building Standards Code?; OR • Would the project include a combination of the above two options? Check "N/A" only if the project does not include a roof component.	■	☐	☐
2. *Plumbing fixtures and fittings* With respect to plumbing fixtures or fittings provided as part of the project, would those low-flow fixtures/appliances be consistent with each of the following: Residential buildings: • Kitchen faucets: maximum flow rate not to exceed 1.5 gallons per minute at 60 psi; • Standard dishwashers: 4.25 gallons per cycle; • Compact dishwashers: 3.5 gallons per cycle; and • Clothes washers: water factor of 6 gallons per cubic feet of drum capacity? Nonresidential buildings: • Plumbing fixtures and fittings that do not exceed the maximum flow rate specified in Table A5.303.2.3.1 (voluntary measures) of the California Green Building Standards Code (See Attachment A); and • Appliances and fixtures for commercial applications that meet the provisions of Section A5.303.3 (voluntary measures) of the California Green Building Standards Code (See Attachment A)? Check "N/A" only if the project does not include any plumbing fixtures or fittings.	■	☐	☐

[4] Actions that are not subject to Step 2 would include, for example: 1) discretionary map actions that do not propose specific development, 2) permits allowing wireless communication facilities, 3) special events permits, 4) use permits that do not result in the expansion or enlargement of a building, and 5) non-building infrastructure projects such as roads and pipelines. Because such actions would not result in new occupancy buildings from which GHG emissions reductions could be achieved, the items contained in Step 2 would not be applicable.

Step 2: CAP Strategies Consistency

Checklist Item (Check the appropriate box and provide explanation for your answer)	Yes	No	N/A
Strategy 2: Clean & Renewable Energy			
3. *Energy Performance Standard / Renewable Energy* Is the project designed to have an energy budget that meets the following performance standards when compared to the Title 24, Part 6 Energy Budget for the Proposed Design Building as calculated by Compliance Software certified by the California Energy Commission (percent improvement over current code): • Low-rise residential – 15% improvement? • Nonresidential with indoor lighting OR mechanical systems, but not both – 5% improvement? • Nonresidential with both indoor lighting AND mechanical systems – 10% improvement?[5] The demand reduction may be provided through on-site renewable energy generation, such as solar, or by designing the project to have an energy budget that meets the above-mentioned performance standards, when compared to the Title 24, Part 6 Energy Budget for the Proposed Design Building (percent improvement over current code). Note: For Energy Budget calculations, high-rise residential and hotel/motel buildings are considered non-residential buildings. Check "N/A" only if the project does not contain any residential or non-residential buildings.	■	☐	☐
Strategy 3: Bicycling, Walking, Transit & Land Use			
4. *Electric Vehicle Charging* • Single-family projects: Would the required parking serving each new single-family residence and each unit of a duplex be constructed with a listed cabinet, box or enclosure connected to a raceway linking the required parking space to the electrical service, to allow for the future installation of electric vehicle supply equipment to provide an electric vehicle charging station for use by the resident? • Multiple-family projects of 10 dwelling units or less: Would 3% of the total parking spaces required, or a minimum of one space, whichever is greater, be provided with a listed cabinet, box or enclosure connected to a conduit linking the parking spaces with the electrical service, in a manner approved by the building and safety official, to allow for the future installation of electric vehicle supply equipment to provide electric vehicle charging stations at such time as it is needed for use by residents? • Multiple-family projects of more than 10 dwelling units: Would 3% of the total parking spaces required, or a minimum of one space, whichever is greater, be provided with a listed cabinet, box or enclosure connected to a conduit linking the parking spaces with the electrical service, in a manner approved by the building and safety official? Of the total listed cabinets, boxes or enclosures provided, would 50% have the necessary electric vehicle supply equipment installed to provide active electric vehicle charging stations ready for use by residents?	■	☐	☐

[5] CALGreen defines mechanical systems as equipment, appliances, fixtures, fittings and/or appurtenances, including ventilating, heating, cooling, air-conditioning and refrigeration systems, incinerators and other energy-related systems.

Step 2: CAP Strategies Consistency			
Checklist Item (Check the appropriate box and provide explanation for your answer)	Yes	No	N/A
• Non-residential projects: If the project includes new commercial, industrial, or other uses with the building or land area, capacity, or numbers of employees listed in Attachment A, would 3% of the total parking spaces required, or a minimum of one space, whichever is greater, be provided with a listed cabinet, box or enclosure connected to a conduit linking the parking spaces with the electrical service, in a manner approved by the building and safety official? Of the total listed cabinets, boxes or enclosures provided, would 50% have the necessary electric vehicle supply equipment installed to provide active electric vehicle charging stations ready for use? Check "N/A" only if the project is does not include new commercial, industrial, or other uses with the building or land area, capacity, or numbers of employees listed in Attachment A.			
Strategy 3: Bicycling, Walking, Transit & Land Use (Complete this section if project includes non-residential or mixed uses)			
5. *Bicycle Parking Spaces* Would the project provide more short- and long-term bicycle parking spaces than required in the City's Municipal Code (Chapter 14, Article 2, Division 5)?[6] Check "N/A" only if the project is a residential project.	■	☐	☐
6. *Shower facilities* If the project includes nonresidential development that would accommodate over 10 tenant occupants (employees), would the project include changing/shower facilities in accordance with the voluntary measures under the California Green Building Standards Code as shown in the table below? Check "N/A" only if the project is a residential project, or if it does not include nonresidential development that would accommodate over 10 tenant occupants (employees).	■	☐	☐

Number of Tenant Occupants (Employees)	Shower/Changing Facilities Required	Two-Tier (12" X 15" X 72") Personal Effects Lockers Required
0-10	0	0
11-50	1 shower stall	2
51-100	1 shower stall	3
101-200	1 shower stall	4
Over 200	1 shower stall plus 1 additional shower stall for each 200 additional tenant-occupants	1 two-tier locker plus 1 two-tier locker for each 50 additional tenant-occupants

[6] Non-portable bicycle corrals within 600 feet of project frontage can be counted towards the project's bicycle parking requirements.

Step 2: CAP Strategies Consistency

Checklist Item (Check the appropriate box and provide explanation for your answer)	Yes	No	N/A
7. *Designated Parking Spaces*	☒	☐	☐
8. *Transportation Demand Management Program*	☒	☐	☐

7. *Designated Parking Spaces*

If the project includes an employment use in a TPA, would the project provide designated parking for a combination of low-emitting, fuel-efficient, and carpool/vanpool vehicles in accordance with the following table?

Number of Required Parking Spaces	Number of Designated Parking Spaces
0-9	0
10-25	2
26-50	4
51-75	6
76-100	9
101-150	11
151-200	18
201 and over	At least 10% of total

This measure does not cover electric vehicles. See Question 4 for electric vehicle parking requirements.

Note: Vehicles bearing Clean Air Vehicle stickers from expired HOV lane programs may be considered eligible for designated parking spaces. The required designated parking spaces are to be provided within the overall minimum parking requirement, not in addition to it.

Check "N/A" only if the project is a residential project, or if it does not include an employment use in a TPA.

8. *Transportation Demand Management Program*

If the project would accommodate over 50 tenant-occupants (employees), would it include a transportation demand management program that would be applicable to existing tenants and future tenants that includes:

At least one of the following components:

- Parking cash out program
- Parking management plan that includes charging employees market-rate for single-occupancy vehicle parking and providing reserved, discounted, or free spaces for registered carpools or vanpools
- Unbundled parking whereby parking spaces would be leased or sold separately from the rental or purchase fees for the development for the life of the development

And at least three of the following components:

- Commitment to maintaining an employer network in the SANDAG iCommute program and promoting its RideMatcher service to tenants/employees
- On-site carsharing vehicle(s) or bikesharing
- Flexible or alternative work hours
- Telework program
- Transit, carpool, and vanpool subsidies

Step 3 CAP Analysis
Legacy International Center
April 2017

Step 3: Project CAP Conformance Evaluation – According to Step 1, Criteria 3, a project that is not consistent with land use and zoning designations and results in an increase in GHG emissions may still be consistent with the CAP if it is located within a TPA and implements CAP Strategy 3 actions, as determined in Step 3. The project site is located within a TPA. Therefore, the project would be required to implement CAP Strategy 3 (City of San Diego 2016b). A discussion of the Specific Plan's compliance with these Strategy 3 criteria is provided below:

1. *Would the proposed project implement the General Plan's City of Villages strategy in an identified TPA that will result in an increase in the capacity for transit-supportive residential and/or employment densities?*

Considerations for this question:

- *Does the proposed land use and zoning designation associated with the project provide capacity for transit-supportive residential densities within the TPA?*
- *Is the project site suitable to accommodate mixed-use village development, as defined in the General Plan, within the TPA*
- *Does the land use and zoning associated with the project increase the capacity for transit-supportive employment intensities within the TPA?*

The General Plan Land Use Element establishes a City of Villages strategy to focus growth into mixed-use activity centers that are pedestrian-friendly, centers of community, and linked to the regional transit system. Implementation of this strategy can decrease vehicle miles traveled and reduce GHG emissions.

The General Plan shows the project site to be within an area of "medium high to high propensity" value for development as an urban village site per the Village Propensity Map of the General Plan. The project site includes a bus stop and easy access to several existing light rail transit stations; the project will provide shuttle services to allow for easy access to the light rail system. This will allow users, employees, and visitors of the project to utilize mass transit to move throughout the region.

The existing Commercial Recreation designation would remain. The project site is zoned MVPD-MV-M/SP. This is a multiple use zone within the Mission Valley Planned District, which is applied in conjunction with a Specific Plan. As a result of the Community Plan

Amendment, which would remove the project site from the Atlas Specific Plan, the project site also would be rezoned to remove the Specific Plan designation. The proposed base zone for the site is the MVPD-MV-CV, which allows for commercial visitor-oriented development such as those establishments catering to the lodging, dining, and shopping needs of visitors. The project site is well suited for the accommodation of a mix of uses consistent with the Commercial Recreation designation of the site.

The multiple use zone provides for and increases the capacity for transit-supportive visitor-serving and employment intensities within the TPA. The project would construct a mixed-use development envisioned by the City of Villages strategy. The project would replace the existing single-use hotel with a new hotel, retail, office, entertainment, and recreational uses. The project is designed as a pedestrian-friendly work, shop, and play activity center that would be connected to the larger San Diego area by the regional bus and light rail transit systems. The project would implement the City of Villages strategy in an identified TPA and would result in an increase in the capacity for transit-supportive visitor-serving and employment densities.

2. *Would the proposed project implement the General Plan's Mobility Element in TPAs to increase the use of transit?*

Considerations for this question:

- *Does the proposed project support/incorporate identified transit routes and stops/stations?*
- *Does the project include transit priority measures?*

The Legacy International Center project provides a direct bus connection and takes advantage of the existing and Fashion Valley Mall trolley station and direct access to both Interstate 8 and Interstate 163 to provide strong linkages to the regional circulation system. These existing transportation systems assist with the creation of a community that encourages non-vehicular modes of transport both internally and externally. Bicycle and pedestrian modes of transportation are strongly encouraged within the planning area.

The project site is located approximately 0.8 mile from the Fashion Valley Transit Center, one of the major transit hubs in the Mission Valley Community. The project site is well connected to the transit center by Metropolitan Transit System (MTS) Route 88. An existing bus stop located on Hotel Circle South fronting the project (serviced by MTS Route 88) will be relocated and upgraded by the project as required by permit conditions. An additional bus stop is also located at the Hotel Circle South/Bachman Place intersection (served by MTS Routes 20 and 120). This is located approximately 630 feet to the east and is within walking distance of the project site. MTS Routes 20 and 120 connect the project site to Kearny Mesa, City College, Old Town, Downtown, and Del Lago.

The project area is served by one trolley transit line provided by the MTS Green Line, with the closest station at Fashion Valley Mall. Service is provided on 15-minute headways during the weekday commute and varies from 15 to 20 minutes headways on the weekend mid-day hours. The Green Line provides service from Downtown San Diego to the City of Santee every day from approximately 5:00 A.M. to midnight. Each train can hold approximately 450 to 600 passengers with a throughput capacity of about 11,000 passengers per hour (20 arrivals per hour; 12 from the west, 8 from the east).

The project would also implement the goals of the General Plan's Mobility Element in a TPA to increase the use of transit. Objectives of the project include having the future mixed-use development utilize shared parking, incorporate electric vehicle charging stations (15 spaces), provide partially subsidized transit passes, and potentially provide other transit-oriented development parking demand management measures from the table below. Partially subsidized transit passes in exchange for the employee parking benefit would encourage future employees to use the local transit system instead of driving.

The project includes TDM measures to reduce single-occupant vehicle trips into the project site. As shown below in Table 1, the project TDM would include the measures consistent with the CAP, as well as additional measures aimed to reduce emissions associated with transportation. To be consistent with the CAP, the project must include one component from the first list and three components from the second TDM list (see Checklist Step 2 #8). The project TDM would include the "parking cashout program" from the first list in the form of a transit pass subsidy in exchange for the employee giving up their on-site parking benefit. The three proposed project TDM components from the second list would consist of "flexible or alternative work hours", "bikesharing", and "transit, carpool, and van subsidies". Thus, the project would be consistent with the CAP's TDM Program strategies.

TABLE 1
TRAFFIC DEMAND MANAGEMENT MEASURES

CAP Consistency TDM Measures
Parking Cashout Program – In exchange for the employee giving up their on-site parking space benefit, provide employees with a $50 cashout per month.
Flexible or alternative work hours to reduce trips during peak traffic hours
Bikesharing–A third-party company will be contracted to provide a bike-sharing program. This would include approximately 20 bikes, which would be located adjacent to the parking structure.
Transit, carpool, and van subsidies -Provide building management and retail/office tenant employees with a 50% subsidy for transit passes.
Additional TDM Measures
A free shuttle will be provided for on-site employees and those visiting the Legacy International Center. The project will include a shuttle stop on-site with signage, lighting and seating. The shuttle would provide group transport to key destination points such as airport, hotels, and visitor-serving facilities.
Electric vehicle charging stations - a minimum of 1 space per 30,000 square feet of office space, a minimum of 1 space per 100 hotel rooms -The project will provide 15 charging stations within the parking structure.
Bicycle storage - a minimum of 1 space for every 10 parking spaces
Upgraded transit stop adjacent to *new development*, including shelter, seating, lighting and ongoing routine maintenance through an agreement with the appropriate transit agency for the life of the improvement.
On-site shower facilities available to all tenants/employees of a building. Showers will be located with Pavilion Building and the Legacy Village Hotel Building near employee use areas. -a minimum of 1 space per 100,000 square feet of office space -a minimum of 1 space per 100 hotel rooms
Preferential parking for car-sharing, carpool and vanpool (minimum 5% of permitted parking)
Preferential parking for vehicles with CARB classifications Ultra-Low Emissions Vehicle (ULEV), Super Ultra-Low Emissions Vehicle (SULEV), Partial Zero Emissions Vehicle (PZEV), and Zero Emissions Vehicle (ZEV).

3. *Would the proposed project implement pedestrian improvements in TPAs to increase walking opportunities?*

Considerations for this question:

- *Does the proposed project circulation system provide multiple and direct pedestrian connections and accessibility to local activity centers (such as transit stations, schools, shopping centers, and libraries)?*
- *Does the proposed project urban design include features for walkability to promote a transit supportive environment?*

The project would implement pedestrian improvements in a TPA to increase walking opportunities. Pedestrian modes of transportation are strongly encouraged within the project area, as the project is designed as a pedestrian-friendly visitor-serving area where visitors and on-site workers can work, shop, and stay within the project and be connected to the larger San Diego area by the immediately adjacent bus stop and Fashion Valley Mall light rail transit stations. The project would reinforce transit, with a pedestrian emphasis. The project includes development of public common spaces, public areas, and recreation areas that include pedestrian activities.

To promote internal pedestrian circulation, a linear greenbelt with a meandering pathway is provided along the Hotel Circle South frontage and will connect to the recreational trail within the property. The public access trail will travel along the service road on the west side of the property and join the recreational trail located within already disturbed areas along the base of the southern hillside. The recreational trail will provide the ability to walk from Hotel Circle South to the south side of the property. The outdoor plazas will provide open pedestrian circulation.

Specifically, the project will provide an 8-foot parkway and 5-foot sidewalk for connectivity along Hotel Circle South making it more friendly and accessible to pedestrians. Additionally, extra bicycle parking has been added to the project to help facilitate the project as a “destination” for cyclists riding through Mission Valley. Within the project, accessible pathways connect pedestrians to the various project amenities which are completely open to the public. These amenities include garden-like landscaping with shade trees and drought tolerant planting, access to over 25,000 square feet of plaza space with plantings, a water feature that functions with or without water, shaded seating, cafe and restaurant access, and seating and views to the adjacent restored hillsides. The project would also provide trail linkages through the site as well as educational opportunities along the pedestrian trail on the southern hillside. This trail would be a mix of concrete and stabilized decomposed granite to accommodate visitors and employees.

4. *Would the proposed project implement the City of San Diego’s Bicycle Master Plan to increase bicycling opportunities?*

Considerations for this question:

- *Does the proposed project circulation system include bicycle improvements consistent with the Bicycle Master Plan?*
- *Does the overall project circulation system provide a balanced, multi-modal, “complete streets” approach to accommodate mobility needs of all users?*

Bicycle modes of transportation are strongly encouraged within the project area. The bicycle infrastructure in the project vicinity includes Class I, II, and III facilities and they provide linkages to the regional bicycle system.

Class I bike paths or also shared-use or multi-use paths are paved right-of-way for exclusive use by bicyclists, pedestrians and those using non-motorized modes of travel. They are separated from vehicular traffic and can be constructed in roadway right-of-way or exclusive right-of-way. Class I bike paths in the vicinity of the project area include the San Diego River Pathway, located along the San Diego River under State Route 163.

Class II bike lanes are defined by pavement striping and signage used to allocate a portion of a roadway for exclusive or preferential bicycle travel. Bike lanes are one-way facilities on either side of a roadway. Class II bike lanes in the vicinity of the project are located along Camino del Rio North, Friars Road, Hotel Circle North, and Hotel Circle South.

Class III bike routes provide shared use with motor vehicle traffic within the same travel lane. Designated by signs, but no striping, bike routes provide continuity to other bike facilities or designate preferred routes through corridors with high demand. Class III bicycle routes are located along Camino De La Reina and Hotel Circle South (west of Taylor Street) in the project vicinity.

The project proposes a diverse mix of visitor serving, commercial, recreational, educational, and public and private uses that are accessible to adjacent uses, bike paths, and the river by multi-use pathways and public transportation. Internal drives would be designed to facilitate alternative transportation modes including walking and bicycling. Additionally, as summarized in the previous table, the project would implement TDM measures including the provision of bicycle storage areas and on-site shower facilities. The project would implement the City's Bicycle Master Plan to increase bicycling opportunities.

5. *Would the proposed project incorporate implementation mechanisms that support Transit Oriented Development?*

Considerations for this question:

- *Does the proposed project include new or expanded urban public spaces such as plazas, pocket parks, or urban greens in the TPA?*
- *Does the land use and zoning associated with the proposed project increase the potential for jobs within the TPA?*
- *Do the zoning/implementing regulations associated with the proposed project support the efficient use of parking through mechanisms such as: shared*

parking, parking districts, unbundled parking, reduced parking, paid or time-limited parking, etc.?

The Legacy International Center (Project) proposes the redevelopment of the existing Mission Valley Resort property into a mixed-use development consisting of religious, lodging, administrative, recreational, and commercial uses dispersed among three buildings: 1) a 63,477-square-foot pavilion (with a restaurant, gift shops, learning center, and theater), 2) a 41,071-square-foot “Legacy Vision Center” building (with a welcome center, catacombs, a dome theater, a museum, a gallery, and retail uses), and 3) a 7,783-square-foot outdoor plaza, and a five-story 88,120-square-foot Legacy Village building containing a 127-room hotel, a restaurant, and a wellness center. This mix of uses is anticipated to create the need for an estimated 1,100 construction jobs over the two-year demolition and construction efforts and an estimated 185 permanent jobs versus the approximate 38 jobs at the existing facility.

The project’s site design includes a pedestrian network (over ½ mile) of paths and would be extensively landscaped to provide garden-like connections to the amenities mentioned above. This pedestrian network would provide direct connections to the projects main outdoor features: wailing wall, prayer garden, water feature, and plazas. Along the paths would be shade and seating elements that would be available for public use. The project would also provide bicycle parking in excess of the requirement to facilitate the opportunity to create a destination for local cyclists. All of these mixed uses contribute in supporting transit-oriented development.

See also the discussion provided in Step 2: CAP Strategies Consistency. Future development would implement the measures summarized in the TDM Measures table. Potential measures include providing designated parking for a combination of low-emitting, fuel-efficient, and carpool/vanpool vehicles and developing transportation demand management programs that include participation in the SANDAG iCommute program, electric charging stations, and partial transit subsidies for employees. By creating a mixed-use project with visitor-serving and employment opportunities along with on-site services within a TPA combined with expanded recreational opportunities, the project would support Transit Oriented Development. See also the discussions provided in response to CAP Strategies 1 through 4.

The project proposes a mixed-use development consisting of religious, lodging, administrative, recreational, and commercial uses. To account for the mixed-use and synergy between the various land uses, shared parking is assumed to maximize efficiency.

6. *Would the proposed project implement the Urban Forest Management Plan to increase urban tree canopy coverage?*

Considerations for this question:

- *Does the proposed project provide at least three different species for the primary, secondary and accent trees in order to accommodate varying parkway widths?*

- *Does the proposed project include policies or strategies for preserving existing trees?*

- *Does the proposed project incorporate tree planting that will contribute to the City's 20 percent urban canopy tree coverage goal?*

There are existing trees included in the landscaped areas immediately outside the existing and developed project area. These trees would be preserved, and the area would be further enhanced by the restoration of existing areas with native plants and trees. The project would create an urban tree canopy coverage of at least 15 percent, with a goal of achieving coverage of 20 percent at full maturity. As discussed, the project would include parks, plazas, trails, and open areas. These areas would be landscaped with a variety of native and adapted trees. Tree species will be selected based on their location, shade, accent, screening, and habitat value; ultimately providing a diverse palette that will enhance the Mission Valley Corridor. The hillsides and perimeter of the site will be landscaped with native and near native plants and trees to preserve and enhance the natural character of the valley edges while requiring little supplemental water after establishment. New parking areas would be required to be planted with trees and other landscaping pursuant to City requirements, contributing to the urban tree canopy coverage. By converting the site from an expansive and sparsely planted parking lot to a mixed-use development that would include trees and native landscaping consistent with City standards, the project would implement the Urban Forest Management Plan and increase the urban tree canopy coverage.

The proposed project and associated discretionary actions would be consistent with and would implement the CAP. Therefore, impacts associated with GHG emissions would be less than significant.